

CAM-ICU Training Manual

FREQUENTLY ASKED QUESTIONS

GENERAL

1. Can you perform CAM-ICU assessments on demented patients?

Varying degrees of baseline dementia may be present in your patients, often having gone unrecognized. It is helpful to know that features of delirium tend to be diagnosable even in the presence of dementia (Trzepacz, *Journal of Neuropsychiatry* 1998.). In fact, we performed subgroup assessments of the performance of the CAM-ICU in patients with probable dementia from both of our validation studies (as did Dr. Inouye in her original CAM validation study). The CAM-ICU was found to be reliable and valid in patients both with and without dementia. These patients provide a more difficult assessment, however. As much as possible, it is important to correctly identify the patient's baseline cognitive functional status and to differentiate chronic cognitive impairments due to dementia from acute changes in attention and thinking due to delirium. We screen all study patents with surrogate assessment tools for dementia [i.e. the modified Blessed Dementia Rating Scale or mBDRS (Blessed, *Brit.J.Psychiat* 1968) or the Informant Questionnaire on Cognitive Decline in the Elderly or IQCODE (Jorm, *Psychological Medicine* 1989)].

The following definitions may help to outline the major distinguishing features between delirium and dementia:

Delirium: A disturbance of consciousness characterized by an acute onset and fluctuating course of impaired cognitive functioning, so that a patient's ability to receive, process, store, and recall information is strikingly impaired. Delirium develops over a short period of time (hours to days), is usually reversible, and is a direct consequence of a medical condition, substance intoxication or withdrawal, use of a medication, toxin exposure, or a combination of these factors. Think: rapid onset, inattention, clouded consciousness (bewildered), often worse at night, fluctuating.

Dementia: Development of a state of generalized cognitive deficits in which there is a deterioration of previously acquired intellectual abilities usually developing over weeks and months. The deficits include memory impairment and at least one of the following: aphasia, apraxia, agnosia, or a disturbance in executive functioning. Patients with dementia usually do not have inattention until late in the course of the disease. The cognitive deficits must be sufficiently severe to cause impairment in occupational or social functioning, and they may be progressive, static, or reversible depending on the pathology and the availability of effective treatment. Think: gradual onset, intellectual impairment, memory disturbance, personality/mood change, no clouding of consciousness.

2. Is it necessary to do perform all four Features of the CAM-ICU assessment on every patient?

No. If you are only documenting the presence or absence of delirium (i.e., positive or negative), then you only do the amount of features (in any order) to get your answer. Remember a patient is considered delirious (ie CAM-ICU positive) when Features 1 and 2 and either Feature 3 or 4 are positive. For example if Features 1,2, and 4 are positive, then there is no need to assess for Feature 3. Likewise, if either Features 1 or 2 are absent/negative then you do not have to proceed (because the patient cannot be CAM-ICU positive).

3. Do you have to perform the Four Feature Assessment in succession at the bedside?

When thinking of implementing the CAM-ICU into bedside practice or for research purposes, it is important to consider that many of its components are similar to less formal methods of bedside assessment often already used in practice (i.e., unbeknownst to the staff, they are usually assessing for Feature 1 via sedation scales or their frequent neurologic assessments). A thorough evaluation of the current bedside assessment components will help identify which CAM-ICU features are already being assessed.

An examination of your current ICU practice will also help to modify some parts of the current assessment to accurately identify delirium. We recommend incorporating the CAM-ICU assessment tools into the bedside examination. The raw data are collected throughout the patient assessment and then plugged in to the CAM-ICU algorithm to discern for the presence or absence of delirium.

4. How frequently should patients be assessed for delirium using the CAM-ICU?

We recommend that critically ill patients be assessed for delirium with the CAM-ICU at least once every 8 to 12 hours (e.g. once per nursing shift).

5. Should you ever have a CAM-ICU that is “Unable to Assess” (UTA) with a RASS of -3 or higher?

Only in rare instances. The majority of patients who are a RASS -3 or higher, can provide enough data to complete the CAM-ICU. In the instance that a patient only opens eyes as a reflex to sound and immediately closes them again, then this RASS -3 would be CAM-ICU = UTA. These patients only reflexively respond to sound and are not really responding to voice directed at them. Therefore, there is not even a minimal form of communication to assess CAM-ICU. These patients are in a stupor state and we do not typically call them delirious. However, if a patient opens eyes to voice directed to them and fails the ASE (attention screening exam) because they won't squeeze at all or don't stay awake long enough to squeeze for more than one letter, then this patient is inattentive and if he/she meets the other criteria is delirious. The CAM-ICU can be completed in these patients.

One way to think about this is if the eyes open to voice, then the lights come on. To see if anyone is home, you can assess for delirium using the CAM-ICU. If the eyes only open to a noise (any loud noise) then this is like a flickering light – the light did not come on and you cannot check if anyone is home.

The only other time that a patient could be RASS -3 or higher and CAM-ICU = UTA is when the patient's baseline is absolutely unknown (i.e. there are no family or staff that can provide insight into the patient's prior status and no assumption can be made about the patient's baseline).

