

Development

Case management for elderly patients at risk of hospital admission: a team approach

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Aim: To evaluate an approach to multidisciplinary case management that is embedded in primary health care. **Background:** Case management has been advocated in order to coordinate health and social care for vulnerable elderly people and avoid unnecessary hospital admissions. However, it is unclear who should undertake this. **Methods:** This case study reports on an approach developed in a semi-rural general practice in Cambridgeshire, UK, and later adopted locally. Data evaluated included practice records, minutes of project meetings over a three-year period and comments from members of the primary care team. **Findings:** Key elements of the approach were a register of vulnerable people, regular inter-disciplinary meetings and administrative support to follow-up decisions. Practitioners from a range of health and social services participated. Of the 937 people aged 75 and over, 54 (5.8%) were registered as vulnerable, along with five who were younger. After initial efforts to identify those at risk, new registrations fell. Of these 59 patients, 39 (66%) were admitted to hospital over the three years and practitioners believed that the project had prevented admissions. The monthly meetings also enabled professionals from different services to share information, coordinate their work and learn about local services. **Conclusions:** By adopting a systematic approach to sharing intelligence about those at risk, extended primary care teams are able to provide case management for the vulnerable elderly. This integrated approach also provides a forum for practitioners to learn about local services. However it involves a significant time commitment. There is a need for further research to assess the cost-effectiveness of the approach in preventing avoidable admissions and improving health and quality of life for older people.

Key words: case management; frail elderly; integrated care; long-term care; primary health care

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Introduction

The importance of long-term conditions is recognised worldwide, not least because of the

rising cost of acute hospital care for those affected. In the USA, this group consumes 78% of all health care spending and in the UK, 60% of hospital bed days. It is estimated that 17.5 million people in the UK are living with a chronic disease and that the prevalence of chronic diseases and disability in people over 63 will double by 2030 (Department of Health, 2004a).

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In response to this concern, Wagner proposed the Chronic Care Model, advocating a shift towards anticipatory approaches (Bodenheimer *et al.*, 2002a; 2002b). The model incorporates six elements that meta-analysis suggests are associated with improved outcomes: delivery system design, self-management support, decision support, clinical information systems, community resources and health care organisation (Tsai *et al.*, 2005). The model places services firmly in the primary care arena, with secondary services only called on when necessary. This gradation of response to need also underpins the 'Pyramid of Care' approach, developed by Kaiser Permanente in the USA, and adopted in the NHS Improvement Plan (Department of Health, 2004b). Level one of the pyramid consists of *supported self-care*, level two entails *disease management*, while level three provides *case management* for the few patients who have complex health and social care needs.

While case management sounds sensible for those who are unable to coordinate their own care, it is unclear who is best placed to undertake this (Iliffe, 2006). Reviews suggest that while it can reduce costs of care, the benefits depend on the context in which an initiative is adopted and are not necessarily achievable in other settings (Johri *et al.*, 2003; Hutt *et al.*, 2004). For example, a controlled study of the *Evercare* approach to case management found no impact on readmission rates, hospital bed usage or mortality among frail elderly people in the UK, even though it achieved significant reductions in hospital admissions from nursing homes in the USA (Kane *et al.*, 2003; Gravelle *et al.*, 2007). These findings raise questions about the likely impact of plans to introduce community matrons, 3000 of whom will be charged with coordinating health and social care for people with complex needs (Murphy, 2004; Department of Health, 2004b).

Despite these uncertainties, it is difficult to imagine a high-quality service for frail older people, which did not engage with their social and medical needs, or span the interface between primary and secondary care (Steiner, 2001). Although the value of more intensive models of geriatric assessment and follow-up is well established (Stuck *et al.*, 1993), the evidence for less intensive approaches is unclear. This is partly because it is not easy to assess the superiority of

one approach over another when a basic level of community support is widely available. Instead, there is a case to examine carefully how new approaches operate in practice.

This paper outlines the development of a primary care-based approach to case management. The initiative was developed in a semi-rural practice in Cambridgeshire, serving around 10 000 people, significant numbers of whom are aged over 75 years. There are four nursing and residential homes in the area, and the practice cares for many of the residents. The initiative had support from the local Primary Care Trust and has been adopted by other practices locally. Whereas some approaches have placed the responsibility for case management with a particular individual, in this model (*The Vulnerable People's Project*), the multidisciplinary team share this responsibility.

