WHICH STAFF IMPROVE CARE FOR PEOPLE WITH LONG-TERM CONDITIONS?

A RAPID REVIEW OF THE LITERATURE

DR DEBBIE SINGH
The government’s commitment to improve care for people with long-term conditions depends on the ability of the NHS to recruit staff with the training and skills to deliver services of a high quality. This has been recognised in the decision to appoint Community Matrons to meet the needs of people with complex needs, but the workforce implications of the long-term conditions policy extend well beyond nurses working in the community. For example, people with long-term conditions can themselves take on a bigger role in the management of their care, while teams of staff from different disciplines can contribute to improve outcomes. Nurses other than community matrons have also taken on a variety of roles in caring for people with long-term conditions, both in hospital and the community.

Recognising the complex issues involved in this area of policy and practice, the Health Services Management Centre (HSMC) at the University of Birmingham and the NHS Modernisation Agency joined forces to commission a review of the literature on the workforce implications of the long-term conditions policy.

This report, written by Dr Debbie Singh, summarises the results of the review. In brief, the report suggests:

- there is evidence that peer-led self-management courses can improve the self-efficacy of people with long-term conditions,
- there is evidence that GPs and nurses working together in primary care and teams made up of workers from primary and secondary care can improve outcomes and service use,
- there is some evidence that primary care nurse case managers, such as Community Matrons and specialist nurses, can improve service use when implemented as part of an integrated programme of care.

On other issues, the report finds either mixed or insufficient evidence about the role of the workforce. It also emphasises that almost all of the studies reviewed involved complex interventions that did not isolate the workforce elements from other service changes. These are important caveats that need to be borne in mind in reading the review.

HSMC and the NHS Modernisation Agency are making this report available to support the next stage of implementing the long-term conditions policy, in particular with a view to assisting NHS organisations to make evidence-based decisions about future workforce needs.

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WHICH STAFF IMPROVE CARE FOR PEOPLE WITH LONG-TERM CONDITIONS?

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Supporting People with Long-term Conditions sets out the government’s plans to help people with long-term medical conditions live healthy lives. Free courses to help people care for themselves will be expanded throughout England, teams of staff will be encouraged to work together to support people with long-term conditions, and specialist nurses known as Community Matrons will support those with the most complex needs. All of these initiatives have implications for workforce development and the training of staff in health, social services, and allied professions.

While evidence is growing about the initiatives that most improve the satisfaction, quality of life, and health of people with long-term conditions, less is known about the implications of these programmes for staff development and training. Therefore this review focuses on the staff involved in initiatives to improve chronic care. It collates evidence about:

- the people who provide self-management education courses,
- innovative roles for nurses in primary care and in hospital,
- the impact of teams of professionals from different disciplines,
- and the varying staff who work as case managers.

The review is based on 172 studies. To identify these studies, ten electronic databases were searched for reports that explicitly described staff roles or compared the effects of different types of professionals on people’s experiences, health, or their use of services and resources. Experts in the field and authors of identified papers were contacted and websites and reference lists were searched for additional studies and unpublished material. Systematic reviews and randomised trials were prioritised, but other studies were included if there were no randomised trials about a specific topic. Studies in a language other than English were translated, by the original authors where possible.
Self-management is a key component of many initiatives to improve care for people with long-term conditions. A number of self-management initiatives exist, including technologies to assist with self-monitoring, accessible information and support services, and courses to help people learn more about their condition and care. These courses are often referred to as 'self-management education.'

An example of self-management education is the NHS Expert Patients Programme which is taught largely by lay tutors, living themselves with long-term conditions. This course, based on a model developed in the United States, brings together people with different types of long-term conditions for six weekly sessions. Courses have also been developed for people with particular types of conditions, such as diabetes and arthritis.

Self-management education courses have been facilitated by people with long-term conditions, primary care professionals, hospital staff, and multidisciplinary teams.

We identified 21 studies that explicitly described different self-management course educators, or compared the effects of self-management courses run by professionals versus lay people with long-term conditions. Many other studies of self-management education exist, but do not describe in detail the personnel working as educators.

The totality of evidence suggests:

- There is good evidence that self-management courses can improve the self-efficacy and confidence of people with long-term conditions.
- There is less evidence comparing courses run by people with long-term conditions versus professionals or comparing courses run by staff from different disciplines. The evidence that does exist suggests that courses led by peers are equally efficacious to courses facilitated by professionals.
- In addition to peer-led courses, we identified studies of courses run by primary care nurses, primary care teams, hospital teams, pharmacists, and teachers. There was insufficient evidence to conclude that some types of staff run self-management courses more effectively than other types of professionals.
NURSING ROLES

A large number of disease management programmes are implemented with the aid of nurses. These may be specialist nurses, who focus particularly on people with one or more long-term conditions, or more generalist primary care or hospital nurses.

We identified 53 studies that described innovative roles for nurses caring for people with long-term conditions, or compared the care offered 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 of provide comparative data.

The totality of evidence suggests:

✔ There is good evidence that nurses who specialise in a particular long-term condition, either in hospital or in the community, can help improve the health of people with long-term conditions and their use of health services.

✔ Clinics run by specialist nurses have benefits for patient satisfaction, experience, and some clinical outcomes, and may reduce healthcare costs.

❓ There is insufficient evidence about new roles for hospital nurses. Studies that substituted hospital nurses for roles traditionally filled by doctors generally found little evidence of a direct effect on health or resource use.

✔ However, follow up after discharge by hospital nurses was associated with improved health for people with long-term conditions and fewer hospital readmissions.

❓ There is mixed evidence about the benefits of nurses in primary care. Studies generally found that primary care nurses can provide equivalent care to that traditionally provided by general practitioners. However, this may or may not improve the health and wellbeing of people with long-term conditions.

✔ There is some evidence that primary care nurses who visit people at home may improve clinical outcomes and reduce the use of other health services.
MULTIDISCIPLINARY TEAMS

Another key development to improve care for people with long-term conditions involves teams of professionals from different disciplines working together. These teams may be based in hospital, in outpatient settings, in primary care, or spanning the bounds of primary and secondary care. Teams that incorporate personnel from social services, the voluntary sector, and community groups are increasingly common, although less evidence exists about the effects of these types of teams.

We identified 64 studies that described multidisciplinary teams to help people with long-term conditions and outlined the exact staff contained in these teams. Other studies of multidisciplinary teams exist, but do not focus on who makes up the teams or what their roles are.

The totality of evidence suggests:

☑ There is evidence that general practitioners and nurses working together in primary care can improve people’s self-efficacy and their health.

☑ There is good evidence that teams made up of workers from primary and secondary care can have a positive effect on care processes, clinical outcomes, and service use. Commonly these teams involve hospital and primary care nurses, general practitioners, and specialists such as dieticians.

☑ There is mixed evidence about combined teams of mental health workers and primary care staff. Some studies found that collaborative care improves quality of life and depression, whereas others found that combined working is more expensive and has few tangible benefits.

☑ There is limited evidence about strategies to integrate social and medical care, but the few available studies suggest that teams made up of social and health professionals can improve clinical outcomes.

☑ There is evidence that adding a pharmacist to primary care teams can help people receive more effective treatment.

☑ There is good evidence that care from multidisciplinary teams in hospital can reduce the length of hospital stay and may reduce readmissions.

☑ Other than case managers, we identified no high quality studies about particular staff roles that may help to interface between primary and secondary care or promote joint working strategies between health and social care.
CASE MANAGERS

Case management involves co-ordinating care for a person with long-term conditions and following them up regularly. This may involve co-ordinating care from general practitioners, hospital specialists, and social care, and supporting people and their families to manage their own conditions.

Case managers are often nurses based in primary care or, less frequently, in hospital. In England, Community Matrons are an example of nurse practitioners who are trained to provide one-to-one support for a caseload of between 30 and 60 people each. Case management has also been conducted by multidisciplinary teams, pharmacists, and mental health staff.

We identified 34 studies that described different staff who have taken on the role of case managers. A large number of other studies described and evaluated case management programmes but did not make clear the exact staff taking on the case manager role.

The totality of evidence suggests:

☑️ The majority of studies have focussed on primary care nurses as case managers. These nurses may be based within primary care practices or may be roving community nurses. There is some evidence that primary care nurse case managers, such as Community Matrons, 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 case management by primary care nurses. Evidence from the United Kingdom 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. Some studies have found improved outcomes and others have found no significant difference from usual care.

❓ Psychiatric teams and mental health workers have also implemented case management programmes. Evidence about the effectiveness of these approaches is mixed. Some large reviews have concluded that case management by mental health specialists has limited benefit, others have concluded that case management by community or hospital-based mental health workers can improve the quality of care for people with long-term mental illnesses.

❓ Other staff who have taken on a case management role include pharmacists and community workers. There is insufficient information about the effects of these models of case management.

❓ There is emerging evidence about the possibility of recruiting people with long-term conditions as case managers. Although the evidence is sparse, those studies that exist suggest that the concept of peer case managers could be explored further.
When interpreting the findings of the review, it is important to bear in mind that almost all of the studies involved complex interventions. In very few studies were different personnel the only thing compared. New staff roles are usually accompanied by different service processes, IT systems, and philosophies. Although this evidence review focused on the workforce, almost none of the included studies isolated workforce elements from other important service changes. For instance, in literature about self-management education, the content and style of the programme is rarely isolated from the personnel who deliver it.

The review found little evidence that one type of staff is more effective than another professional group in most instances. However, a lack of comparative evidence does not mean that there are no differences between various types of professionals. Nor does a lack of research about a particular staff group mean that this group are not effective.

It is also important to emphasise that the context in which staff changes take place has an impact on the outcomes. Much of the available evidence is sourced from the United States or Europe, which have very different healthcare economies and styles of working to the United Kingdom.
The findings of this rapid review suggest that:

− Nurses have a central role to play in initiatives to improve care for people with long-term conditions, whether in primary or secondary care, as case managers, or as specialist nurses. The available evidence suggests that in most instances nurses provide care that is at least as effective as the care provided by doctors, and often patients are more satisfied with the care provided by nurses. This suggests that the current focus in England on providing targeted nurse-led support is justified.

− Involving people with long-term conditions as part of the team, either as peer educators or as peer case managers, may have significant benefits. It may be desirable to investigate whether there is any scope to involve peers in case management roles in the United Kingdom.

− Case managers aim to co-ordinate services and to provide an interface between primary and secondary care, and between health and social services. The majority of evidence does not focus on the extent to which case managers, often nurses based in primary care, have achieved this interface. Nor is the evidence about the benefits of case management unequivocal. This suggests that case management should be invested in as one component of a broader disease management strategy. There is evidence that many initiatives other than case management can significantly improve health and reduce resource use. Staff could be trained in these other initiatives as well, rather than focusing on case management alone.

− Apart from positions which involve advanced clinical knowledge, there is no evidence to suggest that one type of staff is any better than another type for delivering care for people with long-term conditions. Upskilling a wide variety of staff such as nurses, health visitors, social workers, and mental health workers may be a feasible way of expanding the chronic care workforce. However few studies have explicitly compared the relative merits of these staff groups.

− In England, a ‘whole systems’ approach to chronic care is gaining popularity. There is insufficient evidence about the best strategies to foster collaboration between health and social services, or about staff roles that may facilitate these links, however. A number of joint working initiatives are currently underway, so more evaluation of the processes involved in these initiatives and core staff competencies may be warranted.

− As there is little evidence to recommend one professional group over another in most situations, people developing new services for and with people with long-term conditions could focus on identifying particular needs and service gaps; outlining the competencies required to meet these needs; and then considering the best people to meet these needs (either from a new workforce or from the current workforce with further training). Solely ‘upskilling’ current staff is unlikely to meet the complex needs of people with long-term conditions.
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WHICH STAFF IMPROVE CARE FOR PEOPLE WITH LONG-TERM CONDITIONS?

A RAPID REVIEW OF THE LITERATURE

INTRODUCTORY OVERVIEW

Six out of ten adults in England report having at least one long-term medical condition such as diabetes, heart failure, arthritis, and asthma.¹ The number of people with long-term conditions is rising in both the developed and developing worlds, and these people need increasing support from health and social care systems.² In Britain 80% of primary care consultations and two thirds of emergency hospital admissions are related to long-term conditions.³ People with long-term conditions often suffer from more than one condition, making their care even more complex.

Given the increasing number of people affected by long-term conditions and the impact on health and social care services, a number of initiatives have been implemented to improve the effectiveness and efficiency of the care available. In England, initiatives include the development of National Service Frameworks to support people with long-term conditions, trials of new care management strategies, and Public Service Agreement targets.

Supporting People with Long-term Conditions, published January 2005, set out the government’s plans to help people with long-term conditions live healthy lives.³ It outlined how the self-management Expert Patients Programme will be expanded throughout England; how specialist nurses (Community Matrons) will support people with complex conditions; and how teams of staff will be encouraged to work together with people with long-term conditions and their families.

All of these initiatives have implications for workforce development and the training of staff in health, social services, and allied professions. However, while evidence is growing about the most effective initiatives to improve the satisfaction, quality of life, and health outcomes of people with long-term conditions, less is known about the implications of these programmes for staff recruitment and training.

Therefore, the University of Birmingham Health Services Management Centre and the NHS Modernisation Agency reviewed the evidence about the personnel providing some of the key models of care for people with long-term conditions.

The objective of this rapid review was to assess:

What key staff have been used to provide innovative care for people with long-term conditions and what is the evidence that these staff make a difference?

The review focussed on the personnel involved in providing three components of the healthcare delivery system outlined in *Supporting People with Long Term Conditions*:3

- supported self-management for the majority of people with long-term conditions (focussing on the facilitators of self-management education courses).

- disease management for people at high risk of complications and service use (specifically the role of specialist nurses and multidisciplinary teams),

- and case management for people with highly complex needs (looking at staff who have taken on the role of case managers such as hospital and primary care nurses),

In addition, the review examined whether there was any evidence of staff roles that may help to link these three components, particularly strategies to interface between primary and secondary care and joint working strategies between health and social care.

**Staff components summarised in this review**

- About 75% of people with long-term conditions merely need support to manage their condition themselves

- People at higher risk need specialist disease management as well

- Case management is for a small number with very complex needs

- This review focuses on the staffing of self-management education courses

- This review focuses on the role of nurses and on multidisciplinary teams

- This review focuses on the types of staff who work as case managers
The review summarises published primary research and selected unpublished literature. To collate evidence, one reviewer searched MEDLINE, Embase, ERIC, the Science Citation Index, the Cochrane Library and Controlled Trials Register, PsychLit, HealthStar, the WHO library, Health Management Information Consortium, Sigal, reference lists of identified articles and reviews, and the websites of relevant agencies for information available as at June 2005. Experts in the field and original authors were contacted and relevant journals were hand searched for additional studies. Documents available in a language other than English were translated, where possible by the original authors.

