



30 Settembre 2011  
Aggiornamenti in Geriatria



# Una revisione degli strumenti per la rilevazione del delirium

Sara Morghen

# Outline

- Introduzione e rationale delle scale di valutazione
- Principali strumenti utilizzati nella pratica clinica
- Criticità legate alla rilevazione del delirium attraverso l'utilizzo delle scale
- Ipotesi di valutazione integrata
- Conclusioni
- Problemi aperti e future directions

# Introduzione

- La rilevazione del delirium si basa sulle competenze individuali, sul sospetto diagnostico e sulla valutazione ripetuta dei pazienti ad alto rischio
- Il delirium è indipendentemente associato ad aumenti significativi di:
  - Disabilità funzionale a 6-12 mesi
  - Durata della degenza (8-16 giorni)
  - Istituzionalizzazione
  - Mortalità
  - Costi sanitari

# Prevalenza e setting

- General population (> 55 yy): 1.1%
- General hospital admissions: 9-10%
- Elderly general hospital admissions: 5-55%
- Elderly accident and emergency attenders: 16-32%
- AIDS: 17-40%
- Cancer patients (terminal stages): 28-85%
- Postoperative elderly patients: 15-62%
- ICU: 12-60% (70-87% pz anziani)
- Nursing home: up to 60%

# Delirium: Underrecognized and Undertreated

*Chi-Un Pae, MD, PhD*

*David M. Marks, MD*

*Changsu Han, MD, PhD*

*Ashwin A. Patkar, MD*

*Prakash Masand, MD*

*« The difficulty in recognizing delirium is well known, with more than **two thirds** of cases going unrecognized»*

*«Misdiagnosis or late diagnosis partly explains why delirium is associated with adverse outcomes».*

*«One of the reasons that delirium is misdiagnosed and, hence, managed inappropriately is the **similarity** of symptoms with the ‘**three Ds**’: dementia, depression and delirium»*

Gillis and MacDonald, Can Nurse 2006

«*The moaning, groaning and grimacing that often accompany delirium may instead be interpreted with **physical pain*** »

Moyer, Am J Hospice & Palliat Care 2011

«Delirium is underrecognized and untreated because of its **heterogeneous** and fluctuating presentation»

«health care professionals sometimes assume that the hyperactive subtype is the most prevalent in clinical practice, as this subtype **comes to attention** most easily. However, several studies have revealed that the hypoactive subtype is the most prevalent, accounting for **more than half** of delirious patients»

«Healthcare staff use a variety of *informal words* and phrases to describe delirium. This diagnostic ambivalence and *imprecision* greatly hinders the implementation of formal methods of improving care»

«lack of *awareness* of delirium and failure to consider the *consequences* of this condition»

*«Another possible reason for nondetection of delirium is the **lack of formal cognitive assessment** as part of routine screening across care setting»*

# Delirium is a Serious and Under-recognized Problem: Why Assessment of Mental Status Should be the Sixth Vital Sign

*Joseph H. Flaherty, MD, James Rudolph, MD, Ken Shay, DDS, MS, Barbara Kamholz, MD, Kenneth S. Boockvar, MD, MS, Marianne Shaughnessy, PhD, CRNP, Rita Shapiro, DO, Joan Stein, APRN, BC, Charlene Weir, PhD, RN, and Thomas Edes, MD\**

Delirium is a common, morbid, and costly condition.

The morbidity associated with delirium and its underlying causes is best **mitigated** by early intervention

Communications about mental status across sites of care would improve

# Does This Patient Have Delirium?

## Value of Bedside Instruments

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Camilla L. Wong, MD, MHSc, FRCPC

Jayna Holroyd-Leduc, MD, FRCPC

David L. Simel, MD, MHS

Sharon E. Straus, MD, MSc, FRCPC

A formal assessment using DSM as reference standard may involve an in-depth interview and series of cognitive tests by a clinician familiar with the DSM criteria.

Simpler bedside instruments may better guide which patients should receive formal consultation and intervention.

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# Tipologie di strumenti

- Strumenti per l'individuazione del rischio di delirium
- Strumenti diagnostici/screening
- Strumenti di misura della gravità

# La valutazione del rischio negli anziani ospedalizzati

**Table 3. Independent Risk Factors for Delirium in Development Cohort**

| Risk Factor*   | Adjusted Relative Risk (95% CI)† |
|--|----------------------------------|
| Vision impairment ( <i>n</i> = 6)                          | 3.51 (1.15 to 10.71)             |
| Severe illness ( <i>n</i> = 20)                            | 3.49 (1.48 to 8.23)              |
| Cognitive impairment ( <i>n</i> = 38)                      | 2.82 (1.19 to 6.65)              |
| High blood urea nitrogen/creatinine ratio ( <i>n</i> = 49) | 2.02 (0.89 to 4.60)              |

\* Severe illness is a composite variable: APACHE score greater than 16 or a nurse rating of severe. Cognitive impairment is defined as a Mini-Mental State Examination score of less than 24. A high blood urea nitrogen/creatinine ratio is defined as 18 or more. See detailed definitions in text.

