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Nurse practitioners in UK care homes

Gladman JRF¹, Chikura G²

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Workstream 1: towards improving the care of people with mental health problems in general hospitals. Development and evaluation of a medical and mental health unit.

Workstream 2: Development and evaluation of interface geriatrics for older people attending an AMU

Workstream 3: Development and evaluation of improvements to health care in care homes

URL: www.nottingham.ac.uk/mcop

Address for correspondence: Professor John RF Gladman, Division of Rehabilitation and Ageing, B Floor Medical School, Queens Medical Centre, Nottingham NG7 2UH, UK.





Nurse practitioners in UK care homes

Summary

This paper describes experiences using nurses with specialist expertise in gerontological nursing - advanced nurse practitioners - in care homes in Nottingham City and Nottinghamshire County Primary Care Trusts (PCT), observed in 2010. Two General Practice-based examples of using an advanced nurse practitioner and two PCT-provided examples are described and compared.

All four examples were driven by the health services, aiming to manage health service workload and resource use, and all four expected to be judged against such criteria. However, the actual practice of the advanced nurse practitioners was strongly concerned with the health and welfare of the patients, albeit acknowledging the need to justify their input in terms of reduction in resource use or cost. There was little evidence that these schemes were developed in partnership with the care home sector, although it was evident that close and valued collaboration occurred between the advanced nurse practitioner and care home staff in practice.

Using estimates of the cost of these services, and estimates of the number of hospital admissions and GPs visits that might be prevented, there is a plausible case that they could be cost effective. As there was little evidence that they were likely to bring about significant harm, there is also a plausible case that they could be cost effective. Indeed, valuable health gain could be achieved, increasing the likelihood of cost effectiveness. However, there is no controlled trial evidence in the UK to show whether such schemes are clinically effective or reduce resource use.





Introduction

The overall aim of the Medical Crises in Older People [1] care home workstream was to improve the quality of health care to care home residents. The research objectives were to develop, implement and evaluate a better way to detect and respond to health problems in care home residents and to reduce the number of residents inappropriately admitted to hospital. The care home workstream initially comprised the following research elements:

- A cohort study of residents of a representative sample of care homes, to describe their health, changes in their health, and their health resource use
- Literature reviews of guidelines and protocols for health problems in care home settings, and of the RCT trial evidence in the care home setting
- An interview study of a variety of staff involved in the health care of residents of care homes

As the workstream developed, we were increasingly aware that a number of services were being developed in the UK. Interest in care home residents in Primary Care Trusts (PCTs)¹ had mainly been driven by national concerns that these people were particularly vulnerable to unnecessary hospital admissions. Other factors also contributed to an interest in residents of care homes such as attention to people with long term conditions, publicity about the risks of antipsychotic drugs for people with dementia in these settings, regulatory roles such as safeguarding, and the quality assurance of health-funded care. PCTs responded to this health policy climate by developing new services or pilot services [2]. These included:

- the promotion of a “preferred GP practice model” to optimise usual primary care. In this model the aim is for the residents of each care home to be registered with one local General Practice to provide primary care. This contrasts with current UK

¹ There were 152 PCTs, or organisations responsible for local health care arrangements, in England serving average populations of 330,000: the process of their abolition began in 2010 transferring many of their responsibilities to 500-600 consortia of GPs





practice where most care homes have residents who are registered with several different General Practices.

- re-organisations of primary care such as the development of care home only practices
- rapid response multidisciplinary teams for care homes
- advanced nurse practitioners.

It was decided that the MCOP workstream could best achieve its objectives by supporting and learning from service evaluations of local service developments. By working with the practitioners providing and evaluating these services, the workstream would be able to understand the practical issues involved in setting up and delivering such services, and understand how they can best be evaluated in ways that are useful not only to the academic community but also to local practitioners and commissioners.

