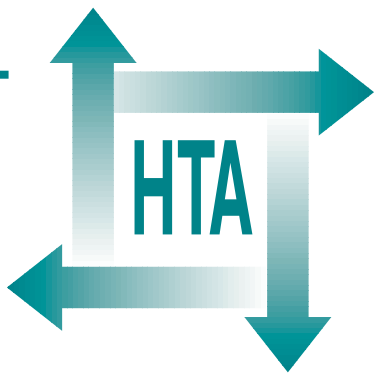
Health Technology Assessment 2000; Vol. 4: No. 13

Review

The effectiveness of domiciliary health visiting: a systematic review of international studies and a selective review of the British literature

R Elkan
D Kendrick
M Hewitt
JJA Robinson
K Tolley
M Blair
M Dewey
D Williams
K Brummell

Health Technology Assessment
NHS R&D HTA Programme



Standing Group on Health Technology

Current members

Chair:
Professor Kent Woods
Professor of Therapeutics,
University of Leicester

Professor Martin Buxton
Director & Professor of
Health Economics,
Health Economics
Research Group,
Brunel University

Professor Shah Ebrahim
Professor of Epidemiology
of Ageing, University of Bristol

Professor Francis H Creed
Professor of
Psychological Medicine,
Manchester Royal Infirmary

Professor John Gabbay
Director, Wessex Institute
for Health Research
& Development

Professor Sir John
Grimley Evans
Professor of Clinical Geratology,
Radcliffe Infirmary,
Oxford

Dr Tony Hope
Clinical Reader in Medicine,
Nuffield Department of
Clinical Medicine,
University of Oxford

Professor Richard Lilford
Regional Director of R&D,
NHS Executive West Midlands

Dr Jeremy Metters
Deputy Chief Medical Officer,
Department of Health

Professor Maggie Pearson
Regional Director of R&D,
NHS Executive North West

Mr Hugh Ross
Chief Executive,
The United Bristol
Healthcare NHS Trust

Professor Trevor Sheldon
Joint Director, York Health
Policy Group, University of York

Professor Mike Smith
Faculty Dean of Research
for Medicine, Dentistry,
Psychology & Health,
University of Leeds

Dr John Tripp
Senior Lecturer in Child
Health, Royal Devon and Exeter
Healthcare NHS Trust

Professor Tom Walley
Director,
Prescribing Research Group,
University of Liverpool

Dr Julie Woodin
Chief Executive,
Nottingham Health Authority

Past members

Professor Sir Miles Irving*
Professor of Surgery,
University of Manchester,
Hope Hospital, Salford

Dr Sheila Adam
Department of Health

Professor Angela Coulter
Director, King's Fund,
London

Professor Anthony Culyer
Deputy Vice-Chancellor,
University of York

Dr Peter Doyle
Executive Director, Zeneca Ltd,
ACOST Committee on Medical
Research & Health

Professor John Farndon
Professor of Surgery,
University of Bristol

Professor Charles Florey
Department of Epidemiology
& Public Health, Ninewells
Hospital & Medical School,
University of Dundee

Professor Howard
Glennester
Professor of Social Science
& Administration, London
School of Economics &
Political Science

Mr John H James
Chief Executive,
Kensington, Chelsea &
Westminster Health Authority

Professor Michael Maisey
Professor of
Radiological Sciences,
Guy's, King's & St Thomas's
School of Medicine & Dentistry,
London

Mrs Gloria Oates
Chief Executive,
Oldham NHS Trust

Dr George Poste
Chief Science & Technology
Officer, SmithKline Beecham

Professor Michael Rawlins
Wolfson Unit of
Clinical Pharmacology,
University of Newcastle-
upon-Tyne

Professor Martin Roland
Professor of General Practice,
University of Manchester

Professor Ian Russell
Department of Health Sciences
& Clinical Evaluation,
University of York

Dr Charles Swan
Consultant Gastroenterologist,
North Staffordshire
Royal Infirmary

* Previous Chair

Details of the membership of the HTA panels, the NCCHTA Advisory Group and the HTA Commissioning Board are given at the end of this report.

How to obtain copies of this and other HTA Programme reports.
An electronic version of this publication, in Adobe Acrobat format, is available for downloading free of charge for personal use from the HTA website (http://www.hta.ac.uk). A fully searchable CD-ROM is also available (see below).

Printed copies of HTA monographs cost £20 each (post and packing free in the UK) to both public **and** private sector purchasers from our Despatch Agents.

Non-UK purchasers will have to pay a small fee for post and packing. For European countries the cost is £2 per monograph and for the rest of the world £3 per monograph.

You can order HTA monographs from our Despatch Agents:

– fax (with **credit card** or **official purchase order**)
– post (with **credit card** or **official purchase order** or **cheque**)
– phone during office hours (**credit card** only).

Additionally the HTA website allows you **either** to pay securely by credit card **or** to print out your order and then post or fax it.

Contact details are as follows:

HTA Despatch
c/o Direct Mail Works Ltd
4 Oakwood Business Centre
Downley, HAVANT PO9 2NP, UK

Email: orders@hta.ac.uk
Tel: 02392 492 000
Fax: 02392 478 555
Fax from outside the UK: +44 2392 478 555

NHS libraries can subscribe free of charge. Public libraries can subscribe at a very reduced cost of £100 for each volume (normally comprising 30–40 titles). The commercial subscription rate is £300 per volume. Please see our website for details. Subscriptions can only be purchased for the current or forthcoming volume.

Payment methods

Paying by cheque
If you pay by cheque, the cheque must be in **pounds sterling**, made payable to *Direct Mail Works Ltd* and drawn on a bank with a UK address.

Paying by credit card
The following cards are accepted by phone, fax, post or via the website ordering pages: Delta, Eurocard, Mastercard, Solo, Switch and Visa. We advise against sending credit card details in a plain email.

Paying by official purchase order
You can post or fax these, but they must be from public bodies (i.e. NHS or universities) within the UK. We cannot at present accept purchase orders from commercial companies or from outside the UK.

How do I get a copy of *HTA on CD*?

Please use the form on the HTA website (www.hta.ac.uk/htacd.htm). Or contact Direct Mail Works (see contact details above) by email, post, fax or phone. *HTA on CD* is currently free of charge worldwide.

The website also provides information about the HTA Programme and lists the membership of the various committees.

The effectiveness of domiciliary health visiting: a systematic review of international studies and a selective review of the British literature

R Elkan[1*]
D Kendrick[2]
M Hewitt[3]
JJA Robinson[4]
K Tolley[5]
M Blair[6]
M Dewey[7]
D Williams[8]
K Brummell[9]

[1] School of Nursing, Postgraduate Division, University of Nottingham, UK
[2] Division of General Practice, School of Community Health Sciences, University of Nottingham, UK
[3] Evaluation, Audit and Research Department, Kings Mill Centre for Health Care Services, Sutton-in-Ashfield, UK
[4] Emeritus professor, School of Nursing, Postgraduate Division, University of Nottingham, UK
[5] Central Research, Pfizer Limited, Sandwich, UK
[6] Department of Paediatrics, Imperial College School of Medicine, Northwick Park and St Mark's Hospitals (North-West London Hospitals NHS Trust), Harrow, UK
[7] Trent Institute for Health Services Research, School of Community Health Sciences, University of Nottingham, UK
[8] Cotgrave Health Centre, Nottingham Community Health NHS Trust, UK
[9] Nottingham City Central Primary Care Group, UK

[*] Corresponding author

Competing interests: none declared

Published September 2000

This report should be referenced as follows:

Elkan R, Kendrick D, Hewitt M, Robinson JJA, Tolley K, Blair M, *et al.* The effectiveness of domiciliary health visiting: a systematic review of international studies and a selective review of the British literature. *Health Technol Assess* 2000;**4**(13).

Health Technology Assessment is indexed in *Index Medicus*/MEDLINE and *Excerpta Medica*/EMBASE. Copies of the Executive Summaries are available from the NCCHTA website (see overleaf).

NHS R&D HTA Programme

The overall aim of the NHS R&D Health Technology Assessment (HTA) programme is to ensure that high-quality research information on the costs, effectiveness and broader impact of health technologies is produced in the most efficient way for those who use, manage and work in the NHS. Research is undertaken in those areas where the evidence will lead to the greatest benefits to patients, either through improved patient outcomes or the most efficient use of NHS resources.

The Standing Group on Health Technology advises on national priorities for health technology assessment. Six advisory panels assist the Standing Group in identifying and prioritising projects. These priorities are then considered by the HTA Commissioning Board supported by the National Coordinating Centre for HTA (NCCHTA).

This report is one of a series covering acute care, diagnostics and imaging, methodology, pharmaceuticals, population screening, and primary and community care. It was identified as a priority by the Primary and Community Care Panel and funded as project number 94/36/04.

The views expressed in this publication are those of the authors and not necessarily those of the Standing Group, the Commissioning Board, the Panel members or the Department of Health. The editors wish to emphasise that funding and publication of this research by the NHS should not be taken as implicit support for the recommendations for policy contained herein. In particular, policy options in the area of screening will be considered by the National Screening Committee. This Committee, chaired by the Chief Medical Officer, will take into account the views expressed here, further available evidence and other relevant considerations.

Reviews in *Health Technology Assessment* are termed 'systematic' when the account of the search, appraisal and synthesis methods (to minimise biases and random errors) would, in theory, permit the replication of the review by others.

Criteria for inclusion in the HTA monograph series
Reports are published in the HTA monograph series if (1) they have resulted from work either prioritised by the Standing Group on Health Technology, or otherwise commissioned for the HTA programme, and (2) they are of a sufficiently high scientific quality as assessed by the referees and editors.

Series Editors: Andrew Stevens, Ruairidh Milne, Ken Stein and John Gabbay
Monograph Editorial Manager: Melanie Corris

The editors have tried to ensure the accuracy of this report but cannot accept responsibility for any errors or omissions. They would like to thank the referees for their constructive comments on the draft document.

ISSN 1366-5278

Published by Core Research, Alton, on behalf of the NCCHTA.
Printed on acid-free paper in the UK by The Basingstoke Press, Basingstoke.

Copies of this report can be obtained from:

The National Coordinating Centre for Health Technology Assessment,
Mailpoint 728, Boldrewood,
University of Southampton,
Southampton, SO16 7PX, UK.
Fax: +44 (0) 23 8059 5639 Email: hta@soton.ac.uk
http://www.ncchta.org

Contents

List of figures

List of tables

List of abbreviations

CAPI	Child Abuse Potential Inventory
CBA	cost–benefit analysis
CDP	Child Development Programme
CDT	child development team
CES–D	Centre for Epidemiological Studies – Depression
CHS	child health surveillance
CI	confidence interval
df	degrees of freedom
DPT	diphtheria–pertussis–tetanus
EPDS	Edinburgh Postnatal Depression Scale
GP	general practitioner
HOME	Home Observation for Measurement of the Environment
HTA	Health Technology Assessment
HVA	Health Visitors' Association
IHDP	Infant Health and Development Program
MMR	measles–mumps–rubella
OR	odds ratio
PHN	public health nursing
QALY	quality-adjusted life year
RCT	randomised controlled trial
SD	standard deviation
SES	socio-economic status*
UKCC	United Kingdom Central Council for Nursing, Midwifery and Health Visiting

*Used only in tables and appendices

Executive summary

Objectives

The objectives were to:

- conduct a systematic review of the effectiveness and cost-effectiveness of domiciliary health visiting (Part I)
- conduct a selective review of the British health visiting literature (Part II)
- provide recommendations for future research.

Methods

Data sources

An extensive search of electronic databases, relevant journals and reference lists was undertaken. Key individuals and organisations were also contacted.

Study selection

Studies assessing the outcomes of home visiting by British health visitors were included. In addition, non-British studies in which home visiting was undertaken by personnel with responsibilities within the remit of British health visitors were also included.

Other relevant studies, which did not meet the inclusion criteria, were also retrieved and are discussed separately in Part II.

Studies that assessed the process of home visiting by British health visitors and those that analysed policy issues are also discussed in Part II.

Data extraction (Part I)

Data were extracted from each study according to an agreed procedure. The quality of studies was assessed using a standardised quality checklist.

Data analysis and synthesis (Part I)

Where appropriate, quantitative data were entered into a meta-analysis. Data were also discussed in a narrative manner.

Results (Part I)

Parents and children

There was evidence to suggest that home visiting was associated with:

- improvements in parenting skills and in the quality of the home environment
- amelioration of several child behavioural problems, including sleeping behaviour
- improved intellectual development among children, especially among children with a low birth weight or failure to thrive
- a reduction in the frequency of unintentional injury, as well as a reduction in the prevalence of home hazards
- improvements in the detection and management of postnatal depression
- enhancement of the quality of social support to mothers
- improved rates of breastfeeding.

There was insufficient evidence to show an effect of home visiting on the following outcomes because of the small number of studies available (four studies or fewer): physical development (weight and height); the incidence of child illness; mothers' use of informal community resources, or the size of their informal support network; children's diet; mothers' return to education, participation in the workforce, or use of public assistance; family size or number of subsequent pregnancies.

There was no evidence that home-visiting was effective in: improving children's motor development; increasing the uptake of immunisation; increasing the uptake of other preventive child health services; reducing the use of emergency medical services; reducing hospital admission rates.

In view of the problem of surveillance bias, no conclusions could be drawn concerning the effectiveness of home visiting in reducing the incidence of child abuse and neglect.

Elderly people

There was evidence to suggest that home visiting to elderly people was associated with:

- reduced mortality among the general elderly population and frail 'at-risk' elderly people
- reduced admission to long-term institutional care among the frail 'at-risk' elderly population.

There was insufficient evidence to show an effect of home visiting on the following outcomes because of the small number of studies available (four studies or fewer): the duration of elderly people's stay in hospital; the physical health of elderly people.

There was no evidence that home visiting was effective in: reducing admission to hospital; reducing admission to long-term institutional care among the general elderly population; improving functional status; improving psychological symptoms; enhancing elderly people's well-being or their quality of life.

Cost-effectiveness

Findings from the limited number of studies assessing cost-effectiveness indicate that there is a potential for home visits to parents and their children, and to elderly people and their carers, to produce net cost savings, in particular hospital cost savings.

Limitations of the studies

- The majority of studies were too small and lacked sufficient power to detect effects of the intervention. A number were non-randomised and had unblinded outcome assessment or used self-reported outcome measures. Many studies did not report their results in sufficient detail to be included in a meta-analysis.
- Many studies were not British; hence, extrapolation of the results of mostly North American studies to the British context was difficult.
- Most studies concentrated on those at 'high risk' of adverse outcomes; hence, extrapolation of the results to those at differing levels of risk was also difficult.
- Many interventions were multifaceted; hence, the independent effect of home visiting could not be assessed.

Results (Part II)

Relevant British studies, which did not meet the inclusion criteria for Part I, were retrieved and discussed, including several higher degree theses. Client groups not covered in Part I, including travellers, the homeless, and children with special needs, are discussed in Part II, together with issues concerning British child health surveillance and domestic violence.

Part II of the report describes process issues around the identification and meeting of needs through home visiting; analyses the mirco-context of health visitor/client interaction; and demonstrates how health visiting highlights policy tensions in British healthcare in general.

In addition, Part II highlights and addresses the following questions:

- Is the health visitor a professional family friend or a statutory agent?
- What is the evidence concerning the effectiveness of professional versus non-professional home visiting?
- What are the strengths and weaknesses of different 'models' of intervention (e.g. the disease model versus an ecological model)?
- Should health visiting remain a universal service providing health promotion and prevention to all, or should it become a secondary and tertiary support service targeted only on those identified as having problems?

Conclusions

Implications for health visiting (Parts I and II)

- Several reviews of the existing literature support making the content, duration and intensity of home visits appropriate and sensitive to the needs of clients.
- It is considered that professional judgement is valid for decisions about where to target home visiting resources.
- Expectations of home visiting by health visitors should be realistic. Home visiting by itself can be insufficient to bring about radical improvements in health and social outcomes.
- The literature suggests that non-professional home visitors can play a role, but that they require guidance, supervision and support from professionals. However, more complex difficulties may not be suitable for non-professional home visiting.
- The evidence suggests that home visiting interventions that are restricted to the pursuit of only a narrow range of outcomes are less effective than more broadly based interventions in which the multiple needs of individuals and families are addressed.

Recommendations for future research – Part I

- There is a need for more studies with rigorous experimental designs to evaluate the effectiveness of home visiting by British health visitors. Such studies will require sufficient power to detect effects, random assignment to treatment

groups and standardised measures of outcome wherever possible. Results must be presented in sufficient detail to enable their inclusion in a meta-analysis. The rationale and objectives of the study should be clearly stated, and measures of outcome chosen carefully to reflect these. The content of the intervention should always be described.
- There is a need to undertake further studies comparing the effectiveness and cost-effectiveness of professional and non-professional home visitors.
- There is a need for a full economic evaluation of home visiting by health visitors using a randomised controlled trial design.
- There is a need to establish a substantial British knowledge base. The knowledge base in this country is very small indeed compared with the USA. Once British evidence has accumulated it will be necessary to undertake a systematic review of British studies.

Part II

- There is a need for socio-legal, policy and ethical studies that explore and analyse the tensions and dilemmas in health visiting identified in this review.
- There is a need for a comprehensive survey of the roles and functions currently being undertaken by British health visitors.

Chapter 1

Introduction

Background and context of the review

The research brief

Our brief was to review the literature concerning both the general effectiveness and the cost-effectiveness of home visiting by health visitors. Part I of this report fulfils this brief by reviewing controlled studies of home visiting. The studies we have reviewed were conducted not only in Britain but also in other countries. Since the majority were conducted in the USA, we considered it necessary, in Part II of this report, to discuss a selection of British studies that did not meet our criteria for inclusion in the main review in Part I.

Our review of controlled studies in Part I makes no attempt to explore the underlying philosophy and goals of home visiting. This we have left to Part II of the report, which also explores further some of the issues and debates that are of most contemporary relevance in Britain.

Finally, in Part III, we draw together recommendations arising from Parts I and II.

The research objectives

The objectives of our review were as follows.

- To assess the effectiveness of home visiting in:
  - increasing rates of uptake of appropriate health and community services
  - reducing rates of child abuse and unintentional injury in childhood
  - increasing knowledge
  - changing attitudes and beliefs
  - changing behaviours
  - improving client satisfaction
  - improving physical, social and psychological health status
  - improving the quality of life.
- To assess, wherever possible, not only the effectiveness but also the cost-effectiveness of home visiting.
- To assess the impact of home visiting on a range of client groups, including both the young and the elderly.
- To discuss the relative merits of professional versus non-professional home visiting.
- To discuss the relative merits of universal versus targeted home visiting strategies.
- To identify gaps in the literature and to establish where further primary research is needed.

Effectiveness, efficiency, responsiveness to clients and equity

Effectiveness

The prime expectation of any health visiting intervention is that it should bring about improved outcomes. The key to assessing effectiveness is therefore the measurement of outcomes, and the ability to attribute these outcomes to the intervention. Part I of this report is centrally concerned with literature that focuses on the outcomes of home visiting, and relates these outcomes to the intervention.

The key methodology for assessing effectiveness is the randomised controlled trial (RCT). Part I is devoted to research studies, the majority of which employ the methodology of the controlled trial. Most of these studies have been conducted in the USA, but the few British studies employing this design are also discussed in Part I.

A selective overview of British studies that do not employ a control group has been undertaken in chapter 6.

Efficiency

There is very little research concerning the cost-effectiveness, or efficiency, of domiciliary health visiting. The literature that does exist is fully reviewed, and has been assessed against the following three criteria (see chapter 5):

- Scope: what is the effectiveness and cost-effectiveness of home visiting versus alternative strategies for achieving the same outcomes?
- Generalisability: are findings of cost-effectiveness in one context generalisable to different contexts?
- Comparability: is it possible to compare the findings from different studies? Is meta-analysis possible?

The key variables affecting cost-effectiveness are identified, and gaps in the current state of knowledge are highlighted.

Responsiveness to clients

No assessment of the effectiveness of health visiting can ignore the views of clients. First, it is not possible to assess the extent to which health visiting is successful in bringing about such 'soft' outcomes as 'improved self-esteem' without consulting clients. In any assessment of the psychological and social outcomes of interventions, the subjective assessments of clients must be considered as important evidence of the effectiveness or otherwise of an intervention. Secondly, there may be differences of opinion between health professionals and clients about which are the most important outcomes to pursue. Outcomes that are high on the list of priorities of health professionals or purchasers may be a low priority for clients.[1]

The studies reviewed in Part I have been examined for what they tell us about client satisfaction (chapter 4). Part II also discusses what factors make for a successful relationship between professional and client (chapter 6).

Equity

Questions of equity are becoming important as purchasers, managers and practitioners are having to arrive at decisions about whether to continue to provide universal home visiting services or whether to target their efforts on selected high-risk or needy groups.

Universal versus targeted services. A key question, addressed in chapter 9, is whether health visiting remains a universal service providing health promotion and prevention to all, or becomes a secondary and tertiary support service targeted only on those identified as having problems.[2–8]

Those who advocate targeted services believe that universal services are not only wasteful of scarce health visiting resources, but also fail to address the needs of both those who slip through the net of universal services and those for whom universal provision is insufficient.[9]

By contrast, those who advocate a universal service point to its advantages in reaching those vulnerable groups in society who are least able or likely to access services, and might otherwise be deprived of help. Advocates of universal services argue that without universal surveillance it is not possible to identify those in need of a greater health visiting input. Moreover, following Rose,[10] some advocates of universal services point out that the bulk of society's health and social problems occur in the large number of people who are not at especially high risk rather than in the few who are at increased risk. Targeting services on a relatively small number of high-risk individuals would thus have little impact on the total burden of ill-health and social problems in the population.[10]

The parameters of home visiting: the diversity of interventions

"On the outside, home visiting programs look similar. An individual makes periodic visits to a family's home to strengthen and support individual or family well being. On the inside, home visiting programs can be remarkably dissimilar."[11]

Home visiting is not a single, uniform service. Indeed, home visiting is not a service at all but is rather a strategy for delivering a service.[12] Home visiting programmes do not have a single goal or purpose, but rather they encompass a range of goals, and a range of strategies to achieve these goals.[11–14] Gomby and colleagues[12] have usefully summarised the main dimensions on which home visiting programmes vary. Home visiting interventions differ in the backgrounds and experience of their staff (professional, paraprofessional and volunteer home visitors); in their target populations (everyone within a given service area, or particular subgroups such as teenage mothers or those on a low income); their target client groups (e.g. children, the elderly, the family); the intensity and duration of the services provided (the length of the home visit; the frequency of visits and the length of the programme); the administrative auspices (programmes that stand alone, or those offered under the auspices of an agency such as a health department, or voluntary body); and the extent to which home visiting is the primary service provided, or whether other services, such as those based at a health centre, are also provided.

There are also differences in the goals pursued by home visiting programmes. Some focus on a single goal, others on multiple goals. Some goals are narrow and specific, others are more widely conceived. Finally, programmes further differ in the strategies used to achieve their goals. Some deliver an educational curriculum within the home visit. Others use the home visit to serve the purposes of case-finding, needs assessment, or information and referral.[12]

Appendix 6 of this report describes a framework for evaluating home visiting developed by

Halpern,[14] which classifies the diverse goals and approaches adopted in home visiting interventions. Halpern provides a useful structure by which to evaluate home visiting interventions.

Models of home visiting

All of the studies reviewed in Part I (chapter 4) rely, either implicitly or explicitly, on a particular model of health visiting. This model shapes the kinds of outcomes pursued, as well as what is perceived as a successful intervention. Some of the studies reviewed are based on a disease model, in which the focus is often on the achievement of reductions in morbidity and mortality. Other studies are based on more sociological models of health, notably the ecological model, which points to the range of social influences on health. The outcomes pursued in this model include the goals of integrating individuals and families into the community, and improving their access to services and resources.

An exploration of various models of health visiting is important to an understanding of the rationale and findings of the studies reviewed in chapter 4, and this report contains a discussion of various models of domiciliary health visiting (see chapter 8).

Methodological difficulties associated with the study of home visiting

A number of methodological problems have been highlighted in the health visiting literature, all of which are apparent in the literature we have reviewed. First, there is the problem of operationalising such broad health visiting outcomes as the 'prevention of ill-health' and the 'promotion of health'.[15–20] Secondly, there is the problem of how to measure particular outcomes, such as enhanced self-esteem or improved parenting capacity. Thirdly, some of the consequences of home visiting may take some time to become apparent, making such outcomes unsuitable for assessment in the short term.[21,22] Fourthly, some outcomes may be only temporary and dependent on the home visitor's continued input whereas others may be of life-long duration.[21,23] Finally, there is the problem of attribution. There are many factors that can affect the outcomes of care, some of which are outside the influence of healthcare professionals – or any other type of professional. Attempting to disentangle the precise contribution of home visiting by health visitors from the many other contributory factors is not easy.

RCTs can help to overcome some of the methodological problems involved in determining the effectiveness of health visiting. However, it is widely acknowledged that assessing the effectiveness of a particular form of service provision (such as home visiting) is a far more complex and difficult task than assessing a discrete medical intervention. It is extremely difficult to carry out the 'gold standard' of medical evaluation, the RCT, in relation to health visiting because of the complexity of delivery, the long follow-up period, and the great potential for contamination between intervention and controls.[24] Furthermore, although RCTs may tell us about the effectiveness of an intervention under atypical and ideal conditions, for example where the health visitors involved in the trial are experienced and highly specialised, as in Luker's 1982 study,[17] the findings of RCTs cannot always be generalised to 'real life' situations where hard-pressed generalist health visitors are working under a range of demands upon their time and expertise. Of course, none of the difficulties associated with the RCT is unique to the study of home visiting. The RCT is the most rigorous form of assessing the effectiveness of any type of intervention, and due weight is given in this report to such studies.

The scope of this review

The role of the health visitor in searching for defects and impairments has been largely neglected in our main review of the literature (see chapter 4). This is for two main reasons. First, much routine surveillance work is now carried out in the clinic setting rather than in the home environment. Controlled studies of health visiting outside of the home environment would not have been identified by our literature search strategy (see appendix 2). Secondly, our literature search identified no studies which assessed the effectiveness of health visitor home visiting in detecting defects and impairments which also met our inclusion criteria for the main review (see chapter 4). However, questions concerning the role of the British health visitor in child health surveillance (CHS) are discussed in our examination of the British qualitative literature (see chapter 6).

No attempt has been made to evaluate controlled studies of services to children with chronic or

terminal illness or disability. Although some such services are delivered by health visitors, others are delivered by professionals with different backgrounds. This is a large and important domain of home visiting, and we considered that it merited a review in its own right. Studies belonging to this domain which were found in the course of our literature search are contained in our list of excluded studies (see appendix 3, *Table 47*). Although we have excluded this domain of home visiting from our main review in chapter 4, in chapter 6 we discuss health visitor services to families with children with special needs.

The structure of the report

This report is divided into three parts. In Part I, following this introductory chapter, chapter 2 describes the findings of previous literature reviews. This chapter contains a summary of the key findings of previous literature reviews, and discusses the implications of the findings of previous literature reviews both for future research and for the future of home visiting. Chapter 3 describes the methods employed to carry out our own review of the literature. Our inclusion criteria for eligibility for each study in the overall review are explained, our search strategy described and our data sources listed. This chapter also describes the methods of meta-analysis that we employed. Chapter 4 presents the findings of our main review of controlled trials. This chapter is divided into a series of sections, each discussing different domains of home visiting. Each section is concluded with a summary of its main findings. The chapter concludes with an examination of the methodological limitations of the reviewed studies. Chapter 5 reviews specifically those studies that examined the cost-effectiveness of home visiting.

Part II explores further some of the questions raised in Part I of the report. The purpose of Part II of this report is threefold: first, to redress the focus on mainly North American studies of home visiting, and to focus instead on the British literature; secondly, to cover some of the domains not covered in Part I, such as home visiting to homeless and travelling families; and thirdly to explore some of the issues and debates surrounding home visiting in a more discursive manner than was appropriate in Part I.

Chapter 6 discusses some of the British studies excluded from our main literature review, and other qualitative and professional literature relating to British health visiting. This chapter includes a discussion of the findings of several higher degree theses. Chapter 7 discusses the relative effectiveness of employing professional versus non-professional home visitors. Chapter 8 discusses various models of health visiting as a means of locating the studies we have reviewed in Part I in their theoretical context. Chapter 9 explores the issue of universal versus targeted health visiting services. This chapter includes a discussion of the relevance of the work of the eminent epidemiologist the late Geoffrey Rose to the question of universal versus targeted services.[10]

The report is concluded in Part III, chapter 10, with implications for health visiting and assessor recommendations. The chapter is divided into two parts: the first containing recommendations from Part I of this report and the second, recommendations from Part II.

Part I

Chapter 2

Previous reviews of the literature

Introduction

In this chapter we review previous reviews of the literature in the fields of maternal and child health, including specific reviews concerned with child injury and child abuse, and reviews specifically concerned with postnatal depression. (Excluded reviews are listed in appendix 3, *Table 50*.) The main findings from all the reviews are summarised. The chapter concludes with a discussion of the implications of previous reviews of the literature.

Maternal and child health: review articles

Six previous reviews of the effectiveness of home visiting for mothers and children are discussed below.[25–30]

Combs-Orme and colleagues (1985)[25]: home visiting by public heath nurses

Combs-Orme and colleagues[25] reviewed eight studies on the effectiveness of home visiting by public health nurses, undertaken between 1963 and 1983.[31–38]

The search strategy

Studies were located through a computer search of the MEDLARS and Dissertation Abstracts International databases. Combs-Orme and colleagues[25] do not report how they selected studies, nor whether any assessment of the quality of studies was undertaken.

Data extraction

Seven characteristics of the primary research studies were abstracted from each report:

- the process studied (e.g. teaching, counselling, support)
- the research design (experimental or quasi-experimental)
- the sample characteristics (e.g. race, income, marital status)
- the reliability of the outcome measures used
- the statistical methods used
- the treatment effects
- the sample size.

Table 33 (appendix 1) summarises the data concerning the first four of these seven characteristics. *Table 34* (appendix 1) summarises the data concerning the final three. *Table 34* also includes Combs-Orme and colleague's calculations of the power of each study.[25]

Results

Combs-Orme and colleagues[25] found some evidence that public health nursing (PHN) could be effective. Public health nurses could effectively impart health knowledge to high-risk mothers.[34,37,38] They could also bring about positive changes in mothers' attitudes,[31,36] as well as changes in parenting practices; these latter changes were associated in one study with improvements in the health and development of infants.[35] However, in two studies, Combs-Orme and colleagues failed to find significant treatment effects.[32,33]

Discussion of results and conclusions

Combs-Orme and colleagues conclude that "while the public nursing literature does not provide convincing evidence of the effectiveness of PHN, neither does it indicate that PHN is not effective".[25] The reviewers are at pains to stress that their failure to find significant treatment effects may indicate not an ineffective intervention, but rather inadequacies in the research design and methods. Like Roberts and colleagues,[39] and Olds and Kitzman,[30] who reviewed studies of child abuse, Combs-Orme and colleagues suggest that inadequacies of the research design are likely to result in an underestimation rather than an overestimation of the effectiveness of interventions.

Combs-Orme and colleagues[25] discussed two major problems inherent in the eight studies they reviewed. The first was that none of the eight studies discussed in adequate detail why a particular service was being provided, or how the service being provided was intended to bring about a particular outcome. Drawing on the theoretical writings of Freeman,[40] Combs-Orme and colleagues[25] suggest that the target population for home visits should be people with specific, identified needs, and that the services being offered should be geared towards achieving

particular goals. None of the studies appeared to relate the interventions to the needs of their clients, and none discussed the relationship between the intervention and its ultimate goal. Combs-Orme and colleagues thus conclude that it is unsurprising that services which lacked any particular goal or outcome, and which were delivered to people not assessed to be in need of them, were not found to be effective.

The second problem from which the eight studies suffered was their low statistical power. There was very little *a priori* probability of finding any significant effects of the interventions – even where they did exist. Small samples were further diminished by high attrition, which only served to exacerbate the problem of insufficient power.

Ciliska and colleagues (1994)[29]: the effectiveness of home visiting

A systematic overview of studies of the effectiveness of home visiting by professionals was undertaken in Canada by Ciliska and colleagues.[29,41] Ciliska and colleagues concentrated on 14 reports of empirical studies involving a range of client groups, interventions and outcomes.[42–55]

The search strategy

A search of two computerised databases, MEDLINE and CINAHL, was conducted for the years 1979–93. An on-line search of prominent authors in the field was undertaken for the years 1986–93. Key journals were hand-searched from 1990, and the contents lists of a large number of journals were reviewed monthly between September 1992 and December 1993 for relevant articles. Published bibliographies and government documents were hand-searched for relevant articles. Published and unpublished abstracts and reports of conference proceedings were also searched. Key informants were contacted for relevant published and unpublished papers. Relevant references from every article back to 1980 were also identified. The search yielded a total of 6000 titles (including textbooks, government reports and conference proceedings) out of which 108 papers describing empirical studies were deemed of potential relevance to the review.

Inclusion criteria

To be included in the review a study had to:

- describe an intervention programme
- describe an intervention within the scope of PHN practice in Canada (i.e. not necessarily undertaken by a public health nurse)
- provide information on client outcomes and/or costs
- describe a prospective study
- have a control or comparison group (before-and-after studies were included).

Ciliska and colleagues[29] identified a total of 108 articles for potential inclusion, of which 77 were finally included. One reviewer assessed all 108 articles for relevance; a second reviewer assessed 20 articles. The degree of inter-rater agreement was measured by calculating kappa coefficients. The kappa score was 0.86, so it was not deemed necessary for the second reviewer to assess all the articles.

Quality of methodology

The quality of all the 77 relevant studies was evaluated by the primary reviewer. The secondary reviewer evaluated 20 articles. Measurement of the degree of inter-rater reliability yielded a kappa score of 0.80, which was considered high enough to obviate the need for double rating of all the studies. Quality was rated by reference to the following aspects of methodology:

- method of allocation to the study groups
- level of agreement to participate in the study
- control for confounders
- method of data collection (pretesting of data collection tools, blinding of data collectors)
- quantitative measures of effect
- cost analysis
- percentage of participant follow-up.

On the basis of the above criteria, nine of the 77 articles were considered 'strong', five 'moderate' or 'borderline' and 63 'weak'. Ciliska and colleagues'[29] review concentrates on the nine strong and five moderate/borderline articles (totalling 14). *Table 35* (appendix 1) summarises Ciliska's[29] findings. It should be noted that of the nine strong articles, four describe the same intervention programme, that is, the programme undertaken by Olds and colleagues.[48–51]

Results and conclusions

There were no negative effects of home visiting. Thirteen of the fourteen articles reported significant beneficial effects on outcomes related to physical health, mental health and development, social health, health habits, knowledge and service-use.

Ciliska and colleagues[29] concluded that effects seem to be mediated by two factors: the intensity of the intervention and clients' pre-existing health and social status. Hence, they concluded firstly that effectiveness could be compromised not only by insufficient intensity but also by the poor timing of home visits.[38,56,57] Secondly, Ciliska and colleagues concluded that interventions had the greatest impact on those at higher risk, for example, unmarried, low-income, teenage mothers.[49,50,52,58–60] We should point out that Ciliska and colleagues'[29] conclusions were reached despite the lack of studies comparing a high- and low-risk group of participants, and the lack of studies comparing intensive home visiting with less intensive visiting. Ciliska and colleagues[29] arrived at their conclusions because the studies showing the greatest effects were intensive interventions, offered to high-risk families.

Discussion

Ciliska and colleagues,[29] in common with Combs-Orme and colleagues,[25] points out that many studies lacked a strong theoretical framework linking the intervention to the expected outcome. It was not clear from many of the studies how a particular intervention could be expected to bring about a particular outcome. This theoretical weakness was believed to account for the limited reported impact of some interventions; for example, for the failure of 'social support' to bring about improvements in birth weight.

In many studies, home visiting is part of a 'multipronged' approach, which includes other strategies such as increased contacts with local health clinics, or with other community-based programmes. It is therefore often difficult to separate out the particular contribution of home visiting from other interventions. However, the design employed in Olds and colleagues' research[48–51] (see *Table 36*, appendix 1) made it possible to show the additional effect of home visiting.

Finally, Ciliska and colleagues[29] stress that problems of design and methodology consistently militate against finding a true treatment difference. For rare outcomes, such as reported child abuse, large samples are needed for adequate power to detect small differences between groups. Like other reviewers,[25,39,61] Ciliska and colleagues[29] claim that when positive effects are found, they probably underestimate, rather than overestimate, the real impact of the intervention.

Hodnett (1995)[26]: socially disadvantaged mothers and their infants

Hodnett[26] reviewed three studies of the effectiveness of care given to socially disadvantaged mothers and their infants.[47,62,63]

The search strategy

The register of clinical trials compiled by the Cochrane Pregnancy and Childbirth Group was searched.[64]

Inclusion criteria

Hodnett[26] included in her review only RCTs of programmes offering additional support for socially disadvantaged women who had recently given birth. Three trials were excluded because the method of random allocation was either not specified or was "suspect".[65–67] A further trial excluded from Hodnett's[26] review was Olds and colleagues' study of nurse home visitation to socially disadvantaged mothers.[50] This study was excluded on the grounds that there were "no usable outcome data". Although the study reported on several outcomes, the results were rejected for three reasons: first, not enough information was given (e.g. only *p*-values with no raw data or test statistics, or means without standard deviations [SDs], or only differences between means); or secondly, because results were reported only for subgroups (e.g. poor, unmarried teenagers); or thirdly, because results were presented only after *post hoc* adjustments were made for potential confounding variables at the stage of data analysis.

The quality of the included studies

The quality of the studies was assessed according to the method of random allocation and rates of attrition. Regarding the three included studies, Johnson's[62] method of random allocation (consecutively numbered, sealed envelopes) was considered sound, although the group allocation was known before each mother's consent was sought. Complete outcome data were available for 89% of the total sample. Hardy and Streett[47] used a "poor" method of random allocation (medical records' numbers ending in odd/even numbers). In all, 9% of the sample were lost to follow-up before the children were 10 months old. O'Sullivan and Jacobsen[63] do not describe the method of random allocation. Outcome data on clinic attendance is complete, but for other outcomes 8–9% of the sample were lost.

Description of trials

Only two of the three trials that were included and reviewed involved home visits.[47,62] In both trials, home visits were undertaken approximately

every 4 weeks within the child's first year of life by experienced community mothers who had received special training. In the third trial, the intervention took place at a hospital clinic, and care was delivered by a multidisciplinary team – a social worker, a nurse with a master's degree, trained volunteers and a paediatrician.[63]

Data synthesis

Meta-analysis followed the methods described in Chalmers and colleagues.[68]

Results

The findings of all three trials suggested that babies provided with additional support were less likely to have incomplete immunisations (odds ratio [OR] = 0.37; 95% confidence interval [CI], 0.27 to 0.52). The trend suggested by the results of two trials[47,62] indicated that further trials may confirm that the babies of families receiving additional support are less likely to require admission to hospital in the first year of life (OR = 0.66; 95% CI, 0.40 to 1.08). Hodnett's and Roberts' 1997 review, described below, suggests that further trials have indeed confirmed this finding.[28]

All other outcomes were assessed by individual trials, and since sample sizes were small, the results must therefore be interpreted with caution. Additional support was associated with: significantly fewer missed clinic visits;[47] significantly fewer victims of suspected abuse;[62] significantly fewer babies with severe diaper rash;[47] and significantly fewer babies fed with unmodified cow's milk before the age of 26 weeks.[62] Johnson and colleagues[62] found that mothers in the supported group were significantly less likely to report being tired, unhappy or unwilling to go outdoors. However, Hodnett[26] draws attention to both measurement biases and social desirability biases which may have influenced mothers' reports of their feelings, as well as their reports of their child's development.

Discussion

Hodnett[26] argues that one possible interpretation of the results reported in these three trials is that social support for disadvantaged mothers can be an effective means of social control. She suggests that the provision of 'social support' in effect puts pressure on mothers; for example, to keep clinic appointments and to avoid using hospital emergency wards for routine care. She further contends that mothers who have been told that particular activities, such as reading to their children, or playing with them, are good for their children, are more likely to report that they performed these activities than mothers who received no additional 'pressure' or information.

Hodnett and Roberts (1997)[28]: home-based social support for socially disadvantaged mothers

Hodnett and Roberts[28] reviewed 11 studies of the effectiveness of care given to socially disadvantaged mothers and their infants.[47,50,57,62,67,70–75] These 11 studies represent the same 11 studies reviewed separately and previously by Roberts and colleagues[39] (see below, 'Roberts and colleagues (1996)[39]: Home visiting and childhood injury'), with the exception of one study by Brooks-Gunn and colleagues,[67] which is a more recent report of the Infant Health and Development Program (IHDP)[69] than the study included in Roberts and colleagues' review.[39] Two of the 11 studies included in Hodnett and Roberts' 1997 review,[28] one undertaken by Hardy and Streett,[47] and the other by Johnson,[62] were also previously reviewed separately by Hodnett.[26]

Search strategy, inclusion criteria, data extraction and quality of studies

These are described below (see Roberts and colleagues (1996)[39]: home visiting and childhood injury).

Data synthesis

Appropriate outcomes were included in a meta-analysis. Where necessary, authors were contacted, and unpublished data requested.

Description of trials

All included trials are described in the separate reviews by Hodnett[26] and Roberts and colleagues.[39]

Results

Results relating to child abuse and child injury are reported below (see Roberts and colleagues[39]). Six trials reported the effect of home-based support on well-child immunisation. In four of five trials, infants of visited mothers were significantly less likely to have incomplete well-child immunisations. The pooled estimate for the effect was 0.56 (95% CI, 0.41 to 0.66). Four trials reported on hospital admissions for children. In all four there was a significantly lower incidence of hospital admission in the home-visited group (OR = 0.65; 95% CI, 0.43 to 0.98).

Five trials reported the frequency of emergency department visits, of which four reported significantly less use among intervention group children.

Conclusions

Hodnett and Roberts[28] conclude there are no risks and may be benefits of home visiting for socially disadvantaged mothers and their children. Interventions delivered by skilled and experienced mothers living in the community, they suggest, may be less expensive and more culturally sensitive than hospital-based programmes led by teams of healthcare professionals.

Olds and Kitzman (1993)[30]: low-income, at-risk families

Olds and Kitzman[30] reviewed 19 randomised trials of home visiting which aimed to improve the health and well-being of children born to low-income families. These 19 trials were reported in 26 separate publications.[35,42,46–50,52,57,70–72,75–88]

Search strategy, inclusion criteria

Olds and Kitzman reviewed only randomised trials of home visiting programmes which aimed to promote the health and development of parents and young children. A search of MEDLINE and Psychological Abstracts was undertaken for the years 1967–92. Unpublished material was also solicited.

The authors do not report the number of people involved in the selection of relevant studies, nor do they report all of their inclusion and exclusion criteria. However, they do report that studies based on non-randomised comparisons were excluded. The authors do not report whether the included studies were quality scored. When a single programme or trial resulted in several publications, it was treated as a single study.

Table 36 (appendix 1) summarises the programmes reviewed by Olds and Kitzman. The first 15 programmes listed in *Table 36* all had an emphasis on promoting the child's mental development/intellectual functioning, and all included either parent education or activities for parents to carry out to promote their child's intellectual functioning. Six of the studies listed in *Table 36* had a focus on child 'maltreatment' and/or injury.[47,48,70–72,75] These six studies are discussed in a subsequent section of this chapter (see 'Olds and Kitzman (1993)[30]: Child injury and abuse').

Results

Children's mental development/intellectual functioning. Of the 15 trials that looked at the influence of the programme on children's intellectual functioning, six found overall benefits.[35,42,76,77,79,80,85] However, in at least two of these trials there was substantial and/or differential attrition from experimental and control groups.[35,76,79]

Parental care-giving. Olds and Kitzman report that "the pattern of results for program influence on parental care-giving is similar to that found for the child's intellectual functioning".[30] In two further programmes,[71,81] there were indications that the programme had had an effect on parental behaviour although there were no indications of the programme affecting the child's intellectual functioning.

Discussion

Olds and Kitzman[30] stress that their results must be interpreted with caution because of the methodological weaknesses that many of the trials displayed. However, they draw several conclusions from the studies they reviewed.

First, Olds and Kitzman believe that those at greatest risk may benefit more than others from home visiting. The evidence from five programmes suggested to Olds and Kitzman that low-income, unmarried teenagers are particularly responsive to these types of programmes.[37,42,49,50,76,79,82,86] However, only one of these five programmes, undertaken by Olds and colleagues,[49,50,82] enrolled in their sample both mothers who did not belong to the subgroup of low-income, unmarried and teenage, and mothers who did belong to this subgroup. Only this programme could therefore test whether the effects were greater for this particular subgroup. Although Olds and colleagues[49,50,82] did find that the effects were greater for this high-risk subgroup, Olds and Kitzman[30] pointed to the need to replicate this finding. Moreover, we should point out that Olds and colleagues[49,50,82] resorted to *post hoc* adjustment of confounding variables in arriving at this conclusion, and that only 15% of their study population belonged to the low-risk group, so the potential for demonstrating an effect in this group was small owing to insufficient power.

Secondly, Olds and Kitzman[30] conclude that professionally staffed programmes are more likely to bring about beneficial outcomes than those staffed by paraprofessionals and non-professionals. They note that of the six programmes that produced positive effects on children's intellectual functioning, five employed professionals or highly trained staff: nurses, professional teachers, and a psychology graduate student. Only two programmes that employed

professionals failed to produce positive effects on children's cognitive development.

Thirdly, Olds and Kitzman[30] believe that the key to effectiveness is comprehensiveness. They believe that the greater effectiveness of programmes staffed by professionals reflects the tendency for such programmes to be comprehensively designed, rather than narrowly focused on a single outcome, thereby addressing the multiple needs of low-income, at-risk families.

Olds and Kitzman (1993)[30]: preterm and low birth weight babies

In addition to the 19 trials of home visiting which aimed to improve the health and well-being of children born to low-income families, Olds and Kitzman[30] also reviewed five trials of home visiting for parents of preterm and low birth weight babies.[45,89–93]

Outcomes assessed and findings

Four of the five studies[89–93] were designed to enhance children's cognitive development, and all four showed that home visiting could increase the intellectual test performance of preterm and low birth weight babies. Three studies looked at the effect of home visiting on aspects of maternal care-giving[90,91,93] and all three found that home-visited children had been provided by parents with a more stimulating environment for their development. Two studies examined an aspect of the child's physical health as an outcome. One[89] found that the home-visited infants gained significantly more weight by the fourth month. However, it was not clear how much the difference was attributable to home visiting, and how much to experiences in a neonatal nursery. A second study[90] found, at 4 months, that home-visited infants were significantly heavier and longer, and at 8 months had lower blood pressure than the controls.

Conclusions

Olds and Kitzman[30] conclude that the results were promising. However, the studies reviewed leave questions unanswered about the programme characteristics that are associated with effectiveness.

Childhood injury and abuse

There have been three previous reviews of controlled trials of the effectiveness of interventions aimed at the prevention of child injury and/or abuse.[30,39,61]

Roberts and colleagues (1996)[39]: home visiting and childhood injury

Roberts and colleagues[39] reviewed 11 trials of home visiting designed to prevent child injury and child abuse.[47,48,57,62,69–75] They included only studies in which home visiting took place (although home visiting was usually combined with other interventions).

Search strategy, inclusion criteria, data extraction and quality of studies

Roberts and colleagues identified relevant trials through a computerised search of MEDLINE (1966–95) and EMBASE (1975–95). The Social Science Citation Index was also searched. The *Journal of Child Abuse and Neglect* was hand-searched from 1977 to 1995. Conference proceedings were searched, and experts in the field asked if they knew of published and unpublished research. The references on all relevant papers were also searched and potentially relevant articles retrieved.

Studies were included in Roberts and colleagues' review[39] if they met all three of the following criteria:

- there was random or quasi-random assignment of participants to the intervention or control group
- one or more post-natal home visits had been undertaken
- the study addressed the outcome of child injury (unintentional or intentional).

Roberts and colleagues extracted the following information from each study:

- strategy for allocation concealment
- number of randomised participants
- duration of follow-up
- loss to follow-up
- the nature of the intervention
- the professional background of the home visitor.

The quality of the studies was evaluated by reference to three aspects of methodology:

- control of confounding at entry (adequacy of allocation concealment)
- control of selection bias (extent to which analysis is based on all randomised participants)
- control of information bias in assessing outcomes (blinding of observers).

Scores ranging from 1 (poorest score) to 3 (highest score) were assigned to each study in relation to each of the above three aspects of

methodology (see *Table 37,* appendix 1). Two assessors extracted the data and assigned methodological scores independently, with agreement on methodological criteria evaluated with weighted κ. (κ scores are not reported.) Disagreement was settled by 'collaborative review'.

Results

Eight of the trials reviewed by Roberts and colleagues[39] examined the effect of home visiting on childhood injury, and six of the eight reported a lower incidence of injury in the group that received home visits. The pooled OR for the eight trials was 0.74 (95% CI, 0.60 to 0.92). The characteristics of the eight trials and their results are set out in *Table 38,* appendix 1.

Nine of the trials reviewed by Roberts and colleagues[39] examined the effect of home visiting on child abuse. No consistent effect of home visiting on child abuse was found (see *Table 39,* appendix 1). In four trials the frequency of occurrence of abuse was lower in the visited group. In the remaining five trials, the frequency of occurrence was higher in the visited group. Considerable heterogeneity of the OR was found across the studies, and no attempt was therefore made to conduct a meta-analysis. Bias in the reporting of outcomes was considered a serious threat to the validity of the findings of all nine trials because it was possible that increased surveillance by a home visitor may result in an increase in the number of reports of abuse.

MacMillan and colleagues (1994)[61]: child abuse

MacMillan and colleagues[61] reviewed 11 trials of child abuse.[47,48,57,70,72,73,75,93–96]

Trials reviewed

MacMillan and colleagues[61] reviewed one study in which no home visiting took place.[96] Three trials[93–95] did not report any abuse or injury outcomes. These trials were included in MacMillan's review[61] because their respective authors believed that the outcomes they measured, such as 'parenting capacity', had an important bearing on the question of whether abuse was likely to occur. MacMillan and colleagues reviewed only studies concerned with the primary prevention of physical abuse.

Search strategy, inclusion criteria, data extraction and quality of studies

MacMillan and colleagues undertook a computerised search of MEDLINE, ERIC, PsycINFO, and Criminal Justice Periodical Index for the years 1979–93. The database Child Abuse and Neglect was also searched for studies since 1965.

Studies were deemed potentially relevant if they met all three of the following criteria:

- the target population was children aged 18 and under
- the intervention was some kind of primary preventive intervention
- the outcome was maltreatment or an outcome associated with maltreatment.

Three authors assessed the potential relevance of all the citations uncovered during the search. Inter-author agreement concerning citations was high, yielding a kappa score of 0.82. All the relevant citations were then retrieved, and a further criterion was introduced: the study design should be a prospective controlled trial. All potentially relevant articles were then reviewed independently by two authors. A third author reviewed a sample of the articles to assess inter-rater agreement. Agreement was high (kappa score 0.95).

Scores were assigned in relation to the following five aspects of methodology:

- baseline comparison of experimental and control group (extent of similarity of groups)
- method of sample allocation (randomised or not)
- inclusion/exclusion criteria (target population clearly defined and inclusion/exclusion criteria clearly defined)
- follow-up (duration and drop-outs/withdrawals)
- outcome assessment (blinding, number of relevant outcome measures, and reliability of measures).

Two authors assigned methodological scores independently. Disagreement was resolved by consensus.

Table 40, appendix 1, outlines the characteristics of each of the programmes included in the review. The methodology score assigned to each study in MacMillan and colleagues'[61] review is included in *Table 41,* appendix 1. The maximum possible methodology score was 25.

Results and conclusions

MacMillan and colleagues' results are shown in *Table 41,* appendix 1. In *Table 41,* results have been

reported separately for each outcome, beginning with 'Reports of child abuse and neglect'. Under each outcome, studies are listed in descending order according to their methodology score.

MacMillan and colleagues[61] were cautious in their conclusions. On the basis of what they deemed to be two of the most methodologically rigorous studies included in their review,[47,48] they concluded that long-term intervention with 'at risk' families was effective in preventing abuse and neglect. However, the effectiveness of other interventions could not be established:

> "Among the perinatal and early childhood intervention programs, according to the outcomes assessed in this overview, long-term home visitation has been shown effective in the prevention of child physical abuse and neglect among families with one or more of single parenthood, poverty, and teenage-parent.[47,48] The evidence regarding the effectiveness of interventions of short-term home visitation, early and extended postpartum contact, intensive pediatric contact, use of a drop-in-center, classroom education and parent training remains inconclusive."[61]

Olds and Kitzman (1993)[30]: child injury and abuse

Olds and Kitzman[30] reviewed six trials of home visiting which assessed the outcomes of child injury or abuse.[47,48,70–72,75]

Search strategy, inclusion criteria, data extraction and quality of studies

Olds and Kitzman[30] reviewed only randomised trials of home visiting programmes. The above six programmes all reported injury and/or abuse outcomes. A search of MEDLINE and Psychological Abstracts was undertaken for the years 1967–92. Unpublished material was also solicited.

Results

Of six studies that looked at outcomes associated with child injury, Olds and Kitzman[30] found that one study produced reductions in hospitalisations for serious injury;[72] one reported reductions in hospitalisations for any reason;[47] and one produced reductions in children's use of the emergency room.[48]

Olds and Kitzman[30] found that none of the six studies they reviewed reported an overall reduction in rates of state-verified child abuse or neglect. However, one study[48] did show reductions in rates of abuse and neglect among a subgroup of the study participants, namely young, unmarried mothers. In this study, 4% of the children of home-visited poor, unmarried, teenage mothers were verified, on the basis of state Child Protection Service records, to have endured abuse or neglect during the first 2 years of their lives, compared with 19% of the children of poor, unmarried teens in the comparison group. However, this difference between the intervention and control groups was not maintained in the 2-year period after the programme ended.[82]

Olds and Kitzman[30] single out the same two studies as MacMillan and colleagues[61] for showing most clearly the benefits of home visiting for families with children at risk of abuse.[47,48] Olds and Kitzman[30] highlight several factors that they view as important to the success of these two programmes in relation to abuse. Both programmes used "multiproblem" and comprehensive approaches to serving families. They employed well-trained visitors, addressed a multitude of family needs simultaneously, and followed families from pregnancy to at least the child's first birthday.

Childhood injury and abuse: discussion of results of three sets of reviewers[30,39,61]

Both MacMillan and colleagues[61] and Roberts and colleagues[39] grappled with the question of the extent to which the studies they respectively reviewed could be compared and their results synthesised through some form of meta-analysis. Roberts and colleagues[39] felt that the studies they reviewed which looked at injury outcomes were sufficiently comparable to pool their results. However, in relation to child abuse, where there was great variation in both the size and direction of the effect of home visiting, no such pooling of the results was undertaken. In relation to child abuse, the findings of most of these studies were not considered valid. Specifically, bias in reporting outcomes was considered to be a serious threat to the validity of the findings. In several of the studies there was greater surveillance by the home visitor of the intervention group than the control group, and hence abuse was more likely to be reported in the intervention group by the home visitor. Roberts and colleagues[39] point out that this differential surveillance between intervention and control groups had almost certainly led to a substantial underestimation of the effectiveness of the intervention. Differential surveillance may even have given rise to a reversal in the apparent direction of the effect.

MacMillan and colleagues[61] did not attempt any kind of meta-analysis of the findings of the studies

they reviewed. They felt that the great diversity of the interventions precluded the possibility of synthesising their results.

All three sets of reviewers drew attention to the difficulties posed by the fact first, that the definition of child maltreatment varied across the studies they reviewed, and secondly, that there are no standardised measures of abuse or neglect.

All three sets of reviewers also raise the question of which outcomes are relevant in evaluating the success of interventions to reduce abuse. A number of commentators emphasise the importance of parenting capacity in preventing abuse.[94] However, MacMillan and colleagues[61] caution against the conclusion that improved competence in parenting results directly in a reduction in child abuse. Olds and Kitzman,[30] on the other hand, take a different view. They argue that given the difficulties in defining and measuring abuse, it is important to rely on a range of outcomes including rates of hospitalisation, parenting capacity and the quality of the home environment. Olds and Kitzman argue that if information from a range of sources about a number of related outcomes all point to the same general conclusion, then findings based on this broad base of information have much greater credibility than those derived from a single source.

Many of the interventions by home visitors are not fully described in the studies reviewed. Even where the intervention is described, some studies make no attempt even to hypothesise how the intervention described might be related to the outcomes studied. MacMillan and colleagues in particular stress the difficulty they had in gaining a picture of what it was that the home visitor did that made a difference.[61]

Both Roberts and colleagues[39] and MacMillan and colleagues[61] caution that it cannot be assumed that current health visiting programmes can achieve the effects implied by the results of their respective reviews. In the first place, both suggest that the experimental home visiting may have been more intense than that typically provided by health visitors. Secondly, in ten of the 11 trials reviewed by both sets of reviewers the intervention was targeted at particular high-risk groups. This, Roberts suggests, restricts the extent to which the findings can be generalised to programmes of universal health visiting.[39]

Postnatal depression

Hodnett (1995)[27]: postnatal depression

A review of two trials of the effectiveness of home visits for women with postnatal distress has been undertaken by Hodnett.[27] She reviewed a trial by Forrest and colleagues[97] which evaluated a programme for couples who had experienced a stillbirth or neonatal death. The second trial, undertaken by Holden and colleagues,[54] evaluated the effectiveness of support for depressed new mothers. Support was provided to mothers by health visitors through eight-weekly home visits.

The search strategy

The register of clinical trials compiled by the Cochrane Pregnancy and Childbirth Group was searched.[64]

Study selection and sample sizes

All RCTs of the effect of support from caregivers on the well-being of parents in the first year after delivery were considered for inclusion. Two trials were identified. No RCTs were excluded. Both of the trials that were included involved random allocation, but no information regarding the method of random allocation was provided. In both studies outcome assessments were blinded. Both studies had relatively small samples ($n = 50$).

Results

Both trials found support to be associated with a significant decrease in women's distress after 6 months. Neither trial found significant effects after 6 months on other outcomes, including men's distress, women's or men's psychiatric disorder, marital separation, or another pregnancy.

Implications for practice

The findings of these two trials suggest to Hodnett that every effort should be made to identify women experiencing postnatal distress and to provide them with support.

Ray and Hodnett (1997)[98]: postnatal depression

A second review of postnatal depression was undertaken by Ray and Hodnett.[98] Two studies were reviewed.[54,99] The search strategy was the same as that described in Hodnett's earlier review.[27] No studies meeting the inclusion criteria were excluded.

Results

The common outcome for both trials was depression at 25 weeks postpartum, which was

significantly reduced in the groups receiving additional support (OR = 0.34; 95% CI, 0.17 to 0.69).

Implications for research

Questions remain about the relative benefits of lay versus professional support, and the relative effectiveness of individual versus group interventions. Future research might assess the usefulness of social support in the prevention as well as treatment of postpartum depression. It is recommended that outcome measures include reduction of symptoms, hospital admission rates, and long-term maternal, infant and family well-being.

Summary of key results of previous reviews of the literature

Below are summarised the key results and conclusions drawn from the previous literature reviews described in the preceding section.

- **Results concerning the effectiveness of programmes of home visiting for parents and children are mixed.** Whilst the majority of previously reviewed studies provide demonstrable evidence of their effectiveness, many studies show effects on only some outcomes, and a small minority show no effects at all.
- **The number of well-controlled studies is small.** Very few studies employ rigorous experimental or quasi-experimental designs.
- **Most studies had insufficient power to demonstrate their effectiveness.**
- **Bias in the ascertainment of outcomes is a problem.** In relation specifically to child abuse, Roberts and colleagues suggest that differential surveillance of the intervention and control group has almost certainly resulted in an underestimation of the effectiveness of home visiting in reducing the incidence of abuse. Differential surveillance may even have given rise to a reversal in the apparent direction of the effect.[39]
- **Very few studies relate the service being provided to any identified needs of their clients.** Many programmes thus lack a sufficient rationale.
- **Few studies discuss the relationship between the intervention and the ultimate goal(s) of the intervention. Many studies thus lack a theoretical framework.** There was often inadequate discussion of why or how a particular intervention should be expected to result in a particular outcome (e.g. why social support should be expected to result in improved maternal physical health).
- **Descriptions of the content of the intervention are often inadequate.** Even when the home visitor's intervention did result in beneficial outcomes, it was often difficult to gain a picture of what it was that the home visitor did that made the difference.
- **Two reviews have concluded that those at greatest risk may benefit more from home visiting than those at lower risk.**[29,30] However, the overwhelming majority of studies to-date have focused only on clients deemed to be 'at risk', so that there exists little data which can be used to ascertain the effectiveness of a given programme for populations at differing levels of risk. This almost exclusive concentration on studies assessing home visiting to high-risk groups also limits the extent to which findings can be generalised to British programmes of universal health visiting.[39]
- **Two reviews have concluded that greater treatment differences are associated with higher intensity.**[29,30] The longer the duration of home visiting, and the more frequent the visits, the greater is said to be the effectiveness of home visiting. However, very few studies have compared interventions of differing intensity. Further investigation is recommended.
- **Few studies have assessed whether the effects are sustained once the intervention has ceased.**
- **Questions remain concerning the relative effectiveness of programmes staffed by professionals, paraprofessionals and non-professionals.** Olds and Kitzman[30] concluded that programmes staffed by highly trained professionals or a single, well-trained para-professional, were more effective than those staffed by non-professionals. Two of the most effective programmes that they reviewed were that carried out by Olds and colleagues,[48–50,82] which employed a set of "highly motivated and well-prepared" nurses, and the programme undertaken by Hardy and Streett[47] which employed a single, well-prepared para-professional. However, Olds and Kitzman[30] acknowledge that the evidence on which they base their conclusion is limited. Similarly, Hodnett and Roberts[28] appear to single out only one study[62] in reaching their conclusion that well-prepared paraprofessionals can deliver services effectively. They conclude that interventions undertaken by experienced, well-prepared mothers living in the community may be less expensive and more culturally sensitive

than hospital-based programmes led by teams of healthcare professionals. Here again, previous reviewers have been hampered by the fact that no studies exist that systematically compare the effectiveness of professional and non-professional intervention.

- **The key to effectiveness is comprehensiveness.** Olds and Kitzman[30] believe that their finding of greater effectiveness among programmes staffed by professionals reflects the tendency for such programmes to be comprehensively designed, with the professional pursuing a wide range of outcomes, rather than narrowly focusing on a single outcome, thereby addresssing the multiple needs of low-income, at-risk families.
- **Most experimental home visiting programmes have been more intense than the home visiting typically provided by British health visitors.** This limits the extent to which their findings can be generalised to British programmes of universal health visiting.[39]

Conclusions concerning the findings of studies on the effectiveness of home visiting

The diversity of home visiting programmes limits to some extent the conclusions that can be drawn from research into the effectiveness of home visiting programmes. There are three main types of difficulty to which Weiss[13] has drawn attention. First, many home visiting programmes provide not only home visits, but also other core services, making it impossible to attribute their effectiveness to the home visiting component. Secondly, none of the programmes that have been evaluated to-date have tested precisely the same intervention models, so it is difficult to generalise across them. In other words, it is hard to know if it is the differing curricula, the differing intensity or duration of visits, or the skills of staff with different backgrounds that make the difference. Finally, only one programme has ever been replicated. Olds and colleagues' study[48–50,82,100] has recently been replicated in a different population by Kitzman and colleagues.[101] However, Kitzman and colleagues'[101] results were published too recently to have been included in any of the reviews discussed in this chapter. The lack of replication – with one exception – raises the question about the generalisability of findings to other populations and communities.[13] There is often no way of knowing if a programme which is effective for a particular subgroup of the population is also effective for other groups.

Gomby and colleagues[12] point out that most studies of the effectiveness of home visiting have assessed whether or not a given programme produces benefits, but not what characteristics of the programme (such as the skills and training of staff, or the intensity of visits) may have led to those benefits. In other words, within a single study, researchers have rarely systematically varied such characteristics as the frequency of visits or the training or background of staff. Given the way in which previous research has been conducted, the only way to determine which characteristics are associated with successful home visiting programmes is to compare successful and unsuccessful programmes and to look at the ways in which the programmes differ. This is essentially what Olds and Kitzman[30] have done. Of course, Olds and Kitzman were faced with the problem that most studies differ not with respect to a single characteristic, such as the background or training of staff, but rather with respect to a vast range of characteristics. We share Gomby and colleagues' view that at present there are not enough studies of sufficient quality and appropriate research design to come to any definite conclusions about what it is about successful home visiting programmes that makes them successful.[12]

Implications of previous literature reviews for future research

- **Current UK universal home visiting programmes undertaken by health visitors to families with young children have not been adequately evaluated.** Most previous studies have evaluated North American programmes. More British studies are needed.
- **The majority of 'high-quality' studies conducted to-date have had insufficient power to demonstrate an effect.** Therefore larger studies are imperative.
- **Previous studies have suffered from important methodological limitations.** These include non-random allocation, or an inadequate description of the method of random allocation, inadequate control for potential confounders, high attrition rates, an inadequate description of the intervention and an absence of valid and reliable measures of some outcomes. Ciliska and colleagues[29,41] also draw attention to the lack of a focus on costs, and the failure to incorporate outcomes which clients deem important. Ciliska and colleagues[41] recommend that in future:

- researchers make explicit how randomisation is achieved
- there are adequate sample sizes
- tracking strategies might be developed so that it is possible to follow up at least 80% of those entering the study
- more information might be collected about possible confounders so that these can be controlled for at data analysis
- valid and reliable outcome measurement tools might be developed and employed
- outcome assessment might be blinded
- cost analysis of public health interventions is undertaken
- outcomes that clients think are important, rather than those predefined by the researcher, may be studied.

In addition to endorsing Ciliska and colleagues'[41] recommendations, we recommend that:

- **there is a need for future studies to include better measures of process –** this would aid in the replication of studies, and would contribute to an understanding of which elements of the intervention are associated with improved outcomes
- **there is a need to include measures of compliance –** the majority of studies to-date have neglected to include any measure of compliance. There is little indication of whether clients acted in response to the support offered by the home visitor (we should make clear that we are not recommending that clients ought to be compliant. Rather, we are recommending that authors report, for example, whether clients received the full intervention)
- **there is a need to focus on a range of outcome measures, and to consider the consistency of results that assess different aspects of the same outcome**
- **there is a need for future studies to include those at all levels of 'risk', not only those at 'high risk' –** this would enhance the generalisability of findings, and would directly address the issue of the effectiveness of targeted versus universal home visiting (see also chapter 9).

Implications of previous literature reviews for future practice

Gomby and colleagues,[12] drawing on contemporary American research into home visiting, have set out a number of key principles which they suggest should guide the implementation of home visiting schemes to parents. Although Gomby and colleagues' concern is with the USA, it is interesting to note that some of their recommendations appear to advocate a move in the direction of Britain with its universal home visiting service.

Gomby and colleagues[12] recommend the following.

- **Wherever home visiting programmes are available, they should be offered on a voluntary basis to all families with a newborn.** Gomby and colleagues,[12] in common with other influential American commentators,[13,102] believe that home visiting services should not target only poor families but should be universal. At a minimum, they believe that every family with a first child should receive one or two visits. Gomby and colleagues acknowledge that their position is based only partly on research. It is based also on their belief that "to try to prejudge which families to serve (for example, all families below a certain income level) is not only very difficult and imperfect, but can also stigmatise the targeted group".[12] For Gomby and colleagues the home visit should be "the door to what is available to families in the community".[12] Gomby and colleagues stress that they are not recommending intensive and prolonged home visiting for everyone, but one or two initial home visits are essential in identifying those families in need of greater support. Vimpani and colleagues,[103] concurring with Gomby and colleagues' position, emphasise that "universal in this sense does not mean uniform".[103]

- **Home visiting programmes should have multiple goals.** Gomby and colleagues[12] believe that home visiting should address the needs of both children and parents, and in a variety of ways.

- **Home visiting programmes should be flexible in intensity and duration.** Gomby and colleagues[12] point out that the research to-date has left many questions unanswered. Although some minimum number of visits may be necessary before any change can occur, the research cannot tell us at present what that minimum level is. Moreover, we do not know whether it is the intensity of the contact or the total amount of contact that may be important. For example, we do not know if 20 visits over 2 years is more, or less, effective than 20 visits over 3 years. Following Powell,[11] Gomby and

colleagues[12] believe that in the absence of definitive research, home visiting programmes should rely on guidance from the families they serve in the design of the programme, and in setting the frequency, intensity and duration of home visiting.

- **Programmes should be sensitive to the unique characteristics and circumstances of their clients.**

- **Home visiting programmes require a well-trained, dedicated staff.** Gomby and colleagues[12] recognise that home visiting is not the preserve of one professional group but will continue to be carried out by nurses, social workers and teachers. They acknowledge too that para-professionals will continue to be employed to undertake home visits. However, they strongly urge that any programme employing para-professionals should do so only if supervision and support are available from professional colleagues.

- **Evaluation of home visiting programmes should continue, but should focus on some key unanswered questions.** Gomby and colleagues[12] point to several questions that remain largely unanswered. If home visiting is provided universally, what percentage of families will want or need more than one or two visits? Will families who receive only a few visits for information or referral purposes demonstrate any benefits from participation in a home visiting programme? What is the optimum frequency, duration and onset of home visiting? To what extent are programme effects diluted when a model programme is disseminated to a wider population? To what extent is home visiting, in and of itself, useful, or should it always be combined with other services? What level of support and training do volunteers, paraprofessionals and professionals need?

- **Expectations should be realistic.** Echoing the views of Weiss[13] and Halpern,[104] Gomby and colleagues[12] observe that there has been a long history of expecting home visiting to act as a 'magic bullet'. Home visiting has been seen as a panacea for the ills of society and as the 'solution' to the problem of poverty. Clearly home visiting can never be a substitute for direct material and financial support or for economic and political change. Its aims are different and more limited. Even one or two home visits can serve as the door to other services and other types of support. If home visiting is more intensive, and delivered by well-trained staff, then it can also yield important but "modest" improvements in children's health and development. Gomby and colleagues choose the word 'modest' with care. They point out that the research to-date contains no studies of programmes that relied solely on home visiting which have yielded large or long-term benefits for parents or children. The need for realistic expectations should not be surprising. Many other programmes, policies, and social and economic influences affect a child's health and development. Home visiting can only ever be one part of a 'multipronged' attempt to improve health and social outcomes for parents and children.

Chapter 3
Methodology

This chapter describes the methodology used to conduct our review of the literature.

Inclusion criteria

An article was included if:

- it reported a study that evaluated a home visiting programme
- at least one postnatal home visit was undertaken as part of the programme
- the study included a comparison group (this includes RCTs, non-RCTs, and controlled before-and-after comparisons)
- the study reported outcomes relevant to the objectives of British health visitors, namely:
  - increasing rates of uptake of appropriate health and community services
  - reducing rates of child abuse and unintentional injury in childhood
  - changing attitudes and beliefs
  - changing behaviours
  - improving client satisfaction
- the personnel involved in carrying out the programme undertook responsibilities within the remit of British health visitors, and were not members of a professional group other than health visiting (e.g. community psychiatric nursing, midwifery).

In addition, studies that reported costs in relation to outcomes were also included.

Searching

Methods

Databases

MEDLINE was searched from 1966 to July 1997: this found 809 references. CINAHL was searched from 1982 to July 1997: this found 207 references. EMBASE was searched from 1980 to October 1997: this found 197 references. The Internet was searched: this found two references. The Cochrane Library was searched: this found three literature reviews.

Search strategy

The search strategy used a mixture of thesaurus terms and free-text searching. Details of the search strategy are included as appendix 2.

Handsearching

The journal *Health Visitor* was searched from 1982 to 1997.

Review articles

The reference lists of 17 review articles were also scanned.[25–27,30,39,61,105–115]

PhD theses

The Index to Theses (www.theses.com) was searched from 1980 to 1997. References to PhD theses in other articles were followed up. In addition, potentially relevant PhDs cited in other PhD theses were retrieved. Excluded theses are listed in *Table 42,* appendix 3.

Contacts

Key individuals and organisations were contacted, and advertisements placed in a number of journals.

Results

Number of studies reviewed

A total of 102 studies that met our inclusion criteria were reviewed (see chapter 4). These 102 studies evaluated 86 home visiting programmes.

There are a number of studies that although found by the database searching did not fulfil our criterion of involving a home visit. These are shown in appendix 3, *Table 42.* Other studies did not fulfil our criterion of involving a postnatal home visit (see appendix 3, *Table 43*).

We have not included studies that did not involve a planned comparison between groups (see appendix 3, *Tables 44, 45* and *46*).

Some studies involved professionals who did not seem relevant to a study of health visiting (see appendix 3, *Table 47*).

A further group reported outcomes too specific for the objectives of health visitors (see appendix 3, *Table 48*).

There was also a miscellaneous group (see appendix 3, *Table 49*) as well as excluded reviews of the literature (see appendix 3, *Table 50*).

Quality scoring

Reisch and colleagues'[116] quality rating scale

There are a number of scales that have been suggested for quality scoring comparative trials, but none of these has yet become a standard. We felt that a scale that attempted to describe as many aspects of the total study as possible was that of Reisch and colleagues[116] and we chose that rather than any of the other scales discussed in Moher and colleagues' review.[117]

The Reisch scale is a total of the number of key points scored from a standard list. Not all points are necessarily relevant to all articles, and so we express the score standardised as a proportion of points that were relevant. The Reisch scale is reproduced in appendix 4. For interpretation it may be helpful to note that the range of scores is between 0 (the worst possible) and 1 (the best). There does not seem to be any consensus about the cut-off between good and bad studies, and so the score should be interpreted as indicating relative quality.

Adaptations necessary

On inspection, some aspects of the scale were felt to be difficult to apply to the majority of studies concerned in our review. Specifically, the Reisch scale places considerable emphasis on careful description of aspects of the dosage and regime for the intervention in a way that we found hard to apply to our trials. We have therefore modified it slightly to conform to the description of the more complex patterns of intervention encompassed within home visits. Specifically, we expanded no. 7 on the Reisch checklist ('Procedures for treatment/ management') to gloss 'route' (item 5) with 'home visits, telephone, clinic' and to gloss 'presentation' (item 6) with 'oral, written, video'. We also added a new rating to no. 6 on the Reisch checklist (Comparison group(s) [Control] usage – see appendix 4). This was 'stratified randomisation' (item 4).

Team members undertaking quality scoring were masked to the results of the studies, and we therefore deleted all the sections of the Reisch checklist on results.

Inter-rater reliability study

Three team members applied the Reisch scale to 19 articles masked to authorship, title, journal (where possible) and to study results. The correlation between the pairs of raters was 0.71, 0.79 and 0.82, with an overall intra-class correlation of 0.74 (95% CI, 0.52 to 0.88). After discussion of some of the issues arising it was decided that this was a satisfactory level, and we continued with the main scoring using the adapted scale.

Combining results

Varying types of outcome

Unfortunately, most of the preferred methods of combining effect sizes rely on the outcome measures being similar. Where this is the case we have chosen to use Hedges' method or Peto's method as appropriate (see below). Where there is a mixture of effect types we have had recourse to Fisher's method.[118,119]

Fisher's method

This method operates on the *p*-values generated from the studies. If the *p*-values are p_i and there are k of them then we form:

$$-2 \sum_{i}^{k} \ln p_i$$

which is distributed as χ^2_{2k}. Here, and elsewhere, we shall use ln to denote the natural logarithm (log to the base *e*).

This is a convenient method because it is always possible when the *p*-values are available. In some cases we have used raw data available in the paper to calculate a *p*-value where none was directly quoted by the original authors.

Many studies simply report whether one of a series of conventional values has been reached (usually 0.05, 0.01, 0.001) and this poses difficulties for the method unless more information is given. Where a test statistic is given, an exact *p*-value was calculated. Otherwise we adopted the simple approach of using that significance level as the *p*-value, although recognising that this is conservative because authors may have used only a small number of conventional levels (perhaps only one). The whole range of *p*-values less than that conventional level has been regarded in our analysis as equal to it. For results that were reported as not significant we simply used a

p-value of 1.0, but this is very conservative because ln 1.0 = 0.

The choices we have made to deal with studies reporting conventional levels, or just reporting non-significance, represent conservative choices. Their effect has been to decrease the likelihood of finding a difference.

Hedges' method

Where outcomes are measured on a continuous scale of effect size we used Hedges' method[118] and computed an overall value of *g*.

Peto's method

The use of Peto's method raises few new issues except for the handling of studies that report rates per child (or per mother) rather than just reporting present or absent. For instance, a number of studies in the injury field report both injuries per child, and number of children with at least one injury. To incorporate as many studies as possible within the same analysis we decided to transform the rates into a binary variable ('never' vs. 'at least once'). To do this we assume that the events follow a Poisson distribution, and then estimate:

$$p = 1 - e^{-\lambda}$$

where p is the proportion experiencing at least one event, and λ is the rate per child (or per mother). We then use that *p*-value to compute the values in the 2 × 2 table and use them in Peto's method.

We recognise that this rests on the assumption of Poisson variability, and this is a substantial assumption, but is seems to us better than having to exclude these studies, or use Fisher's method.

Multiple end-points

In an area like health visitor home visiting, where there are many possible outcomes, a number of difficult issues arise that have not been considered in meta-analyses of more conventional treatment studies. By contrast, in interventions where there is one main outcome (e.g. mortality), the only choice that has to be made is what to do when the outcome is reported at a number of different lengths of follow-up. In the case of health visitor home visiting, multiple outcomes are the rule. We have subdivided them into different domains and report these separately, but within a given domain we have used all the outcomes available (see chapter 4).

Publication and reporting bias

Publication bias is a well-known problem. It is usually taken as implying that studies remain unpublished because their results are not in accordance with accepted orthodoxy. Sometimes this is expressed as the fact that 'non-significant' studies are not published, but in some cases the bias could operate the other way round. There have been various suggestions for detecting and dealing with this problem. We decided that the relatively small number of studies in each of our domains made it unprofitable to use any of the methods (such as the funnel plot) for detection of bias. Our view is that statistical methods of adjustment have been proposed, but have as yet not received widespread acceptance, much less use.

In our study we have faced a number of problems caused by what we might term reporting bias: the study is published, but a full account of the results is not available. In some cases the outcome measure is mentioned, but no results are reported. In this case we have omitted the outcome completely from consideration. It might be argued that we should assume that in such a case the result would be non-significant but we have felt unable to assume that. In other cases the result is reported as non-significant. As mentioned above, we considered that results could be entered into Fisher's method, and have outlined the conservative way in which we did this. However, such results do represent a problem when a number of other studies have reported in sufficient detail to enable us to use either Peto's or Hedges' method. In that case there seems no easy way of including the fact that we know that other studies have used the same outcome, but not reported results in sufficient detail.

We have taken no formal steps to look for publication bias by plotting effect sizes, or by calculating test statistics. In most cases there are few studies on any given effect, and any formal method would have little power.

Heterogeneity

Despite the small numbers of studies per domain, we have calculated formal tests of heterogeneity. We report the results where appropriate. We have attempted to explain the differences where they are found, and would caution against

over-interpretation of the effect sizes estimated in those cases. Although we do not regard random effects models as a panacea we have included effect sizes using such models where heterogeneity seems important. The studies we examined are on quite different groups of subjects and use interventions that are far from standardised, and so we believe the solution is to try to explain differences rather than to average what cannot be effectively averaged.

One important possible source of heterogeneity is the study design. We have decided to include both randomised trials and those using other allocation methods. Since the orthodox view is that only randomised trials should be included we have also added a supplementary analysis just of the randomised trials as a sensitivity analysis. This analysis is presented where there are sufficient studies to provide a meaningful number (three or more) in the group of randomised studies.

Chapter 4

The main literature review

In this chapter we review 102 papers, evaluating 86 home visiting programmes.[17,34–38,42,44–48,50–58,62,67,69–76,79,81–88,90–93,101,120–176] Two of these studies[133,174] were published after our literature search period had ended (see chapter 3). However, both were received by us in draft form before publication, and hence were included in our review. Other studies not published until after the end of our search period are included in appendix 3 (*Table 49*).

Tables 1–30 and *Figures 1–19*, pertaining to the papers reviewed in this chapter, are located at the end of the chapter on pages 58–187.

Outcome groupings

The studies are divided into two: those assessing the outcome of home visiting to parents and young children (see the section entitled 'Parents and young children', pages 23–50); and those assessing the outcome of home visiting to elderly people and their carers (see the section entitled 'Elderly people', pages 50–56). Within the first category, studies have been grouped together and discussed under a series of headings. Where one study has reported several outcomes, each outcome is discussed under its relevant heading. Thus, the same study may appear under more than one heading, depending on which outcome is being discussed. No outcome has been 'counted' twice through discussion under more than one heading.

Several papers describe the same home visiting programme. Four papers describe the programme implemented by Olds and colleagues.[48,50,51,82] The IHDP is described in five papers.[44,67,69,127,130] Other pairs of papers describing the same home visiting programme are by Archbold and colleagues[120] and Miller and colleagues;[153] Barrera and colleagues;[58,91] Gutelius and colleagues;[35,76] Hall[36] and Law-Harrison and Twardosz;[151] Barth and colleagues[46] and Barth;[70] Barnard and colleagues[83] and Booth and colleagues;[84] Jones and West;[146,147] Resnick and colleagues;[92,93] and Sutton.[165,166]

When a single programme of home visiting has resulted in the publication of more than one paper, it has been treated as a single study in the text of the following sections of this chapter.

Parents and young children

Parenting and the quality of the home environment: part 1

In all, 34 studies that met the inclusion criteria reported outcomes relating to parenting and the quality of the home environment. These 34 studies are listed in *Tables 1–3*. Seventeen of these studies (*Table 1* and *Table 2*) used the HOME (Home Observation for Measurement of the Environment) Inventory as an outcome measure.[177] In part 1, we discuss the studies that have used the HOME Inventory; in part 2 (page 25), we discuss studies using other outcome measures.

The HOME Inventory (infant–toddler version) consists of six subscales measuring aspects of stimulation in the home, which we chose to categorise as a measure of mother–child interaction:

I emotional and verbal responsivity of the mother
II avoidance of restriction and punishment
III organisation of the environment
IV provision of appropriate play materials
V maternal involvement with the child
VI opportunities for variety in daily routine.

The inventory is designed to be administered by an interviewer within the child's home, and is based on observations of the interviewer. Mean scores are calculated for the overall score and for each subscale. *Table 1* lists all studies assessing the quality of the home environment as measured by the HOME Inventory.

The 17 studies using the HOME Inventory as an outcome measure do not report the results in a standard way, and many do not include all the information necessary for a meta-analysis to be undertaken. For example, studies that report mean values, either for the overall score or for subscale scores, do not always report SDs or *p*-values.[48,57,74,82,88,90,101] One study reports the results of χ^2 tests, despite the score not being a

categorical variable,[145] and one study merely reports that the HOME score was significantly higher in the intervention group without reporting any figures.[83]

Of the 17 studies using the HOME Inventory, seven found statistically higher HOME scores, either for total score or for subscales of the score in the intervention group. Two claimed a significantly higher score in the home-visited group but did not provide details of the score or of the statistical test results.[83,163] The characteristics of the seven studies that demonstrated higher HOME scores in the home-visited groups are shown in *Table 2*.

Eight studies using the HOME Inventory report no significant difference in scores between the home-visited and control groups. The characteristics of these studies are shown in *Table 2*.

There appear to be few differences in the characteristics between those studies demonstrating positive effects on the HOME Inventory score and those not demonstrating positive effects, except in terms of the characteristics of the intervenors. All studies showing a positive effect used either professional intervenors or psychology graduates, or, one study by Black and colleagues[126] used lay workers supported by community nurses, compared with two of the unsuccessful studies which used only professional intervention,[48,82,88] one which used a combination of community women and professionals[74] and the remaining two used non-professionals.[85,130] The intensity of the intervention seems similar across the successful and unsuccessful programmes, as do the characteristics of the participants.

A total of 12 studies report mean values (and SDs) and/or *p*-values, which has enabled a meta-analysis using Fisher's test to be undertaken. These are identified in *Table 1* and *Table 2* by an asterix. The meta-analysis of HOME scores (including total scores and subscales) indicates a highly significant difference between scores for home-visited families and controls ($\chi^2 = 126.9$; 28 degrees of freedom [df], $p < 0.0001$). Restricting the analysis to ten of the 12 studies,[42,57,58,87,88,90,101,125,126,130] namely those using the design of the RCT, produced similar results ($\chi^2 = 70.6$; 20 df; $p < 0.001$).

In all, 10 studies reporting HOME Inventory scores also reported other measures of mother–child interaction, as indicated in *Table 1*. These other measures are discussed in part 2 of this section (page 25).

Summary of results

1. A total of 34 studies were found within our inclusion criteria reporting outcomes related to mother–child interactions.
2. A total of 17 reported HOME Inventory[177] scores, of which seven reported significantly higher scores in the home-visited. A total of 12 studies were included in a meta-analysis using Fisher's method. The overall χ^2 test result was highly significant ($\chi^2 = 126.9$; 28 df; $p < 0.0001$), indicating an overall positive effect of home visiting on the quality of the home environment and including within that aspects of mother–child interaction. Restricting the analysis to ten RCTs produced similar results ($\chi^2 = 70.6$; 20 df; $p < 0.001$).
3. The majority of studies reporting significant improvements in the HOME Inventory score involved interventions being delivered by professionals or in one case by psychology graduates. There were no other obvious differences in characteristics of the participants, the intervention or the intensity of the home visiting between programmes demonstrating differences in HOME scores and those not demonstrating such differences.

Conclusion

The use of the HOME Inventory[177] as an outcome measure by many of the studies assessing the effectiveness of home visiting on parenting and the quality of the home environment has enabled a meta-analysis of the results of these studies to be undertaken. The meta-analysis demonstrates that the home visiting programmes are associated with improvements in the quality of the home environment as measured by the HOME Inventory.

The score is based on observations of the home environment and the mother–child interaction, rather than maternal self-report. Whilst this will not completely remove the bias introduced by the parents' desire to achieve a good outcome, and their consequent 'best behaviour' during the observation period, these measurements should be less biased than those that rely entirely on maternal self-report, and which are subject to bias towards providing a socially desirable response.

The findings from the review of the other outcome measures related to mother–child interactions, presented in part 2 of this section (page 25), are consistent with, and hence provide support for, those that we have found relating to the quality of the home environment as

measured using the HOME Inventory. Similarly, our findings in relation to improved maternal mental health (page 42) and reduction in childhood unintentional injury (page 36) amongst home-visited families are also consistent with our findings relating to the quality of the home environment.

Parenting and the quality of the home environment: part 2

In all, 27 studies, described in 30 papers, reported outcomes not measured by the HOME Inventory[177] relating to parenting and the quality of the home environment.[34–37,48,52,53,57,58,62,75,79,81–84,88,90,93,101,122–124,126,133,139,145,151,161,166] A total of ten of the 27 also reported HOME Inventory scores.[48,57,58,82–84,88,90,101,126,133,145] The characteristics of the 27 studies are shown in *Table 3*.

The vast majority of the 27 studies discussed in this section used measures which were not commensurate, hence results were not combined in a meta-analysis. The 27 studies are described below according to the type of outcome reported. Outcomes assessed using the HOME Inventory[177] are not reported below (see part 1, page 23).

Studies reporting outcomes assessing parents' developmental expectations of their child

Five studies reported outcomes assessing parents' developmental expectations of their child.[36,90,124,139,145,151] Four of the five reported significant differences favouring the intervention group. The study described by Hall[36] and Law-Harrison and Twardosz[151] found that mothers in the intervention group had more positive perceptions and expectations of their child. Beckwith[124] reported that the home-visited mothers had significantly more realistic developmental expectations of their children than the controls. Grantham-McGregor and Desai[139] showed that mothers in the intervention group were significantly more aware of their child's level of development. Field and colleagues[90] demonstrated that home-visited mothers had a better knowledge of developmental milestones and more realistic expectations of their children.

One study[145] reported no differences between the home-visited and control mothers with respect to appropriate expectations of their child.

Studies reporting outcomes assessing interaction between mother and child

A total of 17 studies reported outcomes assessing interaction between mother and child.[35,52,57,58,75,79,81–84,90,93,101,122,124,126,133,161] In all, 12 of these 17 studies reported significantly better interaction between mother and child in the intervention group. Beckwith[124] found that the home-visited mothers had more observed involvement and reciprocal interaction with their child. Larson[57] reported significant differences favouring the intervention group with respect to the mother's positive emotional involvement with her baby, her responsiveness to her child's behaviour, and the amount and kind of contact between mother and child. Gutelius and colleagues,[35] who reported more observed conversations between mother and child among the home-visited mothers,[82] found that home-visited mothers were significantly more involved with their children than mothers in the comparison group. Seeley and colleagues[161] found significant improvements, after a health visitor training programme, in rates of reported difficulties in the mother–infant relationship (e.g. infant demands for attention, separation problems, affection). Field and colleagues[90] found significant differences favouring the home-visited mothers with respect to measures of mother–child interaction. Madden and colleagues[81] found a significant difference among two cohorts of home-visited mothers in non-verbal expressions of warmth and verbal praise. Resnick and colleagues[93] reported that observed parent–child positive interactions (both verbal and non-verbal) were significantly higher in the home-visited group, and that there were significantly fewer observed parent–child, non-verbal, negative interactions. Scarr and McCartney[52] reported that home-visited mothers engaged in significantly more shared activities than control mothers. Barker and Anderson[122] reported improvements in the home socialisation environment in one of the four areas they studied. Davis and Spurr[133] reported that mothers in the intervention group were significantly more positive towards their children. Siegel and colleagues[75] found that there was significantly better mother–child attachment at 4 months, and significantly better interaction and stimulation at 12 months.

Six studies found no significant differences between intervention and control groups. Thompson and colleagues[79] reported that mothers in the intervention group were observed to give more praise and positive feedback to their children, although the difference was not significant. Barrera and colleagues[58] found no overall group differences in infant or maternal interactive behaviours. Black and colleagues[126] reported no differences between children's interactive communication skills,

or parental warmth. Neither Kitzman and colleagues[101] nor the study described by Barnard and colleagues[83] and Booth and colleagues[84] reported any significant difference in mother–child interaction, as assessed using the Nursing Child Assessment Scale of Teaching.[178]

Studies reporting outcomes assessing parental stimulation of the child through books, toys or games

Five studies reported outcomes assessing parental stimulation of the child through books, toys, etc.[35,48,62,82,123,139] Two reported positive findings. Johnson and colleagues[62] found a significantly increased frequency of reading to the child, playing cognitive games and using nursery rhymes in the intervention group. Gutelius and colleagues[35] reported significantly increased use of story books and crayons in the intervention group.

Grantham McGregor and Desai[139] reported that mothers in the intervention group had a significantly better understanding of the importance of playing with their children, and had a better appreciation of the educational value of toys. Mothers in the intervention group also had a better idea of how to involve their child in story-reading, and participated more in 'pretend' games, although the differences between the two groups of mothers did not reach a level of statistical significance in these latter two items. Barker and colleagues[123] reported a greater frequency of reading to the child in the intervention group, but the statistical significance of this finding was not ascertained. There was little difference between the two groups in the percentage of children who were read to, or their interest in books. Olds and colleagues[48,82] reported no significant differences in the provision of toys, games and reading materials between intervention and control families.

Studies reporting outcomes assessing parental attitudes and actions towards child discipline

Seven studies reported outcomes assessing parental attitudes and actions towards child discipline.[35,48,52,88,90,139,145] Three studies reported significantly less punitive or negative attitudes towards child-rearing, as indicated by a diminished belief in the value of corporal punishment;[145] less punitive child-rearing attitudes;[90] and more 'appropriate' answers to questions regarding their handling of their child's kicking or hitting, frequency of the use of praise, and management of fear of the dark.[35]

A further study[101] measured parental belief in physical punishment as an indicator of the potential for child abuse. As noted in the section on 'The prevention of child abuse and neglect' (page 40), this study[101] reported a significantly better overall score concerning beliefs associated with child abuse in the intervention group.

Four studies found no significant differences between home-visited and control mothers. Grantham McGregor and Desai[139] found greater preference for the use of positive rather than negative motivation in disciplining the child, although the difference was not significant. Scarr and McCartney,[52] in assessing the degree to which mothers relied on reasoning versus physical punishment as a discipline strategy, found no differences between home-visited and non-visited mothers in their responses. Olds and colleagues[48] assessed the number of times the child had been spanked, hit, scolded or shouted at in the previous 2 weeks. They reported no significant differences between the groups of mothers. Wasik and colleagues[88] assessed the extent to which parents were "authoritarian" in their child-rearing beliefs (e.g. children should always obey the teacher), or "progressive" (e.g. a child's idea should be seriously considered in making family decisions). Wasik found no difference between the two groups.

Studies assessing mothers' teaching ability

Two studies reported outcomes related to mothers' "academic" teaching ability.[35,53] Both found in favour of mothers in the intervention group. Gutelius and colleagues[35] found the home-visited mother better able to provide the kind of stimulation that promotes future success at school. Seitz and colleagues[53] found that home-visited mothers were significantly more involved in their child's schooling.

Studies reporting outcomes assessing mothers' knowledge concerning their child's health

Two studies reported outcomes related to mothers' knowledge concerning their child's health. Stanwick and colleagues[37] found no significant differences between home-visited and non-visited mothers in their knowledge, specifically about immunisation. McNeil and Holland,[34] whose study compared home visits with group teaching, assessed mothers' knowledge by posing 24 vignettes of hypothetical 'health-related situations' to mothers. Mothers were asked what they would do if, for example, the child fell

on his/her head and later began vomiting; if the child had a rash or appeared feverish; if the child ate two cigarette stubs from an ashtray, etc. Mothers who had received group teaching were found to have significantly more knowledge about the appropriate use of healthcare for their infants than mothers receiving home visits. Neither McNeil and Holland[34] nor Stanwick and colleagues[37] reported outcomes concerning the uptake of child health services (see sections on 'Uptake of preventive child health services', page 32 and 'Uptake of acute-care child health services', page 34).

Studies assessing mothers' caretaking skills

Two studies assessed mothers' caretaking skills. Larson[57] found significant differences favouring the home-visited mothers with respect to the mother's skill in caretaking. Stanwick and colleagues[37] found no differences in mothers' skill in bathing their infants, and performing nose and ear hygiene.

Studies reporting no positive results

Of the 27 studies reporting non-HOME outcomes, six reported no positive finding with respect to any of the non-HOME outcomes which each respectively assessed.[34,37,58,83,84,88,101]

Of these six studies, three reported significantly higher HOME Inventory scores,[58,83,84,101] suggesting that the intervention did have a positive impact, if not in relation to non-HOME outcomes. Concerning the remaining three studies reporting no positive effects, the intervention programme described by Stanwick and colleagues[37] consisted of a single home visit provided by a public health nurse. It seems likely that one visit was insufficient to effect any change. The programme described by McNeil and Holland[34] did not include in its design a no treatment control group. It compared only home visiting plus group teaching, and home visiting alone, and therefore the study design precluded any assessment of the effectiveness of home visiting versus no home visiting. The final study by Wasik reporting no positive effects of home visiting[88] employed professional home visitors and appears not to differ from other, successful programmes in the duration and intensity of visits, or the characteristics of participants.

Summary of results

1. A total of 27 studies meeting our inclusion criteria reported non-HOME outcomes related to parenting or the quality of the home environment. Ten of the 27 also reported HOME scores.[177]
2. Of the 27 studies, three reported no positive results with respect to any outcome. The remaining 24 reported positive results, either in significantly higher HOME scores alone, or in some or all of the other parenting outcomes (see also part 1, page 23).
3. The majority of studies assessing the following three types of non-HOME outcome reported significant positive effects among home-visited mothers:

Non-HOME outcome: number of studies favouring intervention group

- *parents' developmental expectations of their child*: four out of five studies favoured intervention group mothers
- *interaction between mother and child*: 12 out of 17 studies favoured intervention group mothers
- *mothers' teaching ability*: two out of two studies favoured intervention group mothers.

Studies assessing the following types of non-HOME outcome found no significant differences between the intervention and control group in at least 50% of studies.

Non-HOME outcome: number of studies showing no differences between groups

- *maternal knowledge about child health*: one out of two studies found no significant differences between the groups
- *mothers' caretaking skills*: one out of two studies found no significant differences between the groups
- *parental attitudes towards child discipline*: four out of seven studies found no significant differences between the groups
- *parental stimulation of the child through books, toys, etc.*: three out of five studies found no significant differences between the groups.

Conclusions

Interpretation of the findings of the 27 studies discussed in this section is difficult. First, the 27 studies should not be viewed in isolation from those studies using only HOME as an outcome measure (see part 1, page 23). However, since many of the latter reported only an overall HOME score it is not possible to compare their findings on each subscale with those of the studies assessing similar outcomes but not using the HOME Inventory.

Secondly, the use of such a variety of outcome measures makes comparison between the studies difficult.

Thirdly, many of the non-HOME outcomes were measured through maternal self-report. This is a notoriously unreliable measure that may be subject to bias introduced by parents' desire to provide a socially acceptable response. Maternal self-report also relies on parents' recall, which may not be complete.

Fourthly, many outcomes were related to parental knowledge or attitudes rather than parenting behaviour, so that it is not known whether changes in attitudes resulted in changed parenting behaviour.

Finally, any assessment of competence at parenting involves value-judgements. In a large number of studies the reported findings are inseparable from the value-judgements of those undertaking the assessment. For instance, an assessor might consider that the most 'appropriate' method of discipline is to praise the child when he or she behaves well, and to ignore bad behaviour. By contrast, the mother herself might consider that shouting when the child misbehaves is a far more effective method of discipline. This is not to criticise those studies in which value-judgements have clearly been made. Rather, it is to point out that in assessing such soft and intermediate outcomes as parenting competence, what counts as a successful outcome is highly dependent on value judgements concerning the 'right' or 'best' way to bring up a child.

Notwithstanding the difficulties in interpreting the findings of the studies reviewed above, the evidence points to the conclusion that home visiting can be successful in changing attitudes and beliefs, improving parenting skills and enhancing the quality of the home environment.

Child behaviour and child temperament

A total of 23 studies which met our inclusion criteria reported outcomes assessing child behaviour or child temperament.[35,37,38,42,44,46,48,52,53,57,58,67,69,70,79,81,90,91,101,128,130,131,133,144,150,161,165,166,172]

The characteristics of the 23 studies are shown in *Table 4*.

Child temperament

Five studies,[42,46,48,58,90] all of which were RCTs, assessed the child's temperament using the Carey Infant Temperament Scale, a 67-item scale that taps temperamental qualities including distractibility, mood and level of anxiety.[179]

Meta-analysis of all five studies, using Fisher's method,[119] indicated a difference of borderline significance between intervention and control groups, with children in the intervention group achieving a marginally better score (χ^2 = 30.0; 20 df; p = 0.07).

General child behaviour problems

Nine studies, using a variety of outcome measures, assessed a range of child behaviour problems. Five of the nine studies reported significant overall improvements in the behaviour of children in the intervention group compared with children in the control group.[35,44,67,69,128,130,133]

Four studies[52,79,101,144] reported no significant differences in the behaviour of children in the intervention and control groups.

Maternal concern about child behaviour

Seven studies reported outcomes relating to maternal concern about their child's behaviour. Four found decreased maternal concern among home-visited mothers.[37,57,128,144] One found no differences between the intervention and comparison groups;[161] and two studies found that maternal concern was greater among home-visited mothers.[38,48]

Sleeping difficulties

Five studies assessed the sleeping behaviour of children separately from their assessment of general behaviour problems.[35,48,57,150,172] Effect sizes from four of these studies,[35,48,150,172] all of which were RCTs, were entered into a meta-analysis. One study was excluded because results were not reported separately for the intervention and control group.[57] All effect sizes entered into the meta-analysis were less than one. The pooled OR was 0.48 (95% CI, 0.30 to 0.76). This indicates that the intervention group mothers were significantly less likely to report problems with their child's sleeping behaviour. The χ^2 test for heterogeneity gave a value of 0.63 with 3 df, suggesting the effect sizes were homogeneous (p = 0.89). The results are shown in *Figure 1* (page 87).

Feeding problems

Two studies assessed feeding problems.[48,57] Both reported significantly fewer feeding problems in the intervention group.

School behavioural problems

The two intervention programmes described by Madden and colleagues[81] and Seitz and

colleagues[53] both had as their aim the prevention of educational disadvantage. Madden found no difference in school teachers' ratings of the severity of school problems such as reading or discipline. Seitz and colleagues, in assessing teachers' ratings of the child's positive and negative behaviour, reported that there were no significant differences in teachers' ratings for girls. However, control boys were rated significantly more negatively by teachers. Seitz and colleagues also reported that control boys were significantly more likely to be receiving school remedial or psychological services. Seitz and colleagues further found significantly less absenteeism among the home-visited children, and better school adjustment among the home-visited children.

Mixed social, behavioural, developmental and intellectual outcomes

Chapman[131] assessed children's "social maturity" using a scale that combined developmental, behavioural and social outcomes. She found no differences between any of the treatment groups. Scarr and McCartney[52] assessed children's "social competency" using a scale that combined social, behavioural and intellectual skills. There were no differences between intervention and control groups.

Summary of results

1. A total of 23 studies which met our inclusion criteria reported outcomes assessing child behaviour or temperament.
2. Five studies assessed the child's temperament using the Carey Infant Temperament Scale.[179] The results of meta-analysis of the five studies, all of which were RCTs, indicated better scores in the home-visited groups of borderline significance. It was not possible to determine the size of the treatment effect because the meta-analysis was undertaken using Fisher's[119] method ($\chi^2 = 30.0$; 20 df; $p = 0.07$).
3. Nine studies assessed a range of child behaviour problems. Five reported significantly better behavioural outcomes in the children in the intervention group; three reported no significant differences between intervention and control groups; and one reported improved behaviour in the control group, although this finding did not reach statistical significance.
4. Four studies which reported on children's sleeping behaviour, all of which were RCTs, were entered into a meta-analysis. The results indicated that the intervention group mothers were significantly less likely to report problems with their child's sleeping behaviour (OR = 0.48; 95% CI, 0.30 to 0.76).
5. Two studies assessed feeding problems. Both reported significantly fewer feeding problems in the intervention group.
6. Seven studies assessed maternal concern about their child's behaviour. Four found decreased levels of maternal concern about child behaviour among intervention group mothers. Two found increased concern among intervention group mothers, and one found no difference.

Conclusions

Our review indicates that home visiting is associated with greater success among parents in managing their child's behaviour. However, it is difficult to come to any conclusions about why some programmes were effective and others not. In two British studies by Sutton[165,166] and Hewitt and colleagues,[144] the sole objective of the programme was to help parents to deal more effectively with a range of child behaviour problems. Sutton's programme succeeded in this objective; Hewitt and colleagues' did not. There were differences in the two studies in the duration and intensity of home visiting; in the professional backgrounds of the intervenors (psychologist versus health visitor); and in the content of the intervention (a behavioural approach versus a more eclectic approach that included behavioural techniques). However, it is not possible to ascribe confidently the success of Sutton's programme against the lack of success of Hewitt and colleagues' programme to any particular factor or combination of factors. This is a problem to which attention has been drawn throughout this report.

Many of the studies reporting behavioural outcomes did not involve training parents using behavioural techniques. Further work is required to assess the effectiveness of such parental training against offering parental support in the home without specific behavioural training.[105] Similarly, further work is required to assess the effectiveness of UK health visitor home visiting on child behavioural outcomes.

Many of the outcomes discussed in this section were measured through maternal self-report, which is susceptible to social desirability bias and surveillance bias. Findings of increased maternal concern about child behaviour in the absence of increases in actual child behaviour problems suggest that mothers receiving sustained home visits become accustomed, during the intervention,

to reporting concerns, and therefore report concerns more readily than mothers in the control group. Future studies will need to consider methods of reducing sources of bias, such as observation of child behaviour by an outside assessor, and prospective recording of behavioural problems by, for example, the use of parental diaries by mothers in both intervention and control groups.

Finally, the studies reviewed above raise questions about the length of time during which improvements in child behaviour are sustained. One study by Sutton[165] addressed this question directly. Sutton found that:

> "improvements [in parents' management of difficult children] fell away somewhat over the 18 months [post-intervention] as parents slipped back into old habits of being inconsistent in their handling of children, of making threats or promises which they did not carry out, or of forgetting to commend and encourage their children for desired behaviour."[165]

It can be concluded that there is some evidence that intensive home visiting is associated with improvements in child behaviour. However, there is insufficient evidence to assess the durability of such improvements following cessation of the intervention.

Child mental and motor development

A total of 27 studies meeting our inclusion criteria reported outcomes relating to the child's mental or motor development. Many of these studies used identical and standardised measurement scales, as shown in *Table 5*. The characteristics and quality scores of the studies are shown in *Table 6*.

Child mental development

Bayley Scale of Mental Development. Eight studies,[48,76,79,87,101,125,126,131] which were all RCTs, used the Bayley Scale of Mental Development.[180] Eight effect sizes were entered into a meta-analysis using Hedges' method.[118]

The overall effect size (Hedges' *g*) was 0.17 (95% CI, 0.06 to 0.28), which indicates significantly higher scores on the Bayley Scale of Mental Development in the intervention group, although the overall increase in score was small, and the clinical significance of this increase is unclear. The χ^2 test for heterogeneity gave a value of 32.0 with 7 df, suggesting heterogeneity of effect sizes ($p < 0.001$). The results are shown in *Figure 2* (page 101).

A total of 11 studies were excluded from the meta-analysis because they provided insufficient detail of their results.[42,45,58,83,85,88,90,93,124,145,163]

Six studies[42,58,88,90,93,124] reported significantly higher Bayley mental development scores among children in the intervention group. Five studies[45,83,85,145,163] reported no significant differences between intervention and control group, although one study[145] reported a higher score of borderline significance.

Child motor development

Bayley Scale of Motor Development. Of 11 studies using the Bayley Scale of Motor Development,[180] four, all of which were RCTs, reporting four effect sizes, were entered into a meta-analysis.[87,125,126,131]

The overall effect size (Hedges' *g*) was 0.17 (95% CI, –0.03 to 0.38), indicating no significant difference between intervention and control group. The χ^2 test for heterogeneity gave a value of 6.58 with 3 df, suggesting some heterogeneity of effect sizes ($p = 0.09$). The results are shown in *Figure 3* (page 101).

Seven studies were excluded from the meta-analysis because they provided insufficient detail of their results.[45,58,83,90,93,145,163] Two of the seven studies[58,93] reported significantly higher Bayley motor development scores in the intervention group. The remaining five studies reported no significant differences.

Stanford–Binet IQ

Eight studies used the Stanford–Binet intelligence test,[181] of which, six,[35,48,69,79,131,140] reporting six effect sizes, were entered into a meta-analysis using Hedges'[118] method.

The overall effect size (Hedges' *g*) was 0.32 (95% CI, 0.146 to 0.48), suggesting that children in the intervention group scored significantly more highly on the intelligence test, with an increase in IQ of approximately five points. The χ^2 test for heterogeneity gave a value of 35.8 with 5 df, suggesting that effect sizes were very heterogeneous ($p < 0.001$). The results are shown in *Figure 4* (page 102). Restricting the analysis to RCTs[35,48,69,79,131,140] gave similar results. (Overall effect size (Hedges' *g*) was 0.27; 95% CI, 0.12 to 0.45; $\chi^2 = 27.5$; 4 df; $p < 0.001$.)

