

Confusion Assessment Method for the ICU (CAM-ICU)

Frequently Asked Questions

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Frequently Asked Questions (FAQs)

Frequently Asked Questions for Feature 1:

1. How do you determine baseline mental status?

This is the patient's **pre-hospital mental status**. Get this information from family, friends, or the H&P and document it in the patient's record to facilitate communication between staff. We encourage you to use critical thinking skills with this Feature. For example:

- If the patient is young (e.g. <65) and is admitted from home with no documented neurocognitive disorder or history of stroke, then you could assume that the patient has a "normal" baseline mental status (i.e., alert and calm).
- If the patient is older, has documentation of a stroke or dementia, or came from a nursing home, then you should probe family or the institution for more information on the patient's pre-hospital baseline mental status.

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

Always, unless a permanent change in baseline occurs (see #3). You should consistently use the patient's established pre-hospital baseline.

3. How do you handle a permanent change of baseline during the hospitalization – e.g., a stroke or anoxic injury? Is that modified and permanent new baseline used for CAM-ICU purposes?

Yes. If there is a permanent change in baseline, the new baseline is used for subsequent CAM-ICU evaluations. This may be difficult to determine because of the difficulty in separating delirium from the new baseline. In practice, it is easiest to gather Feature 1 in such a situation by documenting 'fluctuations' in the mental status. (See more details in the "Putting CAM-ICU into Practice" section, question #2, page 5)

4. Does it still count as fluctuation in mental status or change from baseline mental status when a patient is on sedatives?

Yes. Alteration in mental status includes those that are chemically induced by the healthcare team, including fluctuation due to titration of sedatives. This is not the patient's usual mental status. It is often difficult to completely distinguish a disease-induced change from a drug-induced change in mental status.

Frequently Asked Questions for Feature 2:

1. If a patient is RASS -3 or very lethargic, is the CAM-ICU ‘unable to assess’ (UTA)? Is the patient delirious?

The ability to be tested with the CAM-ICU is wholly based on a patient being at all responsive to verbal stimulation, regardless of sedative use. The 2-step approach to assess consciousness with the RASS and CAM-ICU provides a filter for the majority of patients who cannot participate in the assessment. Comatose patients (i.e., RASS -4/-5) are not tested with the CAM-ICU because they are unconscious. Though it seems like a gray zone, most patients who are a RASS -3 can provide enough data to be rated as delirious by the CAM-ICU. Some sites have used RASS -2 as the lower border for CAM-ICU rating, but most use RASS -3 as the cutoff.

- If a patient has any movement or eye opening to your voice directed to them and doesn't squeeze at all or stay awake long enough to squeeze for more than one letter, then this patient is obviously inattentive. At this point, assess the other CAM-ICU Features as needed to determine if the patient is delirious. Example:
 - If the patient ever squeezed, then count the errors (see Letters instructions).
 - If the patient never squeezed then the patient is inattentive. Also be suspicious for inattention when you have to repeat the instructions more than twice.
- One way to think about this is if there is eye opening or movement to voice, then the “lights are on”. Use the CAM-ICU to see if “anyone is home”.

These concepts also apply to a patient who is agitated (i.e., RASS +1 thru +4) and therefore not participating in assessment or comprehending your instructions.

2. Do you have to complete both Letters and Pictures on every patient?

No. You do not have to use both tests in each assessment. Attempt the Letters first. If the patient is able to perform this test and the score is clear, record this score and move to the Feature 3. If the patient is incapable of performing the Letters or you are unable to interpret the score, perform the Pictures. If you perform both tests, use the Pictures result to determine if the patient is inattentive. See question #1 above for interpretation of scoring. The Pictures are rarely required to assess inattention (only <5% of the time).