This paper describes the experience of four schemes involving the introduction of nurse practitioners that had been developed as part of normal, non-research-driven service developments locally, and that the principal author became aware of in his role as a community geriatrician:

- an advanced nurse practitioner scheme set up in a single GP practice, the Willows Medical Centre, Carlton, Nottingham in 2010
- a scheme where two nurse practitioners served two practices in Sutton-in-Ashfield, Nottinghamshire, in 2009
- an advanced nurse practitioner employed, alongside other staff in a small team, by the Newark and Sherwood PCT with a remit to focus upon the management of people with long term conditions in care homes, since 2008
- an advanced nurse practitioner employed by Nottingham City PCT since 2009

Methods

The overall approach taken in this paper to the evaluation of these services was:

- to describe each service from a system perspective, using data obtained by interviews with the service providers (service evaluation, not service research)





- to consider the actual or possible cost implications and clinical health implications of these services.

The framework used to describe the services in this evaluation draws upon Checkland and Scholes' human system theory [3]. In human systems theory, health services are defined by the interactions between six factors to form the 'root definition'. These six factors are the Customers (patients or residents), Actors (staff – care home, nurse practitioner and primary care), Transformations (changes made by the actors to the customers, and the processes used to do so), Worldview (reasons and justifications for setting up the service), Owners (those who own or control the service and who can assure its success or cause its failure), and the Environment (in particular any local factors that uniquely facilitate or hinder the service). These six factors are sometimes known by the acronym CATWOE.

The root definition is created by acquiring information (by interview or observation, or reference to records) under each of the CATWOE domains and establishing the interactions between them (again by interview or observation, with discussion and reflection). Typically an iterative approach is used, whereby an initial and simple root definition is first formed by the evaluator on the basis of scoping interviews and reference to existing documentation. This is then shown to others involved in the service to confirm that the information is correct, to consider the service as whole and hence identify areas of uncertainty and to request more detailed information. However, in this case, the CATWOE framework was used simply to structure the descriptions of the services obtained from one or two interviews with key staff.

Findings

Practice-based scheme in Carlton, Nottingham

Customers and Actors

This was a small GP-based nurse practitioner service for residents of nursing homes registered with a single general practice. The scheme began to operate in January 2010 and had only been running for 5 months when it was studied. It was set in a small General Practice in Carlton - an urban part of Nottingham. The practice had 1.5WTE





doctors, and a growing list size of around 4000. The service was delivered to the practice's patients in nursing homes and delivered by a single advanced nurse practitioner working 2 sessions per week (0.2WTE) in this role. For the rest of her time she worked as a community matron with other patients living in their own homes. She was capable of prescribing independently. The salary cost of the practitioner for this service was estimated to be approximately £8000 per annum.

The CQC website [4] listed 10 nursing homes within 2 miles of the practice's postcode. The practice had 47 patients in 4 of these 10 nursing homes. The service began with one local home, and subsequently extended to a second, with plans for it to extend to more nursing homes where the practice had patients. The first home was a dual registered home where, at the time of the evaluation, the practice provided health care for 22 of the 47 (47%) nursing residents. The second care home was also dual registered and the practice was responsible for 15 of the 88 (17%) nursing residents. The relationship between the practice, nurse practitioner and nursing homes was described by the practice manager as a "partnership" although no evidence of joint planning was apparent. The first home had a "good" CQC rating the second an "excellent" rating.

Worldview

The service was initiated and set up by the practice manager. One reason to do so was that up to 6 visits per day were requested from local care homes which disrupted the GPs working day. Another reason was that the practice was finding it difficult to meet its performance targets, since it was more inconvenient and time consuming to review patients from care homes (usually on a visit to the home, without the benefits of the practice computer) than other community dwelling patients (who would attend the surgery). The practice manager said that another significant factor for this scheme was her confidence in the skills of the nurse practitioner who was already working as a community matron. She felt that these skills might usefully be applied to nursing home residents. No specific reason was given to provide a service to residents of nursing homes as opposed to all care home residents. When asked, the practice manager replied that she was aware of the number of their patients in nursing homes, because the





practice (like all GPs) receives a small extra payment for them: there is no extra payment to GPs for patients in residential homes. She did not recognise residents of residential homes to be in need of such a service.

