



The Royal College of
Emergency Medicine

ASSESSING FOR COGNITIVE IMPAIRMENT IN OLDER PEOPLE

NATIONAL QUALITY IMPROVEMENT PROJECT

NATIONAL REPORT 2019/20

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Executive Summary

Overview

RCEM would like to thank every Emergency Department (ED) that participated in this Quality Improvement Project (QIP). Over a period of six months, the QIP has accumulated 23,374 cases from 185 emergency departments nationwide.

The purpose of this QIP was to monitor documented care against standards published in July 2019, and to facilitate improved care using QIP methodology like Plan, Do, Study, Act (PDSA) cycles and weekly data feedback. QIP methodology was promoted to encourage EDs to improve towards more consistent delivery of these standards and to help clinicians examine the work they do day-to-day, benchmarked against their peers, and to recognise excellence. Interventions were made at local level to improve care in the local context, and contribute to the overall national results.

Throughout this report, it is clear that emergency services and departments are facing high numbers of patients in this group.

Key Findings

Performance against the RCEM standards between August 2019 and January 2020 is summarised in the charts on the next page.

- Currently, only 16% of eligible patients had a documented assessment of cognitive impairment in the emergency department (11% in the previous RCEM audit)
- Cognitive impairment was found in around 40% of assessed patients
- The [Abbreviated Mental Test \(AMT\)](#) was the most commonly used assessment tool (41%) but in 30% of cases, an assessment tool was not used at all

- The [4AT Assessment test](#) for delirium and cognitive impairment was the next commonly used tool (16%)
- 16% of patients found to have cognitive impairment were assessed using a delirium bundle
- 47% of patients with identified cognitive impairment had this information included in their ED discharge letters

Conclusion

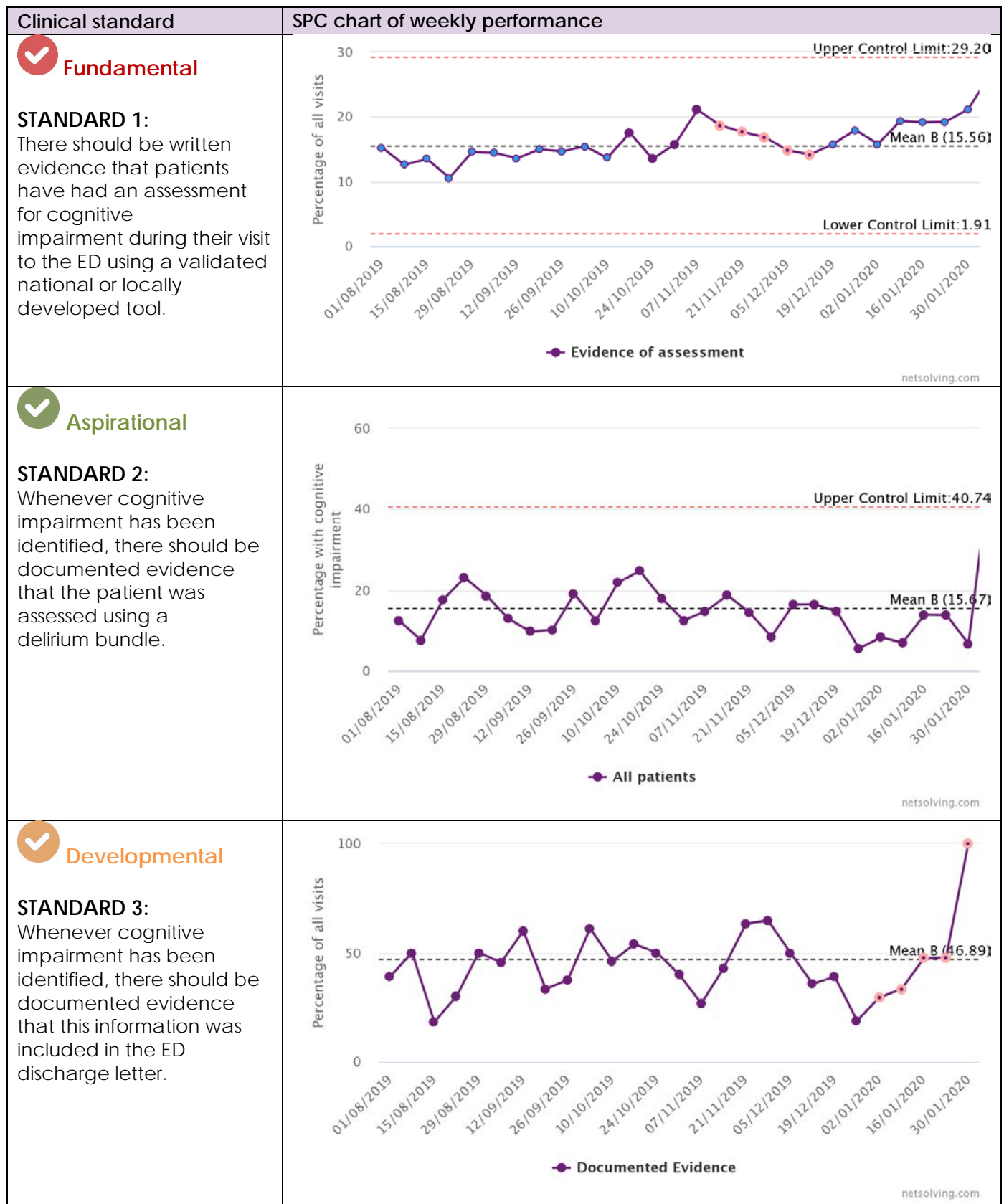
This report represents not just another large scale national QIP but the delivery of a shared platform providing QI tools and real time data with which individual departments can use to progress towards achieving the national standards. This has enabled individual departments the opportunity to make in year progress towards achieving the national standards.

Key recommendations

1. A cognitive assessment of patients ≥ 75 years using a validated tool whilst in the ED should be routine.
2. A cognitive assessment with a validated tool should be considered in those aged 65-74 presenting with a non-minor injury complaint.
3. The 4AT should be used to assess for both cognitive impairment and delirium.
4. There must be clear documentation of identified cognitive impairment and/or delirium to aid transfer of patient care.
5. The current '[Silver Book \(2012\)](#)' recommendations should be reviewed and updated.

Performance Summary

The below graphs show the weekly performance against the standards. See the appendices for a guide to interpreting these charts.



Foreword



Dr Katherine Henderson, RCEM President

The Royal College of Emergency Medicine recognises that there are increasing attendances by older patients to our departments and that we need to understand their needs to be able to give them the best service. By introducing a QIP of Assessing for Cognitive Impairment in Older People, we are acknowledging the challenge in UK Emergency Departments.

This builds on previous work by the College when we ran a single point audit in 2014/15 on the back of having published the Silver Book in 2012. QIPs help by allowing us to see the progress we have made in establishing appropriate standards and measures to ensure all patients with urgent cognitive impairment issues are as safe as possible in our Emergency Departments.

At the same time, it is evident that a number of challenges still remain in safeguarding these patients, and with timely review. As a College, we will continue to work with other agencies to ensure we best meet the needs of this group of vulnerable patients.

The College is dedicated to improving the quality of care in our Emergency Departments through these important QIPs, undertaking all obligations to ensure the best measures of patient safety are obtained.

The RCEM Quality Assurance and Improvement Committee are committed to continually evaluating the QIPs and improving them to best support you and improve patient care. We are aware that there are improvements we can make to strengthen local QI support, provide clearer data visualisation, and better communications. We welcome your feedback, ideas and experiences to help us.

*Dr Katherine Henderson,
RCEM President*

*Dr Simon Smith, Chair of Quality
in Emergency Care Committee*

*Dr Elizabeth Saunders, Chair of
Quality Assurance &
Improvement Subcommittee*

Introduction

Problem description

Delirium is an acute deterioration in mental functioning arising over hours or days that is triggered mainly by acute medical illness, surgery, trauma, or drugs¹.

Studies^{1,2} have shown that delirium is independently associated with an increased risk of:

- Death
- Institutionalisation
- Falls
- Increased length of hospital stay
- Medical complications

Delirium is present in 10-15% of older patients in the ED³. Delirium is underdiagnosed and the treatment is variable^{4,5,6}. One study reported that only 12-35% of delirium cases are recognised⁴.

Available knowledge

The national, multi-disciplinary document "Quality Care for Older People with Urgent and Emergency Care Needs" (the "Silver Book") in the UK, recommend assessment for delirium and dementia in emergency care⁷.

Both the National Institute for Health and Clinical Excellence (NICE)⁸ and the Scottish Intercollegiate Guidelines Network (SIGN)⁹ have published guidelines that include recommendations on the diagnosis and management of delirium.

[SIGN 157](#) was published in March 2019 and is the most current guideline building on the recommendations of [NICE 103](#) that recommended development of new assessment tools.

Recommendations from SIGN 157 relevant to the ED are:

- The 4AT tool should be used for identifying patients with probable delirium in the emergency department and acute hospital settings (Appendix 1).

- Where delirium is detected, the diagnosis should be clearly documented to aid transfers of care.
- Healthcare professionals should follow established pathways of good care to manage patients with delirium.

The 4AT (www.the4at.com) is a validated screening tool¹² for both delirium and cognitive impairment that has been adopted by the National Hip Fracture Database, the Scottish Hip Fracture audit and NEWS2 to identify cognitive impairment. No training is required for use and it can be used by any health professional.

Rationale

The Quality Improvement Project (QIP) will track the current performance in EDs against clinical standards in individual departments and nationally on a real time basis over a 6-month period. The aim is for departments to be able to identify where standards are not being reached so they can do improvement work and monitor real time change.

The project will focus on:

- Assessment for cognitive impairment during a visit to the ED
- Documentation of identified cognitive impairment in the ED
- Assessment using an established pathway when cognitive impairment is identified

National drivers

- Delirium is independently associated with an increased risk of death and length of hospital stay.
- Delirium is present in 10-15% of older patients in ED and is underdiagnosed.
- RCEM [Assessing for Cognitive Impairment in Older People audit 2014-15](#) reported that only 11% of patients >75 years old had been screened.
- SIGN 157 recommends the 4AT tool should be used for identifying patients with probable delirium in the emergency department and acute hospital settings.

Specific objectives

This is the first time RCEM has run a national QIP on this topic, although there has previously been a national clinical audit on this topic.

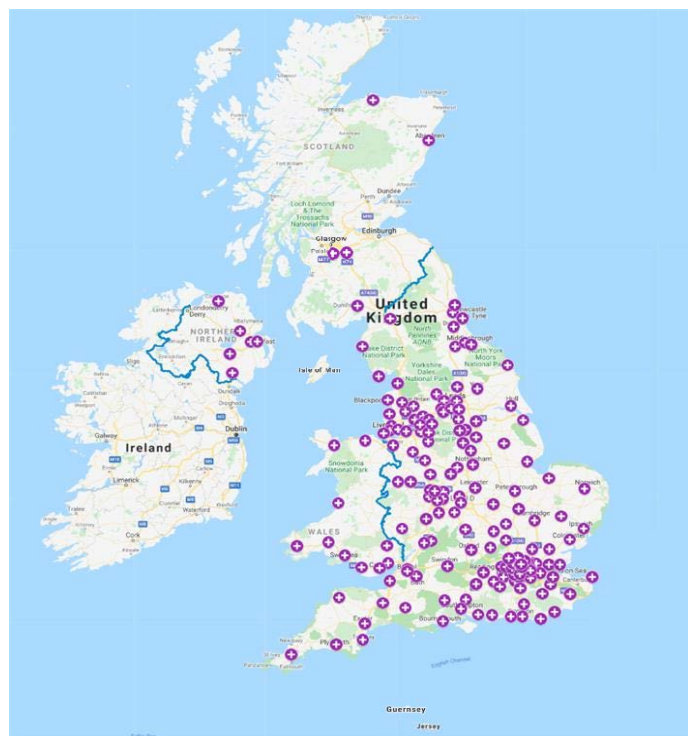
The objectives of the QIP were:

- To identify current performance in EDs against clinical standards and show the results in comparison with performance nationally and in the ED's country in order to facilitate quality improvement.
- To empower and encourage EDs to run quality improvement (QI) initiatives based on the data collected and assess the impact of the QI initiative on their weekly performance data.
- To encourage individual ED's to apply interventions in their local context to improve and enhance clinical care in line with national standards and guidance.
- To provide a national overview which can capture improvements in real time.