3. Are there other Letter sequences that I can use to assess Feature 2?

Yes. Some other sequences that have been used to assess inattention include:

- A B A D B A D A A Y (from the Pediatric CAM-ICU)
- 8 1 7 5 1 4 1 1 3 6 (Chinese traditional translation using numbers instead of letters)
- C A S A B L A N C A
- S A V E A B R A A N

4. How do I obtain Picture packets?

We will be glad to assist you in ordering the materials. Please contact us at delirium@vanderbilt.edu. Make the subject of your email “CAM-ICU order”. This ensures your request is processed in a timely manner.

Frequently Asked Questions for Feature 3:

1. Didn't this used to be Feature 4?

Yes. After other institutions began switching Features 3 & 4, we decided to switch the order for ease of use and common sense. Many users had previously gotten confused thinking the Features had to be assessed in numerical order (i.e. 1, 2, 3, 4). However, there is no rigid rule to the order of assessing CAM-ICU Features. Nothing has changed with the content of this Feature.

2. Is Feature 3 positive in coma?

No. Coma is not considered delirium. Remember, we do not perform the CAM-ICU if a patient is comatose (i.e. RASS -4 or -5). Many delirious patients 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.

3. What is the difference between Feature 3 and Feature 1?

- **Feature 3 (Altered Level of Consciousness)** evaluates the patient's current level of consciousness (right now). The current level of consciousness as detected with the actual current RASS regardless of the patient's baseline mental status.
- **Feature 1 (Acute Change or Fluctuating Course of Mental Status)** evaluates the patient's pre-hospital mental status baseline and whether there has been fluctuation in mental status during the past 24 hours.
- **Take home point:** A patient can have an alert/calm baseline, RASS fluctuations (-1 to -2) over the past 24 hours, and currently be RASS 0. Feature 1 is present due to fluctuations, but Feature 3 is absent because the patient is currently alert (RASS 0).

4. My facility uses a different sedation-agitation/level of consciousness (LOC) assessment scale. Can I still use the CAM-ICU?

Yes. Any validated sedation-agitation/LOC scale can be used for completing the CAM-ICU. The RASS is not the same as other sedation-agitation/LOC assessments, and therefore not exactly equal. For that reason, it is important to determine which values on your current scale correlate with the terms and descriptions of the RASS scale. (See more details in the "Putting CAM-ICU into Practice" section, question #15, page 10-11)

Frequently Asked Questions for Feature 4:

1. Didn't this used to be Feature 3?

Yes. After other institutions began switching Features 3 & 4, we decided to switch the order for ease of use and common sense. Many users had previously gotten confused thinking the Features had to be assessed in numerical order (i.e. 1, 2, 3, 4). However, there is no rigid rule to the order of assessing CAM-ICU Features. Nothing has changed with the content of this Feature.

2. How frequently do you have to use this Feature?

According to the CAM-ICU a patient is delirious if Features 1 and 2 and either 3 or 4 are present. Many times you will not need to assess this Feature because you will have the information you need from Features 1, 2, and 3. It is only when Features 1 and 2 are present and Feature 3 is absent (patient is alert) that you have to complete this Feature.

3. If a patient answers the four questions correctly, do you still assess the command?

Yes. We encourage you to perform the 2-step command even if the patient scores 100% on the questions because there is a chance the patient had four lucky guesses. The combination of questions and 2-step command gives the clinician more data to make a judgment of whether there is disorganized thinking. If the patient answers all questions correctly, the performance on the 2-step command can help identify subsyndromal delirium.

4. Isn't there an alternate set of questions?

Yes. These questions can be used as an alternative to the set listed above. Try to alternate questions with 'yes' then 'no' answers.

- Will a leaf float on water?
- Are there elephants in the sea?
- Do two pounds weigh more than one?
- Can you use a hammer to cut wood?

5. Is it necessary to ask all 8 questions during a CAM-ICU assessment?

No. It is only necessary to perform one set of questions for this Feature. The second set is provided as an alternate for repeated use.

