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Delirium Screening

Jo Barnes
CATU Advanced Practitioner

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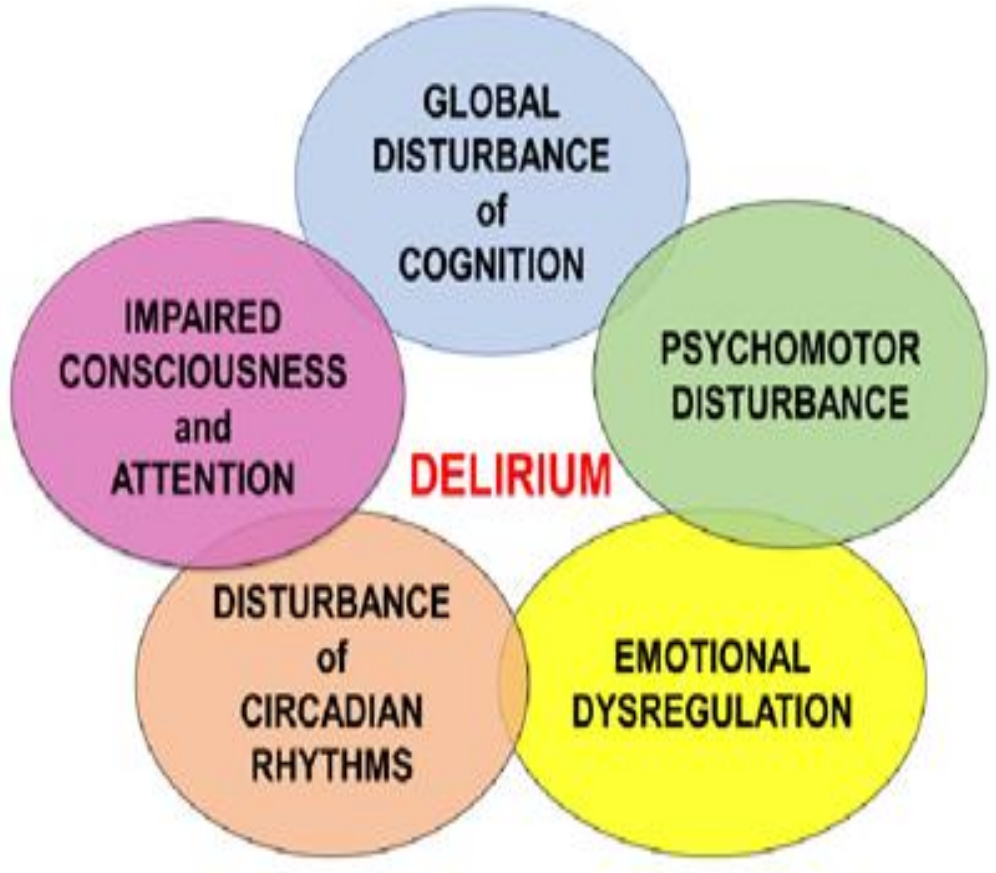
What is delirium?

Delirium is a common clinical syndrome involving disturbances in cognitive function, perception, attention and consciousness.

