Assessment for Delirium:

Overview and the Confusion Assessment Method (CAM)

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Delirium Recognition

- Recognition is challenging!
  - Fluctuating course with lucid intervals
  - Different forms: hypoactive 75% (worse prognosis)/hyperactive or mixed 25%
  - Concurrence with dementia (up to 50%)
  - Easily overlooked
- Decreased LOC: prevalence varies across settings (highest in ICU, PACU)
- Hallucinations, delusions rare: 10-15%

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Assessment for Delirium

- Many methods currently exist
- Important to distinguish between:
  - Diagnostic evaluation (reference standard rating)
  - Delirium screening
- A continuum exists between these extremes
- Setting also matters:
  - Clinical vs. Research
  - Outcomes study vs. Phase I treatment trial

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Reference Standard Diagnosis

- Experienced clinician (geriatric psychiatrist, geriatrician, neurologist)
- Based on fulfillment of accepted diagnostic criteria (DSM-IV or DSM5; ICD-10)
- No accepted assessment or methodology
- Usually involves patient assessment, review of medical record, family input

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Standardized Delirium Tests

- Confusion Assessment Method (CAM)
- CAM for the Intensive Care Unit (CAM-ICU)
- 3-Minute Diagnostic Interview for CAM delirium (3D-CAM)
- Intensive Care Delirium Screening Checklist (ICDSC)
- Delirium Index (DI)
- Delirium Observation Screening Scale(DOSS)
- Delirium Rating Scale (DRS)-Revised-98
- Delirium Symptom Interview (DSI)
- Memorial Delirium Assessment Scale (MDAS)
- Neelon/Champagne Confusion Scale (NEECHAM)
- Nursing Delirium Screening Scale (NuDESC)

….and more

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Focus on Confusion Assessment Method (CAM)

- Most widely used method worldwide
- Used in >4000 original studies to date, translated into over 20 languages
- Short CAM (4-item)—diagnostic algorithm only
- Long CAM (10-item):
  - provides more information on phenotypes, severity
  - can serve as reference standard in research studies
- Our training today will focus on the Long CAM
- Also feature the 3D CAM--a new standardized interview that operationalizes the Short CAM

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Confusion Assessment Method

- Developed in 1988, since no validated instrument for delirium existed at that time
- Designed to enable nonpsychiatric clinicians to detect delirium quickly and accurately
- Based on DSM-IIIR criteria (11 criteria)—simplified and operationalized criteria and developed diagnostic algorithm. Extrapolates well to DSM5
- Copyrighted instrument. Free of charge for all nonprofit clinical, educational, academic research purposes with acknowledgement:
  - *"Confusion Assessment Method. © 1988, 2003, Hospital Elder Life Program. All rights reserved. Adapted from: Inouye SK et al. Ann Intern Med. 1990; 113:941-8."*

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The CAM Diagnostic Algorithm

(1) acute onset and fluctuating course

-and-

(2) inattention

-and either-

(3) disorganized thinking

-or-

(4) altered level of consciousness

In over 7 validation studies (N>1000 patients), CAM highly sensitive (94%) and specific (89%) when used by trained individuals.

Inouye SK et al. Ann Intern Med 1990; 113:941. Wei LA et al. JAGS 2008;65:823

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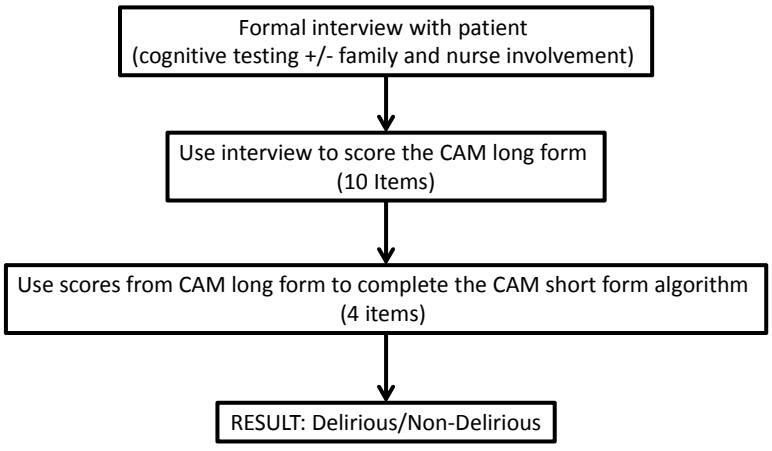
The CAM Diagnostic Process



