Prevention, diagnosis and management of delirium in the DCCM[Title]

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• Directorate(s)	
• Department(s)	Department of Critical Care Medicine
• Used for which patients?	
• Used by which staff?	All medical and nursing staff providing care for patients in the DCCM
• Excluded	Patients with medical requirements for deep sedation (RASS less than -3, e.g. for severe respiratory failure, management of raised intracranial pressure), patients at risk of or experiencing acute alcohol or drug withdrawal, patients with acute psychosis.
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Contents

Purpose of Guideline
To guide the prevention, recognition and management of delirium in patients cared for in the Department of Critical Care Medicine (DCCM)

Guideline Management Principles and Goals

Delirium
Delirium is characterised by acute onset of altered consciousness and cognition. Delirious patients commonly have impaired attention and disorganised thinking. Delirium typically has a fluctuating course. Delirium is a common complication of critical illness. It is present in over half of mechanically ventilated patients (Brummel et. al 2013).

Delirium presents in two forms; hypoactive delirium characterised by withdrawal and inattention, and agitated delirium characterised by anxiety and agitation. Three quarters of patients with delirium present with the hypoactive form (Ely et. al. 2001).

Significance of Delirium
Adverse outcomes are associated with delirium during critical illness including higher mortality, longer ICU length of stay and longer hospital length of stay (Pisani et. al. 2009, Thomason et. al. 2005). Delirium was associated with a three-fold increase in risk of death at 6 months in ventilated patients with critical illness after controlling for comorbidities and severity of illness (Ely et. al. 2004). Duration of delirium has been associated with worse long term cognitive outcomes in survivors of critical illness (Girard et. al. 2010).

Risk factors for Delirium
Risk factors predisposing to delirium include advanced age, multiple comorbidities, cognitive impairment and sensory impairment. Precipitating risk factors include pain, sleep disruption, illness severity and prescription of benzodiazepines (Devlin et. al 2018, Marcantonio 2017, Pisani et. al. 2007, Seymour et. al. 2012, Zaal et. al. 2015). In general, when more predisposing risk factors are present, fewer precipitating risk factors are required for delirium to occur (Inouye et. al 1993).

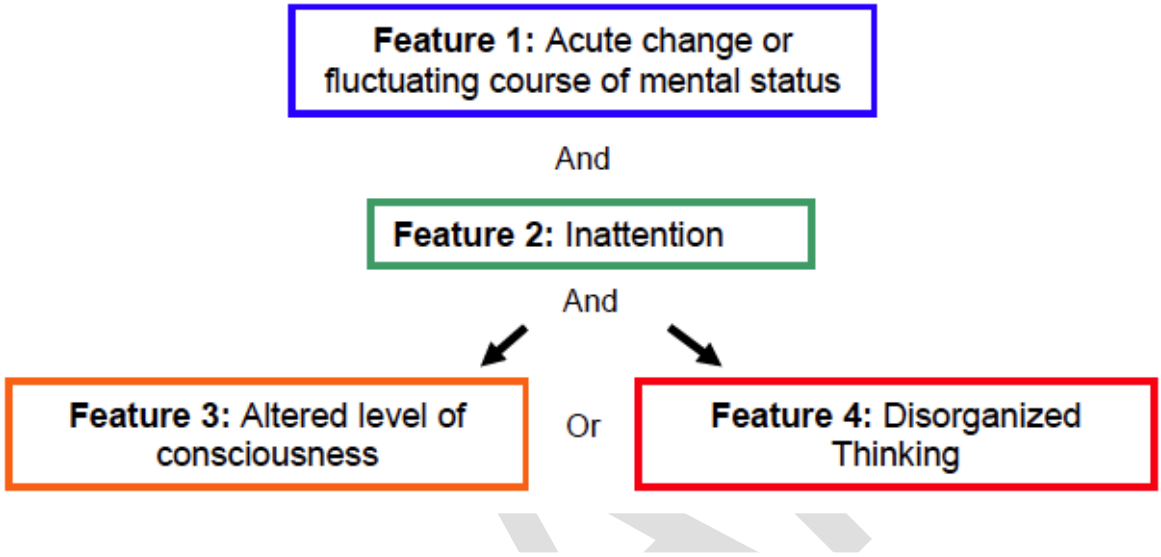
Hospitalised elderly medical patients are at high risk of delirium when they have three or more risk factors (Inouye et. al 1993). Patients critically unwell in intensive care will commonly have many more risk factors (Ely et. al 2001).