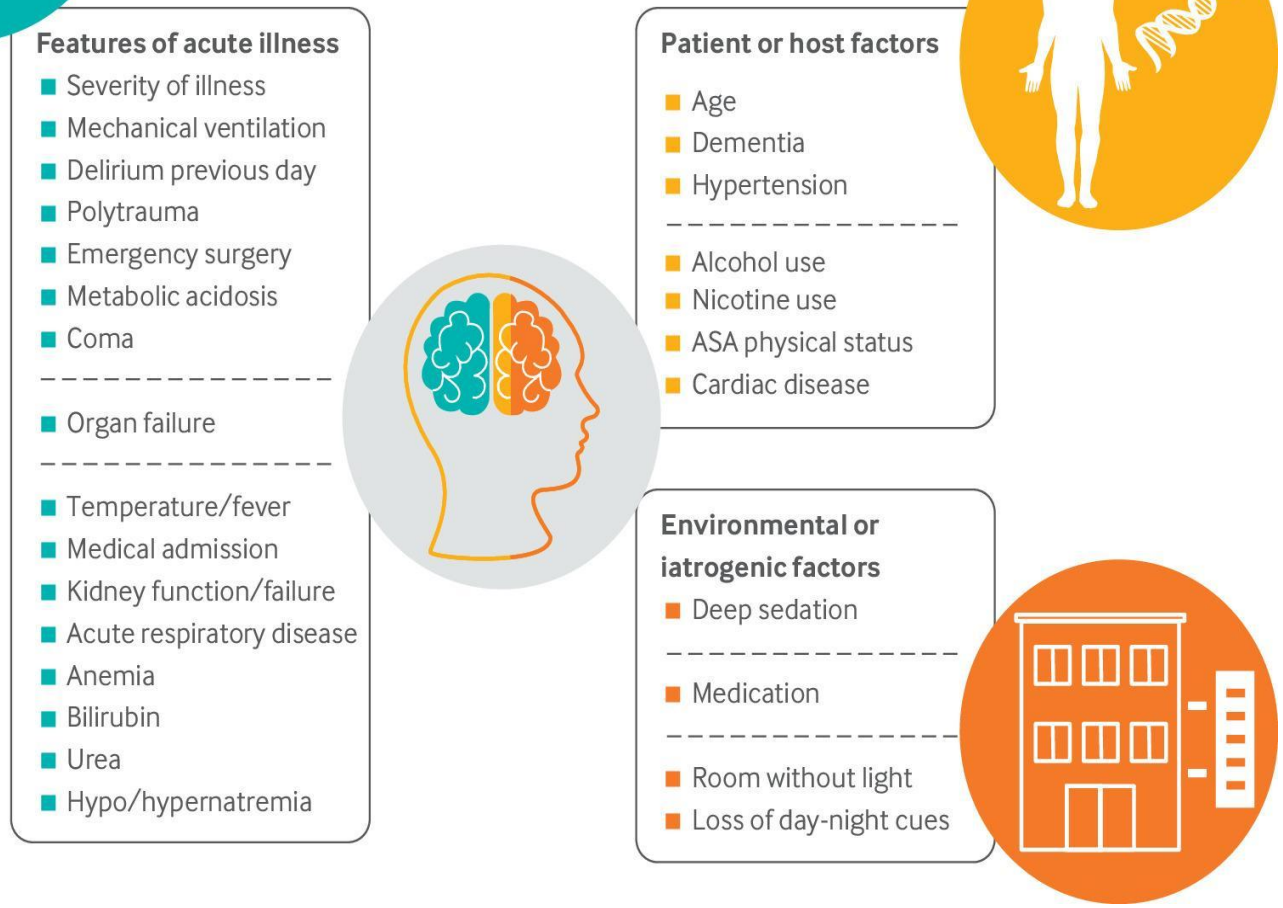
Delirium may have fluctuating course and develop over hours or days.



Geriatric Medicine Research Collaborative (2019) Shenklin et al (2019)
NICE (2023)

Predisposing risk factors

- Age 65 years and older
- Having dementia
- Being Frail
- Multiple – Comorbidities
- Being male
- Sensory loss - hearing or sight
- A history of depression
- Previous delirium
- Alcohol misuse
- Functional dependence.