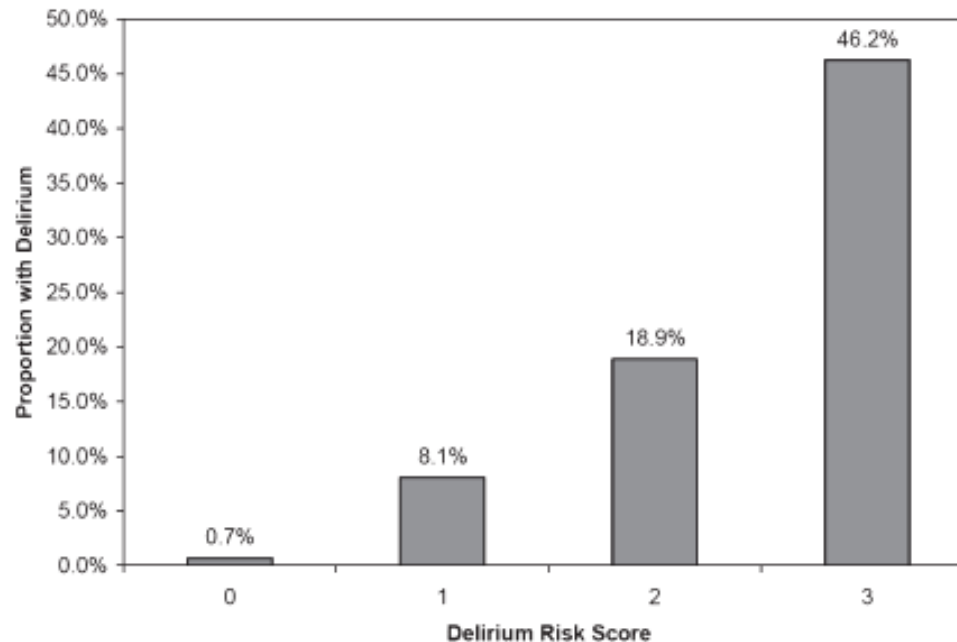
## **Scoring:**

Basso rischio: 0 (9%)

Rischio intermedio: 1-2 (23%)

Alto rischio: 3-4 (83%)

# La valutazione del rischio negli anziani in PS



**Figure 3.** Proportion of older emergency department patients with delirium categorized by delirium risk score.

## ***Fattori di rischio individuati:***

Demenza (MMSE < 24 o IQCODE > 3.38 o diagnosi documentata di demenza)

Dipendenza funzionale (ADL  $\leq$  4)

Ipoacusia

# Confusion Assessment Method (CAM)

## The Confusion Assessment Method Algorithm

### Feature 1. Acute and fluctuating course

- Is there evidence of an acute change from baseline?
- Does the attention fluctuate during the day?

### Feature 2. Inattention

- Does the patient have difficulty focusing attention (e.g., easily distractible, unable to follow a conversation, unable to follow through on a task)?

### Feature 3. Disorganized thinking

- Does the patient have disorganized thinking (e.g., rambling or incoherent speech, illogical or irrelevant statements, inability to sustain a conversation)?

### Feature 4. Altered level of consciousness

- Is the patient alert—hyperalert, lethargic, or comatose?

The diagnosis of delirium requires features 1 and 2 and either 3 or 4.

## Proprietà:

Strumento diagnostico per il delirium derivato dai criteri del DSM-III-R.

## Vantaggi:

Rapidità di esecuzione, validazione in vari setting e su più figure professionali.

## Svantaggi/Criticità:

Strumento dicotomico; indicazioni operative relativamente standardizzate

# Delirium

| Item della gravità                            | Punteggio degli item | Informazioni ulteriori |
|---|----------------------|------------------------|
| <u>Ciclo sonno-veglia</u>                     |                      |                        |
| <u>Disturbi della percezione</u>              |                      |                        |
| <u>Deliri</u>                                 |                      |                        |
| <u>Labilità emotiva</u>                       |                      |                        |
| <u>Linguaggio</u>                             |                      |                        |
| <u>Processo del pensiero</u>                  |                      |                        |
| <u>Agitazione motoria</u>                     |                      |                        |
| <u>Rallentamento motorio</u>                  |                      |                        |
| <u>Orientamento</u>                           |                      |                        |
| <u>Attenzione</u>                             |                      |                        |
| <u>Memoria a breve termine</u>                |                      |                        |
| <u>Memoria a lungo termine</u>                |                      |                        |
| <u>Capacità visuo-spaziale</u>                |                      |                        |
| <b>Item diagnostici</b>                       |                      |                        |
| <u>Insorgenza temporale dei sintomi</u>       |                      |                        |
| <u>Fluttuazione della gravità dei sintomi</u> |                      |                        |
| <u>Disturbo fisico</u>                        |                      |                        |

## Proprietà:

Strumento sia diagnostico sia di misura dei sintomi del delirium. Revisione della precedente DRS.

## Vantaggi:

Buone capacità discriminative tra delirium, demenza, depressione e schizofrenia. Strumento disponibile in diverse lingue. Presenza di cut-off.

## Svantaggi/Criticità:

Procedura di scoring piuttosto laboriosa per

**13. Capacità visuo-spaziale**  
Valutare formalmente ed informalmente. Considerare le difficoltà del paziente di orientarsi negli spostamenti nell'ambito degli spazi dove vive o nell'ambiente (per es. il paziente si perde). Valutare in modo formale attraverso il disegno o la copiatura di un disegno, la sistemazione dei pezzi di un puzzle, o disegnando una mappa e identificando le città principali ecc. Tenere in considerazione qualunque difetto della vista che possa interferire con la performance.

0. nessuna compromissione
1. lieve compromissione tale che il disegno nella sua globalità e la maggior parte dei dettagli o dei pezzi sono corretti; e/o piccole difficoltà ad orientarsi negli spostamenti nell'ambiente circostante
2. moderata compromissione con valutazione deformata del disegno nel suo insieme e/o numerosi errori nei dettagli o nei pezzi; e/o necessità di diverse correzioni per evitare che si perda in un ambiente nuovo, difficoltà a localizzare oggetti familiari nell'ambiente immediatamente circostante.
3. grave compromissione nei test formali; e/o vaga ripetutamente o si perde nell'ambiente intorno

Scale (8)

17, 1-13 > 14

ato  
are la  
n pazienti

# Delirium Symptom Interview (DSI)

## DISORIENTATION

- 1) Have we met before today?  
1 Correct 2 Incorrect 6 No Res
- 2) Can you tell me what time of day  
1 Correct 2 Incorrect 6 No
- 3) Can you tell me where we are now  
1 Correct 2 Incorrect 6 No
- 4) Why are you in the hospital?  
1 Correct 2 Incorrect 8
- 5) During the past day did you think  
really in the hospital?  
1 No 2 Yes
- 6) Have you felt confused at any time  
1 No 2 Yes
- 6a) (If yes) At what time of day  
you the most?  
1 Morning 2 Afternoon  
5 Many Different Times 7
- 6b) (If yes) Did this happen either  
or just when you were falling  
1 No 2 Yes 7 Not App
- 6c) (If yes) Is this something  
since you came to the hospital  
you experienced at home?  
1 Old 2 New 7 Not App
- 6d) During the interview was there evidence  
for example, the patient first appeared to know  
in the hospital but later indicated that he thought  
elsewhere?  
1 No 2 Yes

### Proprietà:

Strumento diagnostico per il delirium

### Vantaggi:

Molto oggettivo-ottima concordanza tra rater.  
Alta sensibilità e specificità.

