The nursing contribution to chronic disease management: a whole systems approach

Appendix 20 Evidence Tables

Tables are presented by the following conditions:

- Not condition specific
- Anticoagulation
- Asthma
- Bowel Disease
- Cardiovascular
- Chronic Pain
- COPD/Respiratory
- Dermatology
- Diabetes
- Epilepsy
- HIV
- Hypertension
- Leg ulcers
- Multiple Sclerosis
- Parkinsons
- Rheumatology
- Stroke

Within each condition tables are further broken down by study type:
Systematic Reviews

- RCTs and controlled evaluations
- Uncontrolled studies
- Surveys
- Qualitative studies

Abbreviations

ADL = activities of daily living
CM = case management
LoS= length of stay

LTC = long term condition
OPD = outpatient department
PC = power calculation (n.b power calculation = No means either PC not done or that it was done but sample size not achieved)
QoL = quality of life

Results

Where possible the main results at follow up are reported as intervention vs. control unless otherwise specified. The effect of the intervention is, where possible, presented in the following way,
(+) = positive effect, (-) = negative effect, (0) = no effect

Evidence Tables - Not Condition Specific

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up i	Applicability to the UK Score 1-4
Frich 2003	SR with qualitative/ descriptive presentation of findings.	Aim was to describe nursing interventions during home visits and their effects on people suffering from a range of chronic conditions.	16 studies. Including: 7 studies with older people, 7 with diabetic pts and 2 people with arthritis. **Population** Older people with no described chronic disease, pts with diabetes and rheumatoid arthritis. Excludes children, pregnant women or mentally ill people.	**Intervention** Long term interventions. Studies where nurses collaborated with physicians included as long as nursing intervention was major part of treatment plan. **Provider** Education levels of nurses varied. Authors categorised it as 1 (basic training and no description of experience), 2 (experienced nurses with > 5 yrs experience or specialist qualifications) or 3 (nurses with masters or specialist or advanced practice nurse qualifications). Level 1 = 4 Level 2 = 7 Level 3 = 3 **Duration & Intensity** Interventions had to be over 3 months and involve at least 3 contacts.	**Interventions with older people (n=7 studies)** Content of intervention: In general included physical examination, physical, psychological & social assessments, health promotion and pt support. Nurses often used 'checklist'. Intervention success affected by the personality of the nurse. Amount of time spent with pts seen to be important for +ve outcomes. Pt related outcomes: Effects on pt outcomes appear to be mixed. Cost (n=3): Cost effective in 2, not cost effective in 1, not recorded in others. Content of intervention: **Interventions with diabetics (n = 7)** Studies included variety of interventions including: education, health promotion, promotion of compliance or behaviour through use of behavioural strategies, promotion of self-care. Pt related outcomes: Some pt related improvements but results mixed Cost (n=1) 0: no difference	3 Often lack of information about level of education. Intervention success affected by the personality of the nurse.
Rice 2004 (Cochrane Database of Systematic Reviews)	Systematic Review & meta-analysis	What is the effectiveness of nurse-delivered smoking cessation interventions?	**Population** Adult smokers 18 years and older recruited in any type of health care	**Intervention** Nursing intervention was defined as the provision of advice, counselling, and/or strategies to help pts quit	Follow up from 6 months onwards Smoking cessation +: OR 1.59 (95% CI 1.19, 2.13) random effects meta-analysis.	1

			setting. 12 studies focused on adults with cardiovascular problems, 1 with diabetics and 1 pts with respiratory disease. Others general pop. **Setting** 11 included hospitalised pts, 14 primary care or outpatient clinics, 1 workplace and the rest community based **Country** Ten different countries. Sample 30 RCTs conducted between 1987-2003. 25 studies used in meta-analysis.	smoking. **Provider** Nurses included: project nurses, those working specifically in health promotion, paediatric nurses, primary care or outpatient clinic nurses.	Also pooled studies by intensity of intervention. High intensity (initial contact more than 10 mins, additional materials or other strategies, usually more than one session) + OR 1.43 (95% CI 1.24, 1.64) Low intensity (single consultation) +: OR 1.76 (95% CI 1.23, 1.53) Review seems to support modest positive effect for smoking cessation interventions by nurses. However, heterogeneity in meta-analysis. Some evidence effect was greater in pts with diagnosed cardiovascular disease. May be appropriate to intervene early after diagnosis.	
Singh 2005	Rapid Review Evidence drawn mainly from systematic reviews and RCTs (but other studies included if no RCTs on a specific topic	Which staff improve care for people with long-term conditions?	172 studies of which 53 described nursing contribution. Almost all involved complex interventions 34 studies of case managers who are often nurses e.g. community matrons in UK 93 studies(92 RCTs, one observation) on self management education provided		**The totality of evidence suggests:** **Nursing roles** Good evidence that specialist nurses can help improve the health of people with LTC. Clinics run by specialist nurses have benefits for patient satisfaction, & some clinical outcomes, and may reduce healthcare costs. Studies that substituted hospital nurses for roles traditionally filled by doctors generally found little evidence of a direct effect on health or resource use. Follow up after discharge by hospital nurses associated with improved health for LTC and fewer hospital readmissions. Primary care nurses can provide equivalent care to that traditionally provided by GPs but uncertain if this improves outcomes of people with LTC.	3 due to different health contexts and what is meant by 'usual care' is uncertain

			by primary care nurses Studies describing innovative roles for nurses caring for people with LTC, or compared care by nurses with care from other professionals. Many other studies of nurse-led care exist, but these did not explicitly define the role of nurses or provide comparative data.		Some evidence that home visits by primary care nurses may improve clinical outcomes and reduce health service use. **Case managers** The totality of evidence suggests: Majority of studies have focussed on primary care nurses as case managers. May be based within primary care practices or community. There is some evidence that primary care nurse case managers can improve clinical outcomes and reduce use of health services, especially for people with the most complex needs. However, other studies have found no benefit from CM by primary care nurses. Evidence from UK is currently sparse. Hospital nurses sometimes act as case managers, especially during discharge and hospital follow up. There is mixed evidence about the benefits of this approach. **Self management education provided by primary care nurses (3 studies)** All 3 studies suggested +ve trends, but there is insufficient evidence to draw conclusions about the benefits of self management education provided by primary care nurses	

RCTs and controlled studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up			Applicability to the UK populations and settings Score 1-4
Ammerman 2003	RCT (cluster design, randomisation of health departments)	Does a nurse-directed intervention modify patients' dietary intake and reduce blood cholesterol?	**Population** 468 lower income participants from rural areas aged 20-70, mean age 55, 71% females, 80% white, 75% high school graduates, majority >=2 coronary	**Intervention** Food for Heart Programme (FFHP). Dietary assessment using validated 'Dietary Risk Assesment' (DRA) questionnaire & counselling. Included referral to a nutritionist trained to use the	3 months DRA Score (improvement in self reported dietary intake) +: 3.7 units	6 months	12 months DRA Score (improvement in self reported dietary intake) +: 2.1 units	3 Theory based

			heart disease (CHD) risk factors, total cholesterol >=4.7mmol/l 12 month follow-up I = 71% C = 78% PC - Yes **Setting** primary care clinics, health screening clinics, occupational settings **Country** USA.	FFHP. **Control** Minimal intervention (MI) Usual counselling for high cholesterol, DRA only available for one counselling session **Provider Trained** public health nurses **Duration & Intensity** Three individual sessions and reinforcement phone call plus newsletters	greater 95% CI 1.9-5.5, p=0.0006 Blood cholesterol mmol/l 0: similar reductions in both groups Difference -0.01 (-0.32,-0.30) Greater weight loss in pounds +: 1.9 difference (0.3.3.4), p=0.022	Greater weight loss in pounds +: 2.1 (0.1,4.1), p=0.04	(0.8,3.5) p=0.005 Blood cholesterol mmol/l 0: similar reductions in both groups Diff 0.07 (-0.19,-0.34) Greater weight loss in pounds 0: 1.6 (-0.05,3.7), p=0.13	
Bennett 2005	RCT	Does nurse coaching support healthy behaviour change in older adults?	**Population** 139 adults aged 60 and over (mean age around 70), mean of less than 2 chronic conditions and of 'good' health, approx 65% female 80% completed follow-up I I 5% lost to follow up C 26% lost to follow-up PC - No **Setting** Recruitment from community, delivered at the University	**Intervention** Healthy Aging Project (HAP) II. Included: behavioural counselling using motivational interviewing (MI) focusing on readiness to change individual's health behaviour. Sessions included setting goals, and issues related to behavioural change, e.g. past experiences, perceived barriers to reaching goals, possible solutions **Control** TAU with primary care physicians **Provider** Registered nurses **Duration & Intensity** One hour initial face to face	6-9 months Health status outcomes from CD Self Management Programme, Stanford University Adjusted means (sd) Social/role limitations 0: HAPII 1.21 (0.1), Control 1.36 (0.13), F0.77, p=0.38 Energy 0: HAPII 2.59 (0.1), Control 2.67 (0.12), F 0.23 p=0.38 Health Distress + (borderline significance) HAPII 1.51 (0.12), Control 1.90 (0.15), F 3.83 p=0.054 General Health 0 : HAPII 3.11 (0.07), Control 3.13 (0.09), F 0.03 p=0.86			3 Theory-based TTM A clinical demonstration project testing feasibility of methods rather than efficacy, designed to be used in primary care settings

				session, followed participant's choice of frequency and mode of contacts (telephone or email) Follow-up by nurse at least once a month by telephone, on average 7 contacts per participant. Calls ranged from 7-45 minutes	Illness intrusiveness + : HAPII 2.17 (0.09), Control 2.48 (0.12), F 4.32 p=0.04 Post hoc subgroup analysis under 75 years age Younger participants in HAPII group had significantly fewer social/role limitations, less health distress and less illness intrusiveness than control group. Older participants showed no differences on any health outcomes Social/role limitations +: HAPII 1.02 (0.13), Control 1.42 (0.14), F4.39 p=0.04 Health Distress +: HAPII 1.25 (0.16), Control 1.96 (0.19), F7.93 p=0.006 Illness intrusiveness +: HAPII 2.04 (0.10), Control 2.61 (0.12), F12.46 p=0.001 HAPII group had significantly less illness intrusiveness and health distress than the control group. Nurse delivered MI is a feasible method to discuss behavioural change with older adults. Impact on actual behaviour change needs to be determined.	
Boyd 1996	Controlled study	What is the effect of community-based case management for chronically ill older adults?	54; 27 patients in each group PC - no **Population** Elderly people with chronic disease **Setting** Community, hospital and patients home **Country**	**Intervention** Case management **Control** No case management, usual care **Provider** Nurse case manager **Duration & intensity** 1 year. Case manager averaged 4.45 hours per patient per month.	Hospital admission: + reduction (p< 0.08) ED visits: + reduction (p<0.05) Critical care days: + overall 1 patient reduction Average hospital length of stay (LOS): + 0.8 day reduction Hospital charges: + overall saving of $12,8067.12 in intervention	

			USA		group DRG reimbursement: + overall saving of $34,546.6 in intervention group Net reimbursement: + overall saving of $93,519.97 in intervention group Primary care physician visits: + overall 39 visits less in intervention group	
Chan 2005	RCT	To evaluate whether a nurse-initiated education programme on 4 specific osteoporosis-prevention related behaviours would lead to increased consumption of beneficial food & supplements and/or positive attitude changes compared with women who did not participate in this programme.	**Population** 56 women aged 18 and over, normal cognitive function. **Setting** Local private beauty clinic. **Country** Hong Kong 56 randomised but 26.8% did not participate. PC - No	**Intervention** Structured individualised education programme and telephone follow up. Education sessions included: 1. concepts of osteoporosis to the participants 2. examples of 4 behaviours shown to help prevent osteoporosis and to educate participants concerning their practical uses. 3. information about diet, exercise & sunshine for Vit D **Control** No education programme **Provider** Registered Nurse **Duration and intensity** 4 weeks 0ne 45min education session, 2 telephone consultations-days 3-7 and days 14-20, each call lasted 10-20mins.	Pre-, post-, and follow-up surveys on education data compared attitudes and consumption frequency before and after the education programme. 1 month follow up Mann=Whitney U-test showed significant differences in the attitudes scores of the 2 groups for: + Consumption of soya foods, (mean 4.3 I, 3.3 C, p<0.001) + consumption of milk, (mean 4.2 I, 3.0,C, p<0.001) + increased exercise, (mean 4.3 I, 3.4 C, p=0.003) + vitamin D/sunlight, (mean 4.2 I, 2.7 C, p<0.001). more disagreement between I & C (mean 4.2 vs. 3.3, p<0.001) about connection between food and osteoporosis. Most participants either disagreed (n=11, 55%) or strongly disagreed (n=9,45.0%) that there was not enough info. provided in education programme to motivate them to change. Nurse's performance was rated as either satisfactory (n=11, 55.0%) or very satisfactory	4

					(n=9, 45.0%) on presentation and ability to answer their questions and either satisfactory (n=12, 60.0%) or very satisfactory (n=8, 40.0%) on ability to describe each behaviour clearly.	
Johnston 2000	RCT	Evaluation of the use of remote video technology in the home health care setting as well as the quality, use, patient satisfaction, and cost savings from this technology	**Population** 212 newly referred patients with CCF, COPD, CVA, cancer, diabetes, anxiety or a need for wound care Loss to follow up not clear. PC - No **Setting** Home health department of large HMO & Patients home **Country** USA	**Intervention** Home visits Telephone contact Remote video link (nurse available 24 hrs/day) **Control** Home visits Telephone contact **Provider** Home health nurse **Duration & intensity** Home assessment within 48 hours of referral. Number of visits determined by patient need.	Medication compliance: 0: No differences in patient satisfaction, service use. Knowledge of disease: 0 Ability for self-care: 0 Service use: 0 Patient satisfaction: 0 Cost : Total mean costs of care excluding home health care costs were $1948 in intervention group, $2674 in control group. Main causes of differences were costs of hospitalization	3
Gagnon 1999	RCT	Does nurse case management for frail older people affect quality of life, satisfaction with care, functional status, hospital admission, length of stay and readmissions compared with usual care? **Setting** University hospital and two community health centres.	**Population** 427 frail older people aged 70 or over, requiring assistance with at least one ADL, without cognitive impairment, at risk of repeated hospital admissions (mean age 81.6). Follow up data on all for hospital admissions or ED visits. 27.7% lost to f.u on questionnaire data. PC – No	**Intervention** CM including: integration of primary/secondary care; co-ordination of health care professionals involved; psychosocial support; care planning; & promotion of independence. **Control** TAU: varied by health care provider and community health centre. **Provider** Nurses with minimum of 2 yrs	10 months QoL (SF-36): 0: no significant differences Satisfaction (CSQ-8): 0: MD 1.1 (-0.1, 2.3) ADLs (OARS): 0: self reported MD 0.2 (-0.2, 0.6), instrumental MD 0.2 (-0.5, 0.9) Hospital admissions: 0: MD 0.09 (-0.05, 0.23) ED visits:	3 Case management

		Country Canada	Sample size not achieved because of loss to f.u.	geriatric nursing experience + 24 hrs training. **Duration & Intensity** Home visits after discharge; then minimum of monthly telephone call & home visit every 6 weeks.	-: MD 0.32 (0.01, 0.63) Length of hospital stay: 0: 1.1 (-4.7, 6.9)	
Gravelle 2006	Controlled before and after study at practice level	What impact does case management of frail elderly have on hospital admissions and mortality?	**Population** Frail elderly people at high risk of emergency admissions (EA) I = 64 practices C = between 6960 -7695 (depending on outcomes measured) PC- Yes Analysed 62 practices Frequency of contact, etc not specified **Setting** Practices from nine Primary Care Trusts, some at home **Country** UK	**Intervention** Evercare case management. Included comprehensive geriatric assessment, using structured assessment tools & individualised care plan agreed with the patient, GP and other staff. Patients monitored at a frequency according to their risk classification **Control** All other practices not giving case management or similar intervention. Description of 'control' intervention not given **Provider** Advanced practice nurse **Duration & Intensity** Not stated	Follow-up period Estimated at 12-18 months **Practice outcomes for high risk population (aged>65, two EA in preceding 13 months):** Qualitative evidence showed CM introduced an additional range of services in primary care (frequency of contact, regular monitoring, psycho-social support, referral options) but had no effect on EA or mortality Practice rates of EA: 0: 16.5% increase (-5.7, 38.7) Emergency bed days (EBD): 0: 19.0% increase (-5.3,43.2) Mortality: 0: 34.4% increase (-1.7,70.3) **Practice outcomes for general population aged>=65** Practice rates of EA : 0: 2.5% increase (-2.1, 7.0) Emergency bed days (EBD): 0: 4.9% decrease (-10.8,1.0) Mortality: 0: 5.5% increase (-3.5,14.5)	2 (although RCT not applied due to the nature of the study; applied Evercare from US to the UK for frail elderly people Community matron policy
Lenz 2004	RCT	Do nurse practitioners improve long term	**Population** Patients in phase II	Conceptual framework based on Donabedian model	2 years	3

Original paper Mundinger et al 2000 Also see Lenz 2002 In diabetes (subgroup of diabetic patients)		primary care outcomes compared with physicians?	cohort had, mean age 46.5 years, 81.8% females, 92.3% Hispanics, 59% had one or more of targeted conditions: Hypertension, diabetes, and/or asthma Original Phase I Study, N=1316 Patients randomised and 6 months follow-up measured. Phase II study (two year follow-up) 735 completed Phase II (65.7%) of which 406 returned only to their original practice. Lost to follow-up = 35.5% from originally Phase 1 and eligible N= 406 PC reported in Mundinger 2000 **Setting** Hospital **Country** USA	**Intervention** Primary care follow-up at one of the medical centre's ambulatory care clinic. Nurse practitioner appointment. Data collection in both groups by phone, homes or university office setting **Control** Physician appointment **Provider** Nurse practitioner **Duration & Intensity** Not given in this paper,	SF36 SCORE 0-100 No differences found between the two providers on health status, disease-specific physiological measures, satisfaction or use of emergency room, specialist or inpatient services. General health: 0: t=-0.603, p=0.55 Mental health (summary): 0: t=-0.255, p=0.80 Physical function (summary): 0: t= -0.772, p=0.44 Physiological measures: Hypertensives Systolic BP: 0: t= 0.874, p=0.384 Diastolic BP: 0: t= 1.068 p=0.29 Asthmatic patients Peak flow: 0: t= 0.915 p=0.365 Diabetics HbA1C: 0: t= 1.320 p=0.194 Patient satisfaction: No differences on any subscales except: visit - based continuity 0: t=1.667, p=0.10 Visits (adjusted for Medicaid status): 0: t=1.678, p=0.10 Primary care: +: p=0.05 Specialist: 0: p=0.40 Emergency room/hospitalisations: 0: p=0.13	

Mundinger 2000	RCT	Do nurse practitioners improve long term primary care outcomes compared with physicians?	**Population** 1316 patients in phase II cohort: mean age 46.5 years, 81.8% females, 92.3% Hispanics, 59% had one or more of targeted conditions: Hypertension, diabetes, and/or asthma 1316 (1181 to nurse practitioner clinic and 800 to physician clinic) 79% followed up at six months PC - Yes **Setting** Hospital **Country** USA	As above (Lenz 2002, 2004)	6 months Health status (SF-36): 0: Pre to post improvement for both groups but no significant between group differences. Physical component p=0.92 Mental component p=0.92 Patient satisfaction Overall satisfaction score: 0: t=0.161, p=0.87 Provider attributes mean score: +: Greater satisfaction with physicians t=1.963, p=0.05 Blood pressure (for hypertensive pts): 0: systolic, p=0.28 +: diastolic significantly lower in nurse grp=0.04 Peak flow (for asthmatic pts): 0: p=0.77 Glycolated haemoglobin (diabetic pts): 0: p=0.82 Service use (primary care visits, speciality visits, ED visits and hospitalisations): 0: No significant differences at 6 or 12 months	3
Ogden Burke 1997	RCT	Does a community-based, stress-point nursing intervention for parents decrease distress & improve child & family functioning?	**Population** 50 care giving parents of children with chronic or physically disabling condition of at least 8 months (age range 1-17). 4% lost to follow up. PC – Yes (25 in each grp based on primary child	2 weeks Parent's anxiety (State-Trait Anxiety inventory): -: higher anxiety in intervention grp (p< 0.01)	3 months Parent's anxiety (State-Trait Anxiety inventory): +: lower anxiety in intervention grp (p< 0.05) Satisfaction with family functioning: +: (p<0.001) Parental coping (total coping health inventory for parents): +: (p<0.001)	3

			outcome (scales of independent behaviour)). **Setting** Family's home **Country** Canada		Behaviour problems after hospitalisation (Vernon mean scores) 0	
Roderick 1997	RCT – cluster design	Does dietary advice by practice nurses lower diet related coronary heart disease risk?	**Population** 956 patients aged 35-59 years (mean age 47 years), 50% men, 55% non-manual occupation, 28% current smokers, 15% BMI >30kg/m^2, 7.6% cholesterol >7.8mmol/l Response rate 75% Annual follow-up 80% overall PC: No **Setting** General Practices **Country** UK	**Intervention** Usual care plus CHD and dietary advice, based on negotiated change for food habits after review of food intake and habits, specially designed dietary charts, self monitoring charts and calorie restricted diet for weight loss, and action plan. GPs were informed of raised cholesterol levels only at 6 months. **Control** Usual care included CHD advice and standard health education leaflets. Only one annual follow-up visit for health check except for a fasting cholesterol measurement for those with raised levels at baseline required **Provider** Trained practice nurses **Duration & Intensity** Follow-up at 6 weeks and annually. Follow-up at 3 and 6 months for health check additionally for those who had multiple risk factors	Changes in nutrient and food intake, CHD risk factors between practices Dietary advice was associated with a small decrease in the intake of total and saturated fat, small rise in fibre intake and increases in healthy eating foods. There was little change in smoking prevalence, fibrinogen, physical activity, blood pressure CHD risk factors: Mean difference (95% CI) Serum cholesterol (mmol/l) + (marginally significant) -0.20 (-0.38,-0.03) Weight (kg) + (marginally significant) -0.56 (-1.04,-0.07) Factor VII coagulant activity 0 -6.7 (-15.4, 2.0) Food intake: %Total fat + -1.4 (-2.2,-0.7) % Saturated fat + -0.9 (-1.5,-0.2)	2 Study based in the UK and reflects what can be incorporated in routine practice
Taylor 1996	RCT	Does a nurse managed smoking	**Population** 660 hospitalised	**Intervention** Based on social learning	Intervention improved smoking cessation rates %	3

		intervention improve cessation rates in hospitalised smokers?	smokers, 55% males, mean age 52 (sd 13), mean no of cigarettes per day 21.4 (sd 13), 67-69% motivated to quit, 48% educated up to high school, 61-70% employed Lost to follow-up 8% in both groups PC - No **Setting** Kaiser Permanente Medical Centre **Country** USA	theory & nicotine addiction and relapse prevention models. Standardised message from physician, followed by nurse consultation which included 16 min video tape, audiotape with workbook and counselling on coping with high risk to relapse situations. NRT offered before discharge for high dependency patients. Post discharge telephone follow up + another outpatient nurse consultation for those unable to quit. **Control** Usual care included standardised message from physician to quit smoking plus printed self help material. **Provider** Nurse case manager **Duration & Intensity** I hr hospital consultation 10 min telephone follow-up at 48 hours, 7, 21, & 90 days post discharge. + 1 hr outpt visit for those unable to quit	3 months self report +: OR 2.2 (1.5,2.9) p<0.001 6 months self report +: OR 1.9 (1.3,2.5) p<0.001 12 months self report +: OR 1.5 (1.0,2.0) p = 0.022 12 months cotinine or family confirmed +: OR 1.7 (1.1,2.3) p = 0.006 Logistic regression with 12 month confirmed status In both groups, being older and having the confidence to quit were significant predictors	Authors suggest intervention can be implemented in most hospital settings, (presumably in USA) but needs to be targeted to vulnerable sub groups, such as those with short hospital stays and poor motivation, abusing drugs or alcohol 1 full time nurse could manage 500 patients attempting to quit/year

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4

Dealey 2007	Audit	What is the impact of implementing the Modern Matron role in an acute teaching trust?	1. 20 senior nurses. 18 replied-90% response. 2. 192 trust-wide staff. 97 replied- 50.5% response. **Population** 1. Senior nurses 2. Trust wide staff **Setting** Teaching hospital split onto 2 sites. **Country** England.	Audit. Information was collected 6 mths prior to introduction of modern matrons and collected for 6 mths 1 year later.	Senior nurse post: *Preparation & ongoing support for the post:* Greatest support came from line managers & other senior nurses. Good working relationships with clinical service leads and group managers also important. *Role concept:* The objectives in their role were appropriate. *Perceptions of role effectiveness:* Differed between senior nurses and other staff. Challenges also varied. Results for visibility and accessibility were mixed depending on staff grade. 80% of staff thought senior nurses had an impact on standards of care. 45.3% reduction in drug administration errors (pre to post) *Patient care:* Slight increase in the incidents relating to patient care from 31 to 41 (not all nursing issues) but marked improvement in the 20 day response rate to complaints from 68.5% to 76%. *Infection control:* Reduction of 11.6% in the number of MRSA cases. *Leadership, visibility and staff management:* 21% of staff felt the senior nurses were visible a lot of the time and 42% considered they were visible most of the time. Changes in sickness & absence rates were negligible over the period.	3

Surveys

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Comments
Temmink 2000	Descriptive/survey	What are the structural/organisational	62 transmural clinics	**Intervention** 'Transmural' clinics – i.e. pt	**Structural/organisational characteristics:** n=42 started in last 2 years.	

		characteristics of Dutch transmural nurse clinics for chronically ill patients?	**Population** Specialised nurses or managers **Setting** Transmural clinics **Country** Netherlands	tailored care provided on basis of close collaboration and joint responsibility between hospital and home care organisations. Control N/A	All run under joint hospital home care organisation responsibility. 54 held in OPDs 3 alternated between home care org & OPD. 2 held at GP practice Differing funding arrangements for clinics. 80% of clinics run by nurses with extra training. Target groups: All clinics targeted chronic disease groups. **Goals of clinics:** Improve quality & continuity of care. Provide patient education. Referrals; Majority from hospital consultants. Tasks of specialist nurse: Patient education & counselling Assessment Additional tasks: Direct patient care outside the clinic (56%) Improving competence of other professionals (53%) Co-ordination & organisation of care (45%) Innovation & health management (39%); Research (21%)	

Qualitative

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective And Analysis	Main Findings	Application to UK
Arnold 2004	To examine the public health role of district nurses in a West Yorkshire PCT. Explored: * The range of public health activities carried out * the agendas perceived as most	* Focus group: 4 qualified DN, 8 staff nurses, 1 HCA. * 5/12 teams in PCT were represented * Semi-structured interviews with 9 qualified DN & 4 staff nurses.	**Study population:** 21 members of the district nursing team **Setting:** PCT **Country:** Bradford, UK	Thematic content analysis **Analysis**: Not mentioned	DN were already conducting a range of public health and health education activities, however they were largely opportunistic DNs have difficulty in defining public health but were familiar with the wide range of issues that merit PH strategies. * Barriers such as shortage of staffing levels, time constraints, inappropriate referrals & lack of IT facilities were preventing DN in making a greater contribution to health improvement.	3

	conducive to input * The organizational barriers preventing greater involvement in public health					
Boaden (2006) (Evercare evaluation: Final report)	1) What changes in primary and secondary care for older people result from the Evercare model? 2) What impact has the Evercare model on clinical practice, hospital admissions and length of stay? 3) How do key stakeholders evaluate the model?	***** Purposive sample. *Analysis of relevant documents & meetings *Some interviews in PCTs who had used case mgmt without Evercare.	**Study population:** Between 2003-05: *46 nurses, 10 GPs, 72 patients, 52 carers and 46 managers/others **Setting:** *Patient interviews- Manchester & Cornwall. *Carer interviews- S.Gloucestershire, Luton, Bristol North, Walsall, Cornwall & Manchester **Country:** UK	1) Framework analysis 2) Grounded theory **Analysis**: QSR Nud*ist (version 4) software	Analysis of hospital admission data showed no significant effect of Evercare on rates of emergency admission, emergency bed days, or mortality. Advanced Primary Nurses had difficulty in being involved when their patients were admitted to hospital, APNs reported examples of: - altering medication - co-ordinating care - improving QOL & - avoiding hosp admission FACILITATES effective case mgmt: * High level of political support and high visibility * desire to limit the rise in emergency admission to hospital driven by policy imperatives * dedicated additional funding * energetic and systematic approach to project implementation *Positive training & mentoring from Consultant Geriatricians, GPs * Caseload of 50 were the upper limit so not to jeopardise effective case mgmt & care * Information systems which routinely collect data necessary to monitor patients at whole care group level *Electronic systems for data collection and analysis * Administration support for the APN to free their time * Established multi-disciplinary	**3**

					working arrangements (e.g. with social services) * Establishing systems to ensure that ED, ambulance and out-of-hours services know which patients are being case-managed and notify the responsible APN * GPs who have good relationships with APNs *Timely supply of home equipment to prevent hosp admission	
Carter 2000	What is the role of, and skills used by, community children's nurses (CCNs) caring for children with chronic illness in the community?	Semi structured interviews supported by extensive field notes. Participant inquiry paradigm used. Sample size 18	**Population** CCNs **Setting** community **Country** NW England, UK	**Analysis**: Interviews taped and transcribed. Heuristic analysis used to identify themes.	Aspects of the role; Majority of caseloads children with chronic illness. Some nurses had specialist caseloads. Nurses felt role required high order skills. Nursing children with chronic illness different than nursing children with acute needs – need emotionally based skills as well as technical skills. Themes that emerged: Entering the tapestry (developing a role with child and family – providing deeply contextualised & individualised family centred care) Enabling, facilitating and empowering (sharing skills with families) Transitions and change (preparing for future including preparing for transition to adult services)	1
Eijkelberg 2002	How do patients judge nurse led shared care? What quality issues are given priority by them? What lessons can be drawn for the improvement of this care and the qualitative method of focus groups?	Qualitative Focus groups 26 patients in three focus groups	Population Patients with diabetes and COPD Setting Shared care facilities Country Netherlands		22 patients experienced shared care (SC) as positive. 21 preferred care from the NP than the consultant. 8 felt NPs had more time, saw them more frequently. 25% stated NP should know their boundaries and keep within them. 4 patients preferred traditional care from consultant. Information provision was seen as most important but often not done well enough.	
Hopia	How do nurses in a paediatric unit promote the health of families of children with chronic	Grounded theory 40 nurses	**Population** Nurses working in paediatric units **Setting**		Nurses used 3 different strategies to promote family health; 1. Systematic strategy Nurse assessed family needs in a planned way via NVC of the family, intuitive assessment & observation of family interactions.	

	conditions during the children's hospitalisation?		Two paediatric units in two hospitals providing care for children under 16, most common diagnoses diabetes type 1 & various cancers. **Country** Finland		2. Selective strategy Nurses assessed and then prioritised their time to be spent with those most in need. May distance themselves from the perceived bad family. 3. Situation specific strategy Care provided depending on situation, e.g. when a family clearly & visibly expressed the need for help. This strategy focused on the child & nurses perceived that support of the family should be undertaken by other professionals. Nurses did not realise the variety of strategies used.	
Thorsteinsson 2002	How do individuals with chronic illness perceive the quality of nursing care	In-depth interviews Sample 11 patients (theoretical sampling used)	**Population** Patients with a variety of chronic illnesses **Setting** Mostly in the patients home but patients recruited whilst in-patients or day patients in dialysis unit **Country** Iceland	Phenomenology **Analysis:** Interviews taped and transcribed. Vancouver school of doing phenomenology used in analysis	Characteristics of nurses who provide high quality care were sensitivity to patients' needs, genuine concern, trust & honesty, use of humour, clinical competence, and effective patient teaching. Effects of high quality nursing care were positive feelings in the patient. Poor nurses were described as indifferent, lack initiative; negative attitude and making the patient feel they were in the way.	3
Wilson 2005	How is patient expertise viewed, interpreted, defined & experienced by both patients & health professionals. How is patient expertise promoted & enabled through the self-management process. What mechanisms enhance or impede the development of patient expertise.	Focus groups, interviews and observation **Sample** 100 health professionals 100 patients	**Population** Doctors, nurses, physiotherapists, & patients with chronic disease. Nurses included practice nurses, nurses undertaking additional training in diabetes, respiratory, and anticoagulation, and experienced diabetes nurse specialists **Setting** South east of England **Country**	Grounded theory approach. **Analysis:** Data manually coded & conceptual codes developed. Consensus regarding categories achieved through discussion among research team. Data	In general nurses found expert patients more of a threat then other health professional respondents. The study linked this to lack of professional confidence and fears about litigation in self-management. Patients evaluated nurses as being the most effective support for their psychological needs, but apart from the diabetes nurse specialists the majority of nurses did not recognise this aspect of care as a discrete skill.	1

			UK	presented to pt and professionals for checking.		