Search terms included combinations of: workforce, staff, personnel, layperson, nurse, case management, case manager, patient, specialist, doctor, social care, pharmacist, social worker, psychologist, psychiatrist, chronic, long-term, asthma, diabetes, health, hypertension, arthritis, cardiac, heart failure, stroke, dementia, mental health, depression, self-management, education, team, multidisciplinary, interdisciplinary, partnership, shared care, joint working, collaborative, disease management, care management, and associated synonyms. Mesh terms and expanded keyword searches were used where available.

To be eligible for inclusion in the review, studies had to:

- be primary research or systematic reviews,
- be published or readily available online or from relevant organisations,
- be available in any language,
- be available in abstract, journal article, or full report form,
- have been prepared within the past 20 years,
- include some participants with any long-term medical condition that cannot currently be cured, but which is not usually immediately life-threatening (for example, diabetes, asthma, arthritis, heart failure, chronic back pain, chronic obstructive pulmonary disease, renal disease, depression, and dementia),
- describe the staffing model used in a way that was detailed enough to ascertain exactly which types of staff were involved and what role they had in the intervention,
- and provide data about outcomes relating to patient experiences, staff experiences, quality of care, clinical outcomes, or resource impacts.

Studies of terminal illnesses such as cancer and HIV / AIDs were not included in this review. Studies that described general initiatives such as ‘multidisciplinary teams,’ but which did not provide details of the exact staff and strategies involved were excluded from the review.
In the analysis, priority was given to systematic reviews and randomised trials. However, in instances where randomised trials were not available, studies lower in the ‘hierarchy of evidence’ were included. Using this hierarchy of evidence allowed the reviewers to focus on the highest quality studies of relevance rather than the many thousands of less rigorous studies, whilst not excluding studies where a paucity of evidence exists. Studies included in meta-analyses or systematic reviews described in this overview are not reported again separately.

In total, summaries of 28,355 documents were assessed for relevance by two reviewers. Repeated reports of the same trials and papers that did not contain primary or secondary information about the effects of staff initiatives were discarded, leaving 4,746 documents to be assessed in full. Two reviewers examined these studies independently for relevance and quality using a validated scale.

One hundred and seventy-two studies met the inclusion criteria outlined above and are summarised in this overview. In addition, reviews summarising what we already know about each topic were incorporated for illustrative purposes.

### Studies included in the review

- 28,355 potential reports were identified through database, online, and hand searching
- 23,731 abstracts were discarded because they did not meet the inclusion criteria
- 4,746 citations were identified for full text appraisal for relevance and quality
- 3,958 studies were excluded because they did not describe the exact staff involved
- 505 studies were excluded if they did not provide any information about outcomes of interest
- 111 studies were excluded because they were repeated studies or included in reviews
- 172 papers were accepted for inclusion in the review, and data were extracted from each

One reviewer extracted data about staff characteristics, country of origin, participant and disease characteristics, outcomes, and publication details. All studies were checked for consistency and accuracy by a second reviewer. Disagreements were resolved by consensus.
To synthesise the evidence, one reviewer grouped studies according to topic areas and outcomes, and provided a narrative summary of key trends. Meta-analysis was not possible given the heterogeneity of the topic areas, study designs, and participants included. Instead the reviewer focused on drawing out key findings about the types of staff providing interventions, and any evidence of effects using content analysis and narrative synthesis.

The review describes staff working with people with long-term conditions generally, rather than evidence about approaches to specific conditions. Studies of people with particular types of conditions are provided as examples, however.

**CAVEATS**

A summary of the evidence is presented overleaf. Information about people who have run self-management education courses is summarised first, followed by evidence about specialist nurses and multidisciplinary care, and concluding with evidence about staff who have worked as case managers.

Before summarising the evidence, however, it is important to raise the following key caveats for readers to bear in mind when interpreting the findings.

Almost all of the studies included complex interventions. In very few studies were different personnel the only thing compared. New staff roles are usually accompanied by different service processes, information systems, and philosophies. Although this evidence review focused on the workforce, almost none of the included studies isolated workforce elements from other important service changes. For instance, in literature about self-management education, the content and style of the programme is rarely isolated from the personnel who deliver it.

The review found little evidence that one type of staff is more effective than another professional group in most instances. However, a lack of comparative evidence does not mean that there are no differences between various types of professionals. Nor does a lack of research about a particular staff group mean that this group are not effective or are not involved in providing care for people with long-term conditions.

It is also important to emphasise that the context in which staff changes take place has an impact on outcomes. Much of the available evidence is sourced from the United States or Europe, which have very different healthcare economies and styles of working to the United Kingdom. This means that while we can draw inferences about the merits of different workforce developments from the evidence summarised overleaf, we can not assume that outcomes would be the same when transferred to another context.

On a related note, many studies compare an intervention with ‘usual care.’ What makes up ‘usual care’ in one country or location may be very different from usual care in another context. Often studies do not define the components of usual care in any detail, however.
SELF-MANAGEMENT EDUCATORS

This section describes:

− the concept of self-management education,

− general evidence about the effects of self-management education,

− and the people who have been involved in delivering self-management education.

WHAT ARE SELF-MANAGEMENT EDUCATORS?

The Department of Health’s strategy for improving the lives of people with long-term conditions is based on the principle that these people know as much or more about their illness and their needs as health and social care professionals.

About three quarters of people with long-term conditions do not need specialist one-to-one management from health and social care professionals on an ongoing basis. Instead, they manage their conditions themselves, perhaps with annual reviews from their general practitioner.

There are a range of ways that health and social services can help people manage their own conditions including providing written, verbal and online information; teaching people to manage their own care; and providing equipment to help people monitor and identify their symptoms. The Department of Health drew together examples of a range of self-management support services in England and concluded that these initiatives can make a real difference to people’s physical and mental wellbeing.4

Educational sessions to help people with long-term conditions learn about their condition and how to manage it better have gained increasing popularity in recent years. Some educational programmes provide information about long-term conditions themselves. Other programmes aim to help people learn how to manage their care more effectively, including when to use different healthcare services and how to communicate with professionals. This type of education is generally known as ‘self-management education.’

Self-management education can be delivered in group sessions, one-to-one, by post, by video, or by computer. Group courses are the focus of this review. Rehabilitation programmes were not considered.

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There are two main types of self-management education courses. Some courses are for people with specific long-term conditions, such as arthritis. Others target people with any long-term condition(s).

In the United Kingdom, the *Expert Patients Programme* is an example of generic self-management education. Free courses are provided by the NHS and facilitated largely by people with long-term conditions. Courses usually comprise six weekly sessions lasting two and a half hours each. Each group has between 8 and 16 participants. Topics include ‘breaking the symptom cycle,’ diet, exercise, communication, medication, and pain management.5

Self-management educators may be either professionals or laypeople. Whatever the case, the role of the self-management educator is to plan and deliver courses for people with long-term conditions, often following a standardised manual.

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Example of a self-management education course

The charity *Arthritis Care* has been running free self-management courses led by people with arthritis for a decade. *Arthritis Care*’s self-management course was based on the *Chronic Disease Self-Management Course* model developed in the United States during the 1980s.

The course aims to enable adults with arthritis to manage their lives more effectively. Most participants complete the entire six-week course. Over six sessions of about two and a half hours each, the course:

− discusses myths about arthritis,
− describes relaxation techniques,
− draws up exercise programmes,
− helps people communicate better with their doctor,
− shows people what they can do for themselves.

The course comprises discussions, brainstorming sessions, and brief lectures. Participants draw up weekly action plans to help them take more control of their lives.

Other organisations have also introduced self-management courses.

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WHAT DO WE ALREADY KNOW?

A great deal has been written about the effects of self-management education courses. This section provides examples of studies that summarise what we know about self-management educators in general. It does not summarise all available evidence on this topic.

The Expert Patients Programme is based on a course developed by Stanford University Medical School in California for people with arthritis. This programme was developed into the Chronic Disease Self-management Course, a generic educational programme for people with long-term conditions (rather than being specific to a particular type of disease). More than 100 studies of variations of this course have been undertaken throughout the world. Most studies have been conducted United States, although there is also evidence from the UK, Taiwan, China, Hong Kong, New Zealand, Canada, and Norway amongst others.

Survey and telephone interviews with trainers and primary care trust staff in sites piloting the Expert Patients Programme in the UK found that people who have direct contact with recruiting patients to courses and those delivering courses thought that the programme was an effective and innovative means of managing chronic conditions. Initial implementation of the programme posed significant practical challenges, however.

There are many different types of self-management education programmes. Not all are based on the Chronic Disease Self-management / Expert Patients Programme model. Some programmes target people with particular long-term conditions, rather than working with people with many different types of conditions.

For instance, DAFNE (Dose Adjustment For Normal Eating) is a programme specifically for people with diabetes. DAFNE involves structured training in intensive insulin therapy and self-management. People with type 1 diabetes are taught to match their insulin dose to food intake on a meal-by-meal basis. Initial evidence suggests that this self-management programme is associated with improved quality of life, satisfaction with treatment, and reduced blood glucose levels.\textsuperscript{16} It may also have some cost savings, though most research focuses on short timescales.\textsuperscript{17}

The National Institute for Clinical Excellence (NICE) has developed guidelines about patient education models for people with diabetes, including self-management education. Following a systematic review, NICE concluded that structured patient education should be made available to all people with diabetes at the time of initial diagnosis and on an ongoing basis, based on regular needs assessment. NICE concluded that there is insufficient evidence to recommend specific education types or frequencies. However, they suggested that educational interventions should be provided by a trained multidisciplinary team to groups of people with diabetes, unless group work is considered unsuitable for an individual. Educational programmes should use a variety of techniques to promote active learning (engaging individuals and relating the content to personal experience), and should be integrated into routine diabetes care.\textsuperscript{18}

There is little research assessing whether one type of self-management programme is more effective or better received than another. However, reviews of the evidence-base generally support the conclusion that self-management programmes, in whatever form, have positive effects on people’s satisfaction and feelings of control.\textsuperscript{19,20,21} For example, a meta-analysis of 82 studies found that self-management education improved knowledge and self-care behaviour in adults with diabetes.\textsuperscript{22}

Similarly, there is evidence that people with arthritis taking part in self-management programmes feel more confident in their abilities to manage and control their symptoms, feel less anxious about their disease, and may visit the doctor less frequently.\textsuperscript{23,24,25,26}

\textsuperscript{19} Barlow JH et al. Self-management Literature Review. Psychosocial Research Centre, Coventry University, 2000.
The impact of self-management courses on clinical outcomes is less clear. A systematic review collated 71 trials of self-management education for people with long-term conditions. The reviewers found that people with diabetes participating in self-management education had improved glycaemic control and blood pressure. People with asthma experienced fewer attacks after self-management education. Arthritis self-management education programmes had no significant clinical effects. The authors concluded that self-management education programmes may have small to moderate effects for people with selected long-term conditions. They noted, however, that study methods varied widely and were not of the highest quality.27 Many other systematic reviews have drawn similar conclusions.28,29,30,31,32,33,34,35

Although the clinical benefits of self-management education are uncertain, there is evidence that these programmes can reduce the use of healthcare resources and subsequent healthcare costs. For instance, it has been suggested that self-management education programmes may reduce visits to health professionals by up to 80%.36,37 Visits to general practitioners may decrease by up to two fifths.38,39,40,41 Randomised trials in the UK also suggest that self-management education can reduce hospital readmissions and reduce healthcare expenditure.42,43

Other evidence is contradictory. A systemic review of nine trials of self-management education versus usual care for people with chronic obstructive pulmonary disease found that self-management education increased courses of oral steroids and antibiotics for respiratory symptoms, but had no effect on hospital admissions, emergency department visits, days lost from work, or lung function.\(^{44}\)

Similarly, an evaluation of self-management courses facilitated in the UK by volunteer tutors at organisations such as Depression Alliance, Diabetes UK, the National Endometriosis Society, the British Liver Trust, the ME Association, and the National Osteoporosis Society found small improvements in self-efficacy, but no significant impacts on health service use. The evaluators suggested that to reduce service use, disease-specific information may need to be included within the generic course structure or as a separate, but complementary, course.\(^{45}\)

To summarise what we already know about self-management education:

- There is strong evidence that self-management education improves self-efficacy.
- There is evidence that self-management education may improve some clinical outcomes and reduce healthcare resource use and expenditure, but these findings are not universal.
- There is no evidence that one type of self-management education course is better than another.

**WHAT DOES THIS REVIEW ADD?**

This review examined what types of personnel have facilitated self-management education courses, and whether there is any evidence that courses facilitated by some groups of people are more effective than others. Although a great deal has been written about self-management education, most researchers have not described the course educators or compared different types of educators in any detail.


In addition to the reviews and studies described in the previous section, we identified 21 studies describing self-management educators explicitly. These included:

- people with long-term conditions,
- primary care nurses,
- primary care teams,
- hospital specialists,
- and school teachers.

Only one systematic review and one additional early trial were identified that explicitly compared self-management courses taught by people with long-term conditions versus courses taught by professionals.46,47 Both found that that peer-taught and professional-taught courses had similar outcomes.

**PEOPLE WITH LONG-TERM CONDITIONS**

A number of systematic reviews and randomised trials have focussed on the effects of peer-led courses. The majority of studies and reviews were cited in the section above. This section provides further details of a small number of examples for illustrative purposes.

