The proactive elderly care team: dementia screening of over 20 000 patients

ABSTRACT

The proactive elderly care team was introduced at Lancashire Teaching Hospitals NHS Foundation Trust in October 2012. This article describes how the team performed over 5 years (up to the end of December 2017).

The proactive elderly care team had three broad aims related to all non-elective patients over the age of 75 years who either came to accident and emergency or were admitted into the hospital, irrespective of speciality:

1. To screen all patients over the age of 75 years for delirium and dementia
2. To identify patients over 75 years who were the most frail, and would benefit from a comprehensive geriatric assessment and targeted interventions
3. To reduce length of stay for patients over the age of 75 years without any increase in their readmission rate.

Following the introduction of the proactive elderly care team, length of stay and the readmission rate of patients who were seen by the service fell by about 50%. Almost £10 million has been saved and for every £1 invested in the proactive elderly care team service, over £12 was saved.

Dementia screening is a UK government priority outlined in the national dementia commissioning for quality and innovation (CQUIN) (Burns, 2012). Both dementia and delirium lead to a longer length of stay and increase morbidity and mortality (Adamis et al, 2006; Lang et al, 2006).

At the author's hospital trust, the length of stay for patients over the age of 75 years was 21.9 days in 2012, far greater than the length of stay of general medicine patients at 6.2 days.

It was proposed that a new team should be established to screen for dementia and delirium. It was felt that if these two common conditions could be identified earlier, the overall length of stay would be reduced. The new team had to be proactive (actively involved in the day-to-day management of patients from the moment they arrived in hospital).

The team would be able to give specialized and additional therapy, nursing and medical advice, which was normally missing from patients' hospital stay. The team followed the principles set out in the Hospital Elder Life Program (Inouye et al, 2000) – a model of care to prevent delirium and functional decline in hospitalized older patients. (More information on the Hospital Elder Life Program can be found at https://www.hospitalelderlifeprogram.org/) The team proactively screens every patient for delirium and, if delirium is identified, it is treated.

The team also proactively helps to prevent functional decline by mobilizing patients as soon as possible, encouraging them to wear their normal clothes in hospital and by getting them back home (with support) as soon as possible.

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Comparison with similar teams

A number of initiatives has been developed over the past 10 years aiming to provide a proactive service for elderly and/or frail inpatients. Previous studies have detailed the older person assessment and liaison service and frail older person assessment and liaison service models (Allen et al, 2010). Although they have been successful, they concentrated on patients being admitted through medical wards, whereas the current study included all non-elective patients in hospital, irrespective of which ward or speciality they were admitted under.

Other teams have targeted specific patient groups. Patients with fractured neck of femur, older patients with major trauma (Fisher et al, 2017) and older patients undergoing surgery (Dhesi, 2015) are all good examples of where a multidisciplinary team approach to the older person has improved outcomes. The National Institute for Health and Care Excellence (2017) guidelines advocate orthogeriatrician input in patients with fractured neck of femur. The proactive elderly care team is different because it does not focus on any single group of patients. The team will see any older patient over the age of 75 years irrespective of where that patient is in the hospital. The team is all encompassing, which is a major difference to the more focussed teams that already exist (the hospital has orthogeriatricians as well but the team do not see their patients, as this would be duplicating work unnecessarily).

Methods

The British Geriatric Society recommends that the multidisciplinary team responsible for comprehensive geriatric assessment should consist of a mix of senior therapists with experience of working with older people (Ellis and Langhorne, 2005).

