Gli strumenti per la rilevazione del delirium

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Outline

- Perché c'è bisogno di fare il punto sul problema

- Il gold standard diagnostico

- I vantaggi e i limiti degli strumenti più comuni
  - I «raffinati»
  - I «rapidi»
  - Gli «infermieristici»

- Quali strumenti usare nella valutazione del delirium in paziente affetti da demenza grave

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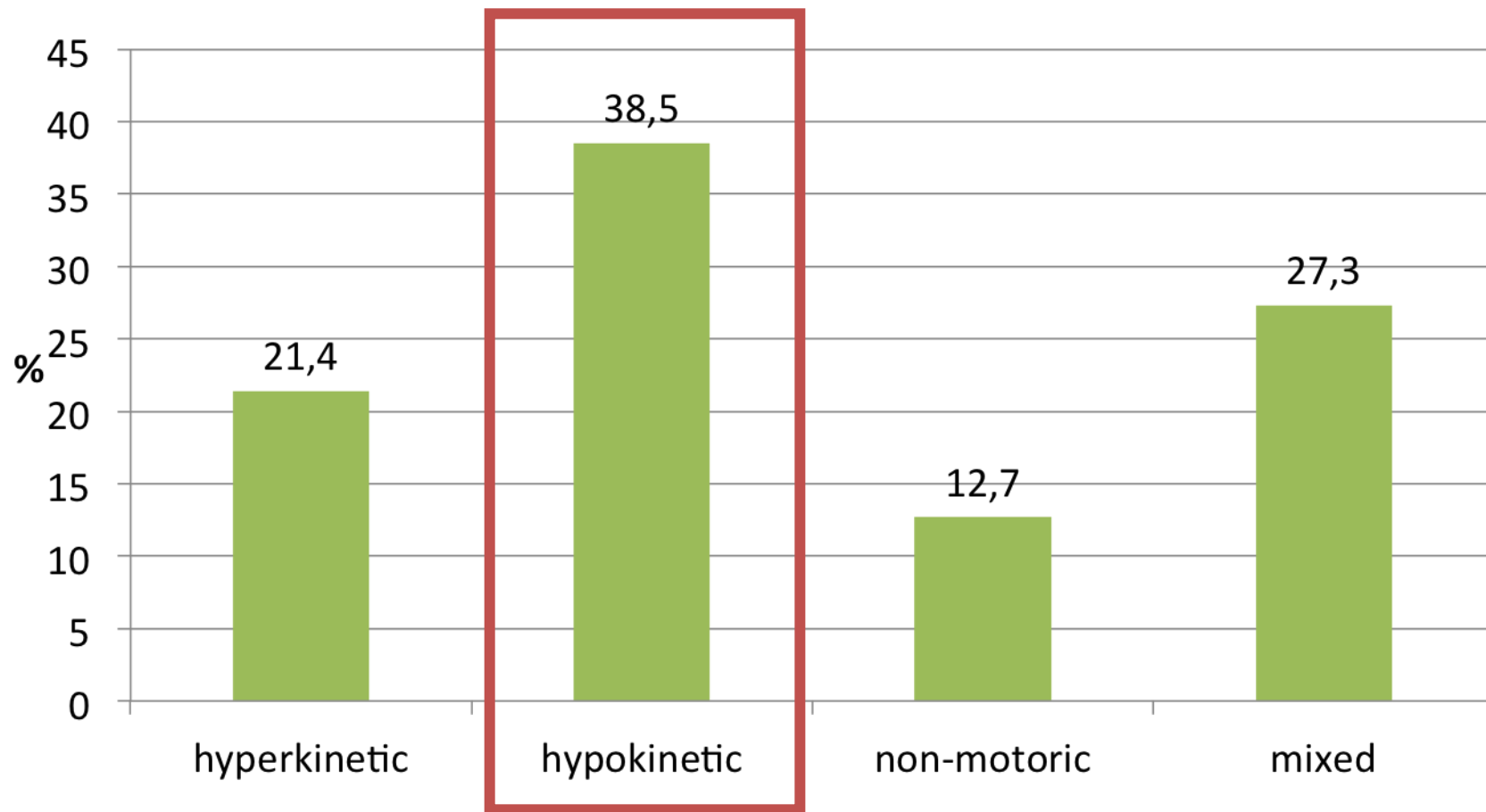
Figure 2- Proportion of patients with delirium according to the acute hospital ward's type