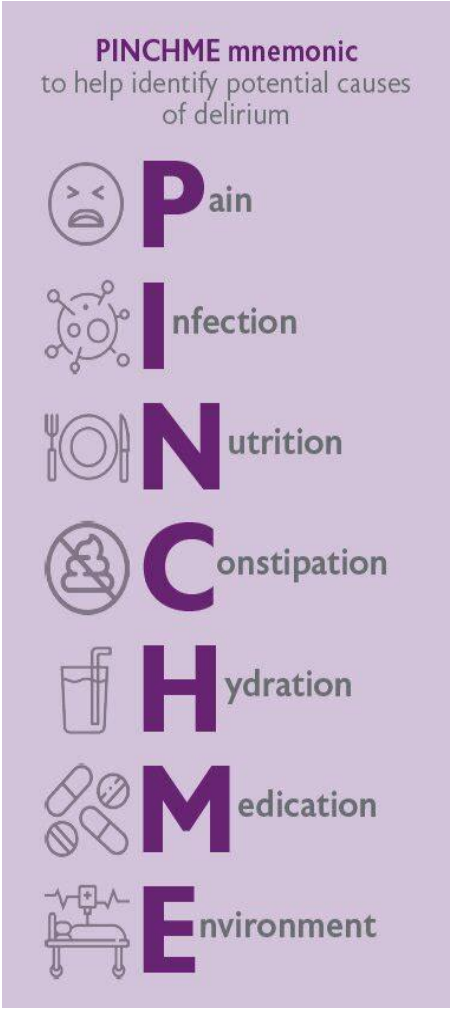


Wilcox et al (2021)
NICE 2023

Common triggers

- **P**ain.
- **I**nfection.
- **N**utrition.
- **C**onstipation.
- **H**ydration.
- **M**edications.
- **E**nvironment.
- **E**lectrolyte imbalance
- **S**urgery / **S**leep.

Or a combination of causes



BGS (2020)

Potential risks from delirium

- Increased length of stay.
- Increased incidence of dementia.
- Increased hospital-acquired complications.
- Increased incidence of being admitted to long-term care.
- Increased risk of dying.
- Distress for patient, family and carers.

NICE (2023)
Tieges et al (2020)

Benefits of early detection

- Generating investigations into potential causes of delirium.
- Initiating treatment.
- Reducing associated risks (falls, pressure sores, dehydration).
- Recognising and addressing distress.
- Informing patients and carers of the diagnosis.
- Potential reducing length of stay.

MacLullich (2024)
Geriatric Medicine Research Collaborative (2019)

NICE Guidance Updated 2023:

“If indicators of delirium are identified, a health or social care practitioner who is competent to do so should carry out an assessment using the 4AT”

About 4AT

The 4AT is a short delirium assessment tool designed for routine use, without specialist training, and takes less than two minutes to complete.

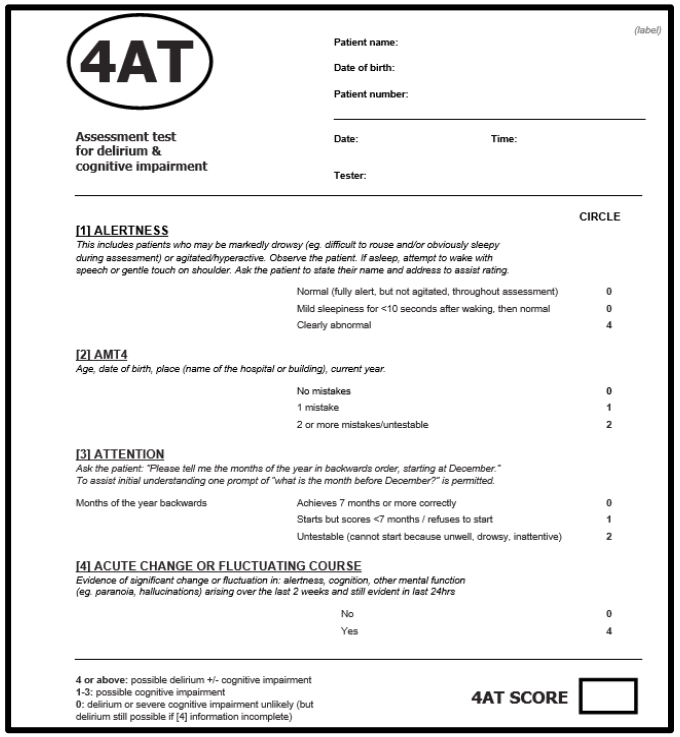
The 4AT comprises of four items:

- **Alertness**
- **Abbreviated Mental Test**
- **Attention** (months cited backward test)
- **Acute change or fluctuating course.**

It has a score range of 0-12, with a score of ≥4 or more highlighting possible delirium.

About 4AT…

- Research validated.
- High specificity and sensitivity.
- Easy to use.
- Requires no specific training.