Two studies were excluded from the meta-analysis because they provided insufficient detail of their results. One[81] reported significantly higher scores in the intervention group, the other,[88] significantly

higher scores in the intervention group for only one of three cohorts.

The quality of the home environment and child mental development

Eleven studies[48,58,83,87,88,90,101,125,126,145,163] measured both the quality of the home environment using the HOME score,[177] and the child's mental development using the Bayley mental development scale.[180]

Of these 11 studies, three reported both significantly higher HOME scores accompanied by significantly higher Bayley mental development scores.[58,90,126] One reported no differences between intervention and control groups in scores on either scale.[48] A further six studies[83,87,101,125,163,145] reported significantly higher overall HOME scores (or higher scores on some subscales) but no differences on the Bayley mental development scale. Only one study[88] reported no difference in HOME score accompanied by better Bayley mental development scores.

These findings suggest that improvements in the quality of the home environment are a necessary, but not a sufficient, condition of improvements in mental development. Comparison of the three studies in which higher HOME scores are accompanied by higher Bayley mental development scores with the six studies in which higher HOME scores are not accompanied by higher Bayley scores, reveals that two out of three of the former studies describe an intervention delivered to premature infants or those with failure to thrive[90,126] compared with only one of the six studies reporting improvements in HOME scores but not in mental development.[163] Hence, it appears that improvements in the quality of the home environment tend to be accompanied by improvements in mental development only if the infant is premature or failing to thrive.

Summary of results

1. A total of 27 studies meeting our inclusion criteria reported outcomes related to child mental or motor development.
2. A total of 19 studies reported Bayley mental development scores. Eight of the 19 studies, all of which were RCTs, were included in a meta-analysis. The overall result of the meta-analysis was significant, suggesting that home visiting has some effect in improving Bayley mental development scores (Hedges' $g = 0.17$; 95% CI, 0.06 to 0.28).
3. A total of 11 studies reported Bayley motor development scores. Four, all of which were RCTs, were entered into a meta-analysis. There was no significant difference between intervention and control groups (Hedges' $g = 0.17$; 95% CI, –0.03 to 0.38).
4. Eight studies reported Stanford–Binet IQ scores. All eight reported significant positive effects. Six of the eight were entered into a meta-analysis. The result showed a small but significant effect of home visiting on IQ, with children in the intervention group gaining a score approximately 5 IQ points higher than children in the control group (Hedges' $g = 0.32$; 95% CI, 0.146 to 0.48). Restricting the analysis to RCTs produced similar results (Hedges' $g = 0.27$; 95% CI, 0.12 to 0.45).
5. In all, 11 studies measured both the quality of the home environment using the HOME score and the child's mental development using the Bayley mental development scale. Comparisons of these studies revealed that higher HOME scores tended to be accompanied by higher Bayley mental development scores only in prematurely born children. Higher HOME scores among children who were not premature tended not to be accompanied by higher Bayley mental development scores.

Conclusions

The results of our review suggest that home visiting is associated with improvements in the intellectual functioning of children. However, home visiting appears to be most effective in overcoming the delay in cognitive or intellectual functioning associated with prematurity, low birth weight or failure to thrive.

Further research is required to assess whether UK health visitor home visiting programmes can achieve improvements in intellectual functioning in children. Similarly, further research is needed to assess whether positive effects are confined to low birth weight, premature infants and those with failure to thrive, or whether positive results can also be achieved with other children at risk of adverse child health outcomes in a UK context. As yet, no published studies have compared an identical home visiting programme delivered to these different groups of children. Finally, future studies should assess how long improvements in intellectual functioning are maintained once the home visiting programme has ceased.

Child physical development

Eight studies[69,90,122,123,126,131,140,174] meeting our inclusion criteria reported the child's height and weight (*Table 7*). In five of the eight studies,[69,90,126,131,174] the programme of home

visiting was delivered to families of children who were premature or of low birth weight; in a sixth study, it was delivered to families of children suffering from "malnourishment".[140] In the two studies by Barker the home visiting programme was not confined to these groups.[122,123]

Child's weight

Four studies,[126,130,131,140] reporting four effect sizes, were included in a meta-analysis using Hedges' method. The overall effect size (Hedges' *g*) was 0.04 (95% CI, –0.17 to 2.46), which suggests a small but non-significant positive effect on weight. The χ^2 test for heterogeneity gave a value of 1.46 with 3 df, indicating homogeneity of effect sizes ($p = 0.69$). The results are shown in *Figure 5* (page 108). Restricting the analysis to three RCTs[126,130,131] also failed to demonstrate an effect of home visiting on weight (Hedges' $g = 0.02$; 95% CI, –0.17 to 0.24; $\chi^2 = 0.93$; 2 df; $p = 0.63$).

Child's height

Four studies,[126,130,131,140] reporting four effect sizes, were included in a meta-analysis using Hedges' method. The overall effect size (Hedges' *g*) was 0.04 (95% CI, –0.17 to 2.5), which suggests no effect of home visiting on height. The χ^2 test for heterogeneity gave a value of 3.82 with 3 df, indicating homogeneity of effect sizes ($p = 0.28$). The results are shown in *Figure 6* (page 108). Again, restricting the analysis to RCTs[126,130,131] failed to demonstrate an effect of home visiting on height (Hedges' $g = –0.02$; 95% CI, –0.24 to 0.20; $\chi^2 = 0.47$; 2 df; $p = 0.79$).

Four studies[90,122,123,174] were excluded from the meta-analysis. One study by Barker and Anderson[122] was excluded because the results were presented as a percentage below the 10th percentile and no statistical test results were reported. A second study by Barker and colleagues[123] and a study by Field and colleagues[90] did not report any SDs. Wright and colleagues[174] reported only height adjusted for parental height.

Both studies by Barker[122,123] reported that intervention group infants were heavier and taller. Wright and colleagues[174] and Field and colleagues[90] found that home-visited children were significantly heavier and taller.

Summary of results

1. Eight studies meeting our inclusion criteria reported child weight and height.
2. The results of meta-analyses of four studies show no evidence of significant effects of home-visiting on weight (Hedges' $g = 0.04$; 95% CI, –0.17 to 2.46) or height (Hedges' $g = 0.04$; 95% CI, –0.17 to 2.5). Restricting the analysis to RCTs found similar results: weight (Hedges' $g = 0.02$; 95% CI, –0.17 to 0.24); height (Hedges' $g = –0.02$; 95% CI, –0.24 to 0.20).

Conclusions

The lack of any significant effect on weight and height may be a result, in part, of methodological shortcomings in the studies we reviewed. All the studies we reviewed analysed height and weight in a simple manner without regard to the complexities of translating standard weight and height charts into growth charts. The problems in this area have been summarised by Cole,[190] who advocated the use of conditional reference charts, which take account of measurement phenomena such as regression to the mean. In addition, only four studies, three of which were RCTs, could be included in meta-analyses. With so few studies available for analysis, we conclude that there is insufficient evidence regarding the impact of home visiting on the weight and height of children.

Uptake of preventive child health services

A total of 14 studies were found which met the inclusion criteria, as detailed in *Table 8*. These were divided into those that reported outcomes measuring uptake of immunisation in childhood (*Table 9*), and those reporting receipt of other preventive child health services (*Table 10*).

Immunisation

Nine of the studies reporting uptake of immunisation had comparable measurements of uptake enabling their inclusion in a meta-analysis (as indicated with an asterix in *Table 8*). Effect sizes from the nine studies were entered into a meta-analysis using Peto's method. Of the nine effect sizes, two had an OR below one, the remaining seven OR were above one. The pooled OR across the nine effect sizes was 1.40 with a 95% CI from 1.16 to 1.68 (χ^2 test for heterogeneity = 22.1; 8 df; $p = 0.005$). The results are shown in *Figure 7* (page 110). Restricting the analysis to RCTs produced similar results (OR = 1.67; 95% CI, 1.29 to 2.15), and the heterogeneity between treatment effects remained ($\chi^2 = 16.6$; 4 df; $p = 0.002$). Using a random effects model the results no longer remained significant (OR = 1.13; 95% CI, 0.55 to 2.32).

Two studies were not included in the meta-analysis: that by Siegel and colleagues[75] was excluded because they reported the mean number of immunisations without a SD or a *p*-value; Barth and colleagues[46] used an outcome measure (baby care) that combined the uptake of immunisations and uptake of preventive child healthcare. Barth and colleagues[46] reported a significantly higher mean baby care score in the intervention than the control group. Siegel and colleagues[75] reported no significant difference in mean number of immunisations at the age of 12 months.

Receipt of preventive child health services (excluding immunisation)

The characteristics of the studies reporting uptake of preventive child health services as an outcome measure are shown in *Table 10*.

Only three of the eleven studies measuring uptake of preventive child health services used measurements that could be combined in a meta-analysis.[38,57,138] Dawson and colleagues[71] expressed uptake of preventive child health services as the mean number of visits (plus SD, but no *p*-value); Hardy and Streett[47] reported the mean number of clinic visits (without SD or *p*-value); Kitzman and colleagues[101] reported the difference in the mean number of clinic visits (without a *p*-value); Oda and colleagues[155] reported the percentage of children receiving a Medicaid preventive healthcare assessment (no *p*-values given); Siegel and colleagues[75] reported the mean number of preventive healthcare visits (but no SDs or *p*-values); Barth and colleagues[46] reported a combined outcome measure that comprised immunisations plus well child care visits; and Olds and colleagues[82] reported the mean number of scheduled health supervision visits (without SDs or *p*-values). Selby-Harrington and colleagues[162] reported the effectiveness of home visiting in increasing uptake of Medicaid well child screening in a population of families who were already non-attenders for this screening. As such they represented a highly selected group, and we did not consider they were comparable with the participants of the other studies which we have included in the meta-analysis.

Six of these eight studies which reported outcomes not included in the meta-analysis failed to demonstrate any effect of home visiting on uptake of preventive child health services.[47,71,75,82,101,155] One study, that by Selby-Harrington and colleagues[162] did demonstrate a significantly greater proportion of home-visited children attending Medicaid screening. Three of these studies included encouragement of uptake of preventive child health services within the intervention.[47,155,162] The remaining studies either did not encourage uptake of services or it is unclear in the reporting whether the intervention involved such encouragement. The remaining one study not included in the meta-analysis demonstrated increased uptake of preventive child health services.[46] This study used an outcome measure combining immunisations and uptake of preventive child healthcare. Figures are not provided for the components of this combined outcome measure, and therefore it is not possible to assess the relative contribution of immunisation and preventive health services to this positive outcome. All the studies included in the meta-analysis involved specific encouragement of uptake of preventive child health services.

Effect sizes from three studies were included in the meta-analysis. The pooled OR obtained from the meta-analysis was 1.18 with a 95% CI from 0.69 to 2.02. There was considerable heterogeneity of the effect sizes between studies, as reflected by the chi-squared test ($\chi^2 = 7.94$; 2 df; $p = 0.02$). The results are shown in *Figure 8* (page 118). An analysis restricted to randomised studies has not been undertaken because this would contain fewer than three studies. Using a random effects model produced similar results (OR = 1.05; 95% CI, 0.46 to 2.41). The results suggest that the studies we have reviewed do not provide evidence that home visiting is effective in increasing the uptake of preventive child health services.

Summary of results

1. A total of 14 studies were found that fulfilled the inclusion criteria, which reported uptake of immunisation and/or uptake of preventive child health services.
2. A total of 11 studies reported immunisation uptake outcomes; 11 studies reported uptake of preventive child health services; one study reporting both outcomes used an outcome measure combining both uptake of immunisations and uptake of preventive child health services.
3. Nine studies were included in the meta-analysis to assess the effect of home visiting on uptake of immunisation using Peto's method. The pooled OR was 1.40 (95% CI, 1.16 to 1.68), with significant heterogeneity of effect sizes. Restricting the analysis to RCTs produced

similar results, again with heterogeneity of effect sizes (OR = 1.67; 95% CI, 1.29 to 2.15). A random effects model found no effect of home visiting on immunisation uptake (OR = 1.13; 95% CI, 0.55 to 2.32).
4. Of the two studies not included in the meta-analysis, one reported higher rates of uptake of immunisation in the home-visited group.
5. Three studies were included in the meta-analysis to examine the effect of home visiting on the uptake of preventive child health services (excluding immunisation), using Peto's method. No effect of home visiting was found. The pooled OR was 1.18 (95% CI, 0.69 to 2.02).
6. Six of the eight studies not included in the meta-analysis failed to demonstrate a difference in uptake of preventive child health services between home-visited and non-home-visited groups. There seemed few differences between the characteristics of the successful and unsuccessful programmes in relation to this outcome measure.

Conclusions

Our review of the effectiveness of home visiting programmes suggests that they are not effective in increasing uptake of immunisation or uptake of other preventive child health services.

There was significant heterogeneity in the effect sizes both for immunisations and for uptake of other preventive child health services. Our subgroup analysis suggests that the heterogeneity cannot be explained by non-random allocation to treatment groups. Examining the possible explanations for this revealed that the studies included in the meta-analysis used differing definitions of immunisation. These ranged from being fully immunised by the age of 5 years, 2 years, 14 months, and 1 year in four different studies; receiving second DPT and polio immunisation by 6 months; receiving all three DPT and polio immunisations by 6 months; receiving all three DPT and polio immunisations, plus a skin test for tuberculosis by 12 months, plus measles immunisation by 18 months. The four studies showing significantly higher immunisation rates in the home-visited group used definitions of immunisation that allowed a longer period of time (usually 6 months) after the last immunisation was due before categorising immunisation as being complete or incomplete. It is therefore possible that there may be an effect of home visiting on immunisation if the definition used is more generous in terms of the time taken to complete immunisation.

The definitions for uptake of other preventive services were more variable than those for immunisations. They ranged from 'adequate' child health clinic visits (defined as four well-child visits prior to age 6 months, two from age 6–12 months and one between 12 and 18 months) to infants receiving at least one check-up, children aged 1–5 years receiving at least one check-up, and less than three, or four or more, well-child clinic visits by 6 months of age. Achievement of one clinic visit would seem to be an outcome of a different magnitude to achieving repeated visits, and combining such outcomes in a meta-analysis may be problematic. The lack of use of standardised measures of uptake of preventive child health services, and to a lesser extent of immunisation, in the studies we have reviewed has limited the conclusions we are able to draw from them. Future studies should consider both the choice of outcome measure in this field and also the presentation of their results to enable inclusion in a meta-analysis wherever possible.

Uptake of acute-care child health services

A total of 18 studies meeting our inclusion criteria reported outcomes relating to child medical conditions and use of acute-care services by the child, as shown in *Table 11*. The characteristics of the studies reporting outcomes relating to the use of acute-care services and/or medical conditions are shown in *Table 12*.

Use of acute care services

Hospital admission. Nine studies[45,47,62,75,82,87,122,123,163] assessed whether home visiting had an effect on admission to hospital. (Where findings have been reported separately for admission to hospital for intentional and unintentional injury, these have not been taken into account in the present discussion – see next section on 'The prevention of unintentional injuries in childhood', page 36).

Effect sizes from seven studies[47,62,75,82,87,122,123] were entered in a meta-analysis using Peto's method. The pooled OR was 0.73 (95% CI, 0.55 to 0.98). This indicates that children in the intervention group were significantly less likely to be admitted to hospital. The χ^2 test for heterogeneity gave a value of 23.7 with 6 df, suggesting heterogeneity of effect sizes ($p = 0.005$). The results are shown in *Figure 9*. Restricting the analysis to five RCTs[47,62,75,82,87] still resulted in heterogeneity of effect sizes ($\chi^2 = 12.7$; 4 df; $p = 0.05$) and

demonstrated no effect of home visiting on hospital admission (OR = 0.92; 95% CI, 0.64 to 1.34). The use of a random effects model produced similar results (OR = 1.07; 95% CI, 0.13 to 9.02).

Shapiro[163] reported no group differences in rates of hospital admission, but no test results are given. Brooten and colleagues[45] reported no statistically significant differences between the two groups in terms of the number of hospitalisations, but no test results are given.

Duration of hospital stay. Four studies looked at the effect of home visiting on the duration of hospital stay.[62,82,122,123] Effect sizes from three of the four studies were entered in a meta-analysis using Peto's method. The pooled OR was 1.63 (95% CI, 1.18 to 2.24). This indicates that the duration of their stay in hospital was significantly longer in the intervention group children. The χ^2 test for heterogeneity gave a value of 12.37 with 2 df, suggesting considerable heterogeneity of effect sizes ($p = 0.002$).

Barker and Anderson[122] was excluded from the meta-analysis because he reported only the mean number of days hospitalised without SDs. Barker found that the mean number of days hospitalised was lower in the intervention group.

Subgroup analyses, restricted to studies with random allocation (and using a random effects model if necessary), have not been undertaken because there would have been fewer than three studies to include.

Use of emergency medical services. Six studies examined the effect of home visiting on the use of emergency medical services.[47,57,70,75,82,145]

Effect sizes from five of the six studies[47,57,70,75,82] were entered in a meta-analysis using Peto's method. The pooled OR was 0.77 (95% CI, 0.58 to 1.03). This indicates that children in the intervention group were less likely to have contact with emergency medical services, but this difference did not reach significance. The χ^2 test for heterogeneity gave a value of 9.96 with 4 df ($p = 0.12$). The results are shown in *Figure 10* (page 128). Restricting the analysis to RCTs[47,70,75,82] produced similar results (OR = 0.79; 95% CI, 0.32 to 1.95; $\chi^2 = 9.8$; 3 df; $p = 0.08$). A random effects model produced similar results (OR = 0.84; 95% CI, 0.19 to 3.63).

The study by Huxley and Warner[145] was excluded because only *Z* scores and *p*-values were reported. Huxley and Warner report that significantly more control group children than intervention group children presented at the emergency medical services.

The six studies discussed in this subsection did not all state the reason for attendance at emergency medical services. Some attendances may have been for unintentional injury, hence our findings here are consistent with those reported for unintentional injury in the next section ('The prevention of unintentional injuries in childhood', page 36).

Use of services for selected medical conditions. Five studies assessed outcomes relating to use of acute-care services for selected medical conditions only.[47,62,71,145,174]

Two studies reported positive findings. Hardy and Streett[47] found that the proportion of infants presenting to outpatient services with otitis media and severe monilial nappy rash was significantly lower among home-visited children. Huxley and Warner[145] reported that significantly fewer home-visited children presented to the emergency medical services with vomiting, diarrhoea and dehydration. Neither Johnson and colleagues[62] nor Dawson and colleagues[71] found positive effects of home visiting. Johnson could find no difference between intervention group and controls in the relative risk of being admitted to hospital for any of ten medical conditions.[62] Dawson and colleagues discovered that contrary to expectations, significantly more home-visited mothers brought their infants in to a local clinic for sick child care for minor illnesses than control mothers. There were no differences in visits for chronic illnesses.[71] Finally, Wright and colleagues[174] reported no differences between the groups in the number of hospital visits for either organic conditions or failure to thrive.

Medical conditions

Four studies looked at children's health problems/medical conditions.[38,46,47,69,70]

Hardy and Streett[47] found significantly fewer maternal reports of otitis media in the intervention group. The remaining three reported no beneficial effects of home visiting in reducing reported ill-health. Barkauskas[38] reported no significant differences in the number of maternally reported health problems in the intervention and control groups. The IHDP[69]

found that there was a small but significant increase in maternally reported minor illnesses for the lighter birth weight infants only, but no difference in serious health conditions. Barth[46,70] reported no group differences in the ratings from minor to severe of eight common medical conditions, including viral illness, rash and diarrhoea.

Site of sick care. Margolis and colleagues[152] reported that mothers in the intervention group were significantly more likely to use a primary care office, rather than, for example, emergency medical services, as the regular source of sick care. This suggests that home-visited mothers made use of primary care services rather than secondary care services, although it is possible that the children of home-visited mothers were simply less ill.

Summary of results

1. A total of 18 studies meeting our inclusion criteria reported outcomes relating to child medical conditions and use of acute-care services.
2. Meta-analysis of seven studies showed that children in the intervention group were significantly less likely to be admitted to hospital (OR = 0.73; 95% CI, 0.55 to 0.98). However, restricting the analysis to five RCTs demonstrated no effect of home visiting on hospital admission (OR = 0.92; 95% CI, 0.64 to 1.34). Three studies showed that children in the intervention group had a longer stay in hospital (OR = 1.63; 95% CI, 1.18 to 2.24), but with significant heterogeneity of effect sizes.
3. Meta-analysis of five studies revealed no difference in contact with emergency services between the two treatment groups (OR = 0.77; 95% CI, 0.58 to 1.03). Restricting the analysis to RCTs produced similar results (OR = 0.79; 95% CI, 0.32 to 1.95; $\chi^2 = 9.8$; 3 df; $p = 0.08$), as did a random effects model (OR = 0.84; 95% CI, 0.19 to 3.63).
4. Three out of four studies assessing ill-health found that selected illnesses/medical conditions were reported as frequently or more frequently by mothers in the intervention group.
5. Of four studies reporting medical conditions for which children presented to acute-care services, two found that children in the intervention group presented less often than controls, and two found that the former presented as often or more often than the latter.

Conclusion

Our review suggests that home visiting probably does not have the effect of reducing admissions to hospital because meta-analyses of the RCTs suggested there was no effect from home visiting, whereas the inclusion of studies with non-random allocation suggested a reduction in hospital admissions. Analysis of the three studies that measured length of stay suggested home visiting may be associated with increasing the length of stay in hospital. There was no evidence of a significant reduction in the use of emergency medical services, although a reduction that did not reach a level of significance was found.

Methodological problems prevent us from drawing any firm conclusions concerning the effectiveness of home visiting in altering patterns of ill-health. First, maternal reports of child health suffer the problem of surveillance bias in that, for example, reports of increased ill-health in children in the intervention group may simply be a reflection of more complete and accurate reporting by their mothers. Secondly, as we note also in the next section section ('The prevention of unintentional injuries in childhood'), patterns of service utilisation tell us little about patterns of ill-health. There is no way of knowing whether reduced attendance at emergency medical services reflects a reduction in ill-health, a greater reluctance by some mothers to take their child to these services, or a better ability of some mothers to deal with childhood illness without recourse to health services. Furthermore, since many studies did not examine the use of both secondary and primary care services, it is difficult to know if lower use of emergency medical services reflects a shift in the site of care or a reduction in the occurrence or severity of childhood illness.

Finally, it should be stressed that reductions in hospital admissions, length of stay, and use of emergency services are not necessarily beneficial outcomes. It may be that, for at least some population subgroups, an increased utilisation of services is the most desirable outcome.

Future studies need to address these issues in their design.

The prevention of unintentional injuries in childhood

The effectiveness of home visiting programmes in terms of childhood unintentional injury has been examined in two ways: first, by assessing the effectiveness of programmes in reducing

hazards and secondly by assessing the effectiveness of programmes in reducing injury frequency. These will be considered in turn below.

The effectiveness of home visiting programmes in reducing hazards

Six studies that met the inclusion criteria reported measures of hazard reduction. These are shown in *Table 13*.

Five of the studies report differences in individual hazards or safety practices pre- and post-intervention,[132,158–160,171] and two studies calculated scores based on the total number of hazards in the home.[82,158] The characteristics of the studies reporting hazard reduction outcomes are shown in *Table 14*.

Five of the six studies in *Table 13* included only a single home visit.[132,158–160,171] These five studies all had objectives relating only to the reduction in hazards. The sixth study by Olds and colleagues[82] was a multifaceted intervention comprising a series of home visits aimed at improving a range of child and maternal health outcomes, and involved a series of home visits, as specified in *Table 14*. Five of the six studies[82,132,158,160,171] used a home safety checklist to assess hazards in the home. In all these studies, except for that by Olds and colleagues,[82] it is also specified that hazards were identified and specific advice was given to the parents on hazard reduction and availability of items of safety equipment. Schwarz and colleagues[160] also provided small safety devices such as smoke alarms and syrup of Ipecac.

In all, 33 effect sizes were reported from four studies. Some 23 of the effect sizes were OR above one, 15 of which were significantly above one. Eight effect sizes, all reported by Schwarz and colleagues, had OR of less than one, seven of which were significantly less than one.[160] Previous work on home hazards suggests that parents often behave inconsistently with respect to home safety, so that where they may behave safely in one area of home safety, they will behave less safely in other areas. For this reason a meta-analysis and calculation of a pooled OR has not been undertaken.

Home visits were not effective in reducing unsafe water temperature, storage of medicines in containers without child resistant caps, tripping hazards owing to rugs or floor coverings in rooms other than the kitchen, living room, hall or bedroom, peeling paint in the porch, broken outside steps and missing or loose railings on outside or basement steps. Schwarz and colleagues argue that such hazards are those which require most effort to implement change, and that this may be the explanation for their failure to find a significant reduction in hazards in these areas.[160] However, the study by Colver and colleagues in a deprived area of Newcastle in the UK, found that low-income families did make changes to their home which required either major effort or financial outlay or both, such as obtaining and fitting stair gates, fire guards, cupboard locks, window locks and cooker guards.[132]

Two studies calculated scores based on the total number of hazards in the home. Olds used a checklist that covered chipped or flaking paint, sharp objects, danger of burns and dangerously placed objects posing a risk of falls.[82] Paul and colleagues used a 24-item checklist based on the sites, hazards and safety devices most commonly associated with childhood injuries.[158] Olds found a significant reduction in the mean number of hazards in the home at 34 and 46 months after commencement of intervention.[82] Paul and colleagues found no significant difference in the hazard score between intervention and control groups.[158]

The effectiveness of home visiting programmes in reducing childhood unintentional injury

In terms of childhood unintentional injury, the studies that we have reviewed fall into three groups. First, there are studies in which the home visit is the major part of the intervention aimed at improving a range of child and maternal child health outcomes; secondly, there are studies where the home visit is the only intervention aimed specifically at reducing unintentional injury; and thirdly, there are studies where home visits are only a part, and usually a minor part, of a multifaceted community intervention programme aimed at reducing childhood injury. These groups of studies will be considered separately below.

Studies describing home visiting programmes aimed at improving a range of child and maternal health outcomes

A total of ten studies that met our inclusion criteria belonged to this group. They are listed in *Table 15*.

In addition, two studies reported emergency room visits but did not specify if these were for medical conditions or for injury or ingestion.[46,75] These studies were therefore

excluded from this analysis, but have been included in the analysis relating to uptake of acute-care services (see previous section 'Uptake of acute-care child health services', page 36).

The characteristics of the ten studies reporting injury outcomes are illustrated in *Table 16*.

The studies by Dawson and colleagues,[71] Huxley and Warner,[145] Gray and colleagues[72] and the IHDP[69] have not been included in the meta-analysis. Both Dawson and colleagues and Gray and colleagues specify the number of injuries occurring in the intervention and control group combined, but do not specify these figures for each group separately.[71,72] Huxley and Warner present only a *p*-value and the IHDP does not provide figures for each category comprising the morbidity index.[69]

Seven of the total ten studies report injury outcomes for both intervention and control group.[35,47,48,57,62,82,101,145] All these studies with the exception of those by Johnson and colleagues[62] and Gutelius and colleagues[35] report that the intervention specifically included safety education. All seven studies report fewer unintentional injuries occurring to home-visited children than the control group. Larson,[57] Olds and colleagues[48,82] and Kitzman and colleagues[101] report a significant reduction in injury frequency amongst the home-visited groups. Effect sizes from six studies were entered into the meta-analysis. The pooled OR was 0.74 (95% CI, 0.57 to 0.95). The χ^2 value for the test for heterogeneity was 5.94 with 5 df, $p = 0.31$, suggesting the effect sizes are not significantly heterogeneous. The results are shown in *Figure 11* (page 137). Restricting the analysis to five RCTs[35,47,62,82,101] produced similar results (OR = 0.76; 95% CI, 0.58 to 0.99; $\chi^2 = 5.39$; 4 df; $p = 0.24$).

Studies where the home visit is the only intervention aimed specifically at reducing unintentional injury

Only one study,[136] which fulfilled our inclusion criteria, involved a home visit as the only intervention, the objective of which was to decrease unintentional injury frequency (*Table 17*). Fallat and Rengers[136] identified the zip code with the highest incidence of paediatric burns from a local trauma register. A total of 80 out of 121 families living in local housing authority housing were randomly selected for the intervention. One home visit was undertaken by a nurse who provided burn prevention education, checked the working of the smoke alarm, tested the hot water temperature and checked the hot water thermostat setting. In all, 20 apartments were randomly selected to have anti-scald devices fitted onto their bath tub hot water supply. Admissions to the only local burns centre were measured before and after the intervention. The remainder of the burns centre catchment area was used as a control. Prior to the intervention 48% (15 out of a total of 31) of children attending the burns centre resided within the targeted zip code area and post intervention this figure had fallen to 32% (12 out of a total of 37). This difference was not significant, but the number of children attending the burns centre was small, hence the study had insufficient power to detect a significant difference in injury frequency.

Studies where home visits are a part of a multifaceted community intervention programme aimed at reducing childhood injury

Three multifaceted community intervention projects specifically mentioned that the intervention included home visits. All met our inclusion criteria. The characteristics of these studies are listed in *Table 17*.

Each of these studies claimed a reduction in injury frequency. Spiegel and Lindaman[164] report a 50% reduction in falls from windows in one area of New York and a 35% reduction in deaths from window falls. However, denominator figures are not provided, which would have enabled rates to be calculated and compared based on the population at risk in each area. Guyer and colleagues[141] report a significant reduction in motor vehicle occupant injuries. Ytterstad and Sogaard[176] report a 53% reduction in burn incidence in the intervention community and a 10% increase in burn incidence in the control community over an 18-month period. Again, comparable rates using the population at risk as the denominator are not provided.

The relative contribution of home visits to the package of injury prevention interventions in these community intervention programmes is not always clear. Spiegel and Lindaman[164] does not report how many families received the home visits that were made for hazard identification. Guyer and colleagues[141] report that home visits for hazard identification reached only 5% of the households with children aged 0–5 years old in the intervention areas, compared with 30% of similar households receiving paediatrician counselling, 17% receiving car safety education, 10% burn safety education and 1% poison prevention education. Ytterstad and Sogaard[176]

do not report the relative penetration of home visits and the other interventions in their programme. On the basis of this evidence, it is only possible to conclude that home visits, when delivered as part of a multifaceted community intervention, are associated with reductions in injury frequency. No conclusions can be drawn concerning the independent contribution of home visits to reducing injury frequency.

Summary of results

1. Six studies meeting the inclusion criteria reported outcomes related to hazard reduction. Four studies reported prevalence of hazards from which ORs could be calculated. Of 33 effect sizes, 23 were OR above one, indicating a reduction in prevalence of the hazard after intervention and eight were OR below one. There was significant heterogeneity of the effect sizes.
2. The hazards least likely to be reduced after intervention were those where most effort was required to implement a change, or possibly those where parental perceptions of risk of injury were lower.
3. Two studies reported changes in the total number of hazards. One study demonstrated a significant reduction in the number of home hazards, the second did not.
4. Studies reporting injury frequency as an outcome were divided into three groups: those in which home visits were the major part of an intervention and in which the objective was to improve a range of child and maternal health outcomes; those where the home visit was the only intervention and was aimed at reducing unintentional injuries only; and those where the home visit was part of a multifaceted community intervention aimed at reducing injury frequency.
5. Seven of the total ten studies aimed at improving a range of child and maternal health outcomes reported reductions in injury frequency. Six of these studies were included in a meta-analysis. The pooled OR was 0.74 (95% CI, 0.57 to 0.95). Restricting the analysis to RCTs produced similar results (OR = 0.76; 95% CI, 0.58 to 0.99; $\chi^2 = 5.39$; 4 df; $p = 0.24$).
6. One study reported results from a home visit aimed specifically at reducing unintentional injury. It demonstrated a non-significant reduction in the number of children attending a burns centre. The study sample size was small, hence the study had insufficient power to demonstrate a significant reduction in injury frequency.
7. Three community intervention programmes aimed at reducing injury frequency included home visits as part of a multifaceted intervention. All claimed reductions in injury frequency, but all had methodological flaws. The independent effect of home visits cannot be ascertained from these studies.

Conclusions

Our review of the literature in this field leads us to conclude that there is evidence that home visiting programmes can be effective in reducing unintentional injury frequency in childhood. There is some evidence that home visits that involve hazard identification and advice regarding hazard reduction may reduce the prevalence of individual hazards and reduce the total number of hazards in the home. The independent contribution of home visits to reductions in injury frequency associated with multifaceted community intervention programmes cannot be assessed from the studies we have reviewed.

We found few well-conducted studies assessing injury frequency and fewer assessing reductions in hazards. The methodological weaknesses that we have described in other sections of our review apply equally to studies of home visits and childhood injury (see 'Methodological limitations of the studies', page 57). In addition, injury prevention programmes frequently suffer from a further methodological problem, which is that of the difficulty of differentiating between differences in patterns of health service utilisation as opposed to reductions in injury frequency, when the outcome measures are measures of health service utilisation. For example, it could be postulated that a reduction in the number of attendances at accident and emergency departments in the home-visited groups in these studies may be attributable to either increased maternal confidence in dealing with minor injuries, increased access to advice, for example from the home visitor, or a reduction in the frequency, or severity, of injury. One possible solution would be to restrict analysis to injuries above a certain severity to reduce the likelihood of confounding by injury severity (as undertaken by Hardy and Streett).[47] However, as injuries are relatively rare events, and serious injuries even rarer events, very large sample sizes would be needed to demonstrate differences in frequency of severe injury. Another alternative would be to score injuries for severity and to compare the distribution of injury severity before and after intervention. None of the studies we reviewed undertook such an analysis. We would suggest that future studies in this area included injury

severity scoring as part of their range of outcome measures.

With so few studies incorporating both measures of hazard reduction and of injury frequency (despite the majority specifying that their intervention included safety advice), it is difficult to examine the hypothesis that a reduction in hazards is associated with a reduction in injury frequency. Future studies should include both of these outcome measures. It is also possible that reductions in hazards and in injury frequency may be associated with, and possibly attributable to, other changes that may be brought about by the intervention. For example, improvements in the quality of the home environment (as measured by the HOME Inventory;[177] see the earlier section on 'Parenting and the quality of the home environment: part 1', page 23), improvements in other parenting outcomes ('Parenting and the quality of the home environment: part 2', page 25) and improvements in maternal mental health ('Mothers' psychological health and self-esteem', page 42) may impact upon the number or nature of hazards in the home or the quality of maternal supervision and hence the frequency of unintentional injury. Many of the studies reporting these outcomes did not, however, also report unintentional injury or hazard outcomes to enable such hypotheses to be tested. This may be due, in part, to the lack of a theoretical framework linking the intervention with the outcome.

The studies we reviewed that measured hazard reduction all used different tools to measure the presence or absence of hazards. Considerable heterogeneity of effect size was demonstrated, which may be explained by the measurement of different hazards by each study and the use of different tools to measure hazards. Some hazards will undoubtedly be more difficult to correct than others, and parents will perceive some hazards to be more dangerous than others. It is likely that those hazards that are most difficult to correct and those that parents perceive to be least dangerous will be those that the intervention affects least. We would suggest that future studies use standard tools for the assessment of hazards to enable more sensible comparisons to be made in future.

The extrapolation of our results to a UK health visitor home visiting programme is difficult because none of the studies we reviewed used UK health visitors. Secondly, the relative effectiveness of professional versus non-professional visitors cannot be ascertained. Thirdly, all the studies we reviewed which measured the effect of home visiting programmes on a range of maternal and child health outcomes used participants at risk of adverse maternal and child health outcomes. The effect of home visiting programmes on families at lesser risk is therefore not known.

Finally, it is extremely difficult to know which aspect of the intervention is responsible for the reduction in injury frequency. Although the majority of studies included in the meta-analysis reported that the intervention included safety education, the effect of such education, as opposed to the parental support provided, in achieving a reduction in injury frequency cannot be ascertained (see also chapter 6, 'Health visitors and unintentional injury in childhood', page 219).

The prevention of child abuse and neglect

A total of 12 studies were found which described outcomes relating to child abuse and neglect and which fulfilled the inclusion criteria. These are listed in *Table 18* (see also chapter 6, 'Health visitors and child protection', page 213). The characteristics and quality scores of the studies are shown in *Table 19*.

Of the 12 studies reporting outcomes pertaining to child abuse and neglect, only three found significant differences between the home-visited and control groups. Gray and colleagues[72] found significantly more families in the control group had children admitted to hospital with an injury suspected to be due to abuse. Five out of 50 families in the control group were reported compared to none of the 50 intervention group families ($p < 0.01$). Gray and colleagues[72] also found more children in the high-risk group (which included both the intervention group and one of the two control groups) had been removed from their biologic home than children in the low-risk group (the second control group; $p < 0.04$).

The other two studies that found significant differences in treatment groups were the study by Barth and colleagues[46] reporting lower "need care" scores in intervention group families and that by Kitzman and colleagues[101] reporting lower mean Bavolek scores at 6 months post-partum in the intervention group.[192] The lower "need care" score in the home-visited group indicated

that fewer home-visited families had children removed by the police or social services for abuse or neglect, or had children being cared for by neighbours for a similar reason. However, this study failed to find a difference in the number of cases of reported abuse. It also reported the CAPI score[191] (which measures maternal distress, rigidity, unhappiness, problems with self, with family and with others) and found no difference between the two groups.[46] Kitzman and colleagues[101] used the Bavolek score[192] (belief in physical punishment, unrealistic expectations, lack of empathy and role reversal) as a measure of beliefs about child rearing which are associated with child abuse. They found a significantly lower mean score in the intervention group at 6 months postpartum. Kitzman and colleagues[101] did not also measure reports of child abuse.

The remaining studies failed to find significant differences between the intervention and control groups using a variety of measures of abuse and neglect, as illustrated in *Table 19*. Dawson and colleagues[71] and Marcenko and Spence[74] both found higher rates of abuse and neglect in home-visited families, although the difference was not statistically significant.

The finding that in several studies home-visited families have poorer outcomes in terms of child abuse or neglect, can be explained either by surveillance bias whereby the intervention increases the chance of detecting cases of child abuse or neglect; or by the intervention increasing the risk of child abuse and neglect. It would seem unlikely that home visiting increased the risk of child abuse or neglect, as such a finding would be inconsistent with the positive effects that many home visiting programmes have demonstrated in terms of improving the quality of the home environment and mother–child interactions ('Parenting and the quality of the home environment: part 1', page 23), and improving the psychological well being of mothers ('Mothers' psychological health and self-esteem', page 42). A more plausible explanation, and that favoured by Roberts and colleagues in their review,[39] is that increased contact between families and healthcare workers increases the detection of abuse and potential abuse. This was highlighted in the study by Gray and colleagues,[72] where some cases of abuse in intervention families were reported by the home visitor.

In reviewing these papers on child abuse and neglect, it has become clear that there are considerable limitations in using the outcome measures listed in *Table 18*. First, comparisons between studies using different outcome measures are difficult. Suspected or potential abuse may describe a very different group of children and their families from reported or substantiated abuse, or from cases in which children have been removed from their families because of abuse or neglect. Secondly, the reliability of these measures of abuse and neglect has not been demonstrated, and would be extremely difficult to demonstrate. Thirdly, such measures are likely to be confounded by factors such as socio-economic status, ethnicity or maternal age, for example, and also possibly by other factors, of which we are, at present, unaware. In studies with small sample sizes, the comparability of confounding factors between the intervention and control groups is difficult to demonstrate with any degree of certainty. Furthermore, combinations of these variables may be more important than single variables (which is the basis on which tools for identifying families at risk of abuse are developed). Differences in outcomes in terms of abuse or neglect may therefore be related not to the intervention, but to baseline differences in the two groups, either of single variables or combinations of variables. In terms of combinations of variables, which few studies measure, even fewer have sufficient power to demonstrate differences between intervention and control groups. This limitation does not only apply to the outcomes of child abuse or neglect, but also applies more widely to the other outcomes we have considered in this review. Finally, home visiting programmes that improve mother–child interactions may alter not only the risk of child abuse or neglect, but also the risk of these being detected, as the perceptions of health or social care workers regarding the mother–child interaction may influence the likelihood of even considering a diagnosis of child abuse or neglect.

As a result of the difficulties inherent in the outcome measures used in these studies, we have not undertaken a meta-analysis. Furthermore, we do not believe that we can draw any conclusions regarding the effectiveness of home visiting programmes in the prevention of child abuse and neglect.

Summary of results

1. A total of 12 studies reported outcomes related to child abuse and neglect: two of which reported only scores pertaining to the risk of potential abuse.
2. A total of ten studies reported a variety of measures of child abuse and neglect, including

substantiated reports, reports of suspected or potential abuse and out-of-home placements resulting from abuse.

3. Only one study found a significant difference between intervention and control groups. This study found a higher rate of hospital admission for injury suspected to be due to abuse in the control group.

Conclusions

There are considerable limitations inherent in the use of the outcome measures utilised in the studies we have reviewed, including surveillance bias, non-comparability of the measures used, confounding by other factors and difficulties in the detection of abuse associated with health and social care workers' perceptions of mother–child interactions. As a consequence of these limitations, no conclusions can be drawn regarding the effectiveness of home visiting in reducing child abuse and neglect.

Mothers' psychological health and self-esteem

A total of 15 studies that met our inclusion criteria reported outcomes relating either to mothers' psychological health or to mothers' self-esteem, as shown in *Table 20* (see also chapter 6, 'Health visiting interventions for mothers with postnatal depression', page 210).

The reported outcomes, and the instruments used to measure them, are shown in *Table 21*. The characteristics and quality scores of these studies are shown in *Table 22*.

Psychological health

A total of 13 studies reported one or more outcomes relating to psychological or emotional health (as distinct from self-esteem; see *Table 20*). Eight of the 13[54,62,74,124,128,133,137,161] reported positive effects in the home-visited group.

Three British studies, Seeley and colleagues,[161] Gerrard and colleagues[137] and Holden and colleagues[54] all used the Edinburgh Postnatal Depression Scale (EPDS; a self-report scale with ten statements relating to depressive symptoms) and all reported significant improvement in scores on this scale after home visiting. Holden and colleagues[54] used not only the EPDS but also a standardised psychiatric interview administered by a psychiatrist blinded to group allocation. There were significant differences in the amount of improvement between experimental and control groups using this latter outcome measure. In Marcenko and Spence's study,[74] home-visited women, in contrast with women in the control group, experienced a significant decrease in five types of psychological distress: depression, phobic anxiety, interpersonal sensitivity, psychoticism, and somatisation. Brown[128] found that the experimental group had significantly better scores than the control group on a version of the Mental Health Inventory after the intervention. However, the intervention in Brown's study consisted of both home visits and community work. There was a weak, but non-significant, association between the number of home visits, and improvements in mental health. Johnson and colleagues[62] reported that the home-visited group had significantly better results in relation to three psychological symptoms: tiredness, feeling miserable and wanting to stay indoors. (Johnson and colleagues describe these three symptoms as aspects of "self esteem", but we have chosen to categorise all three as psychological symptoms.) Beckwith,[124] using a clinician blinded to group allocation, reported a significant difference between the home-visited and control group mothers in their degree of emotional stability. Davis and Spurr[133] reported a significant reduction in anxiety and depression among home-visited mothers, as well as a significant reduction in parenting stress and a significantly greater likelihood of rating their problems as less severe and as causing less distress post-intervention than the control group.

Five studies found no significant effect of the home visiting intervention on psychological health.[46,70,83,84,90,101,125]

Barnard and colleagues[83] and Booth and colleagues,[84] using the Beck Depression Inventory, found no significant differences between the two groups. Barth[46,70] measured three outcomes: levels of anxiety (using the State–Trait Anxiety Inventory); depression (using the Centre for Epidemiological Studies Depression Scale, CES-D Scale); and the mother's sense of control over events in her life (using the Pearlin Mastery Scale). Barth found no significant effects for any of these three outcomes. Black and colleagues[125] measured child-related maternal stress (using the Parenting Stress Index). Both the intervention and control group reported elevated levels of stress over time in comparison with normative standards. Field and colleagues[90] measured levels of anxiety (using the State–Trait Anxiety Inventory). Levels of anxiety increased slightly for both home-visited and control mothers between baseline and follow-up assessments.

Kitzman and colleagues[101] measured levels of anxiety, depression and mastery. They found no significant differences in levels of anxiety and depression between the two groups. However, there were significant improvements in levels of mastery in the home-visited mothers.

Self-esteem

Four studies looked at the effect of home visiting on mothers' self-esteem.[52,74,123,133]

Only Davis and Spurr[133] found a significant improvement in maternal self-esteem in the intervention group but not in the control group. The remaining three studies failed to find any significant differences. Although Barker and colleagues[123] found higher self-esteem among home-visited mothers at the 6-month assessment, by the 24-month assessment home-visited mothers had lower self-esteem. Barker and colleagues could not explain the reversal between the two assessments, given, as they themselves point out, the explicit aim of the programme to raise mothers' self-esteem. Marcenko and Spence,[74] using a ten-item scale which deals with issues of self-worth and respect, the feeling that one is equal to others, and expectations of self-growth and improvement, reported no significant differences between intervention and control groups in the level of self-esteem. Scarr and McCartney[52] assessed self-esteem through real and ideal ratings on a parent self-report scale (i.e. parents rated how they 'really were' and how they would 'ideally like to be'). The scale covered five areas: child-centredness, consistency, control via guilt and anxiety, temper and detachment, and respect for autonomy. Scarr reported no differences between intervention and control groups.

Summary of results

1. A total of 15 studies meeting our inclusion criteria reported outcomes related to mothers' psychological health and self-esteem.
2. A total of 13 studies reported outcomes related to mother's psychological health. Eight of these reported positive outcomes.
3. The findings from three British studies suggest that home visiting by British health visitors can be successful in the detection and management of postnatal depression.
4. Four studies reported outcomes related to parents' self-esteem. One showed a significant positive effect of home visiting on self-esteem. The remaining three failed to demonstrate a significant difference between intervention and control groups.

Conclusions

Our review provides evidence that home visiting by British health visitors can be successful in the detection and management of postnatal depression, as measured using the EPDS. However, the self-report nature of this scale may be a source of bias. This particular scale may also be criticised as failing to distinguish true depression from a low level of life satisfaction.

There is even less evidence that home visiting is successful in enhancing maternal self-esteem. It may be that the instruments designed to capture 'self-esteem' too require further sophistication.

Three studies which failed to demonstrate any effect of home visiting[46,90,124] did not have as their primary objective the amelioration of parental psychological distress. The primary purpose of the intervention reported by Barth and colleagues[46] was to prevent child abuse. Field and colleagues' study,[90] which aimed primarily to improve mother–child relationships, included measures of state and trait anxiety, but no rationale is provided for the inclusion of these measures. It is unclear why or how the intervention was intended to have had any impact on these outcomes, so that it is unsurprising that no effect was found. Black and colleagues' study[125] reported no differences between home-visited and control mothers with respect to child-induced stress. However, the reduction in scores on the CAPI[191] among home-visited mothers suggests that this programme had some success in reducing psychological distress (see section on 'The prevention of unintentional injuries in childhood', page 36).

The majority of studies demonstrating positive effects used participants considered to be at risk of adverse maternal mental health outcomes. It is not clear whether home visiting programmes delivered to all postnatal women would achieve similar results.

Mothers' use of formal and informal support networks

Five studies[46,70,74,83,84,128,133] reported outcomes related to formal and informal support networks. The characteristics and quality scores of these studies are shown in *Table 23*.

Two of the five intervention programmes[46,79,133] failed to find any differences between home-visited and non-home-visited groups. The remaining three programmes produced beneficial effects for some or all of the outcomes assessed.

In the studies by Barth,[46,70] four instruments were used to assess support to mothers and their use of community services:

- ***the Community Resources Use Scale*** examined the use of, plus the need for, formal and informal community services
- ***the Social Support and Preparation Scale*** asked participants about the availability of informal helping resources
- ***the Inventory of Social Supportive Behaviours*** entailed the evaluator counting the number of participant's behaviours indicating that they had social support
- ***the Social Support Inventory*** involved participants rating such statements as 'My relationships with others are steady and close'.

Barth found no significant differences between home-visited families and control families on any of the above four measures.

The programme described by Booth and colleagues[84] and Barnard and colleagues[83] had, as its rationale, to improve mothers' ability to initiate and maintain relationships that would be supportive to their parenting role. Participants were recruited to the study if they met the general criterion of 'lacking social support'. Two instruments were used to assess support to mothers:

- ***the Social and Community Life Skills Scale*** was a self-report questionnaire, which emphasised the social skills necessary for participation in group activities and community living in the areas of transportation, budgeting, "support services" (e.g. mother has emergency telephone numbers easily available), "support-involvement" (i.e. a close friend with regular visits), interests and hobbies and "regularity/ organisation routines" (e.g. mother gets dressed in the morning rather than spending the whole day in her dressing-gown)
- ***the Personal Resources Questionnaire*** asked mothers how much social support they perceived themselves to have.

Findings were mixed. There were no group differences on the Social and Community Life Skills Scale. However, mothers in one of the two intervention groups, the "Mental Health" group, perceived themselves to have more support than mothers in the "Information/ Resource" group (no scores or statistical test results are reported).

Davis and Spurr,[133] using a Significant Others Scale, found no significant differences between intervention and control groups in the number of people providing either practical or emotional support.

The intervention described by Marcenko and Spence[74] aimed to assess the "psychosocial efficacy" of a model of home visiting for women at risk of out-of-home placement of their newborns. Two types of outcome were assessed:

- ***help accessing services***: services consisted of transport, food, housing, clothes for self, clothes/nappies for baby, toys and furniture for baby, and healthcare
- ***social support using the Norbeck Social Support Questionnaire***:[207] the three sub-scales of this questionnaire comprised affective support (the degree to which women felt liked, loved, respected, admired); affirmation (how much women felt they could confide in a member of their network, and the degree to which the member supported their thoughts); and the amount of aid available (measured by whether a member of the woman's network could assist with concrete help in the case of immediate need, such as if the woman was confined to bed).

Overall, many significant positive effects were demonstrated. Regarding help accessing services, home-visited women reported significantly greater help accessing transport services, baby furniture and toys, clothes for self, clothes/nappies for babies and healthcare. No significant differences between the experimental and control groups were reported on assistance with food and housing. Regarding social support, women in the home-visited group reported a significant increase on all of the subscales of the social support scale, whereas there was no change in support to control group women.

Brown's study[128] used a before-and-after design to assess the effectiveness of home visiting plus community work in supporting parents of young children. Two outcomes were assessed:

- ***social contacts and quantity of support:*** questions from the Rand Social Activities Questionnaire[208] were used to measure the number of contacts and the quantity of support provided to mothers; in addition,

participants were asked specifically about their use of toddler groups
- ***quality of support:*** questions from the Duke–UNC Functional Social Support Questionnaire[209] were used; eight items were used, covering affective support and support from a confidant.

Findings were mixed. Social contacts and the quantity of support remained unchanged, except that a significantly greater proportion of participants visited a toddler group for the first time during the intervention. Concerning the quality of support, significant improvements were reported by participants.

Summary of results

1. Five studies reported outcomes related to formal and informal support networks and community involvement.
2. Two programmes failed to find differences in any outcome between home-visited and non-home-visited groups.
3. Of five programmes that assessed the extent to which mothers felt supported, three produced significant differences favouring home-visited over non-home-visited mothers.
4. Of three programmes that assessed mothers' use of community resources, one produced significant differences favouring home-visited mothers, and two produced no differences.
5. All the studies employed different scales, making it impossible to compare outcomes directly.

Conclusions

Despite the goal of increasing mothers' use of community resources in three of the five intervention programmes, this goal was achieved in only one programme.[74] One possible explanation for the failure to increase the use of community resources in the other programmes is that the support provided by a home visitor may have served as a substitute for community involvement or a greater reliance on community resources. A second possibility is that despite the home visitor successfully facilitating access to community resources, obstacles in the system, such as a lack of childcare facilities, may have prevented mothers from taking advantage of the opportunities available to them. Overall, the findings suggest that greater success was achieved in improving mothers' perceptions of the social support available to them than in increasing the size of their support network. Three programmes all resulted in the home-visited mothers' reporting enhanced support.[74,83,84,128] The studies by both Brown[128] and Marcenko and Spence 1994[74] suggest that improvements were in the quality of support available to mothers rather than in the size of mothers' informal support network. Again, the support provided by the home visitor might have supplanted mothers' reliance on friends or family members. This interpretation is supported by Marcenko and Spence[74] who report that the non-professional home visitor was identified by some mothers as an important source of informal support.

Our failure to find an overall positive effect of home visiting on the use of formal and informal support networks cannot lead us to conclude that home visiting is ineffective in this area, owing to the small number of studies reporting outcomes in this area.

Breastfeeding

Seven studies which met our inclusion criteria assessed breastfeeding.[35,56,87,101,123,146,147,149] The characteristics of these studies are shown in *Table 24*.

Four of the seven studies[56,87,146,149] reported whether mothers were breastfeeding when the baby was 3 months old. All four studies, which were RCTs, were entered into a meta-analysis using Peto's method.

Four effect sizes were extracted from the four studies. The pooled OR was 1.34 (95% CI, 1.03 to 1.74), which suggests that home visiting was successful in encouraging mothers to breastfeed until their baby was at least 3 months of age. The χ^2 test for heterogeneity gave a value of 5.7 with 3 df, indicating homogeneity of effect sizes ($p = 0.13$). The results are shown below in *Figure 12* (page 158).

Three studies were excluded from the meta-analysis because all three failed to report the proportion of mothers feeding at 3 months.[35,101,123]

Both Gutelius and colleagues[35] and Kitzman and colleagues[101] found no significant difference between the intervention and control groups in the number of weeks that mothers breastfed, although Kitzman and colleagues did find a higher percentage of mothers in the intervention group attempted breastfeeding. Barker[123] found that 17 programme families attempted breastfeeding versus 14 non-programme families, but non-programme families continued breastfeeding for longer (mean 68 days versus 47 days).

Summary of results

1. Seven studies meeting our inclusion criteria reported the duration of breastfeeding.
2. Meta-analysis of the results of four of the seven studies, all of which were RCTs, suggests that home visiting is effective in increasing the proportion of mothers who are breastfeeding at 3 months (OR 1.34; 95% CI, 1.03 to 1.74).

Conclusions

The results of the meta-analysis suggest that home visiting can be effective in encouraging mothers to breastfeed. However, the two studies that found no evidence of effectiveness[35,101] failed to provide sufficient detail to include their results in the meta-analysis. It is noteworthy that both studies provide sufficient detail concerning their positive results in relation to other outcomes, but provide very little detail where no significant effects of home visiting have been detected. It is possible that some studies finding no positive effects of home visiting have simply failed to report their results. This may be the case for outcomes other than breastfeeding (see also chapter 3).

All the studies reviewed in this section relied on maternal self-report, hence there is the possibility of social desirability bias. It is possible that some mothers did not admit to their home visitor that they had stopped breastfeeding their baby before the 3-month assessment.

There is a need for more studies linking breastfeeding with other outcomes. For example, none of the studies assessing breastfeeding also assessed child sleeping problems. Furthermore, none of the included studies assessed the relationship between breastfeeding and subsequent physical health. A case–control study by Barker and Osmond[210] found evidence that death from circulatory disease in people aged 55–74 was related to patterns of breastfeeding among their mothers. Hence, as noted in chapter 1, some consequences of home visiting may take many years to become apparent, making such outcomes unsuitable for short-term or even medium-term assessment.

Child's diet

Four studies assessed outcomes concerned with children's diet.[35,62,122,123] The characteristics of these studies are shown in *Table 25*.

Gutelius and colleagues[35] reported a significantly better diet, and better eating habits among home-visited children. Johnson and colleagues[62] reported that children receiving the intervention were significantly less likely to begin cow's milk before 26 weeks and to receive an inappropriate energy intake and inappropriate quantities of animal protein, non-animal protein, wholefoods, vegetables, fruit and milk. Mothers in the intervention group also had a significantly better diet than control mothers. Barker and Anderson[122] reported that at 12 months of age children in the intervention group had a better nutritional intake, although no statistical test results are given. Barker and colleagues[123] found few differences between intervention and control groups in the adequacy of children's diet.

Summary of findings

Four studies assessed the diet and/or eating habits of children. Three of the four reported better outcomes among home-visited children.

Conclusions

All the studies relied on maternal self-report to assess the child's diet and eating habits, hence the findings may be subject to bias. No follow-up assessments were made, so it is not known for how long dietary habits were maintained. At present there is insufficient evidence to come to any conclusions about the impact of home visiting on children's diet.

Family size, employment, education, and use of public assistance

Five studies meeting our inclusion criteria examined the effect of home visiting on subsequent employment, education, family size and use of 'public assistance', as shown in *Table 26*.

Family size

Five studies assessed the impact of home visiting on family size.[42,50,53,101,127]

Field and colleagues[42] measured the effect of home visiting on the rate of repeat pregnancy, Kitzman and colleagues[101] and Olds and colleagues[50] assessed the number of births 2 years subsequent to the home visiting programme, and Seitz and colleagues[53] assessed family size 10 years after the home visiting programme. These four studies were entered into a meta-analysis using Fisher's method. This indicated no significant difference between intervention and control groups ($\chi^2 = 14.39$; 8 df; $p = 0.07$). Restricting the analysis to three RCTs[42,50,101] produced similar results ($\chi^2 = 7.4$; 6 df; $p = 0.29$).

Brooks-Gunn and colleagues' study[127] was excluded from the meta-analysis because insufficient data

were provided. This study found a significant effect of home visiting in reducing the number of births subsequent to home visiting.

Public assistance

Three studies assessed the effect of home visiting on mothers' use of public assistance.[42,50,127]

Effect sizes from the three studies, all of which were RCTs, were entered into a meta-analysis using Hedges' method. The overall effect size (Hedges' g) was –0.08 (95% CI, –0.18 to 0.02), which indicates no difference in use of public assistance by mothers in the intervention group. The χ^2 test for heterogeneity gave a value of 45.6 with 2 df, suggesting considerable heterogeneity of effect sizes ($p < 0.001$).

Employment

Four studies examined the effect of home visiting on mothers' employment.[42,50,101,127]

Effect sizes from three studies,[42,50,127] all of which were RCTs, were entered into a meta-analysis using Fisher's method. Meta-analysis revealed no significant differences between intervention and control groups ($\chi^2 = 7.38$; 6 df; $p = 0.29$).

Education

Four studies assessed the effect of home visiting on mothers' return to education.[42,50,53,127]

None of the above four studies was entered into a meta-analysis because insufficient data was provided in three of the four studies (the exception was Seitz and colleagues).[53] Field and colleagues[42] reported that significantly more mothers in the intervention group returned to work or education, but separate results for each of these two outcomes are not given. Olds[50] found no significant differences between intervention and control groups in the number of years of education completed at 46 months postpartum. Brooks-Gunn and colleagues[127] reported no significant effects of home visiting. Seitz and colleagues[53] found that at a 10-year follow-up assessment mothers in the intervention group had completed significantly more years of education than had the control mothers.

Summary of results

1. Five studies assessed subsequent pregnancies or family size. Meta-analysis of the results of four studies indicated no significant differences between intervention and control group families ($\chi^2 = 14.39$; 8 df; $p = 0.07$). Restricting the analysis to three RCTs[42,50,101] produced similar results ($\chi^2 = 7.4$; 6 df; $p = 0.29$).
2. Three studies, all of which were RCTs, examined the effect of home visiting on mothers' use of public assistance. Meta-analysis of the results of all three studies showed no significant differences between intervention and control groups (Hedges' $g = –0.08$; 95% CI, –0.18 to 0.02).
3. Four studies examined the effect of home visiting on mothers' employment. Meta-analysis of the results of three of the four studies, which were RCTs, revealed no significant differences between the intervention and control groups ($\chi^2 = 7.38$; 6 df; $p = 0.29$).
4. Four studies assessed the effect of home visiting on mothers' return to education. No meta-analysis was undertaken. One study reported a higher incidence of return to education. A second study also reported positive effects of home visiting on a combined measure of employment and education. Two studies did not find any significant effect of home visiting on mothers' education.

Conclusions

Among the studies assessing the effects of home visiting on subsequent pregnancies or family size, only one, by Olds and colleagues,[50] states that the home visitor explicitly targeted family planning. In this study, the nurse home visitors showed women and their partners birth control devices and discussed the advantages of different methods of family planning. However, Olds and colleagues reported no significant effects of home visiting on subsequent pregnancies. In the only study to report a significantly lower incidence of subsequent pregnancies in the intervention group, Field and colleagues[42] does not state that family planning advice or education formed any part of the intervention. Both Field and colleagues[42] and Brooks-Gunn and colleagues[127] hypothesise that smaller family size might be an indirect effect of home visiting, reflecting an early decision to return to work or education by home-visited mothers.

The utilisation of 'use of public assistance' as an outcome measure required clarification. All three of the studies that employed this measure hypothesised that home visiting would result in increased participation in the workforce, which would be reflected in less use of public assistance. However, it is also possible to hypothesise that home visiting might result in greater use of public assistance through the mechanism of the home visitor increasing

families' knowledge of their entitlement to state benefits. Although it is not stated in any of the studies reviewed above that the home visitor performed the role of informing and aiding families to claim benefits to which they were entitled, it is nevertheless possible that home visitors did indeed perform this role. A fuller description of the intervention would be helpful in drawing conclusions from studies measuring the uptake of welfare benefits.

In conclusion, the number of studies is too small to come to any firm conclusions about the effects of home visiting on the outcomes discussed in this section.

Client satisfaction: parents of young children

Very few studies examined parental satisfaction with the services they received. Of 85 studies evaluating services delivered to parents and their young children (see sections from page 23 to 50), only 11 made any attempt to assess client satisfaction or the acceptability of services to clients.[36–38,46,54,70,71,74,133,144,151,152,163] The characteristics of these studies are shown in *Table 27*.

Hall[36] and Law-Harrison and Twardosz[151] evaluated a programme of structured teaching to parents about their infants. The home visitor tape-recorded the 'subjective observations' of both intervention and control mothers at the end of the intervention period. The authors report that both intervention and control mothers expressed a need for assistance and guidance from a helping person, and all 15 control mothers would have liked a home visit. Both intervention and control mothers resented not being prepared for parenthood, and both were anxious to know if they were 'normal'.

Stanwick and colleagues[37] evaluated the effects of a routine public health nurse's home visit on mothers' confidence, knowledge and skill. The authors assert that of the home-visited mothers, 71% found the nurse's visit helpful, while 56% of the non-visited mothers thought such a visit might have been useful. The authors do not describe how they elicited mothers' views.

Barkauskas'[38] study of home visits by public health nurses to 67 primiparous mothers reports that out of 65 mothers, 56 (86%) responded that the visits were helpful and nine (14%) stated that the visits were not helpful. Asked to say in what ways they found the visits helpful, a total of 56 responses indicated that mothers found the provision of information and teaching about feeding, diet and other childcare matters helpful. Only six responses showed an appreciation of general support and reassurance, and only one mother mentioned help in obtaining things (some respondents gave more than one response).

Barth[46,70] describes a home visiting project which aimed to prevent child abuse. Members of the intervention group were sent a questionnaire post-intervention, of whom 92% returned their completed questionnaire. On a seven-point scale, with 1 indicating most agreement, clients reported a high level of satisfaction with the service (mean = 1.76, SD = 1.09), and indicated that they would recommend the service to someone else (mean = 1.68, SD not reported). Clients also indicated on four-point scales (4 = most agreement) which activities were most helpful. The most strongly endorsed included: helped me to get the things done that I needed (mean = 3.45, SD not reported) and helped me to set goals for myself (mean = 3.37, SD not reported).

In Dawson and colleagues' study,[71] paraprofessional home visitors provided women with information, emotional support and help in using community resources. The authors report that mothers gave high ratings to their relationship with home visitors and said they felt the visitors cared about them as people and provided them with useful information. However, it is unclear what source Dawson had used to determine mothers' views. The authors state that only at the end of the intervention the supervising public health nurse interviewed the home visitors about the families they had seen; but there is no suggestion that mothers themselves had been interviewed. One possibility is that it was the home visitors, rather than mothers themselves, who reported that mothers rated highly their relationship with home visitors.

In Holden and colleagues' study[54] of counselling provided by health visitors to postnatally depressed mothers, follow-up interviews with all experimental and control mothers were tape-recorded. "Many" women described having felt supported and comforted by the weekly visits from the health visitor. A total of 23 (88%) of the 26 women in the treatment group claimed that talking to their health visitor had been the most important factor in their recovery. Other therapeutic effects of counselling by health visitors described by intervention group mothers were the relief gained from being given 'permission to speak' and the relief

gained from admitting their own guilt about suffering from depression (see also chapter 6, 'Health visiting interventions for mothers with postnatal depression', page 210).

The goal of Hewitt and colleagues' programme[144] was to help parents prevent the development of behaviour problems in their children. Questionnaires were completed post-intervention by the intervention group who had received home visits from health visitors over a 2-year period. In all, 20 parents (55%) completed questionnaires. Of those who returned questionnaires, 50% said they had found the programme helpful, and 13% claimed it had not been helpful (Hewitt and colleagues do not report what the remaining 37% said). Reasons for finding the programme helpful included a beneficial relationship with the health visitor and useful content of the intervention.

Marcenko and Spence[74] tested the effectiveness of home visiting for women at risk of out-of-home placement of their infants. At follow-up, both experimental and control group mothers were asked, in an "open-ended format", about the services they had received. Experimental-group mothers "frequently" noted the support they received from their home visitors and the degree to which they valued those relationships. Marcenko and Spence also asked both experimental and control mothers at follow-up about their satisfaction with the service using a three-point scale from 'very' to 'not at all' satisfied. The authors do not report their results.

Shapiro,[163] in her study of home-based support to mothers of low birth weight babies, simply asserts that the project "found widespread professional acceptance and parental satisfaction". The basis for this assertion is not described.

Margolis and colleagues' programme[152] was designed to improve access to healthcare and health outcomes for disadvantaged families, by means of a combination of home visiting and office-based interventions. It is not clear what method was used to tap mothers' views, but the authors report that 100% of mothers said their home visitors showed sympathy, and 96% reported that they were relaxed with the home visitors. Mothers also reported that their home visitors were helpful with feelings about the baby (92%), her own personal feelings (88%) and questions about the baby (100%). Mothers made no negative comments about the nurses.

Finally, Davis and Spurr[133] evaluated a programme of home visiting by 'parent advisors' (health visitors and clinical medical officers) to children with multiple psychosocial problems. A questionnaire was administered post-intervention to the intervention group only. The mean score (out of 4, with 4 being most positive) for how positive the parent advisor made the mother feel was 3.04 (SD 0.61, range 1.5 to 4). The mean score for how positively the parent advisor was viewed by the parent was 3.34 (SD 0.43, range 2 to 4). This included honesty, enthusiasm, warmth, interest in the mother, trustworthiness, openness and non-directiveness. The mean score for positiveness about the relationship with the parent advisor was 2.98 (SD 0.73, range 1.67 to 4). In all, 47% rated the intervention as very helpful and 28% as helpful; 98% thought the intervention met their needs to some extent, with 79% indicating that their needs were met to a large extent. A total of 73% rated their problems as improved or much improved and 85% thought that this was to some extent because of the parent advisor, with 54% indicating this was because of the advisor to a large extent. A total of 79% rated the service as efficient and only 9% felt they had had to wait too long for the service.

Summary of findings

1. Only 11 out of 85 studies evaluating services delivered to parents and their young children attempted to assess client satisfaction. All 11 studies used different tools to measure client satisfaction.
2. All 11 studies reported that the majority of parents in each study had appreciated the service they had received. Parents expressed high levels of 'satisfaction'.[46,70,163] Parents also found the service 'helpful'.[37,38,46,54,70,133,144,152] The personal qualities of the home visitor and the relationship between parent and home visitor were appreciated.[71,74,133,144] Parents agreed that their anxieties had been addressed[36] and their needs met.[133] Parents also indicated that there had been an improvement in their problems,[54,133] and that the service was efficient.[133]

Conclusions

Although high levels of satisfaction were found in all 11 studies, it is well known that surveys of client satisfaction in every field of health care tend to find such high levels. Avis and colleagues[211] claim that typically 75–90% of respondents express satisfaction with every type of health service. It is known that high

levels of satisfaction may simply reflect patients' reluctance to criticise, or their anxiety to adopt an appropriate patient role, hence methodological rigour in conducting client satisfaction surveys is vital.[211,212]

Unfortunately, the methodological quality of the 11 studies was poor in terms of assessing satisfaction with the home visiting programme. All failed to probe adequately for sources of dissatisfaction.[213,214] For example, both Hewitt and colleagues[144] and Barkauskas[38] reported the proportions of parents finding the service both 'helpful' and 'not helpful'. Both sets of authors explored in more detail the reasons why those who had found the service helpful had found it so, yet neither attempted to pursue any further the views of participants who had stated that they had not found the service helpful. The importance of probing for dissatisfactions cannot be overstated because what may appear to be an effective intervention from the point of view of service-providers may be unacceptable to some clients.

None of the studies reported methods for minimising bias. No two studies used the same measure of outcome, or the same instrument, making it difficult to compare the studies. There was no evidence in any study that questionnaires or interview schedules had been tested for validity or reliability. Finally, all 11 studies measured client satisfaction at only one point in time. However, there is evidence from other studies that client satisfaction tends to decline over time.[215] Longitudinal studies, and/or follow-up measures of client satisfaction would have been helpful.

One important reason for soliciting the views of clients is that clients' perceptions of what has taken place can aid in an understanding of why an intervention was effective or not. It is a failing of the vast majority of the 85 studies reviewed in the sections between pages 23 and 48 that so many discussed possible reasons for their findings without any reference at all to participants' perceptions. Unfortunately, most of the 11 studies that did make some attempt to find out participants' views failed also to increase our understanding of why the programme succeeded or failed. Most of the 11 studies reported their client satisfaction results in a somewhat perfunctory manner, which had little explanatory power. The exception was Holden and colleagues' study[54] of home visiting by health visitors to women with postnatal depression. Holden and colleagues drew on women's own explanations for the effectiveness of the intervention in arriving at their explanations for the success of the intervention (see also chapter 6, 'Health visiting interventions for mothers with postnatal depression', page 210).

To conclude, the number of studies is far too small, and their methodological quality too poor to arrive at any conclusions concerning the acceptability of the service from clients' perspective.

If home visiting services are to be effective, it is desirable that they are acceptable to clients. Satisfaction is therefore an important measure that should always be included in service evaluations, and future studies assessing the effectiveness of services. At present, British studies measuring levels of satisfaction with health visiting services tend to be separate from studies measuring other outcomes of the service (see appendix 3, *Table 45*). Although many of the higher degree theses reviewed in chapter 6 (pages 226–228), as well as the British studies reviewed in chapter 7, give insights into the causes of satisfaction and dissatisfaction among British clients of health visiting services, there is a need to undertake more rigorous, longitudinal studies of client satisfaction which are able to compare levels of client satisfaction with other outcomes of the service.

Elderly people

In this section we look at studies of elderly people and their carers (see also chapter 6, 'Health visiting and the elderly', page 205).

Elderly people and their carers

A total of 17 studies meeting our inclusion criteria reported outcomes relating to elderly people and/or their carers. The 17 studies are listed in *Table 28*. The characteristics of the studies are shown in *Table 29*.

Studies assessing outcomes related to carers

Three studies assessed the support given to carers of frail elderly people.[120,153,156,167] One further study assessed the support given to carers of elderly people with dementia.[154] All three studies assessing support to carers of frail elderly people reported some positive outcomes in the intervention group. Oktay and Volland[156] reported a reduction in caregiver stress among home-visited carers compared with carers in the

control group, although this finding did not reach a level of significance. Toseland and colleagues[167] found that home-visited carers and those provided with group support both experienced significant improvements in coping with the stress of care-giving. Individual home visits produced greater reductions in psychological symptoms, and greater well-being than did the group intervention, whereas the group intervention produced greater improvements in carers' social supports. Archbold and colleagues[120] reported no significant differences between the intervention and control groups on measures of role-strain, rewards of caring, or depression. However, carers in the intervention group reported significantly greater preparedness for, and competence at, activities associated with care-giving; a better ability to predict and control events; and an enrichment of the experience of care-giving.

Mohide and colleagues'[154] study of carers of spouses with dementia found that both home-visited and control carers suffered above average levels of depression and anxiety which did not improve after the intervention. However, the home-visited carers showed improvements in their quality of life, found the caregiver role less problematic, and had a longer period of time caring for their spouse at home before the start of long-term institutional care, although none of these findings was significant.

Studies assessing outcomes relating to elderly people

Studies assessing outcomes relating to elderly people were divided into two groups: those assessing members of the general elderly population,[17,121,135,143,148,157,168–170] and those assessing vulnerable older people who were at risk of adverse outcomes.[55,120,134,142,153,156,173] Each group is discussed separately.

Mortality. Six studies,[121,135,143,157,168,169] all RCTs, which assessed the effect on mortality of home visiting to members of the general elderly population, were entered into a meta-analysis using Peto's method. The pooled OR for the six studies was 0.75 (95% CI, 0.63 to 0.89), indicating that home visiting was successful in reducing mortality. The χ^2 test for heterogeneity gave a value of 6.98 with 5 df, showing homogeneity of effect sizes ($p = 0.22$). The results are in *Figure 13* (page 183).

Five studies[55,134,142,156,173] which assessed the effect on mortality of home visiting to 'at-risk' elderly people were entered into a meta-analysis using Peto's method. The pooled OR for the five studies was 0.75 (95% CI, 0.57 to 0.98), indicating that home visiting was successful in reducing mortality. The χ^2 test for heterogeneity gave a value of 1.20, with 4 df, showing homogeneity of effect sizes ($p = 0.88$). The results are shown in *Figure 14* (page 183). Restricting the analysis to four RCT[55,134,142,173] produced similar results (OR = 0.72; 95% CI, 0.54 to 0.97; $\chi^2 = 0.87$; 3 df; $p = 0.83$).

Hospital admission and length of stay. Five RCTs[121,135,143,157,168] assessed whether home visiting to members of the general elderly population was effective in reducing admission to hospital. All five were entered into a meta-analysis using Peto's method. The pooled OR was 0.86 (95% CI, 0.72 to 1.02), suggesting that home visiting was not successful in reducing admission to hospital. The χ^2 test for heterogeneity gave a value of 15.28 with 4 df, indicating heterogeneity of effect sizes ($p = 0.004$). The results are shown in *Figure 15* (page 184).

Three of the five studies measuring hospital admission also measured the duration of hospital stay.[121,157,168] It was not possible to perform a meta-analysis on these results because insufficient data were provided. One of the three reported a significant reduction in length of stay in the intervention group,[157] and two reported no significant differences between intervention and control groups.[121,168]

Four studies[120,134,142,156] assessed the effect of home visiting on readmission to hospital of 'at-risk' elderly people. Meta-analysis was not possible because insufficient data were provided. None found any significant effect in reducing hospital admissions. Of two studies assessing duration of stay,[134,156] one reported a significantly reduced length of stay in hospital in the intervention group.[156]

Admission to long-term institutional care. Four studies reported admission to residential nursing homes of members of the general elderly population.[135,143,157,168] Meta-analysis of the results of three of these studies, all of which were RCTs,[143,157,168] gave a pooled OR of 0.77 (95% CI, 0.55 to 1.10), indicating no significant effect of home visiting on admission to institutional care. The χ^2 test for heterogeneity gave a value of 1.54 with 2 df, indicating homogeneity of effect sizes ($p = 0.46$). The results are shown in *Figure 16* (page 184). The final study measuring this

outcome[135] reported that there were no admissions to nursing homes in either the intervention or control group.

Of four studies reporting admission to residential nursing homes of 'at-risk' elderly people,[55,134,142,156] three (all RCTs) were entered into a meta-analysis.[55,134,142] The pooled OR was 0.58 (95% CI, 0.37 to 0.92), suggesting that home visiting was successful in reducing admissions. The χ^2 test gave a value of 2.85, with 2 df, indicating homogeneity of effect size ($p = 0.24$). This is shown in *Figure 17* (page 185). The fourth study[156] reported that a slightly smaller proportion of the intervention group subjects was admitted to nursing homes, but the difference between the groups was not significant.

Health status. Four studies assessed the health status of members of the general elderly population.[17,121,157,168] Meta-analysis of the results of three of these studies, all of which were RCTs,[121,157,168] gave an overall value (Hedges' *g* value) of 0.05 (95% CI, –0.07 to 0.17), indicating no significant difference between intervention and control groups. The χ^2 test for heterogeneity gave a value of 2.99 with 2 df, showing homogeneity of effect sizes. This is shown in *Figure 18* (page 185).

One study[17] provided insufficient information to be included in the meta-analysis. This study reported that the percentage of 'health problems' experienced by the elderly women that had improved after home visits to the intervention group was significantly greater than the percentage of problems that had improved over the same time period in the control group. 'Health problems' included psychological problems and problems in functional ability.

Williams and colleagues[173] assessed the health status of patients recently discharged from hospital. Williams could find no significant difference between intervention and control groups at the end of the intervention on measures of health status.

Functional status. Of four studies assessing outcomes associated with functional status among members of the general elderly population, three RCTs[121,135,168] (all measuring activities of daily living) were included in a meta-analysis. The overall value (Hedges' *g* value) was –0.02 (95% CI, –0.15 to 0.12), indicating no significant difference between intervention and control groups. The χ^2 test for heterogeneity gave a value of 1.54 with 2 df, showing homogeneity of effect sizes ($p = 0.46$). The results are shown in *Figure 19* (page 185). A fourth study not included in the meta-analysis[169] reported no significant difference between the two groups.

Two studies assessed the functional status of elderly people recently discharged from hospital.[156,173] Neither found any significant difference between intervention and control groups.

Well-being and quality of life. Of two studies assessing the well-being or quality of life of members of the general elderly populations, neither was entered into a meta-analysis.[17,169] Neither reported any significant differences between the two groups. Similarly, of two studies assessing the well-being or quality of life of members of 'at-risk' elderly people,[156,173] neither was entered into a meta-analysis, and neither reported any significant differences between the two groups.

Psychological health. None of three studies that assessed psychological symptoms among members of the general elderly population reported any differences in the number or severity of symptoms between intervention and control groups.[121,168,169] Three further studies reporting outcomes relating to 'at-risk' elderly people also failed to find significant differences between the two groups.[55,156,173]

Use of community services. Six studies of home visiting to members of the general elderly population looked at the use of community services.[143,148,157,168,169,173]

Hendriksen and colleagues' study,[143] undertaken in Denmark, reported significantly greater use of emergency medical services among non-home-visited elderly people. Hendriksen found no significant difference in the number of patients receiving home nursing care. However, there were significant differences in the use of social services, with the intervention group receiving more, and longer, visits from home help services. Keller and colleagues' study[148] of visits to housebound elderly people by volunteers reported that those in the intervention group had a significantly greater knowledge of community services. Pathy and colleagues' British study[157] of home visits to elderly patients of a general practice by health visitors over a period of 3 years found no significant differences in the number of

patients receiving attendance allowance, meals-on-wheels, a home help, or chiropody services. Van Rossum and colleagues' study[168] of home visits by public health nurses in The Netherlands found no significant differences between intervention and control groups in use of community services. Vetter and colleagues' Welsh study[169] of visits by health visitors to patients of two general practices (one urban, one rural), reported no significant differences between intervention and control groups, in either the urban or the rural practices, in the use of district nursing services. There were no significant differences in the use of home helps in the rural practice, but in the urban practice significantly more members of the intervention group were visited by a home help. Finally, Williams and colleagues' British study[173] of visits by health visitor assistants to 'at-risk' elderly people reported no significant differences between intervention and control groups in the number of community services used.

Other outcomes: fracture rate and immunisation. Vetter and colleagues' Welsh study[170] was designed to assess the effect of home visiting by health visitors on fractures sustained by patients over 70 years old from a general practice. After a period of 4 years, there was no significant difference between intervention and control patients in the fracture rate.

Fabacher and colleagues' USA study[135] assessed the effects of home visiting on elderly people not enrolled with a primary care physician. Fabacher found that after 1 year significantly more of the home-visited group had received influenza and pneumococcal vaccinations.

Summary of results

1. A total of 17 studies that met our inclusion criteria reported outcomes related to elderly people and/or their carers.
2. Four studies assessing support to carers all reported positive findings, including a reduction in caregiver stress, reductions in carers' psychological symptoms, and enhanced well-being.
3. Meta-analysis of the results of six studies, all of which were RCTs of home-visiting to members of the general elderly population, demonstrated a significant effect of home visiting in reducing mortality (OR = 0.75; 95% CI, 0.63 to 0.89). Meta-analysis of the results of five studies of home-visiting to elderly people who were at risk of adverse outcomes also showed a significant effect of home visiting on mortality (OR = 0.75; 95% CI, 0.57 to 0.98).
4. Meta-analysis of the results of five studies of home visiting to members of the general elderly population showed no significant effect of home visiting in reducing admissions to hospital. None of four studies of home visiting to members of the 'at-risk' elderly population showed any significant effect.
5. Of three studies assessing the duration of stay in hospital of members of the general elderly population, only one found a significant reduction in length of stay in the intervention group. Of two studies assessing the duration of hospital stay of 'at-risk' elderly people, one found a significantly reduced length of stay, the other reported no significant differences between intervention and control group.
6. The results of a meta-analysis of three RCTs of home visiting to members of the general elderly population showed no effect of home visiting on admission to long-term institutional care. However, meta-analysis of the results of three controlled trials of home visiting to 'at-risk' elderly people suggested that home visiting was successful in reducing admissions to long-term institutional (OR = 0.58; 95% CI, 0.37 to 0.92).
7. Meta-analysis of the results of three RCTs of home visiting to members of the general elderly population showed no significant effect on physical health. One study of home visiting to 'at-risk' elderly people found no significant difference in health status between intervention and control groups.
8. Meta-analysis of the results of three studies of home visiting to members of the general elderly population showed no effect of home visiting on functional status, as assessed on scales measuring the activities of daily living. None of the remaining three studies assessing this outcome, which included two studies of visits to 'at-risk' elderly people, reported any significant differences between the intervention and control groups.
9. Of six studies assessing psychological symptoms, and four studies assessing well-being or quality of life, no significant effect of home visiting was found in any study.
10. Of six studies assessing the use of community services, two reported no significant effects on any outcome, and the remaining four reported significant effects on at least one outcome.

Conclusions

Our review of home visiting programmes to elderly people suggests that they are effective in reducing

mortality among both members of the general elderly population and frail elderly people who are at risk of adverse outcomes.

Our review also suggests that home visiting might be effective in reducing admission to hospital of members of the general elderly population, but the meta-analysis was unable to show this. The observed heterogeneity in relation to this outcome appears to be accounted for largely by Balaban and colleagues' study,[121] which was of poor methodological quality. Balaban and colleagues conceded themselves that they had failed to control successfully for differences in health status between intervention and control subjects at entry into the trial, resulting in a control group with better health than the experimental group. Our inability to find any significant reduction in readmissions to hospital of 'at-risk' elderly people must be viewed in the light of the fact that of four studies assessing this outcome,[120,134,142,156] two involved only a single home visit by a nurse.[134,142] It is possible therefore that the intervention was of insufficient intensity or duration to reduce subsequent admissions.

Our review suggests that home visiting reduces admission to long-term institutional care of frail elderly people, but the meta-analysis of studies of home visiting to members of the general population had insufficient power to demonstrate this effect among elderly people who were not at increased risk of adverse outcomes. Further work is required to assess the importance of home-based support in extending elderly people's independence from institutional living.

The absence of evidence of improved health and functional status requires explanation. Undoubtedly, one reason for the failure to find any significant differences between intervention and control groups was that those in poorest health had died, so that this outcome could be measured only on a subset of the original sample, namely those who had survived. Another possible explanation is that the presence of the home visitor encouraged older people to express their problems more easily, thereby obscuring differences between the intervention and control group. Or it may be that the tools used were not sensitive enough to detect modest improvements in health or functional ability.[168] Alternatively, it could be that chronic and relatively intractable health and functional problems require a greater or different type of input than that provided by the home visitors in the studies we have reviewed.[169]

The absence of any effect on psychological outcomes or the quality of life of elderly people also requires further explanation. Here again, it may be that the very act of encouraging elderly people to express their feelings increases their willingness to reveal 'negative' emotions and opinions.[120,168] Alternatively, it may be that a relatively short programme of home visiting towards the end of an individual's life is insufficient to mitigate the factors that give rise to psychological distress in elderly people, such as poverty, poor physical health, pain or restricted mobility, a recent bereavement, or a lack of esteem in the eyes of younger members of society.

It is difficult to know which components of the home visiting programmes contributed most to improved outcomes. All the programmes involved an initial assessment of medical, psychological and social needs followed by a multifaceted approach to meeting identified needs, including the provision of practical help, information and advice, counselling, education, and referral to other agencies and services. Although it is impossible to ascribe any outcome to any separate element of the intervention, it appears that the programmes in which the home visitor took a more active role in providing or co-ordinating services stood a greater chance of success than those in which the emphasis was solely on the provision of information or emotional support. Hence, one possible reason why van Rossum and colleagues' 3-year study[168] reported less positive outcomes than that of Pathy and colleagues',[157] Hendriksen and colleagues'[143] or Hall and colleagues'[55] 3-year studies is that in the former, the home visitors confined their interventions to the provision of information, advice and counselling, whereas in the latter three studies the home visitor played a more active role in carrying out a plan of care with clients, as well as in the provision of practical aids and modifications, and in coordinating other services for clients. Our hypothesis that a more interventionist strategy by the home visitor is more beneficial to elderly people than one that relies mainly on giving information and emotional support requires more thorough investigation.

Client satisfaction: elderly people and their carers

Five out of 17 studies of elderly people and/or their carers examined client

satisfaction.[17,121,143,154,167] The characteristics of these studies are shown in *Table 30*.

Luker's study[17] evaluated the effects of home visiting by a health visitor on elderly women living alone at home. After the intervention, 100 intervention group subjects were asked a series of open-ended questions by the 'researcher' (who was a different person to the home visitor). In all, 95% responded that they had enjoyed the visits. Most (75%) respondents mentioned the personal attributes of the health visitor. A total of 38% of respondents mentioned that they liked 'just having someone to talk to' and 19% said they 'just liked company'. Of the five respondents who had not enjoyed the visits, Luker discusses only one who felt that the visits were unnecessary, and had had a 'bad effect' on her. (Luker does not elaborate on what this bad effect was.) In all, 62% reported that they had been helped by the health visitor's visits. There were 32 mentions of help with health-related matters, including specific health problems. Other responses indicated that subjects valued the social aspects of the visits, advice, and the surveillance function of the health visitor. A total of 92% reported that they felt it was a good idea for health visitors to visit elderly people. However, 15 of these stressed that they themselves did not need visits, but it was a good idea for other people, such as disabled people, the housebound and those with no family. The 8% who did not think health visitor visits were necessarily a good idea stressed the importance of individual preference, that is, some people might not want a visit. In response to a final question (If it were possible would you like the health visitor to continue visiting you or not?), 48% of the sample said they would like to continue to receive visits from a health visitor if it were possible. A number of respondents stated that although they did not wish to have further visits from a health visitor, they would be glad of a health visitor's services should they become ill.

Hendriksen and colleagues' Danish study[143] assessed the effects of home visiting on community-living elderly people. Members of the intervention group (n = 213) were interviewed at the end of the period of home visiting. A total of 186 (87%) respondents stated that they had obtained important help, and only three claimed that they had not benefited from the home visits. Two respondents stated that they had found the home visits exhausting, and only five did not want to participate in a possible similar arrangement in the future.

Balaban and colleagues[121] looked at the outcomes of office-based physician care and home visiting by nurses on community-living elderly people in the USA. Patient satisfaction questionnaires were administered to a total of 86 intervention and control subjects. Overall scores (from 0 = no satisfaction to 75 = complete satisfaction) were virtually identical between intervention and control groups, with intervention group subjects scoring a mean of 54.0 (SD 6.8), and controls scoring a mean of 53.0 (SD 7.7).

Mohide and colleagues[154] report on a trial designed to give support to those caring for people with dementia. Both intervention and control group carers received home visits from nurses. Control carers received help with the physical needs of the patient whereas in the intervention group the needs of the carer were also addressed. Carers in both control and intervention groups were asked, at the end of the intervention, to rank all the services they had received in order of helpfulness using a scale from 0 to 100. In the intervention group, the nurses' services were accorded a substantially higher score than in the control group (59 versus 43). In the control group, the nurses' and physicians' scores were almost identical (43 versus 42), whereas in the intervention group, nurses' services gained a substantially higher score than physicians' services (59 versus 36).

Toseland and colleagues' study[167] assessed the effectiveness of individual home-based support and group-based support on carers of frail elderly people. Satisfaction with the project was measured on a five-point scale (1 = very dissatisfied, 5 = very satisfied). Participants in both intervention groups were significantly more satisfied with the project than those in the control group who had received only respite care, with no differences in mean scores between the two intervention groups. (The mean scores were: controls (n = 33) 3.5; recipients of individually based support (n = 51) 4.5; and recipients of group-based support (n = 65) 4.5; p = 0.01.)

Summary of findings

1. Five out of 17 studies of elderly people and/or their carers examined client satisfaction.
2. The majority of respondents claimed to have enjoyed the home visits,[17] and to have been helped by the home visits.[17,143,154]

3. A total of 98% of elderly respondents in Hendriksen and colleagues'[143] intervention group stated they would like to receive further home visits if this were possible compared with only 48% in Luker's[17] intervention group.
4. Toseland and colleagues' study[167] found satisfaction to be higher among carers who had received an intervention than among controls. Balaban and colleagues[121] found equal levels of satisfaction among elderly respondents in intervention and control groups.

Conclusions

Overall, the methodological quality of the five studies reporting measures of client satisfaction was better than the quality of the studies which focused on parents and young children, as described in the section 'Client satisfaction: parents of young children' (page 48). Methods and results were more adequately reported, and there was more evidence that researchers had probed for sources of dissatisfaction. However, in common with the studies that focused on parents and young children, too few studies used the same measure of outcome, or instrument, so that direct comparison between the studies was limited. Attention to client satisfaction was in general only very cursory (the exception was Luker's study),[17] and this too limited the explanatory power of findings.

It is difficult to account for the difference between Hendriksen and colleagues'[143] and Luker's[17] findings in the proportion of respondents claiming they would like continued home visiting. This difficulty arises not least because Hendriksen's study is so poorly reported, with no description of the content of the intervention, the home visitor, or the questions used to elicit client satisfaction. One difference between the two studies was that Luker's respondents were all women, whereas Hendriksen's sample was mixed. In the absence of better reporting in Hendriksen's study, one can only speculate about the reasons for these different findings.

The findings of Toseland and colleagues' study[167] suggest that home visiting is not the only mode of intervention that increases client satisfaction. Toseland's study design involved two intervention groups, with one group of carers receiving a group intervention and the other receiving individual, home-based support. Levels of client satisfaction were virtually identical in the two intervention groups, and higher than in the controls. In attempting to explain these findings, it may be that the satisfaction of respondents took a different form when they received a home visiting intervention compared with when they received group support, with the measure of satisfaction used in Toseland's study being too crude to discriminate between different types of satisfaction. Or it may be, as Luker's[17] findings suggest, that the very fact that respondents felt themselves to be "worthy of interest" was the determining factor in enhancing client satisfaction, irrespective of the type of intervention.

Balaban and colleagues'[121] finding that there was no difference in levels of satisfaction between intervention and control subjects needs to be balanced against the methodological limitations of the study as a whole, in particular the fact that 30% of control subjects received one or more home visits. Given that Balaban failed to find any significant differences between the intervention and control groups on any of the five health-status outcomes that were assessed, the question is bound to arise of whether the finding of no differences in client satisfaction is simply the result of the methodological shortcomings of the study.

Finally, Luker's[17] findings clearly have implications for the routine visiting of elderly people in Britain. Luker captured well the views of her elderly, female respondents, coining the term "worthy of interest syndrome" to encapsulate the views of the majority of elderly women, who felt honoured to be visited, and enjoyed having someone to talk to. However, respondents also exhibited the "somebody worse than me syndrome", by pointing to others who were more in need of the health visitors' inputs than they were themselves. Luker's findings suggest that elderly women who are not ill or disabled may not consider themselves deserving of, or able to benefit sufficiently from, routine, preventive visits by health visitors.

In conclusion, the number of studies is too small, and the assessment of client satisfaction in these studies too cursory, to come to any conclusions about the benefits to elderly people or their carers of home visiting. Further research is required to elicit elderly people's and their carers' views concerning the value of home visiting by health visitors.

Methodological limitations of the studies

In reviewing the studies discussed in this chapter (pages 23–56) it has become clear that many studies suffered from methodological limitations, which are outlined below:

1. The majority of studies had small sample sizes and insufficient power to demonstrate the effectiveness of the intervention.
2. Random assignment to treatment groups does not always occur, and is often claimed but inadequately documented.
3. A wide range of outcome measures are used, including many non-standardised measures, with little information provided on the validity and reliability of the tools used to measure them. Self-reported outcomes, which will be subject to bias introduced by the provision of socially desirable responses, are often not subject to external validation. Differing definitions of outcomes such as for immunisations or preventive child health-care, often make the results incomparable between studies.
4. Many interventions are multifaceted; hence, the independent effect of home visiting on the outcome measures is difficult to assess.
5. Many studies do not describe the interventions in sufficient detail, or include measures of process to enable their replication, or provide information about why an intervention was, or was not, found to be effective.
6. Many studies do not discuss the theoretical framework underlying the intervention. It can therefore be difficult to assess the appropriateness of the intervention to the outcomes being measured, or to formulate hypotheses regarding why an intervention was effective.
7. Many studies concentrate on families categorised as 'at high risk' of a range of adverse outcomes. Very few studies examine the effectiveness of home visiting across a range of risk levels; hence, extrapolation of results to groups at differing levels of risk is difficult.
8. Unblinded outcome assessment was common, thereby increasing the risk that the assessor's awareness of the treatment group may influence their assessment of the outcome. This is a particular problem with outcomes that are not based on standard tools, or those that require judgement or observation from the assessor.
9. Many studies report many outcomes thereby increasing the chance of a type I error whereby a significant result may be found by chance alone, and some studies do not correct for this.
10. Even where identical and standardised outcome measures have been used, there is often insufficient detail given of the results to enable a meta-analysis to be undertaken. Obtaining original data from authors is not always possible; hence, opportunities for meta-analysis are being missed through insufficient data being presented in the original articles.
11. Few studies report information on compliance with the interventions, or the acceptability of the intervention to the participants.
12. Surveillance bias (whereby the presence of the home visitor, or other intervention, increases the likelihood of detecting certain outcomes) is a considerable problem in studies assessing child abuse and neglect outcomes.
13. For the outcomes of child abuse and neglect, home visiting programmes that improve outcomes such as parenting skills may concomitantly reduce the likelihood of detecting cases of child abuse and neglect by altering the perceptions of health and social care workers.
14. Many studies have an insufficient sample size to ensure comparability of intervention and control groups in terms of confounding factors, or combinations of confounding factors.
15. Many studies report substantial or differential attrition from intervention and control groups, making follow-up assessment problematic.
16. In some cases, only a few studies report the same outcome (e.g. use of informal community support). In these cases failure to find a positive effect of home visiting cannot be assumed to be the same as finding the intervention to be ineffective. Further studies are required in these areas before any firm conclusions can be drawn.
17. Some studies reporting non-significant results failed to report the actual data. In such cases inclusion of the results in a meta-analysis may lead to under-estimation of the true treatment effect. In other cases, it is not possible to include the results in a meta-analysis; hence, that particular study cannot contribute to the calculation of the overall effect size. (See also chapter 3, 'Publication and reporting bias'.)
18. Some studies, particularly those finding no significant effect, remain unpublished. Hence, the findings of published studies may be biased. (See also chapter 3, 'Publication and reporting bias'.)