Bellelli G et al, BMC Medicine, 2016
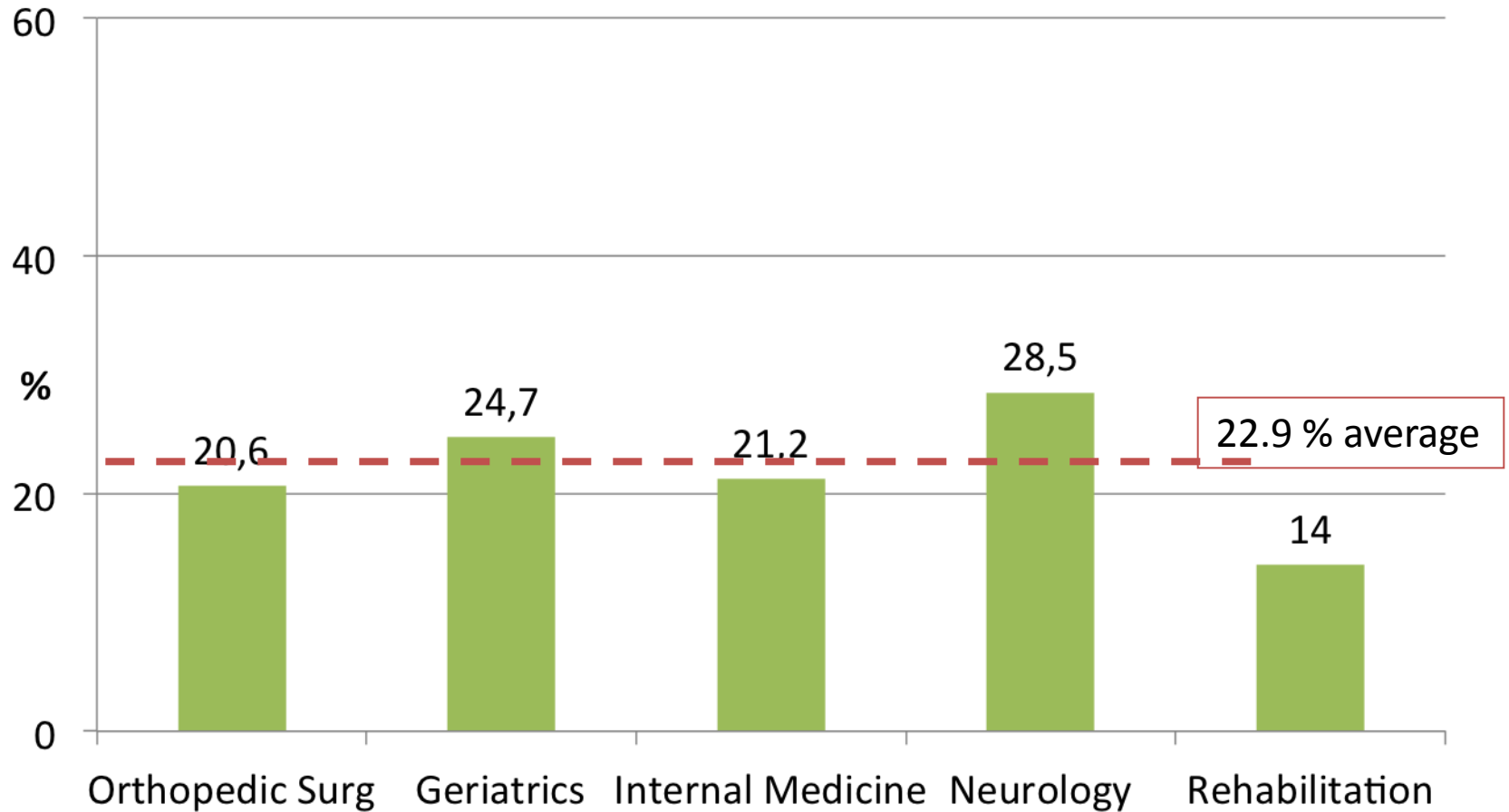
Delirium Motor Subtype scale scores (only for 275 patients with 4AT score >4)