Transformations

All residents registered with the practice in the chosen homes were eligible for the service. All residents or their families consented to being involved when approached using usual clinical methods for obtaining consent: some residents were targeted because of their long term conditions, others for medication reviews, and in some cases they or their families had already sought out contact with the advanced nurse practitioner. The working style of the advanced nurse practitioner was developed in-house and based on her experience gained as a community matron of the case management of frail people with multiple co-morbidities. Individual residents were all offered an assessment and reviewed at least monthly. Residents were reviewed with care home staff, and family members were frequently involved. An individualised assessment of each resident was made looking at health conditions, symptoms, mental health, activity, geriatric conditions and a special emphasis on medications. Care planning, involving family members, was routinely considered. The advanced nurse practitioner became the person who would first respond to a call to the practice for medical assistance (even on days when she was not specifically working in the care homes), instead of the GP wherever possible. There were no other dedicated staff working with the advanced nurse practitioner, but in keeping with her role and practice as a community matron she had access to a full range of community services and the GP.

It was difficult to discern changes as a result of the service at the patient level. This was understandable because no attempt had been taken to measure any improvement in health. Indeed, the word "benefit" to the practice manager meant reduction in GP workload, not patient benefit. However, the following anecdote illustrates the sort of interventions that were made, allowing possible benefits to be inferred. The nurse practitioner described an instance where only during a discussion between the family of a confused newly arrived care home resident and the advanced nurse practitioner did it come to light that the resident had previously been treated for diabetes. At the time of





assessment the resident was not receiving treatment for diabetes. The explanation for this information deficiency was never elucidated, but the diagnosis was not known to the care home staff or the new GP. Investigation subsequently showed the resident to have poorly controlled diabetes, which soon settled on appropriate treatment. This intervention may have prevented an admission to hospital or at least the ill health associated with uncontrolled diabetes.

The practice's records were not sufficient to identify the number of hospital admissions arising from their residents in care homes before and after the introduction of the service. This was partly due to the fact that the number of emergency admissions arranged by the out-of-hours services (which would be expected to be far larger than the number arranged by the GPs during office hours) was not recorded.

Data were provided by the practice manager about the number of home visits made by the practice's doctors, and showed a mean of 31 home visits per month conducted by GPs during months when the advanced nurse practitioner was not present, and 16 for months when she was. Thus the advanced nurse practitioner, working both as a 0.8WTE community matron (a role that does not deal with people in care homes) and as a 0.2WTE care home advanced nurse practitioner, appeared to halve the number of GP home visits. If she avoided 15 GP visits a month, or 180 per year, then this would save approximately £7,700 per year (using the practice's figure of £42.90 for each GP visit). If the number of care home visits prevented was in proportion to the amount of her time allocated to care homes, then only 36 GP visits per year would be avoided, saving only £1,500 per year.

Given that an acute hospital admission for an older person is locally assumed to cost around £2,500, only three such admissions per year would need to be avoided for the salary cost of the nurse practitioner to be offset by the reduction in the costs of GP visits and hospital admissions. Clearly, this is potentially achievable, and cost savings are also possible. On the other hand, without controlled trial evidence, it cannot be certain that such intervention does not leave admission rates unaltered, or even raise them, and that it does not incur greater costs for example through referrals to other services.





