Delirium Triage Screen (DTS)

Instruction Manual v1
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For videos about the DTS and information about other delirium assessments, please visit:
www.eddelirium.org

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1. Overview

Delirium is defined as a disturbance in attention and awareness that is accompanied by an acute change (hours to days) in cognition that cannot be better accounted for by a preexisting or evolving neurocognitive disorder such as dementia.[1] This form of acute brain dysfunction affects up to 10% of older emergency department (ED) patients[2,3] and up to 25% of older, non-critically ill hospitalized patients.[4-9] Delirium in the ED is a potential safety concern. Patients with delirium are unlikely to provide an accurate history of why they are the ED, which may lead to inadequate diagnostic workups and inappropriate dispositions.[10,11] If discharged, they may not be able to comprehend their discharge instructions,[10] which may lead to non-compliance. Compared to patients without delirium, those with delirium are more likely to die,[12-14] and it has a profound impact on the older patient's quality of life. Delirium has been associated with accelerated cognitive and functional decline,[6,9,15-18] which can lead to subsequent loss of independence and nursing home placement. Unfortunately, delirium is missed in up to 80% of older patients presenting to the ED[2,3,19-23] and hospital setting.[24-28]

The Delirium Triage Screen (DTS, Figure) is an ultra-brief (<20 seconds) delirium assessment that was developed to rapidly rule-out delirium and increase delirium screening efficiency. The DTS reduces the need for formal delirium assessments by 50%. It was originally designed to be part of the nurse's triage assessment in the ED, but can be performed on the inpatient wards outside the intensive care unit. In older emergency department patients, the DTS is 98% sensitive and 55% specific when performed by non-physicians and physicians alike.[29] The diagnostic performance is similar in admitted patients.

The DTS has two components (**Figure**): 1) Altered level of consciousness which is assessed for by using an arousal scale and 2) inattention which is tested for by asking the patient to spell the world LUNCH backwards. If the patient has normal level of consciousness and makes 0 or 1 errors on the LUNCH backwards task, then the DTS is negative and delirium is ruled out. No additional delirium assessment is needed. If the patient has altered level of consciousness or makes 2 or more errors on the LUNCH backwards task, then the DTS is positive. A more specific delirium assessment such as the bCAM, CAM, 3D-CAM, CAM-ICU or 4AT is needed to rule-in delirium.

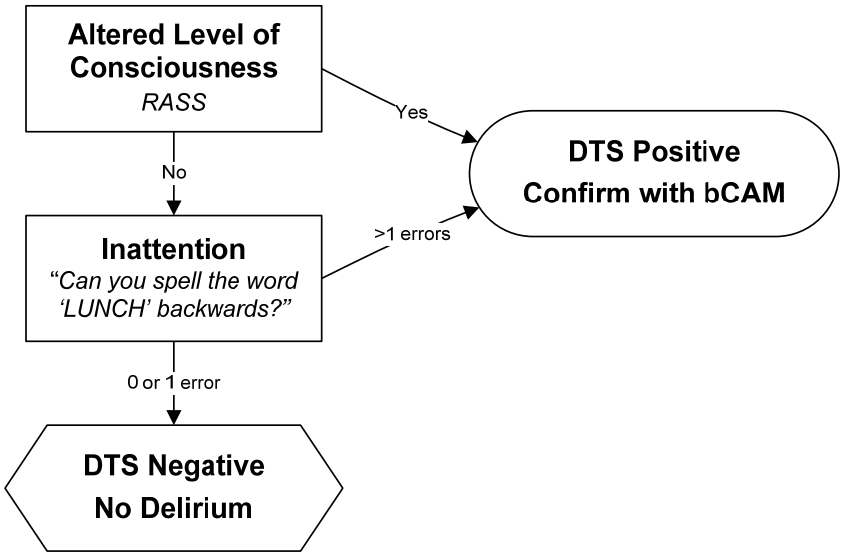

Figure. The Delirium Triage Screen (DTS)

2. Detailed Procedures for Each DTS Feature

a) Altered Level of Consciousness

Level of consciousness is determined during the routine patient evaluation by simply observing the patient. The Richmond Agitation Sedation Scale (RASS, **Box 1**) is used to determine if the patient has altered level of consciousness.[30] A RASS of 0 indicates normal level of consciousness. A RASS other than 0 indicates altered level of consciousness and the patient would be considered DTS positive.

In most cases, the patient's altered level of consciousness can be subtle where the patient can appear slightly sleepy as if he/she was up all night (RASS = -1) or slightly restless as if he/she was about to sing the national anthem at the Super Bowl (RASS = + 1).

