Delirium, Arousal/Sedation, Pain and Anxiety/PTSD Screening– Why and How?

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What is delirium and why should you monitor for it?

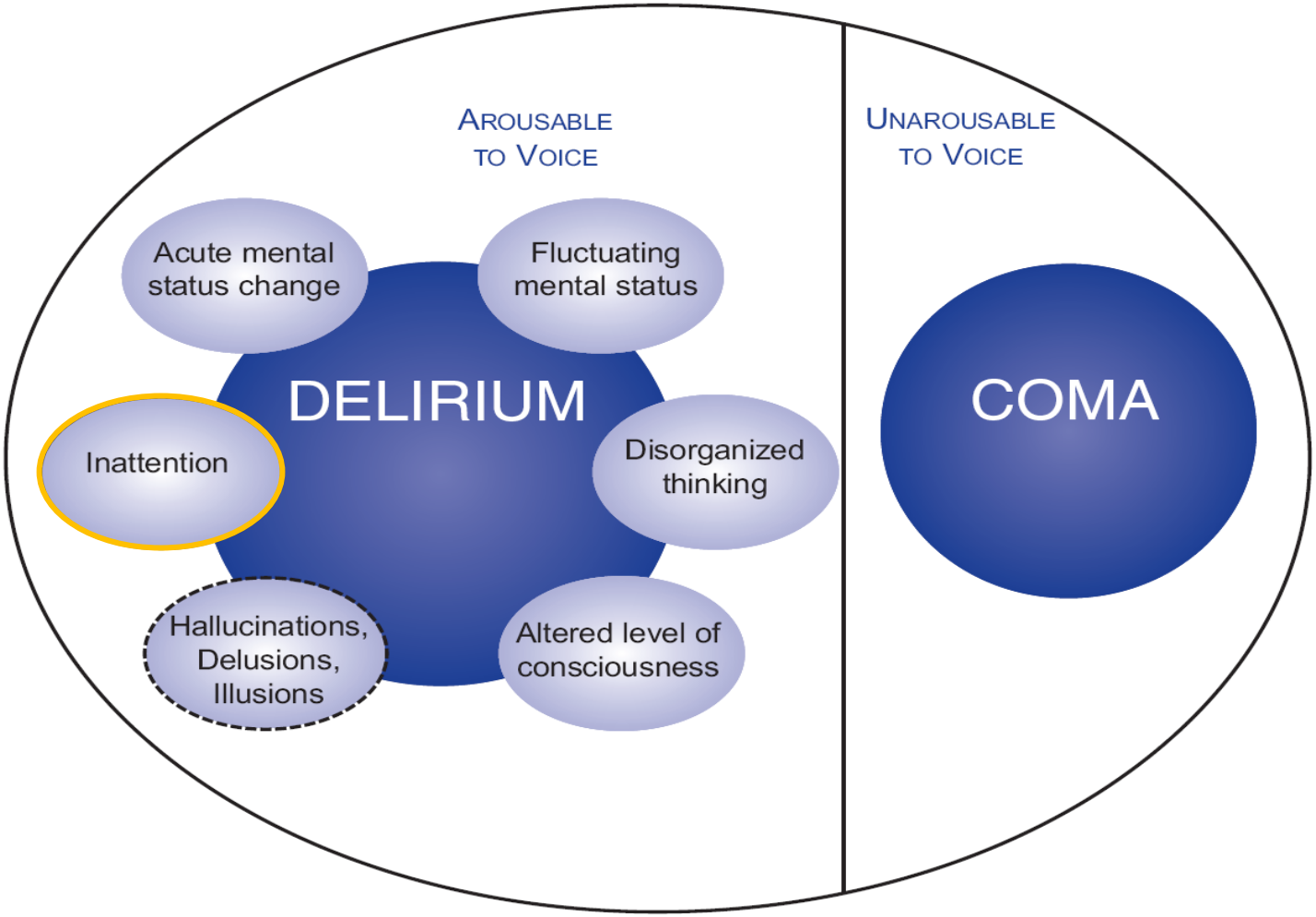
Consciousness

Cognition

Delirium: "a disturbance of **consciousness** that is accompanied by **inattention** and a change in **cognition** that cannot be better accounted for by a preexisting or evolving dementia"

– American Psychiatric Association

Cardinal Symptoms of Delirium and Coma



Diagnosis of Delirium is missed in 70% of cases if routine delirium monitoring instruments are not used

Morandi A, et al. *Intensive Care Med*. 2008;34:1907-1915.