It is generally accepted that peer-led education can provide real benefits for both participants and peer facilitators themselves. A systematic review of 19 studies found that health education by lay people improved access to care and promoted behaviour change. Eight out of ten studies where lay people helped to manage healthcare found improved access to care.48

In a study typical of its type, peer facilitated Chronic Disease Self Management Programme sessions, each of two and a half hours duration, were provided in community settings for groups of 15 to 20 people with heart disease, lung disease, stroke, or arthritis. Another group received usual care (standard visits to health professionals with no peer training). After two years, the self-management group had reduced emergency department and outpatient visits and improved self-efficacy compared to people receiving usual care.49

Programmes of this nature also appear to transfer well to people who speak languages other than English. In the US, Spanish speakers with heart disease, lung disease, or diabetes were randomised to a 6-week community-based peer-led self management programme or usual care. After four months, those who received self-management education had improved health status, health behaviour, and self-efficacy, and fewer emergency department visits compared to those who received usual care. These improvements were maintained after one year.50

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Similarly, a large randomised trial in China compared people with hypertension, heart disease, chronic lung disease, arthritis, stroke, or diabetes who received self-management education or no intervention. The self-management initiative comprised education from a lay-led course and a copy of a self-help book. Self-management education improved participants’ health behaviour, self-efficacy, and health status and reduced the number of hospitalisations six months after the course. The authors noted that Chinese lay tutors taught the courses as successfully as professionals.51

The effects of self-management education may not be as marked for children with long-term conditions. A randomised trial assessed peer-led strategies for children aged 3 to 17 years with asthma in primary care paediatric practices in the US. Interventions included teaching physicians how to train peer educators, nurse-led visits, care planning, and self-management support. Those receiving peer-led education alone did not have significant clinical improvements compared to children receiving usual care. However, those receiving peer-led education plus nurse-led strategies had fewer days with symptoms and reduced use of medication.52

A small number of observational studies have examined the effects of self-management courses for peer tutors themselves. While these studies are lower in the ‘evidence hierarchy’ they are summarised here to illustrate an emerging trend in the literature. For instance, a small study gained feedback from 11 volunteer peer tutors of a self-management programme. Tutors said that being a lay-tutor was enjoyable. Being a tutor also improved tutors’ own self-management behaviours.53

Talking Circles is a peer-led self-management programme for American Indians with diabetes. An observational study of lay health workers trained to present a diabetes curriculum and guide group discussion found that facilitators valued the experience.54

Similarly, a small study in the UK assessed whether training to become a lay tutor for an arthritis self-management course affected 21 tutors’ health status, use of self-management techniques, and visits to general practitioners. Six months after training, tutors reported small but significant improvements in arthritis self-efficacy for pain, symptom management, mood, and communication with their physician. They valued their status as lay leaders.55

As well as courses for people with long-term conditions, courses for their carers are being trialled in England. Carers’ courses comprise a two and a half hour session each week for six weeks led by local Expert Patients Programme trainers and lay tutors who had personal experience of caring for a person with a long-term condition. Twenty-nine carers took part in the pilot courses, and their feedback was collated using surveys and interviews. The evaluation found that carers thought the course helped them develop confidence and motivation to use their own skills to take more effective control of their lives.56

We did not identify any studies of the effects of courses for carers on health status or resource use.

To summarise, there is good evidence that peer self-management educators can improve self-efficacy and some health outcomes for people with long-term conditions. Peer-led courses may also have positive outcomes for peer tutors themselves, although there is a paucity of evidence about this.

**PRIMARY CARE NURSES**

Evidence about the effects of self-management education provided by professionals is more sparse than that about peer-led education. Studies of any design were eligible for inclusion given the paucity of randomised trials identified.

We identified two randomised trials and one observational study describing self-management education provided by primary care nurses.

In the UK, 17 primary care practices compared a self-help package facilitated by practice nurses or usual care by general practitioners for people with mild to moderate anxiety and depression. The self-help intervention consisted of three appointments: two 1 week apart and a third 3 months later. People who received self-management education had similar clinical outcomes and costs as the usual care group and were more satisfied with their care.57

In Canada, a randomised trial of community-based nursing found that self-help programmes can improve disability, resourcefulness, self-efficacy, behaviour, and life satisfaction among people with chronic pain.58

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A small observational study in the US assessed a 12 week asthma self-management course for eight and nine year olds taught by primary nurses during school time. Children who took part had significantly improved asthma management knowledge.\(^5^9\)

Although these three studies suggest positive trends, there is insufficient evidence to draw conclusions about the benefits of self-management education provided by primary care nurses, or the relative merits of nurse-led education compared to self-management courses provided by others.

**PRIMARY CARE TEAMS**

We identified one randomised trial and three observational studies about the effects of courses run by clearly described primary care teams or by specialists in primary care settings. Other studies exist about professional-led courses, but do not focus on the roles and personnel involved.

All of the studies of courses for people with long-term conditions were observational. For instance, a before and after study assessed an asthma self-management programme in Switzerland. The intervention included a booklet and a course taught by an interdisciplinary team of pneumologists, primary care physicians, pharmacists, and specialist nursing staff. Self-management courses were associated with improved quality of life and significant decreases in costs for asthma treatment, hospitalisations, and lost workdays.\(^6^0\)

Pharmacists have also been involved in self-management education, especially in the US. However, there is limited information available about the effects of such programmes. We identified one cohort study of self-management education supported by pharmacy staff in a US Army healthcare system. The initiative was associated with improved knowledge, self-efficacy, opinion of the healthcare system, and healthy behaviours. It also reduced clinic visits and visits to the emergency department.\(^6^1\)

A small cohort study in the US assessed the effects of self-management education by a specialist. Six rural primary care practices and 104 people with diabetes took part. For one year a diabetes educator trained health professionals about diabetes management and provided self-management education at primary care clinics. Patients who received self-management education had improved knowledge, empowerment, and clinical indicators compared to those who did not receive self-management education.\(^6^2\)

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We identified one randomised trial about self-management education delivered by a primary care team for the carers of people with long-term conditions. An asthma self-management programme for parents of children with asthma aged under 5 years was delivered by general practitioners, community nurses, asthma nurses, and doctors in child health centres. Parents who participated in this course had more knowledge, a more favourable attitude toward asthma, higher competence in asthma self-management, and less doctor visits after the programme.63

Although these four studies suggest positive trends, there is insufficient evidence to draw conclusions about the benefits of self-management education provided by primary care teams or specialists, or the relative merits of courses led by primary care teams compared to self-management courses provided by others.

HOSPITAL STAFF

Self-management courses have also been run by hospital staff. We identified one randomised trial and one observational study that clearly described the staff involved.

In Canada seven hospitals participated in a self-management education programme for people with advanced chronic obstructive pulmonary disease and at least one hospitalisation in the previous year. Participants were randomly assigned to a self-management programme or to usual care. The self-management initiative comprised an education programme with weekly visits by trained health professionals over a two month period plus monthly telephone follow up. After one year, the self-management group had fewer hospital admissions, emergency department visits, and unscheduled physician visits compared with those receiving usual care.64

A small case control study in Thailand examined a multidisciplinary hospital self-management training programme for people with diabetes and their families. The education team included paediatric endocrinologists, a dietician, a psychologist, nurses, scientists, and volunteers. Compared to usual care, the multidisciplinary programme reduced the average length of hospital admission, lowered readmission rates, and improved glycaemic control.65

Although these two studies suggest positive trends, there is insufficient evidence to draw conclusions about the benefits of self-management education provided by hospital teams, or the relative merits of courses led by hospital staff compared to self-management courses provided by others.

OTHER EDUCATORS

Other studies have focused on the potential role of teachers or educational staff in self-management education. For example, a systematic review for a US Taskforce assessed self-management education interventions for people with diabetes. The reviewers concluded that there is insufficient evidence to assess the effectiveness of self-management education at work or in summer camps and inadequate evidence about the effect of educating co-workers and school staff about diabetes.66

A randomised trial in Australia assessed whether an asthma education programme in schools would influence students’ and teachers knowledge and attitudes towards asthma and the quality of life of people with asthma. Thirty-two schools took part with 4161 students aged 13-14 years. Not all had asthma. Teachers delivered a three-lesson package about asthma as part of the usual curriculum. Students and teachers at schools that received asthma lessons had improved knowledge of and tolerance towards asthma, self-management perceptions, and overall quality of life compared to those who did not receive asthma education.67

We identified one systematic review and one additional randomised trial of self-management courses provided by other educators. Evidence about the effectiveness of these personnel remains inconclusive.

To summarise evidence about self-management educators:

- Most of the available evidence about self-management focuses on courses provided by people with long-term conditions, sometimes with the support of a health professional or administrator. There is strong evidence that peers make good self-management educators, and can improve people’s perceptions and self-efficacy. Health may also improve in many instances.

- There is limited evidence comparing different types of self-management educators. The few studies that exist suggest that well trained peers and professionals are equally effective.

- There is limited evidence about the effectiveness of professionals in the role of self-management educators. Primary care nurses, primary care teams of GPs, nurses and pharmacists, disease specialists such as dieticians, teachers, and teams of hospital staff have all provided self-management education, seemingly to good effect.

- The philosophy, teaching methods, and content of courses may be more important than the type of person facilitating, as long as the tutor is well trained to deliver the course.


EXPANDING NURSING ROLES

While three quarters of people with long-term conditions merely need some support to manage their conditions themselves, others require more intensive disease management from health and social care professionals. One of the key components of disease management programmes involves expanding the roles of nurses.

This section describes:
- some of the ways in which nursing roles are being expanded,
- general evidence about the effects of expanding nursing roles,
- and evidence about the effectiveness of specialist nurses, primary care nurses and hospital nurses in chronic care.

WHAT ARE THE ROLES OF NURSES?

Many initiatives to improve care for people with long-term conditions are delivered by nurses. The most common strategies for expanding the role of nurses include:
- support from specialist nurses in primary or secondary care,
- nurse-led clinics in primary or secondary care,
- and nurse-led outpatient follow-up by primary or secondary care nurses.

Many studies of nurse-led care focus on case management. These are reported in another section of the review.

Some nurses specialise in helping people with a particular type of condition, such as diabetes nurses or asthma nurses. These nurses may substitute for general practitioners in routine appointments, run clinics to help monitor and inform patients, or undertake outreach and educational work to upskill other health and social care professionals. Specialist nurses can be based in either primary or secondary care. Often they span the boundaries of both. Sometimes these nurses specialise in more than one disease type, and can also be known as Advanced Practice Nurses.

Nurse-led clinics can be for single patients or for groups of people with long-term conditions. They aim to provide regular reviews of symptoms and to help people with self-management and support. They can be run in hospitals, in GP clinics, or in community venues.

Follow-up after hospital admission can be done by hospital nurses or those based within the community. This may involve discharge planning prior to leaving hospital, regular telephone support, or home visits.
Example of expanding the role of primary care nurses

Castlefields Health Centre is a GP practice that employed specialist nurses to run clinics for people with heart disease and diabetes. The programme was a mix of case management and specialist nurse-led clinics.

The programme involved disease registers, recall for a check-up in a nurse-led clinic using computer-driven protocols, and active follow-up of people not receiving optimal treatment.

The clinic for people with heart disease was run by a nurse employed especially to take on this role. The clinic for diabetes was run by a nurse alongside a dietician and a podiatrist.

For heart disease, the main outcome was a reduction in heart attacks. Over a five year period, the total number of heart attacks reduced by more than 50% and the number of deaths from heart attacks reduced by about two thirds. Clinical control of diabetes also improved.68

WHAT DO WE ALREADY KNOW?

Many studies have investigated the role of specialist nurses or compared the roles of nurses and other professionals. A recent review of five systematic reviews and 10 additional randomised trials found inconsistent evidence about the effects of nurse-led strategies for people with long-term conditions. There is some evidence that nurse-led strategies usually have similar clinical and quality outcomes to physician-led strategies, but this is not always the case.69

Another systematic review found that nurse-led interventions for people with long-term conditions tend to be most effective with people who are not too elderly, or if the intervention is tailored towards older people with specific health problems. Effectiveness depended on the duration of follow-up, the number of follow-up visits, and the personality and training of the nurse.70

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68 Castlefields Health Centre: Chronic Disease Management, unpublished, 2004
WHAT DOES THIS REVIEW ADD?

While many other reviews and randomised trials have outlined initiatives led by nurses, most do not do this in the context of workforce development issues. Fifty-three studies of the effects of different types of nurses are summarised below. Only studies which detailed the exact role of nurses are included here, although many other initiatives exist in which nurses deliver services.

SPECIALIST NURSES

There is inconsistent evidence about the benefits of care by specialist nurses, who focus on helping people with one or more long-term conditions, compared to care by other types of professionals.

A Cochrane review compared specialist nurse care for people with diabetes in primary and secondary care compared with usual care in hospital or at GP clinics. After one year there was no difference between groups in diabetes control, emergency hospital admissions, or quality of life.71

In contrast, a review of advanced practice nursing in the United States included seven randomised trials, some of which focused on older people with long term medical conditions. The authors reported that advanced practice nurses have consistently improved patient outcomes and reduced healthcare costs.

An additional randomised trial in the US assessed the effect of advanced practice gerontological nurses working with nursing home staff to implement evidence-based protocols for 197 elderly people. Not all had long term conditions. Compared to usual care, people receiving support from advanced practice nurses had improved clinical outcomes and less cognitive deterioration.72

There appear to be some differences in the effectiveness of specialist nurses depending on the speciality of the nurse. Nurses who focus on asthma generally have positive outcomes. For example, a trial of specialist asthma nurses in 44 general practices in the UK found that specialist nurses reduced unscheduled visits for asthma compared to usual care. The nurses reviewed patients in nurse-led clinics and provided educational outreach, guidelines, and ongoing clinical support for general practitioners and practice nurses.73

Another randomised trial with children in The Netherlands found that specialist nurse-led outpatient management of childhood asthma was clinically comparable to management by a paediatrician. Healthcare costs and outpatient visits reduced with nurse-led care.\textsuperscript{74}

Similarly, a before and after study in the US examined an asthma outreach programme for young people aged between 1 and 17 years. The programme involved a single outreach nurse working an average of 8 hours per week at an annual cost of US$11,115. Participants received one-to-one orientation visits from the nurse who instructed them about asthma management, medications, triggers, and use of inhalers and peak flow meters. An individualised care plan was devised by the nurse, primary care paediatrician, and, when appropriate, an allergist. The outreach nurse maintained personal or telephone contact with the families on a regular basis. Emergency department and hospital admissions reduced, resulting in significantly reduced cost of care.\textsuperscript{75}

Findings for people with diabetes are mixed. A trial in the US evaluated telephone follow up by nurses for low income people with diabetes. In addition to usual care, participants received telephone follow-up by a diabetes nurse educator. Compared with people receiving usual care, those receiving telephone follow-up reported fewer symptoms of depression, greater self-efficacy, and fewer days in bed because of illness.\textsuperscript{76}

On the other hand, in Ireland, a diabetes service included a community-based diabetes nurse specialist and structured communication across primary and secondary care. The intervention was associated with improved diabetes care delivery and psychosocial outcomes, but no significant changes in clinical outcomes.\textsuperscript{77}

In the UK, a randomised trial found that inpatient specialist nurses in diabetes can improve outcomes, care and cost.\textsuperscript{78}

A case control study in The Netherlands examined transferring the care of people with stable diabetes from doctors in outpatient clinics to nurse specialists in general practice. Primary care nurse-led care had similar clinical outcomes to hospital-based care.\textsuperscript{79}

In Scotland, people hospitalised with heart failure were randomised to receive care from a specialist nurse or usual care. The intervention started before discharge and continued after people left hospital, with home visits for up to one year. People who received support from a specialist nurse were less likely to die or be readmitted to hospital compared to the usual care group.\textsuperscript{80}

Results are less clear-cut for people with arthritis. A randomised trial assessed the cost-effectiveness of nurse specialist care, in-patient team care, or day patient team care for people with rheumatoid arthritis. Care from nurse specialists resulted in equivalent quality of life and functional status, at lower cost.\textsuperscript{81} However, there were no significant differences in medical treatment, clinical outcomes, or hospitalisations at two-year follow-up.\textsuperscript{82}

In the UK, people aged 60 or over who lived in their own homes were randomly assigned to usual care or a stroke support service from specialist nurses, including home visits. While there were few significant differences in clinical outcomes, most patients and caregivers felt they had benefited from the specialist nurse's visits.\textsuperscript{83,84}

It is not possible to compare most of the studies above because the exact interventions that specialist nurses have been involved in vary greatly. For instance, some of the studies above focus on telephone support, others on home visits, and others on targeted follow up support. This variation in the initiatives provided by specialist nurses makes it difficult to draw conclusions about the effects of these nurses on patient satisfaction, clinical outcomes, and healthcare service use.

