

Delirium in COVID

Definition:

Delirium: DSM 5 criteria

1. A disturbance in **attention** (reduced ability to direct, focus sustain and shift attention) and reduced clarity of **awareness and orientation** to environment
2. The disturbance **develops over a short period of time** (hours to a few days) and tends to **fluctuate** during the course of the day
3. A **change in cognition** (such as memory deficit, disorientation, language or perceptual disturbance) not explained by a pre-existing or evolving neurocognitive disorder and not occurring in the setting of a severely reduced level of consciousness
4. There is evidence (history, examination and investigations) of a **general medical condition** judged to be **etiologically related** to the disturbance

Causes:

Risk factors	Precipitants
<ul style="list-style-type: none"> • Old age • Dementia • Multiple diseases • Chronic inflammation state 	<ul style="list-style-type: none"> Medications Change in environment Infection (e.g. UTI) Dehydration
<ul style="list-style-type: none"> • Polypharmacy 	<ul style="list-style-type: none"> Surgery
<ul style="list-style-type: none"> • Renal impairment • Malnutrition • Visual impairment or deafness 	<ul style="list-style-type: none"> Electrolyte disturbance Brain tumor or metastases, stroke, subdural hematoma
	<ul style="list-style-type: none"> Sleep deprivation



Delirium

Step 1. Screen for Delirium

CAM: The Confusion Assessment Method Instrument:

1. **[Acute Onset]** Is there evidence of an acute change in mental status from the patient's baseline?

- 2A. **[Inattention]** Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?

- 2B. **(If present or abnormal)** Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?
 3. **[Disorganized thinking]** Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?
 4. **[Altered level of consciousness]** Overall, how would you rate this patient's level of consciousness? (Alert [normal]; Vigilant [hyperalert, overly sensitive to environmental stimuli, startled very easily], Lethargic [drowsy, easily aroused]; Stupor [difficult to arouse]; Coma; [unarousable]; Uncertain)
 5. **[Disorientation]** Was the patient disoriented at any time during the interview, such as thinking that he or she was somewhere other than the hospital, using the wrong bed, or misjudging the time of day?
 6. **[Memory impairment]** Did the patient demonstrate any memory problems during the interview, such as inability to remember events in the hospital or difficulty remembering instructions?
 7. **[Perceptual disturbances]** Did the patient have any evidence of perceptual disturbances, for example, hallucinations, illusions or misinterpretations (such as thinking something was moving when it was not)?

- 8A. **[Psychomotor agitation]** At any time during the interview did the patient have an unusually increased level of motor activity such as restlessness, picking at bedclothes, tapping fingers or making frequent sudden changes of position?

- 8B. **[Psychomotor retardation]** At any time during the interview did the patient have an unusually decreased level of motor activity such as sluggishness, staring into space, staying in one position for a long time or moving very slowly?

9. **[Altered sleep-wake cycle]** Did the patient have evidence of disturbance of the sleep-wake cycle, such as excessive daytime sleepiness with insomnia at night?

The Confusion Assessment Method (CAM) Diagnostic Algorithm

Feature 1: Acute Onset or Fluctuating Course

This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions: Is there evidence of an acute change in mental status from the patient's baseline? Did the (abnormal) behavior fluctuate during the day, that is, tend to come and go, or increase and decrease in severity?

Feature 2: Inattention

This feature is shown by a positive response to the following question: Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of what was being said?

Feature 3: Disorganized thinking

This feature is shown by a positive response to the following question: Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