6. Do you assess the 2-step command if the patient is paralyzed, quadriplegic, or visually impaired?

No. If a patient cannot move his/her arms or is blind, score solely on Feature 4 questions. Therefore, Feature 4 is present if the patient misses more than one question (>1 error).

7. Weren't the criteria for this Feature listed differently in your publications?

Yes. 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, Feature 4 is present when a patient answers 2 or more of the 4 questions **incorrectly**.

Frequently Asked Questions for Putting the CAM-ICU into Practice

1. Can I use the CAM-ICU outside the Intensive Care Unit?

Assessing for delirium throughout the entire hospital system is an important part of patient care. The choice of which delirium assessment(s) to use is dependent on your needs, goals, and patient populations. Wong et al. have published an excellent systematic review on a number of delirium assessment tools.¹⁰ Examples of delirium instruments that have been validated outside of the ICU include: the original CAM, CAM-ICU (Han, et al. *Acad Emerg Med* 2014;21(2):180-187), Delirium Rating Scale (DRS-R-98), Memorial Delirium Assessment Scale (MDAS), and Nursing Delirium Screening Scale (NuDESC).

Additionally, there are the following specialty versions of the CAM-ICU:

- **The Pediatric CAM-ICU (pCAM-ICU)¹¹:** The pCAM-ICU has been validated in ages 5–17 years for use by the bedside caregiver. The pCAM-ICU provides a simple, quick tool to assess for delirium in the pediatric intensive care patient. The assessment provides a means for early recognition of fluctuations or change in cognitive function, which can allow for more extensive follow-up and assessment that can subsequently confirm the presence of delirium and then evaluate the appropriate response or treatment. For more information see: <http://www.icudelirium.org/pediatric.html>
- **The Delirium Triage Screen (DTS)¹²:** The DTS was designed to be the optional first step of a two-step delirium monitoring process for very busy clinical environments. The DTS is a 20 second assessment designed to rapidly rule-out delirium and reduce number of formal delirium assessments needed. It consists of a measure of level of consciousness and a brief measure of inattention. If negative, no additional testing is needed. If positive, confirmatory testing (Step 2) to rule-in delirium with more specific assessments such as the Brief Confusion Assessment Method (bCAM) (described below) or the Confusion Assessment Method (CAM) are needed. For more information see: <http://www.icudelirium.org/non-icu.html>
- **The Brief CAM (bCAM)¹²:** The bCAM was developed for use in the Emergency Department setting by modifying the CAM-ICU. The bCAM and CAM-ICU are very similar. However, one key difference is the test for attention has been changed to reciting the months backwards from December to July. Though the bCAM has been validated in older emergency department patients, the diagnostic performances appear to be similar in patients who are admitted to hospital and this tool may be promising for use in other non-ICU settings. For more information see: <http://www.icudelirium.org/non-icu.html>

2. Can I use the CAM-ICU in my Neuro Intensive Care Unit or in patients with Traumatic Brain Injury?

The CAM-ICU has been validated in 129 post-stroke patients showing a sensitivity of 76%, a specificity of 98%, and an overall accuracy of 94% with a likelihood ratio of 47 (which is huge).¹³ In addition, Naidech and colleagues studied 114 neurosurgical patients with focal neurologic injury (ICH and SAH), and found that delirium symptoms were common despite low rates of infection and sedation exposure and were predictive of subsequent worse functional outcomes and lower quality of life.¹⁴

One of the ways of more comfortably including delirium into the conversation and thus appropriately expanding the differential diagnosis for Neuro ICU patients experiencing cognitive changes or abnormalities, is to think of an abnormal CAM-ICU as representing “symptoms of delirium” rather than thinking it is “definitely delirium.” Considering the patient’s findings of a positive CAM-ICU to mean “symptoms of delirium” acknowledges that these symptoms could, yes, be caused by the list of things we know bring on delirium (e.g., diseases like sepsis, drugs like benzodiazepines, or environmental issues like sleep/light/absence of hearing aids or eye glasses) as well as exacerbations of their underlying neurologic admission diagnosis such as vasospasm or bleeding.