Tables 1–30/Figures 1–19

TABLE 1 *Studies assessing the quality of the home environment using the HOME Inventory*

Study	HOME Inventory	Other mother–child interaction measures
Field, *et al.,* 1982[42]*	✔	
Olds, *et al*., 1986,1994[48,82]	✔	✔
Larson, 1980[57]*	✔	✔
Barrera, *et al*., 1986[58,91]*	✔	✔
Marcenko & Spence, 1994[74]	✔	
Barnard, *et al*., 1988[83] Booth, *et al*., 1989[84]	✔	✔
Osofsky, *et al*., 1988[85]	✔	
Infante-Rivard, *et al*., 1989[87]*	✔	
Wasik, *et al*., 1990[88]*	✔	✔
Field, *et al.,* 1980[90]*	✔	✔
Kitzman, *et al*., 1997[101]*	✔	✔
Black, *et al.,* 1994[125]*	✔	
Black, *et al.,* 1995[126]*	✔	✔
Casey, *et al*., 1994[130]*	✔	
Davis & Spurr, 1998[133]*	✔	✔
Huxley & Warner, 1993[145]*	✔	✔
Shapiro, 1995[163]	✔	

* *Inclusion in meta-analysis*

TABLE 2 *Studies reporting the effects of home visiting on parenting and the home environment: Part I – HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1982[42*] USA	0.54 RCT	Teachers	Black, teenage mothers of low socio-economic status with term infants	Int A: Home visit parent training (n = 34) Int B: Nursery parent training (n = 36) Con: No parent training (n = 35)	Int A: Infant stimulation, including caretaking, sensorimotor and mother–infant interaction exercises Int B: Parent training, job training and income	Int A: 6 months of bi-weekly home visits Int B: 4 hours per day for a 6-month period Evaluation at 4, 8, 12 and 24 months	Mean HOME Inventory score at 24 months: Int A = 35 Int B = 36 Con = 33 NS
Larson, 1980[57*] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatally (n = 35) Int B: Home visits postnatally (n = 36) Con: No home visits	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatal plus 4 visits (1–6 weeks); 5 visits (6 weeks to 15 months) Int B: 7 visits (6 weeks to 6 months); 3 visits (6 weeks to 15 months) Evaluation at 8 weeks and 6, 12 and 18 months	Mean HOME Inventory score: Int A / Int B / Con / p 6 weeks: 29.3 / 25.8 / 26.7 / < 0.001 6 months: 35.2 / 33.7 / 33.2 / < 0.055 12 months: 40.1 / 37.8 / 37.8 / < 0.017 18 months: 41.2 / 38.6 / 39.0 / < 0.041
Barrera, *et al.*, 1986[58*] Canada	0.55 RCT	Infant and parent therapists	Infants born between 1979 and 1981	Int A: Home visits (n = 16) Int B: Home visits (n = 22) Con A: Control preterm (n = 21) Con B: Control full term (n = 24)	Int A and Int B: To improve the child's developmental level of functioning To improve the quality of the interaction between parent and child	1 visit per week (0–4 months), 1 visit per 2 weeks (4–9 months), 1 visit per month (9–12 months) Visits of 1–2 hours in duration Evaluation at 4 and 16 months	Total HOME Inventory score: $F(3,79) = 4.17$, $p < 0.01$
Marcenko & Spence, 1994[74] USA	0.25 RCT	Lay visitors	At-risk pregnant and postpartum women	Int: Home visits and routine care (n = 125) Con: Routine care (n = 100)	Int: Provide peer support, identify service needs, health education and parent training Con: Outpatient obstetrics and gynaecology clinic	Services received from the time of the mother's first prenatal visit through to child's first birthday Int: Prenatal period – 1 visit per 2 weeks; postpartum – 1 visit per week (weeks 1–6), 1 visit per 2 weeks (weeks 6–26), 1 visit per month (weeks 26–52)	HOME Inventory score: No significant differences between Int and Con groups (no data reported) Attrition (n remaining at 6 months) Int = 100 Con = 77

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 2 contd *Studies reporting the effects of home visiting on parenting and the home environment: Part I – HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1994[82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education, enhancement of women's informal support systems, and the linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Int A and Int B combined at analysis as Con group Evaluation at 34 and 46 months	Mean HOME Inventory score at 34 months: Con = 39.03 Int C = 38.45 Int D = 39.08 Difference (Con – Int D) = –0.05 95% CI: –1.92 to 1.84 NS Mean HOME Inventory score at 46 months: Con = 39.67 Int C = 40.18 Int D = 39.66 Difference (Con – Int D) = 0.01 95% CI: –1.66 to 1.67 NS Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] USA	0.29 RCT	Nurses	Pregnant and postpartum women lacking social support	Int A: Home visits (*n* = 68) Int B: Home visits (*n* = 79)	Int A: Mental health model Development of a therapeutic relationship with the pregnant women in order to deal with interpersonal situations and problem solving Int B: Information/resource utilisation model To provide information relating to physical and developmental health of the mother and child	Visits from < 22 weeks of gestation to 12 months postpartum Frequency and duration of visits determined by nurse and family Mean (SD) number of visits: Int: 19.1 (6.9) visits Con: 13.7 (8.8) visits ($p < 0.001$) Mean (SD) duration of visits Int: 25.3 (10.6) hours of contact Con: 11.9 (8.2) hours of contact ($p < 0.001$) Evaluation at 12, 24 and 36 months	Mothers in the Int A group were evaluated more positively on the HOME Inventory at 12 and 24 months (no data reported) Attrition 65% remained at 1 year

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 2 contd *Studies reporting the effects of home visiting on parenting and the home environment: Part I – HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Osofsky, *et al.*, 1988[85] USA	0.38 RCT	Non-professionals	Adolescent mothers	Int: Home visits (*n* = 65) Con: No home visits (*n* = 65)	Int: Introduction of stimulating development tasks for infants	Int: 1 visit per week for first 4 weeks, then monthly Evaluation at 6, 13 and 20 months corrected age	HOME Inventory score: no significant difference between groups Attrition 104 (80%) remain at 20 months
Infante-Rivard, *et al.*, 1989[87*] Canada	0.46 RCT	Public health nurses	Families of low socio-economic status	Int: Home visits (*n* = 21) Con: Routine care (*n* = 26)	Int: Counselling, teaching child development, health and behaviour	Int: 3 prenatal visits; 5 postnatal visits Con: 1 routine postnatal visit Evaluation at 9 months	Mean (SD) HOME Inventory score: Int = 35.6 (3.2) Con = 33.7 (4.7) NS
Wasik, *et al.*, 1990[88*] USA	0.52 RCT	Day-care teachers, social workers, nurses	At risk of cognitive difficulties	Int A: Home visits and child development programme (*n* = 16) Int B: Home visits (*n* = 25) Con: No home visits or child development programme (*n* = 23)	Int A and Int B: Promote parent problem-solving strategies	Int A and Int B: 1 visit per life week for first 3 years of infant's Evaluation at 6, 12, 18 and 30 months (age of child)	Mean (SD) HOME Inventory score: Int A / Int B / Con / *p* 6 month: 30.3 (6.3) / 26.9 (7.5) / 29.1 (5.1) / NS 12 months: 32.4 (4.8) / 29.6 (6.5) / 28.0 (6.6) / NS 18 months: 32.2 (4.5) / 29.6 (6.4) / 30.4 6.6 / NS 30 months: 31.8 (6.8) / 31.2 (5.4) / 30.1 (4.8) / NS Attrition (*n* remaining at 30 months) Int A = 13 Int B = 19 Con = 22
Field, *et al.*, 1980[90*] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (*n* = 30) Con: No home visits (*n* = 30)	Int: Educate mothers on child developmental milestones and child -rearing practices Teach mothers to give age-appropriate stimulation to their infants Facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Approximately half-hour visit duration Evaluation at 8 months	Mean HOME Inventory score: Int = 5.6 Con = 4.2 *p* = < 0.001

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 2 contd *Studies reporting the effects of home visiting on parenting and the home environment: Part I – HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101]* USA	0.79 RCT	Nurses	African-American women Less than 29 weeks gestation, no previous live births and at least 2 socio-demographic risk characteristics (from: unmarried, < 12 years education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Mean HOME Inventory score: Int = 32.3 Con = 30.9 Mean difference = –1.3 95% CI: –2.2 to –0.4 *p* = 0.003
Black, *et al.*, 1994[125]* USA	0.57 RCT	Community health nurses	Mothers with prenatal cocaine/heroin use	Int: Home visits (*n* = 31) Con: No home visits (*n* = 29)	Int: Provide maternal support. Promote: parenting, child development, utilisation of resources, and advocacy	Int: Hourly visits, with 2 visits before birth and then bi-weekly for the first 18 months of the child's life	Mean (SEM) HOME Inventory score: Int = 35.1 (1.2) Con = 31.4 (1.5) *F* = 3.78, *p* = 0.065 Attrition 43/60 (72%) of families remained at 18 months
Black, *et al.*, 1995[126]* USA	0.61 RCT	Lay home visitors	Children with failure to thrive	Int: Home visits and clinics (*n* = 64) Con: Clinics only (*n* = 66) Int and Con stratified by age of child at recruitment: younger group = 1–12 months; older group = 12.1–24.9 months	Int: Maternal support, promotion of parenting, child development, use of formal and informal resources, and parent advocacy	Int: Weekly home visits for 1 year Mean (SD) number of visits = 19.2 (11.5) Mean duration just less than 1 hour	Mean (SD) HOME Inventory score: Int 'younger' = 31.6 (3.6) Con 'younger' = 29.3 (4.2) Int older = 32.4 (5.1) Con older = 30.3 (5.7) *F* = 3.84, *p* = 0.05 Attrition (*n* remaining at 18 months) 116/130 (89%)

**Inclusion in meta-analysis;Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 2 contd *Studies reporting the effects of home visiting on parenting and the home environment: Part I – HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Casey, *et al.*, 1994[130*] USA	0.64 RCT	Developmental paediatrician and/or nurse and social worker	Infants with failure to thrive	Int: Home visits (*n* = 67) Con: No home visits (*n* = 113)	Int: Cognitive, language and social development via a programme of games and activities, and a systematic approach to help parents manage self-identified problems	Int: 1 visit per week in year 1; bi-weekly visits in years 2 and 3 Evaluation at 4, 8, 12, 18, 24, 30 and 36 months of corrected age	Mean (SD) HOME Inventory score at 36 months: Int = 38.1 (9.1) Con = 35.6 (9.5) NS Attrition (*n* remaining at 36 months) Int = 64/67 (96%) Con = 102/113 (90%)
Davis & Spurr, 1998[133*] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (*n* = 87) Con: Routine community services (*n* = 38)	Int: To enable parents to explore and clarify issues and problems confronting them, and to develop appropriate management strategies	Int: Weekly sessions, 1-hour duration	Mean change HOME Inventory score: 0–3 years Int = 5.37 Con = –2.08 $p = 0.0005$ 4+ years Int = 8.71 Con = –2.13 $p = 0.03$
Huxley & Warner, 1993[145*] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (*n* = 20) Con: Standard care (*n* = 20)	Int: Prevention of parent dysfunction Education in maternal and child health	Dependent upon need Evaluation: Int: Mean 13 months Con: Mean 16 months	Total HOME Inventory score: $\chi^2 = 19.55, p = 0.0001$
Shapiro, 1995[163] Canada	0.18 RCT	Community-based nurse and home-maker	Low birth weight newborns	Int: Home visits (*n* = 50) Con: Routine home visits (*n* = 50)	Int: Early discharge from hospital Personal support to mothers and family, respite care, assist with infant care, light housekeeping, share information regarding infant care Con: Routine discharge	Int: Mean 3.8 visits and 8.4 telephone contacts up to 8 weeks post-discharge Con: Mean 1.4 visits and 1.9 telephone contacts up to 8 weeks post-discharge Evaluation at 12 months	HOME Inventory score: significant difference between Int and Con groups (favours Int group, no data reported)

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 3 *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
MacNeil & Holland, 1972[34] USA	0.21 non-RCT	Public health nurses	Mothers with newborns	Int: Group and home visits (*n* = 93) Con: Home visits (*n* = 96)	Int: Teaching child health to mothers in groups and at home Con: Teaching child health to mothers at home	Mean number of home visits: Int = 3.1 Con = 4.3	Mean (SD) test score (knowledge of child health): Int = 89.8 (18.71); Con = 76.4 (16.69) $t = 3.9$, $p < 0.05$ Attrition (*n* lost to study) Int = 37/93; Con = 45/96
Gutelius, *et al.*, 1977[35] USA	0.59 RCT	Paediatrician, nurse	First-born black infants; low-income families	Int: Home visits (*n* = 49) Con: Prenatal clinics and postnatal well-baby clinics, no home visits (*n* = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: 9 visits (from 7 months pregnant to first 3 years of child's life; minimum 1 hour per visit) Evaluation at 24 and 36 months	No. with mother–child interaction at 24 months: Int = 20/46; Con = 6/45 $p = < 0.01$ *Favourable attitude towards child at 36 months* No. appropriately handling kicking/hitting: Int = 15/44; Con = 6/42 $p = < 0.05$ *Mothers teaching/child-rearing* No. promoting future success at school: Int = 29/44; Con = 13/42 $p = < 0.01$ No. using daily praise: Int = 37/44; Con = 27/42 $p = < 0.05$ No. managing fear of the dark: Int = 37/44; Con = 26/42 $p = < 0.05$ No. providing parental stimulation (books etc.) Int = 34/46; Con = 21/45 $p = < 0.01$ Attrition 3 lost from each group at 36 months

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hall, 1980[36] Law-Harrison & Twardosz, 1986[151] USA	0.46 RCT	Nurse	Mothers: primiparas; no chronic disease; uncomplicated pregnancy; full-term, vaginal delivery	Int: Home visit (n = 15) Con: Routine care (n = 15)	Int: Teaching programme (infant behaviour)	Int: 1 visit Evaluation at 1 month postpartum	Mean (variance) score Neonatal Perception Inventory: Int / Con NP/1: 1.27(3.31) / 1.87 (2.92) NP/2: 2.80 (6.30) / 2.14 (15.19) p = 0.05 / p = 0.05
Stanwick, *et al.*, 1982[37] Canada	0.39 RCT	Public health nurses	Mothers with newborn infants	Int: Home visit (n = 80) Con: No home visit (n = 76)	Enhance mother's confidence in caring for her infant; increase her maternal knowledge and skill	Int: 1 visit (within 3 weeks of delivery) Evaluation at 4 weeks after delivery Int: 39 mothers not visited Con: 8 mothers visited	Mother's infant hygiene skills: no significant differences between Int and Con groups

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1986, 1994[48,82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education; enhancement of the women's informal support systems; and the linkage of the parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean 23 antenatal and postnatal combined Int A and Int B combined on analysis as Con group Evaluation at 6, 34 and 46 months	Mother–child interaction at 34 and 46 months: (no data reported) Warmth NS, NS Control NS, NS Involvement NS, $p = 0.004$ Mean number provision of toys, games and reading material at 34 months: Con = 8.37 Int C = 8.30; Int D = 8.37 Difference (Con – Int D) = 0.00 95% CI: –0.56 and 0.56 NS Mean number provision of toys, games and reading material at 46 months: Con = 6.92 Int C = 7.32; Int D = 6.84 Difference (Con – Int D) = 0.08 95% CI: –0.551 to 0.69 NS Mean number of times for yelling or scolding at 6 months: Con = 7.90 Int C = 7.56; Int D = 3.99 Difference (Con – Int D) = 3.91 95% CI: –1.09 to 8.91 NS Mean number of times for spanking or hitting at 6 months: Con = 1.09 Int C = 1.71; Int D = 0.19 Difference (Con – Int D) = 0.90 95% CI: –0.85 to 2.65 NS Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Scarr & McCartney, 1988[52] Bermuda	0.55 RCT	Trained mothers	Random sample of 125 Bermudan families with 2-year-old children	Int: Home visits (n = 78) Con: No home visits (n = 39)	Int: Mother–child home programme; promote cognitive and socio-emotional development; train mothers to become more effective teachers themselves	Int: 46 weekly visits for 2 years	Mean (SD) scores Playing activities: Int: 13.9 (1.4); Con: 13.9 (1.1); t = 0.00; p = NS Talking activities: Int: 21.6 (3.5); Con: 21.3 (3.8); t = 0.44; p = NS Sharing activities: Int: 12.3 (2.0); Con: 11.2 (2.7); t = 2.48; p < 0.01 Physical punishment: t = 1.54, NS Reasoning: t = –1.95, NS
Seitz, *et al.*, 1985[53] USA	0.14 non-RCT	Home visitor, paediatrician, primary care day worker	Families with low socio-economic status expecting their first child; no complications during pregnancy; inner-city location; no mental health problems	Matched pairs Int: Home visits (n = 17) Con: No home visits (n = 17)	Int: To solve immediate problems, reduce physical dangers, obtain more adequate food or housing; to discuss other long-term problems or decisions, e.g. education, marital, career; to liaise with other service providers	Mean number of visits from pregnancy to 30 months postpartum: Int = 28	Involvement with child's schooling: Int = 1/15 Con = 6/15 χ^2 = 4.59 p < 0.05
Larson, 1980[57] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatal (n = 35) Int B: Home visits postnatal (n = 36) Con: No home visits	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatal plus 4 visits (1–6 weeks); 5 visits (6 weeks to 15 months) Int B: 7 visits (6 weeks to 6 months); 3 visits (6 weeks to 15 months) Evaluation at 8 weeks and 6, 12 and 18 months	Mean maternal behaviour rating: 6 weeks: Int A 55.7, Int B 48.9, Con 49.2, p < 0.001 6 months: Int A 55.2, Int B 51.7, Con 51.1, p < 0.018 12 months: Int A 55.6, Int B 54.5, Con 53.7, p NS 18 months: Int A 58.0, Int B 55.5, Con 54.0, p < 0.077

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barrera, *et al.*, 1986[58] Canada	0.55 RCT	Infant/parent therapists	Infants born between 1979 and 1981	Int A: Home visits (n = 16) Int B: Home visits (n = 22) Con A: Control preterm (n = 21) Con B: Control full term (n = 24)	Int A and Int B: To improve the child's developmental level of functioning; to improve the quality of the interaction between parent and child	1 visit per week (0–4 months) 1 visit per 2 weeks (4–9 months) 1 visit per month (9–12 months) Visits of 1–2 hours in duration Evaluation at 4 and 16 months	No significant differences between intervention groups in infant and maternal interactive behaviours
Johnson, *et al.*, 1993[62] Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (n = 141) Con: Routine care (n = 121)	Int: A child development programme modelled on the Bristol CPD with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Number (%) reading to child: Int = 98% Con = 54% $p < 0.0001$ Relative risk 1.81 95% CI: 1.52 to –2.16 Mean (SD) number of cognitive games: Int = 3.75 (2.11) Con = 1.62 (1.39) $p < 0.01$ Mean (SD) number of nursery rhymes: Int = 7.74 (1.65) Con = 3.50 (3.24) $p < 0.01$
Siegel, *et al.*, 1980[75] USA	0.36 RCT	Para-professionals	Low-income families	Uncomplicated labour/delivery Int A: Early and extended contact and home visits (n = 47) Int B: Early and extended contact (n = 50) Int C: Home visits Con: No early or extended contact, no home visits (n = 52) Complicated labour/delivery Int A: Extended contact and home visits (n = 60) Con: No extended contact, no home visits (n = 59)	Int A: Promote mothers' involvement with their families; emotional support	Int A: 9 of visits in first 3 months of child's life Evaluation at 4 and 12 months	Mother–child attachment Regression analysis of attachment factors: Acceptance 4 months: $p < 0.05$ 12 months: NS Interaction/stimulation 4 months: NS 12 months: $p < 0.0119$

CPD, Child Development Programme

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Thompson, *et al.*, 1982[79] USA	0.46 RCT	Nurse	Children of black, adolescent, unmarried mothers, < 18 years old and of low socio-economic status	Int: Home visits (n = 20) Con: No home visits (n = 20)	Int: Encourage positive parent–child relationship and interacting with parents in a developmentally conducive way	Int: Monthly visits for 2 years Evaluation at 30 months	Mean (SD) frequencies of behaviours Statements: Int = 5.94 (4.6) Con = 3.44 (2.58) p = < 0.06 Positive responses: Int = 5.94 (4.6) Con = 3.44 (2.58) p = < 0.06
Madden, *et al.*, 1984[81] USA	0.46 RCT	Volunteer women trained as toy demonstrators	Low-income families with children between 21 and 33 months old	3 cohorts: 1974 Int: Home visits (n = 22) Con A: No home visits (n = 26) 1975 Int: Home visits (n = 17) Con B: No home visits (n = 12) 1976 Int: Home visits (n = 29) Con B: No home visits (n = 26)	Int: Mother–child home programme Toys and books left in home with input from toy demonstrator for parents Con A: Verbal interaction stimulus materials left in the home, no input from toy demonstrator	Int: 46 twice weekly visits in 24 months Mean number of home visits within each cohort year: Year 1 40.0–43.0 Year 2 1974: 38.6 1975: 38.6 1976: 15.7	Mean maternal interactive behaviour: Year Int Con 1974 324 216 $F(1,36) = 12.17, p < 0.01$ 1975 352 178 $F(1,14) = 3.38, p < 0.1$ 1976 267 156 $F(1,40) = 18.59, p < 0.001$ Attrition (at 24 months) Int = 23% Con = 27%

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] USA	0.29 RCT	Nurses	Pregnant and postpartum women lacking social support	Int A: Home visits (n = 68) Int B: Home visits (n = 79)	Int A: Mental health model Development of a therapeutic relationship with the pregnant woman in order to deal with interpersonal situations and problem-solving Int B: Information/resource utilisation model To provide information relating to physical and developmental health of the mother and child	Visits from < 22 weeks of gestation to 12 months postpartum Frequency and duration of visits determined by nurse and family Mean (SD) number of visits: Int A =19.1 (6.9) visits Int B = 13.7 (8.8) visits (p < 0.001) Mean (SD) duration of visits: Int A = 25.3 (10.6) hours of contact Int B = 11.9 (8.2) hours of contact (p < 0.001) Evaluation at 12, 24 and 36 months	Nursing Child Assessment Teaching Scale: Int A group evaluated more positively than Int B group. No data given Attrition 65% remained at 1 year
Wasik, *et al.*, 1990[88] USA	0.52 RCT	Day-care teachers, social workers, nurses	At risk of cognitive difficulties	Int A: Home visits and child development programme (n = 16) Int B: Home visits (n = 25)	Int A and Int B: Promote parent problem-solving strategies	Int A and Int B: 1 visit per week for first 3 years of child's life Evaluation at 36 months (age of child)	Mean (SD) Progressive Scale score: Int A = 30.3 (6.1); Int B = 29.2 (3.7) Con = 28.5 (4.9); p = NS Mean (SD) Authoritarian Scale score: Int A = 22.6 (5.7); Int B = 23.9 (4.6) Con = 23.3 (5.3); p = NS Mean (SD) Modernity Scale score: Int A = 59.7 (8.4); Int B = 57.3 (5.6) Con = 57.2 (6.7); p = NS Attrition (n remaining at 36 months) Int A = 14; Int B = 21; Con = 22

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1980[90] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (*n* = 30) Con: No home visits (*n* = 30)	Int: Educate mothers on child developmental milestones and child-rearing practices; teach mothers to give age-appropriate stimulation to their children; facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Visit duration of approximately half an hour Evaluation at 4 and 8 months	Mean scores (4 months): Infant face-to-face Int = 2.6 Con = 2.0 *p* = < 0.001 Mother face-to-face Int = 2.5 Con = 1.7 *p* = < 0.001 Maternal developmental expectations and child-rearing attitude survey: Mean scores – developmental attitudes Int = 7.2 Con = 3.3 *p* = < 0.001 Mean scores – child-rearing attitude Int = 3.1 Con = 4.1 *p* = < 0.001 Attrition (*n* remaining at 8 months) Int = 27 Con = 25

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Resnick, *et al.*, 1988[93] USA	0.57 RCT	Paediatric nurse practitioner and childhood development specialist	Premature infants weighing < 1800 g at birth	Int: Home visits (*n* = 21) Con: No home visits (*n* = 20)	Int: Language, social, cognitive and muscular exercises for children and parenting activities	Int: Weekly visits until child reached adjusted birth date; visits of approximately 1 hour in duration. Thereafter, childhood development specialist visited twice monthly for 12 months; visits lasted 1–1.5 hours	Interaction measures using the Greenspan–Lieberman Observation Scale Mean score positive verbal: Int = 2.91 Con = 2.08 *p* = 0.002 Mean score positive non-verbal: Int = 7.22 Con = 8.93 NS Mean score negative verbal: Int = 0.08 Con = 0.08 NS Mean score negative non-verbal: Int = 0.07 Con = 0.17 *p* = 0.03
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation, no previous live births, at least 2 socio-demographic risk characteristics (from: unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Mean score Nursing Child Assessment Teaching Scale: Int = 36.7 Con = 36.5 Mean difference: –0.2 95% CI: –0.9 to 0.5 NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker & Anderson, 1988[122] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads (3–27 months) 4 regions (denoted areas, A–D): North West, North East, West Glamorgan, Dublin	Int: Home visits (n = 678) Con: No home visits (n = 373)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: monthly visits Evaluation at 12 and 36 months	Mean difference scores on home variables Home socialisation environment: 12 months / 36 months Area A 0.71 NS; 1.09 NS Area B 0.95 NS; 1.13 NS Area C 1.88 NS; 0.11 NS Area D –2.86 $p < 0.01$; –2.03 $p < 0.05$ Home language environment: 12 months / 36 months Area A –2.31 $p < 0.05$; 0.71 NS Area B –0.04 NS; 1.46 NS Area C –3.01 $p < 0.01$; –0.95 NS Area D –2.22 $p < 0.05$; 1.91 NS Home cognitive environment: 12 months / 36 months Area A –0.20 NS; 0.92 NS Area B –0.16 NS; 1.94 NS Area C –1.47 NS; 0.87 NS Area D –1.15 NS; 2.33 $p < 0.05$ Home educational environment: 12 months / 36 months Area A –2.19 $p < 0.05$; 0.17 NS Area B 1.39 NS; 2.49 $p < 0.05$ Area C –0.53 NS; –2.40 $p < 0.05$ Area D –2.28 $p < 0.05$; 1.78 NS Home health environment: 12 months / 36 months Area A –1.59 NS; –2.08 $p < 0.05$ Area B –0.15 NS; –0.16 NS Area C –1.61 NS; 0.35 NS Area D 0.98 NS; 1.02 NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker, *et al.*, 1994[123] Northern Ireland	0.46 non-RCT	Health visitors	Children on health visitor caseloads 3–27 months old	Int: Home visits (n = 384) Con: No home visits (n = 222)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 36 months	Reading environment: Int = 41 Con = 44 Percentage read to: Int = 88 Con = 86 Frequency read to, given as a percentage of maximum frequency: Int = 79 Con = 77 Interest in books: Int = 56 Con = 55 No statistical tests reported
Beckwith, 1988[124] USA	0.36 RCT	Home visitors (1 paediatric nurse, 1 early childhood educator)	Pregnant and postpartum women: English speaking ≤ high school education ≤ unskilled/semi-skilled job Infants ≤ 2000 g ≤ 35 weeks gestation > 3 days neonatal intensive care	Int: Home visits (n = 37) Con: No home visits (n = 55)	Int: Develop supportive relationship (individualised for each mother)	Int: Ended when infants reached 13 months Evaluation at 1 and 9 month (corrected age)	Percentage of observation period for mother talking to child: Int Con 1 month 47 31 9 months 31 20 $F(1,60) = 3.7, p < 0.05$ Percentage of observation period for mother holding the child: Int Con 1 month 57 47 9 months 11 4 $F(1,60) = 4.2, p < 0.05$ Mean score for realistic developmental expectations: Int = 2.2 Con = 1.5 $F(1,63) = 3.9, p < 0.05$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Black, *et al.*, 1995[126] USA	0.61 RCT	Lay home visitors	Children with failure to thrive	Int: Home visits and clinics (*n* = 64) Con: Clinics only (*n* = 66) Int and Con stratified by age of child at recruitment (younger group = 1–12 months; older group = 12.1–24.9 months)	Int: Maternal support, including promotion of parenting, child development, use of formal and informal resources, and parent advocacy	Int: Weekly home visits for 1 year Mean (SD) number of visits = 19.2 (11.5) Mean duration is just less than 1 hour	Mean (SD) Parent Nurturance score: Int (younger) = 2.24 (0.65) Con (younger) = 2.21 (0.71) Int (older) = 2.46 (0.85) Con (older) = 2.42 (0.78) NS Mean (SD) Child Interactive Competance score: Int (younger) = 3.33 (0.66) Con (younger) = 3.31 (0.48) Int (older) = 3.66 (0.51) Con (older) = 3.64 (0.69) NS Attrition (*n* remaining at 18 months) 116/130 (89%)
Davis & Spurr, 1998[133] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (*n* = 87) Con: Routine community services (*n* = 38)	Int: To enable parents to explore and clarify issues and problems confronting them, and to develop appropriate management strategies	Int: Weekly sessions of 1 hour in duration	Positiveness towards child Mean change Child/Ideal Child Discrepancy score: Int = –0.038 Con = 0.05 *p* = 0.04 Mean change 2nd Child/2nd Ideal Child Discrepancy score: Int = 0.74 Con = –0.28 *p* = 0.01

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 3 contd *Studies reporting the effects of home visiting on parenting and the quality of the home environment: Part II – non-HOME outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Grantham-McGregor & Desai, 1975[139] Jamaica	0.39 non-RCT	Nurses	Mothers with 3-year-old children	Int: Home visits (n = 22) Con: No home visits (n = 22)	Int: Use of homemade toys to encourage optimal development	Int: Home visits of 1 hour in duration (approximately once per week for 8 months) Maximum of 29 visits	Differences between groups: No data given Playing and chatting with child, $p < 0.05$ Awareness of child's mental abilities, $p < 0.05$ Awareness of educational value of toys, $p < 0.05$ Reading to child, NS Positive motivation, NS Pretend games, NS Time spent with child, NS Awareness of the child's mental abilities, $p < 0.05$
Huxley & Warner, 1993[145] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (n = 20) Con: Standard care (n = 20)	Int: Prevention of parent dysfunction; education in maternal and child health	Dependent upon need Evaluation: Int = mean 13 months Con = mean 16 months	Adult/Adolescent Parenting Inventory (expectations of child): No significant differences between groups Belief in the value of corporal punishment: Significantly less belief in the Int group, $p = 0.01$
Seeley, *et al.*, 1996[161] England	0.43 non-RCT	Health visitors	Postnatal women	Int: Care from trained health visitors (n = 70) Con: Routine primary care (n = 30) historical controls	Int: Health visitors trained in the management of post-natal depression, including the use of counselling skills and cognitive behavioural skills; visits to women identified as depressed from trained health visitors	Int: Weekly visits of 1 hour in duration for 8 weeks	Rate of mother–infant relationship problems at 4 months was significantly lower in the Int group than that in the Con group: $\chi^2 = 13.3$ df = 1 $p < 0.001$
Sutton, 1992[166] England	0.36 RCT	Psychologist	Difficult preschool children; families referred to study by GPs and health visitors	Int A: Group sessions (n = 7) Int B: Home visits (n = 9) Int C: Telephone (n = 11) Con: Control – waiting list (n = 10)	Int: Parent training – teaching behavioural principles to parents	Int: 8 weekly sessions (1–2 hours in duration). Follow-up (1), 2 weeks after final session; follow-up (2), 3 months after final session Mean times per child: Int A = 4 hours 30 min Int B = 5 hours 47 min Int C = 3 hours 9 min Evaluation at 12 and 18 months post-study onset	Application score: Scheffe Procedure (mean) Int A 6.00 Int B 5.50 Int C 5.25 Con 11.82 Pairs of groups significantly different: Int A : Con Int B : Con Int C : Con

GP, general practitioner

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 4 *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gutelius, *et al.*, 1977[35*] USA	0.59 RCT	Paediatrician, nurse	First-born, black infants; low-income families	Int: Home visits (n = 49) Con: Prenatal clinics and postnatal well-baby clinics, no home visits (n = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: From 7 months pregnant to first 3 years of infant's life (9 visits) Minimum of 1 hour per visit Evaluation at 1, 5 and 6 years	Number (%) with behaviour problems at 5 years: Int = 23 (40) Con = 10 (32) p = < 0.05 Number (%) with behaviour problems at 6 years: Int = 30 (38) Con = 14 (26) p = < 0.05 Number (%) waking at night at 1 year: Int = 37 (46) Con = 29 (47) p = < 0.05 Attrition 3 lost from each group at 36 months
Stanwick, *et al.*, 1982[37] Canada	0.39 RCT	Public health nurses	Mothers with newborn infants	Int: Home visit (n = 80) Con: No home visit (n = 76)	Enhance mother's confidence in caring for her infant; increase her maternal knowledge and skill	Int: 1 visit within 3 weeks of delivery Evaluation 4 weeks after delivery Int: 39 mothers not visited Con: 8 mothers visited	Maternal concern with child's health/behaviour Significantly fewer mothers in the Int group had concerns than in the Con group (p < 0.05)
Barkauskas, 1983[38*] USA	0.41 RCT	Public health nurses	Mothers:first-time birth; > 2000 g; not hospitalised; not separated > 14 days	Int: Home visit (n = 67) Con: Telephone (n = 43)	Int: Routine public health nurse service	Approximately 2 visits per family	Maternal concern about child behaviour: Int (%): Yes = 41.2 (black); 50.0 (white) No = 58.8 (black); 50.0 (white Con (%): Yes = 20.7 (black); 28.6 (white) No = 79.3 (black); 71.4 (white) p < 0.05

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1982[42] USA	0.54 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with term infants	Int: Home visits (*n* = 40) Con: No home visits (*n* = 40)	Int: Teach mothers to give age-appropriate stimulation to their infants; facilitate mother–child interaction	Int: Bi-weekly visits for first 6 months postpartum Evaluation at 4 and 8 months	Mean temperament score: 4 months Int = 3.4 Con = 3.8 $p < 0.05$ 8 months Int = 3.1 Con = 3.3 NS
Barth, *et al.*, 1988[46*] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Carey Infant Temperament Scale: Activity: Int 48.05 (9.35), Con 50.18 (8.75), *p* NS Mood: Int 22.05 (4.54), Con 23.91 (4.93), *p* NS Distractibility: Int 24.21 (6.50), Con 24.59 (6.44), *p* NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1986[48*] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education, enhancement of the women's informal support systems, and the linkage of the parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 visits – antenatal and postnatal combined Evaluation at 6 months	*Infant temperament* Mean score positive mood: Int C = 2.34; Int D = 2.40; Con = 2.29 Difference (Con – Int D) = –0.11 95% CI: 0.10 $p < 0.05$ Mean number of crying episodes in last 2 weeks: Int C = 4.05; Int D = 3.44; Con = 3.93 Difference (Con – Int D) = 0.49 95% CI: 0.59 NS Mean number of resisting eating episodes in last 2 weeks: Int C = 2.01; Int D = 2.29; Con = 1.72 Difference (Con – Int D) = –0.57 95% CI: 0.45 $p < 0.01$ Mean number of 'night awake' episodes in last 2 weeks: Int C = 3.25; Int D = 2.69; Con = 2.83 Difference (Con – Int D) = 0.14 95% CI: 0.66 NS *Parental concern* Sum of positive responses for behavioural problems: Int C = 0.61; Int D = 0.83; Con = 0.54 Difference (Con – Int D) = 0.29 95% CI: 0.28 $p < 0.05$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Scarr & McCartney, 1988[52]	0.55 RCT	Trained mothers	Random sample of 125 Bermudan families with 2-year-old children	Int: Home visits (n = 78) Con: No home visits	Int: Mother–child home programme Promote cognitive and socio-emotional development; train mothers to become more effective teachers themselves	Int: 46 weekly visits for 2 years	Mean (SD) Infant Behaviour record: Activity: Int A 22.4 (8.3), Con 23.3 (8.6), t –0.89, p NS Attention: Int A 28.0 (8.6), Con 30.1 (8.4), t –1.23, p NS Word: Int A 6.2 (2.0), Con 6.5 (1.9), t 0.74, p NS Deviance: Int A 4.3 (0.6), Con 4.3 (0.6), t 0.28, p NS Social: Int A 35.1 (10.5), Con 37.6 (11.5), t –1.14, p NS Social Competency Scale: Adaptive skills Int A 96.7 (13.2), Con 95.9 (13.2), t 0.33, p NS Communication skills Int A 37.1 (2.8), Con 35.7 (3.3), t 2.29, p < 0.05

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Seitz, *et al.*, 1985[53] USA	0.14 non-RCT	Home visitor, paediatrician, primary care day worker	Families with low socio-economic status expecting their first child; no complications during pregnancy; inner-city location; no mental health problems	Matched pairs Int: Home visits (n = 17) Con: No home visits (n = 17)	Int: To solve immediate problems, reduce physical dangers, obtain more adequate food or housing; to discuss other long-term problems or decisions, e.g. education, martial, career; to liaise with other service providers	Int: Mean of 28 visits (pregnancy to 30 months postpartum)	Mean (SD) teachers' ratings: Int / Con / p *Positive behaviour* Boys 8.1 (2.6) / 5.7 (2.9) / NS Girls 8.6 (2.4) / 10.6 (1.7) / NS *Negative behaviour* Boys 1.4 (1.8) / 6.6 (3.1) / < 0.01 Girls 3.4 (2.3) / 1.8 (3.0) / NS Numbers – absenteeism: Int / Con / p 0/15 / 4/15 / < 0.05 Numbers – school adjustment: Int / Con / p 10/16 / 4/16 / < 0.05 Mean (SD) number of negative school services: Int / Con / p Boys 0.4 (0.5) / 1.9 (1.4) / < 0.01 Girls 0 (0) / 0 (0) / NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Larson, 1980[57] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatally (*n* = 35) Int B: Home visits postnatally (*n* = 36) Con: No home visits (*n* = 44)	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatal plus 4 visits (1–6 weeks); 5 visits (6 weeks to 15 months) Int B: 7 visits (6 weeks to 6 months); 3 visits (6 weeks to 15 months) Evaluation at 6, 12 and 15 months	Number of observations of sleeping problems: Int A / Int B / *p* 12 months: 1 / 5 / NS < 0.1 15 months: 1 / 2 / NS Number of observations of feeding problems: Int A / Int B / *p* 12 months: 0 / 10 / < 0.001 15 months: 1 / 5 / NS < 0.1 Maternal Behaviour scale Int A / Int B / Con / *p* 6 months: 55.2 / 51.7 / 51.1 / < 0.18 Attrition (*n* remaining at 15 months) Int A = 26 Int B = 27
Barrera, *et al.*, 1986[58*,91] Canada	0.55 RCT	Infant/parent therapists	Infants born between 1979 and 1981	Int A: Home visits (*n* = 16) Int B: Home visits (*n* = 22) Con A: Control preterm (*n* = 21) Con B: Control full term (*n* = 24)	Int A and Int B: To improve the child's developmental level of functioning; to improve the quality of the interaction between parent and child	1 visit per week (0–4 months); 1 visit per 2 weeks (4–9 months); 1 visit per month (9–12 months) Visits of 1–2 hours in duration Evaluation at 4 and 16 months	Carey Infant Temperament Scale: No statistically significant difference between groups; no data reported

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Brooks-Gunn, *et al.*, 1994[67] Casey, *et al.*, 1994[130] Gross, 1993[44] IHDP, 1990[69] USA	0.71 RCT	Non-professionals	Parents of low birth weight, premature infants	Int: Home visits (n = 347) Con: No home visits (n = 561)	Int: Information on child health and development, social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean 1.5 visits per month in the second and third years	Behavioural measures Mean score Child Behaviour Checklist: 36 months Int = 43.5 Con = 47.4 p = 0.003 60 months Int = 31.9 Con = 33.0 NS
Thompson, *et al.*, 1982[79] USA	0.46 RCT	Nurse	Children of black, adolescent, unmarried mothers, < 18 years old and of low socio-economic status	Int: Home visits (n = 20) Con: No home visits (n = 20)	Int: Encourage positive parent–child relationship and interacting with parents in a developmentally conducive way	Int: Monthly visits for 2 years Evaluation at 30 months	Mean (SD) frequencies of child non-cooperation: Int = 5.00 (3.84) Con = 8.31 (6.16) p = 0.07
Madden, *et al.*, 1984[81] USA	0.46 RCT	Volunteer women trained as toy demonstrators	Low-income families with infants between 21 and 33 months old	4 cohorts: 1973 Int: Home visits (n = 18) Con A: No home visits (n = 16) 1974 Int: Home visits (n = 22) Con B: No home visits (n = 26) 1975 Int: Home visits (n = 17) Con A: No home visits (n = 12) 1976 Int: Home visits (n = 29) Con A: No home visits (n = 26)	Int: Mother–child home programme Toys and books left in home with input from toy demonstrator for parents Con A: Data collection only Con B: Verbal interaction stimulus materials left in the home, no input from toy demonstrator	Int: 46 twice weekly visits in 24 months Mean number of home visits within each cohort year: Year 1 40.0–43.0 Year 2 1974: 38.6 1975: 38.6 1976: 15.7 Evaluation at 24 months	Teachers' ratings Child Behaviour Traits: 1973 cohort: Int 68, Con 65 1976 cohort: Int 71, Con 75 Teachers' ratings of severity of school problems: 1973 cohort: Int / Con % with reading problems: 56 / 64 % with maths problems: 56 / 64 % with discipline problems: 25 / 36 1976 cohort % with reading problems: 67 / 47 % with maths problem s: 33 / 37 % with discipline problems: 29 / 16

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1980[90*] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (*n* = 30) Con: No home visits (*n* = 30)	Int: Educate mothers on child developmental milestones and child-rearing practices; teach mothers to give age-appropriate stimulation to their infants; facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Visit approximately half an hour in duration Evaluation at 4 and 8 months	Mean scores (8 months): Carey Infant Temperament Scale Int = 2.7 Con = 3.3 $p = < 0.001$ Attrition (*n* remaining at 8 months) Int = 27 Con = 25
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women; less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from: unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum Int = 26 (0–71) Evaluation at 24 months	Total score: behaviour problems Int = 49.2 Con = 46.0 Mean difference = 3.2 95% CI: –0.6 to 7.0 NS
Brown, 1997[128] England	0.31 non-RCT	Nursery nurse play development workers	Families of low socio-economic status with social isolation and lack of infant play resources	Before and after study (*n* = 39) without a separate control group	Increasing knowledge and skills to increase confidence and self-esteem	Weekly visits of 45–75 min in duration (4–11 visits)	Mean (SD) score – severity of behaviour Before = 11.00 (3.09) After = 8.47 (2.92) $p < 0.001$ Mean (SD) score – parent's concern over behaviour Before = 8.19 (3.31) After = 5.50 (2.51) $p < 0.001$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Chapman, 1984[131] Canada	0.5 RCT	Public health nurses	Prematurely born infants	Post-test only Int A: Continual home visits (*n* = 25) Int B: Late home visits (*n* = 27) Int C: Early home visits (*n* = 53) Con: No home visits (*n* = 48)	Int: Teaching module and age-appropriate toys	Int: 10 1-hour visits Evaluation at 36 months	Mean (SD) child social maturity: Int A = 114.56 (21.91) Int B = 116.19 (19.83) Int C = 122.64 (19.43) Con = 124.00 (22.99) NS
Davis & Spurr, 1998[133] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (*n* = 87) Con: Routine community services (*n* = 38)	Int: To enable parents to explore and clarify issues and problems confronting them, and to develop appropriate management strategies	Int: Weekly sessions of 1 hour in duration	Mean change – Child Behaviour Checklist: Int = –11.0 Con = –4.3 Significant
Hewitt, *et al.*, 1991[144] England	0.39 non-RCT	Health visitors	Randomly selected expectant mothers on health visitors' caseloads	Int: Home visits (n = 66); stratified by duration of programme Con: No home visits Historical controls	Int: Parent education package – anticipatory guidance to prevent the development of behaviour problems Con: Routine health visitor care	Int: 1 visit when child was 1, 3, 6, 12 and 18 months Evaluation at 9 and 24 months	Child behaviour: At 9 months no significant differences between Int and Con groups on reports of either potentially problematic or actual problem behaviour Maternal concern: At 24 months control group was significantly less likely to say that their child's behaviour was a problem ($n = 6, t = 0, p < 0.05$)
Kerr, *et al.*, 1997[150*] UK	0.29 RCT	Health visitors	Parents of babies born in Glasgow in the first 3 weeks of December 1993	Int: Home visits (*n* = 101) Con: Routine care (*n* = 119)	Int: Verbal and written information and advice about sleeping and settling behaviour	Int: 1 visit	% Infants with settling difficulties: Int = 21 Con = 39 $p = 0.03$ % Infants with cumulative sleep score > 14: Int = 22 Con = 39 $p = 0.03$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 4 contd *Studies reporting the effects of home visiting on child behaviour and child temperament*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Seeley, *et al.*, 1996[161] England	0.43 non-RCT	Health visitors	Postnatal women	Int: Care from trained health visitors (n = 70) Con: Routine primary care (n = 30) Historical controls study	Int: Health visitors trained in the management of postnatal depression, including the use of counselling skills and cognitive behavioural skills; visits to women identified as depressed from trained health visitors	Int: Weekly visits of 1 hour in duration for 8 weeks	Infant behaviour: NS (numerical data not presented)
Sutton, 1992[166] 1995[165] England	0.36 RCT	Psychologist	Difficult preschool children; families referred to study by GPs and health visitors	Int A: Group (n = 7) Int B: Home visits (n = 9) Int C: Telephone (n = 11) Con: Control – waiting list (n = 10)	Int: Parent training; teaching behavioural principles to parents	Int: 8 weekly sessions (1–2 hours in duration) Follow-up (1), 2 weeks after final session; follow-up (2), 3 months after final session Mean times per child: Int A = 4 hours 30 min Int B = 5 hours 47 min Int C = 3 hours 9 min Evaluation at 12 and 18 months post-study onset	Form of application score (child behaviour): Scheffe procedure (mean) Int A 6.00 Int B 5.50 Int C 5.25 Con 11.82 $p < 0.01$
Weir & Dinnick, 1988[172]* England	0.54 RCT	Health visitors	Children with sleep problems aged from 4 months to 4.5 years (mean age 20 months)	Int: Home visits from trained health visitors (n = 27) Con: Routine health visitor care	Int: Health visitors trained in behavioural techniques appropriate to sleeping problems	Int: Mean (range) number of visits = 5.5 (1–13) Evaluation at 6 months	Number (%) sleeping difficulties: Int = 7 (32) Con = 9 (47) $\chi^2 = 0.48$ df = 1 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

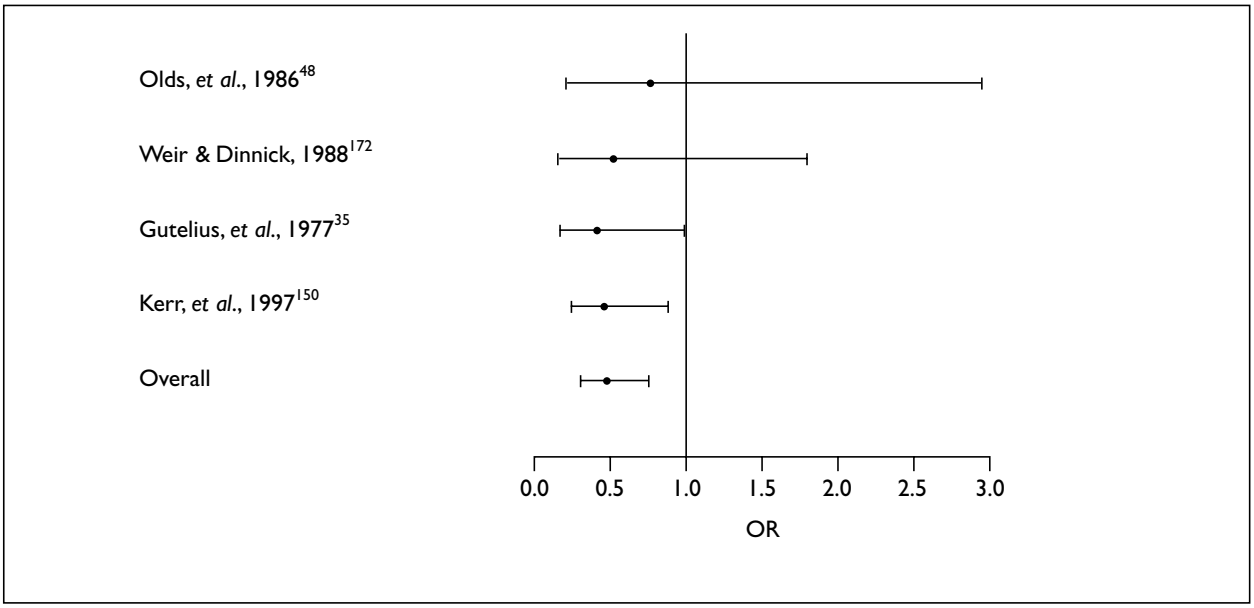


FIGURE 1 *ORs (and 95% CI) for reported problems with child sleeping behaviour*

TABLE 5 *Studies assessing child mental and motor development*

Study	Bayley Scale of Mental Development[180]	Bayley Scale of Motor Development[180]	Stanford–Binet IQ[181]	Other
Gutelius, *et al.*, 1977[35*]	✔		✔	Peabody Picture Vocabulary Test[182]
Field, *et al.*, 1982[42]	✔	✔		
Brooten, *et al.*, 1986[45]	✔			
Olds, *et al.*, 1986, 1994[48,82*]	✔		✔	Cattell[184]
Scarr & McCartney 1988[52]			✔	Achievement test[188]
Seitz, *et al.*, 1985[53]				Wechsler Pre-School and Primary Scale of Intelligence[183]
Barrera, et al., 198658	✔	✔		
Brooks-Gunn, *et al.*, 1994[67] /IHDP, 1990[69*]			✔	Peabody Picture Vocabulary Test[182] Wechsler Pre-School and Primary Scale of Intelligence[183]
Thompson, *et al.*, 1982[79]	✔		✔	
Madden, *et al.*, 1984[81]			✔	Peabody Picture Vocabulary Test[182] Cattell[184]
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84]	✔	✔		Mastery Motivation Task[187]
Osofsky, *et al.*, 1988[85]	✔			
Infante-Rivard, *et al.*, 1989[87 *]	✔	✔		
Wasik, *et al.*, 1990[88]	✔		✔	
Field, *et al.*, 1980[90]	✔	✔		
Resnick, *et al.,* 1988[93]	✔	✔		Combined mental and physical development test
Powell & Grantham-McGregor, 1989[86]				Peabody Picture Vocabulary Test[182] Griffiths' Mental Development Scale[185,186]
Kitzman, *et al.*, 1997[101*]	✔			
Barker & Anderson, 1988[122]				Child Development Level[122]
Barker, *et al.*, 1994[123]				Child Development Level[123]
Beckwith, 1988[124]	✔			Mastery Motivation Task[187]
Black, *et al.,* 1994[125*]	✔			
Black, *et al.*, 1995[126*]	✔	✔		Battelle Developmental Inventory[189]
Chapman, 1984[131*]	✔	✔	✔	
Grantham-McGregor, *et al.*, 1987[140*]			✔	Peabody Picture Vocabulary Test[182] Griffiths' Mental Development Scale[185,186]
Huxley & Warner, 1993[145]	✔	✔		
Shapiro, 1995[163]	✔	✔		

* *Inclusion in meta-analysis*

TABLE 6 *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gutelius, *et al.*, 1977[35]* USA	0.59 RCT	Paediatrician, nurse	First-born, black infants; low-income families	Int: Home visits (n = 49) Con: Prenatal clinics and postnatal well-baby clinics, no home visits (n = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: 9 visits from 7 months pregnant to first 3 years of infant's life Minimum of 1 hour per visit Evaluation at 24 and 36 months	Bayley Scales of Mental Development Mean (SD) score at 24 months: Int = 100.0 (13.3) Con = 91.4 (17.4) p < 0.01 Stanford–Binet IQ Mean (SD) score at 36 months: Int = 99.3 (11.1) Con = 91.2 (8.6) p < 0.001 Attrition 3 lost from each group at 36 months
Field, *et al.*, 1982[42] USA	0.54 RCT	Teachers	Black, teenage mothers of low socio-economic status with term infants	Int A: Home visit parent training (n = 34) Int B: Nursery parent training (n = 36) Con: No parent training (n = 35)	Int A: Infant stimulation, including caretaking, sensorimotor and mother–infant interaction exercises Int B: Parent training, job training and income	Int A: 6 months of bi-weekly home visits Int B: 4 hours per day for a 6-month period Evaluation at 4, 8, 12 and 24 months	Bayley Scales of Mental Development (mean score): Int A / Int B / Con / p 8 months: 112 / 113 / 109 / NS 12 months: 112 / 119 / 105 / < 0.01 Bayley Scales of Motor Development (mean score): Int A / Int B / Con / p 8 months: 16 / 112 / 104 / < 0.05 12 months: 109 / 119 / 102 / < 0.05

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Brooten, *et al.*, 1986[45] USA	0.39 RCT	Nurse specialist	Mothers with neonates: very low birth weight (≤ 1500 g)	Int: Home visit and telephone (*n* = 39) Con: Routine care (*n* = 40)	Int: Child care/health: links to physicians and social service personnel	Int: 4 in first year; 1 at 18 months Telephone contact: 3 per week (weeks 1–2); once a week (weeks 3–8)	Bayley Scales of Mental and Motor Development: No data reported, NS
Olds, *et al.*, 1986, 1994[48*,82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education; enhancement of the women's informal support systems; the linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Int A and Int B combined on analysis as Con group Evaluation at 36 and 48 months	Stanford–Binet IQ at 12 and 24 months: NS Stanford–Binet IQ, 36 months: Con = 101.95 Int C = 104.20 Int D = 3.57 Mean difference (Con – Int D): –1.61 95% CI: –6.08 to 2.85 NS Stanford–Binet IQ, 48 months: Con = 108.93 Int C = 111.25 Int D = 111.52 Mean difference (Con – Int D): –2.59 95% CI: –6.77 to 1.57 NS Bayley Mental Development Index (mean score), 12 months: Con = 109.94 Int C = 105.44 Int D = 111.23 Mean difference (Con – Int D): –1.29 95% CI: 5.23 NS Attrition Years 1–4 post-programme rates of attrition varied from 15% to 21%

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Scarr & McCartney, 1988[52] Bermuda	0.55 RCT	Trained mothers	Random sample of 125 Bermudian families with 2-year-old children	Int: Home visits (n = 78) Con: No home visits (n = 39)	Int: Mother–child home programme – promote cognitive and socio-emotional development; train mothers to become more effective teachers themselves	Int: 46 weekly visits for 2 years	Mean (SD) scores Achievement and test word: Int = 1.7 (0.2) Con = 1.7 (0.1) t = –0.11 p = NS Stanford–Binet IQ: Int = 106.6 (17.1) Con = 103.1 (16.9) t = 0.44 p = NS
Seitz, *et al.*, 1985[53] USA	0.14 non-RCT	Home visitor, paediatrician, primary care day worker	Families with low socio-economic status expecting their first child; no complications during pregnancy; inner-city location; no mental health problems	Matched pairs Int: Home visits (n = 17) Con: No home visits (n = 17)	Int: To solve immediate problems, reduce physical dangers, obtain more adequate food or housing; to discuss other long-term problems or decisions, e.g. education, marital, career; to liaise with other service providers	Mean number of visits from pregnancy to 30 months postpartum: Int = 28	Wechsler Scale: Int / Con / p Boys 91.7 (5.2) / 93.3 (13.8) / NS Girls 98.0 (9.2) / 103.8 (16.7) / NS
Barrera, *et al.*, 1986[58] Canada	0.55 RCT	Infant/parent therapists	Infants born between 1979 and 1981	Int A: Home visits (n = 16) Int B: Home visits (n = 22) Con A: Control preterm (n = 21) Con B: Control full term (n = 24)	Int A and Int B: To improve the child's developmental level of functioning; to improve the quality of the interaction between parent and child	1 visit per week: 0–4 months; 1 visit per 2 weeks: 4–9 months; 1 visit per month: 9–12 months Visits of 1–2 hours in duration Evaluation at 4 and 16 months	Bayley Scales of Mental Development: Raw data not given p < 0.001 Bayley Scales of Motor Development: Raw data not given p < 0.001

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Brooks-Gunn, *et al.*, 1994[67] IHDP, 1990[69] USA	0.71 RCT	Non-professionals	Parents of low birth weight, premature infants	Int: Home visits (n = 347) Con: No home visits (n = 561)	Int: Information on child health and development, social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean of 1.5 visits per month in the second and third years	Stanford–Binet IQ, 36 months: Int = 93.6 Con = 84.2 $p < 0.001$ Int Con p Peabody Picture Vocabulary Test: 36 months 90.4 84.0 < 0.001 60 months 82.1 79.6 0.07 Wechsler Scale, 60 months: Verbal 90.5 89.6 NS Performance 94.3 94.9 NS Full scale 91.6 91.4 NS
Thompson, *et al.*, 1982[79] USA	0.46 RCT	Nurse clinician	Prenatal, black, unmarried, low socio-economic status women, less than 18 years old at delivery of infant	Int: Home visits (n = 20) Con: No home visits (n = 20)	Int: Establish positive parent–child relationship (to foster physical, motor, perceptual, cognitive, language and social development)	Int: Monthly visits for 2 years Evaluation at 18 and 30 months	Mean (SD) score Bayley Scales of Mental Development, 18 months: Int = 116.32 (11.07) Con = 110.16 (13.50) NS Mean score Stanford–Binet Intelligence Test, 30 months: Int = 97.95 Con = 89.50 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Madden, *et al.*, 1984[81] USA	0.46 RCT	Volunteer women trained as toy demonstrators	Low-income families with infants between 21 and 33 months old	4 cohorts 1973 Int: Home visits (*n* = 18) Con A: No home visits (n = 16) 1974 Int: Home visits (*n* = 22) Con B: No home visits (*n* = 26) 1975 Int: Home visits (*n* = 17) Con A: No home visits (*n* = 12) 1976 Int: Home visits (*n* = 29) Con A: No home visits (*n* = 26)	Int: Mother–child home programme – toys and books left in home with input from toy demonstrator for parents Con A: Data collection only Con B: Verbal interaction stimulus materials left in the home, no input from toy demonstrator	Int: 46 twice weekly visits in 24 months Mean number of home visits within each cohort year: Year 1 40.0–43.0 Year 2 1974: 38.6 1975: 38.6 1976: 15.7 Evaluation at 24 months	Stanford–Binet IQ Mean score (adjusted for pretest score) at 24 months: 1973 cohort Int = 104.8; Con = 101.6; NS 1974 cohort Int = 105.8; Con = 105.3; NS 1975 cohort, no data 1976 Int = 104.9; Con = 99.6; $p < 0.05$ Attrition (at 24 months) Int = 23%; Con = 27%
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] USA	0.29 RCT	Nurses	Pregnant and postpartum women lacking social support	Int A: Home visits (*n* = 68) Int B: Home visits (*n* = 79)	Int A: Mental health model Development of a therapeutic relationship with the pregnant women in order to deal with interpersonal situations and problem-solving Int B: Information/resource utilisation model To provide information relating to physical and developmental health of the mother and child	Visits from < 22 weeks of gestation to 12 months postpartum Frequency and duration of visits determined by nurse and family Mean (SD) number of visits: Int A = 19.1 (6.9) visits Int B = 13.7 (8.8) visits ($p < 0.001$) Mean (SD) duration of visits: Int A = 25.3 (10.6) hours of contact Int B = 11.9 (8.2) hours of contact ($p < 0.001$) Evaluation at 12, 24 and 36 months	Bayley Scales of Mental Development: Means slightly above 100, NS Bayley Scales of Motor Development: Means slightly above 100, NS Mastery Motivation Test: No data reported Attrition 65% remained at 1 year

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Osofsky, *et al.*, 1988[85] USA	0.38 RCT	Non-professionals	Adolescent mothers	Int: Home visits (n = 65) Con: No home visits (n = 65)	Int: Introduction of stimulating development tasks for infant	Int: 1 visit per week for first 4 weeks then monthly Evaluation at 6, 13 and 20 months (corrected age)	Bayley Scales of Mental Development: No data reported, NS Attrition 104 (80%) remain at 20 months
Powell & Grantham-McGregor, 1989[86] Jamaica	0.5 RCT	Para-professionals	Low-income families	Int: Home visits (n = 29) Con: No home visits (n = 29)	Int: Play and other developmental tasks for infant	Int: 1 visit per week for 12 months	Mean (SD) Griffiths' Mental Development score: Int Con 12 months 109.6 (10.1) 98.3 (10.9) $p < 0.05$ Attrition 8.5%
Infante-Rivard, *et al.*, 1989[87*] Canada	0.46 RCT	Public health nurses	Families of low socio-economic status	Int: Home visits (n = 21) Con: Routine care (n = 26)	Int. Counselling, teaching child development, health and behaviour	Int: 3 prenatal visits; 5 postnatal visits Con: 1 routine postnatal visit Evaluation at 9 months	Mean (SD) score Bayley Scales of Mental Development: Int = 115.5 (7.0) Con = 114.9 (3.3) NS Mean (SD) score Bayley Scales of Motor Development: Int = 118.4 (8.8) Con = 114.2 (13.2) NS
Wasik, *et al.*, 1990[88] USA	0.52 RCT	Day-care teachers, social workers, nurses	At risk of cognitive difficulties	Int A: Home visits and child development programme (n = 16) Int B: Home visits (n = 25) Con: No home visits or child development programme (n = 23)	Int A and Int B: Promote parent problem-solving strategies	Int A and Int B: 1 visit per week for first 3 years of infant's life Evaluation at 6, 12, 18 and 30 months (age of child)	Bayley Scales of Mental Development: 6 months $F(2,58) = 0.3$, $p > 0.05$ 12 months $F(2,58) = 4.03$, $p < 0.05$ 18 months $F(2,58) = 16.55$, $p < 0.001$ Stanford–Binet IQ: 24 months $F(2,58) = 7.93$, $p < 0.001$ Attrition (n remaining at 30 months) Int A = 13 Int B = 19 Con = 22

[*] *Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1980[90] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (n = 30) Con: No home visits (n = 30)	Int: Educate mothers on child developmental milestones and child-rearing practices; teach mothers to give age-appropriate stimulation to their infants; facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Visit approximately half an hour in duration Evaluation at 8 months	Bayley Scales of Mental Development: Int = 110.0 Con = 101.0 p = < 0.001 Bayley Scales of Motor Development: Int = 115.0 Con = 111.0 p = NS Attrition (n remaining at 8 months) Int = 27 Con = 25
Resnick, *et al.*, 1988[93] USA	0.57 RCT	Paediatric nurse practitioner and childhood development specialist	Premature infants weighing < 1800 g at birth	Int: Home visits (n = 21) Con: No home visits (n = 20)	Int: Language, social, cognitive and muscular exercises for infants and parenting activities	Int: Weekly visits until infant reached adjusted birth date, visits approximately 1 hour in duration. Thereafter childhood development specialist visited twice monthly for 12 months, visits lasted 1–1.5 hours	Bayley Scales of Mental Development (mean score): 6 months Int = 116.57 Con = 119.50 NS 12 months Int = 116.53 Con = 105.50 p = 0.04 Bayley Scales of Motor Development (mean score): 6 months Int = 115.10 Con = 112.80 NS 12 months Int = 105.19 Con = 97.55 NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101*] USA	0.79 RCT	Nurses	African-American women: Less than 29 weeks gestation, no previous live births and at least 2 socio- demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Bayley Scales of Mental Development Int = 94.3 Con = 94.5 Mean difference: –0.2 95% CI: –2.4 to 2.0 NS
Barker & Anderson, 1988[122] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads, aged 3–7 months 4 regions (denoted areas A–D): North West North East West Glamorgan Dublin	Int: Home visits (n = 678) Con: No home visits (*n* = 373)	Int: CDP: developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 12 and 36 months	% Children with language delay Lower socio-economic group Int = 21 Con = 34 Higher socio-economc group: Int = 9 Con = 14 No test results reported
Barker, *et al.*, 1994[123] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads, aged 3–27 months	Int: Home visits (*n* = 624) Con: No home visits (*n* = 362)	Int: CDP: developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 24 months	Differences in development levels, given as months ahead/behind: Language Int = –0.15 Con = –0.01 Socialisation Int = 0.17 Con = 0.48 Cognitive Int = 0.91 Con = 0.96 No statistical tests reported

[*] *Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Beckwith, 1988[124] USA	0.36 RCT	Home visitors (1 paediatric nurse, 1 early childhood educator)	Pregnant and postpartum women English speaking; ≤ high school education; ≤ unskilled/semi-skilled job; infants ≤ 2000 g; ≤ 35 weeks gestation; > 3 days neonatal intensive care	Int: Home visits (n = 37) Con: No home visits (n = 55)	Int: Develop supportive relationship (individualised for each mother)	Int: Ended when infants reached 13 months Evaluation at 13 and 20 months (corrected age)	Bayley Scales of Mental Development (mean score): Int Con 13 months 108 107 20 months 102 91 $F(1,35) = 4.1$, $p < 0.05$ Mastery Motivation Test: 13 months = no data reported, NS 20 months = no data reported, NS
Black, *et al.*, 1994[125*] USA	0.57 RCT	Community health nurses	Mothers with prenatal cocaine/heroin use	Int: Home visits (n = 31) Con: No home visits (n = 29)	Int. Provide maternal support Promote: parenting, child development, utilisation of resources, and advocacy	Int: Hourly visits, with 2 visits before birth and then bi-weekly until child aged 18 months old	Mean (SEM) score Bayley Scales of Mental Development: Int Con 6 months 103.3 (2.9) 93.4 (3.0) 12 months 106.9 (3.0) 98.9 (4.1) 18 months 94.9 (3.5) 96.7 (3.4) All NS Mean (SEM) score Bayley Scales of Motor Development: Int Con 6 months 106.5 (2.6) 97.0 (3.1) 12 months 105.1 (3.7) 101.1 (3.5) 18 months 100.7 (9.1) 100.0 (2.4) All NS Attrition 43/60 (72%) of families remained at 18 months

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Black, *et al.*, 1995[126*] USA	0.61 RCT	Lay home visitors	Children with failure to thrive	Int: Home visits and clinics (*n* = 64) Con: Clinics only (*n* = 66) Int and Con stratified by age of infant at recruitment (younger group: 1–12 months; older group 12.1–24.9 months)	Int: Maternal support, promotion of parenting, child development, use of formal and informal resources and parent advocacy	Int: Weekly home visits for 1 year Mean (SD) number of visits = 19.2 (11.5) Mean duration just less than 1 hour	Mean (SD) score Bayley Scales of Mental Development: Int younger 89.3 (17.4) Con younger 86.1 (18.7), NS Int older 81.9 (12.5) Con older 80.8 (15.2), NS Bayley Scales of Motor Development (mean (SD) scores): Int younger 92.0 (14.6) Con younger 91.5 (15.2), NS Int older 92.0 (18.7) Con older 91.6 (14.2), NS Attrition (*n* remaining at 18 months) 116/130 (89%)

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Chapman, 1984[131]* Canada	0.5 RCT	Public health nurses	Prematurely born infants	Post-test only Int A: Continual home visits (n = 25) Int B: Late home visits (n = 27) Int C: Early home visits (n = 53) Con: No home visits (n = 48)	Int: Teaching module and age-appropriate toys	Int: 10 1-hour visits Evaluation at 9, 18, 36 and 48 months	Mean (SD) Stanford–Binet IQ: 36 months Int A = 98.76 (17.05) Int B = 95.78 (21.47) Int C = 95.91 (19.38) Con = 93.19 (16.48) NS 48 months Int C = 101.56 (16.97) Con = 100.91 (15.41) NS Mean (SD) score Bayley Scales of Mental Development: 18 months – males Int A = 88.79 (11.11) Int B = 85.39 (16.22) Int C = 89.30 (16.08) Con = 88.00 (15.90) NS 18 months – females Int A = 94.80 (16.71) Int B = 91.34 (16.83) Int C = 101.80 (14.66) Con = 95.85 (12.09) NS Mean (SD) score Bayley Scales of Motor Development: 18 months – males Int A = 97.86 (13.92) Int B = 90.28 (18.20) Int C = 98.93 (15.41) Con = 94.25 (17.83) NS 18 months – females Int A = 96.53 (16.77) Int B = 90.28 (17.25) Int C = 104.12 (14.22) Con = 101.96 (15.58)

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 6 contd *Studies reporting the effects of home visiting on child mental and motor development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Grantham-McGregor, *et al.*, 1987[140*] Jamaica	0.34 non-RCT	Nurses	Mothers with 3-year-old children	Int: Home visits (*n* = 22) Con: No home visits (*n* = 22)	Int: Use of homemade toys to encourage optimal development	Int: Home visits once per week for 2 years, then once every 2 weeks for the third year 3 groups: (A) malnourished Int group; (B) malnourished Con group; and (C) adequately nourished Con group Evaluation at 24, 36, 48, 60 and 72 months	All results – mean (SD) scores *Months (A) (B) (C)* Peabody Picture Vocabulary Test: 36 26.9 (10.6) 18.3 (7.5) 26.2 (12.2) 48 34.5 (9.2) 30.0 (10.1) 39.4 (10.8) 60 40.0 (5.7) 37.1 (7.5) 43.7 (7.9) 72 43.2 (4.6) 39.0 (9.9) 46.8 (5.5) ANOVA Group $p < 0.005$ Stanford–Binet IQ 60 71.5 (8.7) 63.3 (7.8) 75.2 (10.5) 72 70.9 (8.3) 63.8 (6.4) 75.9 (9.5) Scheffes Method at 72 months $p < 0.01$ Griffiths' Mental Development Scale 24 97.4 (8.5) 78.8 (10.8) 95.9 (10.4) 36 94.3 (9.8) 84.8 (11.1) 97.8 (8.6) 48 93.2 (8.5) 83.2 (8.8) 98.4 (10.9) 60 86.1 (8.2) 78.1 (9.7) 93.2 (11.2) $p < 0.000$
Huxley & Warner, 1993[145] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (I = 20) Con: Standard care (*n* = 20)	Int: Prevention of parent dysfunction; education in maternal and child health	Dependent upon need	Evaluation: Int = Mean of 13 months Con = Mean of 16 months Bayley Scales of Mental Development: $Z = 1.6$, $p = 0.05$ Bayley Scales of Motor Development: No data reported, NS
Shapiro, 1995[163] Canada	0.18 RCT	Community-based nurse and homemaker	Low birth weight newborns	Int: Home visits (*n* = 50) Con: Routine home visits (*n* = 50)	Int: Early discharge from hospital; personal support to mothers and family, respite care, assist with infant care, light housekeeping, share information regarding infant care Con: Routine discharge	Int: Mean of 3.8 visits and 8.4 telephone contacts up to 8 weeks post-discharge Con: Mean of 1.4 visits and 1.9 telephone contacts up to 8 weeks post-discharge Evaluation at 12 months	Bayley Scales of Mental Development: No data reported, NS Bayley Scales of Motor Development: No data reported, NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

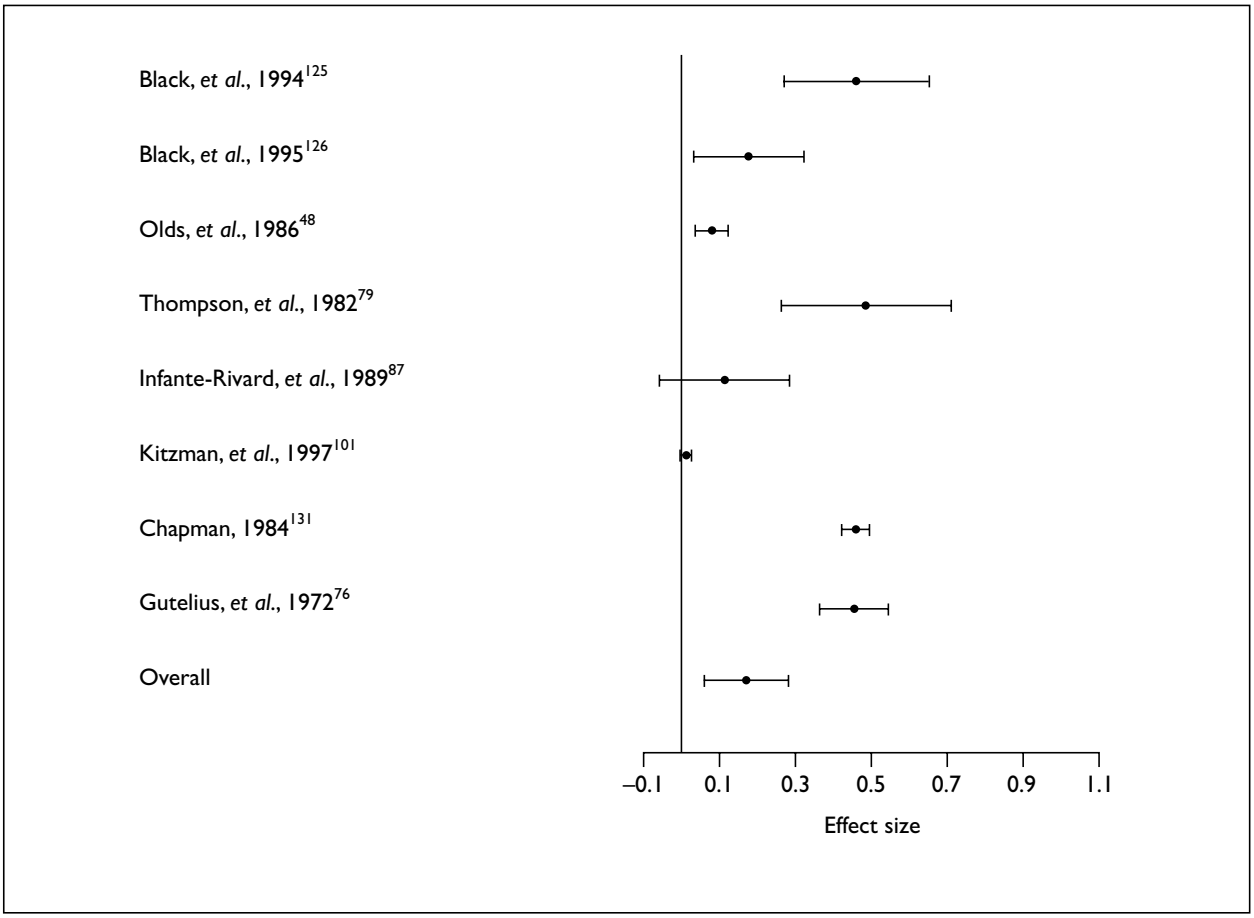


FIGURE 2 *Effect sizes (and 95% CI) for the Bayley Scale of Mental Development*

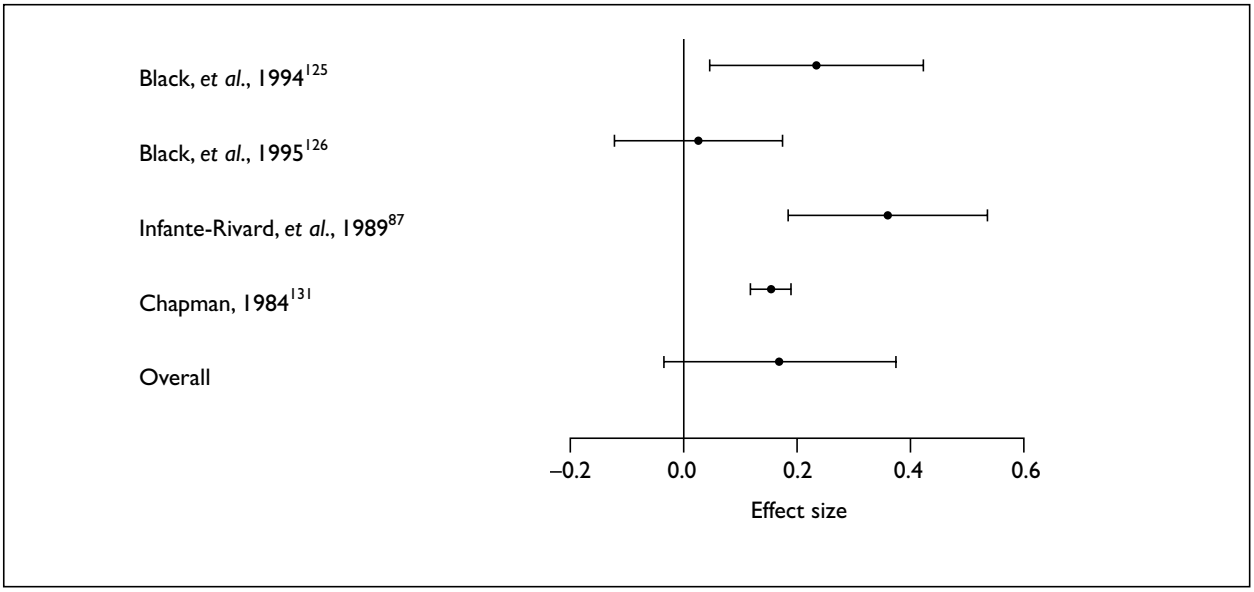


FIGURE 3 *Effect sizes (and 95% CI) for the Bayley Scale of Motor Development*

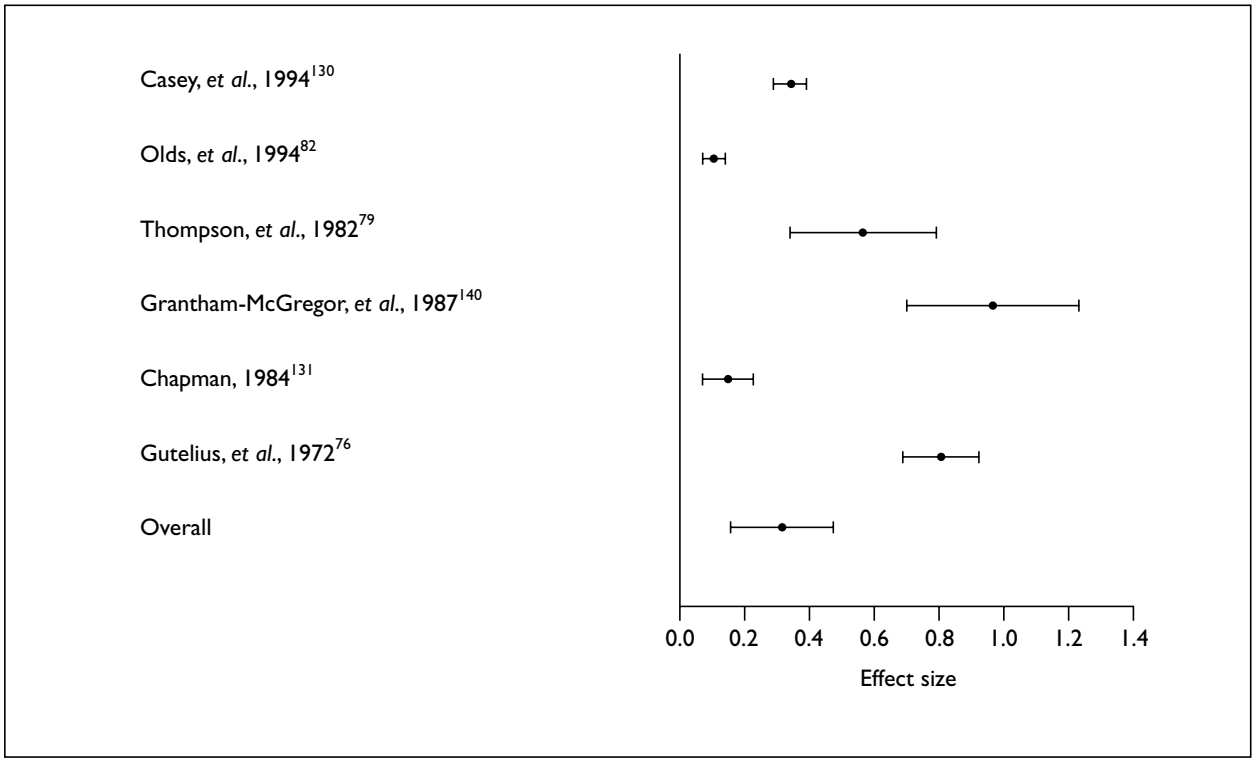


FIGURE 4 *Effect sizes (and 95% CI) for the Stanford–Binet IQ score*

TABLE 7 *Studies reporting the effects of home visiting on child physical development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
IHDP, 1990[69*] USA	0.75 RCT	Non-professionals	Parents of low birth weight premature infants	Int: Home visits (*n* = 347) Con: No home visits (*n* = 561)	Int: Information on child health and development, social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean of 1.5 visits per month in the second and third years	Length (cm): Int = 95.0 (4.1) Con = 94.7 (3.9) NS Heavier group: Int = 15.6 (1.2) Con = 15.4 (1.3) NS Lighter group: Int = 15.2 (1.2) Con = 15.1 (1.3) NS
Field, *et al.*, 1980[90] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (*n* = 30) Con: No home visits (*n* = 30)	Int: Educate mothers on child developmental milestones and child-rearing practices; teach mothers to give age-appropriate stimulation to their infants; facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Visits of approximately half an hour in duration Evaluation at 8 months	Int Con *p* Weight (g): 6730 6003 < 0.001 Length (cm): 67 64 < 0.001 Attrition (*n* remaining at 8 months) Int = 27 Con = 25
Barker & Anderson, 1988[122] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months 4 regions (denoted areas A–D): North West North East West Glamorgan Dublin	Int: Home visits (*n* = 678) Con: No home visits (*n* = 373)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 12 and 36 months	Weight for age: Percentage below 10th percentile, West Glamorgan 12 months 36 months Int 6 7 Con 7 14 No statistical test reported Height for age: Percentage below 10th percentile, West Glamorgan 12 months 36 months Int 13 3 Con 13 11 No statistical test reported

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 7 contd *Studies reporting the effects of home visiting on child physical development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker, *et al.*, 1994[123] Northern Ireland	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months old	Int: Home visits (*n* = 624) Con: No home visits (*n* = 362)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 24 months	Percentage difference (Int – Con) Weight = 1.1 Height = 1.8 Arm circumference = 3.7 Head circumference = –0.4 No statistical tests reported
Black, *et al.*, 1995[126*] USA	0.61 RCT	Lay home visitors	Children with failure to thrive	Int: Home visits and clinics (*n* = 64) Con: Clinics only (*n* = 66) Int and Con stratified by age at of infant at recruitment (younger group: 1–12 months; older group: 12.1–24.9 months)	Int: Maternal support, promotion of parenting, child development, use of formal and informal resources, and parent advocacy	Int: Weekly home visits for 1 year Mean (SD) number of visits = 19.2 (11.5) Mean duration just less than 1 hour	Mean (SD) scores – weight for age (*Z* scores): Int younger: –1.3 (1.1) Con younger: –1.1 (1.0) Int older: –1.8 (0.6) Con older: –1.7 (0.7) Mean (SD) scores – weight for height (*Z* scores): Int younger: –1.0 (1.4) Con younger: –0.8 (1.1) Int older: 1.5 (0.5) Con older: –1.3 (0.6) All NS Attrition (*n* remaining at 18 months) 116/130 (89%)

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 7 contd *Studies reporting the effects of home visiting on child physical development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Chapman, 1984[131]* Canada	0.5 RCT	Public health nurses	Prematurely born infants	Post-test only Int A: Continual home visits (*n* = 25) Int B: Late home visits (*n* = 27) Int C: Early home visits (*n* = 53) Con: No home visits (*n* = 48)	Int: Teaching module and age-appropriate toys	Int: 10 1-hour visits Evaluation at 9, 18, 36 and 48 months	Mean (SD) Height (cm): 36 months Int A = 94.04 (4.15) Int B = 94.3 (4.07) Int C = 94.13 (5.04) Con = 94.34 (3.42) NS 48 months Int C = 101.33 (5.50) Con = 101.45 (4.04) NS Weight (kg): 36 months Int A = 13.06 (3.00) Int B = 13.36 (1.62) Int C = 13.90 (1.91) Con = 13.80 (1.51) NS 48 months Int C = 5.85 (4.6) Con = 15.78 (1.83) NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 7 contd *Studies reporting the effects of home visiting on child physical development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Grantham-McGregor, *et al.*, 1987[140*] Jamaica	0.68 non-RCT	Nurses	Mothers with 3-year-old children	Int: Home visits (n = 22) Con: No home visits (n = 22)	Int: Use of homemade toys to encourage optimal development	Int: Home visits once per week for 2 years, then once every 2 weeks for the third year 3 groups: (A) malnourished Int group; (B) malnourished Con group; and (C) adequately nourished Con group Evaluation at 24, 36, 48, 60 and 72 months	Mean (SD) Con Int Height 24 92.2 (4.1) 91.0 (2.6) 36 90.1 (6.4) 92.9 (3.0) 48 92.8 (4.8) 93.4 (2.9) 60 93.0 (5.0) 94.1 (3.2) 72 93.9 (4.5) 94.9 (2.5) NS Weight 24 95.2 (9.1) 96.4 (10.4) 36 92.3 (10.8) 94.0 (8.9) 48 93.6 (7.7) 95.3 (10.1) 60 93.2 (6.9) 94.2 (8.9) 72 95.1 (8.4) 91.7 (7.5) NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 7 contd *Studies reporting the effects of home visiting on child physical development*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Wright, *et al.*, 1998[174*] England	0.71 RCT	Health visitors	Children identified as failing to thrive	Int: Structured health visitor management (*n* = 120) Con: Routine care (*n* = 109)	Int: Health visitor identification of dietary problems with dietetic, paediatric and social work input as required	Not stated	Weight SDS (at last evaluation): Int = –1.16 Con = –1.49 Mean difference: 0.32 95% CI: 0.05 to 0.6, *p* = 0.019 Weight deficit (at last evaluation): Int = –0.82 Con = –1.17 Mean difference: 0.35 95% CI: 0.11 to 0.59, *p* = 0.005 Height SDS (at home visit): Int = –0.79 Con = –1.13 Mean difference: 0.34 95% CI: 0.03 to 0.66, *p* = 0.034 Height deficit (at home visit) Int = –0.28 Con = –0.58 Mean difference: 0.3 95% CI: –0.01 to 0.02, *p* = 0.061 Weight SDS (at home visit): Int = –0.93 Con = –1.29 Mean difference: 0.36 95% CI: 0.01 to 0.71, *p* = 0.044 Weight deficit (at home visit): Int = –0.54 Con = –0.90 Mean difference: 0.36 95% CI: 0.07 to 0.65; *p* = 0.016

SDS, standard deviation score

[*]Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

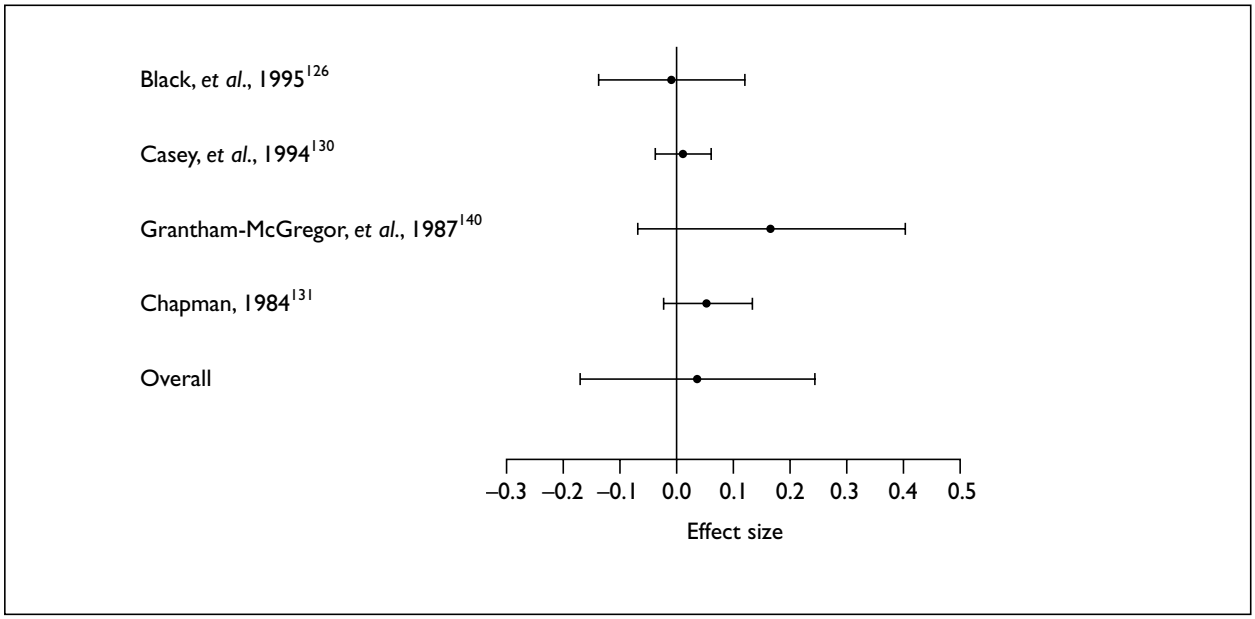


FIGURE 5 *Effect sizes (and 95% CI) for child weight*

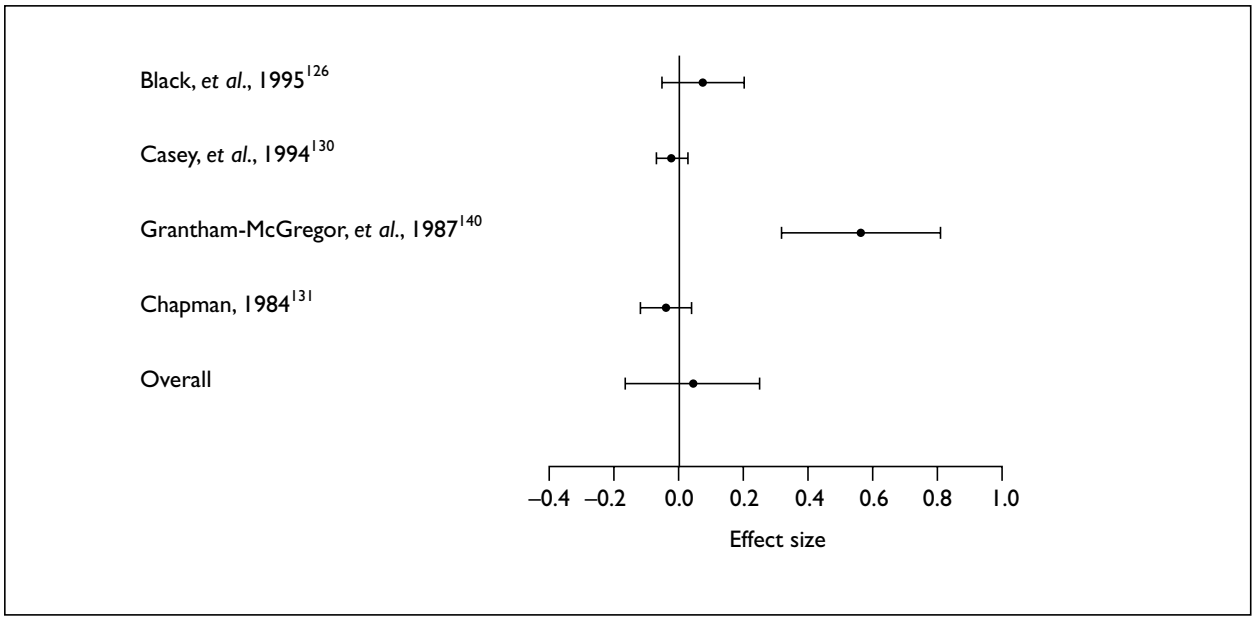


FIGURE 6 *Effect sizes (and 95% CI) for child height*

TABLE 8 *Studies reporting outcomes of immunisation or uptake of preventive child healthcare*

Study	Immunisation	Preventive child healthcare
Barkauskas, 1983[38*]	✔	✔
Barth, *et al.,* 1988[46]	Combined outcome measuring immunisations and preventive child healthcare	
Hardy & Streett, 1989[47*]	✔	✔
Larson, 1980[57*]	✔	✔
Johnson, *et al*., 1993[62*]	✔	
Dawson, *et al*., 1989[71*]	✔	✔
Siegel, *et al*., 1980[75]	✔	✔
Olds, *et al*., 1994[82]		✔
Infante-Rivard, *et al*., 1989[87*]	✔	
Kitzman, *et al*., 1997[101*]	✔	✔
Barker, *et al*., 1994[123*]	✔	
Gokcay, *et al*., 1993[138*]	✔	✔
Oda, *et al.,* 1995[155]		✔
Selby-Harrington, *et al*., 1995[162]		✔
* *Inclusion in meta-analysis*		

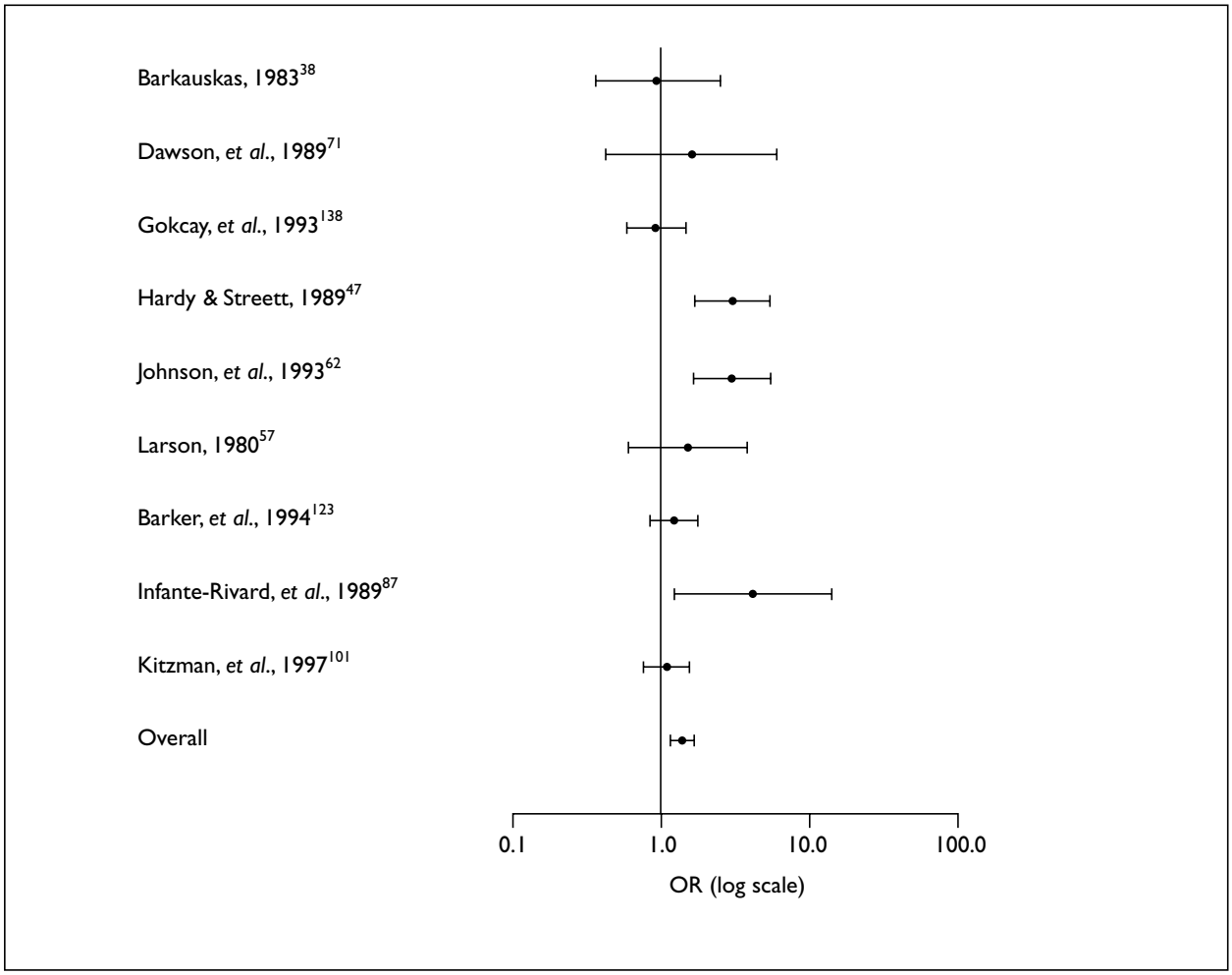


FIGURE 7 *ORs (and 95% CI) for uptake of childhood immunisation*

TABLE 9 *Studies reporting the effects of home visiting on uptake of preventive child health services: immunisations*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barkauskas, 1983[38*] USA	0.41 RCT	Public health nurses	Mothers: first-time birth; > 2000 g; not hospitalised; not separated > 14 days	Int: Home visit (*n* = 67) Con: Telephone (*n* = 43)	Int: Routine public health nurse service	Approximately 2 per family	Percentage received second DPT and polio immunisations Black mother–infant pairs: Int = 75.0 Con = 89.3 NS White mother–infants pairs: Int = 88.5 Con = 63.6 NS
Barth, *et al.*, 1988[46] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Mean (SD) Baby Care score (includes DPT and polio immunisations): Int = 7.43 (3.55) Con = 7.09 (3.89) NS
Hardy & Streett, 1989[47*]	0.25 RCT	Community women	Inner-city, black families with low income	Int: Home visits (*n* = 131) Con: No home visits (*n* = 132)	Int: Encourage uptake of services	Int: 10 visits in first 2 years	% Immunisations Int = 88 Con = 69 $p < 0.001$
Larson, 1980[57*] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatal (*n* = 35) Int B: Home visits postnatal (*n* = 36) Con: No home visits	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatally plus 4 visits at 1–6 weeks and 5 visits at 6 weeks to 15 months Int B: 7 visits at 6 weeks to 6 months; 3 visits at 6 weeks to 15 months Evaluation at 8 weeks and 6, 12 and 18 months	% Immunisations: Int A / Int B / Con / *p* 6 months: 81 / 80 / 76 / NS 12 months: 93 / 87 / 70 / < 0.05 18 months: 88 / 78 / 76 / < 0.10

DPT, diphtheria–pertussis–tetanus

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 9 contd *Studies reporting the effects of home visiting on uptake of preventive child health services: immunisations*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Johnson, *et al.*, 1993[62*] Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (*n* = 141) Con: Routine care (*n* = 121)	Int: A child development programme modelled on the Bristol CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, at 6 weeks and other times as required	Number (%) of infants receiving primary immunisations by their first birthday: Int = 108/127 (85) Con = 68/105 (65) $p < 0.001$ Relative risk: 1.31 95% CI: 1.12 to 1.54
Dawson, *et al.*, 1989[71*]	0.25 RCT	Para-professionals	Low-income families	Int A: Home visits (*n* = 42) Int B: Home visits and parents group (*n* = 50) Con: No home visits (*n* = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int A: 1 home visit per week Int B: 1 home visit per week plus parent group every 2 weeks Int A and Int B combined on analysis	Number (%) completed all immunisations: Int = 62/67 (93) Con = 39/44 (89) NS Overall attrition 35%
Siegel, *et al.*, 1980[75] USA	0.36 RCT	Para-professionals	Low-income families	Uncomplicated labour/delivery Int A: Early and extended contact and home visits (*n* = 47) Int B: Early and extended contact (*n* = 50) Int C: Home visits Con: No early or extended contact, no home visits (*n* = 52) Complicated labour/delivery Int A: Extended contact and home visits (*n* = 60) Con: No extended contact, no home visits (*n* = 59)	Int: Promote mothers' involvement with their families; emotional support	Uncomplicated labour/delivery: Int A = 9 visits in first 3 months of infant's life Int B = No home visits Int C = 9 visits in first 3 months of infant's life Complicated labour/delivery: Int A = 9 visits in first 3 months of infant's life Con = No home visits Evaluation at 12 months	Uncomplicated labour/delivery Mean number of immunisations: Int A = 4.7 Int B = 4.4 Int C = 5.1 Con = 4.5 NS Complicated labour/delivery Mean number of immunisations: Int A = 4.8 Con = 4.8 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 9 contd *Studies reporting the effects of home visiting on uptake of preventive child health services: immunisations*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Infante-Rivard, *et al.*, 1989[87*] Canada	0.46 RCT	Public health nurses	Families of low socio-economic status	Int: Home visits (*n* = 21) Con: Routine care (*n* = 26)	Int: Counselling, and teaching child development, health and behaviour	Int: 3 prenatal visits, 5 postnatal visits Con: 1 routine postnatal visit Evaluation at 9 months	% Incomplete immunisations Diphtheria: Int = 0 Con = 3.8 NS MMR: Int = 14.3 Con = 46.2 $p < 0.05$
Kitzman, *et al.*, 1997[101*] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children, and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	% Immunisations up to date: Int = 70 Con = 68 OR = 1.1 95% CI: 0.7 to 1.5
Barker, *et al.*, 1994[123*] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads 3–27 months old	Int: Home visits (*n* = 624) Con: No home visits (*n* = 362)	Int: CDP – developmental tasks for reading and language; nutrition advice	Int: Monthly visits Evaluation at 6, 12 and 24 months	% Children 6-month DPT Int = 85.3 Con = 82.6 12-month DPT + hearing Int = 85.7 Con = 83.7 24-month DPT + hearing + MMR Int = 80.2 Con = 77.7 No statistical tests reported

MMR, measles–mumps–rubella

[*]Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 9 contd *Studies reporting the effects of home visiting on uptake of preventive child health services: immunisations*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gokcay, *et al.*, 1993[138*]	0.14 RCT	Community women	Residents in squatter area	Int: Home visits (*n* = 141) Con: Home visits (*n* = 103)	Int: Encourage uptake of services	Not specified	% Infants fulfilling immunisation schedule: Int = 70.2 Con = 72.3 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 10 *Studies reporting the effects of home visiting on uptake of preventive child health services (excluding immunisation)*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barkauskas, 1983[38*] USA	0.41 RCT	Public health nurses	Mothers: first-time birth; > 2000 g; not hospitalised; not separated > 14 days	Int: Home visit (*n* = 67) Con: No home visit (*n* = 43)	Int: Routine public health nurse service	Approximately 2 per family	% Well-child clinic visits: Int (black) Con (black) 0–3 visits 42.4 26.9 4 or more 57.6 73.1 NS Int (white) Con (white) 0–3 visits 44.8 54.5 4 or more 55.2 45.4 NS
Barth, *et al.*, 1988[46] Barth, 199[170] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Mean (SD) Baby Care score (check-ups, DPT shots, polio shots) Int = 7.43 (3.55) Con = 7.09 (3.89) NS
Hardy & Streett, 1989[47] USA	0.25 RCT	Community women	Inner-city, black, low-income families	Int: Home visits (*n* = 131) Con: No home visits (*n* = 132)	Int: Encourage uptake of services	Int: 10 visits in first 2 years	Mean number of preventive healthcare visits: Int = 15.5 Con = 16.6 NS
Larson, 1980[57*] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatally (*n* = 35) Int B: Home visits postnatally (*n* = 36) Con: No home visits	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatally plus 4 visits (1–6 weeks); 5 visits (6 weeks to 15 months) Int B: 7 visits (6 weeks to 6 months); 3 visits (6 weeks to 15 months) Evaluation at 8 weeks and 6, 12 and 18 months	% Adequate well-child care visits: Int A Int B Con *p* 6 months 97 94 100 NS 12 months 77 77 88 NS 18 months 96 89 84 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 10 contd *Studies reporting the effects of home visiting on uptake of preventive child health services (excluding immunisation)*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Dawson, *et al.*, 1989[71] USA	0.25 RCT	Para-professionals	Low-income families	Int A: Home visits (*n* = 42) Int B: Home visits and parent group (*n* = 50) Con: No home visits (*n* = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int A: 1 home visit per week Int B: 1 home visit per week plus parent group every 2 weeks	Mean (SD) child care visits: Int A + B combined = 5.23 (1.16) Con = 5.70 (1.81) NS
Siegel, *et al.*, 1980[75] USA	0.36 RCT	Para-professionals	Low-income families	Uncomplicated labour/delivery Int A: Early and extended contact and home visits (*n* = 47) Int B: Early and extended contact (*n* = 50) Int C: Home visits Con: No early or extended contact, no home visits (*n* = 52) Complicated labour/delivery Int A: Extended contact and home visits (*n* = 60) Con: No extended contact, no home visits (*n* = 59)	Int A: Promote mothers' involvement with their families; emotional support; early and extended contact refers to mother–infant contact	Int A: 9 visits in first 3 months of infant's life Evaluation at 12 months	Mean number of preventive care visits Uncomplicated labour/delivery group: Int A = 3.8 Int B = 3.8 Int C = 4.1 Con = 4.1 *p* = NS Complicated labour/delivery group: Int A = 3.9 Con = 4.2 NS
Olds, *et al.*, 1994[82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education; enhancement of the women's informal support systems; the linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Evaluation at 34 and 46 months	Mean number of scheduled health supervision visits: Con = 1.56 Int C = 1.27 Int D = 1.26 Difference (Con – Int D): 0.3 95% CI: –0.04 to 0.64 NS Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 10 contd *Studies reporting the effects of home visiting on uptake of preventive child health services (excluding immunisation)*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (n = 228) Con: Routine care (n = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Mean number of well-child clinics: Int = 4.6 Con = 4.8 Mean difference: 0.2 95% CI: –0.2 to 0.6 p = 0.003
Gokcay, *et al.*, 1993[138*] Turkey	0.14 RCT	Community women	Residents in squatter area	Int: Home visits (n = 141) Con: Home visits (n = 103)	Int: Encourage uptake of services	Not specified	% Infants receiving at least 1 check-up: Int = 87.2 Con = 93.3 NS % Children (aged 1–5) receiving at least 1 check-up: Int = 87.2 Con = 93.3 NS
Oda, *et al.*, 1995[155] USA	0.29 RCT	Public health nurses	Low-income families	Int A: Home visits Int B: Telephone contact Con: No home visits or telephone contact Total: n = 1654	Not reported	Not reported	% Uptake of preventive child health services: Int A = 39.5 Int B = 36.1 Con = 39.6 NS
Selby-Harrington, *et al.*, 1995[162] USA	0.54 RCT	Nurse	Low-income families	Int A: Mailed pamphlet and letter from a nurse (n = 591) Int B: Phone call from a nurse (n = 284) Int C: Home visit from a nurse (n = 572) Con: Usual Medicaid information given at annual review (n = 598)	Int: Encourage uptake of services	Int A: Single pamphlet/ letter Int B: Single phone call Int C: Single home visit	% Uptake of health screening: With-phone families: Int A = 6.5 Int B = 12.3 Int C = 16.3 Con = 4.7 p < 0.001 No-phone families: Int A = 8.8 Int C = 9.1 Con = 5.7 NS

Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

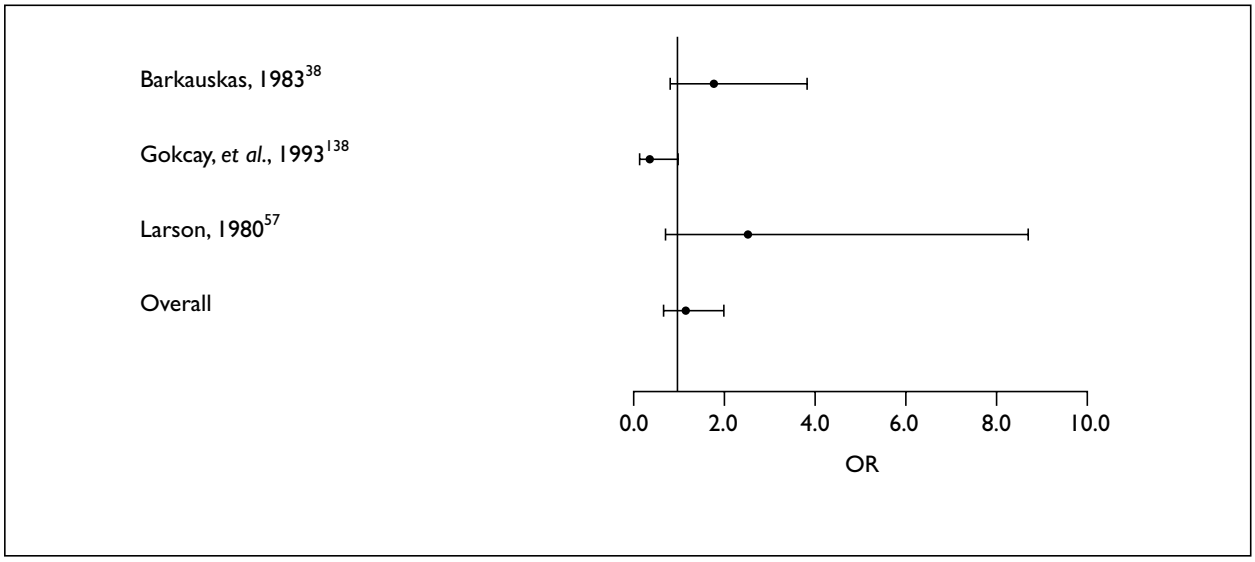


FIGURE 8 *ORs (and 95% CI) for uptake of preventive child healthcare*

TABLE 11 *Studies including outcomes relating to medical conditions and use of acute-care services*

Study	Acute-care services	Medical conditions
Barkauskas, 1983[38]		✔ Mother's report of medical conditions
Brooten, *et al.*, 1986[45]	✔	
Barth, *et al.,* 1988[46] * Barth, 1991[70] *	✔	✔ Ratings from minor to serious of eight medical conditions
Hardy & Streett, 1989[47] *	✔	✔ Use of services for selected medical conditions
Larson, 1980[57] *	✔	
Johnson, *et al.*, 1993[62] *	✔	✔ Use of services for selected medical conditions
Brooks-Gunn, *et al.*, 1994[67] Gross, 1993[44]	✔	
Dawson, *et al.*, 1989[71]	✔	
Siegel, *et al.*, 1980[75] *	✔	
Olds, *et al.*, 1994[82] *	✔	
Infante-Rivard, *et al.*, 1989[87] *	✔	
Kitzman, *et al.*, 1997[101]	✔	
Barker & Anderson, 1988[122] *	✔	
Barker, *et al.*, 1994[123]	✔	
Huxley & Warner, 1993[145] *	✔	✔ Use of services for selected medical conditions
Margolis, *et al.,* 1996[152]	✔ (Site of acute care)	
Shapiro, 1995[163]	✔	
Wright, *et al.*, 1998[174]	✔	
* *Inclusion in meta-analysis*		

TABLE 12 *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barkauskas, 1983[38] USA	0.41 RCT	Public health nurses	Mothers: first-time birth; > 2000 g; not hospitalised; not separated > 14 days	Int: Home visit (n = 67) Con: Telephone (n = 43)	Int: Routine public health nurse service	Approximately 2 visits per family	Mothers – report of medical conditions Percentage with 2 or more illness visits to clinics: Black mother–infant pairs Int = 31.4 Con = 41.4 NS White mother–infant pairs Int = 59.4 Con = 71.4 NS
Brooten, *et al.*, 1986[45] USA	0.39 RCT	Nurse specialist	Mothers with neonates: very low birth weight (≤ 1500 g)	Int: Home visit and telephone) (n = 39) Con: Routine care (n = 40)	Int: Child care/health Links to physicians and social service personnel	Int: 4 in first year; 1 at 18 months Telephone contact – 3 per week (weeks 1–2); 1 per week (weeks 3–8)	Number of infants hospitalised: Within 14 days / 18 months / p Int 4 / 10 / NS Con 5 / 10 / NS Number of infants with acute care visits: Int = 29 Con = 36 NS Number of acute care visits: Int = 163 Con = 186 NS
Barth, *et al.*, 1988[46*] Barth, 1991[70*] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (n = 97) Con: Routine care (n = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Mean (SD) number of emergency care visits: Int = 1.44 (0.50) Con = 1.44 (0.50) NS Mean (SD) score health indicator (rating of 8 common medical conditions): Int = 5.62 (2.92) Con = 5.43 (2.96) NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hardy & Street, 1989[47] USA	0.25 RCT	Community women	Inner-city, black, low-income families	Int: Home visits (*n* = 131) Con: No home visits (*n* = 132)	Int: Encourage uptake of services	Int: 10 visits in first 2 years	Number (%) of observations of sustained closed head trauma: Int = 8 (6) Con = 15 (11) NS Number (%) of observations of otitis media: Int = 27 (21) Con = 72 (55) $p < 0.001$ Number (%) of observations of severe monilial diaper rash: Int = 28 (21) Con = 45 (34) $p < 0.01$ Total number (%) of children admitted to hospital: Int = 8 (6.1) Con = 20 (15.2) $p < 0.01$
Larson, 1980[57*] Canada	0.39 RCT	Psychology graduates	Working class families	Int A: Home visits prenatally (*n* = 35) Int B: Home visits postnatally (*n* = 36) Con: No home visits	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatally; 4 visits at 1–6 weeks; 5 visits at 6 weeks to 15 months Int B: 7 visits at 6 weeks to 6 months; 3 visits at 6 weeks to 15 months Evaluation at 8 weeks and 6, 12 and 18 months	Cummulative emergency room visits rate per child (absolute *n*) Int A: 0.95 (29) Int B: 1.14 (38) Con: 1.05 (44) *p*: NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Johnson, *et al.*, 1993[62]* Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (*n* = 141) Con: Routine care (*n* = 121)	Int: A child development programme modelled on the Bristol CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Number of infants admitted to hospital: Int = 24 Con = 21 NS Mean number of days hospitalised (all children): Int = 2.6 Con = 1.3 NS Mean number of days hospitalised (those hospitalised): Int = 14 Con = 7 $p < 0.05$
Brooks-Gunn, *et al.*, 1994[67] Gross, 1993[44] USA	0.71 RCT	Non-professionals	Parents of low birth weight, premature infants	Int: Home visits (*n* = 347) Con: No home visits (*n* = 561)	Int: Information on child health and development, social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean of 1.5 visits per month in the second and third years	Annualised mean number of hospitalisations: 0–3 years 4–5 years Int 0.40 0.06 Con 0.40 0.05 Difference 0.00 0.01 *p* 0.85, NS 0.47, NS Mean score morbidity index: 0–3 years 4–5 years Int 2.56 1.33 Con 2.29 1.35 Difference 0.27 –0.02 *p* < 0.001 0.76 NS
Dawson, *et al.*, 1989[71] USA	0.25 RCT	Para-professionals	Low-income families	Int A: Home visits (*n* = 42) Int B: Home visits and parent group (*n* = 50) Con: No home visits (*n* = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int A: 1 home visit per week Int B: 1 home visit per week plus parent group every 2 weeks	Mean (SD) number of clinic visits for minor illness: Int A + B combined: 5.12 (3.63) Con: 3.45 (2.95) $p = 0.002$ Mean (SD) number of clinic visits for chronic illness: Int A + B combined: 3.13 (5.02) Con: 3.50 (4.67) NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Siegel, *et al.*, 1980[75*] USA	0.36 RCT	Para-professionals	Low-income families	Uncomplicated labour/delivery Int A: Early and extended contact and home visits (*n* = 47) Int B: Early and extended contact (*n* = 50) Int C: Home visits Con: No early or extended contact, no home visits (*n* = 52) Complicated labour/delivery Int A: Extended contact and home visits (*n* = 60) Con: No extended contact, no home visits (*n* = 59)	Int A: Promote mothers' involvement with their families; emotional support	Int A: 9 visits in first 3 months of infant's life Evaluation at 12 months	Number of hospitalisations Uncomplicated labour/delivery group: Int A / Int B / Int C / Con / *p* 4 / 1 / 4 / 3 / NS Complicated labour/delivery group: Int A = 4 Con = 7 NS Number of emergency room visits Uncomplicated labour/delivery group: Int A / Int B / Int C / Con / *p* 9 / 13 / 11 / 13 / NS Complicated labour/delivery group: Int A = 25 Con = 17 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1994[82*] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (n = 90) Int B: Int A plus transport to clinics (n = 94) Int C: Int B plus antenatal visits (n = 100) Int D: Int C plus postnatal visits (n = 116)	Int C and Int D: Parent education; enhancement of women's informal support systems; the linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Evaluation at 34 and 46 months Int A and Int B combined at analysis as control group	Emergency room visits (mean): Con = 1.53 Int C = 1.24 Int D = 1.00 Difference (Con – Int D): 0.52 95% CI: 0.21 to 0.81 $p \leq 0.01$ Number of hospital admissions (mean): Con = 0.11 Int C = 0.11 Int D = 0.14 Difference (Con – Int D): 0.10 95% CI: –0.17 to 0.17 NS Number of days hospitalised (mean): Con = 0.31 Int C = 0.43 Int D = 0.49 Difference (Con – Int D): –0.66 95% CI: –1.21 to –0.13 $p \leq 0.05$ Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%
Infante-Rivard, *et al.*, 1989[87*] Canada	0.46 RCT	Public health nurses	Families of low socio-economic status	Int: Home visits (n = 21) Con: Routine care (n = 26)	Int: Counselling, teaching child development, health and behaviour	Int: 3 prenatal visits; 5 postnatal visits Con: 1 routine postnatal visit Evaluation at 9 months	Children hospitalised (%): Int = 14.3 Con = 19.2 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Log incidence of healthcare encounters – injuries/ingestions: Int = –0.84 Con = –0.59 Difference: 0.25 95% CI: –0.00 to 0.50 $p \leq 0.05$ Log incidence of outpatient visits – injuries/ingestions: Int = –2.19 Con = –1.62 Difference: 0.57 95% CI: 0.10 to 1.04 $p \leq 0.05$ Log incidence of emergency department visits – injuries/ingestions: Int = –1.12 Con = –1.10 Difference: 0.02 95% CI: –0.27 to –0.31 NS Log incidence of hospitalisations – injuries/ingestions: Int = –4.31 Con = –3.63 Difference: 0.68 95% CI: –0.66 to 2.02 NS Log incidence of days hospitalised – injuries/ingestions: Int: –3.47 Con: –1.84 Difference: 1.64 95% CI: 0.78 to 2.50 $p \leq 0.01$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker & Anderson, 1988[122] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months 4 regions (denoted areas A–D): North West North East West Glamorgan Dublin	Int: Home visits (n = 678) Con: No home visits (n = 373)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 12 and 36 months	Number of days hospitalised Int Con Lower socio-economic group Area A 3.5 3.6 Area B 0.0 1.8 Higher socio-economic group Area A 1.1 1.7 Area B 0.1 1.3 No statistical test results reported
Barker, *et al.*, 1994[123] Northern Ireland	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months old	Int: Home visits (n = 624) Con: No home visits (n = 362)	Int: CDP – developmental tasks for reading and language; nutrition advice	Int: Monthly visits Evaluation at 12, 24 and 36 months	Children in hospital (%): Int Con 0–12 months 10.9 11.3 12–24 months 7.8 6.3 24–26 months 5.9 4.4 Mean days in hospital: Int Con 0–12 months 8.5 7.2 12–24 months 4.3 10.6 24–26 months 3.9 6.1 Average stay in hospital: Int Con 0–12 months 0.93 0.82 12–24 months 0.33 0.67 24–26 months 0.23 0.27 No statistical tests reported
Huxley & Warner, 1993[145] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (n = 20) Con: Standard care (n = 20)	Int: Prevention of parent dysfunction; education in maternal and child health	Dependent on need Evaluation: Int = Mean of 13 months Con = Mean of 16 months	Emergency room use More Con than Int children presented with vomiting, diarrhoea and dehydration; p = 0.002