Methodology

Context

Nationally, **23,374** cases from **185** EDs were included in the QIP. Click the map below to open an interactive map of participating EDs.



Country	Number of relevant EDs	Number of cases*
National total	185/229 (81%)	23374
England	164/176 (93%)	21054
Scotland	5/28 (18%)	556
Wales	9/13 (69%)	1134
Northern Ireland	7/9 (78%)	630
Isle of Man/ Channel Islands	0/3 (0%)	0
*analysis includes complete cases only		

Inclusion criteria

Patients must meet the following criteria for inclusion:

- Presenting to a type 1 ED
- Patients **aged ≥65 years**
- **Glasgow Coma Scale (GCS) ≥ 13**
- **NEWS2 score ≤ 4 or under** (or your department's equivalent for a low or low-medium clinical response if NEWS2 is not used)

Exclusion criteria

Do not include patients:

- Not presenting to a type 1 ED
- Patients **aged <65 years**
- **Glasgow Coma Scale <13**
- **NEWS2 score >5** (or your department's equivalent for a medium/high clinical response if NEWS2 is not used)

Notes on inclusion/exclusion criteria

For this QIP we have used the generally accepted age of an older person being ≥65 years. This contrasts with age >75 used in the RCEM [Assessing for Cognitive Impairment in Older People audit 2014-15](#).

The focus on managing immediate risk to life and limb may give priority to making decisions about a patient quickly without formally assessing their cognitive state. Patients with GCS scores less than 13 or NEWS2 over 5 (or equivalent for a medium/high clinical response) are excluded for this reason. If your ED does not use NEWS2, please refer to the [NEWS2 thresholds and triggers](#) (11) to find the equivalent using your ED's system.

Intervention(s)

All Type 1 EDs in the UK were invited to participate in June 2019. Data were submitted using an online data collection portal. The QIP was included in the NHS England Quality Accounts list for 2019/2020.

Participants were asked to collect data from ED patient records on cases who presented to the ED between 1 August 2019 – 31 January 2020.

See Appendix 1 for the questions and the standards section of this report for the standards.

Recommended sampling

To maximise the benefit of the new run charts and features, RCEM recommended entering 5 consecutive cases per week. This enabled contributors to see their EDs performance on key measures, any changes week by week and visualise any shifts in the data following a quality intervention (PDSA cycle).

The sample of 5 cases per week was recommended based on the average 6-monthly attendance for a Type 1 ED (quarter 3 and quarter 4 [A&E Attendances and Emergency Admissions 2019-20 data](#), NHS England and Improvement). The sample size calculation was based on a 95% confidence level and 8% margin of error, as a higher margin of error is acceptable for a QIP than a research study.

Expected patient numbers	Recommended sample size	Recommended data entry frequency
<5 a week	All patients	Weekly
>5 a week	5 patients	Weekly

Alternative sampling

In some cases, EDs found weekly data entry too onerous. Departments were provided guidance on an alternative methodology of entering monthly data instead. The system recorded each patient's arrival date and automatically split the data into weekly arrivals, thereby preserving the benefit of seeing weekly variation.

Expected patient numbers	Alternative sample size	Alternative data entry frequency
<5 a week	All patients	Monthly
>5 a week	20 patients	Monthly

Study of the intervention

By running this as a QIP, it attempted to improve practice by providing real-time feedback and introducing an integrated PDSA tool. We measured the interventions and change in practice for the standards using weekly SPC charts. These and other charts can be found on your personalised dashboard on the RCEM's Quality Improvement Project portal with more detail in the RCEM Quality Improvement guide (June 2020).

Measures

As this was the first time this topic has been run as a continuous QIP for the main standards, RCEM did not specify particular QI measures but embedded the ability for individual departments to identify their own local outcome, process and balancing measures. The national level data provides a benchmark for the national picture so individual units who are below the mean figure can take steps to improve.


The standards used were published by RCEM in July 2019:


STANDARD	GRADE
1. There should be written evidence that patients have had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool.	Fundamental
2. Whenever cognitive impairment has been identified, there should be documented evidence that the patient was assessed using a delirium bundle.	Aspirational
3. Whenever cognitive impairment has been identified, there should be documented evidence that this information was included in the ED discharge letter.	Developmental

Definitions

Standard	Definition
Standard 1: validated national or locally developed tool	<p>Validated national tools are:</p> <ul style="list-style-type: none"> • 4AT – Arousal, Attention, Abbreviated Mental Test 4 • 6-CIT – Six Item Cognitive Impairment Test • AMT – Abbreviated Mental Test • CAM – Confusion Assessment Method • DSD – delirium superimposed on dementia • DRS-98-R – Delirium Rating Scale • DOS - Delirium Observation Screening Scale • ICDSC – Intensive Care Delirium Screening Checklist • Nu-DESC – Nursing Delirium Screening Scale • MMSE – Mini Mental State Examination • RADAR – Recognising Acute Delirium As part of your Routine • mRASS – Modified Richmond Agitation-Sedation Scale • SQiD – Single Question to Identify Delirium <p>Locally developed tools that have been validated are also acceptable.</p>

Understanding the different types of standards

 **Fundamental:** need to be applied by all those who work and serve in the healthcare system. Behaviour at all levels and service provision need to be in accordance with at least these fundamental standards. No provider should provide any service that does not comply with these fundamental standards, in relation to which there should be zero tolerance of breaches.

 **Developmental:** set requirements over and above the fundamental standards.

 **Aspirational:** setting longer term goals.

Analysis

The 2019/20 RCEM Assessment for Cognitive Impairment in Older People Quality Improvement Project focussed on three standards. At least a minimum amount of information must be provided based on each standard to show improvement or decline in the SPC charts. Further details can be located in Appendix 4.

Ethical considerations

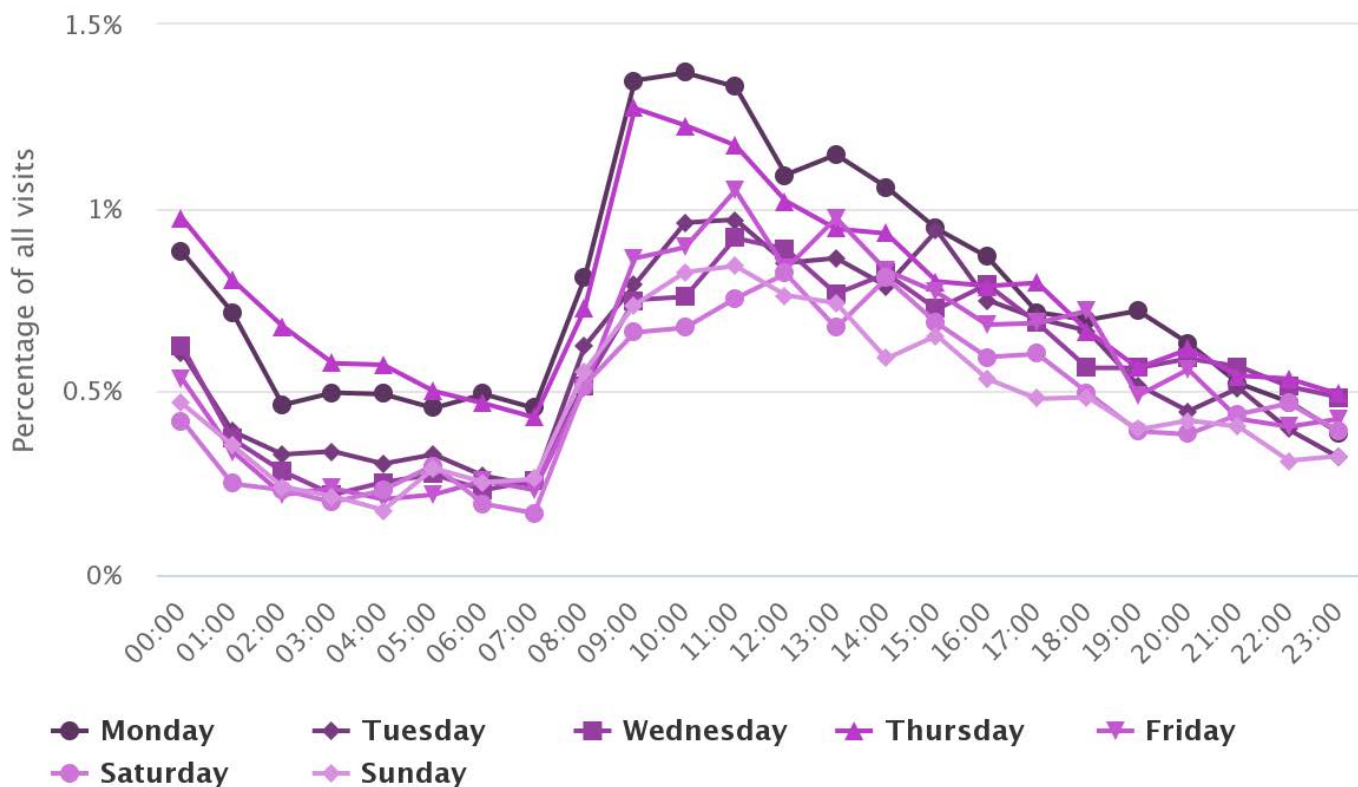
Participants were asked NOT to include any patient identifiable data in their submissions.

RESULTS

Section 1: Casemix

National casemix of the patients

Day and time of arrival



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Sample: All patients (n=23,374)

This chart shows when patients were documented as arriving at the Emergency Department.

STANDARD 1: There should be written evidence that patients have had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool

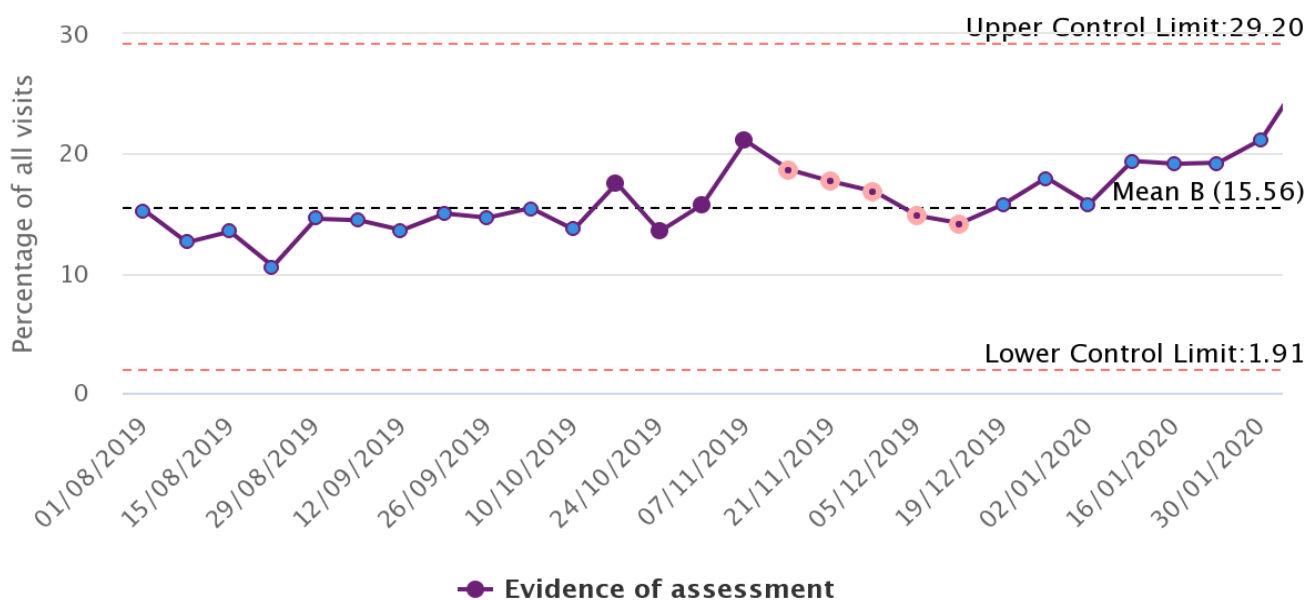
Understanding this data

What questions were used for this analysis?