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Cognitive testing

- The CAM must be scored based on observations made during an interview including formal cognitive assessment
- The assessment can be brief (1-2 mins), but should include: orientation, attention, memory
- Common tests used: SPMSQ, Mini-Cog, digit span, DOWB, MOYB, 3D-CAM

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General Interview Guidelines

- Remember observe all respondent behavior
  - Score CAM based not only on cognitive testing, but also any observations during consent, conversation, and other parts of interview
  - Build knowledge of patient's general mental status
- (Ideal) Setting
  - Aim to create a quiet, calm environment
    - Close door, turn off television, etc.
  - Reduce likelihood of interruption
    - Communicate with nursing

General Interview Guidelines

(cont)

- Technique
  - Write a lot of notes
    - Patient's exact responses
    - Patient behavior
    - Use the lines on the page to write detailed descriptions
  - Be sure to maintain patient's attention and enunciate
  - Devices for hearing impaired such as Pocket Talker can be used
  - Do not give verbal praise, or indicate correct/incorrect answer
  - Probe for details!!

General Interview Guidelines

(cont)

- Record patient's exact words where possible
- Do not give your interpretation of behaviors, but rather detail the exact behavior observed:
  - Instead of "respondent disoriented", write "respondent said she was on a ship in Hawaii".
  - Instead of "respondent seems inattentive", write: "could not make eye contact, attention darted to every noise in room".

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CAM – Acute Change

Is there evidence of an acute change in mental status from the patient's baseline?

- Positive if the patient demonstrates or reports a change in mental status
- Must establish the baseline
- Either new in onset or worsening in intensity, usually over hours to days
- Evidence may come from the interview (patient self-report), medical record, nurse/MD, comments from family or visitors.

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CAM - Fluctuation

Did this behavior fluctuate during the interview?

- Key items to observe for fluctuation
  - Inattention
  - Disorganized thinking
  - Altered Level of Consciousness
  - Psychomotor Agitation
  - Psychomotor Retardation
- Scored based on fluctuation during the interview (i.e., symptom comes and goes or increases and decreases in severity)

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Mild vs. Marked CAM Symptoms

- "Mild" rating means:
  - behavior was present or observed
  - did not significantly interfere with the interview
- "Marked" rating means:
  - behavior was present or observed
  - did significantly interfere with the interview process (e.g., interview difficult, interrupted, or prolonged).

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CAM - Inattention

Did the patient have difficulty focusing attention, for example being easily distractible, or having difficulty keeping track of what was being said?

- Reduced ability to maintain attention to external stimuli and to shift attention to new stimuli.
- Respondent unaware or out-of-touch with environment (e.g., dazed, fixated, or darting attention); no eye contact
- Difficult to establish back and forth conversation
- Errors on attention tests or needs directions repeated

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CAM – 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?

- Patient speaks incoherently, rambles, irrelevant conversation, tangential or circumstantial speech, faulty reasoning
- Off-target or nonsense responses
- Must be able to speak to assess this feature

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CAM – Altered level of consciousness

Overall, how would you rate this patient's level of consciousness?

- Vigilant (Hyperalert, overly sensitive to stimuli, startles easily)
- Lethargic (Drowsy, easily aroused)
- Stupor (Difficult to arouse)
- Coma (Unarousable)

- Important to distinguish from psychomotor agitation or retardation
  - LOC refers to level of arousability or responsiveness
  - Psychomotor agitation/retardation characterizes nature of responses to stimuli (hyperactive vs. delayed, etc)

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CAM – Altered level of consciousness

(Scoring)

- May need to wake patient up to start interview – this is a "freebie" even if it's difficult to fully wake them
  - Do not count this when determining level of consciousness
- Scoring
  - Vigilant: Hyperaware of environmental stimuli
  - Alert (normal): Patient awake throughout interview, does not require any arousal
  - Lethargic: Patient falls asleep during interview but is awakened easily to voice
  - Stupor: Patient falls asleep during interview and requires repeated shaking and/or shouting to arouse
  - Coma: patient is unarousable despite shaking/shouting
  - Important to note fluctuation

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CAM - Disorientation

Was the patient disoriented at any time during the interview, such as thinking he/she was somewhere other than the hospital, using the wrong bed, or misjudging the time of day?

- Inability to locate oneself in the environment with reference to time, place, person
- Thinks she is at home, or that it is night-time during the day
- Errors on orientation questions

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CAM – 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?

- Inability to learn new material or to remember past or recent events.
- Cannot recall why or how long in the hospital, or how many children s/he has
- Errors on recall tasks

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CAM – 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)?