We cannot be certain whether it is the intervention that makes a difference or the fact that a specialist nurse is involved. For instance, home visits by general practitioners, by health visitors, or by peer supporters may have equal benefits to home visits by a specialist nurse. The available evidence generally does not differentiate between the specific tasks carried out by specialist nurses and the role of ‘specialist nurse’ itself.

One common initiative provided by specialist nurses is nurse-led clinics. In a number of European countries there has been a shift towards using nurse-led clinics to manage long-term conditions in primary care. A review of the literature suggested that nurse-led clinics may provide better quality care compared to traditional physician-led primary care.85 Research from Sweden, The Netherlands, and the UK suggests that nurse-led clinics are effective for managing chronic obstructive airways disease and asthma, heart failure, diabetes, and people receiving anticoagulant therapy.86

For example, a systematic review of 18 randomised trials of heart failure clinics relying, at least in part, on specially trained nurses found that nurse-led clinics are associated with reduced hospital readmissions and fewer days in hospital compared to usual care.90

There have been positive outcomes from nurse-led clinics in both primary and secondary care. A large randomised trial in the UK examined specialist nurse-led clinics for people with diabetes and hypertension or hyperlipidemia who were receiving hospital-based care. Nurses provided clinics for participants, with attendance every 4-6 weeks, until targets were achieved. They provided lifestyle advice and drug adjustment according to local guidelines. Compared to usual care, participants who attended nurse-led clinics were more likely to achieve their clinical targets after one year and had lower mortality rates.91

In Scotland, a large trial of nurse-led primary care clinics for people with heart disease found that nurse-led clinics improved risk factors and reduced deaths. The effects were sustained after four years.92

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A smaller trial in the US compared nurse-led outpatient management of childhood asthma versus follow-up by a paediatrician. After one year, there were no significant differences between groups in symptom-free days, health status, quality of life of patients, or quality of life of caregivers. The authors concluded that following initial assessment in a multidisciplinary clinic, childhood asthma can be successfully managed by an asthma nurse in close cooperation with a paediatrician.93

However, other studies have found less positive results. A Cochrane review suggested that nurse-led clinics for chronic airways disease may improve outcomes when the disease is moderate, but not when it is severe94

In the UK, a randomised trial assessed the impact of providing a nurse follow-up clinic in addition to the usual service provided by a dermatology outpatient department for people with eczema or psoriasis. One group received usual care. The other received an additional session with a dermatology nurse specialist immediately after their consultation with the dermatologist. People who took part in the nurse specialist clinic had better knowledge then those who received usual care, but there were no differences between groups in quality of life.95

Another randomised trial in the UK found that school-based nurse-led clinics for adolescents with asthma increased uptake of asthma reviews, but did not improve clinical outcomes compared to usual GP care.96

Similarly, a randomised trial in the US compared care processes and outcomes of nurse practitioners versus primary care physicians for adults with type 2 diabetes. Nurse practitioners documented the provision of diabetes education and selected monitoring tests more frequently than doctors, but these differences had no effect on people’s health outcomes at six months.97

To summarise, while a great deal has been written about initiatives run by specialist nurses, including nurse-led clinics, evidence of the effectiveness of these approaches remains uncertain. Some studies have found definite improvements associated with specialist nurse-led strategies, whereas other have found less benefits.

Nurse-led clinics themselves vary widely in type, function, and duration. For instance, some of the studies summarised above focus on a one-off nurse-led educational appointment, whereas others examine weekly or monthly clinic visits. Some studies focus on clinics in primary care. Others focus on hospital-based clinics. And while some clinics are run by nurses alone, others include nurses as part of a broader multidisciplinary team. All of these differences make it difficult to draw conclusions about nurse-led clinics, and whether it is the nurse role itself that is important, or the use of regular follow up (by any type of staff).

However, the available evidence does suggest that nurses trained to provide specialist care for people with a particular type of long-term condition can be involved in many beneficial initiatives, including nurse-led clinics.

**HOSPITAL NURSES**

There is also some evidence about the roles of nurses in hospital. These are usually ‘general nurses,’ rather than nurses trained to provide specialist services for people with a particular long-term condition.

We identified four studies that explicitly compared the care provided by hospital nurses and others. Due to the paucity of evidence, studies of any design were eligible. Studies of follow-up by hospital nurses are described in the next section.

Although most studies are of limited quality, research that compares substituting nurses for doctors in hospital has found that nurses and doctors often have similar process and clinical outcomes. For example, in the US, people on general medical wards were randomised to receive care from either nurse practitioners or medical house staff. Not all participants had long-term conditions. Outcomes at discharge and six weeks after discharge were similar between groups, including length of stay, cost of care, complications, mortality, patient assessments of care, quality of life, and symptom severity.98

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A retrospective study in the US compared the care provided by nurse practitioners versus doctors for hospitalised older people. The authors concluded that nurse practitioners in hospital provide effective care, particularly for those who are older and sicker. Readmission and mortality rates were similar between nurses and physicians.99

A case control study in the US compared the care provided by hospital nurse practitioners, physician assistants, and residents. Not all participants had long-term conditions. Clinical outcomes did not differ markedly for people treated by nurses versus those treated by clinicians.100

Another case control study in the US focused on older people visiting the emergency department, some of whom had long-term conditions. A geriatric nurse identified medical, dental and social problems using standardised assessments and made recommendations to the patient, family, and attending emergency department physician. Attempts were made to arrange appropriate follow up services. Physicians complied with six out of ten nurse suggestions and patients and families complied with one third of nurse recommendations. There were no significant differences in mortality between nurse-facilitated care and usual care.101

Not a great deal has been written about the role of hospital nurses in disease management initiatives for people with long-term conditions. The available evidence suggests that in some instances hospital nurses can successfully be substituted for doctors, however.

FOLLOW-UP BY HOSPITAL NURSES

As well as looking at the roles of nurses within hospitals, some initiatives have focused on follow-up by hospital nurses after discharge.

For instance, in the UK, adults who attended emergency departments with asthma were randomised to usual care or three outpatient follow up appointments with a hospital-based specialist asthma nurse, six weeks apart. Following assessment of their asthma treatment, the nurses advised participants how to recognise and manage uncontrolled asthma and when to seek medical assistance. Medication and inhalers were altered if necessary. Compared to usual care, hospital-based specialist nurses reduced asthma morbidity by improving self-management behaviour which lead to reduced symptoms, improved lung function, less time off work, and fewer consultations with other health professionals.102

In Canada, people with heart failure were randomised to receive usual care or nurse-led support with the transition from hospital to home. Follow up care from nurses was associated with less emergency department visits and improved quality of life.103

Another trial with people hospitalised for heart failure in Canada assessed a support programme comprising education, self-monitoring, educational aids, a telephone hotline, and nurse follow up at two weeks, then monthly for six months after discharge. Compared to usual care, the group receiving nurse follow up had fewer emergency department visits and days in hospital, and reduced cost of care. There was no difference in adherence to medication.104

A trial with elderly people with heart failure in Sweden found that follow-up by nurses after hospital discharge was more effective for optimising medication than follow-up in primary care clinics. However, nurse follow-up did not affect quality of life or hospital readmission rates.105

On the other hand, a trial in Hong Kong examined follow-up by hospital nurses following emergency department visits. Participants received two telephone calls from an emergency department nurse, within 1-2 days and 3-5 days after visiting the emergency department. Not all participants had long-term conditions. The authors found that people receiving nurse follow-up were more likely to use the emergency department again within 30 days. Nurse telephone follow-ups might have sensitised participants to healthcare needs.106

Five randomised trials of follow-up by hospital nurses, often by telephone, have found varying results. In some instances nurse follow-up reduced healthcare resource use. In other instances it increased service use.

There is evidence that nurses working in primary practice are well regarded by people with long-term conditions and can deliver care as effectively as doctors in many instances. We identified six studies that compared primary care nurses with doctors or outlined the role of primary care nurses in initiatives to improve chronic care. Studies of patient follow-up by primary care nurses are described in the next section.

A meta-analysis comparing nurse practitioners versus physicians in primary care included 38 studies. Not all studies focused on people with long-term conditions. In randomised trials, participants were more likely to comply with treatment recommendations from nurse practitioners compared to physicians. Nurse practitioners were equivalent to physicians on most other aspects.107

Another, more recent, systematic review of 34 studies examined whether nurse practitioners working in primary care can provide equivalent care to doctors. Not all studies focused on people with long-term conditions. Participants were more satisfied with care by a nurse practitioner compared to care from a general practitioner. Nurse practitioners had longer consultations and made more investigations compared to doctors. There were no significant differences in health status, prescriptions, return consultations, or referrals. The authors concluded that increasing the availability of nurse practitioners in primary care may lead to high levels of patient satisfaction and high quality care.108

An additional randomised trial in the US compared the quality of primary care delivered by nurse practitioners versus doctors for people who had visited a hospital emergency department. Not all participants had long-term conditions. There were no differences between groups in initial satisfaction, health status, or health service use at six months. People with hypertension who received care from a nurse practitioner had lower blood pressure than those receiving GP care. The authors concluded that in primary care where nurse practitioners had the same authority, responsibilities, administrative requirements, and patient population as physicians, patients’ outcomes were comparable.109,110,111

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Similarly, a retrospective study in the US compared different types of staff providing primary care for 41,209 people. Not all had long-term conditions. Participants were more likely to be satisfied with their interactions in visits with nurse practitioners or physician assistants compared to visits to doctors. Adults with diabetes were more satisfied with appointments provided by doctors rather than nurses.\textsuperscript{112}

A review of practice nurse care for people with heart failure in Australia found a paucity of information about potential roles for practice nurses. The studies identified were largely descriptive, but suggested that practice nurses can help facilitate multidisciplinary interventions and are perceived positively by people with heart failure.\textsuperscript{113}

However, the impacts on general practice teams are uncertain. A trial in The Netherlands examined adding nurse practitioners to primary care teams. Nurses undertook specific tasks for people with chronic obstructive pulmonary disease or asthma, dementia, and cancer according to agreed guidelines. Adding nurse practitioners to general practice teams did not reduce the workload of general practitioners.\textsuperscript{114}

Two large reviews, two additional randomised trials and two other studies have described general roles of primary care nurses in some detail. Most studies suggest that nurses can provide equivalent care for people with long-term conditions as that provided by general practitioners.

The ‘type’ of nurse differed in these studies, however. Some studies included specialist nurses, focussed on people with one disease type, working within primary care. Others focussed on more ‘general nurses,’ trained to provide care to people with a wide variety of health conditions.

FOLLOW-UP BY NURSES IN PRIMARY PRACTICE

A key role for primary care nurses involves routinely following up people with long-term conditions. We identified one review and two additional randomised trials that detailed follow up roles of primary care nurses.

A Cochrane systematic review of 41 studies of primary care, outpatient, and community care for people with diabetes found that nurses who regularly contact patients can improve diabetes management.\(^{115}\)

In an additional randomised trial in the US, nurses telephoned people with diabetes in between visits to the doctor to monitor their health status and provide education. The intervention was associated with improved glycaemic control, but not quality of life or diabetes-related symptoms.\(^{116}\)

A randomised trial in the US compared nurse follow-up in primary care with usual care for people with depression. Nurses provided regularly scheduled follow-up for 24 months. Nurse follow-up was associated with clinical benefits and decreased outpatient costs for people with depression who complained of psychological symptoms.\(^{117}\)

A number of other studies of nurse follow-up exist. Some focus on follow-up as part of a broader programme, such as a case management initiative. Evidence about case management is presented overleaf. Other studies about nurse follow-up were outlined above in the section on specialist nurses.

To summarise, there is some evidence that routine follow-up by primary care nurses may improve the quality of care and clinical outcomes for people with long-term conditions, especially diabetes.


NURSES working in the community or based in primary care practices may also visit people with long-term conditions at home. These visits may include routine clinical monitoring, medication reviews, and social support. Evidence about the value of home visits is generally positive, but inconsistent.

For example, a systematic review examined nurse home visits for people with long-term conditions. Nurse visits were associated with improved patient satisfaction, good clinical outcomes, and cost savings.\textsuperscript{118}

In the UK, a trial assessed a nurse-led management plan for people aged over 65 years discharged from an emergency department after a fall. Within four weeks, the intervention group received a home assessment by a nurse. This included assessments of medication, blood pressure, cognition, visual acuity, hearing, balance, mobility, feet and footwear, and education about safety in the home. After six months, the group receiving a nurse home visit had better function than those receiving usual care.\textsuperscript{119}

In Denmark, people aged 75 or older discharged from hospital were randomly assigned to usual care or a home visit from a district nurse on the day after discharge and a home visit from their GP two weeks later. Not all had long-term conditions. After one year, those receiving home visits were less likely to be admitted to a nursing home and had fewer days in institutions.\textsuperscript{120}

Similarly, a randomised trial in the US focused on 75 people with long term conditions with three or more admissions to hospital. Participants were visited by a nurse within seven days of discharge, and for a total of nine times over the next three months. Compared to usual care, home visits by nurses reduced rehospitalisation rates.\textsuperscript{121}

Another randomised trial with older people who had been hospitalised and were at high risk for poor outcomes found that home visits by nurses reduced readmissions and days in hospital. There were no significant differences in post-discharge care visits, functional status, depression, or patient satisfaction.\textsuperscript{122}

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\end{thebibliography}
In Australia, people with chronic obstructive pulmonary disease were randomly assigned to usual care or home visits by a community nurse at one and four weeks after discharge and preventive general practitioner care. Those receiving care from community nurses were more satisfied with their care. There were no effects on general practitioner visits, admission to hospital, or overall functional status.\textsuperscript{123}

A cohort study assessed preventive nurse home visits for elderly people in Germany. Not all had long-term conditions. Home visits were made by nurses who received special training and used an established curriculum. Nurses were able to identify problems that were unknown to general practitioners, but no information was available about clinical outcomes.\textsuperscript{124}

However, a cost analysis in Korea found that nurse visits for low-income older people with long-term conditions was more cost-effective than outpatient visits or residential care.\textsuperscript{125}

Findings from eight studies suggest that home visits from nurses can improve clinical outcomes and resource use, although this is not universal.