- Q2.1: Did a cognitive assessment take place whilst the patient was in the ED?
- Q2.2: Assessment tool used



Fundamental standard



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Sample: All patients (n=23,374)

This chart shows patients whose care met the standard by having an assessment for cognitive impairment using a *validated* national or locally developed tool during their visit to the emergency department. This does not include patients who had an assessment (Q2.1) but no validated tool was used (Q2.2).

The chart highlights an increase from mid-December with the run of data points consistently above the mean showing a consistent national improvement in meeting the standard.

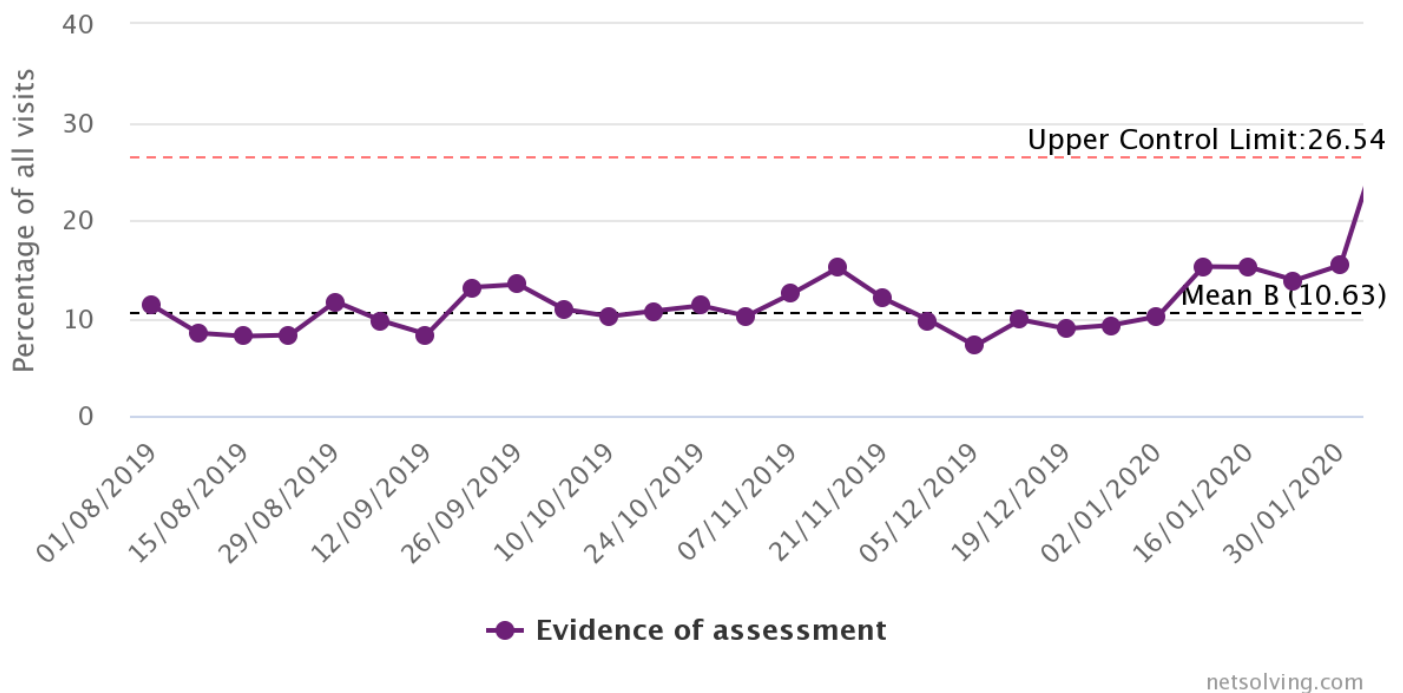
The next two charts show this data broken down by patient age to see whether there is a difference in the quality of care between patients aged 65-74 years, and patients aged 75+ years.

Patients aged 65-74: Written evidence that patients have had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool

Understanding this data

What questions were used for this analysis?

- Q1.3: Age of patient on attendance
- Q2.1: Did a cognitive assessment take place whilst the patient was in the ED?
- Q2.2: Assessment tool used



Sample: Age 65-74 (n=7353)

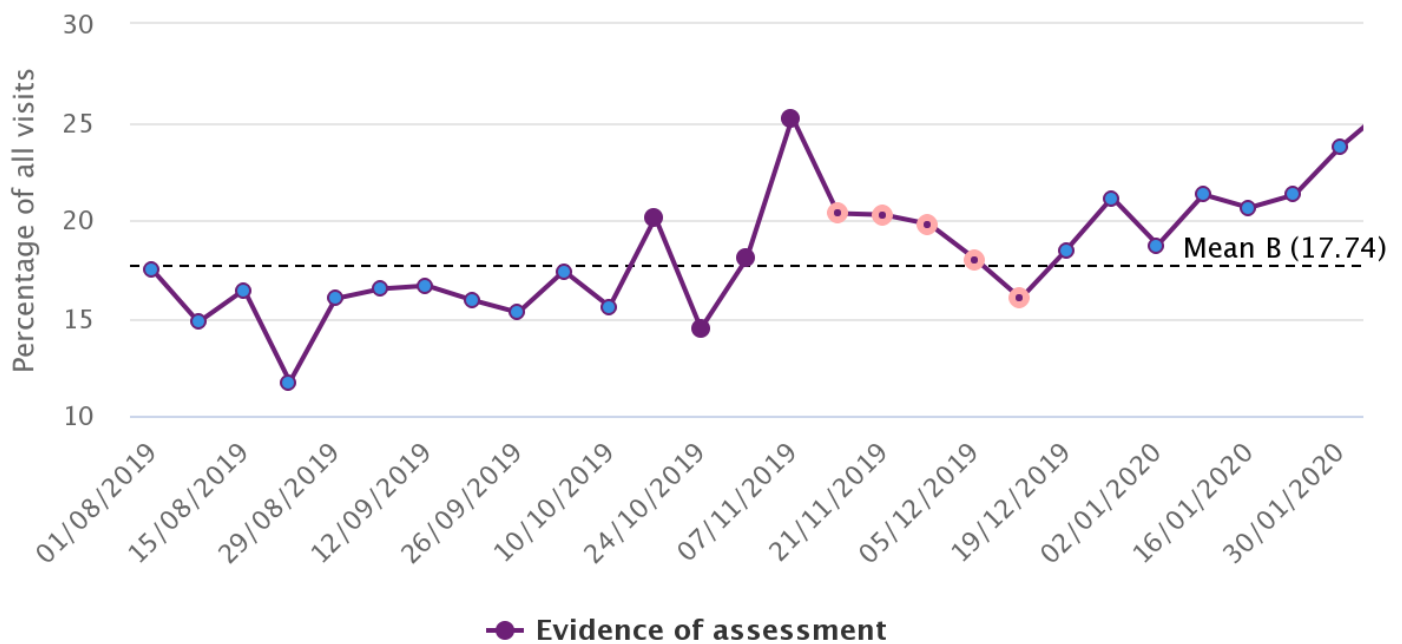
This chart shows patients aged 65-74 who had an assessment for cognitive impairment using a validated national or locally developed tool during their visit to the emergency department.

Patients aged 75+: Written evidence that patients have had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool

Understanding this data

What questions were used for this analysis?

- Q1.3: Age of patient on attendance
- Q2.1: Did a cognitive assessment take place whilst the patient was in the ED?
- Q2.2: Assessment tool used



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Sample: Age 75+ (n=16,021)

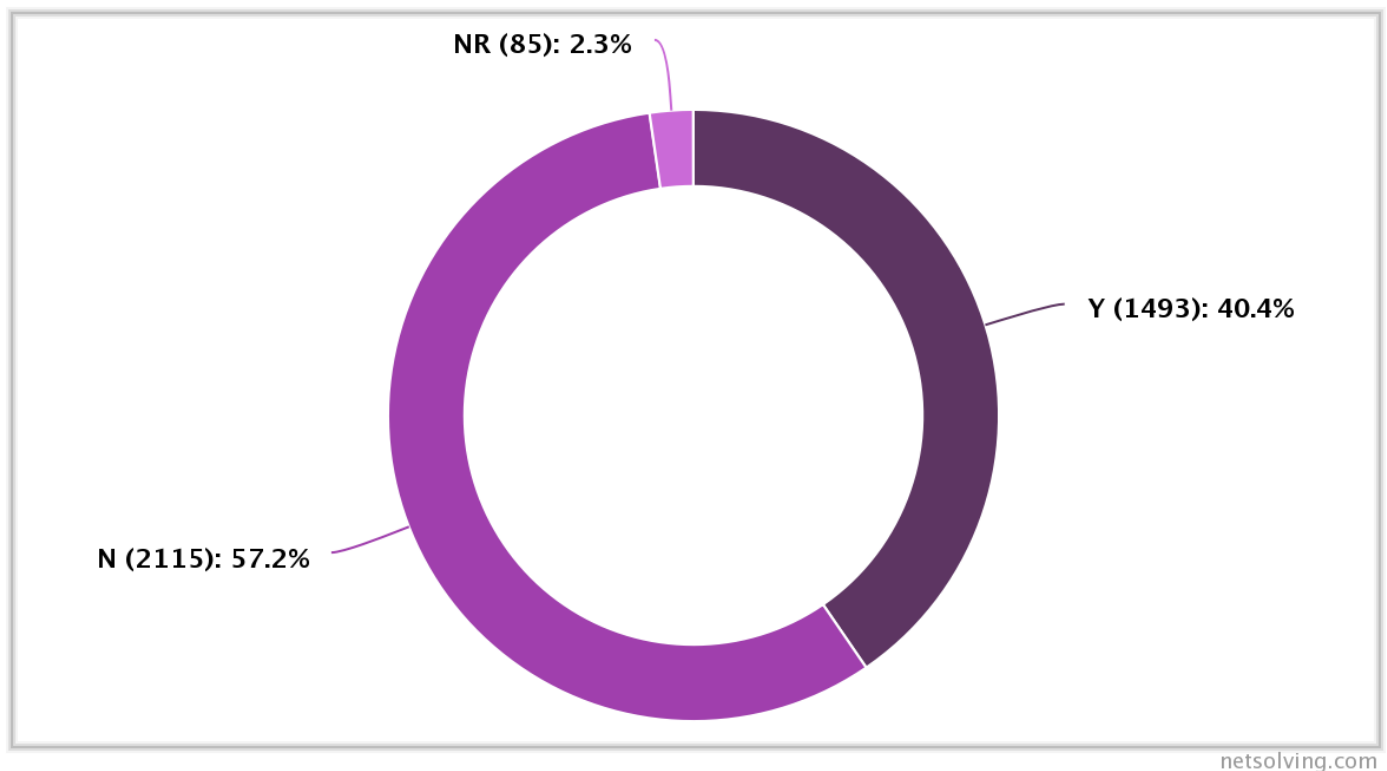
This chart shows patients aged 75+ who had an assessment for cognitive impairment using a validated national or locally developed tool during their visit to the emergency department.

Outcome of assessment for cognitive impairment

Understanding this data

What questions were used for this analysis?

- Q2.1: Did a cognitive assessment take place while the patient was in the ED?
- Q2.3: Was cognitive impairment identified?