When incorporating delirium ratings into the clinical milieu of the neurosurgical ICU, we must acknowledge that in patients who have structural brain disease, it is not always possible to determine the etiology of cognitive demise, that is, of patients who are CAM-ICU positive. The “delirium symptoms,” or abnormal test result, could be due to drugs, disease, trauma, ICH, SDH, CVA, etc. What the determination of the presence of delirium symptoms does for you is immediately expand your mind to include other items in the differential diagnosis (beyond the ICH or SAH) so that things are not missed. It also allows you to follow the patient’s clinical course over time in a way that is more objective and inclusive. One must be careful to determine the patient’s baseline and whether there is structural neurologic disease. If so, the CAM-ICU may be positive because of structural disease rather than more 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.

Once a patient is evaluated for the presence of delirium symptoms in the Neuro ICU, then we must consider the cause and do whatever we can to reduce the duration of delirium. In all patients it’s good to know if they are delirious or not and to monitor the trends no matter the etiology. If a patient is negative one day and positive the next, something has changed.

3. Can you perform a CAM-ICU assessment on a patient with dementia?

Yes. The features of delirium are identifiable even in the presence of dementia. In fact, we performed subgroup assessments of the CAM-ICU in patients with dementia in 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 with and without dementia. However, these patients can be more difficult to assess. Varying degrees of baseline dementia may be present, often having gone unrecognized. It is important to correctly identify the patient’s baseline cognitive functional status and differentiate chronic cognitive impairments due to dementia from acute changes in attention and thinking due to delirium. A good question to ask the family to help you get this information is, “Do you think he/she could do this test at baseline?” Watching the trend is also important.

4. Can I use the CAM-ICU in patients having alcohol withdrawal?

Yes. Alcohol withdrawal can include a type of delirium which usually manifests as hyperactive delirium. The CAM-ICU can be used to detect delirium in these patients. However, it should not be used by itself as a tool to manage/guide alcohol withdrawal syndrome treatment. The ICUs at Vanderbilt use the CIWA-Ar (Clinical Institute Withdrawal Assessment for Alcohol revised), a commonly used tool in the U.S. to guide therapy for alcohol withdrawal syndrome. It is important to note that the CIWA-Ar has not been validated in ICU patients.^{15,16}

CAM-ICU evaluates patients for the presence of delirium. Then we must determine the cause and do whatever we can to reduce the duration of delirium. In all patients it’s good to know if they are delirious or not and to monitor the trends no matter the etiology.

5. How do I perform the CAM-ICU if my patient doesn't speak English?

The CAM-ICU is available in over 20 languages. They can all be found at this link: <http://www.icudelirium.org/delirium/languages.html>.

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 features of delirium if it develops, 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. This is because severe depression can mimic inattention and hypoactive delirium. In the majority of circumstances, a depressed patient who is found to be CAM-ICU positive is considered delirious. In general, this sort of distinction should incorporate the expertise of a psychiatrist. Watching the trend is key with these folks.

7. When should pharmacologic treatment for delirium be discontinued?

The recently updated clinical practice guidelines for Pain, Agitation, and Delirium (PAD) include no recommendation for the use of any medication for the treatment of delirium.¹ There is a recommendation against the use of rivastigmine for delirium treatment, but no recommendations **for or against** the use of haloperidol, a conventional antipsychotic, or any of the atypical antipsychotics. More research is needed in this area to guide decisions on which drug to choose, if any, to treat delirium.

If pharmacologic treatment is initiated, it is important to note that since by definition delirium is a disorder of fluctuations in mental status, a patient is considered free of delirium when 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 consider continuation of pharmacologic treatment initiated for delirium until the patient has been CAM-ICU negative for 24 hours. You could certainly reduce the dose of the drugs being given for delirium during that time.