\textsuperscript{123} Hermiz O, Comino E, Marks G et al. Randomised controlled trial of home based care of patients with chronic obstructive pulmonary disease. \textit{BMJ} 2002; 325(7370): 938.
\textsuperscript{125} Lee TW. Economic evaluation of visiting nurse services for the low-income elderly with long-term care needs. \textit{Taehan Kanho Hakhoe Chi} 2004; 34(1): 191-201.
To summarise evidence about the roles of nurses in disease management programmes for people with long-term conditions:

- There is evidence that specialist nurses or advanced primary nurses, trained to provide care for people with one or more long-term conditions, can make a valuable contribution to disease management programmes. Specialist nurses may be based in either primary or secondary care, or span the bounds of both. While there is some conflicting evidence, and the exact benefits may be disease-specific, the overall trend is for specialist nurses to provide equivalent care to clinicians at the same or reduced cost.

- Clinics run by specialist nurses and attended regularly by individuals or groups of people with long-term conditions are generally associated with improved clinical outcomes.

- There is a small amount of evidence that nurses in hospital can effectively substitute for hospital doctors in some instances.

- There is insufficient evidence about the effects of discharge planning and follow up by hospital nurses. Some studies have found improved clinical outcomes and reduced service use, others have found no effect or detrimental effects from hospital nurse follow up.

- There is evidence that primary care nurses can provide care of an equal quality to general practitioners for most people with long-term conditions, at lower cost.

- There is evidence that regular follow-up by primary care nurses and home visiting can improve the quality of care and clinical outcomes for people with long-term conditions.

- It is uncertain whether it is the intervention (clinics, follow up, or home visits) or the staff role (nurses) that makes a difference.
Another key component of disease management programmes involves working in multidisciplinary teams.

This section describes:

- the concept of multidisciplinary working,
- general evidence about the effects of multidisciplinary teams,
- and the staff who make up some of the multidisciplinary teams where there is good evidence of effectiveness.

**WHAT ARE MULTIDISCIPLINARY TEAMS?**

The quality of care for people with long-term conditions may depend on the degree to which professional relationships are collaborative and multidisciplinary. Multidisciplinary teams involve people from different specialities working together, such as doctors and nurses or dieticians and cardiovascular specialists.

Multidisciplinary teams can be made up of hospital staff alone, primary care staff alone, a mixture of primary and secondary staff, or a mixture of healthcare, social services, and the voluntary sector.

The exact tasks of multidisciplinary teams depend where they are based, who they are caring for, and what types of professionals they involve. A common aim of all multidisciplinary teams, however, is to draw together the strengths of different professions in order to provide effective, well rounded, and cost-efficient care for people with long-term conditions. Evidence about whether this works in practice has been varied.

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Example of multidisciplinary team work

Multidisciplinary teams include a wide range of professionals. To illustrate variation in the types of staff in multidisciplinary teams, 66 disease management programmes in Canada were surveyed. Nine out of ten multidisciplinary teams for people with long-term conditions employ allied health professionals, such as physical, occupational and pulmonary therapists and X-ray technicians. Three quarters of the programmes employed nurses, and half had a physician on the team. One quarter had pharmacists. The most effective collaborative models of care included a shared definition of the problem; patient education and support; a shared focus on specific problems; setting goals and developing plans to reach them; support for self-management; close monitoring of people with long-term conditions, and ensuring people had access to primary care doctors or specialists when they had a problem.\textsuperscript{127}

There is some evidence that it is multiple interventions that make the most difference and that changes to staff, to systems, or to education alone might be relatively ineffective.\textsuperscript{128}

WHAT DO WE ALREADY KNOW?

Much has been written about multidisciplinary team working. Descriptions of the specific staff involved in teams are provided in the next section.

There is inconsistent evidence about the effects of multidisciplinary teams in both primary and secondary care. A review of 14 systematic reviews plus 33 additional randomised trials found that the effects of multidisciplinary teams on quality of life and clinical outcomes vary considerably between studies, although most evidence suggests that multidisciplinary teams can reduce the use of health services and resources.\textsuperscript{129}

Three systematic reviews of multidisciplinary teams in primary care suggest that multidisciplinary primary care teams can have some benefits, but do not necessarily lead to improved clinical outcomes in people with chronic pain,\textsuperscript{130} heart failure,\textsuperscript{131} or dementia.\textsuperscript{132}

\textsuperscript{129} Singh D. Transforming Chronic Care: Evidence About Improving Care for People with Long-term Conditions. Birmingham: University of Birmingham Health Services Management Centre, 2005.
Multidisciplinary outpatient teams are often used to follow up people who have been admitted to hospital with a long-term condition. A systematic review in people with rheumatoid arthritis and randomised trials in elderly people found that multidisciplinary outpatient teams may improve functional outcomes more than usual care.\textsuperscript{133,134} Other trials with elderly people and those with stroke found no effect on health outcomes.\textsuperscript{135,136,137}

A number of studies have assessed multidisciplinary hospital teams. Trials in people with heart failure,\textsuperscript{138} arthritis,\textsuperscript{139} and elderly people\textsuperscript{140,141} suggest that multidisciplinary hospital care can improve physical functioning and reduce readmissions.

Evidence about the impact of integrating primary and secondary care on the quality of care processes is inconsistent, but there appears to be a trend towards improved quality of care and more effective use of healthcare resources in integrated systems.\textsuperscript{142,143} Systematic reviews of studies of people with depression\textsuperscript{144} and asthma\textsuperscript{145} suggest that integrating primary and secondary care may be a key to the success of some disease management programmes.

\textsuperscript{139} Vliet Vlieland TP, Breedveld FC, Hazes JM. The two-year follow-up of a randomized comparison of in-patient multidisciplinary team care and routine out-patient care for active rheumatoid arthritis. \textit{Br J Rheumatol} 1997; 36(1): 82-5.
There is some evidence that integrating primary care and hospital care may improve people’s knowledge and satisfaction with care. An assessment of 72 disease management programmes in the US found that programmes were more effective if they had strong linkages to primary care and included population-based approaches rather than relying on referrals.\textsuperscript{146} People’s satisfaction was higher with integrated approaches. On the other hand, a review of the effect of integrating primary healthcare services on cost, outcomes, and user acceptability found that in two out of four studies, integrated services were associated with less positive outcomes than usual care.\textsuperscript{147}

To summarise what we know about multidisciplinary teams:

- A great deal has been written about the benefits of multidisciplinary teams compared to care from just one group of professionals. However many studies do not describe in detail the staff who make up the teams or their respective roles.

- There is evidence that multidisciplinary teams may reduce the use of health services and costs for people with long-term conditions. However the effects on clinical outcomes and patient experience are less clear.

- There is evidence that teams of primary and secondary care staff working together can improve patient outcomes, although this varies according to the exact initiatives and the types of long-term conditions people have.

**WHAT DOES THIS REVIEW ADD?**

This section examines in more detail the types of staff that have been included in multidisciplinary teams and evidence of the effects of these staff teams.

**PRIMARY CARE NURSES AND DOCTORS**

We identified four studies that explicitly described teams made up of nurses and doctors in primary care, and that described the roles of each group in detail. Two of these studies focused on people with diabetes.

\textsuperscript{146} Wagner EH, Davis C, Schaefer J et al. A survey of leading chronic disease management programs: are they consistent with the literature? Manag Care Q 1999; 7(3): 56-66.

In the US, people with hypertension and diabetes received care from their primary care doctor and a nurse or from their primary care physician alone. After one year, people receiving combined GP and nurse care had improved health and satisfaction compared to those receiving GP care alone. Personnel costs were higher in the group receiving joint care.\(^{148}\)

In another US trial, children aged 3 to 17 years with asthma received usual care; care from GPs who received training from peer GP tutors; or care from GPs who received peer training plus nurse-led visits and care planning. Collaborative care improved clinical outcomes.\(^{149}\)

A randomised trial in Canada examined the effects of a nurse-physician collaborative approach for people with diabetes. One group received usual care from a GP. The other group received usual care plus home visits from a nurse and consultation with an exercise specialist, nutritionist, or both. After three months there were no significant differences in health or quality of life, but participants said that they felt more empowered.\(^{150}\)

Finally, a retrospective study of elderly people in nursing homes compared the care provided by teams of nurses and doctors versus care by physicians alone. Not all participants had long-term conditions. There was no difference between groups in emergency department visits, emergency department costs, hospitalisations, length of stay, or hospital costs. People receiving care from nurse practitioner and physician teams were seen more often.\(^{151}\)

To summarise, there is inconsistent evidence about the value of primary care doctor and nurse collaboration. Some studies have found improved clinical outcomes and satisfaction, others have found increased costs and no significant improvement from usual care.


PHARMACISTS AND PRIMARY CARE

Pharmacists are increasingly becoming involved in primary care teams. In England, the Medicines Management Collaborative aims to help people get the right medicines, in the right quantities, at the right time. Sixty-six centres are currently piloting collaborative working strategies such as community pharmacists working with GPs to review medicines. Preliminary data suggest that these integrated programmes increase reviews of patients’ medicines and ensure patients receive help when they need it.152

This approach is supported by other evidence. For instance, a Cochrane review examined the effect of expanding pharmacists’ roles. Twenty-five studies involving more than 16,000 patients were included. Not all had long-term conditions. There was some evidence that pharmacist involvement improved patient and physician education.153

A number of trials from the US also suggest that incorporating pharmacists into multidisciplinary teams can improve the quality of care for people with long-term conditions. For instance, care from a pharmacist as part of a multidisciplinary team for people with heart failure reduced mortality. Pharmacist care included medication evaluation, recommendations to the physician, patient education, and follow-up telephone calls.154

Similarly, a trial in the US assessed the effect of including a clinical pharmacist during all scheduled primary care visits for older people taking five or more medications for long-term conditions. Over a one year period, this integrated care programme reduced inappropriate prescribing and adverse drug events.155

Two trials in the US assessed co-management of people with high blood pressure by primary care physicians and clinical pharmacists. The pharmacist provided patient education, treatment, and follow-up. Compared to people receiving usual care, those who were co-managed had greater blood pressure reductions and less costly care.156,157

Another US trial found that integrating pharmacy and primary care helped to reduce inappropriate prescribing and improve medication compliance in people at high-risk in a rural community.158

A similar randomised trial in Canada found that including pharmacists in multidisciplinary care improved the quality of care and prescribing for people with heart failure.159

Including pharmacists in care teams for elderly people discharged from hospital with three or more medications also improved the appropriateness of drug prescribing. Pharmacists consulted people and their physicians at hospital discharge and for the following three months. People who received care from a pharmacist were less likely to have prescribing, dosage, or drug interaction problems.160

In contrast, a large randomised trial of structured pharmaceutical care provided to elderly people in Europe found that while participants rated community pharmacists positively, there were no improvements in clinical outcomes, quality of life, or cost.161

Other trials also have conflicting findings. In the US, people with depression received collaborative care by primary care and clinical pharmacists or usual primary care alone. Pharmacists provided drug therapy management and follow-up. After six months, those with a pharmacist in their care team had better drug adherence and satisfaction, but there were no significant differences between groups in resource use or clinical improvement.162

A randomised trial with 48 family doctors in Canada examined the effectiveness of pharmacists as consultants to primary care physicians for elderly patients who were taking five or more medications daily. Pharmacists conducted face-to-face medication reviews with patients and gave written recommendations to their physicians. After five months, there were no significant differences in healthcare use or costs between groups.163

In the US, people with depression or dysthymia received pharmacist consultations with routine primary care. A clinical pharmacist undertook in-person and telephone consultations to help general practitioners and patients with medication choices and dosing. There were no significant improvements in medication use.164

Eight out of the 12 studies we identified suggested that integrated pharmacy and primary care may have some benefits. Co-management, individual medication reviews, and GP education all appear to have some merits.

As well as incorporating pharmacists into primary care teams, there is some evidence to support broader teams of professionals in primary care. We identified five studies that described in detail the workings of other primary care teams, with negligible results.

Eight out of 11 trials in a systematic review of multidisciplinary team follow-up and regular visits from a nurse, homecare aide, or volunteer following discharge of the elderly from hospital found no effect of multidisciplinary follow-up on self-perceived health.\textsuperscript{165}

In the UK, general practices with a high proportion of South Asian patients received Asian link workers and extra community diabetes specialist nurse sessions or continued usual care. After one year, people with diabetes who received additional care from link workers and specialist nurses had small reductions in blood pressure and cholesterol compared to usual care, but there were no differences in glycaemic control.\textsuperscript{166}

Another randomised trial in the UK compared a community-based multi-professional stroke rehabilitation team versus usual care. People who received care from a multidisciplinary community stroke team were more satisfied with the emotional support they received, but there were no differences in functional outcomes, mood, quality of life, or knowledge of stroke. Nor were there any significant differences in satisfaction with practical help or overall satisfaction.\textsuperscript{167}

In Australia, high users of hospital services were randomly assigned to usual care or care planning by a general practitioner plus graduated case management depending on health status. There were no significant differences between groups in quality of life or mortality. Those receiving co-ordinated care had higher total resource use, primarily due to extra costs for care planning, case management, and administration.\textsuperscript{168}

On a more positive note, a trial in Ireland found that multidisciplinary care for people with heart failure was cost-effective compared to usual care.\textsuperscript{169} Nurse-led education plus specialist dietician advice significantly reduced hospital readmission compared with usual care at 12 weeks.\textsuperscript{170}

There is limited evidence about diverse primary care teams. The evidence that does exist suggests that adding extra specialists to primary care teams may not improve health or service use for people with long-term conditions.

\textsuperscript{165} Cole MG. The impact of geriatric post-discharge services on mental state. \textit{Age Ageing} 2001; 30(5): 415-8.