RASS	Description
+4	Overtly combative, violent, immediate danger to staff
+3	Very agitated, pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated, frequent non-purposeful movement
+1	Restless, anxious but movements not aggressive or vigorous
0	Alert and calm
-1	Mildly drowsy, not fully alert, but has sustained awakening **(>10 seconds)**
-2	Moderate drowsy, briefly awakens with eye contact to *voice* **(<10 seconds)**
-3	Very drowsy, movement or eye opening to *voice* but no eye contact
-4*	No response to voice, but movement or eye opening to *physical* stimulation
-5*	No response to *voice or physical* stimulation

Box 1. Richmond Agitation Sedation Scale (RASS). Note that a patient with a RASS of -1 or +1 can have subtle presentation.

b) Inattention

The DTS tests for inattention by asking the patient to spell the word "LUNCH" backwards. We intentionally chose a task that was difficult to perform to maximize sensitivity. When the patient spells the word "LUNCH" backwards, we recommend that the task is stopped if there is a significant pause or if the patient perseverates on a specific letter (i.e. "H-C-U…U…U") for a significant amount of time (>15 seconds). Once a significant pause or perseveration occurs, the task is over and you should stop recording. Stopping after a significant pause or perseveration has other benefits. It keeps the time taken performing this task relatively brief and limits the frustration felt by the patient.

Each missing letter is one error. A patient who recites "H-C-U-L" would be considered to have made one error. If a patient switches two letters (H-C-U-N-L), then this is counted as two errors because two letters are out of order. If a patient makes 2 or more errors in the LUNCH backwards task, then the patient is considered positive for inattention, and the DTS is considered positive. If the patient refuses to do the "LUNCH" backwards task or can't initiate this task, then the patient is also considered positive for inattention, and the DTS is considered positive.

If the patient has normal level of consciousness and makes 0 or 1 errors on the LUNCH backwards task, then the DTS is negative and delirium is ruled out. If the patient has altered level of consciousness or makes 2 or more errors on the LUNCH backwards task, then the DTS is positive. A more specific delirium assessment such as the bCAM, CAM, 3D-CAM, CAM-ICU or 4AT is needed to rule-in delirium.

3. Frequently Asked Questions

A) Question: Is the DTS valid in patients who are illiterate?

Answer: Yes. The original validation cohort had patients who were illiterate. Patients with lower educational attainment are at increased risk for delirium. These patients should receive a formal delirium assessment.

B) Question: Do I have to do the “LUNCH” backward task if the patient has altered level of consciousness?

Answer: No. A patient who has altered level of consciousness is already DTS positive. Having him/her spell the world “LUNCH” backwards provides no additional information.

C) Question: How should I rate the DTS if the patient refuses to spell the word “LUNCH” backwards or can’t perform this task at all?

Answer: If the patient refuses to or can’t spell the word “LUNCH” backwards, then this patient is considered DTS positive.

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Delirium Triage Screen Worksheet

1. Altered level of consciousness What is the patient's RASS?	**Score (-5 to +4): _____**	
1**. Altered Level of Consciousness** *Positive if the RASS is anything other than "0".*	**Negative**	**Positive**
2. Inattention Directions: Say to the patient, *"Can you spell the word 'LUNCH' backwards?* ____ ____ _____ _____ _____ Scoring: Stop recording if there is a significant pause (>15 seconds) or perseverates on a letter. Each missed letter is considered one error. If the patient switches the order of two letters then that is considered two errors.	**# of Errors (up to 5): _____**	
2. Inattention *Positive if 2 or more errors are made.*	**Negative**	**Positive**
Overall DTS Negative if altered level of consciousness and inattention are both negative. Positive if either altered evels of consciousness or inattention are positive.	**Negative** *Delirium is ruled out*	**Positive** *Formal delirium assessment is needed*

Richmond Agitation and Sedation Scale

Score	Term	Description
+4	Combative	Overtly combative, violent, immediate danger to staff
+3	Very agitated	Pulls or removes tube(s) or catheter(s); aggressive
+2	Agitated	Frequent non-purposeful movement
+1	Restless	Anxious but movements not aggressive or vigorous
0	Alert and calm	
-1	Mildly Drowsy	Not fully alert, but has sustained awakening (eye-opening/eye contact) to *voice* **(>10 seconds)**
-2	Moderate drowsy	Briefly awakens with eye contact to *voice* **(<10 seconds)**
-3	Very drowsy	Movement or eye opening to *voice* but no eye contact
-4	Arousable to pain only	No response to voice, but movement or eye opening to *physical* stimulation
-5	Unarousable	No response to *voice or physical* stimulation