Who is Affected by Delirium?

Prevalence of Delirium

1. Post-acute-Rehabilitation settings: 16-23%
2. General Medical services: 9-42%
3. Orthopedics: 5-65%
4. Cardiac surgery: 32-50%
5. ICU: 60-80% of ventilated patients; 20-50% of lower severity of illness

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What’s sleep got to do with it?

Risk Factors for Delirium

- Aging
- Baseline dementia
- Psychiatric disorders
- Underlying illness
  - Inflammation
  - Coagulation
  - Endothelial dysfunction
- Metabolic disturbances
- Hypoxemia
- Genetic predisposition (?)
- Psychoactive medications
- Sleep disturbances

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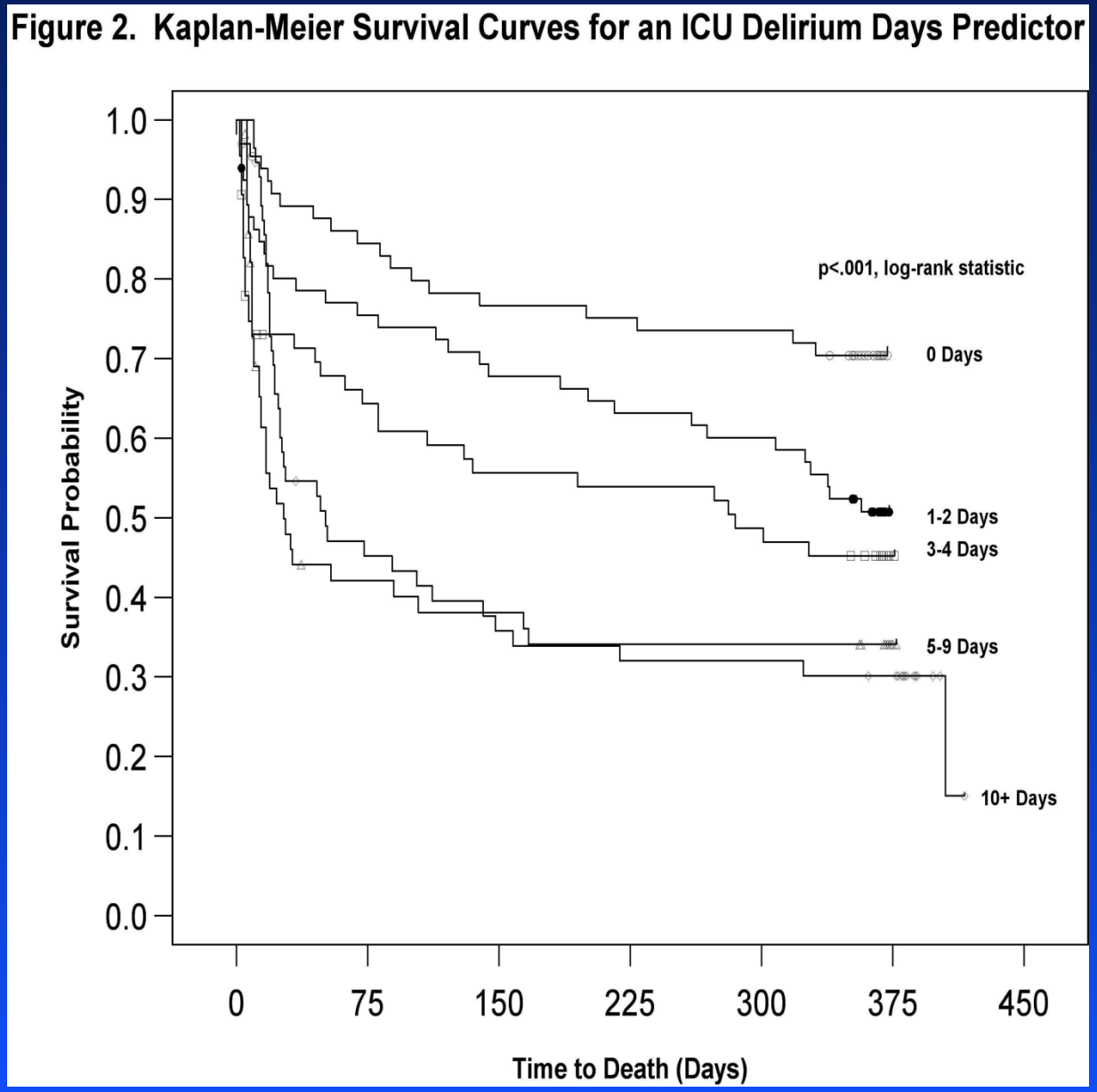
Pisani M. *Crit Care Med.* 2009 Jan;37(1):354-5