\textsuperscript{170} McDonald K, Ledwidge M, Cahill J et al. Heart failure management: multidisciplinary care has intrinsic benefit above the optimization of medical care. \textit{J Card Fail} 2002; 8: 142-8.
MENTAL HEALTH TEAMS AND PRIMARY CARE

Mental health specialists are increasingly working with primary care providers to improve the co-ordination of care for people with long-term conditions such as depression and dementia. For instance, a review of five randomised trials found that the effectiveness of antidepressant treatments in adults may improve with collaborative working between primary care clinicians and psychiatrists plus intensive patient education, case management, telephone support, and relapse prevention programmes.171

Similarly, a randomised trial of multidisciplinary care by a psychiatrist, psychologist, and nurses in Australia found that multidisciplinary care improved symptoms and behaviours more than usual care in nursing home residents with advanced dementia.172

Another randomised trial assessed collaborative care for chronic depression in the US. The programme comprised patient education, consultation with a psychiatrist, shared care by a psychiatrist and GP, and monitoring of follow-up visits and adherence to medication. Collaborative care improved quality of care at moderate cost.173,174

Another large randomised trial in US primary care clinics evaluated shared GP and specialist care for older people with depression. Shared care included a depression care manager supervised by a psychiatrist, a primary care manager who provided education and case management, and brief psychotherapy interventions. Compared to usual care, shared care reduced depressive symptoms and severity, improved treatment adherence, increased satisfaction with care, and improved perceived quality of life.175 The effects were sustained after two and a half years.176 There were similar findings for people with diabetes plus depression or dysthymia.177

An intervention for people aged 13 to 21 years with depression included expert leader teams at each primary care practice, care managers who supported primary care clinicians in evaluating and managing depression, training for care managers in cognitive-behaviour therapy, and clinician education. After six months, those in the collaborative care group reported fewer depressive symptoms, better quality of life, and greater satisfaction with mental healthcare.178

On the other hand, a Cochrane review of 38 studies assessed the effects of on-site mental health workers in primary care on the clinical behaviour of primary care providers. There was no evidence that adding mental health workers to primary care provider teams in 'replacement' models promoted a significant change in the behaviour of primary care staff. 'Consultation-liaison' interventions where primary care and mental health providers worked together may lead to changes in prescribing, but these appeared to be short-term and limited.\(^{179}\)

Similarly, a randomised trial in the UK assessed Mental Health Link, a quality improvement programme to facilitate communication between the teams within general practice. People in the group receiving integrated mental health and primary care had fewer psychiatric relapses, but there were no differences in processes of care, satisfaction, or general health. Staff in the quality improvement group were more satisfied. The cost of the intervention was £63 per person more than usual care.\(^{180}\)

Another small trial in the UK compared usual primary care or enhanced liaison with individual patients by key workers in general practices for people referred for psychiatric care. Key workers aimed to improve communication between primary and secondary care. There was no difference in clinical outcomes between those receiving usual care or key worker support.\(^ {181}\)

It appears that the effects of collaboration between primary care and mental health services may depend on the severity of conditions. In randomised trials in the US, people with depression received collaborative care from general practitioners and consulting psychiatrists. Psychiatrists provided brief psychoeducational interventions, medications management, and patient education. Among people with major depression, collaborative care was more cost effective than usual care. Among people with minor depression, collaborative care was more costly than usual care.\(^ {182,183}\)

Evidence from 10 studies suggests that collaborative care from mental health specialists and primary care staff may have some process and clinical benefits, at least in the short term. However other studies have found no benefits.


Evidence is also available about different staff working together in hospital. We identified seven studies that detailed the exact personnel working in multidisciplinary hospital teams.

A Cochrane review of interventions designed to improve collaboration between hospital nurses and doctors included two trials. One trial found that daily structured team ward rounds, in which nurses, doctors and other professionals made care decisions jointly, shortened the average length of hospital stay and reduced hospital costs. There were no significant differences in mortality. The other trial evaluated combined nurse-doctor ward rounds four times per week. There were no significant differences between groups in length of hospital stay or mortality. The reviewers concluded that increasing collaboration between doctors and nurses in hospital improved healthcare processes moderately, but had limited effects on outcomes.184

On the other hand, a randomised trial in Thailand found that physician-nurse collaboration and a multidisciplinary team approach in hospital improved the quality of care.185

A number of studies have focussed on people hospitalised with heart failure. For instance, in the US, people aged at least 70 years were randomised to usual care or a multidisciplinary intervention. The intervention involved education by a geriatric cardiac nurse, medication review by a geriatric cardiologist, consultation with social services to facilitate discharge planning, dietary teaching by a dietician, and follow-up after discharge by a home care team. The multidisciplinary strategy reduced readmissions and days in hospital, particularly among those at moderate risk for early rehospitalisation.186 The overall cost of care was US$460 less per person receiving multidisciplinary care compared with usual care.187

Another trial for people with heart failure compared a multidisciplinary team at a day hospital with a cardiologist, nurses, physiotherapist and individualised care plan versus usual care after hospital discharge. At one year, the multidisciplinary programme significantly reduced hospital readmissions and cardiac death compared to usual care.188

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Similarly, people with chronically symptomatic irritable bowel syndrome seen in a US hospital were randomly assigned to collaborative care by both a gastroenterologist and a psychologist or to medical treatment or psychological treatment alone. Collaborative treatment consisted of three biweekly visits. The authors found that short-term treatment with a gastroenterologist and psychologist working together was more effective than medical treatment for relieving symptoms in people with chronic irritable bowel syndrome.189

There is also evidence about multidisciplinary hospital teams for people who have suffered a stroke. A meta-analysis of 19 trials examined the effects of organised inpatient (stroke unit) care compared with conventional care. Specialist stroke unit interventions were defined as either a ward or team exclusively managing stroke (dedicated stroke unit) or a ward or team specialising in the management of disabling illnesses, including stroke. Organised inpatient care was characterised by coordinated multidisciplinary rehabilitation, education programmes, and specialisation of medical and nursing staff. Stroke unit care was associated with less days spent in hospital, death, dependency, and institutionalisation.190

An additional randomised trial in the UK compared multidisciplinary care in hospital for people with stroke. Participants received care in a stroke unit with a multidisciplinary stroke team, on usual wards with the support of a stroke team, or care at home. Stroke units were more effective than a specialist stroke team or specialist home care in reducing mortality, institutionalisation, and dependence after stroke.191

There is good evidence that multidisciplinary teams in hospital or following up people after hospital discharge can improve quality of care and health incomes and reduce resource use.

However, most of these multidisciplinary interventions contain other components such as increased follow up and medication reviews. It is therefore unclear whether it is the multidisciplinary nature of the team, or the additional contacts with staff, that influence outcomes.

Similarly, it is uncertain which specific staff may be more or less useful within multidisciplinary hospital teams. It is unclear if a team of nurses and doctors would be more or less effective than a team made up of nurses, doctors, and dieticians, for example.

A great deal has been written about the effects of primary and secondary care personnel working together. We identified 20 studies that described in detail the personnel within such teams. Many other research about joint primary and secondary care has been reported, but generally these studies are not explicit about the types of staff involved and their exact roles.

A number of studies have assessed shared care between hospital teams and GPs. For instance, a systematic review of seven studies of people with long-term conditions examined the effect of formal liaison between GPs and specialist service providers. Formal liaison between GPs and specialist services had little effect on most health outcomes, although some physical and functional outcomes were improved, particularly among people with chronic mental illness. Liaison between GPs and specialist services generally improved patient satisfaction and evidence-based behaviours among clinicians.\textsuperscript{192}

Another meta-analysis of multidisciplinary follow-up programmes for people with heart failure included 11 randomised trials of joint work by family doctors, heart specialists, nurses, pharmacists, dieticians, physical therapists, and social workers. Multidisciplinary follow-up programmes were cost-effective and were associated with fewer hospital admissions. There was no strong evidence that multidisciplinary programmes improved quality of care or mortality.\textsuperscript{193}

A meta-analysis of five randomised trials compared GP or hospital care alone or shared GP and hospital care for people with diabetes. Shared care programmes with a computerised prompting system for GPs and patients had better attendance rates and better glycaemic control compared to hospital care. However, shared care programmes with less well developed support for GPs had adverse outcomes for people with diabetes.\textsuperscript{194}

An additional randomised trial with people with diabetes found that shared GP and hospital care was as effective as hospital-based care. The authors concluded that with adequate support from hospital-based diabetes services, GPs are capable of providing appropriate care for people with uncomplicated diabetes.\textsuperscript{195}

A randomised trial in Scotland examined a computerised model of shared care between general practitioners and hospital specialists caring for people with high blood pressure. Shared care was more cost-effective than either conventional care or follow-up in nurse-led clinics.\textsuperscript{196}

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On the other hand, another UK trial with people with diabetes found no significant differences between integrated care and usual hospital care. The integrated care group was seen in general practice every three or four months and in the hospital clinic annually. GPs were given written guidelines for integrated care. After two years there were no significant differences between groups in metabolic control, psychosocial status, knowledge, beliefs about control, satisfaction with treatment, unscheduled admissions, or disruption of normal activities. People receiving integrated care had more visits and greater numbers of examinations at slightly lower cost.\footnote{Naji S, Cameron I, Russell I et al. Integrated care for diabetes: Clinical, psychosocial, and economic evaluation. \textit{BMJ} 1994; 308(6938): 1208-1212.}

Collaboration between health professionals may help professionals feel more confident about their decisions and care processes. A study in Europe compared asthma care by GPs alone, care shared between GPs and hospital clinics, and conventional specialist care. Integrated care helped GPs care for people with asthma who they might otherwise have referred for specialist review.\footnote{Osman LM, Abdalla MI, Russell IT et al. Integrated care for asthma: Matching care to the patient. \textit{Euro Respiratory J} 1996; 9(3): 444-8.}

Similarly, a trial in Australia assessed the impact of involving general practitioners in post-discharge care of children with asthma. GPs were telephoned when children from their practice were admitted. Children and their GPs then received printed information detailing the care received in hospital and recommended post-discharge care plus educational booklets about asthma. The hospital made follow-up appointments for children to visit their GPs. GPs in the intervention group were more satisfied and felt they were more involved compared to GPs receiving the usual level of communication, but there were no differences between groups in the rate of follow-up appointments with GPs.\footnote{Marks MK, Hynson JI, Karabatsos G. Asthma: communication between hospital and general practitioners. \textit{J Paediatr Child Health} 1999; 35(3): 251-4.}

On the other hand, an observational study in Australia that collated GP and hospital staff’s views about joint working found that there was a lack of trust on both sides, and poor communication owing to structural and perceptual problems. Hospital staff focused on specialist care and outpatient follow-up and seemed largely unaware of the role of GPs. They made no use of GPs’ knowledge and often wanted to do everything within the hospital. GPs often felt alienated from the hospital system.\footnote{Balla JI, Jamieson WE. Improving the continuity of care between general practitioners and public hospitals. \textit{Med J Aust} 1994; 161(11-12): 656-9.
Other studies have examined teams of many different personnel. In New Zealand, people with chronic heart failure were randomly assigned to usual care or integrated primary and secondary care. Integrated care involved clinical review at a hospital-based heart failure clinic early after discharge, individual and group education sessions, a personal diary to record medication and body weight, information booklets and regular clinical follow-up alternating between the general practitioner and hospital clinic. Integrated care improved quality of life and reduced total hospital admissions and total bed days.201

Another study in New Zealand focused on people with moderate to severe chronic obstructive pulmonary disease. The programme included management guidelines, individual care plans, and collaboration between patients, general practitioners, practice nurses, hospital physicians and nurse specialists. People receiving collaborative primary and secondary care had reduced hospitalisations and days in hospital compared to usual care. The authors concluded that key success factors were participation by people with long-term conditions and information sharing among healthcare providers.202

In Australia, people living in nursing homes were randomised to receive usual care or multidisciplinary case conferences. Two multidisciplinary case conferences involving the resident's general practitioner, a geriatrician, a pharmacist and residential care staff were held at the nursing home for each resident. The case conference group had more appropriate medication, but participants' behaviours did not change. The authors concluded that outreach specialist services can be delivered without direct patient contact.203

A study in Germany examined multidisciplinary rehabilitation for people with chronic back pain. The multidisciplinary programme was organised by a group of local healthcare providers in the community (sports teachers, clinical psychologists, physiotherapists and physicians) and included exercise therapy, physiotherapy, cognitive-behavioural therapy, muscle relaxation, and education. Compared to usual care, the multidisciplinary group had improved physical and mental health and fewer days off work. There were no differences in reported pain or depression.204

201 Doughty RN, Wright SP, Pearl A et al. Randomized, controlled trial of integrated heart failure management: The Auckland Heart Failure Management Study. Eur Heart J 2002; 23(2): 139-46.
A number of multidisciplinary studies have focused on people with diabetes. In Israel, people with poorly controlled diabetes received usual primary care or multidisciplinary primary and secondary care from a diabetes team. After six months, people receiving multidisciplinary care had improved clinical outcomes compared usual care.205

A small randomised trial found that people with type 2 diabetes in Canada favoured usual care plus home visits from a nurse and consultations with exercise specialists and nutritionists over usual care alone, saying they felt more empowered and self-efficacious with the collaborative approach.206

A case series in the US evaluated a hospital-based diabetes programme comprising self-management education, medical management by a primary care provider supported by recommendations from a diabetes advanced practice nurse, nutritional counselling and quarterly follow-up appointments over one year. The initiative was associated with more glycaemic control and better adherence to screening and examinations.207

Similarly, an observational study in France examined collaboration by general practitioners and diabetes specialists to develop guidelines for people with diabetes. The authors concluded that if general practitioners and specialists work together to develop protocols, this can have positive benefits for healthcare processes and clinical outcomes.208

However, a randomised trial of a combined primary-secondary care education package found multidisciplinary teams did not improve diabetes knowledge, awareness, or self-management for people from South Asia living in the UK. Participants were invited to four or more rotating visits per year by a diabetes specialist nurse, dietician, or chiropodist working with general practice staff.209

Other studies have examined how specialists can best provide services within primary care venues. A systematic review of nine studies assessed clinics conducted by specialist medical practitioners in primary care and rural hospital settings. Simple ‘shifted outpatients’ programmes improved access to specialist services, but had no impact on health outcomes. Specialist outreach as a component of interventions involving collaboration with primary care or education was associated with improved health outcomes, more efficient care, and less use of hospital services.210

Teams from primary and secondary care have also helped to provide outpatient programmes. A randomised trial in the US examined a six month multidisciplinary outpatient programme for people with chronic heart failure at increased risk of hospital readmission. The multidisciplinary team consisted of a cardiologist, a specialist heart failure nurse, a telephone nurse coordinator and the patient’s primary care physician. Team members had contact with each patient according to a prespecified schedule. The specialist nurse followed an algorithm to adjust medications. Those receiving multidisciplinary care had fewer hospital admissions and deaths and better quality of life compared to people receiving usual care. The cost per participant was similar between groups.

There is evidence that collaboration between primary and secondary care can improve processes and health outcomes for people with long-term conditions. There is variable evidence about collaboration between hospital teams and general practitioners, perhaps because these initiatives often provide varying levels of support and integration. There is more evidence for shared care from teams made up of primary care personnel and specialists. There is insufficient evidence about staff roles that have been used to foster integration between primary and secondary care.

**SOCIAL AND MEDICAL CARE**

In England, there is an increasing focus on a ‘whole system’ approach to care, integrating health and social services. However, there is little rigorous local evidence about the effectiveness of this approach. We identified four studies that explicitly outlined the role of social care staff in multidisciplinary teams.

A randomised trial in Italy evaluated integrated social and medical care and case management for frail elderly people living in the community. People receiving integrated social and medical care had improved physical and cognitive function and were less likely to be admitted to hospital or a nursing home compared to people receiving usual care. Both groups used health services to the same extent, but those receiving usual care had more home visits by general practitioners. The estimated financial savings from integrated care were US$1800 per person per year of follow up.

Similarly a small trial of joint primary care treatment of childhood asthma by a doctor, physiotherapist, psychologist, and social worker found improved ventilatory capacity in children receiving integrated care.