Practice-based scheme in Sutton-in-Ashfield

Actors and customers

This scheme was set in two practices in Sutton-in-Ashfield (Woodlands and Willowbrook). It had been running for 1 year when this evaluation commenced. The practices had a total of 11 WTE doctors. The CQC website [4] listed 24 care homes within 1 mile of the base practice's postcode. At the time of initial assessment, the service covered all residents registered with the practices in 12 local care homes: 8 were residential care homes and 4 were nursing homes; 8 were dementia registered, 2 were for "old age", 1 was for "physical disability" and 1 for learning disability. The scheme covered 191 patients in total. Seventy one (37%) were nursing home residents and 120 (63%) were residential home residents. The total number of beds in these 12 care homes was 474, so the service covered, $191/474=40\%$ of the residents of these care homes. The number of residents on the scheme in each home ranged from 5 to 33 (mean 16). Two nurse practitioners, each working 4 days a week, were employed. There were no supporting staff in the scheme. Both nurse practitioners were independent prescribers, with extensive experience of the care of older people, and used to considerable amounts of clinical autonomy. The care homes involved in the service were described as willing partners, with no sense that they were coerced or that they objected to increased involvement from the practice – on the contrary it appears that the nurse practitioners were probably more acceptable in some ways than the doctors, at least to care home staff, in that they were seen as more easily approached. Although described as planned in partnership, leadership was entirely by the practices.

Worldview

The service was initiated by the practices and led by one GP from each practice. There were several reasons for establishing the service. The partners of both practices had noted a rise in the number of care homes in the vicinity. The finding that 24 care homes are located within 1 mile of the practice on the CQC website confirmed the practice's view that they had a high density of care homes in their catchment area. A consequence of this was that the GPs found that they were being called frequently to the homes (care home residents being unlikely to be able to visit the surgery) and were concerned by the difficulty of providing good care, at short notice and in a short time, in the care





home setting, and to such complex patients. Many residents had moved to this area from elsewhere and were not previously known the GPs, which made the GPs task even more challenging.

Transformations

The style of intervention was similar to that described in the Carlton scheme, representing the use of the nurse practitioners as the first line of primary care for care home residents for the practice, under supervision of the local GPs.

Little direct information was available on any clinical benefits of the intervention, but there was some indirect evidence:

- The number of residents registering with the two practices was believed to have risen since the service was introduced, because it was believed to provide a good service. Residents or their families all consented to the service and seemed satisfied. One or two anecdotal reports picked up by the GP suggested that families of residents were highly satisfied with the new arrangements. There was no evidence of dissatisfaction, although there were reports of family members initially wary of a service that they perceived to be denying access to a doctor.
- Medication reviews were thought to be bringing about reductions in prescribing costs. One simple observation is that homes were stockpiling drugs that were prescribed and dispensed but were not actually given – typically drugs that had been stopped by the GP but for some reason had remained on repeat prescription lists. Another potential saving was from dressings which also appear to be stockpiled by care homes.

Given the size of the scheme (nearly 200 residents), many GP visits and hospital admissions would be expected, giving a potential for some to be avoided and hence offset the costs of the practitioners. This scheme, staffed with $2 \times 0.8\text{WTE} = 1.6\text{WTE}$ advance nurse practitioners, was eight times more resourced than the Carlton scheme (0.2WTE), but had a case load only four times as large (191 vs 47). Hospital admission rates from care homes average 50% per year which, for this cohort, represents 100 admissions per year. If half of these were to be prevented (compatible with the





experience in the US of the Evercare nurse practitioner scheme [5]) then $50 \times £2,500 = £125,000$ might be saved through prevented admissions. If this service also prevented a similar number of GP visits to the Carlton scheme when adjusted for the size of the case load, savings of £6,000 in GP visits might be expected. Together this would result in £131,000 in annual savings, whereas the cost of the nurse practitioners was approximately £64,000 per annum. If only half as effective as Evercare nurses, the scheme could still be cost neutral. No hard evidence exists to show that the Sutton in Ashfield scheme is effective at all, but there is at least a plausible case that it might be cost effective if it was half as effective as such nurse practitioners were in the US Evercare scheme.

