

The clinical effectiveness and cost-effectiveness of home-based, nurse-led health promotion for older people: a systematic review

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Executive summary

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Executive summary

Background

In older age, reduction in physical function can lead to loss of independence, the need for hospital and long-term nursing or residential home care, and premature death. The importance of physical, functional, psychological and social factors in realising a healthy old age is recognised by older people, health-care professionals, policy advisors and decision-making organisations. The needs of older people are expected to be an increasingly important health issue as the number of older people increases. Home-visiting programmes for older people, carried out by nurses and other health-care professionals (e.g. occupational therapists and physiotherapists), aim to positively affect health and functional status, and may promote independent functioning of older people. Such programmes may also aim to reduce hospital and nursing home admissions. Systematic reviews of the benefits of home-based nursing interventions have previously been undertaken; however, these have not specifically considered the benefits of nurse-led health promotion, nor have they been focused on practice within the UK. Consequently, there remain outstanding questions concerning whether or not, and under which circumstances, and for whom, such programmes may confer health benefits, and whether or not this form of intervention may offer value for money for the NHS and associated sectors.

Objectives

The main research question addressed by this assessment is ‘What is the clinical effectiveness and cost-effectiveness of nurse-led health promotion intervention delivered at home for older people at risk of admission to hospital, residential or nursing care in the UK?’ The specific objectives of this assessment are to:

- evaluate the clinical effectiveness of home-based, nurse-led health promotion programmes in the UK
- review existing health economic evaluations of home-based, nurse-led health promotion programmes from the perspective of the NHS and Personal Social Services (PSS)
- explore, as far as existing evidence allows, those elements of this form of complex intervention that may contribute to its clinical effectiveness, and
- identify key gaps in current evidence and to identify areas in which future research may be warranted.

Methods

This report comprises two related systematic reviews: a review of clinical effectiveness studies and a systematic review of existing cost-effectiveness studies. The literature searches for the clinical and economic studies were undertaken between February and March 2011.

Clinical effectiveness review methods

The inclusion criteria for the review were as follows:

- *Population* Older people (> 75 years) at risk of admission to hospital, residential or nursing care.

- *Interventions* Structured home-based, nurse-led health promotion.
- *Comparators* Standard care, including joint health and social assessment. Health promotion delivered in a different setting or not delivered by a nurse.
- *Setting* Interventions delivered in the home setting, undertaken in the UK.
- *Outcomes* Admission to hospital, residential or nursing care, mortality, morbidity including depression, falls, accidents, deteriorating health status, patient satisfaction.
- *Study design* Randomised controlled trials (RCTs).

A comprehensive literature search was undertaken across 12 different databases (for example MEDLINE, EMBASE, Science Citation Index Expanded, Database of Abstracts of Reviews of Effects, etc.) and research registries from the year 2001 onwards. Previously published systematic reviews of home-based visiting interventions were also hand-searched according to the inclusion criteria to identify other trials that were published before this cut-off date. Potentially relevant studies were sifted by one reviewer, and inclusion decisions were agreed amongst the broader research team. The methodological quality of included studies was assessed using the Cochrane Risk of Bias tool. The results of included studies were synthesised using both narrative and statistical methods.

Health economic review methods

A separate systematic search was undertaken to identify existing health economic analyses of home-based, nurse-led health promotion programmes. The inclusion criteria for the clinical review were also applied to the search results with two additions: (1) studies were included if they presented a comparative economic evaluation and presented results in terms of both costs and health outcomes; and (2) studies had to be undertaken from the perspective of the UK NHS and PSS. Included studies were sifted and appraised by two reviewers using a published checklist.

Owing to resource constraints for the review, a de novo health economic model was not developed as part of this study.

Results

Results of the clinical effectiveness review

Eleven studies were included in the systematic review of clinical effectiveness. There was considerable heterogeneity among studies with respect to the nature of the intervention, the nurses delivering the programmes and the populations in whom the interventions were assessed. Overall, the quality of the included studies was good: all but one of the included studies were judged to be at a medium or low risk of bias.