Method

Evaluation data presented in this case study is drawn from the minutes of project meetings, the register of patients who received case management and informal discussions with members of the multidisciplinary team. The report describes the development of the project and lessons, which may help others seeking to coordinate care for vulnerable elderly people.

Establishing the project

The idea for the project arose from informal discussions between general practitioners and public health doctors about the care of frail elderly patients. The initial aims were recorded at the first steering group in March 2004 as being 'to identify patients vulnerable to admission, to assess their situation and come up with a plan to keep them out of hospital.' Funding was sought from the local NHS Primary Care Trust for a part-time project manager (an occupational therapist) and limited administrative support. Although initially the project was coordinated through the multidisciplinary team's regular monthly meetings, other priorities limited time for discussion. Because of this, a separate steering group was established, including members working in general practice, community health, mental health and local authority social services.

The steering group agreed a framework for the project. This was first to identify people living at home who were at risk of admission, and for whom the team felt that intervening might prevent such an admission. As the team discussed their needs and arranged medical, nursing and social care assessments, it became clear that a great deal of information might be available for each patient, so this was collated into a summary to be shared across the health and social care system. The group agreed to review patients identified as vulnerable every three months and if needed, allocate each a key worker from the most appropriate discipline.

Criteria for risk of admission

Members of the multidisciplinary team held a series of case discussions about patients who had either been admitted to hospital several times, or whom they suspected might be admitted. These discussions suggested that admission often resulted from a mix of physical, mental health and social factors reaching a critical point. As a result, assessment criteria were adopted (Box 1).

Following assessment, those considered to be vulnerable were allocated to receive intensive case management, coordinated by a key worker (level 1), or ongoing review at team meetings if a less intensive approach was required (level 2). All patients were reviewed at least every three

months and could switch between levels of input as necessary (see Box 2).

Case finding

Various approaches were adopted to identify vulnerable people. These included checking hospital records for elderly people who had been admitted more than once, and social services records for those with high-volume care packages. Others were considered because they were known to be very dependent on informal carers, had recurrent falls (information from ambulance paramedic and falls coordinator), dementia or other severe mental health problem (information from community psychiatric nurses), or because health and social care practitioners had a clinical hunch that they were vulnerable. To keep the project in people's minds, nominations for the register were sought at regular intervals.

Assessment and information sharing

The team drew up a checklist, to document the patient's informal care, next of kin, medical and nursing assessments, mobility, activities of daily living assessment, social history, community health team involvement, formal care and key worker. After each assessment, the administrator summarised key points in the patient's clinical record using an electronic template and merged this with the problem list and medication into an

Box 1 Criteria for risk and likely benefit

Evidence of risk:

- Two or more emergency admissions;
- Multiple falls or loss of confidence after a fall;
- One or more long-term conditions, subject to fluctuations that might destabilise the patient and that patient or carer was unable to manage;
- Significant functional impairment (eg, need for three or more care visits daily);
- Fragile social situation.

Likely benefit:

- Patients were only eligible for inclusion if the primary care team considered that intervention might prevent severe deterioration in health or admission.

Box 2 Examples of people who met the criteria for vulnerability

- 1) A man with diabetes who had frequent infections causing hyperglycaemia that he was unable to manage himself. Several admissions were avoided by alerting the district nursing team when his symptoms changed and instituting a management plan for such emergencies.
- 2) A man with dementia and fluctuating mobility who had been admitted several times after falling. Information was placed in his home to say that he usually recovered over a few days. Instead of admission, he was reassessed to exclude treatable conditions and given increased support and rehabilitation.

MS Word document to provide a two-page patient-held record. This summary was kept in a prominent yellow folder along with the information about the project and an agreement form that encouraged patients to check the accuracy of the information. They were asked to show the folder to health and social care staff and take it to hospital if admitted, but copies could also be faxed to the ward if they forgot. The ambulance service, GP out of hours service and hospital discharge planning team logged the existence of each patient's folder and updated their clinical records monthly.