Screening for delirium
Less than a third of delirium is recognised in hospitalised older adults (Marcantonio 2017). Without the use of a structured diagnostic tool delirium is often undiagnosed in the critically unwell (Reade et. al 2014).

Delirium should be assessed for every shift by nursing staff, or more frequently if there is suspicion of change, using the Confusion Assessment Method for the ICU (CAM-ICU). This is a validated screening tool for delirium in the critically unwell, and can be used on all adult intensive care patients with a Richmond Agitation and Sedation Scale (RASS) of greater than -3/moderate

sedation (See appendix for details of the RASS). The CAM-ICU is the most widely used and specific of the screening tools for delirium in ICU, and has excellent reliability (Ely et. al. 2001, Sherpa et. al 2012).

The CAM-ICU establishes the presence of delirium based on the presence or absence of four factors related to attentiveness and disorganised thinking as described in the flow sheet below (Ely et. al. 2001).



Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

1. Acute Change or Fluctuating Course of Mental Status:

- Is there an acute change from mental status baseline? OR
- Has the patient's mental status fluctuated during the past 24 hours?

NO → CAM-ICU negative NO DELIRIUM

YES

2. Inattention:

- *"Squeeze my hand when I say the letter 'A'."*
  Read the following sequence of letters:
  S A V E A H A A R T or C A S A B L A N C A or A B A D B A D A A Y
  ERRORS: No squeeze with 'A' & Squeeze on letter other than 'A'
- If unable to complete Letters → Pictures

0 - 2 Errors → CAM-ICU negative NO DELIRIUM

> 2 Errors

3. Altered Level of Consciousness
Current RASS level

RASS other than zero → CAM-ICU positive DELIRIUM Present

RASS = zero

4. Disorganized Thinking:

1. Will a stone float on water?
2. Are there fish in the sea?
3. Does one pound weigh more than two?
4. Can you use a hammer to pound a nail?

Command: "Hold up this many fingers" (Hold up 2 fingers)
"Now do the same thing with the other hand" (Do not demonstrate)
OR "Add one more finger" (If patient unable to move both arms)

> 1 Error → CAM-ICU positive DELIRIUM Present

0 - 1 Error → CAM-ICU negative NO DELIRIUM

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Where clinically indicated, sedation will be titrated to the RASS. For many patients without raised intracranial pressure or high ventilator requirements, the target RASS will be 0 to -1. RASS should be assessed hourly. When deeper sedation is targeted (RASS less than -3) CAM-ICU screening is not appropriate.

The CAM-ICU should be assessed prior to the morning and evening ward rounds so that the results can be noted by the team. The CAM-ICU score will be documented on the DCCM 24 hour chart, in the comments section. The CAM-ICU assessment tool will be kept in the bedside resource folder. In patients with English as a second language a visual CAM-ICU is available.

Screening for delirium in patients with brain injury

Fluctuation in attention and cognition are expected following brain injury such as stroke, aneurysmal sub-arachnoid haemorrhage and trauma. The CAM-ICU has been validated in patients with stroke (Mitasova et. al 2012). The CAM-ICU must be interpreted mindful of the expected clinical course and severity of cerebral insult in patients with brain injury.

Prevention

The patients' physical environment plays a part in preventing delirium, though evidence for any one intervention is generally poor (Devlin et. al. 2018, Herling et. al.2018).