Bellelli G et al, BMC Medicine, 2016

Current problems in preventing delirium: recognition of delirium

Table 2
Characteristics of patients included in REPOSI 2010 and 2012, in general and according to the ICD-9 diagnosis of delirium.

2.9%

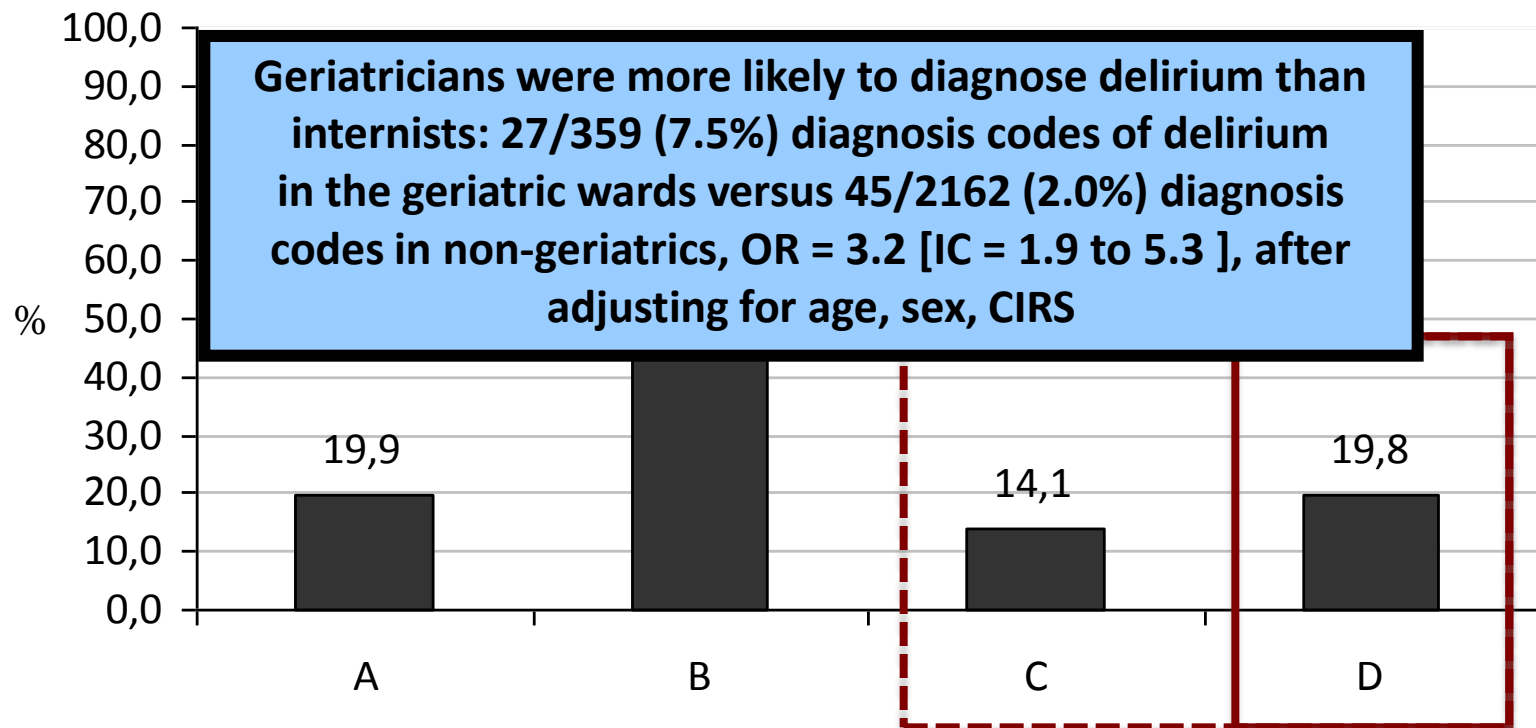|		Total sample (n = 2521)	Yes delirium (n = 72)	No delirium (n = 2449)	p-Value
Age (years), mean (SD)		79.1 (7.3)	83.7 (6.7)	78.9 (7.3)	<.0001
Females, n (%)		1281 (50.8)	49 (68.1)	1232 (50.3)	.003
Marital status,[a] n (%)	Single (unmarried, divorced, separated)	224 (9.1)	3 (4.2)	221 (9.3)	<.0001
	Married	1318 (53.6)	23 (32.4)	1295 (54.2)	
	Widow/er	918 (37.3)	45 (63.4)	873 (36.5)	
Nursing home residence prior to current hospitalization, n (%)		66 (2.6)	8 (11.1)	58 (2.4)	<.0001
Patients hospitalized in the 6 months prior to current admission, n (%)		764 (30.3)	20 (27.8)	744 (30.4)	.64
Health status					
CIRS index of disease severity, on admission, mean (SD)		1.6 (0.3)	1.7 (0.3)	1.6 (0.3)	0.50
CIRS index of comorbidity, on admission, mean (SD)		3.0 (1.8)	3.1 (1.7)	3.0 (1.8)	0.36
Drugs on admission, means (SD)		5.3 (2.9)	5.1 (2.8)	5.3 (3.0)	0.52
Patients with ≥5 drugs on admission, n (%)		1463 (58.0)	40 (55.6)	1423 (58.1)	0.67
Patients with antipsychotics on admission, n (%)		88 (3.5)	11 (15.3)	77 (3.1)	<.0001
Patients with benzodiazepines on admission, n (%)		339 (13.4)	11 (15.3)	328 (13.4)	0.64
Patients with antidepressants on admission, n (%)		274 (10.8)	19 (26.4)	255 (10.4)	<.0001
Patients with dementia (recorded diagnosis), n (%)		196 (7.8)	28 (38.9)	168 (6.9)	<.0001
SBT, mean (SD)		9.5 (8.0)	18.0 (8.7)	9.3 (7.8)	<.0001
Length of hospital stay, median (IQR)[b]		9 (6–14)	10 (6–15)	9 (6–14)	0.54
In-hospital mortality, n (%)		76 (3.0)	2 (2.8)	74 (3.0)	0.91