4AT

Assessment test for delirium & cognitive impairment

(label)

Patient name:

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 ☐

4AT

RAPID CLINICAL TEST FOR

DELIRIUM

[4AT - Rapid Clinical Test for Delirium Detection]

[4 A's Test for Delirium Screening] (Med Cal)

When to use the 4AT

As a screening tool for delirium in OLDER people:

- At home or in care homes
- Transitions of care
- ED or other acute settings
- Pre-op delirium & cognitive assessment
- Post-op daily for an appropriate period (usually 3-7 days)
- Daily during an episode of delirium to assess for recovery
- At any time when delirium is suspected (family concern, or if clinical observation is suggestive of delirium).

The TIME Delirium Bundle

The TIME (acronym) **Delirium Bundle is a set of critical actions to implement when there is a potential diagnosis of delirium.**

- **T** Think / Triggers
- **I** Investigate/ Intervene
- **M** Manage: develop a management plan
- **E** Engage / Explore: involve the patient, family and carers

	Initiate TIME within 2 hours (initial and write time of completion)	Assessed/ sent	Results seen	Abnormality found
T	**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			
I	**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)			
M	**Management Plan**			*Completed*
	Initiate treatment of ALL underlying causes found above			
E	**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			

Delirium toolkit v3.1 testing sep (web).pdf

Bauernfreund et al (2018)

Key considerations:

- **The 4AT is a TOOL**
- **No delirium assessment test is sufficient on its own** to diagnose delirium
- **Delirium** vs. **Dementia?**
- **End of life care** can still experience delirium.

Bramati and Bruera (2021)

Quality Improvement (QI) Project

Introduction of 4AT - a nationally-recognised delirium screening tool.

In order to increase early delirium identification by 75% within 6 months, thus improving delirium management, care and experience for elderly patients in a community hospitals setting.

What are we trying to Acomplish?

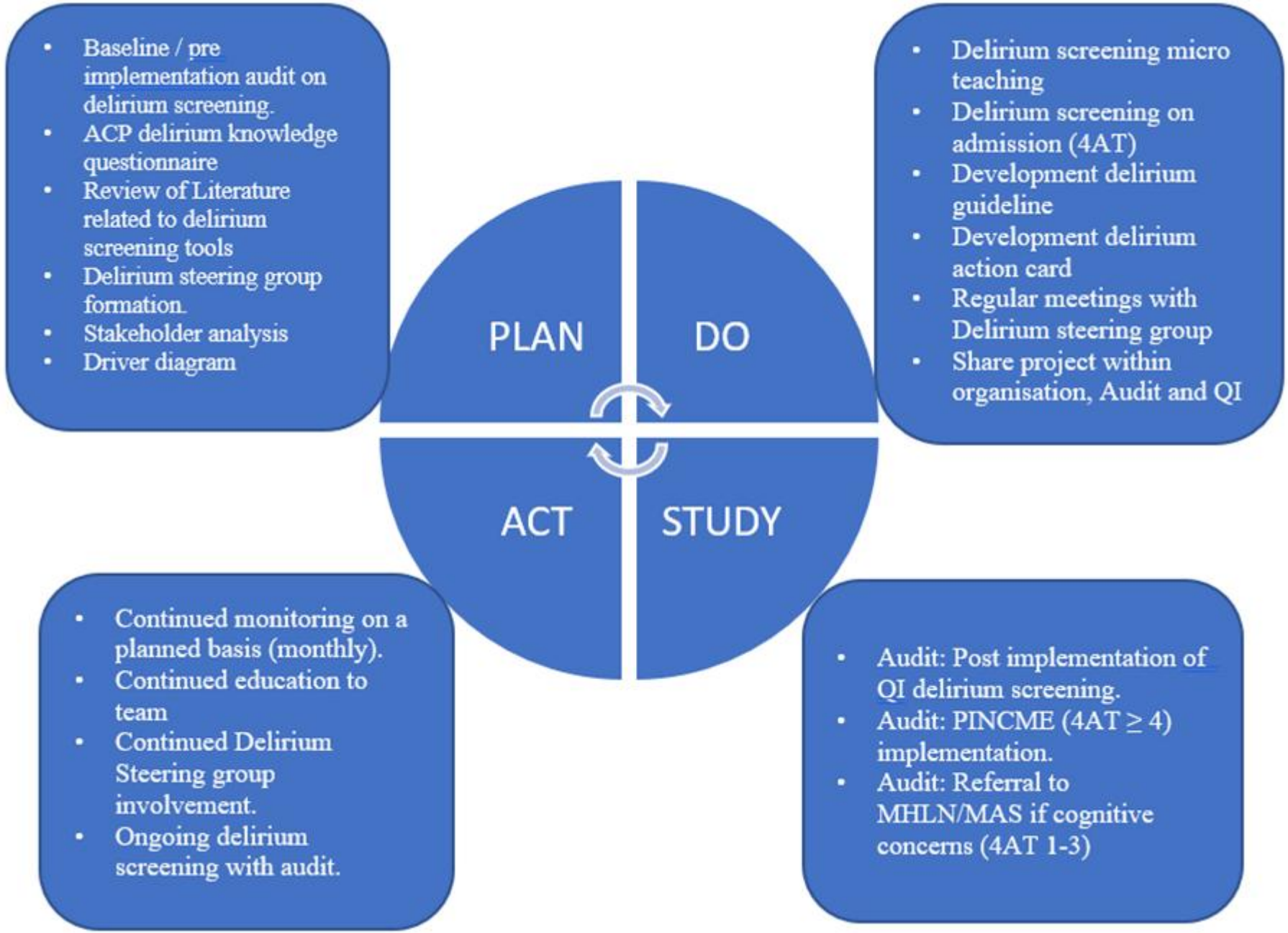
- The implementation of a nationally recognised delirium screening tool the 4AT, in order to increase early delirium identification by 75% within a 6-month time period'.