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 12 contd *Studies reporting the effects of home visiting on medical conditions and use of acute care*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Margolis, *et al.*, 1996[152] USA	0.32 RCT	Public health nurses	Families of low socio-economic status	Int A: Home visits and office intervention (*n* = 31) Int B: Office intervention (*n* = 30) Con: Usual care (*n* = 32)	Int A: Parental education on infant health and development, informal and formal support services Int B: Women encouraged to seek healthcare for their infants at primary care practices	Int A: Visits to homes every 1 or 2 weeks	Use of primary care Mothers in Int group significantly more likely to use primary rather than secondary care services No test results reported
Shapiro, 1995[163] Canada	0.18 RCT	Community-based nurse and homemaker	Low birth weight newborns	Int: Home visits (*n* = 50) Con: Routine home visits (*n* = 50)	Int: Early discharge from hospital – personal support to mothers and family; respite care; assist with infant care and light housekeeping; share information regarding infant care Con: Routine discharge	Int: Mean of 3.8 visits and 8.4 telephone contacts up to 8 weeks post-discharge Con: Mean of 1.4 visits and 1.9 telephone contacts up to 8 weeks post-discharge Evaluation at 12 months	Rehospitalisation rates: NS at 12 months Ambulatory services: NS at 12 months
Wright, *et al.*, 1998[174*] England	0.71 RCT	Health visitors	Children identified as failing to thrive	Int: Structured health visitor management (*n* = 120) Con: Routine care (*n* = 109)	Int: Health visitor identification of dietary problems with dietetic, paediatric and social work input as required	Not stated	Number (%) of hospital visits for organic conditions: Int = 18 (15) Con = 14 (13) NS Number (%) of hospital visits for failure to thrive: Int = 15 (13) Con = 24 (22) NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

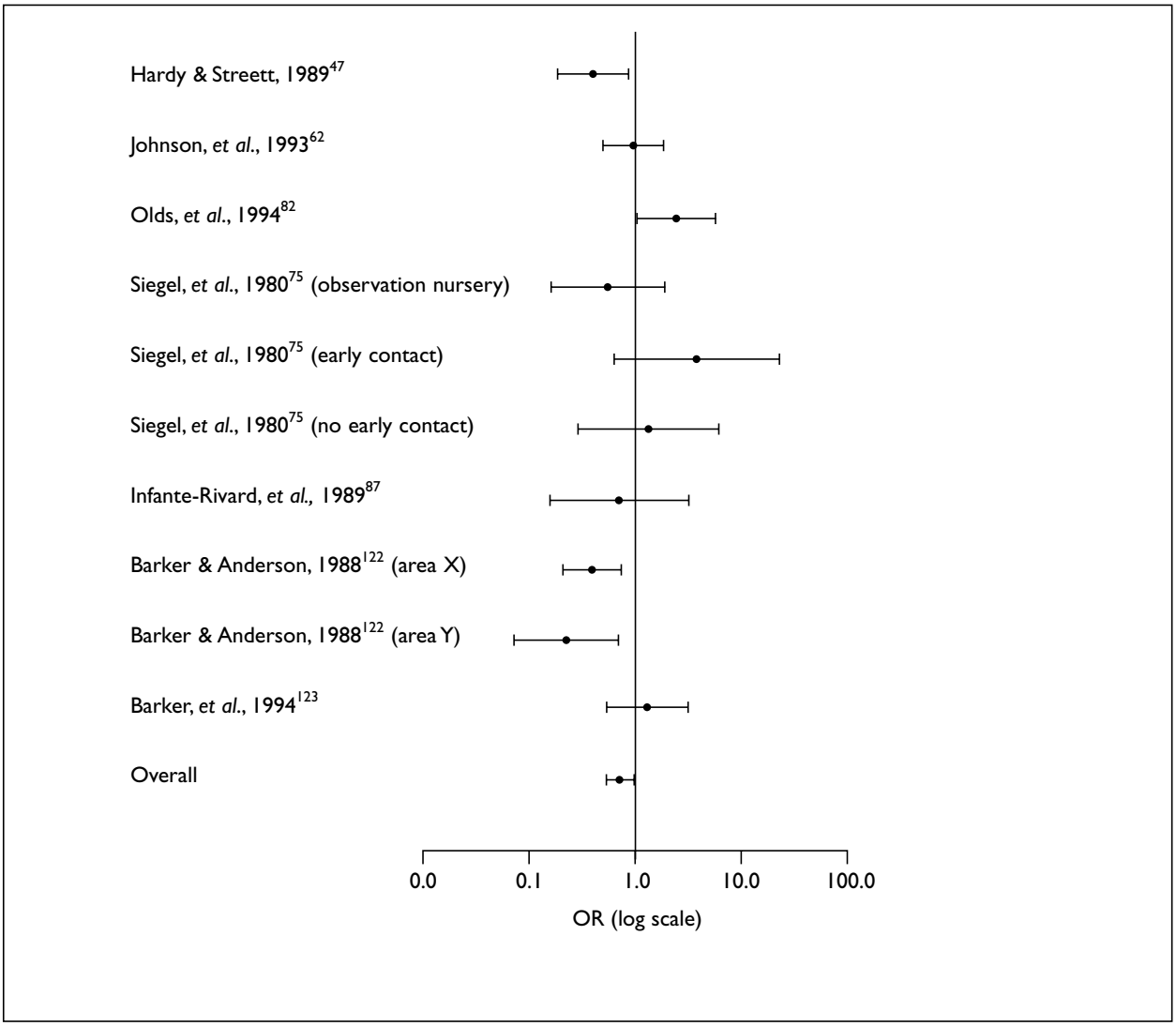


FIGURE 9 *ORs (and 95% CI) for childhood hospital admission*

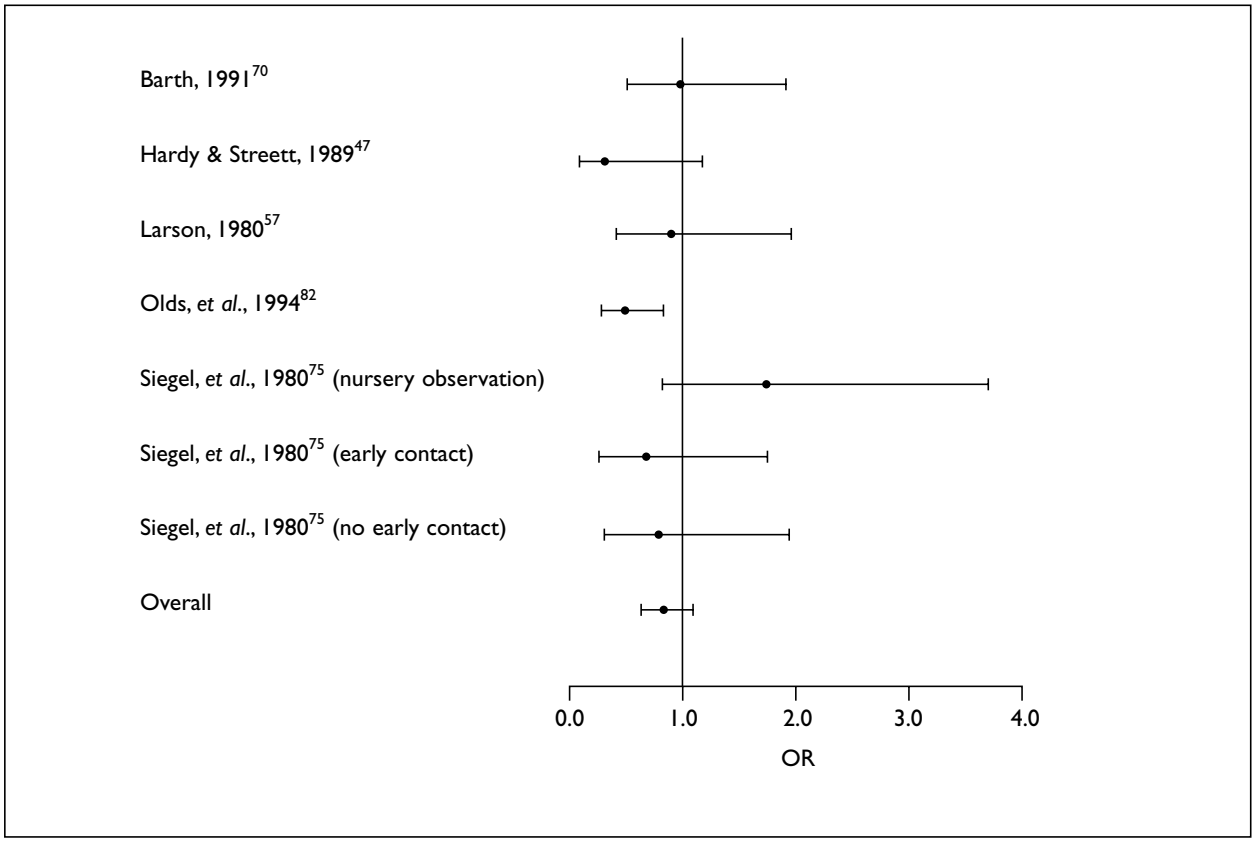


FIGURE 10 *ORs (and 95% CI) for visits to emergency medical services*

TABLE 13 *Studies reporting measures of hazard reduction*

Study	Hazard reduction measure
Olds, *et al.*, 1994[48,82]	Range of home hazards
Colver, *et al.*, 1982[132]	Percentage of families making the home safer
Paul, *et al.*, 1994[158]	Range of home hazards
Robitaille, *et al.*, 1990[159]	Possession and use of child car restraint devices
Schwarz, *et al.*, 1993[160]	Range of home hazards
Waller, *et al.*, 1993[171]	Safe tap water temperature

TABLE 14 *Studies reporting the effects of home visiting on the prevention of unintentional injuries in childhood: reducing hazards*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1986, 1994[48,82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (n = 90) Int B: Int A plus transport to clinics (n = 94) Int C: Int B plus antenatal visits (n = 100) Int D: Int C plus postnatal visits (n = 116)	Int C and Int D: Parent education; enhancement of women's informal support systems; linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Int A and Int B combined at analysis as Con group Evaluation at 34 and 46 months	Home hazards Log incidence, 34 months: Con = –1.04 Int C = –1.76 Int D = –1.75 Mean difference (Con – Int D): 0.71 95% CI: 0.02 to 1.41 $p < 0.05$ Log incidence, 46 months: Con = –0.83 Int C = –1.23 Int D = –1.94 Mean difference (Con – Int D): 1.11 95% CI: 0.39 to 1.83 $p < 0.01$ Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%
Colver, *et al.*, 1982[132] England	0.61 RCT	Health visitors	Residents of deprived neighbourhood attending child health clinics, nurseries and toddler groups	Int: Home visit and mass media campaign Con: Mass media campaign	Int: Identification of hazards, advice on reducing hazards and availability of government grants for purchase of safety equipment; 'Play-it-safe' booklet and TV campaign Con: 'Play-it-safe' TV campaign only	Int: Single 20-minute visit	Recognition of dangerous situations Number (%) of families – hazard picture score: Int: Increased 24 (56); Unchanged/reduced 19 (44) Con: Increased 26 (70); Unchanged/reduced 11 (30) NS Physical changes in home Number (%) of families – safer homes: Int: Safer 4 (9); No changes 39 (91) Con: Safer 22 (60); No changes 15 (40) $p < 0.001$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 14 contd *Studies reporting the effects of home visiting on the prevention of unintentional injuries in childhood: reducing hazards*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Paul, *et al.*, 1994[158] Australia	0.39 RCT	Volunteers	Parents of children aged 10 months to 2 years born at local rural hospital	Int: Home visit and safety booklet (n = 94) Con: No home visit or booklet (n = 104)	Int: Home safety check; increased availability of safety devices at local outlets	Int: Single visit Evaluation between 5 and 9 months after start of Int	Changes in the prevalence of individual hazards Significant decreases (Int compared with Con) in: Number of benchtops with sharp edges, $p < 0.001$ Homes without syrup of Ipecac, $p < 0.01$ Changes in home hazard score – mean (SD) score: Int = 9.39 (2.30) Con = 9.91 (2.76) NS Knowledge of safety precautions, $p = 0.0005$
Robitaille, *et al.*, 1990[159] Canada	0.46 non-RCT	Community health nurse	Mothers of newborns in low-income neighbourhoods	Int: Classes and home visit (n = 336) Con: No classes or home visit (n = 214)	Int: Education in prenatal classes on child car safety; postnatal visit on passenger safety and access to infant car seat loan programme	Int: Prenatal classes, 2 sessions of 30 minutes each; postnatal visit of 10 minutes in duration	Possession of infant car seat Interview data, 3 months: Int = 61.0 Con = 39.7 Difference (95% CI): 21.3 (10.6 to 27.5) Utilisation of infant car seat Interview data, 3 months: Int = 40.8 Con = 21.6 Difference (95% CI): 18.2 (11.5 to 26.7) Utilisation of infant car seat Observation data, 3 months: Int = 40.7 Con = 26.7 Difference (95% CI): 14.0 (0.7 to 28.7) Possession of infant car seat Interview data, 13 months: Int = 65.1 Con = 66.3 Relative risk (95% CI): 0.98 (0.86 to 1.13) NS Utilisation of infant car seat Interview data, 13 months: Int = 56.4 Con = 54.3 Relative risk (95% CI): 1.04 (0.88 to 1.23) NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 14 contd *Studies reporting the effects of home visiting on the prevention of unintentional injuries in childhood: reducing hazards*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Schwarz, *et al.*, 1993[160] USA	0.46 non-RCT	Community outreach workers	9 census tracts with highest injury rates in urban African-American community	Int: Home visit (*n* = 3004 homes) Con: No home visit (*n* = 1472 homes)	Int: Home inspection and modification by inspectors, including smoke alarm provision and fitting, reduction of hot water temperature, provision of night lights, provision of syrup of Ipecac, and bath water thermometer; hazard education and safety practices Con: No home visit	Int: Single home visit	% Hazards in the home that require minimal effort to correct No syrup of Ipecac for children under 5 years: Int = 29.0 Con = 90.2 $p < 0.001$ No smoke detectors: Int = 4.0 Con = 23.0 $p < 0.001$ Hot water temperature > 125 degrees F: Int = 36.8 Con = 26.8 $p < 0.001$ Inadequate lighting on stairs: Int = 17.9 Con = 19.9 NS No bedside light for adults > 65 years old: Int = 13.3 Con = 15.1 NS
Waller, *et al.*, 1993[171] New Zealand	0.54 RCT	Nurse	Random sample of families with children aged 0–3 years	Int: Home visit and national media campaign Con: National media campaign	Int: Visit to discuss dangers of hot water; measurement of tap water temperature and ways to reduce temperature	Int: 1 30-minute home visit	Mean tap water temperature: No data reported NS between Int and Con

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

TABLE 15 *Studies reporting measures of injury outcome, whose objective was to improve a range of child and maternal health outcomes*

Study	Injury outcome measure
Gutelius, *et al*., 1977[35*]	Number of toxic ingestions
Hardy & Streett, 1989[47*]	Incidence of closed head trauma
Olds, *et al*., 1986, 1994[48,82*]	Emergency room visits for accidents and poisoning: first year of life, second year of life, age 25–50 months; injuries recorded in physicians' records: age 25–50 months
Larson, 1980[57*]	Cumulative accident rate per child
Johnson, *et al*., 1993[62*]	Maternal reports of accidents
IHDP, 1990[69]	Morbidity index (comprised injuries not resulting in hospitalisation, plus other measures of health service utilisation and a range of illnesses)
Dawson, *et al*., 1989[71]	Occurrence of accidents and ingestions
Gray, *et al*., 1977[72]	Maternal reports of accidents
Kitzman, *et al*., 1997[101*]	Total healthcare encounters for injury and ingestion, emergency room visits for injury and ingestion, outpatient visits for injury and ingestion, hospitalisations and length of stay for injury and ingestion
Huxley & Warner, 1993[145]	Traumatic injury cases presenting to emergency room
* *Inclusion in meta-analysis*	

TABLE 16 *Studies reporting the effects of home visiting on injury outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gutelius, *et al.*, 1977[35*] USA	0.59 RCT	Paediatrician, nurse	First-born, black infants; low-income families	Int: Home visits (*n* = 49) Con: Prenatal clinics and postnatal well-baby clinics No home visits (*n* = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: 9 visits from 7 months pregnant to first 3 years of infant's life Minimum of 1 hour per visit Evaluation at 24 and 36 months	Total number of toxic ingestions in first 36 months of life: Int = 5 Con = 9 NS Attrition 3 lost from each group at 36 months
Hardy & Streett, 1989[47*]	0.25 RCT	Community women	Inner-city, black, low-income families	Int: Home visits (*n* = 131) Con: No home visits (*n* = 132)	Int: Encourage uptake of services	Int: 10 visits in first 2 years	% Sustained closed head trauma: Int = 6 Con = 11 NS
Olds, *et al.*, 1986, 1994[48,82*] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education; enhancement of the women's informal support systems; linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 antenatal and postnatal visits combined Int A and Int B combined at analysis as Con group Evaluation at 34 and 46 months	Log incidence of number of injuries/ingestions in physician's record, 25–50 months: Con = –0.59 Int C = –0.62 Int D = 1.09 Difference (Con – Int D): 0.50 95% CI: –0.04 to 0.96 $p < 0.05$ Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%
Larson, 1980[57*] Canada	0.39 non-RCT	Psychology graduates	Working class families	Int A: Home visits prenatally (*n* = 35) Int B: Home visits postnatally (*n* = 36) Con: No home visits (*n* = 44)	Int A and Int B: Counselling and advice on general caretaking, mother–infant interaction, social status and child development	Int A: Prenatal plus 4 visits (1–6 weeks); 5 visits (6 weeks to 15 months) Int B: 7 visits (6 weeks to 6 months); 3 visits (6 weeks to 15 months) Evaluation at 8 weeks and 6, 12 and 18 months	Cumulative accident rate per child: Int A = 0.86 Int B = 1.26 Con = 1.55 $p = < 0.01$ Cumulative emergency room visit rate per child: Int A = 0.95 Int B = 1.14 Con = 1.05 p = NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 16 contd *Studies reporting the effects of home visiting on injury outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Johnson, *et al.*, 1993[62]* Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (*n* = 141) Con: Routine care (*n* = 121)	Int: A child development programme modelled on the Bristol CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Number admitted to hospital for: Scalds Int = 0 Con = 1 NS Tablet ingestion Int = 0 Con = 1 NS
IHDP, 1990[69]* USA	0.75 RCT	Non-professionals	Parents of low birth weight premature infants	Int: Home visits (*n* = 347) Con: No home visits (*n* = 561)	Int: Information on child health and development, social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean of 1.5 visits per month in the second and third years	Mother's report – Morbidity Index [mean (SD)]: Int Con Effect size *p* Heavier group 7.3 (1.3) 6.8 (3.0) 0.17 NS Lighter group 7.9 (3.4) 7.0 (3.2) 0.29 < 0.001 Mother's report – Serious Morbidity Index [mean (SD)]: Int Con Effect size *p* 1.19 (1.0) 1.21 (0.95) –0.001 NS
Dawson, *et al.*, 1989[71]	0.25 RCT	Para-professionals	Low-income families	Int A: Home visits (*n* = 42) Int B: Home visits and parents' group (*n* = 50) Con: No home visits (*n* = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int A: 1 home visit per week Int B: 1 home visit per week plus parents' group every 2 weeks	Accidents or ingestions: NS No data given
Gray, *et al.*, 1977[72] USA	0.21 RCT	Public health nurses and lay health visitors	Children at risk of abuse and neglect	Int: High-risk group. Home visits by public health nurses, plus clinic-based paediatric care (*n* = 50) Con A: High-risk group. Routine care (*n* = 50) Con B: Low-risk group. Routine care (*n* = 50)	Int: The work of the public health nurses was coordinated by lay health visitors who provided emotional support to families and liaison with the professional health system	Int: Weekly visits	Number of children admitted to hospital for treatment owing to injury: Int = 0 Con A = 5 $p < 0.01$ (Results not presented for Con B)

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 16 contd *Studies reporting the effects of home visiting on injury outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101]* USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (n = 228) Con: Routine care (n = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Log incidence of healthcare encounters – injuries/ingestions: Int = –0.84 Con = –0.59 Difference: 0.25 95% CI: –0.00 to 0.50 $p \leq 0.05$ Log incidence of outpatient visits – injuries/ingestions: Int = –2.19 Con = –1.62 Difference: 0.57 95% CI: 0.10 to 1.04 $p \leq 0.05$ Log incidence of emergency department visits – injuries/ingestions: Int = –1.12 Con = –1.10 Difference: 0.02 95% CI: –0.27 to –0.31 NS Log incidence of hospitalisations – injuries/ingestions: Int = –4.31 Con = –3.63 Difference: 0.68 95% CI: –0.66 to 2.02 NS Log incidence of days hospitalised – injuries/ingestions: Int = –3.47 Con: = –1.84 Difference: 1.64 95% CI: 0.78 to 2.50 $p \leq 0.01$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 16 contd *Studies reporting the effects of home visiting on injury outcomes*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Huxley & Warner, 1993[145] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (n = 20) Con: Standard care (n = 20)	Int: Prevention of parent dysfunction; education in maternal and child health	Int: Dependent on need Evaluation: Int = Mean of 13 months Con = Mean of 16 months	Emergency room visits: p = 0.009 No data given

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

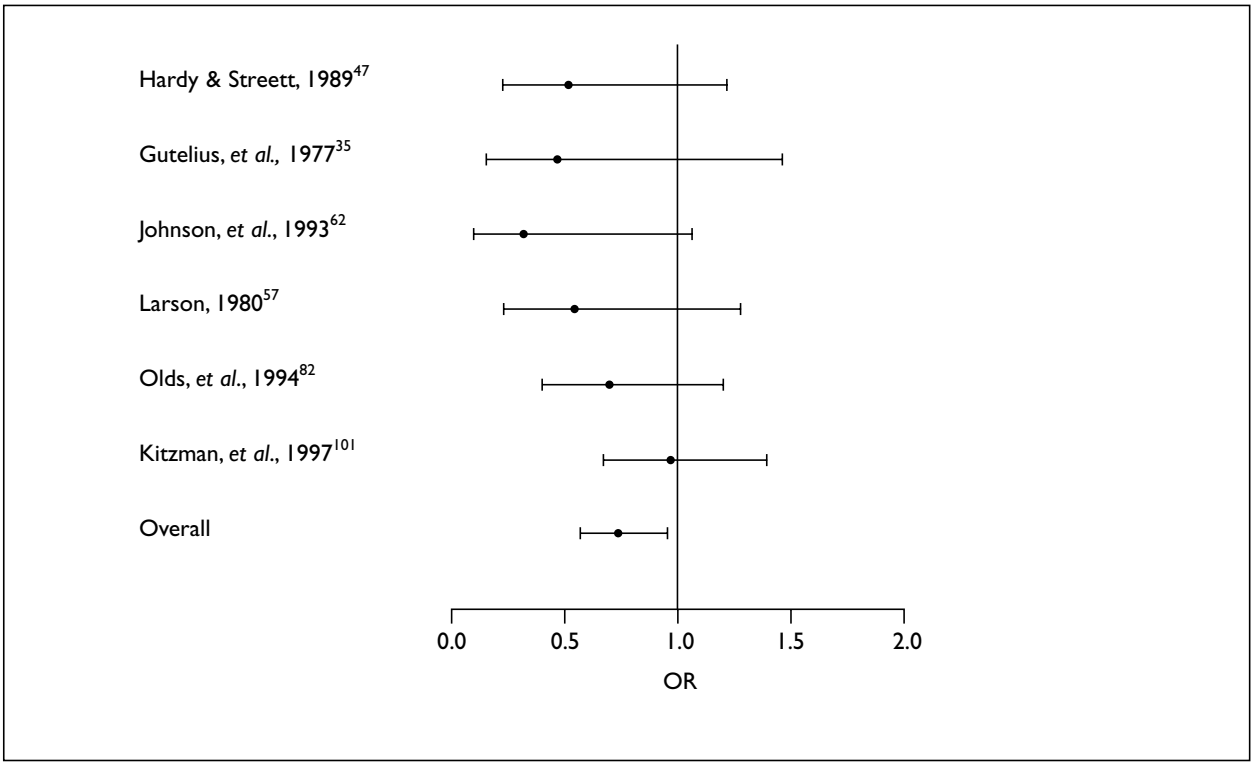


FIGURE 11 *ORs (and 95% CI) for medically attended injuries*

TABLE 17 *Studies reporting the effects of community intervention aimed specifically at reducing childhood injury*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Fallat & Rengers, 1993[136] USA	0.39 non-RCT	Nurses	Families residing in a zip code area with a high number of referrals of preschool children with scald burns	Int: Education programme and anti-scald device fitted (n = 20) Con: No education programme or anti-scald device	Int: Handout of burn prevention information	Int: Single home visit	Admissions to children's hospital burns unit for scald injuries: Int = 12 Con = 25 No statistical test reported
Guyer, *et al.*, 1989[141] USA	0.37 non-RCT	Local board of health staff	9 Massachusetts cities and 5 control communities	Int: Home visit and office visits	Int: Office-based physician counselling re safety, school and community burn prevention education; home visit with hazard identification and advice re modification, poison prevention education, promotion of child car seat use	Int: Single home visit 42% of children aged 0–5 years in the Int communities participated in the projects	Injury rates per 10,000 children per year Motor vehicle occupant injuries: Int = 21.54 Con = 60.77 OR = 2.78 95% CI: 1.66 to 4.66 Burns: Int = 59.68 Con = 106.03 OR = 1.26 95% CI: 0.84 to 1.90 Falls: Int = 175.02 Con = 262.44 OR = 0.78 95% CI: 0.61 to 1.00 Poisonings: Int = 36.14 Con = 92.71 OR = 0.95 95% CI: 0.57 to 1.58
Spiegel, *et al.*, 1977[164] USA	0.36 RCT	Public health nurses	Families in an area with a high rate of falls	Int: Home visit, media campaign and group education	Int: Door-to-door hazard identification, counselling and provision of free window guards; media campaign; community group education	Not stated	Number of falls from windows reported: Year Int Con 1973 108 192 1974 64 132 1975 54 159 No statistical test reported

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 17 contd *Studies reporting the effects of community intervention aimed specifically at reducing childhood injury*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Ytterstad & Sogaard, 1995[176] Norway	0.29 non-RCT	Public health nurses	Cities of Harstaad and Trondheim	Int: (Harstaad) Media campaign and home visit Con: (Trondheim) Nationwide child safety programmes, no community-based interventions	Int: Media campaign; promotion of safety by local organisations; local injury prevention group; parent counselling as part of vaccination programme; first session at home	Int: Single home visit, 2 weeks postpartum	Incidence of burns: Int = 24.7 Con = 68.0 No statistical test reported on data comparing Int and Con groups

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 18 *Studies reporting child abuse and neglect outcomes*

Study	Child abuse or neglect outcome measures
Brooten, *et al.*, 1986[45]	Reported child abuse Foster placements
Barth, *et al.*, 1988, 1991[46,70]	Substantiated and unsubstantiated reports of child abuse 'Need care': 'client's child removed from client's care, by police or social services or neighbour cared for child because mother did not get round to it' CAPI score[191]
Hardy & Streett, 1989[47]	Definite or suspected abuse or neglect
Olds, *et al.*, 1986, 1994[48,82]	Verified cases of abuse or neglect in first 2 years of life Substantiated reports of child abuse or neglect in third and fourth year of life
Johnson, *et al.*, 1993[62]	Children taken into protective custody because of child abuse
Dawson, *et al.,* 1989[71]	Reports to social services for potential abuse or neglect
Gray, *et al.*, 1977[72]	Serious injury thought to be secondary to abnormal parenting practices Children not remaining in their 'biological' homes
Marcenko & Spence, 1994[74]	Maternal report of out-of-home placement
Siegel, *et al.*, 1980[75]	Reported child abuse and neglect
Kitzman, *et al.*, 1997[101]	Bavolek score[192]
Black, *et al.*, 1994[125]	CAPI score[191]
Huxley & Warner, 1993[145]	Receipt of child protection services Confirmed child abuse

CAPI, Child Abuse Potential Inventory

TABLE 19 *Studies reporting the effects of home visiting on child abuse and neglect*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Brooten, *et al.*, 1986[45] USA	0.39 RCT	Nurse specialist	Mothers with neonates: very low birth weight (≤ 1500 g)	Int: Home visit and telephone (*n* = 39) Con: Routine care (*n* = 40)	Int: Child care/health; links to physicians, social service personnel	Int: 4 in first year; 1 at 18 months Telephone contact – 3 per week (weeks 1–2); 1 per week (weeks 3–8)	Number of infants reported abused: Int = 2 Con = 4 NS Number of infants in foster care: Int = 0 Con = 2 NS
Barth, *et al.*, 1988[46] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Actions against families re child abuse/neglect Number of families: Int = 64 Con = 54 NS Number of reports/actions: Int = 104 Con = 102 NS
Hardy & Streett, 1989[47] USA	0.25 RCT	Community women	Inner-city, black, low-income families	Int: Home visits (*n* = 131) Con: No home visits (*n* = 132)	Int: Encourage uptake of services	Int: 10 visits in first 2 years	Number (%) of cases of suspected child abuse/neglect: Int = 2 (1.5) Con = 13 (9.8) No statistical test reported
Johnson, *et al.*, 1993[62] Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (*n* = 141) Con: Routine care (*n* = 121)	Int: A child development programme modelled on the Bristol CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Number of cases of reported child abuse: Int = 0 Con = 3

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 19 contd *Studies reporting the effects of home visiting on child abuse and neglect*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Dawson, *et al.*, 1989[71] USA	0.25 RCT	Para-professionals	Low-income families	Int: Home visits (n = 42) Int A: Home visits and parents group (n = 50) Con: No home visits (n = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int A: 1 home visit per week Int B: 1 home visit per week, plus parent group every 2 weeks	Reported potential child abuse: Int = 1/167 Con = 1/44 NS
Gray, *et al.*, 1977[72] USA	0.21 RCT	Public health nurses and lay health visitors	Children at risk of abuse and neglect	Int: High-risk group Home visits by public health nurses, plus clinic-based paediatric care (n = 50) Con A: High-risk group. Routine care (n = 50) Con B: Low-risk group. Routine care (n = 50)	Int: The work of the public health nurses was coordinated by lay health visitors who provided emotional support to families and liaison with the professional health system	Int: Weekly visits	Hospital admission for suspected abuse: Int A = 0 Con A = 5 Con B = 0 $p < 0.04$ Children not in biological home: Int and Con A = 8 Con B = 0 $p < 0.04$
Marcenko & Spence, 1994[74] USA	0.25 RCT	Lay visitors	At-risk pregnant and postpartum women	Int: Home visits and routine care (n = 125) Con: Routine care (n = 100)	Int: Provide peer support; identify service needs; health education; parent training Con: Outpatient obstetrics and gynaecology clinic	Services received from the time of the mother's first prenatal visit through to child's first birthday Int: Prenatal period – 1 visit per 2 weeks; postpartum – 1 visit per week at weeks 1–6; 1 visit per 2 weeks at weeks 6–26 weeks; 1 visit per month at weeks 26–52	Percentage of cases of out-of-home placement: Int = 32 Con = 19 NS Attrition (n remaining at 6 months) Int = 100 Con = 77

[*] *Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 19 contd *Studies reporting the effects of home visiting on child abuse and neglect*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Siegel, *et al.*, 1980[75] USA	0.36 RCT	Para-professionals	Low-income families	Uncomplicated labour/delivery Int A: Early and extended contact and home visits (*n* = 47) Int B: Early and extended contact (*n* = 50) Int C: Home visits Con: No early or extended contact, no home visits (*n* = 52) Complicated labour/delivery Int A: Extended contact and home visits (*n* = 60) Con: No extended contact, no home visits (*n* = 59)	Int A: Promote mothers' involvement with their families; emotional support	Int A: 9 visits in first 3 months of infant's life Evaluation at 12 months	Child abuse/neglect – number of cases reported Uncomplicated labour/delivery group: Int A = 4 Int B = 3 Int C = 7 Con = 3 NS Complicated labour/delivery group: Int = 3 Con = 3 NS
Olds, *et al.*, 1986, 1994[48,82] USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education; enhancement of women's informal support systems; linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 ante-natal and postnatal visits combined Int A and Int B combined for analysis as Con group Evaluation at 34 and 46 months	Odds of new cases of abuse/neglect: Con = 0.05 Int C = 0.04 Int D = 0.09 OR (Con/Int D) = 0.56 95% CI: 0.00 to 1.37 NS
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits at 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	Beliefs associated with child abuse (Bavolek total score): Int = 98.7 Con = 100.5 OR = 1.9 $p < 0.01$ 95% CI: 0.6 to 3.1

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 19 contd *Studies reporting the effects of home visiting on child abuse and neglect*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Black, *et al.*, 1994[125] USA	0.57 RCT	Community health nurses	Mothers with prenatal cocaine/heroin use	Int: Home visits (*n* = 31) Con: No home visits (*n* = 29)	Int: Provide maternal support to promote parenting, child development, utilisation of	Int: 1-hour visits, with 2 visits before birth and then bi-weekly for the first 18 months of the child's life	Mean (standard error) score – Child Abuse : Potential Inventory Int = 0.95 (0.31) Con = 1.31 (0.28) NS Attrition 43/60 (72%) of families remained at 18 months
Huxley & Warner, 1993[145] USA	0.18 non-RCT	Nurses	Families referred to tri-agency intervention programme	Int: Home visits (*n* = 20) Con: Standard care (*n* = 20)	Int: Prevention of parent dysfunction; education in maternal and child health	Int: Dependent upon need Evaluation: Int = Mean of 13 months Con = Mean of 16 months	Number of cases in receipt of child protection services: Int = 6 Con = 5 NS Confirmed child abuse: Int = 1 Con = 4 *p* = 0.07

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

TABLE 20 *Studies reporting outcomes related to mothers' psychological health or self-esteem*

Study	Psychological health	Self-esteem
Barth, *et al.*, 1988[46] Barth, 1991[70]	✔	
Scarr & McCartney, 1988[52]		✔
Holden, *et al.*, 1989[54]	✔	
Johnson, et al., 1993[62]	✔	
Marcenko & Spence, 1994[74]	✔	✔
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84]	✔	
Field, *et al.*, 1980[90]	✔	
Kitzman, *et al.*, 1997[101]	✔	
Barker, *et al.*, 1994[123]		✔
Beckwith, 1988[124]	✔	
Black, et al., 1994[125]	✔	
Brown, 1997[128]	✔	
Davis & Spurr, 1998[133]	✔	✔
Gerrard, *et al.*, 1993[137]	✔	
Seeley, *et al.,* 1996[161]	✔	

TABLE 21 *Outcome measures of mothers' psychological health and self-esteem*

Study	Outcome	Instrument
Barth, *et al.*, 1988[46] Barth, 1991[70]	• Anxiety • Mother's sense of control over events in her life • Depression	• State–Trait Anxiety Inventory[193] • Pearlin Mastery Scale[194] • CES-D Scale[195]
Scarr & McCartney, 1988[52]	• Self-esteem	• Real/Ideal Scale of Parental Actions[52]
Holden, *et al.*, 1989[54]	• Depression	• EPDS[196] • Goldberg's Standardised Psychiatric Interview[197]
Johnson, *et al.*, 1993[62]	• Psychological symptoms	• Non-standard tool
Marcenko & Spence, 1994[74]	• Self-esteem • Psychological distress	• Rosenberg's Self-esteem Scale[198] • Brief Symptom Inventory[199]
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84]	• Depression	• Beck Depression Inventory[200]
Field, *et al.,* 1980[90]	• Anxiety	• State–Trait Anxiety Inventory[193]
Kitzman, *et al.*, 1997[101]	• Anxiety • Depression • Mastery	• Rand Corp. Depression Scale[204] • Rand Corp. Depression Scale[204] • Pearlin Mastery Scale[194]
Barker, *et al.*, 1994[123]	• Self-esteem	• Non-standard tool
Beckwith, 1988[124]	• Emotional stability	• Observation of assessor
Black, *et al.*, 1994[125]	• Stress induced by child	• Parenting Stress Index[201]
Brown, 1997[128]	• Mental health and well-being	• Mental Health Inventory[202,203]
Davis & Spurr, 1998[133]	• Self-esteem • Depression and anxiety • Stress • Problem perception	• Robson Self-concept and Self/Ideal Discrepancy Measures[205] • General health questionnaire (GHQ-28)[206] • Parenting Stress Index[201] • Problem perception questionnaire
Gerrard, *et al.*, 1993[137]	• Depression	• EPDS[196]
Seeley, *et al.*, 1996[161]	• Depression	• EPDS[196]

TABLE 22 *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barth, *et al.*, 1988[46] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Mean (SD) score State–Trait Anxiety Scale: Int = 39.25 (12.98) Con = 40.41 (13.23) NS Mean (SD) score Pearlin Mastery Scale: Int = 19.98 (3.73) Con = 20.28 (3.52) NS Mean (SD) score Centre for Epidemiological Studies Depression Scale: Int = 39.54 (12.30) Con = 41.40 (12.38) NS
Scarr & McCartney, 1988[52] Bermuda	0.55 RCT	Trained mothers	Random sample of 125 Bermudian families with 2-year-old children	Int: Home visits (*n* = 78) Con: No home visits (*n* = 39)	Int: Mother–child home programme Promote cognitive and socio-emotional development; train mothers to become more effective teachers themselves	Int: 46 weekly visits for 2 years	Mean (SD) score Real/Ideal Scale: Int = 0.6 (0.4) Con = 0.7 (0.3) NS
Holden, *et al.*, 1989[54] Scotland	0.55 RCT	Health visitors	Mothers with postnatal depression	Int: Home visit (*n* = 28) Con: Routine care (*n* = 27)	Int: Non-directive counselling	Int: Received weekly visits from 12 weeks postpartum Mean intervention period of 13 weeks; mean number of 8.8 visits; minimum of 30 minutes per visit	Reduction in number (%) of women with depression (identified by Goldberg's standardised psychiatric interview and the EPDS): Int = 18 (69.2) Con = 9 (38.5) Difference in recovery rate between the groups was 31.7% (95% CI: 5 to 58; χ^2 = 5.06; df = 1; p = 0.03) Attrition (*n* remaining at 3 months) Int = 26 Con = 24

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Johnson, *et al.*, 1993[62] Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (n = 141) Con: Routine care (n = 121)	Int: CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Mothers' self-esteem measured with 4 variables (1) Numbers (%) tired: Int = 99 (78) Con = 95 (90) $p < 0.01$ (2) Numbers (%) with headaches: Int = 62 (49) Con = 52 (50) $p = 0.92$ (3) Numbers (%) miserable: Int = 73 (57) Con = 80 (76) $p < 0.003$ (4) Numbers (%) staying in: Int = 40 (31) Con = 57 (54) $p < 0.001$ Attrition (n remaining at 1 year) Int = 127 Con = 105
Marcenko & Spence, 1994[74] USA	0.25 RCT	Lay visitors	At-risk pregnant and postpartum women	Int: Home visits and routine care (n = 25) Con: Routine care (n = 100)	Int: Provide peer support; identify service needs; health education; parent training Con: Outpatient obstetrics and gynaecology clinic	Services received from the time of the mother's first prenatal visit through to child's first birthday Int: Prenatal period – 1 visit per 2 weeks; postpartum – 1 visit per week at weeks 1–6; 1 visit per 2 weeks at weeks 6–26 weeks; 1 visit per month at weeks 26–52	Rosenberg's Self-esteem Scale: No significant differences between groups Brief Symptom Inventory: Int: Decrease in score between baseline and follow-up $t(105) = 3.10$, $p < 0.002$ Con: No statistically significant difference in score between baseline and follow-up Attrition (n remaining at 6 months) Int = 100 Con = 77

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] USA	0.29 RCT	Nurses	Pregnant and postpartum women lacking social support	Int A: Home visits (*n* = 68) Int B: Home visits (*n* = 79)	Int A: Mental health model Development of a therapeutic relationship with the pregnant women in order to deal with interpersonal situations and problem-solving Int B: Information/resource utilisation model To provide information relating to physical and developmental health of the mother and child	Visits from < 22 weeks of gestation to 12 months postpartum Frequency and duration of visits determined by nurse and family Mean (SD) number of visits: Int = 19.1 (6.9) visits Con = 13.7 (8.8) visits ($p < 0.001$) Mean (SD) duration of visits: Int = 25.3 (10.6) hours of contact Con = 11.9 (8.2) hours of contact ($p < 0.001$)	Mean (SD) score – Beck Depression Inventory: Int A = 12.0 (8.0) Int B = 12.2 (6.7) NS
Field, *et al.*, 1980[90] USA	0.52 RCT	Trained interventionist and teenage, black, female, work/study student	Black, teenage mothers of low socio-economic status with preterm infants	Int: Home visits (*n* = 30) Con: No home visits (*n* = 30)	Int: Educate mothers on child developmental milestones and child-rearing practices; teach mothers to give age-appropriate stimulation to their infants; facilitate mother–child interaction	Int: Bi-weekly visits for first 4 months postpartum, monthly thereafter Visit duration approximately half an hour	Mean State Anxiety Scale score: Int = 37.0 Con = 43.0 NS Mean Trait Anxiety Scale score: Int = 42.0 Con = 40.0 NS Attrition (*n* remaining at 4 months) Int = 29 Con = 28

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (n = 228) Con: Routine care (n = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits at 0–24 months postpartum: Int = 26 (0–71)	Mean (95% CI) difference in the anxiety score: 1.2 (–0.4 to 2.7) NS Mean (95% CI) difference in the depression score: 0.6 (–1.0 to 2.2) NS Mean (95% CI) difference in the Pearlin Mastery Scale score: –2.2 (–3.8 to 0.7) $p < 0.01$
Barker, *et al.*, 1994[123] Northern Ireland	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months old	Int: Home visits (n = 624) Con: No home visits (n = 362)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits	Mean Low Maternal Self-esteem Score: 1 month Int = 18.1 Con = 16.9 6 months Int = 12.4 Con = 14.0 24 months Int = 17.1 Con = 14.0 No statistical test reported
Beckwith, 1988[124] USA	0.36 RCT	Home visitors (1 paediatric nurse, 1 early childhood educator)	Pregnant and postpartum women: English speaking; ≤ high school education; ≤ unskilled/semi-skilled job; infants ≤ 2000 g; ≤ 35 weeks gestation; > 3 days neonatal intensive care	Int: Home visits (n = 37) Con: No home visits (n = 55)	Int: Develop supportive relationship (individualised for each mother)	Int: Ended when infants reached 13 months	Mean score of emotional stability: Int = 3.0 Con = 2.7 $F[1,63] = 3.7$ $p < 0.05$ Attrition Int = 5% Con = 36% $\chi^2 = 9.3$; $p < 0.01$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Black, *et al.*, 1994[125] USA	0.57 RCT	Community health nurses	Mothers with prenatal cocaine/heroin use	Int: Home visits (n = 31) Con: No home visits (n = 29)	Int: Provide maternal support to promote parenting, child development, utilization of resources and advocacy	Int: 1-hour visits, with 2 visits before birth and then bi-weekly for the first 18 months of the child's life	Mean (SEM) score – Parenting Stress Index At 3 months (Z scores) Int = 0.2 (0.1) Con = 0.3 (0.1) NS At 18 months (Z scores) Int = 0.3 (0.1) Con = 0.8 (0.1) NS
Brown, 1997[128] England	0.31 non-RCT	Nursery nurse play development workers	Families of low socio-economic status with social isolation and lack of infant play resources	Before and after study (n = 39) without a separate control group	Increasing knowledge and skills to increase confidence and self-esteem	Weekly visits of 45–75 minutes in duration 4–11 visits	Mean (SD) score – Mental Health Inventory: Before = 18.85 (4.54) After = 15.62 (4.96) Percentage change: 17% t = 4.21, p < 0.001

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Davis & Spurr, 1998[133] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (n = 87) Con: Routine community services (n = 38)	Int: To enable parents to explore and clarify issues and problems confronting them, and to develop appropriate management strategies	Int: Weekly sessions of 1 hour in duration	Maternal self-esteem Mean change – Robson Self-concept score: Int = 8.9 Con = –17.0 p = 0.0001 Mean change – Self/Ideal Self-discrepancy score: Int = –0.26 Con = 0.25 p = 0.004 Maternal stress Mean change – Parenting Stress Index: Int = 12.7 Con = 1.4 p = 0.001 Maternal anxiety and depression Mean change – GHQ-28 score: Int = –10.62 Con = –5.84 p = 0.04 Problem severity/distress Mean change – Problem Severity score: Int = –0.9 Con = –0.2 p = 0.003 Mean change – Problem Distress score: Int = –0.9 Con = –0.3 p = 0.001

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 22 contd *Studies reporting the effects of home visiting on mothers' psychological health and self-esteem*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gerrard, *et al.*, 1993[137] England	0.29 non-RCT	Health visitors	Mothers with postnatal depression	Int: Health visitor training programme Women screened (*n* = 1001) Treatment by 'trained' health visitors Con: Historical controls Women screened (*n* = 1008)	Int: Training in detection (using the EPDS), treatment (using non-directive counselling) and prevention of postnatal depression Treatment offered to women who obtained high (≥ 12) scores Con: Screening using the EPDS and routine care before health visitor training programme	Int: Up to 10 2-hour training sessions for health visitors Non-directive counselling for 8 consecutive weeks Visits up to 1 hour in duration Con: Baseline measure of the incidence of postnatal depression was obtained by health visitors before training Screening at 6 months postnatally	Percentage of women with high scores (12+) at 6 months postnatally on the EPDS: Int = 9.8 Con = 19.3 $p = 0.0005$
Seeley, *et al.*, 1996[161] England	0.43 non-RCT	Health visitors	Postnatal women	Int: Care from trained health visitors (*n* = 70) Con: Routine primary care (*n* = 30) Historical controls	Int: Health visitors trained in the management of postnatal depression, including the use of counselling skills and cognitive behavioural skills Visits to women identified as depressed	Int: Weekly visits of 1 hour in duration for 8 weeks	Mean percentage change in depression (measured using the EPDS): Int = –42% Con = 1% $t = 6.07$; df = 98; $p < 0.001$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 23 *Studies reporting the effects of home visiting on formal and informal support networks*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barth, *et al.*, 1988[46] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months Mean (range) number of visits: Int = 11 (5–20)	Mean (SD) score – Community Resources Use Scale: Int = 2.00 (1.86) Con = 1.94 (2.17) NS Mean (SD) score – Social Support and Preparation scale: Int = 2.50 (1.64) Con = 2.44 (1.99) NS Mean (SD) score – Inventory of Social Supportive Behaviour: Int = 45.78 (13.29) Con = (44.62 (15.32) NS Mean (SD) score – Social Support Inventory: Int = 12.11 (2.52) Con = 12.02 (2.56) NS
Marcenko & Spence, 1994[74] USA	0.25 RCT	Lay visitors	At-risk pregnant and postpartum women	Int: Home visits and routine care (*n* = 125) Con: Routine care (*n* = 100)	Int: Provide peer support; identify service needs; health education; parent training Con: Outpatient obstetrics and gynaecology clinic	Services received from the time of the mother's first prenatal visit through to the child's first birthday Int: Prenatal period – 1 visit per 2 weeks; postpartum – 1 visit per week at weeks 1–6; 1 visit per 2 weeks at weeks 6–26 weeks; 1 visit per month at weeks 26–52	Norbeck Social Support Questionnaire: Int group increased mean score at follow-up, $p < 0.005$ No data given Attrition (*n* remaining at 6 months) Int = 100 Con = 77

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 23 contd *Studies reporting the effects of home visiting on formal and informal support networks*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] USA	0.29 RCT	Nurses	Pregnant and postpartum women lacking social support	Int: Home visits (n = 68) Con: Home visits (n = 79)	Int: "Mental health model" Development of a therapeutic relationship with the pregnant women in order to deal with interpersonal situations and problem-solving Con: "Information/resource utilisation model" To provide information relating to physical and developmental health of the mother and child	Visits from < 22 weeks of gestation to 12 months postpartum Frequency and duration of visits determined by nurse and family Mean (SD) number of visits: Int = 19.1 (6.9) visits Con = 13.7 (8.8) visits (p < 0.001) Mean (SD) duration of visits: Int = 25.3 (10.6) hours of contact Con = 11.9 (8.2) hours of contact (p < 0.001) Evaluation at 12, 24 and 36 months	Mothers' social and community life skills: Improvements claimed in Int group No data reported Attrition 65% remained a 1 year
Brown, 1997[128] England	0.31 non-RCT	Nursery nurse play development workers	Families of low socio-economic status with social isolation and lack of infant play resources	Before and after study (n = 39) without a separate control group	Increasing knowledge and skills to increase confidence and self-esteem	Weekly visits of 45–75 minutes in duration 4–11 visits	Number of social contacts Mean (SD) score: Before = 7.68 (7.49) After = 7.14 (3.85) NS Quality of support Mean (SD) score: Before = 25.59 (7.84) After = 29.14 (6.55) p < 0.001

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 23 contd *Studies reporting the effects of home visiting on formal and informal support networks*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Davis & Spurr, 1998[133*] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (*n* = 87) Con: Routine community services (*n* = 38)	Int: To enable parents to explore and clarify issues and problems confronting them, and to develop appropriate management strategies	Int: Weekly sessions of 1 hour in duration	Mean change – number of supports: Int = 0.2 Con = –0.1 NS Mean change – emotional support Int = 0.2 Con = 0.5 NS Mean change – practical support Int = 0.3 Con = 0.2 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 24 *Characteristics and quality scores of studies reporting the effects of home visiting on breastfeeding*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gutelius, *et al.*, 1977[35] USA	0.59 RCT	Paediatrician, nurse	First-born black infants; low-income families	Int: Home visits (*n* = 49) Con: Prenatal clinics and postnatal well-baby clinics; no home visits (*n* = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: 9 visits from 7 months pregnant to first 3 years of infant's life Minimum of 1 hour per visit Evaluation at 24 and 36 months	Weeks of breastfeeding: NS No data given Attrition 3 lost from each group at 36 months
Lynch, *et al.*, 1986[56*] Canada	0.38 RCT	Breastfeeding consultant	Women intending to breastfeed	Int: Home visits and phone calls by breastfeeding consultant (*n* = 135) Con: Home visit by public health nurse (*n* = 135)	Int: Education and support programme	Int: Initial visit of about 2 hours in duration; weekly phone calls during first month, then monthly phone calls up to 6 months; additional calls and home visits as necessary Con: Single home visit	% Breastfeeding at 1, 3, 6 and 9 months: NS
Infante-Rivard, *et al.*, 1989[87*] Canada	0.46 RCT	Public health nurses	Families of low socio-economic status	Int: Home visits (*n* = 21) Con: Routine care (*n* = 26)	Int: Counselling; teaching child development, health and behaviour	Int: 3 prenatal visits; 5 postnatal visits Con: 1 routine postnatal visit Evaluation at 9 months	% Breastfeeding: Int = 57.1 Con = 61.5 NS
Kitzman, *et al.*, 1997[101] USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years of education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits at 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	% Attempted breastfeeding: Int = 26 Con = 16 OR = 1.9 $p < 0.01$ 95% CI: 1.2 to 2.9

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 24 contd *Characteristics and quality scores of studies reporting the effects of home visiting on breastfeeding*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker, *et al.*, 1994[123] England	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months old	Int: Home visits (*n* = 624) Con: No home visits (*n* = 362)	Int: CDP: developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 24 months	Breastfeeding Lower socio-economic group Number (%) breastfeeding: Int = 5 (18) Con = 19 (24) No statistical tests reported Higher socio-economic group Number (%) breastfeeding: Int = 21 (47) Con = 17 (40) No statistical tests reported
Jones & West, 1985, 1986[146*,147] UK	0.45 RCT	Lactation nurse	Mothers who attempted to breastfeed their newborn at least once	Int: Hospital and home visits (*n* = 228) Con: No hospital or home visits (*n* = 355)	Int: Advising mothers on how to breastfeed, preventing complications and managing complications if they occurred	Not stated	% Breastfeeding at 4 weeks: Int = 84 Con = 72 $p < 0.005$ % Reporting no problems with breastfeeding: Int = 54 Con = 47 NS
Kelly, 1983[149*] UK	0.36 non-RCT	Health visitor	Mothers randomly selected from a general practice	Int: Home visits (*n* = 19) Con: Routine care (*n* = 19)	Int: Structured home support encouraging breastfeeding	Int: Weekly visits for 6 weeks, then fortnightly visits up to 12 weeks	Number (%) breastfeeding 11th day postpartum: Int = 19 (100) Con = 19 (100) NS 3 weeks: Int = 19 (100) Con = 15 (78) NS 6 weeks: Int = 17 (89) Con = 14 (72) NS 3 months: Int = 16 (84) Con = 11 (55) NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

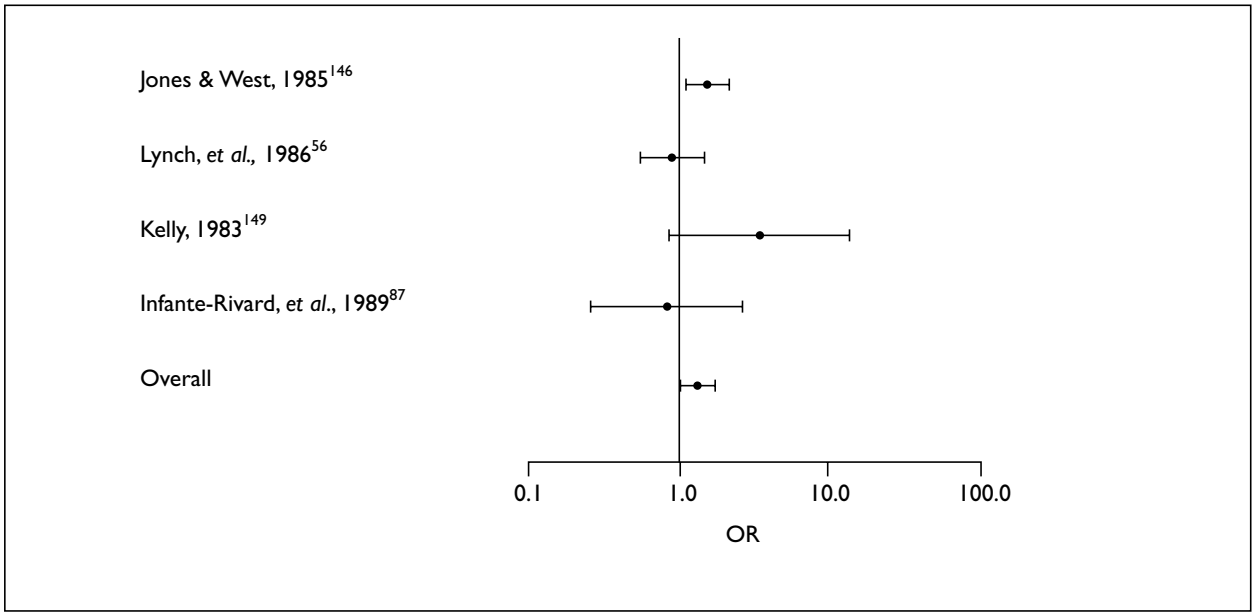


FIGURE 12 *ORs (and 95% CI) for breastfeeding at 3 months of age*

TABLE 25 *Studies reporting the effects of home visiting on a child's diet*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Gutelius, *et al.*, 1977[35] USA	0.59 RCT	Paediatrician, nurse	First-born black infants; low-income families	Int: Home visits (n = 49) Con: Prenatal clinics and postnatal well-baby clinics; no home visits (n = 48)	Int: Counselling and anticipatory guidance; cognitive stimulation	Int: 9 visits from 7 months pregnant to first 3 years of infant's life Minimum of 1 hour per visit Evaluation at 24 and 36 months	Number with appropriate daily milk at 12 months: Int = 27 Con = 13 $p < 0.01$ Number with > 1 daily meat serving at 6 months: Int = 43 Con = 36 $p < 0.05$ Number with > 1 daily fruit serving: Int / Con / p 24 months: 25 / 16 / < 0.05 36 months: 26 / 17 / < 0.05 Number with good appetite (mother's opinion): Int / Con / p 6 months: 37 / 29 / < 0.05 36 months: 26 / 17 / < 0.05 Numbers feeding self at 24 months: Int = 35 Con = 23 $p < 0.05$ Attrition 3 lost from each group at 36 months

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 25 contd *Studies reporting the effects of home visiting on a child's diet*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Johnson, *et al.*, 1993[62] Ireland	0.25 RCT	Non-professional community mothers	Disadvantaged first-time mothers	Int: Home visits and routine care (n = 141) Con: Routine care (n = 121)	Int: CDP with modules on educational development, language development and cognitive development Con: Routine public health nurse service	Int: Monthly visits during the first year of child's life Con: Single visit at birth, 6 weeks and other times as required	Mean (SD) length of time (weeks) on formula feeds: Int = 38.1 (13.5) Con = 28.0 (15.2) Difference: 10.1 95% CI: 6.4 to 13.8 $p < 0.001$ Number (%) of mothers who gave cow's milk before 26 weeks: Int = 24 (19) Con = 49 (47) $p < 0.001$ Number (%) who gave animal protein appropriately: Int = 105 (83) Con = 44 (42) $p < 0.001$ Number (%) who gave non-animal protein appropriately: Int = 107 (84) Con = 54 (51) p < 0.001 Number (%) who gave whole foods appropriately: Int = 109 (86) Con = 48 (46) $p < 0.001$ Number (%) who gave vegetables appropriately: Int = 112 (88) Con = 65 (62) $p < 0.001$ Number (%) with appropriate energy intake: Int = 118 (92) Con = 59 (56) $p < 0.001$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 25 contd *Studies reporting the effects of home visiting on a child's diet*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Barker & Anderson, 1988[122] England	0.46 RCT	Health visitors	Children on health visitor caseloads, 3–27 months old 4 regions (denoted Areas A–D): North West North East West Glamorgan Dublin	Int: Home visits (*n* = 678) Con: No home visits (*n* = 373)	Int: CDP – developmental tasks for reading and language; nutritional advice	Int: Monthly visits Evaluation at 12 and 36 months	% of children with nutritional intake < 50% of RDA: 12 months: Int / Con; 36 months: Int / Con Iron 10 / 5 / 5 / 5 Zinc 5 / 3 / 22 / 54 Calcium 0 / 0 / 0 / 0 Vitamin C 21 / 11 / 36 / 27 Total folate 2 / 0 / 18 / 35 No statistical test reported
Barker, *et al.*, 1994[123] Northern Ireland	0.46 non-RCT	Health visitors	Children on health visitor caseloads, 3–27 months old	Int: Home visits (*n* = 384) Con: No home visits (*n* = 222)	Int: CDP – developmental tasks for reading and language; nutrition advice	Int: Monthly visits Evaluation at 36 months	% with adequate diet 12 months: Energy – Int = 87; Con = 92 Animal protein – Int = 87; Con = 87 Non-animal protein – Int = 82; Con = 84 Whole food – Int = 70; Con = 79 Vegetables – Int = 73; Con = 76 Fruit – Int = 63; Con = 68 Milk – Int = 95; Con = 94 36 months: Energy – Int = 94; Con = 88 Animal protein – Int = 92; Con = 90 Non-animal protein – Int = 89; Con = 83 Whole food – Int = 80; Con = 78 Vegetables – Int = 77; Con = 77 Fruit – Int = 76; Con = 76 Milk – Int = 92; Con = 988 No statistical tests reported

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

TABLE 26 *Studies reporting the effects of home visiting on subsequent pregnancies/family size/employment/education/use of public assistance*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Field, *et al.*, 1982[42*] USA	0.54 RCT	Teachers	Black, teenage mothers of low socio-economic status with term infants	Int A: Home visit parent training (n = 34) Int B: Nursery parent training (n = 36) Con: No parent training (n = 35)	Int A: Infant stimulation, including caretaking, sensori-motor and mother–infant interaction exercises Int B: Parent training, job training and income	Int A: 6 months of bi-weekly home visits Int B: 4 hours per day for a 6-month period Evaluation at 12 and 24 months	% Repeat pregnancy at 12 months: Int A = 9 Int B = 1 Con = 19 $p < 0.001$ % Repeat pregnancy at 24 months: Int A = 27 Int B = 13 Con = 39 $p < 0.05$ % Return to education/work: Int A = 39 Int B = 74 Con = 21 $p < 0.01$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 26 contd *Studies reporting the effects of home visiting on subsequent pregnancies/family size/employment/education/use of public assistance*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Olds, *et al.*, 1988[50]* USA	0.5 RCT	Nurses	Children born to primiparous women who were either teenagers, unmarried, or of low socio-economic status	Int A: Screening at 12 and 24 months of life (*n* = 90) Int B: Int A plus transport to clinics (*n* = 94) Int C: Int B plus antenatal visits (*n* = 100) Int D: Int C plus postnatal visits (*n* = 116)	Int C and Int D: Parent education for enhancement of women's informal support systems and the linkage of parents with community services	Int C: Mean of 9 visits during pregnancy Int D: Mean of 23 ante-natal and postnatal visits combined Evaluation at 22+ and 46 months Int A and Int B combined Con group	Log incidence number of pregnancies 0–22 months: Con = –0.81 Int C = –1.17 Int D = –0.97 NS 0–46 months: Con = 0.06 Int C = –0.11 Int D = –0.20 Con – Int.D = 0.16 95% CI: –0.33 to 0.65 NS Mean number of years of education completed (46 months postpartum): Con = 11.13 Int C = 11.54 Int D = 11.35 Con – Int D = –0.22 95% CI: –0.83 to 0.39 NS Mean number of months employed (0–46 months postpartum): Con = 12.65 Int .C = 17.01 Int D = 15.18 Con – Int D = –2.53 95% CI: –7.29 to 2.23 NS Mean number of days on public assistance (0–48 months postpartum): Con = 530 Int C = 510 Int D = 437 Con – Int D = 93 95% CI: –78 to 264 NS Attrition Years 1–4 post-programme, rates of attrition varied from 15% to 21%

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 26 contd *Studies reporting the effects of home visiting on subsequent pregnancies/family size/employment/education/use of public assistance*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Seitz, *et al.*, 1985[53]* USA	0.14 non-RCT	Home visitor, paediatrician, primary care day worker	Families with low socio-economic status expecting their first child; no complications during pregnancy; inner-city location; no mental health problems	Matched pairs Int: Home visits (*n* = 17) Con: No home visits (*n* = 17)	Int: To solve immediate problems, reduce physical dangers, obtain more adequate food or housing; to discuss other long-term problems or decisions, e.g. education, marital, career; to liaise with other service providers	Mean number of visits from pregnancy to 30 months postpartum: Int = 28	Mean (SD) number of children 10 years post-intervention: Int = 1.67 (0.62) Con = 2.20 (0.86) $p = 0.06$ Mean (SD) number of mothers returning to education: Int = 13.00 (1.50) Con = 11.70 (1.80) $p < 0.05$
Kitzman, *et al.*, 1997[101]* USA	0.79 RCT	Nurses	African-American women: less than 29 weeks gestation; no previous live births; at least 2 socio-demographic risk characteristics (from unmarried, < 12 years education, unemployed)	Int: Home visits and routine care (*n* = 228) Con: Routine care (*n* = 515)	Int: Help women to improve their health-related behaviours, care of their children and life course development Con: Free transportation for scheduled prenatal care, plus developmental screening and referral services	Mean (range) number of home visits during pregnancy: Int = 7 (0–18) Mean (range) number of home visits, 0–24 months postpartum: Int = 26 (0–71) Evaluation at 24 months	% Subsequent live births: Int = 22 Con = 31 OR = 0.6 $p < 0.01$ 95% CI: 0.4 to 0.9
Brooks-Gunn, *et al.*, 1994[127]* USA	0.71 RCT	Non-professionals	Parents of low birth weight premature infants	Int: Home visits (*n* = 347) Con: No home visits (*n* = 561)	Int: Information on child health and development;q social support and strategies on management of self-identified problems	Int: Mean of 3 visits per month in the first year and mean of 1.5 visits per month in the second and third years	Mean (SD) months for receipt of public assistance: Int = 14.4 (15.8) Con = 12.6 (15.2) NS Mean (SD) months of education: Int = 4.9 (9.0) Con = 4.2 (2.6) NS Mean (SD) months of employment: Int = 16.7 (12.9) Con = 15.6 (14.2) $p < 0.05$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

TABLE 27 *Studies reporting the effects of home visiting on client satisfaction of parents of young children*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hall, 1980[36] Law-Harrison & Twardosz, 1986[151] USA	0.46 RCT	Nurse	Mothers: primiparas; no chronic disease; uncomplicated pregnancy; full-term, vaginal delivery	Int: Home visit (*n* = 15) Con: Routine care (*n* = 15)	Int: Teaching programme (infant behaviour)	Int: 1 visit Evaluation: 1 month postpartum	All 15 of Con mothers would have liked a home visit
Stanwick, *et al.*, 1982[37] Canada	0.39 RCT	Public health nurses	Mothers with newborn infants	Int: Home visit (*n* = 80) Con: No home visit (*n* = 76)	Enhance mother's confidence in caring for her infant; increase her maternal knowledge and skill	Int: 1 visit within 3 weeks of delivery Evaluation: 4 weeks after delivery Int: 39 mothers not visited Con: 8 mothers visited	71% of Int mothers found home visit helpful 56% of Con mothers would have liked a home visit
Barkauskas, 1983[38*] USA	0.41 RCT	Public health nurses	Mothers: first-time birth; > 2000 g; not hospitalised; not separated > 14 days	Int: Home visit (*n* = 67) Con: Telephone (*n* = 43)	Int: Routine public health nurse service	Approximately 2 per family	86% of mothers in the Int group stated that home visits were helpful 14% of mothers in the Int group stated the home visits were not helpful
Barth, *et al.*, 1988[46] Barth, 1991[70] USA	0.32 RCT	Parenting consultants (para-professionals)	Mothers at risk of child abuse	Int: Home visits (*n* = 97) Con: Routine care (*n* = 94)	Int: Goal-setting and attainment strategies Con: Traditional community services	Int: From end of pregnancy for 6 months	Mean (range) number of visits: Int = 11 (5–20) Mean (SD) client satisfaction score: Int = 1.76 (1.09) Mean score on the most helpful part of the intervention: Getting things done: 3.45 Set goals: 3.37
Holden, *et al.*, 1989[54] Scotland	0.55 RCT	Health visitors	Mothers with postnatal depression	Int: Home visit (*n* = 28) Con: Routine care (*n* = 27)	Int: Non-directive counselling	Int: Received weekly visits from 12 weeks postpartum Mean intervention period: 13 weeks Mean number of visits: 8.8 Minimum of 30 minutes per visit	88% of Int group claimed that the health visitor had been the most important factor in their recovery

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 27 contd *Studies reporting the effects of home visiting on client satisfaction of parents of young children*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Dawson, *et al.*, 1989[71] USA	0.25 RCT	Para-professionals	Low-income families	Int: Home visits (*n* = 42) Int A: Home visits and parents group (*n* = 50) Con: No home visits (*n* = 80)	Emotional support; concrete help, e.g. transport to clinics; information, e.g. safety, child behaviour; enhancing social networks	Int.A: 1 home visit per week Int B: 1 home visit per week plus parent group every 2 weeks	Mothers gave high ratings to their relationship with the home visitor and the information provided by the home visitor No data reported
Marcenko & Spence, 1994[74] USA	0.25 RCT	Lay visitors	At-risk pregnant and postpartum women	Int: Home visits and routine care (*n* = 125) Con: Routine care (*n* = 100)	Int: Provide peer support; identify service needs; health education and parent training Con: Outpatient obstetrics and gynaecology clinic	Services received from the time of the mother's first prenatal visit through to child's first birthday Int: Prenatal period – 1 visit per 2 weeks; postpartum – 1 visit per week (weeks 1–6); 1 visit per 2 weeks (weeks 6–26 weeks); 1 visit per month (weeks 26–52)	Int: Group expressed satisfaction with the service and valued the relationship with the home visitor No data reported
Davis & Spurr, 1998[133*] UK	0.54 non-RCT	Health visitors and clinical medical officers	Parents of preschool children with multiple psychosocial problems	Int: Home visits and routine community services (*n* = 87) Con: Routine community services (*n* = 38)	Int. To enable parents to explore and clarify issues and problems confronting them; to develop appropriate management strategies	Int: Weekly sessions of 1 hour in duration	Mean scores for positiveness How positive parent advisor made mother feel: 3.04 How positive parent advisor was viewed by the parent: 3.34 Positiveness about the relationship with parent advisor: 2.98 47% rated the intervention as very helpful 28% rated the intervention as helpful 98% thought that the intervention met their needs 73% rated their problem as improved 79% rated the service as efficient 9% felt that they had to wait too long for the service

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 27 contd *Studies reporting the effects of home visiting on client satisfaction of parents of young children*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hewitt, *et al.*, 1991[144] England	0.39 non-RCT	Health visitors	Randomly selected expectant mothers on health visitors' caseloads	Int: Home visits (n = 66) Stratified by duration of the programme Con: No home visits Historical controls	Int: Parent education package – anticipatory guidance to prevent the development of behaviour problems Con: Routine health visitor care	Int: 1 visit when child was 1, 3, 6, 12 and 18 months Evaluation: 9 and 24 months	50% claimed that the programme was helpful 13% claimed that the programme had not been helpful
Margolis, *et al.*, 1996[152] USA	0.32 RCT	Public health nurses	Families of low socio-economic status	Int A: Home visits and office intervention (n = 31) Int B: Office intervention (n = 30) Con: Usual care (n = 32)	Int A: Parental education on infant health and development, informal and formal support services Int B: Women encouraged to seek healthcare for their infants at primary care practices	Int A: Visits to homes every 1 or 2 weeks	Int A: Mothers reported home visitor was helpful with feelings about baby (92%); mothers' own feelings (88%); and questions about the baby (100%)
Shapiro, 1995[163] Canada	0.18 RCT	Community-based nurse and homemaker	Low birth weight newborns	Int: Home visits (n = 50) Con: Routine home visits (n = 50)	Int: Early discharge from hospital – personal support to mothers and family; respite care; assist with infant care; light housekeeping; share information regarding infant care Con: Routine discharge	Int: Mean of 3.8 visits and 8.4 telephone contacts up to 8 weeks post-discharge Con: Mean of 1.4 visits and 1.9 telephone contacts up to 8 weeks post-discharge Evaluation: 12 months	Widespread satisfaction with the project No data reported

Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

TABLE 28 *Studies reporting outcomes relating to elderly people and/or their carers*

Study	Elderly people	Carers of elderly people
Luker, 1982[17]	✔	
Hall, *et al.,* 1992[55*]	✔	
Archbold, *et al*., 1995[120*] Miller, *et al*., 1996[153]	✔	✔
Balaban, *et al*., 1988[121*]	✔	
Dunn, *et al*., 1994[134*]	✔	
Fabacher, *et al*., 1994[135]	✔	
Hansen, *et al*., 1992[142*]	✔	
Hendriksen, *et al*., 1986[143*]	✔	
Keller, *et al*., 1988[148]	✔	
Mohide, *et al*., 1990[154]		✔
Oktay, *et al*., 1990[156*]	✔	✔
Pathy, *et al*., 1992[157*]	✔	
Toseland, *et al.,* 1990[167]		✔
Van Rossum, *et al.,* 1993[168*]	✔	
Vetter, *et al*., 1984[169*]	✔	
Vetter, *et al*., 1992[170]	✔	
Williams, *et al*., 1992[173]	✔	

TABLE 29 *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Luker, 1982[17] UK	0.46 RCT	Health visitors	Elderly women aged 70 years and over who live at home	Cross-over design Group 1 (n = 50) Int for Pretest Int for Post-test 1 Con for Post-test 2 Group 2 (n = 50) Con for Pretest Con for Post-test 1 Int for Post-test 2 Int: Home visits Con: Access to usual nursing services	Int: Actual and potential health problems addressed	Int: Once monthly visit for 4 months Mean length of visit: 34 minutes	Mean (SD) score Life Satisfaction Index: Group 1 Pretest = 11.3 (3.1) Post-test 1 = 11.2 (3.5) Post-test 2 = 11.7 (3.2) NS Group 2 Pretest = 10.8 (3.1) Post-test 1 = 10.7 (3.4) Post-test 2 = 10.7 (3.1) NS
Hall, *et al.*, 1992[55*] Canada	0.61 RCT	Nurse	People aged 65 years or older living at home; newly admitted to long-term community care programmes in 2 different localities	Int: Home visits and standard community care services, locality 1 (n = 81) Con A: Standard community care services, locality 1 (n = 86) Con B: Standard community care services, locality 2 (n = 81)	Int: Developing personal health skills; goal-setting; referral to community services	Duration of 3 years Int: Number of visits dependent upon need	No. (%) survivors: Int = 60/81 (74.1%) Con = 51/86 (59.3%) p = 0.054 Psychological status Mean score, change from baseline Memorial University Happiness Scale: Int = –1.0; Con A = –1.1 p > 0.35 Health Locus of Control: Int = 1.9; Con A = 4.0 p > 0.35 MacMillan Health Opinion Index: Int = –1.7; Con A = –2.0 p > 0.35 UCLA Loneliness Scale: Int = –1.1; Con A = –1.7 p > 0.35 Social Readjustment Rating Scale: Int = –42.1; Con A = –30.0 p > 0.35

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Archbold, *et al.*, 1995[120] Miller, *et al.*, 1996[153] USA	0.5 non-RCT	Nurses	Caregivers and their older family members	Int: Home nursing with focus on the caregiver/care-receiver relationship Con: Routine home	Int: Nursing intervention to increase preparedness, enrichment and predictability in families providing care to older people	Int: Care given over 3–6 months Average of 11.5 home visits per family 3–6 months Average of 4.9 home visits per family Evaluated at 8 and 12 months	Mean (SD) score Care Effectiveness Scale: Int = 4.10 (0.64) Con = 3.11 (1.33) $p < 0.05$ Numbers hospitalised: Int = 6 Con = 5 Number of days hospitalised: Int = 27 Con = 80 Mean length of stay: Int = 4.6 Con = 13.3 No test results reported

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Balaban, *et al.*, 1988[121]* USA	0.21 RCT	Nurse, physician	Elderly, sick or disabled people living in the community 72% of participants over age 65 years	Int: Home visits (*n* = 103) Con: Routine care (*n* = 95)	Int: Assessment of medical and social needs	Mean number of visits: Int No visits in year 1 2 visits in year 2 3.8 visits in year 3 2.5 visits in year 4 Con 0.1 visits in year 1 0.1 visits in year 2 0.2 visits in year 3 0.9 visits in year 4	Mortality: Number (%) of deaths Int = 31 (30) Con = 20 (21) NS Mean (SD) score – Quality of Well-being: Int = 0.608 (0.14) Con = 0.632 (0.10) $p > 0.30$ Mean (SD) score – Barthel Activities of Daily Living: Int = 86.8 (17.6) Con = 89.7 (15.9) $p > 0.40$ Mean (SD) score – Philadelphia Geriatrics Centre Morale Scale: Int = 9.8 (4.8) Con = 9.8 (4.7) $p > 0.90$ Mean (SD) score – Global Health Status Visual Analogue: Int = 5.7 (2.4) Con = 6.0 (2.3) $p > 0.50$ Mean (SD) score – Beck Depression Inventory: Int = 6.6 (7.2) Con = 7.2 (7.6) $p > 0.70$ Mean (SD) score – Patient satisfaction questionnaire: Int = 54.0 (6.8) Con = 53.0 (7.7) $p > 0.30$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Dunn, *et al.*, 1994[134*] England	0.54 RCT	Health visitor	Patients discharged from a geriatric ward Mean age 83 years	Int: Home visit (*n* = 102) Con: Routine care (*n* = 102)	Int: Stabilise patient in own home and deal with any problems	Int: 1 visit, mean of 72 hours after discharge Duration of 6 months	Mean length of unplanned re-admissions (days/all patients): Int = 12.1 Con = 14.0 $p > 0.05$ 95% CI Diff. of means: –4.9 to 8.7 Mortality: Int = 15/102 Con = 25/102 Number admitted to nursing home: Int = 8/102 Con = 7/102
Fabacher, *et al.*, 1994[135] USA	0.57 RCT	Physician's assistant, or nurse with trained volunteer	Community-living veterans, 70 years or older, not enrolled with a primary care physician	Int: Home visits (*n* = 131) Con: Routine care (*n* = 123)	Int: Screening for medical, functional and psychosocial problems; follow-up letter (after initial home visit) with recommendations	Int: Initial visit by nurse or physician's assistant; follow-up visits by volunteers at 4-month intervals for 1 year	Mean (SD) number of prescription drugs: Int = 2.0 (1.9) Con = 2.3 (1.9) NS Mean (SD) number of over the counter drugs: Int = 1.2 (1.8) Con = 2.2 (1.9) $p < 0.05$ Mean (SD) score – Activities of Daily Living: Int = 5.8 (0.8) Con = 5.8 (0.4) NS Mean (SD) score – Instrumental Activities of Daily Living: Int = 7.1 (1.1) Con = 6.7 (1.4) $p < 0.05$ % Immunised (influenza and pneumococcal): Int = 94 Con = 34 $p < 0.05$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hansen, *et al.*, 1992[142*] Denmark	0.36 RCT	Nurse, GP	Patients recently discharged from hospital to own home	Int: Home visits (n = 163) Con: Routine care (n = 181)	Int: Nurse assessment, problem identification and referral to GP if required; follow-up for medical and social problems with referral if required	Duration of 1 year Int: 1 visit by nurse, 1 visit by GP	Number of patients admitted to nursing home: Int = 16/163 Con = 29/181 $p < 0.05$ Mortality Number of deaths: Int = 32/163 Con = 43/181 NS Readmission to hospital % With 1 or more readmissions: Int = 56 Con = 56 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Hendriksen, *et al.*, 1986[143*] Denmark	0.43 RCT	Not stated	People aged 75 years old or greater living at home	Int: Home visits (*n* = 285) Con: Routine care (*n* = 287)	Not stated	Every 3 months for 3 years, up to a maximum of 12 visits	Admission to hospital Number of bed days in hospital: Int = 4884 Con = 6442 $p = 0.01$ Number of months in nursing homes: Int = 263 Con = 293 NS Mortality Number of deaths: Int = 56 Con = 75 $p < 0.05$ Contacts to GPs: No data given NS Number of emergency medical service calls: Int = 30 Con = 60 $p < 0.05$ Number of patients receiving home nursing care: Int = 116 Con = 106 NS Use of Social Services Mean number of home help weeks: Int = 10.9 Con = 9.3 $p < 0.05$ Total number of hours: Int = 133,671 Con = 114,262 $p < 0.05$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Keller, *et al.*, 1988[148] USA	0.34 RCT	Specially trained volunteers, or volunteers from an existing programme	Housebound elderly people	Int A: Home visits (n = 41) Specially trained volunteers Int B: Home visits (n = 16) Existing volunteers Con: No home visits	Int A: Information about community services Int B: Befriending	Int A: Weekly visits for 12 weeks Int B: Not stated	Mean (SD) on knowledge of services: Int A = 6.10 (1.56) Int B = 5.13 (1.56) Con = 6.50 (1.47) F = 3.52 p < 0.05
Mohide, *et al.*, 1990[154] USA	0.68 RCT	Nurses with respite workers	Carers of relatives with dementia	Int: Home visits to carers (n = 30) Con: Home visits to patients (n = 30)	Int: Caregiver-focused health care; education about dementia and care-giving; assistance with problem-solving; in-home respite care Con: healthcare focused on the physical needs of patient	6-month duration Initially weekly visits, increased or decreased as required	Anxiety Mean (SD) score – State Anxiety Scale: Int = 49.64 (14.48) Con = 48.50 (14.38) NS Depression Mean (SD) score – CES-D Scale: Int = 21.5 (12.98) Com = 18.20 (10.05) NS Caregiver quality of life Mean (SD) score – Caregiver Quality of Life Instrument: Int = 21.5 (12.98) Con = 18.20 (10.05) NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Oktay & Volland, 1990[156]* USA	0.5 non-RCT	Nurse and social worker	Patients aged 65 years or older discharged from hospital to home and their non-paid carers	Int: Home visits (*n* = 98) Con: Routine care (*n* = 93)	Int: Nursing, counselling, referral, respite and education	Int: 1 nurse and 1 social worker visit per month for 12 months	Caregiver stress Proportional difference (Diff.) score on General Health Questionnaire: Int = –0.35; Con = –0.3; Diff. = 0.05; NS 95% CI: –0.14 to 0.24 Caregiver illness: Int = –0.20; Con = –0.26; Diff. = –0.06; NS 95% CI: –0.20 to 0.08 Negative impact of care-giving: Int = 0.04; Con = 0.00; Diff. = –0.04; NS 95% CI: –0.12 to 0.04 Functional status Activities of Daily Living: Int = –0.20; Con = –0.12; Diff. = –0.08; NS 95% CI: –0.26 to 0.10 Instrumental Activities of Daily Living: Int = 0.10; Con = –0.05; Diff. = –0.15; NS 95% CI: –0.37 to 0.07 Mental status: Int = 0.08; Con = 0.04; Diff. = 0.04; NS 95% CI: –0.22 to 0.14 Mortality: Int = 27/98 (27.5%); Con = 28/93 (30%); NS 95% CI: 1.6 to 18.4 Total mean days in hospital: Int = 38.5; Con = 29.1; Diff. = 10 Mean (SD) number of nursing home days: Int = 17 (59.3); Con = 9 (32.9); Diff. = 8 95% CI: –0.56 to 21.6 Mean (SD) number of out-patient visits: Int = 5 (15.2); Con = 7 (12.2); Diff. = –2 95% CI: –1.9 to 5.9

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Pathy, *et al.*, 1992[157]* England	0.5 RCT	Health visitors	Patients of a general practice over 65 years old living at home	Int: Home visits (60% of 369 = 221) Con: Routine care (*n* = 356)	Int: Practical advice, health education, referral to appropriate services	Duration of 3 years Int: Number of home visits not stated	Mortality Number (%) of deaths: Int = 67 (18) Con = 86 (24) Diff. = 6% 95% CI: 0.1 to 11.9 $p = 0.05$ Number of hospital admissions: Int = 262 Con = 284 NS Duration of hospital stay Mean length of stay in days: Int = 12.5 Con = 14.6 Diff. = 4.6 95% CI: 1.6 to 7.6 $p < 0.01$ Mean number of geriatric day hospital attendances: Int = 8.5 Con = 27.3 Diff. = 18.8 95% CI: 4 to 30 $p < 0.01$ Number (%) admitted to long-term care (patients aged 75+): Int = 67 (18) Con = 86 (24) Diff. = 6% 95% CI: –0.9 to 13.1 Patients receiving domiciliary visits by hospital specialists Diff. = 12.9% 95% CI: 8 to 17.8 $p < 0.01$

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
continued Pathy, *et al.*, 1992[157*] England							Mean number of visits to GP: Int = 20.7 Con = 20.4 NS Mean (SD) score on self-rated health measure: Int = 6.9 (2.7) Con = 6.4 (2.9) Diff. = 0.5 95% CI: 0.2 to 8.0 $p < 0.005$ Nottingham Health Profile: NS (no data given) Townsend: NS (no data given) Life Satisfaction Score: NS (no data given) Community services Number (%) of patients receiving attendance allowance: Int = 26/223 (12) Con = 16/196 (8) NS Number (%) of patients receiving meals-on-wheels: Int = 10/223 (4) Con = 6/196 (3) NS Number (%) of patients receiving home help: Int = 46/223 (21) Con = 34/196 (17) NS Number (%) of patients receiving chiropody: Int = 86/223 (39) Con = 50/196 (26) NS

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Toseland, *et al.*, 1990[167] England	0.5 RCT	Professionals and peers	Daughters or daughters-in-law of frail, elderly people	Int A: Home visits (n = 51) Int B: Group intervention (n = 67) Con: Respite care (n = 36)	Int: Support, education, counselling, problem-solving and coping strategies	Int 1: 8-weekly 1-hour sessions Int 2: 8-weekly 2-hour sessions	Emotional response to care-giving Mean score – Zarit Burden Scale: Int A = 41.6; Int B = 42.7; Con = 43.9; NS Mean score – Bradburn Affect Balance Scale: Int A = 28.2; Int B = 28.5; Con = 26.2 Psychiatric symptoms Mean score – Brief Symptom Inventory General Severity Index: Int A = 1.1; Int B = 0.6; Con = 0.8; NS Positive Symptom Total: Int A = 18.7; Int B = 18.0; Con = 23.0; p = 0.01 Positive Symptom Distress Index: Int A = 0.1; Int B = 1.6; Con = 1.7; NS Mean score – Change in support network size: Int A = 0.08; Int B = 0.71; Con = 0.3; p = 0.01 Mean score – Extent of support: Int A = 2.4; Int B = 2.4; Con = 2.3; NS Mean score – Satisfaction with support network: Int A = 2.3; Int B = 3.1; Con = 2.9; p = 0.04 Mean score – Knowledge of community resources: Int A = 3.2; Int B = 3.7; Con = 2.7; p = 0.01 Mean score – Knowledge of how to access resources: Int A = 10.9; Int B = 10.9; Con = 10.3; NS Mean score – Use of resources: Int A = 2.5; Int B = 1.9; Con = 2.3; NS Caregiver/care-receiver relationships Mean score – Personal Change Scale: Int A = 16.7; Int B = 17.6; Con = 10.7

*Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
van Rossum, *et al.*, 1993[168*] The Netherlands	0.5 RCT	Public health nurses	Patients of a general practice aged 74–85 years old living at home	Int: Home visits (*n* = 292) Con: Routine care (*n* = 288)	Int: Information and advice	Duration of 3 years Int: 4 visits per year	Mortality Number (%) of deaths: Int = 42/292 (14); Con = 50/288 (17) NS Self-rated health Mean changes in scores: Int = –0.4; Con = –0.6 Diff. = 0.2; 90% CI: –0.1 to 0.5 NS Functional state Disabilities on activities of daily living Mean changes in scores: Int = 0.4; Con = 0.3 Diff. = 0.1 90% CI: 0.0 to 0.2 NS Household disablities Mean changes in scores: Int = 0.6; Con = 0.4 Diff. = 0.2 90% CI: 0.0 to 0.4 NS Number (%) admitted to nursing home: Int = 7 (2); Con = 5 (2) NS Well-being and mental state: NS (no data given) Use of services Community care: Int = 55%; Con = 66% 90% CI: 4 to 18 NS Admissions to hospital: Int = 41%; Con = 46% 90% CI: –2 to 12 NS

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Vetter, *et al.*, 1984[169*] Wales	0.39 RCT	Health visitors	Patients of 2 general practices aged 70 or more years old	Int A: Home visits (*n* = 281) Rural practice Con A: Routine care (*n* = 273) Rural practice Int B: Home visits (*n* = 296) Urban practice Con B: Routine care (*n* = 298) Urban practice	At least 1 visit per year for 2 years	Not stated	Mortality Number (%) deaths: Int A = 45 (16) Con A = 45 (17) NS Int B = 35 (12) Con B = 60 (20) $p < 0.01$ Physical disability Cox's test for trend: Rural (Int A and Con A) = NS Urban (Int B and Con B) = NS Anxiety Cox's test for trend: Rural (Int A and Con A) = NS Urban (Int B and Con B) = NS Quality of life Cox's test for trend: Rural (Int A and Con A) = NS Urban (Int B and Con B) = NS Use of district nurse Cox's test for trend: Rural (Int A and Con A) = NS Urban (Int B and Con B) = NS Use of a home help Cox's test for trend: Rural (Int A and Con A) = NS Urban (Int B and Con B): $p = 0.005$

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 29 contd *Characteristics and quality scores of studies reporting the effects of home visiting on elderly people or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Vetter, *et al.*, 1992[170] Wales	0.57 RCT	Health visitors	Patients of a general practice aged 70 or more years old living at home	Int: Home visits (*n* = 350) Con: Routine care (*n* = 324)	Int: Focus on diet, environmental hazards and fitness Appropriate referral of medical conditions	Int: Minimum of 1 visit per year over 4 years	Fracture rate Number (%) of fractures: Int = 16/350 (5) Con = 14/324 (4) NS
Williams, *et al.*, 1992[173]* England	0.46 RCT	Health visitor assistants	Patients over 75 years old recently discharged from hospital to own or relative's home	Int: Home visits (*n* = 231) Con: Routine visits (*n* = 239)	Int: Wide-ranging; providing aids and appliances; offering companionship; dealing with problems	Int. 8 visits in 1 year; 2 at fortnightly intervals; 3 at monthly intervals; 3 at 2-monthly intervals	Physical status Mean score at baseline (change over 12 months): Int = 5.7 (0.9) Con = 6.1 (0.9) NS Disability level Mean score at baseline (change over 12 months): Int = 8.0 (2.1) Con = 7.8 (2.6) NS Mental status Mean score at baseline (change over 12 months): Int = 3.2 (0.6) Con = 3.1 (0.7) NS Number of services used: NS (no data given) Mortality (%): Int = 30 (13) Con = 40 (17)

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

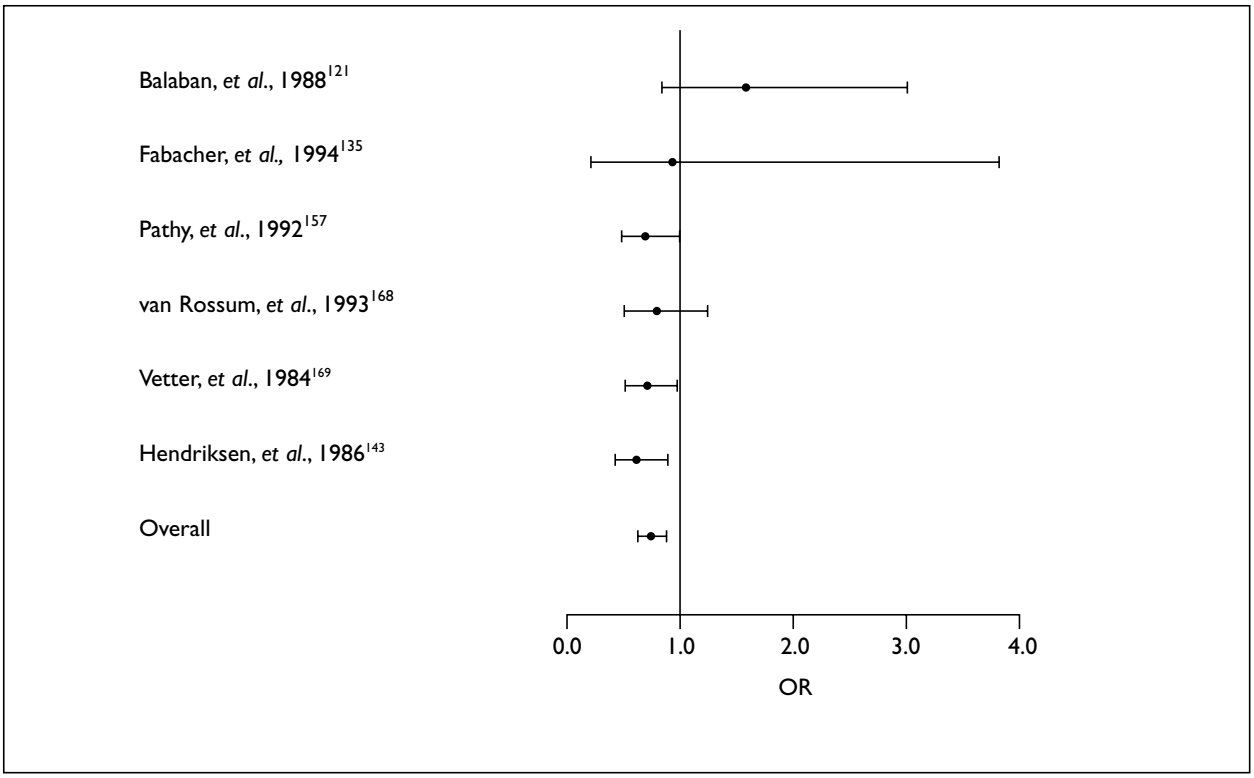


FIGURE 13 *ORs (and 95% CI) for mortality in the general elderly population*

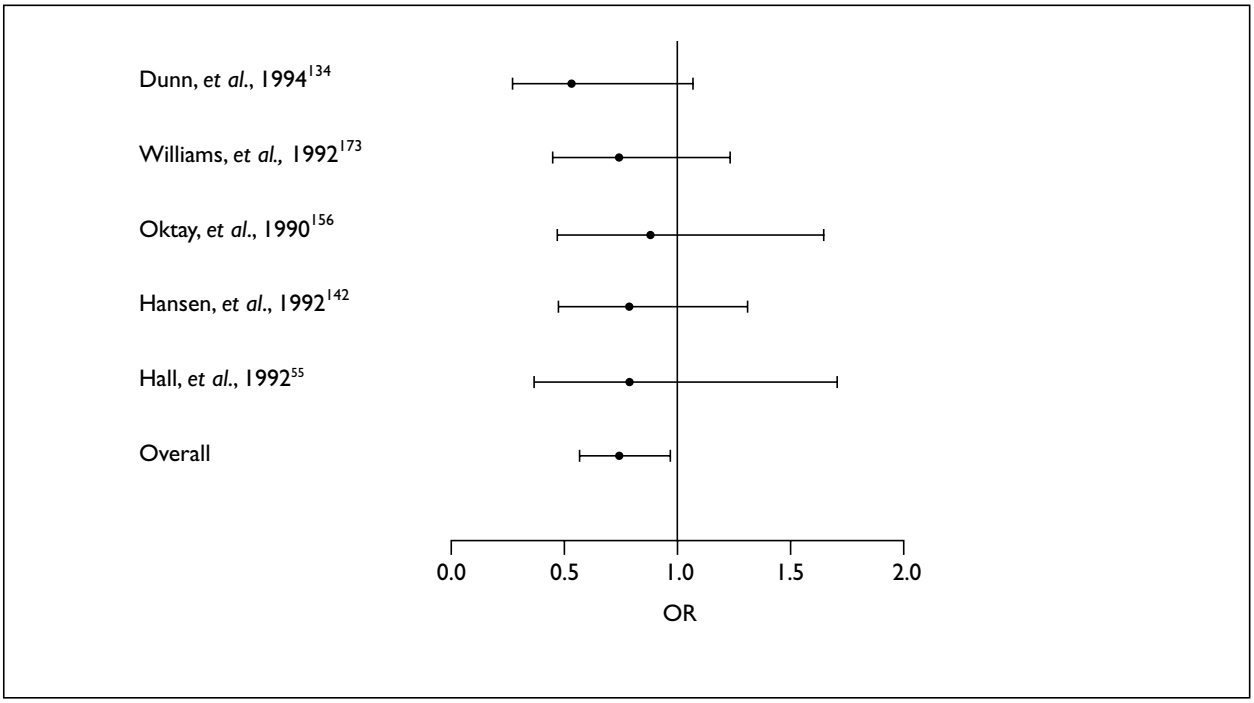


FIGURE 14 *ORs (and 95% CI) for mortality in frail, at-risk elderly people*

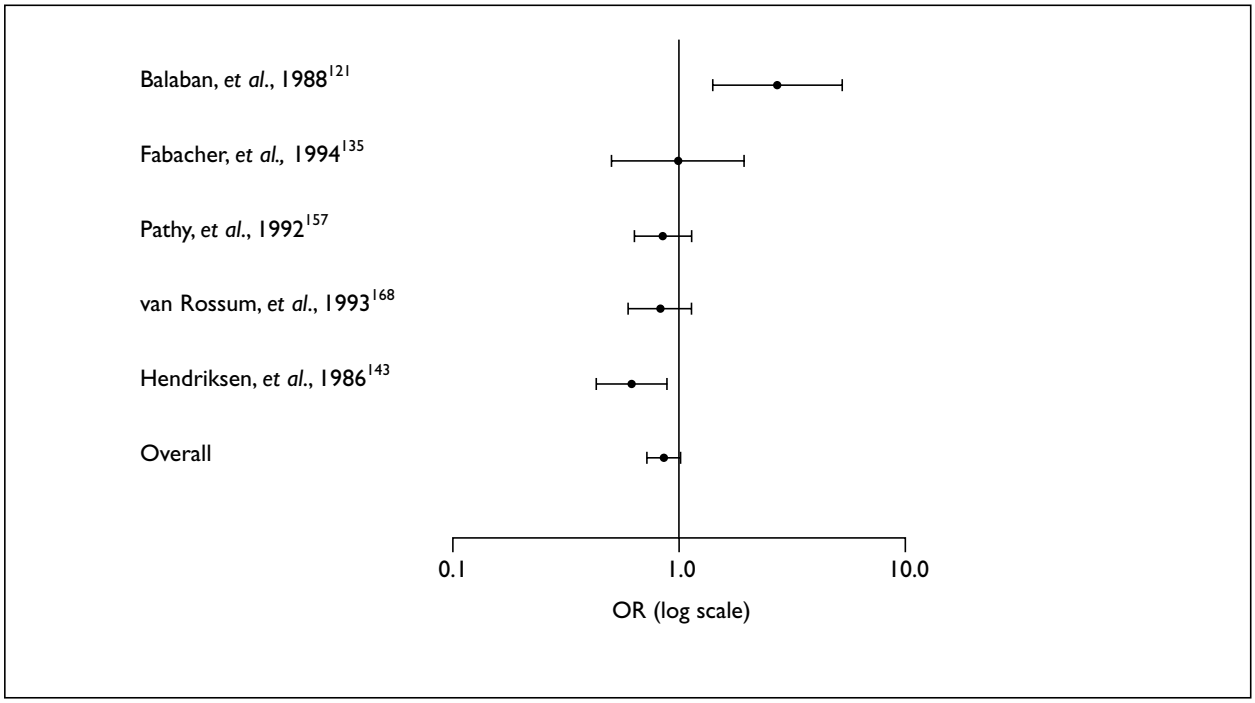


FIGURE 15 *ORs (and 95% CI) for admissions to hospital in the general elderly population*

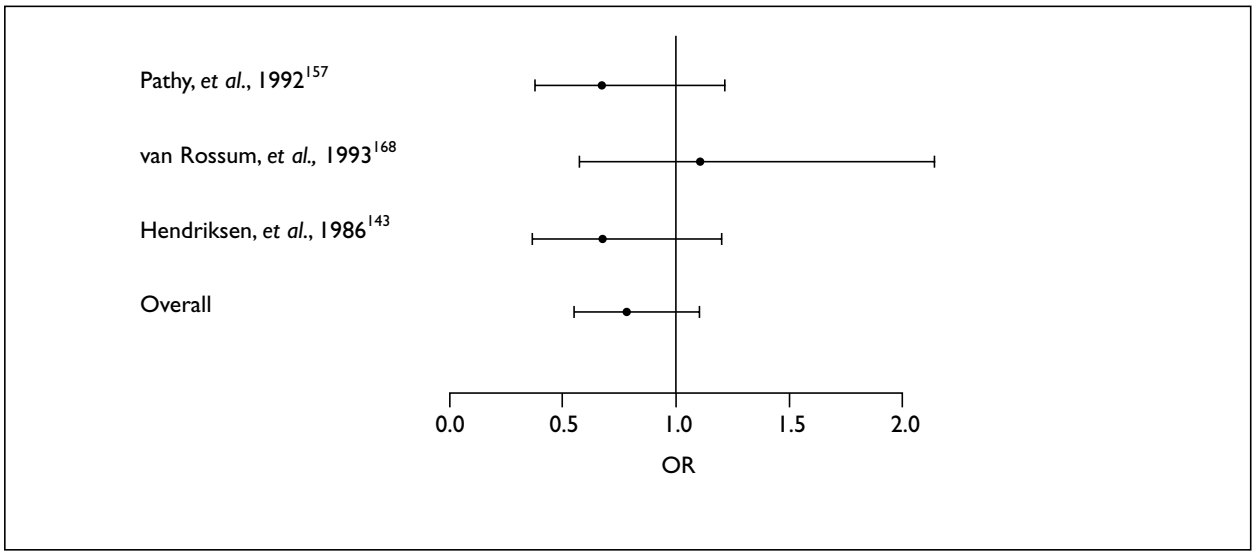


FIGURE 16 *ORs (and 95% CI) for admissions to institutional care in the general elderly population*

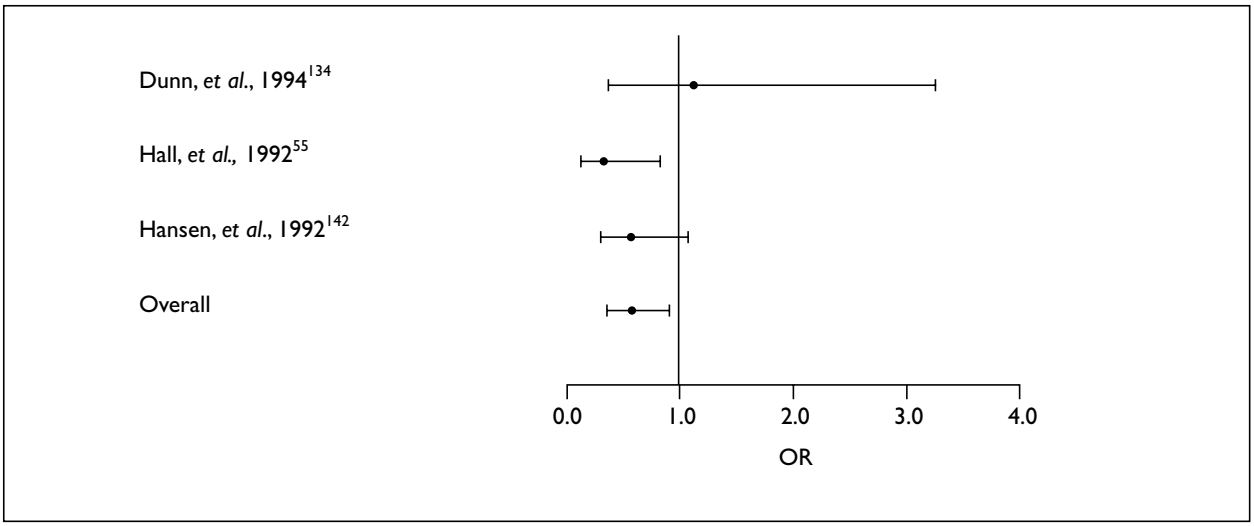


FIGURE 17 *ORs (and 95% CI) for admissions to institutional care of frail, at-risk elderly people*

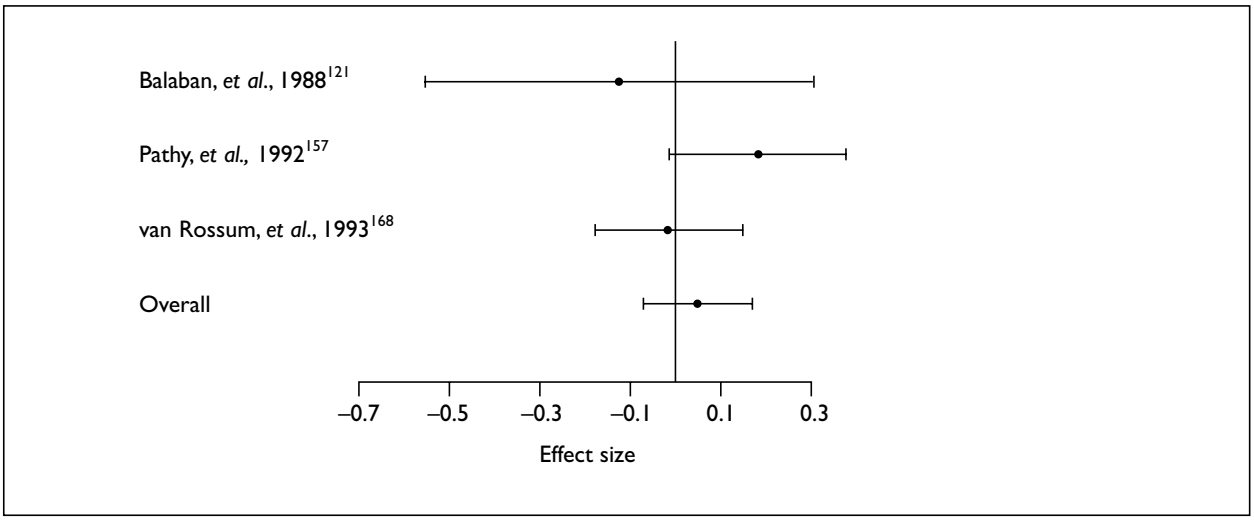


FIGURE 18 *Effect sizes (and 95% CI) for the health status of elderly people*

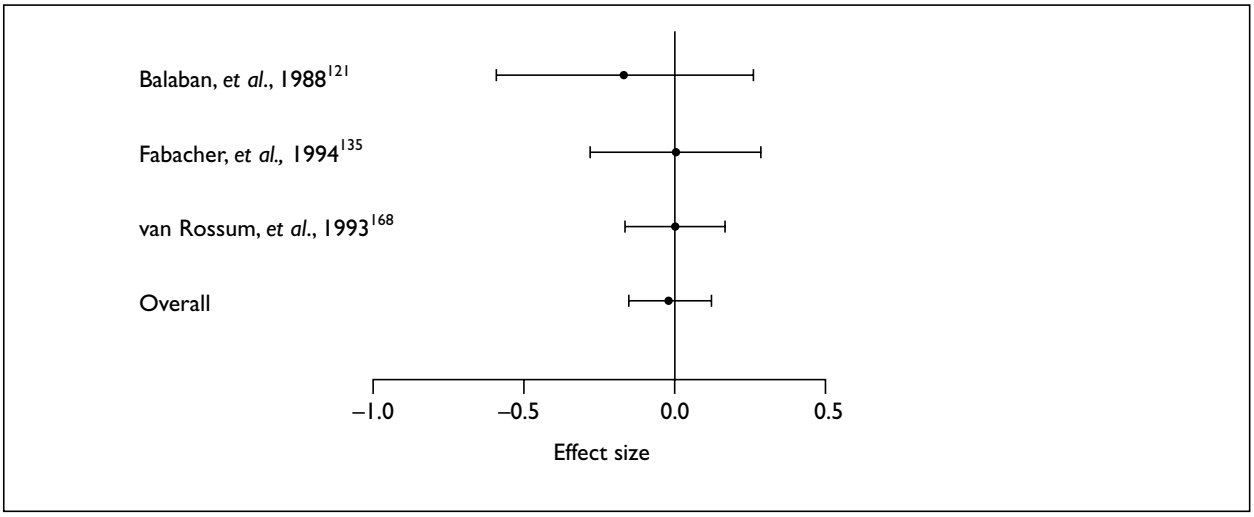


FIGURE 19 *Effect sizes (and 95% CI) for the functional status of elderly people*

TABLE 30 *Studies reporting the effects of home visiting on client satisfaction of elderly respondents or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Luker, 1982[17] UK	0.46 RCT	Health visitors	Elderly women aged 70 years and over who live at home	Cross-over design Group 1 (*n* = 50) Int for Pretest Int for Post-test 1 Con for Post-test 2 Group 2 (*n* = 50) Con for Pretest Con for Post-test 1 Int for Post-test 2 Int: Home visits Con: Access to usual nursing services	Int: Actual and potential health problems addressed	Int: Once monthly visit for 4 months Mean length of visit 34 minutes	Proportion of elderly respondents who state that they: Enjoyed the visits = 95% Had been helped = 62% Would like further visits = 48%
Balaban, *et al.*, 1988[121] USA	0.21 RCT	Nurse, physician	Elderly, sick or disabled people living in the community 72% of participants over age 65 years	Int: Home visits (*n* = 103) Con: Routine care (*n* = 95)	Int: Assessment of medical and social needs	Mean number of visits: Int No visits in year 1 2 visits in year 2 3.8 visits in year 3 2.5 visits in year 4 Con 0.1 visits in year 1 0.1 visits in year 2 0.2 visits in year 3 0.9 visits in year 4	Mean (SD) satisfaction scores: Int = 54.0 (6.8) Con = 53.0 (7.7) NS
Hendriksen, *et al.*, 1986[143] Denmark	0.43 RCT	Not stated	People aged 75 years old or greater living at home	Int: Home visits (*n* = 285) Con: Routine care (*n* = 287)	Not stated	Every 3 months for 3 years, up to a total of 12 visits	Proportion of elderly respondents who stated that they: Had obtained important health benefits = 87% Had not benefited at all = 2%

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

continued

TABLE 30 contd *Studies reporting the effects of home visiting on client satisfaction of elderly respondents or their carers*

Study	Quality score and study design	Intervenors	Participants	Interventions (no. of participants)	Content	Implementation	Outcomes
Mohide, *et al.*, 1990[154] USA	0.68 RCT	Nurses with respite workers	Carers of relatives with dementia	Int: Home visits to carers (n = 30) Con: Home visits to patients (n = 30)	Int: Caregiver-focused health care; education about dementia and care giving; assistance with problem-solving; in-home respite care Con: healthcare focused on the physical needs of patient	6-month duration Initially weekly visits, increased or decreased as required	Satisfaction score (out of 100): Int = 59 Con = 43
Toseland, *et al.*, 1990[167] England	0.5 RCT	Professionals and peers	Daughters, or daughters-in-law of frail, elderly people	Int A: Home visits (n = 51) Int B: Goup intervention (n = 67) Con: Respite care (n = 36)	Int: Support, education, counselling, problem-solving and coping strategies	Int A: 8-weekly 1-hour sessions Int B: 8-weekly 2-hour sessions	Mean score – Satisfaction of carers: Int A = 4.5 Int B = 4.5 Con = 3.5 p = 0.01

**Inclusion in meta-analysis; Int, intervention group; Con, control group; NS, no statistically significant difference*

Chapter 5

Review of economic evaluations of health visiting services

The studies reviewed in this chapter have been selected according to the research objectives and review criteria set out in chapters 1 and 3. We have excluded economic studies of in-home nursing care, and focused on the provision of health visiting services for the promotion of child and family health. In addition, only studies that have considered both the costs and consequences of a health visiting service were included. Evaluations of only the costs of service provision, whilst useful for budget planning, are of limited value in assessing the most effective use of resources and so were not included in the review. These inclusion criteria resulted in only a few relevant studies. In total, six are reviewed in this chapter. The main features (objectives, perspective, interventions, type of technique, study design, cost, outcomes measured, and main results) of each study are summarised in *Table 31*. The potential contribution of these studies can be assessed in terms of the extent to which, as a group of studies, they provide robust evidence useful for informing resource allocation decision-making, in particular in a UK context. Three summary criteria are used for this purpose: scope, generalisability and comparability.[216]

- ***Scope***: this relates to the objectives of economic evaluations of health visiting services, the perspectives adopted, the types of interventions included and the form of economic evaluation used. There are several types of economic evaluation: cost analysis, cost-effectiveness analysis; cost–utility analysis and cost–benefit analysis (CBA).[217] Each can be used to assess cost-effectiveness in the use of resources, but they differ in terms of the measurement of the benefits of services such as health visiting.
- ***Generalisability***: this concerns the relevance of the study results beyond the specific setting in which the studies were carried out. For example, caution needs to be exercised in generalising the results of studies conducted in the USA to a UK setting. In addition, although RCTs represent the 'gold standard' approach to minimising bias in results and so have high internal validity, they may lack external validity (i.e. relate to actual practice conditions) for economic evaluation if the conditions of the provision of health visiting services have been too highly controlled.[216]
- ***Comparability***: represents the extent to which results from the different studies can be compared, or 'pooled', maybe through the use of meta-analysis. This depends on considerations of scope and generalisability, but also on standardisation in the measurement of costs and outcomes. One of the aims of the recent guidelines on economic evaluations[218,219] is to improve their quality and comparability so that the relative cost-effectiveness of different interventions can be assessed. For health visiting services, it is important to know which types of health visiting services represent best value for money, and whether these services represent a more efficient and equitable use of resources than do alternative uses.