### Svantaggi/Criticità:

Strumento di non rapida esecuzione. Non  
sempre applicabile al paziente con delirium  
(mantenimento attenzione! Giudizio critico!)

# Delirium Index

| DELIRIUM INDEX                        | <u>Punteggio</u>   |
|---------------------------------------|--|
| 1- <u>Disattenzione</u>               | <p>0 In grado di prestare attenzione</p> <p>1 In grado di prestare attenzione ma compie almeno un errore nel ripetere "MONDO" al contrario</p> <p>2 Il paziente è in grado di rispondere alle domande ma è distraibile e a volte ha difficoltà a mantenere la <u>concentrazione</u> sulle domande. Può presentare delle difficoltà nello spostare l'attenzione su delle nuove domande o le domande devono essere ripetute molte volte</p> <p>3 Può essere non reattivo o completamente incapace di <u>mantere</u> l'attenzione sulle domande o rispondere alle domande. Ha difficoltà a focalizzare l'attenzione ed è spesso distratto da stimoli irrilevanti</p> <p>9 Non <u>valutabile</u></p> |
| 2- <u>Pensiero disorganizzato</u>     | <p>0 Le risposte sono logiche</p> <p>1 Le risposte sono vaghe</p> <p>2 Alle volte i pensieri sono disorganizzati</p> <p>3 Può essere non reattivo o completamente incapace di rispondere a domande irrilevanti</p> <p>9 Non <u>valutabile</u></p>  |
| 3- <u>Livello di coscienza</u>        | <p>0 Normale</p> <p>1 <u>I</u>pervigile o ipovigilante</p> <p>2 Sonnolento. Risponde a domande</p> <p>3 Non <u>reattivo</u> o completamente incapace di rispondere</p>   |
| 4- <u>Disorientamento</u>             | <p>(Domande supplementari)</p> <p>0 Si ricorda la data (giorno, mese, anno)</p> <p>1 Non si ricorda la data (giorno, mese, anno)</p> <p>2 Non si ricorda il mese</p> <p>3 Non reattivo o non risponde</p> <p>9 Non <u>valutabile</u></p>   |
| 5- <u>Memoria</u>                     | <p>(Domande supplementari)</p> <p>0 Si ricorda 3 parole</p> <p>1 Non si ricorda 1 delle 3 parole</p> <p>2 Non si ricorda 2 delle 3 parole</p> <p>3 Non reattivo o non risponde</p> <p>9 Non <u>valutabile</u></p>  |
| 6- <u>Alterata percezione</u>         | <p>(Si chiede al paziente se ha visto o sentito cose che non sono vere)</p> <p>0 Non vi sono segni di alterata percezione</p> <p>1 Confonde gli stimoli (ad esempio, uno sparo)</p> <p>2 Allucinazioni infrequenti e non pericolose</p> <p>3 Allucinazioni frequenti e pericolose</p>  |
| 7- <u>Attività motoria</u>            | <p>0 Normale</p> <p>1 Risponde correttamente alle domande ma si muove spesso in modo <u>retardato</u></p> <p>2 Si muove continuamente (possono essere necessari mezzi di contenzione fisica) o è molto rallentato con pochi movimenti spontanei</p> <p>3 Agitato, difficile da controllare (necessari mezzi di contenzione fisica) oppure i movimenti volontari sono assenti</p>   |
| <b><u>Punteggio finale (0-21)</u></b> |  |

## Proprietà:

Strumento di misura, non diagnostico, per valutare la gravità dei sintomi associati a delirium.

## Vantaggi:

Rapidità di esecuzione (se eseguito MMSE).

## Svantaggi/Criticità:

15 studi di efficacia effettuati dal medesimo gruppo scientifico

# Memorial Delirium Assessment Scale (MDAS) 1/2

**ITEM 1—REDUCED LEVEL OF CONSCIOUSNESS (AWARENESS):** Rate the patient's current awareness of and interaction with the environment (interviewer, other people/objects in the room; for example, ask patients to describe their surroundings).

- 0: none (patient spontaneously fully aware of environment and interacts appropriately)
- 1: mild (patient is unaware of some elements in the environment, or not spontaneously interacting appropriately with the interviewer; becomes fully aware and appropriately interactive when prodded strongly; interview is prolonged but not seriously disrupted)
- 2: moderate (patient is unaware of some or all elements in the environment, or not spontaneously interacting with the interviewer; becomes incompletely aware and inappropriately interactive when prodded strongly; interview is prolonged but not seriously disrupted)
- 3: severe (patient is unaware of all elements in the environment with no spontaneous interaction or awareness of the interviewer, so that the interview is difficult-to-impossible, even with maximal prodding)

**ITEM 2—DISORIENTATION:** Rate current state by asking the following 10 orientation items: date, month, day, year, season, floor, name of hospital, city state, and country.

- 0: none (patient knows 9–10 items)
- 1: mild (patient knows 7–8 items)
- 2: moderate (patient knows 5–6 items)
- 3: severe (patient knows no more than 4 items)

**ITEM 3—SHORT-TERM MEMORY IMPAIRMENT:** Rate current state by using repetition and delayed recall of 3 words [patient must immediately repeat and recall words 5 min later after an intervening task. Use alternate sets of 3 words for successive evaluations (for example, apple, table, tomorrow; sky, cigar, justice)].

- 0: none (all 3 words repeated and recalled)
- 1: mild (all 3 repeated, patient fails to recall 1)
- 2: moderate (all 3 repeated, patient fails to recall 2)
- 3: severe (patient fails to repeat 1 or more words)

**ITEM 4—IMPAIRED DIGIT SPAN:** Rate current performance by asking subjects to repeat first 3, 4, then 5 digits forward and then 3, then 4 backwards; continue to the next step only if patient succeeds at the previous one.