Evidence Tables – Anticoagulation

RCTs and controlled studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4
Fitzmaurice 2000	RCT – Cluster randomisation of practices followed by individual randomisation within intervention practices.	Is the use of nurse-led computerised decision support (CDSS) and near-patient testing (NPT) effective in the management of oral anticoagulation (AC) in primary care?	**Population** 224 patients taking warfarin. Two control grps Intrapractice control 102 Interpractice control 143 (external) Lost to follow-up I 18.9% C (both) 13.1% PC - Yes **Setting** Primary care practices **Country** Birmingham, UK	**Intervention** Oral AC monitoring within practice by nurse-led NPT and CDSS. **Control** Usual hospital care: Hospital 1: Dosing & recall advice sent by mail, following dosing decision by physician. Hospital 2: dosing & recall advice during visit to physician. (During study changed to CDSS pts then seen only by a technician). **Provider** Practice nurses with theoretical & practical training **Duration & Intensity** Not given.	12 months No significant diffs in INR control but proportion of time spent in INR Range showed significant improvement in the intervention grp. International normalised ratio (INR), Results within range: 0 Proportion of time spent within therapeutic target INR range: + p=0.008, but magnitude not significantly different from controls Mortality or adverse effects: 0 Economic analysis: Intervention approx £100 per pt per year more than controls (primarily capital costs & increased frequency of testing). Practice size significantly affected costs (p<0.001), larger practices sustained lower mean costs, mean practice costs £169 per patient per year compared with mean hospital costs of £69 per patient per year.	2 External controls used to assess Hawthorne effect, which was considered to be non significant.

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4
Connor 2002	Non experimental design.	Are anticoagulant nurses at least as effective as the	**Population** 197 patients aged 16 and over having	Data collected retrospectively for patients who had	Anticoagulant control: 0: (p=0.137).	3

	Retrospective collection of data. Systematic probability sampling method to select patients.	consultant haematologist in managing patients in anticoagulant clinics? Effective defined as : To maintain a patient within one of two specified target INRs (International normalised ratios) for 70% of their visits. Managing defined as: To educate, support and control a patient's INR through individualised, adjustable dosing according to each INR reading.	anticoagulant therapy + other inclusion criteria. **Setting** anticoagulant clinic **Country** England, UK	undergone 18 mths continuous consultant management and a sequential 18 months of continuous nurse dosing.	106 (54%) pts were under control during both consultant-led and nurse-led clinics; INR values were within 0.7 units of their identified target INR for at least 70% of visits to consultant & nurse. 26 (13%) under control during consultant led clinics only and 39 (20%) patients during nurse led clinics only. 26 patients not under control during either period. INR values were within target for higher % of all patients visits to nurse led clinics (p=0.025). For both target groups (p=0.064), INR values below acceptable limits were recorded on significantly higher % of visits to the consultant (p=0.006). Clinic attendance: Patients attended clinic on significantly fewer occasions (p<0.0005) with nurse led practice (mean 12.7 visits over 18mths) than consultant led practice (mean 17.0 visits over 18mths).	
Taylor 1997a and Taylor 1997b (economic evaluation)	Sequential design with data collection from consultant run service (CAS) followed by similar data on nurse specialist service (NSAS)	Does a nurse specialist anticoagulant service provide adequate therapeutic control compared with a consultant anticoagulant service?	**Population** Out patients receiving anticoagulant care, 55.9% Males, 57% >65 years of age **CAS service:** Group A N = 116 Group B N = 122 **NSAS service** Group A N = 125 Group B N = 131	Data collected using record cards and postal questionnaires Two groups of patients: Group A: newly referred to the anticoagulant clinic. Followed up for 3 months Group B: Attending the anticoagulant for a year or more and randomly selected from the computer database. Followed up for 6 months	Proportion of time spent in therapeutic range of International Normalised ratio (INR): NSAS was as good as the CAS in maintaining therapeutic control for patients on long term anticoagulation, better at documenting relevant clinical details, and improving some aspects of patient knowledge. NSAS was as cost effective as CAS, preferred by newly referred patients and acceptable to their GPs (from separate report). Cost: 0: Nurse service not more expensive than consultant. Clinic running costs for nurse=£4.99 per attendance	2 (for those requiring AC therapy) but limited by a weak study design Findings support previous USA based studies Practical considerations determined study design e.g. having very few test sites. Findings based on a weak design to assess effectiveness

			Setting Anticoagulant clinic (Hospital based presumably because comparing consultant run service) **Country** UK	**Intervention** NSAS Service **Comparative group** CAS Service **Provider** Nurse **Duration & Intensity** 4 x week + revised administrative system and patient education aids	Consultant service=£4.75	

Evidence Tables – Asthma

RCTs and controlled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up		Applicability to the UK populations and settings Score 1-4
Abdulwadud 1999	RCT	Does patient education in an asthma outpatient clinic improve asthma knowledge and QoL?	**Population** 125 pts 16 and over with a diagnosis of asthma (mean age 45.6 yrs, 40% men, 65% had one or more previous hospital admission with asthma). 38.4% lost to f.u (greater losses in intervention than control) PC – Yes **Setting** Asthma outpatient clinic **Country** Australia	**Intervention** Group based educational programme based on social learning theory. Included basic info about asthma and taught self-management skills, such as when to seek medical help, peak flow monitoring & inhalation techniques. Also given peak flow meters and printed asthma education materials. **Control** TAU (not specified) **Provider** Qualified nurse educators with experience in counselling and teaching asthma patients. **Duration & Intensity** 3 x 90 min sessions over 3 successive weeks.	Post intervention Asthma knowledge (asthma general knowledge questionnaire): +: MD 2.4 (1.5, 3.3) QoL (AQLQ) total score: +: pre to post improvement on total quality of asthma life (p=0.03), social disruption (p=0.01), and concern for health (p=0.002) subscales. No comparison with control group given. Self-management skills: +: pre to post for rapid onset scenario (p=0.04) 0: slow onset scenario	6 months Asthma knowledge (asthma general knowledge questionnaire): 0: MD 0.6 (-1.5, 2.25) QoL (AQLQ) total score: 0: difference in mean change score -0.26 (-1.3, 0.77) Self-management skills: 0	3 Based on social learning theory. 53.1% attended full programme. Pts over 60 yrs old more likely to attend. .
Castro 2003	RCT	Can an asthma nurse specialist reduce readmissions and improve health-related quality of life?	**Population** 96 asthma pts with history of one or more hospitalisations in previous 12 months (mean age 36.5, 82.5% African American, majority	**Intervention** Multifacated intervention: education, psychosocial support, individualised self-management plan, hospital care, discharge planning, follow up visits and telephone contact **Control**	Readmission due to asthma (12 month f.u): + 54% reduction (p=0.04) Total readmissions: + 60% reduction (p=0.04)		3 Reduction in readmissions, lost work or school days and healthcare costs. No difference in QOL

			low socioeconomic status) 31% lost to follow up PC - No **Setting** Hospital and home **Country** USA	TAU from primary care physician & education by hospital respiratory therapist and nurse. **Provider** Asthma nurse specialist and primary care physician **Duration & intensity** 6 months. Input from nurse; average of 2 education sessions in hospital; telephone follow up with average of 5.8 contacts per pt; average 0.4 home visits per pt. Also clinic apts with primary physician.	ER visits: 0 no difference (average visits 1.3 vs 1.4) QOL (6 month f.u): 0: (p=0.55) Cost: + Overall saving of $6,462 per pt in intervention grp (p=0.03) Lost school or work days: + difference between grps (-794 days) + Cost of lost work days (p=0.02)	
Greineder 1998	RCT	Does an asthma outreach programme (AOP) with a team based, case-managed intervention, effect ED visits and hospital use?	**Population** 57 pts aged 1 to 15 yrs with asthma who were enrolled in a staff-model HMO for at least 2 consecutive years. Follow up not clear PC - No **Setting** Health centres Pilgrim Health Care. **Country** USA	**Intervention** AOP group received same as control + follow up by an asthma case management nurse. **Control** Received a single intensive asthma education intervention giving one-to-one education in 7 domains and referral for allergy consultation. Then usual ongoing care. **Provider** Allergy nurse, allergy nurse practitioner and an allergist. **Duration & intensity** Initial visit lasting several hours for both groups. Follow up done mostly by phone with visits as necessary.	12 months ED visits (comparison in pre to post diffs): +: p<0.5 Both grps showed pre to post reduction but when compared with control group, I group patients showed additionally significant reductions in ED visits (57%, p<0.05) Hospitalisations: +: p<0.5 Both grps showed pre to post reduction but significantly greater in I compared to C Cost: Estimates of direct savings to the health plan ranged from $7.69 to $11.67 for every dollar spent on the AOP nurse's salary, depending on assumptions.	3 Small sample, based in USA
Griffiths 2004	Cluster RCT	Do asthma specialist nurses, using a liaison model of care, reduce unscheduled care in a deprived multiethnic area?	**Population** People aged 4-60 admitted to or attending hospital or GP out of hours service with acute asthma (50% South	**Intervention** Patient review in nurse led clinic and liaison with GPs and PNs comprising educational outreach, promotion of guidelines for high risk asthma, and ongoing clinical support.	12 months % of patients receiving unscheduled care for acute asthma: +: Specialist nurse intervention reduced % of participants attending unscheduled care (58% Vs 68%	1

			Asian, 34% white, 16% other Ethnic minority groups, 45% spoke English, 55% unemployed). 44 general practices 324 patients Lost to follow up 2% PC - Yes **Setting** General Practices in E London- in deprived. Multi-ethnic area. **Country** London, UK	**Control** Visit promoting standard asthma guidelines and inhaler technique checked. **Provider** Specialist asthma nurses accredited by the National Respiratory Training centre in Stratford East London. **Duration & intensity** I = Two x 1 hour visits C= 1 visit .	(adj OR 0.61, 95% CI 0.38 to 0.99). Time to first unscheduled attendance: 0: First attendance was delayed by nurse intervention but not significant (hazard ratio HR 0.73, 95% CI 0.54 to 1.00); median 194 days for I and 126 days for C. Self management behaviour and Q of L: 0: Hospital admission, Ed visits, GP attendances: 0: all were lower in intervention group but this was not significant. Diff in effect on ethnic groups was not sig. but results consistent with greater benefit for white patients than for S Asian patients or those from other ethnic groups.	
Hughes 1991	RCT	What was the impact of a home and clinic asthma management programme?	**Population** 95 children aged 6-16 with diagnosis of asthma & no other major medical problems. Follow up 6% lost to follow up PC - No **Setting** Clinic and home **Country** Canada	**Intervention** Individual asthma management programme. Including: medication management, environmental assessment, tobacco exposure, equipment technique assessment, education. **Control** TAU from family dr or paediatrician & clinic visits for assessment. **Provider** Trained research nurse and clinic dr. Dr outlined programme and nurse co-ordinated it. **Duration & Intensity** Quarterly clinic visits & 2 home visits over 12 month period. Additional visits at nurse discretion.	12 months Asthma severity: + (P=.02) Asthma symptoms such as wheeze free days & nights: 0 Total asthma medication: 0 Hospital days: + Intervention grp spent fewer days in hospital when admitted (3.67 vs 11.2 days, p=0.02) Child took responsibility for asthma management: + (72.1% vs. 33.1%, p=.006) Asthma absenteeism from school: 0 mean days 3.4 (6.1) vs. 3.4 (4.5)	3

Kamps 2003 & 2004	RCT & economic analysis	Kamps 2003: To compare nurse led outpatient management of childhood asthma with follow up by a paediatrician. Kamps 2004: to compare healthcare resource utilisation and costs of both approaches.	**Population** 74 patients aged 2-16 newly referred by GP to outpatients' clinic for chronic persistent asthma. PC – Yes (symptom free days) 1% lost to follow up. **Setting** 1100 bed district general hospital **Country** Holland	**Intervention** Detailed education sessions including: discussion of triggers, use of medication, management of acute symptoms & inhaler technique. **Control** Normal care by paediatrician. **Provider** Experienced asthma nurse. Paediatrician available for nurse to consult at all times. **Duration % intensity** Initial education session then follow up visits as 1, 3, 6, and 12 mths.	12 months % of symptom free days: 0: MD 2.5 (-8.8, 13.8) p=0.54 Rescue medication free days: 0: MD 1.0 (-11.1, 13.2) p=0.40 Exacerbations: 0: MD 0 (0, 0) p=0.37 Visits to GP: 0: MD 0 (0, 0) p=0.11 School absence: 0: MD 0 (0,0) p=0.80 Day time & night time symptom score: 0 All parents satisfied with asthma care received. Healthcare utilisation and associated costs: 0: no sig diffs in healthcare utilisation except for the total time spent on patient contact (Doctor= 136 (n=14) vs. nurse = 187 (n=41) mins. Costs within the healthcare sector were reduced by 7.2% in favour of nurse-led care (due to 17.5% reduction in the costs of outpatient visits). Overall healthcare costs (within and outside the healthcare sector) were 4.1% lower for nurse-led outpatient management compared to traditional medical care.	3 N.B equivalence may be desirable result meaning nurse as safe and effective as doctor.
Kelly 2000	Controlled trial (participants allocated alternately)	Does a comprehensive education and outreach programme decrease ED use and hospitalisations for Medicaid insured asthmatic children?	**Population** 80 children aged 2-16 seen in ED 2 or more times for asthma or hospitalised at least once in previous year, & on Medicaid insurance (94%	**Intervention** TAU + tailored education & outreach programme that Included clinical & educational components that conformed to guidelines of NHLBI. Included: recognition of asthma triggers, environmental control, medication usage, & use of equipment. Nurse also liaised with	Cost: Average asthma health care charges decreased by $721/child/yr in intervention grp and $178/child/yr in control grp ED visit: + children in control grp 1.4 (95% CI 1.02, 1.91) times more likely to have an ED visit	3

			black). 2.5% lost to follow up PC - No **Setting** Clinic & home **Country** USA	school personnel to pass information. **Control** TAU at children's outpatient clinic **Provider** Clinic physician and asthma outreach nurse. **Duration & intensity** Clinic visits & monthly telephone contact from nurse.	Hospitalisation: + children in control grp 2.4 times (95% CI 1.04, 5.42) more likely to be hospitalised.	
Levy 2000	RCT	Does a specialist nurse education improve recognition and self-treatment of asthma by patients followed-up after accident & emergency (A&E) visit for asthma exacerbations?	**Population** 211 adults over 18 years old (mean age 40 years), attended for asthma In A&E over 13 months,62% females, PC – No 85.8% interviewed at 6 months (all four times) **Setting** OPD **Country** UK	**Intervention** Patient Education: Assessment of patient's asthma control and management, followed by education on recognition and self-treatment of episodes of asthma, provision of validated, guided self-management plan, drug control advice according to national guidelines, referral to GP if severe asthma **Control** Medical treatment from their GP **Provider** Specialist nurse **Duration & Intensity** I hour after study entry, followed by 2 x 30 mins at 6 weekly intervals	6 months St Georges Questionnaire: Hospital based specialist nurses reduced morbidity by improving self-management behaviour in acute attacks. Self management of asthma: +: I = 51%, C = 21% OR 3.91 (1.8-8.4), p<0.05 Increased use of inhaled topical steroids: +: I = 89%; C = 76% OR 2.88 (1.1-7.9), p<0.05 Use of rescue medication in severe attacks: +: I = 34%; C= 42% OR 0.96 (0.7-1.4) PEF: +: Significantly higher PEF in Intervention Group; 20.11m^{-1}; CI 0.4-39.7, p<0.05 QOL scores: Significant improvement in both grps but no diff between grps.	2
Madge 1997	RCT	Does a nurse-led asthma home management training programme reduce asthma related	**Population** 201 children aged 2-14 yrs admitted to hospital with acute asthma	**Intervention** Structured asthma education & home management training programme. Included: information & advice, discussion sessions, follow	Follow up until 2 months after randomisation ended (varied from 2-14 months) Hospital readmissions: +: I = 8.3% vs. C = 24.8%; p=0.002	2

		morbidity and hospital admissions?	**Setting** Children's hospital, Glasgow. **Country** Scotland, UK	up and telephone advice. Parents given educational booklet and provided with course of oral steroids and guidance on when to use them. **Control** TAU. Both groups had clinical care from paediatrician following standard practice. **Provider** Trained specialist asthma nurse and paediatrician. **Duration & Intensity** About 3 meetings, totalling 45 mins, with parents in hospital, then 1 x clinic apt and telephone follow up.	ED visits: 0: I= 7.3% vs. C = 6.7% Visits to GP: 0: I = 11.5% vs. C = 6.7% Morbidity (day, night and disability scores calculated): +: day score p=0.0005 +: night score p=0.0002 0: disability score p=0.078	
Morice 2001	RCT	Can an asthma nurse intervention during hospital admission change behaviour in adult asthmatics and reduce emergency visits/callouts to GPs and re-admission to hospital with asthma related problems?	**Population** 80 adults 16 and over admitted to hospital with primary diagnosis of acute asthma (age range 16-72, mean age 36.1). 19% lost to follow up PC - No **Setting** Large teaching hospital **Country** Yorkshire, UK	**Intervention** In-pt education programme from asthma nurse. Included info on mechanisms of asthma, common triggers, lifestyle influences, medication use. Involved self management plan and written instructions. **Control** TAU with no input from asthma nurse **Provider** Asthma nurse **Duration & intensity** 2 x 30min sessions plus a visit prior to discharge.	6 months Hosptial readmissions and emergency call outs: Proportion of pts presenting to hospital: 0: 24 contacts in control grp and 23 in intervention grp. Self management: -: 62.5% control grp, 91% intervention grp; p<0.001) I more likely to choose self-management as first line action with Increased use of steroids (77% I compared with 57% C, p<0.01), peak flow monitoring (66% I compared with 47% C, p<0.01). C used GP contact as preferred first line response (57% I compared with 87% C. p<0.01)	2
Persaud 1996	RCT	Is a school based, individual asthma education programme	**Population** 36 children aged 8-12 yrs. with asthma (average age 10.2,	**Intervention** TAU + individualised education sessions to develop self management skills and principles.	20 weeks Asthma knowledge: 0	3 very small sample

		conducted by school nurses feasible?	69% black, 64% male, 69% Medicaid recipients). 100% follow up PC - No **Setting** Paediatric resident group practice **Country** USA	Included instruction in peak flow monitoring & discussion of symptoms and progress. **Control** Regular care from primary care providers. **Provider** School nurses with 2 x 4 hr training sessions from principle investigator. **Duration & intensity** Weekly 20min. sessions for 8 weeks.	Attitudes towards asthma: 0 School absenteeism: 0 Emergency room visits: 0 Intervention was well accepted by students, parents, and nurses.	
Pinnock 2003 (RCT) Pinnock 2005 (economic analysis)	RCT & economic analysis	Pinnock 2003: Does routine review by telephone of patients with asthma improve access and is it a good alternative to face to face reviews in general practices? Pinnock 2005 Is a nurse-led telephone intervention cost effective compared to nurse led face-to-face asthma reviews?	**Population** 278 adults on asthma register who had had bronchodilator inhaler prescription in last 6 mths and who had not had routine asthma review in last 11 mths. 3% lost to follow up PC = Yes **Setting** 4 General practices in England **Country** UK	**Intervention** Telephone review – nurses told that interview should reflect normal practice **Control** Face to face consultation. **Provider** Asthma nurse. Nurses given training in study procedure. **Duration & intensity** 1 telephone or face to face consultation + any necessary follow up.	3 months Proportion of participants reviewed within 3 mths of randomisation: +: (74% vs 48% p<0.001) Disease specific QoL (Juniper mini asthma QOL questionnaire): 0: risk diff -0.07 (95% CI -0.4 to 0.27) p = 0.69 Satisfaction with consultation: 0: risk diff -0.07 (CI -0.27 to 0.13) GP, nurse or outpt consultations: 0 Acute exacerbations: 0: risk diff 0 (0-2) p=0.68 Telephone consultations were on average 10 mins shorter than reviews held in surgery (mean diff. 10.7 mins (12.6 to 8.8; p<0.001). Total healthcare costs per pt: 0: telephone=£64.49, versus Surgery =£59.48, p=0.55. Cost: telephone vs. face to face: 0: Total costs of providing 101 telephone versus 68 face-to-face asthma reviews were	2 Trial did not have adequate power to detect differences secondary outcomes.

					similar (telephone =£725.84 vs. surgery =£755.70) but mean cost per consultation lower in telephone arm (telephone =£7.19 versus surgery=£11.11; mean diff =-£3.92, p<0.001).	
Premaratne 1999	Cluster RCT but follow up was by cross sectional survey of random sample of pts from practice registers	Does a nurse-led asthma resource centre improve treatment and quality of life for asthmatic patients?	**Population** All registered patients aged 15-50. 24,400 patients (9990 I, 14410 C) 4932 responded 49.4% I 7306 responded 50.7% C PC - Yes **Setting** 41 general practices with a practice nurse. **Country** London, UK	**Intervention** Nurse specialists in asthma educated & supported practice nurses & helped them set up asthma clinics. Practice nurses then ran clinics & educated patients in the management of asthma according to the British Thoracic Society guidelines. **Control** Usual care **Provider** Nurse specialists. **Duration & intensity** 6 teaching sessions on core elements of asthma care offered to all practice nurses. Nurse specialists then visited practices to offer help.	Length of follow up not clear QoL: 0: OR 1.07 (0.76, 1.52) p=0.68 ED visits: 0 Steroid prescribing by GP: 0: 3% higher in intervention practices (-1 to 6%) p=0.10	3
Salisbury 2002	RCT + Parallel observational comparison between pupils in practice care grp of RCT and pupils in 2 control schools.	Does the delivery of a programme of asthma care via nurse-led clinics in schools improve access to care and health outcomes for adolescents, compared with conventional asthma care in general practice?	**Population** 450 adolescents with asthma 16% lost to follow up PC - Yes **Setting** 6 comprehensive schools (covered rural, urban and suburban areas) **Country**	**Intervention** School clinics. Care similar to that in nurse-led clinic in general practice but targeted at needs & interests of adolescents. **Control** and practice care group Invited to attend asthma review at their practice. This may have been provided by PN or doctor and in designated asthma clinic or routine surgery, according to practice's normal procedure. **Provider**	6 months Proportion of pts who had review consultation for asthma +: I = 90.8% vs.; C = 51% overall, p<0.001. But not consistent across schools. O Health related QoL (PAQLQ), and level of symptoms. 0: No sig differences in symptoms, (p=0.42) or quality of life, (p=0.63) Asthma knowledge: + (diff =+0.38, 95%CI=0.19 to 0.56)	1

			UK	Nurses who had experience as school nurses and specialist asthma training. **Duration & intensity** Initial review then follow up at 1 and 6 mths. If poor symptom control or change of treatment then further follow-up at 3 mths.	Attitudes to asthma: + diff =+0.21, 95%CI=0.05 to 0.36) Inhaler technique: +; p<0.001 but not consistent across all schools. School absence: 0 Pt preference for setting of care 63% of those who had received care at school preferred this model in future. Cost Total cost of care higher in I than C or practice care group. Median costs of providing care at school and at the practice were £32.10 and £19.80 respectively.		
Smith 2005	RCT	Is a psycho educational programme delivered by a specialist respiratory nurse more effective than routine care in controlling asthma symptoms and quality of life?	**Population** 92 adults registered with hospital or primary care asthma clinics. PC – Yes (asthma specific QoL scores) 19% lost to follow up **Setting** Home or other sites if needed **Country** UK	**Intervention** 6 mth psycho educational programme of home visits and telephone calls. Included: agreed self-management plan, skills training & education; involvement of family and liaison with other health & social care professionals. **Control** TAU provided by primary and secondary health services according to local arrangements (generally included reviews at hospital or general practice every 3-6 months). **Provider** **Intervention:** Respiratory nurse specialist (20+ yrs experience of respiratory nursing) Supervised by GP & health psychologist. **Duration and intensity** 6 mths. Intervention: Four 2 weekly visits for 2 mths plus	6 months Asthma mean symptom control score (assessed via asthma morbidity questions) : 0 MD -0.35 (95% CI -1.83 to 1.13), Physical functioning (mean score SF-36) 0: MD 3.10 (-11.42 to 17.63), Mental health score (hospital anxiety & depression scale and the general health questionnaire) 0: MD 0.42 (-10.22 to 11.07), resp. Asthma specific quality of life. Generic health status (SF-36) 0: MD 0.05 (-0.16,	12 months Asthma mean symptom control score (assessed via asthma morbidity questions) : 0 MD 0.30 (-1.18, 1.78) Physical functioning (mean score SF-36) 0:MD 1.79 (-13.24, 17.11) Mental health score (hospital anxiety & depression scale and the general health questionnaire) 0: MD -3.38 (-14.88, 8.13) Asthma specific quality of life. Generic health status (SF-36) 0: MD 0.05 (-0.16, 0.26)	1

				2-weekly phone calls, and monthly phone calls for 4 months there after.	0.25)		
Yang 2005	RCT	1.To describe the knowledge level, QoL, and clinical symptoms of children with asthma 2. to examine the relationship between knowledge about asthma and QOL among children with asthma 3. To evaluate a programme of nursing instruction for child asthma patients.	**Population** 62 children aged 8-12 yrs, (65% male) diagnosed with asthma, no other chronic disease, used inhalation devices during past year. PC - No **Setting** Asthma clinic of a medical centre **Country** North Taiwan	**Intervention** Instructing the children to enhance their disease management skills during outpatient visit or appointment at home (e.g. education on understanding asthma and medication, and avoiding triggers). **Control** Regular clinical guidance during outpatient visit. **Provider** Nurse researcher **Duration and intensity** 1 visit- not clear.	1 month follow up Asthma knowledge (asthma knowledge questionnaire). + significant increase in post-test mean values for I and C (greater in I) I increase of 9.67, p<0.01 C increase of 3.62, p<0.05. Quality of life: +: I achieved stat significant differences between pre/post test means for: active QOL p<0.01; distress p<0.05; and asthma severity p<0.01. -: C significant post-test fall in mean active QOL, p<0.01 Asthma symptoms (asthma symptom questionnaire).+ decrease in symptoms in I & C but greater in I		3

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up including outcome variable(s)	Applicability to the UK populations and settings Score 1-4
Delaronde 2002	Uncontrolled before/after study.	Does intensive case management increase anti-inflammatory medication use among a managed care population with asthma?	**Population** 249 pts aged 8-64 years with asthma. Had 3 or more beta2-agonist prescriptions for 3 consecutive months and had not been prescribed an inhaled corticosteroid. 49% lost to FU **Setting**	**Intervention:** Intensive case management included multiple contacts, education & information about asthma control. Encouraged to see physician to discuss asthma management plan. Offered peak flow meters. **Control** TAU: 1 telephone contact and assessment of condition. Given educational materials and encouraged to attend free asthma	Number of anti-inflammatory prescriptions dispensed. + After adjusting for age, gender and pre-intervention medication use, the patients who received the intensive intervention were 4.3 more likely to increase the number of anti-inflammatory medication prescriptions dispensed than those who received a standard intervention,(p<0.001).	3

			Managed HMO **Country** USA	educational class. **Provider** Nurse case manager. **Duration & intensity** Contact as required 1 telephone contact (standard) 2 or more (intensive)		
Hoskins 1999	Audit with comparison of pre and post data and comparison between different types of practices.	Is there a link between the level of practice nurse training and clinical outcomes in asthma management?	**Population** Asthmatics receiving bronchodilator therapy. 80 practices invited to take part but only 32 practices agreed Practices asked to select representative sample of 30 pts from their lists. A 11 practices. B 14 C 7. **Setting** GP practices **Country** Dundee, UK	Participating practices were classified into three groups: A-nurse with recognised asthma diploma. B-nurse without diploma. C-no nurse clinic. Provider Practice nurse	12 months Symptoms, days lost, acute attacks, systemic steroids, hospital admission, A&E, outpatients. Positive patient outcomes were associated with practices that had clinics organised by a specially trained nurse. Fewer patients in this group suffered from asthma symptoms, they had fewer acute attacks, were given more aggressive short course systemic steroids and fewer patients lost days as a result of asthma, when compared with practices where the clinics were run by nurses who did not have the diploma qualification.	3
Pettersson 1999	Uncontrolled before/after study	Does a nurse-directed educational programme (the asthma school) directed lead to improvements in knowledge, self-medication, self-management and self-rated functional status?	**Population** Patients with asthma referred to the clinic 52 initially agreed to take part but 19 were excluded for various reasons -leaving 32 patients.	**Intervention** An education program to improve patients' knowledge of asthma and its treatment and thereby improve self management. **Control** none **Provider** Specialist nurse	12 months Knowledge: .+ mean score ($p<0.001$) Use of peak flow meters: + ($p<0.01$). Use of asthma drugs: +. ($p<0.05$). Sick leave due to asthma: + ($p<0.05$) Patients' self rated health status. One year on there was better self rated,	3