Why is Delirium Important?

1. 2-3X 6-month mortality
2. 2-3X institutionalization
3. Long-term cognitive impairment akin to mild Alzheimer's dementia or moderate TBI
4. 3-4X readmission
5. Higher costs

Delirium Duration and Mortality



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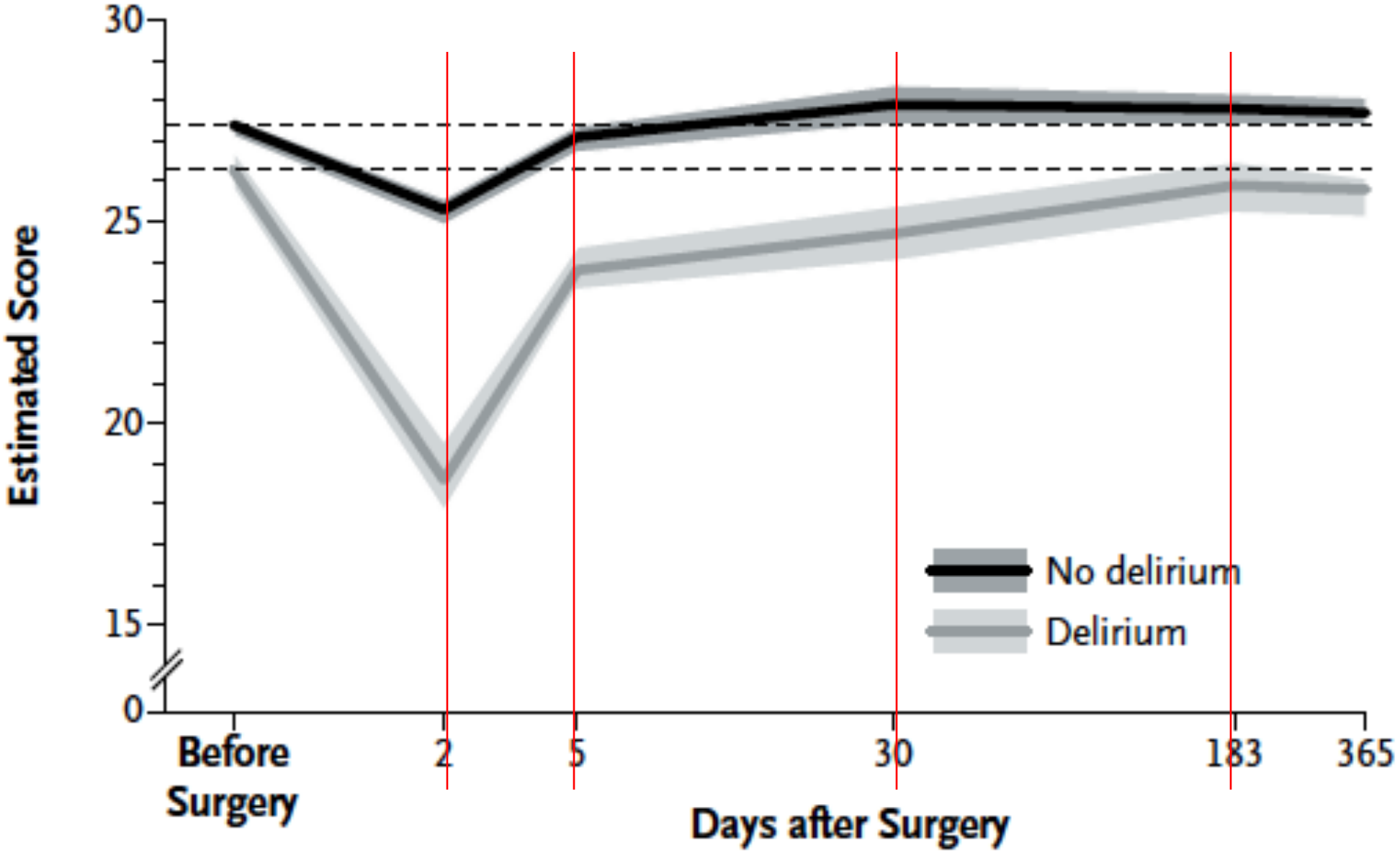


