Improving delirium screening in older adults at the Royal United Hospital, Bath

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Abstract

Aims/Background Delirium affects around 20% of older inpatients, increasing mortality and length of stay. Around 30% of cases are preventable. The authors sought to determine compliance of the admissions to the Older People's Unit of the Royal University Hospital Bath with the national and internal guidelines for delirium screening and improve its use on admission.

Methods A total of 60 patients' notes were inspected for compliance. Subsequently, the authors implemented teaching, changed the admission proforma and re-wrote the hospital guidelines for delirium. The notes were rescreened at 6 and 18 months.

Results Initially, 25% of notes met the national standards and 63% met the hospital criteria. At 6 months this was 52% and 82% respectively, and at 18 months it was 41% and 87% respectively. The proportion of patients screened via multiple methods also increased.

Conclusions There was a sustained improvement in compliance with the national and hospital standards for delirium screening. There was some degradation in the national standard but the proportion of patients meeting the National Institute for Health and Care Excellence standard was still higher than pre-intervention.

Key words: Audit; Delirium; Quality improvement; Screening

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Introduction

Delirium is a common condition affecting medical inpatients, estimated to be present in 20–30% of patients on admission and with an incidence during admission of between 3% and 29% (Siddiqi et al, 2006). In their literature review, Siddiqi et al (2006) considered these rates to be an underestimate given the frequent lack of admission screening, and highlighted the need for simple and quick methods to screen for delirium on admission.

Delirium has serious adverse effects on patients, including increased mortality, length of stay and hospitalisation rates. One prospective study found that delirium was associated with a twofold increase in mortality at 12 months compared to those without delirium, even once cofounding factors such as age, sex and comorbidities were controlled for. This effect was even stronger in patients who did not have coexisting dementia (McCusker et al, 2002). In patients that have dementia, delirium causes worse cognitive decline than dementia or delirium alone (Davis et al, 2017).

Appropriate management of patients at high risk of delirium can reduce cases by up to one-third, as well as significantly reducing the length of delirium episodes. Screening for delirium and those at risk of delirium allows for early intervention and facilitates prevention (National Institute for Health and Care Excellence, 2014). Documentation of a patient's baseline from admission allows quick recognition of emerging delirium and differentiates those with dementia and a new delirium in the older population.

The National Institute for Health and Care Excellence (2010) guidance recommends that anyone aged 65 years or over who has a cognitive impairment, a current hip fracture or a severe illness should be screened for delirium and risk of delirium on admission to hospital.

A quality improvement project was undertaken to see how well patients admitted to the Older People's Unit at the Royal United Hospital, Bath, were screened for delirium on admission, if this could be improved, and if that improvement could be sustained over time.

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Table 1. Outline of the plan, do, study, act (PDSA) cycles

	Cycle 1	Cycle 2	Cycle 3
Plan	Decide on the question being asked and what we want to achieve: how well does the Royal United Hospital screen for delirium on admission. Can we improve this? Decide on standards to compare it to (National Institute for Health and Care Excellence, 2014)	Discuss how changes can be best made with the consultant body	Plan for further data gathering 18 months after initial data gathering
Do	Gather data	Implement educational sessions for junior doctors, change admissions proformas, re-write hospital guidelines	Collect data at 18 months
Study	Assess data – improvements can be made	Gather data at 6 months and assess data. Identify improvements made	Some improvements have held (national standard) but some have degraded
Act	Take action and plan interventions	Decide not to implement further changes but see if this will be a longstanding improvement	Present these data and plan for a further cycle of changes

Methods

Three cycles of this quality improvement project were undertaken using plan, do, study, act (PDSA) methodology (Table 1).

This quality improvement project used the National Institute for Health and Care Excellence (2010) clinical guideline 103 and the National Institute for Health and Care Excellence (2014) quality standard 63 as the gold standard for the methods that doctors in the Royal United Hospital should be using to detect delirium in the first 24 hours of admission. The 2010 version of the guidance highlights the Confusion Assessment Method (CAM) as the primary tool to be used, but the exceptional surveillance in 2018 and 2020 acknowledged the emergence of the Four 'A's Test (4AT) as a possibly more effective tool for screening for delirium and recommended its use (MacLullich et al, 2019). The authors therefore accepted use of either a 4AT or a CAM. The National Institute for Health and Care Excellence (2014) highlighted the importance of involving family members and carers in identifying changes in behaviour and said it would accept a family member reporting these changes as flagging a patient as being at high risk of delirium. Therefore the Single Question in Delirium tool was also accepted, as this has shown promise as a quick and easy assessment tool, is recommended by Scottish Intercollegiate Guidelines Network and is the only tool explicitly involving collateral from family and carers (Hendry et al, 2016; Scottish Intercollegiate Guidelines Network, 2019).

The Royal United Hospital also has a hospital standard for what it accepts for a patient to have been screened for delirium. This is either a full AMT10, an AMT4 with comment about alertness, a 4AT or a documented comment from a consultant geriatrician about the presence or absence of delirium.