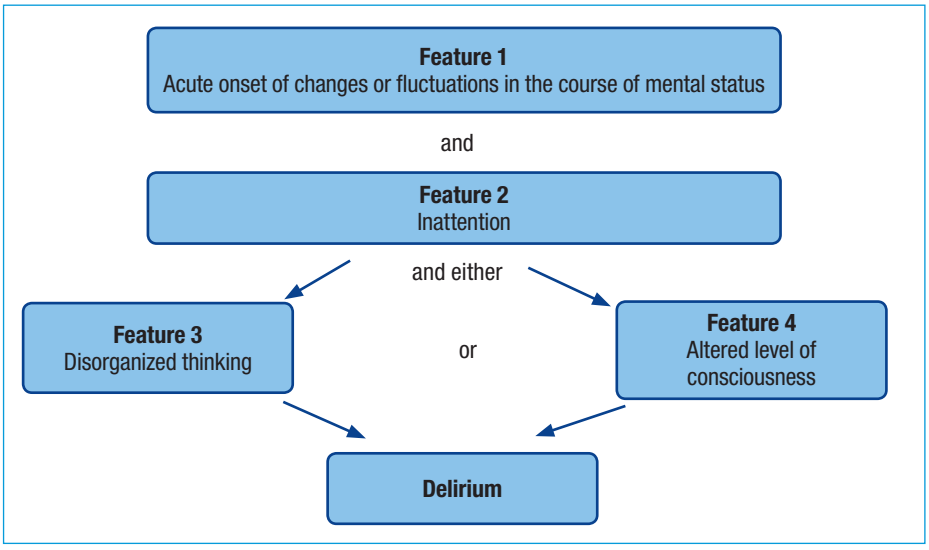
The author's team secured funding from the trust to create a new team with all the attributes that the British Geriatric Society (Turner, 2014a) recommend. The staff salary cost is £213 373 per year (*Table 1*). No extra funds were required to set up the team. The team meets in a large room that was already available to the therapy teams, does not prescribe expensive drugs or perform any procedures (such as endoscopy, angiography). It is likely that some extra money would be needed to allow the team to run, to cover for information technology (computers, printers, internet services and support), stationery and a physical space to meet, but it is likely to be far smaller than the cost of staffing.

Table 1. Annual cost of the team

Staff	Band	WTE	Cost
Occupational therapist	7	1	£31 696
Occupational therapist	6	1	£26 565
Physiotherapist	6	1.5	£39 848
Clinical nurse specialist	6	2	£53 130
Admin support	2	1	£15 404
Consultant geriatrician	n/a	0.5	£46 730
Total			£213 373

WTE = whole time equivalent. From Royal College of Nursing (2017)

Figure 1. The confusion assessment method. From Inouye et al (1990).



Screening for delirium and dementia

The team screened all acute medical admissions over the age of 75 years for delirium and dementia.

Each day a list of all newly admitted patients over the age of 75 years was provided from the hospital database. Patients already known to have dementia were excluded (although they may have concomitant delirium as well).

Each patient was seen by the team and screened for delirium using the confusion assessment method. This standardized evidence-based tool enables non-psychiatrically trained clinicians to identify and recognize delirium quickly and accurately in clinical settings (Inouye et al, 1990) (*Figure 1*).

If the confusion assessment method was positive then causes for delirium were investigated and treated in line with National Institute for Health and Care Excellence (2018) guidelines. The NHS is very poor at screening for and treating delirium – more than half of all patients in the third round of the National Audit for Dementia were not screened for delirium (Healthcare Quality Improvement Partnership, 2017).

If the confusion assessment method was negative the team member asked the dementia screening question (this could be to the patient or to his/her family or carers):

> **'Have you been more forgetful in the past 12 months to the extent that it has significantly affected your life?'**

If the answer to this question was 'yes' then the team performed a 6-item cognitive impairment tool (6CIT) (Brooke and Bullock, 1999). If the 6CIT showed evidence of cognitive impairment the patient was investigated in hospital in line with National Institute for Health and Care Excellence (2010) guidelines. He/she would usually have a computed tomography brain scan performed as well as routine blood tests looking for reversible causes of delirium.

Upon discharge patients were referred to the memory assessment service, which performed further diagnostic investigations for dementia and provides treatment for dementia (National Institute for Health and Care Excellence, 2018).

Clinical vignette 1

Mr BS was a 78-year-old man living alone at home. He had an unwitnessed fall at home. He came to hospital and routine investigations including blood tests, electrocardiogram, lying and standing blood pressure, echocardiogram and telemetry were all normal.

The proactive elderly care team screened him for dementia and his 6CIT score was 14/28. A computed tomography brain scan showed cerebral atrophy. His family said he had been much more forgetful over the previous 6 months and he had been wandering at home. They had been considering a 24-hour care environment for him before admission. The proactive elderly care team advised that he should be referred to the memory assessment service.