Data are given as means (SD), median (interquartile ranges, IQR) or number (%). SBT = Short Blessed Test; CIRS = Cumulative Illnesses Rating Severity scale. Delirium is intended according to ICD-9 diagnosis. p-Value = significance between patients with and without ICD-9 defined delirium.
[a] N = 2460.
[b] Wilcoxon test.

Bellelli et al 2015, Eur J Intern Med 2015

Distribution of clusters of SBT neurocognitive disorders (none, single and combined) in the study

Bellelli et al 2015, Eur J Intern Med 2015

Geriatricians were more likely to diagnose delirium than internists: 27/359 (7.5%) diagnosis codes of delirium in the geriatric wards versus 45/2162 (2.0%) diagnosis codes in non-geriatrics, OR = 3.2 [IC = 1.9 to 5.3], after adjusting for age, sex, CIRS

%

A: 19,9
C: 14,1
D: 19,8

Group SBT A = patients without neurocognitive disorders;
Group SBT B = patients with neurocognitive disorder only in one domain (i.e., attention, memory and orientation alone) + those with a combined disorder in orientation and memory;
Group SBT C = patients with neurocognitive disorder in attention and in either orientation or memory;
Group SBT D = patients with combined neurocognitive disorders in attention, orientation and memory;

Lettera di presentazione del sondaggio

Caro collega

Ti scriviamo in riferimento ad un studio che stiamo conducendo sul delirium, un tema di grande attualità e rilevanza sul piano clinico. In questo studio condotto all'interno di alcuni ospedali italiani vorremmo esplorare qual è l'attuale livello di conoscenza da parte del personale sanitario (medici, infermieri, psicologi, fisioterapisti) sui temi della diagnosi di delirium, delle sue complicanze e dei suoi trattamenti farmacologici e non farmacologici. Il tuo punto di vista è fondamentale perché fornirà informazioni importanti per la gestione di questa sindrome geriatrica nei diversi setting di cura.

La compilazione di questo sondaggio richiederà all'incirca 5-10 minuti del tuo tempo. Il sondaggio è diviso in 5 sezioni. Una prima sezione comune a tutte le figure professionali, seguita da sezioni specifiche per i medici, infermieri, psicologi e fisioterapisti.
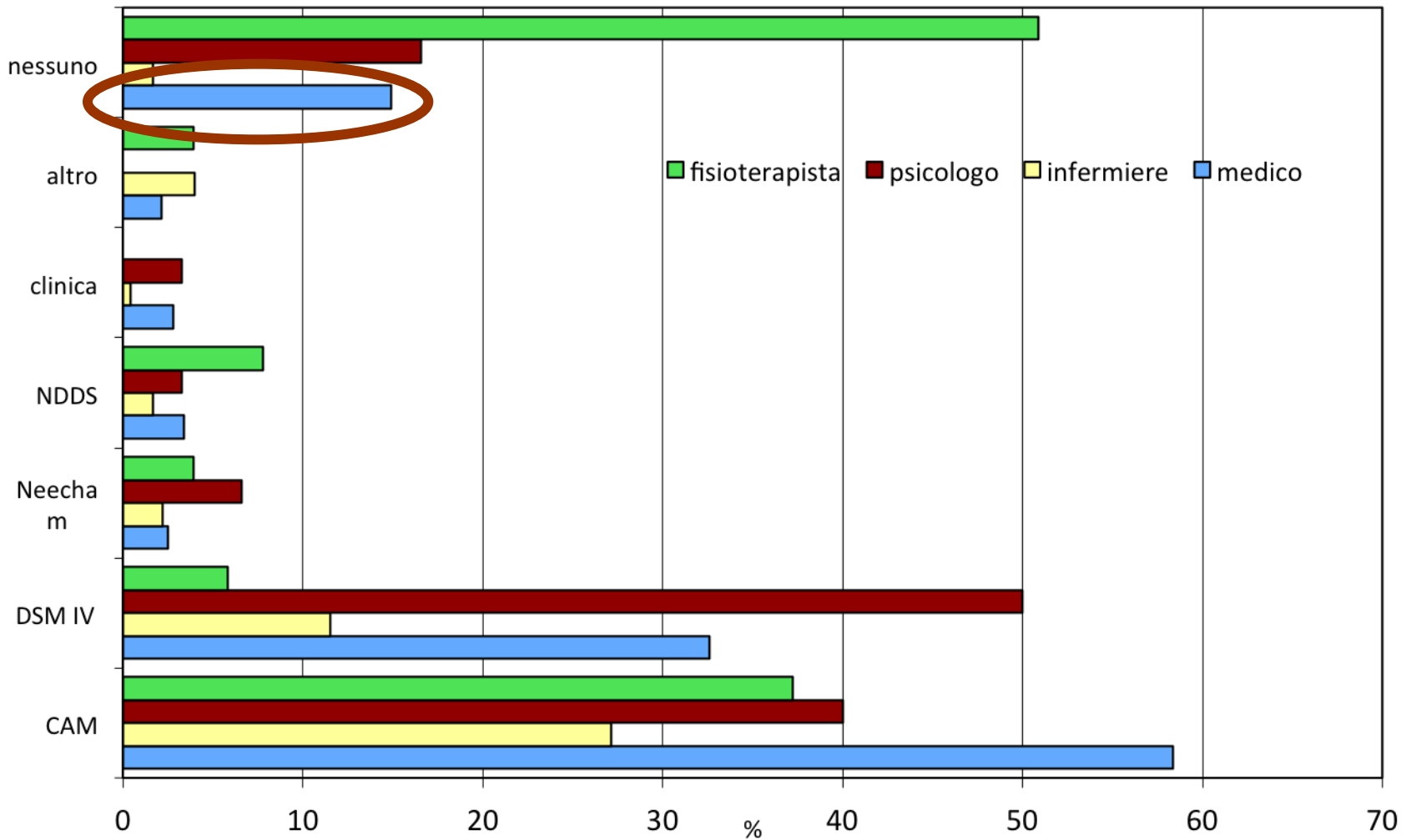
Tutte le risposte che fornirai saranno mantenute in modo riservato e non vi sarà nessun elemento che permetta di risalire all'identità del compilatore. Le tue risposte saranno raccolte in un database unitamente a quelle fornite da altri colleghi.