Sample: Patients for whom a cognitive assessment using a validated tool took place in the ED

Y = Yes

N = No

NR = Not Recorded

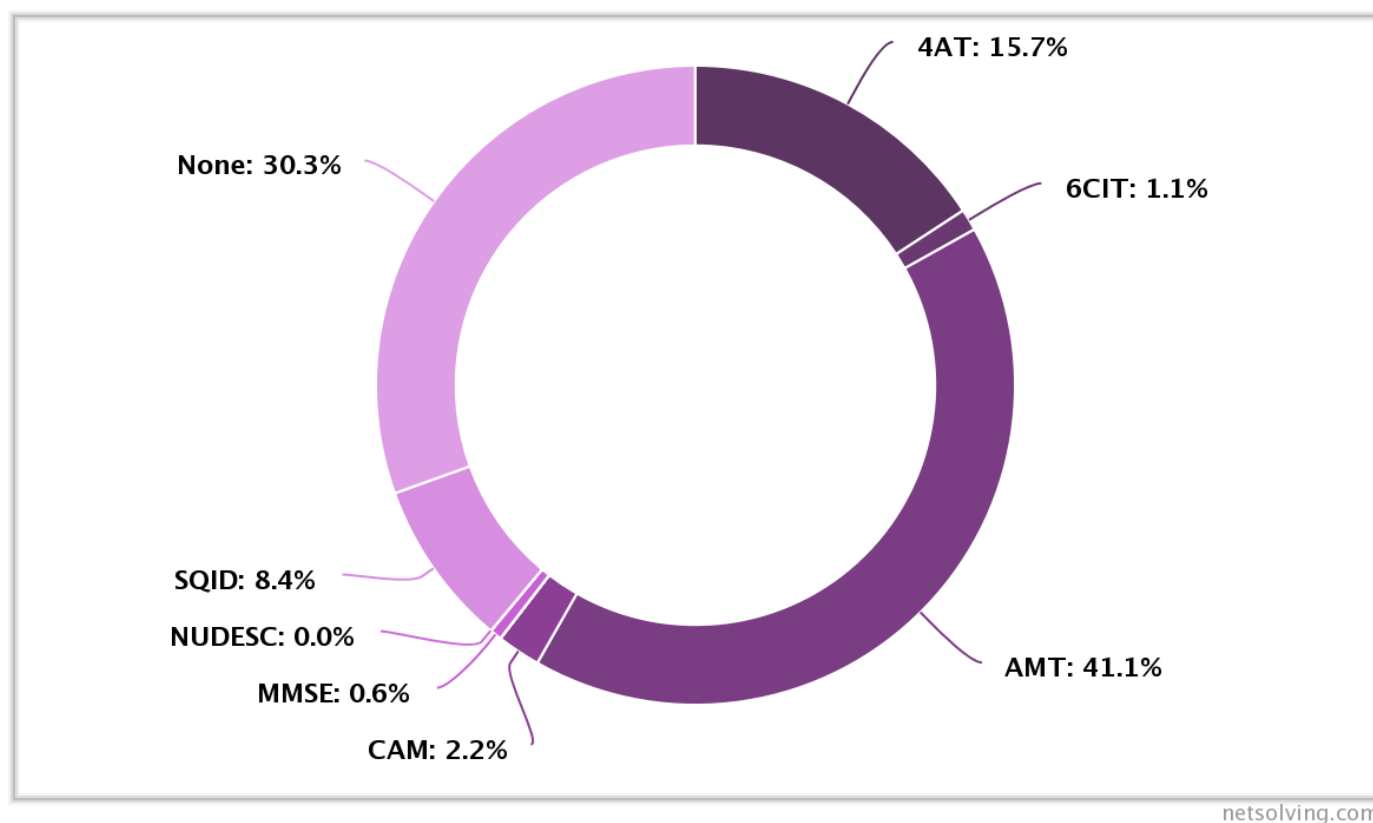
This chart shows that cognitive impairment had been identified in over 1/3 of assessed patients while it had not been identified in under 2/3 of patients. It was not clear whether cognitive impairment had been identified in a small percentage of patients as this detail was not recorded.

Tools used for cognitive assessment

Understanding this data

What questions were used for this analysis?

- Q2.1: Did a cognitive assessment take place whilst the patient was in the ED?
- Q2.2: Please select assessment tool used.



Sample: All patients who had a cognitive assessment while in the ED

This chart shows that AMT was the most commonly used tool (41%). In 30% of cases, a tool had not been used. Other tools used were 4AT, SQID, CAM, 6CIT and MMSE. The NUDESC tool was not used at all.

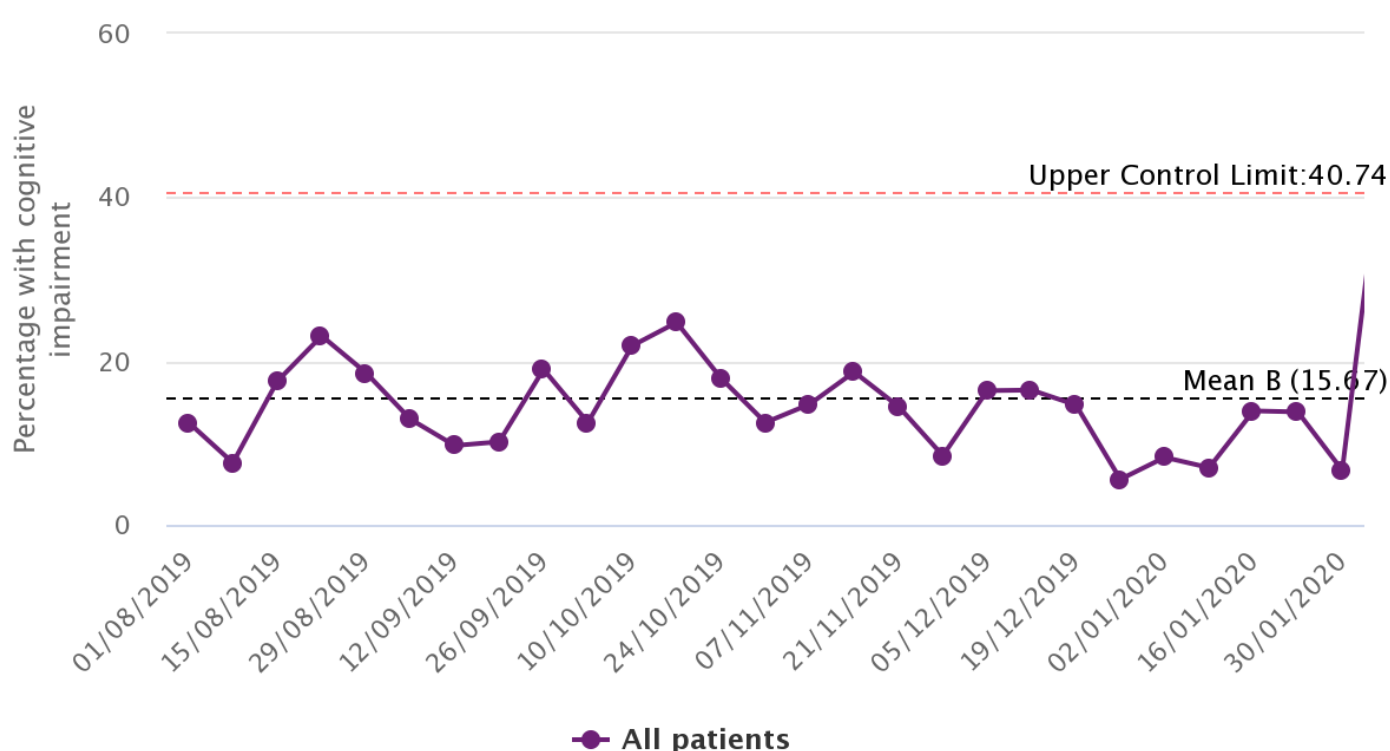
STANDARD 2: Whenever cognitive impairment has been identified, there should be documented evidence that the patient was assessed using a delirium bundle

Understanding this data

What questions were used for this analysis?

- Q1.3: Age of patient on attendance
- Q2.3: Was cognitive impairment identified?
- Q3.1: Is there documented evidence that the patient was assessed using a delirium bundle?

Aspirational standard



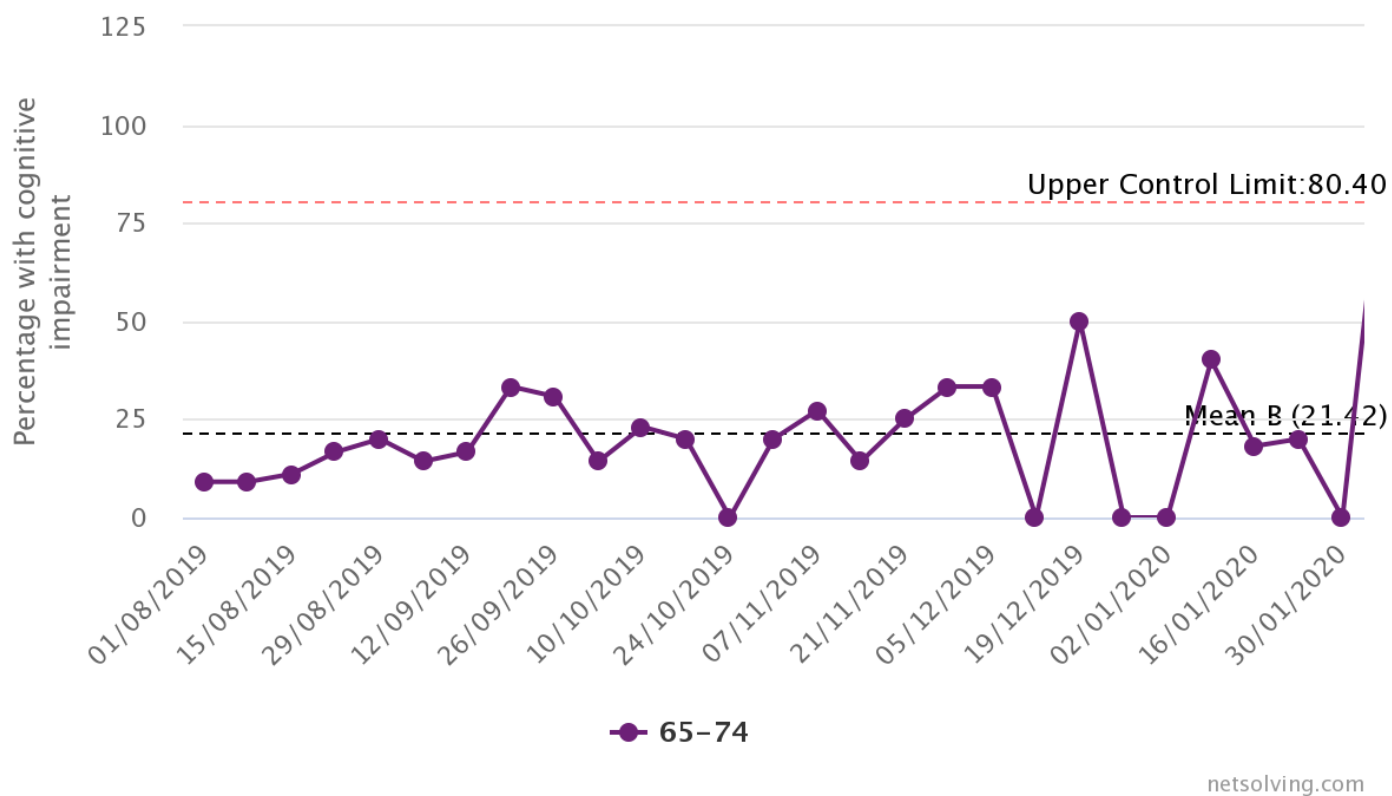
Sample: Cognitive impairment identified using validated or non-validated tool (279 records conforming to standard from a total of 1978 eligible*)

We collected optional responses (n=126) on the delirium bundle used to assess the patient. The most frequently reported were AMT and 4AT. Other less frequently reported bundles included Falls Assessment, Delirium Bundle, CAM, MMSE, AMT4, STAR, SIS, ICLIP, TIME, WWH Delirium, CGA, MOCA, PICHME, GCS and SQID.

Some of the entries e.g. 4AT, are not recognised delirium bundles which would suggest that departments may be unfamiliar with these. We have included the TIME bundle (Appendix 10) as an exemplar of a recognised delirium bundle.