			Setting Out-patient clinic at a University hospital. **Country** Sweden	+ other health care professionals. **Duration & intensity** 1 year. Patients attended in groups of 6-8, once per week over a period of 6 weeks (2hours per session)	physical health status. Lung function: 0 Need for medical care: 0	
Pooler 2005	Before/after study.	Does a nurse led clinic improve the continuity of care for patients with severe asthma and what are the benefits?	**Population** 49 adults with severe asthma who are inadequately controlled on inhaled steroids at steps 4 and 5 of BTS asthma management guidelines. **Setting** Out patient clinic **Country** Stoke-on-Trent, UK	All patients reviewed by a set pro forma, every time attended clinic. Patients who did not attend were followed up by telephone or home visit. All were given individualised severe alert card containing personal details, and given contact details for respiratory nurse, contactable during working hours. Other times answer phone was available. When patients admitted to hospital the nurse tried to visit them on the ward. **Provider** Qualified and experienced respiratory nurse	2 years Hospital admissions 158 hospital admissions in 2 yrs prior to the nurse-led service and only 74 admissions in the first 2 years of the new service. Duration of hospital stay Number of bed days fell from 680 bed days to 237 bed days a 35% reduction. Average stay fell from 7.84 days to 0.88 days. Non-attendance rates to clinics In 2 years prior to clinic, DNA rates were 127/year and 136/year resp. In first year of new service the rate fell to 42/year and 6/year in year 2.	3

Surveys

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4
Broady. 1997	Survey and retrospective chart review	Evaluation of nurse-led children's drop-in asthma clinic: To examine the pattern of referrals and assess parents' and children's satisfaction with the clinic.	40 parents, 24 (60%) returned fully completed questionnaires **Population** Children with asthma and their parents **Setting** Children's drop-in	n/a	96% would visit clinic again. Most reported being seen by a nurse within 20 mins. Most were hospital and self referrals. The information, advice and support received by parents at the clinic help them to manage their children's asthma. Used by local GPs and PNs as a specialist resource for advice, assessment and management of childhood asthma.	3

			asthma clinic. **Country** Manchester, UK			
Kyngas 2001	Survey	Which factors predict the compliance of adolescents with asthma?	Of 300 sent questionnaires 266 replied (88% response rate) **Population** Adolescents aged 13-17, diagnosed more than 1 year with asthma. **Country** Finland	Intervention N/A	Support from nurses, motivation, energy & willpower, and no fear of complications are statistically significant factors to predict compliance. Most powerful predictor was support from nurses. The likelihood of adolescents supported by nurses to comply with health regimens was 56.88-fold compared with adolescents who did not receive support from nurses. The next powerful predictor was motivation and adolescents with motivation complied with a 10.7-fold likelihood compared with those without motivation. Adolescents with energy and willpower were 10.43-fold more likely to comply than those without.	3

Qualitative studies

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and analysis	Main Findings	Application to UK
Foster (2005)	How do specialist nurses influence primary care & individual patient management of asthma	Qualitative semi-structured interviews with 8 GPs, 6 practice nurses and 1 focus group with 6 patients and carers. Participants recruited from RCT evaluating asthma specialist nurse liaison in primary care. RCT indicated that impact of the liaison service varied between practices.	5 GPs & 4 PNs from the intervention arm were recruited; Of these 3 GPs & 3 PNs were from the "productive liaison" group, 2 GPs & 1 PN from the "unproductive liaison" group. From the control arm 3 GPs & 2 PNs were interviewed. The patients & carers had all received the intervention (specialist nurse education & advice). 3 were adults with asthma and 3 were parents of children with	Structuration theory. Constant comparative method, thematic coding.	<u>Establishing the service</u> Specialists often encountered difficulties which they attributed to lack of clarity in role definition, power imbalance between GPs and nurses, & novelty of the service particularly for isolated single handed practices. Many extended their skills to facilitate access to practice, e.g. carrying out practice surveys, small group education sessions, running training courses, debating latest research with GPs & PNs. <u>Reciprocal communication between nurses & primary care</u> Soon established with responsive practices. <u>Structural factors</u> In responsive practices asthma was priortised and there were systems in place to respond to nurses recommendations – neither was present in	Yes Applicability = 1 Medium to high quality. Actual dates of study not reported but some very significant findings.

			asthma. 2 were Bangladeshi, 3 white British, 1 black Caribbean. **Setting** Tower Hamlets, UK.		unresponsive practices. <u>Individual factors</u> When compared to unresponsive practices, responsive practices had GPs who recognised the specialist nurse's expertise & acted on their advice, and had GPs who trusted their PNs to work autonomously. <u>Self-management in a deprived area</u> Nurses pragmatic & flexible & used specific strategies such as sign language if patient was not fluent in English. Pts saw nurses as easy to talk to but some felt that the extra service could cause conflicting advice.	

Evidence Tables: Bowel Disease

RCTs

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Smith 2002	RCT	Does psychosocial counselling improve quality of life for patients with inflammatory bowel disease (IBD)?	**Population** Patients with IBD I = 50 (25 Crohn's disease, 25 ulcerative colitis). C = 50 (25 Crohn's disease , 25 ulcerative colitis) , + 28 psoriatric arthritic disease control 50 healthy Control 100% follow-up. PC - Yes **Setting** OPD **Country** Scotland, UK	**Intervention** Counselling package Information provision & psychological intervention. General support and patients encouraged to contact patient support group. **Control** TAU. Consultations at baseline, 3mths, 6mths and 1 year. **Provider** Trained nurse counsellor **Duration & intensity** Stress management sessions at baseline, and repeated at 3mths to 6 mths intervals as needed.	Health related QoL: Generic health-SF-36. Psychological assessment-Hospital Anxiety & Depression Questionnaire HAD. 0: SF-36 scores for both Crohn's disease and ulcerative colitis patients remained unchanged throughout study 1 exception was mental health in which actively counselled Crohn's disease patients showed greater improvement at 6 mths than those who had received routine support although this returned to base levels after 12 mths. SF-36 scores for mental health were low in IBD patients at baseline; 62.9±9.1 (SD) in ulcerative colitis, 60±9.8(SD) in Crohn's disease, compared with 72.4±7.2 (SD) in healthy controls, $p<0.05$.	1

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Nightingale 2000	Before/after audit	Does a specialist nurse intervention improve the management of patients with inflammatory bowel disease IBD?	339 **Population** Patients with either Crohn's disease or ulcerative colitis. **Setting** Addenbrooke's hospital NHS trust Outpatient	**Intervention** Education & support for patients, their families and for other healthcare professionals involved in the management of patients with IBD. Co-ordination of research & efforts to improve communication between hospital & community services. Information sheets were written,	12 months Outpatient attendance Pre to post reduced from 1377 to 853 (38%) Hospital admissions: 0 (pre 48, post 45) Length of stay. Bed-days from 516 to 417 (19% reduction).	3

			Centre **Country** Cambridge, UK	dedicated telephone helpline established and treatment guidelines drawn up. **Provider** Specialist nurse. **Duration & intensity** Not clear	Pt satisfaction: +: 6 of 13 service satisfaction issues significantly improved Patient satisfaction improved in: Access to information on IBD and advice on avoidance of illness and maintaining health. Quality of life: 0	
Pearson 2005	Audit – discussed the development of the service	To describe the development of a bowel disease specialist nurse service and to evaluate the impact of the service	Focus groups with 2 grps of 12 pts. **Population** Patients with inflammatory bowel disease. **Setting** District General Hospital **Country** Bolton, UK	**Intervention** Telephone helpline established to enable direct referral from pts and primary care physicians. Immunosuppression monitoring was standardised. Dedicated nurse specialist clinic slots established. Use of protocols. **Provider** IBD nurse specialist with level 3 IBD qualifications; extended/supplementary nurse prescribing course. Also shadowed other IBD nurse specialist to gain insight into role. **Duration & intensity** Not clear	1428 received help from helpline over 2 years. Interval between onset of exacerbation and to initiation of steroid therapy. Decreased from 8 weeks to 1 week in 80% of cases. Patient awareness of early symptoms of exacerbation improved and side effects of therapy were detected earlier. Patient satisfaction. Out of 50 people surveyed, 80% felt that they received rapid and appropriate access to secondary care review through the IBD Nurse specialist. They felt the care she provided was appropriate and supportive. As a result of longer clinic consultations they had better understanding of their condition, its management and long term treatment options.	3

Evidence Tables-Cardiovascular

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Page 2005	Systematic Review (results mainly presented as narrative summary)	Do nurse-led cardiac clinics improve outcomes for adults with coronary heart disease?	5 RCTs (2 of nurse-led clinics for pts with angina, 3 compared secondary preventive care with nurse-led clinic) **Population** Adults (18 yrs and older) with new or existing CHD **Setting** Nurse-led clinics Country All studies took place in the UK	**Intervention** Nurse-led clinics with interventions such as education, assessment, consultation and referral. Control **Provider** Nurses Duration and intensity	Adverse events and cost effectiveness not reported in any studies. Main results from each study summarised below: Study 1 : Structured nurse-facilitated self-help programme reduced depression, number of angina attacks and physical disability reported. No significant effect on angina stability, frequency or treatment satisfaction. Study 2 : Nurse led health education vs. usual care Significant reductions in CHD risk factor management prior to CABG surgery (e.g smoking, BMI, BP). Also improvements in general health, high levels of satisfaction. Study 3 : Comparison of audit, nurse-led and GP care Were benefits in both GP and nurse-led groups. Study 4 : Specialist cardiac nurse-led care vs. GP care Nurse-led care as effective as GP care (but not more effective). Increase in follow up in nurse grp which may make nurse-led care more expensive. Study 5 : Nurse-led care vs. usual care by GP. General health in nurse led grp improved. Significant improvement in SF-36 and reduction in hospital admissions. Summary; Nurse-led clinics were at least as effective as GP clinics for most outcomes.	1
Gustafsson 2004	Systematic Review	To describe the various types of heart failure clinics and to evaluate their effectiveness.	18 RCTs 13 non randomised studies **Population** Pts with heart failure (mean age across studies 67.8, 37% female)	**Intervention** Compared heart failure clinics using nurse intervention with conventional care. Interventions varied between studies although tended to include education,	Types of clinics varied Follow up of pts varied from: clinic based, home visits, telephone or by a combination. Not always possible to distinguish between contribution of nurse and doctor but most clinics were described by authors as 'nurse-directed'. The majority of studies have shown either a reduction in hospital readmissions or shortening of hospitalisations in the	2

			Setting Heart failure clinics with nurse input **Country** Not specified.	optimisation of medical therapy **Provider** Nurses and other members of multidisciplinary team (e.g. pharmacists)	intervention group. Nurse directed clinics appear to improve overall quality of care. Authors argue that heart failure clinics using nurse intervention should be an integrated part of care process for pts with heart failure; and that audit and quality control is important to ensure quality of care.	
Hamner 2005	Systematic Review	To provide a systematic evaluation of the impact of posthospital nursing interventions in the management of heart failure	29 studies (mixture of study designs but majority RCTs) **Population** Pts with heart failure (62% of overall sample male) Setting **Country** Not specified	4 models of nursing intervention were identified: Home based nursing intervention (n = 5, 569 participants) Multidisciplinary interventions that extended to the home with nurses in pivotal roles (n=8, 1879 participants) Heart failure clinics with nursing as a significant component (n=10, 1522 participants) Telephone or technology-based nursing interventions (n=6, 700 participants)	**Home based nursing intervention.** Mixed results. Impact on clinical outcomes, health care costs and resources is unclear. **Multidisciplinary interventions that extended to the home.** These studies showed important benefits, including reductions in LoS, admissions, readmissions, costs and mortality. Improvements in QoL were also noted. More exploration of which aspects of interventions are effective are needed. Authors note important factors to include: • Experienced cardiovascular nurses with access to cardiologists • Intensive follow up • Comprehensive pt and family education • Multidisciplinary • Adequate support and resources **Heart failure clinics with nursing as a significant component.** Studies showed these interventions are effective in reducing hospital admissions, ED visits, mortality, costs & in improving self-care and QOL. Authors note important factors to include: • Frequent visits and contacts. • Pt education and support • Pharmacological management (e.g clear protocols for nurses to follow) **Telephone or technology-based nursing interventions** 2 out of 4 studies found reduction in ED visits, 1 found increase in pt satisfaction. No other +ve outcomes reported.	3 Authors conclude that on basis of current data posthospital nursing interventions in CHF can improve clinical outcomes, decrease costs and resource use.
Phillips 2005	Systematic Review with	Aim was to determine whether a	6 RCTs with 949 participants.	**Intervention** HF clinics.	Readmission 0: all studies, RR 0.91 (0.72, 1.16)	2

	meta-regression analysis to assess the relationshiop between complexity of interventions and clinical outcomes.	hierarchy of effectiveness exists with respect to complexity of published protocols of heart failure disease management incorporating specialist nurse-led clinics.	**Population** Studies with at least 100 randomised pts, involving specialist HF nurses and clinics with readmission as an outcome (mean age 73) **Setting** HF clinics **Country** Not specified	Interventions differed in content & complexity. All included education, medication counselling & review + telephone follow up. 2 included discharge planning and one home visits. **Control** Not specifically or consistently defined. **Provider** Specialist heart failure nurses	Studies that included discharge planning vs. those without discharge planning: RR 0.30 (0.04, 2.60) vs. 1.00 (0.86, 1.17) Mortality 0: RR 0.80 (0.57, 1.06) Studies that included discharge planning vs. those without discharge planning: RR 0. 96 (0.63, 1.47) vs. 0.75 (0.55, 1.03) Complex programmes with hospital discharge planning involved had better outcomes Cost (n=3 studies) 0: potential saving per pt per month was US$277.88 (range $108.25-555.67). p = 0.34	

RCTs and Controlled Studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Allen 2002	RCT	Does a nurse case-management programme of individualised lifestyle modification and pharmacologic intervention lower blood lipids, compared to a less intensive usual care intervention, in adults with dyslipidemia after coronary revascularization?	**Population** 228 adults with hypercholesterolemia and CHD who underwent coronary revascularization **Setting** Large Tertiary Medical Centre. **Country** USA	**Intervention** Nurse case-management. Included: individualised lifestyle modification and pharmacologic intervention to lower blood lipids **Control** TAU + feedback on lipids to their primary provider and/or cardiologist. **Provider** Nurse practitioner. **Duration & intensity** CM for 1 year after discharge. 1 outpatient visit 4 to 6 weeks after discharge. Follow up telephone calls. Average of 4.5 hrs per pt.	12 months Lipid levels: + more pts in intervention than control achieved low-density lipoprotein cholesterol levels < 2.59mmol/L (65% vs. 35%, p=0.0001). Diet: + I grp reported greater reduction in dietary consumption of calories from total fat (p=0.0004), saturated fat (p=0.0004), and cholesterol (p=0.02) and a trend for a greater increase in dietary fibre (p=0.13), caloric intake was similar. Physical activity: + higher proportion of patients in I (40%) reported exercising at a level of 6 MET hours per week compared with patients in C (26%, p=0.02). BMI : 0 In multivariate analysis: Being assigned to Intervention (p=0.0001) and being on a lipid lowering medication (p=0.001) were significant independent predictors of LDL-C level.	3

					70% of nurses' time spent on counselling pts on diet, medication, exercise and smoking cessation.	
Barth 2001	RCT	Does a structured nurse-managed discharge programme improve costs and outcomes for congestive heart failure patients (CHF)?	**Population** 34 CHF patients discharged from acute care, mean age 75, 53% females, 88% medicare Lost to follow-up not given PC - No **Setting** Home **Country** USA	**Intervention** Nurse discharge Intervention included: reinforcing teachings; medication review , fluid & salt intake and referrals. **Control** Routine teaching **Provider** Hospital nurse **Duration & Intensity** 2 telephone calls within 72 hours post discharge, then once every 2 weeks for 2 months.	2 months Physician or ED visits: 0 Readmissions: 0 CHF related costs Control $124.68, Experimental $27.19 per hour for 14 hours 47 minutes Total $401.81 for 17 patients Quality of Life mean scores +: No differences between groups at baseline (pre test) but post test improvement in scores	4, Larger sample size and longer follow-up required to validate readmissions and associated costs
Becker 1998	RCT	What is the effect of nurse-mediated cholesterol management in siblings of individuals with premature heart disease? Aim to meet the LDL- C goal of < 3.36mmol/l	**Population** 156 Siblings of individuals with premature coronary heart disease, aged 30-59 years, mean age of index case patients 49+/- 6 years, 74% men, 18% African American, LDL cholesterol >=4.14 mmol/l Overall follow-up 77% PC - No **Setting** Hospital clinic **Country** USA.	**Intervention** Information on diet, exercise, prescribed treatment. Health education framework used to address factors associated with behaviour change and barriers to implementation of healthy lifestyles. **Control** Enhanced primary care (EPC) Cardiovascular risk factor management from primary health provider (physicians) **Provider** Specially trained nurses **Duration & Intensity** 2 yrs. Every four months + 3 x yr telephone contact for	2 years % Achievement of goal levels <3.36mmol/l High LDL-C levels more effectively treated by trained nurse. Greater proportion reached the LDL-C goals but majority of siblings with high LDL-C did not meet goal levels. Little change in diet and physical activity. Average decrease in LDL-C levels mmol/l (mean+/- sd) + NURS 26; EPC 10% P=0.008 Both groups showed significant decrease in LDL-C NURS -0.89 +/- 1.12 (-34.5+/- 43.3) p<0.001 EPC -0.62 +/- 0.87 (-24.0 +/- 33.6 NURS 0.92 EPC 0.52 p= 0.09 Factors predicting achieving the goal levels Relative odds NURS 4.10 times compared with EPC (1.55,10.86), p=0.005 (multivariate analysis)	3 (it may be adapted to populations with high prevalence of cardiovascular risk factors, although quality of study probably not very high) Guidelines are not applied frequently and as required in this very high risk group. Each encounter complex and involved significant nurse/patient and family

				lipid therapy, compliance monitoring and dietary counselling	Multiple logistic regression: Relative odds for pharmacotherapy 6.02 compared with those who did not (2.24-16.18), p<0.001 NURS Relative Odds 2.51 (0.87, 7.23) p=0.09 Pharmacotherapy instituted NURS 45.2% EPC 16.7% p=0.001	interactions.
Carlsson 1997	RCT	Can nurse follow up after hospital discharge improve lifestyle in MI patients compared to usual care by GPs?	**Population** 168 Pts aged 50 and over admitted to hospital with acute MI PC - No **Setting** Community **Country** Sweden	**Intervention** Follow up at secondary prevention unit. Included: counselling on diet, activity & smoking cessation; & exercise training programme **Control** TAU which included 2-3 GP visits **Provider** Specially trained coronary nurse **Duration and Intensity** Individual & group counselling over 3 month period. Exercise 2-3 x week for 10-12 weeks.	Number of current smokers who stopped 0: I = 50% , C = 29% p=0.09 Started caring about food habits +: I = 89%, C = 62% p=0.008 Started physical training (among previously sedentary pts) 0:I = 78%, C = 67% p=0.50 In summary: was a significant increase in those starting to care about food habits and non significant increases in numbers giving up smoking. The exercise programme did not appear to support physical activity.	3
DeBusk 2004	RCT	Can a telephone-mediated nurse care management programme for heart failure reduce the rate of rehospitalisation over a 1 year period?	**Population** 462 total 228 I 234 C. Low-risk pts hospitalised with a provisional diagnosis of heart failure i.e. new-onset or worsening heart failure on basis of shortness of breath	**Intervention** TAU + nurse care management. Involved education, coordination of care, telephone counselling, pharmacological management & nurse initiated communication with physicians. **Control** TAU	12 months Rehospitalisation 0: 51% vs. 50% groups (proportional hazard, 0.85; 95% CI, 0.46 to 1.57). Time to first hospitalisation 0: proportional hazard 0.98 (0.76, 1.27) Combined end point of first rehospitalisation, emergency dept visit, or death. 0: proportional hazard 0.85 (0.64, 1.14)	3

			or at least 1 corroborating clinical sign or radiologic abnormality consistent with heart failure (mean age 72). PC = yes 84% follow up 199 I 191 C **Setting** 5 Kaiser Permanente medical centres in a large HMO. **Country** USA	**Provider** Experienced nurse care managers **Duration & intensity** 1 hour initial educational session & 45min baseline telephone counselling. Subsequent contacts tailored to needs of individual patients. Average of 9 hrs per pt.	Use of ACE inhibitors or other cardiac medication : 0		
Dougherty 2004	RCT	To evaluate the effectiveness of a short-term structured weekly educational telephone intervention for recipients of an implantable cardioverter defibrillator (ICD) – does it improve physical function and psychological adjustment?	**Population** 168 pts aged 21 and over, with sudden cardiac attack or life-threatening ventricular arrhythmia requiring ICD implantation (mean age 64, 77% male, 90% white). PC = yes 94% follow up **Setting** Community – post hospital discharge **Country** USA	**Intervention** 2 key components: Structured information in mailed booklet; telephone support to provide education, develop behavioural skills, enhance self-efficacy & reduce anxiety. **Control** Standard hospital based education in form of booklet, video or both. Both grps received usual outpt FU. **Provider** Nurses with at least 5 yrs cardiovascular exp + trained in telephone support protocol	1month Physical functioning +: (p=0.02) Physical or mental health scores: 0 Psychological adjustment 0: State anxiety 0: depression SCA knowledge: 0 Health care use: 0	3 months Physical functioning 0: (p=0.07) Psychological adjustment +: anxiety (p=0.08). 0: depression SCA knowledge +: Significantly greater knowledge in the intervention grp (p=0.02) Health care use 0:	3 Based on Bandura's Social Cognitive Theory

				Duration & intensity 8 weeks after hospital discharge. Calls 15-20 minutes each.			
Ekman 2003	RCT	Does a nurse-monitored structured care programme result in a more effective use of ACE inhibitors in elderly pts compared to standard care in pts with chronic heart failure (CHF)?	**Population** 141 people 65 and over with CHF (mean age 81, 38.5% female). Pts had considerable comorbidity 3% lost to FU PC – Yes **Setting** Hospital outpatient clinic **Country** Sweden	**Intervention** Nurse directed outpatient clinic. Included education about CHF, advice on weight control and efforts to increase medication concordance (also seen by dr at least every 3 months). **Control** Pts managed in primary care system - TAU **Provider** Nurse (level of training not specified) **Duration & Intensity** Not specified	6 months Number of pts treated with ACE inhibitors 0: I=70%, C= 64% p=0.35 Achieved target ACE inhibitor dose 0: I = 26% vs. C = 11% p=0.18 Summary No significant difference in ACE inhibitor treatment but treatment more likely to achieve target in intervention grp.		3
Jerant 2003 Jerant 2001 (cost data)	RCT	Is home telecare better than standard telephone monitoring or usual outpatient care for patients with chronic heart failure? This paper looks specifically at patient centered outcomes, nursing content and efficiency indicators.	**Population** 37 Patients, aged 40 and over with a primary diagnosis of CHF. Excluded if terminally ill, depressed or cognitively impaired. PC - No **Setting** Community post discharge from hospital. **Country** USA	**Intervention** Ia) home telecare: telecare unit installed in pts own home. Pt & caregiver instructed in its use. Allowed video teleconferencing with study nurse. Ib) nurse telephone calls (no video or electronic stethoscope) **Control** Usual outpatient care. **Provider** Research nurse **Duration & intensity** About 8 weeks Mean number of visits:	60 days General health status (SF-36) Mental component 0: mean score p=0.1797 Physical component 0: mean score p= 0.4549 Health status (Minnesota living with heart failure questionnaire) 0: p= 0.3922 Pt satisfaction (client satisfaction questionnaire – CSQ) 0: mean score p=0.4095 Medication adherence	6 months Hospitalisations (all causes) Mean visits 0: p = 0.4590 ED visits +: p=0.0487 (both int grps significantly less than usual care) Costs – Mean CHF related readmission charges + 86% lower in telcare grp and 84% lower in telephone grp than in control.	3 Home telecare and telephone visits were shorter than in-person visits

				telecare = 8, telephone = 8, control = 2)	0		
Johnson 1999	Quasi-experimental with a non-equivalent control group design	Does a nurse-delivered smoking cessation intervention reduce smoking in hospital patients with cardiac disease? Based on 5 principles of smoking cessation (SC):	**Population** 102 **p**atients with cardiac disease who were self reported smokers, 19 years of age or older (mean age 59 years), majority married men with less than high school education, average low family income, mean years of smoking 35.2 (sd 13.2) 84% completed follow-up PC - No **Setting** Hospital 2 cardiac units **Country** Canada	**Intervention Unit** Focused on problem solving and reinforcing self efficacy. Included videos, written questions & answers discussed with nurse, development of smoking cessation plan + booklet. **Control Unit** occasional advice from physicians and nurses with no organised counselling **Provider** Clinical nurse specialist in cardiac unit **Duration & Intensity** 2 contacts in hospital, + 6 telephone contacts during first 3 months post discharge.	Baseline and 6 months f.u. questionnaires Control grp were 3 times more likely to relapse and begin smoking than those in the intervention group. No differences in self efficacy scores, although self efficacy related to positive/social situations and habit/addictive situations were significantly higher in intervention group. Smoking status 0: I 46% Non smokers C 30.8% non smokers (Intention to treat) p=0.23 (judged by authors to be of clinical significance) Smoking resumption Multivariate analysis: Control OR 3.18 (1.15,8.77) compared with intervention Self efficacy scores, based on validated Overall no difference between groups Smoking Abstinence Self Efficacy scale (SASE) Differences for subscale scores using multiple regression showed that the intervention positively affected positive/social and habit/addictive scores		3 Principles used in intervention suggests theory based Weak design
Jolly 1999 Goes with Wright 1999	Cluster RCT (by general practice)	To assess the effectiveness of a programme to coordinate and support follow up care in general practice after a hospital diagnosis of myocardial infarction or angina.	**Population** 597 adults (422 with MI, 175 with new diagnosis of angina) admitted to hospital or attended chest pain clinic. 10% lost to follow up Power of study treasonably high for continuous variables less so for dichotomous outcomes.	**Intervention** Liaison nurses coordinated and supported follow up care. Included contact with practice nurse before pts discharged and advice, education & training to practice staff. Pt given hand held record and evidence based guidance on clinical management given to practice staff. **Control** TAU **Provider**	12 months Total cholesterol 0: MD -0.14 (-0.33, 0.06) 0: MD -2.2 (-5.9, 1.5) Diastolic BP 0: MD -1.3 (-3.6, 0.9) Distance walked in 6 mins (m) 0: MD 11 (-13, 34) Proportion who stopped smoking 0: MD -1% (-13%, 11%) Body mass index 0: MD -0.3 (-0.6, 0.0)		1

			Setting 67 practices in Southampton and south west Hampshire, England. **Country** UK	Specialist cardiac liaison nurses **Duration & Intensity** Regular phone contact + nurse visited each practice every 3-6 mths.	Prescribed drugs 0: Anxiety % depression (HAD) 0: anxiety MD 0.5 (-0.3, 1.3); depression MD 0.4 (-0.3, 1.0) Quality of life (EuroQol) 0: -1.5 (-5.1, 2.1)	
Koelling 2005	RCT	Does a discharge education programme improve clinical outcomes in patients with chronic heart failure? Aim was to isolate the effect of education from other aspects of post discharge management programmes.	**Population** 223 pts with heart failure and left ventricular systolic dysfunction (mean age 65). 100% follow up **Setting** University hospital **Country** USA	**Intervention** Education + standard discharge. Included information about condition & medication; advice on diet, weight management, smoking cessation, alcohol and drug use. **Control** Standard discharge process which may have included some education **Provider** Nurse educator (details not reported). **Duration & intensity** 1 hour, one to one teaching session.	180 days post discharge Heart failure hospitalisation + RR 0.65 (0.45, 0.93) Cardiac hospitalisation + RR 0.59 (0.38, 0.91) Death 0: RR 0.94 (0.34, 2.6) Cost + Costs of care, including the cost of the intervention, were lower in patients receiving I than in C by $2823 per patient (p=0.035). This takes into account cost of hospital readmissions for both groups. Authors conclude 1 hour nurse education session improved clinical outcomes and reduced cost of care.	3
Lloyd-Williams (grey literature – University of Liverpool website accessed 2006)	Cluster RCT & semi-structured interviews to assess nurses and pts opinions.	Does a general practice based nurse intervention improve the diagnosis and management of heart failure patients in the community in a cost effective manner?	Sample size 8 General Practices I = 4 practices, 115 pts C = 4 practices, 120 pts PC - No **Population** Pts with heart failure (mean age 73.7, 60.4% male, mean Jarman score 8.4).	**Intervention** Heart failure guidelines developed and disseminated in all practices. Practice nurses provided heart failure clinics **Control** TAU **Provider** Practice nurses who had received some training.	12 months Echocardiography utilisation +: 81.5% vs 7.7% (diff 74% 95% CI 44-100%, p=0.018) Hospital admission 0: p = 0.31 Appropriate dose of ACE inhibitor 0: diff 18%, p=0.093 Beliefs about service Nurses felt self-care advice had empowered pts to manage their conditions. However, some pts had problems adhering to or remembering	2 Limited details of study only.