Newark and Sherwood PCT-led service

Customers and Actors

In this service an advanced nurse practitioner was employed as a community matron, in post since 2006 in parallel with six other community matrons, as part of the Newark and Sherwood PCT's response to the management of long term conditions. PCTs in England had been encouraged to develop services for long term conditions based upon a model in which the small number of people with multiple and complex conditions are case managed by skilled practitioners. She worked closely with a community psychiatric nurse and had support from an (unregistered) nurse assistant, both of whom also had sole responsibility to care homes in the locality. Her community matron colleagues were encouraged to refer patients for case management in care homes to her. Newark and Sherwood is largely rural and has a population of 112 600. There were 32 registered care homes, with a total care home population of around 1,200.

Whereas the customers of the Carlton and Sutton-in-Ashfield services were well defined by virtue of being on a GP list and in a given home, this nurse practitioner was required to take on a case load of patients from different GPs and in different homes. At the time of initial service assessment she had 93 patients on her case load, in 15 different homes. Patients came on to her case load by referral from multiple sources: other matrons; care home managers; as a result of joining teams involved in the "safeguarding" process to protect patients from abuse; as a result of assessments made to establish eligibility for





NHS-funded care; social workers, and GPs. She also took it upon herself to ask staff at the local Emergency Department to collect the records of patients attending it who lived in a care home, and used this to identify potential patients. In doing so on one occasion she noted that the majority of attendees came from one care home, and she therefore decided to provide targeted support to that home. She felt that the potential number of people with whom she could usefully be involved was large and distributed over a large geographical area. This meant that it was necessary for her to prioritise her case load and to discharge some patients from it.

The clinical practice described by this nurse practitioner was similar to that described in the previously described services, but this service differed in terms of the nature of the “customers” (patients and care homes) and the relationship to them. This service was also different from the previously described services in that the nurse practitioner worked alongside a community psychiatric nurse and a nursing support worker. There were close links with other members of the long term conditions service, such as heart failure or COPD specialist nurses. Given the distributed nature of her patients, she was unable to make particular links with specific GPs. This is why she felt the number of referrals from GPs was low – GPs were likely to be unaware of her existence.

Transformations

Although working to an individualised case management model, this nurse practitioner more overtly aimed to intervene at the level of the care homes rather than individual patients. At times she would pick up patients for her case load through informal discussion while attending to an existing patient. She was also aware that an intervention in a given patient on her case load could affect the management of many others in the same home and not on her list. An example of this was her use of a structured tool to guide the management of the last days of life for a dying patient that the care home subsequently used unprompted for other dying patients.

This nurse practitioner reported that some care homes did not refer her patients and appeared not to engage with her. In case this was due to lack of knowledge of her service, she delivered leaflets by hand to all homes in the area, but this seemed to make little difference. It was not clear to her why this was: she doubted that it was a





lack of need (although admittedly need might be met in other ways), it might have a failure to recognise or respond to need. She may have been perceived to have a regulatory function. The service was not planned in partnership with the care home sector and neither was it linked to the local GPs. It was targeted towards patients with concerns related to safeguarding against neglect or other forms of abuse. This is compatible with her reports of meeting defensive or frankly hostile responses from care home managers on first contact. However, with both tact and persistence she reported that she was able to gain co-operation even after initially hostile responses. Over time, initially hostile care home managers referred to her freely and worked with her constructively. Experiences like this made her concerned that other homes in the area that did not use her service might have similarly undisclosed concerns.

The processes employed and interventions delivered by the nurse practitioner were based around case management principles. She undertook a comprehensive assessment ("top to toe") which was mainly physical in nature, working with her psychiatric nursing colleague where required. She noted, however, that in many patients referred by her community colleagues, many of the aspects of long term condition management that had occupied them in the community disappeared on moving into a care home. With regular supervision, attention to diet, compliance and hygiene, many of the long term conditions (such as diabetes or COPD) became stable and she could discharge the patient from her case load. At the same time, far more than her community colleagues, she found that end of life care planning and end of life care itself was common. She noted that few patients, even from community colleagues, entered homes with an end of life care plan. She reported that she met little resistance when introducing these matters. She felt that by the time the patients entered a care home, often having had a long stay in hospital that they were keen not to repeat, as well as an acceptance that the end was approaching, they were ready for the process. Some interventions were delivered at the care home level to staff, such as awareness training regarding pressure care.