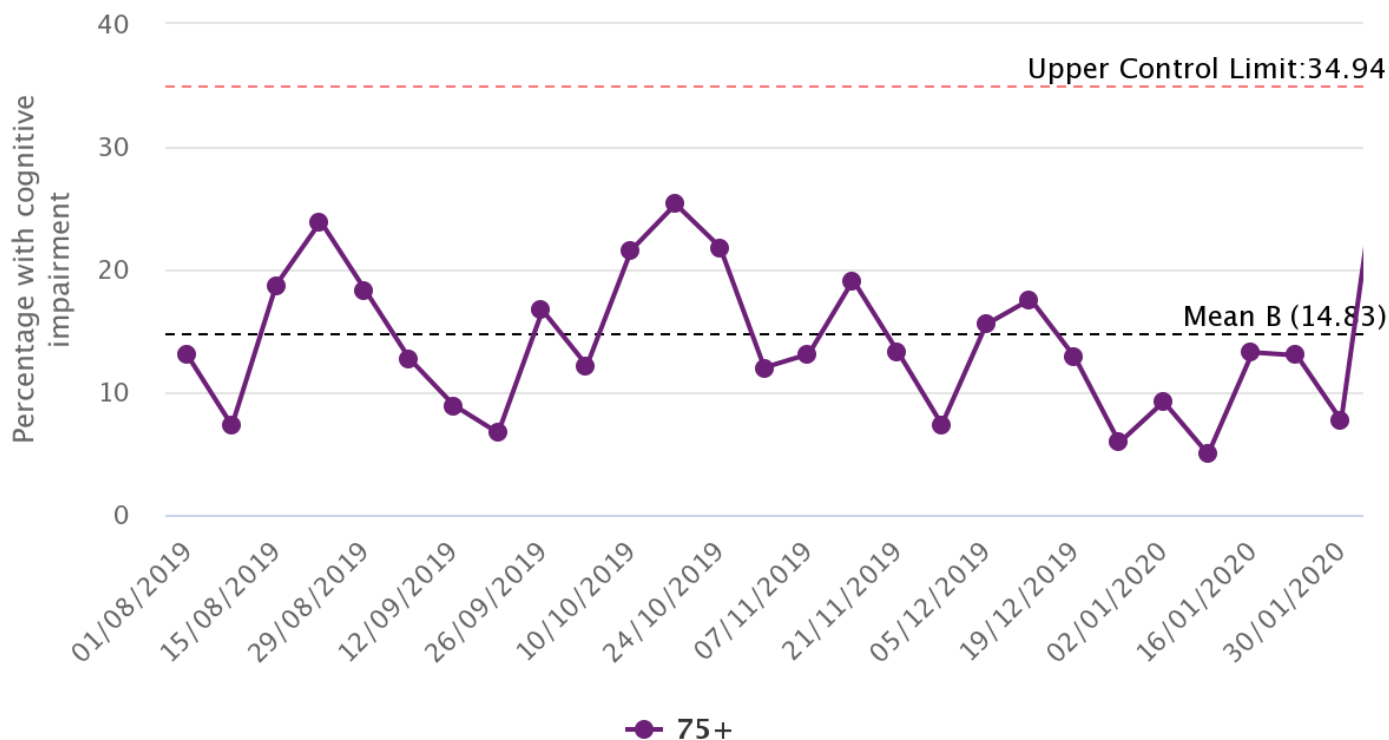
*Note that the national sample above is higher than the number of patients where a cognitive impairment was identified on page 17, as that analysis excluded those patients in whom the cognitive impairment was not identified using a validated tool. All patients with an identified cognitive impairment are included here.

Patients aged 65-74: Whenever cognitive impairment has been identified, there should be documented evidence that the patient was assessed using a delirium bundle



39 records conforming to standard from a total of 218 eligible (cognitive impairment identified)

Patients aged 75+: Whenever cognitive impairment has been identified, there should be documented evidence that the patient was assessed using a delirium bundle



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240 records conforming to standard from a total of 1760 eligible

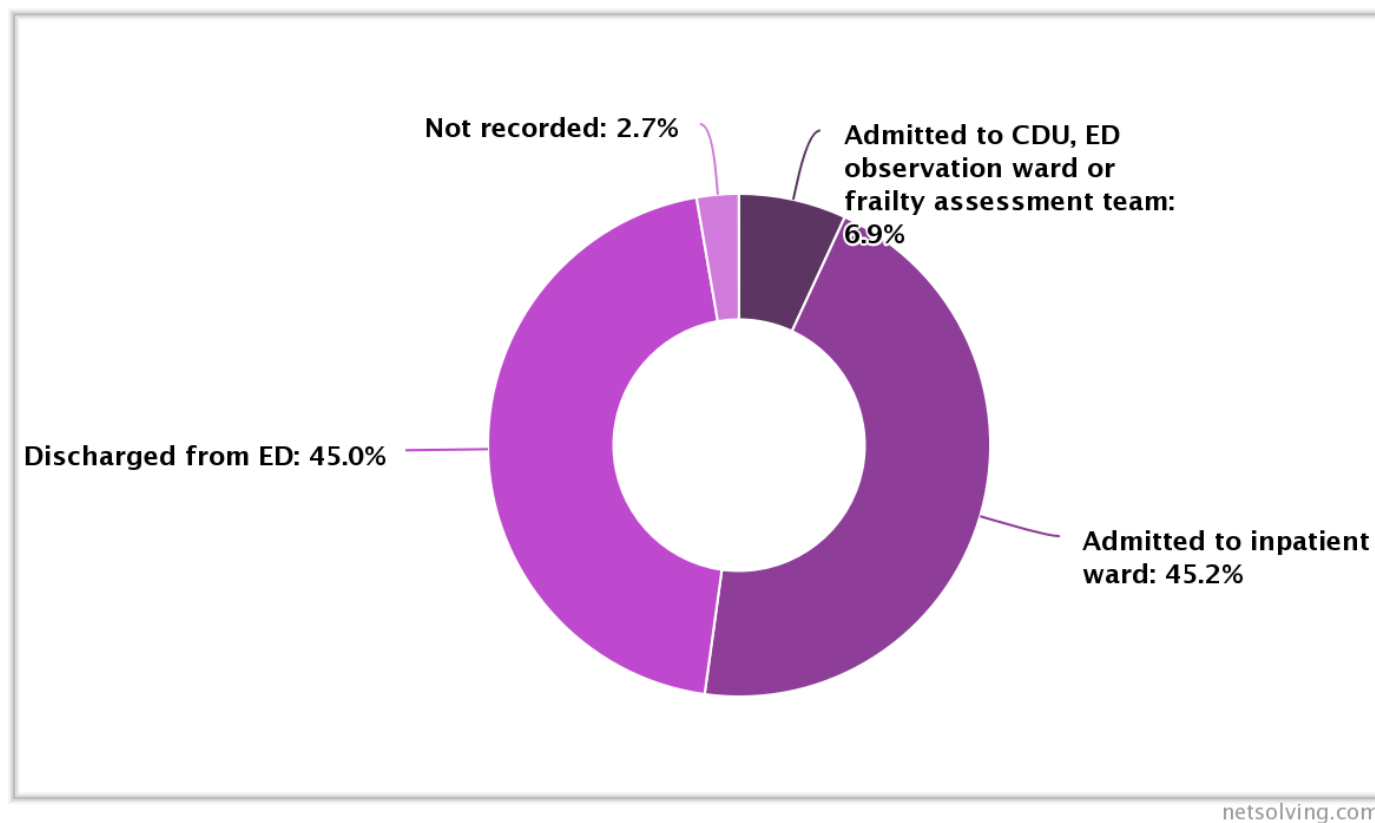
Both this chart and the chart on the previous page show the use of a delirium bundle in the 65-74 and 75+ age brackets respectively. Overall 16% of this group were assessed using a delirium bundle (e.g. TIME bundle in Appendix 10) to help guide investigation and management.

Patient admission / discharge outcomes

Understanding this data

What questions were used for this analysis?

- Q4.1: Was the patient admitted or discharged?



n=23,374 (all patients)

This chart shows the discharge destination of all patients included in the QIP.

STANDARD 3: Information about identified cognitive impairment in ED discharge letter

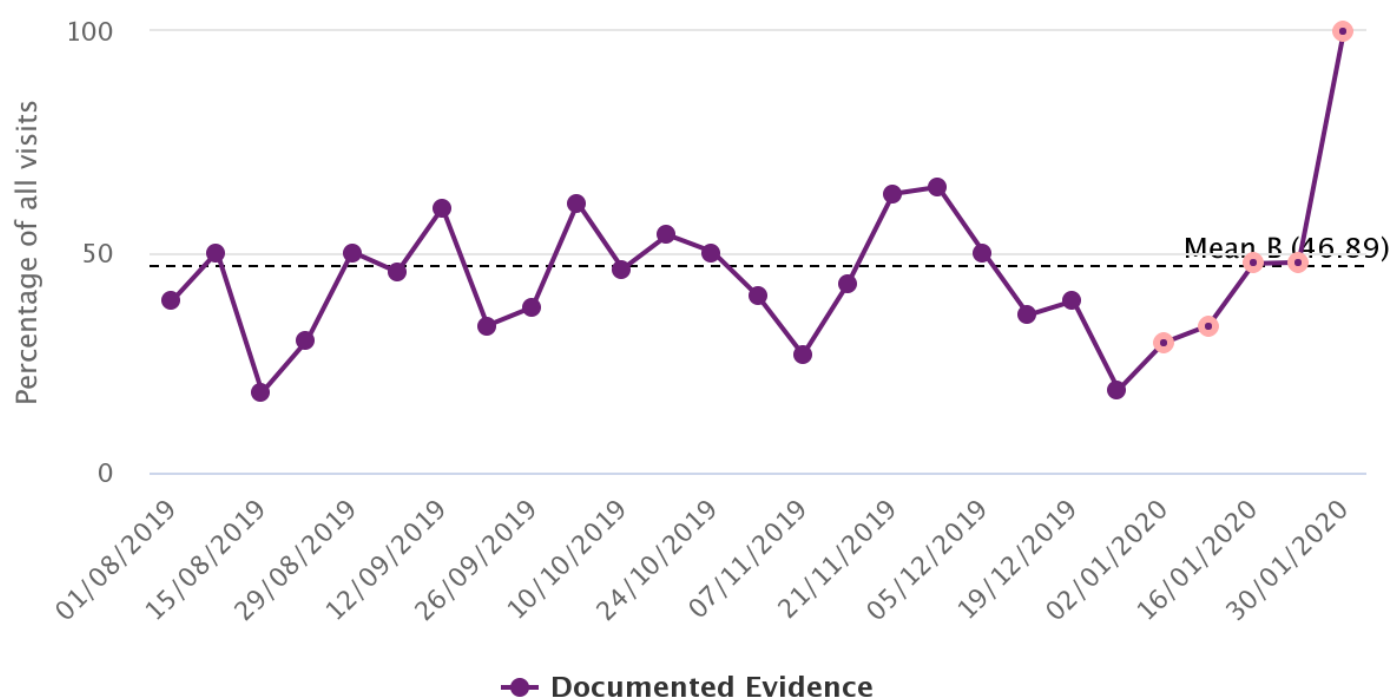
Understanding this data

What questions were used for this analysis?

- Q2.3: Was cognitive impairment identified?
- Q4.1: Was the patient admitted or discharged?
- Q4.2: Is there any documented evidence of the cognitive assessment results being shared with the GP?
- Q4.3: Is there any documented evidence of the cognitive assessment results being shared with the carer?



Developmental standard



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Sample: n=385 patients (cognitive impairment identified and patient discharged)

This chart shows that around 47% of patients with identified cognitive impairment had this information included in their emergency department discharge letter.

The chart highlights an increase on meeting the standard nationally from the beginning of January.

Discussion

Summary

This QIP considered 23,374 cases in 185 UK EDs. Concern exists that cognitive impairment still remains underdiagnosed with only 16% of patients having an assessment for cognitive impairment during their visit to the ED (11% 65-74 being screened and 18% of ≥75 being screened). The last time this topic was looked at by RCEM, the median for patients ≥75 having a cognitive assessment was 11% ([Assessing for Cognitive Impairment in Older People audit 2014-15](#)). There has been a slight improvement, however, there is still a lot of improvement required to meet this standard.