How will we knonw that a change is an improvement ?

- Monitor Measures through audit cycles including:
- Percentage of patients screened for delirium using the 4AT.
- If 4AT score ≥4 was a PINCHME care plan commenced
- Increased staff confidence and awareness identifying delirium using 4AT screening tool.

what changes can we make that will result in an improvement?

- Introduction of 4AT delirium screening tool.
- Education / micro teach sessions for staff.
- Produce a delirium Clinical Guideline.
- Develop a community hospital specific delirium action card / flow chart.
- Embed screening tool in local computer system


Baseline / pre implementation audit on delirium screening.
ACP delirium knowledge questionnaire
Review of Literature related to delirium screening tools
Delirium steering group formation
Stakeholder analysis
Driver diagram
PLAN
DO
Delirium screening micro teaching
Delirium screening on admission (4AT)
Development delirium guideline
Development delirium action card
Regular meetings with Delirium steering group
Share project within organisation, Audit and QI
ACT
STUDY
Continued monitoring on a planned basis (monthly).
Continued education to team
Continued Delirium Steering group involvement.
Ongoing delirium screening with audit.
Audit: Post implementation of QI delirium screening.
Audit: PINCME (4AT ≥ 4) implementation.
Audit: Referral to MHLN/MAS if cognitive concerns (4AT 1-3)

QUALITY IMPROVEMENT PROJECT

INTRODUCTION OF A NATIONALLY RECOGNISED DELIRIUM SCREENING TOOL THE 4AT, IN ORDER TO INCREASE EARLY DELIRIUM IDENTIFICATION BY 75% WITHIN 6-MONTHS, THUS IMPROVING DELIRIUM MANAGEMENT, CARE AND EXPERIENCE FOR ELDERLY PATIENTS IN A COMMUNTY HOSPITAL SETTING.

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NICE Guidance Updated 2023

'If indicators of delirium are identified, a health or social care practitioner who is competent to do so should carry out an assessment using the 4AT'

The 4AT is a short delirium assessment tool designed for routine use without specialist training. The 4AT comprises of four items: **Alertness. Abbreviated Mental Test. Attention** (months cited backward test) and **Acute change or fluctuating course**. It has a score range of 0-12, with a score of ≥4 or more highlighting possible delirium.

WHY DELIRIUM?

WHAT IS DELIRIUM?
Delirium is a common clinical syndrome involving disturbances in cognitive function, perception, attention and consciousness. Delirium may have fluctuating course and develop over hours or days.