Findings

Patients added to project register

Overall, the practice had 10330 registered patients, 937 of whom were aged 75 and over, (33% more than the UK average). Between March 2004, when the project was established, and February 2007, 34 women and 25 men were assessed as needing to be included on the project register. Of these 59 people, 17 (29%) had a history of two or more admissions and 24 (41%) had fallen more than twice during the previous 12 months. Also, 32 (54%) had a chronic condition that proved hard to control, 36 (61%) had significant functional impairment and 18 (31%) were considered to have an unstable social situation. Their average age was 84, ranging from 57 to 99 years (Table 1). Of the 937 people aged 75 and over, 54 (5.8%) were registered.

Support from the project and outcomes

Following assessment, 48 people were initially allocated to level 1 (case management) and 11 to level 2 (ongoing team review), although five of these were later allocated case managers. Most continued to receive long-term support, but seven were taken off the register and 12 of those initially case managed were switched to level 2, because their condition stabilised. Of the 59 people, 17 (29%) died, 11 transferred to long-term care and one moved away. During the study period, 39 (66%) were admitted to hospital, four of whom were admitted twice and seven more than twice. Twenty were not admitted.

To assess the project's impact on avoidable admissions, team members reviewed the care of

Primary Health Care Research & Development 2008; 9: 7–13

Table 1 Characteristics of people registered as vulnerable

	Number	%
Gender		
Women	34	58
Men	25	42
Age		
Under 75	5	8
75–79	8	14
80–84	18	31
85–89	13	22
90–94	12	20
95 and over	3	5
Criteria for risk*		
2 emergency admissions	17	29
Falls	24	41
Chronic condition that was hard to control	32	54
Significant functional impairment	36	61
Unstable social condition	18	31
Total registered as vulnerable	59	

*Some people met more than one criterion for vulnerability.

the 38 people assessed during the project's first year. They did this by identifying significant events or changes in their health and making subjective judgements on whether case management through the project had prevented admission. During this first year, the team considered that at least 17 emergency admissions had been averted in 13 of the patients. Examples included three who received additional social support when their condition deteriorated, three given rehabilitation at home following falls, one whose diabetes care was intensified and two who had planned admissions for rehabilitation or transfusion.

Steering group

In all, 33 monthly steering group meetings were held over the three years and on average, 10 people attended. Attendance rates and the numbers case managed by each discipline are reported in Table 2. Other local professionals (pharmacists, physiotherapists, practice nurses and PCT managers) attended on an occasional basis. Four guest speakers were invited and 10 visitors from other practices or primary care organisations observed meetings. The administrator kept detailed notes to ensure that decisions relating to individual patients were acted on. These minutes also showed that during the first 18 months, the group

Table 2 Practitioner involvement during the three years

Discipline	Meetings attended		Individual case management
	No.	%	No.
District nurses	26	79	20
Occupational therapists	28	85	10
General practitioners	25	76	9
Community psychiatric nurses	32	97	4
Social worker	27	82	4
Specialist nurses (cardiac/respiratory)	3	9	1
Consultant geriatrician	16	48	
PCT Assistive Technology lead	13	39	
Ambulance paramedic (initial phase)	4	12	
Total	33		48

discussed how the project would operate, links with other services, local guidelines and ways to encourage other practices to adopt the approach. Later on the meetings focussed on individual patients.

Commenting on the draft paper, several members of the team emphasised what they had learnt from colleagues in other disciplines. This contributed to richer assessments of individual patients' needs and also provided an opportunity for co-mentorship. For example, the community psychiatric nurse had helped another team member manage her relationship with a 'needy' patient. The geriatrician believed the project enabled community staff to identify patients who were failing to cope at an earlier stage, and that by alerting him to admissions, it facilitated early discharge. Others commented that the patients' yellow record folders facilitated communication and that the regular reviews led to more proactive care.

Perceived disadvantages were the time devoted to meetings, the risk that other work might be affected and the difficulty engaging all the general practitioners. Although there was a communication channel through separate meetings between the doctors and district nurses, patients' usual doctors were not always involved in steering group discussions about their care.