			Setting General Practice **Country** UK	**Duration & Intensity** Not specified	advice given.	
Mejhert 2004 (RCT) Karlsson 2005 (Survey)	RCT & survey	What are the effects of a nurse monitored outpatient management programme for elderly patients with heart failure?	**Population** 208 pts aged 60+ with heart failure and left ventricular systolic dysfunction (mean age 75.8, 58% male). Excluded if acute MI or unstable angina in previous 3 months. PC – Yes for QoL **Setting** Hospital outpatient clinic **Country** Sweden	**Intervention** Nurse monitored management programme. Nurse checks BP, heart rate, weight etc; regularly monitors and makes changes to medication; gives advice and education. **Control** Usual follow up – usually in primary care. **Provider** Nurses (experience/ training not specified) **Duration & Intensity** Mean of 2.2 visits per pt	18 months Quality of life (Nottingham health profile) 0: mean (SD) I = 134 (11) vs. C = 130 (125) Mortality 0: I = 40/103, C = 34/105 Readmissions 0: I = 69, P = 69 Medication Pts in intervention group achieved higher doses of ACE inhibitors. Pt self care knowledge (questionnaire designed for study) 0: Mean score at 6 months 13.2 (3.4) vs 12.7 (3.3)	3
Morgan 2002	RCT	To compare the uptake & effectiveness of 2 methods of screening for atrial fibrillation (AF) in general practice- systematic nurse led screening and prompted opportunistic case finding.	Sample size 3001 total (1499 systematic screening 1502 opportunistic screening) AF identified in 67 patients in systematic screening and 19 in opportunistic screening. PC – Yes **Population** Patients aged 65 to 100	**Intervention** Nurse-led screening to examine radial pulse to determine its regularity. SS Opportunistic screening OS: Patient record flagged and any assessment of pulse during routine care was recorded. **Provider** Nurse with 2 hrs training in clinical assessment of pulse rhythm. **Duration and intensity** 6 mths.	6 months Uptake and yield of screening. Pulse assessment findings. +: 73% of patients had their pulse assessed through SS, 29% through OS, difference 44% (CI 41% to 47%). AF detected in 67 (4.5%) and 19 (1.3%) patients resp. (difference 3.2%, CI 2.0 to 4.4). Invitation to nurse led screening achieved sig higher assessment rates than case finding in all practices; however the proportion of patients assessed in the OS arm varied markedly between practices (range 85 to 52%). The number needed to screen to identify 1 additional patient with AF was 31 (CI 23 to 50).	1

			Setting 4 general practices within MRC general practice framework. **Country** England	Patients records reviewed for those with AF-20mins each record	Among SS, nurses achieved high sensitivity (91%) but modest specificity (74%) using the threshold 'any irregularity' for defining a pulse as abnormal when compared with ECG recording. High specificity (98%) but low sensitivity (54%) was achieved using the threshold 'continuously irregular'		
Murchie 2003 Murchie 2004 Raftery 2006 (cost effectiveness analysis) These papers are follow up of an earlier study (Campbell 1998 which was excluded from review as is included in SR)	RCT	What are the effects of nurse-led clinics for the secondary prevention of coronary heart disease in primary care?	**Population** 1343 pts with coronary heart disease (mean age at follow up 65.5). Excluded if had terminal illness, dementia, or were housebound. Follow up 228 died. Of the rest 1099 followed up PC – Yes **Setting** General practice **Country** Scotland, UK	**Intervention** Secondary prevention clinics. Included: review of symptoms & treatment, promotion of use of aspirin, assessment of lifestyle factors & if appropriate behavioural change negotiation. **Control** TAU from GP **Provider** Nurses (details not specified) **Duration & Intensity** Not specified	1 year Appropriate aspirin management +: OR 3.22 (2.15, 4.80) BP management +: OR 5.32 (3.01, 9.41) Lipid management +: OR 3.19 (2.39, 4.26) Moderate exercise +: OR 1.67 (1.23, 2.26) Low fat diet + OR 1.47 (1.10, 1.96) Non smoking 0: OR 0.78 (0.47, 1.28) Anxiety 0: OR 1.30 (0.86, 1.98) Depression 0: OR 1.52 (0.83, 2.79) SF-36 + in five out of eight domains	4 years Mortality + RR 0.78 (0.61, 0.99) Coronary events 0: RR 0.76 (0.58, 1.00) Appropriate aspirin management 0: OR 1.02 (0.71, 1.47) BP management 0: OR 1.48 (0.91, 2.42) Lipid management 0: OR 1.22 (0.93, 1.58) Moderate exercise 0: OR 1.26 (0.88, 1.81) Low fat diet 0: OR 0.74 (0.53, 1.02) Non smoking 0: OR 0.73 (0.40, 1.34) Anxiety 0: OR 1.49 (0.95, 2.32) Depression 0: OR 0.74 (0.96, 1.01) SF-36 0: intervention grp scored higher but not significant.	1 By 4 yr follow up many of control pts had also attended clinics. Some of the differences seen at 1 yr had disappeared by 4 yr f.u.

						Cost (from Raftery 2006 paper) Overall authors say intervention seems to be cost-effective	
Quist-Paulsen 2003	RCT	Does a nurse-led smoking cessation intervention reduce smoking cessation rates after admission for coronary heart disease?	**Population** 240 Smokers aged under 76 years (mean age 57 years) I 118 C 122 admitted for myocardial infarction, unstable angina, or cardiac bypass, 76% men, 50% employed, 33% no education after primary school, approx average 38 years of smoking Lost to follow-up 9% I 15.2% C 3.3% PC = yes **Setting** Hospital **Country** Norway	**Intervention** Booklet emphasising health benefits of quitting smoking after a coronary event. Focusing on fear arousal and relapse prevention. Continuing advice and support. **Control** Group sessions 2 x week with Video + booklet with info about CHD and advice on quitting smoking. Pts in both groups received doctor's usual message of quitting smoking **Provider** Cardiac nurse **Duration & Intensity** Nurse consulted pt 1-2 times during stay. F.U. 2 days, 1 & 3 weeks, 3 & 5 months after discharge. Special needs telephoned monthly thereafter. Mean time given 147 minutes (SD 50), mean consultation 1.6 inpatients 1.6 outpatients, Mean 8.5 telephone calls	12 months Smoking cessation rates by self report and biochemical verification +: Significant reduction in smoking rates at 12 months, although no difference at 6 weeks. Further intervention had little impact on those who smoked during their stay or at 6 weeks follow-up Quit smoking: + I 57%, C 37% Absolute risk reduction 20% (6%,33%) Assuming all dropouts relapsed: I 50%, C 37% Absolute risk reduction 13% (0%,26%)		2 European country using cardiac nurses without specialist training for smoking cessation, which could be adapted in the UK, for people admitted for CHD; study had low drop out rate and included most smokers regardless of previous CHD
Thompson 2005	Cluster RCT	Does a nurse led clinic and home-based intervention (C+HBI), relative to	**Population** 106 Patients 58 I 48 C satisfied these	**Intervention** Included: Home & clinic F.U. with clinical assessment and education on condition,	6 months Death 0: C =7 (15%) vs. I = 5 (9%) (p=NS).		1

		usual post-discharge care, have an effect on survival and recurrent hospital stay in patients with chronic heart failure CHF discharged from acute hospital care?	conditions: acute admission to hospital with diagnosis of CHF, objective evidence of impaired left ventricular systolic function, discharged to home. Follow up numbers differ according to the questionnaires answered. PC = yes **Setting** 2 hospitals **Country** Yorkshire, UK	symptom recognition & management, & lifestyle issues. **Control** TAU **Provider** Specialist nurse experienced in management of HF with postgrad qualifications. **Duration & intensity** Visit prior to discharge+ home visit within 10 days of discharge. Contact telephone number for queries. Monthly nurse led outpatient heart failure clinic for at least 6 mths post discharge.	Unplanned readmission +: More C patients had an unplanned readmission for any cause (44% vs. 22%; p=0.019, OR 1.95, 95%CI 1.10-3.48) Days of recurrent hospital stay +: (108 vs. 459 days; p<0.01). Uptake of Beta blocker therapy +: (56% vs. 18%; p<0.001)	

Cardiovascular disease: Uncontrolled Evaluation Studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4
Anderson 2005	Prospective observational study	What is the impact of nurse-based heart failure clinic on drug utilisation and admissions for congestive heart failure (CHF)?	Sample size 138 patients enrolled in heart failure clinic **Population** Outpatients referred to heart failure clinic, mean age 68.5 years (49.5-83.5), 28% females 72% with ischaemic heart disease, **Setting** Community hospital **Country** Denmark	**Intervention** Independent pt consultations based on manual specifying treatment regimens for HF outpts. Nurses licensed to titrate medications & adjust doses according to guidelines. Individualised education programme. Upon completion clinically stable pts discharged for further follow-up by GP **Provider** Nurses with special training in HF management **Duration & Intensity** Average visits 51 per month. Per pt range 1-29; 52% were seen 3-10 times, 30% seen <= 3 times	3 months follow-up data for patients followed in the clinic for 20 months Nurse based heart failure clinic may promote use of evidence-based drug therapy and reduce admissions in community hospitals Drug use: ACE Inhibitors /Angiotensin receptor blockers (ARB) relative to target dose +: Baseline 50% (5-100%); (mean, SD 53%, 36%), 3 months 100% (25%-100%); (mean, SD 77%, 30%), p<0.001 94% of patients taking ACE inhibitor Betablockers +: Baseline 25% (0-100%); (mean, SD 34%, 30%), 3 months 50% (13%-100%) (mean, SD 53%, 31%), p<0.001 91% taking beta blockers CHF admissions Decreased by 45% (maintained in following 2 years) No of days in hospital for CHF Decreased by 58% (maintained in following 2 years) Satisfaction questionnaire survey GPs 87% of participating GPs (23/38) were satisfied with communication regarding individual patient, 83% generally satisfied with overall service	3, Characteristics of rural versus urban clinics may differ

					Patients Mean overall satisfaction with clinic was 85% (scale 0-100%)	
Delaronde 2002	Uncontrolled (one group) before and after study	Does nurse-facilitated telemonitoring improve outcomes in people with congestive heart failure (CHF)?	**Population** 110 Patients with CHF, mean age 72 years, 44% >=75 years, age range 42-99, 75% were Medicare beneficiaries Lost to follow up not clear **Setting** Patient's home by telephone **Country** USA	**Intervention** Heart care programme providing nurse facilitated telephonic case management (CM). Provided education to promote behaviour change in persons with CHF. **Provider** Staff nurses (nurse case manager) **Duration & Intensity** Involved telephone assessments and ongoing telemonitoring. Weekly CM calls for 12 months for those considered to benefit. Those with uncontrolled symptoms requested to notify physician of need for further evaluation.	Six months (pre and post) significant reductions in hospitalisations, length of stay and ED visits. Mean Hospitalisation rate per member (CHF related diagnosis) +: Pre 0.85; Post 0.20 76% reduction, p<0.001 % Pre 70%; Post 17% Mean Hospitalisation rate per member (any diagnosis) +: Pre 1.47; Post 0.62 58% reduction, p<0.001 % Pre 94% ; Post 46% Length of stay (CHF related admissions) +: Pre 4.6 days; Post 0.9 days 80% reduction, p<0.001 Length of stay (any diagnosis) +: Pre 8.6 days; Post 3.5 days 59% reduction, p<0.001 ED visits per member (CHD related) +/0 (borderline) Pre 0.10; Post 0.03 70% reduction, p=0.052 ED visits per member (any diagnosis) +: Pre 0.42; Post 0.24 43% reduction, p=0.018 % Pre 30% ; Post 15% All above non significant reductions for gender and all age groups	4 Applicable only to members of the managed care population
Scalvini 2004	Uncontrolled before and after study	Is a nurse-led home based telecardiology programme feasible for patients with	**Population** 74 patients with CHF, mean age 59 years (sd 9), 84%	**Intervention** **Scheduled appointments (telemonitoring)**	4 month study period. Mean follow-up 307 days (SD 108). Follow-up of CHF patients using nurse-led	3 Differences in practices

		chronic heart failure (CHF)?	men 74.3% completed follow up **Setting** Home **Country** Italy	Portable ECG monitor that transmitted results by telephone. Nurse available for reporting and teleconsultation. 1 x week for patients with severe CHF or 1 x fortnight for moderate CHF. **Ad hoc appointments (Tele-assistance)** Patients called the nurse for a particular concern. Same procedure was given with more attention on the patient's symptoms. At the end of consultation, the nurse could: make new scheduled appointment when patient was stable, implement therapy (preplanned with GP/cardiologist), contact GP/cardiologist if unstable. Weekly review between nurse and cardiologist, and further management decided by GP or cardiologist. **Provider** Nurses educated and trained in CHF **Duration & Intensity** 24 hour nurse cover was provided, Mean duration of calls 3.4 minutes (sd 1.2) = 80 minutes/patient/year	tele-cardiology seems to be feasible and useful **Teleconsultations** 1467 calls made, 97.5% of patients' problems during tele-monitoring and tele-assistance solved by nurses 124 cardiovascular events recorded, therapy modifications suggested after 119 calls, hospital admissions for 13 patients, further investigations for 7 patients, consultation with GP for 13. No action taken after 1330 calls **Titration of beta blocker dosage** 63 patients received carvedilol at baseline, following tele-consultation it was unaltered for 13 patients, and altered for 50. During these ECG recorded with abnormalities detected in 68% cases **Clinical endpoints** Mean distance walked in metres (6 min walking test) +: Pre: 418 m (sd104) Post 448 m (sd95) p<0.05 Questionnaire mean score (Improvement) +: Pre: 28 (sd19) Post 25 (16) p<0.05 Hospitalisations per patient (reduced) Total 16 (13 patients, 18% at least one readmission) + Previous year 1.8, During follow-up 0.2 P<0.0001	Feasibility study needs to be tested in controlled intervention.
Smith 2001	Uncontrolled before/after study.	Is a nurse specialist effective in managing patients with heart failure in the community?	**Population** 61 Patients with severe heart failure. 28 died within study period. **Setting**	**Intervention** Pts monitored at home- clinical signs assessed, weight taken and appropriate blood samples drawn. Medicines reviewed. Contact phone number left with patient	Total re-admissions were reduced from 605 to 270 days, and outpatient clinic attendances fell from 168 to 60. Among those who died the rates corrected for survival period were not changed for re-admission but reduced from a mean of 6.6 to 2.3 attendances per patient.	3

			Integrated community and acute trust in West Lothian **Country** Scotland, UK	**Control** n/a **Provider** Nurse specialist **Duration & intensity** Return visits varied from 1 week to 3 months.		
Topp 1998	Retrospective design	What is the effect of case management by a clinical case manager/clinical nurse (CCM/CN) on length of stay and hospital charge throughout a 12 month period?	**Population** Hospitalised patients with CHF, discharged alive during 1997. Sample size 491 of which 71 CM with cardiology involvement, 17 CM without cardiac involvement 246 no CM with cardiology involvement, 157 no CM and no cardiac involvement. **Setting** 700 bed urban acute care facility **Country** USA	**Intervention** Case management by the CCM/NS was individualised to each patient. List of interventions on page 142. **Control** usual care by various members of the health care team. **Provider** clinical case manager/clinical nurse (CCM/CN) **Duration & intensity** 12 months. Intensity not given.	The group who were case managed by the CCM/CNS demonstrated significantly shorter length of stay , mean 4.6 days vs. mean 6.29 days, (t=5.4, p<0.00) and lower hospital charges mean $8512 vs. mean $11213, (t=4.26, p<0.00) than the patients with CHF who were not case managed. There was significant interaction between case management and involvement of a cardiologist in the care of the patient. Patients whose care involved a cardiologist without case management by a CCM/CNS demonstrated significantly greater (α=0.01) length of stay and hospital charges than patients who were case managed by a CCM/CNS or patients whose care did not involve a cardiologist.	3
Warrington 2003	Uncontrolled before and after (quasi experimental) design	Does a home-based cardiac rehabilitation programme improve health outcomes and rehabilitation access for special needs patients?	**Population** 78 hospital patients admitted with a cardiac event, minimum age 55 years, 89% aged >65 years, 32% between 81-95 years, 51% females,64% no formal qualifications	**Intervention** Home based cardiac rehab. Included: pt education & carer support with information on recognition of coronary risk factors; motivational factors; information on diet, medications, exercise, risk factors and explanation of the cardiac event.. Telephone contacts provided support &	9 weeks Evaluation questionnaires given by interview (SF-36, Angina Quiz, Exercise assessment) Significant positive changes for quality of life, knowledge of angina and exercise tolerance. Higher levels of participation and completion by older women. Development of carer competence through improved knowledge and nursing support.	3,

			Complete data for 50% **Setting** Home **Country** Australia	encouragement to continue. **Provider** Community nurses **Duration & Intensity** 4 contacts over 9 week period. Initial home visit 90 mins, 2 x 30-40 min follow-up phone contact 2 weeks apart, final home visit 60 min	Angina quiz scores Participants reported higher levels of knowledge about angina, location of angina, action to treat, seeking help post rehabilitation Exercise assessment scores Participants reported higher levels of planned exercise, longer time periods of planned exercise and higher pace of exercise post rehabilitation	

Surveys

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Staples 2004	Survey. Pilot study. Questionnaire with Convenience sample.	1. What is the role & scope of practice of nurses working in HF clinics in Canada? 2. What education & experience do nurses practicing in Canadian HF clinics have? 3. What relationships exist between role and scope of practice and the education of nurses practicing in HF clinics in Canada have? 4. What relationships exist between role and scope of practice and the experience of nurses practicing in HF clinics in Canada?	Sample size 48 questionnaires sent of which 22 sent to CCHFCN nurses, 26 sent to HF nurses not affiliated to CCHFCN. 5 were returned to sender, 11 were not involved in HF clinics, 2 filled in 1 questionnaire because roles identical. So a total of 31 questionnaires reached HF clinic nurses and 27 were completed 87% response. **Population** Nurses in Heart Failure clinics. **Setting** The second annual Ontario Heart Function Clinic Nurses' meeting and a list of nurses affiliated with The Canadian Congestive Heart Failure Clinics Network CCHFCN. **Country** Canada	n/a	Role & scope of practice. Experience. Practice setting & practice guidelines. Most nurses routinely provided the education & counselling outlined in clinical guidelines (except for counselling patients about developing advanced directives). Majority of nurses reported having a role in managing HF patients in consultation with a physician. 93% completed physical assessments, 93% ordered lab tests, 85% provided telephone management of patients' symptoms, 93% made referrals to allied health professionals, 78% titrated medications. Only 10 (37%) could titrate medications independently and 7 (26%) reported being able to independently order diagnostic tests such as echocardiograms. Nurses educated to masters level were more likely to independently order echocardiograms and titrate medicines. (Statistically sig but small numbers of nurses). Nurses in CCHFCN-affiliated clinics were more likely to counsel patients on stress management, order lab tests and echocardiograms, titrate medications, and provide telephone management.	3
Stromberg 2001	Descriptive survey	To describe the nurse-led heart failure care in Sweden.	Sample size 86 hospitals and 148 heart failure nurses. **Population** Heart failure nurses. **Setting** 11 university hospitals,	n/a	In 69% of hospitals there were nurses specially trained to take care of heart failure patients. Majority had 5 years or more experience of cardiac care. They had received additional education in cardiac care, either in-service or through university courses. In 87% of hospitals the heart failure patients were given both oral and written information.	3

			24 county hospitals, 51 district county hospitals. **Country** Sweden		In 59% of hospitals the family was informed as well. 66% of the hospitals had nurse-led heart failure clinics. The clinics provided follow up after hospitalisation, patient education, telephone counselling and drug titration. In 40 of the 57 clinics the heart failure nurses had been delegated the responsibility for making protocol-led changes in medications. Most clinics registered the number of annual visits to the clinic, and the largest clinic had up to 1000 visits. Approx. half of the hospitals had a special care plan for patients with heart failure and an organised co-operation with primary healthcare.	
Wright 1999 (Journal of Clinical Nursing) Goes with Jolly 1999 (see above)	Survey	Investigation of the success of the Southampton Heart Integrated Care Project (SHIP) from the perspective of the practice nurse	Sample size 43 out of 47 practice nurses returned questionnaire (92%) **Population** Practice nurses **Setting** General practice **Country** UK	See Jolly 1999	6 months Questionnaire aimed to determine nurses assessments of whether intervention had improved communication between primary and secondary care & if had enabled them to expand their role successfully. Over 75% felt intervention had improved communication between secondary and primary care. 88% reported timely notification of discharge and 90% better understanding of current and planned care. Support valued most by PNs was from GPs but also valued support from liaison nurse.	

Cardiovascular disease: Qualitative studies

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and analysis	Main Findings	Application to UK
Davidson 2005	To document the activities of home-based heart failure nurse specialists	Modified narrative analysis of clinical notes of home-based heart failure nurse specialists during 12 months. Selective purposive sampling	**Study population:** 255 heart failure patients – veterans & veterans widows or widowers. Median age 81 (31-100 yrs) 46% were female	1st: Selective purposive sampling 2nd: Content analysis 3rd: Comparative analysis authenticated by	7 main activities of home-based heart failure nurse specialists: 1) Monitoring signs & symptoms & reinf. Self-mgmt 2) Organization & liaison with other HP 3) Clarifying & reinf self-care strategies 4) Assisting with avoiding institutionalised care 5) Dealing with patients' psycho-social issues 6) Providing support to family members too 7) Helping patients & family deal with death & dying	3

			English was NOT 1st lang for 25% of patients **Setting:** Community hospital **Country:** Australia	nurse-specialists Analysis Manual	Large proportion of the home-based heart failure nurse specialists' activity is facilitating communication between health professionals & providing info & support to the patients and their families.	
Lloyd-Williams 2005 (goes with Lloyd-Williams RCT – see above)	What are nurses and patients views and experiences of nurse-led heart failure clinics?	Semi structured interviews with all nurses providing clinics and a purposive sample of patients attending clinics. Interviews about 45 mins each.	**Population** 4 nurses who had delivered heart failure clinics. Purposive sample of 15 pts with CHF (13 men, mean age 74) Setting **Country** North West England, UK	Not stated. Analysis Interviews taped and transcribed. Constant comparative approach used – identified key issues, concepts and themes. Independent analysis of cross section of transcripts & level of agreement assessed.	4 main issues emerged: 1. Communication: nurses felt time for discussion & information provision 2. Pts knowledge and understanding of investigations: many pts appeared to be confused about investigations – needed more accessible information 3. Provision and interpretation of advice about self care: Nurses felt info provided at clinic helped pt to manage condition better & empowered them. Pts often agreed but also found lifestyle advice difficult to remember or adhere to. 4. Pts knowledge and understanding of prescribed medication: nurses felt they had time to explain about medications so pts understood as they may not have previously. Pts appeared to have a good understanding about their medication after the clinics.	2
Murchie 2005	What are the barriers & facilitators to establishing secondary prevention clinics for coronary heart disease within primary care?	36 Semi-structured telephone interviews with 19 GPs & 17 Practice based nurses involved in running nurse-led clinics for the secondary prevention of CHD.	**Population:** 19 GPs (males), 17 practice-based nurses (females) **Setting:** Secondary prevention clinics **Country:** Scotland	1st: Systematic analysis 2nd: Thematic analysis 3rd: Inter-rater reliability explored. Manual analysis	Barriers which had stopped clinics from running included: - lack of space - staff shortages - duplication of services Barriers to effectiveness: - lack of structured training for skills devp. - Nurses feeling isolated & unsupported - Poor/lack of communication with GP Facilitators: - clinics had improved practice systems - enhanced communication with GP - perception of improved patient care	2 * Research in Scotland thus applicability may be reduced * Did not explore patients' views * Both researchers involved were GPs

Tracey (2003)	What is the perceived effectiveness and acceptability of a disease management programme for patients with congestive heart failure (CHF) in South Auckland?	1st stage: *Focus Groups* with patients, practice nurses (PNs) and GPs *to help develop the questionnaire*. 2nd stage: *Questionnaires* posted to 150 patients, 14 GPs and 6 PNs.	**Study pop:** **GP** – Half of GPs already involved in chronic disease management for COPD patients. 11/14 GP s responded. **PNs** – All 6 PN responded. **Patients** – 111 patients completed quest. 49% male. 73% NZ European, 9% Maori, 14% Pacific peoples. Quest. Posted by GPs. **Country:** New Zealand	Not reported (except that, focus groups were used to inform questionnaire) Analysis Not reported	The new disease management programme perceived to make a difference to patient self care and health status: 1) Understood CHF better 2) Moderate lifestyle changes 3) Better understanding of medication 94% of patients indicated their patient-held care plans as helpful/very helpful. Continuity of care by using existing practice staff rather than project staff externally. Disease mgmnt difficulties for GPs & PNs was time pressure. Sufficient payment of PNs an issue.	3 This article was concerned with the evaluation of a disease mgmt programme
Wiles (1997)	Views of patients with established heart disease of a structured programme of follow-up care provided by PNs.	22 semi-structured patient interviews. Maximum variety sampling was used. 2 interviews: 1) shortly after discharge 2) 3 months later	**Study pop:** Patients who received an integrated primary & secondary care intervention after an MI or diagnosis of angina. 14 males, 8 females. Aged 34-79. 20 of patients had experienced an MI. 2 with angina. **Country:** England	Grounded theory approach	*Most important feature* of follow- up care was accessibility with a HP who possessed knowledge and social & emotional skills. Patients would prefer follow-up care from 'experts' (GP, hosp. Drs, consultants or cardiac nurses when they doubted the PN knowledge in specific area e.g.-pain). Social and emotional skills of PN valued very highly (more time with PN & better communication) in comparison to the 'experts' (except for the cardiac nurses who were also viewed to possess the above skills).	2 This article suggests what is needed in establishing an effective PN-led service
Wright et al (2001)	To explore the content of patients' initial assessment with PN in coronary prevention clinics & the outcomes and acceptability of nurse-led care in general practice	Theoretical sampling and quotas to select patient sample.	**Study population:** 6 PN aged 38-61 Practising for 6months to 18 yrs. 22 patients, from a range of SES groups, but no ethnic minorities. Aged 55-76.	Thematic Analysis of: - the patient's initial assessment with PN, - interviews conducted after assessment & - group interview	Patient's appreciated more time, informality and greater support from PN than GP. Patients' felt PN had adequate knowledge of condition but diagnosis/prescribing should result in GP/consultant referral. PN data revealed they were less confident in medication issues (apart from the usual aspirin & nitrates) and explanation of condition. Would like more education on those issues.	2

	from PNs' and patients' perspectives		**Setting:** Nurse led clinic **Country:** UK	with the PNs.	PN acts as a patient advocate to GP (e.g – if patient not sure if problem is serious). PN viewed exploring patients' understanding of condition and their concerns as less important than the normal assessment which may hinder the adherence to 2ndary prevention advice.	

Evidence tables - Chronic Pain

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Glasgow 2002	Pilot uncontrolled before/after study	How effective is a nurse-led chronic pain management clinic in primary care?	**Population** Patients: taking analgesics on a long term basis, over 60 on any NSAID, recommended by their GP. **Setting** Inner city clinic and suburban clinic **Country** N. Ireland Sample size. 227 attended over 2 years. Of these 10 were excluded because unable to be assessed using pain questionnaire.	**Intervention** Assessment of: pain; current analgesic medication; effects of pain on the patient's lifestyle, fatigue and activities of daily living. Used pain diary; structured plan drawn up for each pt giving daily goals and agreed activities. **Provider** Nurse **Duration & intensity** 35 minute appointment followed by another 4 weeks later and third 8-12 weeks later. Follow-up appointments arranged by letter or telephone. Pts could self refer to clinic at any time	Levels of pain reduction. Of 217 patients included in the study, 56 were initially taking an NSAID. Of these 30 (54%) were deemed at risk of gastropathy. Their medication was modified accordingly. Pain scores: + The 113 patients who attended on more than one occasion had reduction in pain scores after medication needs had been reviewed. (39% reduction, p<0.0001) Mean pain scores in patients who had their treatment altered reduced from (45% reduction, p<0.0001). Mean pain scores in patients who did not require a change in medication reduced (33% reduction, p<0.0001). The clinic process did not result in an increase in total drug cost.	3

Evidence Tables – COPD/respiratory disease

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Ram 2004	SR with meta-analysis	Aim was to evaluate the efficacy of hospital at home schemes compared with inpatient care in pts with acute exacerbations of COPD	**Population** Pts presenting to ED with acute exacerbation of COPD randomised to either hospital at home or inpatient care within 72 hrs. **Setting** Community **Country** Not reported. Sample size. 7 RCTs with 754 participants.	**Intervention** Hospital at home under care of a specialist respiratory nurse with guidance from hospital medical team. **Control** Usual in-patient care **Provider** Specialist respiratory nurses (training not specified in review) **Duration & Intensity** Not clear although most appeared to be fairly short term (e.g. less than a month)	Readmission to hospital (7 trials) 0: RR 0.89 (0.72, 1.12) Mortality (6 trials) 0: RR 0.61 (0.36, 1.05) Cost (4 trials)+ Review suggests pts can be safely treated at home. However, many pts not suitable for hospital at home.	2
Smith 2001	SR with some meta-analysis (for mortality data)	Aim was to evaluate the effectiveness of outreach respiratory health care worker programmes for patients with COPD	**Population** Pts with COPD **Setting** Home **Country** Not reported. Sample size. 4 RCTs with 624 participants.	**Intervention** Home visits by a respiratory health care worker to facilitate health care, provide education & social support, identify respiratory deterioration, and reinforce correct techniques with inhaler therapy. **Control** Routine care without respiratory worker input **Provider** 3 studies say intervention provided by nurse and one a respiratory health worker. Details of nurse training or level of experience not given.	Lung function & exercise testing (1 study) 0: no significant difference Health related QoL (SIP) (2 studies) One study found a significant improvement in QoL in intervention grp pre to post (no data on comparison with control) and one found no significant difference. Mortality (4 studies) 0: Pooled OR 0.77 (0.46, 1.29) Authors say no data on carer satisfaction or QoL or hospital admissions. Authors conclude pts with moderate COPD may benefit from a	2

				Duration & Intensity Not completely clear but appears most studies included monthly visits over 7-12 month period.	nursing outreach programme but pts with severe COPD do not appear to benefit.	
Taylor 2005	SR of RCTs with meta-analysis	Aim was to determine the effectiveness of nurse-led management of COPD	**Population** People with COPD. Excluded acute exacerbations. **Setting** Community **Country** 2 UK, 3 Australia, 1 USA, 1 Spain, I Canada, 1 Netherlands. Sample size 9 RCTs (662 participants)	**Intervention** Studies which evaluated clinical services or packages of care aimed at improving the management of COPD pts. Most identified studies evaluated some form of case management. Most included home visits and promotion of self care or self management was a major component (e.g advice about medication, smoking cessation, fitness and early identification of acute exacerbations). **Provider** Interventions had to be nurse led, nurse coordinated or largely delivered by nurses	Mortality 0: longer term studies 9-12 months follow up OR 0.85 (0.58, 1.26) Hospital readmissions Results were mixed: 2 studies found significant difference, 3 no difference. Days in hospital Authors say evidence equivocal GP visits Authors say evidence equivocal Health related QoL 0: Cohens D standardised difference 0.06 Authors conclude little evidence to support widespread implementation but not enough data to exclude clinically relevant benefit or harm.	2