Of the different types of economic evaluation, a CBA from a society perspective is in theory the most thorough and useful for decision-making because all direct and indirect costs and benefits are quantified in monetary units. If well conducted this would enable a clear assessment of the value of a health visiting service (i.e. the amount by which the value of benefits exceeds the costs of the service – the net benefit or benefit to cost ratio). However, as it is difficult to quantify many of the benefits, the potential for undertaking a full CBA is limited. A restricted form of CBA is a cost analysis, whereby the costs of a service are set against estimated savings owing to reductions in other service use as a consequence.

A cost-effectiveness analysis is a frequently performed type of economic evaluation. This involves the selection of a single primary outcome measure for evaluating the health visiting service, such as reduced infant morbidity or improved parent quality of life score, and setting this against the costs of the service in a so-called cost-effectiveness ratio (i.e. costs per unit of outcome for the alternative service options). A particular limit to this

TABLE 31 *Study design and main results of health visitor economic evaluations*

Study	Economic objective plus interventions	Perspective	Economic evaluation technique	Study design	Costs plus savings	Outcomes	Main results
Brooten, *et al.*, 1986[45]	To assess whether it is safe and economical to discharge very low birth weight infants early, by providing infants home follow-up care by a nurse	healthcare provider	Cost analysis	RCT in USA hospital of infants (and mothers) with a birth weight < 1500 g receiving early hospital discharge and visiting service vs. usual hospital home care group (discharge at 2200 g) (39 infants per group) Study conducted 1982–84	Costs: Nurse time in home visits; telephone time and expenses; travel time and expenses; administration time Savings: Inpatient care charges; physician charges	Number of rehospitalisations; number of acute care visits; incidence of failure to thrive; reported child abuse; foster placements; scores on Bayley Scale of Infant Development	Mean cost of home follow-up care was $576 per infant. The difference in mean hospital/physician charge between the early discharge group and control was $17,420 per infant (statistically significant) There were no statistically significant differences for the main outcome measures
Hardy & Streett, 1989[47]	To assess the effect and cost of providing parenting and child care education in the home to inner-city mothers of poor infants receiving comprehensive health care in a large children and youth programme	healthcare provider	Cost analysis	RCT in USA of use of community health visitors (college educated black women who had previously lived in the community were given limited training) providing parenting education to mothers (aged 18+) of healthy black infants weighing 2000 g + (n = 131) vs. no home visiting intervention (n = 132) Study conducted 1983–85	Costs: Health visitor salaries; telephone, travel and administration costs Savings: Outpatient care costs; charges for inpatient care	Use of outpatient care; frequency of infant abuse and neglect; frequency of hospital admission	Total cost of the home visiting service was $60,000 Mean costs of inpatient/outpatient care $1301 vs. $1899 per child for health visiting vs. control group, respectively Total estimated savings of $85,862 owing to health visiting service Hospital admission outcomes statistically significantly lower, lower outpatient visits and abuse/neglect outcomes for health visiting group

continued

TABLE 31 contd *Study design and main results of health visitor economic evaluations*

Study	Economic objective plus interventions	Perspective	Economic evaluation technique	Study design	Costs plus savings	Outcomes	Main results
Olds, *et al.*, 1993[51]	To assess the net cost of a home visitor service by nurses for teenage, unmarried and low-income mothers, and infants for the first 2 years, designed to improve the outcome of pregnancy, the quality of care provided by women's own life skills development	Government expenditure	Cost analysis	RCT in USA of: (i) screening of infants (1–2 years old) by infant specialist for referral to specialist (n = 90); (ii) option (i) + free taxi transport for families to prenatal/well-child clinic (n = 94); (iii) option (ii) + nurse home visitor service during pregnancy (9 visits) (n = 100); (iv) option (iii) + nurse makes visits up to child's second birthday (n = 116) Options (i) and (ii) combined to be comparison group Main analysis consisted of the comparison group vs. option (iv) for the whole sample and for a low-income family subset Study conducted 1978–80	Costs: Direct costs of nurse visit (salaries, travel, supplies, overheads), other services, developmental problems and transport families to specialist services (third option) Savings: Reduced expenditure on Aid to Families and Dependent Children programme, Medicaid, food stamps, child protective services; tax revenues generated by women working – follow-up for a 4-year period (savings discounted at 3%)	Improved maternal and child functioning; increased employment hours by women taxicab service used to	After 4 years of follow-up the results from the main analysis was that option (iv) vs. comparison group (i + ii) had a net cost per family (expenditure minus savings) of $1582 for the whole sample and net savings of $180 per family for a low-income subsample
Archbold, *et al.*, 1995[120] Miller, *et al.*, 1996[153]	To assess the costs/savings of a system of home health nursing intervention ('PREP') which has been designed to increase the preparedness and competence of family members providing long-term care for frail elderly people	Medicare programme; healthcare provider (health maintenance organisation); family caregiver costs	Cost analysis	Quasi-experimental design (pilot study) in USA with families (at least 1 person aged over 65, needing daily assistance, and an identified family member caregiver) Assigned to a PREP group receiving assistance from 1 to 3 nurses for a 3–6-month period vs. standard home healthcare from the health maintenance organisation's home health agency (11 families in each) Follow-up for 12 months; follow-up period of 67–173 days per client, but actual dates of study not stated	Costs: Nursing services and related social services (salaries of personnel involved, supplies, travel, overheads); family caregiver costs; outpatient costs; durable medical equipment; medical supplies Savings: Use by elderly people of acute/emergency hospital care; other inpatient care; long-term institutional care	Caregiver role strain; rewards of care-giving; depression scales; Care Effectiveness Scale; acceptability of PREP system to families; use of hospital, plus emergency room services	Total costs for PREP were $71,342 vs. $113,354 for standard service over at 3-month follow-up, a net saving of $42,012 (not statistically significant difference) Regression analysis to control for non-equivalence between groups produced costs $5427 lower for PREP (not significant) Improved outcomes for the PREP group on the Care Effectiveness Scale and acceptability measures, but no statistically significant differences in role strain, rewards and depression scales

continued

TABLE 31 contd *Study design and main results of health visitor economic evaluations*

Study	Economic objective plus interventions	Perspective	Economic evaluation technique	Study design	Costs plus savings	Outcomes	Main results
Brown, 1992[129]	To assess the cost-effectiveness of health visitor screening of infants at the health centre/clinic, or home, for hearing loss	healthcare provider and parent	Cost-effectiveness analysis	Development of a cost-effectiveness model comparing a screening programme for infants aged 10 months, screened only if concern was expressed about their hearing vs. current policy of inviting all parents to bring child to clinic at 8–9 months for screening by health visitor + clinical medical officer vs. no screening Data was a cohort of 1990 children born between 1985 and 1986	Costs: Screening costs; salaries for personnel; parents' travel costs and time; development assessment costs; issue of checklist at development assessment ('clue list'); referral costs; audiology costs; treatment costs (these last 2 discounted at 5%)	Infants who are true/false negative and/or positive for hearing problems (defined as unit outputs)	Costs per unit output (i.e. per infant) were £20.57 for conventional screening, £11.13 to £11.23 for alternative screening policy, and £11.27 for no screening
Yanover, *et al.*, 1976[175]	To assess safety, 'economic feasibility', and acceptability of a family-centred perinatal care programme for low medical risk mothers and infants, including daily home visits by a perinatal nurse practitioner to provide health surveillance and to teach parentcraft	healthcare provider	Cost analysis	RCT in USA of low-risk mothers to traditional care vs. alternative family centred care programme (44 eligible patients per group) Study conducted in 1972	Costs: Salaries of nurse practitioner, paramedical personnel, medical consultants; travel expenses; home care supplies Savings: inpatient care costs for mother + baby (including food, linen, supplies, nursing care)	Postpartum hospital stay; morbidity; satisfaction with length of hospital stay	Estimated that costs of programme are offset by savings owing to reduced inpatient care costs from early discharge All outcomes were better for the family care group

technique is that only one type of outcome can be selected for each ratio, which constrains the generalisability of the evaluation. A specific form of cost-effectiveness analysis, the cost–utility analysis, attempts to overcome some of the problems of outcome selection by adopting a single wide-ranging benefit measure, the quality-adjusted life year (QALY). This is a measure of the utility or quality of individuals' remaining life years, which attempts to capture the most important dimensions of health-related quality of life in a single unit. Health visiting services could be evaluated in terms of their cost per QALY gains, although there has been much debate surrounding the practical and ethical difficulties of QALY measurement that has constrained their use.[220,221]

Results

All the economic evaluations reviewed in *Table 31,* with the exception of the screening programmes for infants involving health visitors,[129] produced economic results that were favourable to the health visiting service being evaluated. Brown[129] was the only study to conduct a cost-effectiveness analysis. All the other studies are most appropriately described as cost analyses, although Olds and colleagues[51] used the term cost–benefit analysis to describe their evaluation. In a limited sense this definition is also appropriate, but as the study adopts only a restricted perspective of Government savings it falls short of a full evaluation of monetary costs and benefits, and it is best described as a cost analysis.

Brown[129] constructed a decision model in a UK setting to compare the cost per infant of a range of options involving the use of a health visitor for screening infants (10 months or younger) for hearing loss. (More recent work on screening for hearing loss is discussed in chapter 6 in the section entitled 'Screening for hearing loss in the first year of life', page 224.) A decision model is a technique whereby the possible decisions and related outcomes associated with care programmes (in this case false- and true-positives and negative cases from alternative screening programmes) are mapped, and probabilities and costs are attached to each possible outcome. The data for the model can be derived from prospective or retrospective data collection, or from secondary sources such as a meta-analysis of published data. In the Brown study, data were obtained from a prospective cohort of children up to 8 months old born between 1985 and 1986. The cost-effectiveness of the alternatives was measured by comparing costs per infant, taking into account the effectiveness of the options in identifying true-positive and true-negative cases. In this study the conventional policy involved a health visitor inviting parents to bring their infants aged 8–9 years old for screening at the clinic (primarily) or at home. This 'population' approach was found to be less 'cost-effective' (i.e. had a higher cost per infant) than for a 'high-risk infant' screening option whereby a health visitor and colleague would screen infants at 10 months at the clinic only if concern about hearing is expressed at the infants' development assessment. An option involving a clinical medical officer and colleague produced a similar expected cost per infant. However, none of these options held much advantage in cost-effectiveness over a no-screening policy. Tests of statistically significant differences were not conducted.

The now rather dated study of Yanover and colleagues[175] based at a US medical centre concluded that the Family Centered Perinatal Care program (for low medical risk mothers and infants), of which home visits by a perinatal nurse to teach parentcraft and provide health surveillance was an important component, was "economically feasible, and highly acceptable to our patients". The authors stated that the costs of the programme were offset by savings due to reduced inpatient care costs from early mother and infant discharge. In addition, clinical morbidity indicators and satisfaction with length of hospital stay outcomes were better for parents receiving the programme.

Brooten and colleagues,[45] 10 years later, reported for a US hospital substantially lower inpatient and physician costs for parents and infants receiving a home visiting service. However, they found no statistically significant difference in outcomes (i.e. infant development scores, child abuse levels, failure to thrive levels, foster placements) relative to those not receiving this service. The home visiting service involved nurse home visits targeted at parents (specifically mothers rather than fathers) of low birth weight infants. This service involved initial contact during hospitalisation to promote the parents' interaction with the infant, followed by nurse home visits once the infant was discharged to coordinate care services, provide advice and check adequacy of the home facilities for the care of the infant.

The study of Hardy and Streett[47] reported net cost savings for a home visiting service provided as part of the Federally funded Comprehensive Child Care program based at the John Hopkins clinic in Baltimore, USA. This involved the provision of information on parenting and childcare skills to low-income black women with healthy infants by a middle aged, college-educated black woman (the 'health visitor') who had lived in the parents' community. The mother was visited in the first 3 months of the infants' life and followed up for at least 10 months. Educational calendars and advice booklets were distributed by the health visitor as part of the service. The cost savings were primarily achieved through lower utilisation of inpatient and outpatient care by the women compared with a control group who did not receive the service. Lower levels of infant abuse and neglect were also found compared with the control group. The differences in utilisation and infant abuse were statistically significant using Student t or χ^2 tests, but cost differences were not statistically tested.

Olds and colleagues[51] conducted a more substantial economic evaluation of the costs and benefits to the US Government of alternative health visiting services for mothers and their infants. The service they evaluated was targeted at teenage, unmarried and generally poor mothers living in a semi-rural location with their first child. Two services were evaluated: one with the infants visited nine times (once every 2 weeks for 1.25 hours) on discharge from hospital, and the alternative was visits initially every week but decreasing in frequency over a 2-year period. The visits consisted of parent education about infant development, advice on other family members' involvement in infant care and coordination of family members with related health services. Both services were compared with a programme of screening infants for sensory and development problems at 1 or 2 years of age followed by referral to specialists if necessary. At 48 months follow-up the reduced Government expenditure on health and welfare programmes did not offset the costs of the most expensive health visiting service (the 2-year follow-up) for the whole sample, but produced a net cost saving for mothers with a low income. The reduction in Government expenditure increased over time up to the 48-month study period (these savings were tested for statistical significance, with significant differences found for the low-income sample but not the whole sample at 48 months). In contrast, the nine-visit health visiting service did not produce substantial savings and had higher net costs over the whole time period.

The only economic study to assess the use of a health visiting service other than for infants was a pilot evaluation of a home health intervention (PREP) provided from a USA health maintenance organisation.[120,153] The service provided support for family members caring for frail elderly relatives. It involved a nurse making visits over a 3–6-month period to the family to assess and treat the health problems of the care receiver and associated problems faced by the caregiver, provide general medical advice, initiate a 'keep-in-touch' system to ensure the family would alert the nurse to further health problems, and help develop a long-term therapeutic relationship with the family. A cost analysis for a 3-month study period of the direct costs and cost consequences (i.e. hospital and institutional care costs) of clients of the PREP system compared with those receiving conventional home health services provided by a health maintenance organisation (not clearly specified) identified a substantially lower cost for the former. However, as this was a pilot study with only a small sample size the difference was not statistically significant. Similarly, better outcomes across a range of indicators were identified for the PREP patients, but differences were not statistically significant.

Evaluation criteria applied to review the economic studies

An overall assessment of the quality and policy usefulness of the economic studies included in *Table 31* can be made by reviewing them according to the scope, generalisability and comparability criteria introduced earlier.

Scope

The scope of the studies for a UK decision-making context was limited in that all with the exception of Brown[129] had a USA setting. Miller and colleagues,[153] focusing on elderly people and their family carers, was the only study to evaluate the use of health visitors for any client group other than parents and young infants. The objectives and types of intervention for each study programme for parents and infants were broadly similar, although Brooten and colleagues,[45] Hardy and Streett[47] and Olds and colleagues[51] focused on poorer, less well-educated parents. All the studies except

Brown[129] demonstrated favourable economic outcomes for the health visiting services evaluated. In most cases this was demonstrated through cost analyses, conducted from the health service provider perspective whereby only the hospital and health service savings (for the studies of Yanover and colleagues,[175] Brooten and colleagues[45] and Hardy and Streett[47]) or lower cost and cost consequences (for the study of Archbold and colleagues[120] and Miller and colleagues[153]) for the health visiting services were estimated. A more extensive cost analysis was undertaken by Olds and colleagues[51] from the perspective of government expenditures, covering a wide range of health and welfare costs. The results from this study demonstrated the economic benefits of the home visiting service for the lowest income subset of the study sample, so that it can be implied that a programme targeted at this group would be both financially advantageous to the public sector and have potential benefits in terms of equity. The study of Brown[129] demonstrated that the use of health visitors to screen infants for hearing loss had no economic advantage compared with a no screening policy, implying that their skills are not most efficiently utilised in this type of service. This study had the most comprehensive costing of the studies reviewed – it was closest to a societal perspective because a full set of health service costs and patient time and travel costs were included.

A full economic evaluation of a health visitor service for families, elderly clients and caregivers undertaken from the perspective of society includes the direct costs to health and social service providers, and costs of time and expense incurred by the service users, whilst the potential benefits cover reductions in health and social care costs, caregiver time and expense saved, and indirect benefits from the increased social and economic participation of the service users. As an example, a wide range of potential direct and indirect benefits associated with health visiting services for children from the perspectives of the children, parents and taxpayers/health and social care agencies (combined representing a society perspective) are illustrated in *Table 32* (which is derived from Barnett,[222] but none of the studies reviewed approached this level of detail).

As our literature search demonstrated, despite their potential usefulness for resource decision-making, no complete CBA (or cost–utility analysis) of health visiting services has been conducted. This may be due to the practical difficulties associated with such studies, whereas cost analyses are relatively simple to conduct. As a compromise, CBA could be used as a systematic framework for the economic evaluation of health visiting services through the explicit listing of costs and benefits that can not be quantified with sufficient precision. For example, in an evaluation of a health visiting service for children, quantification of as many of the benefits in *Table 32* should be undertaken, whilst other benefits can be listed with qualitative assessment of their relative importance.

Generalisability

The use of RCT study designs by four of the six studies in *Table 31*[45,47,51,175] improves their rigour by minimising bias and enabling the assessment of statistically significant differences in the outcomes and economic results (i.e. high internal validity). In all cases, the RCTs were pragmatic in design, so that whilst some internal validity is sacrificed, for example owing to a lack of blinding of service users and investigators, each had real practice relevance (i.e. high external validity) by evaluating costs and outcomes in actual practice settings. However, the use of a USA setting, with different health visiting service configurations and structures, limits somewhat the generalisability of these studies to UK or European contexts. However, whilst the actual size of cost savings may be different in the UK, at a more general level it is probable that a reduction in hospital stay is also possible for the UK.

The PREP service for elderly clients and caregivers[120,153] adopted a quasi-experimental study design, which involved allocating clients to the intervention service and a control group but without randomisation. This approach can be a practical and robust study design for health promotion interventions, including health visitor services, if it proves difficult for whatever reason to randomly allocate individuals to different groups.[216,223] However, as this study was a pilot and only involved a small sample of 11 families in each group it was not possible to interpret the robustness and generalisability of the quasi-experimental design chosen. Indeed, the authors stated that a sample of about 400 families would be needed to have sufficient power to detect a statistically significant difference in the main outcome indicators.

TABLE 32 *Outcomes for the economic evaluation of a health visiting service: potential benefits of health visiting services*

Child's perspective:
• Participation in home visits, which may be enjoyable, interesting and stimulating • Better relationships and interactions with parents • Improved health as a result of better care, reduced abuse and neglect, and fewer accidents, for example: – Reduced neonatal and infant mortality – Improved birth weight and gestation – Fewer birth complications – Improved nutritional status – Improved health status – Fewer injuries – Less disability and developmental delay – Fewer repeat hospitalisations and acute care visits – More regular access to primary healthcare services such as immunisations and health checks • Improved development (primarily cognitive but also social and emotional) as a result of health visiting activities and/or better parent–child interaction which, over time, results in increased educational success and greater social adjustment, for example: – Less disability and developmental delay – Better school attendance – Greater academic ability and achievement – Less need for special education – Less crime and delinquency – Increased educational attainment – Higher quality community participation and leisure – Better family relationships
Parent's perspective:
• Better relationships with and support from other family members, greater confidence in and satisfaction with parenting • Improved health as a result of better care, for example: – Fewer birth complications – Improved nutritional status – Improved health status/less illness • Increased education and training • Improved household management • Increased employment and earnings • Increased socio-economic status and self-sufficiency • Improved timing and spacing of births, possibly with reduction in the number of children
Perspective of government/taxpayers, health and social care providers:
• Reduced government expenditures (including administrative costs), for example: – healthcare – Education – Social Services – Welfare payments – Criminal system • Increased tax revenues • Decreased social problems, for example: – Poverty and economic inequality – Crime and delinquency – Teenage pregnancy and unwanted children – Child abuse and neglect • More competent and fully participatory fellow citizens
Source: derived from Table 2 of Barnett[222]

Finally, Brown[129] was the only study conducted in a UK context and the only one to use a modelling approach (using a technique known as decision analysis) to conduct the economic analysis. This represents a relatively inexpensive research design, which allows exploration of the costs and cost-effectiveness of alternative options, the importance of each cost item and outcome probabilities. It has been argued that a modelling approach could be used as a first step in the economic evaluation of a health technology to help plan cost-effective primary data collection in a subsequent RCT.[224] A contentious issue is whether results from modelling exercises such as that performed by Brown should directly inform decision-making, owing to the large amount of assumptions concerning the costs of screening and treatment, and secondary data used.

Comparability

Although four of the six studies reviewed above have used RCTs (seen as the gold standard for economic evaluations) and five have undertaken cost analyses, there are still limitations to the comparability of the study results. This is due to differences in the perspectives adopted and the range of costs and outcomes included. In all the studies the cost estimates are comprehensive and appear reliable according to the perspective adopted, although the (partial) use of provider charges in the study of Brooten and colleagues[45] is recognised as a weakness by the authors. In general, charges overestimate true costs in the USA.[225] Brooten and colleagues[45] state they only estimate savings in inpatient and physician utilisation using charges for these services, and estimate an actual cost for the health visiting service. Hence, in practice, any savings actually realised may not have been as large as they estimated. A potentially useful distinction in the cost consequences for the health visiting service for frail elderly people and their care-givers was made by Miller and colleagues.[153] This covered the 'costs offset', which included hospital, a long-term care institution, ambulance and pharmacy costs, and 'costs induced', which covered medical supplies, outpatient services and community social services. This approach differed to the other cost analyses, which only focused on cost savings. This could allow a full identification of savings related to the health visiting service (costs offset) and additional costs generated (costs induced). The latter costs could be desirable if they lead to an improved quality of care and health benefits for service users.

A further limitation on the comparability of the cost results was that only two studies[51,129] discounted future costs, despite this being relevant in the other studies. Discounting reflects individuals' and agencies' preferences to delay costs but to have immediate benefits. Therefore, a fundamental economic principle is that all costs and savings occurring in the future are given a lower present valuation than current costs and savings. Studies that do not discount future costs/savings will overestimate the true value of the costs of a health visitor service and, more likely, the potential savings it can accrue. Even if studies adopt discounting, the same discount rate might not be chosen. For example, Brown[129] in the UK used a discount rate of 5% per annum for future treatment costs incurred after infant screening for hearing loss, whilst Olds and colleagues[51] in the USA used a 3% discount rate for future savings in Government expenditures as a result of the health visiting service. This difference reflects usual variations in choice of discount rate between the UK and USA. To enable comparison the estimates would need to be recalculated using a standard discount rate.

In terms of outcomes, each study used a variety of measures to assess the effectiveness of the health visiting services, which limits an assessment of the relative cost-effectiveness of services across studies. Olds and colleagues[51] conducted a CBA and so did not estimate non-monetary outcomes. Excluding Brown,[129] all the other studies did not attempt to link directly the outcomes to the net costs (costs minus savings) of the programmes. If the same outcome measure is used across studies then a direct comparison of cost-effectiveness can be made by comparing programmes' net costs per unit of outcome. Using a common measure such as the Bayley Scale of Infant Development[180] (as in Brooten and colleagues[45]) or the Care Effectiveness Scale (as in Archbold and colleagues[120] and Miller and colleagues[153]) would improve direct comparability of the relative cost-effectiveness of the alternative health visiting services across studies. The standard measurement of parents' or caregivers' quality of life or a measure of self-esteem across studies would enhance comparability, although none of the studies evaluated such variables. In addition, comparability could be enhanced if costs and outcomes were at least explicitly listed and related to the perspective of the evaluation.

Conclusions on the cost-effectiveness of health visiting services

Only tentative conclusions can be reached concerning the cost-effectiveness of health visiting services based on this literature review. Overall, the USA studies all concluded that the health visiting services evaluated represented good value for money owing primarily to the healthcare (or Government expenditure) savings that could be obtained. Even the pilot study of Archbold and colleagues[120] and Miller and colleagues,[153] despite finding no statistically significant differences in costs and outcomes, concluded that the direction of difference in favour of the health visiting service warranted a larger scale evaluation to prove the cost-effectiveness of the service. The use of an RCT design in most of the studies enhances the reliability of these results. The modelling work of Brown[129] was also comprehensive.

Despite the positive findings, several limits in the study methodology outlined above constrain the usefulness of the study results for policy decisions. In summary, the main methodological problems are:

1. The limited scope of the studies, owing to the small number of studies identified and the USA context for five of the six reviewed.
2. The lack of a societal perspective in most studies. Only Brown,[129] to a limited extent, adopted the perspective of the patient/client in addition to that of the health service provider or service funder/purchaser.
3. The emphasis on limited cost analyses rather than full cost-effectiveness, cost–benefit or cost–utility evaluations.
4. The limited extent to which outcomes are linked to costs to enable judgement of the relative cost-effectiveness. No measurement of key outcomes such as quality of life or self-esteem.
5. Non-standard use of discounting.
6. Lack of use of sensitivity analysis. This is a standard technique in economic evaluations for assessing the robustness of study results to uncertainty regarding cost, outcome and discount rate estimates and assumptions. If an alternative feasible assumption regarding, for example, elements of the cost of the health visiting service alters conclusions on its relative cost-effectiveness, then the results lack robustness. Sensitivity analysis was not employed in any of the evaluations, so it is not clear how robust the main economic results were in each case.
7. Generally, limited comparability of the reviewed studies. Ideally this can be remedied by the production of common cost per unit of outcome estimates. In addition or failing this, using economic evaluation as a framework comparability can be aided by explicit listing of the costs and outcomes of the health visiting services being evaluated.

Overall, there are few economic evaluations of health visiting services, with most conducted in the USA so only limited conclusions can be drawn for the cost-effectiveness of such services in the UK. The cost analyses that have been conducted demonstrate the potential for health visiting services for children and families and for elderly patients and caregivers to produce net cost savings (in particular hospital cost savings). This outcome could also be hypothesised for the UK. It is necessary to assess this by conducting a more complete economic evaluation using an RCT design in a UK setting.

Part II

Chapter 6

A selective review of the British professional literature

Background to the health visiting professional literature

Introduction: the research brief

Our brief was to review the effectiveness and cost-effectiveness of home visiting by health visitors. This we have done in Part I of this report, focusing wherever possible on RCTs of home visiting. However, most of the literature that met our inclusion criteria (see chapter 3) comes from North America, predominantly the USA, which has a very different healthcare system and underlying philosophical approach to preventive healthcare compared with the UK. For this reason, we considered it necessary in Part II of this report to discuss selectively some further British studies that did not meet the inclusion criteria for Part I, and to explore further the underlying philosophy and goals of health visiting. Whilst our discussion of the British literature, and the issues that it raises, is inevitably more discursive than our review of controlled trials, we believe that the strength of our approach has enabled us both to evaluate appropriately designed studies rigorously and, at the same time, to explore some of the issues and debates that are of most interest and relevance to a British readership.

The historical context

For more than a century since its inception in Britain, health visiting and home visiting were virtually synonymous. The service of house to house surveillance established in 1867 by the Ladies Sanitary Reform Association in Salford, Manchester, employing a "respectable working woman" to go "from door to door among the poorer classes of the population to teach and to help them as the opportunity offered" is generally recognised as the direct antecedent of modern day health visiting.[226] The subsequent history of health visiting has been that whilst over time radical changes emerged in the accepted theories of child-rearing and child development, which health visitors were encouraged to convey, the methods whereby they were delivered and explained to individual mothers were almost entirely face-to-face and almost always in the home environment.[227] It is only in the past 25 years, with the rise in management philosophies, and emphasis on cost effectiveness, that the value of the health visitor home visit has come under systematic scrutiny. Resource constraints, and an explicit acknowledgement of the need to ration, mean that health visiting – like every other health service – has to demonstrate its benefits in order to justify its share of resources. However, the British literature on health visiting largely takes for granted home visiting as part of a service that also incorporates work in community health clinics and general practitioners' (GPs') surgeries. The British literature is descriptive of work in the community, which naturally crosses domestic and organisational boundaries, rather than of empirical studies designed to compare the value of the home visit with some other method of achieving the same objective. Hence, most of the British literature is ill-suited to answering contemporary questions about the effectiveness of home visiting, and it is for this reason that our main literature review (see Part I) has had to rely on overseas studies of effectiveness.

The policy context

The British literature must be viewed for what it tells us about the policy context of health visiting practice. In this respect, British health visiting can be seen as a lens through which to view the various tensions that have arisen, and still persist, in British health policy. These tensions include: the relative value placed on primary, as opposed to secondary and tertiary, preventive care; the value of universally provided services versus those that are targeted and specialist; high technology, acute institutional healthcare as opposed to GP and community health services; and the liberty of the individual versus the right of the state to intervene, particularly in families with young children. Health visiting tends to mirror these tensions because of its long history as a vehicle for conveying to families at an individual level institutionalised social norms and values concerning methods of child-rearing and family life. In this chapter, we attempt to draw out these wider policy implications of the British literature on health visitor home visiting. The section

entitled 'Health visiting and the uptake of services' (page 221) demonstrates how, during the past decade, wider policies for CHS (page 222) have impacted on health visitors' traditional role and function. That health visitors occasionally try to resist this normative function is evident in some of their own writing, especially when they feel that certain expectations of them are inappropriate for particular families within their care. But more often, the competing expectations placed on health visitors are conveyed indirectly in accounts of changes in service provision, and health visitors' responses to the conflicting expectations placed on them.

The wider policy context is crucially important in the papers written both by health visitors and by non-health visitor academics who have undertaken research into health visiting. These papers make a major contribution either to the theoretical analysis of the health visitor's role, or to unravelling some of the tensions that the health visitor experiences in day-to-day practice. The sections on health visitors' work with depressed mothers (page 210), child protection (page 213), childhood unintentional injuries (page 219), as well as CHS (page 222) contribute particularly to an understanding of how health visiting may be constrained by its policy context. The role conflicts currently experienced by health visitors in trying to meet the competing expectations of their own professional ethics and the expectations of a variety of agencies, from their own employers to society in general, are well illustrated in these papers. Of most concern is that there is no evidence that these papers have been followed up either by the commissioning of further research, or by policy action on the problems identified.

The content of the professional literature

The professional literature on health visitor home visiting differs in several important respects from the work considered in the systematic review sections of this study (see chapter 4). First, the professional literature is derived (with one exception taken from the Republic of Ireland) from UK sources, and addresses issues arising from the uniquely British context referred to above. Secondly, the professional literature is written mainly from the perspective of practitioners' direct experience with the processes of development and the delivery of services. Some of this literature 'opens the process black box' of how health visitors go about their work in a micro-context. In particular, in reviewing the 17 health visitor higher degree theses (page 226), one is struck by the wealth of detail that these contain on health visiting practice. In the context of these higher degree theses, it is remarkable that questions are still asked concerning 'What do health visitors do?'.

However, many professional accounts also take for granted that the reader understands what goes on in a health visiting/client encounter. The literature still contains too much that is poorly documented and understood concerning successful and unsuccessful health visiting. Apart from the health visitor theses, the professional literature is also more likely to be concerned with the health visiting of individuals or groups with special needs which the health visitor will try to meet not only through work undertaken in the home, but also in other settings and in collaboration with other workers. The three sections entitled 'Health visiting with individuals and groups with special needs', 'Health visiting and child protection, domestic violence and childhood injury' and 'Other aspects of the health visitor's domiciliary role' (pages 202, 213 and 226, respectively) are concerned entirely with issues related to health visiting and special needs. This literature rarely makes clear how health visiting involving secondary or tertiary prevention is prioritised within the health visitor's wider remit for primary prevention through the universal visiting of all families with preschool children. Health visitors might argue that it is through primary preventive visiting that secondary and tertiary needs are identified; however, this process is rarely made explicit in the professional literature.

A minority of the papers included in this review are written from the perspective of what more health visitors could do, either by extending their role (e.g. to include the elderly more systematically within their remit (see 'Homelessness and the elderly', page 204), or by being more focused or team-oriented (a frequent recommendation made in official inquiries into child abuse) in order to achieve greater effectiveness. Some of these exhortations to health visitors made predominantly during the 1980s seem to be unrealistic given the resource constraints to which the health visiting service has been subject increasingly during the 1990s, and given some of the moral and ethical dilemmas to which they have given rise.

In the accounts that follow it is apparent that health visitors' effectiveness in identifying and meeting health needs is crucially and inevitably linked to the wider community's willingness or ability to address the problems that health visitors identify (e.g. the homeless; see 'Health visiting with homeless families', page 203). If that willingness is absent then it is clear that the health visiting service can only achieve so much in the absence of wider policy initiatives. Reference in these accounts to the importance of support from, and links between, key voluntary and statutory agencies in developing services for special groups, or in their accepting referrals from health visitors, is notable. Also noticeable is how frequently these professional accounts refer to the existing framework of the law in facilitating or constraining families' access to healthy lifestyles, and to health and other services. The needs of particular groups within the community, for example of traveller families (see 'Health visiting with traveller families', page 202), or women subject to violence (see 'Health visitors and domestic violence', page 217) are cases in point.

Finally, the range of professional literature is vast and covers diverse subject areas. Identifying the boundaries of this literature is problematic in itself. In addition, it was felt that even had the resources allowed, carrying on endlessly would have added little to the general conclusions that can be drawn. As in qualitative research there comes a point in a review of this nature where no new analytic categories emerge and 'data saturation' is reached. The review of the professional literature is therefore necessarily selective.

Methods, inclusion criteria and points of procedure

The professional journal *Health Visitor* was hand-searched between 1982 and 1997. Reference lists and other sources were scanned and potentially relevant articles retrieved. PhD theses were identified through a search of the Index to Theses (www.theses.com) from 1980 to 1997. A selection of Masters degree theses was identified through personal contacts. Excluded literature, including higher degree theses, are listed in appendix 3.

Four points of procedure were observed when reviewing the professional literature. First, as has already been noted, not all of the literature specifies that health visitor interventions were necessarily carried out in the home. Examples would be the visiting of travellers on site, identifying need, and then arranging for some services (such as immunisation or family planning) to be taken directly to the group in need; or a specialist health visitor for children with special needs meeting a mother in a child development clinic, identifying a problem and then engaging in appropriate follow up; action that might include a home visit, or referral to the family's generic health visitor. However, the project's brief, together with the scale of the available literature, has meant that wherever possible the review has been confined to interventions that focus on home visiting. Nevertheless, this strategy raises a false dichotomy in assessing health visiting practice and inevitably excludes important related aspects of health visitors' work, for example in clinics involving a range of child health services such as developmental assessment and advice-giving for parents, educational and self-empowering work with groups, and in community development activities.

Secondly, it is assumed in the literature that we have reviewed that the rationale for the health visitor's role and interventions is based on the four principles of health visiting identified by the Council for the Education and Training of Health Visitors,[228] namely, that the health visitor's role involves:

- the search for health needs
- stimulation of the awareness of health needs
- influence on policies affecting health
- the facilitation of health-enhancing activities.

Agencies which assert that the health visitor should be undertaking other activities fail to identify the extent to which these would compromise the ethical basis for a role defined in the above terms (especially the voluntary nature of the health visitor's access to the home), and also the degree to which other workers hold the defined responsibility for other activities.

Thirdly, from our selection of papers from 1982 onwards, changes in health visiting practice over just 15 years are sometimes very evident. We have noted in passing where we have felt that these changes could be observed in papers written a decade or more apart. However, this is not a historical document and probably much more could be written from this perspective in a paper with a different purpose.

Finally, as this initial section has described, our major concern in conducting this review has

been to review not only the scope of domiciliary health visiting practice but also to identify some of the problems and policy issues, in addition to the benefits, to which it gives rise.

Health visiting with individuals and groups with special needs

Health visiting with traveller families

Health visiting has long been associated with the provision of services for traveller families, yet health visitors' work with travellers is an aspect of 'home visiting' that does not feature at all in the studies included in the systematic review (see chapter 4). A feature in the *Nursing Times* (1982) entitled 'On the road: reflections on travellers and their families' describes the traveller families' nomadic lifestyle in which access to regular medical attention and to schooling were seen to be two important, inter-related problems. Two initiatives are outlined in the feature. First, Patterson[229] describes issues concerning two groups of travellers in the Oxford area, the Romanies and Irish 'tinkers', from the educational perspective of a teacher in charge of a mobile school for travelling children. In a talk to nurses, paediatricians and medical students, Patterson pointed out how the bureaucratic, time-framed institutions of modern medical care were inappropriate for populations who were frequently illiterate, had no sense of time schedules, and yet, because of their living conditions, were greatly at risk of impaired health and, particularly for children, serious accidents.

In a related paper in the same issue, Self[230] describes the establishment, with the Save the Children Fund support, of a health visiting service for travelling families in the Great Yarmouth and Waveney Health District. The aim was to provide appropriate services consisting of full home health visiting with an identified key worker to the families during their summer stay in the area. In all, 27 families were visited over a 6-month period, although the majority stayed for only between 1 week and 3 months. A mobile clinic was provided on site where family planning, ante- and postnatal care, and preventive child health services were offered and taken up. A total of 19 immunisations were reported as given, 21 developmental assessments carried out, and three GPs who were prepared to provide medical support were enlisted. In addition, dietary and home safety advice was given, together with advice on the care of the sick and disabled children who were identified during visits. Support, requested by the health visitor key worker, from the local council in the provision of running water and rubbish disposal facilities had not at that time proved to be forthcoming. It was proposed that the health visiting service would continue to become available as and when the need was identified by the presence of travelling families in the area.

A similar specialist health visitor service established in 1980 with the Save the Children Fund support for travelling families in East London was reported in *Health Visitor* in 1983.[231] Working in her capacity as a multi-qualified nursing professional, Lawrie extended her role, with GP agreement, in order to provide appropriate interventions for need as and when identified. Here was a nurse practitioner operating in everything but name. A wide range of health needs was identified, including environmental hazards, and efforts to work inter-sectorally were reported. In the first year of contact 93 families were encountered. Following a case of poliomyelitis in a traveller child, 339 people were immunised on site within 4 days, and 82% of travellers known to be in the area were commenced courses or had booster doses.

A health visiting project with travellers in Walsall, also with the Save the Children Fund support, was reported in 1993.[232] The 9–10-year time interval between this initiative and the sets of papers referred to above demonstrates how far thinking had progressed on the provision of appropriate services for travellers in almost a decade. The title of 'The Partnership Project' reflects the objective of the Walsall project to focus on consumer-centred services, and success can be estimated by the report that the turnout for clinics was so high that young traveller women were taken on and trained by the Save the Children Fund to take an active role in the clinics as play workers. Illiteracy was again reported to be a major problem, but in this scheme an inter-authority health group had been established with traveller representation to look at ways in which appropriate health promotional material might be presented, for example using video material.

The Partnership Project in Walsall also involved alliances between teachers and health professionals, and work by both groups, particularly on the local authority permanent sites which had by then been established, was designed

to be mutually reinforcing of the services offered by each group. Services had also been broadened and included visits on site by dentists and chiropodists, and a women's group had been established at the clients' own request. In addition to meetings to discuss topics such as diet and appropriate nutrition, health and safety, and family planning, a local authority tutor was appointed to help with the women's self-perceived needs for literacy development. Helen Reynolds, the health visitor key worker, also referred to a crucial aspect of her role in educating and trying to reduce prejudice amongst other health professional groups so that travellers' needs would be met appropriately in other areas and situations such as attendance at GPs' surgeries and hospital accident and emergency departments.

In an associated paper in the same issue of the *Nursing Times*, Rose[233] reports on similar initiatives and service uptake in Dorset, again with the Save the Children Fund and Maternity Alliance support. Rose had written a book for Dorset Health Authority called *Romaneskona – Gypsy Way*, describing traditional gypsy attitudes to health, hygiene and healing. She points out that as a group, travellers' health status brought them within the range of targets outlined in 'The Health of the Nation',[234] but observes that the 'inverse care law' seems to apply, i.e. those in most need of healthcare are the least likely to receive it. Rose observes that the then proposed reform of the 1968 Caravan Sites Act was likely to result in travellers being denied access to safe, satisfactory, permanent and temporary stopping places, housing, education and health services.

That work with travellers continues to be of importance is highlighted in Anderson,[235] who reports on a study that compared the views of young traveller families living in rural and urban areas of Leicestershire with parents from two contrasting settled populations. The study highlights the continuing health and educational needs facing the groups of travellers in both rural and urban areas, in particular the management of common medical problems. There was an identified need for access to health information and healthcare. A frequent request from traveller families was for a nurse who they could trust and who would visit and talk with them. Following the study, a specialist health visitor was appointed to begin to address the low levels of uptake of health services amongst these populations.[107]

Health visiting with homeless families

In November 1986, *Health Visitor* published two accounts of health visiting with homeless families. Drennan and Stearn[236] reported on a national survey of health visitors' contacts with the homeless. Carried out by the Health Visitors' Association (HVA) and Shelter, 118 HVA centres throughout the UK were contacted, with a 51% response rate (61 replies). A total of 74% of responding centres had health visitors who were visiting homeless families in hotel accommodation. Health visitor/homeless contacts were widely spread across the whole country with the densest concentrations of homeless families in inner-city areas. Many centres with notable known numbers of homeless families (in central London and the south east of England) did not respond to the survey, thus excluding findings from some of the areas known to be worst affected. This study was unusual in covering the range of health needs found in this specific group of families as identified and reported by root and branch members of the HVA working across the UK. The following findings cannot therefore be attributed to a special project or specialist category of health worker.

Centres reported emotional and mental health needs identified amongst homeless adults as follows: stress, anxiety, postnatal depression, relationship breakdowns, anger, violence, feelings of inadequacy and hopelessness, and high numbers of attempted suicides. Amongst children, emotional and mental health needs were reported to include: depression, behavioural problems, poor sleep patterns, poor eating habits, over activity, bed wetting and soiling, extreme and frequent temper tantrums, difficulties with toilet training, and aggression. The effects of parents' emotional problems, under-stimulation, overcrowding and lack of play space were reported repeatedly to be affecting children's physical and emotional developmental progress.

A second area of reported need was the high incidence of infectious disease amongst homeless families. Overcrowding, the absence of hot water, and shared toilets and baths were all reported to be contributing to the high incidence of endemic diarrhoea and vomiting. Damp accommodation, together with long periods spent of necessity out of doors, resulted in a high incidence of upper respiratory disease amongst babies and children. Epidemic diseases such as measles, chicken pox, mumps and rubella, together with parasitic infestations

such as scabies, lice, fleas and bed bugs spread rapidly through families sharing bed and breakfast accommodation in the same hotel.

A third identified area of need was safety. Two-thirds of respondents reported the relatively high incidence of accidents to small children amongst the homeless. Frequently reported hazards included: unprotected gas and electric fires, worn flexes, unsafe stairs, kettles and gas rings on the floor, non-functional fire extinguishers, windows nailed down, and the absence of fire escapes. The situation was summed up by health visitors in Burnley as "Overcrowding in rooms, children sleeping in bedrooms with people known to smoke in bed, often ex-psychiatric patients".

A fourth area of concern was the level of malnutrition seen in adults and children because of their living conditions. The absence of cooking and refrigeration facilities in most hotels meant reliance on takeaway meals supplemented by illicit cooking. There was a lack of facilities to prepare milk feeds and a high incidence of low birth weight babies. Weight loss in adults was common.

Health visitors' attempts to provide a range of health visiting services were reported to be frustrated by the lack of notification of homeless families' placement in hotels by local authority housing departments. Families were often identified by chance. Drennan and Stearn[236] report on the establishment of a joint code of practice on standards and conditions in hotels between the London Boroughs Association and the Association of London Authorities. However, at the time of publication, there were clear discrepancies between authorities in terms of the code's implementation.

In the same issue of *Health Visitor*, Lovell[237] describes the setting up of a project in Bloomsbury in inner London in order to address issues similar to those described in Drennan and Stearn's survey.[236] She describes in detail the difficult experience of trying to establish a health visiting service for the homeless in an inner-city area. Lovell concludes that the overwhelming need for health and social policy initiatives to overcome some of the problems that individual health visitors alone cannot solve for homeless families, led her to become politically much more active. She cites a range of local authority, professional and voluntary agencies with which she became involved in order to influence policy, and suggests that the next step might be to leave the health field and step directly into the political arena.

Homelessness and the elderly: what more might be done by health visitors

Kelling,[238] who highlights the slightly different perspective of the older homeless person, suggests expansion of the health visitor's role with the homeless elderly. He refers to an Age Concern report[239] which estimated that 25–30% of the homeless population in London were aged over 50 years. Kelling argues that an increase in health visiting services could help to play a vital role in the prevention of such homelessness, which frequently results from deteriorating physical and mental health, or alcoholism. The loss of a home in the older person is often the result of a combination of factors including discharge from hospital in the absence of appropriate support services, difficulty with money management, and loss of interest in the upkeep of the home. Kelling proposes a package of care for older people including health visiting services in order to identify potential difficulties before they reach a crisis stage.

The contemporary relevance of professional accounts of health visiting and homelessness

Accounts of health visiting the homeless in the 1980s have a contemporary ring in 2000. Given the high incidence of emotional and mental ill health identified amongst homeless families, and the need for a range of health and social policy initiatives in order to produce effective outcomes, it is of concern that the latest projections for 'The global burden of disease'[240] estimate that by 2020 mental ill-health will contribute the second largest proportion of global morbidity. Yet mental ill health is a complex problem of bio-psychological and social origins for which no simple, medical 'magic bullet' exists or is likely to be found. It is a problem for the twenty-first century, which will require complex political and inter-agency preventive interventions, as well as ameliorative or remedial solutions.

Health visiting and poverty: working with vulnerable families

Blackburn's specific work on health visiting and poverty[241–243] has been influential in developing and recommending strategies for health visitors to use when working with families in poverty. Blackburn's analytical work reflects the best practice, which can be

observed in health visitors' accounts of their own work reported in the professional literature.

Blackburn observes that a two-way relationship exists between health visiting and poverty. First, because of their disproportionate experience of ill-health, the poor are heavy users of health services, including health visiting. Secondly, the nature of health visiting interventions influences how families experience poverty and poor health. She argues that the provision of flexible, responsive, non-stigmatising services can help families cope with, and avoid, the worst effects of poverty and that, at its best, health visiting challenges policy makers to develop strategies that reduce poverty. Direct strategies that Blackburn recommends include: putting poverty on the central agenda of health visiting; building team and inter-agency strategies for poverty alleviation; monitoring and reporting the impact of poverty on families; preventing and alleviating poverty through familiarity with benefit systems, low-cost purchase schemes and food cooperatives; reducing the isolation, stress and powerlessness of poverty by acting as a family advocate with other statutory and voluntary agencies; encouraging families to work together to overcome the forces that contribute to their poverty; and always working with families in non-stigmatising, sensitive and supportive ways.

Finally, Blackburn argues that health visitors must reflect on the political dimensions of poverty and work for social change in a variety of ways; in professional practice:

- through social comment in their own localities on the basis of findings from their professional practice
- through knowledge of the appropriate legislation and ensuring that health and social policies do not exacerbate family poverty
- through ensuring that policy-makers work to provide health and social resources for families in poverty
- through working effectively in local groups and transferring health visiting knowledge to families so that they themselves can challenge the social and economic causes of poverty

and as private citizens by:

- supporting and joining anti-poverty groups who work for the welfare of families
- supporting the anti-poverty strategies of professional organisations and trade unions
- using their capacity as voters to lobby Members of Parliament, local councillors and policy makers.

Health visitors' work in poverty profiling along the lines recommended by Blackburn has been reported in Nottingham,[244,245] the Isle of Wight,[246] Hillingdon[247] and Bristol.[248] The importance of considering poverty indicators in more general health needs assessment is reported in Bell.[249]

Health visiting and the elderly

A number of professional papers describe actual and potential health visiting services to the elderly. The majority reflects the approach of Brocklehurst,[250] a geriatrician, whose view was that health visitors have an important role with the elderly. Just as Kelling[238] of Age Concern argued a decade later for a preventive health programme to reduce the number of elderly becoming homeless, so Brocklehurst saw an important need for health visitors to engage in health education, the prevention of disability, and the identification of unreported illness among older people within general practice. He envisaged a health visitor service being provided on a routine basis for one half-day per week; calculating that if three older people were seen in an afternoon, then 150 surveillance interviews per annum would cover the population of over 75s in the average GP practice (a substantial underestimate for the demographics of the new millenium).

Regional and national surveys of health visiting practice with the elderly

Fitton,[251,252] a health visitor tutor, reported on a regional survey of 111 community nurse managers in 50 northern England health districts. The survey investigated (for the purpose of developing health visitor training) whether health visitors had a role with the elderly; what formal policies for this service existed, and by whom were they determined; what local practices existed; and who influenced the priority given to primary and secondary preventive care.

A response rate of 45 (90%) districts was achieved. Fitton found that over 90% of directors of nursing services respondents were of the opinion that the elderly were a part of the health visitor's remit. However, a laissez-faire attitude to policy was identified. It appeared that the majority of managers believed that it was up to health visitors themselves to engage in the search for health needs[228] and to collaborate

with other health workers in health surveillance. Despite their commitment in principle to health visitors working in health surveillance with the elderly, in practice the role was reported by managers of health visiting services to be almost invariably delegated. In all, 31% of health districts employed assistants to health visitors, 51% school nurses during the school holidays, 24% a 'public health staff nurse' and 8% 'public health enrolled nurses'. Lay workers were employed in two districts, and six other respondents specified voluntary agencies.

Paradoxically, despite the claims of delegation cited above, it was also claimed that in over 90% of districts, generalist health visitors visited the elderly themselves; 80% of respondents reported that health visitors were actively encouraged to do so, and in 66% of districts it was claimed that health visitors followed their own inclination as to whether or not visit. Visiting the same person by two or more different categories of worker is not of course mutually exclusive. Indeed, a worker undertaking delegated duties should report back any concerns so that the person delegating can follow up appropriately. If the health visitor led a team of assistants this would make eminent sense. However, Fitton's survey[251,252] provides little evidence that services were organised in this way, or of the systematic management of health visiting services for the elderly.

In 40% of the districts, a specialist health visitor for the elderly was employed, whilst those who did not employ such a worker saw little relevance for this service. Attachment of health visitors to geriatricians for 'liaison' purposes was reported in 57% of districts.

Fitton summarises these ambiguous responses by reflecting: "One wonders whether the mass of health visitors know that the ball for taking action regarding the adult and elderly populations was pushed into their court and left there without fanfare in 1974." (In 1974, local authority health services, including health visiting, were integrated for the first time into the reorganised NHS.)

Littlewood and Scott[253] reported on a national survey carried out in 1986 in order to determine the developments taking place in general practice involving district health authority-employed nurses in screening the elderly. (It is not clear to what extent such screening programmes involved home visiting.) Community nurse managers in all health districts or boards were sent two questionnaires (one each for district nurses and health visitors) requesting information on their staff's involvement in screening procedures with the elderly. Response rates were reported to be 73% for England and Wales, 87% in Scotland, and 100% in Northern Ireland, Guernsey, Jersey and the Isle of Man.

More health visitors were identified as carrying out screening (57%) than district nurses (41%). A total of 8% identified geriatric visitors and 8% clinic nurses involved in screening. The health visitor was most frequently identified as the key worker in screening programmes for the elderly.

Of the 147 positive responses to the question concerning staff, 116 (79%) mentioned the health visitor. Medical practitioners were mentioned by only 11 respondents, and then always as members of a team.

There appeared to be a positive relationship between the existence of formal policy or guidelines and the presence of a structured screening programme. There was also an association between the use of geriatric visitors and opportunistic screening programmes. Littlewood and Scott[253] conclude that, in the middle 1980s, community nurses were playing a considerable role in screening the elderly. However, it was not clear who was making the decisions on the kind of screening schedule being introduced, and why. They point to the then impending introduction of the GP contract under the terms of the 1990 NHS and Community Care Act[254] and conclude that a more detailed comparison of screening programmes in general practice would be of value. This would help to answer who was making the decisions to screen the elderly, and on what basis, whether any evaluation was being carried out, and the differential use of nurses' time in screening.

Local reports on the development of services for the elderly

Subsequent reports to Littlewood and Scott on the development of local screening or supportive services for the elderly include:

- a feasibility study of assessing the health needs of 572 elderly persons drawn from one group practice of seven GPs, three district nurses and four health visitors in a Wiltshire town[255]
- the development of an assessment tool for use (apparently) by either district nurse or health visitor in a GP's practice on a large housing estate in Glasgow[256]
- the delivery of an integrated package of health and social care to the elderly in

Upton on Severn by a social worker and health visitor, both of whom were attached to one GP practice[257]
- home health visiting 102 elderly people after discharge from geriatric wards of St Martin's Hospital, Bath, by a specialist health visitor.[258]

The first three papers[255–257] appear to have been written either in response to, or in anticipation of, the changes subsequent to the 1990 NHS and Community Care Act. The fourth[258] implies that the service was set up in order to offer a specialist liaison facility between geriatricians and community services for the elderly (whether or not as a result of the failure of prior existing liaison services is not stated). It is impossible to know whether the reported developments were sustained, evaluated or replicated beyond their local base. Papers on similar local initiatives prior to 1990[259–263] have little current relevance for assessing the effectiveness of health visitor home visiting for the elderly because they pre-date the introduction of the new GP contract and their historical assertions of success based on small samples are untestable.

Health visiting services for ethnic minority elderly people

One paper on health visiting services for ethnic minority elderly people was identified,[264] which, like Kelling,[238] asserts what health visitors should provide for ethnic minority elders rather than evaluating what is provided. Nevertheless, Darby identified many potential health needs amongst this diverse group of elderly persons for which there appeared to be little evidence of provision. A recent paper[265] describes the appointment in one part of London of a specialist health visitor with special responsibility for South Asian elders, bringing her skills to their own settings and respecting their traditions. Other services included the continuity of interpreter services, and a consultant physician willing to carry out specialist medical assessments. A review of the health visitor's first 100 clients quantified the unmet needs that the service had revealed and assessed the value of the procedures employed.

From this review of the professional literature on health visiting and the elderly it is apparent that Littlewood and Scott's[253] identification of the need for further research on the assessment of screening, and other preventive and supportive health services for the elderly, is reinforced by the current absence of evidence.

Health visiting for families with children with special needs

Generic health visitors' caseloads have always included a smaller number of families with members with special needs. Traditionally, these have been children with a variety of diseases, and/or physical and/or mental disability living in a geographical 'patch' or on a GP's caseload. Individual health visitors in regular contact with a child with a particular condition could become quite expert over time in all aspects of the child's management, and would frequently become an invaluable support to the parents, as well as a resource for her peers.[266] With the routinisation of attachment to general practice has come some formalisation of this previously ad hoc process, together with the opportunity for health visitors with particular expertise, or interests, to specialise as the member of the primary healthcare team. Within a health district, where the number of similar cases has been relatively high, or a geographical population has been sufficiently concentrated to merit the cost of an appointment, specialist health visitors may have been appointed on a district-wide basis for a range of conditions, or for particular services, sometimes with a team of nursery nurses for support.[267] This appears to be the situation in some health districts that provide child development teams (CDTs).

Health visitors as members of CDTs

A study in 1990 of services for children with disabilities, found that half of the 12 CDTs surveyed included a health visitor.[268] There does not appear to be a more recent figure, or one giving a national dimension. Nevertheless, this study is of particular note because neither of the authors is a health visitor. Evaluation of the service showed that parental responses frequently referred to the specialist health visitor in the CDT as the main source of help, as well as to health visitors and GPs in the families' primary healthcare teams. It was notable that parents in CDTs without a specialist health visitor (or nurse) commented on the absence of adequate support and counselling. These parents turned instead to other workers whose services were already seriously over-stretched (particularly therapists) or to preschool teachers or nursery nurses whose knowledge of health problems and contact with paediatricians was limited. Yerbury and Thomas observe that direct services to parents of children with disabilities provided by CDTs without health visitors were seen to be seriously impoverished. The most frequently cited reason for the absence of a health visitor was the refusal of professional

line managers to provide health visiting support for the CDT.

The HVA special interest group for health visitors working with children with special needs

Sadler[269] reports on the establishment of an HVA special interest group of specialist health visitors working with children with special needs. As well as providing valuable peer support, this group could become the source of much needed information on services for children with a diversity of special needs. Sadler observes that health visitors working specifically with children with special needs tend to work in very different ways across the regions. Little is known nationally of these ways of working, nor how the services are organised, the variety of conditions with which health visitors become involved, the family needs which they identify, or their own needs for professional education and updating.

One member of the group, Ann Gatford, commented in Sadler[269] that at one time in the early 1990s the health visitors' role with special needs children had appeared to be under threat. However, recent resource constraints in other areas of community services had resulted in many health visitors being appointed as key workers with special needs children.

The conditions with which children with special needs present are diverse, from a primary condition such as visual handicap, autism, or Down's syndrome, to the many associated secondary symptoms such as feeding, sleep and behavioural problems. The triad of support between the health visitor, affected child, and other members of the family has never been fully evaluated. There is an urgent need in future for systematic studies of this work, which is reported to be so highly valued by many of the affected members of the community.

Health visiting services and the prevention of sudden infant death syndrome (SIDS)*

The relationship between health visiting and infant mortality was the subject of considerable debate and at least one controlled trial (with apparently promising results) by some medical officers of health in the early years of the twentieth century (see Robinson: 36[227]). Research conducted in Sheffield in the 1970s provided the first apparently firm evidence of a positive relationship between health visiting interventions and improved infant mortality rates. In Sheffield, the isolation of variables by which infants at high risk of post-neonatal death could be identified led to a controlled study in which an intervention group of high-risk infants, born in 1973 and 1974, was followed up by specialist child health visitors working directly with a paediatrician.[270] In the intervention group, 3.2% of infants died unexpectedly compared with 9.8% in the high-risk group receiving no special care and 14.3% of a further high-risk group whose mothers declined to participate. Only 1.6% of the low-risk group met with unexpected death. It is assumed that this specialist intervention worked at a number of levels (social support and education), but particularly through the availability to parents by regular home visiting of a health visitor skilled in identifying a child at risk of life-threatening disease, and with the resources to ensure an immediate referral.

At an earlier stage in the Sheffield study, Protestos[271] found that the single most powerful indicator for identifying children at high risk of sudden infant death was whether mothers kept a clinical appointment given to them on discharge from hospital: only 44% of high-risk mothers kept the appointment compared with 86% of controls. Emery[272] pointed to this evidence when urging caution in the interpretation of data taken from infants attending normal follow-up clinics because their mothers are a self-selecting population who actively cooperate with service providers.

The 1970 Department of Health and Social Security confidential enquiry into post-neonatal deaths[273] and McWeeney and Emery[274] both found that avoidable factors contributing to sudden infant death included: parental inability to recognise severe symptoms; the amount of drive and persistence needed to obtain the services of a GP; and the failure of some GPs to recognise a severely ill child. It may be inferred therefore on the basis of this evidence that the

* Paragraphs in this section contain material first published in: Robinson, J. An evaluation of health visiting. London: Council for the Education and Training of Health Visitors/English National Board for Nursing, Midwifery and Health Visiting, 1982: 37. At the time that the research for this study was carried out (late 1970s), risk registers for infants at risk of SIDS had considerable support. As with other risk registers, subsequent research cast considerable doubt on the validity of this assumption.

'at-risk' population failed (for whatever reasons) to utilise child health services appropriately, and that health visitors working with the intervention group in the Sheffield studies succeeded in reducing infant mortality by virtue of 'reaching the unreachable' through home visiting with extra surveillance and/or support.[270,275]

At-risk registers. The idea of the infant 'at risk of sudden infant death' was incorporated into policy on the use of at risk registers when succeeding findings from the same series[270,275,276] were taken in the 1970s and early 1980s as a basis for changing health visiting practice. Infants identified *a priori* by means of a scoring system were recommended, in those health authorities where the system was implemented, to receive intensive health visiting.

At-risk registers for infants, in general, had, however, been introduced in some health authorities in the 1960s as a means of identifying infants who might be prone, for a variety of reasons, to developmental delay or predisposition to disease. These general 'at-risk' registers had become the subject of criticism before the Sheffield studies were begun, when it was found that they were not sufficiently discriminating and a large proportion of infants who proved subsequently to be at low risk tended to be placed on them.[277–279] Madeley,[280] Madeley and Latham,[281] and Madeley and colleagues[282] later subjected at-risk registers for sudden infant death to similar scrutiny and criticism, and gradually the idea of at-risk registers for infants was quietly dropped in many areas. Universal visiting of all infants by health visitors who then identified infants 'at risk' on the basis of individual home visits and in need of more intensive visiting was reinstated unofficially as the ideal, if not always the reality. As child mortality rates in general fell, some unexplained infant deaths remained and some areas still reported using at-risk surveillance systems in the middle 1980s.[283,284]

The historical period in which these local policy shifts in respect of sudden infant death took place was also the time (late 1970s and early 1980s) of the rise in child protection registers for children at risk of abuse (see the section entitled 'Theoretical and ethical perspectives on health visitors' work with child abuse', page 214). No research has been identified which has compared the legitimation of this historical concern for these different aspects of childcare and their incorporation into local and/or national policy directives. More recently, Appleton,[285] in a national review of guidelines for prioritising families who need increased health visitor support, identifies how difficult it is to predict and target needs using checklists. Yet she observes that there is continued management and purchaser pressure for such systems to be incorporated into contracts and service specifications. Even an invalid checklist may be preferred to professional judgement (see also chapter 9).

New research evidence in the 1990s. More recent research has focused less on vulnerable families' access to child health services and instead has highlighted specific features in an infant's contemporary environment which predispose to risk of sudden death (or 'cot death'); for example, sleeping prone, over-wrapping and over-heating, parents' smoking behaviour, and lack of propensity to breastfeed. It is this more recent research that has required health visitors to change their advice to parents in the routine management of their infant.[286–289] Scott and colleagues[290] reported evidence of this change, correlating a decline in infant deaths in Fife between 1990 and June 1992 with the percentage of health visitors reporting changes in their advice-giving over the same period. Scott and colleagues also report the factors that the health visitors claimed had led to a change in their advice-giving. They caution that the circumstances which she reports warrant more detailed study. However, it appears that the most influential source of information as a basis for changing practice and as reported by the health visitors themselves, came from reading professional journals, which published research findings such as those referred to above.

Health visiting to families following a sudden infant death

Evidence for improving health visitor support, over time, for parents following a sudden infant death can be identified from two sources. Watson and Dimond[291] report on a sequence of studies from the 1970s to 1987 on the sources of support for parents after a cot death. The health visitor ratings for the most helpful source of support rose in 1985–87 to 45% from 35% in the 1970s (other sources of support included GPs and ministers of religion). Watson and Dimond observe that this rise was gratifying, and that the later survey showed that health visitors were, for the most part, becoming increasingly skilled at supporting bereaved parents.

In an extensive study related to the Care Of the Next Infant project, Waite[292] and McKenzie and Waite[293] report on the first 2000 babies to receive a very specific health visiting intervention in a project established in 1988 with the support of the Foundation for the Study of Infant Deaths to help parents manage the consequences of caring for the next infant born following a cot death. A range of home visiting services is offered: listening; symptom diaries; weighing at home weekly or daily; apnoea monitors; and thermometers. The service was reported in 1993 to be operating in 77% of community health service trusts in England, Wales and the Channel Islands, and had provided care to 2000 babies. A total of 1271 (64%) of parents responded to a questionnaire from which it was established that a weekly home health visitor visit was requested by 97% of parents. Overall, the families received the equivalent of a home visit every 8 days. The first visit usually took place when the baby was 2 weeks old, and 55% of the babies were visited for at least a further 20 weeks. The most helpful features of the visits were that the health visitor listened to the parents, went through the symptom diaries with them, and gave advice on childcare. In all, 10% of health visitors were unable to visit weekly, either through pressure of work or parental non-compliance. A total of 4% of parents did not find that the health visitor helped them at all, 2% found the weekly visit too frequent, and 2% not frequent enough. McKenzie and Waite conclude that health visitors have a prime role in the management of children born to parents after a cot death. They claim that of "all the health professionals, the health visitor is uniquely placed in being able to offer home visits, an 'educated ear', reassurance and guidance on parenting." A further paper from Plymouth[294] reports on a local application of the wider Care Of the Next Infant project.

Health visiting interventions for mothers with postnatal depression

Three studies modelled on the Holden and colleagues' controlled study[54] of the effectiveness of health visitor counselling of women with postnatal depression are reported.[295–297] The study by Holden and colleagues[54] is included in the systematic review section (see chapter 4, the section entitled 'Mothers' psychological health and self-esteem', page 42); however, in order to compare the studies reported here, a few comments on the methodology are appropriate. Holden and colleagues[54] screened 734 women using the EPDS about 6 weeks after delivery. Those women with a score above 12/13 were then interviewed at home by a psychiatrist using the Goldberg's standardised psychiatric interview and a repeat use of the EPDS about 12 weeks after delivery. A total of 60 women were then found to be depressed using the research diagnostic criteria. Of these, 26 women (treatment group) received a mean of 8.8 weekly counselling visits from their health visitor who had been trained in Rogerian non-directive counselling methods; 24 (controls) presumably received normal services, although this is not stated. According to the research diagnostic criteria, 69% of the 26 depressed women receiving the intervention showed no evidence of depressive illness 13 weeks after the first psychiatric interview compared with 38% of the 24 women in the control group, a statistically significant result ($p < 0.03$).

Taylor,[295] Cullinan[296] and Painter[297] all refer to the use of the EPDS as a means of identifying the mother's mental health state. However, in the rather variable reporting of these studies, the timing and method of administration of the EPDS questionnaire appeared to vary. In general, it would appear that screening the mothers by filling in the EPDS questionnaire with a health visitor, and then discussing their mood state, was regarded as beneficial in its own right. In other words, it would appear from these three studies that the EPDS was being used as a framework for a therapeutic intervention rather than primarily as a diagnostic tool. Indeed, Painter refers particularly to the benefits of the structure for health visiting which completing the questionnaire provides.

There is no reason to believe that this method of administration of EPDS could not produce a therapeutic benefit; indeed, Holden and colleagues[54] refer in the original paper to a study which showed that a single interview can help 'untreated' clients.[298] It is important to note, however, that there is little reference in any of the three papers to the nature of the counselling intervention that the health visitors used.

Yet in a report on the effectiveness of counselling in general practice using a variety of workers, Corney[299] refers particularly to the Holden study[54] and the training in Rogerian counselling which the health visitors received. Corney and colleagues do not view this training as exceptional because she concludes that "the study using health visitors who received **minimal** [our emphasis] counselling

training suggests that counsellors should not be too elitist in suggesting that only they can conduct counselling in general practice." Corney continues: "Ashurst[300] recorded her suspicion that the method employed by the counsellor was far less important than the relationship which developed between counsellor and client."

Truax and Carkhuff[301] made a similar observation on the importance of the relationship between counsellor and client in their extensive study of the characteristics of effectiveness in counselling and psychotherapy. Our own review of health visitors' research for higher degree theses (appendix 5) on the nature of their relationships with mothers shows, however, that health visiting 'counselling' is not necessarily always effective. What appears to work for the client is where the health visitor is neither controlling nor judgemental in her approach but instead allows the mother to set her own agenda according to her current and unique concerns. Health visitors in some of the theses we reviewed did not always allow mothers to respond according to their own immediate concerns but, instead, concentrated on pursuing their own predetermined agenda. More study is clearly required on what 'works' at the micro-level of the health visitor–client interaction, and the contribution which a variety of factors such as managerial pressures, specialist training and individual characteristics in both clients and health visitors may make to the health visitor's effectiveness. It is therefore unsatisfactory to read that Taylor,[295] Cullinan[296] and Painter[297] claim to replicate the Holden and colleagues' study,[54] but which do not specify how the health visitor worked in the counselling intervention being offered.

The above papers all refer to health visitors' work with mothers with postnatal depression which, since the early 1990s, have focused on the identification and individual treatment interventions within the health visitor's remit. In practice, this has usually meant 'how much medical work on depression can be delegated to health visitors?'. An earlier PhD thesis,[302] however, and a related publication,[303] challenges this view of health visiting with new mothers. Hennessy suggests that her study identified that postnatal depression was a major community problem and that health visitors' work in this area was limited and controlled by past and current political issues, policies, societal structures and values. She argues that contemporary attitudes to mothering, removal from supportive nuclear families, and pressures derived from societal expectations all contribute to maternal lack of self-confidence, depression and exhaustion. Hennessy argues that health visitors do have a supportive role to play not only in holistic care with new mothers, but also in emancipatory work in challenging communities to provide adequate emotional and social support to young families. However, Hennessy believes that in an era of GP attachment and the increasing 'medicalisation' of social problems, this aspect of the health visitors' role is devalued and not counted as 'proper' work unless it can be given a medical diagnostic label. Therefore, work in this area of primary prevention is not recognised and supported by health visitor managers.

It is perhaps a major irony that the paper considered most scientifically 'rigorous' in this group, that by Holden and colleagues,[54] falls exactly into this medical diagnostic category and, yet, the anecdotal evidence quoted by Holden and colleagues lends support to the informal ways in which health visitors can work successfully:

> "If someone had told me that a professional could come every week and let me talk for half an hour, and that I would end up a healed person, I wouldn't have believed it. It sounds like nonsense, but it's true."
>
> "... I could get everything into the open with her, and after a few weeks I really felt I was getting rid of the depression: it was actually coming away from me."
>
> "Talking to the health visitor saved my marriage definitely. I had reached the stage where I couldn't have cared less if he had walked out of the door."
>
> (Holden and colleagues[54])

In an era where depression is predicted to constitute the largest global burden of disease by the year 2020[240] it is perhaps salutory to consider the benefits that can come from this non-directive and supportive way of working, but at the same time recognise the need to deal with the problems and the pitfalls of the evaluation of such a service.

Home visiting by community mothers

Two papers report on an extension of the CDP developed at the University of Bristol,[304] using trained, experienced community mothers who extended the work of either public health and family development nurses (Republic of Ireland), or of health visitors (Essex, England) to disadvantaged mothers.

Fitzpatrick and colleagues[305] describe a prospective study in the Dublin area, Republic of Ireland, of 39 traveller mother/infant pairs compared with intervention and control mother/infant pairs taken from a previous RCT of community mothers working with settled mothers[62] (see also see chapters 4 and 7). All of the mothers received standard community nursing support (visits at birth, 6 weeks and other times, as required, by the public health nurse); traveller and RCT intervention groups also received the services of a community mother. The exact nature of the intervention by the 'experienced' community mothers is not described although, on volunteering to visit traveller mothers over an 18-month period, they were given "additional training to heighten their awareness of and sensitivity to the needs of traveller parents". How they then worked, either in terms of taking decisions to visit (presumably on an opportunistic basis given difficulties with the location of the families), or at the micro-level of interaction, is not clear. Traveller mothers received significantly fewer visits from the community mothers (mean 8.9) during the course of the programme than the RCT intervention mothers (mean 9.5; $p < 0.05$); 11 (28.2%) traveller mothers received at least ten visits compared with 82 (64.6%) of the RCT intervention group ($p < 0.001$).

While all mothers in the original RCT study were first-time mothers, some traveller mothers had more than one child. The travellers' socio-demographic profile also differed significantly from that of the other groups. At the end of the study, traveller and intervention children were exposed to more cognitive games and nursery rhymes. Traveller childrens' diet surpassed that of the RCT controls, except for fruit; they were also less likely to begin on cows' milk before 26 weeks of age. Traveller and RCT intervention mothers were less likely to feel tired or miserable and want to stay indoors than RCT control mothers were. However, there were significant differences in the proportions of children who received their primary immunisation programme before 12 months of age, with traveller children (56.4%) doing less well than the RCT controls (63.8%) and RCT intervention group (85.0%); $p < 0.001$ (see also pages 25, 32, 42 and 46). Fitzpatrick and colleagues conclude that the results of the community mothers' programme in the travelling community were encouraging, although immunisation uptake remains a challenge. In all, 95% of the traveller mothers were reported to look favourably on this programme. There is no reference to any incentives offered to the community mothers (e.g. remuneration, expenses for travel, or their own children's care) or of the costs and/or benefits which they themselves perceived.

Suppiah[306] describes a project in Essex where the Bristol CDP was implemented in one of its more disadvantaged areas with community mothers working in partnership with the family health visitors. Suppiah states that by "formally acknowledging the skills of local mothers, health visitors can draw attention to the undervalued caring role of women as being implicit to the well-being of society".

A process evaluation approach was used, focusing on the changes and adjustments made as the project proceeded over a 6-month period. Amongst the themes to emerge from the evaluation was, first, facilitating empowerment by building on the parents' self-confidence and developing their potential. In providing social support, care was taken to balance friendship and objectivity, giving non-directive information and encouraging parents to take their own decisions.

The second theme was bridging the client/professional gap. Community mothers were reported to help to clarify the role of the health visitor as not being someone who had the powers to remove the children and to act as a 'go between' for mothers who were sometimes too nervous to ask for advice. CDP material was used during the community mothers' visits to families to cover every area of parenting and to improve local preventive healthcare. The community mother acted as a friend and confidante who was perceived by the mothers that she visited to have credibility and relevant insight. An informal agreement regarding the boundaries of responsibility was negotiated in the form of a community mothers' charter, and a confidentiality form was signed.

Finally, the costs and benefits of the initiative were assessed. The majority of health visitors reported experiencing no difficulties in identifying families who could benefit from the community mothers' support, and described a sense of shared endeavour and increased job satisfaction. Only one health visitor reported difficulties and that the process was 'time consuming'. The benefits for the community mothers are described in terms of their reported satisfaction with feelings of self worth and

growth through helping others, and of making a positive contribution to their own community. As with the Fitzpatrick and colleagues' study,[305] no other incentives are described.

It appears from the two initiatives described, that using a community development approach to facilitate and improve the health and well-being of very disadvantaged mothers and their families holds considerable potential for health visitors to work increasingly in these ways. Nevertheless, the potential for the exploitation of unpaid women's labour is a real possibility and there is no evidence that this aspect was researched in either study. At its extreme, the use of community mothers could be interpreted as demonstrating that delivering preventive health-care to families in the community is a matter that does not require prolonged training or expensive staff. This, in itself, may be viewed in terms of the devaluing of 'women's work' as not worthy of appropriate education and remuneration, a view to which nursing is particularly susceptible as an occupation[307] (see also chapter 7).

Health visiting and child protection, domestic violence and childhood injury

Health visitors and child protection

'Hard' evidence on health visitors' work with child abuse

Despite anecdotal reports of the often disproportionate amount of time given to health visitors' child protection work, the frequent criticism of professional workers when a child dies or is severely injured, and the rigorous collation by the former Department of Health and Social Security of published reports on child abuse inquiries,[308] the British health visiting professional literature contains remarkably little in terms of research or 'hard facts' concerning health visitors' work in child protection (see chapter 4, 'The prevention of child abuse and neglect', page 40). The small amount that does exist contains very little on the detail of how health visitors work either when confronted with a suspected case of abuse, or in the subsequent referral and management of relations with the family. It appears that we have to rely, for 'insider' accounts of health visiting, almost solely on the evidence seen through the lens of official inquiries set up after a child has died, and when practice on the part of many professionals is frequently deemed to have been unsatisfactory.[309,310] Three papers originating from the 1980s, which together refute the idea that professional incompetence is a major feature of child abuse work, are discussed in the final part of this section under the heading 'theoretical and ethical perspectives on health visitors' work with child abuse'. The most disappointing observation on reading these somewhat dated papers is the lack of evidence that further research has been commissioned, which could have built on these important earlier findings.

One survey carried out in Lewisham and North Southwark Health Authority by Gilardi,[311] a senior nurse manager/health visiting, provides limited factual evidence of health visitors' actual experience of contacts with child abuse cases. Gilardi's study relates to a health authority with substantial social deprivation, ranking sixteenth out of 191 health authorities in England and Wales on the Jarman Score for social deprivation.[312] The names of 600 children were on the child protection register, approximately 2.7% of the under 5 child population. (Dingwall,[313] discussed below, estimated at that time that 0.04% of children nationally were involved in care proceedings in any one year.)

Responses to a questionnaire sent by Gilardi to all 93 health visitors in the health authority were received from 75 (80.6%). Of these, all but two newly qualified health visitors had been directly involved in at least one case of child abuse. Over 70% of health visitors reported being involved in five or more cases, and 24% reported being involved in 20 cases or more.

Over 42% of health visitors reported being the first professional to suspect abuse in a total of 112 cases and 60% of health visitors had been involved in at least one case of sexual abuse. All but one health visitor had attended a case conference, and 40% had been involved in preparation for court proceedings.

The extent to which health visitors nationally may be involved in child abuse cases can be extrapolated to a limited extent from Gilardi's data. At the time of the survey, Lewisham and North Southwark Health Authority came within the bottom decile for social deprivation on Jarman's scale. If the bottom quartile (25% or 48) of health authorities represents the most disadvantaged in England and Wales, and if the health visitors in Gilardi's survey were reasonably representative of their peers working in deprived communities, it may be hypothesised that a figure of approximately

864 health visitors working in 48 health authorities could have been expected to have been involved with 20 or more cases of child abuse at any one time. Of course, this figure is speculative. The absence of any substantive research on health visitors' workload in child abuse commissioned by any statutory agency in the UK can only be noted.

'Soft' evidence on health visitors' work with child abuse

Descriptive papers can be identified that describe the following aspects of child abuse:

- the management of child protection services in community nursing[314]
- developing inter-agency work[315] and inter-professional relations in child protection work[316]
- health visitors' attitudes to sexual abuse[317]
- ways of identifying and working with victims of sexual abuse[318]
- concern that child protection duties result in 'blaming' families[319]
- concern that crisis intervention takes over from 'real' health visiting work in routine care[320]
- the stress experienced by health visitors associated with dealing with actual and borderline cases of child abuse.[321]

A paper which suggests that the Scottish legal system deals more sensitively than the English does with child protection cases[322] supports the contention made in several papers that routine health visiting has a crucial part to play in child protection.[323] Devlin[322] argues that individual work with clients in their own homes provides a skilled assessment of how a child functions in its own environment, and that a trusting and open relationship between health visitors and their clients may be instrumental in preventing a family from coming to the attention of the Scottish hearing system in the first place. Regrettably, like so many other accounts of health visiting, this view, however plausible from a professional point of view, is based on opinion rather than evidence.

Theoretical and ethical perspectives on health visitors' work with child abuse

Three papers from the 1980s discuss health visitors' approaches to families where child abuse may be suspected, from theoretical, moral and ethical perspectives.

First, Dingwall,[313] on the basis of an observational study, observes that both social workers and health visitors operate with certain ideals of family life which are tailored to the kind of clients they are dealing with. Dingwall argues that professional workers attach little importance to the legal basis of the relationships between adults and children in a household. Instead, these relationships seem to be evaluated by standards that embody 'traditional' family values – secure, stable, sexually exclusive, internally harmonious, responsible and law abiding. Parents who do not conform to these implicit standards may be morally discredited and defined as capable of mistreating their children. Dingwall estimates, however, that if all the parents who failed to meet these exacting standards were to be referred as being in need of help as potential child abusers, referral rates would soar. Therefore, health visitors and social workers control the numbers of parents who become defined as 'deviant' (my expression) by working to a fundamental assumption that Dingwall and his associates label "the rule of optimism".[313] The rule of optimism involves two dimensions by which parents are judged. First, cultural relativism, whereby all cultures are judged to be equally valid and members of one have no right to criticise members of another by importing their own standards of judgement. This results in the care of children being judged on a 'sliding scale' rather than an absolute yardstick, with the behaviour of parents that would not be tolerated in one environment being defined as 'normal practice' if they live, for example, in a 'rough' neighbourhood. Children who are mistreated are therefore defined in relative terms against what is believed to be 'normal' for that neighbourhood group.

The second dimension to the rule of optimism is the principle excuse of 'natural love'. Dingwall and his co-workers observed that both health visitors and social workers thought that a special bond existed between parents and children. It was so fundamentally a part of nature, what it meant to be human, that provided there is at least a sign of emotional warmth between parent and child, love can conquer almost any degree of mistreatment.

The rule of optimism means that parents tend to be judged liberally and workers are discouraged from making negative assessments because of the grave implications of the professional interventions that might follow. Dingwall goes on to consider under what circumstances the rule breaks down and argues that there are two conditions. The first is when parents refuse to collaborate with professional workers and reject inspection. The second is when a family's circumstances become public knowledge and

there is external pressure for surveillance and/or legislative action by social services or the police. (External pressure may, of course, also legitimise professional intervention in those borderline, 'grey' areas identified by Taylor and James,[324] and discussed below.)

Dingwall concludes that there is a need for debate about the values, which underpin professional practice, rather than technical changes to procedures for dealing with child mistreatment. He argues that debates about child abuse and neglect are deeply moral ones about the sort of society we want to live in and the minimum conditions that should be guaranteed to all children. He concludes: "The real question is not 'how can we get better checklists?' but 'how much freedom is a child's life worth?'."

The second paper, by Taylor and James,[324] concerns the changing role of health visitors in the 1980s from traditional methods of working to identifying and managing children deemed to be 'at risk' of child abuse. A total of 19 health visitors (50% employed in one London health authority) were interviewed. Asked what aspects of their work caused them most anxiety, all made reference to situations where children might not be developing properly. In all, 14 (74%) expressed specific concern about problems raised by a suspected non-accidental injury. The cases that gave most concern were those described as 'borderline' or 'grey areas'. There might be severe problems within a family but insufficient evidence of actual or potential harm to children for social services to become directly involved. For many of these families the health visitor was the only professional seen on a regular basis. As a result, health visitors felt isolated, mainly because of the lack of support services and 'communication problems' with other agencies. More than half (63%) referred to liaison difficulties with Social Services, a third with GPs, and a fifth with their senior nurses.

The main source of role conflict for these health visitors was identified as arising from the shift demanded from their 'traditional' role of health needs assessment, befriending and advising on health problems with a high degree of autonomy and discretion, to one of inspection and crisis management. A majority of respondents stated that they found themselves in a more 'coercive' and 'policing' role than they had originally been led to expect from their education and training. Taylor and James suggest that the recommendations of several official or semi-official inquiries regarding role and function raise significant implications, which should be the subject of further research and discussion. For example, the Blom-Cooper Report[325] had suggested that health visitors' work should move in the direction described with concern by the health visitors in this study, and that services must treat the child, not the parents or the family, as the client. Yet Taylor and James point out that this philosophy has enormous implications for preventive work. If a child is at risk of abuse, the threat comes from the parent, not the child. To focus on the potential victim at the expense of the potential perpetrator excludes the possibility of preventive work. Also, to give health visitors a more explicitly 'coercive' role is unlikely to be realised without significant cost to other aspects of their work. In the same context, Taylor and James draw attention to the 63% of health visitors who reported communication difficulties with Social Services.

Taylor and Tilley[323] explore further the implications of the dilemmas concerning the health visitors' role identified by Taylor and James.[324] The only reference to study design is that it was based on the identification and response to child abuse cases in two health authorities in different parts of the country.

Taylor and Tilley summarise the contradictions identified in the health visitor's role as follows. Official inquiries into child abuse have suggested that health visitors should work more as members of a team and less as independent practitioners; they should have a statutory duty to consult with Social Services; and be subject to a more rigorous, hierarchical form of supervision. Taylor and Tilley argue that as a result of these developments, fundamental contradictions have emerged which threaten the basis of the relationship between health visitors and clients. Health visitors cope with these contradictions by 'going underground' and disguise their participation in child protection work. By maintaining the requirement that a subpoena be served if the health visitor is to appear in court to give evidence, the public definition as one that participates unwillingly in the controlling aspects of child protection is sustained. As a result, the medical ethic of confidentiality is apparently maintained in this public demonstration of reluctance to disclose information obtained in private.

In contrast to health visitors' unwillingness to give evidence concerning their clients in court, Taylor and Tilley found that the health visitor

is very willing to disclose information in case conferences during which the control aspects of abuse are considered. Case conferences consider care and supervision orders, wardships, and place of safety orders, monitoring and placement on the abuse register. They observed that health visitors are prepared in this context openly to disclose any relevant information. Further, they observed that where there was disagreement between agencies, it was invariably the health visitor who took the strongest line on what should happen in a suspected 'at risk of child abuse' situation.

Another aspect of covert surveillance noted by Taylor and Tilley involves liaison health visitors who keep files on children attending casualty, link their names with the abuse register, and pass on information to the family health visitor. In many GPs' surgeries, the GP and the health visitor also keep lists of children about whom they are concerned. All of this monitoring goes on without the knowledge and consent of the families concerned and yet it is sanctioned implicitly, indeed expected and authorised, by the health visitors' employers and by other agencies. Much of this information does not concern the child in question but instead involves features described by Dingwall[313] – parents' background, type and state of housing, judgements about the mother's ability, her relationship with the child and significant others, and her stability and intelligence.

Taylor and Tilley[323] point out that in contradistinction to this covert surveillance, health visitors are taught that their relationship is founded on trust. Parents also are encouraged to believe that any information given to them will be treated in the strictest confidence which health visitors, traditionally, have been able to guarantee because they have enjoyed considerable autonomy and discretion in their dealings with their clients. In addition, parents are guaranteed a trusting relationship because health visitors have had no right of entry to the home. Hence, entry to the home and the privilege of viewing the children at the health visitor's request (not the parents' request, which is the case in every other health worker relationship, including the GP) is based on consent.

Taylor and Tilley[323] observe that their research confirms that all of the ethical principles concerning this relationship of trust are broken regularly in health visitors' child protection work as they divulge to case conferences, and to other workers on request, some of the most intimate details of a family's life. It is arguable that this practice infringes the civil liberties of parents. Furthermore, health visitors regularly go out of their way to discover more information in child protection cases 'behind parents' backs'. Taylor and Tilley discuss the health visitor's dilemma within the United Kingdom Central Council for Nursing, Midwifery and Health Visiting's (UKCC) Code of Professional Conduct and conclude that the Council's advice on matters of confidentiality has little relevance to health visiting and child protection issues.

The stress of the unethical position in which health visitors find themselves is considerable. Taylor and Tilley found that the current confusion and ambiguity were detrimental to both health visitors and their clients. Health visitors found it difficult to reconcile the demands of child protection with other work, and were frustrated by their lack of power and influence. They felt that their referrals, opinions and skills were not always valued or taken as seriously as they should have been. Yet this situation of clandestine operations is positively encouraged and condoned by employers, other agencies, and governments through their support for the recommendations of official child abuse inquiries. The lack of further research and open debate concerning the dilemmas described has already been noted. What appears at first sight to be a simple question of whether or not health visitors' home visits are effective in preventing child abuse, in reality conceals a minefield of legal, ethical and human rights issues.

A recent MA dissertation undertaken within the auspices of the Tavistock Clinic[326] indicates how little has been done at a policy level to address some of these fundamental issues confronting practitioners in the field of child abuse. Using detailed case studies to investigate how the Children Act 1989, with its concepts of parental responsibility and partnership, helped or hindered professionals in their task of protecting children in cases of child neglect, Field identified that parents' skill in 'disguised compliance' does work in fending off professional concern. Her report that

> "occasional compliance can lull the professional into feeling that they are making progress with the family ... efforts are (then) concentrated in making relationships with the mother. ... and this shift of focus can result in a failure to take timely and appropriate action to protect the child"
>
> (Field[326]; p. 58)

has deep resonance with Dingwall's observations on 'the rule of optimism' made thirteen years before. That health visitors should have been left for so long since these studies were reported without further inquiry or support to shoulder the consequences of this situation is clearly unacceptable.

Health visitors and domestic violence

Health visitors' work with families experiencing violence

Cohen[327] reviews McClelland's[328] work on her two and a half years of work with Rotherham Women's Refuge. Like many health visitor colleagues across the country, McClelland works with those women who have taken the step to escape from a violent domestic relationship. She says that domestic violence occurs in all classes, races, ages and communities and is the most unrecorded and unreported of crimes. Her work involves a weekly visit to the refuge where her work has expanded owing to the urgent need for care and services. She encourages women to register temporarily with a GP; assesses the health status of the women and children; refers for a variety of health and social services, usually on an emergency basis; and notifies other health visitors of the women's safe accommodation, enlisting their help in blocking any attempt at tracing by their violent partners.

McClelland reports that many women have chronic health problems, which may not have been dealt with because of fears for their own, or their children's safety, frequent changes of address, and low self-esteem. Smoking is common amongst virtually all the women, and alcohol and/or drug abuse occurs amongst approximately a quarter of the women in the refuge. Mental health problems including depression, drug overdose, psychotic behaviour, and schizophrenia feature amongst a sizeable minority of women who seek help. A total of 20% of the children in the previous year were on the child protection register, and behaviour problems amongst them are common.

McClelland points to the unsatisfactory legal situation in the UK, which persists despite concern by the Home Office to improve the legislation. As many of the women in the refuge are cohabitees, they do not have the same rights of redress as married partners. Once they have left the cohabiting address the women then have no rights to property and are homeless.

Reporting on a study of health visitors' perspectives on domestic violence, Frost[329] describes a survey of 134 health visitors in two NHS trusts in which she sought to identify training needs. Response rates were 79% and 83% respectively. She also conducted semi-structured interviews with 12 health visitors randomly selected from the staff lists of each trust. Findings from the interview data revealed how anxious most informants felt when visiting families where domestic violence was either known, or subsequently discovered (sometimes dramatically) to occur. The Patient's Charter,[330] which requires all families newly registered with a GP to be visited by a health visitor within 5 days, has unintentionally increased health visitors' vulnerability. Visiting before the arrival of a family's records and in ignorance of a family's history, health visitors reported finding themselves the object of aggressive behaviour. Some 'walked into' violent incidents between partners, and others had been the subject of threatening telephone calls when a woman left home with her children and the partner tried to discover her whereabouts.

Health visitors recalled the death of Carolyn Pluckett, a health visitor who was murdered during a visit to a client,[331] and observed that social workers routinely visit in twos where violence is a known hazard. Support for health visitors faced with visiting homes where violence was endemic, and dealing with its consequences, was reported to come predominantly from their health visitor colleagues. Approximately half of those interviewed indicated that team leaders and/or managers gave support, whilst for those based in GP surgeries, doctors and reception staff could be supportive. Frost[329] concludes that a broad approach is necessary to meet health visitors' need for support when dealing with domestic violence and that training, guidelines for practice, stress reduction techniques and appropriate support mechanisms should all be developed in order to help health visitors cope with this aspect of their work.

The research evidence and its implications for the management of domestic violence in practice

Moffitt and Caspi,[332] two authors working at the Institute of Psychiatry in London, review the implications of violence between intimate partners for child psychologists and psychiatrists. They offer

> "four reasons why practitioners who treat children and adolescents should be knowledgeable about adult partner violence:

- Partner violence is not confined to adults; it is a feature of adolescents' earliest intimate experiences.
- The strongest developmental risk factor for adult partner violence is childhood conduct problems.
- Young children are adversely affected by witnessing violence between the adults in their homes.
- Adults who are violent towards each other are also at increased risk of abusing their children."

Moffitt and Caspi review the evidence, of which there is a great deal, in support of each of these assertions, and discuss the implications for clinical practice. Although directed at psychologists and psychiatrists, their paper has many implications for health visitors engaged in home visiting to families with young and adolescent children. Moffitt and Caspi use the term 'partner violence' because so many young people are violent without being married, including children of secondary school age. They use the term 'experienced partner violence' rather than specifying perpetrator or victim because research shows that most partner violence consists of exchanges of violent behaviour between two people rather than by gender-typed roles of male perpetrator and female victim.

Females report as much perpetration as males on every partner violence measure in every epidemiological survey. Males report high rates of victimisation by females.[333] Females' perpetration is not merely in self-defence. Unexpectedly high rates of partner violence between university students were identified. The true rate at which adolescents experience serious physical 'dating' violence lies between the reported rates of 2% and 42%. Adolescents are less willing than younger children are to confide in adults on these issues.

A developmental history of conduct problems is the strongest predictor of adult partner violence among numerous risk factors, including poor socio-economic status, early family conflict, weak childhood cognitive functioning and educational difficulties. Little is known about the factors that link childhood conduct disorder and partner violence. Possible mediating factors are discussed, but Moffitt and Caspi emphasise that clinical interventions conceptualised as treatments for conduct problems become even more urgent if they are recognised as primary prevention for future domestic violence.

Large numbers of children live in homes where they witness violence between adult partners. From their own longitudinal study of a birth cohort of 1000 New Zealanders, Moffitt and Caspi show that partner abuse is most common amongst parents of young children. In all, 10% of the young women had one or more children before their twenty-first birthday and 53% of these young mothers were involved in a violent relationship compared with 26% of non-mothers. Moffitt and Caspi observe that it

> "remains unclear whether parenthood coincides with partner violence because child rearing stresses parents, because violence is provoked by conflict over children, or merely because young people who habitually display aggression are selectively likely to leave home early, cohabit early, and bear children early."

They review the literature on the impact of parental conflict on children and the various hypotheses, which serve to explain the relationship between conduct disorder and living in a violent home. They observe that therapy may be required to address children's cognition that the violence observed between their parents is normal.

Long-standing personal observations by clinicians of the relationship between wife abuse and child abuse have also been confirmed by systematic research.[334–336] The link is not confined only to 'serious' spouse abuse. Parents who engaged in only 'ordinary' partner abuse (pushing, shoving, and throwing things) were found to be more than doubly at risk of abusing their child. Clinical interviews might therefore begin with questions about conflict between adults. Moffitt and Caspi observe that this may be more acceptable than asking questions about hurting the children. They conclude that the "successful assessment and treatment of abused children is important for preserving the life and health of individual children, but it is also one key to breaking the 'cycle of violence', wherein abused children return to abuse others."

Finally, Moffitt and Caspi observe that partner violence has struggled to gain scientific legitimacy. In their estimation, the "state of the literature has improved enough to support [our] contention that partner violence harms the health and well-being of children." The implications of their review for both domiciliary health visiting practice and for research are clearly vast.

Health visitors and unintentional injury in childhood

Unintentional injury prevention

(see also chapter 4)

The contribution of health visitors to injury prevention is described in a Health Education Authority report of 1987.[337] Ironically, one of its recommendations for the improvement of accident and emergency department records, and the notification and follow up of children following accidents in the home by health visitors recalls Taylor and Tilley's[323] comment on the increasing covert surveillance of families following the recommendations of child abuse inquiries. Nevertheless, the professional literature on accident prevention confidently supports proactive intervention. Only one paper by Roberts and colleagues,[338] discussed at the end of this section, is critical of the perspectives, particularly of the recommendations in 'The Health of the Nation' White Paper[234] then being advanced.

A paper written by a senior registrar in public health and a senior health promotion officer is characteristic of the professional papers on accident prevention.[339] First, the epidemiology of the problem is outlined. Although England and Wales have one of the lowest death rates from unintentional injuries in childhood, they are still the commonest cause of death between 1 and 15 years of age. Home accidents predominate amongst the 0–4 years age group, and road accidents in the 5–14 years group. For every death, there are about 70 hospital admissions and 1400 accident and emergency department attendances.

Cameron and Fletcher[339] assert that prevention is difficult because of the interplay between injuries, child development, the environment and socio-economic factors. Health visitors are therefore ideally placed through their repeated direct contact with children in their own homes to provide age-related safety messages. They report on a study in which the dimensions of the local problem in Bradford Health Authority are outlined and the results of a survey reported in which health visitors identified the difficulties they experienced in promoting home safety. Health visitors reported working with parents in the home, in mother and toddler groups, and in home visits following hospital attendance for accidents; in identifying environmental hazards; and suggesting safer practices in the context of child development. Health visitors also reported the hospital post-accident notification system to be inadequate, and that the resources available to parents were frequently limited. They identified financial problems limiting the purchase of safety equipment; the lack of education combined with the effects of poverty affecting motivation, perception of risk, recognition of hazards and parenting skills. All of the above were reported to be compounded by the lack of childcare facilities for the day care of children.

Cameron and Fletcher[339] then report a number of measures introduced in an attempt to deal with the reported problems. These included improving the hospital notification system, improving liaison with the home safety advisor, including health visitor representation on the local authority inter-agency forum on home safety (this representation had not been contemplated before), and providing health visitors with training sessions on the social fund and financial benefits that could be claimed in relation to safety equipment.

Similar predisposing factors to those reported by Cameron and Fletcher were identified in a study exploring the incidence and characteristics of home accidents to preschool children in the West Lambeth District Health Authority.[340] The risks of injury were associated with membership of one-parent families, paternal unemployment and stress. A warning was given that extra advice should be given on the safe storage of medication where a mother was known to be having treatment for depression. Again, the importance of good hospital liaison services was stressed.

A GP, community paediatrician and mathematician,[341] reported on a questionnaire survey of 96 health visitors in North Staffordshire in which their role in accident prevention was explored. All respondents (89, 93%) considered that they were actively involved in some accident prevention work. However, 88% of respondents reported that they wanted to do more. Reported constraints included a lack of time (46%), pressure of large caseloads (12%), lack of teaching materials (12%) and the need to cover vacant posts (5%). The hospital liaison service was also identified as 'not perfect'. Predisposing factors to accidents are not reported in this paper. The authors assert in conclusion that:

> "The health visitors' major role in child accident prevention must be their involvement in safety education both on an individual basis and in group work. Client education is therefore the main route by which the health visitor can help to change behaviour, attitudes and knowledge."

Similar recommendations to the papers reported above for increasing the health visitor's effective involvement in accident prevention work occur in professional papers written after the publication of the White Paper, 'The Health of the Nation'.[234] Levene,[342] Carson and Thompson[343] and Nelson and Dines[344] all state that the health visitor is well placed to take forward the health of the nation strategy in respect of child accident prevention. Nelson and Dines in particular include a comprehensive literature review on the subject and identify many of the issues raised by the papers published earlier and discussed above. In addition, they quote the Child Accident Prevention Trust figures that childhood accidents cost the NHS over £200 million per annum.[345] An action scheme, involving a community development approach for empowering and enabling parents to acquire safety equipment in Brinnington, Stockport is reported by Crew and Fletcher.[346]

A paper reporting on a study[347] of the emotional effects of childhood accidents and urging more involvement of the health visitor in bereavement support is reported by Whyte.[348] However, Whyte also reports on the angry reaction to the report by Mary Daly, the HVA's professional officer. Hitting back at critics of parent support services, Daly points out that the Child Accident Prevention Trust report raises another question:

> "Every week sees the publication of another report from a voluntary organisation telling us things we already known and urging us to do more and more. But health visitors are losing ground and we are being increasingly dictated to by purchasers, providers and fundholding GPs. I believe that money would be better spent on employing more health visitors. Rather than writing more reports telling us what we should be doing, voluntary organisations would be better to address themselves to our political masters."
>
> (Whyte[348])

A theoretical perspective on injury prevention

As Dingwall,[313] Taylor and Tilley[323] and Taylor and James[324] critique some of the fundamental assumptions underpinning health visitors' child protection work (see the earlier section entitled 'Health visitors and child protection', page 213), so also Roberts and colleagues[338] identify fundamental differences in approaches to prevention by professionals and citizens. They assert that if the flow of work on injury prevention stemming from the White Paper 'The Health of the Nation'[234] is to be effective, then citizens' concepts of need will have to be addressed more seriously than has been the case in the past. They argue that one way of doing this would be to complement existing injury surveillance systems (which tend to be derived from epidemiological surveys of accidents and focus on their sequelae rather than their antecedents) with hazard or risk surveillance systems at a local level. Roberts and colleagues' critique has fundamental implications for how health visitors work, whether their injury prevention interventions are to be effective, and for the support which they receive from a range of other agencies in dealing with their frequent identification of predisposition to risk of accidents, especially amongst young children.[338]

Roberts and colleagues' critique is based on the findings of a study carried out in Corkerhill, a post Second World War housing scheme in Glasgow.[349] A lone parent heads well over a third of families and most families live in considerable hardship. More than a third of families have a child aged less than 14 years old. In a household survey, Roberts and colleagues sought to identify all accidents in the previous year to children aged under 14, as well as 'near misses' or avoided accidents. They also recruited and interviewed in depth parent and teenage (citizen) groups and a professional group. In their study design they examined in detail the key elements of professional and parents' accounts of accident risks and their prevention strategies.

Roberts and colleagues[349] found that the professional group was concerned predominantly with a traditional health education approach. Whilst "recognising a generalised social responsibility for accidents" they were less inclined than the citizens "to link specific problems for specific hazards with specific bodies whose responsibility it is, or should be, to reduce those hazards". Instead, the professionals worked on the premise embodied in 'The Health of the Nation' White Paper (which had not been published at that time) that "with the right information, skills and reinforcement, behaviour and health decisions may be changed". They linked child accidents with parental behaviour and responsibility, and safe behaviour was regarded as the product of good education.

The citizen groups, on the other hand, identified many environmental risks that rendered accidents as foreseeable. They were highly critical of numerous design faults in their housing and external environments, and their definition of

an accident overlapped with the consequences of other environmental health hazards, such as damp housing, chemical treatments, and children's asthma. Roberts and colleagues[349] describe the "mental maps of risk factors and risky areas" carried in the minds of local residents, whereas the professional group saw risk in terms of the characteristics of the children. Only the health visitor in the professional group made reference to two specific hazards on the Corkerhill estate. The first related to the parents' need to use electric fires in the absence of other heating systems; the second to needle stick injuries occurring when children picked up discarded needles used by drug abusers. It was clear from the citizens' interviews that many parents already employ successful strategies for prevention, sometimes reported in accounts of 'near misses', and in accounts of how they took on the 'authorities' until something was done to remove a hazard.

Roberts and colleagues[338,349] conclude that the term 'accident prevention' should be replaced with 'injury prevention' on the grounds that 'accident' carries connotations of inevitability, and that to base preventive work solely on traditional epidemiological data on death and injury rates is misconceived. They argue that 'The Health of the Nation' White Paper[234] represents an opportunity to address questions of the effectiveness of prevention. They argue that the Department of Health should explore whether spending public funds on education and information represents value for money, and that those people whose day-to-day lives are affected should be consulted. In the context of this review of the effectiveness of domiciliary health visiting, we would conclude that the inclusion of health visitors in this consultation is justified. Recalling Mary Daly, regarding the HVA's angry reaction to yet another report exhorting health visitors to do more, there is a need, as in so many areas, to identify just what it is that health visitors are doing, what they perceive to be the barriers to effective intervention, and then taking their concerns seriously in the form of action.

Health visiting and the uptake of services

Child health services

In this section, parts of the literature on health visiting that are not normally associated with home visits are reviewed. Nevertheless, as the findings demonstrate, there is a complex inter-relationship between the different aspects of the service. This section shows how changing government policy on preventive healthcare services for children as the result of a series of reports on CHS has had major unintended consequences for health visiting practice, with the result that health visitors' ability to deliver a generalist, universal, service to all families with children in the home environment is now seriously under threat.

Home or clinic?