Saczynski JS et al. N Engl J Med. 2012 Jul 5;367(1):30-9

How do you monitor for delirium?

2 STEPS

Step 1- Assess for Arousal

Step 2- Content of Arousal

STEP 1- Assess Level of Arousal

Richmond Agitation-Sedation Scale (RASS)

Score	State	Behaviors
+ 4	Combative	
+ 3	Very agitated	
+ 2	Agitated	
+ 1	Restless	
0	Alert and calm	
-1	Drowsy	eye contact > 10 sec
-2	Light sedation	eye contact < 10 sec
-3	Moderate sedation	no eye contact
-4	Deep sedation	physical stimulation
-5	Unarousable	no response even with physical

Verbal Stimulus

Physical Stimulus

Ely EW, et al. *JAMA*. 2003;289:2983-2991.
Sessler CN, et al. *Am J Respir Crit Care Med*. 2002;166(10):1338-1344.

Sedation-Agitation Scale (SAS)

Score	State	Behaviors
7	Dangerous agitation	Violent, aggressive to staff, pulls at catheters/tubes, climbing out of bed
6	Very agitated	Requires restraints and frequent reminding of limits
5	Agitated	Anxious or physically agitated, calms with verbal instruction
4	Calm and cooperative	Calm, easily arousable, follows commands
3	Sedated	Awakens to verbal stimuli , follows simple commands, drifts off again
2	Very sedated	Arouses to physical stimulation, does not communicate or follow commands
1	Unarousable	No response to noxious stimuli

Riker, et al. *Crit Care Med.* 1999;27:1325-9.

Nursing Delirium Screening Scale (NuDesc)

Features and descriptions	SYMPTOM RATING 0 - 2		
Symptom/time period	Midnight – 8am	8am – 4pm	4pm - midnight
DISORIENTATION: Verbal or behavioural of not being orientated to time or place or misperceiving persons in the environment			
INAPPROPRIATE BEHAVIOUR: Behaviour inappropriate to place and/or for the person e.g pulling at tubes or dressings, attempting to get out of bed when that is contraindicated and the like			
INAPPROPRIATE COMMUNICATION: Communication inappropriate to place and/or for the person e.g incoherence, non-communicativeness, nonsensical or unintelligible speech			
ILLUSIONS/HALLUCINATIONS: Seeing or hearing things that are not there, distortion of visual objects.			
PSYCHOMOTOR RETARDATION: Delayed responsiveness, few or no spontaneous actions/words e.g when patient is prodded, reaction is deferred and/or the patient is unrousable			
TOTAL SCORE (out of 10)			

(Symptoms are rated from 0 to 2 based on the presence and intensity of symptoms, and individual scores are added to obtain a total score per shift.
A score of > 2 on NuDesc identifies presence of delirium in 86% of cases)

Gaudreau J et al. *Journal Pain & Sym Man*. 2005;29:368-75.