RCTs

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK populations and settings Score 1-4
Coultas 2005	RCT	Does increasing access to selected components of pulmonary rehabilitation, by providing nurse-assisted home care, improve patient self-	**Population** 217 patients 45 and over with COPD related diagnosis, current or former smoker of at least a 20 pack-year, at least 1 respiratory symptom	**Intervention** 1. Nurse assisted medical management (MM). To enhance pt knowledge about COPD & optimal management. 2. Nurse assisted collaborative management	6 months Health outcomes were generic (Medical Outcomes study SF-36, illness intrusiveness) and disease specific (St George's respiratory questionnaire SGRQ) quality of life and self-reported health-care utilisation 0: Neither type of assisted home-care was	3

		management skills, and affect quality of life and health care use?	in last 12mths, + airflow obstruction (mean age 69, 56.9% female, > 80% white). 26.7% lost to follow up. PC - No **Setting** Primary care clinics **Country** USA	(CM). Intended to facilitate adoption of healthy behaviours & self-management skills. Designed to enhance MM intervention. **Control** 2 COPD booklets + told to follow physician recommendations. **Provider** Nurses. MM & CM grps 8 hrs training in MM, CM grp also received 8 hrs training in collaborative care. **Duration & intensity** 1 visit in patient's home then telephone contact at least 1 x month over 6 months.	effective in improving health-related quality of life or health care utilisation beyond the control care.	
Kwok 2004	RCT	Does an intensive community nurse (CN) – supported discharge programme prevent hospital readmissions in older people with chronic lung disease (CLD)?	**Population** 157 hospitalised pts aged 60 and over (mean age 74.7) with a primary diagnosis of chronic lung disease and at least 1 hospital admission in previous 6 mths (89.2% COPD, 9.6% asthma, 1.3% bronchiectasis). PC – Yes 89% lost to follow up. **Setting** Two acute hospitals **Country** Hong Kong. Follow up	I**ntervention** Home visiting programme included: health counselling (e.g. drug compliance, inhaler technique); review of pts condition, psychosocial support, arrange services as required, telephone hotline **Control** Normal care which could include some visits from nurses. **Provider** Community Nurse experienced in care of older people and with some training in CLD. **Duration & Intensity** First visits within 7 days of discharge, then weekly for 4	6 months Unplanned readmissions at 6 mths 0: RR 1.22 (0.98, 1.52) Hospital bed days 0: Mean & SD 20.3 (25.3) vs. 19.2 (25.6) p=0.410 A&E visits 0: p=0.997 Functional & psychosocial status 0: no significant diffs in 6 min walking test or general health questionnaire Caregiver burden (cost of care index – CCI)0: no significant diff in mean changes in CCI scores p=0.794	3

				weeks, then monthly until 6 mths. Also telephone access to CN during normal working hrs.		
Wong 2005	RCT	Does nurse-initiated telephone follow-up improve self-efficacy in patients with chronic obstructive pulmonary disease (COPD)?	**Population** 60 COPD patients, mean age 73.6 years (45-86 range), 78.3% males, 98.3% retired, 33% no education, >68% were not receiving any financial support from Government, 16.7% current smokers, 11.7% had attended a pulmonary rehabilitation programme, 8.3% had attended community nursing services. PC: Yes **Setting** Hospital **Country** China	**Intervention** Structured, individualised educational & telephone follow-up programme. Included assessment, management options (with examples) and evaluation. Self efficacy information included performance accomplishment, verbal persuasion, emotional arousal. Validated protocol for telephone follow-up was used. **Control** Normal routine care without telephone follow-up **Provider** Nurse with 5 years experience in respiratory nursing **Duration & Intensity** 2 telephone contacts on days 3-7 and 14-20 respectively, each call 20 minutes	35 days follow-up Nurse-initiated telephone follow-up was effective in increasing SE in managing dyspnoea. Chinese SE Scale, 1-5, high score=high SE 0: p=0.26 Negative affect (managing during stress) 0 Emotional arousal (managing in anger, fear, distress) 0: p=0.34 Physical exertion (managing with shortness of breath, etc) +: p=0.001 + Total score : p=0.009 Frequency of health care use (3 months) 0: p=0.034	3 external validity uncertain Theory based (Bandura)

Uncontrolled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Gibbons 2001a	Uncontrolled before-after study. Study mainly	Does a pulmonary rehabilitation programme improve the quality of life for	**Population** 101 adults with a diagnosis of COPD with reduced	**Intervention** Nurse-led pulmonary rehabilitation programme. Included exercises &	8 weeks Exercise tolerance Overall improvement in exercise tolerance	3

	descriptive no data reported.	patients with COPD?	pulmonary function. **Setting** District general hospital. **Country** England.	education. **Control** none **Provider** Respiratory nurse specialist & physiotherapist. Also education from multidisciplinary team. **Duration & intensity** 8 weeks with outpt visits twice a week for 2 hrs. Then nurse specialist monitors progress in out-pt clinic.	following programme. Smallest incremental rise was 10 metres and largest 260 metres in shuttle walk test. Breathlessness Patients perceived that their respiratory quality of life had improved as a result of the programme. Quality of life had improved and breathlessness had reduced. No statistical tests or data reported	
Gibbons 2001b	Audit – used concurrent and retrospective data to compare before and after service established.	Does a nurse-led Acute Respiratory assessment service ARAS which provides home care for patients suffering from uncomplicated exacerbation of COPD : reduce hospital admission rates, length of stay & readmission rates, reduce the number of visits to GPs, increase patient education, improve continuity of care and achieve cost effective prescribing?	**Population** 218 pts with COPD referred to team during study period Setting (48% male, average age 70.3, 76% severe disease) **Setting** Community **Country** UK	**Intervention** Homecare package consisting of: High dose inhaled or nebulised therapy, Intermittent oxygen, Antibiotics, Steroids, Information leaflets & contact numbers, Home visits, GP informed. **Control** n/a **Provider** Respiratory nurse specialist, nursing sisters & senior house office. **Duration & intensity** Visits for first 3 days then frequency of visits depended on complexity of patients problems. Review 6 weeks after discharge.	Length of stay Average stay pre ARAS 8 days reduced to 3.8 days post ARAS. Range of bed days used before 3-30 days, post ARAS 0-15 days. Readmission rate reduced from 18% to 16%. 40% of patients transferred home within 48 hours. Cost Retrospective audit indicated savings on nebuliser therapy, antibiotic therapy and other inappropriate prescriptions.	3

Gravil 1998	Cohort study	Can patients with exacerbations of chronic obstructive pulmonary disease (COPD) be treated at home by respiratory nurses?	962 patients referred and assessed, 768 were treated at home, of which 115 required hospital admission during follow-up. 653 (68%) managed entirely at home **Population** Patients with exacerbations of COPD, mean age 65 (range 27-94), most had smoking related COPD, 41% had been admitted in previous year **Setting** Home **Country** Glasgow, UK.	**Intervention** Home treatment service available daily. Doctor gave pts treatment package consisting of bronchodilators, prednisolone, antibiotics; home nebuliser and oxygen concentrator if necessary. Nurse assessed progress clinically; monitored adherence to treatment; offered reassurance, support & education. Nurse liaised with respiratory medical staff to arrange admission, if required. When patient was stable, nurses sent discharge summary to family doctor. **Provider** Respiratory nurse **Duration & Intensity** details not given	2 weeks after home treatment (4-6 weeks after initial presentation), St George's respiratory questionnaire used to assess severity. 653 (68%) patients managed at home. 145 (15%) admitted at assessment of whom 115 (12%) admitted during follow-up Little difference in initial severity of exacerbation between those treated at home and those admitted during follow-up. Patient satisfaction 80% would be happy to be treated at home again, 13.5% would prefer to be admitted to hospital	2, But further evaluation required Service probably depended on nursing support as well as medical treatment Total cost £57, 436
Ward 2005	Audit and patient satisfaction postal questionnaire.	Does a nurse-led respiratory intermediate care team reduce hospital bed days, for pts with COPD, and are patients satisfied with the care they receive?	**Population** Patients with chronic respiratory diseases. Mostly pts with an acute exacerbation but also accept referrals for terminal care symptom control and assessment on chronic disease management. Audit on 502 referrals. Questionnaire sent to 159 people-55% response rate.	**Intervention** Hospital at home type scheme. Includes assessment, care planning, liaison with other HCPs. Patient managed at home supported by home visits & telephone calls from nurse-led team. Liaison with GO for prescriptions for medication. **Provider** Respiratory intermediate care team including respiratory nurse specialist and other respiratory nurses. Nurses can also access physio and OT for pts.	Reason & source of referral. 502 referrals including multiple admissions. 225 referrals were for prevention of admission and 107 were to support a patient on early discharge. 52 readmitted to hospital. Majority of prevention admissions made by patients or GP. Majority of early discharge referrals made by hospital respiratory nurses. Cost savings: RICT saved 1575 bed days via prevention of admission and 214 bed days for early discharge. This equates to a saving on hospital admissions	3

			Setting Oxford city PCT **Country** UK.		of £536,700 in total (based on £300 per bed day). Patient satisfaction Of 159 questionnaires sent out, 88 completed and 87 of those patients found the RICT service valuable. 75 felt that the team had assisted them in improving self management of their condition. Patients referred to prevent hospital admission required an average of 12.2 days support from RICT and received 4 home visits. Patients referred because of early discharge received an average of 13.2 days support with an average of 5 home visits (these patients had more complex conditions).	

Surveys

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up including outcome variable(s)	Applicability to the UK
Ketelaars 1996	Survey	What effects does specialised community nursing care have on the quality of care provided to patients with COPD?	**Population** Patients aged 40-80, with severe COPD, post discharge following in-patient pulmonary rehabilitation. 115 questionnaires sent out and 101 returned. (47 in experimental group, 54 in control group) **Setting** Patient's home. **Country** The Netherlands	**Intervention** 8 specialised nurses delivered aftercare to 47 patients. **Control** 47 general nurses made home visits to 54 patients. **Provider** See above **Duration & intensity** Mostly 1 or 2 home visits.	4 process variables studied: the content of the home visit, the time spent on the home visit, the quality of the report, and the number of home visits. The content of home visit differed between general and specialised community nurses. General nurses were more focussed on analysing care needs and specialised nurses paid more attention to psycho-social problems. Number of home visits and time spent on the care provided did not differ significantly between both groups. The quality of the report of specialised nurses was significantly higher. In summary, specialised community nurses demonstrated a higher clinical competence in the care of patients with COPD.	3

Watson 2003	Uncontrolled evaluation using self completed postal questionnaire & semi-structured telephone interview. No baseline or comparative data. Study based on idea that hospital readmission more closely related to pt's perceived QoL than to physiological measures of disease severity.	Does a holistic nurse-led community outreach service promote QoL and functional independence for people with COPD?	**Population** Patients severely disabled with COPD living on their own or in sheltered homes. 100 assessed. 33 patients on the active caseload. 100 questionnaires sent, response 74.7% 6 patients were interviewed. **Setting** Northumbria Healthcare trust **Country** UK.	**Intervention** Promotion of activity. Promotion of independence. Increase of socialisation. Maintenance of physical health. Carer support. **Provider** Managed by social work team leader and led by hospital respiratory specialist nurse. 6 outreach workers delivered the service. Outreach workers not expected to assess physical condition of pt this was done by RSN. **Duration & intensity** Each outreach worker had an average caseload of 6.5 patients, or an average of 4.5 hours input per patient per week. Intervention could be ongoing and discharge was pt led.	Current level of functioning. Patients had most difficulty shopping, climbing stairs and driving a car according to scores from the Multidimensional Health Assessment questionnaire. Even with low-exertion activities, such as washing, dressing, bending and sleeping an average of 81.5% experienced some difficulty. Rating of the service. 55.7% of patients reported that the service had affected their quality of life' a great deal'. 77.4% indicated that the service had helped them in multiple (>2) ways. No data collected on hospital use.	3 Intervention developed by nurse academics working closely with service providers.

Qualitative

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and analysis	Main Findings	Application to UK
Schofield 2005	1.To survey patients' recent use of and satisfaction with health care services. 2. To survey and compare patients' and families perceived future care preferences.	Mixed method- Postal survey & in-depth qualitative interviews 151 sent questionnaires. 104 replies-response rate 69%.	Population Out-patients registered with Acute respiratory assessment service ARAS and had experienced hospital in-patient care in the last year.	Details not given. Analysis. Interviews taped and transcribed. Transcripts analysed using content analysis and analysis driven by study	Respondents had more positive feelings about home than hospital treatment ($t(92)=2.78$, $p<0.01$). No differences in care treatments (either personal or perceived family) or past care experience were found according to age or gender, length of illness, other illnesses, or perceived need of caregiving. Strong relationship between personal and perceived	1

	3. To complete an in-depth exploration of care experiences and preferences with a subset of survey participants and their families in order to provide explanatory detail for the survey findings.	30 interviews	Setting Large university hospital Country Scotland	objectives. First level coding to explore patterns and identify themes (Miles and Huberman 1994). Independent review by 3 researchers.	care preferences (chi square (1)=35.10, p<0.001: those preferring home ARAS care reported that there families would prefer them to be treated at home rather than in hospital. Preferences also related to previous experience of care (chi square (2)=12.04, p<0.01): those who experienced only home care in previous year more likely to indicate a preference for home care in future. Those reporting that perceived family preference was for home care were more likely to have used only home care in the previous year (chi square (2)=11.02,p<0.01). No diffs were found in feelings about hospital care according to personal or perceived family preferences. Correlation analysis showed that attitudes towards home care were significantly related to emotional function (r(91)=0.33,p<0.01) and coping skills (r(93)=0.28, p<0.01). Attitudes were not related to physical function, or to age or other demographic variables. There was no linear relationship between a clinical measure of severity of lung disease and service use or care preferences.	

Evidence Tables – Dermatology

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Courtenay 2006	Systematic Review. No meta-analysis, narrative	Aim was to identify, summarise and critically appraise the current evidence regarding the impact and effectiveness of	**Population** Dermatology pts **Setting** Mixture of inpatient, outpatient and	**Intervention** Studies evaluating nurse-led care **Provider** Nurses	3 main areas covered by review: Descriptions of activities of nurses Nurses treating number of dermatological conditions, primarily using treatment protocols, across range of clinical settings.	2 Inclusion criteria for review not well described.

	description of findings.	nurse-led care in dermatology	community. **Country** 10 studies done in UK, one in Sweden. Sample size. 14 studies (11 primary research, 3 audits of practice) RCT = 4 Questionnaire =7 Audit =3		Educational needs of nurses in primary care often unmet & they lacked confidence to treat a number of conditions such as scalp scaling in psoriasis and infected eczema. Independent prescribing used in a minority of situations. Evaluation of nursing interventions 2 RCTs looked at education & demonstration. Both showed reduction in severity of eczema & increase in use of emollients. Studies provide some support for nurse education. 3 RCTs & 1 survey looked at effect on QoL. Only marginal improvements seen in 2 studies and the rest found no improvements. Pt evaluation of nurse-led care Evidence from 7 studies found pts are happy with nurse-led services. Appreciate that can see nurse quickly and pts who see a nurse often defer a GP apt.	Lack of data on cost effectiveness and effects of nurse prescribing.

RCTs

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Chinn 2002	RCT	What is the effect of a single consultation with a primary care nurse on the quality of life (QOL) of children with atopic eczema aged 0.5-16 yrs and the impact of the disease on	**Population** 235 pts aged 0.5-16 yrs with diagnosis of atopic eczema PC: Yes but low power for some meaures	**Intervention** Involved demonstration of techniques for applying medication + advice & education. In addition parents provided with leaflets from drug company which were non-product promoting and covered topics in a one-page format. **Control**	12 weeks Quality of life (assessed by CDLQI or IDQOL) 0 CDLQI: MD 0.24 (-1.5, 2.0) p=0.7 IDQOL: MD 1.2 (-0.8, 3.1) p= 0.24	1

		their families?	16% lost to FU **Setting** 2 general practices. **Country** England, UK	No intervention but offered intervention after study completed. **Provider** Trained nurse with ENB certificate in dermatology. **Intensity & Duration** 1 x 30 min session.	Impact on family (FDI) 0 MD 0.34 (-0.8, 1.5) p=0.5	
Gradwell 2002	RCT	What is the impact of providing a nurse follow-up clinic in addition to the normal service provided by the dermatology outpatient dept? Study also aimed to obtain pilot data with which to inform future study design.	**Population** 66 newly referred patients > 14 yrs with diagnosis of eczema or psoriasis. **Setting** Queen's medical centre, Nottingham **Country** England, UK. 85% follow up PC -No	**Intervention** 20 min interview with dermatology nurse in addition to initial consultation with dermatologist. Included practical demonstration of treatment application, details of further support & written instructions. **Control** Normal consultation and follow-up with dermatologist. **Provider** Dermatologist (I&C) and dermatology nurse (I) **Duration and intensity** 1 x 20 minute additional session with nurse	6 week follow up Quality of Life (DLQI) 0: Both groups had similar scores on DLQI at baseline. At follow up had improved by approx 3 points. Between group difference was 0.27 (95% CI -2.3 to 2.8, p=0.83). Patient knowledge + Intervention grp significantly more likely to know how long they should apply treatment (p=0.05), how to obtain a repeat prescription (p=0.01) and from whom they could receive further support (p<0.001). Number of consultations (in secondary and primary care) +: follow up with GP 11% vs. 39% (p=0.01). Following the addition of this service 33% of follow-up appointments with a doctor were cancelled in nurse intervention group. N.B. Despite randomisation, age & disease severity were noticeably different for 2 groups.	1

Evidence Tables - Diabetes

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Loveman 2003	Systematic Review. No meta-analysis – studies reported in narrative format.	Aim was to assess the effects of diabetes specialist nurses/ nurse case managers in diabetes on the metabolic control of diabetic patients.	**Population** Children and adults with type 1 or 2 diabetes. **Setting** Variety of settings including outpatient clinics & primary care. **Country** Not specified. Sample size. 6 studies (5 RCTs, 1 controlled study) including 1382 participants	**Interventions** Specialist nurse intervention vs routine care at individual pt level. In three studies diabetes specialist nurse/ nurse case manager was directly responsible for alteration in treatment regimens, in the others nurse made recommendations only. Four studies involved nurse case management. Interventions also often included telephone follow up or automated telephone calls. **Provider** Specialist nurses	Glycated haemoglobin (HbA1c) 0: 5/6 studies found no significant diff at 12 month follow up (overall improvement in some of the trials but not significant). One study found a significant reduction at 6 months. Episodes of hypoglycaemia and hyperglycaemia +: 1/2 studies found significant differences in hypo and hyperglycaemic episodes ED visits: 0: 2/2 found no significant diffs Hospitalisations: 0: 2/2 found no significant diffs QoL : 0: the one study that assessed QoL found no significant diffs No information found on BMI, mortality, long term diabetic complications, adverse effects or costs. Authors conclude that the effects of diabetes specialist nurses/ case managers is not strong over long period of time.	2 (does not specify which countries studies took place in) Overall quality of included studies poor.

RCTs and Controlled Studies

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Davies 2001	RCT	Is a hospital diabetes specialist nursing service (DSN) effective and cost effective?	**Population** 300 patients with type I or type II (83%) Diabetes, 53% males, mean age 63.5 years, lost to follow-up = 0	**Intervention** Care and advice from DSN in addition to the standard care. Individual structured patient education appropriate to need, and practical	1 week post discharge LOS +: Median days C n=11 I = 8; p<0.01 Readmissions: 0: 25% in both grps	2 DNSs are potentially cost saving by reducing LOS with no evidence of adverse effect of reduced LOS

			for LOS and readmissions (primary outcomes) Around 56% for secondary outcomes PC – Yes for LoS **Setting** One university Hospital **Country** UK.	management advice including case-note feedback to medical and nursing staff. **Control** Standard care (SC) provided by any health care professional other than the inpatient DNS **Provider** 4 DSNs (plus any health professional from standard care) **Duration & Intensity** From referral to discharge.	Time to readmissions, censored at 366 days. 0: Mean 95%CI C 278 (254.0-302.0); I 283.2 (260.2-306.2) Knowledge change in score: + p<0.05 Diabetes QoL 0: Pre C 0.88 I 0.65; Post C 0.40 I 0.88 Overall level of satisfaction + p <0.001 % satisfied C 59% I 91% GP Contacts + Change in score -0.6 (95% CI-1.0,-0.2) P<0.001 Other contacts & referrals to community DSN: 0 Costs +: Adding inpatient marginal cost to the cost of intervention, control group mean cost was £436 more expensive per patient than the DSN group. (p=0.19). Significant changes to the cost difference were possible by changes in LOS difference and marginal cost estimates.	on readmissions, use of community resources or patient perception of quality of care.
Denver 2003	RCT	Is a nurse-led hypertension clinic more effective than conventional community care in general practice in the management of uncontrolled hypertension in patients with type 2 diabetes?	**Population** 120 adult patients with type 2 diabetes and uncontrolled hypertension (mean age 60) PC - Yes **Setting** Hospital diabetes clinic **Country** London, UK. 4.5% lost to follow up	**Intervention** At each visit BP taken and compliance with antihypertensive drugs reviewed. Gave non-pharmacological advice for healthy living, discussed side effects. Nurse also initiated treatment changes. **Control** Conventional care in general practice. **Provider** nurse **Duration & intensity**	6 months Primary: Change in systolic BP. +: Mean (95% CI) difference in the decrement of systolic BP was 12.6mmHg (5.9-19.3) (p=0.000) in favour of nurse led group, whose patients were 3 times (38% vs. 12%) more likely to reach a target systolic BP < 140 mmHg compared with conventional care (p=0.003). Diastolic BP: 0 (no significant diff) Changes in absolute stroke and CHD risk scores. +: A significant fall in 10 year CHD (p=0.004) and stroke risk (p=0.000) scores occurred only in I. Total cholesterol, HDL cholesterol, total triglycerides: 0	1

				Baseline visit then monthly for 3 mths and then every 6 weeks for 3 mths	HbA1c: 0 UAE, serum creatinine: 0		
Fanning 2004	Controlled study.	Does nurse case management (NCM) with treatment algorithms improve glycaemic control and reduce cardiovascular risk factors in type 2 diabetic patients in comparison with usual care?	**Population** 453 adults with Type 2 diabetes not taking an oral agent or on insulin therapy. 18.8% lost to follow up **Setting** Community based outpatient clinics serving a low income Mexican American community. **Country** USA.	**Intervention 1** Community clinic with NCM following treatment algorithms. CC-TA **Intervention 2** University clinic with a NCM following treatment algorithms UC-TA. **Control** Family practice clinic with primary care physicians following conventional care practice CC-SC. **Provider** NCM – (7 hrs project specific training in use of algorithms) **Duration & intensity** 55 min initial assessment; then 25 min follow up visit within 2 weeks. Further visits-dictated by treatment algorithm.	6 months Change in HbA1c. +: decrease greater in two intervention grps than control p<0.0001 Fasting plasma glucose BP: 0 Body weight: 0	12 months Change in HbA1c. +: decrease greater in intervention grps than control p<0.0001 Fasting plasma glucose +: decrease greater in two intervention grps than control p<0.0001 (p<0.0001). Total cholesterol, LDL cholesterol, triglycerides +: p<0.0001 BP: 0 Body weight: 0 there were 30% more documented eye exams and 24% more documented foot exams than in standard care-managed patients.	3
Gabbay 2006	RCT	What impact does nurse case management (NCM) have on BP, glycemic control, lipids, complication screening, and diabetes-related distress?	**Population** 332 patients with diabetes, 18 and over with 2 or more visits with diabetes in previous year (mean age 64.5). **Setting** Primary care clinics, general internal medical centre and a	**Intervention** Behavioural goal setting, individualised care plan, patient self management education and surveillance of patients, including phone calls to patients, made therapeutic recommendations and referrals where appropriate.	12 months Blood pressure (BP) + Statistically sig. improvement (p<0.001) in both SBP and DBP in I at 6 mths and sustained over 1 year as compared to C A1C, lipids 0: A1C and LDL did not change significantly in either group. Diabetes related distress measured by PAID in I		3

			family and community medicine clinic. Loss to follow up not clear PC - No **Country** USA.	**Control** Usual care by primary care physician. **Provider** Nurse case manager trained in diabetes. **Duration & intensity** 1 year. 45-60min baseline visit, then at least every 4 mths but nurse saw more frequently if necessary.	showed statistically sig improvement at 6mths (from 23 to 16), which persisted at 1 year at 10. (no p values given) Several process measures showed statistically significant improvement in I as compared with C: Ophthalmic exam 68 vs. 26, Foot exam 64 vs. 47, Microalbuminuria screening 72 vs. 34, Flu vaccination 50 vs. 6, Dietician visit 53 vs. 3, Certified diabetes educator visit 70 vs. 3, Smoking cessation counselling 96 vs. 76.	
Gary 2003	RCT	Can a multifaceted, culturally sensitive, primary care-based behavioural interventions implemented by a nurse case manager (NCM) and/or a community health worker (CHW) improve HbA1c, and other indicators of diabetic control?	**Population** 186 urban African Americans with type 2 diabetes aged 35-75 (mean age 59, mostly low income). **Setting** 2 medical centres in East Baltimore **Country** USA. 16% lost to follow up Post hoc power calculation	**Intervention** 1. Usual care + nurse case manger intervention. 2. Usual care+ community health worker intervention. 3. Usual care + NCM+CHW (combined team intervention). **Control** Usual medical care **Provider** NCM registered nurse + in training to be certified diabetes educator. CHW – no formal health care training **Duration & intensity** 2 years 1 & 2. 45min face to face clinic visits and/or telephone contacts. Goal -3 visits per year. 3. Combined 2 activities plus the 2 interventionists conducted biweekly conferences. Goal 3 visits	2 years HbA1c 0: Compared with usual care group, NCM & CHW had modest declines in HbA1c over 2 yrs (0.3 and 0.3% resp.) and combined NCM/CHW group had a greater decline (0.8%, p=0.137) Blood pressure +: Combined NCM + CHW group. P=0.042 (adjusted for baseline diffs) 0: other groups Triglycerides +: Combined NCM + CHW group. P=0.041 (adjusted for baseline diffs) 0: other groups Dietary practices Physical activity 0: no between group differences but all three groups had a statistically significant pre to post increase in physical activity. None of results statistically significant in main analysis	3 Interventions all based on adult learning, social support and behavioural modification theories.

				per year with NCM & 3 with CHW.		
Howe 2005	RCT	What is the impact of three different nursing interventions on glycemic control among children with type1 diabetes?	**Population** 89 children aged 1-16 yrs, diagnosed with type 1 diabetes for at least 1 year and 2 consecutive HbA1c of 8.5% or higher (mean age 12.5, 55% boys, 55% white). 16% lost to follow up. PC - No **Setting** Pediatric diabetes centre **Country** US.	**Interventions:** Education group (ED) Seen quarterly at clinic & one off education session. Education and telephone case management group ED+TCM Received both TCM & ED. Also weekly telephone calls for 3 mths or until first clinic visit then bimonthly calls for 3 mths. Calls lasted 5-15 mins. **Control** Involved visits with nurse practitioner & endocrinologist. **Provider** Intervention grps – nurse practioner + masters-prepared nurse and member of diabetes centre Control – nurse practitioner **Duration & intensity** See above	6 months Glycaemic control (HbA1c) 0: No sig differences among groups in HbA1c. Adherence (ADH-11 item checklist) +: Significant improvement in ADH scores among ED+TCM groups was reported when compared with the ED and SC groups- results of RMANOVA indicated group x time interaction was stat sig, F(2,69)=68.8, p=0.0006. Diabetes knowledge (KNOW) 0: no difference in change scores pre to post. TEAM (Parent-child teamwork checklist) +: The results of RMANOVA indicated group x time interaction was stat sig, F(2,69)=7.1, p=0.002. Post hoc analysis indicated that TEAM scores in ED+TCM groups had improved by 24% over 6mth period compared with a reduction of 5.4% for subjects in SC (t=3.8, p=0.0003). There were problems with recruitment and retention of subjects in this study.	3
Ko 2004	RCT	What is the impact of a structured regular health education on the improvement of CVD risk in Chinese Type 2 diabetic patients?.	**Population** 180 Chinese Type 2 diabetic patients with or without past history of CVD. Inclusion criteria included: HbA1c> 8-11% Age range 35-70 (mean age 55).	**Intervention** Structured nurse led health education prog. Gave info on lifestyle modifications required; checked progress & reinforced importance of treatment. **Control** TAU	12 months Blood pressure 0: difference in % change systolic p= 0.667, diastolic p=0.102 Waist circumference +: Intervention group had reduced: waist circumference compared to control (p=0.012 women, p=0.017 men);	3

			Setting Not known **Country** Hong Kong. 1% lost to follow up PC - Yes	**Provider** Trained diabetic education nurse **Duration & intensity** 1 year. Both groups followed up every 10-14 weeks. Each education session lasted 30 mins. 5 visits within study, average education time was 2.5 hours.	BMI 0; difference in % change p=0.383 HbA1c 0: difference in % change p=0.171 Cholesterol 0: difference in % change HDL p=0.703, LDL p=0.446 Addition of drugs and/or dosage increment of anti-diabetic drugs, lipid lowering agents and anti-hypertensive agents were similar between the 2 groups.	
Krein 2004	RCT	Does a collaborative case management intervention for patients with poorly controlled type 2 diabetes improve glycemic & lipid control, BP, satisfaction with care, and reduce resource use?	**Population** 246 veterans aged 18 and over with type 2 diabetes and baseline HbA1c levels>7.5% (mean age 61, 96.5% male, 59% white) **Setting** Dept of Veteran Affairs medical centres 1 suburban 1 inner city. **Country** USA. 6% lost to follow up.	**Intervention** Encouraged pt self-management, gave advice on diet & exercise; provided reminders for recommended screening/tests; helped with appointment scheduling; monitored home glucose and BP levels; and identified & initiated medication and dose changes as needed. **Control** TAU from primary care provider plus educational materials. **Provider** Nurse case manager **Duration & intensity** 18 mth intervention. Telephone and face-to-face visits. Quarterly patient profiles. Intensity not clear	18 months HbA1c, 0: (9.3% vs. 9.2%; difference=0.1%; 95% CI: -0.4% to 0.7%; p=0.65). LDL 0: difference –5 (-17 to 6) p=0.37 BP. 0: change in systolic BP 2 (-4 to 8) p=0.53; change in diastolic BP 0.85 (-2 to 8) p=0.56 Patient satisfaction. +: Intervention patients were substantially more satisfied with their diabetes care, with 82% rating their providers as better than average compared with 64% of patients in control group (p=0.04). There was no association between satisfaction scores and change in HbA1c.	3
Litaker 2003	RCT	Do pt satisfaction and QoL differ	**Population** 157 Patients with mild	**Intervention** Use of clinical practice	HbA1c + Mean change from baseline p=0.02	3

		significantly between pts managed by their primary care physician compared with a group co-managed by a nurse practitioner-physician team?	or moderate hypertension and non-insulin dependent diabetes mellitus (mean age 61, 59% African-American). PC - No **Setting** Teaching hospital, Ohio **Country** USA.	algorithms, patient education on disease self-management strategies, and regular monitoring and feedback delivered primarily by the nurse practitioner. **Control** Usual care by physician **Provider** Nurse practitioner and physician **Duration & intensity** Office visits and telephone contact- Not clear number or intensity.	Total cholesterol: 0 mean change from baseline p=0.85 High density lipoprotein cholesterol: +: Significant improvement in HDLc (+2.6mgd/L, p=0.02). Blood pressure: 0: p=0.839 Satisfaction with care +: Change from baseline in general satisfaction with care was sig higher for I (+6.2 vs -1.7 points change, p=0.01). 2 other sub group scores were also higher: communication with provider (+3.9 vs -3.0 points, p=0.03) and interpersonal care (+4.4 vs +1.9, p=0.02). No diffs in other sub scales of satisfaction scores. QoL: 0 Cost: -Total costs were 50% higher in intervention ($10,639.70 vs. $7,308.53)	
New 2003	RCT	Do specialist nurse-led clinics for diabetic patients receiving hospital-based care improve hypertension and hyperlipidemia?	**Population** 1407 Patients receiving shared care by GP and hospital and presenting for annual review with raised blood pressure (>140/80mmHg), raised cholesterol (>5.0mmol/l) or both. **Setting** Diabetes clinic in a hospital **Country** Salford, UK. 338 C. Lost to follow up: BP study 12.8% Lipid study 11%	**Intervention** TAU + nurse led clinics. 2 interventions, 1 for hypertension, 1 for hyperlipidemia. For both, lifestyle factors discussed and individualised action plan drawn up. Education programme included info about risks of hypertension or dyslipidemia, benefits of treatment and lifestyle changes, drug actions, and potential side effects. Medications titrated according to local protocol. **Control** TAU	12 months Increased proportion of patients achieving the specified targets for either intervention. +: Specialist nurse clinics were associated with a significant improvement in patients achieving the target after 1 year (OR 1.37 (95%CI 1.11-1.69, p=0.003). Secondary analysis, suggested that targets were achieved more frequently in patients enrolled in specialist nurse-led clinic for hyperlipidemia (OR 1.69 (1.25-2.29), p=0.0007) than for hypertension (OR 1.14 (0.86-1.51) p=0.37). Mortality + Intervention (enrolled to either or both clinics) was associated with a reduction in all-cause mortality (OR 0.55 (0.32-0.92), p=0.02).	1 Patients could be included in both hypertension & hyperlipidemia clinics if they met inclusion criteria.