Meta-analysis of eight studies suggested a statistically significant mortality benefit for the home-based health promotion groups, whereas a meta-analysis of four studies suggested non-significant benefits in terms of fewer falls in the intervention groups than in the control groups. Positive outcomes for home-based, nurse-led health promotion interventions were also reported within individual studies: these outcomes included the Barthel Index (although this finding was not consistent across all studies), leg ulcer recurrence, the Nottingham Health Profile, the Caregiver Strain Index, the General Health Questionnaire and a global health question. Significant benefits were not demonstrated in terms of reduced admissions to hospital or numbers of subjects moving into residential care, Short Form questionnaire-36 items quality of life or the Beck Depression Inventory.

Results of the review of health economic evaluations

The available evidence for home-based, nurse-led health promotion included within the economic review was much narrower than that for the clinical effectiveness review. Only three economic studies met the inclusion criteria. This evidence base consists of one non-randomised cost minimisation analysis and two economic evaluations undertaken alongside RCTs. Two of these studies involved an intervention targeted specifically at patients with a known underlying incurable disease [one study of chronic obstructive pulmonary disease (COPD) and one study of Parkinson's disease], whereas the third study examined the clinical effectiveness and cost-effectiveness of early discharge in patients with a range of conditions including fracture, neurological conditions and cardiorespiratory conditions.

Each of the three studies indicated some likelihood that home-based, nurse-led health promotion may offer cost savings to the NHS and associated sectors such as social services. However, one study did not report any comparison of health outcomes and, instead, simply assumed equivalence between the intervention and comparator groups, whereas the other two studies suggested at best a negligible incremental benefit in terms of preference-based health-related quality-of-life measures. Within these last two studies, there appears to be a marked possibility that the intervention offers no discernible health benefits. Where assessed, the level of uncertainty surrounding health outcomes also suggests a possibility that the home-based, nurse-led interventions assessed may result in a lower aggregate level of health gain than standard care.

Discussion

Three previous systematic reviews have reported meta-analyses of available trial evidence. These were reviews of home- or community-based interventions to support older people. However, these reviews did not use the same inclusion criteria as those adopted here, as they were neither limited to nurse-led interventions nor specifically focused on the UK setting. Two of these reviews did not demonstrate a significant reduction in mortality. However, the results of the third study (Elkan *et al.* Effectiveness of home based support for older people: systematic review and meta-analysis. *BMJ* 2001;323:719–24B) are consistent with the findings of this review, as the authors also reported a significant reduction in mortality (odds ratio = 0.76, 95% confidence interval 0.64 to 0.97). Two of these reviews also reported statistically significant benefits for the intervention group in terms of reduced nursing home admission, risk of hospital admissions, falls and functional decline. One study indicated that the effect on functional decline depended on the number of home visits performed during follow-up. The positive effects seen in these reviews are mirrored in our clinical review, supporting the conclusion that home visits to older people can reduce mortality and appear to improve certain dimensions of health and well-being.

There is, however, a substantial gap in terms of the availability of economic studies to support the generally positive case arising from the clinical effectiveness review. Overall, there appears to be a dearth of good-quality economic studies available to inform decisions about the cost-effectiveness of home-based, nurse-led health promotion in older people in the UK. Where evidence is available, studies are subject to a number of methodological problems that cloud the conclusions arising from them. There remain substantial gaps in evidence concerning whether or not, and for whom, home-based health promotion programmes may be cost-effective.

Conclusions

On the basis of the evidence included in this systematic review, home-based, nurse-led health promotion may offer clinical benefits across a number of important health dimensions. However,

it is generally unclear from the available studies which components of this type of complex intervention contribute towards individual aspects of benefit for older people. Given the limitations of the current evidence base, it remains unclear whether or not home-based health promotion interventions offer good value for money for the NHS and associated sectors.

Future work recommendations

The prevalent gaps in knowledge surrounding the clinical effectiveness and cost-effectiveness of home-based nursing give rise to a number of potentially relevant policy questions. For instance, would it be more effective to target such a programme at all older people or to limit the intervention to specific disease groups? Would it be better to focus on prevention of disease events, for example COPD exacerbations or falls, or focus on the healthy population? Should the intervention be led solely by nurses or within multidisciplinary teams? Given these considerable uncertainties it is difficult to isolate the key areas in which future research would be valuable or the exact study design required.

Study registration

PROSPERO number: CRD42012002133.

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Publication

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