The majority of articles reviewed in the professional literature has been concerned with domiciliary health visiting in relation to the search for health needs in various contexts of special needs, and then the giving of support, advice, or recommending appropriate action, often in terms of encouraging the uptake of specific health services. A further set of articles, not reviewed here because it is outside the terms of reference of the study, examines parents' attitudes to, and attendance at, child health clinics. However, as has been mentioned at various points in this review, the division between the home and clinic can be artificial when assessing the effectiveness of health visiting. For example, one of the authors of this report (Jane Robinson) had no official clinic premises during her first 3 years as a health visitor at the beginning of the 1970s. All distraction tests for hearing loss in infants at 8 months of age were carried out, of necessity, in the children's homes, as were all developmental assessment tests. The weekly child health clinic was held in a school club (in contrast with many held in church halls at that time), where infants and toddlers could be seen not only by the health visitor but also by the community medical officer. Working in a geographical 'patch' on the borders of a large urban conurbation, the families on Jane Robinson's first caseload (where she was also school nurse) were registered with a total of 48 different GPs, only one of whom had his practice premises in the area. Although these circumstances may be rare today, they demonstrate that a dichotomy between home and clinic is not essential in order to practice different components of the health visiting role. Indeed, one of the advantages of carrying out virtually all health visiting within the home is that children are always seen within their own environment, as one family member together with the mother and significant others.

Home visiting and clinic attendance

A small number of professional papers describe the relationship between home visiting and the uptake of child health services. While's 1985 PhD thesis entitled 'Health visiting and health experience of infants in three areas',[350] using a retrospective analysis of health visitor records, examined in detail the apparent relationship between domiciliary health visiting and the uptake of childhood immunisation and attendance at child health clinics. While found that health visitors in the inner city made more home visiting contacts than their counterparts in the suburbs (a finding also reported by Butler[351] within the context of a reclassification of deprived areas). Contrary to some earlier reports, While[352] found that families in poor socio-economic circumstances attended child health clinics more frequently than their more affluent contemporaries during the first 6 months of an infant's life, and that health visitor home visiting was a major determinant in clinic attendance rates. (In 1972, Davie and colleagues,[353] in a report of the National Child Development Study, observed in relation to a similar finding that no one seemed concerned with the low attendance at child health clinics of children from families in social classes I and II.)

While[354] also found strong statistical relationships between health visitor home visits and the subsequent uptake of: the first immunisation; the parental decision to include pertussis in the primary immunisation; attendance for the sixth week and toddler developmental assessments; and the hearing test at 7–9 months. The uptake of the third immunisation and completion of the primary immunisation course were not related to a specific previous visit, but rather to home health visiting practice in general during the first 6 months of an infant's life. Only a weak relationship was found between measles vaccination and prior home visiting.

Clark and colleagues[355] report on the introduction of measures to improve immunisation uptake in one fundholding practice in Ely Bridge in Cardiff, which included the development of protocols allowing health visitors to perform immunisations on a domiciliary and opportunistic basis. The uptake of DPT, polio and MMR vaccinations improved over a reported 2-year period by 20%, from just over 70% to more than 90% in the eligible practice population. Bedford,[356] a research health visitor at the Institute of Child Health, also advocates offering domiciliary immunisation to the children of persistent defaulters, or to travelling or homeless families.

Child health surveillance

The shifting policy context

Health visitors have always been concerned with the assessment of children's health and well-being as a precursor to the provision to their mothers of advice and education. As the physical, psychological and social aspects of child development were brought together into systematic programmes for the developmental assessment of children during the late 1960s and early 1970s, local policies evolved by which these assessments would usually be undertaken by health visitors working in conjunction with community medical officers in local authority child health clinics (or, as described in 'Home or clinic?', page 221, in the home). Following the 1973 reorganisation of local authority services, these local authority health services were transferred to the 'integrated' NHS, and health visitors' work became based increasingly on the caseloads of GPs.[227] Child health clinics continued under the managerial remit of NHS Community Health Services, sometimes with dedicated clinics for CHS,[357] although their cost-effectiveness in the face of duplication of effort and often unclear lines for referral and accountability brought them under increasing scrutiny. Barker,[358] in a short paper in *Health Visitor*, suggested that health visitors should hand over testing for physical and functional problems to GPs and "properly trained practice nurses" in order to concentrate on helping parents to deal with problems of language development, cognitive competence and social skills. Barker was pessimistic about what value developmental testing held, which was surprising given the responsibility of education authorities for provision for children with special needs from the age of 2 years, and the need for their assessment and referral. Notwithstanding, Barker's general message, which predated the Hall reports on CHS[359–361] (see below), was remarkably similar to the latter. The end of the 1980s was undoubtedly a period in which 'hard' data in respect of children's health and development was sought increasingly and, following a number of policy recommendations, health visitors work in this area tended to become marginalised either to the medical profession or to other 'specialists' (see the section entitled 'Screening for hearing loss in the first year of life', page 224).

These shifts during the 1970s and 1980s in the policy base for child health work were later followed by wider structural changes in the management of child health services in the NHS. Butler and colleagues[362–365] report on policy initiatives following the publication of the first two editions of the Hall report 'Health for all children',[359,360] which recommended a core programme for CHS.† The largely technical recommendations of the first two editions emphasised the importance of applying rigorous criteria for screening programmes in community child health. Hall's recommendations were incorporated into National Health Service Executive guidelines. The 1991 edition,[360] in responding to the new internal NHS market and a new contract for GPs, encouraged GPs to offer CHS to children on their practice lists, with the inevitable result that the volume of CHS work carried out by community medical officers in community health services' child health clinics gradually diminished. This second edition of 'Health for all children' includes two specific references to the work of health visitors in the context of CHS. First, in discussing the primary healthcare team as one of components of a child health programme, the discussion is confined almost entirely to health visitors:

> "Health visitors play a vital and central role in health promotion. Their programme of home visiting and community development makes an important contribution to many areas of health education, including prevention of accidents and child abuse, early detection of abnormality (both on an opportunistic basis and by their participation in the core programme of health surveillance as set out below), provision of guidance to parents on child development and child rearing, and encouraging uptake of immunisation. Nevertheless, success depends on the commitment of the whole primary health care team."[360] (pp. 120–121)

The second reference is specifically to one of the components of the recommended CHS programme: the 18–24-month examination within a core programme of surveillance. For the first time it introduces formally the idea of aspects of the programme being carried out within the home environment and that this should be the province of the health visitor:

> "This review (18–24 months) does not involve any specific medical screening procedures and is concerned primarily with parent guidance and education. It is often carried out at the family home and it is suggested that the health visitor is the most appropriate person to take responsibility for this examination. The doctor provides support and advice where necessary."[360] (pp. 127–128)

An evaluation of health visitors' perceptions of changing CHS provision

Butler and colleagues[362–365] conducted a postal survey in 1993 on the impact of the above changes in 1993. They solicited the views of six groups of providers of CHS in England and Wales (health visitors, GPs, consultant community paediatricians, senior clinical medical officers, clinical medical officers, and Family Health Service Authority general managers). This section reports on the number of dissatisfactions that were identified by the health visitors surveyed.

On the positive side, about 5% of the 1080 (79% response rate) health visitors who responded to the 1993 survey thought their work had improved. They considered that their skills were now better understood by GPs, that they were being used more effectively, and that their morale had improved. About one in seven respondents approved of their closer integration with GPs. They remarked on the improved division of labour, improved communication, better partnership and teamwork, and greater success in reaching financial targets.[363,364]

On the negative side, Butler and colleagues[362,363,365] found that the price to be paid for the closer

† A third edition of 'Health for all children' was published, but this was not the subject of the Butler and colleagues[362,363] and Butler[364,365] reviews. The recommendations of the third edition imply a much broader approach to preventive child health than had ever been envisaged previously in official British health policy, although, from the perspective of British health visiting, this would match an ideal that had existed since the introduction of the new health visitor syllabus in 1965, and the statement of principles in 1977 (Council for the Education and Training of Health Visitors, 1977). The breadth of the recommendations of this third edition simultaneously increased the complexity of the evaluation enterprise. The report itself identified that there were many gaps remaining in the literature, and that the paucity of RCTs indicated a reliance on other forms of research method. At the same time as the third edition was published in 1996, the systematic review of home visiting by British health visitors covered in this report was commissioned by the NHS R&D Health Technology Assessment programme. That much of the literature was not amenable to inclusion in a systematic review of RCTs will be apparent from this review of the professional literature.

working relationship with GPs was a decline in home visiting. There was regret that there were fewer home visits than previously, that these were now more targeted, more restricted geographically, and more concerned with crisis management. There was little time or opportunity to undertake any assessments of need. The decline in home visiting, coupled with the trend towards locating CHS clinics in the GP's surgery as opposed to in the community had, for many health visitors, weakened their traditional vehicles of education, support and reassurance to mothers. About 6% of those surveyed complained of a sense of loss of their professional autonomy resulting from their integration in the primary care team. Respondents claimed that they were duplicating the work of the GPs, they had lost control over priorities in their work, their freedom of referral had become constrained by the GPs, and their skills and training had been devalued.[365]

Some health visitors drew attention to the fact that certain elements of their CHS work had been lost to practice nurses. They pointed out that practice nurses had few, if any, skills in preventive child healthcare, and expressed concern that practice nurses were therefore likely to be doing only what the GPs requested them to do, and not what might be in the best interests of families.[362] Others regretted that because their work was now so focused on young children, they had lost contact with other groups, particularly the elderly (see the earlier section entitled 'Health visiting and the elderly', page 205).

Finally, because they were now so closely linked with the general practice, health visitors experienced a sense of alienation from geographical territories and had lost touch with community groups.[362,363,365]

Screening for hearing loss in the first year of life

Hearing screening in infants is an issue that demonstrates how a growing emphasis on the benefits of targeted screening services for defined medical conditions is changing dramatically the traditional health visitors' role. The distraction test for hearing loss carried out routinely on all infants at 7–9 months of age has been an area of CHS activity (using a traditional medical screening model) for which the health visitor has had greatest responsibility for almost 50 years,[366] yet for 40 of those years there was virtually no evidence on how it was performing.[367,368] The Health Technology Assessment (HTA) report by Davis and colleagues,[368] commissioned on behalf of the National Health Service Executive's HTA programme, was considered by the Government's National Screening Committee and its children's subgroup, and a recommendation has been made that there should be a move towards implementation of universal hearing screening. The precise role of the health visitor distraction test, if this is carried out, remains controversial and is not yet settled.

In an attempt to analyse the economic aspects of different approaches to screening, Sadler[369] quotes Davis[368] as saying that if "universal neonatal screening were to be funded from money now allocated to distraction testing by health visitors this might involve the loss of around 2.5 whole time equivalent posts per 100 health visitors". Watkin and Jeremiah,[366] who were the first to implement universal neonatal screening, and with more than 5 years' experience are convinced that this is the way forward, point out that it is not administratively a simple matter to ensure that all infants receive it. Nor is it easy to ensure that the appropriate follow-up audiological services are universally available for those infants who do not pass the initial screen.[366] In addition, Watkin and Jeremiah[366] estimate that the universal neonatal screen will not identify infants with rare forms of permanent hearing loss, progressive deafness, and acquired deafness. Watkin and Jeremiah argue also that the health visitor distraction test has been implemented sensitively in some districts, a position that was advanced more than a decade earlier by McCormick[370] following a programme in Nottingham aimed at improving health visitors' skills in hearing testing. Watkin and Jeremiah contend therefore that whilst neonatal screening offers exciting possibilities for the early identification of some infants with hearing loss, it should not "assume exaggerated importance". Its success will depend on the coverage of the screen and the "proactive reduction of parental anxieties". They argue that child population surveillance requires the ongoing assessment of children, including "a highly skilled diagnostic awareness", and that this can only realistically be undertaken by health visitors.

The assessment of speech and language development and parental support

Health visitors have traditionally undertaken part of the ongoing assessment of children's hearing

when routinely visiting a child's home and assessing their stage of speech and language development. In our search of the professional literature we identified the following papers relating to health visitors' involvement in the identification of speech and language impairment. Bowers and Oakenfull[371] describe a project in Mid-Surrey Health Authority, which aimed to assist health visitors in the assessment of speech and language impairment. Following a pilot study, a speech and language screening check was introduced at two and a quarter years, which appeared to improve the timeliness of referrals for speech and language therapy. This system is now reported to be the subject of larger scale evaluation.

In a series of three papers on the very specific needs of children with congenital or acquired deafness, Densham[372–374] outlines the range of services which families with a deaf child require. Assessing the speech and language aspects of a child's total development remains an important part of ongoing developmental screening, and the child with an identified hearing loss has other important social and emotional needs. Densham reports on a study of health visitors' involvement in hearing screening in three health districts where 98% of children were screened for hearing loss within the first year of life, and it was found that 10% of tests had been carried out in the home.

Densham sees the health visitor playing an important role in helping parents and children come to terms with the often traumatic consequences of a diagnosis of hearing loss, and in providing liaison with a range of other specialist services, including education. She sees a role for a specialist health visitor with additional training to work in this field.

However, a systematic review of the literature on screening for speech and language delay[375] was commissioned as part of the NHS systematic reviews in child health. Law and colleagues' review[375] highlights the limited value that can be attributed to small-scale, 'one-off' interventions such as those described above. Law and colleagues comment that:

> "Four domains integral to the screening process, namely the prevalence of primary speech and language delay, its natural history, the effectiveness of the intervention and the accuracy of the screening procedures themselves were identified. Findings from a total of 48 studies meeting the study's inclusion criteria indicate that this is an extremely complex area. The screening evidence suggests that although a considerable number of assessments have been shown to perform adequately in terms of their productivity, few studies compare the performance of two or more screening tests when applied to one population, nor do they compare single screening tests across different populations. The majority of studies examine single screens on single populations. It is therefore difficult to make judgements about the relative value of different procedures. In general, specificity is higher than sensitivity."[375]

Law and colleagues conclude that: "it would be premature to introduce universal screening for speech and language delays on the grounds that, while the screening tests can be shown to be reasonably accurate, they are not yet sufficiently predictive. The data do not allow conclusions to be drawn about withdrawing existing services."[375]

Early speech and language delays should clearly be a "cause for concern for all those involved with child health surveillance" and the "lack of evidence to merit the introduction of universal screening does not imply that these children should not be identified". Law and colleagues' review:[375]

> "suggests that more attention should be placed on sharing with parents the responsibility for identifying children with speech and language difficulties. Primary care workers should be involved in eliciting parental concerns and in making appropriate observation of children's communication behaviours. This would require formal training for such professionals in current knowledge relating to delayed speech and language development and risk factors pertaining to it."

Thus, Law and colleagues[375] identify the need for practice that has always been seen as a 'gold standard' for health visitors when, ideally, they know the child well in the family context and encourage language development within the family home and in other settings, such as nursery schools. The outstanding issues of availability of referral facilities when necessary, appropriate 'updating' and in-service training for professionals, with good information services for the parents, remain. Law and colleagues also identify that there are many gaps in the literature and several research priorities. These include further work on screening procedures that have good predictive validity, and that natural history data should be combined with reports and observations as part of such a screening measure. Health visitors, it would appear, could play an important role in these activities. Finally, Law

and colleagues state that there is an urgent need for RCTs to examine the medium- and long-term effects of appropriately described models of intervention; with an appropriate range of outcome measures, including where possible, economic analysis.[375]

Other aspects of the health visitor's domiciliary role

Increasing the uptake of screening for breast cancer

Lauder[376] describes her role as a health visitor attached to a general practice in west Hertfordshire in following up the 20% of women aged 50–64 years who defaulted from a computerised system for breast screening appointments. Constraints of time prevented Lauder visiting nine of the 41 non-attendees identified. Of the remaining 32, for seven women a letter was apparently sufficient for them to arrange their own subsequent appointment; two requested no further contact; and Lauder made home visits to the remaining 23 women. She identified considerable difficulties in access: eight new occupants; two non-English speaking (for whom Lauder obtained an interpreter); and two ill women unable to attend. Of the remainder, ten women were screened who had previously not responded, giving a total success rate of 41.5% from the original 41. As this initiative was developed entirely alongside her own workload, and Lauder also describes the educational activity in which she engaged when visiting these women, it may be speculated that the service, if routinised, might bring considerable health benefits to this age group.

Developing services for families with members with HIV

Appleby and Moore[377] describe the establishment of two specialist health visitor posts in Parkside Health NHS Trust working with St Mary's NHS Trust, Paddington. The first post was linked with maternity services in providing and reviewing a service for families known to be HIV-infected or at 'high risk'. The second post was part of a multidisciplinary approach to provide a co-ordinated service for HIV-infected drug users. A range of services is described, most importantly in taking a multidisciplinary approach to this family disease where both parents and children may be infected, are frequently sick together, and are often living in poverty and fear of the stigma of being identified.

A number of pertinent issues are discussed. For example, the importance for generic health visitors to be aware that HIV may be a possibility in a child who is failing to thrive, and the need to find time to listen to parents' worries and anxieties; that HIV may be a possibility in any persistent, unexplained problems. Appleby and Moore also stress the importance of health visitors' primary preventive role in providing information and education to individuals and communities about the prevention of transmission of infection. They point to the need for acceptance by health visitors, and the need to examine one's ethical, cultural and spiritual beliefs in relation to infected families and the way professionals relate to them. The crucial issue of confidentiality and parents' constant fear of sensitive information being shared inappropriately is raised, together with the importance of 'normalisation' and the need for routine advice to continue on all the usual aspects of child rearing, including the need for touch for both parents and children. Finally, the need for appropriate and sensitive responses to the effects of this chronic disease on all of a family's members is emphasised.

What constitutes a ' normal' health visiting home visit?

Some lessons from a selection of higher degree theses

Perhaps the greatest irony of the review of the preceding papers is that they are concerned almost exclusively with a variety of the 'problems' with which health visitors become involved. Yet, traditionally, the health visitor has been a generic worker whose primary brief has been the universal visiting of all families with children. A relatively recent paper by Cowley[378] provides a sensitive account of how health visitors 'manage' the ambiguity of these 'routine' visits; demonstrating considerable skill in assessing and responding to the immediate needs of a family, when the original intention of the visit might have been something quite different. Many health visitors have been concerned with making explicit the nature of this generic visiting to 'normal' families, and with the 'problem' of proving its effectiveness. Papers discussing the nature of health visiting/client interactions do appear in the professional literature, and many of these are derived from higher degree theses which health visitors have undertaken in order to address the issues.

As a part of this review we undertook a selective review of 17 of these original theses[2,302,350,379–392] (12 PhDs and five Masters; appendix 5). We searched the thesis abstracts for doctoral theses concerned with home visiting by health visitors, excluding those that did not focus on the home visit (see appendix 3). Resources did not allow for a full search of Masters theses, and those we reviewed were selected on the basis that they had made a significant contribution to the subsequent literature and discussion on home visiting. The thesis publication dates are from 1980 to 1995 and all attempted to address what it is that health visitors 'do' in their routine visits to families in the domiciliary setting. All except one[385] were concerned with health visiting parents and infants, and some[380,382,389,390] focused, to a greater or lesser extent, on the micro-level of interaction through the ethno-methodological analysis of tape-recorded interviews between health visitors and clients. With the exception of Billingham[379] who studied mothers on income support and Robinson[389] who attempted to interview persistent defaulters and their controls from child development clinics, the study populations appeared not to be 'deviant' in any way. In this respect, the populations studied were 'normal' and did not have the specific 'needs' covered in much of the professional literature that has been reviewed earlier. Mason[386] compared health visiting practice in Belfast and Jamaica.

A review of higher degree theses is inevitably constrained by the variable quality of the individual pieces of work, the fact that they were carried out as a part of a learning experience, that their subject matter and methods are not directly comparable and, above all, that the majority had to be reviewed on microfiche which renders many of them in parts almost unreadable.

Nevertheless, some general lessons can be drawn from this body of work. First, with the exception of Luker[385] and While,[350] the studies focused on process rather than outcome. Secondly, although 'insiders' carried out the studies, one gains the impression that the work was motivated by a deep personal scepticism on the part of the authors who were determined to assess the utility of health visiting practice. Using predominantly ethnographic research methods, they started out as professional 'strangers'[393] and appeared to manage successfully the need to distance themselves from the subject matter. They were prepared to be critical of what they identified but, somewhat to their surprise, it appeared that on the whole, they found that health visitors were frequently doing what they claimed, notably listening in a non-directive and non-authoritarian way, and giving advice appropriate to a family's circumstances.

There were significant exceptions to this general rule. Sefi's[390] small ethno-methodological study found that, in general, health visitors dominated and controlled the interactions. She was unable to establish whether the necessity for 'getting through the work' led to this domination. She was in no doubt, however, that where a health visitor was prepared to interact in such a way that the mother was able to set her own agenda, then the result was a mother and infant-centred discussion. Robinson,[389] too, identified that talking with the client is a large and important part of health visiting practice, and asymmetry in these encounters in the form of health visitor dominance was identified. What one cannot estimate is the extent to which research findings such as these, together with Holden and colleagues' study[54] of health visiting to mothers with postnatal depression, may have influenced subsequent contemporary health visiting practice through education and training, and through personal reading of the literature. Certainly, Cameron,[380] whose study built on Sefi's[390] and Robinson's[389] work, found that in the majority of interactions health visitors were sensitive to client concerns and responsive to the expressed need for individual choice. Nevertheless, a third of clients in Cameron's study mentioned the health visitors' child abuse surveillance role. It should also be recalled that Hennessy[302,303] pointed out during the 1980s that for many managers of health visiting, 'listening' was not 'work'. There is certainly some evidence[394] that health visitors have been expected to an even greater extent in the 1990s to follow an NHS managerial agenda rather than one developed mutually with parents.

A family's material and social circumstances formed a substantial part of the interactions identified in Billingham's[379] dissertation, but she found that oppositional or political talk was marginalised by a discourse that constructed 'good mothers' as 'motherhood is love' and by individualistic solutions. Here, in the health visitor's relative powerlessness to act and her frequently unsupported position with

management, lies a further key to one more of the health visitor's major dilemmas. Just as Dingwall[313] reported on health visitors' reliance on the 'rule of optimism' as a means of resolving the large number of unsatisfactory family situations that they encounter, Taylor and Tilley[323] pointed to the ethical contradictions between a commitment to confidentiality with parents and the expectations of others placed on the health visitor in suspected child abuse, and Roberts and colleagues[338] reported on the crucial distinction between individual and collective responsibility and action in the prevention of accidents, so health visitors are frequently powerless beyond the use of their own resources to bring about any substantial change for individual families. The health visitor may feel politically aware, but is not expected to behave in an overt political way by moving outside the boundaries of the family into the field of collective, societal responsibility. In this context, Blackburn's work[241–243] on health visiting and poverty may be seen to be highly idealistic. Health visitors appear to be tolerated as professional workers so long as they seem to be tactful and kind, whilst also being a covert 'health policewoman' with the individual family (a term asserted to Jane Robinson in this context by the late Dr Philip Strong[395]).

The historical development of this situation has been explored. Robinson's[388] review of the development of health visiting since the end of the nineteenth century concludes that home visiting was legitimated initially as a means of responding at an individual level to the health crises arising from the urban living conditions of the poor. Dealing with the structural forces that gave rise to those conditions was not considered to be a part of the health visitor's remit, and despite changing theoretical perspectives underpinning the advice given in the home over time, the health visitor's real ability to influence the larger scene through policy change was always severely constrained. Once the initial support for the role by formerly immensely powerful medical officers of health had been weakened and ultimately removed in 1974, the legitimisation of health visiting by the now controlling nursing and, later, managerial professions was progressively diminished.

Davies[396] provides a sophisticated analysis of this situation. In a classic paper entitled 'The health visitor as woman's friend: a woman's place in public health 1900–1914', Davies demonstrates that once the idea of employing a 'respectable working woman' had been superseded in the 1890s by the use of educated, middle-class women, the method worked as part of the justification for women's greater participation both in political life and in paid employment. The line was drawn, however, over the question of whether health visitors might be more scientific in their approach to families by adding to knowledge rather than merely conveying it. This scientific work, Davies argues, was seen as men's work and therefore the proper province of the male sanitary inspector. Thus, support for the idea of health visiting, which was derived at the turn of the century from the influential body of medical officers of health, was conditional on health visitors retaining their womanly qualities of tact, sympathy and resourcefulness. They were certainly not expected to interfere in matters considered political.

The tensions in the role described by Davies may even be worse today than in the period when she was writing. Since the 1960s, the impact of a much broader health visitor curriculum based in higher education has resulted in a far greater questioning of their role by health visitors, particularly in relation to inequalities in health (hence their attempts to counteract the worst effects of poverty on families and young children). Yet, in the succeeding 30 years, their traditional autonomy in case finding has been eroded by their attachment to general practice and their integration into nursing managerial structures. In addition, their nursing origins (which did not exist before 1924[388]) have been more and more emphasised through the abolition of the health visiting regulatory body (Council for the Education and Training of Health Visitors) in 1982, and the profession's absorption into the UKCC as the overall regulatory body for the nursing and midwifery professions. It has even been suggested that the next stage of regulatory change may be for health visiting to cease to exist as a separate profession and to be seen merely as a specialist branch of nursing. This may serve to 'tidy up' the regulatory arrangements and deal with the often perceived 'deviance' of health visitors when compared with their nursing colleagues. It is unlikely, however, to promote the continued existence of a cadre of health workers who are demonstrably successful in identifying and contributing to meeting the health needs of so many vulnerable groups.

Conclusion

In this review of the British professional literature on health visiting, we have identified that health visitors in the UK are engaged in predominantly primary preventive activities involving a broad range of health issues amongst diverse groups of individuals and families, many of whom, but not all, are vulnerable in a variety of ways. Our conclusions are summarised in the following key points:

- The main literature review, which forms the systematic review part of this study (see chapter 4), is predominantly non-British and deals mainly with outcomes. Therefore, many of the process issues of concern to British health visitors are excluded from the main review.

- The review of the professional literature has identified many of the process issues and therefore begins to remedy the above omission. Health visitors appear, on the basis of this literature, to be successful in gaining acceptance by a wide range of individuals and families who appear to value their interventions. Yet, there is a notable lack of research evidence that links these processes of health visiting with health outcomes.

- There is a wide range of British professional, and some academic, literature on health visiting that has given rise to many issues of concern which have not been addressed subsequently either by systematic research or by policy action. Major tensions are identified between the health visiting profession's reliance on a voluntary relationship with families, no right of access to the home, and no powers of coercion, and the employers' (and other's) expectations of the health visitor's role and function. These tensions were demonstrated in approximately the mid-1980s and yet there is no evidence that they have been acknowledged as serious constraints on health visiting practice, that any attempt has been made to resolve them at a policy level, or to engage in further research in order to identify possible solutions. Meanwhile, policy changes within the NHS and CHS services have resulted in many changes in the ways in which the health visitor has been able to practise, particularly in the extent of home visiting, autonomy in case finding, and in the responsibility for making referrals. Health visiting has become increasingly 'medicalised' and those aspects of work, which do not fit comfortably within a medical model, have tended to become marginalised.

- The professional literature demonstrates that the health visitor, in addition to visiting 'normal' families, reaches the 'unreachable' – travellers, the homeless, the poor, victims of domestic violence, and depressed mothers. There is limited evidence on the role that Community Mothers may play in extending the health visitors' role with disadvantaged mothers, although the possibility of creating a cadre of low/unpaid women also has the potential for further devaluing 'women's work'.

- The health visitor's ability to work successfully in an inter-disciplinary and inter-agency way is demonstrated in many of the professional accounts of work with vulnerable groups. Indeed, the health visitor is frequently the linchpin in a network of professional and voluntary agencies. Yet, particularly in the area of child abuse, health visitors often find themselves in morally conflicting situations over their role with families, which is frequently poorly understood by others.

- Historic work on the health visitor's role in the prevention of sudden infant deaths demonstrated effectiveness in the late 1970s. The subsequent literature goes on to show that even when the death rates had been substantially reduced, health visitors continued to modify their advice in line with emerging research findings with apparently demonstrable further positive effects. They also offer highly acceptable support to families who have experienced a sudden infant death.

- Apart from major efforts on the part of health visitors themselves, usually in the context of higher degree theses, there is little systematic research on how health visitors work at a micro-level in their relationships with individuals and families. The work, which does exist, suggests that health visitors are most successful when functioning in a non-directive, supportive way, encouraging their clients to set their individual health agendas. Yet, this is a method of intervention, which tends to be treated by their employers as 'non-work', and health visitors are expected increasingly to operate within the terms of NHS managerial and medical agendas. The significance of this state of affairs for primary prevention, particularly in mental

health, cannot be underestimated because depression is predicted to constitute the second largest part of the global burden of disease by the year 2020. It may be that the diminution in home visiting which has gradually taken place since the beginning of the 1990s has left many families unsupported during the 'normal' crises that occur inevitably when raising a young family. Unfortunately, these changes were not accompanied by any evaluative research.

- If governments are serious about diminishing inequalities in health, and improving the level of health in the general population, then the relationship between individual and collective responsibility for health must be considered. The interplay between successful parenting, bio-psycho and socio-economic factors, and the wider environment has been demonstrated. Health visitors are the only British health professionals who have been trained to integrate all these dimensions into their assessment of health needs and in the planning of appropriate interventions. Research is needed that takes into account health visiting within different theoretical frameworks for practice, evaluating both the processes and outcomes that are implicit in different models for practice.

Chapter 7

Professional versus non-professional home visiting

Introduction

In chapters 2 and 4 the question of whether or not professionally qualified home visitors are more effective than those who do not possess professional qualifications was raised. This is clearly an important question because it is central to decisions about skill mix and cost-effectiveness. In this chapter we examine this issue in more depth, discussing five studies that employed non-professional home visitors. We examine three studies[46,47,62,70] already discussed in Part I of this report (see chapters 2 and 4). In addition, we examine two British studies[397,398] excluded from our main review because they failed to meet our inclusion criteria (see chapter 3).

Hardy and Streett (1989)[47]

Hardy and Streett[47] looked at the preventive effects of family support and parenting education delivered to poor, black mothers in the USA. The home visitor was "a middle-aged, college-educated black woman" who had previously lived in the same community as the mothers. The home visitor had "limited training" and worked under the direct supervision of a director of a Children and Youth Program in the area, and in close cooperation with a social worker also working for the Children and Youth Program. The role of the home visitor was to support the mothers and to provide them with information, but not to attempt any kind of therapeutic intervention to deal with psychosocial problems. If families had severe psychosocial problems, the home visitor was encouraged to refer the family to the social worker or programme director.

Hardy and Streett report that the programme was successful. The intervention group performed better on all of the outcomes assessed than did the controls, although for two outcomes, child abuse and head trauma, the difference between the groups was not significant (see chapters 2 and 4). In describing the content of the intervention, Hardy and Streett stress that it was the problems of poverty and deprivation, rather than problems with parenting capacity, with which the home visitor had to deal. Hardy and Streett also make clear that the home visitor was reliant on professional back-up and support from the social worker and programme director throughout. The home visitor also had medical back-up in the form of emergency medical supplies. Hardy and Streett concluded that any programme of this type "will not work optimally in isolation from professional social service and medical support".

Barth and colleagues (1988)[46] and Barth (1991)[70]

Barth[46,70] evaluated a home visiting project, known as the Child Parent Enrichment Project, which was designed to prevent child abuse. Pregnant women were referred to the project if they were identified as at risk of abusing their child by community professionals. The intervention involved home visiting by "para-professional women". The control families received traditional community services. The project took place in the USA.

Barth found that during the project (6 months) there were slightly more reports of child abuse in the intervention group than in the control group (11 vs. 9). This finding was not significant. Follow-up reports of child abuse (on average 3 years later) were similar for both groups. Barth concluded that there was some, very limited, evidence that the programme of paraprofessional home visiting had a primary preventive effect on families who had not already been reported for abuse prior to participating in the study. There was no evidence of secondary prevention in those who had previously been reported for abuse.

Barth concluded that the programme of home visiting by paraprofessionals did not make a measurable difference to child abuse outcomes. However, like Hardy and Streett[47] (see above), Barth suggests that the programme was helpful to some clients in dealing with problems arising from poverty, deprivation and social isolation, even though it did not prevent child abuse:

"This is a worthwhile service, but not a child abuse prevention service".[70]

Barth questioned the value of a project like the Child Parent Enrichment Project for highly distressed families. He drew attention to the fact that as public services were increasingly limiting their interventions to only those families with very serious problems, other highly distressed families were being referred to alternative services such as the Child Parent Enrichment Project. Paraprofessionals, he believed, did not have the skills to deal with the multiple problems of these families – for example, substance abuse and mental illness – for which some clients were not receiving professional services. Barth concluded by expressing doubts that a paraprofessional service designed to prevent child abuse could be effective for highly troubled families.

Johnson and colleagues (1993)[62]

Johnson and colleagues[62] assessed a child development programme delivered by non-professional, volunteer 'community mothers' in Dublin. The CDP was closely modelled on that developed by the Early Childhood Development Unit in Bristol.[122,123] The Bristol CDP had been implemented in one health authority in Ireland, but lack of resources had meant that the programme could not continue.[62] It was therefore decided in Dublin in 1983 to implement a similar programme using community mothers. The community mothers underwent 4 weeks of training, and each worked under the guidance of a 'family development nurse' (see also chapter 6, 'Home visiting by community mothers', page 211).

The community mothers programme was successful in some respects. The intervention group did better than the controls with regard to immunisation rates, mothers' self-esteem, and a number of dietary outcomes. Three cases of abuse were found among the controls compared with none in the intervention group, although this finding was not significant. However, the community mothers programme failed to show any benefits regarding hospitalisation whereas the Bristol CDP was associated with a sharp decrease in admissions among the intervention group.[122]

Johnson and colleagues[62] concluded that non-professionals could deliver the programme effectively. However, they stressed that they were unable to say whether non-professionals could deliver the programme as cost-effectively as professionals. Hence, a crucial question which Johnson's study raises is whether the reduced effectiveness of a non-professionally delivered programme can be justified by its lower cost.

Oakley and colleagues (1995)[398] (NEWPIN)

Oakley and colleagues[398] evaluated a British voluntary sector initiative, NEWPIN (the New Parent Infant Network), which uses volunteers who are mostly recruited by health visitors to befriend and support mothers of young children. Volunteers are frequently former clients of the service. NEWPIN schemes combine home visiting by volunteers with centre-based activities, such as mothers' groups.

Questionnaires were sent to all women referred during 1992 to four London centres. A total of 93 questionnaires were returned, which was a response rate of 63%. Information was abstracted from referral forms about all the women referred during 1992, including those who did not, in the event, make use of NEWPIN services, and those who did not return their completed questionnaire. Interviews were undertaken with ten NEWPIN staff.

The most important finding from the evaluation was the high proportion of women referred to NEWPIN who never used it. In all, 52% of the women referred in 1992 never went on to use the service. Reasons given by NEWPIN staff for non-use were that the referrals were inappropriate or the women were 'not ready'. Reasons given by women who had completed questionnaires were that their circumstances had changed or that NEWPIN did not meet their needs. Women also mentioned practical and financial obstacles to visiting the centre. Data on referral forms suggested that NEWPIN staff found it easier to contact older women with fewer children and those with partners, than young, single mothers with several children. Data on referral forms indicated that the two biggest problems for which women were referred were social isolation (65%) and depression (56%). Data concerning the referring agency showed that only 38% of health visitor referrals went on to use the service, compared with 61% of referrals by community psychiatric nurses and 60% of self-referrals. There was evidence of poor communication with the statutory sector. Many referring agencies, including GPs and community

psychiatric nurses, appeared not to have been informed of the outcome of their referral.

Of the 72 women who provided data on whether someone had visited them at home, 66% had received at least one home visit. Of the 93 women who returned their questionnaire, 47% said they found NEWPIN very or quite helpful, and 12% said it was not helpful or was positively unhelpful. A total of 43% claimed NEWPIN had helped them change their lives, and 41% said NEWPIN had not helped them change their lives. One-third felt that NEWPIN had helped them with their child-rearing problems overall. A total of 17% felt NEWPIN had helped them not to hurt their children, and 6% said that NEWPIN had helped prevent their children being taken into care.

In a subsequent paper,[399] Oakley suggested that her finding that over half the women referred to NEWPIN never use it raised disturbing questions:

> "It does ... seem to be the case that health visitors (and others) refer to Newpin because there is nothing else available, and because they themselves have too much to do. There are real questions here about what is happening to health visiting, about who is responsible for women who have been referred, and about who is accountable for what may subsequently happen to them."[399]

Frost and colleagues (1996)[397] (Home-Start)

Frost and colleagues[397] evaluated five Home-Start schemes based in Wakefield. The evaluation took place between 1992 and 1995. Home-Start is a voluntary sector initiative in which volunteers offer support, friendship and guidance to families with young children. At the time of Frost and colleagues' evaluation there were 172 Home-Start schemes in the UK, plus a further 53 in other countries.[397] Data was obtained from referral forms on all 305 families referred to the five schemes over the 3-year evaluation period. The researchers also interviewed a quota sample of mothers, fathers, volunteers, organisers and other professional workers, totalling 153 individuals. Two sets of interviews were undertaken: the first when the families first started to receive volunteer visits and the second 6 months later.

Frost reported, on the basis of the interviews, that 70% of families had found satisfaction with the support they had received from the volunteers. In relation to women's emotional well-being, 13% claimed to have resolved their emotional problems over the 6-month period between the two interviews, 51% of the sample reported improvements, 9% reported deterioration, and 27% reported no change. In relation to informal support networks (friends and family), 55% of women said there had been an improvement in their informal networks, 4% reported a deterioration, and 41% no change. A total of 42% claimed their relationship with their partner had improved, 46% said it had stayed the same and 12% that it had deteriorated. Improvements in parenting were reported by 51% of the families, 43% reported no change and 6% claimed their parenting skills had deteriorated. Finally, concerning child protection, Frost and colleagues' data showed that 12% of the families supported by the Home-Start schemes had at some time been on the child protection register, and of those, 12% were still on the register. Frost and colleagues claimed that, working in conjunction with social workers and health visitors, Home-Start volunteers were able to offer additional help to these families through their family support package. In addition, social workers were able to refer to Home-Start volunteers, families who had come to the attention of social services as child protection cases, but were not, after investigation, considered in need of a social work input.

Frost and colleagues concluded that overall, the service was valued by families and health professionals alike. However, it was not without problems. Frost drew attention to the importance of clear lines of communication between statutory and voluntary agencies, and the ambiguous position of the volunteer who is expected both to befriend the client, and at the same time to adopt the perspective of a professional worker. Whilst pointing to the advantages that a volunteer has in being able to work in an equal partnership with clients, Frost too cautions that volunteers with only minimal training cannot work unsupported by professional workers in families where child protection is an issue.

Conclusions

- No studies exist that formally compare the effectiveness and cost-effectiveness of professional and non-professional home visiting.
- Non-professional home visiting relies on guidance, collaboration and support from professionals. Non-professional home visitors do not work in isolation from professional services.

- Poor coordination between statutory and voluntary sector provision can result in some clients falling through the net of service provision.
- Where non-professional home visiting is targeted on very deprived populations, one of its main benefits appears to be that it helps clients to overcome practical problems arising directly from their poverty, rather than helping them to improve, for example, their parenting skills. In any event, dealing with the consequences of poverty and deprivation appears to be a precondition for success in achieving other objectives such as improvements in parenting skills.
- Some families with severe and multiple problems may not be suitable for non-professional home visiting in the absence of a professional input. It may be that professional workers accomplish some objectives, such as the prevention of child abuse, more successfully.

Chapter 8

Models of health visiting

Introduction

It is a weakness common to many studies of the effectiveness of home visiting that they lack a strong theoretical framework that relates the intervention being described to the outcomes being studied (see chapters 2 and 4). Typically, the studies we reviewed in chapter 4 included a list of expected outcomes of the intervention, a (often inadequate) description of the intervention, and a report of the extent to which the outcomes were met. Researchers were frequently not explicit about the paradigm or model within which their research was conducted, and often no attempt was made even to hypothesise about how the intervention being described might be expected to result in the outcomes specified. This made it difficult both to understand the rationale of the intervention, and to come to any conclusions about why a particular intervention succeeded or failed.

Our purpose in this chapter is to provide a context within which to interpret the findings of empirical studies of the effectiveness of home visiting. The chapter is divided into two sections. Section 1 examines various theoretical frameworks within which the health and social problems dealt with by health visitors can be conceptualised. The particular problem of child abuse is used as a means of illuminating how different models or conceptualisations of social problems have influenced home visiting interventions. Section 1 draws heavily on the work of Parton.[400] Section 2 looks at a number of different intervention approaches, or models of practice, adopted by health visitors (see also appendix 6).

Section 1

The conceptualisation of social problems: child abuse

Parton's[400] specific concern is with child abuse. However, the models and approaches he outlines apply to a range of problems for which home visiting is seen as an appropriate response. Parton outlines several models of child abuse: the disease model, cultural–behavioural models, the ecological model, and structural models. Each of these models is discussed in turn below.

The disease model

In the disease model, the problem of child abuse is viewed as abnormal or pathological behaviour, which has its origins in the personality of abusing parents. The emphasis is on individual treatment, cure and prediction. Parton[400] suggests that the disease model rests on a number of assumptions: first, that child abuse is a sufficiently unified disease to be placed in a diagnostic category in its own right; secondly, that the disease is to be found in the parents, although it manifests itself in the relationship with the child; and thirdly, that psychological or interpersonal family factors are of primary importance in causing the disease.

Parton argues that there are grave conceptual and empirical problems with the disease model of child abuse. First, there is the problem of definition. A clear definition of child abuse is central to the disease model, yet even within this model there is no standard definition of child abuse that is shared by researchers and accepted by welfare professionals. Secondly, the disease model rests on the assumption that it is possible to identify characteristics of abusing parents. Yet the research evidence suggests that there is not a single characteristic or cluster of characteristics which distinguishes abusers from non-abusers.[73,401–405] Consequently, it is not possible to predict child abuse on the basis of such characteristics. All the empirical evidence to-date suggests that attempts to predict abuse have both low sensitivity and specificity.[400,403,405] (see also chapter 9). Finally, Parton questions the effectiveness of interventions based on the disease model.

Parton reaches conclusions very similar to those reached by Rose[10] (see chapter 9). He believes that the disease model has failed to provide practitioners with any effective means of tackling child abuse:

> "[In the disease model] ... abuse is seen as a problem with certain parents who are unusual, or different to the normal. Abuse results from some individual or

> family defect and so must be remedied by particular means or exceptionalist solutions which are tailored to the individual case. In the process other parents are seen as normal and the wider society is not seen as problematic. ...
>
> "The disease model legitimates the role of a variety of health and welfare professionals who are seen as experts on such exceptional problems, and devolves to them the responsibility of 'doing something about it'. It also reinforces the view that such experts have, or can develop, the technical know-how to monitor, control and ameliorate in a very individualised way. Yet ... the model on which such techniques are based is empirically flawed and fundamentally misconceived. The research has failed to provide the results whereby abuse can be predicted and identified with any precision, so that health and welfare practitioners are being asked to do a job for which the basic tools do not exist."[400] (pp. 149–150)

The disease model in studies of home visiting

The disease model, and variants of it, is evident in some of the empirical studies included in our own literature review (see chapter 4). In particular, much of the research is predicated on the assumption that it is possible to predict those individuals and families who are likely to suffer particular problems.[46,48,70,101,125,406] The vast majority of studies, particularly the American studies we have reviewed in chapter 4, focus on families deemed to be at 'high risk' because they possess certain characteristics. These characteristics tend not to be the kinds of individual deficits with which the disease model has traditionally been associated, but rather social and economic risk factors. Nevertheless, the search for any kind of risk factor has its origins in the 'disease model', which assumes that it is possible both to distinguish those who are 'at risk' from those who are not, and to predict individuals or families in which problems will occur (see chapter 9 for a critical discussion of these ideas).

The cultural–behavioural model

The cultural-behavioural model holds that the problems of deprived populations result from their own health-damaging behaviours. The 'solution' in this perspective lies in health education in order to combat ignorance and encourage more appropriate, health-enhancing behaviours.[407] It is this cultural perspective that lies behind the idea of a 'cycle of deprivation', which suggests that deprivation and 'maladjustment' might be transmitted via poor parenting practices from generation to generation, resulting in both health and social problems.[408] This approach gained much credence in both this country and the USA in the 1960s and 1970s but is now often criticised as victim-blaming and as denying the importance of structural factors.

Cultural–behavioural approaches in studies of home visiting

Cultural explanations and their associated behavioural approaches to achieving change can be found in a number of studies of the effectiveness of home visiting. Some of the earlier British and American studies of the effectiveness of home visiting reviewed in chapter 4, which concentrate on imparting information and teaching various skills to parents, are based on this perspective.[36,38,151]

The ecological model

The ecological model is exemplified in the work of Garbarino and colleagues.[409–413] Garbarino,[410] drawing on the work of Hawley,[414] describes the ecology of human development as the "progressive, mutual adaptation of organism and environment". The ecological model conceives of the environment 'topologically' as an interactive set of systems 'nested' within each other.[410,411] The child's environment is thus understood as a series of settings each contained within the next broader level from the family to society (rather like a Russian doll), with each level exerting an influence on other levels.[400] Child abuse is the product of a "confluence of forces which lead to a pathological adaptation by caregiver and (to a lesser extent) child".[410]

In line with Rose's[10] conceptualisation of many social problems (see chapter 9), Garbarino and colleagues[410] view child abuse as "a point along a more general continuum of caregiver-child relations" and as "only quantitatively different from non-abusive relationships". In the ecological model, the central issue in child abuse is not physical injury or neglect but the overall relationship between parent and child and the impact of the relationship on the child's social, intellectual and moral development.[400,413]

The ecological model pays particular attention to the 'social habitability' or quality of the immediate environment or neighbourhood. Garbarino and colleagues' empirical research demonstrates that parents officially reported for child maltreatment tend to be clustered geographically in economically deprived and 'socially disruptive' neighbourhoods.[400,413] Garbarino emphasises in particular the way in

which the geographical segregation of deprived families into certain neighbourhoods gives rise to social isolation and social disorder.

Garbarino and colleagues[415] see the role of welfare professionals as helping to overcome the isolation of families in deprived neighbourhoods by generating neighbourhood support systems and teaching the skills of community organisation. They also emphasises the importance of continuity in the relationship between client and welfare professional because in so many deprived neighbourhoods relationships are brief and superficial. However, Garbarino does not subscribe to any belief in 'partnership' or 'equality' between professional and client. Rather, his concern is to overcome the isolation and privacy of nuclear families through close surveillance of family life. He believes professionals have a right to intrude into the private lives of families because "families do not own their children, they hold them in trust for society".[415]

Parton,[400] while acknowledging many of the insights of the ecological perspective, argues that in many ways this model simply replaces the idea of individual pathology contained in the disease model with the idea of social pathology. Thus, certain neighbourhoods are seen as lacking or deficient in certain crucial respects (they lack cohesiveness, have poor support networks, and suffer from a general impoverishment in their social relationships). Certain neighbourhoods, like certain individuals in the 'disease' model, are seen to require special treatment, development and support.

The ecological model relies on an analogy with the ecological systems found in biology. This analogy suggests that socially impoverished neighbourhoods are 'pathological', while other parts of society are healthy. But Parton argues that the analogy with biology can only ever provide partial and one-sided explanations because "neighbourhoods and communities are not ecological systems but are regulated and influenced by (social) processes unknown to the biologist".[400] In the social world, people's lives are shaped by the class structure, by race and gender relations, and by the political economy. These social structures have no equivalent in biology. A full explanation of child abuse, Parton argues, must look beyond the narrow influences of a shared geography, and focus on wider political, economic and historical influences:

> "Instead of looking inward to find the causes of child abuse ... in communities, neighbourhoods and families, it would be more productive to demonstrate how political, economic and historical forces can account for social deficits and child maltreatment."[400] (p. 158)

The ecological model in studies of home visiting

The ecological approach has had an important influence, particularly in American studies of the effectiveness of home visiting. The ecological model's rejection of individual and psychological explanations of abuse has been embraced by many welfare practitioners whose own 'grass roots' experience has taught them that child abuse cannot be adequately explained, predicted or 'cured' on the basis of the individualistic disease model. The ecological model is thought by many practitioners and researchers to be particularly well-suited to the task of understanding not only child maltreatment but also the much wider range of problems experienced by deprived people. The idea that child abuse represents a dynamic process of mutual adaptation between individuals and their environment is seen by many to be an important improvement on the simple notion of a one-way process of cause and effect. Finally, the ecological model has resonated with the experience of many practitioners working in deprived areas who have perceived that certain neighbourhoods do have a unique 'character' which marks them off from surrounding localities.

The ecological model has also had an impact on practice. Generating community support networks, and improving access to both formal and informal health and welfare services are held to be the key to effective interventions by a number of practitioners and researchers, notably Olds and his colleagues in the USA,[30,48–51,82,100,101,406,416–424] but also other US researchers.[46,70,74,83,84] Underpinning the home visiting programme described in studies by Olds and colleagues[48–51,82] is the idea that the most important and beneficial outcomes of home visiting result from its role in integrating isolated families into the community, fostering stronger formal and informal support networks, and contributing more generally to an enrichment of the impoverished quality of life of people living in deprived communities. However, like most of the empirical studies included in our literature review (see chapter 4), Olds' research represents a hybrid of different approaches. There are also elements of the 'disease' model in Olds' work. He is wedded

to the search for 'risk factors' and is committed to the idea of targeting interventions on those at high risk. There are also elements of a cultural–behavioural approach in his work. He believes it is important that home visitors promote "positive health-related behaviours" and attempt to "enhance the quality of infant care-giving".[406] However, the emphasis on cultural–behavioural factors is balanced by an emphasis on the social, physical and economic environment of families.

Structural models

The most radical perspective on child abuse is adopted by the American, Gil.[425–427] Gil identifies child abuse as an aspect of inequality. It is inequality, according to Gil, which, via the experience of poverty and social isolation, is the primary determinant of abuse.[425,400]

In explaining child abuse, Gil's focus is on the structural impediments to human development. Gil[427] argues that the unequal structure of society consistently frustrates a large section of society whose potential for development is thwarted. Eventually, energy that is blocked by "structural violence" erupts as "reactive, personal violence by individuals". Gil believes that:

> "if violence is to be overcome in a society and its families, obstructions to the unfolding of human potential need to be eliminated, and the institutional order needs to be transformed into a non-violent one, conducive to human self-actualization in which all people can freely meet their intrinsic biological, social and psychological needs."[427]
>
> (quoted in Parton[400]; p. 168)

The extent to which needs can be met, Gil argues, depends on society's philosophies and values, and on policies concerning resources, work and production. Hence, social problems can only be dealt with through a change in societal values and philosophies, and through political change, including a redistribution of resources, and the reorganisation of work and production.[425]

In Britain, structural models are less radical than Gil's American model. But in common with Gil, British commentators working within a structural model place great emphasis on disadvantage and material deprivation in shaping the individual's personality and in influencing the quality of child care. Exemplifying the British approach, Fuller and Stevenson[428] warn against attributing the problem of child abuse to personal inadequacy or maladjustment, drawing attention instead to the way in which poverty modifies attitudes, personalities and behaviour. Similarly, Wilson and Herbert[429] suggest that the stresses arising from chronic poverty may result in

> "feelings of failure, total loss of self-respect, or even paranoid feelings of persecution, and these states of mind in turn may lead to loss of motivation, suicidal actions, or aggressiveness and homicidal tendencies. When family failure eventually leads to contact with the Social Services it is not surprising that in many cases personality attributes are seen as the main 'causative' factor."[429]
>
> (quoted in Parton[400]; p. 168)

Wilson[430] describes how poverty forces parents into a pattern of child-rearing with which they are not happy, and how they adapt to their failures by lowering their expectations. Parton acknowledges the strength of Wilson and Herbert's approach both in linking socio-economic variables directly to the health and well-being of parents and children, and in drawing attention to the mismatch between society's high expectations of parents, and poor parents' ability to meet these expectations:

> "Social and economic stress ... has direct consequences for the well-being of children in poor families. People feel their poverty more when it affects their children and they are invariably more humiliated by their failures when they affect their dependants. Such problems are reinforced by the fact that society has articulated expectations of family life, and performance in child care is closely monitored. Poor parents are very aware of this."[400] (p. 172)

Parton is uncritical of structural approaches. However, clearly these approaches have shortcomings. The structural approach adopted by Gil, in particular, cannot avoid the charge that it is idealistic to the point, frankly, of naivety. Gil's approach is helpful in placing child abuse within a wider context of poverty and inequality, and in drawing attention to the wider societal processes that result in damage to children. However, his utopian vision of a society in which all people can freely meet their needs and engage in an unfettered process of 'self-actualization', appears unrealistic. In this respect, the individualistic theories adopted by, for example, those with a psychoanalytic orientation, seem to have advantages over Gil's theory. Mainstream psychoanalytic theory holds that 'healthy' human development depends in part on coming to terms with the reality that needs and desires cannot always be freely met. The

belief that some degree of frustration is inevitable, and that the 'real world' will always fall short of an ideal environment in which to develop, shows a realism in psychoanalytic theory lacking in Gil's account.

A final difficulty with both American and British structural approaches is that they betray a degree of structural determinism. They have no means of explaining why some disadvantaged families and children do not suffer the adverse health and developmental outcomes that these approaches would lead us to believe such people 'ought' to suffer. Here, more individualistic and psychological theories have the advantage that they are at least consistent with the fact that there are great differences in the health and well-being of people sharing very similar socio-economic profiles. There is the danger in structural approaches of stereotyping those in poverty, and overlooking the problems of those occupying a relatively advantaged position in society.[407]

Structural approaches in studies of home visiting

Although Gil's radical structural approach has had an impact on theoreticians, such as Parton, there is little evidence of a radical structural approach in studies of the effectiveness of home visiting. This may be, in part, because of the difficulty of translating the kind of approach that Gil adopts into a practical piece of research. For example, it is not immediately apparent what goals or outcomes would count as measures of success in this approach. Moreover, there is a long time-lag between the inputs (e.g. the redistribution of resources) and the outcomes (e.g. reductions in the incidence of various types of damage to children).[103] Perhaps the main reason for the absence of a radical structural approach in studies of home visiting is that home visiting as an intervention strategy would be ruled out *a priori* by many structuralists on the grounds that intervening at the level of the family with the aim of rectifying problems whose causes and solutions lie elsewhere, is misguided, and certain to be ineffective.

The British structural perspective, in which socio-economic factors are held to be directly linked to the personal characteristics and behaviour of individuals and families, has not been influential in studies of home visiting, although in many British studies it is recognised that people's material circumstances have an important effect on their ability to cope.

Section 2

Models of health visiting practice

Within the professional health visiting literature, several commentators have distinguished between different models of health visitor intervention. Below, we discuss the models described by four sets of authors: Robinson,[227] Chalmers and Kristajanson,[431] Billingham,[432] and Twinn.[433,434] We also discuss the relationship between these models of health visitor professional intervention, and the conceptual frameworks described previously in section 1.

Robinson[227]: the problem-oriented approach vs. the relationship-centred approach

Robinson[227] has distinguished between the 'problem-oriented' and the 'relationship-centred' approach. The problem-oriented approach can be seen in the developmental screening of infants and young children by health visitors. The goal in this approach is to identify developmental abnormalities and to refer any 'problem' to medical colleagues. The approach is epidemiological in orientation and is derived from the 'disease model'. By contrast, in the relationship-centred approach, the emphasis is on supporting the family, and the goals are more diffuse than the detection and treatment of a particular problem. In this model, health visiting approximates more closely to social work than to nursing. Robinson argues that whatever terminology is used – problem-oriented versus relationship-centred; nurse versus social worker; clinical versus supportive; medical versus social science – a polarisation of approaches was apparent at the time of the study at the end of the 1970s.

For the purpose of undertaking evaluative research, Robinson suggests that the problem-oriented approach lends itself to measurement of those things that can readily be measured, for example, rates of immunisation; and hence and to the achievement of tangible and quantifiable objectives, such as ensuring a high level of immunisation. The relationship-centred approach, on the other hand, is "dependent on less tangible factors, such as acceptance, empathy, and rapport. It is less easy to set objectives in concrete terms, and evaluation is dependent on subjective, qualitative estimation."[227] Commenting on health visitors' anxiety to "prove success" through research, Robinson cautions against relying only on factors that can be quantitatively evaluated, and ignoring the intangible elements of the relationship between health visitor and client.

Chalmers and Kristajanson[431]: models of community health nursing

Chalmers and Kristajanson[431] have distinguished three models of Canadian 'community health nursing': the public health model, the community participation model, and the community change model. The public health model uses epidemiological concepts to identify risk groups in the community. In this model the public health nurse's efforts are directed at primary and secondary prevention by means of immunisation programmes, teaching clients about nutrition and the control of the spread of communicable diseases, and carrying out screening programmes. This model is thus based on a mixture of the 'disease model' and a 'cultural–behavioural' approach to health and social problems. The public health model contains strong elements of professional dominance and control. It places the emphasis on the nurse as the definer of the health problem. In this approach, little attention is devoted to analysing "the underlying problems facing these risk groups".

The 'community participation' model involves the community in planning and delivering health services. The community health nurse's role is to assist communities in identifying their own needs and problems, and to help the community to carry out their own solutions before seeking outside help.[435] Although this approach contains elements of the ecological model, stressing as it does the importance of the ecological niche, or the quality of the immediate environment or neighbourhood in which people live, the emphasis on a more equal relationship between worker and client does not derive from the ecological model. The community participation model entails a shift in power from professionals to communities. This shift affects not only the professionals but also community groups who must take on more responsibility for defining their needs, and for deciding how they wish to work with professionals.

The 'community change' model is an extension of the community participation model. However, the target is much wider than the community and involves community nurses in challenging the existing distribution of power, the dominant value system and the allocation of resources. There is therefore a radical structural analysis at the heart of this approach. In this approach, the community nurse aims to improve the community's health not through a specific intervention but by adopting a mediating, enabling and advocacy role to aid in the generation of 'community systems' and to make health a 'politically accountable issue'.[436]

Billingham[432]: preventive, radical–political and self-empowerment models of health visiting

Billingham,[432] drawing on the work of Tones and colleagues,[437] outlines three models of health visiting: the preventive, radical–political and self-empowerment models. The preventive model, based on the disease model, and cultural–behavioural explanations of social problems, focuses on behaviour change by persuading individuals to take responsible decisions. Individuals are given information and are expected to make lifestyle changes and to participate in screening programmes.

The radical–political model is the 'opposite extreme' of the preventive model. Based on a radical–structural model, it is concerned with the promotion of social and environmental change by political action to address the causes of ill-health. Billingham suggests that the limitation of this approach is that it could be seen as a 'top–down' approach, with the worker setting the agenda rather than the community making its own decisions.

The 'self-empowerment model' aims to empower individuals and communities to achieve change. Interventions that help to develop assertiveness and self-esteem are viewed both as valid outcomes in their own right, and as facilitating health choices of every kind.

Twinn[433,434]: four paradigms of health visiting

Twinn[433,434] has outlined four 'paradigms' which practitioners use to guide their practice: individual advice-giving; environmental control; emancipatory care; and psychological development.

'Individual advice-giving' is the traditional approach to practice. It emphasises advice and health education, and is given in a one-to-one situation. Its target is usually all parents of young children.

The second paradigm, 'environmental control', uses epidemiological data to identify health needs. Health profiling, and targeting priority needs and client-groups, are aspects of this approach. This approach is collective and directive. It retains elements of the disease model, employing a very traditional model of public health with its emphasis on professional dominance and control. It involves health visitors

working collaboratively with other professionals, and uses a multisectoral approach.

The third approach, 'emancipatory care' is non-directive but collective. The emphasis is on partnership with clients, and on taking practice into the community, with health visitors participating in community health initiatives.[438]

The final paradigm is 'psychological development'. This paradigm is also about working in partnership with clients, with a particular emphasis on 'empowerment'. Health visiting within this paradigm relies on a one-to-one approach rather than collective strategies.

The influence of models of health visiting intervention on studies of the effectiveness of health visitor home visiting

We have seen that the differing approaches to health visiting practice described immediately above draw on the different explanations of health and social problems outlined in section 1.

Very broadly, both the 'disease model' and 'cultural–behavioural' explanations of health and social problems (both described in section 1) are associated with five of the models of professional practice set out above: Robinson's problem-oriented approach,[227] Chalmer and Kristajanson's public health model,[431] Billingham's preventive model,[432] and Twinn's individual advice-giving and environmental control models.[433,434] A number of studies of the effectiveness of home visiting are dominated by traditional medical or epidemiological concepts, and by cultural–behavioural approaches to change. Such studies include those that combine an emphasis on teaching and education with a focus on specific, medically defined problems such as failure to thrive, other developmental delays or abnormalities, or drug or alcohol abuse.[69,125,174] Studies that attempt to assess the effectiveness of home visiting in identifying those with the greatest need or at highest risk are also dominated by epidemiological concepts and the disease model. Many of the studies included in our literature review are hybrids, combining an emphasis on teaching, advice and education with an emphasis on 'social support'.[35,48,50,71,76,83,84,101] As Robinson[227] has noted, health visitors are expected simultaneously to adopt both problem-focused and relationship-centred approaches. They are expected both to monitor children for 'abnormalities' at the same time as performing the role of family friend. However, in many of the studies that we have reviewed (see chapter 4), the measures of outcome chosen in studies that emphasise 'social support' are no different from the measures of outcome chosen in studies which do not emphasise social support. Social support is viewed in many studies as a means to very concrete or problem-centred ends, such as increasing the uptake of immunisation, or improving the child's cognitive and motor development, rather than as an end in itself that might be expected to reflect 'softer' outcomes such as enhanced maternal self-esteem and confidence.

A number of models of health visiting professional practice emphasise the participation, control and empowerment of clients – either individually or collectively. Behind all of these models lies some kind of structural explanation of health and social problems. The more radical 'structuralist' approach (outlined in section 1) is most evident in Billingham's radical–political model, Chalmers and Kristajanson's community change model, and Twinn's paradigm of emancipatory care. All three of these models emphasise collective rather than individual change. None of these models of professional practice is evident in the studies of home visiting that we have reviewed, although they are to be found in studies of health visiting interventions which do not involve home visiting. For example, Twinn's paradigm of emancipatory care originated in the work of Hennessy[302,303] on postnatal depression, which advocated group work and collective strategies to combat those structural features of society that give rise to depression (see chapter 6, 'Health visiting interventions for mothers with postnatal depression', page 210). In explaining the absence of the more radical models of professional practice in studies of home visiting, we suggested in section 1 that the practice of home visiting did not fit easily with radical structural theories. However, there may be other reasons for the absence of more radical approaches to professional practice in studies of home visiting. Robinson[18] has suggested that practising health visitors in this country experience an unresolved conflict between their responsibility for individual health and their wider responsibility for community health. She argues that while it is seen to be the proper concern of health visitors to look after personal health, it is viewed as very 'unprofessional' to become involved in community health matters. It may be, then, that a fear that they might be regarded as unprofessional has restrained health visitors in this country from basing home visiting interventions on more radical theories.

Models of professional practice that emphasise the participation and empowerment of individuals as opposed to groups include Robinson's relationship-centred approach, Billingham's self-empowerment model, and Twinn's paradigm of 'psychological development'. A number of studies of the effectiveness of home visiting emphasise the empowerment of clients through a one-to-one relationship. An example is the Bristol CDP, which is based on a philosophy of home visitors working in partnership with clients in a non-directive way.[122,123,434,439] The CDP has been described by its architects as "essentially a comprehensive parent support programme, with its ultimate goals the achievement of increased development of young children, especially those facing economic and social disadvantage".[304] The approach of the CDP is distinguished from more traditional, disease and problem-oriented approaches first by its belief that it is structural factors which give rise to health and social problems; secondly by its emphasis on working in partnership with clients; thirdly by its rejection of the goal of attempting to tackle only one particular problem, such as child abuse; and finally by its rejection of the goal of targeting services selectively only on high-risk groups:

> "[The CDP] is not a programme intended to combat child abuse; such an aim would be seen as gratuitous if not deeply offensive by all the parents who willingly take part in the programme. They see it as part of the normal health visiting service provided by their health authority for all new parents ..."[123]

Summary conclusions

- A number of the studies we have reviewed are based on a 'disease model', and upon 'cultural–behavioural' explanations of health and social problems. These models have serious flaws. The disease model assumes that it is possible to identify those at high risk and to intervene accordingly (see also chapter 9). Cultural–behavioural explanations ignore the wider social context within which problems arise, and the structural impediments change. Failure to demonstrate positive outcomes in studies of home visiting may therefore be a consequence of testing a flawed model.
- Studies employing an ecological model, in particular the studies carried out by Olds and colleagues,[48–51,82] appear to be more successful in demonstrating positive outcomes. Further studies would help to confirm this. Most of the studies that employ an ecological approach are American. However, it is not known how successfully the ecological approach would translate to the UK. Further British studies, using the ecological approach, would be illuminating.
- Future studies must describe more clearly the model within which health and social problems are conceptualised, the model of intervention that the home visitor is employing, and the relationship between these, and the outcomes being evaluated.

Chapter 9

Universal versus targeted health visiting: a personal view

Introduction

During the early 1990s, government policy emphasised a shift from the provision of health services which was service-led, to provision based on assessment of population, community and individual needs.[254,440,441] This shift towards a needs-based service was accompanied by an emphasis upon targeted as opposed to universal health services.[7,442]

Health visiting and targeted services

The most explicit directive in relation to the targeting of health visitors' services is to be found in the Audit Commission report 'Seen but not heard'.[9] This report clearly states that after a universally provided first visit for families with new babies, health visiting should be focused on families with identified needs, recognising that the need for additional support is increased if families are living in conditions of poverty and deprivation. The report claims that "failure to target means not only a waste of resources but also a failure to ensure the well-being of those children who slip through the net of universal services or for whom universal provision is insufficient"[9] (p. 6).

The prevailing political climate has engendered a debate within the health visiting profession on whether health visiting remains a universal service providing health promotion and prevention to all; whether it becomes a secondary and tertiary support service to those identified as having problems; or whether indeed health visiting services should be withdrawn altogether from some sections of the population.[3,4,443] The influences on the debate include: a renewed emphasis on inequalities in health combined with a gradual reduction of health visiting resources in many areas, leading to the need for health visitors to manage their caseloads and prioritise their work; an increased interest by purchasers (supported by government initiatives such as 'New world, new opportunities'[440]) in addressing health inequalities; and an ever increasing need to demonstrate value for money in achieving health gain for the population served.

An important contribution to the debate about universal versus targeted services in health visiting has been made by Shirley Goodwin, the former General Secretary to the HVA. Goodwin[3] argues that health visitors themselves have been critical of the requirement for universal home visiting because it restricts their scope as skilled professionals to exercise their judgement about how best to respond to their clients' needs. Goodwin has suggested that the rigid policies operated by some employing authorities can perpetuate the 'health visiting by numbers' approach in which "requirements exist for a large number of home visits or surveillance contacts to be undertaken, preventing health visitors from exercising fully their professional judgement as to when, where and how clients' health needs can best be met".[3]

At worst, Goodwin suggests, universal home visiting can lead to a "routinised, mechanistic and even mindless checklist ticking approach to health visiting with the only measurable products being a head count of individuals visited".[3]

Goodwin[3] has proposed a service based on availability to clients but without routine or regular contact with clients. Mindful of the need to demonstrate the "effectiveness and affordability" of health visiting, Goodwin has argued that it is possible for health visiting to remain a universal service whilst offering a selective service on the basis of need.[3] The minimum level of provision as proposed by Goodwin was for health visitors to make contact (but not necessarily through home visits) with every family with a baby under 1 year old to give information about the service. She claimed that this would fulfil the criterion of health visiting being a universal health promotion and prevention service available to all. Within this universalistic context, Goodwin believed that health visiting must be offered actively to certain vulnerable target client groups. She suggested that

caseload and community profiling were the means whereby vulnerable people could be identified.

Whilst many agree with the need for additional support for those who are most vulnerable in society, a number of reservations have been expressed about Goodwin's proposals. First, it is known that the most vulnerable in society are the least able to access services.[444,445] Therefore, selective rather than universal visiting of children under 5 years old might lead to a failure to identify those families who do not seek out healthcare. Secondly, Goodwin's proposals have raised concerns about how health visitors would fulfil their surveillance and monitoring role. It has been argued that universal surveillance of the entire population is vital in the detection and prevention of problems and potential problems since there exists no other effective means of predicting when or where problems will occur. No screening instrument can ever be sufficiently precise to identify risk groups.[446]

Finally, Goodwin's stance has been criticised for the way in which providers rather than clients set the agenda. Dingwall and Robinson[447] argue that Goodwin's proposals conceal a considerable ideological shift for health visiting in which the agenda moves from a central concern with the client's perspective to a service set by the agendas of providers. Only those client needs that are viewed as valid needs by healthcare professionals will be recognised. Dingwall and Robinson argue that health visitors' objectives will be increasingly determined by reference to community health profiles based on epidemiological data, rather than by reference to the individual needs of clients. Instead of starting from the needs of the individual, the health visitor will now start from the 'official' picture of the community and try to find individuals who fit its categories.[447] Finally, the health visitor/client basis will be placed on a contractual relationship in which home visits will take place only by prior agreement. This means that the main worksite will shift from home to clinic, and the onus of responsibility for initiating contact with health visitors will shift to parents. The weakness of this arrangement is that health visitors will only assess children at a time and place of their parents' choosing. Dingwall and Robinson conclude that although Goodwin's proposals may appear to be tailored to the needs of individual clients, to shift the health visitor/client relationship onto a contractual basis is to suppress the voice of the client and to contain the client within a dependent role:

> "The language of contract in British health and social services [represents] an abandonment of the vision of universal concern and provision ... which may seem consumer-oriented. In practice, however, it forces the recipients into a narrow conception of autonomous individualism. ... It leads to the discarding of any ideal of client advocacy, that the state might have any duty to see that the voices of those unable to speak for themselves can be heard, ... and contributes to the perpetuation of dependency."[447]

Screening and profiling systems

The pressures for a more targeted service have resulted in some community units and trusts implementing profiling systems in an attempt to identify those clients who are in greatest need of intervention. Many of these systems use a form of screening by applying a scoring system to identify vulnerable families.[72,448–450] However, several commentators have questioned the usefulness of such systems.[285,451,452] Such research that does exist concerning the effectiveness of screening tools supports Dingwall's contention that these instruments are not effective. This is certainly true of the instrument developed by Browne, a checklist to be used by health visitors to identify families at high risk of child abuse.[450] Browne's 13-item checklist includes demographic, social, economic and psychiatric risk factors, all of which are weighted. Browne has conducted a retrospective study[453] to test the accuracy of his checklist in predicting where child abuse will occur. In this retrospective study, health visitors completed the checklist on 62 families with a child under 5 years old for which a case conference had been called on child abuse and neglect. The same checklist was completed on a further 124 non-abusing families (i.e. each 'case' was matched with two 'controls'). The results showed that despite weighting, the tool was sensitive to only 82% of the abusing families, while 12% of the non-abusing families were identified as abusers. Barker,[405] in a critique of Browne's study, has described in stark terms the consequences of using a checklist for a relatively rare outcome that both fails to detect 18% of abusers, and incorrectly labels 12% of non-abusers.

> "On a population of 10,000 families [the use of this checklist] would yield 1228 'high risk' families of whom only 33 would be abusers and 1195 false alarms. ... This means that 35 out of 36 families picked up by the checklist as potential abusers would in fact prove to be innocent."[405]

We are not suggesting that universal and frequent home visits are a more reliable or effective means of detecting and preventing child abuse than the use of a particular screening instrument. On the contrary, the evidence reviewed in Part I of this report provides no basis for the conclusion that home visiting is effective in reducing child abuse (see chapter 4, 'The prevention of child abuse and neglect', page 40). It is rather our contention that the use of screening instruments to identify such problems as child abuse is neither effective in its own terms, nor a realistic goal of home visiting services. We would concur with Barker and colleagues[123] that the aim of universal home visiting services cannot be to detect and combat child abuse, for such a goal would be both unattainable and offensive to parents who may well decide to have no contact with a health visitor (see also chapter 8, page 242).

One further difficulty with the use of checklists designed to identify those at increased risk of any particular problem is that risk factors are not stable over time, and therefore there is a need to monitor risks over time. This invariably makes monitoring an ever more complicated, time-consuming and resource-intensive activity. Any saving derived from carrying out only selective, targeted home visiting must be balanced against the resources consumed in establishing and maintaining a continuous screening system that enables services to be targeted as accurately as possible.

Individual ('high-risk') strategies of prevention vs. the population-based approach: the work of Rose

Radical objections to the idea of targeting services on selected groups have been expressed by the eminent epidemiologist the late Geoffrey Rose.[10] Rose's interest was not primarily in health visiting, but his work has fundamental implications for the debate concerning universal versus targeted services.

Rose[10] bases his argument on the fact that the population cannot be neatly divided into 'the sick' and 'the healthy'. Rather, he observes that for most diseases or health problems, there is a continuum of severity, with no sharp dividing-line separating those suffering from the disease from others. For example, hypertension does not exist as a distinguishable entity. Rather, blood pressure exists in all degrees, with 'low' merging imperceptibly into 'high' blood pressure without any sharp gradations. Similarly, he argues that the population cannot be neatly divided into those 'at risk' and those 'not at risk'. The risk of heart disease or stroke is not confined to those with the highest blood pressure but rather there is a continuous distribution of risk throughout the entire population.

Rose points to a number of important implications for the fact that disease and its associated risk factors form a continuum. Most importantly, this means that most morbidity arises among the many who are not at especially high risk, rather than among the few who are at high risk because of the large number of people who are not at high risk compared with the relatively small number of people in the high-risk group.

It follows from the fact that most morbidity arises among those who are not at high risk, that far greater reductions in morbidity will be achieved by shifting the entire risk distribution downwards as a coherent whole, than by attempting to shift downwards only the tail end of the distribution – those who are at especially high risk. To target interventions only on those at high risk leaves untouched a vast burden of disease and its associated risk. "The visible tip of the iceberg of disease can be neither understood nor properly controlled if it is thought to constitute the entire problem."[10]

Rose is aware that those at lesser risk (among whom most morbidity occurs) may benefit individually less than those at high risk – although the population benefit will be greater than if interventions are not confined only to those at high risk. Since those at lesser risk benefit less, they may not be highly motivated to comply with interventions. For this reason, Rose believes that it is all the more important to ensure that interventions are directed at the entire population and not simply at the few at high risk.

Rose's message is therefore clear. It is not possible to separate out the sick from the healthy, or the deviant from the normal, and nor is it therefore possible to make significant reductions in total morbidity by targeting services selectively on those labelled unhealthy, deviant or at high risk. What is needed is a population-wide programme of intervention in order to bring about the maximum gains in public health.

The implications of Rose's thesis for health visiting

Depression

Some of the implications of Rose's work for our own study of health visiting are drawn out by Rose himself. In particular, Rose looks at the problem of depression – a problem with which health visiting is centrally concerned. To Rose, depression exemplifies the kind of common problem on which the strategy of targeting services only to those at high risk can have only a limited impact. Rose argues that depression, just like hypertension, cannot be viewed in dichotomous terms. No sharp division exists between the 'mentally healthy' and the 'mentally sick'. Rather, there is a continuum of severity of depression ranging from mild to severe, with no sharp boundary between people suffering from depression and everyone else.

A 'touch of depression'

There are many people who, when screened for depression, do not yield a 'depression score' that exceeds a cut-off value above which they are likely to be defined as suffering from clinical depression. Rose asks whether it is really necessary for society to devote attention to people with low or average depression scores. "Does a 'touch of depression' matter?", he asks. "Yes", he answers. Rose cites a study by Brenner[454] in which people's depression scores were related to their use of community support services. Brenner's study found that the high scorers (the people who health professionals would diagnose as suffering from clinical depression) accounted for only a quarter of the excess burden on community services. Most of the excess use of social support services came from only moderately depressed people who fell around the middle of the distribution, and one-third arose among those who were only mildly depressed. Thus, Rose concludes that to be effective in reducing the burden of depression, prevention must address the whole range of the problem.

Rose's work thus suggests that health visiting interventions targeted only on those with high depression scores are likely to leave untouched a vast, submerged burden of disability arising from depression. Targeted interventions may well benefit a few severely depressed individuals, but the provision of 'special services' to those at the tail end of the distribution will not in any way benefit the large numbers of other people who are suffering from depression in varying degrees, and in whom most of the problems associated with depression occur. Furthermore, people go in and out of depression, and their depression may at any one time be mild or severe. This has important implications for any strategy to target health visiting services on selected groups. In targeting services selectively on 'high-risk' groups, health visitors frequently employ such indicators of risk as low income, unemployment or a high depression score. These are not static categories. Today's employed person may tomorrow join the ranks of the unemployed. Families above the breadline may one day sink below it. A woman whose 'symptoms' yield only a low depression score might graduate imperceptibly over time into a full-blown 'case of clinical depression'. Thus, as we argued in the previous section, a one-off screening exercise designed to pick up 'severe cases' or those at 'high risk', will be out-of-date almost as soon as it is completed. It is therefore likely that many people for whom it is only a matter of time before they move into the 'severe' or 'high risk' group will fall through the net of selective services. Moreover, as we also argued in the previous section, any savings brought about through the provision of a selective rather than a universal service must be put in the context of the time and resources consumed in constantly monitoring the population for their degree of risk through repeated screening exercises. Finally, even if it were possible to target successfully those at the 'severe' end of the continuum of risk or ill-health, this would still fail the larger proportion of people in whom most problems arise.

Child abuse

We would argue that the way in which child abuse is defined and dealt with by policy-makers and professionals is a prime example of the way in which "society seeks to distance itself from its deviants".[10] Parents who abuse their children are clearly identified by many politicians and professionals as a 'problem group', a group of 'deviants' who are different and separate from the rest of society.

However, it could be argued that the world is not divided into child-abusers and non-abusers, but rather there is a continuum of severity of maltreatment. Flagrant child abuse is simply the extreme of the kind of behaviour which average parents adopt towards their children (see also chapter 8, 'The ecological model', page 236). In other words, the maltreatment of children, in varying degrees of severity, is a population-wide problem. Currently, most preventive strategies to reduce child abuse concentrate only on 'high risk'

families or those with conspicuous problems. But there is likely to be a burden of physical and psycho-social morbidity among children of parents who, although they do not belong to the 'deviant' minority, nevertheless inflict a degree of maltreatment on their children. Thus, following Rose's argument, we might argue that with respect to child abuse, it is only by tackling the whole range of the problem and it is only by attempting to shift the whole distribution downwards that the incidence of severe or flagrant abuse can be reduced.

The above argument suggests that, as with the problem of depression, the provision of special services to 'high-risk' parents may offer benefits to those particular individuals, but the impact of such selective services on the total burden of morbidity arising from the maltreatment of children will be negligible. As with depression, a population-wide problem requires population-wide solutions.

Criticisms of Rose's thesis

Epidemiology vs. science

The value of Rose's thinking is inestimable. However, Charlton[455] has questioned the general air of orthodoxy that now surrounds Rose's ideas. In a provocative critique of Rose's work, Charlton suggests that there is no convincing evidence that Rose was right that small health gains in a large number of people result in far greater benefits to the population as a whole than large gains in a small number of people. Charlton questions Rose's belief that population-wide strategies for health promotion therefore offer more promise than individual approaches targeted on those at high risk. The lack of evidence in favour of Rose's claims, Charlton argues, arises from the well-known difficulties of epidemiology, most importantly that its evidence is of a statistical nature, as opposed to demonstrating any mechanism of cause and effect. Moreover, it is notoriously difficult to establish through epidemiological methods at what level a risk factor actually becomes a risk. The only way to establish the truth or otherwise of Rose's ideas, Charlton argues, would be through a population-wide RCT, but such an enterprise, Charlton points out, would involve randomising whole communities in the search for only small effects, and this is viewed by Charlton as an impractical proposition. Charlton believes that the way forward is a return to the basic canons of science in which the search is for the actual mechanism of causation and not simply for associations. Only once the causes of problems are properly understood are population strategies likely to be effective: "Geoffrey Rose's big mistake was to imply that epidemiology could be autonomous from science, and preventive medicine could operate in a state of ignorance concerning causation, guided only by a touching faith in the benign intentions of legislators."[455]

The value of Charlton's critique

Charlton[455] is undoubtedly right in drawing attention to the fact that while Rose's general approach is attractive to many people, and his logic incontrovertible, testing his ideas in the 'real world' is fraught with difficulties. However, we cannot concur with Charlton that what is needed is a return to 'pure' science and the search for causal mechanisms. In relation to the kind of problems with which health visitors are concerned, in which causation is almost invariably multifactoral, legislators cannot wait for the perfect research demonstrating precise causal mechanisms. However, Charlton's scepticism is important in reminding us of the importance of testing Rose's ideas empirically. The question of whether greater benefits accrue from abandoning a selective or targeted approach in order to pursue a community-wide approach requires further empirical testing.

Risk factors and protective factors: screening for health problems

One omission in Rose's work (due mainly to the lack of data in the field of organic medicine) is a consideration of the importance of protective factors. Health visitors frequently encounter families with multiple problems who also have high levels of coping resources; and conversely, they also encounter families with fewer or less severe problems whose coping resources are limited. One possible reason for the lack of success of instruments designed to screen for 'problem families' is that they fail to screen for coping resources. This is something that screening instruments are ill-equipped to measure. Hence, we would argue that the home visitor is crucial here in assessing through professional judgement the level and quality of family resources.

Targeted services and the question of equity

One objection to the idea of targeting services on those at greatest risk, or the most needy, is that this is inequitable. The idea of targeting services involves discrimination. Targeting involves denying some people the entitlement to receive

a service, or giving them a lesser entitlement than other people. If the decision is taken to restrict home visiting only to certain 'problem' or 'at risk' groups in the population, then very difficult decisions must be made about choosing a cut-off point between those who are to receive the service and those who are not. For example, if it is decided that a given home visiting service is to be restricted only to those on a low income, then those people whose income is only just above the cut-off point will be denied the service. If it is decided to restrict a service to lone, teenage mothers, then lone mothers aged 20 or 21 years old will be excluded. It is apparent that any attempt to target services only on selected groups must inevitably contain an element of arbitrariness and unfairness.

At present, the targeting of health visiting services is viewed not as inequitable, but as the very opposite. Targeting is viewed as a means of promoting equity by helping to reduce inequalities in health. In several areas of the country there have been attempts to target the work of health visitors on communities with the greatest needs. Those with the greatest needs are typically identified through the use of caseload and community profiles. For example, in Bristol the department of public health medicine collaborated with local health visitors to discover which families had the highest levels of health risk, using 26 'health needs factors', including low income, unemployment, parental depression, poor housing and recent divorce, separation or bereavement.[22,456] One difficulty with the use of such checklists of risk factors is that, as we have argued already, risk factors are often a poor predictor of actual outcomes. A second difficulty with such checklists of risk factors is the element of unfairness they contain in drawing an arbitrary line between those 'at risk' and those 'not at risk'. In relation to the work undertaken in Bristol, the team would have had to chose a cut-off point between a low income and a sufficient income; between depression and an absence of depression; between poor housing and adequate housing; and between 'recent' divorce or bereavement and 'non-recent' divorce or bereavement. Here again, it is Rose who has pointed out that the world is not divided into those who are at risk and those who are not at risk. Rather, there is a continuum of risk with no sharp dividing line between those at risk and those not at risk.[10] Any policy designed to promote targeting cannot make the assumption that it is possible to separate out those most at risk from the rest of society. Rather, it must be recognised that potential clients of the health visiting service form a continuum from those with fewer or lesser needs to those with more or greater needs, with no sharp division between the most needy and everyone else.

Finally, we would stress that if it is the case that interventions are especially effective, or more effective, in those at greatest risk, then the provision of universal services will not widen inequalities in health. Previous systematic reviews of the effectiveness of home visiting have suggested that those most at risk do benefit most (see chapter 2). If this is so, then the universal provision of effective services will reduce rather than widen inequalities in health.

Conclusion: universal and targeted services

The idea of targeting has been used to justify the policy aim of restricting health visiting services to only some sections of the community. We would argue that targeting, in the sense of denying services to some sections of the population, is unjustified and inequitable because, as Rose[10] pointed out, risks and needs form a continuum, so that it is both impractical and unfair to provide a service only to some people on the basis of an arbitrary dividing line between people who are 'at risk' or needy and everyone else. We would therefore urge that health visiting remains a universal service, within which relatively greater effort can be directed at the more needy. However, a universal service is not necessarily a uniform service.[103] There is certainly scope within a universally provided service to devote more time and resources to those with the greatest needs. Like Gomby and colleagues[12] (see also chapter 2), we are not recommending intensive and prolonged home visiting for everyone, but we consider that one or two initial home visits are essential in identifying those families in need of greater support. The evidence we have reviewed from the USA suggests that a more intensive input to some families may be desirable. In particular, the work of Olds and colleagues[30,48–51,82] (see chapters 2 and 4) suggests that unless families and children with major problems receive a more intensive input than is currently achievable in the UK system, they are unlikely to derive the maximum benefit from the home visiting services they receive. This does not mean that universal home visits should be abandoned, but rather that some families need a greater or more intensive input than others. The challenge for the future is to find the optimal

balance between less intensive, universal home visits and more intensive selective home visiting.

Concerning the question of how best to screen for those in need of more intensive home visiting, we have argued that checklists of risk factors, such as the Bristol scoring system,[22,456] have some obvious deficiencies. We believe that the professional judgements of health visitors are crucial to any assessment of priority. Priority scoring systems, in which all families initially receive one or two home visits, and thereafter families receive varying levels of support according to negotiated agreement between them and their health visitor, seem to us preferable to the "mindless checklist ticking approach" to which Goodwin[3] and Barker[405] so object (see the recent work of Bowns and colleagues[457]). Universal home visits, followed by a more intensive package of care to families in greater need (as adjudged by health visitors, who will rely not only on an 'objective' assessment of risk, but also on their judgements about levels of coping resources and even such intangibles such as intuitive professional judgement) seem to us the only sensible way forward.

Finally, we consider that home visiting services must also be flexible so that they can respond to needs that change over time.

Summary points

- The bulk of problems in society arise in the many people who are not at especially high risk, rather than in the few who are at high risk. Consequently, the provision of targeted or selective services will leave untouched a vast burden of health and social problems.[10]
- Within a universally provided service, some clients will require a greater intensity of input in order to derive the maximum benefit from the service.
- Where interventions are most effective among those at greatest risk, the provision of universal services may reduce inequalities in health.
- No screening instrument can be sufficiently precise or accurate to identify those at greatest risk. The professional judgements of health visitors are crucial to an assessment of the need for services.

Part III

Chapter 10

Implications for practice and recommendations for future research

This chapter begins in section 1 by looking at the implications of our review for health visiting. This is followed by recommendations for future research, which are presented in two sections (sections 2 and 3). Section 2 contains recommendations arising from Part I of our review (chapters 4 and 5). Section 3 contains recommendations arising from Part II of our report (chapters 6–9).

Section 1: Implications for health visiting

- Several reviews of the existing literature suggest that the content, duration and intensity of home visits must be appropriate and sensitive to the needs of clients.
- Our own view supports professional opinion that professional judgement is required on decisions about where to target home visiting resources.
- We believe that expectations of home visiting by health visitors should be realistic. Home visiting by itself can be insufficient to bring about radical improvements in health and social outcomes.
- The literature suggests that non-professional home visitors can play a role, but that they require guidance, supervision and support from professionals. The evidence suggests that some problems can be tackled effectively by non-professionals with support from professional colleagues, but other, more complex difficulties may not be suitable for non-professional home visiting.
- The evidence suggests that home visiting interventions that are restricted to the pursuit of only a narrow range of outcomes are less effective than more broadly based interventions in which the multiple needs of individuals and families are addressed.

Section 2: Recommendations for future research arising from Part I

This section begins with our core recommendations, which apply to future research involving all of the domains that are covered in our review in chapters 4 and 5. We consider the recommendations in this first part of section 2 (see below 'Recommendations relating to research relevant to all domains') to be a priority. The second part of section 2 contains research recommendations relating to specific domains (see 'Recommendations relating to research relevant to each domain', page 252).

Recommendations relating to research relevant to all domains

- The effectiveness and cost-effectiveness of UK health visitor home visiting programmes has not been adequately evaluated for any of the outcomes we reviewed. RCTs undertaken in the UK are required as a priority. These trials need to address the methodological weaknesses identified in many of the studies we reviewed (see chapter 4, 'Methodological limitations of the studies', page 57). Such weaknesses can be overcome in future studies by:
  - clearly defining the theoretical framework underpinning the study design
  - randomly allocating to treatment groups and reporting the method of allocation and concealment of allocation
  - having sufficient power to demonstrate clinically important differences in primary outcomes between treatment groups, including between those outcomes most likely to influence cost-effectiveness analyses
  - clearly defining the intervention to aid reproducibility, including content, timing, intensity and duration
  - using a range of outcome measures to allow consistency between outcome measures to be assessed and to provide possible explanations for observed effects
  - developing prospective methods of assessing outcomes susceptible to recall bias, for example the use of diaries for recording child behaviour
  - using independent observers to assess outcomes subject to surveillance or social desirability bias, wherever possible
  - using standard tools for outcome measurement whenever possible

  - measuring healthcare utilisation in conjunction with measures of illness or injury severity, and measures of non-medically attended illness or injury, to assess reductions in frequency, or severity of illness or injury, as opposed to changes in parental consulting behaviour or thresholds for medical care. Parental confidence and ability to deal with more minor illnesses and injuries should also be assessed
  - measuring processes in addition to outcomes, such as achieved intensity and duration of home visiting programmes, parental satisfaction with home visiting programmes and parental compliance with behavioural interventions
  - masking outcome assessors wherever possible
  - clearly identifying losses to follow-up and the potential biases introduced by any such losses
  - analysing results on an intention-to-treat basis
  - presenting results comprehensively to allow their inclusion in future meta-analyses
  - presenting results as reductions in risk, with 95% CIs and numbers needed to treat wherever possible
  - having longer follow-up periods to assess the duration of treatment effects and to detect sleeper effects
  - complying with the CONSORT guidelines for reporting RCTs.[458]
- Future RCTs need to compare home visiting programmes delivered by health visitors with those delivered by non-professionals in a UK setting.
- Comparisons are also required of groups considered at high risk of adverse maternal and/or child health outcomes with groups not defined as high risk. Such comparisons should be built into the design of future RCTs.
- Future RCTs should be designed to enable an assessment of which components of home visiting programmes are responsible for the observed effects.
- More RCTs are also required to assess the intensity and duration of home visiting programmes that achieve the greatest benefits.

Recommendations relating to research relevant to each domain

Recommendations for future research on home visiting and parenting

- Future research should use standard tools such as the HOME scale[177] and report the overall scale score, plus subscale scores, including means and SDs.
- Future studies should assess other outcome measures (or intervening variables) which may be related to parenting and the quality of the home environment, such as parental psychological well-being, parental esteem, parental support networks, child behaviour and development, uptake of preventive services including immunisation, and childhood injury. This would enable comparisons between outcome measures to be made, the consistency of results across outcomes to be assessed, and provide possible explanations for improvements in parenting and the quality of the home environment.
- Longer-term follow-up of home visiting programmes is required to assess the duration of effect of improvements in parenting, the quality of the home environment and the duration of effect of the other outcomes listed in the point above.

Recommendations for future research on home visiting and child behaviour

- Parental-reported behavioural problems and parental concern regarding child behaviour are both outcome measures that are subject to surveillance bias and social desirability bias in home visiting programmes. Their utility is therefore limited and future studies should consider the development and use of measures of assessing child behaviour which are less susceptible to such bias, for example independent observations of child behaviour.
- Parental perceptions of behaviour constituting 'problem behaviour' may be an important determinant of reporting problem behaviour. It is possible that an intervention may change parental perceptions, rather than, or in addition to, changing the behaviour of the child. An assessment of parental perceptions of problem behaviour should therefore be made in future studies and reported in addition to other measures of child behaviour.
- Families receiving home visiting may be more likely to remember behavioural problems than non-home-visited families, thereby introducing recall bias. Prospective methods of recording behaviour, such as diaries, may reduce such bias.
- Further research is required to assess the components of home visiting programmes that improve child behavioural outcomes; specifically, to address the question of whether home visiting programmes offering parental training in behavioural interventions are superior to those offering parental support without behavioural training.

- Longer-term follow-up is required to assess the duration, and nature, of treatment effects and to fully assess the cost-effectiveness of home visiting programmes.

Recommendations for future research on home visiting and child mental and motor development

- Comparisons are needed of the effects of home visiting programmes on the mental development of low birth weight, premature infants and infants with failure to thrive; and children who are at risk of other adverse child health outcomes, but who are full-term, normal birth weight children without failure to thrive.
- Future studies should use standardised outcome measures such as the Bayley Scales of Mental and Motor Development and the Stanford–Binet IQ Scale.[180,181] Concomitant use of the HOME scale[177] would also be useful to assess consistency between outcome measures.

Recommendations for future research on home visiting and physical development

- Future studies should take account of the complexities of translating standard weight and height charts into growth charts. The use of conditional reference charts[190] is advocated.

Recommendations for future research on home visiting and uptake of child health services

- Further work is required to assess the effectiveness, and cost-effectiveness, of home visiting programmes on the uptake of immunisation amongst groups with low immunisation rates. It would be useful to assess the provision of immunisations at home during the home visiting programme as one of the interventions in such an evaluation.
- Future studies should use standard measures of uptake of immunisation, and allow a sufficient period of time for immunisations to be completed. Suggested measures are the uptake of DPT, polio and *Haemophilus influenzae* by the age of 1 year and MMR by the age of 2 years.
- Future research on the uptake of preventive child health services should use measures that relate uptake to the number of visits (or contacts) specified in the CHS programme to enable comparisons to be made across differing CHS programmes. Such studies, including those measuring uptake of immunisation, should also assess parental perceptions of the utility of preventive child health services, barriers to the use of services and the extent to which parents perceive the home visiting programme to be meeting their child's health surveillance needs.

Recommendations for future research on home visiting and uptake of acute-care services

- Future studies need to have sufficient power to detect reductions in healthcare utilisation, especially in relation to hospital admissions and duration of stay, because these will be the most resource-intensive outcomes and hence those most likely to be important in assessing cost-effectiveness.
- Future studies need to include measures of illness severity to assess whether reductions in healthcare utilisation relate to reductions in frequency or severity of illness or changes in parental consulting patterns or medical thresholds for care.
- Future studies should also consider the use of methods of measuring morbidity not receiving medical attention to assess the impact of interventions on reductions in frequency of illness and on parental consulting patterns.
- The effect of home visiting programmes on parental confidence and ability to deal with childhood illness without recourse to medical attention requires assessment.
- Future studies should identify accident and emergency department attendances by diagnosis (at the minimum, as injury attendances and medical attendances), to enable separate analyses to be made by diagnostic group. Future studies should also include use of primary care services as an outcome measure.

Recommendations for future research on home visiting and unintentional injury in childhood

- Future studies need to have sufficient power to detect reductions in hospital admissions because these outcomes will be the most resource-intensive and the most likely to be important in demonstrating cost-effectiveness.
- Such studies also need to use a standard measure of injury severity, such as the Abbreviated Injury Scale,[459] to assess reductions in injury severity, as well as reductions in healthcare utilisation in both primary and secondary care services. They should have sufficient power to detect reductions in moderate or severe injuries.
- The concomitant use of measures to assess the prevalence of hazards in the home, and the quality of the home environment (HOME),[177] would be useful to allow the assessment of consistency between outcome measures (or

intervening variables), and to provide possible explanations for observed treatment effects. Similarly, the inclusion of outcome measures (or intervening variables) that have previously been demonstrated to be associated with unintentional injury in childhood, such as maternal depression and family stress, using standard tools, would be useful for these purposes.
- Future studies should evaluate the relative effectiveness of safety education versus general parental social support in reducing the frequency of unintentional injuries in childhood.
- Future studies should assess parental confidence and ability to deal with minor injuries without recourse to medical attention, and the frequency of non-medically attended injuries, for example by prospectively recording minor injuries using diary methodology.

Recommendations for future research on home visiting and child abuse and neglect
- Measures of reported or suspected child abuse and neglect in studies of home visiting are likely to be subject to considerable surveillance bias and, therefore, these are not useful measures of the effectiveness of home visiting programmes in reducing abuse and neglect in childhood.
- Future studies might consider the use of injury frequency and severity, regardless of intent, as an outcome measure. The recommendations in the section relating to preventing unintentional injury in childhood would also apply in these circumstances (see above).
- Future studies should consider the use of other outcome measures, such as the CAPI[191] or the Bavolek Inventory,[192] in conjunction with measures of childhood injury frequency and severity regardless of intent.
- Future studies should also include an assessment of outcomes (or intervening variables) that may be related to child abuse and neglect, such as parenting and the quality of the home environment, child development, child behaviour, parental discipline strategies, parental self-esteem and psychological well-being, and parental social support. This would allow consistency to be assessed across the outcomes and also provide possible explanations for observed treatment effects.

Recommendations for future research on home visiting and the mother's psychological health and self-esteem
- Further research is required to assess whether home visiting programmes can increase maternal self-esteem, using standard tools to measure self-esteem and psychological well-being. The concomitant use of other outcome measures (or intervening variables), such as the HOME scale,[177] child development and child behaviour, childhood injury, the CAPI[191] or the Bavolek Inventory,[192] and parental support, would be useful.

Recommendations for future research on home visiting and mothers' use of formal and informal support networks
- Future studies should use standard tools to measure social support networks.
- Future studies should also include measures of maternal self-esteem and psychological well-being against which maternal support outcomes can be assessed for consistency.

Recommendations for future research on home visiting, breastfeeding and children's diet
- Future studies aimed at increasing the uptake and duration of breastfeeding, or improving children's diet, should include an assessment of outcomes such as infant sleeping problems, child growth, child health, use of primary and secondary care services and maternal psychological well-being and self-esteem.

Recommendations for future research on home visiting and the mother's employment, education, family size and use of public assistance
- Future research should assess the effect of home visiting on maternal education, employment and receipt of welfare benefits, to enable consistency across outcome measures to be assessed.

Recommendations for future research on home visiting and client satisfaction
- Future studies should always include an assessment of client satisfaction, and levels of client satisfaction should be related to other outcomes being assessed.
- Standard tools to measure client satisfaction, tested for reliability and validity, should be used wherever possible.
- There is a need for longitudinal studies, which can chart levels of client satisfaction over time.

Recommendations for future research on home visiting to elderly people and their carers
- Further work is required to compare the effects of home visiting on frail elderly people who are at high risk of adverse health outcomes, and elderly people not at high risk.

- Further work is required to assess the effects of home visiting programmes on unplanned admissions to hospital, and duration of hospital stay.
- Further work is required to assess whether home visiting reduces admission to long-term care.
- There is a need for further studies assessing the impact of home visiting programmes on the quality of life and psychological status of both home-visited elderly people and their carers using standard measures of quality of life and psychological status.
- Further research is required to elicit elderly people's and their carers' views concerning the value of home visiting by health visitors.

Section 3: Recommendations for future research arising from Part II

- A survey of British health visitors should be undertaken (using the UKCC or other comprehensive databases of health visitors in employment) to identify:
  - the demographic profile of health visitors in current employment
  - the distribution of health visitors in relation to population, district health authorities and defined areas of disadvantage
  - health visitors' involvement with, and their perceptions of, their role and function in relation to:
    - families with children under 5 years of age
    - families with older children, including teenagers
    - children with special needs
    - CHS
    - single parents
    - families with below average incomes
    - travelling families
    - families with immigrant or refugee status
    - the homeless
    - the elderly
    - other groups or individuals with special needs. (chapter 6)
- A survey of health authorities, community trusts and primary healthcare groups should be undertaken in order to find out how patterns of service provision to 'normal' families and vulnerable groups and individuals (as listed above) relate to national and local policies and directives.[460–462] Areas for change should be identified. (chapter 6)
- A multidisciplinary study on the ethical constraints to health visiting with 'normal' and vulnerable families should be undertaken. Research experts in ethics, socio-legal studies and policy analysis should be involved. (chapter 6)
- Ethno-methodological research on health visitor/client interaction should be carried out by experts in the field. (chapter 6)
- More British studies are needed which assess client satisfaction and relate this to other outcomes being assessed. (chapter 6)
- More interdisciplinary British studies are needed in the areas of child abuse, child injury and accident prevention, homelessness, postnatal depression, and CHS, including hearing screening. (chapter 6)
- An RCT comparing the effectiveness and cost-effectiveness of employing health visitors and non-professional home visitors to deliver a service modelled on the Bristol CDP[122,123] should be undertaken. The design should involve a planned comparison between 'normal' families and vulnerable groups such as travellers or those with immigrant or refugee status. (chapters 6 and 7)
- Controlled trials of NEWPIN[398,399] and Home-Start[397] should be carried out. These should be designed to measure short- and longer-term outcomes for both children and their parents. (chapter 7)
- More British studies that draw on the ecological approach to delivering a home-visiting service need to be undertaken and evaluated. (chapter 8)
- All future British studies of home visiting must describe more clearly the rationale of the study. This will involve a clear description of the model within which the study is conducted (e.g. an ecological model or a behavioural model) and the relationship between the underlying model and the outcomes being evaluated. (chapter 8)
- Studies should be undertaken to assess the sensitivity and specificity of checklists designed to identify those at greatest risk of adverse outcomes. (chapter 9)
- The effectiveness of different systems of prioritising health visitors' workload should be compared. (chapter 9)
- Further British studies designed to find the optimal balance between less intensive, universal home visits and more intensive selective home visiting should be undertaken. (chapter 9)

Conclusion: trajectory of the knowledge base

Finally, there is a need to establish a substantial knowledge base in Britain. The knowledge base in this country is very small indeed compared with the USA. Once British evidence has accumulated it will be necessary to undertake a systematic review of British studies. Since there exists currently in Britain only a handful of RCTs of the effectiveness of health visitor home visiting, we suggest that an update of this systematic review should be taken in approximately 5 years to allow for the completion of new trials. Every effort should be made in future British studies to incorporate the relevant recommendations set out in this chapter.

Acknowledgements

The authors would like to thank the referees for the HTA programme whose helpful suggestions, and meticulous attention to detail, contributed greatly to the final report. We would also like to thank Ms Alison Pritchard, University of Nottingham, who assisted in the preparation of the figures used in the report. We also thank Mrs Jane Askew, University of Nottingham, for her management of the secretarial assistance we received. Finally, we thank Dr Woody Caan, of Lifespan Healthcare NHS Trust, Cambridge, for drawing our attention to the work of Professor Donna Ciliska and colleagues in Canada.

This work was commissioned by the NHS Health Technology Assessment programme, project 94/36/04. The views expressed in this report are those of the authors, who are also responsible for any errors.

References

1. Jenkins R. Towards a system of outcome indicators for mental health care. *J Psychiatry* 1990;**157**:500–14.
2. Williams D. Vulnerable families: a study of health visitors' prioritization of their work [Masters thesis]. Nottingham: University of Nottingham, Department of Nursing and Midwifery Studies, 1995.
3. Goodwin S. Whither health visiting? London: Health Visiting Association, 1988.
4. Billingham K. Beyond the individual. *Health Visitor* 1994;**67**(9):295.
5. Cowley S. Achieving positive outcomes: principles and process. *Health Visitor* 1996;**69**(1):17–19.
6. Dobby J, Barnes A. Measuring the need for, and the value of, routine health visiting 2. *Health Visitor* 1987;**60**(3):114–15.
7. Denny E. The future of health visiting. *Health Visitor* 1989;**62**(8):250–1.
8. Lynch P. What price home visiting and family support? *Health Visitor* 1997;**70**(7):72–4.
9. Audit Commission. Seen but not heard: Co-ordinating Community Child Health and Social Services for children in need. London: HMSO, 1994.
10. Rose G. The strategy of preventive medicine. Oxford: Oxford University Press, 1993.
11. Powell DR. Inside home visiting programmes. *The Future of Children* 1993;**3**(3):23–38.
12. Gomby DS, Larson CS, Lewit ME, Behrman RE. Home visiting: analysis and recommendations. *The Future of Children* 1993;**3**(3):6–22.
13. Weiss HB. Home visits: necessary but not sufficient. *The Future of Children* 1993;**3**(3):113–128.
14. Halpern R. Home-based early intervention: emerging purposes, intervention approaches and evaluation strategies. *Infant Ment Health J* 1984;**5**(4):206–20.
15. Kelsey A. Measure for measure. *Health Visitor* 1994;**6**(7):11:379.
16. Naish J, Kline R. What counts can't always be counted. *Health Visitor* 1990;**63**(12):421–2.
17. Luker K. Evaluating health visiting practice: an experimental study to evaluate the effects of focused health visitor intervention on elderly women living alone at home. London: Royal College of Nursing, 1982.
18. Robinson JJA. Health visiting and health. In: White R, editor. Political issues in nursing: past, present and future. Vol. 1. Chichester: John Wiley, 1985:67–86
19. Hawe P, Degeling D, Hall J. Evaluating health promotion. Sydney: MacLennan and Petty, 1990.
20. Nutbeam D, Smith C, Catford J. Evaluation in health education: a review of progress, possibilities and problems. *J Epidemiol Community Health* 1990;**44**:83–9.
21. Donabedian A. Some basic issues in evaluating the quality of health care, Part I. In: Rinke L, editor. Outcome measures in home care. Vol. I. New York: Research, National League for Nursing, 1987:3–28.
22. Goodwin S. Purchasing effective care for parents and young children. *Health Visitor* 1994;**67**(4):127–9.
23. Barker W. Health visiting: action research in a controlled environment. *Int J Nurs Stud* 1992;**29**(3):251–9.
24. Buck D, Godfrey C, Morgan A. Performance indicators and health promotion targets. Discussion Paper 150. University of York: Centre for Health Economics, 1996.
25. Combs-Orme T, Reis J, Ward LD. Effectiveness of home visits by public health nurses in maternal and child health: an empirical review. *Public Health Rep* 1985;**100**:490–9.
26. Hodnett ED. Support from caregivers for socially disadvantaged mothers. In: Enkin MW, Keirse MJNC, Renfrew MJ, Neilson JP, editors. Pregnancy and Childbirth Module of The Cochrane Database of Systematic Reviews [updated 6 September 1996]. Available in The Cochrane Library [database on disk and CD ROM]. The Cochrane Collaboration; Issue 2. Oxford: Update Software, 1995, available from the BMJ Publishing Group, London.
27. Hodnett ED. Support from caregivers for distressed postnatal women/couples. The Cochrane Pregnancy & Childbirth Database. The Cochrane Collaboration; Issue 2, 1995.
28. Hodnett ED, Roberts I. Home-based social support for socially disadvantaged mothers (Cochrane Review). In: The Cochrane Library, Issue 2, 1997. Oxford: Update Software.

29. Ciliska D, Hayward S, Thomas H, Mitchell A, Dobbins M, Underwood J, *et al.* The effectiveness of home visiting as a delivery strategy for public health nursing interventions: a systematic overview. Working Paper Series 94-7. Hamilton, Ontario: Quality of Nursing Worklife Research Unit, McMaster University, University of Toronto, 1994.

30. Olds DL, Kitzman H. Review of research on home visiting for pregnant women and parents of young children. *The Future of Children* 1993;**3**(3):53–92.

31. Shyne AW, LeMat AF, Kogan LS. Evaluating public health nursing service to the maternity patient and her family. *Nurs Outlook* 1963;**11**:56–8.

32. Lowe ML. Effectiveness of teaching as measured by compliance with medical recommendations. *Nurs Res* 1970;**19**:59–63.