COMMON TRIGGERS: PINCHMES
Pain, **I**nfection, **N**utrition, **C**onstipation, **H**ydration, **M**edications, **E**nvironment, **S**urgery / **S**leep (or a combination of causes).

PREVALENCE:
The prevalence of delirium for patients on medical wards varies between 15% and 30%.

RISKS FROM DELIRIUM:
Increased length of stay
Increased incidence of dementia
Increased hospital-acquired complications (such as falls, dehydration and pressure sores).
Increased incidence of being admitted to long-term care.
Increased risk of dying
Distress for patient and family /carers

BENEFITS OF EARLY DETECTION:
Generating investigations into potential causes of delirium.
Initiating treatment.
Reducing associated risks.
Recognising and addressing distress.
Informing patients and carers of the diagnosis.

EASY WINS

* Undertake 4AT on all admissions (End of Life patients exempt) and record in electronic notes
* If score ≥4 or more suggests possible delirium, please implement PINCHME care plan and discuss with MHLN.
* If score 1-3 and NOT known dementia = possible cognitive decline, consider discussion / referral to MHLN or MAS on discharge.

METHODOLOGY

What are we trying to Accomplish?
- The implementation of a nationally recognised delirium screening tool the 4AT, in order to increase early delirium identification by 75% within a 6-month time period'.

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- Monitor Measures through audit cycles including:
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- Produce a delirium Clinical Guideline.
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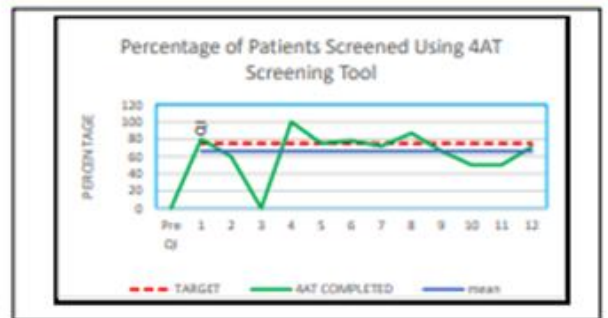
- Embed screening tool in local computer system

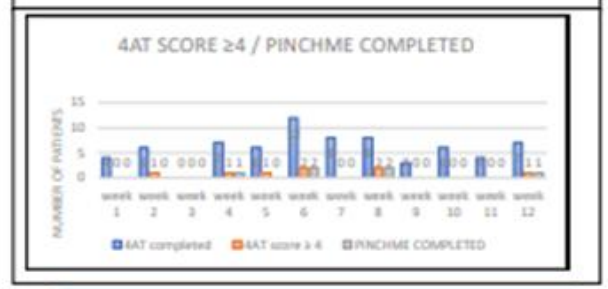
RESULTS AT TWELVE WEEKS

A positive increase in 4AT screening from 0% to a mean of 66% in 12 weeks.

A 4AT score ≥4 identifying incidence of delirium = 13% (n=61), in line with national average.

A positive improvement with PINCHME care plan introduced if 4AT score ≥4 = 75%





WHAT NEXT?