Apprezziamo la tua preziosa collaborazione che, ci auguriamo, contribuirà a migliorare gli standard di gestione dei pazienti anziani affetti da delirium.

Characteristics of responders

Variable	N= 648
Main occupation	
doctor	322 (51.3%)
nurse	225 (35.8%)
psychologist	30 (4.8%)
physiotherapist	51 (8.1%)
Duration of practice	
< 1 year	49 (7.8%)
1-5 years	138 (22.0%)
6-10 years	87 (13.9%)
> 10 years	354 (56.4%)

Risposte alla domanda 3. "Quale strumento usa per la diagnosi di delirium"?

Legend: fisioterapista, psicologo, infermiere, medico

Categories (top to bottom): nessuno, altro, clinica, NDDS, Neecham, DSM IV, CAM

X-axis: % (0, 10, 20, 30, 40, 50, 60, 70)

Bellelli G et al, Int Psychogeriatr 2014

Recognition and management of delirium among doctors, nurses, physiotherapists, and psychologists: an Italian survey

G. Bellelli,[1,2,3] A. Morandi,[2,4] E. Zanetti,[2] M. Bozzini,[4] E. Lucchi,[4] M. Terrasi[5] and M. Trabucchi[2,6] on behalf of the AIP delirium study group

- The results of our study suggest that Italian health care providers largely recognize that delirium is a widespread clinical problem in various settings of care, and that a therapeutic approach is feasible and useful.

- **However, respondents generally lacked competence in diagnostic and management skills, underlying the needs of education in this area.**

Undereporting of delirium

Table 1. Comparison between research study estimates and routinely collected NHS data (HES) for delirium (Copyright © 2009, Re-used with the permission of The Health and Social Care Information Centre. All rights reserved)

Speciality (number of included research studies)	Delirium rate %: research estimates. Median across studies (range)	Delirium rate %: 2006–2007 HES data (over 65 population)
General & Geriatric Medicine (6)	23.6 (15–42)	0.39
Critical Care (11)	48 (29.8–83.3)	0.23
Emergency Department (4)	9.8 (9.6–11.1)	0.14
Trauma and orthopaedics (4)	44.8 (29–68.1)	0.05