33. Yauger RA. Does family-centered care make a difference? *Nurs Outlook* 1972;**20**:320–3.

34. McNeil HJ, Holland S. A comparative study of public health nurse teaching in groups and in home visits. *Am J Public Health* 1972;**62**:1629–36.

35. Gutelius MF, Kirsch AD, McDonald S, Riddick Brooks M, McErlan T. Controlled study of child health supervision: behaviour results. *Pediatrics* 1977;**60**:294–304.

36. Hall LA. Effect of teaching on primiparas' perceptions of their newborn. *Nurs Res* 1980;**29**:317–22.

37. Stanwick RS, Moffat MEK, Robitaille Y, Emond A, Dok C. An evaluation of the routine post-natal public health nurse home visit. *Can J Public Health* 1982;**73**:200–5.

38. Barkauskas V. Effectiveness of public health nurse home visits to primiparous mothers and their infants. *Am J Public Health* 1983;**73**:573–80.

39. Roberts I, Kramer M, Suissa S. Does home visiting prevent childhood injury? A systematic review of the randomised controlled trials. *Br Med J* 1996;**312**:29–33.

40. Freeman RB. Measuring the effectiveness of public health nursing service. *Nurs Outlook* 1961;**9**:605–7.

41. Ciliska D, Hayward S, Thomas H, Mitchell A, Dobbins M, Underwood J, *et al.* A systematic overview of the effectiveness of home visiting as a delivery strategy for public health nursing interventions. *Can J Public Health* 1996;**8**:193–8.

42. Field TM, Widmayer SM, Greenberg R, Stoller S. Effects of parent training on teenage mothers and their infants. *Pediatrics* 1982;**69**:703–7.

43. Villar J, Farnot U, Barow F, Victora C, Langer A, Belizan JM. A randomized trial of psychosocial support during high-risk pregnancies. *N Engl J Med* 1992;**327**:1266–71.

44. Gross RT. A multisite randomized intervention trial for premature, low birthweight infants: the Infant Health and Development Programme. In: Rogers DE, Ginzberg E, editors. Improving the life chances of children at risk. San Francisco: Westview Press, 1993:146–61.

45. Brooten D, Kumar S, Brown LP, Butts P, Finkler SA, Bakewell-Sachs S, *et al.* A randomized clinical trial of early hospital discharge and home follow-up of very-low-birth-weight infants. *N Engl J Med* 1986;**315**:934–9.

46. Barth RP, Hacking S, Ash JR. Preventing child abuse: an experimental evaluation of the Child Parent Enrichment Project. *J Primary Prevent* 1988;**8**:201–17.

47. Hardy JB, Streett R. Family support and parenting education in the home: an effective extension of clinic-based preventive health care services for poor children. *J Pediatr* 1989;**115**:927–31.

48. Olds DL, Henderson CR, Chamberlin R, Tatelbaum R. Preventing child abuse and neglect: a randomised trial of nurse home visitation. *Pediatrics* 1986;**78**:65–78.

49. Olds DL, Henderson CR, Tatelbaum R, Chamberlin R. Improving the delivery of prenatal care and outcomes of pregnancy: a randomized trial of nurse home visitation. *Pediatrics* 1986;**77**:16–27.

50. Olds DL, Henderson CR, Tatelbaum R, Chamberlin R. Improving the life-course development of socially disadvantaged mothers: a randomised trial of nurse home visitation. *Am J Public Health* 1988;**78**:1436–45.

51. Olds DL, Henderson CR, Phelps C, Kitzman H, Hanks C. Effect of prenatal and infancy nurse home visitation on government spending. *Med Care* 1993;**31**(2):155–74.

52. Scarr S, McCartney K. Far from home: an experimental evaluation of the Mother–Child home programme in Bermuda. *Child Dev* 1988;**59**:531–43.

53. Seitz V, Rosenbaum LK, Apfel NH. Effects of family support intervention: a ten-year follow-up. *Child Dev* 1985;**56**:376–91.

54. Holden JM, Sagovsky R, Cox JL. Counselling in a general practice setting: controlled study of health visitor intervention in treatment of postnatal depression. *Br Med J* 1989;**298**:223–6.

55. Hall N, De Beck P, Johnson D, Mackinnon K, Gutman G, Glick N. Randomized trial of a health promotion program for frail elders. *Can J Aging* 1992;**11**:72–91.

56. Lynch SA, Koch AM, Hislop TG, Coldman AJ. Evaluating the effect of a breastfeeding consultant on the duration of breastfeeding. *Can J Public Health* 1986;**77**:190–5.

57. Larson CP. Efficacy of prenatal and postpartum home visits on child health and development. *Pediatrics* 1980;**66**:191–7.

58. Barrera ME, Rosenbaum PL, Cunningham CE. Early home intervention with low-birth-weight infants and their parents. *Child Dev* 1986;**57**:20–33.

59. Carpenter R, Gardner A, Jepson M. Prevention of unexpected infant death: evaluation of the first 7 years of the Sheffield intervention programme. *Lancet* 1983;**i**:723–7.

60. Francis J. Home visits for elderly people after hospital discharge. *ACP J Club* 1993;(May–June):79.

61. MacMillan HL, MacMillan JH, Offord DR, Griffith L, MacMillan A. Primary prevention of child physical abuse and neglect: a critical review, Part I. *J Child Psychol Psychiatry* 1994;**35**:835–56.

62. Johnson Z, Howell F, Molloy B. Community mothers' programme: randomised controlled trial of non-professional intervention in parenting. *Br Med J* 1993;**306**:1449–52.

63. O'Sullivan AL, Jacobsen BS. A randomized trial of a health care programme for first-time adolescent mothers and their infants. *Nurs Res* 1992;**41**:210–15.

64. The Cochrane Library. The Cochrane Pregnancy & Childbirth Database, 1996 (updated quarterly). Oxford: Update Software.

65. Westheimer R, Cattell S, Connell E, Kaufman S, Swartz D. Use of paraprofessionals to motivate women to return for postpartum check-up. *Public Health Rep* 1970;**85**:625–35.

66. Moore F, Ballinger P, Beasley J. Influence of postpartum home visits on postpartum clinic attendance. *Public Health Rep* 1974;**89**:360–4.

67. Brooks-Gunn J, McCarton CM, Casey PH, McCormick MC, Bauer CR, Bernbaum JC, *et al.* Early intervention in low-birth weight premature infants. *JAMA* 1994;**272**:1257–62.

68. Chalmers I, Enkin MW, Keirse MJNC, editors. Materials and methods used in synthesizing evidence to evaluate the effects of care in pregnancy and childbirth. In: Effective care in pregnancy and childbirth. Oxford: Oxford University Press, 1989: 39–65.

69. Infant Health and Development Programme. Enhancing the outcomes of low-birth-weight premature infants. *JAMA* 1990;**263**:3035–42.

70. Barth RP. An experimental evaluation of in-home child abuse prevention services. *Child Abuse Negl* 1991;**15**:363–75.

71. Dawson P, van Doorninck WJ, Robinson JL. Effects of home-based, informal social support on child health. *J Dev Behav Pediatr* 1989;**10**:63–7.

72. Gray JD, Cutler CA, Dean JG, Kempe CH. Prediction and prevention of child abuse and neglect. *Child Abuse Negl* 1977;**1**:45–58.

73. Lealman GT, Haigh D, Phillips JM, Stoan J, Ord-Smith C. Prediction and prevention of child abuse: an empty hope? *Lancet* 1983;**i**:1423–4.

74. Marcenko MO, Spence M. Home visitation services for at-risk pregnant and postpartum women: a randomised trial. *Am J Orthopsychiatry* 1994;**64**:468–78.

75. Siegel E, Bauman KE, Schaefer ES, Saunders MM, Ingram D. Hospital and home support during infancy: impact on maternal attachment, child abuse and neglect, and health care utilization. *Pediatrics* 1980;**66**:183–90.

76. Gutelius MF, Kirsch AD, MacDonald S, Riddick Brooks M, McErlan T. Promising results from a cognitive stimulation programme in infancy: a preliminary report. *Clin Pediatr* 1972;**10**:585–93.

77. Lambie DZ, Bond JT, Weikart DP. Home teaching with mothers and infants: the Ypsilanti–Carnegie infant education project. Ypsilanti, MI: The High/Scope Educational Research Foundation, 1974.

78. Epstein AS, Weikart DP. The Ypsilanti–Carnegie infant education project: longitudinal follow-up. Ypsilanti, MI: The High/Scope Educational Research Foundation, 1979.

79. Thompson RJ, Cappleman MW, Conrad HH, Jordan WB. Early intervention programme for adolescent mothers and their infants. *J Dev Behav Pediatr* 1982;**3**:18–21.

80. Jester RE, Guinagh BH. The Gordon Parent Education Infant and Toddler Programme. In: The Consortium for Longitudinal Studies, editors. As the twig is bent ... Lasting effects of pre-school programmes. Hillsdale, NJ: Lawrence Erlbaum Associates, 1983:103–32.

81. Madden J, O'Hara J, Levenstein P. Home again: effects of the mother–child home programmess on mother and child. *Child Dev* 1984;**55**:636–47.

82. Olds DL, Henderson CR, Kitzman H. Does prenatal and infancy nurse home visitation have enduring effects on qualities of parental caregiving and child health at 25–50 months of life? *Pediatrics* 1994;**93**:89–98.

83. Barnard KE, Magyary D, Sumner G, Booth CL, Mitchell SK, Spieker S. Prevention of parenting alterations for women with low social support. *Psychiatry* 1988;**51**:248–53.

84. Booth CL, Mitchell SK, Barnard KE, Spieker SJ. Development of maternal social skills in multi-problem families: effects on the mother–child relationship. *Dev Psychol* 1989;**25**:403–12.

85. Osofsky JD, Culp AM, Ware LM. Intervention challenges with adolescent mothers and their infants. *Psychiatry* 1988;**51**:236–41.

86. Powell C, Grantham-McGregor S. Home visiting of varying frequency and child development. *Pediatrics* 1989;**84**:157–64.

87. Infante-Rivard C, Filion G, Baumgarten M, Bourassa M, Babelle J, Messier M. A public health home intervention among families of low socioeconomic status. *Child Health Care* 1989;**18**:102–7.

88. Wasik BH, Ramey CT, Bryant DM, Sparling JJ. A longitudinal study of two early intervention strategies: Project CARE. *Child Dev* 1990;**61**:1682–96.

89. Scarr-Salapatek S, Williams ML. The effects of early stimulation on low birth weight infants. *Child Dev* 1973;**44**:94–101.

90. Field TM, Widmayer SM, Stringer S, Ignatoff E. Teenage, lower-class, black mothers and their preterm infants: an intervention and developmental follow-up. *Child Dev* 1980;**51**:426–36.

91. Barrera ME, Cunningham CE, Rosenbaum PL. Low birth weight and home intervention strategies: preterm infants. *J Dev Behav Pediatr* 1986;**7**:361–6.

92. Resnick MB, Eyler FD, Nelson RM, Eitzman DV, Bucciarelli RL. Developmental intervention for low weight infants. Improved early developmental outcome. *Pediatrics* 1987;**80**:68–74.

93. Resnick MB, Armstrong S, Carter RL. Developmental intervention programme for high-risk premature infants: effects on development and parent–infant interactions. *J Dev Behav Pediatr* 1988;**9**:73–8.

94. Wolfe DA, Edwards B, Manion I, Koverola C. Early intervention for parents at risk of child abuse and neglect: a preliminary investigation. *J Consult Clin Psychol* 1988;**56**:40–7.

95. Taylor DK, Beauchamp C. Hospital-based primary prevention strategy in child abuse: a multi-level needs addressment. *Child Abuse Negl* 1988;**12**:343–54.

96. O'Connor S, Vietze PM, Sherrod KB, Sandler HM, Altemeier WA III. Reduced incidence of parenting inadequacy following rooming-in. *Pediatrics* 1980;**78**:65–78.

97. Forrest GC, Standish E, Baum JD. Support after perinatal death: a study of support and counselling after perinatal bereavement. *Br Med J* 1982;**285**:1475–9.

98. Ray KL, Hodnett ED. Caregiver support for postpartum depression. In: Neilson JP, Crowther CA, Hodnett ED, Hofmeyr GJ, editors. Pregnancy and childbirth module of the Cochrane Database of Systematic Reviews [updated 2 December 1997]. Available in The Cochrane Library [database on disk and CR-ROM]. The Cochrane Collaboration; Issue 1. Oxford: Update Software; 1998. Updated quarterly.

99. Appleby L, Warner R, Whitton A, Faragher B. A controlled study of fluoxetine and cognitive-behavioural counselling in the treatment of postnatal depression. *Br Med J* 1997;**314**:932–6.

100. Olds D, Henderson CR, Kitzman H, Cole R. Effects of parental and infancy nurse home visitation on surveillance of child maltreatment. *Pediatrics* 1995;**95**:365–73.

101. Kitzman H, Olds D, Henderson J, Hanks C, Cole R, Tatelbaum R, *et al.* Effect of prenatal and infancy home visitation by nurses on pregnancy outcomes, childhood injuries, and repeated childbearing. *JAMA* 1997;**278**:644–52.

102. Krugman RD. Universal home visiting: a recommendation from the US Advisory Board on Child Abuse and Neglect. *The Future of Children* 1993;**3**(3):184–91.

103. Vimpani G, Frederico M, Barclay L. An audit of home visitor programmes and the development of an evaluation framework. Report commissioned under the auspices of the National Child Protection Council by the Department of Health and Family Services. Canberra, Australia: Australian Government Publishing Service, 1996.

104. Halpern R. The societal context of home visiting and related services for families in poverty. *The Future of Children* 1993;**3**(3):158–71.

105. Barlow J. Systematic review of the effectiveness of parent-training programmes in improving behaviour problems in children aged 3–10 years. Oxford: Health Services Research Unit, University of Oxford, 1997.

106. Bass JL, Christoffel KK, Widome N, Boyle W, Scheidt P, Stanwick R, *et al.* Child injury prevention counselling in primary care settings: a critical review of the literature. *Pediatrics* 1993;**92**:544–50.

107. Community Practitioners and Health Visitors Association. Making the difference: evidence of the effectiveness of health visiting. London: CPHVA, 1998.

108. Kendrick D, Marsh P. The effectiveness of intervention programmes in reducing accidental injuries in children and young people. Sheffield: Trent Regional Health Authority, 1994.

109. NHS Centre for Reviews and Dissemination (University of York)/Nuffield Institute for Health (University of Leeds). Preventing unintentional injuries in children and young adolescents. *Effect Health Care* 1996;**2**(5).

110. NHS Centre for Reviews and Dissemination (University of York)/Nuffield Institute for Health (University of Leeds). Preventing falls and subsequent injury in older people. *Effective Health Care* 1996;**2**(4).

111. NHS Centre for Reviews and Dissemination (University of York)/Nuffield Institute for Health (University of Leeds). Mental health promotion in high risk groups. *Effective Health Care* 1997;**3**(3).

112. Pless ID. The scientific basis of childhood injury prevention: a review of the medical literature. London: Child Accident Prevention Trust, 1993.

113. Popay J, Young A. Reducing accidental death and injuries in children. Bolton, Trafford, Wigan: Public Health Research and Resource Centre/Trafford Health Authority, Manchester Public Health Resource Centre, 1993.

114. Speller V, Mulligan NJA, Low C, Foot B. Preventing injury in children and young people: a review of the literature and current practice. Southampton: Wessex Institute of Public Health Medicine, 1995.

115. Towner E, Jarvis S, and Dowswell T. Reducing childhood accidents. The effectiveness of health promotion interventions: a literature review. London: Health Education Authority, 1993.

116. Reisch JS, Tyson JE, Mize SG. Aid to the evaluation of therapeutic studies. *Pediatrics* 1989;**84**:815–27.

117. Moher D, Jadad AR, Nichol G, Penman M, Tugwell P, Walsh S. Assessing the quality of randomised controlled trials: an annotated bibliography of scales and checklists. *Control Clin Trials* 1995;**16**:62–73.

118. Hedges LV. Estimation of effect size from a series of independent experiments. *Psychol Bull* 1982;**92**:490–9.

119. Petitti DB. Meta-analysis, decision analysis, and cost-effectiveness analysis. New York: Oxford University Press, 1994.

120. Archbold PG, Stewart BJ, Miller LL, Harvath TA, Greenlick MR, Van Buren L, *et al.* The PREP system on nursing interventions: a pilot test with families caring for older members. *Res Nurs Health* 1995;**18**:3–16.

121. Balaban DJ, Goldfarb NI, Perkel RL, Carlson BL. Follow-up study of an urban family medicine home visit programme. *J Fam Pract* 1988;**26**:307–12.

122. Barker W, Anderson R. The Child Development Programme: an evaluation of process and outcome. Evaluation Document 9. Bristol: Early Childhood Development Unit, University of Bristol, 1988.

123. Barker W, Anderson R, Chalmers C, O'Sullivan G. Health trends over time and major outcomes of the Child Development Programme. Evaluation Document 15. Bristol: Early Child Development Unit, University of Bristol and Eastern Health and Social Services Board, 1994.

124. Beckwith L. Intervention with disadvantaged parents of sick preterm infants. *Psychiatry* 1988;**51**:242–7.

125. Black MM, Nair P, Kight C, Watchel R, Roby P, Schuler M. Parenting and early development among children of drug-abusing women: effects of home intervention. *Pediatrics* 1994;**94**:440–7.

126. Black MM, Dubowitz H, Hutcheson J, Berenson-Howard J, Starr H. A randomised clinical trial of home intervention for children with failure to thrive. *Pediatrics* 1995;**95**:807–13.

127. Brooks-Gunn J, McCormick M, Shapiro B, Benasich A, Black G. The effects of an early education intervention on maternal employment, public assistance, and health insurance: the infant health and development programme. *Am J Public Health* 1994;**84**:924–31.

128. Brown I. A skill mix parent support initiative in health visiting: an evaluation study. *Health Visitor* 1997;**70**:339–42.

129. Brown J. Screening infants for hearing loss: an economic evaluation. *J Epidemiol Community Health* 1992;**46**:350–6.

130. Casey PH, Kelleher KJ, Bradley RH, Kellog KW, Kirby RS, Whiteside L. A multifaceted intervention for infants with failure to thrive. *Arch Pediatr Adolesc Med* 1994;**148**:1071–7.

131. Chapman JS. Longitudinal follow-up of prematurely born children: outcomes of home stimulation programme to age four – a preliminary analysis. *Perspect Nurs* 1984;**16**(2):49–64.

132. Colver AF, Hutchinson PJ, Judson EC. Promoting children's home safety. *Br Med J* 1982;**285**:1177–9.

133. Davis H, Spurr P. Parent counselling: an evaluation of a community child mental health service. *J Child Psychol Psychiatry* 1998;**39**:365–76.

134. Dunn RB, Lewis PA, Vetter NJ, Guy PM, Hardman CS, Jones RW. Health visitor intervention to reduce days of unplanned hospital re-admission in patients recently discharged from geriatric wards: the results of a randomised controlled study. *Arch Gerontol Geriatrics* 1994;**18**:15–23.

135. Fabacher D, Josephson K, Pietruszka F, Linderborn K, Morley JE, Rubenstein LZ. An in-home preventive assessment programme for independent older adults: a randomized controlled trial. *J Am Geriatr Soc* 1994;**42**:630–8.

136. Fallat ME, Rengers SJ. The effect of education and safety devices on scald burn prevention. *J Trauma* 1993;**34**:560–4.

137. Gerrard J, Holden JM, Elliott SA, McKenzie P, McKenzie J, Cox JL. A trainer's perspective of an innovative programme teaching health visitors about the detection, treatment and prevention of postnatal depression. *J Adv Nurs* 1993;**18**:1825–32.

138. Gokcay G, Bulut A, Neyzi O. Paraprofessional women as health care facilitators in mother and child health. *Trop Doct* 1993;**23**:79–81.

139. Grantham-McGregor SM, Desai P. A home visiting intervention programme with Jamaican mothers and children. *Dev Med Child Neurol* 1975;**17**:605–13.

140. Grantham-McGregor SM, Schofield W, Powell C. Development of severely malnourished children who received psychosocial stimulation: six year follow-up. *Pediatrics* 1987;**79**:247–53.

141. Guyer B, Gallagher S, Chang B-H, Azzara C, Cupples L, Colton T. Prevention of childhood injuries: evaluation of the Statewide Childhood Injury Prevention Programme (SCIPP). *Am J Public Health* 1989;**79**:1521–5.

142. Hansen FR, Spedtsberg K, Schroll M. Geriatric follow-up by home visits after discharge from hospital: a randomized controlled trial. *Age Ageing* 1992;**21**:445–50.

143. Hendriksen C, Lund E, Stromgord E. Consequences of assessment and intervention among elderly people: a three year randomised controlled trial. *Br Med J* 1986;**289**:1522–4.

144. Hewitt K, Mason L, Snelson W, Crawford W. Parent education in preventing behaviour problems. *Health Visitor* 1991;**64**(12):415–17.

145. Huxley P, Warner R. Primary prevention of parenting dysfunction in high-risk cases. *Am J Orthopsychiatry* 1993;**63**:582–7.

146. Jones DA, West RR. Lactation nurse increases duration of breast feeding. *Arch Dis Childhood* 1985;**60**:772–4.

147. Jones DA, West RR. Effect of a lactation nurse on the success of breast-feeding: a randomised controlled trial. *J Epidemiol Community Health* 1986;**40**:45–9.

148. Keller KL, Flatten EK, Wilhite BC. Friendly visiting as a means of informing homebound senior citizens of health-related community services. *J Community Health* 1988;**13**:231–40.

149. Kelly M. Will mothers breast feed longer if health visitors give them more support? *Health Visitor* 1983;**56**(11):407–9.

150. Kerr S, Jowett S, Smith L. Education to help prevent sleep problems in infants. *Health Visitor* 1997;**70**(6):224–5.

151. Law-Harrison L, Twardosz S. Teaching mothers about their preterm infants. *J Obstet Gynecol Neonatal Nurs* 1986;**15**(2):165–71.

152. Margolis PA, Lannon CM, Stevens R, Harlan C, Bordley WC, Carey T, *et al.* Linking clinical and public health approaches to improve access to health care for socially disadvantaged mothers and children. *Arch Pediatr Adolesc Med* 1996;**150**:815–21.

153. Miller LL, Hornbrook MC, Archbold PG, Stewart BJ. Development of use and cost measures in a nursing intervention for family caregivers and frail elderly patients. *Res Nurs Health* 1996;**19**:273–85.

154. Mohide EA, Pringle DM, Streiner DL, Gilbert JR, Muir G, Tew MA. Randomized trial of family caregiver support in the home management of dementia. *J Am Geriatr Soc* 1990;**38**:446–54.

155. Oda DS, Heilbron DC, Taylor HJ. A preventive child health programme: the effect of telephone and home visits by public health nurses. *Am J Public Health* 1995;**85**:854–5.

156. Oktay JS, Volland PJ. Post-hospital support programme for the frail elderly and their caregivers: a quasi-experimental evaluation. *Am J Public Health* 1990;**80**:39–46.

157. Pathy MSJ, Bayer A, Harding K, Dibble A. Randomised trial of case finding and surveillance of elderly people at home. *Lancet* 1992;**340**:890–3.

158. Paul CL, Sanson-Fisher RW, Redman S, Carter S. Preventing accidental injury to young children in the home using volunteers. *Health Prom Int* 1994;**9**:241–9.

159. Robitaille Y, Legault J, Abbey H, Pless IB. Evaluation of an infant car seat programme in a low-income community. *Am J Dis Child* 1990;**144**:74–8.

160. Schwarz DF, Grisso JA, Miles C, Holmes JH, Sutton RL. An injury prevention programme in an urban African-American community. *Am J Public Health* 1993;**83**:675–80.

161. Seeley S, Murray L, Cooper PJ. The outcome for mothers and babies of health visitor intervention. *Health Visitor* 1996;**69**(4):135–8.

162. Selby-Harrington M, Sorenson JR, Quade D, Stearns SC, Tesh AS, Donat PLN. Increasing Medicaid child health screenings: the effectiveness of mailed pamphlets, phone calls and home visits. *Am J Public Health* 1995;**85**:1412–17.

163. Shapiro C. Shortened hospital stay for low-birth-weight infants: nuts and bolts of a nursing intervention project. *JOGNN* 1995;**24**(1):56–63.

164. Spiegel CN, Lindaman FC. Children can't fly: a programme to prevent childhood morbidity and mortality from window falls. *Am J Public Health* 1977;**67**:1143–7.

165. Sutton C. Educating parents to cope with difficult children. *Health Visitor* 1995;**68**(7):284–5.

166. Sutton C. Training parents to manage difficult children: a comparison of methods. *Behav Psychother* 1992;**20**:115–39.

167. Toseland RW, Rossiter CM, Peak T, Smith GC. Comparative effectiveness of individual and group interventions to support family caregivers. *Social Work* 1990;(Jan):209–17.

168. Van Rossum E, Frederiks CMA, Philipsen H, Portengen K, Wiskerke J, Knipschild P. Effects of preventive home visits to elderly people. *Br Med J* 1993;**307**:27–32.

169. Vetter NJ, Jones DA, Victor CR. Effect of health visitors working with elderly patients in general practice: a randomised controlled trial. *Br Med J* 1984;**288**:369–72.

170. Vetter NJ, Lewis PA, Ford D. Can health visitors prevent fractures in elderly people? *Br Med J* 1992;**304**:888–90.

171. Waller AE, Clarke JA, Langley JD. An evaluation of a programme to reduce home hot tap water temperatures. *Aust J Public Health* 1993;**17**:116–23.

172. Weir IK, Dinnick S. Behaviour modification in the treatment of sleep problems occurring in young children: a controlled trial using health visitors as therapists. *Child Care Health Dev* 1988;**14**:355–67.

173. Williams IE, Greenwell J, Groom LM. The care of people over 75-years-old after discharge from hospital: an evaluation of timetabled visiting by Health Visitor Assistants. *J Public Health Med* 1992;**14**:138–44.

174. Wright CM, Callum J, Birks E, Jarvis S. Effect of community-based management in failure to thrive: a randomized controlled trial. *Br Med J* 1998;**317**:571–4.

175. Yanover MJ, Jones D, Miller MD. Perinatal care of low risk mothers and infants: early discharge with home care. *N Engl J Med* 1976;**294**:702–5.

176. Ytterstad B, Sogaard AJ. The Harstad Injury Prevention study: prevention of burns in small children by a community-based intervention. *Burns* 1995;**21**:259–66.

177. Bradley R, Caldwell B. Home observation for the measurement of the environment: a revision of the pre-school scale. *Am J Ment Deficiency* 1979;**84**:235–44.

178. Nursing Child Assessment Scale of Teaching. Caregiver/parent–child interaction feeding manual. University of Washington, School of Nursing: NCAST Publications, 1994.

179. Carey WB. A simplified method for measuring infant temperament. *J Pediatr* 1970;**77**:188–94.

180. Bayley N. Manual for the Bayley Scales of Infant Development. New York: Psychological Corporation, 1969.

181. Terman LM, Merrill MA. Stanford–Binet Intelligence Scale: manual for the third revision form L-M. Boston, MA: Houghton Mifflin, 1973.

182. Dunn LM. Peabody Picture Vocabulary Test. Revised. Circle Pines, MN: American Guidance Service, 1981.

183. Wechsler D. Wechsler Pre-School and Primary Scale of Intelligence. Revised. New York: Psychological Corporation, 1989.

184. Cattell P. The measurement of intelligence of infants and young children. New York: Psychological Corporation, 1940.

185. Griffiths R. The abilities of babies. London: University of London Press, 1967.

186. Griffiths R. The abilities of young children. London: Child Development Research Centre, 1970.

187. Morgan GA, Maslin CA, Harmon RJ. Mastery Motivation Tasks: Manual for 15 to 24 month old children [manuscript]. Fort Collins, CO: Department of Human Development and Family Studies, Colorado State University, 1984.

188. Cain LF, Levine S, Elzey EF. Cain–Levine Social Competency scale. Palo Alto, CA: Consulting Psychologists Press, 1963.

189. Newborg J, Stock J, Wnek L, Guiduboldi J, Svinick J. Battelle Developmental Inventory. Allen, TX: DLM Teaching Resources, 1984.

190. Cole TJ. Conditional reference charts to assess weight gain in British infants. *Arch Dis Childhood* 1995;**73**:16.

191. Milner JS. The Child Abuse Potential Inventory, manual. Webster, NC: Psytec Corporation, 1980.

192. Bavolek SJ. Handbook for the AAPI: Adult–Adolescent Parenting Inventory. Eau Claire, WI: Family Development Resources Inc, 1984.

193. Spielberger CD, Gorusch RI, Lushene RE. Manual for the State–Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologist Press, 1970.

194. Pearlin IL, Schooler C. The structure of coping. *J Health Soc Behav* 1978;**19**:2–21.

195. Radloff LS. The Centre for Epidemiological Studies Depression Scale: a self-report depression scale for research in the general population. *Appl Psychol Measurement* 1977;**1**:385–401.

196. Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 1987;**150**:782–6.

197. Goldberg DP, Cooper B, Eastwood MR, Kedward HB, Sheperd M. Standardized psychiatric interview for use in community surveys. *Br J Soc Med* 1970;**24**:18–23.

198. Rosenberg M. Society and the adolescent self image. Princeton, NJ: Princeton University Press, 1965.

199. Derogatis LR. Brief Symptom Inventory: administration, scoring and procedures manual. 2nd ed. Baltimore, MD: Clinical Psychometric Research Inc., 1992.

200. Beck AT. Depression: causes and treatment. Philadelphia, PA: University of Pennsylvania Press, 1970.

201. Abidin RR. Parenting Stress Index manual. Charlottesville, VA: Pediatric Psychology Press, 1990.

202. McDowell I, Newell C. Measuring health: a guide to rating scales and questionnaires. New York: Oxford University Press, 1987.

203. Berwick DM. Performance of a five-item mental health screening test. *Med Care* 1991;**29**(2):169–76.

204. Ware JE, Veit CT, Donald CA. Refinements in the measurement of mental health for adults in the Health Insurance Study. Santa Monica, CA: Rand Corporation, 1985.

205. Robson P. Development of a new self-report questionnaire to measure self-esteem. *Psychol Med* 1989;**19**:513–18.

206. Goldberg DP. General health questionnaire 28. Windsor (UK): NFER-Nelson, 1981.

207. Norbeck JS, Lindsey AM, Carrieti VL. The development of an instrument to measure social support. *Nurs Res* 1981;**39**:264–9.

208. Donald CA. Conceptualisation and measurement of health for adults in the health insurance study. Vol. IV: Social health. Santa Monica, CA: Rand Publications, 1978.

209. Broadhead WE. The Duke–UNC Functional Social Support Questionnaire. *Med Care* 1988; **26**(7):709–21.

210. Barker DJP, Osmond C. Inequalities in health in Britain: specific explanations in three Lancashire towns. In: Barker DJP, editor. Fetal and early infant origins of adult disease. London: BMJ Publishing, 1992:513–18.

211. Avis M, Bond M, Arthur A. Satisfying solutions? A review of some unresolved issues in the measurement of patient satisfaction. *J Adv Nurs* 1995; **22**:316–22.

212. Williams B. Patient satisfaction: a valid concept? *Soc Sci Med* 1994;**38**:509–16.

213. Carr-Hill R, Dixon P, Thompson A. Too simple for words. *Health Serv J* 1989;**99**:728–9.

214. Carr-Hill R. The measurement of patient satisfaction. *J Public Health Med* 1992;**14**:236–49.

215. Graham H. Women's attitudes to the child health services. *Health Visitor* 1979;**52**(5):175–8.

216. Tolley K. Health promotion: how to measure cost-effectiveness. London: Health Education Authority, 1993.

217. Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. 2nd ed. Oxford: Oxford Medical Publications, 1997.

218. Drummond MF, Jefferson TO on behalf of the BMJ Economic Evaluation Working Party. Guidelines for authors and peer reviewers of economic submissions to the BMJ. *Br Med J* 1996;**313**:275–83.

219. Gold ME, Seigel JE, Russell LB, Weinstein MC. Cost-effectiveness in health and medicine. New York: Oxford University Press, 1996.

220. Carr-Hill RA, Morris J. Current practice in obtaining the 'Q' in QALYs: a cautionary note. *Br Med J* 1991;**303**:699–701.

221. Richardson J. Cost-utility analysis: what should be measured? *Soc Sci Med* 1994;**39**:7–21.

222. Barnett WS. Economic evaluation of home visiting services. *The Future of Children* 1993;**3**(3):93–112.

223. Tolley K, Rowland N. Evaluating the cost-effectiveness of counselling in health care. London: Routledge, 1995.

224. Sculpher M, Drummond M, Buxton M. The iterative use of economic evaluation as part of the process of health technology assessment. *J Health Serv Res Pol* 1996;**2**:26–30.

225. Finkler SA. The distinction between costs and charges. *Ann Intern Med* 1982;**96**:102–9.

226. McCleary GF. The early history of the infant welfare movement. London: HK Lewis and Co, 1933.

227. Robinson JJA. An evaluation of health visiting. London: Council for the Education and Training of Health Visitors/English National Board for Nursing Midwifery and Health Visiting, 1982.

228. Council for the Education and Training of Health Visitors. An investigation into the principles of health visiting. London: CETHV, 1977.

229. Patterson J. Reflections on travellers and their children. *Nurs Times* 1982;**78**(39):1617–19.

230. Self J. Will you weigh m'baby lady? Setting up a service for the travelling families. *Nurs Times* 1982;**78**(39):1620–4.

231. Lawrie B. Travelling families in east London: adapting health visiting methods to a minority group. *Health Visitor* 1983;**56**(1):26–8.

232. Reid T. Partners in care. *Nurs Times* 1993;**89**(33):28–30.

233. Rose V. On the road. *Nurs Times* 1993;**89**(33):31.

234. Department of Health. The Health of the Nation: a strategy for health in England. London: HMSO, 1992.

235. Anderson E. Health concern needs of traveller families. *Health Visitor* 1997;**70**(4):148–50.

236. Drennan V, Stearn J. Health visitors and homeless families. *Health Visitor* 1986;**59**(11):340–2.

237. Lovell B. Health visiting homeless families. *Health Visitor* 1986;**59**(11):334–7.

238. Kelling KA. Meeting the health needs of older homeless people. *Health Visitor* 1992;**65**(10):346–7.

239. Kelling KA. Older homeless people in London. London: Age Concern, 1991.

240. Murray JL, Lopez AD (on behalf of World Health Organization, Harvard School of Public Health, The World Bank). The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Cambridge, MA: Harvard University Press, 1996.

241. Blackburn C. Family poverty: what can health visitors do? *Health Visitor* 1991;**64**(11):368–70.

242. Blackburn C. Poverty and health: working with families. Buckingham: Open University Press, 1991.

243. Blackburn C. Improving health and welfare practice with families in poverty: a practical guide. Buckingham: Open University Press, 1992.

244. Nottingham Community Health NHS Trust. Changing needs: changing minds, changing practice. Strelley Nurse Development Unit, Health Visiting, Annual Report 1994. London: Nursing Development Units, King's Fund, 1994.

245. Brummell K, Perkins ER. Public health at Strelley: a model in action. Nottingham Community Health Trust. London: Nursing Development Units, King's Fund, 1995.

246. Peckham S, Spanton J. Community development approaches to health needs assessment. *Health Visitor* 1994;**67**(4):124–5.

247. Rowe J, Wing R, Peters L. Working with vulnerable families: the impact on health visitors workloads. *Health Visitor* 1995;**68**(6):232–5.

248. Shepherd M. Poverty, health and health visitors. *Health Visitor* 1996;**69**(4):141–3.

249. Bell ID. Less impertinence, more partnership. *Health Visitor* 1993;**66**(10):274.

250. Brocklehurst JC. Health visiting and the elderly: a geriatrician's view. *Health Visitor* 1982;**55**(7):356–7.

251. Fitton JM. Health visiting the elderly: nurse managers' views, 1. *Nurs Times* 1984;**80** (16 occas paper 10):59–61.

252. Fitton JM. Health visiting the elderly: nurse managers' views, 2. *Nurs Times* 1984;**80**(17 occas paper 11):67–9.

253. Littlewood JA, Scott R. Screening the elderly. *Health Visitor* 1990;**63**(8):268–70.

254. Department of Health. The NHS and Community Care Act. London: HMSO, 1990.

255. Tremellen J. Assessing the elderly in the community. *Health Visitor* 1990;**63**(2):49–51.

256. Whiteley S, Brittain O. Assessing the health needs of elderly people. *Health Visitor* 1993;**66**(4):133–5.

257. Monks J, Illesley L. Working together for the care of elderly people. *Health Visitor* 1995;**68**(5):194–5.

258. Hardman CS, Guy PM, Dunn RB, Lewis PA, Vetter NJ. Health visiting elderly people after discharge from hospital. *Health Visitor* 1995;**68**(9):370–1.

259. Chung S. Health visiting the elderly. *Nurs Mirror* 1985;**160**(23):24.

260. Cruse J, Ebrahim S. Screening the elderly: a neglected aspect of health visiting. *Health Visitor* 1986;**59**:308–10.

261. Coupland R. Effective health visiting for elderly people. *Health Visitor* 1986;**59**:299–300.

262. Phillips S. Health visitors and the priority of the elderly. *Health Visitor* 1988;**61**:341–2.

263. Candlin S. The health visiting process and older people. *Health Visitor* 1990;**63**(8):271–4.

264. Darby SJ. Health needs of the ethnic elderly people. *Health Visitor* 1989;**62**(10):304–5.

265. Rudd A. Community health for South Asian elders. *Health Visitor* 1997;**70**(5):182–4.

266. Davies S. Helping a family cope with a terminally ill baby. *Nurs Times* 1994;**90**(37):41–2.

267. Penrith E. Working with families of children with special needs. *Health Visitor* 1995;**68**(10):415–17.

268. Yerbury M, Thomas J. Health visitors' role in services for children with disabilities. *Health Visitor* 1994;**67**(3):86–7.

269. Sadler C. Sharing the cares. *Health Visitor* 1995;**68**(1):9–10.

270. Carpenter RG, Emery JL. Final results. *Nature* 1977;**268**:274.

271. Protestos CD. Obstetric and peri-natal histories of children who died unexpectedly (cot death). *Arch Dis Childhood* 1973;**48**:835–41.

272. Emery J. Unexpected death in infancy: early recognition of the 'at risk' situation. In: Hull D, editor. Recent advances in paediatrics. Edinburgh: Churchill Livingstone, 1976: 203–220.

273. Department of Health and Social Security. Confidential enquiry into post-neonatal deaths 1964–66. Reports on Public Health and Medical Subjects No. 125. London: HMSO, 1970.

274. McWeeney P, Emery J. Unexpected post-neonatal deaths (cot deaths) due to recognisable disease. *Arch Dis Childhood* 1975;**50**:191.

275. Carpenter RG. Scoring to provide risk related primary health care evaluation and updating during use. *J R Stat Soc Series A (General)* 1983;**146**:1–32.

276. Carpenter RG, Emery JL. Identification and follow-up of infants at risk of sudden death in infancy. *Nature* 1974;**250**:729.

277. Oppe TE. Risk registers for babies. *Dev Med Child Neurol* 1967;**9**:13–21.

278. Richards IDG, Roberts CJ. The 'at risk' infant. *Lancet* 1967;**ii**:711–13.

279. Rogers MGH. Risk registers and early detection of handicap. *Dev Med Child Neur* 1968;**10**:651–61.

280. Madeley RJ. Relating child health services to needs by the use of simple epidemiology. *Public Health* 1978;**92**:224–30.

281. Madeley RJ, Latham A. Management aspects of high-risk strategies in child health. *Community Med* 1979;**1**:36–9.

282. Madeley RJ, Hull D, Holland T. Prevention of postneonatal mortality. *Arch Dis Childhood* 1986;**61**:459–63.

283. Powell J, Machin D, Kershaw CR. Unexpected sudden infant deaths in Gosport: some comparisons between service and civilian families. *J R Naval Med* 1983;**69**:141–50.

284. Powell J. Cot deaths: keeping watch. *Nurs Times Community Outlook* 1985;(Jan):15–19.

285. Appleton J. Establishing the validity and reliability of clinical practice guidelines used to identify families requiring increased health visitor support. *Public Health* 1997;**111**:107–13.

286. Taylor BJ. A review of epidemiological studies of sudden infant death syndrome in southern New Zealand. *J Paediatr Child Health* 1991;**27**:344–8.

287. Beal S. Sudden infant death syndrome related to sleeping position and bedding. *Med J Aust* 1991;**155**:507–8.

288. Dwyer T, Ponsonby A-L. Sudden infant death syndrome: insight from epidemiological research. *J Epidemiol Community Health* 1992;**46**:98–102.

289. Mitchell EA, Ford RPK, Taylor BJ, Stewart AW, Tuohy PG, Brunt JM, *et al.* Further evidence supporting a causal relationship between prone sleeping position and SIDS. *J Paediatr Child Health* 1992;**28** Suppl 1:9–12.

290. Scott A, Campbell H, Gorman D. Evidence of health visitors changing their practice. *Health Visitor* 1994;**67**(11):380–1.

291. Watson E, Dimond H. Supporting parents. *Health Visitor* 1991;**64**(4):115.

292. Waite A. After a cot death: the impact of CONI. *Professional Care of Mother and Child* 1994;**4**(5):127–8.

293. McKenzie A, Waite A. The CONI project: parents' evaluation of the care provided to the first 2000 babies. *Health Visitor* 1995;**68**(6):239–40.

294. Baumer D, McLindon H. Support after a cot death: the CONI Programme in action. *Professional Care of Mother and Child* 1994;**4**(5):131–3.

295. Taylor E. Postnatal depression: what can a health visitor do? *J Adv Nurs* 1989;**14**:877–86.

296. Cullinan R. Health visitor intervention in postnatal depression. *Health Visitor* 1991;**64**(12):412–14.

297. Painter A. Health visitor identification of postnatal depression. *Health Visitor* 1995;**68**(4):138–40.

298. Bergin AE, Lambert MJ. The evaluation of therapeutic outcomes. In: Garfield SL, Bergin AE, editors. Handbook of psychotherapy and behaviour change. New York: Wiley, 1978:139–89.

299. Corney R. The effectiveness of counselling in general practice. *Int Rev Psychiatry* 1992;**4**:331–8.

300. Ashurst PM, Ward DF. An evaluation of counselling in general practice. Final Report of the Leverhulme Counselling Project. London: Mental Health Foundation, 1983.

301. Truax CB, Carkhuff RR. Toward effective counselling and psychotherapy. New York: Aldine Publishing Co., 1967.

302. Hennessy DA. Mothers and health visitors [PhD thesis]. Southampton: University of Southampton, 1985.

303. Hennessy DA. The restrictive and wanting policies affecting health visitors' work in the field of emotional health. In: White R, editor. Political issues in nursing: past, present and future. Vol. 2. Chichester: Wiley, 1986:83–100.

304. Barker W. The child development programme: a collaborative programme linking parents, community and health visitors. Bristol: Early Childhood Development Unit, University of Bristol, 1984.

305. Fitzpatrick P, Molloy B, Johnson Z. Community mothers' programme: extension to the travelling community in Ireland. *J Epidemiol Community Health* 1997;**51**:299–303.

306. Suppiah C. Working in partnership with community mothers. *Health Visitor* 1994;**67**(2):52–4.

307. Baer ED. Women and the politics of career development: the case of nursing. In: Rafferty A-M, Robinson JA, Elkan R, editors. Nursing history and the politics of welfare. London: Routledge, 1997:242–58.

308. Sharman R. Child death resulting from non-accidental injury: implications for health visitors. *Nurs Times* 1982;**10**:242–5.

309. Department of Health and Social Security. Child abuse: a study of inquiry reports 1973–1981. London: HMSO, 1982.

310. Department of Health. Child abuse: a study of inquiry reports 1980–1989. London: HMSO, 1991.

311. Gilardi J. Child protection in a south London district. *Health Visitor* 1991;**64**(7):225–7.

312. Jarman B. Identification of under-privileged areas. *Br Med J* 1983;**266**:1707–9.

313. Dingwall R. Child abuse – the real questions. *Nurs Times* 1983;**79**(25):67–8.

314. Bass A. Supporting health visitors in child protection. *Health Visitor* 1995;**68**(10):410–11.

315. Marsland L. Child protection: the interagency approach. *Nurs Standard* 1994;**8**(33):25–8.

316. Birchall E, Hallett C. Working together: interprofessional relations in child protection. *Health Visitor* 1996;**69**(2):59–62.

317. Large S. Health visitor attitudes to child sexual abuse. *Health Visitor* 1992;**65**(9):320–2.

318. Coppenhall K. Naming the effects of child sexual abuse. *Health Visitor* 1994;**67**(6):199–200.

319. Rickford F. Barriers to protection. *Nurs Times* 1995;**91**(25):20–1.

320. Cowley S. The tyranny of crisis intervention. *Health Visitor* 1989;**10**(3):11–13.

321. Weeks V. Health visitors, stress and non-accidental injury to children. *Health Visitor* 1982;**55**:75.

322. Devlin K. The children's hearing system and the health visitor's role. *Health Visitor* 1992;**65**(7):236–7.

323. Taylor S, Tilley N. Health visitors and child protection: conflict, contradictions and ethical dilemmas. *Health Visitor* 1989;**62**(9):273–5.

324. Taylor S, James D. Children at risk: the changing role of the health visitor. *Health Visitor* 1987;**60**(10):329–30.

325. London Borough of Brent. A child in trust: the report of the panel of inquiry into the circumstances surrounding the death of Jasmine Beckford. London: Borough of Brent, 1985.

326. Field C. Disguised compliance [MA dissertation]. London: Tavistock Clinic, University of East London, 1996.

327. Cohen P. Public policy: private pain. *Health Visitor* 1996;**69**(2):52–3.

328. McClelland A. Domestic violence and health visiting in Rotherham [cited in ref. 327]. 1995 (November).

329. Frost M. Health visitors' perceptions of domestic violence. *Health Visitor* 1997;**70**(7):258–9.

330. Department of Health. The Patient's Charter and you. London: DoH, 1995.

331. Rogers R, Salvage J. Nurses at risk: a guide to health and safety at work. London: Heinemann, 1988.

332. Moffitt TE, Caspi A. Annotation: implications of violence between intimate partners for child psychologists and psychiatrists. *J Child Psychol Psychiatry* 1998;**39**:137–44.

333. Magdol L, Moffitt TE, Caspi A, Newman DL, Fagan J, Silva PA. Gender differences in partner violence in a birth cohort of 21-year-olds: bridging the gap between clinical and epidemiological approaches. *J Consult Clin Psychol* 1997;**65**:68–78.

334. Bowker LH, Arbitell M, McFerron JR. On the relationship between wife beating and child abuse. In: Yllo K, Bograd M, editors. Feminist perspectives on wife abuse. Newbury Park, CA: Sage, 1988:158–74.

335. Straus MA, Gelles RJ, Steinmetz SK. Behind closed doors: violence in the American family. Anchor: Doubleday, 1980.

336. Moffitt TE, Caspi A, Silva PA. Findings about partner violence from the Dunedin multidisciplinary health and development study. Monograph. Dunedin, New Zealand: Dunedin Multidisciplinary Health and Development Research Unit, 1997.

337. Laidman P. Health visiting and preventing accidents to children. Research report No. 12. London: Health Education Authority, 1987.

338. Roberts H, Smith S, Bryce C. Prevention is better ... *Sociol Health Illness* 1993;**15**:447–63.

339. Cameron IH, Fletcher AJ. Childhood home accidents: supporting the health visitor. *Health Educ J* 1989;**48**:197–8.

340. Melia RJW, Morrell DC, Swan AV, Bartholomew J. A health visitor investigation of home accidents in pre-school children. *Health Visitor* 1989;**62**(6):181–3.

341. Carter YH, Bannon MJ, Jones PW. Health visitors and child accident prevention. *Health Visitor* 1992;**65**(4):115–17.

342. Levene S. Accident prevention: the health visitor's role. *Health Visitor* 1992;**65**(10):340–1.

343. Carson M, Thompson R. Clinical audit of health visitor interventions in child accident prevention. *Health Visitor* 1994;**67**(11):388–9.

344. Nelson E, Dines A. The health visitor and accident prevention. *Health Visitor* 1995;**68**(7):280–3.

345. Child Accident Prevention Trust. The NHS and social costs of children's accidents: a pilot study. London: CAPT, 1996.

346. Crew K, Fletcher J. Empowering parents to prevent childhood accidents. *Health Visitor* 1994;**68**(7):291.

347. Child Accident Prevention Trust. Healing the hidden hurt: the emotional effects of children's accidents. London: CAPT, 1996.

348. Whyte A. Healing the hidden hurt. *Health Visitor* 1996;**69**(8):308–9.

349. Roberts H, Smith SJ, Lloyd M. Safety as a social value: a community approach. In: Scott S, Williams G, Platt S, Thomas H, editors. Private risks and public dangers. Aldershot: Avebury, 1992.

350. While A. Health visiting and health experience of infants in three areas [PhD thesis]. London: University of London, 1985.

351. Butler N. Child health and education in the seventies. Some preliminary results on the 5 year follow up of the 1970 British Birth Cohort: a preliminary report prepared for members of the Association of Specialists in Community Medicine (Child Health) and the Society of Area Nurses (Child Health). Bristol: University of Bristol, 1978.

352. While A. Child health clinic attendance in the first two years of life. *Public Health* 1990;**104**:141–6.

353. Davie R, Butler N, Goldstein H. From birth to seven. a report of the National Child Development Study. London: Longman, 1972.

354. While A. Health visitor contribution to pre-school prophylaxis. *Public Health* 1987;**101**:229–32.

355. Clark J, Day J, Howe E, Williams P, Biley A. Developing an imunisation protocol for the primary health care team. *Health Visitor* 1995;**68**(5):196–8.

356. Bedford HE. Achieving immunisation targets: the health visitor's role. *Health Visitor* 1990; **63**(12):416–18.

357. Chesham I, Rigby MJ, Shelmerdine L. Paediatric screening. *Health Soc Serv J* 1975; **LXXXV**(4425):293–4.

358. Barker W. The value of developmental tests. *Health Visitor* 1988;**61**(12):373–4.

359. Hall DMB, editor. Health for all children. 1st ed. Report of the First Joint Working Party on Child Health Surveillance. Oxford: OUP, 1989.

360. Hall DMB, editor. Health for all children. 2nd ed. Report of the Second Joint Working Party on Child Health Surveillance. Oxford: OUP, 1991.

361. Hall DMB, editor. Health for all children. 3rd ed. Report of the Third Joint Working Party on Child Health Surveillance. Oxford: OUP, 1996.

362. Butler JR, Freidenfeld K, Relton J. Child health surveillance in the new NHS. Canterbury: Centre for Health Services Studies, University of Kent, 1994.

363. Butler JR, Freidenfeld K, Relton J. Child health surveillance in the new NHS. Research commissioned by the Department of Health. Canterbury: University of Kent, 1996.

364. Butler JR. Child health surveillance in England and Wales: the good news. *Child Care Health Dev* 1997;**23**:327–37.

365. Butler JR. Child health surveillance in England and Wales: the bad news. *Child Care Health Dev* 1997;**23**:339–54.

366. Watkin P, Jeremiah Y. Hearing screening and the role of the health visitor. *Health Visitor* 1988;**71**(2):52–4.

367. Sanderson D, Donaldson I, Wright D, Acton C, Duree D, Tremayne A. Cost analysis of child health surveillance. Draft report funded by the NHS Health Technology Assessment Programme. York: York Health Economics Consortium, University of York.

368. Davis A, Bamford J, Wilson I, Ramkalawan T, Forshaw M, Wright S. A critical review of the role of neonatal screening in the detection of congenital hearing impairment. *Health Technol Assess* 1997;**1**(7).

369. Sadler C. Testing times ahead. *Health Visitor* 1998;**71**(1):7.

370. McCormick B. Hearing screening by health visitors: a critical appraisal of the distraction test. *Health Visitor* 1983;**56**(12):449–51.

371. Bowers R, Oakenfull S. The role of health visitors in speech and language therapy. *Health Visitor* 1996;**69**(8):319–20.

372. Densham J. Are they being served? Research findings on deaf children and their families. *Health Visitor* 1996;**69**(10):419–20.

373. Densham J. Health visitor screening for hearing loss: uptake, facilities and parents' views. *Health Visitor* 1996;**69**(11):463–4.

374. Densham J. Emotional aspects of hearing impairment. *Health Visitor* 1996;**69**(12):493–4.

375. Law J, Boyle J, Harris F, Harkness A, Nye C. Screening for speech and language delay: a systematic review of the literature. *Health Technol Assess* 1988;**2**(9).

376. Lauder LI. Breast screening: a way to increase uptake. *Health Visitor* 1995;**68**(10):420–1.

377. Appleby S, Moore C. Caring for families in the community. *Health Visitor* 1993;**66**(12):438–40.

378. Cowley S. In health visiting, the routine visit is one that has passed. *J Adv Nurs* 1995;**22**:276–84.

379. Billingham K. 'Love don't cost nothing': a discourse analysis of health visitor interactions with mothers living in poverty [MSc dissertation]. Coventry: University of Warwick, 1995.

380. Cameron S. First time mothers and their health visitors: perceptions of a home visit [PhD thesis]. Edinburgh: Edinburgh University, 1994.

381. Chalmers K. Preventive work with families in the community: a qualitative study of health visiting practice [PhD thesis]. Manchester: University of Manchester, 1990.

382. Clark J. The process of health visiting [PhD thesis]. London: Polytechnic of the South Bank, 1985.

383. Cowley S. A grounded theory of situation and process in health visiting [PhD thesis]. Brighton: Brighton Polytechnic, 1991.

384. Kendall S. An analysis of the health visiting-client interaction: the influence of the health visiting process on client participation [PhD thesis]. London: King's College, 1991.

385. Luker K. Health visiting and the elderly: an experimental study to evaluate the effects of focused health visitor intervention on elderly women living alone at home [PhD thesis]. Edinburgh: University of Edinburgh, 1980.

386. Mason C. Problems in health visiting: an anthropological study [PhD thesis]. Belfast: Queens University, 1988.

387. Pearson P. Clients' perceptions of health visiting in the context of their identified health needs: an examination of process [PhD thesis]. Newcastle: Newcastle-on-Tyne Polytechnic, 1988.

388. Robinson JJA. An evaluation of health visiting: a study of the relevance of historical and theoretical perspectives and the impact upon clients' perceptions and usage of the service [MA dissertation]. Keele: University of Keele, 1980.

389. Robinson KSM. The social construction of health visiting [PhD thesis]. London: Polytechnic of the South Bank, 1986.

390. Sefi S. The first visit: a study of health visitor/mother verbal interaction [MA dissertation]. Coventry: University of Warwick, 1985.

391. Warner U. The social organzation of health visiting [MSc dissertation]. Guildford: University of Surrey, 1982.

392. Watson P. A time study of health visitors' work [PhD thesis]. Aberdeen: University of Aberdeen, 1981.

393. Agar MH. The professional stranger: an informal introduction to ethnography. New York: Academic Press, 1980.

394. Traynor M. Rhetoric and rationality: a deconstruction of managerial and nursing discourse in the new NHS [PhD thesis]. Nottingham: University of Nottingham, 1996.

395. Strong PM. The ceremonial order of the clinic: patients, doctors and medical bureaucracies. London: Routledge and Kegan Paul, 1979.

396. Davies C. The health visitor as woman's friend: a woman's place in public health, 1900–1914. *Soc History Med* 1988;**1**:39–50.

397. Frost N, Johnson L, Stein M, Wallis L. Home-Start and the delivery of family support. Leicester: Home-Start UK, 1996.

398. Oakley A, Mauthner M, Rajan L, Turner H. NEWPIN Supporting vulnerable families: an evaluation of Newpin. *Health Visitor* 1995;**68**(5):188–91.

399. Oakley A. NEWPIN Finding answers to difficult questions. *Health Visitor* 1995;**68**(7):274.

400. Parton N. The politics of child abuse. London: Macmillan Education Ltd, 1985.

401. Helfer RE. Basic issues concerning prediction. In: Helfer RE, Kempe CH, editors. Child abuse and neglect: the family and the community. Ballinger: Cambridge, MA: 1976.

402. Giovannoni JM. Prevention of child abuse and neglect: research and policy issues. *Soc Work Res Abstr* 1982;**18**(3):23–31.

403. Browne KD. Preventing child maltreatment through community nursing. *J Adv Nurs* 1995;**21**:57–63.

404. Browne KD, Davies C, Stratton P, editors. Early prediction and prevention of child abuse. 3rd ed. Chichester: John Wiley, 1991.

405. Barker W. Practical and ethical doubts about screening for child abuse. *Health Visitor* 1990;**63**(1):14–17.

406. Olds DL, Kitzman H. Can home visitation improve the health of women and children at environmental risk? *Pediatrics* 1990;**86**:108–16.

407. Robinson JJA, Elkan R. Health needs assessment: theory and practice. Edinburgh: Churchill Livingstone, 1996.

408. Brown M, Madge N. Despite the welfare state: a report on the SSRC/DHSS Programme of Research in Transmitted Deprivation. London: Heinemann Educational Books, 1982.

409. Garbarino J. Can we measure success in preventing child abuse? Issues in policy, programming and research. *Child Abuse Negl* 1986;**10**:143–56.

410. Garbarino J. The human ecology of child maltreatment: a conceptual model for research. *J Marriage Family* 1977;(Nov):721–35.

411. Garbarino J. An ecological approach to child maltreatment. In: Pelton LH, editors. The social context of child abuse and neglect. New York: Human Sciences Press, 1981.

412. Garbarino J, Kostelny K. Child maltreatment as a community problem. *Child Abuse Negl* 1992;**16**:455–64.

413. Garbarino J, Gilliam G. Understanding abusive families. Lexington: Lexington Books, 1980.

414. Hawley. Human ecology: a theory of community structure. New York: The Ronald Press, 1950.

415. Garbarino J. The price of privacy in the social dynamics of child absuse. *Child Welfare* 1977;**56**:565–75.

416. Olds DL. Improving formal services for mothers and children. In: Garbarino J, Stocking SH, editors. Protecting children from abuse and neglect. San Francisco, CA: Jossey-Bass, 1980:213–28.

417. Olds DL. An intervention programme for high-risk families. In: Hoekelman RA, editor. A round table on minimising high-risk parenting media. Malvern, PA: Harwal Publishing Co., 1982:249–68.

418. Olds DL. The prenatal/early infancy project: an ecological approach to prevention of developmental disabilities. In: Belsky J, editor. In the beginning: readings on infancy. New York: Columbia University Press, 1982:270–85.

419. Olds DL. Common design and methodological problems encountered in evaluating family support services: illustrations from the prenatal/early infancy project. In: Weiss HB, Jacobs FH, editors. Evaluating family programmes. New York: Aldine De Gruyter, 1988:239–65.

420. Olds DL. The prenatal early infancy project. In: Price RH, Cowen RP, Ramos-McKay J, editors. 14 ounces of prevention: a casebook for practitioners. Washington, DC: American Psychological Society, 1988: 9–23.

421. Olds DL. Can home visitation improve the health of women and children at environmental risk? In: Rogers D, Ginzberg E, editors. Improving the life chances of children. Boulder, CO: Westview Press, 1990:79–103. (This chapter is a fuller version of the article in ref. 406.)

422. Olds DL, Henderson CR. The prevention of maltreatment. In: Cicheti D, Carlson V, editors. Child maltreatment: theory and research on the causes and consequences of child abuse and neglect. New York: Cambridge University Press, 1990:722–63.

423. Olds DL. Home visitation for pregnant women and parents of young children. *Am J Dis Child* 1992;**146**:704–8.

424. Olds DL, Kitzman H. Review of research on home visiting for pregnant women and parents of young children. *The APSAC Advisor* 1993;**6**(4):19–24.

425. Gil DG. Violence against children. New York: Harvard University Press, 1970.

426. Gil DG. Unravelling child abuse. *Am J Orthopsychitary* 1975;**45**:346–56.

427. Gil DG. Societal violence and violence in families. In: Eekelaar JM, Katz SN, editors. Family violence: an international and interdisciplinary study. London: Butterworths, 1978.

428. Fuller R, Stevenson O. Policies, programmes and disadvantage: a review of the literature. Oxford: Heinemann, 1983.

429. Wilson H, Herbert GW. Parents and children in the inner-city. London: RKP, 1978.

430. Wilson H. Parenting in poverty. *Br J Soc Work* 1974;**4**:241–54.

431. Chalmers K, Kristajanson L. The theoretical basis for nursing at the community level: a comparison of three models. *J Adv Nurs* 1989;**14**:569–74.

432. Billingham K. New ways of working. *Health Visitor* 1991;**64**(2):40–3.

433. Twinn SF. Conflicting paradigms of health visiting: a continuing debate for professional practice. *J Adv Nurs* 1991;**16**:966–73.

434. Twinn S. Principles in practice: a re-affirmation. *Health Visitor* 1993;**66**(9):319–21.

435. Orr J. The community dimension. In: Luker K, Orr J, editors. Health visiting. Oxford: Blackwell Scientific, 1985:1–31.

436. Kickbusch I. Health promotion: the move towards a new public health. Presentation to the Canadian Public Health Association. Cited in: Hancock T (1986). Lalonde and beyond: looking back at a new perspective on the health of Canadians. *Health Promotion* 1985;**1**:99.

437. Tones K, Tilford S, Robinson Y. Health education: effectiveness and efficiency. London: Chapman and Hall, 1990.

438. Drennan V. Working in a different way ... working with existing local groups to promote awareness of health issues. *Senior Nurse* 1987;**6**(1):11–13.

439. Barker W, Anderson R, Chalmers C. Child protection: the impact of the child development programme. Bristol: Early Childhood Development Unit, University of Bristol, 1992.

440. NHSME (National Health Service Management Executive). New world, new opportunities. London: HMSO, 1992.

441. NHSME (National Health Service Management Executive). A vision for the future: the nursing, midwifery and health visiting contribution to health and health care. London: HMSO, 1993.

442. Sullivan M. Modern social policy. Hemel Hempstead: Harvester Wheatsheaf, 1994.

443. Leach P. What price home visiting and family support? *Health Visitor* 1997;**70**(2):72–4.

444. Townsend P, Davidson N, editors. Inequalities in health: the Black Report and the health divide. London: Penguin, 1992.

445. Court D. Fit for the future: the report of the Committee on Child Health Services. London: HMSO, 1976.

446. Dingwall R. Some problems about predicting child abuse and neglect. In: Stevenson O, editor. Public policy and professional practice. London: Harvester Wheatsheaf, 1989:28–53.

447. Dingwall R, Robinson K. Policing the family? Health visiting and the public surveillance of private behaviour. In: Beattie A, Gott M, Ones L, Sidell M, editors. Health and wellbeing: a reader. Oxford: OUP, 1993:165–73.

448. Dean JG, MacQueen LAG, Mitchell RG, Kempe CH. Health visitor's role in prediction of early childhood injuries and failure to thrive. *Child Abuse Negl* 1978;**21**:1–17.

449. Burns J. The vulnerability factor. *Community Outlook* 1985;**11**:27–30.

450. Browne KD, Saqi S. Approaches to screening families at high risk for child abuse. In: Brown K, Davies C, Stratton P, editors. Early prediction and prevention of child abuse. 1st ed. Chichester: John Wiley, 1988.

451. Appleton JV. The role of the health visitor in identifying and working with vulnerable families in relation to child protection: a review of the literature. *J Adv Nurs* 1994;**20**:167–75.

452. Barker W. A demotion of professional skills. *Health Visitor* 1996;**69**(10):407–8.

453. Browne KD, Stevenson J. A checklist for completion by health visitors to identify children 'at risk' for child abuse. Report to the Surrey County Area Review Committee on Child Abuse, 1983 [cited in ref. 404].

454. Brenner B. Continuity between the presence and absence of the depressive syndrome. Paper presented at the 113th Annual Meeting of the American Public Health Association, Washington, DC: November 1985 [cited in ref. 10].

455. Charlton BG. A critique of Geoffrey Rose's 'population strategy' for preventive medicine. *J R Soc Med* 1995;**88**(Nov):607–10.

456. Shepherd M. Comparing needs with resource allocation. *Health Visitor* 1992;**65**(9):303–6.

457. Bowns IR, Crofts DJ, Williams TS, Rigby AS, Hall DMB. Hitting the target: a descriptive study of health visitor resource allocation. Report prepared for NHSE under the Maternal and Child Health Research Programme, School of Health and Related Research, University of Sheffield, 1998.

458. Begg C, Cho M, Eastwood S, Horton R, Moher D, Olkin I, *et al.* Improving the quality of reporting of randomized controlled trials. The CONSORT statement. *JAMA* 1996;**276**:637–9.

459. Association for the Advancement of Automotive Medicine. The Abbreviated Injury Scale: 1990 revision. Des Plaines, Illinois: Association for the Advancement of Automotive Medicine, 1990.

460. Independent inquiry into inequalities in health (Chairman: Sir Donald Acheson). London: HMSO, 1988.

461. Ministerial Group of the Family. Supporting families: a consultation document. London: HMSO, 1988.

462. Department of Health. Our healthier nation: a contract for health. Consultation Paper. London: The Stationery Office, 1998.

463. NHS Centre for Reviews and Dissemination. Guidelines on conducting and commissioning systematic reviews in the NHS. CRD Report. York: University of York.

464. Dickerson K, Scherer R, Lefebvre C. Identifying relevant studies for systematic reviews. *Br Med J* 1994;**309**:1291.

465. Adams CE, Biggerstaff N. Reduced resource utilization through standardized outcome-focused care plans. *J Nurs Admin* 1995;**25**(10):43–50.

466. Ansell D, Lacey L, Whitman S, Chen E, Phillips C. A nurse-delivered intervention to reduce barriers to breast and cervical cancer screening in Chicago inner-city clinics. *Public Health Rep* 1994;**109**:104–11.

467. Berger LR, Saunders S, Armitage K, Schauer L. Promoting the use of car safety devices for infants: an intensive health education approach. *Pediatrics* 1984;**74**(1):16–19.

468. Brennan PF, Ripich S. Use of a home-care computer network by persons with AIDS. *Int J Technol Assess Health Care* 1994;**10**(2):258–72.

469. Brown L. Effectiveness of nursing visits to primigravida mothers. *Can Nurse* 1967;**63**(1):45–9.

470. Chiverton P, Caine ED. Education to assist spouses in coping with Alzheimer's disease. *J Am Geriatr Soc* 1989;**37**:593–8.

471. Crowley TJ, Macdonald MJ, Walter MI. Behavioural anti-smoking trial in chronic obstructive pulmonary disease patients. *Psychopharmacology* 1995;**119**:193–204.

472. Dannenberg AL, Gielen AC, Beilenson PL, Wilson MH, Joffe A. Bicycle helmet laws and educational campaigns: an evaluation of strategies to increase children's helmet use. *Am J Publ Health* 1993;**83**:667–74.

473. Davies G, Pyke S, Kinmonth A-L. Effect of non-attenders on the potential of a primary care programme to reduce cardiovascular risk in the population. *Br Med J* 1994;**309**:1553–6.

474. Dershewitz RA. Will mothers use free household safety devices? *Am J Dis Child* 1979;**133**:61–4.

475. Dershewitz RA, Williamson JW. Prevention of childhood household injuries: a controlled clinical trial. *Am J Public Health* 1977;**67**:1148–53.

476. Fergusson DM, Horwood LJ, Beautrais AL, Shannon FT. A controlled field trial of a poisoning prevention method. *Pediatrics* 1982;**69**:515–20.

477. Florey V, Leech AM, Blackhall A. Infant feeding and mental and motor development at 18 months of age in first born singletons. *Int J Epidemiol* 1995;**24** Suppl 1:21–6.

478. Geddis DC, Appleton IC. Establishment and evaluation of a pilot child car seat rental scheme in New Zealand. *Pediatrics* 1986;**77**:167–72.

479. Griffiths C, Zoitopoulos H. The health visitor and dental health education. *Health Visitor* 1985;**58**(5):131–2.

480. Kay E. Accidents will happen. *Nurs Times* 1989;**85**(3):26–8.

481. Krug A, Ellis JB, Hay IT, Mokgabudi NF, Robertson J. The impact of child-resistant containers on the incidence of paraffin (kerosene) ingestion in children. *S Afr Med J* 1994;**84**:730–4.

482. Lauri S. The public health nurse as a guide in infant child-care and education. *J Adv Nurs* 1981;**6**:297–303.

483. McLoughlin E, Vince CJ, Lee AM, Crawford JD. Project burn prevention: outcome and implications. *AJPH* 1982;**72**:241–7.

484. Minde K, Perrotta M, Hellmann J. Impact of delayed development in premature infants on mother–infant interaction: a prospective investigation. *J Pediatr* 1988;**112**:136–42.

485. Parkin PC, Schwartz CJ, Manuel BA. Randomized controlled trial of three interventions in the management of persistent crying of infancy. *Pediatrics* 1993;**92**:197–201.

486. Reisinger KS, Williams AF. Evaluation of programmes designed to increase the protection of infants in cars. *Pediatrics* 1978;**62**:280–7.

487. Robson J, Boomla K, Fitzpatrick S, Jewell AJ, Taylor J, Self J, *et al.* Using nurses for preventive activities with computer-assisted follow-up: a randomised controlled trial. *Br Med J* 1989;**298**:433–6.

488. Schwartzberg J. Home health care and rapid re-hospitalization. *Home Health Care Serv Q* 1982;**3**:25–37.

489. Sutton C. Parent training by telephone: a partial replication. *Behav Cogn Psychother* 1995;**23**:1–24.

490. Taylor CJ, Olpin S, Rattenbury J, Whippey A, Lunt C, Beckles-Wilson N, *et al.* Familial hypercholesterolaemia: pilot study to identify children at risk. *J Clin Pathol* 1993;**47**:730–3.

491. Thomas KA, Hassanein RS, Christopherson ER. Evaluation of group well-child care for improving burn prevention practices in the home. *Pediatrics* 1984;**74**:879–82.

492. Webster-Stratton C. Predictors of treatment outcome in parent training for conduct disordered children. *Behav Ther* 1985;**16**:223–43.

493. Twinn SF. Change and conflict in health visiting practice: dilemmas in assessing the professional competence of student health visitors [PhD thesis]. London: Institute of Education, 1989.

494. De la Cuesta C. Marketing the service: basic social progress in health visiting [PhD thesis]. Liverpool: Liverpool University, 1992.

495. Bradley PJ, Martin J. The impact of home visits on enrolment patterns in pregnancy-related services among low-income women. *Public Health Nurs* 1994;**11**:392–8.

496. Graham AV, Frank SH, Zyzanski SJ, Kitson GC, Reeb KG. A clinical trial to reduce the rate of low birth weight in an inner-city black population. *Fam Med* 1992;**24**:439–46.

497. Oakley A, Rajan L, Grant A. Social support and pregnancy outcome. *Br J Obstet Gynaecol* 1990;**97**:155–62.

498. Spencer B, Thomas H, Morris J. A randomized controlled trial of the provision of a social support service during pregnancy: the South Manchester Family Worker Project. *Br J Obstet Gynaecol* 1989;**96**:281–8.

499. Atkin K, Twigg J. Nurses' effectiveness in supporting carers. *Nurs Standard* 1993;**7**(42):38–9.

500. Bentley EM, Holloway PJ. An evaluation of the role of health visitors in encouraging dental attendance of infants. *Community Dent Health* 1993;**10**:243–9.

501. Chakravorty TM. Achieving quality standards in health visiting. *Health Visitor* 1994;**67**(11):383–4.

502. Gallagher SS, Hunter P, Guyer B. A home injury prevention programme for children. *Pediatr Clin North Am* 1985;**32**:95–112.

503. Heins HC, Nance NW, Ferguson JE. Social support in improving perinatal outcome: the resource mothers programme. *Obstet Gynaecol* 1987;**70**:263–6.

504. McAvoy B, Rabia R. Can health education increase uptake of cervical smear testing among Asian women? *Br Med J* 1991;**302**:833–6.

505. Kendrick D, West J, Wright S, Presbury M. Does routine child health surveillance reach children most at risk of accidental injury? *J Public Health Med* 1995;**17**:39–45.

506. Kerkestra A, Castelein E, Philipsen H. Preventive home visits to elderly people by community nurses in the Netherlands. *J Adv Nurs* 1991;**16**:631–7.

507. Matthews JR, Friman PC, Barone VJ, Ross LV, Christopherson ER. Decreasing dangerous infant behaviours through parent instruction. *J Appl Behav Anal* 1987;**20**:165–9.

508. Olds DL. Case studies of factors interfering with nurse home visitors' promotion of positive care-giving methods in high risk families. *Early Child Dev Care* 1984;**16**:149–66.

509. Ploeg J, Black ME, Hutchison BG, Walter SD, Scott F, Chambers L. Personal, home and community safety promotion with community-dwelling elderly persons: response to a public health nurse intervention. *Can J of Public Health* 1994;**85**:188–91.

510. Schirm V. Shared care by formal and informal caregivers for community residing elderly. *J NY State Nurs Assoc* 1989;**20**:8–15.

511. Singer B, Wolfsdorf J. Early discharge of infants of low birth weight: a prospective study. *Br Med J* 1975;**1**:362–4.

512. Sullivan M, Cole B, Lie L, Twomey J. Reducing child hazards in the home. *J Burn Care Rehabil* 1990;**11**:175–9.

513. Taylor EM, Spencer NJ, Carpenter RG. Evaluation of attempted prevention of unexpected infant death in very high-risk infants by planned health care. *Acta Paediatr* 1993;**82**:83–6.

514. Zahr LK, Montijo J. The benefits of home care for sick premature infants. *Neonatal Network* 1993;**12**:33–7.

515. Clark J. Mother's perceptions of health visiting. *Health Visitor* 1984;**57**(9):265–8.

516. Cowpe M. Clients' views of a health visiting service. *Health Visitor* 1994;**67**(11):390–1.

517. Early Childhood Development Unit. Health visitors and parents: what they think of the child development programme. Publication No. 6. Bristol: Early Childhood Development Unit, 1987.

518. Field S, Draper J, Kerr M, Hare MA. Consumer view of the health visiting service. *Health Visitor* 1982;**55**(6):299–301.

519. Foxman R, Moss P, Bolland G, Owen C. A consumer view of the health visitor at 6 weeks post-partum. *Health Visitor* 1982;**55**(6):302–8.

520. Gallup. More home visits say mums. Report of Gallup survey, commissioned by Dove Soap Company. *Health Visitor* 1994;**67**(9):284.

521. Jestice S, Watkins J. Health visitor survey: helping us improve the health visiting service. Cambridge: Lifespan Healthcare, 1995.

522. Luker K. Elderly women's opinions about the benefits of health visitor visits. *Nurs Times* 1981;**77**(9):33–4.

523. Machen I. The relevance of health visiting policy to contemporary mothers. *J Adv Nurs* 1996;**24**:350–6.

524. Pearson P. Images of a health visitor. *Nurs Times* 1984;**159**(19):21–3.

525. Quine L, Povey R. A study of client satisfaction with the health visitor service [unpublished report]. Canterbury: University of Kent and South Kent Community Health Care Trust, 1993. Available from South Kent Community Health Care, Folkestone.

526. Simms M, Smith C. Teenage mothers: some views of health visitors. *Health Visitor* 1984;**57**(9):269–70.

527. Watson E, Sim J. The health visitor's visit. *Health Visitor* 1989;**62**(7):214–17.

528. Weatherley D. A survey of clients' views in one health visitor's caseload. *Health Visitor* 1988;**61**(5):137–8.

529. Jacknik M, Gumerman S, Parker C. Evaluating public health nursing follow-up of the high risk infant. *MCN Am J Matern Child Nurs* 1983;**8**:251–6.

530. Lally JR, Mangione PL, Honig AS. The Syracuse University Family Development Research Programme: long range impact of an early intervention with low-income children and their families. In: Powell DR, editor. Parent education as early childhood intervention: emerging directions in theory, research and practice. Norwood, NJ: Ablex, 1988:79–104.

531. MacMillan HL, Thomas BH. Public health nurse home visitation for the tertiary prevention of child maltreatment: results of a pilot study. *Can J Psychiatry* 1993;**38**:436–42.

532. Allen M, Knight C, Falk C, Strang V. Effectiveness of a preoperative teaching programme for cataract patients. *J Adv Nurs* 1992;**17**:303–9.

533. Bidder RT, Bryant G, Gray OP. Benefits to Down's syndrome children through training their mothers. *Arch Dis Child* 1975;**50**:383–6.

534. Bidder RT, Hewitt KE, Gray OP. Evaluation of teaching methods in a home-based training scheme for developmentally delayed pre-school children. *Child Care Health Dev* 1983;**9**:1–12.

535. Blair C, Ramey CT, Hardin JM. Early intervention for low birthweight, premature infants: participation and intellectual development. *Am J Ment Retard* 1995;**99**:542–54.

536. Blondel B, Breart G. Home visits during pregnancy: consequences on pregnancy outcome, use of health services, and women's situations. *Semin Perinatol* 1995;**19**:263–71.

537. Bowers L. Ethnomethodology II: a study of the community psychiatric nurse in the patient's home. *Int J Nurs Stud* 1992;**29**:69–79.

538. Brooker C, Butterworth C. Working with families caring for a relative with schizophrenia: the evolving role of the community psychiatric nurse. *Int J Nurs Stud* 1991;**28**:189–200.

539. Buls P The effects of home visits on anxiety levels of the client with a coronary artery bypass graft and of the family. *Home Healthcare Nurse* 1995;**13**:22–9.

540. Burden RL. Measuring the effects of stress on the mothers of handicapped infants: must depression always follow? *Child Care Health Dev* 1980;**6**:111–25.

541. Burns T, Raftery J, Beadsmore A, McGuigan S, Dickson M. A controlled trial of home-based acute psychiatric services. II: Treatment patterns and costs. *Br J Psychiatry* 1993;**163**:55–61.

542. Cockcroft A, Bagnall P, Heslop A, Andersson N, Heaton R, Batstone J, *et al.* Controlled trial of respiratory health worker visiting patients with chronic respiratory disability. *Br Med J* 1987;**294**:225–8.

543. Corcoran MA, Gitlin LN. Dementia management: an occupational therapy home-based intervention for caregivers. *Am J Occup Ther* 1992;**46**:801–8.

544. Drummond MF, Mohide EA, Tew M, Streiner DL, Pringle DM, Gilbert JR. Economic evaluation of a support programme for caregivers of demented elderly. *Int J Technol Assess Health Care* 1991;**7**(2):209–19.

545. Duddy I, Parahoo K. The evaluation of a community coronary specialist nursing service in Northern Ireland. *J Adv Nurs* 1992;**17**:288–93.

546. Ferrell BR, Ferrell BA, Ahn C, Tran K. Pain management for elderly patients with cancer at home. *Cancer Suppl* 1994;**74**(7):2139–46.

547. Gillis LS, Koch A, Joyi M. The value and cost-effectiveness of a home-visiting programme for psychiatric patients. *S Afr Med J* 1990;**77**:309–10.

548. Gournay K, Brooking J. Community psychiatric nurses in primary health care. *Br J Psychiatry* 1994;**165**:231–8.

549. Hoare T, Thomas C, Biggs A, Booth M, Bradley S, Friedman E. Can the uptake of breast screening by Asian women be increased? A randomized controlled trial of a linkworker intervention. *J Public Health Med* 1994;**16**:179–85.

550. Hopper SV, Miller JP, Birge C, Swift J. A randomized study of the impact of home health aides on diabetic control and utilization patterns. *Am J Public Health* 1984;**74**:600–2.

551. Hughes DM, McLeod M, Carner B, Goldbloom B. Controlled trial of a home and ambulatory program for asthmatic children. *Pediatrics* 1991;**87**:54–60.

552. Jessop DJ, Stein REK. Who benefits from a paediatric home care programme? *Pediatrics* 1991;**88**:497–505.

553. Mangen SP, Griffith JH. Patient satisfaction with community psychiatric nursing: a prospective study. *J Adv Nurs* 1982;**7**:477–82.

554. McCrone P, Beecham J, Knapp M. Community psychiatric nurse teams: cost-effectiveness of intensive support versus generic care. *Br J Psychiatry* 1994;**165**:218–21.

555. Michielutte R, Patterson R, Herndon A. Evaluation of a home visitation programme for families of children with cancer. *Am J Pediatric Hematol Oncol* 1981;**3**:239–45.

556. Mitchell EA, Ferguson V, Norwood M. Asthma education by community child health nurses. *Arch Dis Child* 1986;**61**:1184–9.

557. Muijen M, Cooney M, Strathdee G, Bell R, Hudson A. Community psychiatric nurse teams: intensive support versus generic care. *Br J Psychiatry* 1994;**165**:211–17.

558. Paykel ES, Mangen SP, Griffith JH, Burns TP. Community psychiatric nursing for neurotic patients: a controlled trial. *Br J Psychiatry* 1982;**140**:573–81.

559. Quinlan J, Ohlund G. Psychiatric home care. *Home Healthcare Nurse* 1995;**13**(4):20–4.

560. Rayner JA. A dental health education programme, including home visits for nursery school children. *Br Dent J* 1992;**172**:57–62.

561. Redman S, Watkins J, Evans L, Lloyd D. Evaluation of an Australian intervention to encourage breast feeding in primiparous women. *Health Prom Int* 1995;**10**:101–13.

562. Robinson I. Description and evaluation of a psychiatric home visiting service. *N Z Med J* 1972; **75**(15):15–19.

563. Sharp DJ, Peters TJ, Bartholomew J, Shaw A. Breast screening: a randomised controlled trial of UK general practice of three interventions designed to increase uptake. *J Epidemiol Community Health* 1996;**50**:72–6.

564. Short AB. Short-term treatment outcome using parents as co-therapists for their own autistic children. *J Child Psychol Psychiatry* 1984;**25**:443–58.

565. Snowman MK, Dibble MV. Nutrition component in a comprehensive child development programme. *J Am Diet Assoc* 1979;**74**:119–24.

566. Stein REK, Jessop DJ. Long-term mental health effects of a paediatric home care programme. *Pediatrics* 1991;**88**:490–6.

567. Thornbury J, Martin A. Do nurses make a difference? *J Gerontol Nurs* 1983;**9**(8):441–5.

568. Twaddle S, Liao XH, Fyvie H. An evaluation of postnatal care individualised to the needs of the women. *Midwifery* 1993;**9**:154–60.

569. Waldenstrom U. Early discharge with domicillary visits and hospital care: parents' experience of two modes of post-partum care. *Scand J Caring Sci* 1987;**1**(2):51–8.

570. Wang E-L, Wright JG, Whiting JL. Do home visits by nurses reduce day surgery cancellation rates? *Med Care* 1995;**33**:113–18.

571. Wang VL, Ephroses PH, Green L. The point of diminishing returns in nutrition education through home visits by aides: an evaluation of the Maryland Expanded Food and Nutrition Education Programme. *Health Educ Monogr* 1975;**3**:70–89.

572. Waterreus A, Blanchard M, Mann A. Community psychiatric nurses for the elderly: well tolerated, few side-effects and effective in the treatment of depression. *J Clin Nurs* 1994;**3**:229–306.

573. Carswell F, Robinson EJ, Hek G, Shenton T. A Bristol experience: benefits and cost of an 'asthma nurse' visiting the homes of asthmatic children. *Bristol Medico-Chirurgical J* 1989;**104**:11–12.

574. Deaves D. An assessment of the value of health education in the prevention of childhood asthma. *J Adv Nurs* 1993;**18**:354–63.

575. Greenberg RA, Strecher VJ, Bauman KE, Boat BW, Fowler MG, Keyes LL, *et al.* Evaluation of a home-based intervention programme to reduce infant passive smoking and lower respiratory illness. *J Behav Med* 1994;**17**:273–88.

576. Hughes DM, McLEod M, Garner B. Controlled trial of home and ambulatory programme for asthmatic children. *Pediatrics* 1991;**87**:54–61.

577. Oda DS, O'Grady R. Public health nursing services for drug-exposed infants and mothers: a pilot study. *J Community Health Nurs* 1994;**11**:165–75.

578. Olds DL, Henderson CR, Tatelbaum R. Prevention of intellectual impairment in children of women who smoke cigarettes during pregnancy. *Pediatrics* 1994;**93**:228–33.

579. Selby ML, Riportella-Muller R, Sorenson JR, Quade D, Sappenfield MM, Potter HB, *et al.* Public health nursing interventions to improve the use of a health service: using a pilot study to guide research. *Public Health Nurs* 1990;**7**:3–12.

580. Aurelius G, Nordberg L. Home visiting to families with a newborn child. *Scand J Prim Health Care* 1994;**12**:106–12.

581. Avon Premature Infant Project. Randomized trial of parental support for families with very preterm children. *Arch Dis Child Fetal Neonatal* 1998;**79**:F4–F11.

582. Briscoe M. The detection of emotional disorders in the post-natal period by health visitors. *Health Visitor* 1989;**62**(11):336–8.

583. Cox AD, Pound A, Mills M, Puckering C, Owen AL. Evaluation of a home visiting and befriending scheme for young mothers: Newpin. *J R Soc Med* 1991;**84**:217–20.

584. Emond AM, Pollock JI, Harvey I, Peters T, Thead J, Deave T, *et al.* An evaluation of the first parent health visitor scheme in Avon. Final report to NHS Executive South and West Research and Development Directorate, Bristol, 1998 (in press).

585. Haus BF, Thompson S. The effect of nursing intervention on a programme of behaviour modification by parents in the home. *J Psychiatr Nurs Mental Health Services* 1976;**14**:9–16.

586. Holden JM. Postnatal depression: its nature, effects and identification using the Edinburgh postnatal depression scale. *Birth* 1991;**18**:211–21.

587. Bablouzian L, Freedman ES, Wolski KE, Fried LE. Evaluation of a community-based childhood injury prevention programme. *Injury Prev* 1997;**3**:14–16.

588. Barriball KL, MacKenzie A. Measuring the impact of nursing interventions in the community: a selective review of the literature. *J Adv Nurs* 1993;**18**:401–7.

589. Beresford B, Sloper P, Baldwin S, Newman T. What works in services for families with a disabled child? Essex: Barnardos, 1996.

590. Blondel B, Breart G. Home visits for pregnancy complications and management of antenatal care: an overview of three randomized controlled trials. *Br J Obstet Gynaecol* 1992;**99**:283–6.

591. Braverman MD. Problems associated with early discharge of newborn infants. *Paediatrics* 1995;**96**:716–26.

592. Chapman J, Siegel E, Cross A. Home visitors and child health: analysis of selected programmes. *Pediatrics* 1990;**85**:1059–68.

593. Cobb S. Social support as a moderator of life stress. *Psychosom Med* 1976;**38**:300–14.

594. Deal LW. The effectiveness of community health nursing interventions: a literature review. *Public Health Nurs* 1993;**11**:315–23.

595. Dubowitz H. Prevention of child maltreatment: what is known. *Pediatrics* 1989;**83**:570–6.

596. Fowler BA. Prenatal outreach: an approach to reduce infant mortality of African-American infants. *ABNF J* 1995;**6**:15–19.

597. Gough D. Child abuse interventions: a review of the research literature. London: HMSO, 1993.

598. MacDonald G, Roberts H. What works in the early years? Effective interventions for children and their families in health, social welfare, education and child protection. Essex: Barnardos, 1995.

599. Cowen D. Impact of a rural preventive care outreach programme on children's health. *Am J Public Health* 1978;**68**:471–6.

600. Nutting P. Reduction of gastroenteritis morbidity in high risk infants. *Pediatrics* 1975;**55**:354–8.

601. Van Doornick W, Dawson P, Butterfied P, Alexander H. Parent–infant support through lay health visitors. Final report (research grant no. MC-R-080398.03-0). Maternal and Child Health Service. Washington, DC: US Public Health Service: 1980.

602. Olds DL, Tatelbaum R, Henderson C, Chamberlin R. Improving fetal growth in a high risk population: results of a randomized trial of nurse home visitation. Presentation at the Annual Meeting of the American Public Health Association, Montreal, Canada: 1982 [cited in ref. 14].

603. Affleck G, McGrade B, McQueeny M, Allen D. Early consequences of participation in a home-based consultation programme for families with high risk or developmentally disabled infants. Paper presented at the Annual Convention of the Council for Exceptional Children Houston, Texas: 1982 [cited in ref. 14].

604. Affleck G, McGrade B, McQueeny M, Allen D. Relationship-focused early intervention in developmental disabilities. *Excep Child* 1982;**49**:259–61.

Appendix 1

Previous reviews of the literature

TABLE 33 *Characteristics or PHN evaluation studies*

Study	PHN process emphasis	Research design	Sample	Reliability
Shyne, *et al.*, 1963[31]	Teaching	Experimental, post-test only	Low income, minority, married	Not reported
Lowe, 1970[32]	Teaching	Experimental, pretest/post-test	Low income, black, primigravidas	Not reported
Yauger, 1972[33]	Not specified	Experimental, pretest/post-test	Multigravidas referred for non-emergency	Not reported
McNeil & Holland, 1972[34]	Teaching	Quasi-experimental, pretest/ post-test	White, well-educated, mid-income, married	Not reported
Gutelius, *et al.*, 1977[35]	Teaching, counselling, clinical	Quasi-experimental, pretest/ post-test	Low income, black, unmarried, young primigravidas	Not reported
Hall, 1980[36]	Assessment, teaching, support	Experimental, pretest/post-test	Married primiparas	Not reported
Stanwick, *et al.*, 1982[37]	Teaching, counselling, support	Quasi-experimental, post-test only	French-speaking Canadians	Inter-rater 90%
Barkauskas, 1983[38]	Assessment, teaching	Quasi-experimental, post-test only	Urban, young, unmarried	Reported from previous studies as acceptable

Reproduced from Combs-Orme, et al.*, 1985*[25]

TABLE 34 *Statistical power issues in PHN evaluation studies*

Study	Statistical method	Treatment effects	Final sample size	Power at treatment effect size		
				Small	Medium	Large
Shyne, *et al.*, 1963[31]	Not stated	General health, readiness for delivery, nutritional practices	T = 80, C = 75	*	*	*
Lowe, 1970[32]	MANOVA proportions correlations	No differences	T = 30, C = 26	0.13	0.47	0.87
Yauger, 1972[33]	Not stated	No differences	T = 21, C = 26	*	*	*
McNeil & Holland, 1972[34]	*t* tests	Knowledge of healthcare use	T = 56, C = 51	0.18	0.72	0.98
Gutelius, *et al.*, 1977[35]	χ^2 tests	32 of 300, including diet, developmental problems, parenting	T = 48, C = 47	0.17	0.83	0.99
Hall, 1980[36]	*t* tests	Feelings towards newborn child	T = 15, C = 15	0.08	0.26	0.56
Stanwick, *et al.*, 1982[37]	χ^2 tests	Knowledge of immunisations	T = 49, C = 107	0.13	0.69	0.99
Barkauskas, 1983[38]	Multivariate contingency table analysis	Expressed concerns about health	T = 67, C = 43	†	†	†

T, treatment group; C, control or comparison group

**Power could not be calculated because authors did not present necessary information*

†Power could not be calculated because calculations were not available for this statistical method

Reproduced from Combs-Orme, et al.*, 1985*[25]

TABLE 35 *The effectiveness of home visiting: summary of strong and borderline articles*

Study	Design (borderline validity criteria)	Subjects	Intervention	Intervenor	Outcomes (measurement tool)	Comments
A: Prenatal interventions						
Villar, *et al.*, 1992[43]	RCT strong (d)	Women considered at high risk during pregnancy for delivery of a low birth weight infant R → 1115 clinic care plus home visit R → 1120 prenatal clinic care	Social support Health and nutrition information	Nurses or social workers	Non-significant: LBW; preterm delivery interuterine growth retardation; neonatal and maternal morbidity; mortality	For eligibility, had to seek prenatal care before 22 weeks and have a number of prenatal visits May have excluded women at greatest need, for whom it would have greatest effect Conducted in Latin America
B: Postnatal						
Field, *et al.*, 1982[42]	CCT strong (a)	60 preterm infants of black, teenage mothers 30 – parent training 30 – control: received periodic phone calls	Education of mothers re caretaking, developmental milestones, child rearing, appropriate stimulation for sensor, motor and cognitive development Denver–Bayley ($p < 0.001$)	Team of unknown intervenors, plus black teenagers	Significant: Increase in infant and mother interactions ($p < 0.001$); children's growth and mental development scores – Non-significant: Quality of care by family: child-rearing attitudes; parent–child interactions; parent developmental expectations of child; mother's anxiety	
Holden, *et al.*, 1989[54]	RCT strong (c)	Depressed postpartum women R → 26 counselling R → 24 control	8-weekly counselling sessions	Nurse	Significant: Reduction in depression; standardised psychiatric interview (Goldberg) ($p < 0.01$); EPDS ($p < 0.01$)	

R, randomised to; CCT, clinical controlled trial (method of randomisation not stated, or used quasi-randomisation method)

Borderline validity criteria:
(a) non-random allocation, or unspecified method of random allocation
(b) < 80% of eligible people agree to participate
(c) did not control for potential confounders
(d) data collection strategies did not optimise validity
(e) follow-up of < 80% of participants

Reproduced from Ciliska, et al., *1994*[29]

continued

TABLE 35 contd *The effectiveness of home visiting: summary of strong and borderline articles*

Study	Design (borderline validity criteria)	Subjects	Intervention	Intervenor	Outcomes (measurement tool)	Comments
Gross, 1993[44]	CCT moderate (a, b, c)	985 low birth weight infants and families R → 330 intervention R → 655 control (usual care)	Parent groups; child development centres – 5 days/week; home visits – weekly for 1 year, then bi-weekly to 3 years; provision of health and development information and family support; 2 curricula implemented: (1) cognitive, linguistic, social development of child and (2) systematic approach to help parental problem management	Home visitor of unknown preparation	Significant: Increase in child IQ (Stanford–Binet), behaviour (Behaviour Competence) ($p < 0.05$) Decrease in maternal report of morbidity (Morbidity Index, $p < 0.05$) Non-significant: Children's growth; maternal perception of child's health	
Brooten, *et al.*, 1986[45]	CCT moderate (a, e)	72 very low birth weight infants discharged early from hospital R → 36 early discharge home support R → 36 control in hospital	Visits at 1 week and 1, 9, 12 and 18 months Weekly telephone contact Education; support re physical care, developmental screening, parents coping, infant stimulation	Nurse	Significant: Decrease in number of re-hospitalisations; decrease of acute care visits; decrease in incidence of failure to thrive; decrease in child abuse, foster placement	Costs of intervention 26.4% less than cost for control group
Hardy & Streett, 1989[47]	CCT moderate (a, c, d)	Inner-city, black mothers and infants R → 131 intervention home support R → 132 control	Curriculum re: Child well and sick care, feeding, clothing, safety, developmental milestones Did not intervene in psychological issues, but referred to social worker	Community worker	Significant: Increased attendance for well-child care ($p < 0.001$); decreased illness visits ($p < 0.01$); decreased hospitalisation ($p < 0.01$); decreased reported neglect and abuse	Substantial cost savings (conservative estimate was $26,000 per family)
Barth, *et al.*, 1988[46]	CCT moderate (a, b, d)	Mothers at risk for child abuse R → 24 parent enrichment programme R → 26 usual services	Home visits approximately every 2 weeks for 6 months Task-centred approach aimed at reducing risk of parenting problems such as preparing a room for baby, visiting labour room, getting crib, housing, food Modelling occurred re parenting and homecare skills	Para-professional, ethnic, parent consultants	Significant: Decrease in depression in mothers (CES-D Scale, $p < 0.05$); increase in prenatal nutrition ($p < 0.05$); increased reports of child temperament (Infant Temperament Questionnaire, $p < 0.01$) Non-significant: Reported child abuse; support	

R, randomised to; CCT, clinical controlled trial (method of randomisation not stated, or used quasi-randomisation method)

Borderline validity criteria:
(a) non-random allocation, or unspecified method of random allocation
(b) < 80% of eligible people agree to participate
(c) did not control for potential confounders
(d) data collection strategies did not optimise validity
(e) follow-up of < 80% of participants

Reproduced from Ciliska, et al., *1994*[29]

continued

TABLE 35 contd *The effectiveness of home visiting: summary of strong and borderline articles*

Study	Design (borderline validity criteria)	Subjects	Intervention	Intervenor	Outcomes	Comments (measurement tool)
C: Pre- and postnatal						
Olds, *et al.*, 1986[48,49] 1988[50] 1993[51]	RCT strong	400 prenatal women (1) control; (2) free transportation for prenatal care and well-child care ↗ R ↘ (3) 2 plus home visits during pregnancy; (4) 3 plus home visits continued to 24 months	Minimum visits: Antepartum – Home visits every 2 weeks Postpartum – Weekly visits to 6 weeks; every 2 weeks to 14 months; every 6 weeks to 24 months Content: Emphasise family strength; education re fetal and infant development; involvement of family and friends in childcare and support of mother; use of other health and social services	Nurse	1986[48] Significant: Improved mother's report of baby's mood ($p < 0.04$); lower level of concern of infant behaviour ($p < 0.05$); lower level of restricting children (Caldwell, $p = 0.007$); decrease in visits to emergency room ($p < 0.05$); decrease in records of accidents and poisoning ($p < 0.05$) Non-significant: Verified cases of child abuse	Groups 1 + 2/3 + 4 combined for analysis
1986[49]					Significant: Increase in awareness of community services ($p < 0.01$); increase in attendance at childbirth education classes ($p < 0.05$); increase in numbers who talked about stresses of parenting ($p < 0.01$); decrease in kidney infections ($p < 0.01$); decrease in number of cigarettes smoked/day ($p \leq 0.001$) Non-significant: Infant birth weight; length of gestation	
1988					Significant: Early increase in educational attainment by mothers (no longer different at 2 years); increase in employment among unmarried women; decrease in subsequent pregnancies	

R, randomised to

Borderline validity criteria:
(a) non-random allocation, or unspecified method of random allocation
(b) < 80% of eligible people agree to participate
(c) did not control for potential confounders
(d) data collection strategies did not optimise validity
(e) follow-up of < 80% of participants

Reproduced from Ciliska, et al., *1994*[29]

continued

TABLE 35 contd *The effectiveness of home visiting: summary of strong and borderline articles*

Study	Design (borderline validity criteria)	Subjects	Intervention	Intervenor	Outcomes	Comments (measurement tool)
1993					Net costs 2 years after programme = programme cost savings (social assistance, medic aid, food stamps): $1582 for intervention group as a whole; $180 for low-income families	Cost-effective for low-income families
Seitz, *et al.*, 1985[53]	Cohort moderate (a, b, c)	Pregnant families; no complications in delivery; poverty; inner-city 18 families in intervention group; 17 families in comparison group	Over 30 months of support; support and problem-solving re housing, food, safe environment, education, marital and career issues; liaison with other service providers Families received an average of 28 visits	Nurse, social worker or psychologist	10-year follow-up Significant: Increase in maternal education ($p < 0.05$); increase in maternal involvement in child's schooling; increased school attendance ($p < 0.05$) Non-significant: Maternal employment; SES; parenting style; academic achievement of children	Comprehensive programme of house visits, day care and paediatric care Cost-savings calculated to be $40,000 for control families over intervention group
D: Preschool						
Scarr & McCartney, 1988[52]	Cohort strong (a)	Families (children aged 24–30 months) 78: education 39: control	46 visits over 2 years Teaching: demonstrate how to interact with children; how to provide education experiences	Para-professional	Significant: Improved mental development and verbal skills in children; Cain Levine Social Competency Scale ($p < 0.05$) Non-significant: Child: IQ, behaviour, personality Parent: discipline and perceptions of child	Bermuda population Mothers employed, children in day care; high functioning of children at study entry
E: Seniors						
Hall, *et al.*, 1992[55]	CCT strong (a, c)	167 frail elderly living at home R → Long-term care, plus visitor work on personal health plan R → OR R → Long-term care	Long-term care, plus nurse home visits to develop personal health plan (goal-setting, skill development) re health care, substance use, exercise, nutrition, stress management, emotional functions, social support, social participation, housing, finances and transportation	Nurse	Significant: Increase in remaining in the home at 24 and 36 months Non-significant: Psychological status measures	Includes additional non-random group

R, randomised to; CCT, clinical controlled trial (method of randomisation not stated, or used quasi-randomisation method); SES, socio-economic status

Borderline validity criteria:
(a) non-random allocation, or unspecified method of random allocation
(b) < 80% of eligible people agree to participate
(c) did not control for potential confounders
(d) data collection strategies did not optimise validity
(e) follow-up of < 80% of participants

Reproduced from Ciliska, et al., *1994*[29]

TABLE 36 *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Gutelius, *et al.*, 1972,[76] 1977[35] Washington, DC	Low-income, black, unmarried first-time mothers (aged 15–18 years); excluded babies < 2500 g or with multiple congenital anomalies	C: *n* = 48 E: Visited plus mobile paediatric mobile unit (*n* = 47) After 4 years: C: *n* = 26 E: *n* = 36	Nurse (black, MS in PHN) PE, PCS, TB, MLC, SL, CL Paediatric care from mobile unit Same paediatrician and nurse for first 3 years; periodic group sessions	Services from < 7th month of pregnancy to 3 years Year 1: 18 visits Year 2: 12 visits Year 3: 8 visits Annual follow-up for evaluation until children's sixth birthdays	NA	Infant diet; toys and books; verbal interaction; behaviour management; attitudes towards child E > C $p < 0.05$	NA	Mother in school at 3 and 4 years Father's job stability for first 3 years E > C $p < 0.05$	C = 91.2 at 3 years on Stanford–Binet E = 99.3 ($p < 0.001$), but decreasing differences in later years	Night-waking at 1 year; extreme shyness at 3 years; behaviour problems at 6 years E > C $p < 0.05$ for all	Well-child care E > C $p < 0.05$
Lambie, *et al.*, 1974[77] Epstein and Weikart, 1979[78] Ypsilanti, MI	Low SES families with infants 3, 7 and 11 months old	C: *n* = 27 E1: *n* = 30 (volunteers/ para-professionals) E2: *n* = 31	E1: volunteers and paid community representatives TB E2: professional teachers PCS, PE, TB, SL	From 3, 7 and 11 months to 16 months later 1 per week of 1–1.5 hours in duration Follow-up for evaluation when children were 6–7.5 years old (5 years later)	E1: 74% had 21–50 visits; 26% < 21 visits E2: 77% had 40–50 visits in 16 months; 23% < 40 visits	Verbal interaction at end of programme E2 > C $p < 0.05$	NA	NA	Bayley (mental) at end of programme: C = 101.5, E1 = 95.7, E2 = 106.2 E2 = C > E1 ($p < 0.05$) Bayley at follow-up NS	Bayley (motor): No consistent pattern of differences at end of programme or at follow-up	NA
Thompson, *et al.*, 1982[79] North Carolina	Black, unmarried, low SES, < 18 years old, pregnant women	C: *n* = 20 E: *n* = 20	Nurse PCS, PE	Birth to 2 years postpartum 1 per month	NA	Mother–infant interaction E > C $p < 0.10$	NA	NA	Stanford–Binet at 30 months: C = 89.50, E = 97.95 ($p < 0.08$) IQ < 84 at 30 months on Stanford–Binet: C = 50%, E = 11% ($p < 0.05$)	Cooperation E > C $p < 0.07$	NA

Footnotes: *C, the control group*
E, the experimental group, i.e. the group that received the intervention. Where there are two experimental groups (e.g. Lambie, et al., *1989), they are referred to as E1 and E2*
E = C or NS means that differences between experimental and control groups were not statistically significant, using a cut-off value of $p < 0.05$*, unless otherwise noted. That is, outcomes labelled as NS cannot be attributed to the intervention, but instead could be due to chance, if, for example, E > C,* $p < 0.05$*; then the E group outperformed the C group on that outcome, a finding that we would expect by chance no more than 5 times out of 100*

n, the number of women, children, or families in each group

Reproduced from Olds and Kitzman, 1993[30]

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	Treatment conditions	Provider/ intervention	Initiation, termination and frequency	Implement-ation	Parental caregiving	Abuse and neglect	Education, employment, subsequent pregnancy	Mental development	Child behaviour	Physical health/use of services
Field, *et al.*, 1982[42] Miami, FL	Low-income, black mothers	C: *n* = 20 E1: Nursery training (*n* = 40) E2: Home visited (*n* = 40)	Psychology graduate student + aide (black teenager) E1: Parents employed as teacher's aide trainees in infant nursery E2: PCS	Birth to 6 months postpartum Alternate weeks	NA	Interaction rating at 4 months postpartum E1 and E2 > C $p < 0.05$ Home environ-ment at 8 months NS	NA	NA	Bayley at 2 years: C = 98, E1 = 117, E2 = 104, E1 > E2 > C ($p < 0.05$)	Bayley (motor) at 2 years: C = 97, E1 = 116, E2 = 105 Interaction rating: E1 and E2 > C Gaze aversion: E1 > E2 > C ($p < 0.05$)	Weight at 4, 8, 12 and 24 months: E1 and E2 > C ($p < 0.05$)
Jester & Guinagh, 1983[80] Gainseville, FL	Low income; no history of mental illness or retardation in mother; singleton birth with no motor complications for mother or infant; about 80% black, 20% white	Complex design with low retention Experimental group with 2 or 3 years of consecutive home visits: *n* = 171 Control: *n* = 109 At last follow-up C: *n* = 23; E: *n* = 29	Paraprofessional PCS, PE	Weekly visits from 3 months to 3 years Follow-up for evaluation when children were 4, 5, 6, 10, 25 and 11 years old	NA	Mother's involve-ment in children's schooling E = C Home environ-ment review (1 of 7 scales) E > C $p < 0.05$	NA	At 2 years: return to school E1 < E2 < C $p < 0.05$	IQ E > C, for repeated measures after programme ended $p < 0.05$ School achievement test E > C in 4 of 9 tests $p < 0.05$ Proportion in special education E < C $p < 0.10$	Classroom behaviour E = C Child self-concept E = C	NA

All remaining footnotes for *Table 36*: *BA, Bachelor of Arts; CL, counselling provided to mother/family; CPS, Child Protective Services; ES, emotional support provided to mother/family; FFI, family and friend involvement in programme; HE, health education; IR, information/resource model; IS, instrumental support provided to mother/family; MH, mental health model; MLC, family planning, educational achievement, participation in workforce; MS, Master of Science; NA, for all outcomes, this means these outcomes were not measured; PCS, parental cognitive stimulation of child; PE, parenting education; SL, service linkage; TB, toys/books provided for child*