- 0: none (patient can do at least 5 numbers forward and 4 backward)
- 1: mild (patient can do at least 5 numbers forward, 3 backward)
- 2: moderate (patient can do 4–5 numbers forward, cannot do 3 backward)
- 3: severe (patient can do no more than 3 numbers forward)

**ITEM 5—REDUCED ABILITY TO MAINTAIN AND SHIFT ATTENTION:** As indicated during the interview by questions needing to be rephrased and/or repeated because patient's attention wanders, patient loses track, patient is distracted by outside stimuli or over-absorbed in a task.

- 0: none (none of the above; patient maintains and shifts attention normally)
- 1: mild (above attentional problems occur once or twice without prolonging the interview)
- 2: moderate (above attentional problems occur often, prolonging the interview without seriously disrupting it)
- 3: severe (above attentional problems occur constantly, disrupting and making the interview difficult-to-impossible)

**ITEM 6—DISORGANIZED THINKING:** As indicated during the interview by rambling, irrelevant, or incoherent speech, or by tangential, circumstantial, or faulty reasoning. Ask patient a somewhat complex question (for example, "Describe your current medical condition.").

- 0: none (patient's speech is coherent and goal-directed)
- 1: mild (patient's speech is slightly difficult to follow; responses to questions are slightly off target but not so much as to prolong the interview)
- 2: moderate (disorganized thoughts or speech are clearly present, such that interview is prolonged but not disrupted)
- 3: severe (examination is very difficult or impossible due to disorganized thinking or speech)

# Memorial Delirium Assessment Scale (MDAS) 2/2

**ITEM 7-PERCEPTUAL DISTURBANCE:** Misperceptions, illusions, hallucinations inferred from inappropriate behavior during the interview or admitted by subject, as well as those elicited from nurse/family/chart accounts of the past several hours or of the time since last examination:

- 0: none (no misperceptions, illusions, or hallucinations)
- 1: mild (misperceptions or illusions related to sleep, fleeting hallucinations on 1-2 occasions without inappropriate behavior)
- 2: moderate (hallucinations or frequent illusions on 1-2 occasions that does not disrupt the interview)
- 3: severe (frequent or intense illusions or hallucinations that disrupts the interview or interferes with care)

**ITEM 8-DELUSIONS:** Rate delusions inferred from patient, as well as delusions elicited from nurse/family/chart accounts of the past several hours or of the time since the previous examination.

- 0: none (no evidence of misinterpretation or suspiciousness)
- 1: mild (misinterpretations or suspiciousness that does not disrupt the interview)
- 2: moderate (delusions admitted by the patient that marginally disrupt the interview)
- 3: severe (persistent and/or intense delusions that seriously interfering with medical care)

**ITEM 9-DECREASED OR INCREASED PSYCHOMOTOR ACTIVITY:** Rate activity during interview, by circling (a) hypoactive or (b) hyperactive activity.

- 0: none (normal psychomotor activity)
- a b c 1: mild (Hypoactivity is barely noticeable, or hyperactivity is barely noticeable or appears as fidgeting)
- a b c 2: moderate (Hypoactivity is undeniable, with slowness of movement; subject moves almost exclusively in response to question; hyperactivity is undeniable, subject moves almost continuously)
- a b c 3: severe (Hypoactivity is severe; patient does not respond to questions; hyperactivity is severe; patient does not respond to questions and/or restraint; getting through interview is difficult)

**ITEM 10-SLEEP-WAKE CYCLE DISTURBANCE (DAYS AND NIGHTS):** Rate sleep-wake cycle disturbance during the interview, by circling (a) sleep-wake cycle disturbance during the night or (b) sleep-wake cycle disturbance during the day. Utilize direct observations of the patient, or nurse/family/chart accounts of the past several hours or of the time since last examination. Use observations of the previous night or day.

- 0: none (at night, sleeps well; during the day, patient is alert and attentive)
- 1: mild (mild deviation from appropriate sleep-wake cycle: at night, patient is asleep or transient night awakenings, or during the interview, is drowsy or fatigued; periods of drowsiness or, during the interview, is drowsy or fatigued)
- 2: moderate (moderate deviations from appropriate sleepfulness and wakefulness: at night, repeated and prolonged night awakening; during the day, reports of frequent napping or, during the interview, can only be roused to complete wakefulness by strong stimuli)
- 3: severe (severe deviations from appropriate sleepfulness and wakefulness states: at night, sleeplessness; during the day, patient spends most of the time sleeping or, during the interview, cannot be roused to full wakefulness by any stimuli)

## Proprietà:

Strumento di misura dei sintomi, non diagnostico, del delirium.

## Vantaggi:

Validazione su più popolazioni (anziani, oncologici). Definizione precisa delle procedure di valutazione.

## Svantaggi/Criticità:

Richiede una componente testistica piuttosto estesa (circa 10 minuti).

# Neecham Scale

## LIVELLO 1 (PROFONDITÀ)

- Attenzione
- Comandi
- Orientamento

### Proprietà:

Strumento infermieristico di screening per il delirium.

## LIVELLO 2 (COMPLESSITÀ)

- Aspetto
- Comportamento
- Comportamento

### Vantaggi:

Misurazioni dettagliate del grado di confusione e/o dell'eventuale rischio di sviluppare confusione.

## LIVELLO 3 (COMPLESSITÀ)

- Stabilità del
- Stabilità del
- Controllo della continenza urinaria

### Svantaggi/Criticità:

Necessità di ricavare misure fisiologiche.  
Misura il livello di confusione mentale.