Natural sleep patterns should be promoted. Day-night cycle should be maintained as much as possible, with day time activity and exposure to natural sunlight and quiet low-light environments at night when able.

Visual cues in the bed space to orient the patient to time and place.

Patients should have access to hearing and vision aids.

Sedation should be minimised, titrated to a goal of patients being safe, lucid and able to participate in their care.

There is no role for prophylactic pharmacotherapy in the prevention of delirium (Devlin et. al 2018).

Benzodiazepines should only be prescribed when indicated to manage raised intracranial pressure, seizures, prevent awareness and prevent or manage withdrawal states.

Management of delirium

Assessment of patients with new delirium

Any patient with new delirium should be assessed to determine if new pathology has contributed to their delirium. The aide memoire Stop and Think is useful:

Stop

- Do any medications need to be stopped or reduced, especially sedatives.
- Assess for and treat pain if present

Think

- Toxic Situations

  - New organ failure or dysfunction, drug side effect or interaction.
- Hypoxaemia.
- Infection, immobilisation.
- Non-pharmacologic interventions

    - New organ failure or dysfunction, drug side effect or interaction.
- K or other electrolyte problems.

Other diagnoses should be considered, including exacerbation of underlying dementia, depression, acute presentation of other psychiatric disorders and withdrawal states.

Non-pharmacologic management of patients with delirium
The measures described above in the prevention section are also utilised in the management of the delirious patient. Reorientation and reassurance should occur as often as necessary. Family involvement in care is often helpful.

Pharmacologic management of patients with delirium
The presence of delirium does not mandate the prescription of an antipsychotic. The evidence for pharmacotherapy for delirium is generally poor. Neither typical nor atypical antipsychotics are associated with shorter duration of delirium (Burry et. al 2018). The focus should be on non-pharmacologic management. Drug therapy is reserved for patients who are unsafe or who have distressing symptoms (Devlin et. al. 2018). Factors that influence the drug therapy chosen include the degree of agitation, the co-prescription of other QT prolonging medications and the QTc on ECG. Therapy should cease when symptoms of delirium resolve, defined by the presence of three consecutive CAM-ICU assessments negative for delirium, each at least 12 hours apart.

First line rescue therapy for acute agitation
Haloperidol
Typical antipsychotic, most QT prolonging of therapies for delirium
Does not increase delirium free days
Dose 0.5-2.5mg IV/PO/SC/IM PRN
Usual maximum dose 10mg/day

Second line background therapy for on-going agitation
Quetiapine
Atypical antipsychotic. More sedating than risperidone. Moderate QT prolongation.
Dose 12.5-50 mg PO/NG Q24h-Q12h
Usual maximum dose 100mg/24h

Risperidone
Atypical antipsychotic. Mild QT prolongation.
Dose 0.5-1 mg PO/NG Q12h
Usual maximum dose 4 mg/day

Olanzapine
Atypical antipsychotic. Available in orodispersible wafer, bioequivalent to PO tablet. Response is poorer than other antipsychotics in patients >75 years old. Mild QT prolongation
Dose 5-10 mg PO Q24h up to 20 mg/day (Start at 2.5mg PO Q24h in the elderly)

Dexmedetomidine
Alpha-2 adrenergic agonist. May have a role as treatment for agitation which prevents extubation (Reade et.al. 2016)
Dose 0.3-1.5 mcg/kg/hr IV infusion. Usual starting dose 0.5 mcg/kg/hr, increase in 0.1 mcg/kg/hr increments

Benzodiazepines
Indicated for agitation associated with withdrawal states. Not indicated in the management of delirium other than in exceptional circumstances where agitation poses a risk to the patient or staff.