			The study had 80% power to identify a 5% change in the combined primary outcome.	**Provider** Specialist nurses – educated to degree level with previous relevant experience. Extra training for post provided by clinicians & pharmacists. **Duration & intensity** Initial 45min appointment, then every 4-6 weeks for 30-45mins until targets achieved.		
New 2004	Cluster RCT (analysis at level of cluster)	Does a specialist nurse education intervention delivered to primary care practitioners improve control of hypertension and hyperlipidaemia in patients with diabetes? EDEN study	**Population** 5371 people with raised blood pressure (=140/80mm Hg), raised cholesterol (=5.0mmol/l) or both. 4949 provided data on hypertension and 5028 on hyperlipidaemia PC - Yes **Setting** General practices **Country** Salford, UK.	**Intervention** 1. Outreach nurse met with practices to explain intervention targets, measurement methods and work thorough case examples. 2. Provided GPs and nurses with flowchart giving local guidelines for treatments. 3. PN received list of patients and was encouraged to intervene to achieve target levels. 4. Every 3 mths outreach nurse revisited practices to provide support & encouragement to continue. **Control** Normal treatment **Provider** Specialist nurses **Duration & intensity** Every 3 months for 2 years.	2 years Patients achieving target blood pressure (140/80mmHg) and lipid levels (5.0mmol/l). 0: Difference in proportion (I = 51.8% vs. C = 51.2%)OR 1.03 (95% CI 0.95-1.11, p=0.52). Blood pressure target achieved 0: 48.2% achieved blood pressure target in I compared with 47.9% in C. Cholesterol target achieved 0: 55.6% achieved cholesterol target in I and 54.6% in C.	1 Intervention by nurse specialists provided to practice not individual pts. Many practices did not have sufficient appointments to see pts.
Piette	RCT	Does automated	**Population:**	**Intervention:**	12 months	3

2001		telephone disease management (ATDM) with telephone nurse follow-up improve diabetes treatment processes and outcomes in diabetic pts in Veteran Affairs Clinics? + Comparison of results with those of a prior ATDM trial conducted in county health care system.	292 Pts with diabetes & active prescription for a hypoglycaemic agent (97% male, mean age 60.5). **Setting:** 3 general medical clinics, 1 diabetes speciality clinic within a university-affiliated VA health care system. **Country:** USA. 7% lost to follow up No PC reported	Biweekly ATDM health assessment & self care education calls Nurse educator followed up with patients based on ATDM report. **Control**: Usual care. **Provider:** Nurse **Duration & intensity:** 1 year study. Biweekly ATDM health assessment & self care education calls. Each ATDM lasted 5-8 mins. ATDM followed up by calls from nurse educator. On average pts completed 15 ATDM calls & nurse phoned pts average 1.1 x month.	Blood sugar control (HbA1c) 0: p=0.3 Diabetes related symptoms +: p=0.04 At follow-up, intervention patients reported fewer symptoms of poor glycemic control than control patients Self-care +: more frequent glucose self-monitoring (p=0.05) & foot inspection (p=0.05) in intervention grp 0: no difference in weight monitoring (p=0.6) Use of speciality services. +: intervention more likely to have podiatry, and diabetes clinic visits + cholesterol test and foot exam. Patient satisfaction + p=0.05 Intervention effects in this trial for most end points replicated findings from the prior county clinic trial (Piette 2000), although intervention-control differences in this study were smaller because of the relatively good self-care and health status among VA enrolees.	Automated telephone calls consisted of hierarchically structured messages in a human voice.
Piette 2000	RCT	Do automated telephone assessment and self-care education calls, with nurse follow-up, improve self-care, and glycemic control in diabetic patients?	**Population** 280 adults < 75 yrs English or Spanish speaking, with diagnosis of diabetes mellitus or active prescription for a hypoglycaemic agent and with touch tone phone (average age 54.5, 73% female, 61.5 hispanic, mainly low income). 11% lost to follow up. At follow up	**Intervention** Usual care plus automated assessment and self-care education calls with telephone follow-up by a nurse educator **Control** Usual care. No systematic monitoring between clinic visits. Visits scheduled at providers discretion. **Provider** Nurse educator – no further details given	12 months Self care + Glucose self monitoring p=0.01 + Foot inspection p=0.006 + Weight monitoring p=0.008 Glycemic control HbA1c 0: unadjusted p=0.8 +: adjusted analyses (baseline values & insulin use) proportion with normal values p=0.04 Serum glucose +: p=0.009 (unadjusted) p=0.002 adjusted Diabetic symptoms: hyperglycaemic, hypoglycaemic, vascular & other symptoms	3 Automated telephone calls consisted of hierarchically structured messages in a human voice. Included Spanish language version.

			No PC reported. **Setting** 2 general medicine clinics of a county public health care system. **Country** USA.	**Duration & intensity** Biweekly automated assessment 5-8 mins. + optional health tips and self-care module Additional automated calls offered after several months on glucose self-monitoring, foot care, and medication adherence. Plus telephone follow-up by nurse when necessary (average 6 mins per pt per month)	+: p=0.001	
Pouwer 2001 (linked to Pouwer 2006)	RCT	Does monitoring, and discussing psychological well-being, in outpatients with diabetes improve mood, glycemic control, and patient's evaluation of the quality of diabetes care?	**Population** 400 adults 18 and over with diabetes **Setting** Outpatients diabetes clinic at a university medical centre. **Country** Holland. 13.5% lost to follow up. PC - Yes	**Intervention** consultation with internist and other members of diabetes team if needed. + additional consultations with the DNS to discuss diabetes related topics and to assess and discuss the psychological well-being of patients. **Control** consultation with internist and other members of diabetes team if needed. + consultations with the DNS **Provider** Diabetes specialist nurse (training from psychologists) **Duration & intensity** Consultation with internist every 3-4 months 3 visits to DNS over 12 months	12 months Psychological well being (computerised W-BQ – subscales, negative well being (NWB), positive well-being (PWB), general well-being (GWB), energy (ENE). +: NWB p=0.002 0: PWB p = 0.057 +: ENE p=0.045 + GWB p=0.001 General mental health (SF-36) +: p=0.006 Quality of care (quality of diabetes care –(PEQD)) 0: no significant difference in assessment of quality of care. Glycemic control -HbA_{1c} 0: p=0.819	3
Taylor 2003	RCT	Does an integrated	**Population**	**Intervention**	12 months	3

		nurse-care management intervention significantly improve medical, psychosocial, and lifestyle outcomes in patients with complicated diabetes compared with usual care?	269 patients (18 or over) with long standing diabetes, and 1 or more of hypertension, dyslipidemia, or CVD and HbA1c >10%. **Setting** Kaiser Permanente Medical Center **Country** USA. 24.5% lost to follow up	Consultation with registered nurse (included: review of medication, lifestyle & psychosocial status; + foot exam, BP and pulse check, development of self management plan). Group class weekly. Received telephone calls to manage medications and self care activities. **Control** TAU primary care dr. Could attend general diabetes education classes at medical centre. **Provider** Registered nurses. Extensive experience in managing lipids & hypertension. Several days training on KP protocols **Duration & intensity** Initial 90 min consultation with nurse; 1-2 hr weekly group class for 4 weeks; 9 telephone calls over programme, (designed to average 15min).	Glycemic control (HbA1c) +: Mean changes in HbA1c and LDL cholesterol were significantly greater for I than C. HbA1c changed by -1.14 for I and -0.35 for C, p=0.01. Significantly more patients in I met the goal for HbA1c <7.5, (42.6%) than patients in C (24.6%, p<0.03). Total cholesterol 0: Cohen ES =0.18 LDL cholesterol +: LDL changed by -19.4 I and -6.5 C, p=0.01. Psychosocial variables 0: No sig diff in any of psychosocial variables Resource use 0: No significant change, or between group differences, in number of physician or emergency room visits, or hospital bed days.		
Wong 2005	RCT	Does a nurse-led early discharge programme for diabetics improve patient outcomes, reduce health care use, and increase patient satisfaction in comparison with routine in-patient care?	**Population** 101 adults with Type I or II diabetes. Stable general medical condition, except for glycaemic control. Willing to perform self-monitoring of blood glucose. Patient or supportive	**Intervention** Early discharge prog with standardised pre discharge education. Post discharge telephone contact & behaviour monitored. If physical assessment or face to face teaching necessary DNS arranged for nurse clinic apt.	12 weeks Glycemic control (HbA1c) 0: I = 8.3 vs. C =8.6. p=0.455 Exercise adherence +: p=0.001 Medication adherence	24 weeks Glycemic control (HbA1c) 0: Intervention grp had greater decrease in HbA1c at 24 wks but not signif (7.6 vs 8.1, p=0.06) Exercise adherence	3

			relatives able to read simple Chinese and simple numbers. **Setting** Medical department of hospital. **Country** Hong Kong. 15.5% lost to follow up PC - No	**Control** Stay in hospital for medical management **Provider** Diabetes Nurse specialist **Duration & intensity** Telephone contact from nurse every 1-2 weeks. Duration of F.U. depended on completion of set protocol. Clinic apt with nurse if necessary.	0: p=0.448 Blood glucose monitoring (adherence) +: p<0.001 Health care use: Readmission 0: p=0.111 A & E attendance 0: p=0.052	+ p<0.001 Medication adherence 0: p=0.404 Blood glucose monitoring (adherence) +: p<0.001 Satisfaction 0: p=0.528 Health care use: Readmission 0: p=0.610 A & E attendance 0: p=0.233	

Uncontrolled Evaluation Studies

First Author	Study design	Research Question	Study population, setting and country of study.	Description of intervention	Main results at follow up	Applicability to the UK
Ahern 2000	Uncontrolled before/after	Can recommendations from the Diabetes Control and Complications trial (DCCT) be implemented in a large pediatric population?	**Population** 124 participants aged less than 18 years old, diabetes treated continuously with insulin, type I. Enrolled 1 year before and 1 year after DCCT **Setting** Yale clinical research centre **Country** USA.	**Intervention** Implementation of DCCT protocol. Target levels of blood glucose were set. Patients instructed to test blood glucose levels at least 4 times a day and to use unconventional regimens including mixtures of short, intermediate and long acting insulin. Also encouraged to call diabetes nurse **Control**	1 and 3 yr follow up Glycemic control (HbA1c levels) +: Prior to study HbA1c levels 12%. There was a clinically significant reduction in HbA1c levels to 10.4% (p<0.001) in the year after. Levels were 9.6% at 3 yrs	3

				N/A **Provider** Diabetes clinical nurse specialist		
Avery 1998	Audit (data collected on one day per month for 4 consecutive months in 1997)	Audit to determine: 1. The services provided to inpatients by DSNs within the region. 2. The number of inpatients with diabetes in the authors' hospital who may require DSN intervention.	**Population** 138 Inpatients with diabetes aged 21-93 **Setting** Royal West Sussex Trust **Country** Chichester, UK.	**Intervention** Evaluated the level of service provided by the DSNs to inpatients with diabetes. Control N/A **Provider** Diabetic specialist nurses	*Inpatients:* 83% were emergencies due to acute medical conditions. 70% of inpatients used blood glucose monitoring, 5% urine testing, 25% did not monitor. No significant difference between HbA1c obtained from lab records before admission and that performed on day of audit. Level of diabetic control between those patients known to diabetes centre and those who were not were compared. There was no difference in number of patients with HbA1c in good control range. However number of patients in poor control range known to diabetes centre was higher. Patients deemed to require DSN intervention are not necessarily being admitted. DSNs: 63% spent between 1 and 5 hours per week on the wards. 8% spent more than 16 hours per week on wards. 19% of DSNs would wish to see patients following change in diabetes treatment, while further 17% specified do so only if conversion to insulin had taken place. Time currently given to inpatient care (10%) in the author's hospital appears appropriate and is similar to that given by colleagues across the region.	4
Bray 2005	Feasibility study of implementing case management with pre and post measures	To assess the feasibility and potential for cost-effectiveness of implementing case management, group visits and electronic registry in rural fee-for-service practices for predominately minority patients with	**Population** 314 patients with type 2 diabetes **Setting** Patients in 5 solo or small group practices in rural area. **Country** USA.	**Intervention** Case management, group education sessions, visit reminders, electronic diabetes registry. **Control** N/A **Provider** Advanced practice nurse.	4 clinical process indicators Proportion with self management goal increased from 0% to 42%. Proportion with currently documented lipid panel increased from 55% to 76%, Proportion of patients with currently documented foot examination in past year increased from 12% to 54%. And daily aspirin use increased from 25% to 37%. Average daily encounter rate improved from 20.17 to 31.55.	4

		diabetes.		**Duration & intensity** Weekly visits for 12 months and 4 session group educational program	There was an improvement in productivity and billable encounters. (Pre and post intervention comparison of HbA1c – previously published.)	
Caravalho 2000	Uncontrolled before after study	Did a comprehensive nurse case-managed model of care improve self-management of children with diabetes?	**Population** Children with type 1 diabetes, aged 17 or less **Setting** 3 of the HMO medical centres within 1 HMO customer service area. Urban environment. **Country** USA. Sample. 56 children	**Intervention** Parents and children seen by dietician, social worker, and NCM. Nurse adjusted insulin and taught parents until they could do it for themselves. Group support and educational interventions were developed. Nurse used telephone visits to improve self-management. **Control:** N/A **Provider** Nurse case manager **Duration & intensity** Newly diagnosed children had daily telephone follow up. Also 12 h 4 week education prog & clinic visits every 3 months	12 months Glycemic control (HgbA1C – mean (SD) 0: pre 9.15 (2.32), post 8.99 (1.79) p=0.73 QoL -mean (SD) (DQOL) 0: p=0.07 Improvements in all 4 quality of life scores but paired t tests did not reach statistical significance. Self efficacy – mean (SD) (13 item SED) +: p=0.01 pre to post changed from 56.17 to 59.33	4 Small study with no control
Everett 1998	Case study with 3 year follow up	Can a Structured holistic approach, which enables and encourages patients to actively participate in their own care, replace the traditional medical model for patients with diabetes?	**Population** 156 newly diagnosed type II diabetes mellitus. **Setting** Hospital **Country** Bournemouth, UK.	**Intervention** First open access group education clinic within 1 week of diagnosis, followed by 4 structured group education sessions. Aimed to promote self care and improve links between primary & secondary care. Then seen by medical staff at 3 months.	Mean change in HbA1c Mean HbA1c decreased from 10.4% to 7.4% at 6 months and remained at this level. Rate of complications 0: No significant change in rate of complications. Diabetes control by diet Almost half of patients controlled diabetes by diet alone during 3 year period. Weight	1

				Control none **Provider** Diabetes specialist nurse	Mean weight over 3 year period reduced by 2 kg. Although not clinically significant it has been maintained in contrast to trend in general population QoL (validated questionnaire) High degree of patient satisfaction. Only 3% of cohort failed to complete programme	
Forbes 2004	Uncontrolled before/after study	To explore whether the intervention had the potential to impact positively on diabetes-related health outcomes (glycaemic/metabolic control, quality of life, complications and diabetes understanding/ behaviour) To consider issues of feasibility, particularly in relation to the role of the district nurse.	**Population** Over 75 years of age, Diagnosed with type 2 diabetes, Housebound or in residential care, Had not had diabetes annual review in previous 12 mths (mean age 79) **Setting** Inner city District nursing teams **Country** London, UK. Sample.	**Intervention** Involved district nurses performing domiciliary diabetes assessments. **Control** None **Provider** District nurse	6 months Diabetes QoL Functional and mental ability (Philadelphia geriatric morale scale and Nottingham extended activities of daily living scale. A general health measure, the SF36). 0: No statistically significant differences were observed on any of the main outcome measures at post test assessment. These findings explained by insufficient sample size and attrition. Execution of protocol was time consuming. Need to target groups of older people likely to benefit.	3
Lenz 2002 Substudy of Mundinger 2000 and	Chart review to examine processes of care	Do nurse practitioners (NP) improve processes of care and outcomes in patients with diabetes compared with physicians?	SEE Mundinger for more DETAILS **Population** 145 Patients with Type II Diabetes selected for this sample, Mean age 54.8 years, 66.2% females, 91.5% Hispanics, 84.1% enrolled in Medicaid, 64.1% had BMI.27	**Process of care measurement** Investigator developed checklist for diabetes management. Chart audit tool for process variables.	**Provider behaviours** Interdisciplinary differences in the processes of care employed by NP and MD (physicians) exist in caring for patients with Type II Diabetes. These differences were NOT reflected in the 6 months outcomes. Education**:** + Foot care, glucose monitoring, diabetes education: 0 Monitoring: + Weight, BP, heart examination, foot exam, blood glucose level, creatinine: 0 No significant differences	3

					Patient rating of information received No significant differences in rating of all types of information received: monitoring glucose, diet, exercise, foot care, medication, etc	
Lob 2000	Retrospective, non randomised, controlled study with pre and post measures. Control group were those who did not get enrolled for clinical or administrative reasons. Both intervention and control were identified retrospectively.	Does a medical Case Management (MCM) programme effect hospitalisation, emergency department (ED) visits and preventative service use among people with diabetes?	**Population** 1507 patients who had received MCM. Programme targeted chronically ill people who had history of frequent hospitalisations, and complicated by factors such as non-compliance, psychiatric problems, and lack of social support. **Setting** MCM provides integrated care for fee-for-service Medical beneficiaries with severe chronic illnesses. **Country** USA. 47% lost to follow up	**Intervention** Intensive care management. Included: referral to necessary medical services; coordination of care; identification of primary care provider if did not have one; and establishment of links to community resources for ongoing support. Case managers worked closely with home health agencies, facilitating services in the home such as skilled nursing, physical therapy, and chronic disease self management training. **Control** Did not receive MCM **Provid**er Nurse case managers **Duration & intensity** Case managers contacted clients by phone usually every 1-2 weeks. Average duration of case management for participants was 145 days (range 1-890 days).	12 months Hospital admissions +: mean decrease 33% in intervention and 7% in control. P=0.08 ED visits 0: difference in change p=0.74 Delivery of diabetes-specific preventive services. 0: no significant between group differences in HbA1c testing, HDL tests, eye exams. Increase in HbA1c testing for both groups. Significant increase in flu vaccine in intervention compared to control.	3
D'Eramo Melkus	Uncontrolled before/after	Is a culturally sensitive intervention	**Population** 25 women aged	**Intervention** Culturally competent	3 months (pre to post measures)	3

2004	study	of nurse practitioner diabetes care and education beneficial for black women with type 2 diabetes?	between 18 and 60 having a primary care provider, diagnosed with type 2 diabetes and English speaking (average age 52). **Setting** General Clinical Research Centre of a major university hospital. **Country** USA.	intervention. Included: physical examination, group sessions & care visits with individualised instruction. **Provider** Advanced practice registered nurses trained in diabetes care & certified as diabetes educators. All trained to implement the education programme. **Duration & intensity** 6 week programme included 6 group sessions + monthly visits.	Weight +: p=0.03 BMI +: p=0.005 HbA1c +; p=0.002 Diabetes knowledge & self efficacy : 0	90% attendance at group sessions. Small sample size. Used Transtheoretical Model of Behaviour Change.
Norman 1998	Audit with some before/after data	Development and audit of home clinic service	**Population** 43 Infirm and vulnerable diabetic patients **Setting** Community 17 pts live in own home and rest in nursing or residential care. **Country** Hull, UK. outcomes for Hb1Ac for only 13 patients.	**Intervention** Home clinic service following structured protocol designed to ensure screening, educational and care needs of each individual are met. Control N/A **Provider** Diabetes specialist nurse **Duration & intensity** Visits at 6 monthly intervals.	Cost Estimated costs: Home clinic visit £23.50 Hospital clinic visit £44.56 HbA1c levels 13 pairs of pre home clinic HbA1c results (8.5+0.7 SEM) compared with results after home visit service (7.5%+0.4 SEM) (p=0.097). These show a trend towards improved glycaemic control, but not statistically sig. A need for a more structured educational programme to enhance the delivery of care has been identified.	3
Pinzur 2001	Uncontrolled before/after study. Screening /education/ treatment programme	Can nurse provided foot specific diabetic screening and education, combined with effective footwear decrease rate of diabetic foot ulcers and risk for	**Population** 403 Patients with diabetes. Primary care physicians & endocrinologists encouraged to refer all pts with diagnosis of diabetes.	**Intervention** Included: pt education about foot care & self examination. High risk pts referred to podiatrist or foot/ankle surgeon for prescription of therapeutic footwear, low risk pts	Patient behaviour modification as measured by change in footwear at follow-up examination. 83 patients seen at least once at follow-up. 61 (73%) used improper footwear initially which improved to 36 (43%) at follow-up.	3

		eventual lower extremity amputation?	79.5% lost to follow up **Setting** University health system's outpatient records **Country** USA.	given instruction only. Regular schedule of follow-up monitoring of risk status and reinforcing patient education was scheduled based on risk status. **Provider** Nurses **Duration & intensity** 1 year, variable in intensity according to risk.		
Ubink-Veltmaat 2005	Prospective observational study	Are there differences in the effects of 2 different structured shared care interventions, tailored to local needs and resources, in an unselected patient population with type 2 diabetes?	**Population** Patients with type 2 diabetes being treated in a primary care setting excluding those terminally ill and with severe dementia. Intervention A 1244. Intervention B 842. Standard care 400. Follow up: A 963 77.4%. B 737 87.5%. St care 314 78.5%. **Setting** Primary healthcare setting. **Country** The Netherlands Sample.	**Intervention A:** Diabetic specialist nurses performed annual examination. Also gave education and referrals to ophthalmologist. GPs still responsible for check ups every 3 months. **Intervention B:** No extra support but had direct access to DSN. **Control** TAU. Consultation with DSN only available through formal referral to secondary care. **Provider** Diabetes specialist nurse in A. GP and DSN in B. **Duration & intensity** A: Annual examination + education.	3 quality indicators: 1. process control (% of patients with examinations and measurements performed according to guidelines). 2. outcome control (% of patients who achieved target values: HbA1c<7%, BP<150/85 mmHg, total cholesterol<5 mmol/l). Longitudinal analyses showed significant improvements in quality indicators for both intervention groups. Standard care showed performance remained stable or deteriorated. 3. Participation rates of pts and GPs Participation rates high (90% for pts and none of GPs discontinued participation) Both pts and caregivers appeared satisfied with project.	3 Pts assigned to groups according to GP preference. Grps unbalanced at baseline
Vrijhoef H 2001	Non equivalent control group	Assessments of effects on quality of	**Population** Adults with stable	**Intervention** grp Substitution model;	Glycaemic control (HbA_{1c}) +: Glycaemic control of patients in intervention is	3

	(GPs chose between traditional model of care by hospital consultant, shared care between hospital and GP, or nurse specialist care.	care, in terms of patient outcomes, when tasks in the care for outpatients with stable type 2 diabetes are transferred from internist to nurse specialist and from outpatient to general practice.	diabetes as defined by set of criteria. Sample Intervention 74 (includes OHA only) Intervention subgroup 52 (OHA & insulin) 47 control group (OHA & insulin) Data incomplete for 54.25% PC - No **Setting** University hospital Maastricht **Country** Holland.	Patients received consultations from a nurse specialist and annual check-up with internist. Intervention subgroup As intervention group. **Control** Traditional model of outpt care, in which patients receive quarterly consultations from the internist in the hospital + education and self-management skills by nurse specialist in the hospital. **Provider** Registered nurse with highest level of qualification and specialised in diabetes. Long-term work experience. **Duration & intensity** 3 quarterly consultations with nurse specialist + annual check-up by internist in hospital.	better than control: (from 8.6% to 8.3% I) (from 8.6% to 8.8%, C) p=0.001. BMI: 0 Self regulation: 0 BP: 0 QoL: 0 Both groups achieved equal outcomes in term of lipid spectrum, BMI, BP, quality of life, self-care behaviour, knowledge of diabetes, patient satisfaction, and overall number of consultations with care providers Traditional model and nurse specialist model achieved equal pt outcomes. Authors say study obtains preliminary evidence that nurse specialist model may replace traditional outpt model effectively.	
Vrijhoef 2002	Uncontrolled before/after study. Used untreated group from another study as a comparison.	Does a shared care model, with the diabetes nurse as the main provider, for patients with type 2 diabetes improve glycaemic control, pt care and quality of life and pt satisfaction in a primary care setting?	**Population** 175 Patients with type 2 diabetes **Setting** 5 general practices. **Country** The Netherlands Lost to follow up intervention grp = 41%	**Intervention** Regular nurse consultations Control Usual outpatient care from different study. **Control** N/A **Provider**	12 month Change in glycaemic control. + pre to post improvement in intervention grp (p=0.001) QoL 0: pre to post p=0.249 Pt satisfaction 0: pre to post p=0.308 disease specific knowledge (using Dutch diabetes-	3

				Specialised diabetes nurse. **Duration & intensity** Depends on health status of patient.	specific instrument) +: pre to post p=0.000 Self care behaviour.0: pre to post	
Woodward 2005	Uncontrolled before/after study	What is the impact on glycaemic control in patients attending a nurse-led cardiovascular risk reduction clinic?	**Population** 110 Patients with type2 diabetes taking 1 or more hypertensive drugs with BP above 140/85 mmHg. **Setting** Outpatient clinic. **Country** Liverpool, UK	**Intervention** Nurse-led clinic where pts received education & counselling. Clinic aimed to optimise BP and reduce cardiovascular risk. **Provider** Nurse (details not specified) **Duration & intensity** First visit 45 mins, subsequent visits 20 mins. Attended for average of 5 appointments.	9 months HbA1c. There was a significant improvement in HbA1c when patients were reviewed at 9 mths. HbA1c improved from 8.7±1.6 to 8.1%±1.6% (p<0.001). Further analysis showed that, after excluding those who had received education to improve glycaemic control from another source, during the same period there remained a significant improvement in the non-(glycaemic) intervention group of patients.	3 Study methods poorly described.