It was felt that he probably had Alzheimer's dementia. He was discharged to a dementia rehabilitation unit and was seen by the memory assessment service within a few days. They commenced donepezil and after 2 weeks in the dementia rehabilitation unit his memory had improved and he was not wandering anymore. He returned home and after 6 months he was still managing at home (with a small care package), he had stopped wandering outside, and had no further falls. His 6CIT was repeated and the score had improved to 8/28.

The comprehensive geriatric assessment

The proactive elderly care team wanted to target the most frail patients over the age of 75 years, irrespective of where they were within the hospital (e.g. accident and emergency, medical wards, surgical wards). A referral system was set up whereby health-care professionals on the ward looking after the patient could refer that patient to proactive elderly care team. It was decided that any health-care professional from any ward could complete the referral form.

Frailty markers based on the British Geriatric Society definitions were chosen to decide which patients would benefit most from proactive elderly care team referral (*Table 2*) (Turner, 2014b).

If a patient had two or more of these markers, a referral to the proactive elderly care team would be accepted. Once the referral is received a member of the team goes to see the patient as soon as possible and performs a comprehensive geriatric assessment.

Comprehensive geriatric assessment has been shown in clinical practice to reduce the length of stay significantly (Harari et al, 2007). The team followed the principles set out by the Hospital Elder Life Program as well as the principles of the comprehensive geriatric assessment (*Table 3*).

Clinical vignette 2

Mrs WM had fallen and fractured her neck of femur. She had her hip repaired successfully but she was very confused and drowsy after the operation. She remained in bed for 3 days and developed an acute kidney injury. At this stage she was given antibiotics for an assumed urinary tract infection, as well as intravenous fluids. She did not improve so the proactive elderly care team was called to review her by the orthopaedic doctors.

She had not been screened for delirium or dementia on admission because she had been taken to the operating theatre and then to recovery within the first 24 hours. The team screened her and she clearly had delirium.

The team discovered that she had been prescribed codeine phosphate 30 mg four times a day. She had become very constipated and was in urinary retention. Her urine sample was clear and there were no signs of infection. The team stopped her codeine and antibiotics, advised bowel care and a urinary catheter was inserted.

She was reviewed the following day. She was much more alert.

The physiotherapists got the patient out of bed and sat her in a suitable chair. The next step was to stand the patient up and then try to get her walking. Within 2 days she was walking with a stick on the ward. Her acute kidney injury resolved and her catheter was successfully removed. She was discharged after a further 3 days. Her confusion completely resolved.

The proactive elderly care team had diagnosed and treated her cognitive impairment, reduced medication, improved mobility and functioning. It is very likely that her length of stay was reduced by the team's intervention.

Table 2. Frailty markers

Polypharmacy (four or more drugs)
Decline in mobility
Recurrent falls
Cognitive change
Functional change
Low mood or anxiety
Continence issues
Nutritional concerns
Multiple admissions
Visual impairment

Table 3. Key interventions performed by the team

Improve cognitive impairment
Reducing polypharmacy
Reducing immobility
Treating sepsis and dehydration
Functional change
Falls prevention
Improve hearing, vision
Improve functioning
Early discharge planning
Visual impairment

Examples of targeted interventions

Reducing immobility

One of the simplest but probably most effective interventions that the team does is to proactively get patients out of bed. Nurses are often too busy, and the team regularly goes to wards where multiple patients are in bed. Quite often the ward bays have posters stating 'End Pyjama Paralysis' and yet patients remain in bed most of the day.

Table 4. Number of patients screened for dementia and delirium

Eligible for screening	23 814
Actually screened	19 943 (84%)
Known dementia	4429 (22%)
Delirium	1995 (10%)
New diagnosis of probable dementia	2894 (15%)
Total of known and new (probable) dementia	7320 (37%)
Patients referred to specialist services	2792 (96%)

Specialist nurses and therapists will often get patients out of bed, assess their mobility and tell the ward staff to get the patient moving. Team members often have to be quite assertive about this.

Reducing polypharmacy

The consultant will always review the medication charts and where possible aim to stop or reduce medications. Several team members have been trained in prescribing medications so they can also assess polypharmacy.