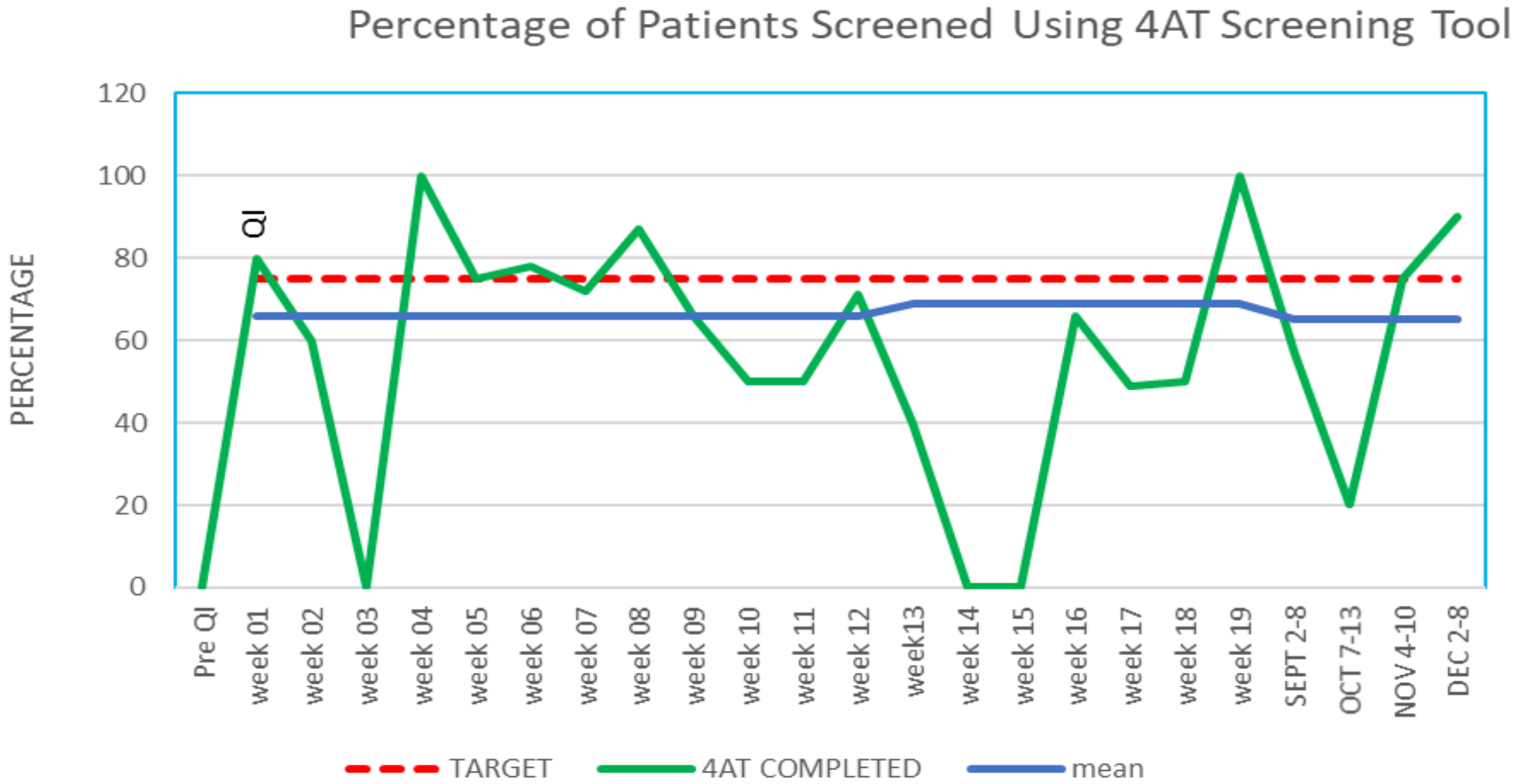
- Continue data collection / analysis
- Explore feasibility of embedding 4AT as a mandatory assessment within electronic clerking notes proforma.
- Continued development of Delirium Guideline.
- Continued development of delirium Action Cards.
- Share QI / Data with wider organisation
- Consider feasibility of extending 4AT assessment to other community hospitals within organisation.

Tieges, Z., Maclullich, A., Anand, A., Brookes, C., Cassarino, M., O'Connor, M., Ryan, D., Saller, T., Arora, C., Chong, Y., Agarwal, K., Taffet, G., Quinn, T., Shenkin, S. and Gaskin, K. (2022) Diagnostic Accuracy of the 4AT For Delirium Detection in Older Adults: Systematic Review and Meta-analysis. *Age and Ageing* [online] 50 (3), pp. 733-743.

National Institute for Health and Care Excellence (2023) *Delirium: prevention, diagnosis and management in hospital and long-term care (NICE clinical guidelines 103)*. Available from: https://www.nice.org.uk/guidance/ng103

Shenkin, S., Fox, C., Godfrey, M., Siddiqi, N., Goodacre, S., Young, J., Anand, A., Gray, A., Hanley, J., MacRaild, A., Steven, J., Black, P., Tieges, Z., Boyd, J., Stephen, J., Weir, C. and MacLullich, A. (2019) Delirium Detection in Acute Medical Inpatients: A Multi Centre Prospective Comparative Diagnostic Test Accuracy Study of the 4at and the Confusion Assessment Method. [online] 17 (138).