# Delirium Observation Scale

| OBSERVATION<br>The patient                |  | Day shift |                    |        | Evening shift |                    |        | Night shift |                    |        | TOTAL SCORE TODAY (0 - 39) |
|---|--|-----------|--------------------|--------|---------------|--------------------|--------|-------------|--------------------|--------|----------------------------|
|   |  | Never     | sometimes - always | unable | never         | sometimes - always | unable | never       | sometimes - always | unable |                            |
| 1   | Dozes off during conversation or activities          | 0         | 1                  |        |               |                    |        |             |                    |        |                            |
| 2   | Is easily distracted by stimuli from the environment | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 3   | Maintains attention to conversation or action        |           | 1                  |        |               |                    |        |             |                    |        |                            |
| 4   | Does not finish question or answer                   | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 5   | Gives answers that do not fit the question           | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 6   | Reacts slowly to instructions                        | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 7   | Thinks they are somewhere else                       | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 8   | Knows which part of the day it is                    |           | 1                  |        |               |                    |        |             |                    |        |                            |
| 9   | Remembers recent events                              |           | 1                  |        |               |                    |        |             |                    |        |                            |
| 10  | Is picking, disorderly, restless                     | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 11  | Pulls IV tubing, feeding tubes, catheters etc.       | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 12  | Is easily or suddenly emotional                      | 0         |                    |        |               |                    |        |             |                    |        |                            |
| 13  | Sees/hears things which are not there                | 0         |                    |        |               |                    |        |             |                    |        |                            |
| TOTAL SCORE PER SHIFT (0 - 13)            |  |           |                    |        |               |                    |        |             |                    |        |                            |
| DOS SCALE FINAL SCORE = TOTAL SCORE TODAY |  |           |                    |        |               |                    |        |             |                    |        |                            |

## Proprietà:

Strumento infermieristico di screening del delirium.

## Vantaggi:

Rapidità di utilizzo, stretto monitoraggio e favorisce il trasferimento delle informazioni tra professionisti.

## Svantaggi/Criticità:

Alcune informazioni possono difficilmente essere dedotte dall'osservazione indiretta (es. ricordare eventi recenti, data del giorno).  
Necessità di ricavare tali info sui tre turni.



|                       |     |                    |
|-----------------------|-----|--------------------|
| DOS SCALE Final Score | < 3 | Not delirious      |
|                       | ≥ 3 | Probably delirious |

# Nursing Delirium Screening Score (Nu-DESC)

|   |   |         |
|---|---|---------|
| 1 | Disorientation<br>Verbal or behavioral<br>place or misperception                              | 1 punto |
| 2 | Inappropriate behavior<br>Behavior inappropriate<br>catheters or dressings<br>contraindicated | 2 punti |
| 3 | Inappropriate communication<br>Communication<br>incoherence, illogical<br>speech.             | 3 punti |
| 4 | Illusions/hallucinations<br>Seeing or hearing<br>objects.                                     | 4 punti |
| 5 | Psychomotor retardation<br>Delayed responses<br>the patient is<br>unarousable.<br>Delirium    | 5 punti |

## Proprietà:

Strumento infermieristico di screening per il delirium.

## Vantaggi:

Rapidità di utilizzo, stretto monitoraggio e possibilità di trasferimento delle informazioni tra professionisti.

## Svantaggi/Criticità:

DD sintomi presenti sia in delirium che in demenza

# Delirium-O-Meter (DOM)

|   | 0   | 1  | 2   | 3   | Score |
|---|---|--|---|---|-------|
| 1. Sustained attention                  | Is able to concentrate for longer periods of time during activities/ conversation | Absent-minded, questions need to be repeated sometimes | Easily distracted, questions need to be repeated most of the time | Not able to sustain attention at all, reacts to all kind of stimuli |       |
| 2. Shifting attention                   | Switches between topics of conversation or activities without any problem         | Occasionally continues talking                         | Much difficulty shifting attention                                | Not at all able to raise attention or react to stimuli/activities   |       |
| 3. Orientation (Test!)                  | Says correct date, time, place and persons  |  |   |   |       |
| 4. Consciousness                        | Appears wide awake during the day   |  |   |   |       |
| 5. Apathy                               | Starts conversations, appears to be interested in something                       |  |   |   |       |
| 6. Hypokinesia/ Psychomotor retardation | Normal spontaneous movements  |  |   |   |       |
| 7. Incoherence                          | What the patient understands even if he does not know                             |  |   |   |       |
| 8. Fluctuations in functioning          | No diurnal variations in normal sleep-wake cycle                                  |  |   |   |       |
| 9. Restlessness                         | Is able to sit and do something or without being disturbed                        |  |   |   |       |
| 10. Delusions (thinking)                | Thoughts are not unfounded or suspicious, no suspicious attitude                  |  |   |   |       |
| 11. Hallucinations (perceiving)         | Perception; what is seen, heard, smelled, tasted, felt                            |  |   |   |       |
| 12. Anxiety/fear                        | Feels at ease, not anxious  | is going to happen                                     | Clearly anxious, fearful, needs some reassurance                  | Extremely anxious, frightened, needs a lot of reassurance           |       |

**Proprietà:** strumento infermieristico di misura dei sintomi del delirium.

**Vantaggi:**  
Buona concordanza tra rater diversi. Solo un test aggiuntivo (orientamenti).

**Svantaggi/Criticità:**  
Scarsa replicabilità in altri studi.

Name patient:.....M/F

Patient's date of birth.....

Total score (or not applicable)

Observer:.....Dept./Wards:.....

Date observation:.....