- Interviewer must either witness this feature during the interview or patient reports it within past 24 hours
- Present if patient describes visual, auditory, tactile, olfactory hallucinations or perceptual disturbances, or appears to be responding to such stimuli
- Sensory misperception from false impression of actual stimulus; hallucination when no stimulus is present

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CAM – Psychomotor Agitation

Did the patient have an unusually increased level of motor activity, such as restlessness, picking at bedclothes, tapping fingers, or making frequent sudden changes or position?

- Greatly increased activity compared with norm
- Indicate restlessness or agitation
- Fidgeting, tapping, excessive shifting of position, pacing
- Increased speed of response
- Repetitive movements (grasping, picking behaviors)
- May be voluntary or involuntary

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CAM – Psychomotor Retardation

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?

- Reduced activity compared to the norm
- Sluggishness, slowing
- Decreased activity/movement, decreased speed of movements or speech, delayed motor or verbal responses
- May be voluntary or involuntary

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CAM – Sleep-wake cycle disturbance

Did the patient have evidence of disturbance of the sleep-wake cycle, such as excessive daytime sleepiness with insomnia at night?

- Any deviation from the patient's normal sleep-wake cycle.
  - Self-reports of sleeping difficulties (e.g., insomnia or hypersomnolence)
  - Reversal of cycle (e.g., frequent napping during day and insomnia at night)

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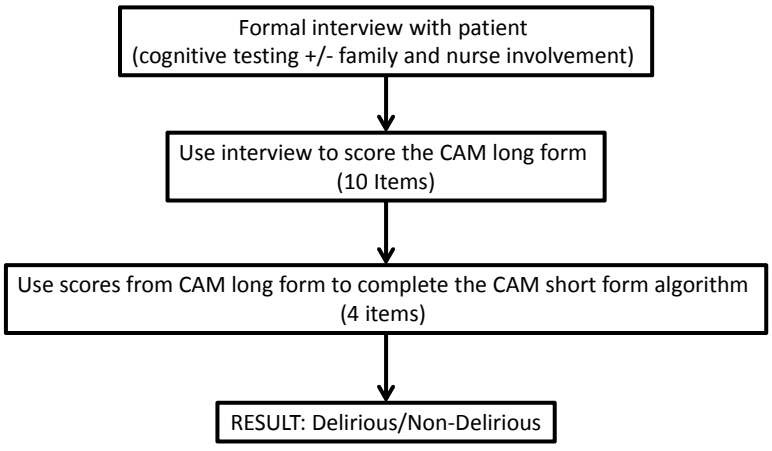
The CAM Diagnostic Process



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Training and Standardization Procedures

- Practice interviews with experienced interviewer
- Pilot interviews on floor with delirious and non-delirious patients, with feedback
- Inter-rater reliability assessments with 5 delirious and 5 non-delirious; achieve 100% agreement
- Ongoing coding sessions with interviewers to discuss questions once a month. Many coding discrepancies need to be handled locally to get team consistent. Record decisions (Ops Manual)

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CAM-S Severity Scoring

- Simple additive score based on delirium symptoms.
- For 4-item CAM, scored from 0-7.
- For 10-item CAM, scored 0-19.
  - Detailed scoring instructions at: www.hospitalelderlifeprogram.org
- CAM-S score strongly associated with poor clinical outcomes (LOS, costs, placement, functional/cognitive decline, death)

Inouye SK et al. Ann Intern Med. 2014; 160: 526-533

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Delirium Episode Severity

- Quantifies severity and course of delirium over an entire hospitalization
- Found that measures that incorporate BOTH intensity and duration were the best predictors of post-hospital outcomes at 30- and 90- days
- Sum of all CAM-S scores and Peak CAM-S were the preferred measures

Vasunilashorn SM. JGIM 2016; 31:1164-71

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Why is delirium severity important?

- Any time a continuous measure needed to track change over time
- Response to treatment
- Monitor clinical course and recovery
- Track burden of care, service utilization
- Advance pathophysiologic understanding and mechanisms

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Other CAM measurement approaches

- 3D-CAM—will be covered tomorrow
- FAM-CAM—validated proxy-based approach

[Tools and training videos available without charge at: www.HospitalElderLifeProgram.org]

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Chart-based approaches

- Validated chart review approach (Inouye, 2005)—trained abstractor and adjudication
- Combination of once daily CAM and chart review most sensitive approach and provides 24 hour perspective (Saczynski 2014)

[All available without charge at: www.HospitalElderLifeProgram.org]

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I've seen a dying eye
Run round and round a room
In search of something, as it seemed,
Then cloudier become;
And then, obscure with fog,
And then be soldered down,
Without disclosing what it be,
'Twere blessed to have seen.

Emily Dickinson

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