Adoption by other practices

The South Cambridgeshire and Cambridge City PCTs adopted this approach to case management of frail elderly patients, encouraged community health staff to engage with practice

teams and supported its adoption with a locally enhanced payment in 2005. The project manager and programme facilitators visited 31 of the 34 practices to describe the approach and by December 2006, 16 practice teams were using the project templates and meeting to discuss vulnerable patients. A recent PCT audit found that the staff participating believed that their understanding of others' roles had improved, but some teams encountered difficulty coordinating meetings: levels of involvement have varied (Lefort and Campbell, 2007). In order to sustain this work, there have been moves to identify local champions and also to ensure that teams have sufficient administrative support. In Cambridgeshire, the recently appointed community matrons will contribute to this, working as part of the locality multidisciplinary teams to develop links across primary care, secondary care and the emergency services, as well as managing a case-load of patients themselves.

Discussion

We report one primary care team's experiences in case management for vulnerable elderly people. This was based on a register of those at risk, regular inter-disciplinary meetings, case management by nominated members of the team and administrative support to follow up on decisions. Around 6% of people aged 75 and over were identified as vulnerable: after identifying this group, some stabilised and came off the register as others were added. The monthly meetings also

Primary Health Care Research & Development 2008; 9: 7–13

provided an opportunity for people working in different services to share information, coordinate their work and learn about local services.

Involving the wider primary care team in case management appears to be achievable in routine practice. However, this requires a time commitment, which may be costly. In large practices, individual general practitioners may not be involved in the care of many of those discussed, suggesting that alternative approaches, such as scheduling discussions by 'usual doctor', or less frequent whole-team meetings augmented by email groups or secure web-based discussions might be more efficient.

Drawing on routine patient data and records from team meetings, it was possible to describe this model of working in some detail. Although participating staff believed that the project had prevented hospital admissions, it would require a comparative study to adequately assess its impact. Such a study should assess clinical outcomes, patients' experiences and admission rates.

Multidisciplinary approaches to case management have been widely adopted (Hutt *et al.*, 2004) building on a meta-analysis of comprehensive geriatric assessment that was reported in 1993 (Stuck *et al.*, 1993). Home visiting programmes for the frail elderly have been found to reduce mortality rates and admissions to residential care, but not hospital admissions (Elkan *et al.*, 2001). The importance of working across organisational boundaries is emphasised by an Audit Commission review of initiatives across England (The Audit Commission, 2002). Foote and Stanners (2002) consider how to implement this and argue that integrated care planning should include: assessments and lifeplan, data systems, anticipation of future events and access to social care systems. Although lifeplans are not a feature of the *Vulnerable People's Project*, the others are all brought together in the approach.

The approach described differs from that taken in the *Evercare* pilot projects and subsequently the national community matron policy (Department of Health, 2005). The *Evercare* approach was based on 'Advanced Practice Nurses' working independently, but a controlled before and after evaluation found no reduction in hospital admissions or mortality (Gravelle *et al.*, 2007). While this may partly reflect the nurses identifying previously unmet needs, separation from other

primary care services may have reduced their impact (Smith and O'Dowd, 2007). In contrast, the *Vulnerable People's Project* took the current resource, namely team members from across the disciplines and used them as a building block for case management. As a result, the team share a sense of ownership of the initiative.

Because case management is intensive, it is important to focus on those who are most likely to benefit. Evidence for how to assess this comes from a recent systematic review, which found that age, cognitive impairment, vision impairment and poor self-rated health were prognostic factors for subsequent disability (Tas *et al.*, 2007). Frailty also is increasingly recognised as an independent syndrome, encompassing loss of appetite, muscle and bone mass, falls and poor physical health (Strandberg and Pitkala, 2007). Billings *et al.* (2006) report moderate accuracy for an algorithm to identify the risk of readmission, but this relies on hospital activity data, rather than the richer information available to practitioners assessing the patient. Used systematically, it seems reasonable to believe that practitioners' assessments of patients' abilities to respond to changes in their condition might be particularly useful in assessing future admission risk.

The findings from the *Evercare* pilots are a reminder that what works in one setting may not work in another. It is unclear whether this systematic multidisciplinary approach reduces admissions and improves health or quality of life, but there do appear to be benefits in sharing case management work within the extended primary care team. This suggests that there is a case for a controlled study of both its cost-effectiveness and the wider benefits of inter-disciplinary teamwork with vulnerable elderly people. At a time when services are being fragmented and market-tested, it remains important to assess the benefits of coordinated primary health care.

Ethical approval

Not applicable.

Competing interests

J Campbell was employed as project manager for the Cambridgeshire *Vulnerable People's Project*.

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