The authors first gathered the initial baseline data to answer the question 'what proportion of patients over 65 years are screened for delirium in the first 24 hours of admission at the Royal United Hospital'. This involved selecting notes from 60 patients at random across the hospital's six geriatric wards, including short stay and hip fracture units. The notes from the first 24 hours, including their admission paperwork, were looked at to see which, if any, of the above tools were used.

Having collected these data, the consultant geriatricians at the Royal United Hospital were consulted and, based on their feedback, interventions aimed at improving the use of delirium assessment tools on admission for older patients were planned and delivered. These included educational sessions for junior doctors, changing the hospital admission proformas to include delirium screening tools and holding reminder sessions with the geriatric consultants. The hospital guidelines for delirium were also rewritten to re-emphasise the need for screening.

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Data collection for the second cycle was undertaken 6 months after the first initial data gathering. The same methodology was used and the data compared to the first set. A significant improvement was detected, so no further interventions were implemented at this time.

The third cycle took place 18 months after the initial data gathering. Once again, the same methodology was used, but 64 sets of patient notes were screened. Further interventions are being planned based on the results and will be followed by a fourth cycle of data gathering in due course. These will be addressed in the discussion.

Results

On initial data collection, 63% of patients had adequate delirium screening based on the hospital standard, but only 25% met the national standard. At 6 months after the implementation of the intervention, this had improved to 82% meeting the hospital standard and 52% meeting the national standard; and 18 months after initial data collection, without any further intervention, 88% met the hospital standard and 41% met the national standard (Figure 1).

Given that the aim was to improve delirium screening at the Royal United Hospital the authors also measured the number of different methods being used on each patient. Those with no assessment at all fell from 35% initially to 17% at 6 months and to 9% at 18 months, essentially halving each time. There was particular improvement in those with two screening methods or three or more methods being used, 20–30% by 18 months and 15–28% by 18 months respectively (Figure 2).

The authors believe this to be representative of staff in the hospital thinking more about delirium on admission in general, in line with the NHS 'Think Delirium' campaign, as well as better use of the screening tools put in place in the intervention as time goes on.

Table 2 gives a breakdown of the different methods being used. In line with the data above, by the 18-month mark significantly more patients had multiple methods being used to screen for delirium.

Discussion

The data indicate that interventions that focussed on meeting the hospital standard – completing an AMT10, AMT 4 with a comment on consciousness/alertness, and documenting a consultant comment on the presence or absence of delirium – were maintained over the year between implementation and remeasurement. However, those that focused on the national standard, particularly the 4AT, while still improved from baseline, fell out of use

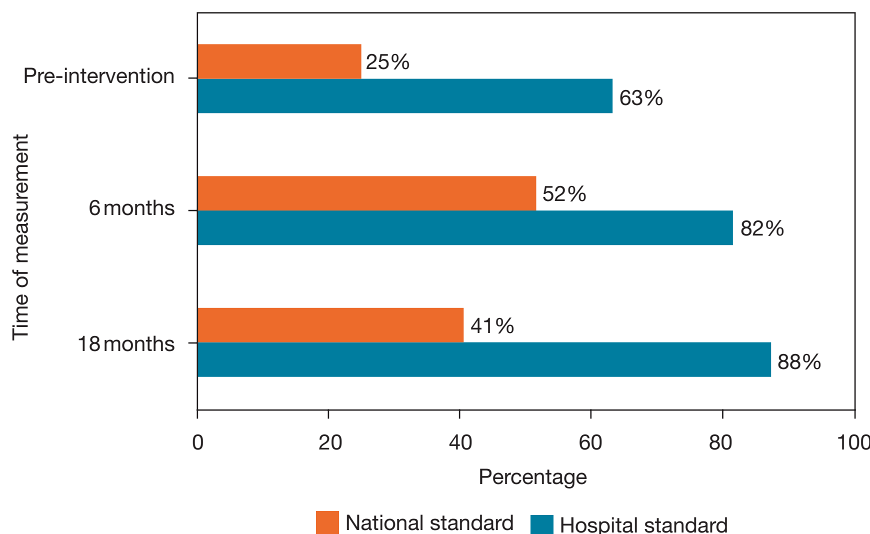

Figure 1. Percentage of patients meeting delirium screening standards.