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

No. Only do the Features needed to get your answer. Remember a patient is considered delirious (i.e. CAM-ICU positive) when Features 1 and 2 and either Feature 3 or 4 are present. For example:

- If Features 1, 2, & 3 are present, then there is no need to assess Feature 4.
- If either Features 1 or 2 are absent then you do not have to proceed because the patient cannot be CAM-ICU positive without them.

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

The Pain, Agitation, and Delirium (PAD) clinical practice guidelines recommend routine monitoring of delirium in all adult ICU patients every shift (every 8-12 hours) and as needed.¹ Some ICUs do this more often, and especially with changes in the patient's clinical status.

10. Should I do a CAM-ICU assessment before, during, or after a Spontaneous Awakening Trial (SAT)?

For many years, it was unknown whether additional prognostic information is obtained by performing a delirium assessment before and after sedative interruption (i.e., before and after a spontaneous awakening trial [SAT]). Most of the published studies on delirium in the ICU included

both sedated and non-sedated patients and did not systemically assess delirium before and after SATs. A recent article in the AJRCCM, however, provided new evidence on the importance of measuring for delirium before and after sedatives are stopped.¹⁷

Shruti Patel and colleagues (University of Chicago) studied the outcomes of patients with “rapidly reversible sedation-related delirium,” which they defined as delirium (CAM-ICU positive) while receiving sedation that resolved (CAM-ICU negative) within two hours after stopping sedatives during an SAT. Though this type of delirium was rare—only 12% of the 102 patients studied had the rapidly reversible form—these patients had a prognosis that was similar to patients who never had delirium in the study. That is great news for this small group of patients. Unfortunately, the large majority of patients (75%) who were delirious in this investigation had “persistent delirium” (i.e., they were still CAM-ICU positive more than two hours after sedative interruption) and a higher risk of death and longer length of stay (a consistent message in the literature related to delirium in general). Many sedatives used in the ICU (especially benzodiazepines) can remain in the body for hours or even days after an SAT. The mechanisms by which sedatives may contribute to delirium or potentiate effects of critical illness on the brain are not well understood. It is almost certain that many patients in the persistent delirium group had existing psychoactive medications in their blood stream, although this study did not attempt to quantify this.

The best picture of the patient's mental status will come from assessing delirium serially throughout the day. Thus, we recommend that you assess patients for delirium both before and after daily sedative interruption (SAT). This approach will provide helpful prognostic information to you and your team who are considering how aggressive to get with non-pharmacological and pharmacological methods of managing delirium. Lastly, the implications of this research are that all of the previous studies that included the “rapidly reversible” patients lumped in with the persistently delirious patients would have, if anything, UNDERESTIMATED the risks of delirium in terms of mortality, length of stay, and potentially long-term cognitive impairment risk. This study tells us more clearly than ever before that this form of organ dysfunction in critically ill patients must be closely monitored and addressed when present. We can't continue to look away!

11. My patient does not meet the Features to be CAM-ICU positive, but still acting like he/she is delirious. What does this mean?

It is possible for patients to never develop all the symptoms of delirium required by the DSM-IV criteria for clinical diagnosis. When a patient exhibits only some of the symptoms of delirium it is considered subsyndromal delirium. This intermediate form of delirium is associated with prolonged ICU and hospital length of stay compared to those who never experience delirium.¹⁸

12. Do you have to perform the Features in succession at the bedside?

No. However, 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 often already used in practice (i.e., staff are usually assessing for Feature 1 via sedation/level of consciousness scales or other 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 Features into your regular physical assessment. 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.

13. How should I document the CAM-ICU?

The first step of adaptation is to decide where the 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 may 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. We have found that different institutions choose to record the overall CAM-ICU as either “positive” or “negative” OR “Yes”, “No” and “UTA.” It is important to note that UTA really means that you were unable to assess delirium because the patient’s level of consciousness was too deep to assess content of consciousness. In other words, UTA = coma/stupor instead of delirium or normal. The table below shows the various terminologies that have been used. We recommend picking the language that your staff best understands.