Early discharge planning

The proactive elderly care team often find patients who have become 'stranded' on the wards (length of stay over 14 days). These patients usually have poor or delayed discharge planning, no estimated date of discharge and no clear plan for progression out of hospital. The team often provides guidance regarding these areas. For example simply stating that a patient is 'medically stable for discharge' and setting an estimated date of discharge can progress matters significantly.

Results

The new service began on 21 October 2012 and results are available up to December 2017. In total 23 814 patients were eligible for screening (*Table 4*). The proactive elderly care team managed to screen 19 943 patients – 84% of the total.

Known dementia and new delirium

In the author's hospital inpatient population of those aged over 75 years, 37% probably had dementia and a further 10% had delirium. Thus, almost half of these patients had some form of cognitive impairment (*Figure 2*).

The screening process identified that 15% of patients probably had previously unrecognized dementia. This is less than the prediction from the Alzheimer's Society that 50% of patients with dementia are not yet diagnosed, although the patients in the study cohort are all in hospital.

It is worth noting that 10% of patients in this study had 'only' delirium which is lower than previous studies. This is probably because patients who already had a diagnosis of known dementia were not screened for delirium as well (Siddiqi et al, 2006; Ryan et al, 2013).

Services provided to patients

Table 5 outlines the services provided to patients by the proactive elderly care team.

Admission prevention

It is always difficult to determine whether the proactive elderly care team actually helped the patients it saw. However, when individual case notes were examined it was felt that at least 256 admissions had been avoided because of direct intervention from the proactive elderly care team.

This was usually patients who had been seen within 24 hours. Often patients were referred by the accident and emergency department, and the team would see the patient within 4 hours. On many occasions these patients may have had a single fall at home (13.3% of patients in the National Audit for Dementia were admitted to hospital because of a fall (Healthcare Quality Improvement Partnership, 2017) – this would equate to almost 1000 patients in the current study).

Usually these patients would be admitted into hospital for 'observation' and investigations, whereas the proactive elderly care team would assess the patient in the accident and emergency department, mobilize the patient and provide basic equipment if needed (e.g. Zimmer frame). It was often possible to arrange for patients to go home the same day, especially if carers or family were available. The patients were then referred to the falls clinic on discharge.

This approach led to 256 patients being discharged on the same day who would usually have been admitted into hospital. Contrary to what might have been expected, there was no increase in their readmission rate.

Length of stay

Before this new service started the average length of stay for patients over the age of 75 years was 21.9 days. During the new service 2954 patients had a comprehensive geriatric assessment. In this cohort their length of stay was 11 days, reducing the length of stay by 10.9 days (51%).

During the same period the average length of stay at the Trust fell from 4.1 days to 3.9 days (5.1% reduction). In medicine the average length of stay fell from 6.2 days to 4.9 days (21% reduction) (*Table 6*).

Readmissions

A readmission is defined as being within 30 days of initial attendance in hospital. The initial readmission rate in 2012 for patients over 75 years of age was above the national average (13.9%) at 16.8%. In 2008 the trust average for all ages was 14% (compared to the national average of 9.1%) so the trust was performing poorly (Zerdevas and Dobson, 2008).

The readmission rate was reduced to 8.6% by 2017. This is reassuring especially when the overall NHS readmission rate has actually increased over this period (Friebel et al, 2018).

Discussion

The team screened a huge number of patients over the 5-year period, although they were not able to screen all patients. The team is not aware of a larger screening programme for dementia or delirium.

Some patients were missed. For example if a patient had delirium he/she was not followed up to ascertain if the confusion had resolved. It is possible that these patients may also have had dementia.

Some patients were too unwell – patients with a severe stroke, trauma, breathing difficulties or needing acute surgery were usually not screened. Ideally the team would go back and screen these patients upon recovery.

The results show that 2792 patients were referred to the memory assessment service, reflecting the large number of new patients with dementia that were identified. Unfortunately the memory assessment service cannot currently review all of these patients and the majority of the patients referred are not seen. The implications of this is that patients often come back into hospital without being assessed. These concerns were raised with the local clinical commissioning group who have now commissioned a new memory assessment service run by Lancashire Care NHS Foundation Trust.

There has also been a large increase in the numbers of patients needing appointments in the falls prevention clinic. This was difficult to provide adequate resource for, because the Trust had a limited number of clinic slots. However, the falls service has expanded so that there are now more clinic slots and a community falls team has also been commissioned.