The nurse practitioner largely worked with an expectation that she would complete the requisite documentation and maintain a case load – a requirement to demonstrate process, not outcome. She understood the rationale of the service was to prevent





patients being admitted to hospital, and assumed that her role was expected to be cost saving (not merely cost effective). She found it hard to characterise the benefits of the service, but the two anecdotes below illustrate the sort of clinical and economic benefits that could be achieved.

One anecdote concerned a lady with dementia in a residential care home in whom breast cancer was diagnosed. Her two daughters disagreed about whether she should have surgical treatment. The nurse practitioner took the various parties through the Best Interests processes (as required by the Mental Capacity Act 2005) following which a decision was made for her to accept the surgery offered by the breast surgeon. Arrangements were then made for health service funded financial support to allow her to spend a few weeks post-operatively in the nursing home facility associated with her residential home. This enabled her to be discharged from hospital the first day post operatively (with a drain still in place) and potentially avoided a cascade of hospital associated setbacks (agitation, pulling out her drain, UTIs, falls or fractures, other iatrogenic infections). This overall course of action enabled the patient to have optimal health gain and reduced the risk of harm, the family were likely to be better supported, and the time spent in hospital was minimised. It required a lot of work, hence time and cost, but this may well be offset by the health benefits and cost savings.

The second anecdote illustrated the subtle way patients were referred. While discussing a patient with a care home manager, the nurse practitioner overheard a telephone conversation between the care home manager and a relative who was irate because several letters from the speech and language department offering the resident (who had dementia and a swallowing problem) an appointment for assessment in the hospital had not been attended to. The nurse practitioner offered to assess, and as a result arranged thickened fluids, a modified diet and a chair better able to maintain her posture. The resident's swallowing problem improved. End of life planning was also initiated. The nurse practitioner judged that the resident would not have been able to tolerate going to hospital for assessment anyway. This case also illustrates that benefits of the service could be expected in terms of the patient's health, the satisfaction of the daughter, and in the potential avoidance of an admission to hospital with a chest infection or for terminal care.





The nurse practitioner and her colleagues had conducted a satisfaction survey of eleven care home managers in involved homes in the area. The results are shown in the box, and were strongly positive. They were confirmed by the free text comments that accompanied the survey: speed and ease of access, helpfulness such as referral to other agencies, and confidence-giving were mentioned, sometimes explicitly rated more positively than usual GP cover.





Comments from care home managers' free text from survey form

- Faster response to requests
- It is an excellent service. The team appear to have worked very hard and this shows through in the excellent support they give
- Would like more SALT and physio input. This is a very important service which benefits staff, residents and their families. The team are usually available each weekday and willingly give advice over the phone.
- Service very effective. Staff always pleasant and polite.
- I highly recommend this resource/service in care homes, it is extremely beneficial to the continuing care of our residents. More staff to help the already excellent team in providing advice and help that we require.
- More staff. The team that visit are fantastic and very helpful.
- Excellent support given
- More staff and weekly surgeries
- Would like more contact with continuing care teams. Only used teams on a couple of occasions, both times support was excellent, just in advisory capacity.
- We are extremely pleased with the service and support provided by the long term conditions team.
- It would be excellent if the service covered the whole of Nottinghamshire. Having Linda, Mark and the team has prevented a lot of hospital admissions and has boosted my confidence knowing they are only a phone call away.
- I think all care homes should have the support of a long term conditions team, as they also help us to get the equipment we need faster and referrals are quicker for our residents.
- It is nice to know that to refer a resident to a CPN, I only have to pick up the phone instead of going through a GP which would take weeks.
- Our residents also have a lot of respect for the team.