When assessing for cognitive impairment, the Abbreviated Mental Test (AMT) tool was most commonly used followed by the 4AT (Appendix 9). We wonder if unfamiliarity with the 4AT and a perception that cognitive assessment takes too long leads to the notion that it is not feasible in the ED.

Notably, the 4AT provides screening for delirium, and also for general cognitive impairment in a single tool. It is validated for delirium assessment (including in the ED), with a recent meta-analysis of 3701 observations in 17 studies finding a sensitivity of 88% and a specificity of 88%¹⁴. The bedside components of the 4AT take no longer than the AMT, perform comparably to the AMT for general cognitive assessment^{15,16,17} and has evidence supporting its use for this purpose in the ED¹⁸.

We also considered that perhaps the independent association with an increased risk of death was under appreciated and other conditions were perceived as a higher priority by clinicians.

Whilst not true in all areas, cognitive assessment can be viewed as a task that is undertaken by nursing staff. We wonder if there is a need to reflect within teams as to whose responsibility it is and shift focus to it

being something we can all do. Apps allowing calculation of the 4AT are widely available and take less than a minute to complete.

For patients in whom cognitive impairment was identified, only 16% have recorded use of a delirium bundle to help guide investigations and management. Locally developed tools exist in many areas, with the TIME bundle being advocated in Scotland (see Appendix 10). We would encourage EDs to consider using these delirium bundles for this patient group to avoid over or under investigation.

Where a cognitive impairment has been identified, this information has been included in the ED discharge letter for 47% of patients which is encouraging but there is still room for improvement.

RCEM would like to extend thanks to all the individuals and EDs who participated in this QIP. By participating, you have made the first step to making sustainable changes in care – and a lot of you have made many more steps depending how extensively you made use of the PDSA capabilities of the portal.

The results of this QI project should be shared widely with staff who have a responsibility for looking after this patient group, especially the clinicians directly involved in care provision. In addition to the clinical team, RCEM recommend sharing the report with the clinical audit and/or quality improvement department, departmental governance meeting, ED Clinical Lead, Head of Nursing and Medical Director as a minimum. Without having visibility of the data and recommendations we cannot expect to see improvements in practice.

Now that EDs have a six-month picture of their weekly performance on key measures, RCEM encourages the clinical team and quality improvement department to work together to review the effectiveness of PDSA cycles

already completed, and design further cycles to improve performance where the data shows they are required. Engaging staff in the process of action planning and PDSA cycles will lead to more effective implementation and sustainable improvements. The RCEM portal will remain live so that departments can continue to track their performance and evaluate the effects of further PDSA cycles.

For further QI advice and resources, please visit the [RCEM Quality Improvement webpage](#)

Conclusions

Despite the low numbers of older people being screened for cognitive impairment in the ED, it is an exciting time as new assessment tools emerge that are more feasible for use in the ED.

Research advances have been made since the publication of the '[Silver Book \(2012\)](#)' and there is now a greater evidence base from which to make recommendations.

There is a want in the EM community to improve upon the performance described in this report. We believe that continuing PDSA cycles as well as evidence-based recommendations from the RCEM aligning with the other national organisations would be welcomed and help drive the improvements that we need to see for our older population.

Key recommendations

Recommendations – patient level

1. A cognitive assessment of patients ≥ 75 years using a validated tool whilst in the Emergency Department should be routine.
2. A cognitive assessment with a validated tool should be considered in those aged 65-74 presenting with a non-minor injury complaint.
3. The 4AT should be used to assess for both cognitive impairment and delirium.
4. There must be clear documentation of identified cognitive impairment and/or delirium to aid transfer of patient care.

Recommendations – organisational

5. The current 'Silver Book (2012)' recommendations should be reviewed and updated.

Further Information

Thank you for taking part in this QIP. We hope that you find the process of participating and results helpful.

If you have any queries about the report, please e-mail audit@rcem.ac.uk.

Details of the RCEM national QIP Programme can be found under the [Current Audits section of the RCEM website](#).

Feedback

We would like to know your views about this report and participating in this QIP. Please let us know what you think by completing our feedback survey:

https://www.surveymonkey.co.uk/r/RCEM_QIP19

We will use your comments to help us improve our future topics and reports.

Useful Resources

- Site-specific report – available to download from the [QIP portal](#) (registered users only)
- Online dashboard charts – available from the [QIP portal](#) (registered users only). The dashboard remains open after the end of the national QIP project so you can keep monitoring local performance and doing PDSA cycles.
- Local data file – available from the [QIP portal](#) (registered users only)
- [Guidance on understanding SPC charts](#)
- [RCEM Quality Improvement Guide](#) – guidance on PDSA cycles and other quality improvement methods
- [RCEM Learning modules](#) on cognitive impairment

Report authors and contributors

This report is produced by the [Quality Assurance and Improvement Committee](#) subgroup of the [Quality in Emergency Care Committee](#), for the [Royal College of Emergency Medicine](#).

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- Net Solving – technical partner providing the data entry portal and dashboard

Appendices

Appendix 1: QIP questions

Case mix

1.1	Reference (do not enter patient identifiable data)	
1.2	Date and time of arrival or triage – whichever is earlier	dd/mm/yyyy HH:MM
1.3	Age of patient on attendance	65-69
		70-74
		75-79
		80-84
		85-89
		90-94
		95-99
		≥100

Cognitive assessment

2.1	Did a cognitive assessment take place whilst the patient was in the ED?	Yes dd/mm/yyyy HH:MM
		No – unable to assess due to patient's medical condition
		No – unable to assess due to language barrier
		No – other documented reason
		Not recorded
2.2	If Q2.1 = yes Please select assessment tool used	4AT (The 4'A's Test)
		6-CIT (6 item Cognitive Impairment Test)
		AMT (Abbreviated Mental Test)
		CAM (Confusion Assessment Method)
		DOS (Delirium Observation Screening Scale)
		DRS-98-R (Delirium Rating Scale)
		DSD (delirium superimposed on dementia)
		ICDSC (Intensive Care Delirium Screening Checklist)
		MMSE (Mini Mental State Examination)
		mRASS (Modified Richmond Agitation-Sedation Scale)
		Nu-DESC (Nursing Delirium Screening Scale)
		RADAR (Recognising Acute Delirium As part of your Routine)
		SQID (Single Question to Identify Delirium)
		Other (please state) _____

		No validated tool was used
2.3	If Q2.1 = yes Was cognitive impairment identified?	Yes
		No
		Not recorded

Cognitive impairment identified (only applicable if 2.3 = yes)

3.1	Is there documented evidence that the patient was assessed using a delirium bundle?	Yes No Optional: bundle used _____
3.2	Is there documented evidence that the discharge letter included the identification of a cognitive impairment?	Yes No – the discharge letter did not include the cognitive impairment No – a discharge letter was not sent
3.3	Documented interpretation of score	Normal
		Abnormal – usual level
		Abnormal – new onset or deterioration
		Abnormal – not specified
		Not recorded

Discharge

4.1	Was the patient admitted or discharged?	Admitted to inpatient ward
		Admitted to CDU, ED observation ward or frailty assessment team
		Discharged from ED
		Not recorded
Is there any documented evidence of the cognitive assessment results being shared with the following?		
4.2	GP	Yes
		Not recorded
		Not applicable
4.3	Carer	Yes
		Not recorded
		Not applicable

Notes

Optional space to record any additional notes for local use. Entries here will not be analysed by RCEM.

Definition for questions

Question	Definition
Q4.3: Carer	This includes formal carers, friends or relatives, nursing home, care home, rehab or similar.
Q2.2: Assessment tool	<p>Validated national tools are:</p> <ul style="list-style-type: none"> • 4AT – Arousal, Attention, Abbreviated Mental Test 4 • 6-CIT – Six Item Cognitive Impairment Test • AMT – Abbreviated Mental Test • CAM – Confusion Assessment Method • DOS - Delirium Observation Screening Scale • DRS-98-R – Delirium Rating Scale • DSD – delirium superimposed on dementia • ICDSC – Intensive Care Delirium Screening Checklist • mRASS – Modified Richmond Agitation-Sedation Scale • MMSE – Mini Mental State Examination • Nu-DESC – Nursing Delirium Screening Scale • RADAR – Recognising Acute Delirium As part of your Routine • SQiD – Single Question to Identify Delirium <p>Locally developed tools that have been validated are also accepted, please select 'Other' if a validated locally developed tool was used.</p>

Appendix 2: Participating Emergency Departments

England

Addenbrooke's Hospital
 Aintree University Hospital
 Airedale General Hospital
 Alexandra Hospital
 Arrowe Park Hospital
 Barnet Hospital
 Barnsley Hospital
 Basildon University Hospital
 Basingstoke & North Hampshire Hospital
 Bassetlaw Hospital
 Bedford Hospital
 Blackpool Victoria Hospital
 Bradford Royal Infirmary
 Bristol Royal Infirmary
 Broomfield Hospital
 Calderdale Royal Hospital
 Charing Cross Hospital
 Chelsea & Westminster Hospital
 Cheltenham General Hospital
 Chesterfield Royal Hospital
 Chorley & South Ribble Hospital
 City Hospital
 Colchester General Hospital
 Conquest Hospital
 Countess of Chester Hospital
 County Hospital
 Croydon University Hospital
 Cumberland Infirmary
 Darent Valley Hospital
 Darlington Memorial Hospital
 Derriford Hospital
 Dewsbury & District Hospital
 Diana, Princess of Wales Hospital
 Doncaster Royal Infirmary
 Ealing Hospital
 East Surrey Hospital
 Eastbourne District General Hospital
 Epsom Hospital
 Fairfield General Hospital
 Frimley Park Hospital
 Furness General Hospital
 George Eliot Hospital
 Gloucestershire Royal Hospital
 Good Hope Hospital
 Harrogate District Hospital
 Heartlands Hospital
 Hereford County Hospital
 Hillingdon Hospital
 Hinchingsbrooke Hospital
 Homerton University Hospital
 Huddersfield Royal Infirmary
 Hull Royal Infirmary

John Radcliffe Hospital
 Kettering General Hospital
 King George Hospital
 King's College Hospital (Denmark Hill)
 King's Mill Hospital
 Kingston Hospital
 Leeds General Infirmary
 Leicester Royal Infirmary
 Leighton Hospital
 Lincoln County Hospital
 Lister Hospital
 Luton & Dunstable Hospital
 Macclesfield District General Hospital
 Manchester Royal Infirmary
 Manor Hospital
 Medway Maritime Hospital
 Milton Keynes Hospital
 Musgrove Park Hospital
 New Cross Hospital
 Newham General Hospital
 Norfolk & Norwich University Hospital
 North Devon District Hospital
 North Manchester General Hospital
 North Middlesex Hospital
 Northampton General Hospital
 Northern General Hospital
 Northumbria Specialist Emergency Care Hospital
 Northwick Park Hospital
 Nottingham University Hospitals NHS Trust
 Peterborough City Hospital
 Pilgrim Hospital
 Pinderfields General Hospital
 Princess Alexandra Hospital
 Princess Royal Hospital (Brighton)
 Princess Royal University Hospital (Kent)
 Queen Alexandra Hospital
 Queen Elizabeth Hospital (Birmingham)
 Queen Elizabeth The Queen Mother Hospital
 Queen's Hospital (Burton)
 Queen's Hospital (Romford)
 Queens Medical Centre (QMC)
 Rotherham District General Hospital
 Royal Berkshire Hospital
 Royal Blackburn Hospital
 Royal Bolton Hospital