Circle one: day-/evening-/nightshift

DELIRIUM-O-METER©J.F.M. de Jonghe and C.J. Kalisvaart, 2002

# Bedside Confusion Scale (BCS)

**Proprietà:** strumento di screening/diagnostico della confusione.

*Parameter*

I. Assess level of alertness

II. Test of attention—a month of the year

To score: Total the score

**Vantaggi:**

Molto rapido, costruito per pazienti in cure palliative

**Svantaggi/Criticità:**

Validazione parziale dello strumento

ld 1

ld 1

ld 2

ld 3

ld 4

## **Scoring:**

0= normale

1=punteggio borderline

2-5=punteggio alterato

Test characteristics of 11 bedside instruments for diagnosing delirium in hospitalized patients\*

| Instrument         | Number of studies (n)† | Prevalence of delirium | Sensitivity (95% CI) | Specificity (CI) | +LR | -LR  |
|--------------------|------------------------|------------------------|----------------------|------------------|-----|------|
| CAC                | 1 (428)                | 15%                    | 36% (24 to 49)       | 95% (92 to 97)   | 7.4 | 0.67 |
| CAM                | 12 (1036)              | 15% to 62%             | 86% (74 to 93)       | 93% (87 to 96)   | 9.6 | 0.16 |
| DOSS               | 2 (178)                | 10% to 20%             | 92% (74 to 98)       | 82% (66 to 92)   | 5.2 | 0.10 |
| DRS $\geq$ 10      | 4 (943)                | 9% to 63%              | 95% (90 to 98)       | 79% (58 to 91)   | 4.3 | 0.07 |
| DRS-R-98 $>$ 20    | 2 (129)                | 35% to 40%             | 93% (80 to 98)       | 89% (68 to 97)   | 8.0 | 0.08 |
| Digit Span Test    | 1 (419)                | 15%                    | 34% (22 to 48)       | 90% (87 to 93)   | 3.4 | 0.73 |
| GAR $<$ 7          | 1 (87)                 | 21%                    | 94% (73 to 100)      | 99% (92 to 100)  | 65  | 0.06 |
| MDAS $\geq$ 10     | 3 (330)                | 12% to 52%             | 92% (75 to 98)       | 92% (70 to 98)   | 12  | 0.09 |
| MMSE $<$ 24        | 1 (105)                | 63%                    | 96% (87 to 99)       | 38% (23 to 55)   | 1.6 | 0.12 |
| Nu-DESC $>$ 0      | 1 (100)                | 25%                    | 96% (80 to 100)      | 69% (59 to 79)   | 3.1 | 0.06 |
| Vigilance "A" Test | 1 (421)                | 15%                    | 61% (47 to 74)       | 77% (73 to 81)   | 2.7 | 0.50 |

\*CAC = Clinical Assessment of Confusion, CAM = Confusion Assessment Method, DOSS = Delirium Observation Screening Scale, DRS = Delirium Rating Scale, GAR = Global Attention Rating, MDAS = Memorial Delirium Assessment Scale, MMSE = Mini-Mental State Examination, Nu-DESC = Nursing Delirium Screening Scale; diagnostic terms defined in Glossary.

†Results for  $>$  1 study based on pooled data.

# Different assessment tools for intensive care unit delirium: Which score to use?\*

Alawi Luetz, MD; Anja Heymann, MD; Finn M. Radtke, MD; Chokri Chenitir, MD; Ulrike Neuhaus, RN; Irit Nachtigall, MD; Vera von Dossow, MD; Susanne Marz, MD; Verena Eggers, MD; Andreas Heinz, MD; Klaus D. Wernecke, PhD; Claudia D. Spies, MD

**Objective:** To compare validity and reliability of three instruments for detection and assessment of delirium in intensive care unit (ICU) patients. Delirium in critically ill patients is associated with higher mortality, prolonged duration of ICU stay, and greater healthcare costs. Currently, there are several assessment tools available for detection of delirium, but only a few of these assessment systems are developed specifically to screen for delirium in ICU patients.

**Design:** Prospective cohort study.

**Setting:** ICU at a university hospital.

**Patients:** A total of 156 surgical patients aged  $\geq 60$  yrs consecutively admitted to the ICU, with a length of stay of at least 24 hrs.

**Measurements and Main Results:** This study was approved by the institutional ethics committee. Trained staff members performed daily and independently the Confusion Assessment Method for the ICU (CAM-ICU), the Nursing Delirium Screening Scale (Nu-DESC), and the Delirium Detection Score (DDS). These evaluations were compared against the reference standard conducted by a delirium expert (blinded to the study), who used

delirium criteria from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Of 156 patients, 63 (40%) were identified as delirious by the reference standard during the study. Using the CAM-ICU and the Nu-DESC, we measured comparable sensitivities (CAM-ICU, 81%; Nu-DESC, 83%). The specificity of the CAM-ICU was significantly higher than that of the Nu-DESC (96% vs. 81%,  $p < .01$ ). In contrast, the DDS showed poor sensitivity (30%), whereas the specificity was significantly higher compared with the Nu-DESC (DDS, 91%; Nu-DESC, 81%,  $p < .05$ ). The interrater reliability was "almost perfect" for the CAM-ICU ( $\kappa = 0.89$ ) and "substantial" for DDS and Nu-DESC ( $\kappa = 0.79, 0.68$ ).

**Conclusion:** The CAM-ICU showed the best validity of the evaluated scales to identify delirium in ICU patients. The Nu-DESC might be an alternative tool for detection of ICU delirium. The DDS should not be used as a screening tool. (Crit Care Med 2010; 38:409–418)

**KEY WORDS:** delirium; ICU; critical care; detection; screening; algorithms

# CAM-ICU

|  |          |          |
|--|----------|----------|
| Feature 1: Acute Onset or Fluctuating Course: Positive if you answer "yes" to either 1A or 1B.   | Positive | Negative |
| 1A: Is the patient different from his or her baseline in mental status in the previous 7 days? (If patient has no previous delirium assessment, use the patient's baseline as the patient's previous delirium assessment.) | Yes      | No       |
| Feature 2: Inattention: Positive if you answer "yes" to either 2A or 2B.   | Positive | Negative |
| 2A: ASE Letters: Record the number of correct responses. If the patient is unable to perform this test, use the ASE Pictures test.   | 0-4      | 0)       |
| 2B: ASE Pictures: Record the number of correct responses. If the patient fails to squeeze the hand, do not count this as a correct response.   | 0-4      | 0)       |
| Feature 3: Disorganized Thinking: Positive if you answer "yes" to either 3A or 3B.   | Positive | Negative |
| 3A: Yes/No Questions (Use the ASE Pictures test if the patient cannot answer verbally.)  | 0-4      | 0)       |
| 3B: Command. Say to the patient, "Now do the same thing as you did when you were asked to move both arms, for example, touch your thumb to your index finger." Record the number of correct responses.                     | 0-4      | 0)       |
| Feature 4: Altered Level of Consciousness: Positive if you answer "yes" to either 4A or 4B.  | Positive | Negative |
| 4A: RASS. Record the patient's RASS score.   | 0-4      | 0)       |
| 4B: AVPU. Record the patient's AVPU score.   | 0-4      | 0)       |
| Overall CAM-ICU: (Features 1-4)  | Positive | Negative |

**Proprietà:** strumento diagnostico per il delirium in Terapia Intensiva.

**Vantaggi:**  
Standardizzazione delle procedure e delle modalità di scoring dei singoli item. Non richiede che il paziente sia in grado di rispondere verbalmente.