6. How do you identify delirium in a patient who has a flat affect that is secondary to major depression?

Patients who are depressed will still exhibit the features of delirium if they develop this condition, and are assessable using the CAM-ICU. In rare cases, depression can manifest itself in a way that may cause a false positive CAM-ICU. In general, this sort of distinction should incorporate the expertise of a psychiatrist. In the majority of circumstances, a depressed patient who is found to be CAM-ICU positive patient is considered delirious.

7. How do you document the CAM-ICU?

The first step is to decide where the CAM-ICU assessment results will be documented. We recommend documenting the CAM-ICU in the hourly portion of the nursing flowsheet. Most institutions document the overall CAM-ICU score and not the individual features. However, if you have room, the individual feature documentation can help with compliance and accuracy of the overall assessment and provide excellent data for chart review when trying to identifying weaknesses in the assessment.

Once you have decided where to document the CAM-ICU findings, the next step is to identify what language you would like to use for the documentation. As the CAM-ICU worksheet indicates, the four features are recorded as “positive” or “negative.” We have found that different institutions choose to record the overall CAM-ICU as either “positive” or “negative” OR “Yes”, “No” and “UTA.” The table below shows the various terminologies that have been used. We recommend picking language that your staff best understands.

Overall CAM-ICU score			
Yes	Positive	Present	Delirious
No	Negative	Absent	Non-Delirious
UTA (Unable to Assess)	UTA	UTA	UTA

FEATURE 1: Acute onset or fluctuating course of mental status

1. How do you determine baseline mental status?

Whenever possible it is important to gain this information from the patient's family and/or friends and the past medical history. When this information is obtained, it is important to document it in the patient's chart in order to provide communication between staff. We encourage our staff to use some critical thinking skills with this feature. If the patient is young (<65) and is admitted from home with no documented neurocognitive disorder or history of cerebrovascular accident (CVA), then we assume that the patient has a "normal" baseline mental status, which we assume would be commensurate with a GCS= 15 and a RASS = 0. If the patient is older than 65 or has documentation of a neurocognitive disorder or CVA, then we encourage the staff to probe family or the institution from which the patient came (nursing home) for more information on his/her baseline.

2. Do you use that same "patient baseline" with successive CAM-ICU assessments?

Yes.

3. How do/would you handle it if the patient has had a permanent change of baseline during the hospitalization – e.g., a stroke? Does that baseline become the new one for CAM-ICU purposes?

If a patient has a permanent change in baseline (e.g., stroke) then that new baseline becomes the one used for the CAM-ICU on all subsequent evaluations. Determining the baseline may be difficult, however, in these patients because of the inherent difficulty in separating delirium from this new baseline. In practice, it is easiest to meet Feature 1 in such a situation by documenting "fluctuations" in the mental status.

4. Can you use the CAM-ICU on patients in a Neuro Intensive Care Unit or with patients admitted with Traumatic Brain Injury?

Yes, many surgical ICUs have been implementing delirium monitoring, and there are currently several cohort studies completed and in various stages of publication from these units. One must be careful to determine the patient's baseline as well as to attempt to determine if he/she now has structural neurological disease induced by trauma, ICH, CVA, etc. If so, the CAM-ICU may be positive for these reasons rather than any reversible causes of delirium. We recommend that the CAM-ICU be used in this population (using the patient's last known baseline) and the baseline be adjusted as more information is gained.

FEATURE 2: Inattention

Alertness is a basic arousal process in which the awake patient can respond to any stimulus in the environment. The alert, but inattentive patient will respond to any sound, movement, or event occurring in the vicinity, while the attentive patients can screen out irrelevant stimuli. Attention presupposes alertness, but alertness does not necessarily imply attentiveness (*i.e. all attentive patients are alert, but not all alert patients are attentive*) (Strub, The mental status examination in neurology, F.A. Davis Company, 1993).

1. How do you decipher if inability to follow instructions is due to inattention, disorganized thinking, or inability to comprehend the instructions?

At the beginning of the assessment of inattention, the rater establishes whether or not the patient can follow even the simplest "yes and no" nod of the head or squeeze of the hands. If the patient can communicate in such a manner (even once during the assessment) then the rater concludes that there is a basic ability to understand instructions and proceeds with the test of attention (ASE Letters or Pictures). In this case, the patient's score is a reflection of his/her attention abilities. If a patient cannot perform even the most basic commands (e.g., "nod your head" or "squeeze my hand") then the rater cannot distinguish between inability to comprehend instructions and inattention thus cannot proceed to the attention test. It is correct that an element of disorganized thinking may be present as well which should be assessed in Feature 3. (See also question #5 in the "General" section above)

2. When patients are very lethargic, stuporous or comatose, the ASE components may be impossible to administer. If you can't administer the test, what is then the conclusion? Is the patient delirious or not delirious?