The nurse practitioner kept records of the number of "exacerbations" experienced by her caseload (episodes of worsening health requiring action), and the number of these requiring hospital admissions – there were 51`exacerbations in the year from February 2008 - January 2009, 15 of which led to admission to hospital. She also recorded that there were 35 deaths in her cohort over the same year, only three of these died in hospital. This is compatible with a reduction in the number of people dying in hospital, since usually around ¼ of deaths in care home residents occur in hospital [6]. Using these figures, the number of expected hospital admissions for death reduced from $35/4=8.75$ to 3, or 5.75 hospital deaths prevented per year, nearly one every other month.





At an average cost of £2500 per admission, this would amount to savings of £14,375 per annum. If the proportion of people with “exacerbations” who were usually admitted to hospital was similar to that for deaths, ($1/4$, a plausible guess, no more), then the expected number of admissions would have been $51/4=12.75$. Since there were 15 admissions to hospital, it is plausible that no hospital admissions for people who were not dying were prevented. If however, the proportion of residents with exacerbations who would ordinarily be admitted to hospital was higher, say $1/2$, then 25 admissions would have been expected and so 10 might have been prevented, saving £25,000 in hospital costs. If all 51 residents with exacerbations would otherwise have been admitted to hospital (representing the highest reasonable estimate of potential saving) then £127,500 might be saved. Thus, in this instance, high rates of hospital avoidance such as this would be required to offset the cost of a nurse practitioner, let alone a mental health nurse, and two support workers.

In summary, from this assessment, this service was more extensively staffed than the two practice-based schemes, it related to the care homes in a different way, and it selected people for intervention differently. In keeping with the other schemes, it was well received. Also in keeping with other schemes, it is plausible that it could be cost saving although it may be less efficient than practice-based schemes focussed on a small number of homes which may limit cost-effectiveness. However, as it offered more than nursing care, it might bring about other health benefits. For example, the CPN might be able to reduce antipsychotic prescribing. But the employment of more staff reduced the ease with which the service could be cost saving. Health gains may not lead to cost savings.

A PCT led scheme in Nottingham

Customers and actors

A single 1.0WTE advanced nurse practitioner was employed by Nottingham City PCT. The business case for his post was based on the intention to reduce hospital admissions from the care home sector. The PCT had previously estimated that there were 1345 emergency admissions to Nottingham University Hospitals NHS from the 80 care homes (approximately 3200 beds) in the PCT during the period Aug 2005-6. The main causes for admission were known to be urinary tract infection, pneumonia, syncope & collapse, and fractured of neck of femur. It was believed that “the majority” of these were





potentially avoidable, but the basis for this belief was not clear. The PCT had also developed a rapid response team for care homes, which is not discussed in this paper.

At the time of the evaluation, a new advanced nurse practitioner was in post, and so it was not possible to learn directly from the experiences of the previous one, but discussions were had with the commissioning managers. Inevitably, the description of this service was more limited.

The initial plan for the post was to target homes that had high admission rates, and not to target patients based on their data. Residents of Nottingham PCT almost always used one hospital (Nottingham University Hospital NHS Trust) and the hospital administration system of this Trust was examined. These systems were not easily interrogated using a patient's address as the probe and so the post code for the care homes was used instead. Using this approach, four homes were identified with the highest rates of admission. However, further enquiry showed that using the post code to identify patients from care homes was highly inaccurate, since the post codes were shared with many other households in the vicinity. When a more laborious exercise was undertaken where each admission identified by the post code trawl was checked, a different list of care homes was identified: none of the top four in the second list were identified in the first list. Apparently, when these homes were visited by the nurse practitioner, she still did not feel that this adequately identified the right customers, as the number of admissions appear to reflect the size of the home or its case mix, not its ability to benefit from intervention.

As the problem of targeting care homes that might benefit from intervention by use of care home metrics was being considered, PCT staff were becoming increasingly involved in working with colleagues in the social services dealing with concerns about fulfilling their duties in the protection of vulnerable adults ("safeguarding") including in the residents of care homes. A shift was made to target homes with high rates of safeguarding referrals, as the nurse practitioner felt that these homes demonstrated failings in care that were more likely to benefit from her intervention. Thus, this service targeted homes rather than patients.