**Svantaggi/Criticità:**  
Non applicabilità sui pazienti con disordine dello stato di coscienza (ad es., stato di minima coscienza)

## Scoring:

RASS tra -3 e +4 → Delirium presente se:

Positivi i criteri 1 e 2 + 3 o 4.

# Outline

- Introduzione e rationale delle scale di valutazione
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## Criticità scale

- Soggettività di assessment (anche intrastrumento)
- Sensibilità della scala (dicotomiche)
- Necessità del dato 'premorbo'
- Scarsa abilità di distinguere il DSD

# Symptom Profile of Delirium in Older People With and Without Dementia

Agneta Edlund, RN, Maria Lundström, RN, PhD, Olov Sandberg, MD, PhD,  
Gösta Bucht, MD, PhD, Benny Brännström, RNT, PhD, and Yngve Gustafson, MD, PhD

**Table 1. Description of Differences Between Demented and Nondemented Delirious Participants Regarding Background Data and Ongoing Drug Treatments**

| Characteristics             | <i>Demented<br/>Participants<br/>With Delirium<br/>(n = 135)</i> | <i>Nondemented<br/>Participants<br/>With Delirium<br/>(n = 180)</i> | P Value |
|-----------------------------|--|---|---------|
|                             | n (%)  | n (%)   |         |
| Age (mean ± SD)             | 84.8 ± 5.5   | 84.4 ± 4.7  | .511    |
| Female                      | 92 (68.1)  | 107 (59.4)  | .113    |
| Impaired vision             | 83 (61.5)  | 105 (58.3)  | .573    |
| Impaired hearing            | 70 (51.8)  | 87 (48.3)   | .537    |
| Previous delirium           | 55 (40.7)  | 44 (24.4)   | .002    |
| Previous depression         | 24 (17.8)  | 19 (10.6)   | .065    |
| Stroke                      | 36 (26.7)  | 48 (26.7)   | 1.000   |
| Indwelling urinary catheter | 7 (5.2)  | 12 (6.7)  | .585    |
| Urinary tract infection     | 14 (10.4)  | 17 (9.4)  | .785    |
| Benzodiazepines             | 31 (23.0)  | 35 (19.4)   | .448    |
| Neuroleptics                | 50 (37.0)  | 43 (23.9)   | .011    |
| Analgesics                  | 70 (51.9)  | 66 (36.7)   | .007    |
| Diuretics                   | 55 (40.7)  | 96 (53.3)   | .027    |
| Antihypertensives           | 35 (25.9)  | 63 (35.0)   | .085    |
| Digitalis                   | 23 (17.0)  | 50 (27.8)   | .025    |
| B-Hemoglobin (g/L)          | 131 ± 15   | 133 ± 18  | .318    |
| S-Creatinine (μmol/L)       | 96 ± 44  | 106 ± 46  | .048    |
| B-Glucose (mmol/L)          | 4.2 ± 1.2  | 4.7 ± 2.1   | .030    |

Note: SD, Standard deviation.

**Table 4. Differences Between Delirious Participants With and Without Dementia Regarding Physical and Practical Abilities**

|  | <i>Demented<br/>Participants<br/>With Delirium<br/>(n = 135)</i> | <i>Nondemented<br/>Participants<br/>With Delirium<br/>(n = 180)</i> | P Value |
|--|--|---|---------|
|  | n (%)  | n (%)   |         |
| Dresses independently                                  | 14 (10.4)  | 56 (31.1)   | <.001   |
| Washes independently                                   | 14 (10.4)  | 67 (37.2)   | <.001   |
| Uses toilet independently                              | 29 (21.5)  | 93 (51.7)   | <.001   |
| Eats independently                                     | 81 (60.0)  | 143 (79.4)  | <.001   |
| Walks without aids or<br>assistance (n = 135/179)      | 28 (20.7)  | 39 (21.8)   | .823    |
| Frequent social contacts                               | 31 (23.0)  | 86 (47.8)   | <.001   |
| Reads frequently and<br>spontaneously<br>(n = 135/177) | 17 (12.6)  | 70 (39.5)   | <.001   |

**Table 2. Differences Between Delirious Participants With and Without Dementia Regarding Psychiatric and Behavior Symptoms According to the OBS-Scale**

|  | <i>Demented<br/>Participants<br/>With Delirium<br/>(n = 135)</i> | <i>Nondemented<br/>Participants<br/>With Delirium<br/>(n = 180)</i> | <i>P Value</i> |
|--|--|---|----------------|
|  | <i>n (%)</i>   | <i>n (%)</i>  |                |
| Anxiousness                              | 90 (66.7)  | 98 (54.4)   | .029           |
| Psychomotor slowing                      | 85 (63.0)  | 103 (57.2)  | .304           |
| Depressed mood                           | 73 (54.1)  | 92 (51.1)   | .602           |
| Latency in reaction<br>to verbal stimuli | 68 (50.4)  | 58 (32.2)   | .001           |
| Restlessness, agitation                  | 54 (40.0)  | 47 (26.1)   | .009           |
| Irritability                             | 72 (53.3)  | 84 (46.7)   | .152           |
| Aggressivity (n = 135/179)               | 42 (31.1)  | 16 (8.9)  | <.001          |
| Emotional lability                       | 45 (33.3)  | 54 (30.0)   | .528           |
| Euphoria                                 | 17 (12.6)  | 27 (15.0)   | .542           |
| Paranoiac symptoms                       | 45 (33.3)  | 47 (26.1)   | .163           |
| Delusions (n = 135/179)                  | 36 (26.7)  | 28 (15.6)   | .016           |
| Hallucinations                           | 37 (27.4)  | 32 (17.8)   | .041           |

Note: OBS-Scale, Organic Brain Syndrome Scale.