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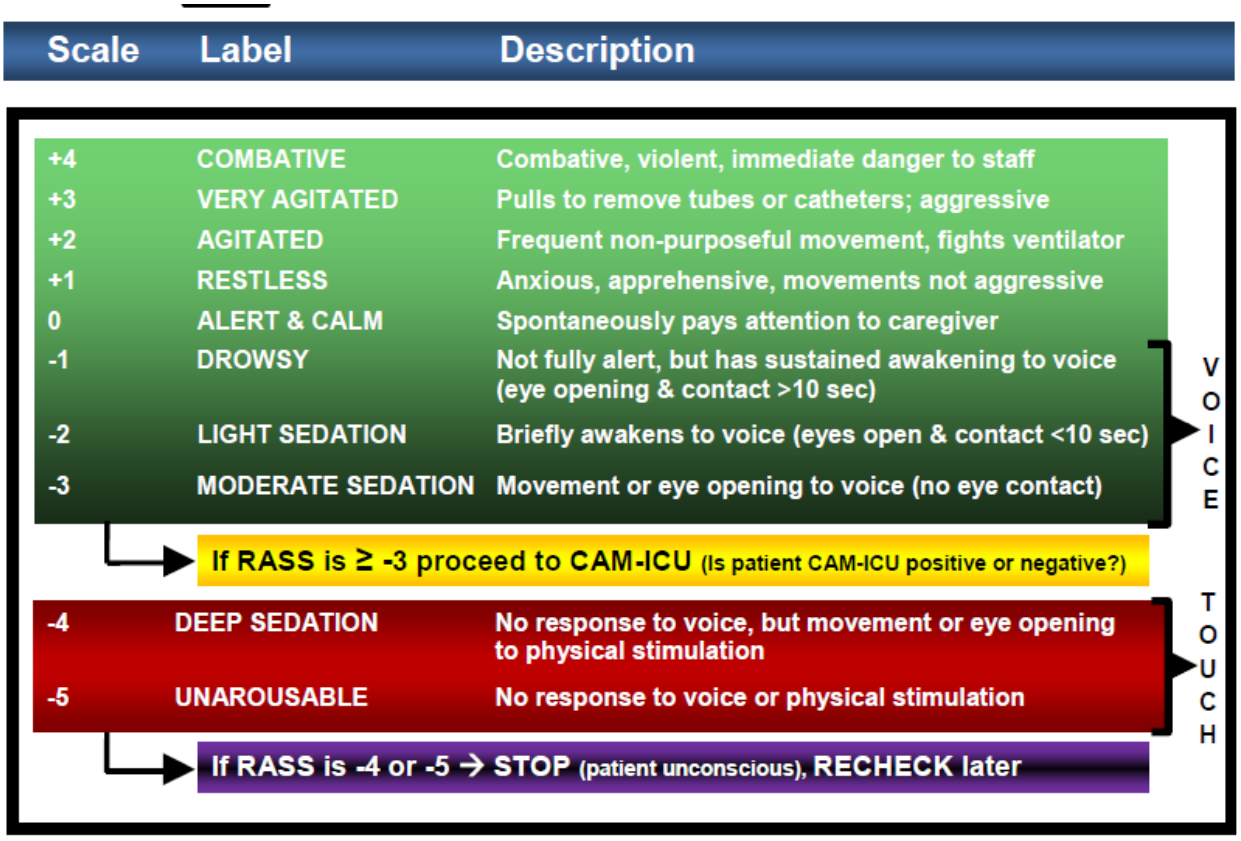
Appendix 1: The Richmond Agitation and Sedation Scale (RASS)



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Legislation

Associated documents

Disclaimer

No guideline can cover all variations required for specific circumstances. It is the responsibility of the health care practitioners using this Auckland DHB guideline to adapt it for safe use within their own institution, recognise the need for specialist help, and call for it without delay, when an individual patient falls outside of the boundaries of this guideline.

Corrections and amendments

The next scheduled review of this document is as per the document classification table (page 1). However, if the reader notices any errors or believes that the document should be reviewed ***before*** the scheduled date, they should contact the owner or Document Control without delay.