Surveys and descriptive studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Alderton 1997	2 Case studies of different models of diabetes team. Used observation and interviews but details of methods not given.	To investigate the pivotal role of the diabetes nurse.	**Population** 2 diabetes teams **Setting** Inpatient ward And Outpatient diabetes centre **Country** Brighton, UK.	**Intervention** n/a Paper used case studies to illustrate the pivotal role of diabetes specialist nurses in diabetes teams.	Diabetes ward team Ward geographical centre of team. Provided beds for pts with unstable condition + clinical & educational sessions for outpts. 24 hr telephone help line for pts & health care workers Diabetes centre team Operated from purpose –built outpt facility. The nurse's role includes creating a supportive environment, managing team communication & facilitating passing of information. Although the models of care were very different the role of the DNS was similar	4 No evaluation of service - descriptive
Llahana	Postal survey	To examine the role	**Population**	N/A	3 categories of activity: direct care, liaison and	N/A

2001		& performance of the diabetes specialist nurse.	658 UK diabetes specialist nurses and diabetes specialist health visitors. **Country** UK. 334 questionnaires returned 51.2% response.		indirect care. Role components include: Expert practice Education Consultation Research, Management Collaboration, Innovation. Most respondents working between hospital & community (58.1%), 29% hospital based 12.9% community based. Greatest % of time spent in expert practice activities. Not highly involved in research and management. 17.1% reported not being involved in adjustment of oral hypoglycaemic drugs. Almost 60% did not prescribe any diabetes related medications. Those that did prescribe involved in prescribing blood glucose strips, lancets & syringes; recommending treatment types 7 doses to colleagues and/or filling in prescription forms for doctors to sign.	
Peters 2000 Peters 2001 (same survey is reported in both papers)	Randomised stratified sample 2 round Delphi study	To examine the opinions of a group of practice nurses & specialist diabetic nurses on individual aspects of clinical governance as they relate to the delivery of care to diabetes patients. To identify the views of nurses on their current and future roles in care in the community for people with type 2 diabetes	**Population** Nurses with: ENB qual & experience of running diabetes clinic for 2 yrs Sample. 97 practice nurses 69 specialist diabetes nurses. Round 2 response rates: 90 PNs -93% 59 DSN-86% **Setting**	Intervention n/a Delphi study with 2 rounds of self completed questionnaires.	Opinions. To identify 1 change they would make to improve care they provided and the best thing about the care they currently provided. In 2nd round asked to indicate agreement on 5 point scale to collated opinions from first round. Consensus was high on issues such as audit, evidence-based practice, experience and record keeping. There were differences in opinion about nurse prescribing, teamwork, professional responsibility and education/training. Nurse prescribing an important issue- 70% of diabetes specialist nurses thought nurse prescribing would improve care.	N/A

			Hospital and community **Country** UK.			
Pierce 2000	Postal questionnaire to randomly sampled general practices	What are the key features of diabetes care in primary care in England & Wales?	**Population** Practice nurses & GPs **Setting** General practices **Country** England & Wales Sample. 1320 out of 1873 70% response.	N/A	96% practices had diabetes registers 68% of practices reported a special interest in diabetes 54% had shared care protocol with local diabetes specialist team 79% felt adequately supported by local diabetes specialist team For practice nurses only: 34% ran diabetes clinics on their own. 64% ran clinics with a GP Only 2% of GPs ran clinics alone. 88% of PNs had attended a course in last 3 yrs: 14% for ½ day 25% for 1 day 54% for >1 day 5% duration not known. But some nurses may have had no previous experience of diabetes at all & most practices said needed further help with training. Authors conclude that much diabetes care now takes place in community, much of it delivered by practice nurses.	N/A
Pouwer 2006 (linked to Pouwer 2001)	Survey and review of medical records (self-reported questionnaires completed during RCT)	To investigate how often emotional problems were recognised by diabetes nurses.	**Population** 112 adults 18 and over with diabetes (were part of control grp for RCT – Pouwer 2001) **Setting** Outpatients diabetes clinic at a university medical centre.	See Pouwer 2001 for description of intervention	Anxiety and depression (used Hospital anxiety, depression scale, HADS), In patients with moderate to severe levels of anxiety & depression, the presence of an emotional problem was recorded in the medical chart in 20-25% of cases. Emotional distress (problem areas in diabetes scale, (PAID) Registration rate of diabetes-specific emotional distress was also low, ranging from 0% (treatment	

			Country Holland.		related problems) to 29% (diabetes –related emotional problems) Authors say recognition of emotional problems was low (similar detection rates to other studies) and that recognition rates need to be improved.	
Sargent 2002	Survey	Aims were to evaluate community nurses' knowledge of dietary recommendations for people with diabetes, to identify any deficits and to use these findings to produce a pocket guide for easy reference.	**Population** Qualified community nurses attached to GP surgeries who made home visits **Setting** Large community health services trust **Country** UK. Sample 135 sent out, 90 returned giving 66% response rate	**Intervention** Sent out a questionnaire with multiple choice questions to assess nurses' knowledge of diabetes in general and issues around the dietary aspects of diabetes. Control Provider Duration and intensity	General knowledge of diabetes (including diet). Average score of 71% to first 2 sections (general knowledge of diabetes and dietary requirements) maximum being 97% and minimum 42%. Predominant responses indicated awareness to eat regularly (91%), consume high fibre (88%), low fat (86%) and low sugar (87%). Less than 50% of respondents identified remaining 7 recommendations for diet. Nurses self assessed knowledge: 7% had very good dietary knowledge specific to diabetes, 25% had good knowledge, 51% satisfactory knowledge and 17% less than satisfactory knowledge. This study, with the exception of 6 participants, determined a positive correlation between perceived levels of knowledge and attained scores. Participants had inadequate knowledge levels to educate patients in diabetes related issues. The proposed pocket guide will help to update community nurses.	3
Winocour 2002	Postal survey	To examine the provision and role of diabetes specialist nurses (DSNs), and the content of patient education programmes in the UK.	**Population** Diabetes specialist nurses working in a diabetes care team headed by consultant physicians **Setting** Acute NHS trusts/units. **Country**	n/a	**Staffing and qualifications** Were 2.5 (median) whole time equivalent DSNs per 250,000 population, with only 13% of centres meeting the recommended staffing level of 4 per 250,000 population. Most carried out work in hospital & community. Wide variation in the qualifications required and the nursing gradings of DSNs. **Nature of role** Most (96%) provided patient education, and where it existed (in 60% of responses), were the major providers of a patient helpline (90%).	2

			England Sample. 456 consultant physicians in 238 acute NHS trusts. 77% response rate		Although key providers of education, there had been no specific education for this task in over 20% of responses. There was broad consistency in the topics covered at educational sessions, although advice on footwear (76%) and home urine glucose monitoring (73%) were least frequently documented. The issuing of literature and cards for patient use was also very variable. Over 25% of bids for diabetes service improvement were for additional DSNs, but only 48% of these were successful.	

Qualitative

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and analysis	Main Findings	Application to UK
Eijkelberg (2003)	Questions: What are the nurses' views on horizontal & downward substitution, esp. the impediments for its accomplishment? What do the physicians involved look upon as biggest impediment?	Longitudinal study lasting 3 years.	**Study pop:** 4 Nurse Practitioners 29 GPs 9 Endocrinologists **Setting:** GP practice setting **Country:** Netherlands	Triangulation. Analysis * Explanation building, *Time-series analysis, *Straight counting *Quantifying method of analysis (not named)	*GPs, internists & nurses saw structure as impeding factor e.g. – lack of finance to meet agreements *Dutch legislation as yielding barriers for transfer of routine medical tasks from a Dr to a nurse. *Substitution works. *Poor change strategies from project management. Lack of info, communication & structure, etc. (As least impeding)	3
Gillibrand (2004)	To explore practice nurses' perception of their care of people with diabetes in the context of current national guidelines and strategies	Qualitative semi-structured interviews with 15 PNs and 2 focus groups of 3 & 6 PNs (n=5) + focus groups	Purposive sample of practice nurses for interviews were contacted by post & interviewed at work place. Two focus groups were recruited from PNs attending University of	Not stated Analysis Thematic coding	Perceived diabetes care PNs perceived themselves as part of a wider diabetes team delivering holistic care. Essential PN activity included performing physical monitoring tasks. Perceived patient education as the key aspect of diabetes care. PNs highlighted lack of access to suitable education materials. PNs recognised the increased	2 Likely to be typical of PN experience in UK. Medium quality Dates of study not included and more details of recruitment

			Lancashire. All PNs worked in Northwest of England, mean age was 42.4 and had worked as PN for 1-30 years (mean 9.6). Study dates not specified.		emotional demands on patients diabetes brings. PNs saw screening for undiagnosed diabetes as part of their service. PNs liaised extensively with GPs & DSNs if extra expertise was needed. All PNs saw adjusting treatment regimens as part of their remit, however there were varying degrees of responsibility for this & only a limited amount wanted to be independent prescribers because saw it as potentially detracting from nursing role. Only half ran diabetes clinics, those who didn't stated practices did not like to restrict patients to clinics. What informs PNs diabetes care? Guidelines by local Has & Diabetes UK particularly viewed as beneficial for PN & patient. Diabetes registers & practice protocols seen as safeguarding attendance & treatment of patients but also seen as infringing on PN time. How effectiveness of PNs care is evaluated. Audits of diabetes register but PNs felt it omitted patient satisfaction. If not participating in audits used indicators of diabetes control & patient feedback. Barriers to service delivery Lack of time seen as biggest with consultation times ranging from 10-30 minutes. Lack of adequate communication links between HCPs, PNs suggested shared care cards. Training in diabetes care Half had not completed diabetes training because could not get time off work, no funding, a lack of courses for PNs.	to FGs would be helpful. Issues of rigour barely addressed.
Greaves 2003	To explore practice nurses attitudes towards insulin conversion, in order to identify areas of concern for them, and to highlight any infrastructure needs	Qualitative Sample of 25, 18 from purposive sample and 7 from snowball sampling	**Population** Practice nurses with responsibility for diabetes care **Setting** Local diabetes special interest group + others	Not stated Analysis Semi-structured interviews Content analysis	Most of nurses felt converting to insulin in primary care had considerable benefits for patients. Barriers include: Gaps in diabetes nursing courses, workload implications, and the adequacy of the support systems for both patients and nurses, as well as concerns about legal	2

	or changes in practice which would facilitate a shift towards insulin conversion in primary care.		who are known to participants and who may want to contribute. **Country** England		issues surrounding the nurse prescribing aspect. Problems may be surmountable with specific training for PNs and GPs, protected time, team working to prevent isolation and boost patient support, and use of formal mentoring/supervision structures.		
Pill (1999)	To explore the reasons behind an observation from a previous RCT that an intervention (training of health professionals & use of an illustrated agenda setting chart within a negotiated decision making framework) designed to alter professional behaviour in non-insulin dependent diabetes general practice consultations was poorly sustained despite initial enthusiasm amongst nurses.	Field observation, qualitative semi-structured interviews, transcripts of group meetings and notes from a final telephone de-briefing interview with 18 practice nurses (n=18).	Participants were practice nurses. The majority had been in their current position for more than 5 years, two were relatively new (<2 years in post). All part-time but 11 worked >20 hours per week. Three had undertaken specific diabetes care training. Study took place in 15 General Practices in South Wales over a three year (dates not specified but appears pre 1995) period. **Recruitment** Participants already recruited as part of a MRC funded RCT.	Grounded theory approach. Analysis. Constant comparative method. Analysis of practice nurse data was compared to data from recordings of patient behaviour& qualitative interviews with the nurses before the intervention & then re-evaluated	Behaviour emerged from the dilemma between the extent of nursing responsibility and how to discharge the responsibility. **Using the intervention as an adjunct to their normal practice** Many nurses continued in their pre-intervention consultation style rather than using the tool to facilitate a more patient centred consultation. **Negotiation depended on the efficacy of diabetes control** Patients with poorer glycaemic control were less likely to receive a consultation within the negotiated framework. **Anxiety regarding granting greater patient autonomy if not conforming to the normal biomedical wisdom** Nurses found it difficult to identify where their responsibility ended and many would utilise more coercive than negotiated styles because of anxiety about patient behaviour.	Yes Applicability = 1	Medium to high quality. Actual dates of study not reported and method of analysis reported minimally but some very significant findings.
Sigurdardottir, A (1999)	To describe how diabetes nurse specialists perceived their role and function in relation to starting adult patients with insulin dependent diabetes on insulin.	Purposive sample of 6 female diabetes nurse specialists.	**Study population:** Female Diabetes Nurse Specialists Been in post from 22 months – 10 yrs. Aged from 29 – 50 years. **Setting:** Hospital based, clinic, community- based &	Heideggarian hermeneutic phenomenology. Analysis. Colaizzi's phenome-nological	The nurses perceived their role to be composed of 6 themes: 1) educator 2) promoter of physical skills 3) psychological supporter 4) individualized care advocate 5) self-care promoter 6) assessing & ensuring patient safety	3	

			patients' homes. **<u>Country:</u>** Great Britain				

Evidence Tables – Epilepsy

Systematic reviews

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability
Bradley 2001	SR with narrative summary of results (authors say too much heterogeneity to pool trials)	Can specialist epilepsy nurses improve patient care in comparison with routine care?	**Population** Pts with new or established diagnosis of epilepsy. **Setting** 2 studies based in general practice and 1 in neurology centre. Sample. 3 RCTs	**Intervention** Review does not give much detail about nature of interventions just says – interview/s with epilepsy nurse **Control** Usual care (little detail given about what this involved) **Provider** Epilepsy nurses. In two of the trials it was specified that the nurse had no formal qualifications in epilepsy but had 4 yrs experience in epilepsy. She was a trained district nurse and health visitor. **Duration & Intensity** Received more than one interview with nurse but number not specified in review.	Frequency of seizure 0: in 1 study that measured this outcome there was no significant difference in self reported seizures (p=0.494) at 6 months Depression & anxiety (HAD 0: all 3 studies measured this outcome and found no significant difference Epilepsy knowledge (EKP-G Epilepsy Knowledge Profile General) 1 study found increase in knowledge in intervention grp (p=0.035) but other 2 studies found no significant differences between groups. Sick leave, school days missed 0: in 1 study that measured this outcome found no difference between groups. Cost +: in 1 trial that looked at this outcome found nurse care cheaper than standard care. But authors say analysis had several flaws. Adverse effects not reported in any of the trials. As yet little evidence specialist epilepsy nurses improve quality of care – more research is needed.	1

RCTs and controlled evaluation studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Helde 2005	RCT	Does a structured epilepsy nursing intervention improve quality of life?	**Population** 114 Pts aged 16 and over with active epilepsy (one or more seizures in past year) and without significant learning disability. **Setting** Neurology outpatient clinic **Country** Norway 2.6% Lost to follow up PC - No	**Intervention** Interactive 1-day grp structured education programme followed by extended nurse follow up and counselling. Included: support and emphasis on medication compliance; aimed to give continuity of care **Control** TAU – appointments with neurologist and telephone contact with nurses running the clinic but not study nurse. **Provider** Nurse with extensive experience in epilepsy. Also involved neurologist and multi-disciplinary team. **Duration & Intensity** 1 day group educational programme and then regular contact for study period. Nurse called pts at least every 3 months.	2 years Health related QoL (QOLIE-89) 0: significant improvement in pre to post score in intervention grp (p=0.019) but not control grp (0.13). But no between grp differences General satisfaction +: mean scores 95.1 (8.7) vs. 72.0 (27.9) p<0.0005	3 Nurse worked with neurologist – not autonomous
Ridsdale 1999 Details of intervention taken from related paper Ridsdale 1997	RCT	What is the effect of a special nurse on patients' knowledge of epilepsy and their emotional state?	**Population** 251 People with epilepsy, 54% males, meang age 51 (range 17-90), median knowledge score 42 **Setting** General practices	**Intervention** Nurse run clinic. Included information on frequency of epilepsy attacks, medication management, blood sample for drug level, if appropriate, discussing individual concerns, advice on medical & social aspects of epilepsy, information leaflets. Advice recorded on structured record card. Second appointment	3 months Depression scores All patients Intervention reduced the risk of depression for people with no recent epilepsy attack. +: Median depression score of all patients in Intervention group significantly lower than control group (p=0.024, Data not shown) Knowledge	2

			Country UK Lost to follow-up= 16 (6.4%), I=7, C=9	included reviewing drug levels and drug taking, advice and support, and recording advice **Control** Usual care from GP or specialist **Provider** Specially trained nurse **Duration & Intensity** Two appointments; First one 45-50 minutes, second one 15-20 minutes 3 months later	0: no effect on knowledge levels. (Data not given)		
Mills 1999a Mills 1999b	Controlled before/after study (allocated by general practice). Follow up by self-completion questionnaire. 2 yr follow up of previous study	To assess the effect of a primary-care-based epilepsy specialist nurse service on pts reported health status, perceived quality of life, health care use, and provision of information.	**Population** Pts were eligible if 16 or over & on medication for epilepsy (mean age 53.8, 54.5% male, 51.3% manual social class). Sample 14 Practice's (I = 7, C = 7) 283 invited to attend appointment (128 – 45% attended). **Setting** General practice & pts own home. **Country** Bristol, UK Response rate 66.2% at baseline, 68.6% at 1yr and 40.3% at 2 yr follow up.	**Intervention** Role was to: provide information, advice & support, liaise with other health services & educate primary health-care teams. Included nursing assessment, clinical examination if appropriate, and recommendations for care. **Control** No intervention **Provider** Grade H epilepsy specialist nurse **Duration & Intensity** Mean number of consultations = 1, mean length = 45 mins.	12 months 48.3% of intervention grp saw epilepsy nurse. Discussed epilepsy with GP + Int grp significantly more likely to have discussed with GP and/or hospital doctors topics relating to their epilepsy Satisfaction with GP services + int more likely to categorise care as excellent OR 2.30; 95% CI 1.12-4.70 Adherence to medication + Int more likely to take anti-epileptic drugs (OR 0.48, 95% CI 0.24, 0.94) Health status, use of	2 yrs Frequency of seizures 0: OR 1.0 Discussed epilepsy with GP + more likely to have discussed 8/11 topics relating to epilepsy with GP or other general practice staff Satisfaction with GP services 0: OR 0.65 (0.28, 1.49)	2

			200 in each arm to detect 14% difference in pts having attacks in previous year (with 80% power & 5% significance level)		other health services, perceived quality of life 0: no significant differences in health status, use of other health services, perceived QoL		

Surveys

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Goodwin 2004	Survey. Using Delphi technique	To review & describe the key roles of the UK clinical nurse specialist in epilepsy (CNSE) and to identify the specialist nurses' contribution to care through an exploration of CNSE's perceptions of their roles.	**Population** All known CNSE's (had to be working exclusively in the field of epilepsy with children, adults or the learning disability population. **Setting** CNSE's employed in a range of community and hospital settings. **Country** UK Sample. 130 questionnaires sent 82 (63% returned of which 6 were invalid). 76 used for analysis	N/A	CNSE's employed in range of hospital & community settings with differing patient groups. Although titles differed most contained word 'specialist'. 72% of respondents held higher academic nursing quals. But only 36% had previous epilepsy or neurology experience. 30% of respondents had been employed in the role of CNSE for more than 5 years and 84% were employed as a G or H grade nurse. Only 39% of CNSE's held nurse-led clinics and of those 32% were responsible for all decisions made during their clinic. 40% of CNSEs saw new patients who had not previously been reviewed by one of the medical team. The level of responsibility for drug management was mainly at a monitoring and advisory level but a small number of CNSEs held much greater responsibility. Authors conclude that key roles of the CNSE were difficult to define. Also they say that unlike US where CNSEs are expected to have masters degree UK educational standards are less clearly defined and qualification for the role tends to depend largely on nurse's level of clinical experience.	1

Stephen 2003	Audit – descriptive data, no control group	What are the outcomes from a nurse-led clinic for adolescents with epilepsy?	**Population** 301 adolescents with suspected or diagnosed epilepsy. **Setting** Nurse–led clinic **Country** Glasgow, UK	**Intervention** Nurse-led epilepsy clinic. Included: assessment, referral for tests, education & advice. Drug treatment prescribed by medical staff after consultation with nurse. Included home visits if appropriate & open telephone contact. **Control** No control grp **Provider** Epilepsy nurse specialist (qualifications and experience not reported). Pts also received physical and neurological examination from physician. **Duration & Intensity** Nurse saw pt within 2 weeks of referral and every 6-8 weeks after if appropriate. Home and school visits also undertaken as necessary.	Seizure freedom. More than 1 year's seizure freedom was achieved by only 53% of patients, 76% with one AED (antiepileptic drug), 16% with two and 3% with three. 4 (5%) patients remained seizure free off medication. Outcome was better ($p<0.05$) for newly diagnosed (59% seizure free) than for treated (47% seizure free) epilepsy and for idiopathic generalised (60% seizure free) than for partial (46% seizure free) seizures ($p<0.02$).	2

Qualitative

Author	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and Analysis	Main Findings	Application to UK
Mills 2002	Aim was to explore the experiences, feelings and perceived problems of Providing a new specialist nurse service from the nurse's perspective.	Case study nested in controlled study (Mills 1999a & b) In-depth interviews (recorded, transcribed, coded & themes identified) with 1 epilepsy nurse specialist. Used topic guide comprising a series of open ended	**Population** Specialist epilepsy nurses providing a General practice based intervention for pts with epilepsy. **Setting** General Practice **Country**	Inductive approach to data analysis. Thematic coding of text. Investigator triangulation used	Key themes: • Initial doubts about being in a pioneering position • Numerous difficulties encountered • Perceived achievements of service • Proposed service modifications. Overall nurse felt service beneficial to pts and health care professionals. But experienced operational problems including: difficult adapting to primary care, problems meeting and motivating practice	2 Service later cut because of lack of funding.

		questions	UK	Respondent validation.	staff, & heavy workload. May be important for nurse to have community experience prior to setting up service.	
Ridsdale 2002	To describe patients' views of the challenge posed by a new diagnosis of epilepsy and their assessment of a nurse intervention.	90 patients returned questionnaires at baseline and 6 months later for basis of interview themes 22 semi- structured interviews (15 in nurse intervention group, 7 in control)	**Study population:** Mean age 40 years (17-83) 51% were men **Setting:** Unclear **Country:** UK	Not stated but sounds like IPA Analysis Using Ethnograph version 5.0 software	* Nurse intervention provided info & support whilst patients reconfigured their lives with diagnosis * Nurse provided risk reduction advice associated with e.g. – swimming * Nurses educational style: More time with nurse helped patients recover questions/ concerns as compared to rushed time with Dr	2
Ridsdale 1999	To examine patients' satisfaction with information and advice on epilepsy and self-care provided by medical specialists, GPs and a special nurse.	*6 general practices in South of England *Of the 283, 251 returned completed questionnaires *Randomly selected half the patients who were offered 2 appts. with nurse and the other half with the usual care *6 months later, 235 patients remained. Of those 196 returned them *100 were in the intervention group & 96 in control group *44 patients were interviewed	**Study population:** Mean age was 47 (range 18-75) 57% were male **Setting:** Nurse led-clinics **Country:** UK	Content Analysis Analysis. Not reported	*Recurring theme: Patients perceived doctors' time as too limited to explain condition and how to manage it, whilst the nurse had the time and expertise to do so. *Patients expressed the belief that they would have benefited most by seeing a special nurse when epilepsy was first diagnosed. *Nurse intervention was particularly valued for her explaining the social aspects and acting as a key worker for other services.	3

Evidence Tables – HIV

Survey's

First Author	Study design	Research Question	Study population, setting and country	Main results	Applicability to UK
Atkinson 1996	survey	What is the role of the DN in caring for patients with HIV, and to what extent are they confident that they can deliver high quality care to patients with HIV/AIDS? What factors affect DNs confidence to provide high quality care to patients with HIV/AIDS?	**Population** District nurses and practice nurses (RGN & ENs) **Setting** Primary & community care **Country** Scotland, UK Sample 182 with 55% response rate (101).	25% had received extra training in HIV/AIDS 80% DNs had visited a patient with HIV/AIDS Registered nurses more likely to see patients with HIV/AIDS (P<0.001). Patients with HIV/AIDS came on caseloads infrequently. Activities most commonly undertaken by DNs were; Advice/counselling, education (75%) Carer support (75%) General nursing care (67%) Administration of specialist treatments (61%). Least common activities; Technical procedures (41%) Technical tests & assessments (47%)Nurses had greatest confidence in providing general nursing care & least confidence in technical procedures & tests. Insufficient training & experience cited as main reason for low confidence.	3
Hekkink 2005	Cross-sectional study	How do patients infected with HIV judge the quality of care received from their HIV nursing consultant (HNC)? How does this compare with the care delivered by HIV specialists and GPs? How does the opinion of HIV patients about the HNC compare with the opinion of patients with rheumatic diseases about the care they receive from their specialist nurses?	**Population** 250 HIV-infected patients from GP practice who saw a specialist in the HIV centre. 128 rheumatic disease patients Of these 226 filled in HIV questionnaire but only 153 had contact with HNC. 73 had no contact with HNC. **Setting** 4 regional HIV centres and 46 GPs **Country** Holland	Quality of care from HIV nursing consultant was predominately good. 5 aspects showed an unfavourable ratio score (R<1.0) which indicates room for improvement. On ‘professional performance’ and ‘attitude of the professional’ the HIV nursing consultant scores between the GP and HIV specialist. Patients with rheumatic diseases seemed to be more satisfied than HIV patients with the care from their nurse consultant. Study concludes that there is room for a position like HNC and that this is highly valued by patients.	3

Evidence Tables – Hypertension

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country	Description of intervention	Main results at follow up	Applicability to the UK
Oakeshott 2003	SR	What is the effectiveness of nurse-led hypertension management in primary care?	**Population** This is not clearly defined in review but studies appear to include hypertensives and those with cardiac disease as well as health people attending for health checks. **Setting** Primary health care in the UK **Country** UK Sample 10 RCTs	**Intervention** Nurse-led clinics. Studies included variety of interventions including health checks, health promotion and education, and brief behavioural counselling. Many of interventions included agreed treatment protocols or guidelines. **Control** TAU which was not always well described. In general seemed to be care by GP **Provider** Nurses, including practice nurses and specialist nurses. **Duration & intensity** Not specified in review.	Blood pressure 0: most studies found little effect on blood pressure. Although no effect on blood pressure found nurse-led clinics did not seem to be any less safe than care by a GP.	2

RCTs and Controlled studies

First Author	Study design	Research Question	Study population, setting and country	Description of intervention	Main results at follow up	Applicability to the UK
Artinian 2001	RCT Pilot study	Does nurse-managed home blood pressure telemonitoring (HT) plus usual care, or community-based blood pressure monitoring (CBM) plus usual care, improve blood	**Population** 26 urban African American adults (88.5% women) ≥18 and SBP ≥140mmHg or a DBP≥90mmHg. If person had diabetes or heart attack history then	**Intervention** 1. Home telemonitoring: self-monitoring BP at home & transmitting BP readings to a network server. 2. Community-based monitoring-intervention: nurses in a neighbourhood community centre monitoring BPs, providing	3 months BP +: Both HT & CBM had clinically & statistically sig ($p<0.05$) pre to post drops in SBP and DBP at 3mths follow-up, with participants in HT group demonstrating the greatest improvement (HT: baseline SBP 148.8 ±13.8, DBP 90.2±5.79; 3mths follow-up SBP 124.1±13.82,	4 Based on health belief model. Very small study

		pressure from baseline to 3 month follow-up compared to usual care only?	SBP of ≥130mmHg or a DBP≥85mmHg. **Setting** Family community centre **Country** USA 20% lost to follow up	immediate feedback and counselling about lifestyle modification. **Control** Visits to usual care provider scheduled at intervals requested by primary care provider. **Provider** Specially trained African American registered nurses. Received 10 hours training from investigators **Duration & intensity** HT measured BP 3 x week for 12 wks + telephone counselling each week for 12 weeks CBM measured BP similarly but at community centre.	DBP 75.58±11.4; CBM: baseline SBP 155.25±17.014, DBP 89.42±10.95; 3 mths follow-up SBP 142.3±12.1, DBP 78.25±6.86). There was little change in SBP or DBP at 3 mths follow-up in usual care group.	
Bosworth 2005	RCT-ongoing Results only for 6 mth follow up.	Can a nurse administered telephone intervention improve blood pressure control?	**Population** 588 outpatients with diagnosis of hypertension and a prescription for hypertensive medication (41% African American, average age 63). 97% rate follow up at 13mths. PC - No **Setting** Durham VAMC primary care clinic. **Country** USA	**Intervention** Tailored and standard info in 9 modules: Literacy, hypertension knowledge, memory, social support, patient/provider communication, medication refills, missed appointments, health behaviours and side effects. Based on Health Decision Model. **Control** Usual care. **Provider** Nurse case manager (Registered nurse) **Duration & intensity** Contacted by phone every 2 mths for 24 months	6 months Self confidence with treatment +: sig increase in self confidence of hypertension management from baseline to 6mths compared to usual care group p=0.007 Knowledge of hypertension, 0: No statistical diff in hypertension knowledge between the 2 groups. self-reported`adherence.0: No sig change in overall proportion with self reported medication adherence between the 2 groups.	3 BP primary outcome but data not available in this paper (study ongoing)

Rudd 2004	RCT	Does a physician-directed, nurse-managed, home-based system for hypertension management (using standardised algorithms to modulate drug therapy) improve BP?	**Population** 150 Patients with BP ≥150mmHg systolic or 95mmHg diastolic or history of drug treatment for hypertension. 9.7% lost to follow up PC - No **Setting** 2 medical clinics **Country** USA	**Intervention** Counselling plus tips for enhancing drug adherence, recognition of potential drug side effects. Nurse could alter medication. **Control** TAU **Provider** Service managed and provided by nurse and directed by consultant physician. **Duration & intensity** Baseline counselling session + Phone contacts at 1 week, 1, 2 and 4 months. Calls average length was 10 mins. Pts could phone nurse at other times with questions or concerns.	6 months Change in BP pre to post +: Patients receiving I achieved greater reduction in office BP values at 6 mths than those receiving usual care. (14.2±18.1 vs 5.7±18.7mmHg systolic, p<0.01) (6.5±10.0 vs. 3.4±7.9mmHg diastolic, p<0.05). Adherence to medication. +: Average daily adherence to medication, measured by electronic drug event monitors, was superior among I patients (mean±SD, 80.5%±23.0%) than among C patients (69.2±31.1%, p=0.03).	3 Only included 10% of screened population.
Schroeder 2005	RCT	Is nurse-led adherence support for people with uncontrolled high blood pressure more effective than usual care?	**Population** 245 patients with hypertension and with BP of ≥150mmHg systolic and/or 90mmHg diastolic in past 6 mths. Lost to follow up 16.9% PC - No **Setting** 21 General practices **Country** Bristol, UK	**Intervention** Adherence support sessions for pts to talk about problems with BP lowering medication. Included agreement of tailored strategies to resolve medication problems. Based on self-regulatory model of illness behaviour. **Control** Standard care at respective practices + BP checks at similar intervals as intervention group. **Provider** Practice nurse. **Duration & intensity** Adherence support session-20mins + shorter session 10mins, 2 mths later + 5 min follow up BP check.	6 months 0: Timing compliance i.e. % of days correct number of doses taken on time. 0: 87% vs. 90%, p=0.63. 0: Correct dosing, i.e. % of days correct number of doses taken. 90.8% vs. 92.4%, p=0.77 0: Taking compliance, i.e. % taking prescribed number of doses. 95.6% vs. 95.6%, p=0.76. 0: Systolic & diastolic BP. Systolic, p=0.24, Diastolic, p=0.85. Cost. Projected costs for primary care sector per consultation were £6.60 for intervention compared with £5.08 for usual care. No evidence of effect on compliance from but authors note compliance already high.	1 All GP practices included in study already ran nurse-led hypertension clinics. Adherence measured by MEMS (electronic medication monitors).