Royal Bournemouth General Hospital
 Royal Cornwall Hospital
 Royal Derby Hospital
 Royal Devon & Exeter Hospital
 Royal Free Hospital
 Royal Hampshire County Hospital
 Royal Lancaster Infirmary
 Royal Oldham Hospital
 Royal Preston Hospital
 Royal Shrewsbury Hospital
 Royal Stoke University Hospital
 Royal Surrey County Hospital
 Royal Sussex County Hospital
 Royal United Hospital
 Russells Hall Hospital
 Salford Royal
 Salisbury District Hospital
 Sandwell General Hospital
 Scarborough General Hospital
 Scunthorpe General Hospital
 South Tyneside District Hospital
 Southampton General Hospital
 Southend Hospital
 Southmead Hospital
 Southport General Infirmary
 St George's Hospital
 St Helier Hospital
 St James's University Hospital
 St Mary's Hospital
 St Peter's Hospital
 St Richard's Hospital
 St Thomas' Hospital
 Stepping Hill Hospital
 Stoke Mandeville Hospital
 Sunderland Royal Hospital
 Tameside General Hospital
 The Great Western Hospital
 The Ipswich Hospital
 The James Cook University Hospital
 The Maidstone Hospital
 The Queen Elizabeth Hospital, King's Lynn
 The Royal Liverpool University Hospital
 The Royal London Hospital
 The Royal Victoria Infirmary
 The Tunbridge Wells Hospital
 The Whittington Hospital
 Torbay Hospital
 University College Hospital
 University Hospital Lewisham
 University Hospital of North Durham

University Hospital of North Tees
University Hospitals Coventry
And Warwickshire NHS Trust
Warrington Hospital
Warwick Hospital
Watford General Hospital
West Cumberland Hospital
West Middlesex University
Hospital
West Suffolk Hospital
Weston General Hospital
Wexham Park Hospital
Whipps Cross University Hospital
Whiston Hospital
William Harvey Hospital
(Ashford)

Worcestershire Royal Hospital
Worthing Hospital
Yeovil District Hospital
York Hospital

Northern Ireland

Antrim Area Hospital
Causeway Hospital
Craigavon Area Hospital
Daisy Hill Hospital
Royal Victoria Hospital
South West Acute Hospital
Ulster Hospital

Scotland

Aberdeen Royal Infirmary

Dr Gray's Hospital
Dumfries and Galloway Royal
Infirmary
Hairmyres Hospital
Wishaw General Hospital

Wales

Bronglais General Hospital
Glan Clwyd Hospital
Glangwili General Hospital
Morriston Hospital
Nevill Hall Hospital
Royal Gwent Hospital
University Hospital of Wales
Withybush General Hospital
Ysbyty Gwynedd

Appendix 3: Calculations

This section explains how the RCEM team will be analysing your data. You are welcome to use this analysis plan to conduct local analysis if you wish. Analysis sample tells you which records will be included or excluded from the analysis. The analysis plan tells you how the RCEM team plan to graph the data and which records will meet or fail the standards.

STANDARD	GRADE	Analysis sample	Analysis plan – conditions for the standard to be met
1. There should be written evidence that patients have had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool.	F	All patients	<p>Chart: SPC</p> <p>Title: Standard 1: Patients had an assessment for cognitive impairment during their visit to the ED using a validated national or locally developed tool.</p> <p>Analysis:</p> <p>Met: 2.1 = yes</p> <p>AND</p> <p>Q2.2 = anything other than 'No validated tool was used'</p> <p>Not met: all other answers</p> <p>Additional charts:</p> <p>SPC chart showing average time between 1.2 and 2.1</p> <p>Pie chart of 2.2 answers</p> <p>Pie chart of 2.3 answers</p> <p>The first SPC chart replicated twice with the following patient sub samples:</p> <ul style="list-style-type: none"> patients aged 65-74 only patients aged 75+ only
2. Whenever cognitive impairment has been identified, there should be document evidence that the patient was assessed for delirium	F	2.3 = yes	<p>Chart: SPC</p> <p>Title: Standard 2: Patients with cognitive impairment were assessed for delirium.</p> <p>Analysis:</p> <p>Met: 3.1 = yes</p> <p>Not met: 3.1 = no</p> <p>Additional charts:</p> <p>SPC charts broken down to show performance in 65 – 74 year olds and 75+ year olds.</p> <p>Pie chart of 3. 2</p> <p>Pie chart of 3.3</p>

3. Whenever cognitive impairment has been identified, there should be documented evidence that this information was included in the ED discharge letter	D	2.3 = yes AND 4.1 = discharged	Chart: SPC Title: Standard 3: Cognitive impairment was included in the ED discharge letter. Analysis: Met: 4.2 = yes OR 4.3 = yes Not met: all other answers Additional chart: Pie chart of 4.1
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Appendix 4: Understanding your results

Statistical process control (SPC) charts

The charts in this report and your new online dashboard can tell you a lot about how your ED is performing over time and compared to other EDs. If you're not used to seeing data in this way it can take a little time to get used to. This section of the report will help you understand the charts and interpret your own data.

The main type of chart is known as a **Statistical Process Control (SPC) chart** and plots your data every week so you can see whether you are improving, if the situation is deteriorating, whether your system is likely to be capable to meet the standard, and also whether the process is reliable or variable.

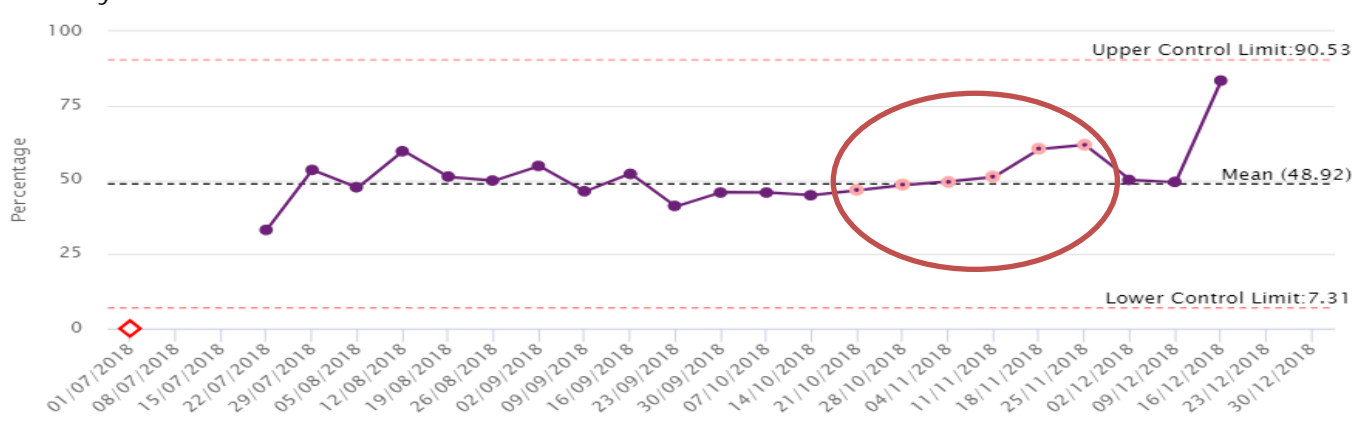
As well as seeing your actual data plotted each week you will see a black dotted average line, this is the **mean** percentage of patients. The SPC chart will point out if your data has a run of points above (or below) the mean by changing the dots to white. If your data is consistently improving (or deteriorating) the dots will turn red so the trend is easy to spot. If a positive run or trend of data happens when you're trying a PDSA/change intervention this is a good sign that the intervention is working.

As well as the dotted mean line, you will see two other lines which are known as the **upper and lower control limits**. The control limits are automatically determined by how variable the data is. Around 99% of all the data will fall between the upper and lower control limits, so if a data point is outside these lines you should investigate why this has happened.

Interpreting your data

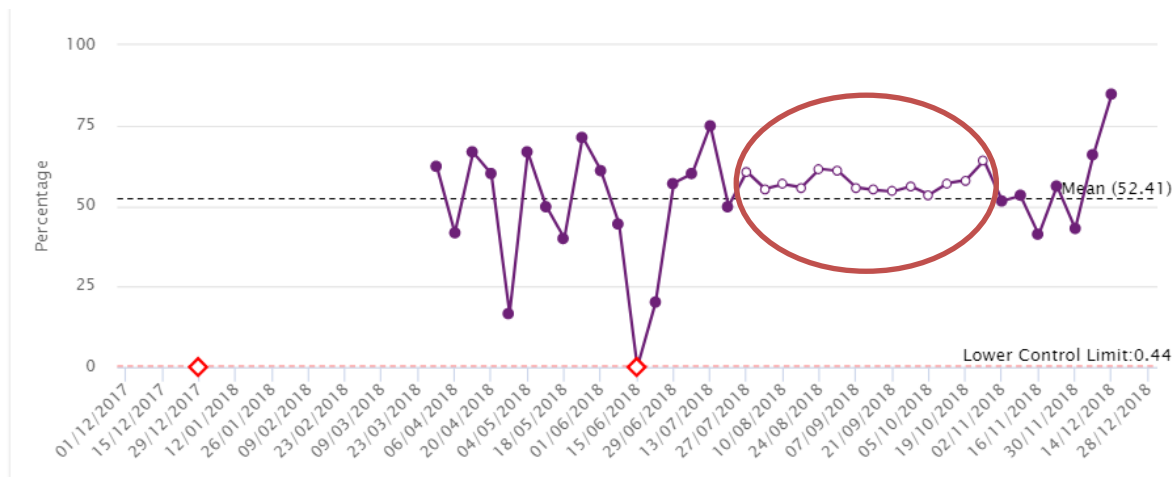
1. Performance is improving (or deteriorating)

A consistent run of data points going up or down will be highlighted with **red dots** so they are easy to spot. A run of data going up is a good sign that your service is making improvements that are really working. If the data is going down this may indicate that service is deteriorating for some reason – watch out for a lack of resources or deterioration as a result of a change somewhere else in the system.



2. Performance is consistently above (or below) the mean

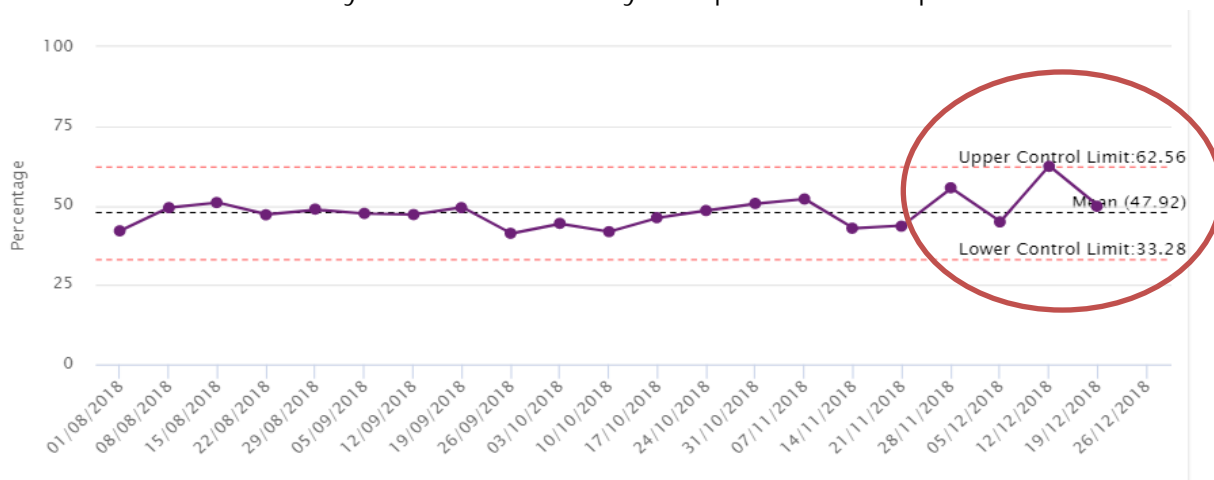
A consistent run of data that is above or below the mean will be highlighted with **white or blue dots** so they are easy to spot. If your data has been quite variable this is a good sign that the process is becoming more reliable.



3. Is your system likely to be capable of meeting the standard?

The **control limits** show where you can assume 99% of your data will be. If you find that the standard is outside your control limits, it is very unlikely that your system is set up to allow you to meet the standard. If you do achieve the standard, this will be an unusual occurrence and very unlikely to be sustained. If this is the case, it is recommended that you look at how the process can be redesigned to allow you to meet the standard.