Teare, R. (2024) Delirium awareness - improving recognition and management through education and use of a care pathway. *British Medical Journal Open Quality* [Online]


Percentage of Patients Screened Using 4AT Screening Tool
PERCENTAGE
120
100
80
60
40
20
0
QI
Pre QI
week 01
week 02
week 03
week 04
week 05
week 06
week 07
week 08
week 09
week 10
week 11
week 12
week13
week 14
week 15
week 16
week 17
week 18
week 19
SEPT 2-8
OCT 7-13
NOV 4-10
DEC 2-8
TARGET
4AT COMPLETED
mean

Results

- **A positive increase in 4AT screening** from 0% to a mean of 69% in 17 weeks
- **Since 1 week per month audit** = mean of 65% 4AT screening undertaken
- **A 4AT score ≥4** identifying incidence of delirium = 13%
- **A positive improvement with PINCHME Care Plan** introduced if 4AT score ≥4 = 75%

What next?

- **Continue** delirium screening and PINCHME care plan.
- **Aim** to incorporate 4AT on clinical IT system
- **Feasibility** of incorporating TIME bundle into clinical IT system
- **Complete** delirium guideline and action cards
- **Share** knowledge.

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Questions?

References

- **Bauernfreund, Y., Butler, M., Ragavan, S., Sampson E. (2018).** TIME to think about delirium: improving detection and management on the acute medical unit. British Medical Journal Open Quality. [Online] 7(3). [Accessed 18 March 2024].
- **Bramati, P. and Bruera, E. (2021)** Delirium in Palliative Care. Cancers [online]. 23 (13) [Accessed 09 April 2024].
- **British Geriatric Society (2020)** End of Life Care in Frailty: Delirium [online] Available from: End of Life Care in Frailty: Delirium | British Geriatrics Society (bgs.org.uk) [Accessed 17 March 2024].
- **Geriatric Medicine Research Collaborative. (2019)** Delirium is prevalent in older hospital inpatients and associated with adverse outcomes: results of a prospective multi-centre study on World Delirium Awareness Day. *BMC Medicine*. [online]. [Accessed 18 February 2024].
- **MacLullich, A (2024) 4AT Rapid Clinical Test for Delirium**. Online. Available from: https://www.the4at.com/#:~:text=The%204AT%20or%204%20%E2%80%99A%E2%80%99s%20Test%20is%20a,33%20diagnostic%20test%20accuracy%20studies%20involving%20%3E6000%20patients.[Accessed 10 March 2024].
- **National Institute for Health and Care Excellence (2023)** *Delirium: prevention, diagnosis and management in hospital and long-term care* (NICE clinical guidelines 103). Available from: https://www.nice.org.uk/guidance/cg103. [Accessed 20 March 2024].
- **Shenkin, S., Fox, C., Godfrey, M., Siddiqi, N., Goodacre, S., Young, J., Anand, A., Gray, A., Hanley, J., MacRaild, A., Steven, J., Black, P., Tieges, Z., Boyd, J., Stephen, J., Weir, C. and MacLullich, A. (2019)** Delirium Detection in Acute Medical Inpatients: A Multi Centre Prospective Comparative Diagnostic Test Accuracy Study of the 4at and the Confusion Assessment Method. BMC [online]. 17 (138) [Accessed 19 March 2024].
- **Tieges, Z., Maclullich, A., Anand, A., Brookes, C., Cassarino, M., O'Connor, M., Ryan, D., Saller, T., Arora, C., Chang, Y., Agarwal, K., Taffet, G., Quinn, T., Shenkin, S. and Galvin, R. (2022)** Diagnostic Accuracy of the 4AT For Delirium Detection in Older Adults: Systematic Review and Meta-analysis. Age and Ageing [online]. 50 (3), pp. 733-743. [Accessed 20 March 2024].
- **Wilcox, E., Girard, T. and Hough,, C. (2021)** Delirium and Long-term Cognition in Critically Ill Patients. *British Medical Journal* [online]. [Accessed 09 April 2024].