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An observational study in The Netherlands assessed a vocational rehabilitation programme for people with chronic rheumatic conditions. The programme was run by a multidisciplinary team comprising a rheumatologist, a social worker, a physical and occupational therapist, and a psychologist. Patients and practitioners were highly satisfied with the programme, although they highlighted the need for better communication between team members.214

On the other hand, US trials in people with heart failure assessed multidisciplinary teams with pharmacists, dieticians, social workers, heart failure nurses, and registered nurses. There were some positive outcomes,215 but the multidisciplinary team did not reduce the use or costs of healthcare. The intervention was most beneficial for people at low risk or with less severe difficulties, but it increased the use of healthcare and costs in people who were fully functional before hospital admission.216

There is insufficient evidence about methods to integrate social and medical care, and the effects of including social workers within multidisciplinary teams. Although some studies of including social workers in teams have favourable outcomes, there is no evidence that including social workers was an essential component of these programmes. This is not to say that integrated social and medical teams are not useful, just that there is little documented evidence of the effects.

WORKING WITH COMMUNITY GROUPS

Another way to integrate care involves working with community organisations or the voluntary sector. A number of authors have suggested potential advantages with this approach or described their attempts to use community centres, schools, churches, and voluntary organisations (mostly for health promotion rather than chronic care).217,218,219,220,221 However, few randomised trials or systematic reviews have investigated the outcomes of partnerships with the public and voluntary sectors.222

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Working in joint teams with voluntary groups is distinctive to providing usual care in community venues. Providing care in the community has been found to improve access to services, but not affect clinical outcomes. However, a number of randomised trials in the US suggest that church-based prevention programmes can improve health outcomes.

We found two studies that described in detail collaborative working between health services and community or voluntary groups. A randomised trial found that co-ordinating care between community groups and healthcare providers can improve service use and increase satisfaction. The US Alzheimer’s Association integrated their care consultation service with the services offered by a managed care system for people with dementia and their caregivers, resulting in improved access to services.

Another US trial compared four strategies for people aged 65 and older who were eligible for geriatric care management: information via post; information via telephone; geriatric care management; or geriatric care management with up to US$2000 worth of community services including in-home support, transportation, respite, or medical equipment. The authors reported significant barriers in establishing contractual agreements between health services and private and community agencies, locating sufficient community agencies to provide needed services, and monitoring service contracts.

In addition to collaboration between health and community services, a number of studies suggest that using community-based volunteers to support people with long-term conditions can have some benefits. For instance, a randomised trial in London found that volunteers 'befriending' women with chronic depression improved clinical outcomes. Similarly, a randomised trial in Canada found that community-based volunteers were just as effective as health providers at reducing alcohol consumption among people with chronic alcohol problems.

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There is insufficient evidence about joint working between health services and voluntary groups or staff from community agencies. This is not to say that integrated community and health teams are not useful, just that there is little documented evidence of the effects.

To summarise the evidence about multidisciplinary teams:

- **Common multidisciplinary teams** include teams of hospital staff providing care in hospital or as outpatient services; primary care teams made up of nurses and doctors, perhaps with the addition of specialists such as dieticians; collaboration between mental health and primary care services; and collaboration between pharmacists and primary care teams.

- Teams that include social services staff, commonly social workers, and community volunteers are also gaining popularity, but there is a paucity of evidence about how these teams work in practice.

- The most effective strategies for multidisciplinary team work appear to involve staff working together to address the needs of people holistically, rather than substituting one type of staff for another.

- There is less evidence about the effectiveness of models where different staff merely liaise with each other compared to models where staff work together ‘hands on’ to provide care.
CASE MANAGERS

One of the most frequently discussed initiatives to improve care for people with long-term conditions involves case management. This section describes:

- the concept of case management,
- general evidence about the effects of case management,
- and the effects of different types of case managers.

WHAT ARE CASE MANAGERS?

Case management is a way of co-ordinating services for people with long-term conditions or complex social and medical needs. There are many different models of case management, but the broad principle is to assign each person a 'case manager' or a small case management team to:

- assess the person’s needs,
- develop a care plan,
- arrange suitable care,
- monitor the quality of care,
- and maintain contact with the person and their family.

Commonly nurses working in primary care have been trained as case managers. These may be specialist nurses, advanced nurse practitioners, or district or practice nurses especially trained to take on new roles. In England, Community Matrons will fulfil this role. In the US, the Evercare and Pfizer models of care are both based around case management by nurses.233

The Evercare model has been piloted in nine primary care trusts in England. A full evaluation of outcomes by the National Primary Care Research and Development Centre is due in 2006.234

In both the UK and US models, each case manager is usually responsible for between 30 and 60 'cases.' In some models once a person with a long-term condition is added to a case manager’s caseload they remain on it for life, even if this merely means an annual telephone call. In other models, caseloads are more fluid, with people receiving support while they are most in need and then being removed from a case manager’s caseload when they no longer feel that they need targeted support.

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Some case managers specialise in co-ordinating care for people with a particular long-term condition, such as heart failure or diabetes. These case managers are often specialist nurses. Other case managers organise care for all older people with complex needs, or a more general population group.

Some case managers offer care to everyone in a certain age group, such as everyone over the age of 65 years. Others target only those at highest risk of hospitalisation or complications.

Example of a case management programme

The Eldercare Project in Cornwall (EPIC) began in July 2004. EPIC is one of several projects currently being run in Cornwall to reduce unplanned hospitalisation and increase capacity in community services. The main objective is to manage proactively the health of people aged over 75 who have a long-term condition and repeated unplanned hospital admissions. EPIC have a team of 12 Advanced Primary Nurses, four working in each primary care trust area, within selected GP practices. The nurses aim to take on a maximum of 60 patients each.

Nurses assess people using structured tools. The assessment process signposts the nurse to further interventions or referrals to other services. The nurses work with people with long-term conditions to enable them to identify the early signs of deterioration or exacerbation of their chronic disease. The nurses liaise with general practitioners to assess whether hospital admission is required and have a menu of options to support the patient safely at home.

Evaluation is ongoing but in case studies individual patients report benefits from the programme.235

WHAT DO WE ALREADY KNOW?

A great deal has been written about case management for people with long-term conditions, including descriptions of local initiatives.236 Yet evidence of the effect of case management on clinical outcomes and resource use remains inconsistent. This section outlines some of the things we already know about the effects of case management. It does not systematically review all available literature. Instead, the aim is to highlight key trends.

Some studies have found definite benefits from case management, especially when delivered as part of a broader disease management programme. For instance, a systematic review found that for people with diabetes, case management may help to improve glycaemic control, but evidence was drawn primarily from the US. The reviewers suggested that case management is effective when delivered in conjunction with broad disease management programmes and when delivered with one or more additional educational, reminder, or support interventions.237

Many hundreds of case management studies have been undertaken in the field of mental health, including people with long-term conditions such as dementia and chronic depression. A Cochrane review found that case management in mental health meant more people remain in contact with health services (one extra person remains in contact for every 15 people who receive case management), but hospital admission rates also increased. There was some evidence that case management improved adherence to treatment, but the reviewers found that case management did not generally improve clinical outcomes, social functioning, or quality of life in people with mental illness. Case management may also increase costs. The reviewers concluded that case management is of questionable value in mental health.238

In contrast, an older systematic review of case management in mental health divided case management approaches into simple and more complex types. Brokerage case management is the most simple. It focuses on organising and coordinating services on behalf of the patient. Clinical case management is more complex, and includes programmes such as Assertive Community Treatment (ACT), the Psychosocial Rehabilitation Model, and the Strengths Model. The reviewers included 23 studies with almost four thousand participants. They concluded that, when delivered as a direct service with high staff / patient ratios, case management can have some impact on use of services (including reduced hospital stay), satisfaction with services, engagement with services, and social networks and relationships.239

Another meta-analysis of 24 studies of case management for people with severe and persistent mental illness found that overall, case management interventions are effective. Seventy-five percent of people who participated in these programmes did better than the average person who had not been case managed. The reviewers found no differences in the effectiveness of different types of case management models in mental health.240

Another meta-analysis of 44 controlled trials assessed different types of case management in mental health. Thirty-five studies compared assertive community treatment or clinical case management with usual care, and nine compared assertive community treatment with clinical case management. Both types of case management were more effective than usual care for reducing cost of care and family burden and increasing family satisfaction with services. The total number of admissions and the proportion of people hospitalised reduced with assertive community treatment, but increased with clinical case management. Assertive community treatment was more effective than clinical case management for reducing days in hospital.241

A cost-effectiveness analysis in the UK found that having a case manager to coordinate services benefited older people with dementia and their carers. Since there was no difference in the overall costs, the authors concluded that intensive case management can be a cost-effective intervention for people with dementia.242

Other studies have found that case management has no benefits over usual care. For instance, a systematic review assessed 17 trials of multidisciplinary teams, case management, and outreach or home care combined or in isolation, compared with usual care for particularly vulnerable populations including the chronically ill. The reviewers found no benefits from case management in processes of care, functioning, quality of life, or symptom control.243

Another systematic review found no strong evidence that case management improved clinical outcomes for people with long-term conditions, although there were benefits for patient satisfaction and for people with certain types of diseases. The reviewers suggested that while trials in Italy, Australia, and the UK have found benefits from case management, trials in the US often find no positive effects overall. The reviewers suggested that case management may work best with older people and immediately following hospitalisation. Differences in case management models make it difficult to compare findings between trials.244

The Kings Fund reviewed 19 studies of case management for people older than 65 years in Europe and North America, 14 of which were randomised trials. The reviewers found inconsistent evidence about the effectiveness of case management for preventing hospital admission, reducing use of the emergency department, and decreasing length of hospital stay. Only five out of the 19 included studies found significant reductions in hospital admissions.245

Yet other studies suggest that case management may be beneficial for specific groups, such as people at high risk of hospitalisation. For instance, a trial in the US with people aged 7 to 16 years with diabetes compared a case manager alone, case manager plus psychoeducational modules, and standard diabetes care. Case management plus education reduced the rate of adverse outcomes compared with the other two groups. Case management plus education was particularly beneficial for youth at ‘high risk.’

In contrast, another randomised trial in the US assessing the effects of case management among ‘high risk’ older people found no evidence that a case manager reduced the use or cost of healthcare.

To summarise what we already know about case management:

- There is inconsistent evidence about the effects of case management on clinical outcomes, satisfaction, and healthcare resource use.
- A number of studies suggest that case management can have benefits, especially for those who have the most complex needs, however an equal number of studies have found limited benefits.
- The most comprehensive evidence is available for people with mental health problems and diabetes, but evidence in these two areas is also conflicting.
- There are different types of case management, including general liaison models and more active targeted support. There is no consistent evidence that one model of case management works better than another.

**WHAT DOES THIS REVIEW ADD?**

While many studies have outlined the advantages and limits of case management or compared different types of case management, much less has been written about the staff working as case managers. We identified no high quality trials that explicitly compared the relative merits of different types of staff as case managers, such as nurses versus doctors or health visitors. However information is available about a range of different staff who have taken on case management roles.

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We found 34 studies that described in some detail the types of staff in post as case managers. These included:

- primary care nurses,
- other members of the primary care team,
- hospital nurses,
- other hospital staff,
- psychiatric teams,
- and people with long-term conditions.

**PRIMARY CARE NURSES**

The majority of studies that describe the case manager role in any detail have focused on care by nurses in primary care settings. These nurses may be based within GP practices or be roving community nurses.

We found 14 studies that described in detail a primary care nurse’s role in case management (and many other studies of nurse case management that did not define roles in any depth). Evidence about the effects of primary care nurse case managers varied considerably.

A number of studies found no benefits from primary nurse case managers. For instance, in the United States people with diabetes were assigned to a primary care nurse case manager or usual care for one year. The nurse case manager followed written management plans under the direction of a family physician and an endocrinologist. All participants received ongoing care through their primary care doctors. People receiving nurse case management in addition to usual care had improved glycaemic control and self-reported health status. Nurse case management was not associated with significant changes in medication type or dose, body weight, blood pressure, or lipids or with adverse events.\(^{248}\)

Another similar trial of case management in two US centres included people with poorly controlled diabetes. Nurse case managers worked with patients and their primary care providers, monitoring and coordinating care using telephone contacts, collaborative goal setting, and treatment plans. The control group received educational materials and usual care. Case management did not improve key clinical outcomes for high-risk people with diabetes, although participants were more satisfied with their diabetes care.\(^{249}\)

A randomised trial with frail older people compared nurse case management with usual care in Canada. There were no significant differences in quality of life, satisfaction with care, functional status, admission to hospital, or length of hospital stay. Case-managed older adults were readmitted to the emergency department significantly more often than the usual care group.\(^{250}\)

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In the US, low or moderate risk people with coronary artery disease were randomly assigned to 12 weeks of a cardiac rehabilitation programme, a physician supervised, nurse case management programme, or a community-based cardiovascular risk reduction program administered by exercise physiologists guided by a computerised system based on national clinical guidelines. All interventions improved cardiovascular risk factors, but primary care nurse case management was no more effective than other interventions.251

Some primary care nurses provide case management in hospital. In Denmark, hospitalised people aged over 65 years were randomised to usual care or a nurse-led intervention. A nurse visited the hospital daily, liaised with the primary care sector, discussed discharge with the patient and hospital staff, coordinated home care, and visited participants at home after discharge. There were no differences between groups in average length of stay in hospital, diagnostic procedures, functional capacity, or mortality.252

Some case management programmes involve regular telephone follow up alone. A US trial with people with heart failure assessed nurse case management by telephone. The programme involved structured telephone surveillance and coordination of care with primary care physicians. Nurse case management by telephone had no effect on hospital readmissions. The authors concluded that telephone case management programmes may be less effective for people at low risk than those at high risk.253

On the other hand, a number of studies have found clinical benefits from primary care nurse case managers. A systematic review of organisational and educational interventions to improve the management of depression in primary care included 36 studies. Compared to usual care, nurse case management in primary care improved clinical outcomes.254

Similarly, a randomised trial with adults with heart disease found that nurse case management was associated with improved clinical outcomes such as lower cholesterol and enhanced diet and exercise.255

A randomised trial in the US included children with asthma aged between 1 and 15 years. One group received asthma education. The other group received the same education session and were followed up by an asthma case management nurse for one year. The case management group had less emergency department visits and hospitalisations compared to children who did not receive case management. Resource use reduced by between 57% and 75% compared to usual care. Healthcare savings were between US$8 and $12 for every dollar spent on the nurse's salary.256

In the US, the Community Nursing Organisation is a federal healthcare model that provides ambulatory and outpatient services using nurse case management. A primary nurse provider, working with elderly people, their families, physicians, healthcare service providers, and community organisations, assesses the need for care and arranges for appropriate services. A one year observational study found that nurse case management improved health status. Not all participants had long-term conditions.257

Over a three year period, a nurse practitioner in the US evaluated the health, functional, and social status of people aged 65 years and above at an annual primary care office visit. The nurse provided case management for people who were frail or in danger of becoming frail. In the short-term, use of medical services increased in the case management group, but health, function, health behaviours, and patient satisfaction all improved compared to people who were not case managed.258

The findings about case management by a primary care nurse are inconsistent. Most studies suggest that primary nurse case managers may have some impact on satisfaction and quality of care, but do not necessarily improve clinical outcomes.