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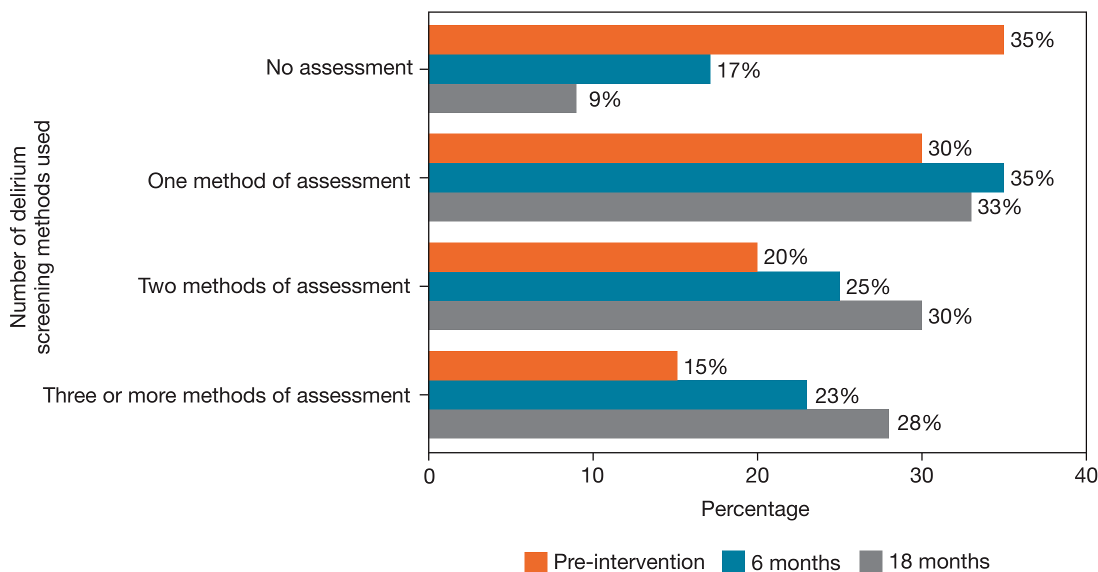

Figure 2. Number of delirium screening methods used per patient.

Table 2. Breakdown of screening methods used

Method used	Pre-intervention	6 months	18 months
Four A's Test (4AT)	7%	32%	17%
Confusion Assessment Method (CAM)	3%	0%	0%
Single Question in Delirium (SQID)	18%	32%	30%
Abbreviated Mental Test (AMT10)	40%	47%	52%
4AT and a comment on consciousness level	15%	12%	45%
Geriatrician comment	32%	38%	39%

significantly: from 32% at 6 months to 17% at 18 months. The 4AT is recognised by National Institute for Health and Care Excellence as the gold standard for delirium screening, it is only slightly more laborious than an AMT4 and significantly less so than a full AMT10, both of which are currently being more robustly used in the Royal United Hospital.

Work should be done to identify the barriers to using the 4AT, and future interventions should focus on prompting a 4AT screen and making it easier to use and document. This could be done by educating junior doctors as they rotate through the departments, but this would mean running a teaching session every 4–6 months. Making a more longstanding change, such as making it easier to use on the proforma, may be more useful. This is currently being explored. Another way to improve would be to change the hip fracture proforma at the Royal United Hospital. Patients admitted for a hip fracture – which constituted approximately one-third of the notes screened – get clerked on different paperwork that does not contain a 4AT template. National Institute for Health and Care Excellence (2014) specifically mentions those with a current hip fracture as a group that are at risk of delirium. It would therefore be prudent for these patients to be screened appropriately on admission with a 4AT.

Interestingly, at 18 months the number of Single Question in Delirium screens was maintained at the levels seen after 6 months. The importance of a collateral history is well known, particularly in those who are confused on admission or who have cognitive impairment. Patients who fall into these categories trigger a more prompt collateral history taking and Single Question in Delirium, but in those who appear cognitively intact the question of baseline function and confusion is less relevant to the patient's presentation and less likely to be documented. Siddiqi et al (2006) found that a similar proportion of patients has delirium on admission as develop it in hospital. There is no single intervention to treat

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Key points

- A set of changes targeted at permanent staff and cultural change has shown persistent improvement in the screening for delirium on admission to the Royal United Hospital, Bath, when compared to the guidelines set out by National Institute for Health and Care Excellence and the hospital itself.
- The percentage of patients meeting National Institute for Health and Care Excellence standards doubled over 18 months, and 80% of admissions were meeting the hospital standards at this time.
- There remains work to do, but very positive steps were taken that could be repeated in other centres struggling with this issue.

delirium, it is difficult to manage and there is limited evidence on how treating delirium affects outcomes (Mattison, 2020). Screening should focus on identifying and mitigating risk, with an emphasis on preventing delirium during the inpatient stay. Changes should be made to specifically prompt a Single Question in Delirium and a 4AT on admission, even in patients who do not appear acutely confused. This is also being explored.

A challenge going forward is the move of the hospital to a paperless system, which will alter all aspects of admissions paperwork in the Royal United Hospital. This is planned for late 2022 and will inevitably alter the way clinicians screen for delirium on admission. Therefore, it will be important for consultants to keep this in mind when designing the new electronic paperwork, particularly in terms of ease of use. If, for example, they were able to put the 4AT as a mandatory field for admission of patients over 65 years of age, this would be extremely beneficial for delirium screening and hitting the national screening targets.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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