# Delirium recognition in a Level 2 General Hospital. A Clinical Audit.

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## INTRODUCTION

Delirium
- Common :
  - 14.7% point prevalence. [1]
  - 10-15% of >65 will have delirium on admission
  - 5-35% develop following admission. [1]
  - Up to 60% of elderly hospitalised patients
- Medical emergency
  - up to 40% of these will die within the year.
- Unrecognised
  - 33-60% of hospital inpatients internationally.
- Early detection can reduce length of stay, mortality and functional decline in the elderly inpatient population.

4AT
- brief diagnostic tool
- sensitivity of 76%
- specificity of 94%
- used in many Irish Emergency Departments including St Colmcille's Hospital.

## STANDARDS

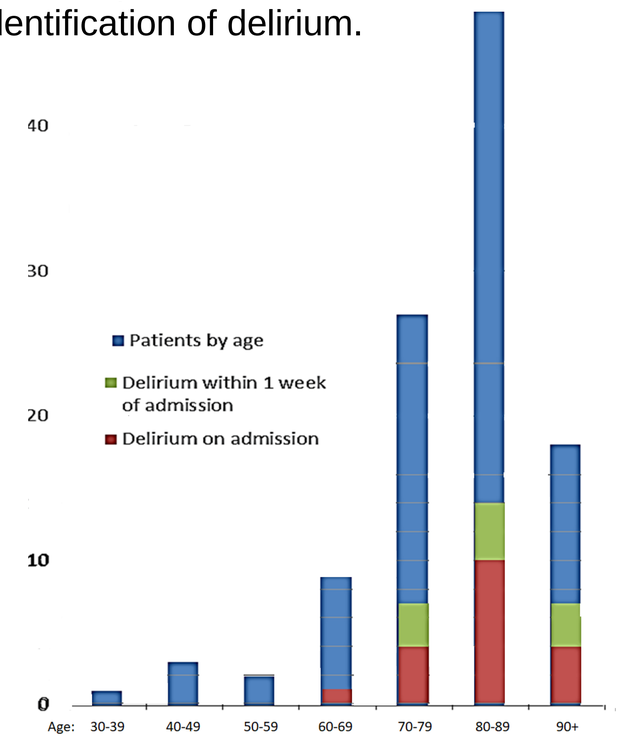
NICE guidelines [2] for diagnosis of delirium:
- clinical assessment or CAM
- Ensure that the diagnosis is documented

## METHODS

Setting:
- level two general hospital
- 111 beds
- primarily older patients with multimorbid chronic diseases and high prevalence rates of cognitive impairment
- all patients over 65 should have 4AT completed on admission

Data collected
- All patients
- One day
- Retrospective chart review
- Age, sex, 4AT score, date of first clinical evidence of delirium (i.e. confusion documented by any staff member) and date of diagnosis, if any, of delirium.

We audited compliance with 4AT screening for patients >65 (n=100) and analysed whether non-compliance contributed to delayed identification of delirium.



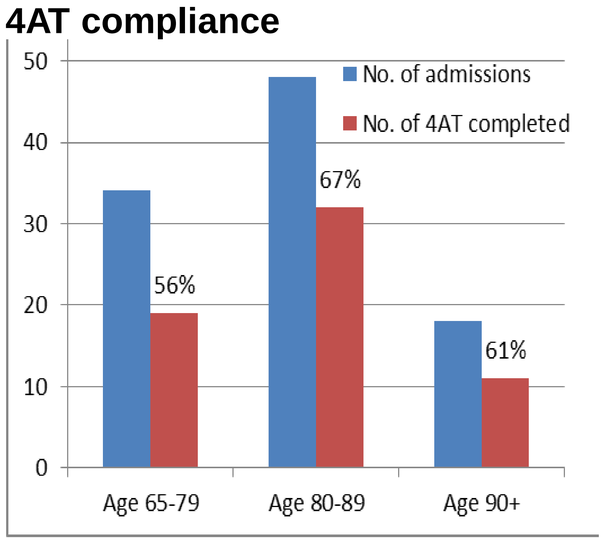

## RESULTS

**Patient attributes**

Length of stay
- 31 admitted within the previous week
- 66 > 1 month
- 14 > 6 months