4AT

1. Alertness: 0 or 4
2. AMT4 (age, date of birth, place, year): 0 - 2
3. Attention (months of year backwards): 0 - 2
4. Acute change or fluctuating status: 0 or 4

≥4: possible delirium +/- cognitive impairment

1-3: possible cognitive impairment

0: delirium or cognitive impairment unlikely

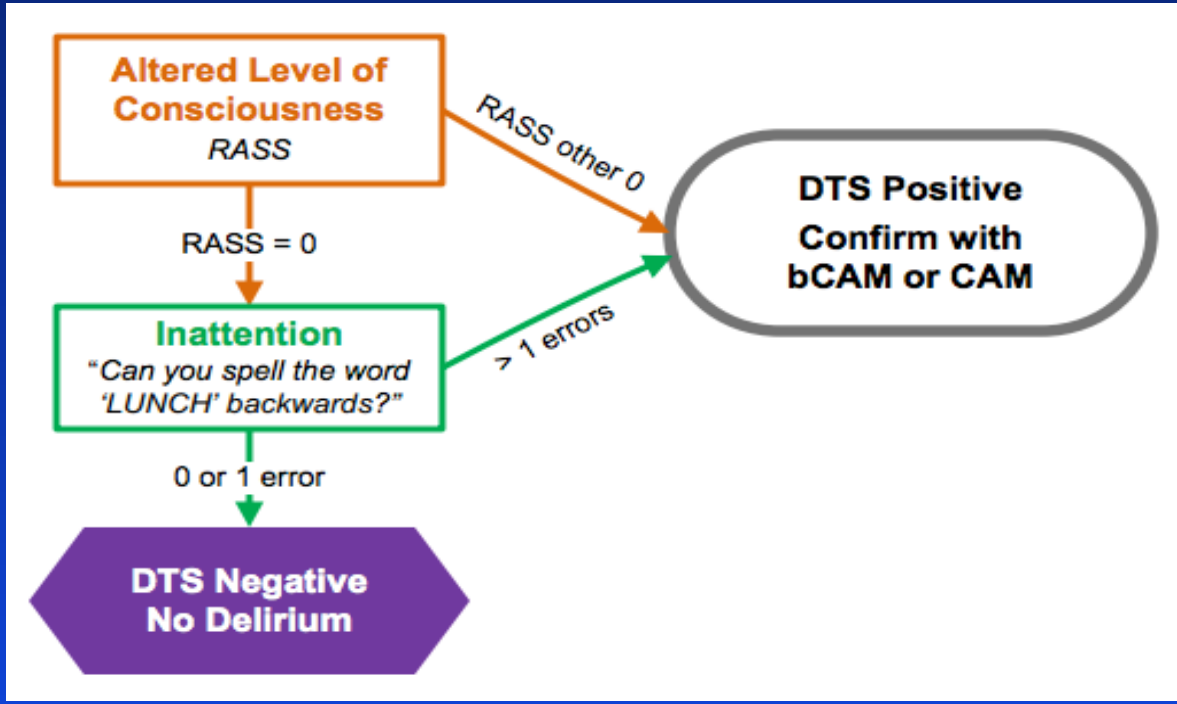
Delirium Triage Screen and bCAM

DTS (high sensitivity)

- Screening tool for Non-ICU setting
- Spell LUNCH Backwards

Brief CAM (bCAM) (high specificity)

- Similar to CAM-ICU
- Say the months of the year backwards instead of SAVEAHAART



Han JH, Ely EW. Ann Emerg Med. 2013;62:457-465.

Confusion Assessment Method for the ICU (CAM-ICU)

1. Acute onset of mental status changes or a fluctuating course

and

2. Inattention

and

3. Disorganized Thinking

or

4. Altered level of consciousness

= Delirium

Ely et al, *Crit Care Med* 2001;29:1370-79 Ely, E.W., et al. *JAMA2001;* 286, 2703-2710

Intensive Care Delirium Screening Checklist

1. Altered level of consciousness
2. Inattention
3. Disorientation
4. Hallucinations
5. Psychomotor agitation or retardation
6. Inappropriate speech
7. Sleep/wake cycle disturbances
8. Symptom fluctuation

Bergeron, et al. *ICM*. 2001;27:859-864.