Delirium among demented more often had a fluctuating course during the day and was more common in the evening and at night.

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*«Delirium should be considered in any confused hospitalized patients and in high-risk patients with confusion in any setting. When in doubt, it is always better to rule out delirium first than to attribute confusion to an underlying chronic disorder, such as dementia, and fail to recognize the presence of delirium»*

## Diagnosis

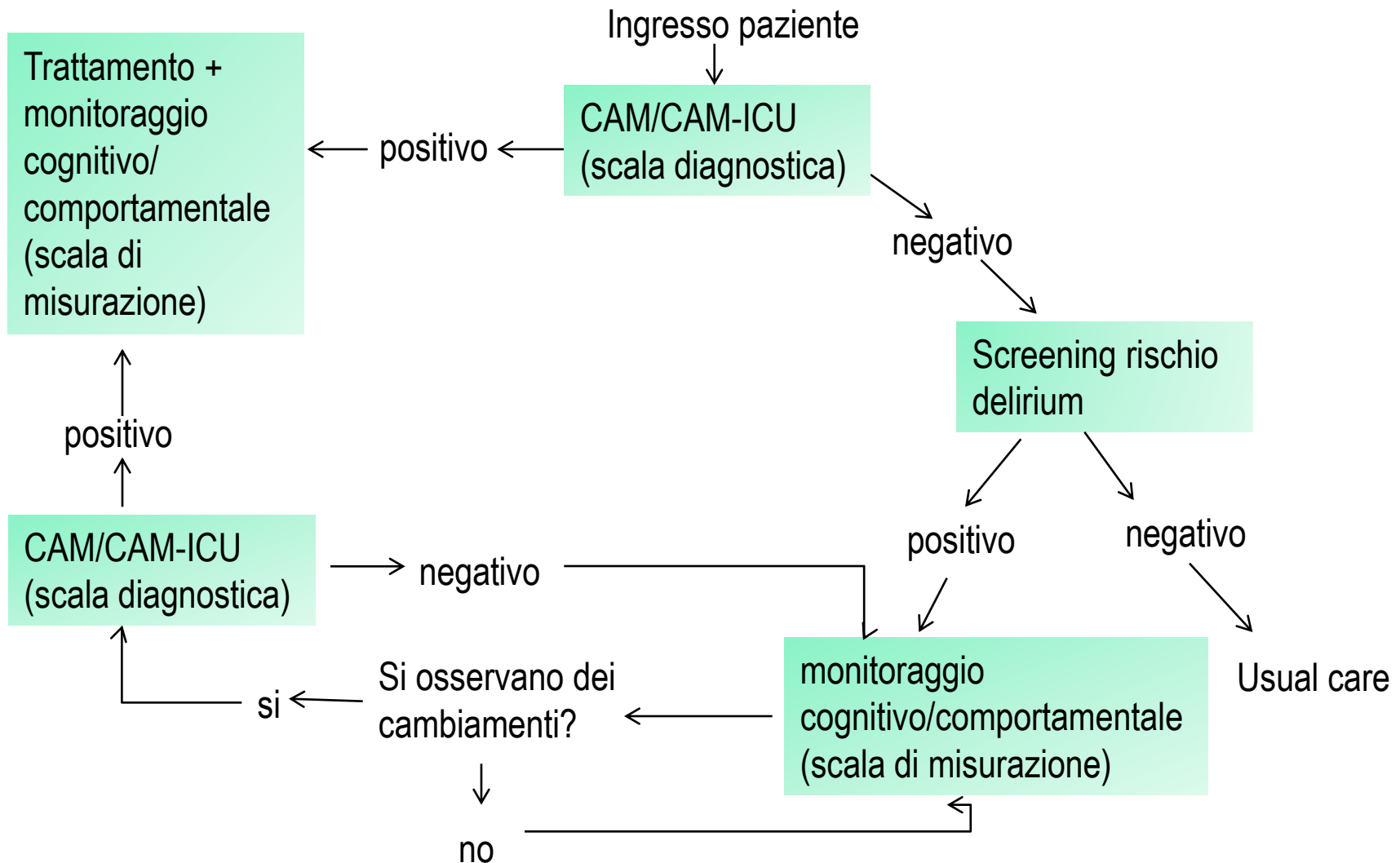
### **Review: Several bedside instruments are accurate for diagnosing delirium in hospitalized patients**

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*Wong CL, Holroyd-Leduc J, Simel DL, Straus SE. Does this patient have delirium? Value of bedside instruments. JAMA. 2010;304:779-86.*

Clinicians should be vigilant about evaluating both at-risk individuals and those with mental status changes. What if we could make documenting an assessment for delirium as routine as vital signs, or as familiar as examining the heart and lungs?

# Ipotesi Algoritmo Rilevazione Delirium



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# Conclusioni

- La diagnosi del delirium rimane una diagnosi clinica
- Gli strumenti standardizzati favoriscono la comunicazione e la condivisione delle informazioni
- Gli strumenti diagnostici migliorano la capacità di osservazione e l'accuratezza diagnostica

# Conclusioni

- Attualmente, la CAM è lo strumento con maggiori evidenze scientifiche.
- Strumenti diversi per setting diversi
- Strumenti diversi per scopi diversi
- Congiunzione di più strumenti con scopi diversi (rischio, diagnosi, monitoraggio) → possibilità di individuare il problema in un numero maggiore di casi e monitorare la remissione dei sintomi

# Problemi aperti e future directions

- Individuazione del rischio di delirium in setting/popolazione specifiche
- Necessità di strumenti capaci di distinguere delirium, demenza e delirium sovrainposto a demenza
- Necessità di strumenti di rilevazione rivolti all'identificazioni dei disturbi in pazienti marcatamente assonnati o con ridotto stato di coscienza, non in grado di andare incontro ad una valutazione formale