Average age: 79.4 (mean), 82 (median)
M:F 45%:55%

**4AT compliance**




- 62% overall
- little difference by age

**Identification and Prediction of Delirium**

38 patients had clinically evident delirium at some point:

| Delirium present: | Day 0 | 1st week | >1 week | **Total** |
|---|---|---|---|---|
| | **21** | **9** | **8** | **38** |
| 4+ | 14 | 0 | 0 | 14 |
| 1-3 | 5 | 3 | 2 | 10 |
| 0 | 0 | 2 | 1 | **3** |
| Not done | 2 | 4 | 5 | 11 |

7 of these never received a diagnosis of delirium

**Analysis of patients without 4AT score**

n = 37

| Delirium on | Day 0 | 1st week | >1 week |
|---|---|---|---|
| **No 4AT done** | **2** | **4** | **5** |

The 2 who were delirious on admission were diagnosed clinically at the time

**Delayed Diagnosis**
- 24 hours between the time confusion was documented by any team member and the diagnosis of delirium documented by a member of the medical team.

| Delirium present: | Day 0 | 1st week | >1 week | **Total** |
|---|---|---|---|---|
| **Delayed diagnosis** | **5** | **5** | **5** | **15** |
| 4+ | 1 | 0 | 0 | 1 |
| 1-3 | 2 | 2 | 2 | 6 |
| 0 | 0 | 1 | 0 | **1** |
| Not done | 2 | 2 | 3 | 7 |

**Conclusion**
- >60% of cases being diagnosed immediately either clinically or with 4AT
- Identification could be improved by:
  - improving compliance with 4AT screening
  - following up on scores of 1-3

## DISCUSSION

The most important finding of our study was that a delay in diagnosis of delirium was associated with not having had a 4AT on admission and having a score below the cut-off of 4.

**Scores of 1-3**
- 80% developed delirium
- 60% delayed diagnosis

This suggests that either ward doctors are less alert to the possibility of delirium than admitting doctors or that a score below 4 is falsely reassuring.

Of 9 patients who developed delirium within 1 week, 4 had no 4AT on admission and 3 had a 4AT of 2-3. Suggesting that a 4AT score of 2 or more is highly suggestive of an evolving delirium.

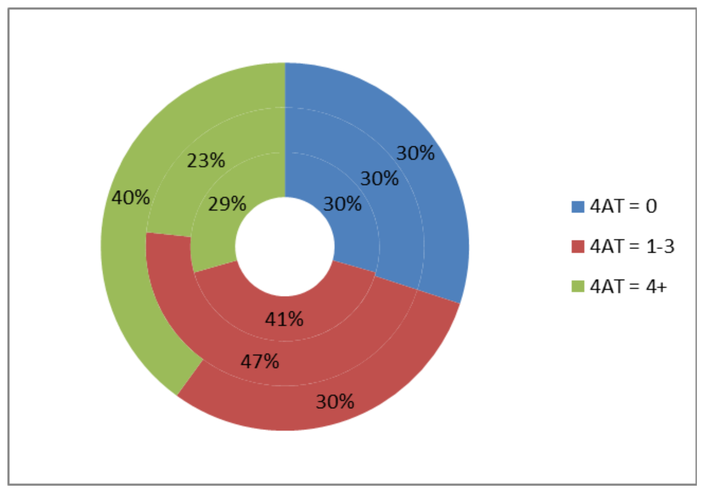
We calculated the sensitivity of 4AT in our sample at 84% for a score of 4 or more which is comparable to previous studies. [1] When we changed the cut-off to a score of 3 or more the sensitivity dropped to only 63% but specificity rose slightly from 85% to 88% meaning that slightly fewer cases would be missed by dropping the cut-off to a score of 3. We would argue that from our results, a cut-off of 3 would include a greater proportion of patients who may be at risk of developing delirium in the days following admission.

**Limitations**

The plot below shows the proportion of patients by age bracket and their 4AT designation. It is impossible to conjecture what the scores of those not completed would have been.

As the study was a snap shot on an individual day we do not know how many more patients would have developed delirium in subsequent days. A longer term study could clarify the degree to which sub threshold 4AT scores are predictive of delirium.

Donut plots: inner circle age 65-79, middle 80-89, outer 90+




Proportion of patients in age bracket with negative, positive or borderline 4AT scores

## REFERENCES

1. Shenkin S et al Delirium detection in older acute medical inpatients: a multicentre prospective comparative diagnostic test accuracy study of the 4AT and the confusion assessment method
2. NICE guidelines. www.nice.org.uk/guidance/cg103