Transformations

The main role of the advanced nurse practitioner was to facilitate better care through demonstration, education, training and co-ordination, rather than to provide direct patient care through case management. Rather than become an additional part of the routine health care infrastructure, the role of this service was to troubleshoot, with the aim of moving to other homes in due course. A typical example of intervention facilitated in this way by the advanced nurse practitioner was the up-skilling of staff in end of life care. Another area was to improve the quality of care plans, in the hope that better care plans might lead to better care: it was felt by the advanced nurse practitioner that many care plans held in care homes in which there were concerns were almost useless documents that did not achieve the function of planning care.

No information about the reduction in hospital admissions or other resource use were available, and similarly no further data about improved clinical health outcomes.

Discussion

Advanced nurse practitioners were employed in different ways to provide support to care homes. In this observational study:

- They can be employed by GPs to deal with the workload arising from their care home patients. They can offer their case management approach to provide an alternative to the GP for first line health care.
- They can also be employed by a PCT, and have remit to support PCT objectives such as long term condition management, or be used in targeted way towards areas of policy concern such as homes with high hospital admission rates or safeguarding issues.

Common to both was the use of a skilled nurse practitioner, with considerable community experience and clinical autonomy, and direct patient contact with the use of a thorough nursing assessment. Common to both, despite the different reasons for setting up the services, were an interest in controlling unplanned emergency care and improving the quality of care.





The services may have different effects upon the health care system. For example, practice-based advanced nurse practitioner services may facilitate the “preferred practice” model of primary care (one practice per home), since care home residents tend to gravitate towards practices providing such services. Preferred practice models are more likely to enable an understanding to develop between the GPs and the care home staff, and for higher quality to result. PCT-based services do not do this.

On the other hand, a potential drawback of the practice based model is that, as it provides input to all residents under a GP in a care home, it will not focus upon those at highest risk and this may limit its cost effectiveness. The PCT based models studied here aimed to focus upon subgroups with the highest needs or at the highest health care priority. The estimates made here, however, indicate that both models could be cost saving through reduction in GP input as well as through reductions in hospital admissions. It must be stressed that in the absence of controlled data from UK studies, these are no more than plausible estimates.

Another observation is that there is so much attention to cost saving in the justification for these schemes, that there has been little attention to clinical benefit. Indeed, “benefit” is often construed to mean a reduction in admissions rather than an improvement in health and well being. The two are not incompatible, but neither are they synonymous. The limited evidence of health gain presented here, mainly in the form of anecdotes, indicate that all these schemes are likely to bring about valuable health gain, even if it is not measured and would be hard to measure.

These pilot schemes may be highly dependent upon the skill of the pioneering clinicians involved. There is a risk that more widespread use of these services might recruit less skilled or less motivated staff, who may not have the skill to replicate the benefits and efficiencies referred to here. The anecdotes reported here attest to a high level of knowledge, judgment, personal effectiveness and skill required.

Practice-based schemes seemed to offer a greater opportunity than PCT-based schemes for partnership working between primary care and the care homes. However in the instances studied here, the development of all schemes was dominated by responding





to health policy, and there was little evidence that the wider needs of care home staff were considered. This does not necessarily mean that there was lack of alignment between the aims of the advance nurse practitioner schemes and the needs of the care homes, as care home staff are also keen to avoid hospital admissions or shorten them, as we have previously noted [7]. Furthermore, in the most successful anecdotes recorded here, there was close collaboration between the advance nurse practitioner and care home staff at a patient level.

Given that advance nurse practitioner schemes appear so promising and common (at least in the Nottinghamshire area) it is noteworthy that there is little evidence of their cost effectiveness in the UK. Most evidence of this role comes from the USA [8], where both the organisation and cost of primary and hospital care differs markedly from the UK. Further controlled studies of nurse practitioner schemes are required and such studies will need to overcome the challenge of measuring any health gain that these services bring about.

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