Analgesia Assessment

- Routine monitoring that includes intensity, quality, and location of the pain has been associated with lower analgesic and sedative utilization and improved patient outcomes
- Pain should be evaluated as part of all patients' vital signs, including those sedated and mechanically ventilated
- CPOT, Behavioral Pain Scale, and Faces Scale validated in nonverbal patients

Payen JF et al. *Anesthesiology.* 2009; 111:1308-16.
Hicks CL et al. *Pain.* 2001; 93:173-83.

Pain Scales

TABLE 205-1 The Behavioral Pain Scale

Item	*Description*	*Score*
Facial expression	Relaxed	1
	Partially tightened (e.g., brow lowering)	2
	Fully tightened (e.g., eyelid closing)	3
	Grimacing	4
Upper limbs	No movement	1
	Partially bent	2
	Fully bent with finger flexion	3
	Permanently retracted	4
Compliance with ventilation	Tolerating movement	1
	Coughing but tolerating ventilation for most of the time	2
	Fighting ventilator	3
	Unable to control ventilation	4

Modified from Payen JF, Bru O, Bosson JL et al. Assessing pain in critically ill sedated patients by using a behavioral pain scale. Crit Care Med 2001;29:2258-63.

Hicks CL et al. *Pain.* 2001; 93:173-83.

Critical-Care Pain Observation Tool (CPOT)

Indicator	Description	Score	
Facial expression	No muscular tension observed	Relaxed, neutral	0
	Presence of frowning, brow lowering, orbit tightening, and levator contraction	Tense	**1**
	All of the above facial movements plus eyelid tightly closed	Grimacing	**2**
Body movements	Does not move at all (does not necessarily mean absence of pain)	Absence of movements	0
	Slow, cautious movements, touching or rubbing the pain site, seeking attention through movements	Protection	1
	Pulling tube, attempting to sit up, moving limbs/ thrashing, not following commands, striking at staff, trying to climb out of bed	Restlessness	2
Muscle tension Evaluation by passive flexion and extension of upper extremities	No resistance to passive movements	Relaxed	**0**
	Resistance to passive movements	Tense, rigid	**1**
	Strong resistance to passive movements, inability to complete them	Very tense or rigid	**2**
Compliance with the ventilator (intubated patients)	Alarms not activated, easy ventilation	Tolerating ventilator or movement	**0**
	Alarms stop spontaneously	Coughing but tolerating	**1**
	Asynchrony: blocking ventilation, alarms frequently activated	Fighting ventilator	**2**
or			
Vocalization (extubated patients)	Talking in normal tone or no sound	Talking in normal tone or no sound	**0**
	Sighing, moaning	Sighing, moaning	**1**
	Crying out, sobbing	Crying out, sobbing	**2**
Total, range	**Sum each category**		**0-8**

Gelinas C et al. *Am J Crit Care* 2006; 15:420-7.

Hospital Anxiety and Depression Scale (HADS)

Tick the box beside the reply that is closest to how you have been feeling in the past week.
Don't take too long over you replies: your immediate is best.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Scoring:
Total score: Depression (D) _____ Anxiety (A) _____
0-7 = Normal
8-10 = Borderline abnormal (borderline case)
11-21 = Abnormal (case)

Anxiety

- Seen in over 50% of critically ill patients who survive their illness

PTSD

- PTSD related to ICU (and hospital) stay occurs in 6-8% of patients at least up to 1 year after hospital discharge
- While intrusive memories (about 10%) did persists avoidance and hyperarousal behaviors were more significant (20-30%)
- Prior PTSD was a significant risk factor for PTSD after ICU stay; delirium and depression could be considered contributory

Patel et al. AJRCCM. 2016 Jun 15;193(12):1373-81

PTSD Assessment

- Tools available to asses traumatic exposure such as the Traumatic Life Event Questionnaire (TLEQ)
- Diagnostic tools for PTSD
  - Clinician Administered PTSD Scale (CAPS)
- Screening tools for PTSD
  - PTSD Checklist (PCL)
  - Impact of Event Scale-Revised (IES-R)