Overall CAM-ICU score			
Yes	Positive	Present	Delirious
No	Negative	Absent	Not Delirious
UTA*	UTA*	UTA*	UTA*

*UTA = unable to assess

It is essential to recognize that UTA should only be used with comatose patients. We along with many other institutions have found that bedside staff are prone to overusing UTA when they have misunderstandings about delirium and/or how to perform the CAM-ICU. Swan et al. recently published a helpful report on a process improvement project to decrease inappropriate UTA ratings.¹⁹

14. How can I determine if my staff is performing the CAM-ICU correctly?

We suggest conducting a CAM-ICU competency. This is a great way to identify misunderstandings with the CAM-ICU as well as provide an opportunity to teach about delirium. This periodic competency could include assessment case studies, delirium facts, and spot checks with CAM-ICU experts. There are spot checking details and a form available on our website at: <http://www.icudelirium.org/delirium/monitoring.html>. Spot checking provides an excellent opportunity to educate regarding mistakes and misconceptions.

15. The CAM-ICU was validated with the RASS, but my hospital uses a different sedation-agitation/level of consciousness (LOC) scale. Can I use a different sedation-agitation/LOC scale with the CAM-ICU? (i.e. SAS [Riker Sedation-Agitation Scale], Ramsay, MAAS [Motor Activity Assessment Scale])

Yes. The CAM-ICU was originally validated using the RASS, but any validated sedation-agitation/LOC scale can work for evaluating the level of consciousness for the purpose of CAM-ICU assessment. The RASS is not the same as other sedation-agitation/LOC assessments and therefore the number schematic will be different. For that reason, it is important to determine which values on your current scale correlate with the terms and descriptions of the RASS scale. The problem with some sedation-agitation/LOC scales is the mix of verbal and physical stimulation at the same level. This makes it difficult to distinguish the key feature that allows someone to be assessable for delirium—response to verbal stimulation. For example:

SAS	RASS
7	+4
6	+2, +3
5	+1
4	0
3	-4, -3, -2, -1
2	-4
1	-5

OR

Ramsay	RASS
1	+1, +2, +3, +4
2	-1, 0
3	-3, -2, -1
4	-4, -3, -2, -1
5	-4, -3, -2, -1
6	-5

OR

MAAS	RASS
6	+4
5	+3
4	+2, +1
3	0
2	-3, -2, -1
1	-4
0	-5

16. 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 for implementation and clinical use.

Copyright line: "Copyright © 2002, E. Wesley Ely, MD, MPH and Vanderbilt University, all rights reserved"

For information on the copyright for the original CAM, please refer to the following website:
www.hospitalelderlifeprogram.org

17. How do I obtain 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 "CAM-ICU order". This will ensure that your request is processed in a timely manner.

18. Where can I learn more about ICU delirium and the CAM-ICU?

Check out our website: www.icudelirium.org. The site includes lots of helpful links for references, training videos, protocols, patient & family education, etc. Also, feel free to contact our team at delirium@vanderbilt.edu.

19. How can I arrange for in-person training?

Several members of our staff are available for doing onsite delirium teaching and/or CAM-ICU training at your institution. Additionally we periodically host CAM-ICU training workshops at Vanderbilt. If you are interested in any of this teaching, please contact us at delirium@vanderbilt.edu.

20. Is there technology available to support CAM-ICU implementation?

The CAM-ICU and RASS are available on an app for phones and tablets called Medcalc (Free) or Medcalc Pro (\$1.99). It is an easy way to learn nuances of how the CAM-ICU and RASS work in daily practice at the bedside via a smart phone or tablet device. The ICU Delirium and Cognitive Impairment Study Group have no financial interest in this company or in app revenues.

(see CAM-ICU Training Manual for reference list)