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Madden, *et al.*, 1984[81] New York City	Family qualified for low-income housing; lived in rented housing; neither parent had > 12 years of education or occupation > semiskilled 4 separate cohorts: 1973; 1974; 1975; 1976 88% black	1973 C: *n* = 18; E: *n* = 16 1974 C: *n* = 26 E: *n* = 22 1975 C: *n* = 12 E: *n* = 17 1976 C: *n* = 26 E: *n* = 29	Paraprofessional or volunteers (BAs) PCS, TB	From 21 to 35 months old to 2 years later Approximately 46 visits per year for 2 years	Year 1: Mean number of visits ranged from 40.3 to 43 Year 2: Mean number of visits was 34.8, 38.6, 38.6 and 15.7 for 1973–76 cohorts, respectively	Maternal teaching: E > C	NA	NA	No stable, coherent effects on IQ	Grade retention; special education; reading, maths and discipline problems: E = C	NA
Olds, *et al.*, 1986,[48,49] 1988,[50] 1994[82] Elmira, NY	First-time mothers < 30 weeks pregnant; 61% social classes IV and V; 62% unmarried; 47% teenage (< 19 years); 89% white; 10% black; 60% smoked; 23% poor, unmarried and teenage (analysis of white clients only)	C1: Screening (*n* = 90) C2: C1 plus transportation (*n* = 94) E3: C2 plus prenatal home visits (*n* = 100) E4: E3 plus postnatal home visits (*n* = 116) (C1 and C2 pooled for analysis)	Nurses PCS, PE, FFI, SL, TB, MLC, HE, ES, CL	< 30 weeks gestation to 24 months postpartum 1/week for first 6 weeks postpartum; 2/month for 6th week to postpartum; Every 3 weeks from 4 to 14 months postpartum; 1/month from 14 to 20 months postpartum; Every 6 weeks from 20 to 24 months postpartum	Mean number of visits: 8 during pregnancy, 23 postpartum	For poor unmarried teenagers: avoid punishment and restriction; play materials at 10 and 22 months; language stimulation and educational materials at 46 months E4 > C1 + C2 For whole sample: Home hazards at 34 and 46 months E4 < C1 + C2 $p < 0.05$	CPS founded cases for poor, unmarried teenagers: C1 + C2 = 19% E4 = 4% while programme in operation ($p = 0.07$) E4 = C1 + C2 during 2 years after programme ended	Participation in work force 0–48 months postpartum E4 > C1 + C2 Number of subsequent pregnancies 0–48 months postpartum (poor, unmarried) E > C1 + C2 $p < 0.05$ for all	For poor, unmarried teens only: Bayley at 12 months C1 + C2 = 104.13 E4 = 115.01 Cattell at 24 months: C1 + C2 = 104.94 E4 = 110.56 E4 > C1 + C2 $p < 0.10$	Reports of child's positive mood at 6 months postpartum E4 > C1 + C2 $p < 0.05$	Well child: E = C Emergency room visits at 0–12 months (poor, unmarried teenagers); emergency room visits at 12–50 months; emergency room visits for injuries and ingestions at 12–24 months; injuries and ingestions noted in physician record at 25–50 months E4 < C1 + C2 $p < 0.05$

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	Treatment conditions	Provider/ intervention	Initiation, termination and frequency	Implement-ation	Parental caregiving	Abuse and neglect	Education, employment, subsequent pregnancy	Mental development	Child behaviour	Physical health/use of services
Scarr & McCartney, 1988[52] Bermuda	All children aged 24–30 months old qualified; 89% invited; 7% refused Mean maternal education = 12 years; family income = $10,600	C: *n* = 39 E: Maternal/ child Home Programme (*n* = 78)	Paraprofessional PCS, TB	Began when children were 21–35 months old; ended 2 years later Semi-weekly visits during 10-month school year for 2 years for most families; in year 2, 12 high SES families went on a 1 a week schedule	Year 1: 98.5% of all visits to 75 families; 89.6% of 1 a week visits to 3 high SES families Year 2: 97.5% for 66 families; 95% for 12 high SES 1 a week families	E = C on several measures	NA	NA	E = C on several measures	Communication and classification skills E > C $p < 0.05$	NA
Barnard, *et al.*, 1988[83] Booth, *et al.*, 1989[84] Seattle	Women < 22 weeks pregnant from public clinics. Indications of alcohol or drug addiction, mental health problems, low social support, low income, or young age Mean age = 21.2 years 90% white; 70% unmarried	E = 1 information/ resource model (*n* = 79) E = 2 mental health models (*n* = 68) Attrition by end of intervention: 80% E2 and 53% E1 remained	Nurses IR = PE, SL, HE MH = CL, ES, PE, SL	From < 22 weeks of gestation to 12 months postpartum Frequency and duration of contact determined by nurse and family	E1 = 13.7 visits E2 = 19.1 visits E1 = 11.9 hours of contact E2 = 25.3 hours of contact $p < 0.001$ E1 = 62.1% goals attained E2 = 71.9% goals attained $p < 0.001$	Mother–child interaction: E1 = E2 overall, but E1 < E2 for low IQ mothers	NA	NA	Bayley (mental) at 2 years E1 = E2	Bayley (motor): E1 + E2 at 2 years Bayley (motor) for low IQ mothers: E1 < E2	NA

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Osofsky, *et al.*, 1988[85] Kansas	Urban pregnant teenagers: 60% Caucasian; 40% non-white; 87% unmarried	C: *n* = 130 E: *n* = 54	Paraprofessional PE, PCS, (SL, CL added as parents' needs became apparent); warm line; 1 morning/ week drop-in centre	From pregnancy to 18 months postpartum 1/week for 4 weeks and then 1/month	NA	HOME Inventory Maternal play: E = C	NA	NA	NA	NA	NA
Powell & Grantham-McGregor, 1989[86] Jamaica	Predominantly black, low income; 66% of mothers unemployed; 43% secondary education incomplete; 21% teenage	C: *n* = 29 E: *n* = 29	Paraprofessionals PE, IS, SL, TB, CL	Began when children were 16–30 months old; ended 1 year later 1 visit per week	NA	NA	NA	NA	Griffiths' Mental Development Scales at end of programme: C = 99, E = 110 $p < 0.05$	NA	NA
Dawson, *et al.*, 1989[71] Denver, CO	Low-income, pregnant women > 15 years old, English speaking; 74% white, 25% Hispanic, 1 black	C: *n* = 53 E1: *n* = 42 E2: *n* = 50 plus parent group meeting Attrition by end of study: 45% lost from C; 27% lost from E	Paraprofessionals ES, IS, SL, TB, CL	From < 26 weeks pregnant to 14th month postpartum Approximately 1 home visit a week 1 parent group meeting every 2 weeks	90% received some prenantal home visits Median number of visits from the beginning of pregnancy to 14 months postpartum = 30 Mothers with more problems had more home visits	Warm encourage-ment during teaching; maternal sensitivity during feeding (for teenagers and Hispanics) E > C at 4 months $p < 0.05$	Report to CPS by health department or hospital: C = 2% E = 7% NS	Subsequent pregnancy and contraceptive use: E = C	E = C	Infant reciprocity during feeding situation (for children born to teens and Hispanics): E > C at 4 months $p < 0.01$	Illness visits to physician: E > C $p < 0.05$ Health Supervision Index, immunisation, well-child visits: E = C

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

	Design			Programme characteristics		Outcomes					
Study	**Sample**	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Infante-Rivard, *et al.*, 1989[87] Montreal	Mothers with low SES or education < 12 years	C: *n* = 26 E9: *n* = 21	Nurses PE	Started < 25 weeks pregnant; ended 30 weeks postpartum 3 prenatal and 5 postnatal visits by nurses	NA	Home environment: E = C	NA	NA	Bayley (mental at 15 months): C = 114.9 E = 115.5 NS	Bayley (motor) at 15 months: E = 118.4 C = 114.2 NS	Hospitalisation: E = C Immunisation: E > C for half measures $p < 0.05$
Wasik, *et al.*, 1990[88] North Carolina	Low-income families; at-risk families and their new born infants 83–96% black across groups Mean maternal education: 10.5 years	C: *n* = 23 E1: Home visits (*n* = 24) E2: Home visits plus child develop-ment centre (*n* = 16)	Child care teachers, social workers or nurses ES, IS, PE, PCS, SL, CL All groups: free formula, diapers E1, E2: monthly parent group meetings	Birth to 5 years postpartum 1 visit each week in first 3 years; 1 every 1–6 weeks in years 4–5, depending on parental preference	Actual mean visits, years 0–3 = 2.5/ month for E1 and 2.7/month for E2 Years 4 and 5 = 1.4/month for E1 and 1.1/month for E2 92% of visits were with mother; 60% were 30–60 min long; 20% > 1 hour	HOME Inventory and parent attitudes: E1 = E2 = C	NA	NA	Bayley, Stanford–Binet, McCarthy, at 18, 24, 36, 48, 54 months: E2 > C > E1 $p < 0.05$	NA	NA
Gray, *et al.*, 1977[72] Colorado	Women identified during prenatal period as high risk for child abuse; 74% white, 28% Mexican–American	C: *n* = 50 E:Visited and given intensive paediatric consultation (*n* = 50)	Paraprofessionals and nurse PE, SL	Birth to 24th month postpartum 1/week	NA	E = C	E = C	NA	Denver Developmental: E = C	NA	Hospitalisation for serious injury: E < C Immunisations and accidents in record: E = C

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

Study	Design			Programme characteristics		Outcomes					
	Sample	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Larson, 1980[57] Montreal	French–Canadian or English ethnicity; working class income; no more than high school education; no significant illness during pregnancy or history of psychiatric illness	C: *n* = 44 E: *n* = 36	Paraprofessional (undergraduate degrees in psychology) PE, PCS, CL, SL	From 6 weeks to 15 months postpartum 7 visits from 6 weeks to 6 months; 3 visits from 6 to 15 months	NA	HOME Inventory at 18 months: E = C Maternal Behaviour Scale at 18 months: E = C	NA	NA	NA	NA	Well-child visits, immunisations, emergency room visits, accident rates at 18 months: E = C
Siegel, *et al.*, 1980[75] Greensboro, NC	Women in 3rd trimester of pregnancy who received care in public prenatal clinic; no previous still births; uncompli-cated pregnancy 73% black; 60% unmarried; mean education of 10.8 years; mean age of 20.7 years	C: *n* = 52 E1: early/ extended contact plus home visits (*n* = 47) E3: home visits (*n* = 53)	Paraprofessional PE, SL	Birth to 3rd month postpartum 10 visits total (1 in hospital) Early/extended contact: at least 45 min of mother–infant contact during first 3 hours after delivery; plus 5 more hours each day in hospital Follow-up for evaluation at 4 months and 12 months	NA	E = C (for test of home visits)	E = C	NA	NA	Infant positive/ negative behaviour E = C	Preventative care; emergency room visits; immunisations at 12 months E = C

continued

TABLE 36 contd *Home visiting programmes for low-income families or families at risk for child abuse*

	Design			Programme characteristics		Outcomes					
Study	**Sample**	**Treatment conditions**	**Provider/ intervention**	**Initiation, termination and frequency**	**Implement-ation**	**Parental caregiving**	**Abuse and neglect**	**Education, employment, subsequent pregnancy**	**Mental development**	**Child behaviour**	**Physical health/use of services**
Barth, *et al.*, 1988[46] Barth, 1991[70] California	Families at risk for child abuse: 45% white; 31% Latino; 17% black; 7% other	C: *n* = 94 E: *n* = 97	Paraprofessional PE, CL, SL	Initiation towards end of pregnancy, lasting for about 6 months Visits twice per month	Mean number of visits per month = 1.93	NA	Cases reported to CPS: E = C Possible greater surveillance among those visited	NA	NA	Temperament E = C	Well-child care and emergency visits E = C Birth weight E = C
Hardy & Streett, 1989[47] Baltimore, MD	Low-income, black mothers aged 18 years or older; 78% single parents	C: *n* = 147 E: home visits plus phone availability (*n* = 143)	Paraprofessional (college-educated black woman who had lived in community) PE, SL	From first week to 24 months 10 visits 40- to 60-minute visits	NA	NA	Neglect or abuse suspected: C = 9.8% E = 1.5% NS	NA	NA	NA	Immunisations complete for age C = 96% E = 88% $p < 0.001$ Hospital admissions C = 15.2% E = 6.1% $p < 0.01$ Monilial diaper rash C = 34% E = 21% $p < 0.01$ Head trauma C = 11% E = 6% NS

TABLE 37 *Scores[*] for quality of methodology and study characteristics for randomised trials of home visiting*

Study	Allocation concealment	Analysed as randomised[**]	Blinding	No. of participants randomised	Follow-up (years)
IHDP, 1990 (USA)[69]	3	2	1	985	1
Marcenko, *et al.*, 1994 (USA)[74]	2	2	1	225	0.8
Johnson, *et al.*, 1993 (Republic of Ireland)[62]	3	2	1	262	1
Barth, 1991 (USA)[70]	1	2	1	313	3
Dawson, *et al.,* 1989 (USA)[71]	1	1	1	145	1
Hardy & Streett 1989 (USA)[47]	1	2	2	290	1.9
Olds, *et al.*, 1986 (USA)[48]	3	1	2	400	4
Lealman, *et al.,* 1983 (England)[73]	3	2	3	312	1.5
Larson, 1980 (Canada)[57]	3	2	2	80	1.5
Siegel, *et al.*, 1980 (USA)[75]	3	3	1	321	1
Gray, *et al.,* 1977 (USA)[72]	3	2	1	100	1.4

[*] *On a scale of 1–3 (1 = poorest score, 3 = best score)*
[**] *Judged for injury outcome measures whenever possible*
Reproduced from Roberts, et al., *1996*[39]

TABLE 38 *Home visiting and childhood injury*

Study	Study population	Intervention	Outcome	Participants visited	Controls	OR (95% CI)
IHDP, 1990 (USA)[69]	Parents of low birth weight premature infants	Postnatal, non-professional, emotional, social, practical and informational support	'Non-hospitalised injuries by maternal report'	17/345	26/551	1.05 (0.56 to 1.96)
Johnson, *et al.*, 1993 (Republic of Ireland)[62]	Disadvantaged first-time mothers	Postnatal, non-professional support and encouragement in child rearing using a child development programme modelled on the Bristol CDP	'Suffered an accident'	3/127	8/105	0.51 (0.21 to 1.24)
Hardy & Streett, 1989 (USA)[47]	Inner-city mothers of poor infants	Postnatal, non-professional parenting and childcare education	'Outpatient diagnosis of closed head trauma'	8/131	15/132	0.51 (0.15 to 1.79)
Dawson, *et al.*, 1989 (USA)[71]	Pregnant women attending for maternity care not selected for psychosocial risk	Antenatal, and postnatal, non-professional emotional support; information and help in using community resources	'Accidents or ingestion requiring medical attention'	5/67	6/44	2.06 (0.83 to 5.15)
Olds, *et al.*, 1986 (USA)[48]	Primiparas who were teenagers, unmarried, or of low socio-economic status	Antenatal and postnatal parenting education in infant development from nurse; involvement of family members and friends in childcare; linkage of family members with health and human services	'Emergency visit for accidents and poisoning (1st year of life)'	0.12*	0.06*	0.40 (0.21 to 0.77)
			'Emergency visit for accidents and poisoning (2nd year of life)'	0.15*	0.34*	0.71 (0.49 to 1.04)
			'Emergency department visits for injuries/ingestion (25 to 30 months)'	0.47*	0.61*	0.50 (0.06 to 4.55)
Lealman, *et al.*, 1983 (England)[73]	Families predicted to be at risk of child abuse	Postnatal intervention and support from social worker	'Admissions with trauma'	1/103	4/209	0.50 (0.06 to 4.55)
Larson, 1980 (Canada)[57]	Working class families	Postnatal and non-professional emotional and informational support	'Significant falls, cuts, burns, poisonings or other injuries'	1.26†	1.55*	0.73 (0.46 to 1.16)
Gray, *et al.*, 1977 (USA)[72]	Families likely to exhibit abnormal parenting practices	Postnatal emotional support from physician/nurse/lay visitor	'Accidents by maternal report'	16/26	13/55	1.48 (0.49 to 4.5)
Pooled results						**0.74 (0.60 to 0.92)**

**Adjusted mean*
†Cumulative accident rate per child

Reproduced from Roberts, et al.*, 1996*[39]

TABLE 39 *Home visiting and child abuse*

Trial (year, country)	Study population	Intervention	Outcome	Participants visited	Controls	OR (95% CI)
Marcenko & Spence, 1994 (USA)[74]	Women at risk of out of home placement of their newborns	Antenatal, postnatal, professional/non-professional to provide peer support; help to identify service needs; home-based health education and parenting training	Out of home placement	35/110	15/77	1.93 (0.97 to 3.85)
Johnson, *et al.*, 1993 (Republic of Ireland)[62]	Disadvantaged first-time mothers	Postnatal, non-professional support and encouragement in child rearing using a child development programme modelled on the Bristol CDP	Abuse unspecified	0/127	3/105	0.11 (0.0 to 2.25)
Barth, 1991 (USA)[70]	Parents identified as at risk of engaging in child abuse by community professionals	Antenatal and postnatal, non-professional, informational, emotional and practical support	Reported abuse	64/97	54/94	1.44 (0.80 to 2.58)
Hardy & Streett, 1989 (USA)[47]	Inner-city mothers of poor infants	Postnatal, non-professional parenting and childcare education	Suspected abuse	2/131	13/132	0.14 (0.03 to 0.64)
Dawson, *et al.*, 1989 (USA)[71]	Pregnant women attending for maternity care not selected for psychosocial risk	Antenatal and postnatal, non-professional emotional support; information and help in using community resources	Reported abuse	5/67	1/44	3.47 (0.39to 30.74)
Olds, *et al.*, 1986 (USA)[48]	Primiparas who were teenagers, unmarried, or of low socio-economic status	Antenatal and postnatal parenting education in infant development from nurse; involvement of family members and friends in childcare; linkage of family members with health and human services	Registered abuse (age 0–2 years)	0.05*	0.10*	–
			Registered abuse (age 2–4 years)	0.08*	0.05*	–
Lealman, *et al.*, 1983 (England)[73]	Families predicted to be at risk of child abuse	Postnatal intervention and support from social worker	Registered abuse	1/103	3/209	0.67 (0.07 to 6.55)
Siegel, *et al.*, 1980 (USA)[75]	Women with low incomes	Postnatal, non-professional support to promote mothers' involvement with their infants and to support mothers in coping with a range of stresses	Reported abuse	14/159	9/162	1.64 (0.69 to 3.91)
Gray, *et al.,* 1977 (USA)[72]	Families most likely to exhibit abnormal parenting practices	Postnatal emotional support from physician/nurse/lay person	Suspected abuse	0/50	5/50	0.08 (0.00 to 1.52)

**Adjusted means*

Reproduced from Roberts, et al.*, 1996*[39]

TABLE 40 *Characteristics of perinatal and early childhood hospital support, home visitation or parent training programmes*

Parameters	Gray, et *al.*, 1977[72] (Colorado)	Larson, 1980[57] (Quebec)	O'Conner, et *al.*, 1980[96] (Tennessee)	Siegel, et *al.*, 1980[75] (North Carolina)	Lealman, et *al.*, 1983[73] (Bradford)
Sample size	100	115	301	202	511
Target group	Mothers	Mothers	Mothers	Mothers	Families
Age of parent(s)	UA	18–35 years	Mean 18 years	Mean 21 years	UA
Age of child(ren)	Newborn	Newborn	Newborn	Newborn	Newborn
Socio-economic status	Working SES	Working SES	Lower SES	Lower SES	UA
Ethnicity	UA	Canadian	White 56–63%	White 24–31%	Non-Asian
Obstetric history	Para 1 or para 2	UA	Gravida 1	Gravida 2	UA
Intervention Type of abuse targeted Method of referral Type of intervention	Abuse* and neglect General hospital Intensive paediatric care/ home visitation	Abuse and neglect By obstetricians Home visitation	Abuse and neglect Prenatal clinic Rooming-in	Abuse and neglect Prenatal clinic Three combinations of hospital/home support including visitation	Abuse and neglect Maternity unit: (1) drop-in centre; (2) ongoing social work involvement
Number of intervention groups	1	2	1	3	2
Qualifications of intervenor	Public health nurse	BA	No intervenor	Paraprofessional (200 hours training)	UA
Time involved	Paediatrician: – bi-monthly office visits Public health nurse: – weekly visits	(1) 11 visits beginning prenatally; (2) 10 visits beginning postnatally	11 hours with infant in first 48 hours	Variable	(1) available 1 day/week; (2) UA
Duration of programme	27 months (17–35 months)	18 months	Until discharge	Varied from up until discharge to 3 months	18 months
Duration of follow-up	27 months (17–35 months)	18 months	17 months (12–21 months)	1 year	18 months
% Subjects not completing study	†	22	8	*	UA

UA, unavailable

**Abuse refers to physical abuse unless otherwise stated*
†Only a sample of each group (50%) was followed up

Reproduced from MacMillan, et al., *1994*[61]

continued

TABLE 40 contd *Characteristics of perinatal and early childhood hospital support, home visitation or parent training programmes*

	Resnick, *et al.*, 1988[93] (Ontario)	**Olds, *et al.*, 1986[48] (New York)**	**Barth, 1991[70] (California)**	**Taylor & Beauchamp, 1988[95] (Michigan)**	**Wolfe, *et al.*, 1988[94] (Ontario)**	**Hardy & Streett, 1989[47] (Maryland)**
Sample size	54	400	240	32	53	290
Target group	Mothers	Mothers	Mothers	Mothers	Mothers	Mothers
Age of parent(s)	Mean 27 years	47% < 19 years	Median 23.5 years	Mean 24 years	Median 21 years	Mean 23 years
Age of child(ren)	Mean 38 years	Newborn	Newborn	Newborn	Median 24 months (9–60 months)	Newborn
Socio-economic status	Lower SES	Lower SES	Lower SES	Mixed SES	Lower SES	Lower SES
Ethnicity	83% born in Canada	89% white	45% white, 31% Latino, 17% black, 7% other	53% white, 47% black	UA	100% black
Obstetric history	UA	Para 1	44% para 1	Para 1	UA	23% para 1
Intervention Type of abuse targeted Method of referral	 Abuse and neglect UA	 Abuse and neglect Health and human service agencies	 Abuse and neglect Multiple professionals	 Abuse and neglect Maternity ward	 Abuse and neglect Child protection agency	 Abuse and neglect Maternity ward
Type of intervention	(1) Life skills parent group programme; (2) Parent training programme	(1) Home visitation prenatal; (2) Home visitation pre- and postnatal (3) Free access to childcare	Home visitation	Home visitation	Behavioural parent training programme	Home visitation
Number of intervention groups	2	3	1	1	1	1
Qualifications of intervenor	UA	Nurse	Paraprofessional	Student nurse	Graduate nurse	Community women (college education)
Time involved	(1) Weekly (2) Weekly	(1) 9 prenatal visits (2) As above with weekly visits tapered to every 6 weeks over 2 years	Bi-monthly (mean 11 visits)	Weekly	90 min/week or bi-weekly x 20	Visits at 1 week, and 2, 4, 6, 9, 12, 15, 18, 21, 24 months
Duration of programme	(1) 14 weeks (2) 14 weeks	(1) Pregnancy (2) Pregnancy plus 2 years postpartum	6 months	1 month	20 weeks (7–44)	23 months
Duration of follow-up	1 year	2 years	Mean 3 years	3 months	1 year	2 years
% Subjects not completing study	39	15–21	20	6	43	9

UA, unavailable

**Abuse refers to physical abuse unless otherwise stated*

†Only a sample of each group (50%) was followed up

Reproduced from MacMillan, et al., *1994[61]*

TABLE 41 *Outcomes of perinatal and early childhood hospital support, home visitation or parent training programmes*

Author	Methodology score	Intervention	Group	Relative risk	Reported *p*-value
A: Reports of child abuse and neglect					
Olds, *et al.*, 1986[48] (whole)	23	Free access to health care	Control vs. experimental group 1	*	NS
		Home visitation (pregnancy)	Control vs. experimental group 2	1.07	NS
		Home visitation (infancy)	Control vs. experimental group 3	1.77	NS
Olds, *et al.*, 1986[48] (subgroup)	23	Free access to health care	Control vs. experimental group 1	*	NS
		Home visitation (pregnancy)	Control vs. experimental group 2	1.50	NS
		Home visitation (infancy)	Control vs. experimental group 3	5.50	$p < 0.10$
Hardy & Streett, 1989[47]	19	Home visitation	Control vs. experimental group		
			Reports (definite)	11.90	$p < 0.01$[†]
			Reports (suspected)	6.45	$p < 0.01$[†]
Barth, 1991[70] (reports per family)	19	Home visitation	Control vs. experimental group		
			Substantiated reports	0.96	NS
			Unsubstantiated reports	0.84	NS
			Total reports	0.86	NS
O'Conner, *et al.*, 1980[96]	18	Enhanced postpartum contact	Control vs. experimental group	4.69	NS
Siegel, *et al.*, 1980[75]	18	Early and extended postpartum contact	Control vs. experimental group 1	0.96	NS
		Home visitation	Control vs. experimental group 2	0.44	NS
		Combination	Control vs. experimental group 3	0.68	NS
Gray, *et al.*, 1977[72]	13	Intensive paediatric contact plus home visitation	Control vs. experimental group	0.50	NS
Lealman, *et al.*, 1983[73]	8	Drop-in centre	Control vs. experimental group	1.48	Not reported
B: Hospitalisations					
Hardy & Streett, 1989[47]	19	Home visitation	Control vs. experimental group	2.48[‡]	$p < 0.01$
O'Conner, *et al.*, 1980[96]	18	Enhanced postpartum contact	Control vs. experimental group	1.33[‡]	NS
Siegel, *et al.*, 1980[75]	18	Early and extended postpartum contact	Control vs. experimental group 1	2.88	NS
		Home visitation	Control vs. experimental group 2	0.68	NS
		Combination	Control vs. experimental group 3	0.76	NS
Lealman, *et al.*, 1983[73]	8	Drop-in centre	Control vs. experimental group	2.09	Not reported
C: Emergency room visitations					
Olds, *et al.*, 1986[48] (whole)	23	Free access to healthcare	Control vs. experimental group 1	*	NS
		Home visitation (pregnancy)	Control vs. experimental group 2	1.14	NS
		Home visitation (infancy)	Control vs. experimental group 3	1.39	$p < 0.01$
Olds, *et al.*, 1986[48] (subgroup)	23	Free access to healthcare	Control vs. experimental group 1	*	NS
		Home visitation (pregnancy)	Control vs. experimental group 2	1.09	NS
		Home visitation (infancy)	Control vs. experimental group 3	1.57	NS
Barth, 1991[70]	19	Home visitation	Control vs. experimental group	1.00	NS
O'Conner, *et al.*, 1980	18	Enhanced postpartum contact	Control vs. experimental group	1.00	NS
Siegel, *et al.*, 1980[75]	18	Early and extended postpartum contact	Control vs. experimental group 1	0.96	NS
		Home visitation	Control vs. experimental group 2	1.20	NS
		Combination	Control vs. experimental group 3	1.31	NS
Larson, 1980[57]	15	Home visitation (postnatal)	Control vs. experimental group 1	0.92	NS
		Home visitation (pre- and postnatal)	Control vs. experimental group 2	1.11	NS
Lealman, *et al.*, 1983[73]	8	Drop-in centre	Control vs. experimental group	4.8	NS

[*] *Insufficient information to calculate relative rate or risk*
[†] *These p-values were not reported, but two-tailed Fisher's exact test was used to calculate the p-value from data in the paper*
[‡] *Indicates relative risk*

Reproduced from MacMillan, et al., *1994*[61]

continued

TABLE 41 contd *Outcomes of perinatal and early childhood hospital support, home visitation or parent training programmes*

Author	Methodology score	Intervention	Group	Relative risk	Reported *p*-value
D: Injuries					
Olds, *et al.,* 1986[48] (whole) (includes poisonings)	23	Free access to healthcare Home visitation (pregnancy) Home visitation (infancy)	Control vs. experimental group 1 Control vs. experimental group 2 Control vs. experimental group 3	* 1.16 1.97	NS NS $p < 0.05$
Olds, *et al.,* 1986[48] (subgroup) (includes poisonings)	23	Free access to healthcare Home visitation (pregnancy) Home visitation (infancy)	Control vs. experimental group 1 Control vs. experimental group 2 Control vs. experimental group 3	* 1.48 1.48	NS NS NS
O'Conner, *et al*., 1980[96]	18	Enhanced postpartum contact	Control vs. experimental group	1.52‡	NS
Larson, 1980[57]	15	Home visitation (postnatal) Home visitation (pre- and postnatal)	Control vs. experimental group 1 Control vs. experimental group 2	1.23 1.80	$p < 0.01$ (overall test of 3 groups)
Gray, *et al*., 1977[72]	13	Intensive paediatric contact plus home visitation	Control vs. experimental group	0.94	NS
E: Specific injury					
Hardy & Streett, 1989[47] (closed head trauma)	19	Home visitation	Control vs. experimental group	1.86	NS
Gray, *et al.,* 1977[72] (serious head injury)	13	Intensive paediatric contact plus home visitation	Control vs. experimental group	*	$p < 0.01$

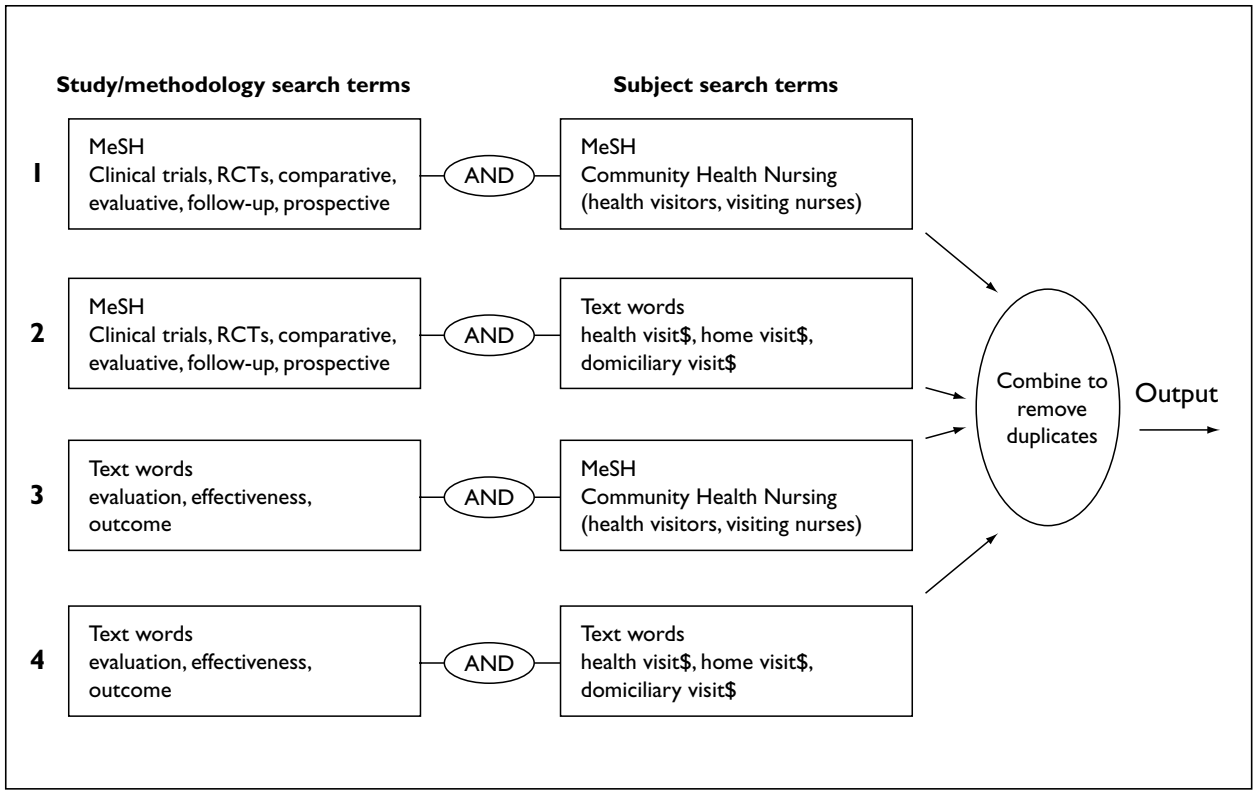
** Insufficient information to calculate relative rate or risk*
† These p-values were not reported, but two-tailed Fisher's exact test was used to calculate the p-value from data in the paper
‡ Indicates relative risk

Reproduced from MacMillan, et al.*, 1994*[61]

Appendix 2

Literature search strategies

MEDLINE

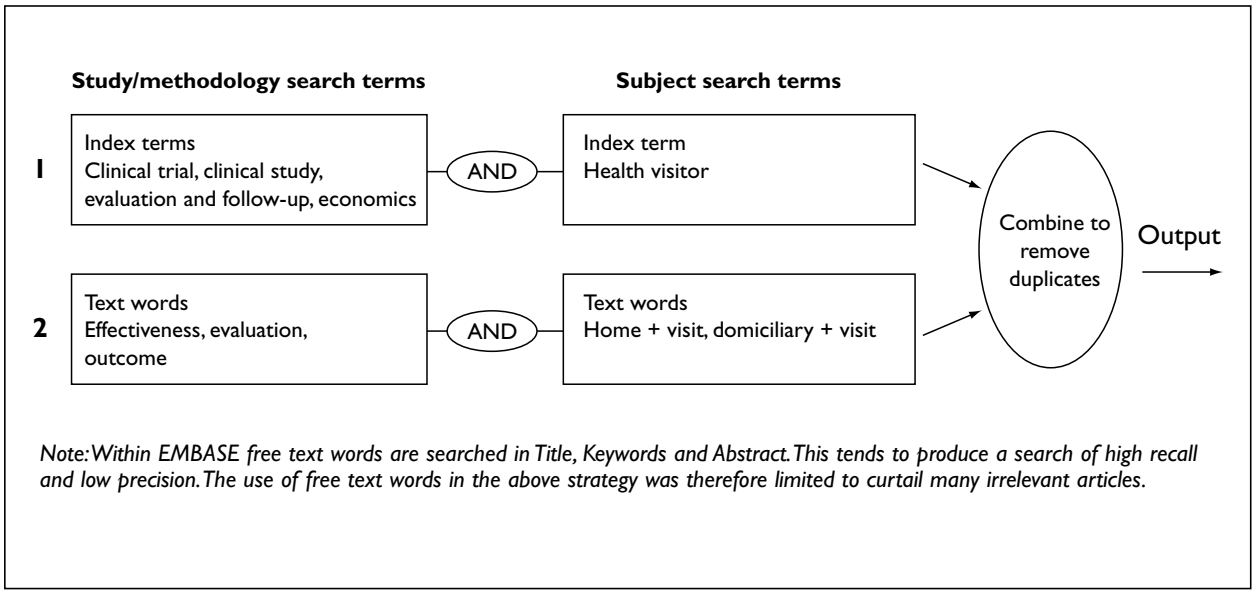


Set	search
001	randomized controlled trial.pt.
002	randomized controlled trials.sh.
003	random allocation.sh.
004	double-blind method.sh.
005	single-blind method.sh.
006	1 or 2 or 3 or 4 or 5
007	animal.sh.
008	human.sh.
009	7 not (7 and 8)
010	6 not 9
011	clinical trial.pt.
012	exp clinical trials/
013	(clin$ adj3 trial$).ti,ab.
014	(singl$ or doubl$ or treb$ or tripl$) adj3 (blind$ or mask$)
015	placebos.sh.
016	placebo$.ti,ab.
017	random.ti,ab.
018	research design.sh.
019	11 or 12 or 13 or 14 or 15 or 16 or 17 or 18
020	19 not 9
021	20 not 10
022	comparative study.sh.
023	exp evaluation studies/
024	follow-up studies.sh.
025	prospective studies.sh.
026	(control$ or prospectiv$ or volunteer$).ti,ab.
027	21 or 22 or 23 or 24 or 25
028	26 not 9
029	28 not (10 or 21)
030	**Subject search terms**
031	30 and (10 or 21 or 29)

pt, publication type; sh, subject heading;
$, truncation symbol; adj3, within 3 words;
ti, words in title; ab, abstract

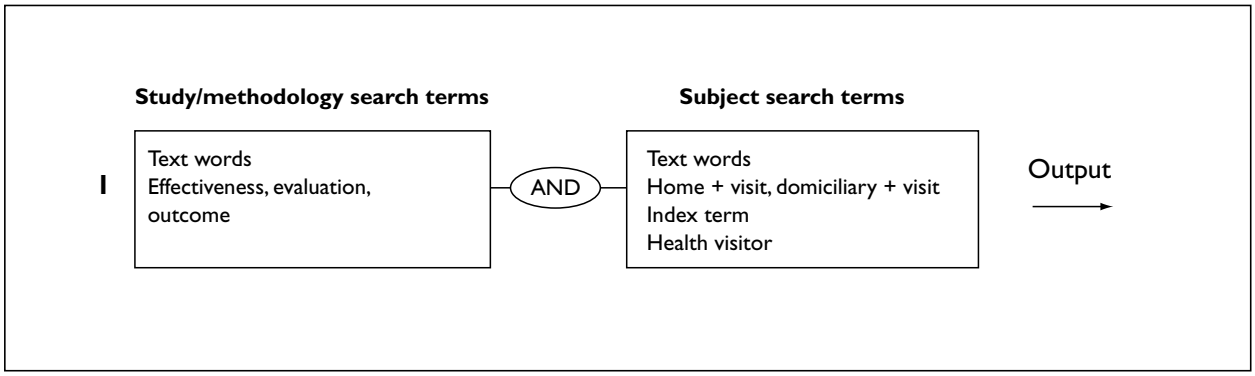
From refs 463 and 464

EMBASE



Note: Within EMBASE free text words are searched in Title, Keywords and Abstract. This tends to produce a search of high recall and low precision. The use of free text words in the above strategy was therefore limited to curtail many irrelevant articles.

CINAHL



Appendix 3

Excluded studies and literature reviews

TABLE 42 *Excluded studies: no home visit, or home visit involved but not as the intervention*

O'Sullivan and Jacobsen, 1992[63]	No home visit
Westheimer, *et al*., 1970[65]	Home visit only occurs when other intervention fails
Scarr-Salapatek & Williams, 1973[89]	Neonatal nursery confounded with home visiting
Wolfe, *et al*., 1988[94]	Home visit not for intervention
Forrest, *et al*., 1982[97]	No home visit
Appleby, *et al*., 1997[99]	No home visit
Adams & Biggerstaff, 1995[465]	No home visit
Ansell, *et al.,* 1994[466]	No home visit
Berger, *et al*., 1984[467]	No home visit
Brennan & Ripich, 1994[468]	Computer network
Brown, 1967[469]	Home visiting confounded with hospital care
Chiverton & Cainer, 1989[470]	No home visit
Crowley, *et al*., 1995[471]	Home visit for data collection
Dannenberg, *et al*., 1993[472]	No home visit
Davies, *et al.,* 1994[473]	Home visit only to recruit
Dershewitz, 1979[474]	No home visit
Dershewitz & Williamson, 1977[475]	No home visit
Fergusson, *et al*., 1982[476]	No home visit
Florey, *et al*., 1995[477]	Home visit for data collection
Geddis & Appleton, 1986[478]	No home visit
Griffiths & Zoitopoulos, 1985[479]	No home visit
Kay, 1989[480]	No home visit
Krug, *et al*., 1994[481]	Home visits not part of intervention
Lauri, 1981[482]	Home visit minor part of large intervention
McLoughlin, *et al*., 1982[483]	No home visit
Minde, *et al*., 1988[484]	Home visit for data collection
Parkin, *et al*., 1993[485]	Home visit not part of intervention
Reisinger & Williams[486]	No home visit
Robson, *et al*., 1989[487]	Home visit for data collection
Schwartzberg, 1982[488]	No home visit
Sutton, 1995[489]	No home visit
Taylor, *et al*., 1993[490]	Home visit for data collection
Thomas, *et al*., 1984[491]	Home visit for data collection
Webster-Stratton, 1985[492]	Home visit for data collection
Twinn, 1989[493]	No home visit
De la Cuesta,1994[494]	No home visit

TABLE 43 *Excluded studies: antenatal home visits only*

Lowe, 1970[32]	No postnatal home visits
Villar, *et al.*, 1992[43]	No postnatal home visits
Olds, *et al.*, 1986[49]	Outcomes of antenatal visits
Bradley & Martin, 1994[495]	No postnatal home visits
Graham, *et al.*, 1992[496]	No postnatal home visits
Oakley, *et al.*, 1990[497]	No postnatal home visits
Spencer, *et al.*, 1989[498]	No postnatal home visits

TABLE 44 *Excluded studies: some other designs*

Carpenter, *et al.*, 1983[59]	Cohort + routine data Comparison
Frost, *et al.*, 1996[397]	No comparison group
Barker, *et al.*, 1992[439]	Cohort and routine data Comparison
While, 1990[352]	Cohort
While, 1987[354]	Cohort
Atkin & Twigg, 1993[499]	No comparison group
Bentley & Holloway, 1993[500]	No comparison group
Chakravorty, 1994[501]	Cohort
Gallagher, *et al.*, 1985[502]	No comparison group
Heins, *et al.*, 1987[503]	Case–control
McAvoy & Rabia, 1991[504]	Cohort
Oakley, *et al.*, 1995[398]	Survey
Kendrick, *et al.*, 1995[505]	Case–control
Kerkestra, *et al.*, 1991[506]	No comparison group
Matthews, *et al.*, 1987[507]	No comparison group
Olds, 1984[508]	Case reports
Ploeg, *et al.,* 1994[509]	No comparison group
Schirm, 1989[510]	Survey
Singer & Wolfsdorf, 1975[511]	Cohort
Sullivan, *et al.,* 1990[512]	No comparison group
Taylor, *et al.*, 1993[513]	Cohort and routine data comparison
Zahr and Montijo, 1993[514]	Cohort + historical controls

TABLE 45 *Excluded studies: client satisfaction surveys*

Clark, 1984[515]	Client satisfaction survey
Cowpe, 1994[516]	Client satisfaction survey
Early Childhood Development Unit, 1987[517]	Client satisfaction survey
Field, *et al*., 1982[518]	Client satisfaction survey
Foxman, *et al.,* 1982[519]	Client satisfaction survey
Gallup, 1994[520]	Client satisfaction survey
Jestice & Watkins, 1995[521]	Client satisfaction survey
Luker, 1981[522]	Client satisfaction survey
Machen, 1996[523]	Client satisfaction survey
Pearson, 1984[524]	Client satisfaction survey
Quine & Povey, 1993[525]	Client satisfaction survey
Simms & Smith, 1984[526]	Client satisfaction survey
Watson & Sim, 1989[527]	Client satisfaction survey
Weatherley, 1988[528]	Client satisfaction survey

TABLE 46 *Excluded studies: qualitative studies of home visiting*

Jacknik, *et al*., 1983[529]	Qualitative description of home visiting intervention
Lally, *et al*., 1988[530]	Qualitative description of home visiting intervention
MacMillan & Thomas, 1993[531]	Qualitative description of pilot study
Shyne, *et al.,* 1963[31]	Qualitative description of home visiting intervention
Yauger, 1972[33]	Qualitative description of home visiting intervention

TABLE 47 *Excluded studies: home visiting undertaken by professionals other than health visitors*

Lealman, *et al.*, 1983[73]	Social worker
Allen, *et al.*, 1992[532]	Nurse, pre-op home visit
Bidder, *et al.*, 1975,[533] 1983[534]	'Home advisor'
Blair, *et al.*, 1995[535]	Home visitor
Blondel & Breart, 1995[536]	Midwives
Bowers, 1992[537]	CPN
Brooker & Butterworth, 1991[538]	CPN
Buls, 1995[539]	Cardiac nurses
Burden, 1980[540]	'Therapist'
Burns, *et al.*, 1993[541]	CPN
Cockcroft, *et al.,* 1987[542]	Nurse, respiratory health worker
Corcoran & Gitlin, 1992[543]	Occupational therapist
Drummond, *et al.*, 1991[544]	'Caregiver'
Duddy & Parahoc, 1992[545]	Coronary specialist nurse
Ferrell, *et al.*, 1994[546]	Pain management nurse
Gillis, *et al.*, 1990[547]	CPN
Gournay & Brooking, 1994[548]	CPN
Hoare, *et al.*, 1994[549]	Linkworker
Hopper, *et al.*, 1984[550]	Home health aide
Hughes, *et al.*, 1991[551]	Paediatric nurse
Jessop & Stein, 1991[552]	Paediatric nurse
Mangen & Griffith, 1982[553]	CPN
McCrone, *et al.,* 1994[554]	CPN
Michielutte, *et al.*, 1981[555]	Paediatric nurse
Mitchell, *et al.*, 1986[556]	Community child health nurse
Muijen, *et al.*, 1994[557]	CPN
Paykel, *et al.*, 1982558	CPN
Quinlan & Ohlund, 1995[559]	CPN
Rayner, 1992[560]	Dental hygienist
Redman, *et al.*, 1995[561]	Breastfeeding consultant
Robinson, 1972[562]	CPN
Sharp, *et al.*, 1996[563]	Practice nurse
Short, 1984564	Psychoeducational therapists
Snowman & Dibble, 1979[565]	Child development trainer
Stein & Jessop, 1991[566]	Paediatric nurse
Thornbury & Martin, 1983[567]	Nurse
Twaddle, *et al.*, 1993[568]	Midwives
Waldenstrom, 1987[569]	Midwives
Wang, *et al.*, 1995[570]	Nurse, pre-op home visit
Wang, *et al.,* 1975[571]	Home health aide
Waterreus, *et al.,* 1994[572]	CPN

CPN, community psychiatric nurse

TABLE 48 *Excluded studies: outcomes too specific*

Moore, *et al*., 1974[66]	Visits to increase clinic attendance
Carswell, *et al.,* 1989[573]	Visit to child with asthma
Deaves, 1993[574]	Visit to child with asthma
Greenberg, *et al*., 1994[575]	Visits to decrease infant passive smoking
Hughes, *et al.,* 1991[576]	Visits to child with asthma
Oda & O'Grady, 1994[577]	Visits to decrease infant exposure to drugs
Olds, *et al*., 1994[578]	Visits to decrease maternal smoking
Selby, *et al*., 1990[579]	Visits to increase uptake of unique service

TABLE 49 *Excluded studies: miscellaneous*

Aurelius & Nordberf, 1994[580]	Objective of validating perceptions of home visiting nurse
Avon Premature Infant Project, 1998[581]	Published after end of literature search period
Briscoe, 1989[582]	Use of EPDS to identify depression
Cox, *et al*., 1991[583]	No outcomes reported
Emond, *et al*., 1988[584]	Published after end of literature search period
Haus & Thompson, 1976[585]	Home visits to disabled children
Holden, 1991[586]	Use of EPDS to identify depression

TABLE 50 *Excluded studies: literature reviews*

Barlow, 1997[105]	Review, parent training programmes (home visits and non-home visits)
Bass, *et al*., 1993[106]	Overview
Community Practitioners & HVA, 1998[107]	Overview
Browne, 1995[403]	Overview
Olds, 1990[421]	Same material is in Olds, 1993[30] (see chapter 2)
Olds, 1992[423]	Same material is in Olds, 1993[30] (see chapter 2)
Olds & Kitzman, 1993[424]	Same material is in Olds, 1993[30] (see chapter 2)
Appleton, 1994[451]	Overview
Bablouzian, *et al*., 1997[587]	Antenatal care
Barriball & MacKenzie, 1993[588]	Selective overview
Beresford, *et al*., 1996[589]	Overview, families with a disabled child
Blondel & Breart, 1992[590]	Antenatal care
Braverman, 1995[591]	Antenatal care
Chapman, *et al*., 1990[592]	Overview
Cobb, 1976[593]	Review of mostly non-home visit studies
Deal, 1993[594]	Overview
Dubowitz, 1989[595]	Overview
Fowler, 1995[596]	Antenatal care
Gough, 1993[597]	Review of mostly social work interventions
MacDonald & Roberts, 1995[598]	Overview

Appendix 4

Reisch quality rating scale

CHECKLIST FOR ASSESSING THERAPEUTIC STUDIES

Paper number: .....

Y = yes; N = no; U = unclear/unknown; NA = not applicable;
T/M = treatment or management method
* is noted beside desirable responses to the criteria considered most important
+ appears beside 'not applicable' responses to these criteria

---

		Y	N	U
1.	**PURPOSE OF THE STUDY**			
	A Statement of purpose given	☐	☐	☐
	B Outcome variables for therapeutic effects defined prior to study	☐	☐	☐
	C Magnitude of difference in outcome of (T/M) groups under investigation specified prior to study	☐	☐	☐
	D Source of support for study specified	☐	☐	☐
2.	**EXPERIMENTAL DESIGN**		**(tick one only)**	
	A Data collection			
	1. Data collection planned prior to T/M of subjects: data collected prospectively under specified conditions		☐	
	2. Data collection planned prior to T/M of subjects: data collected retrospectively by record review		☐	
	3. Data collection not planned prior to T/M of subjects: data collected retrospectively		☐	
	B Selection of subjects		**(tick one only)**	
	1. Subjects selected prior to T/M and evaluated prospectively		☐	
	2. Subjects followed from T/M to outcome but study planned after T/M		☐	
	3. Subjects selected according to outcome T/M evaluated retrospectively		☐	
	4. Unclear time relation of subject selection to outcome of T/M		☐	
3.	**SAMPLE SIZE DETERMINATION**		**(tick only one)**	
	A Method	Y	N	U
	1. Sample size determined by: (indicate which)	☐	☐	☐
	a. predetermined number of subjects **or** ☐ b. sequential experimental design **or** ☐ c. independent monitoring committee ☐			
	2. Predetermined time period	☐	☐	☐
	3. Specified time period from ..... to			
	4. No method specified (check if applicable)			
	5. Other (describe)	☐	☐	
	B Total number of subjects specified Total number of subjects is:	☐	☐	☐
	C Adequate number of subjects **enrolled** to detect magnitude of T/M differences under investigation or sufficient hazard investigation identified to preclude further study	☐	☐	☐

Reproduced from Reisch, et al., *1989*[116]

4.	**DESCRIPTION AND SUITABILITY OF SUBJECTS**	Y	N	U	NA
	A Entry criteria				
	1. Age of subjects given	☐	☐	☐	☐
	2. Race of subjects given	☐	☐	☐	☐
	3. Sex of subjects given	☐	☐	☐	☐
	4. Socio-economic status given	☐	☐	☐	☐
	5. Disease/health status of subjects given	☐	☐	☐	☐
	6. Contraindications for T/M (can include other diseases or treatments)	☐	☐	☐	☐
	B Eligible subjects who refuse to participate are adequately described	☐	☐	☐	☐
	C Subjects adequately described for appropriate criteria including those listed in 4A	☐	☐	☐	
5.	**RANDOMISATION AND STRATIFICATION**	Y	N	U	NA
	A It is possible to design a randomised study to evaluate the T/M under consideration	☐	☐	☐	☐
	B Randomisation claimed and documented	☐	☐	☐	☐
	C Randomisation not performed and bias is likely	☐	☐	☐	☐
	D Use of either prognostic stratification prior to study entry or retrospective stratification during data analyses	☐	☐	☐	☐
	E Group differences limit the interpretability of this study	☐	☐	☐	☐
6.	**COMPARISON GROUP(S) (CONTROL) USAGE**		**(choose one)**		
	A Random T/M assignment (indicate which below)	Y	N	U	NA
	1. Unmatched subjects with randomised T/M assignment	☐	☐	☐	☐
	2. Subjects as own control with T/M order randomised	☐	☐	☐	☐
	3. Matched by subject with T/M assignment randomised	☐	☐	☐	☐
	4. Stratified randomisation	☐	☐	☐	☐
		Y	N	U	
	B No assignment method described	☐	☐	☐	
	C Historical	☐	☐	☐	
	D Subjects matched/paired but assignment to T/M groups not randomised	☐	☐	☐	
	E Subjects as own control but T/M order not randomised	☐	☐	☐	
	F Subjects compared according to their response to the T/M procedure	☐	☐	☐	
	G Convenience (subjects selected for availability)	☐	☐	☐	☐
	H Comparison (control) group not included	☐	☐	☐	
	I Other non-randomised (explain)	☐	☐	☐	☐
7.	**PROCEDURES FOR TREATMENT/MANAGEMENT**	Y	N	U	NA
	A Informed consent obtained	☐	☐	☐	☐
	B Clear specification of:				
	1. Dosage (length of visits)	☐	☐	☐	☐
	2. Time of day administered	☐	☐	☐	☐
	3. Frequency	☐	☐	☐	☐
	4. Time to complete T/M (i.e. programme of T/M)	☐	☐	☐	☐
	5. Route (i.v., i.m., p.o., etc.) (home visit, telephone, clinic)	☐	☐	☐	☐
	6. Presentation (tablet, syrup, etc.) (oral, written, video)	☐	☐	☐	☐
	7. Source for drug or equipment in T/M under investigation	☐	☐	☐	☐
	8. Indication for:				
	a. Initiation of T/M	☐	☐	☐	☐
	b. Modification of T/M	☐	☐	☐	☐
	c. Discontinuation of T/M	☐	☐	☐	☐

Reproduced from Reisch, et al., *1989*[116]

		Y	N	U	NA
C	Subjects in different T/M groups appear to receive the same care other than that under investigation	☐	☐	☐	☐
D	T/M adequately described for above or other appropriate criteria	☐	☐	☐	
E	T/M reasonable and appropriate to answer question(s) posed by these researchers	☐	☐	☐	

8.	**BLINDING (MASKING)**	Y	N	Some	U	NA
A	Blinding claimed and appears realistic	☐	☐		☐	☐
B	Blinding (masking) used where feasible for important variables* by the:	☐	☐		☐	☐
	1. investigators	☐	☐	☐	☐	☐
	2. caregivers	☐	☐	☐	☐	☐
	3. subjects (and family if appropriate)	☐	☐	☐	☐	☐
C	Mark 'Y' if 8B1, B2, B3 are marked 'Y' or 'NA' Mark 'NA' + if 8B1, B2, B3 are each marked 'NA'	☐	☐			☐
D	Failure to use blinding likely to bias study results	☐	☐		☐	☐

We consider a variable important only when it is clearly identified by the author(s) in the abstract or in the statement of purpose to describe differences between groups related to their treatment or management

9.	**SUBJECT ATTRITION**	Y	N	U	NA
A	Predefined procedures for excluding subjects after entry	☐	☐	☐	☐
B	Specific procedures established to minimise loss of subjects from this study	☐	☐	☐	☐
	[Answer 'NA' to 9C and 9D if no subjects or records were lost or dropped]				
C	Description of all subjects or their records which were lost or dropped	☐	☐	☐	☐
D	Any loss of subjects or their records likely to bias the results of this study	☐	☐	☐	☐

10.	**EVALUATION OF SUBJECTS AND TREATMENT/MANAGEMENT**	Y	N	U	NA
A	All important clinical information reported, if no or unclear, explain	☐	☐	☐	
B	Laboratory and other measurements appear standardised and consistent	☐	☐	☐	
C	Treatment compliance assessed	☐	☐	☐	☐
D	Evaluation methods adequately described	☐	☐	☐	
E	Evaluation method appropriate to answer question(s) posed by investigators	☐	☐	☐	
F	Prospective evaluation of important hazards or toxicity	☐	☐	☐	☐
G	If use of T/M increased cost of care substantially, cost-effectiveness discussed	☐	☐	☐	☐

Reproduced from Reisch, et al., *1989*[116]

Appendix 5

Higher degree theses

Name and ref.	Date	Degree/place
Billingham, K[379]	1995	MSc/Warwick
Cameron, S[380]	1994	PhD/Edinburgh
Chalmers, K[381]	1990	PhD/Manchester
Clark, J[382]	1985	PhD/Polytechnic of the South Bank
Cowley, S[383]	1991	PhD/Brighton Polytechnic
Hennessy, D[302]	1985	PhD/Southampton
Kendall, S[384]	1991	PhD/King's College London
Luker, K[385]	1980	PhD/Edinburgh
Mason, C[386]	1988	PhD/Queens University, Belfast
Pearson, P[387]	1988	PhD/Newcastle-on-Tyne Polytechnic
Robinson, JJA[388]	1980	MA/Keele
Robinson, KSM[389]	1986	PhD/Polytechnic of the South Bank
Sefi, S[390]	1985	MA/Warwick
Warner, U[391]	1982	MSc/Surrey
Watson, P[392]	1981	PhD/Aberdeen
While, A[350]	1985	PhD/London
Williams, D[2]	1995	MSc/Nottingham

Billingham, 1995[379] (MSc, Warwick)
'Love don't cost nothing': a discourse analysis of health visitor interactions with mothers living in poverty

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
'To look at social action "in situ" and attempt to understand, without prior hypothesis, the social practices of a delimited unit' (Silverman, D (1992) in Daly, J *et al.*, Researching health care: designs, dilemmas, disciplines. London: Routledge)	'Naturally occurring' talk between HVs and mothers collected by HVs audio-taping home visits Discourse analysis of conversations drawing on ethnomethodological and interactionist perspectives. The focus is on language and how it defines and constructs the social realities of mothers living in poverty	13 HV home visits to mothers living on Income Support with none of the women or their partners in employment Visits lasted an average of 45 minutes In 7 visits, at least one additional adult was present, plus children	Health needs identified for both women and their children: e.g. weight, development, behaviour, recent hospitalisation, mental health problems. Three children had special needs Social problems: e.g. relationships with men, social isolation, financial difficulties, housing problems and violence The mothers demonstrated the relationship between poverty and ill health but their actual experiences of hardship were diverse	Talk on material and social contexts made up a substantial part of the HV–client interactions and overlapped and 'disappeared into health talk' Their interactions were complex and did not represent active HV/passive mother. Mothers actively produced their own discourses and constructed positions for the HV. Contested meanings and inconsistencies between them were analysed Overall conclusion: 1. HVs work to maximise resources for health; they construct mothers as both responsible and dependent 2. HVs and mothers construct a common discourse whereby a father's value is measured by his material and social contribution. Mothers are supported in their attempts to become independent 3. Talk that is oppositional or political is marginalised by the interactions that construct 'good mothers' by discourses of 'motherhood as love' and individualism

HV, health visitor

continued

Cameron, 1994[380] (PhD, Edinburgh)
First-time mothers and their health visitors: perceptions of a home visit

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
1. To examine home visits by HVs through the perceptions of participants 2. To open up home visit interactions to scrutiny and explore HV client expectations and relationships 3. To determine whether routine home visits are worthwhile	A descriptive study of HVs' home visits combining: 1. Survey methods (questionnaires and visual anologue scales) 2. Conversation analysis of tape-recorded interactions (ethnomethodology) 3. In-depth interviews	15 volunteer HVs 45 primiparous mothers with infants aged 2–6 months old (i.e. not primary [first] but subsequent visits in anticipated close contact with HV)	Listed under: 1. Quantitative analysis of data 2. Views on home visits 3. Advice and advice-giving 4. Role of HV and HV/client relationship 5. Content of home visits Main findings: 1. Representative samples of both clients and HVs 2. HVs far more critical of both the length and content of their visits than the clients who gave few negative scores 3. Strong correlations between HVs' and clients' scores on 4 scales – closest on 'the most important areas talked about' and 'usefulness of visit' 4. HVs were sensitive to client concerns and responsive to expressed need for individual choice; HVs assessed their success/failure/acceptability by level of client responses 5. Clients preferred non-authoritarian approaches and assessed relationships with HVs primarily on personality (e.g. 'accessible and approachable') with professional factors second (e.g. childcare advice valued); a third of clients mentioned HVs' child abuse surveillance role 6. HVs employ various verbal strategies to achieve objectives with client consent. HVs go to great lengths and use subtle strategies to negotiate and retain client cooperation	Extensive literature review of previous research on: 1. First-time mothers 2. HVs and teaching 3. Home visiting 4. Communication 5. Perception 6. Mothers and HVs: client response 7. HV–client relationship Recommendations included for management, education and practice, including development of HV–client contract to explain the service offered and assist in relationship formation Overall conclusion: This study builds on Sefi's work in studying home visits to primiparous mothers and their infants under 6 months old. The worth of the HV visit is demonstrated by research utilising micro-analytic methods for determining its structure and content. Mothers preferred non-authoritarian approaches for valuing the HV for being accessible and approachable. The HV's child surveillance role was nevertheless acknowledged by a third of clients

HV, health visitor

continued

Chalmers, 1990[381] (PhD, Manchester)
Preventive work with families in the community: a qualitative study of health visiting practice

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To learn how experienced HVs conceptualise and evaluate their health visiting work	Grounded theory approach Conversational interviews	45 experienced HVs from 13 health authorities in the north-west of England	1. The basic psychosocial problem uncovered in the data was the HVs' need to provide a service and clients' need to fulfil personal needs and goals 2. The unified theme of 'giving' and 'receiving' integrated the major categories into the key analytic framework in this study. This psychosocial process was the pattern of interaction between HVs and clients in which both parties control the interactions by regulating what they offer and accept from each other. Each party both selectively 'gives' and 'receives' in order to manage the HV–client encounters 3. HVs' conceptualisation of their practice has a major influence on their helping offer and the criteria they use to evaluate their practice	HVs' success in promoting health and preventing illness in clients may be enhanced by careful attention to what they offer clients and the processes through which these offers are made

HV, health visitor

continued

Clark, 1985[382] (PhD, Polytechnic of the South Bank)
The process of health visiting

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To examine the nature of the professional–client interaction which forms the core of health visiting practice	Tape-recorded HV visits to families over a period of 1 year from the time of the birth of a new baby Study families and HVs interviewed twice by the researcher (at the beginning and end of the study)	27 families followed through for a full year 15 HVs	Clark uses the empirical findings to construct a conceptual model of health visiting The theory incorporates the HV–client relationship as a symbolic or emotional environment in which HV activities take place Clark argues that 'the relationship' emerged as being of central importance because: • the HV has no right of access to the home • clients have not necessarily sought the HV's intervention, may see no need for it, and may not want it HVs have therefore to achieve 'permission' for their activities whereas most professionals are granted this by virtue of the client's request for help	Overall conclusion: The professional practice of health visiting cannot be explained adequately by activity analysis or by reliance on an ideological as opposed to a theoretical framework. Clark discusses the relationship between research, theory and practice in nursing and offers the thesis as an example of the integration of the three activities within a single project

HV, health visitor

continued

Cowley, 1991[383] (PhD, Brighton Polytechnic)
A grounded theory of situation and process in health visiting

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To explore how HVs choose which approach to use in any particular situation	1. Grounded theory strategy using informal, unstructured interviews 2. Observation in clinics 3. Tape-recorded home visits (Distribution not specified)	53 practising HVs Group interviews with a number of HVs	1. HVs treat health as a process, using interventions that are primarily either educational or therapeutic/caring 2. HVs construct a reflexive frame within which to structure joint decisions with their clients about which approach seems appropriate within a particular situation 3. The complexities of health visiting are submerged in the processes of assessing and negotiating within that frame 4. Awareness has 2 dimensions: openness and consonance; and in 3 conditions, legitimacy, normality and activity	1. Symbolic awareness contexts surround and influence interactions between HVs and their clients 2. Certain strategies appear to create movement in these interactions

HV, health visitor

continued

Hennessy, 1985[302] (PhD, Southampton)
Mothers and health visitors

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To ascertain: 1. The incidence of PN depression 2. The duration of PN depression – its onset, conclusion and other associated symptoms 3. Whether HVs could identify mothers 'at risk' of developing PN depression, and could identify all mothers with PN depression in their first PN year 4. What skills HVs used to screen and identify these mothers 5. What preventive methods HVs used for mothers 'at risk' 6. What skills HVs used to meet the needs of mothers who had PN depression 7. Whether, or where, the HV service should be improved in this area	A longitudinal study (18 months) of maternal postnatal depression utilising: 1. Psychiatric screening tests 2. Questionnaires 3. Client diary 4. Analysis of HV records 5. Participative observation and tape-recording of HV home visiting	300 randomly sampled mothers drawn from: 1. 5 GP practices 2. Health authority birth notification procedures Of these, 235 mothers were followed for the full 18 months between the 7th antenatal month and the 15th PN month 62 mothers and 17 HVs were identified as a participative observation subgroup	1. 110 (47%) of mothers became PN depressed; 64 (27%) in first 6 weeks 2. 12 (11%) were thought by HVs antenatally to be 'at risk' of PN depression and HVs only recognised postnatally 27 (25%) of the 110 Note: The 110 depressed mothers were identified by the author from subjective information given to her by the mothers during interviews and based on 4 criteria.* HVs were not prompted on this after preparatory work. Symptoms included depression, excessive anxiety, tiredness, irritability, crying and 'feeling different from normal' 3. Skills used: contact-making in homes and clinics; searching for health needs; recognising the symptoms; and teamwork 4. A statistically significant proportion of depressed mothers received considerably more HV home visits than non-depressed ones but no differences were identified in number of clinic contacts for the 2 groups 5. Cues were offered by mothers to HVs which were not taken up, and in one-third of 6-month visits the author observed considerable searching for child health but not maternal needs (it could be inferred that HVs visited depressed mothers more frequently but did not know why)	GPs recognised 12% of mothers as depressed, of whom 'very few' were prescribed medication and only 4 were referred to a psychiatrist Overall conclusion: This is a complex statistical study for which a large section of the microfilm of the final chapter was illegible. Elsewhere, Hennessy (1986)[303] discusses the difficulties confronting HVs when an identified problem such as relatively mild PN depression is not legitimated by a medical diagnosis. The time spent by HVs on helping these mothers may not then be seen as legitimate 'work'. Eighteen recommendations include: greater knowledge about PN depression, education in asking questions and active listening, refocusing of HV priorities, and appropriate referral procedures.

HV, health visitor; PN, postnatal

Pitt B. Atypical depression following childbirth. Br J Psychiatry *1968;**114**:1325–35*

continued

Kendall, 1991[384] (PhD, King's College, London)
An analysis of the health visiting–client interaction: the influence of the health visiting process on client participation

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To explore the extent and nature of client participation in health visiting practice within the framework of the health visiting process	1. 2 groups of HVs (16 in total) were observed visiting families with children under 1 year old at home. Primary visits excluded. HV–client interaction was recorded, 62 interactions were analysed qualitatively 2. HVs and clients were interviewed separately to establish perceptions of the visit. Interviews were analysed quantitatively 3. Data were collected from HVs regarding their views and attitudes to client participation, and to the HV process	16 HVs from 2 health authorities Area A had implemented the HV process for 3 years Area B used traditional approaches	1. HVs did not generally facilitate client participation in identifying their own health needs, or in planning decision-making to meet perceived health needs 2. There was little difference in approach between the 2 areas 3. Clients and HVs had different perceptions of a home visit in terms of perceived: • objectives for the visit • health needs • plan of action • follow-up Despite these observations, HVs appeared positive about client participation, even though they did not demonstrate it in practice Kendall concluded that the HV process does not make any appreciable difference to practice	Overall conclusion: HVs controlled and closed the clients' interactions A possible explanation appears to lie in the lack of a theoretical framework for practice. Further development of a theory of health visiting was recommended

HV, health visitor

continued

Luker, 1980[385] (PhD, Edinburgh)
Health visiting and the elderly: an experimental study to evaluate the effects of focused health visitor intervention on elderly women living alone at home

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To evaluate the effects of focused HV intervention over a period of approximately 1 calendar year	A 2-group crossover experimental design with random allocation to the 2 groups Group 1 (the first group to receive treatment) and Group 2 (the initial control group) Effects of treatment (focused HV intervention once a month for 4 months) were measured in terms of 3 dependent variables: 1. A change in health problem status 2. Life satisfaction using the Life Satisfaction Index* 3. Subjects' opinions about the effects of treatment The focused intervention was based on an assessment of the subject's actual and potential health problems identified at a pretest interview An attempt was also made to relate the process of the intervention to the outcome	A convenience sample of 120 females aged 70 years and above, living alone, and registered with one group of GPs in Scotland were randomly allocated to 2 groups. They had no known history of senile dementia, did not receive visits from an HV and were not visited by a district nurse more than once a month The HV interventions were planned by the researcher (a graduate HV) and carried out by a research assistant who was an experienced HV, i.e. the research was carried out under experimental conditions and not as part of routine HV practice	1. Focused HV intervention significantly increased the number of actual and potential health problems that improve in elderly women (4 problem categories were analysed: weight maintenance; mobility; dentition; and sensory functioning) 2. No significant difference was found in life satisfaction after the intervention 3. The majority of the sample enjoyed the HVs' visits and most stated that they had benefited in some way The research did not measure the extent to which existing health problems were prevented from deteriorating, or how far the successful treatment of problems prevented the development of other problems Over 90% of the sample enjoyed the HV visits and thought that HV visiting of the elderly was 'a good idea', but only 48% wished the visits to continue. Luker discusses possible reasons for this discrepancy (not wishing to report –ve findings, and feeling others are more in need. Luker observes that viewing others as 'worse off' may act as a protective mechanism for some elderly women and that raising the concept of 'need' may undermine their coping mechanisms)	Careful piloting of the research instruments ensured the rigor of the research methods used Luker claims that the findings from this study demonstrate that it is not necessary to build a prior relationship with elderly people before asking intimate and necessary questions. Elsewhere, however, she acknowledges that the study was identified by the sample as being associated with the individuals' GPs and this perception may have positively influenced participation/responses Luker also accepts that the interventions prescribed were based on the problems identified rather than on the people concerned and this raises questions concerning the ways in which routine HV services are individualised through the microprocesses of interaction Overall conclusion: An experimental study of successful HV-type interventions with an elderly population not in prior contact with the service. Paradoxically, the rigorous design inhibits the wider generalisation of the findings to the possible outcomes of routine HV practice

HV, health visitor

* *Neugarten BL, Havighurst RJ, Tobin SS. The measurement of life satisfaction.* J Gerontol *1961;**16**:134–43*

continued

Mason, 1988[386] (PhD, Queens University, Belfast)
Problems in health visiting: an anthropological study

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
1. To examine health visiting as a social institution by comparing practice in two diverse cultures (Belfast and Jamaica) 2. To discover a wide range of lay experiences and perceptions of the health visiting service	Social anthropological methods: 1. Participative observation 2. Structured interviews	3 fieldwork locations in Belfast, and rural and urban Jamaica Belfast: 19 mothers, with at least 1 child under 5 years of age Pratville (Jamaica): 20 mothers, with at least 1 child under 5 years of age Kingston (Jamaica): 20 mothers, with at least 1 child under 5 years of age	Belfast: An ideal model emerged of the HV as 'friend and mother' which was balanced by a dislike of formality, insincerity and tactlessness Pratville: Home visits were preferred to clinic visits. Confidentiality and privacy were the reasons cited. The personal qualities of HVs were valued: being able to talk to the HV and shared experience of motherhood Kingston: Confidentiality and privacy were difficult to achieve; a non-blaming approach on behalf of the nurse was liked; material help – clothing and food – was seen as evidence of a good nurse; ability to deal with a sick child was seen as important. Bad qualities: nurses who were 'fasty', 'miserable', 'course' and 'rough'; lack of sensitivity and poor interpersonal skills were condemned	Clinical, problem-orientated approach identified in both areas in Jamaica Overall conclusion: The reading of this study was constrained by poor quality microfilm. This was unfortunate because it represents an unusual comparison of health visiting between different cultures. The author suggests that while accounts of belief systems offer valuable insights, they cannot alone explain behaviour. Contrasts what mothers believe that caregivers should do (advise, inform, explain, encourage, support and reassure) and should be (long-standing community members, local healers, motherly, 'know the job', 'direct', 'softer')

HV, health visitor

continued

Pearson, 1988[387] (PhD, Newcastle-on-Tyne Polytechnic)
Clients' perceptions of health visiting in the context of their identified health needs: an examination of process

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To explore the process by which members of a client group identify and interpret their health needs, and develop perceptions of health visiting services	Phase I Semi-structured interviews and use of diaries at one point in time Phase II A series of 3 semi-structured interviews, commencing antenatally and completed over a 10-month period	Phase I 41 parents Phase II 19 primiparous parents 10 HVs	8 concept areas emerged from the interview data: 1. Health, health problems and other concerns 2. The need for help – locating the problem 3. Knowledge and experience 4. Legitimation 5. Advice, support and comparing notes 6. Choosing a helper 7. Relationship or problem-centred 8. Power and control	A substantive theory is put forward which suggests that the choice of helper, and the degree of control desired by parents at different stages is influenced by their previous knowledge and the types of problems encountered Three stages are suggested: 1. Health defined as socio-emotional 2. Practical difficulties emerge (e.g. infant feeding) 3. Confidence is gained but 'comparing notes' with HV offers a reciprocal helping relationship <u>Overall conclusion</u>: The value attributed by parents to the HV's involvement appears to reflect how far the HV's views converge/diverge from those of the parent concerned

HV, health visitor

continued

Robinson, 1980[388] (MA, Keele)
An evaluation of health visiting: a study of the relevance of historical and theoretical perspectives and the impact upon client's perceptions and usage of the service

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
Part 1. Provision of a global approach to the evaluation of health visiting at the end of the 1970s ***Part 2***. Study of the under- or non-utilisation of preventive health care services for infants and children as a means of evaluating existing service provision and making recommendations for the future – 'to compare the feelings and experiences of a group of parents who are identified as non-users of routine preventive health care services for infants, with a control group'. Later focused on non-attenders and became: to compare the feelings and experiences of childbearing and child rearing of a group of parents identified as non-users of PDE facilities by non-attendance at the 6-week and 6-month PDE appointments with a control group	***Part 1***. Literature review exploring the historical origins of health visiting and considering the influence of theoretical perspectives on the development of health visiting ***Part 2***. Statistical analysis of non-attendance at 6-week PDE appointment. Comparison of the feelings and experiences of a group of parents not using PDE facilities at 6 weeks and 6 months of age with a control group, by means of semi-structured interviews	***Part 2***. 3 groups were considered as a basis for defining the target population: 1. Attendance at area health authority child health clinics 2. Uptake of primary vaccination and immunisation procedures 3. Attendance at PDE sessions Total births: 2770 Non-attendance at 6 weeks: 352 (12.7%) Non-attendance at 6 months: 30 (1.08%) Non-attendance at 6 weeks and 6 months: 26 (0.94%) Control group – sampling every 100th birth excluding non-attenders at the 6-week paediatric developmental examination	1. HVs are aware of the deprived groups in the community 2. Interpretation of the meaning of the term 'evaluation' was fraught with difficulties 3. Ambiguity surrounding the HV's role and function was an important issue 4. The health of the child population had relatively low priority as an issue for social policy except during manpower shortages, particularly in times of war 5. The domination of health visiting by medical officers of health, together with unquestioning acceptance of current states of knowledge on the cause and prevention of disease resulted in the absence of any development of theoretical models for practice by HVs themselves 6. Identification of two possible approaches (frameworks) for health visiting: a problem-oriented approach which would be amenable to the quantitative evaluation of tangible achievements; and a relationship-centred model which would be dependent on the estimation of less concrete factors such as the development of rapport, or empathy Variables whose influence is at present completely unknown include: • the circumstances of the individual client • the individual HV's education, training and personality • the size of the HV's caseload and the organisational climate in which the HV works Role conflicts for the HV may be attributed to the lack of a conceptual framework for practice. The HV treads a delicate path between friendly advice, persuasion and coercion. A minority of clients perceive the HV to be an agent of social control	Overall conclusion: Health visiting should be understood in a historical policy context; legitimated as a means to convey contemporary policy on child rearing directly to mothers. Supported for more than a century by the power of the medical officers of health, the service came under increasing scrutiny following the 1973 reorganisation of the NHS Act. The feasibility of the service was seen to lie in its mode of delivery: face-to-face advice in the home or clinic. Theoretical bases for advice changed over time and were not explicit. Health visiting appeared to be either 'problem oriented' or 'relationship centred'. The majority of parents accepted the service unquestioningly. A small minority (0.94%) of persistent PDE non-attenders displayed highly unusual characteristics and appeared successfully to resist contact with HVs

HV, health visitor; PDE, paediatric developmental examination

continued

Robinson, 1986[389] (PhD, The Polytechnic of the South Bank)
The social construction of health visiting

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
1. To examine the phenomenon of 'script writing' used as a basis for intra-professional discussion on the 'investigation debate' into health visiting 2. To review the prior research evidence using Clark's (1981)* review of 37 studies based on original empirical work carried out between 1960 and 1980 3. To accept that, in attempting to extract meaning from a sequence of conversation, any language is open to a range of interpretations and therefore simple categorisations are nonsensical Note: Specific objectives for the empirical research study are not given. However, the purpose of the study may be inferred from the following criteria cited for an appropriate methodology. First, that conversation analysis provides a satisfactory theory of social action; secondly, that it provides a means of addressing the data; and, thirdly, that it has the potential to produce useful accounts of occupational settings	1. The thesis represents essentially a philosophical analysis of the methodological problems in researching health visiting. As such, it provides a powerful critique both of the assumptions underpinning and of the practice of much previous nursing research 2. Ethnomethodological conversation analysis of audio tape-recordings of 'naturally occurring talk between HVs and clients' collected for a separate research project. The method is justified for its dependency on the primacy of language in the construction of the social world 3. Tape recordings of HV's primary (first) visits selected from a longitudinal study (see next column) were re-transcribed to meet the exacting requirements of conversation analysis	1. Separate study 20 HVs participating as follows: 13 in a longitudinal study for 1 year (308 interactions); 5 in a cross-sectional study of single consecutive visits (47 interactions); 2 in both studies 2. Robinson's subset: 28 recordings of HV–client interactions during primary visits No indication of number of HVs involved	1. (From the literature review) The purpose of the 'professional script writing' enterprise had been to establish positive identities for health visiting as suitable accounts for public consumption. As such, it has been a public relations exercise 2. Only one of the studies in Clark's review used observational methods (Watson 1981[392]) 3. Analysis of empirical research using tape-recorded encounters presented under the following headings: • Openings • The management of the visit • Mundane health visiting • Disjunctive talk • Closings • An orchestrated encounter The forms of talk analysed demonstrate that the home visit is structured implicitly in terms of: the HV's right of access, appropriate responses from the mother, constructing an appropriate context for the visit and the boundaries that define therapeutic talk from 'chat'. Talk is simultaneously flexible and patterned, unique and similar. The participants build a unique encounter in unique circumstances but which, at the same time, has degrees of similarity and standardisation with other primary visits. This is the predictable face of health visiting	This thesis is concerned with the nature of a particular form of social interaction and, as such, does not represent any attempt to justify health visiting. It provides an important contribution to understanding both the general methodological issues involved in analysing any professional/client encounter and, specifically, the complex organisation of the health visiting home visit Overall conclusion: The thesis explores the fact that there was no adequate prior description of home visiting, although there was agreement that this is a central health visiting activity. The description of health visiting produced is rich and dynamic. It captures the complexity of the social activity that lies in the management of talk, rather than of grammar. A high degree of asymmetry is identified in the encounters together with the fact that talking with the client is a large and important part of the whole of health visiting practice. Implications for (then) current proposals for changing the structure of home visits are discussed

HV, health visitor

**Clark J. What do health visitors do? A review of the research 1960–1980. London: Royal College of Nursing, 1981*

continued

Sefi, 1985[390] (MA, Warwick)
The first visit: a study of health visitor/mother verbal interaction

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To increase knowledge and understanding of HV/mother interaction during home visits to primiparous mothers by analysing their conversations in order to examine: 1. The extent to which the interaction consists of advice-giving or support 2. The extent to which the orientation of the interaction is one of befriending or that of a professional–client relationship 3. The proportion of time spent in the interaction on mother-centred and/or baby-centred issues 4. How HVs handle 'trouble telling' by the mothers 5. The strategies used by HVs in giving advice 6. The extent to which the relationship changes as the contact progresses (this objective was later abandoned as difficulties in gaining access resulted in a shortened study in order to meet the requirements for the MA dissertation submission)	A descriptive study of HVs' home visits to primiparous mothers utilising: 1. Conversation analysis of tape-recorded interactions (ethnomethodology) Note: The original intention to follow the visits for 8 weeks was abandoned when it was discovered that transcribing tapes for the 9 primary (first) visits in order to meet the demands of ethnomethodological analysis took the researcher 100 hours. This decision left 37 tape recordings of subsequent interactions, which were never analysed	5 volunteer HVs 9 primiparous mothers with new babies	The final analysis related only to the 9 first visits undertaken 1. General pattern of the visit: • All HVs were friendly, apparently unhurried and fairly casual in interactional style • All HVs asked standard questions and recorded the answers on the child health record • All HVs gave information on routine child health services available 2. Quantitative analysis: • Mean length of visit was 33 minutes • Other people were present during 6 of the 9 visits (grandmother, friend and 4 fathers) • The ratios of interactional content (form-filling, baby- and mother-centred issues) varied greatly in terms of time spent on each. These differences appeared to be influenced by the presence of others but also by HVs' interactional styles. One HV was consistently mother- and relationship-centred, giving little direct advice. A second HV was consistently advice- and information-centred, frequently overlapping the mother's conversation. Three HVs were predominantly baby-centred with some mother-centred sequences • There was an absence of mother-initiated topics. HVs introduced and closed all topics. This finding challenged earlier research 3. Other issues: • Pressing problems articulated by fathers could lead to problems for the HV. Issues such as unemployment and poor housing could 'overtake' the business of the first visit • As a result, HVs sometimes found difficulty in closing the interview	Literature review focuses on studies involving: 1. General views of HV role and function 2. HVs' views of role and function 3. Consumer views of HV role and function 4. Previous studies of health visiting 5. The ideology and tasks of HVs 6. The dichotomy between relationship-centred and problem-oriented approaches to health visiting Overall conclusion: Using sophisticated research techniques, Sefi set a new pattern for the analysis of HV–mother interactions, asking whether HVs presented themselves to mothers as 'baby experts', 'problem solvers', 'mother's friend' and/or 'listeners'. It was unfortunate that problems of access prevented the full completion of the study as intended In general, HVs dominated and controlled the interactions. Sefi could not establish whether the necessity for 'getting through the work' led to this domination. She concludes that relationship-centred approaches may build rapport; directive approaches may heighten differences between HVs and their clients

HV, health visitor

continued

Warner, 1982[391] (MSc, Surrey)
The social organisation of health visiting

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To increase understanding of HV practice defined as: 'that which occurs when HV and client are in direct contact'	Non-participant observation of: 1. Naturally occurring audio-recorded HV–client conversations 2. Visual observations recorded in field notes Observations made predominantly in child health clinics, also during office work, home visits and meetings (distribution not specified) Ethnomethodological analysis of conversations to identify strategies employed by participants rather than content	15 volunteer HVs in 230 consultations	Talk is the main tool of HV practice; HVs perform few practical procedures A client 'career' or pattern of status change occurs as clients are transformed from 'woman in the street' to 'client being seen' Clients were observed to grant HVs more power than HVs currently assumed The study did not increase the understanding of how HVs made the assessments on which they based HV action or practice	Overall conclusion: 'Being funded by public moneys HVs have an obligation to society to practice effectively and efficiently. Currently, with exceptions in small areas like cot deaths, health visiting is believed rather than known to be effective' (chapter 6, p. 128)

Watson, 1981[392] (PhD, Aberdeen)
A time study of health visitors' work

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To apply the objective technique of time study to the work of HVs	'Semi-participant' observation over a period of 1 calendar year from March 1975 to 1976 Time study of tape-recorded HV–client encounters and other work, with activities classified and timed, e.g. listening, questioning, advice, telephoning, filing, writing Identification of topic groups from content of home visits Findings classified by the structural organisation of the HVs' work, visit length, activities, topics and dominance	21 volunteer HVs in a variety of practice settings in the City of Aberdeen	Favourable staffing levels in the area studied may have contributed to the high level of visiting of under 5s amongst the HVs studied HVs initiated a large proportion of their own visits, giving precedence to 'routine visiting' A degree of equality was observed in conversational terms between HVs and families which may have been derived from the HVs' 'uninvited' status in the home. A balance between 'giving' and 'receiving' in the relationship may have embodied the HVs' 'gift' of conversational rights to the client High uptake of formal developmental screening programmes observed	Watson concurs with Wax that 'after reflecting on how field work has changed one I am now for the first time in my life completely convinced that fieldwork – insofar as it contributes to replacing incorrect notions by correct notions, speculation by fact, or falsehood by truth – is unqualifiedly a good thing'* Overall conclusion: There was an impressive degree of congruence between HV practice described in the study and that described in 'An investigation into the principles of health visiting',[228] i.e. 'an activity that is purposeful, unique, focused on health, self-initiated, expert and non-stigmatising' (para 4.7)

HV, health visitor

Wax RH. Doing fieldwork. University of Chicago Press, 1971: p. 364

continued

While, 1985[350] (PhD, London)
Health visiting and health experience of infants in three areas

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
To describe the health experience of children during their first 2 years of life A descriptive study designed to provide data demonstrating a global impression of health visiting practice To review the utilization of the child health services currently available within the NHS To explore the importance of place of residence to child health To compare health visiting practice in different health authorities	A epidemiological survey of the health of a group of infants A systematic survey that focused on three areas: 1. Utilisation of NHS provisions 2. Contribution of home visiting to child health 3. Contact of families with selected support provisions outside the NHS Comparison between the experience of selected infants in an inner-city district and 2 suburban districts	Children under 2 year old Inner-city birth cohort: Aug – Nov 1979 and Jan – April 1980 *n* = 756 Suburban birth cohort: Aug – Oct 1980 (2 areas) *n* = 127 and *n* = 97	Findings presented as: Sample characteristics of inner city in comparison with suburban characteristics Increased uptake of acute paediatric facilities and reduced uptake of prophylactic care was related to poor social circumstance HV home visiting did not appear to be based on a clear strategy to compensate for poor social circumstances HVs in the inner city appeared to make more home visiting contacts than their counterparts in the suburbs A relationship between home visiting practice during the first 6 months of life and subsequent child health clinic attendance during the first year of a child's life Home visiting was clearly associated with increased uptake of prophylactic measures HVs targeted visits towards social class V, council tenants, unemployed parents, unplanned pregnancy, single parents, large families and families with known confinement problems Showed a relationship between hospital contact and reduced lack of prophylactic care, also reduced uptake of 6-week developmental assessment among infants who had more frequent hospital admissions and those attending outpatient appointments HVs are effective in promoting the uptake of prophylactic measures	<u>Overall conclusion</u>: HVs are effective in promoting the uptake of prophylactic measures There is a positive relationship between home visiting and clinic attendance, and uptake of prophylaxis There is a positive relationship between reduced uptake of developmental screening and prophylaxis, and increased hospital contacts and admissions, and increased GP contacts

HV, health visitor

continued

Williams, 1995[2] (MSc, University of Nottingham)
Vulnerable families: A study of health visitors' prioritization of their work

Objectives	Methods	Population/sample	Outcomes	Other points/conclusion
1. To explore the criteria by which HVs define vulnerability in relation to individuals and families within their caseloads 2. To identify the factors which HVs claim lead them to increase their level of visiting to certain families 3. To consider the extent to which health visiting remains a universal service 4. To compare the responses in relation to (1) to(3) above from HVs working in two geographical areas, with widely differing social structures, in order to identify whether these result in different definitions of vulnerability and subsequent prioritizing of health visiting practice	Focus groups and semi-structured interviews with HVs from 2 distinct areas: 1 inner-city and 1 suburban area	A convenience sample of 9 HVs working for a local community trust	It was found that vulnerability was extremely difficult to define but that the HVs used criteria that were appropriate to their practice areas to identify vulnerable families and to increase their levels of intervention to those families	Overall conclusion: HVs were targeting their service within a framework of a basic minimum service to all and were assessing the health needs of individuals or families rather than working according to specific criteria

HV, health visitor

Appendix 6

A typology of home visiting interventions

A useful typology of home visiting interventions has been developed by Halpern.[14] Halpern's typology clearly delineates the various dimensions or characteristics of home visiting programmes, as well as attempting to clarify the causal assumptions underling different programmes. This typology, described below, would be useful in designing future studies of the effectiveness of home visiting.

On the basis of an examination of nine home-based intervention programmes,[57,75,89,90,418,599–604] Halpern highlighted the differences between home visiting programmes according to six dimensions:

- their purposes and emphases
- their target populations
- the causal assumptions on which the intervention programme was based
- the intervention framework
- the intervention activity
- the evaluation approach.

Each of these dimensions will now be discussed in turn.

Purposes and emphases

The purposes and emphases of the nine programmes were: enhanced infant development; enhanced infant health; enhanced parent–child interaction; child health and development surveillance; maternal health surveillance; enhanced knowledge of parenting; improvements in parental attitudes and behaviour; reduced familial social isolation; assessment of service needs and linkages to needed services; prevention of child abuse and neglect; follow-up on medical treatment/regimen; and the direct provision of a service.

Target populations

The populations at which the interventions were targeted were: all families with a new baby; low-income families; families under psychosocial stress (as indicated by parental mental health problems, social isolation; parental conflict, very young parents, chronically ill or disabled parents); families with an infant with an identified disability or problem; and families with a 'vulnerable' infant (as indicated by birth trauma or prematurity), in whom no problem or disability had yet been identified.

Causal assumptions

The causal assumptions underlying the various programmes were as follows:

- Parents' attributes constrained adequate child-rearing (parents had inappropriate knowledge, skills or beliefs; were socially immature; had mental health problems; or had negative feelings towards the child).
- The child's attributes placed him/her at special risk of abuse or neglect, or a lack of environmental stimulation. (The child's attributes included a temperament distressing to caretakers, prematurity or a disability.)
- Economic or social stress in the child's caretaking environment constrained adequate child-rearing by not allowing for the provision of a setting facilitative to the child's development.
- The child's characteristics distressing to caretakers contributed to dysfunctional caregiving responses from already stressed parents.
- Poor bonding or attachment during the first days of an infant's life was the foundation for later problems in parent–child interactions.
- Most new parents require or would like support in adapting to the demands of parenthood.

Intervention frameworks

The intervention frameworks were classified according to the following dimensions: the institutional base (e.g. institutions within the healthcare system or within the education system); the location (whether only at home or at home and also at a centre or clinic); the size of the group (individual, parent–child dyad, or small group); the focus of the direct work (parent,

child, or both); the provider (professional or paraprofessional); the onset of the intervention (prenatal, perinatal, postnatal); the duration of the intervention (2–3 weeks to 2–3 years); and intensity (daily, weekly, bi-monthly, monthly, periodically, variable – tapering off as the infant got older).

Intervention activities

The intervention activities included: parent training; parent education (interactive but using a formal 'curriculum'); parent psychosocial support (interaction based on parents' expressed needs); infant stimulation; family needs assessment; infant and maternal health and development surveillance; linkage to formal services (by providing information, and help in arranging transport); and mutual support through parent groups.

Evaluation approach

Finally, the evaluation approaches employed in the different programmes were classified according to: their design (experimental; quasi-experimental; pre- and postintervention comparison; case study, qualitative and descriptive); their time orientation (from short term to longitudinal follow-up); and their substantive foci.

Health Technology Assessment panel membership

This report was identified as a priority by the Primary and Community Care Panel.

Acute Sector Panel

Current members

Chair:
Professor Francis H Creed
University of Manchester

Professor Clifford Bailey
University of Leeds

Ms Tracy Bury
Chartered Society of Physiotherapy

Professor Collette Clifford
University of Birmingham

Dr Katherine Darton
M.I.N.D.

Mr John Dunning
Papworth Hospital, Cambridge

Mr Jonathan Earnshaw
Gloucester Royal Hospital

Mr Leonard Fenwick
Freeman Group of Hospitals, Newcastle-upon-Tyne

Professor David Field
Leicester Royal Infirmary

Ms Grace Gibbs
West Middlesex University Hospital NHS Trust

Dr Neville Goodman
Southmead Hospital Services Trust, Bristol

Professor Mark Haggard
MRC Institute of Hearing Research, University of Nottingham

Professor Robert Hawkins
University of Manchester

Dr Duncan Keeley
General Practitioner, Thame

Dr Rajan Madhok
East Riding Health Authority

Dr John Pounsford
Frenchay Hospital, Bristol

Dr Mark Sculpher
University of York

Dr Iqbal Sram
NHS Executive, North West Region

Mrs Joan Webster
Consumer member

Past members

Professor John Farndon*
University of Bristol

Professor Senga Bond
University of Newcastle-upon-Tyne

Professor Ian Cameron
Southeast Thames Regional Health Authority

Ms Lynne Clemence
Mid-Kent Health Care Trust

Professor Cam Donaldson
University of Aberdeen

Professor Richard Ellis
St James's University Hospital, Leeds

Mr Ian Hammond
Bedford & Shires Health & Care NHS Trust

Professor Adrian Harris
Churchill Hospital, Oxford

Dr Gwyneth Lewis
Department of Health

Mrs Wilma MacPherson
St Thomas's & Guy's Hospitals, London

Dr Chris McCall
General Practitioner, Dorset

Professor Alan McGregor
St Thomas's Hospital, London

Professor Jon Nicholl
University of Sheffield

Professor John Norman
University of Southampton

Professor Michael Sheppard
Queen Elizabeth Hospital, Birmingham

Professor Gordon Stirrat
St Michael's Hospital, Bristol

Dr William Tarnow-Mordi
University of Dundee

Professor Kenneth Taylor
Hammersmith Hospital, London

* Previous Chair

continued

continued

Diagnostics and Imaging Panel

Current members

Chair:
Professor Mike Smith
University of Leeds

Dr Philip J Ayres
Leeds Teaching Hospitals NHS Trust

Dr Paul Collinson
St George's Hospital, London

Dr Barry Cookson
Public Health Laboratory Service, Colindale

Professor David C Cumberland
University of Sheffield

Professor Adrian Dixon
University of Cambridge

Mr Steve Ebdon-Jackson
Department of Health

Mrs Maggie Fitchett
Association of Cytogeneticists, Oxford

Dr Peter Howlett
Portsmouth Hospitals NHS Trust

Professor Alistair McGuire
City University, London

Dr Andrew Moore
Editor, *Bandolier*

Dr Peter Moore
Science Writer, Ashtead

Professor Chris Price
London Hospital Medical School

Dr William Rosenberg
University of Southampton

Mr Tony Tester
South Bedfordshire Community Health Council

Dr Gillian Vivian
Royal Cornwall Hospitals Trust

Dr Greg Warner
General Practitioner, Hampshire

Past members

Professor Michael Maisey*
Guy's & St Thomas's Hospitals, London

Professor Andrew Adam
Guy's, King's & St Thomas's School of Medicine & Dentistry, London

Dr Pat Cooke
RDRD, Trent Regional Health Authority

Ms Julia Davison
St Bartholomew's Hospital, London

Professor MA Ferguson-Smith
University of Cambridge

Dr Mansel Haeney
University of Manchester

Professor Sean Hilton
St George's Hospital Medical School, London

Mr John Hutton
MEDTAP International Inc., London

Professor Donald Jeffries
St Bartholomew's Hospital, London

Dr Ian Reynolds
Nottingham Health Authority

Professor Colin Roberts
University of Wales College of Medicine

Miss Annette Sergeant
Chase Farm Hospital, Enfield

Professor John Stuart
University of Birmingham

Dr Ala Szczepura
University of Warwick

Mr Stephen Thornton
Cambridge & Huntingdon Health Commission

Dr Jo Walsworth-Bell
South Staffordshire Health Authority

Methodology Group

Current members

Chair:
Professor Martin Buxton
Health Economics Research Group, Brunel University

Professor Doug Altman
ICRF/NHS Centre for Statistics in Medicine, University of Oxford

Dr David Armstrong
Guy's, King's & St Thomas's School of Medicine & Dentistry, London

Professor Nicholas Black
London School of Hygiene & Tropical Medicine

Professor Ann Bowling
University College London Medical School

Dr Mike Clarke
UK Cochrane Centre, Oxford

Professor Paul Dieppe
MRC Health Services Research Collaboration, University of Bristol

Professor Mike Drummond
Centre for Health Economics, University of York

Dr Vikki Entwistle
University of Aberdeen

Professor Ewan Ferlie
Imperial College, London

Professor Ray Fitzpatrick
University of Oxford

Mrs Jenny Griffin
Department of Health

Professor Jeremy Grimshaw
University of Aberdeen

Dr Stephen Harrison
University of Leeds

Mr John Henderson
Department of Health

Professor Richard Lilford
R&D, West Midlands

Professor Theresa Marteau
Guy's, King's & St Thomas's School of Medicine & Dentistry, London

Dr Henry McQuay
University of Oxford

Dr Nick Payne
University of Sheffield

Professor Maggie Pearson
NHS Executive North West

Dr David Spiegelhalter
Institute of Public Health, Cambridge

Professor Joy Townsend
University of Hertfordshire

Ms Caroline Woodroffe
Standing Group on Consumers in NHS Research

Past members

Professor Anthony Culyer*
University of York

Professor Michael Baum
Royal Marsden Hospital

Dr Rory Collins
University of Oxford

Professor George Davey Smith
University of Bristol

Professor Stephen Frankel
University of Bristol

Mr Philip Hewitson
Leeds FHSA

Mr Nick Mays
King's Fund, London

Professor Ian Russell
University of York

Professor David Sackett
Centre for Evidence Based Medicine, Oxford

Dr Peter Sandercock
University of Edinburgh

Dr Maurice Slevin
St Bartholomew's Hospital, London

Professor Charles Warlow
Western General Hospital, Edinburgh

* Previous Chair

Pharmaceutical Panel

Current members

Chair:
Professor Tom Walley
University of Liverpool

Dr Felicity Gabbay
Transcrip Ltd

Dr Peter Golightly
Drug Information Services,
NHS Executive Trent

Dr Alastair Gray
Health Economics
Research Centre,
University of Oxford

Professor Rod Griffiths
NHS Executive
West Midlands

Mrs Jeanette Howe
Department of Health

Professor Trevor Jones
ABPI, London

Ms Sally Knight
Lister Hospital, Stevenage

Dr Andrew Mortimore
Southampton & SW Hants
Health Authority

Mr Nigel Offen
NHS Executive Eastern

Dr John Reynolds
The Oxford Radcliffe Hospital

Mrs Marianne Rigge
The College of Health,
London

Mr Simon Robbins
Camden & Islington
Health Authority, London

Dr Frances Rotblat
Medicines Control Agency

Dr Eamonn Sheridan
St James's University Hospital,
Leeds

Mrs Katrina Simister
National Prescribing Centre,
Liverpool

Dr Ross Taylor
University of Aberdeen

Past members

Professor Michael Rawlins*
University of Newcastle-
upon-Tyne

Dr Colin Bradley
University of Birmingham

Professor Alasdair
Breckenridge
RDRD, Northwest Regional
Health Authority

Ms Christine Clark
Hope Hospital, Salford

Mrs Julie Dent
Ealing, Hammersmith &
Hounslow Health Authority,
London

Mr Barrie Dowdeswell
Royal Victoria Infirmary,
Newcastle-upon-Tyne

Dr Tim Elliott
Department of Health

Dr Desmond Fitzgerald
Mere, Bucklow Hill, Cheshire

Professor Keith Gull
University of Manchester

Dr Keith Jones
Medicines Control Agency

Dr John Posnett
University of York

Dr Tim van Zwanenberg
Northern Regional
Health Authority

Dr Kent Woods
RDRD, Trent RO,
Sheffield

Population Screening Panel

Current members

Chair:
Professor Sir John
Grimley Evans
Radcliffe Infirmary, Oxford

Mrs Stella Burnside
Altnagelvin Hospitals Trust,
Londonderry

Mr John Cairns
University of Aberdeen

Professor Howard Cuckle
University of Leeds

Dr Carol Dezateux
Institute of Child Health,
London

Mrs Anne Dixon-Brown
NHS Executive Eastern

Professor Dian Donnai
St Mary's Hospital,
Manchester

Dr Tom Fahey
University of Bristol

Mrs Gillian Fletcher
National Childbirth Trust

Dr JA Muir Gray
National Screening
Committee, NHS Executive
Oxford

Professor Alexander Markham
St James's University Hospital,
Leeds

Dr Ann McPherson
General Practitioner,
Oxford

Dr Susan Moss
Institute of Cancer Research

Mr John Nettleton
Consumer member

Mrs Julietta Patnick
NHS Cervical
Screening Programme,
Sheffield

Dr Sarah Stewart-Brown
Health Service Research Unit,
University of Oxford

Past members

Dr Sheila Adam*
Department of Health

Professor George Freeman
Charing Cross & Westminster
Medical School, London

Dr Mike Gill
Brent & Harrow
Health Authority

Dr Anne Ludbrook
University of Aberdeen

Professor Theresa Marteau
Guy's, King's &
St Thomas's School of
Medicine & Dentistry,
London

Professor Catherine Peckham
Institute of Child Health,
London

Dr Connie Smith
Parkside NHS Trust,
London

Ms Polly Toynbee
Journalist

Professor Nick Wald
University of London

Professor Ciaran Woodman
Centre for
Cancer Epidemiology,
Manchester

continued

Primary and Community Care Panel

Current members

Chair:
Dr John Tripp
Royal Devon & Exeter Healthcare NHS Trust

Mr Kevin Barton
East London & City Health Authority

Professor John Bond
University of Newcastle-upon-Tyne

Dr John Brazier
University of Sheffield

Ms Judith Brodie
Cancer BACUP

Mr Shaun Brogan
Ridgeway Primary Care Group, Aylesbury

Mr Joe Corkill
National Association for Patient Participation

Dr Nicky Cullum
University of York

Professor Pam Enderby
University of Sheffield

Dr Andrew Farmer
Institute of Health Sciences, Oxford

Dr Jim Ford
Department of Health

Professor Richard Hobbs
University of Birmingham

Professor Allen Hutchinson
University of Sheffield

Dr Aidan MacFarlane
Independent Consultant

Professor David Mant
Institute of Health Sciences, Oxford

Dr Chris McCall
General Practitioner, Dorset

Dr Robert Peveler
University of Southampton

Professor Jennie Popay
University of Salford

Dr Ken Stein
North & East Devon Health Authority

Past members

Professor Angela Coulter*
King's Fund, London

Professor Martin Roland*
University of Manchester

Dr Simon Allison
University of Nottingham

Professor Shah Ebrahim
Royal Free Hospital, London

Ms Cathy Gritzner
King's Fund, London

Professor Andrew Haines
RDRD, North Thames Regional Health Authority

Dr Nicholas Hicks
Oxfordshire Health Authority

Mr Edward Jones
Rochdale FHSA

Professor Roger Jones
Guy's, King's & St Thomas's School of Medicine & Dentistry, London

Mr Lionel Joyce
Chief Executive, Newcastle City Health NHS Trust

Professor Martin Knapp
London School of Economics & Political Science

Dr Phillip Leech
Department of Health

Professor Karen Luker
University of Liverpool

Dr Fiona Moss
Thames Postgraduate Medical & Dental Education

Professor Dianne Newham
King's College London

Professor Gillian Parker
University of Leicester

Dr Mary Renfrew
University of Oxford

Ms Hilary Scott
Tower Hamlets Healthcare NHS Trust, London

* Previous Chair

National Coordinating Centre for Health Technology Assessment, Advisory Group

Current members

Chair:
Professor John Gabbay
Wessex Institute for Health Research & Development

Dr Sheila Adam
Department of Health

Professor Nicholas Black
London School of Hygiene and Tropical Medicine

Professor Martin Buxton
Health Economics Research Group, Brunel University

Mr Harry Cayton
Alzheimer's Disease Society

Professor Angela Coulter
The King's Fund, London

Professor Paul Dieppe
MRC Health Services Research Collaboration, University of Bristol

Professor Mike Drummond
Centre for Health Economics, University of York

Professor Shah Ebrahim
MRC Health Services Research Collaboration, University of Bristol

Ms Lynn Kerridge
Wessex Institute for Health Research & Development

Professor Jos Kleijnen
NHS Centre for Reviews and Dissemination, University of York

Dr Ruairidh Milne
Wessex Institute for Health Research & Development

Ms Kay Pattison
Research & Development Directorate, NHS Executive

Professor James Raftery
Health Economics Unit, University of Birmingham

Professor Ian Russell
Department of Health Sciences & Clinical Evaluation, University of York

Dr Ken Stein
North & East Devon Health Authority

Professor Andrew Stevens
Department of Public Health & Epidemiology, University of Birmingham

Professor Kent Woods
Department of Medicine & Therapeutics, University of Leicester

Past member

Dr Paul Roderick
Wessex Institute for Health Research & Development

HTA Commissioning Board

Current members

Chair:
Professor Shah Ebrahim
Professor of Epidemiology of Ageing, University of Bristol

Professor Doug Altman
Director, ICRF Medical Statistics Group, Centre for Statistics in Medicine, University of Oxford

Professor John Bond
Director, Centre for Health Services Research, University of Newcastle-upon-Tyne

Mr Peter Bower
General Manager and Independent Health Advisor, Thames Valley Primary Care Agency

Ms Christine Clark
Honorary Research Pharmacist, Hope Hospital, Salford

Professor Martin Eccles
Professor of Clinical Effectiveness, University of Newcastle-upon-Tyne

Dr Mike Gill
Regional Director of Public Health, NHS Executive South East

Dr Alastair Gray
Director, Health Economics Research Centre, University of Oxford

Professor Mark Haggard
Director, MRC Institute of Hearing Research, University of Nottingham

Dr Jenny Hewison
Senior Lecturer, Department of Psychology, University of Leeds

Professor Alison Kitson
Director, Royal College of Nursing Institute

Dr Donna Lamping
Senior Lecturer, Department of Public Health, London School of Hygiene & Tropical Medicine

Professor Alan Maynard
Joint Director, York Health Policy Group, University of York

Professor David Neal
Joint Director, York Health Policy Group, University of York

Professor Jon Nicholl
Director, Medical Care Research Unit, University of Sheffield

Professor Gillian Parker
Nuffield Professor of Community Care, University of Leicester

Dr Tim Peters
Reader in Medical Statistics, Department of Social Medicine, University of Bristol

Professor Martin Severs
Professor in Elderly Health Care, University of Portsmouth

Dr Sarah Stewart-Brown
Health Service Research Unit, University of Oxford

Professor Ala Szczepura
Director, Centre for Health Services Studies, University of Warwick

Dr Gillian Vivian
Consultant, Royal Cornwall Hospitals Trust

Professor Graham Watt
Department of General Practice, University of Glasgow

Professor Kent Woods
Professor of Therapeutics, University of Leicester

Dr Jeremy Wyatt
Senior Fellow, Health Knowledge Management Centre, University College London

Past members

Professor Ian Russell*
Department of Health Sciences & Clinical Evaluation, University of York

Professor Charles Florey*
Department of Epidemiology & Public Health, Ninewells Hospital & Medical School, University of Dundee

Professor David Cohen
Professor of Health Economics, University of Glamorgan

Mr Barrie Dowdeswell
Chief Executive, Royal Victoria Infirmary, Newcastle-upon-Tyne

Dr Michael Horlington
Head of Corporate Licensing, Smith & Nephew Group Research Centre

Professor Sir Miles Irving
Professor of Surgery, University of Manchester, Hope Hospital, Salford

Professor Martin Knapp
Director, Personal Social Services Research Unit, London School of Economics & Political Science

Professor Theresa Marteau
Director, Psychology & Genetics Research Group, Guy's, King's & St Thomas's School of Medicine & Dentistry, London

Professor Sally McIntyre
MRC Medical Sociology Unit, Glasgow

Professor David Sackett
Centre for Evidence Based Medicine, Oxford

Dr David Spiegelhalter
MRC Biostatistics Unit, Institute of Public Health, Cambridge

Professor David Williams
Department of Clinical Engineering, University of Liverpool

Dr Mark Williams
Public Health Physician, Bristol

* Previous Chair

Feedback

The HTA programme and the authors would like to know your views about this report.

The Correspondence Page on the HTA website (http://www.ncchta.org) is a convenient way to publish your comments. If you prefer, you can send your comments to the address below, telling us whether you would like us to transfer them to the website.

We look forward to hearing from you.

Copies of this report can be obtained from:

The National Coordinating Centre for Health Technology Assessment,
Mailpoint 728, Boldrewood,
University of Southampton,
Southampton, SO16 7PX, UK.
Fax: +44 (0) 23 8059 5639 Email: hta@soton.ac.uk
http://www.ncchta.org

ISSN 1366-5278