The two-step approach to the CAM-ICU provides a filter for a majority of the patients who cannot communicate with the assessor. Patients who do not proceed to Step Two (i.e. those at a sedation level of RASS -4 or -5) are not tested with the rest of the CAM-ICU assessment. Therefore, for those who get to Step Two and have eye opening with verbal stimulation alone, the inability to perform and/or complete the ASE components is attributed to inattention. These patients have an inability to attend their thoughts (for whatever reason).

RASS score of -3 seem to be a gray zone. Some patients in this state can communicate to some degree, while others just open their eyes with minimal further interaction. We have placed the cutoff for the two steps at RASS between -3 and -4 because some patients who are RASS -3 can be assessed thoroughly.

3. Do you have to complete both the ASE Letters and ASE Pictures on every patient?

We have found in our validation studies (unpublished data) that the majority of the time patients scored similar on both tests (ASE visual/pictures and ASE auditory/letters). As a result you do not have to use both tests in each assessment. Attempt the ASE letters first. If pt is able to perform this test and the score is clear, record this score and move to the Feature 3. If pt is unable to perform this test or the score is unclear perform the ASE Pictures. If you perform both tests, use the ASE pictures results to score the Feature.

FEATURE 3: Disorganized Thinking

This is by far the hardest area to assess in nonverbal patients. This is the most subjective of the four features. Thought is expressed via words (verbalized or written). Mechanical ventilation and loss of fine motor movement limit this expressive ability in most ICU patients. As a result the CAM-ICU uses easy, straightforward yes/no questions and simple commands to assess organization of thought. We are open to improve the methods of advancing our assessment of this feature of delirium, and welcome your feedback on this Feature.

1. If a patient answers the four questions correctly, do you still assess the commands?

We encourage those performing the CAM-ICU to ask all the questions and commands. We discourage ending with the questions (even if the patient scores a 100%) b/c of the chance that the patient had four lucky guesses. The combo of the questions and commands gives the clinician more data with which to make a judgment of the presence or absence of disorganized thinking. If the patient answers all questions correctly, but the rater feels the patient randomly said yes/no and got the questions right - the performance on the commands can help to affirm or disprove the clinician's gestalt.

NOTE: The criteria for this Feature were listed incorrectly in our publications (Ely, et al. JAMA 2001; 286: 2703-2710. and Truman, et al CCN 2003; 23:25-36.). Organized thinking is evidenced by 3 or more **correct** answers to the 4 questions. Therefore (as listed on page 5 of this manual) patients score a positive Feature 3 (i.e., disorganized thinking) when they answer 2 or more of the 4 questions **incorrectly**.

Over the past few years we have learned a great deal about how to operationalize the CAM-ICU in practice. From an operational/bedside perspective, we apply a score for the Feature 3 tests that were published in the CCM and JAMA (i.e., 4 questions and a command to hold up fingers with each hand). As with the original studies, the patient's ability to answer and respond correctly to the questions/command determines whether or not Feature 3 is positive. The patient is given up to 5 points for the Feature 3 examination (1 for each correct question answered and 1 for the command). If the patient gets less than 4 points, then he/she is considered to have disorganized thinking and Feature 3 positive.

2. Is it necessary to perform both Set A and Set B of the Feature 3 Yes/No questions during an CAM-ICU assessment?

It is only necessary to perform **either** Set A or Set B for this feature. Two sets are offered so that you can alternate questions with repeated use.

FEATURE 4: Altered Level of Consciousness (at the time of the evaluation)

1. Is Feature 4 positive in coma?

Although comatose patients are technically “CAM+,” coma is not considered delirium. However, a delirious patient could have recently been comatose, indicating a fluctuation of mental status. Comatose patients often, but not always, progress through a period of delirium before recovering to their baseline mental status. *Feature 4 is positive for any patient with a RASS level other than “0.”*

2. What is the difference between Feature 4 and Feature 1?

Feature 1 focusing on the patient’s mental status baseline and fluctuation in the past 24 hours. When assessing this feature you are really asking “Is this patient at his/her baseline and has he/she been there for the past 24 hours?” Whereas Feature 4 focuses on the patient’s current (at the time of the assessment) level of consciousness compared to “alert and calm/RASS=0” regardless of the patient’s baseline.

Implementation:

1. How do I obtain copyright permission?

We have obtained copyright for the CAM-ICU and its educational materials and have deliberately made it unrestricted in terms of use. We ask that you include the copyright line on the bottom of the pocket cards and other educational materials, but do not require you to obtain a written letter of permission from us for implementation and clinical use.

2. How do I obtain ASE Picture Packets and/or Pocket Cards?

We will be glad to assist you in ordering the materials. Please contact us at delirium@vanderbilt.edu. Please make the subject of your email “Training manual order”. This will insure that the correct person receives the request.

3. When a patient has been delirious and is receiving treatment, when should treatment be discontinued?

Since by definition delirium is a disorder of fluctuations, a patient is delirious-free when he/she has been CAM-ICU negative for 24 hours. If a patient was positive one shift and negative the next, continue to assess him/her for delirium and continue treatment (you could certainly reduce doses if on pharmacologic treatment) until negative the next shift.