Uncontrolled studies

First Author	Study design	Research Question	Study population, setting and country	Description of intervention	Main results at follow up	Applicability to the UK
Drevenhorn 2001	Structured non participant observation	What kind of nonpharmacological treatment is given by nurses during visits for blood pressure measurement? What are the nurse's & patient's activity levels during the visit using the Nurse Practitioner Rating Form (NPRF) instrument?	**Population** Public health nurses with 2 years training as a PH nurse **Setting** Health Care Centres **Country** Sweden 21 nurses Sample	N/A	Visit average time 15.2 minutes Nonpharmacological treatment seen in 28% of visits & this comprised of advice re diet & exercise. More experienced nurses more likely to use health promotion & explore psychological issues. Two thirds of problem-solving orientated conversations focused on somatic issues in hypertension. Over 50% of observations had nurse & patient at same level of medium or high communication. Authors conclude nurses need more training in nonpharmacological treatment to practice health promotion in hypertension.	3

Surveys

First Author	Study design	Research Question	Study population, setting and country of study	Main results at follow up	Applicability to the UK
Lip 1997	Survey	Doctors, nurses, pharmacists and patients-the rational evaluation and choice in hypertension survey of hypertension care delivery.	**Population** GPs, nurses, hypertensive patients, pharmacists. 178 GPs. 158 practice nurses. 948 patients via GP. 1167 patients via pharmacist. **Setting** GP practices. Pharmacies. **Country** UK	Reasons for stopping or altering antihypertensive treatment and the patterns of prescribing. 29% of practice nurse patients talked about side effects compared with only 6% of GP patients. This survey highlights the lack of communication about potential side effects between the doctor and hypertensive patient, and the important role of the practice nurse. Nurses felt could play an extended role in the care of pts with hypertension but some felt they needed more training on drugs.	3

Evidence Tables - Leg Ulcers

Qualitative studies

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and Analysis	Main results at follow up (Reported as intervention vs. control unless otherwise specified) (+) = positive effect, (-) = negative effect, (0) = no effect	Application to UK
Bourne 1999	What are the different experiences of community nurses involved in the treatment of leg ulcers in clinic and home settings?	In-depth interviews, informal with open-ended questions. 10 nurses randomly selected from 27 in 4 leg ulcer clinics.	**Population** Community nurses, grades E,F and G, involved in leg ulcer treatment in both clinic and home settings. **Setting** 4 leg ulcer clinics treating inner city patients. **Country** UK	Phenomenological approach. Analysis Interviews tape recorded and transcribed. Phenomenological bracketing used.	The perceived differences in the nurses' experiences are : Clinics provide a more practical environment for the treatment of patients with leg ulcers. Patients see community nurses in the traditional role of the district nurse, which affected the care given in the 2 different settings. Nurses working in the leg ulcer clinic felt that they were in control of the environment, whereas those caring for patients in their own homes were conscious that this was the patient's domain. The provision of education and teaching was more structured in the clinic and led to better patient compliance. Record keeping was easier to maintain in the clinic as it was more accessible. Care in the home was time-consuming, as it did not have the structure provided in the clinic setting.	3

Evidence Tables – Multiple Sclerosis

Systematic Reviews

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up i	Applicability to the UK Score 1-4
De Broe 2001	SR + questionnaire survey of MS nurses in UK	What is the effectiveness and relative cost-effectiveness of MS specialist nurses in improving care and outcomes for pts with MS?	**Population** People with MS **Setting** Neurology unit and pts own home. **Country** UK Sample 1 evaluation study with no control grp. Over 2 yr period 136 pts referred to nurse. Of those 82 selected for interview (87% response rate) + postal questionnaire to 106 GPs (76% response rate)	**Intervention** Specialist nurses for patients with MS where the role includes diagnosis **Control** No control **Provider** MS liaison nurse (training and experience not specified)	Results of survey – 3 main areas of role were providing information, education & advice to pts & carers, providing psychological support, and community follow up visits. Pt views 88% found nurse helpful and 39-54% reported improved life, coping, mood, confidence, and knowledge of MS. More pts and carers found nurse 'helpful' or 'very helpful' compared with outpt care. GP views 65% reported finding MS nurses helpful and 23% said nurse detected previously unrecognised disabilities in their pts. 23% said learned something about MS from the nurse and 40% said would purchase the nurse's service from their budget if a fundholding practice. Authors say at present not enough evidence to assess effectiveness	3
Forbes 2003	SR with qualitative/ descriptive presentation of results. Included all study types.	Aim was to identify and synthesize evidence on the role of clinical nurse specialists in meeting the care needs of people with MS. 3 areas, MS nurse, needs of people with MS, and identification of guidelines and standards.	**Population** All nurses working with people with MS in a specialist capacity. Sample 55 reports of which 53% were descriptive.	**Intervention** Specialist nursing for people with MS. Papers were included if they provided some direct commentary on specialist nurse role. **Provider** Specialist MS nurses	MS nurse role Comprised of number of different aspects including: psychosocial support, co-ordination of care, onward referral, provision of specialist advice and pt education. Needs of people with MS Dimensions of pt needs includes: psychological, social & physical needs; knowledge about disease; access to quality services; and contact with expert health professionals. Authors say appears to be a good link between	2

					what pts want and what nurses do. Also appeared to be a good fit between current guidelines and what nurses say they do. However, lack of sound evaluation of MS nurses role.	

Evidence Tables – Parkinsons

RCTs

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up including outcome variable(s)	Applicability to the UK
Jahanshahi 1994	RCT	What is the value of providing access to, and contact with, a nurse practioner over a 6 month period?	**Population** 64 Pts with Parkinson's disease (PD) or dystonia aged less than 70 with no clinical evidence of dementia (mean age PD 63.7, dystonia 52.9). PC - No **Setting** Community **Country** London, UK	**Intervention** Programme provided: information about illness & self-help techniques; assessment of needs; referral to other professionals (e.g. physio, social worker), support. **Control** No intervention **Provider** Nurse practitioner **Duration & Intensity** 2 home visits and 5 telephone contacts over 6 month period. Home visits lasted 3 hrs or more. Could telephone NP at any time during study.	6 months Depression (Beck depression inventory) Anxiety (Spielberger Trait Anxiety Scale) Self esteem Functional disability 0: no significant differences were found for any of the psychosocial variables for either PD or dystonia pts. How useful was contact (rated from 0 (not at all useful) to 10 (very useful) Mean rating 8.5 (50% rated contact as 10). 80.8% thought duration of intervention needed to be longer. 96.2% thought contact with NP should be important part of health service.	2
Hurwitz 1999 Hurwitz 2002 Jarman 2005	RCT	What are the effects of community based nurses specialising in Parkinson's disease working with GPs on health outcomes and	**Population** 1836 patients aged 17 and over with Parkinson's disease and taking 1 or more antiparkinsonian drugs	**Intervention** Counselling & educating patients, Providing info on drugs, Monitoring clinical well being & response to	Functioning and well being (PDQ-39 – validated) 0: 0.47 (-2.72, 3.66) p=0.77 Quality of life (Euroqol) 0: diff -0.02 (-0.06, 0.02) p=0.30	1

		healthcare costs.	(excluded if severe mental illness or cognitive impairment that precluded consent). 15% lost to FU PC - Yes **Setting** General practices within local authorities that did not have well developed community based services of nurse specialists in Parkinson's disease. **Country** UK	treatment, Instigating respite & day hospital care, Liaison with local primary care teams. **Control** Usual care **Provider** Nurse specialist who completed course on Parkinson's disease. **Duration and intensity** Not specified but pts followed up for 2 yrs.	Global health question +: diff -0.23, -0.4 to -0.06, p=0.008 Mortality 0: 2 yrs OR 0.91 (0.73, 1.13), 4 yrs OR 0.89 (0.76, 1.03) Stand up test 0: OR 1.15, 0.93, 1.42 Dot in square score 0: diff -0.7, -.3.25 to 1.84 Health care costs Direct costs for patient health care increased by average of £2658 during study, the average increase was £266 lower among patients attended by nurse specialist (-£981 to £449). Secondary outcomes: Medication & referral: 0 No differences in proportion of patients taking medication and proportion of patients referred to outpatients or ancillary therapists.	
Reynolds 2000	RCT	Are there are any differences in outcomes when treatment is given by a Parkinson's disease specialist nurse PDNS or specialist neurologist? What are the costs & utilisation of different "packages" of care given by specialist nurse or physician using social requirement assessment?	**Population** Patients with Parkinson's disease, not previously seen by PDNS and a new referral to clinic (mean age 66). Sample 35 PDNS only 65 Mainly PDNS with consultant follow up. 85 Consultant only.(control) 0 referred by consultant to PDNS (added during study). 42% lost to follow up PC - No	**Intervention** PDNS role: To support patients and families, increase awareness of PD through teaching & education, Regular monitoring of the illness, encouraging early referral to specialist therapists. **Control** Usual care by consultant only. **Provider** PDNS **Duration and intensity** 12 mths.	12 months Anxiety & Depression (HAD) 0: anxiety H = 0.45, depression H = 0.36 SF-36: Only 2 out of 22 dimensions reached statistical sig: physical functioning (p=0.02) and general health (p=0.02) favoured the control group-consultant only. 0 : Parkinson's Disease Questionnaire, Functional disability questionnaire Satisfaction scale. Costs of care Primary economic analysis on 47 patients showed cost per month sig higher in PDNS group than consultant group (£53.96 vs. £4.76, p=0.001 in period 1) and (£66.77 vs. £5.41, p=0.001 in period 2)	1

			Setting Specialist movement disorder clinics in hospital outpatient depts. **Country** England.	Seen at least twice during study.	Secondary economic analysis of costs on 81 patients showed PDNS group had sig higher monthly costs in period 2 (£53.76 vs. £28.01)	

Evidence Tables – Rheumatology

RCTs and controlled studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up		Applicability to the UK
Blixen 2004	RCT-pilot study	To evaluate the feasibility of a future randomised trial of the telephone self-management program and to gather descriptive data.	**Population** 32 adults aged 60 or more, with diagnosis of OA **Setting** 2 hospital rheumatology clinics **Country** USA PC - No	**Intervention** Mailing of OA health education modules, a relaxation audio-tape and follow-up telephone self-management sessions. **Control** Usual care with their respective rheumatologist. **Provider** Advanced practice nurse. **Duration and intensity** 6 weekly mailings of modules. 6 weekly 45min telephone sessions	3 months 0: Concerns & beliefs about OA. 0: Self-management behaviours (exercise, relaxation, medication use). 0: QoL 0: Health status (SF-36).(but pre to post improvement in 50% of intervention grp and 25% of control grp at 3 months)	6 months 0: Concerns & beliefs about OA. 0: Self-management behaviours (exercise, relaxation, medication use). 0: QoL 0: Health status (SF-36).	3
Hill 1997	Pilot surveys followed by RCT	What is the impact of a nurse-led rheumatology clinic on patient satisfaction?	**Population** Pts with Rheumatoid arthritis (RA) **1st pilot study**: mean age 52 years **2nd pilot study:** mean age 55 years	**Intervention** Nursing clinic (NP) included patient education and counselling **Control** Consultant rheumatologist's clinic (CR)	48 weeks +: Patient satisfaction Nurses' patients were significantly more satisfied than those of the rheumatologist p<0.0001 +: Provision of information (p<0.0001)		2

			Pt satisfaction study: mean age 54 years. All previously seen by doctors but not received outpt care from nurse Sample First pilot: 37 patients (29 respondents) Second pilot: 20 patients Patient satisfaction study: 70 patients PC - No Lost to FU not given **Setting** Rheumatology out-patient clinic **Country** UK	**Provider** Nurse **Duration & Intensity** Seen on 6 occasions over 1 year, CR Average of 17 patients per 4 hour clinic NP 8 patients per 4 hour clinic	+: Overall satisfaction p=0.01 During 21 months of the study, 16.4% appointments were missed by CR clinic compared with 1.8% in NP clinic	
Hill 2003	RCT single blinded	Does a rheumatology nurse practitioner improve outcomes for patients with rheumatoid arthritis (RA)?	**Population** 80 patients with RA, 21% males, median age 57(range 35-76), median years of full time education 10, attendance at clinic on at least three previous occasions **Setting** Outpatient clinic **Country** UK PC - No	**Intervention** Management and referral by RNP, patient education programme (theory based) **Control** Management and referral by JHD Both included drug monitoring, requests for changing therapy and prescriptions (Details of roles of providers not given) **Provider** I = Specialist Rheumatoid nurse practitioner **Duration & Intensity** Patients were seen 6 times in	**48 weeks** Disease Activity Score (DAS28) No. with changed DAS Scores (No stats given) **RNP N=36** **JHD N=35** Unchanged 19 22 Worsened 6 7 Improved 11 6 Fatigue (% improvement/deterioration in length of fatigue) + p<0.02 p-0.038 p=0.008 Articular index, psychological status 0: No significant changes Pain Improved pain in RNP grp, p=0.044. No change in JHD grp	3

				12 months, 30 minute appointment	Morning stiffness 0: No significant differences and little change pre to post within groups Knowledge and satisfaction scores (median) 0: Total knowledge score improved significantly in both groups, but no significant difference between groups Satisfaction +, p=0.000 Pre 3.57 3.60 Post 4.1 3.56 P=0.000 p=not significant Authors conclude RNP care is safe and effective, and can bring additional benefits on greater symptom control and enhanced patient self care		
Ryan 2006	RCT	Does a consultation with a clinical nurse specialist in a drug monitoring clinic have a measurable impact on the well-being of patients with rheumatoid arthritis RA?	**Population** 71 adults with RA attending a rheumatology follow-up outpatient clinic who were starting new disease-modifying anti-rheumatic therapy. **Setting** District General hospital **Country** England, UK PC - No	**Intervention** Monitored by rheumatology clinical nurse specialist using Pendleton's framework to assess patient needs alongside safety monitoring. CNS could also refer patients to other healthcare professionals. **Control** Patients seen by an outpatient staff nurse for safety monitoring only. **Provider** Nurse **Duration & intensity** 1 year Reviewed weekly for first month then monthly for a year.	7 months +: Arthritis impact Measurement scales (unadjusted difference in mean change scores) 1.7 (0.2, 3.3) 0: ADLs 0.4 (-0.3, 1.1) 0: Pain 0.6 (-0.4, 1.7) 0: Rheumatology Attitude Index, 0.9 (-1.1, 2.8) 0: Disease Activity score changes in drug therapy. 0: Taking NSAIDs 0: Consultations with health care professionals	12 months 0: Arthritis impact Measurement scales (unadjusted difference in mean change scores) 1.4 (0.0, 2.9) 0: ADLs 0.6 (-0.1, 1.4) 0: Pain 0.9 (-0.1, 1.9) 0: Rheumatology Attitude Index, 2.1 (0.0, 4.3) 0: Disease Activity score changes in drug therapy.	1

Tijhuis 2003 (pt satisfaction data from Tijhuis 2002) Cost effectiveness data is in Van den Hout 2003	RCT	Is the care provided by a clinical nurse specialist (CNS) effective for patients with rheumatoid arthritis?	**Population** 210 patients with rheumatoid arthritis (RA) and increasing difficulty in performing activities of daily living, mean age around 54-60 overall, 72% women, 46% low levels of education CNS 71 Inpatient 71 Day patient 68 Loss to follow-up 14.8% PC not given **Setting** Hospital outpatient **Country** Netherlands	**Intervention** Transmural nurse clinic. CNS care was additional to the usual outpatient care provided by rheumatologists;CNS provided RA information and prescribed treatment (in consultation with doctor), referrals to other health professionals **Control** 2 comparison groups: Multidisciplinary in patient team care and day patient team care. Both followed a prescribed individually tailored treatment programme. The team included nurses, doctors, occupational therapist, physical therapist, social worker. 9 treatment days ina fixed period of 2 and 3 weeks respectively. **Provider** Six CNSs **Duration & Intensity** Mean duration 12 weeks, average three visits to transmural nurse clinic	Follow-up at 3, 12, 24 months 0: clinical outcomes. Visits to CNS were more frequent and home help less frequent in CNS Group. Results were stable for 2 years. CNS as effective as inpatient care. Although all patients were highly satisfied with multidisciplinary care, patients who received care by CNS were slightly less satisfied than those who received inpatient or day care **HAQ** Mean, sd at baseline and mean change scores for follow-up (95% CI) Significant improvement between baseline and follow-up in all three study groups CNS Baseline 1.17 (0.65) 24 mths Medical treatment CNS patients received significantly fewer injections in large joints than inpatients and day patients in first 6 weeks, p=0.034 No significant differences in the number of prescribed adaptive equipment, number of patients hospitalised or numbers having one or more contact with a physiotherapist, occupational therapist and/or social worker	3 Transmural nurse care is a Dutch model care that may not be applicable to UK.
Van den hout 2003 See Tijhous 2002, 2003 for effectiveness and satisfaction data	Economic evaluation	Is clinical nurse specialist care for patients with rheumatoid arthritis more cost effective than in patient or day care?	All details as shown for Tijhuis 2003 Sample 210 All details as shown for Tijhuis 2003	All details as shown for Tijhuis 2003	0: QOL Costs of initial treatment CNS E200 Inpatient team care E5000 Day patient team care E4100 Other health care costs and non health care costs not significantly different. Total societal costs did not differ between inpatients and day patients but were significantly lower for CNS by E5400	3

Victor 2005	Cluster RCT	To evaluate the effectiveness of a primary care-based patient education programme (PEP) on patients with knee arthritis as an exemplar for osteoarthritis (OA).	**Population** 193 patients 45 yrs or more with knee pain due to OA and registered with a general practice referring patients to Rheumatology Dept at a hospital (mean age 63, 72% female, 64% non-white). 22 practices **Setting** Rheumatology dept of hospital **Country** England Follow-up: 72 patients I 53 patients C. PC - No	**Intervention** Included: education about OA, its causes and effects; activities to increase self-efficacy; development of coping skills for pain, joint protection and exercise; sharing experiences and group support to improve self-esteem and quality of life. **Control** Normal care + booklet. **Provider** Study nurses **Duration and intensity** Home visit + Four 1 hour facilitated group sessions .	1 month 0: Disability (WOMAC) MD -5.3 (-13.2, 2.7) 0: Pain (WOMAC) MD -0.7 (-2.4, 1.1) General health (SF-36) 0: MD -0.4 (-9.3, 8.4) Mental health (General health questionnaire – GHQ) 0: MD 0.8 (-0.6, 2.2) Control practices recruited significantly fewer patients than intervention practices, p=0.02)	12 months 0: Disability (WOMAC) MD -1.4 (-6.0, 3.2) 0: Pain (WOMAC) -0.1 (-1.4, 1.2) 0: stiffness (WOMAC) MD -0.3 (-0.8, 0.2) General health (SF-36) 0: MD 2.6 (-3.8, 8.9) Mental health (General health questionnaire – GHQ) 0: MD -0.2 (-1.9, 1.5) 0: GP visits difference 2.3 (0.8, 6.6)	1 Study detected a lack of benefit of PEP for people with OA of the knee. All major outcome measures demonstrated deterioration in function over duration of follow-up period.
Temmink 2001	Controlled before and after study	What is the effect of attending a transmural nurse clinic, in addition to regular care, on rheumatology conditions?	**Population** 227 people with diagnosed rheumatic condition, Dutch speaking, having telephone access and no previous contact with a specialist rheumatology nurse. Mean age 59 years, mostly females with predominantly rheumatoid arthritis. lower levels of education, class II functional impairment (Steinbrockers classification)	**Intervention** Attendance at a hospital transmural nurse clinic in addition to regular care, involved patient education about disease and psychosocial support **Control** Regular care at hospital where no nurse clinic was available **Provider** Rheumatology outpatient nurse **Duration & Intensity** Baseline consultation First telephone interview 1-4	6 months study period Overall no major differences in outcomes. The intervention resulted in more contacts with rheumatologists and occupational therapists, but did not influence patients' need for information , use of aids and adaptations or daily functioning 0: Need for more information in general 0: No of aids/adaptations mean (sd) 0: % use of aids/adaptations 0: Mean (sd) no of contacts with health professionals Occupational therapists + p<0.05		3 New form of health care in Netherlands, so uncertain of applicability in the UK Further studies required to assess long term effects

			Setting Community hospitals **Country** Netherlands 7.9% lost to follow-up	days later Second telephone interview 6 months after first one Conducted by independently trained pollster and lasting 20-40 minutes each. Patients in intervention group contacted specialist nurse about 3x during study period	Rheumatologist + p<0.05 Difference score (multiple linear regression) 0.17, p<0.01 (significantly higher than control) 0: Total no of admissions 0: ADL (mean score)	
Sohng 2003	Pre and post test design. Non equivalent control group (age and sex matched control grp).	To examine the effects of the Systemic lupus erythematosus SLE self-management course for Korean patients on fatigue, coping skills, self-efficacy, depression, pain and disease activity.	**Population** 41 pts over 18, literate, stable medical condition, unchanged medication during the study, fulfilment of at least 4 of American college of Rheumatology criteria for SLE, having regular physician visits at outpatient clinic (average age 32.5). **Setting** 1 university hospital rheumatology clinic **Country** Korea	**Intervention** Sessions focussed on: An overview of pharmacological therapy, symptom management, exercise, interpersonal relationships, coping with flares, healthy lifestyles, and management of common SLE related health problems. **Control** No self management course. **Provider** Registered nurses. **Duration and intensity** 1 x 2 hr self-management session each week for 6 weeks.	Fatigue (multidimensional assessment of fatigue scale) + difference in mean change 6.7 (-0.46, 9.24) (p=0.049), Coping skills (10 item scale) + difference in mean change -6.1 (0.33, 11.85) (p=0.007), Self-efficacy (7 item scale) + difference in mean change -4.0 (0.83, 7.29) (p=0.001) Depression (Beck depression inventory) + difference in mean change 4.3 (0.14, 8.48) (p=0.025). Pain (visual analogue scale) 0: difference in mean change 0.1 (-0.45, 0.31) (p=0.469) Disease activity (immunological tests)0: no significant difference in disease activity	3

Evidence Tables – Stroke

RCTs and controlled studies

First Author	Study design	Research Question	Study population, setting and country of study	Description of intervention	Main results at follow up	Applicability to the UK
Boter 2004	Multicentre RCT	Does an outreach care programme by nurses affect satisfaction with care & quality of life among recently discharged stroke patients?	**Population** Dutch speaking adults, ≥ 18, first admission for a stroke, hospitalisation within 72 hours after onset of symptoms, life expectancy of > 1 year, independent or partly independent on discharge, discharged home, and residence within 40km of the catchment areas served by the hospitals. Sample 263 patients & 211 carers I 273 patients & 230 carers C 92.5% FU **Setting** 2 university hospitals & 10 general hospitals **Country** The Netherlands PC - Yes	**Intervention** Standard care + outreach programme. **Control** Standard care **Provider** Experienced and comprehensively trained stroke nurses. **Duration & intensity** 6 months. 3 nurse initiated telephone contacts (1 to 4; 4 to 8; and 18 to 24 weeks after discharge.) and a visit to the patients in their homes (10 to 14 weeks after discharge).	6 months 0: Satisfaction with stroke care In both groups one fifth of patients were dissatisfied with care received in hospital and half were dissatisfied with care received after discharge. 0: QoL. Intervention grp had better scores on the SF-36 domain “role limitations due to emotional health”; mean difference 7.9; 95%CI, 0.1 to 15.7. No differences on other 7 domains. 0: Use of rehabilitation services int used few rehab services, but it was not significant (RR 0.66, 95% CI 0.44,1.00) 0: Anxiety & depression (HAD) Depression: Difference between medians 0 (-0.52, 2.98); anxiety: difference between medians 1 (0.19, 2.79) 0: ADLs (barthel & rankin) 0: Carer strain	3

Burton 2005	RCT	Does a specialist nursing role providing outreach education and support to stroke patients and carers promote recovery after discharge from hospital?	**Population** 176 pts with a clinical diagnosis of stroke (mean age 75.25). Excluded those with depression, multi-infarct dementia, drug or alcohol dependence. Follow up 13.6% lost to FU at 12 months PC – No **Setting** Community **Country** North-west England, UK	**Intervention** Care by stroke nurse. Included: home visit & holistic assessment, care planning, education & health promotion. **Control** TAU on discharge from rehab unit. Both groups received usual follow up services & access to multidisciplinary rehab. **Provider** Stroke nurse who had undergone special training programme **Duration & Intensity** Average no contacts 3, over 2 month period. Had contact number & could contact nurse when needed.	3 months 0: Dependency (Barthel Index) 0: Perceptions of general health (Nottingham Health Profile) overall score + Int significantly lower levels of emotional distress + isolation 0: Performance of everyday activities (Frenchay Activities Index) +: Carer strain (Caregiver strain index) p=0.045 (median 6.0 vs 4.0)	12 months 0: Dependency (Barthel Index) 0: Perceptions of general health (Nottingham Health Profile) overall score + Int significantly lower levels of emotional distress + isolation 0: Depression (Beck Depression inventory) 0: Performance of everyday activities (Frenchay Activities Index) 0: Carer strain (Caregiver strain index) median 5.5 vs 4.0	2 Study underpowered
Ellis 2005	RCT single blinded	Does a stroke nurse specialist input modify risk factors in patients with stroke?	**Population** 208 participants. 27% patients with TIA, 63% with stroke diagnosed in previous three months, 52% males, age range around 62-68 years, with one or more of risk factors: high blood pressure, current smokers, high cholesterol and/or diabetes. PC – Yes 6% lost to follow-up; 8% did not complete follow-up	Before enrolment all pts received standard generic risk factor advice from Stroke Nurse Specialist (SNS). **Intervention** Additional input from SNS who gave health education & counselling. Included advice on lifestyle changes, importance of medical compliance, interaction with medical services. Tailored to pts	5 months Primary outcomes: Intervention did not change overall risk factor control, but may be effective in lowering systolic BP. It improved patients' satisfaction that they were able to consult staff, and receive adequate information 0: Proportion of patients whose risk factors were controlled (46.4% C 41.7% Change in systolic BP + unadjusted I p=0.039		2

			Setting Hospital, TIA Clinic or a geriatric medical day hospital **Country** UK	circumstances & functional abilities. Personalised pt held records were given detailing risk factors and recommended targets. Encouraged to contact GPs if required. **Control** GP care. No further input from SNS **Provider** Stroke Nurse specialist **Duration & Intensity** Monthly consultations for 3 months in outpts, average length 30 minutes	0, adjusted for baseline differences p=0.126 Other risk factors No differences in diastolic BP, smoking, cholesterol, glucose, HbA1C or Eurocol or Geriatric Depression Score Secondary outcomes Patient satisfaction Able to talk to someone + I 74.5% C 57.1% p= 0.027 Knew who to contact + I 71.3%, C 52.0%, P=0.034 Information received + Causes of illness I 70.2%, C 51.0%, p 0.022 Risk factors I 72.0%, C 54.6%,p 0.010	
Forster 1996	RCT	Do specialist nurse visits enhance social integration and perceived health of stroke patients or alleviate stress in carers in longer term stroke care?	**Population** 240 pts aged 60 and over with principle diagnosis of acute stroke (mean age 73). Excluded if had multi-infarct dementia, or lived in residential care. PC – Yes 0.4% lost to follow up **Setting** Pts own homes Country Bradford, UK	**Intervention** Visits to provide information, advice, and support + usual treatment and services. Included: problem solving, goal setting & information provision. **Control** TAU **Provider** Specialist outreach nurse (G grade nurses – experienced in assessing disability in older people – 2 day training in counselling)	12 months Functional ability (Barthel Index) 0: no difference in Barthel. 45% of both grps could walk independently at 12 months. Social activity (Frenchay activities index) 0: both grps showed signif improvement but no between grp diffs. Perceived health status (Nottingham health index) 0: scored 30 or more (depressed mood) I = 33% vs. C = 30% Carer stress 0: stress decreased in both grps but no significant between grp differences.	1

				Duration & intensity Over 12 months, minimum of 6 visits during the first 6 months.		
Larson 2005	RCT	Does a nurse-led support & education programme for spouses' (of stroke patients) improve perceived general quality of life, life situation, general well-being and health state?	**Population** 100 spouses of stroke patients admitted to stroke unit 6% lost to follow up PC - No **Setting** University hospital. **Country** Sweden	**Intervention** Support & education programme undertaken in small groups of 10 people at the hospital. **Control** Received only regular information during patients' hospitalisation and at discharge. Also opportunity to attend 1½ hr. session by stroke specialist physician. **Provider** Stroke specialist nurse. **Duration and intensity** 6 x during first 6 mths. Each session had lecture for 20-30 mins followed by group discussion.	12 months General quality of life, Life situation, General well-being, Perceived health state. 0: No sig diffs between I & C. In sub-analyses, the group attending 5-6 times had sig. decrease in negative well-being after 12 mths (3.3 to 2.35, p=0.01) and increased quality of life over time (65.95 to 76.75, p=0.02), while the group attending fewer times had sig decrease in positive well-being (9.5 to 8.62, p=0.01) and health state (74.81 to 67.67, p=0.03). Concludes that intervention may have positive effect on spouses' well-being, on condition that they attend at least 5 times.	3

Qualitative studies

Author/ Year/Journal	Research question / Aims	Method	Study population/ Setting /Country	Theoretical perspective and analysis	Main Findings	Application to UK
Gibbon 1994	How do district nurses perceive their role in relation to the care and management of stroke patients in the community?	Qualitative study with semi-structured interviews. Interviews taped and transcribed. Profile of DN collected so see if length and experience of DN influenced respondents perceived contribution.	**Population** District nurses. Convenience sample of 30 with 28 interviewed **Setting** 1 health district in England	Analysis Transcribed interviews analysed using latent content analysis (Field & Morse 1985)	DN does not appear to have a major role in the rehabilitation of stroke patients in the community (explained by lack of available time, lack of preparation and as being beyond their role) and only becomes involved in this client group once the patient's chronicity has reached the point of inability to meet daily living needs. DNs tend to visit stroke patients to undertake	3

			Country England		assessments or to complete tangible interventions. It is most frequently the nursing auxillary who visit the patient to undertake care in relation to personal hygiene.	
Dowswell, G et al (2000) Clinical Rehabilitation14, 160-171	To describe in detail the nature of the specialist nurse interventions; * To increase understanding of the principal problems facing stroke patients & care-givers in the first year following stroke and to demonstrate how these problems may change over time; * And to investigate the value of qualitative research methodologies within the context of a randomized trial.	Specialist nurses providing support in the year following stroke were asked to maintain comprehensive written records of their involvement with patients and care-givers participating in the randomized controlled trial.	**Study population:** 240 patients aged 60 or > with residual disability after stroke. Patients randomized to intervention or control group The 120 randomized to the intervention group received visits from specialist nurses Patients in both groups received usual treatment & services arranged for them by hosp or commty staff. **Setting:** Community setting **Country:** UK	Systematic content analysis. Analysis. Not mentioned if manual or used computer software.	*101 complete records due to 19 patients dying or leaving area *Modest improvement in social activities for mildly disabled patients. * Problems encountered by stroke patients & their care-givers were diverse, complex and changed over time. *Initially, practical problems were noted. Over time, psychological needs were recorded. *Nurses responded by giving info, support, advice & monitoring using an individualized approach. *Nurses collaborated with 17 other professional groups.	3 *Nurses made most frequent contact with social services, OT, physios & day hosp. And less contact with GPs, DN, consultant, DSS, housing dept, home care. *This intervention focused more on emotional & social recovery rather than the physical.

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The management of the SDO programme has now transferred to the National Institute for Health Research Evaluations, Trials and Studies Coordinating Centre (NETSCC) based at the University of Southampton. Although NETSCC, SDO has conducted the editorial review of this document, we had no involvement in the commissioning, and therefore may not be able to comment on the background of this document. Should you have any queries please contact sdo@southampton.ac.uk.