Figure 2. Dementia and delirium in 19 943 hospital admissions, from October 2012 to December 2017.

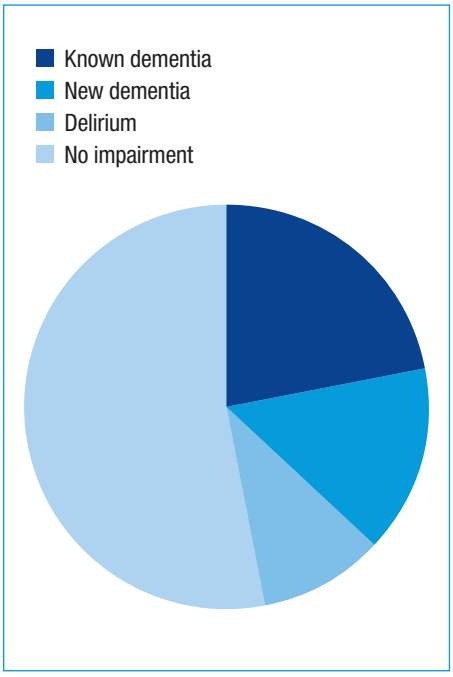


Table 5. Services provided to patients by the proactive elderly care team

Service	Number	%
Number of patients referred for comprehensive geriatric assessment	2954	100
Number of requests for consultant review	838	28
Number of admissions prevented	256	8.7

Table 6. Reduction in length of stay at the hospital trust

	Patients over 75 years (days)	All patients (days)	Medicine patients (days)
April–September 2012	21.9	4.1	6.2
October 2012– December 2017	11.0	3.9	4.9
% reduction	51%	5.1%	21%

KEY POINTS

- As far as the author knows this study has screened more hospital patients for delirium and dementia than any previous study.
- A total of 47% of all elderly patients admitted into hospital had some form of cognitive impairment. Over one-third of patients had dementia. This has implications for the provision of dementia friendly wards and dementia champions across the NHS.
- In this study 10% of elderly patients had delirium using the confusion assessment method, emphasizing the need for effective screening and treatment of delirium across the NHS.
- A dedicated elderly care team can screen thousands of patients each year for dementia and delirium. This study shows that when patients had a comprehensive geriatric assessment their length of stay was reduced by about 50%. Their readmission rate was reduced to 8.6%, well below the national average.
- The elderly care team was extremely cost efficient, saving far more than the team cost to run.

It is impossible to prove whether the interventions of the proactive elderly care team reduced length of stay and reduced readmission rates. However, the results achieved were much better than the results that the Trust and the wider NHS achieved over the same period, so it is inferred that the team made a positive difference.

In future, it is hoped that the team can be expanded, and that they can look in more detail at stranded patients. The main barriers to expansion are difficulties in recruitment and retention of the specialized staff members. It is difficult to give precise costs of setting up the service without a full economic analysis. However, staff direct salary costs were about £260 000 per annum. In addition, there were other costs such as meeting rooms and information technology resources. High cost drugs were not commonly prescribed. The benefit on costs and to the patients' experience from the significantly decreased length of stay and reduced readmissions, using these simple calculations, seems to vastly outweigh the expenditure of setting up this service.

Conclusions

These results represent just over 5 years of the service. A total of 2954 patients were referred for a comprehensive geriatric assessment and their length of stay was reduced by 50%. Although the trust as a whole also saw a reduction in length of stay, it was much smaller than that in this cohort of patients. In addition the readmission rate improved substantially at a time when the overall NHS saw increased readmission rates.

The average cost of an excess day in hospital was £303 in 2014–15 (Department of Health, 2015), so the saving could be equated roughly to (32258 x £303) = £9.8 million over the 38-month period, or about £3.1 million over 1 year.

This outweighs the cost of setting up the service by a factor of about 12 (£3 086 581/£260 000). Thus one could argue that for every £1 pound spent setting up this service about £12 would be saved. This only includes savings from reduction in length of stay, and does not include payment from the CQUIN, or reduction in complaints and readmissions, and their costs. **BJHM**

Conflict of interest: none.

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