As with other interventions, case management by primary care nurses varies greatly in frequency and method, as well as effectiveness. It is uncertain whether the exact method of case management influences outcomes, and whether primary care nurse case management is more or less effective than case management by any other group.

In addition to nurses, other members of the primary care team have provided case management. In some cases, nurses share the case management role with other primary care professionals.

For instance, in the US, a randomised trial is underway to assess the effectiveness of case management in primary care for African Americans with diabetes. The two year trial is comparing telephone follow-up by a trained lay health educator versus case management by a team of nurses and community health workers. The nurse and community health worker team prepares individual care plans focusing on self-management, social issues, and screening and management of diabetes-related complications. Participants visit nurse case managers once yearly and community health workers visit participants at home one to three times per year, with additional follow-up contacts as needed. Written and verbal feedback is provided to the participant's primary care physician. No information about outcomes is available yet.\textsuperscript{259} However, a similar US trial assessing the effect of nurse case management and community health worker interventions on diabetes control for inner city African Americans found that improvements in clinical outcomes were greatest when nurse case managers and community health workers worked together.\textsuperscript{260}

In a three year study of co-ordinated care versus usual care, primary care staff generated targets and sought appropriate care from secondary care and allied health professionals for people with long-term conditions in rural areas of Australia. Care plans were reviewed annually. Case management by the primary care team was associated with significant improvements in health outcomes and reduced hospital and medical expenditure for some people.\textsuperscript{261}

Pharmacists have also been involved in case management. In a randomised trial of case management for people with diabetes a primary care pharmacist provided evaluation and modification of pharmacotherapy, self-management diabetes education, and reinforcement of screening processes through clinic visits and telephone follow-up. People case managed by the pharmacist achieved better diabetes control compared to people receiving usual care.\textsuperscript{262}

There is sparse evidence about the role of primary care professionals, other than nurses, in case management. However, the evidence that does exist suggests that further exploration of the role of community health workers (health visitors) and pharmacists may be warranted.


\textsuperscript{261} Mills PD, Harvey PW. Beyond community-based diabetes management and the COAG coordinated care trial. \textit{Aust J Rural Health} 2003; 11(3):131-7

\textsuperscript{262} Choe HM, Mitrovich S, Dubay D et al. Proactive case management of high-risk patients with type 2 diabetes mellitus by a clinical pharmacist: a randomized controlled trial. \textit{Am J Manag Care} 2005; 11(4): 253-60.
Hospital nurses may act as case managers, especially in North America. For example, in the US, people admitted to hospital were assigned a nurse case manager to provide discharge planning and to arrange for postdischarge outpatient follow-up. Not all participants had long-term conditions. Those who received case management discharge planning had improved continuity of care, but there was no difference in readmissions or emergency department use.263

Another trial in the US compared nurse case management in a special care hospital unit with traditional nursing care. Participants were critically ill with long-term conditions. There were no significant differences in length of stay, mortality, or complications. However, the case management group had significant cost savings.264

In Canada, a nurse case manager at a tertiary care teaching hospital coordinated an interdisciplinary treatment plan for people with rheumatoid arthritis. Patients were discharged after completing scheduled visits through ambulatory care services. This observational study found improvements in patient perceptions and self-efficacy.265

Another study in Canada compared nurse case management with usual care for over 70 year olds discharged home from the emergency department at risk for repeated hospital admissions. Case management consisted of coordination and provision of healthcare services by nurses, both in and out of hospital, for a 10-month period. There were no significant differences in quality of life, satisfaction with care, functional status, hospital admission, or length of hospital stay. People receiving case management were readmitted to the emergency department more often than usual care.266

Upon admission to hospital, people with chronic obstructive pulmonary disease in Australia were randomly assigned to receive case management from hospital nurses or usual care. People who received case management reported significantly less anxiety one month after hospital discharge, but this effect was not sustained. There was little difference between groups in unplanned readmissions, depression, symptoms, support, and subjective well being. Patients and caregivers said that case management improved access to resources and communication with staff. Nursing and medical staff said that case management improved communication between staff and enhanced patient care.267

Five studies of case management by hospital nurses found few significant improvements to health status and service use. Hospital case management programmes may involve less follow up than community models.

OTHER HOSPITAL STAFF

We identified two studies of case management by other hospital staff. Neither found significant clinical benefits from case management by hospital teams.

A randomised trial of a multidisciplinary case management programme for people with chronic renal insufficiency in the US comprised consultations for primary care patients in a hospital outpatient clinic staffed by two nephrologists, a renal nurse, a renal dietician, and a social worker. There were no differences between groups in renal function, health services use, medication use, or mortality for up to five years.268

Similarly, a trial in Switzerland found that hospital-based case management involving counselling by a clinician did not improve cardiovascular risk factors or symptoms among people hospitalised for coronary events.269

There is insufficient evidence about case management by hospital staff other than nurses. The evidence that does exist is not favourable.

PSYCHIATRIC TEAMS OR SPECIALISTS

In addition to the systematic reviews of case management in mental health described in a previous section, we identified four further studies that described in detail case management by psychiatric teams or specialists.

A randomised trial in Australia compared three interventions for people living in nursing homes with dementia complicated by depression or psychosis: psychogeriatric case management; general practitioners with specialist psychogeriatric consultation; and standard care. Participants in all three groups had improved clinical outcomes. Case management by a psychogeriatric team was no more effective than a specialist consulting with general practitioners or than standard care.270

On the other hand, a trial in 18 primary care practices in the US focused on people aged 60 years or older with major depression, dysthymic disorder, or both. Participants received usual primary care or up to one year of care from a depression case manager who was supervised by a psychiatrist and a primary care expert. The case manager offered education, care management, antidepressant management, and brief psychotherapy support. After one year, people receiving case management had reduced depression symptoms, greater rates of treatment, more satisfaction with care, less functional impairment, less severe depression, and better quality of life compared to people receiving usual care.\(^{271}\)

In New Zealand, a two year case control study assessed psychiatric case management for people with chronic severe mental illness. One group received psychiatric case management, using a model that directly involved general practitioners. The other group received standard outpatient care. People who received psychiatric case management had fewer days in hospital and remained out of hospital for longer than those receiving usual care.\(^{272}\)

An observational study in Hong Kong compared case management by community psychiatric nurses for people with chronic schizophrenia with usual care by community teams. Over a five month period, nurse case management was associated with improvements in psychological and functional outcomes and patient satisfaction.\(^{273}\)

In both systematic reviews and additional studies of case management by mental health professionals, there are inconsistent findings. While there are some trends towards positive outcomes from case management by psychiatric specialists, these findings are not universal.\(^{274}\)

**PEER CASE MANAGERS**

A new development is to involve peers as part of the team case managing people with long-term conditions. Evidence about the effects of peer initiatives is sparse, but initial findings have been positive. For example, an analysis of eight published literature reviews evaluated different models of case management. The reviewers concluded that case management by paraprofessionals and peers may improve health outcomes, but that further research is required.\(^{274}\)

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In the US, a trial compared case management for mentally disabled people provided by peers or by professionals over a two year period. There was no difference in overall clinical outcomes in peer versus professional case management, but peer case management was associated with greater improvements in quality of life, symptoms, attitudes towards medication compliance, and satisfaction with mental health treatment.275

Another US study examined whether employing people with mental health problems as peer specialists in a case management programme improves outcomes for people with serious mental illness. Three case management initiatives were compared: teams of case managers plus peer specialists; teams of case managers plus assistants who did not have mental health problems; and case managers alone. People receiving support from peer specialists had better quality of life and self image, fewer major life problems, and more frequent contact with their case managers.276

There is insufficient information to draw conclusions about using peers in case management teams, but positive trends suggest that further investigations in this area may be worthwhile.

To summarise the evidence about case managers:

- The most common case managers are primary care nurses. Hospital nurses have also acted as case managers, usually with less effect.
- There is no evidence that one type of staff make better case managers than others, because few studies have explicitly compared different case management staff.
- There is some evidence that primary and secondary care nurses working as case managers can improve the quality of care provided to people with long-term conditions, although this does not always lead to improved health or reduced service use.
- Evidence about other case management staff is sparse.
- People with long-term conditions may have a role in case managing others with similar conditions.

This rapid review has assessed the key personnel providing innovative care for people with long-term conditions in the areas of self-management education, disease management with nurses and multidisciplinary teams, and case management.

**SUPPORTED SELF-MANAGEMENT**

The majority of people with long-term conditions require support only to manage their own conditions on a day-to-day basis, rather than ongoing specialist initiatives.

Self-management education courses are one way to help people with long-term conditions care for themselves more effectively and to gain confidence in doing so.

The review identified 21 systematic reviews, randomised trials, and other studies describing the roles and personnel involved as self-management educators in detail. The main types of personnel who have worked as self-management educators are:

- volunteers with long-term conditions,
- primary care nurses,
- and hospital nurses.

Teams of specialists have also facilitated some courses.

In England, the *Expert Patients Programme* is being rolled out across the country. There is good evidence to support the benefits of this type of peer-led programme on self-efficacy, but these programmes may not always improve health outcomes.

There is no evidence to suggest that one type of personnel is any more effective at providing self-management education than any other group. While few studies have compared different types of self-educators directly, those that do exist have found no significant differences between courses led by peers or professionals. This suggests that the current focus in England on peer educators is appropriate and that there would be no benefit from redirecting additional resources to train health or social care professionals as self-management educators.
DISEASE MANAGEMENT

Disease management programmes target people at relatively high risk of complications and health service use. Two key components of disease management programmes are nurse-led care and multidisciplinary teams.

The review identified 52 studies describing innovative roles for nurses caring for people with long-term conditions or comparing the care offered by nurses versus care from other professionals. The expansion of nursing roles in chronic care has focussed on:

- specialist nurses who target people with particular long-term conditions,
- nurse-led clinics in primary or secondary care,
- and nurse-led follow up in primary or secondary care.

There is mixed evidence about the effectiveness of these approaches. While many studies have found that nurse-led care improves people’s satisfaction and reduces use of other health services, this has not always been associated with improved health outcomes.

However, studies which compare the care provided by nurses with the care provided by doctors or other professionals suggest that in most instances nurses can substitute for doctors in primary care. Nurse-led clinics and follow-up sessions, whether in person or by telephone, are associated with improvements in care processes.

The findings support the government’s focus on nurse-led care, but emphasise that nurses need adequate training, technological support, and time in order to be most effective.

Nurses are often part of multidisciplinary teams. The review included 64 studies that described multidisciplinary teams to help people with long-term conditions and outlined the exact staff within these teams. Teams of staff working together have been drawn from:

- within primary care,
- within hospital,
- within mental health and primary care,
- within pharmacy and primary care,
- spanning primary and secondary care,
- and spanning social care and health services.

There is evidence that nurses and doctors working together in primary and in secondary care can improve care processes and health outcomes. There is also emerging evidence about the benefits of including pharmacists in primary care teams, although most of this is drawn from the United States.

There is less consistent evidence about the benefits of mental health services working collaboratively with primary care. Nor is there much evidence about the role of social services staff within collaborative teams or ways that personnel from voluntary organisations and community agencies have been involved.
The most promising initiatives appear to involve co-ordination, communication, and joint working between primary and secondary care. The review did not identify any high quality evidence about staff roles that may help to interface between primary and secondary care or joint working strategies between health and social care. However, teams that had staff drawn from hospitals, from primary care, and from the social sector often had positive effects on patient satisfaction, health outcomes, and service use. Case managers are the main staff role that have been used to facilitate co-ordination between primary and secondary care.

**CASE MANAGEMENT**

Case management involves co-ordination of care and regular follow-up of people with highly complex needs. The review identified 34 studies that described different staff who have taken on the role of case managers. A large number of other studies described and evaluated case management programmes but did not make clear the exact staff taking on the case manager role.

Personnel who have taken on the role of case managers commonly include:

- primary care nurses,
- hospital nurses,
- and mental health workers.

Other teams in hospital, in primary care, and in pharmacy have been involved in case management, but are less common. A new area of study involves peer case managers.

There is inconsistent evidence about the effects of case management. Some studies have found no benefits from case management. Others have found significant improvements in care co-ordination and health service resource use. There is no evidence that one type of case management is consistently better than another.

The review identified no study that explicitly compared different types of case managers. However, comparing the outcomes of studies focussed on different personnel suggests that there are few significant differences between the case management provided by nurses, specialists, or pharmacists. Instead, critical success factors appear to be effective communication systems, effective monitoring and recall systems, organisational culture, and realistic caseloads.

To some extent the findings support the training of more Community Matrons to work as case managers in England. However, the caveat is that in order to be effective, case managers must be part of an integrated system so significant investment in supporting staff roles, technology systems, and changing organisational culture will also be required if Community Matrons are to have a positive impact.

The findings of the review do not support investing in case managers instead of other staff.
SUMMARY

When interpreting the findings of the review, it is important to bear in mind that almost all of the studies involved complex interventions. In very few instances were different personnel the only thing compared. It is also important to emphasise that the context in which staff changes take place has an impact on the outcomes. The lack of comparative evidence available does not mean that there are no differences between various types of professionals.

Bearing these caveats in mind, this rapid review suggests that:

− Nurses have a central role to play in initiatives to improve care for people with long-term conditions, whether in primary or secondary care, as case managers, or as specialist nurses. The available evidence suggests that in most instances nurses provide care that is at least as effective as the care provided by doctors, and often people are more satisfied with the care provided by nurses. This suggests that the current focus in England on providing targeted nurse-led support is justified.

− Involving people with long-term conditions as part of the team, either as peer educators or as peer case managers, may have significant benefits. It may be desirable to investigate whether there is any scope to involve peers in case management roles in the UK.

− Case managers aim to co-ordinate services and to provide an interface between primary and secondary care, and between health and social services. There is little evidence about the extent to which case managers, often nurses based in primary care, have achieved this interface. Nor is the evidence about the benefits of case management unequivocal. This suggests that case management should be invested in as one component of a broader disease management strategy.

− There is little evidence to suggest that one type of staff is any better than another type for delivering routine care for people with long-term conditions. Upskilling a wide variety of staff such as volunteers, nurses, health visitors, social workers, and mental health workers may be a feasible way of expanding the chronic care workforce. However few studies have explicitly compared the merits of these personnel.

− As there is little evidence to recommend one professional group over another in most situations, people developing new services for and with people with long-term conditions could focus on identifying particular needs and service gaps; outlining the competencies required to meet these needs; and then considering the best people to meet these needs (either from a new workforce or from the current workforce with further training). Solely ‘upskilling’ current staff is unlikely to meet the complex needs of people with long-term conditions.