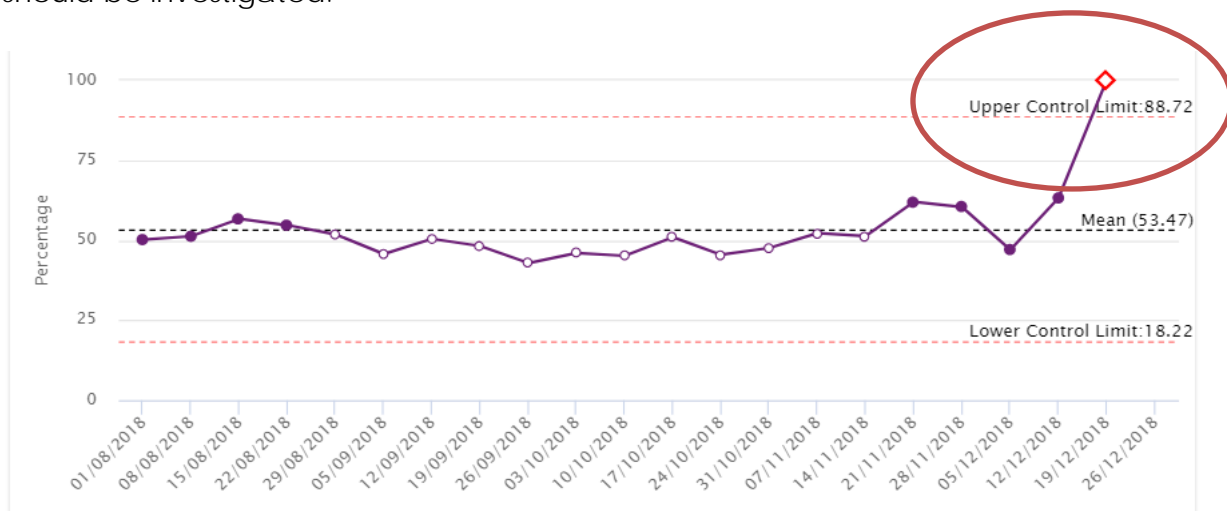
In the below example, the process is performing consistently at around 50%. The control limits show us that most of the time we would expect the process to be between 33% - 62%. If the standard for this process was 50%, then the process is well designed. If, however, the standard was 75% then the chart warns us that the system is not currently set up to allow the process to achieve the standard.



5. Something very unusual has happened!

The majority of your data should be inside the upper and lower control limits, these are automatically calculated by the system. If a single data point falls outside these limits then something very unusual has happened. This will be flagged up with a **red diamond** so you can spot it.

In some cases it may mean that the data has been entered incorrectly and should be checked for errors. It may also mean that something unexpected has had a huge impact on the service and should be investigated.



Appendix 5: Privacy policy, terms of website use and website acceptable use policy

Privacy policy

The Royal College of Emergency Medicine (RCEM) recognises the importance of protecting personal information and we are committed to safeguarding members, non-members and staff (known as “The User” in this document) privacy both on-line and off-line. We have instituted policies and security measures intended to ensure that personal information is handled in a safe and responsible manner. This Privacy statement is also published on the RCEM web site so that you can agree to the kind of information that is collected, handled and with whom this data is shared with.

RCEM strive to collect, use and disclose personal information in a manner consistent with UK and European law and under the General Data Protection Regulation (GDPR). This Privacy Policy states the principles that RCEM follows and by accessing or using the RCEM site you agree to the terms of this policy.

For further information, click [here](#).

Terms of website use

For further information, click [here](#).

Website acceptable use policy

For further information, click [here](#).

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Appendix 7: Template to submit your QI initiatives for publication on the RCEM website

If you would like to share details of your QI initiative or PDSA cycle with others, please complete this document and email it to audit@rcem.ac.uk.

Name: _____

Email address: _____

Hospital: _____

Trust: _____

<p>Plan</p> <p>State the question you wanted to answer – what was your prediction about what would happen?</p> <p>What was your plan to test the change (who, what, when, where)?</p> <p>What data did you collect, how did you plan to collect it?</p>	
<p>Do</p> <p>How did you carry out the change?</p> <p>Did you come across any problems or unexpected observations?</p> <p>How did you collect and analyse the data?</p>	
<p>Study</p> <p>What did the analysis of your results show?</p> <p>How did it compare to your predictions?</p> <p>Summarise and reflect on what you learnt.</p>	
<p>Act</p> <p>Based on what you learnt, what did you adapt (modify and run in another test), adopt (test the change on a larger scale) or abandon?</p>	

Did you prepare for another PDSA based on you learning?	
Reflection and learning What did you and the team learn from this QI initiative? What advice would you give to someone else in your position?	

Appendix 8: Pilot methodology

A pilot of the QIP was carried out prospectively from 20 May to 7 June 2019. This tested the standards, questions, quality of data collectable, as well as the functioning of the online portal and reporting templates.

Several improvements were made to the final project based on feedback from the pilot sites.

RCEM were grateful to contacts from the following Trusts for helping with the development of the QIP:

- Aneurin Bevan University Health Board
- Calderdale and Huddersfield NHS Foundation Trust
- East Kent Hospitals University NHS Foundation Trust
- Epsom and St Helier University Hospitals NHS Trust
- Gloucestershire Hospitals NHS Foundation Trust
- Imperial College Healthcare NHS Trust
- Kings College Hospital NHS Foundation Trust
- Kingston Hospital NHS Foundation Trust
- NHS Lanarkshire
- Northern Lincolnshire and Goole NHS Foundation Trust
- North Middlesex University Hospital NHS Trust
- North Tees and Hartlepool NHS Foundation Trust
- Nottingham University Hospitals NHS Trust
- Royal Devon and Exeter NHS Foundation Trust
- Sandwell and West Birmingham Hospitals NHS Trust
- Southern Health and Social Care Trust
- The Leeds Teaching Hospital NHS Trust
- The Newcastle Upon Tyne Hospitals NHS Foundation Trust
- The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust
- The Royal Liverpool and Broadgreen University Hospitals NHS Trust
- University Hospitals Birmingham NHS Foundation Trust
- University Hospitals Coventry and Warwickshire NHS Trust
- University Hospitals of Derby and Burton NHS Foundation Trust
- University Hospital Southampton NHS Foundation Trust
- Warrington and Halton Teaching Hospitals NHS Foundation Trust
- Western Sussex Hospitals NHS Foundation Trust
- Weston Area Health NHS Trust
- Worcestershire Acute Hospitals NHS Trust
- Wye Valley NHS Trust

Appendix 9: 4AT: Rapid Clinical Test for Delirium


**Assessment test
for delirium &
cognitive impairment**

Patient name: _____

(label)

Date of birth: _____

Patient number: _____

Date: _____

Time: _____

Tester: _____

CIRCLE**[1] ALERTNESS**

This includes patients who may be markedly drowsy (eg. difficult to rouse and/or obviously sleepy during assessment) or agitated/hyperactive. Observe the patient. If asleep, attempt to wake with speech or gentle touch on shoulder. Ask the patient to state their name and address to assist rating.

Normal (fully alert, but not agitated, throughout assessment)	0
Mild sleepiness for <10 seconds after waking, then normal	0
Clearly abnormal	4

[2] AMT4

Age, date of birth, place (name of the hospital or building), current year.

No mistakes	0
1 mistake	1
2 or more mistakes/untestable	2

[3] ATTENTION

Ask the patient: "Please tell me the months of the year in backwards order, starting at December." To assist initial understanding one prompt of "what is the month before December?" is permitted.

Months of the year backwards	Achieves 7 months or more correctly	0
	Starts but scores <7 months / refuses to start	1
	Untestable (cannot start because unwell, drowsy, inattentive)	2

[4] ACUTE CHANGE OR FLUCTUATING COURSE

Evidence of significant change or fluctuation in: alertness, cognition, other mental function (eg. paranoia, hallucinations) arising over the last 2 weeks and still evident in last 24hrs

No	0
Yes	4

4 or above: possible delirium +/- cognitive impairment
1-3: possible cognitive impairment
0: delirium or severe cognitive impairment unlikely (but delirium still possible if [4] information incomplete)

4AT SCORE

GUIDANCE NOTESVersion 1.2. Information and download: www.the4AT.com

The 4AT is a screening instrument designed for rapid initial assessment of delirium and cognitive impairment. A score of 4 or more suggests delirium but is not diagnostic: more detailed assessment of mental status may be required to reach a diagnosis. A score of 1-3 suggests cognitive impairment and more detailed cognitive testing and informant history-taking are required. A score of 0 does not definitively exclude delirium or cognitive impairment: more detailed testing may be required depending on the clinical context. Items 1-3 are rated solely on observation of the patient at the time of assessment. Item 4 requires information from one or more source(s), eg. your own knowledge of the patient, other staff who know the patient (eg. ward nurses), GP letter, case notes, carers. The tester should take account of communication difficulties (hearing impairment, dysphasia, lack of common language) when carrying out the test and interpreting the score.

Alertness: Altered level of alertness is very likely to be delirium in general hospital settings. If the patient shows significant altered alertness during the bedside assessment, score 4 for this item. **AMT4 (Abbreviated Mental Test - 4):** This score can be extracted from items in the AMT10 if the latter is done immediately before. **Acute Change or Fluctuating Course:** Fluctuation can occur without delirium in some cases of dementia, but marked fluctuation usually indicates delirium. To help elicit any hallucinations and/or paranoid thoughts ask the patient questions such as, "Are you concerned about anything going on here?"; "Do you feel frightened by anything or anyone?"; "Have you been seeing or hearing anything unusual?"

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Appendix 10: TIME bundle

TIME bundle

Name:	Date: / /
Date of birth:	Zero time: :
CHI number:	

Practitioner name: _____ Practitioner signature: _____

Designation: _____

Initiate TIME within 2 hours (initial and write time of completion)	Assessed/ sent	Results seen	Abnormality found
Think exclude and treat possible triggers			
NEWS (think sepsis six)			
Blood glucose			
Medication history (identify new medications/change of dose/medication recently stopped)			
Pain review (Abbey Pain Scale)			
Assess for urinary retention			
Assess for constipation			
Investigate and intervene to correct underlying causes			
Assess Hydration and start fluid balance chart			
Bloods (FBC, U&E, Ca, LFTs, CRP, Mg, Glucose)			
Look for symptoms/signs of infection (skin, chest, urine, CNS) and perform appropriate cultures/imaging depending on clinical assessment (see sepsis six)			
ECG (ACS)			
Management Plan			Completed
Initiate treatment of ALL underlying causes found above			
Engage and Explore (complete within 2 hours or if family/carer not present within 24 hours)			
Engage with patient/family/carer – explore if this is usual behaviour. Ask: How would you like to be involved?			
Explain diagnosis of delirium to patient and family/carers (use delirium leaflet)			
Document diagnosis of delirium			

TIME bundle guidance

First 2 hours

Within 2 hours or if
family/carer not present
within 24 hours

<u>Triggers</u>	<u>Investigate</u>	<u>Manage</u>	<u>Engage</u>
Severe illness	FBC, U&Es, CRP,	First and foremost treat underlying causes	Families and carers can give you a history of change. Always speak to them to obtain history and baseline function.
Trauma/surgery	LFTs, Glucose, Mg, Ca, PO ₄ urinalysis	Manage sepsis	Families and friends can help reorientate.
Pain	Consider ABG	Refer to delirium management: summary pathway on page 6 for complete care guidance	Always document delirium diagnosis.
Infection/sepsis	Culture, urine, sputum, wounds. Consider blood culture (Sepsis Six), CXR	DO NOT USE RESTRAINT	Reassure families and carers.
Dehydration	Always carry out routine observations (EWS) including AVPU and Think Glucose	AVOID ANTIPSYCHOTIC MEDICATIONS – these may worsen delirium or contribute to the risk of falls and immobility (see delirium management: comprehensive pathway on page 6)	
Hypoxia			
Hypoglycaemia			
Medications			
Alcohol and drugs withdrawal			
Urinary retention/constipation	Start fluid balance Think about hydration status		