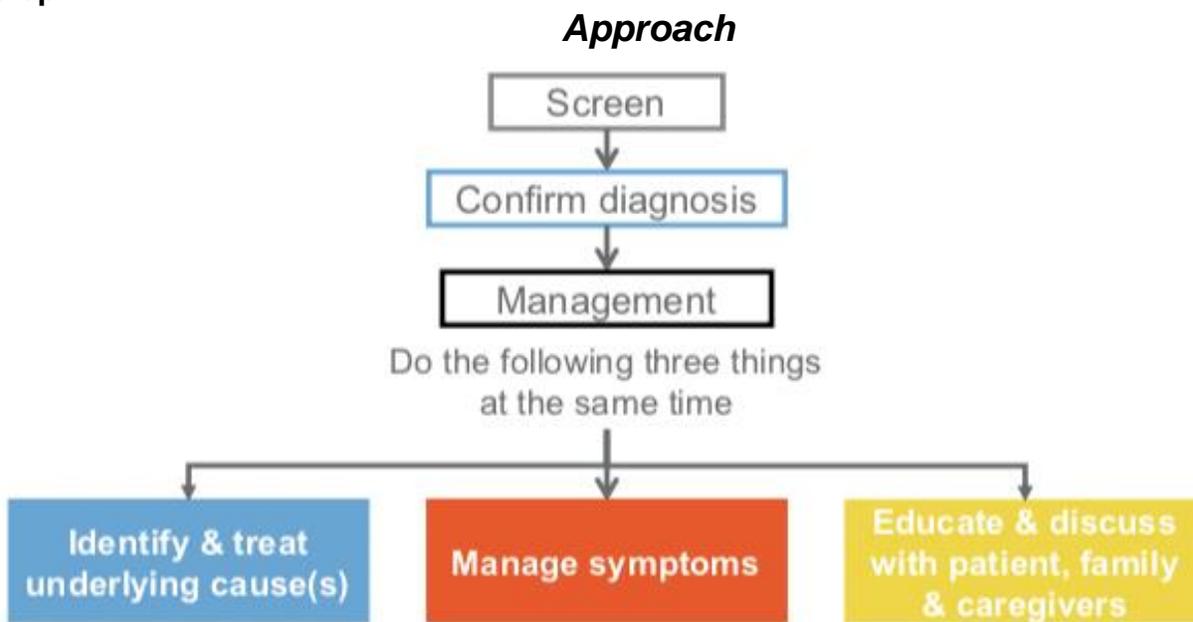
Feature 4: Altered Level of consciousness

This feature is shown by any answer other than "alert" to the following question: Overall, how would you rate this patient's level of consciousness? (alert [normal]), vigilant [hyperalert], lethargic [drowsy, easily aroused], stupor [difficult to arouse], or coma [unarousable])

The diagnosis of delirium by CAM requires the presence of features 1 and 2 and either 3 or 4.

Inouye, S., van Dyck, C., Alessi, C., Balkin, S., Siegel, A. & Horwitz, R. (1990). Clarifying confusion: The confusion assessment method. *Annals of Internal Medicine*, 113(12), 941-948.

Step 2.



Identify and treat underlying cause(s) if appropriate and in keeping with patients goals of care.

Cause	Intervention
Opioid neurotoxicity	Opioid switch, dose reduction or hydration
Medications	Discontinue or reduce
Dehydration	IV or hypodermoclysis
Hypercalcemia	Bisphosphonate (or calcitonin) Hydration if mild
Infection	Antibiotics
Hepatic encephalopathy	Lactulose*
Brain metastases	Corticosteroid

Guiding principles for controlling symptoms:

- Control symptoms:
agitation, hallucinations

Use non-pharmacological methods in all cases

- Consider medications to control symptoms if distressing and non-pharmacological measures ineffective or inadequate

If medications needed:

- First try PRNs only
- Add regular regimen if delirium persists
- Type and dose of medication depends on severity of delirium, frailty, sensitivity to medications
- Once controlled, withdrawing or find lowest dose possible

Step 4: Pharmacological Measures:

Mild delirium;

- Haloperidol
 - 0.25mg to 0.5mg PO or subcut q1hr PRN
 - ± regular dose 0.25mg, 0.5mg or 1mg OD or BID
- Low dose methotrimeprazine
 - More balanced effect on different receptors
- Atypical antipsychotics
- Small doses of olanzapine, risperidone or quetiapine

Moderate delirium:

- Control quickly: Use PRNs.
- Add regular dose if PRN inadequate
- Methotrimeprazine
 - 5mg to 12.5mg PO or subcut q1hr PRN
 - ± regular dose of 5mg to 12.5mg PO or subcut BID to q8hrs

OR

- Haloperidol
 - 2mg PO or subcut q1hr PRN
 - ± regular dose 1mg to 2mg PO or subcut BID to q8hrs
- Atypical antipsychotics • Fewer options

CONSIDER ADDING:

- Small dose of midazolam PRN
 - 1mg or 2mg subcut q 30 min PRN

Severe delirium

- Control quickly: Use PRNs
- Add regular dose if PRN inadequate
- Methotrimeprazine
 - 12.5mg to 25mg subcut q30min PRN
 - Then regular dose of 12.5mg to 25mg PO or subcut q8hrs to q6hrs

OR

- Midazolam
 - 1mg to 5mg subcut q15min to 30min
 - Regular dose: midazolam infusion 0.5mg-4mg/hr

If patients symptoms are still not well controlled consider Palliative Sedation Therapy.

Adapted from Pallium Canada LEAP (Learning Essential Approaches to Palliative Care) Core 2019.