Clegg, Age Ageing 2011

Detection of delirium in acute hospital

Table 1. Characteristics of patients with detected and undetected delirium

Study variable	Undetected delirium $n = 79$ (72%)	Detected delirium $n = 31$ (28%)	Test statistic	P value
Demographic and social factors				
Male gender	31 (39%)	13 (42%)		
Female gender	48 (61%)	18 (58%)	$X^2 = 2.24$	0.691
Age (mean)	85.5	87.5	$t = -1.10$	0.275
Place of residence				
Nursing home or residential	34 (43%)	9 (29%)		
Independent	44 (56%)	22 (71%)	$X^2 = 2.37$	0.305
Clinical factors				
Charlson score				
≥ 5	15 (19%)	1 (3%)		
≤ 4	64 (81%)	30 (97%)	$X^2 = 4.45$	**0.035**
Glasgow coma score (median)	13	14	$Z = -0.02$	0.165
APACHE (median)	13	15	$Z = -0.67$	0.946
C-reactive protein (mg/l, median)	82	92	$Z = -1.40$	0.165
White cell count ($\times 10^9$/l, median)	11.8	11.2	$Z = -0.84$	0.841
Platelets ($\times 10^9$/l, mean)	314.8	261.1	$t = 2.31$	**0.023**
Albumin (g/l, mean)	36.6	37.4	$t = -0.71$	0.479
Marked agitation[b]				
Yes	5 (8%)	4 (18%)		
No	60 (92%)	18 (82%)	$X^2 = 1.950$	0.163
Principle admission diagnosis				
Urinary tract infection	7 (9%)	9 (29%)	$X^2 = 6.964$	**0.008**
Pneumonia	19 (25%)	8 (26%)	$X^2 = 0.015$	0.902
Chronic obstructive airway disease	3 (4%)	1 (3%)	$X^2 = 0.028$	0.867
Acute cardiac syndrome	4 (5%)	1 (3%)	$X^2 = 0.194$	0.660

Collins Age Ageing 2010

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Delirium: criteri del DSM-5

A. Disturbo dell'attenzione (i.e., ridotta capacità a dirigere, focalizzare, sostenere e shiftare l'attenzione) e consapevolezza (ridotto orientamento del se nell'ambiente).

B. Il deficit si sviluppa in un periodo di tempo relativamente breve (generalmente ore o pochi giorni), rappresenta un cambiamento dai livelli di attenzione e consapevolezza di base, e tende a fluttuare in gravità nel corso della giornata.

C. É presente un altro deficit cognitivo (es, memoria, disorientamento, linguaggio, abilità visuospaziali, o dispercezioni).

D. I deficit di cui ai criteri A e C non sono spiegabili sulla base di un preesistente (stazionario o in evoluzione) disturbo neurocognitivo e non si verificano in un contesto di grave riduzione dei livelli di arousal (es coma)

E. Vi è evidenza per storia clinica, esame obiettivo o risultati di laboratorio che il delirium è una diretta conseguenza di un problema clinico, intossicazione o sospensione di farmaci, esposizione a tossine, o è dovuto a molteplici eziologie.

Il delirium è presente se tutti e 5 i criteri sono soddisfatti

Am Psychiatr Assoc, May 2013

Concordance between DSM-IV and DSM-5 Criteria for Delirium Diagnosis in a Pooled Database of 768 Prospectively Evaluated Patients Using the Delirium Rating Scale-Revised-98

Meagher D.J[1,2,3], Morandi A[4,5], Inouye S.K.[6,7], Ely EW[8,9], Adamis D[2,10,11], Maclullich A.M.J[12,13], Rudolph J.L[14,15,16], Neufeld K.J[17], Leonard M[1,2,3], Bellelli G[5,18], Davis D[19], Teodorczuk A[20], Kriesel S[21], Thomas C[21], Hasemann W[22], Timmons S[23], O'Regan N[23], Grover S[24], Jabbar F[25], Cullen W[1,2], Dunne C[1,2], Kamholz B[26], van Munster B.C[27,28], de Rooij S.E[27], de Jonghe J[29], Trzepacz P.T[30,31,32,33].

Figure 1. Overlap between DSM-IV and strict versus relaxed interpretations of DSM-5 delirium criteria for the pooled dataset (n=768)

DSM-IV

55

0   300

155

DSM-5 Strict   0   8   DSM-5 Relaxed

3

No delirium: 247
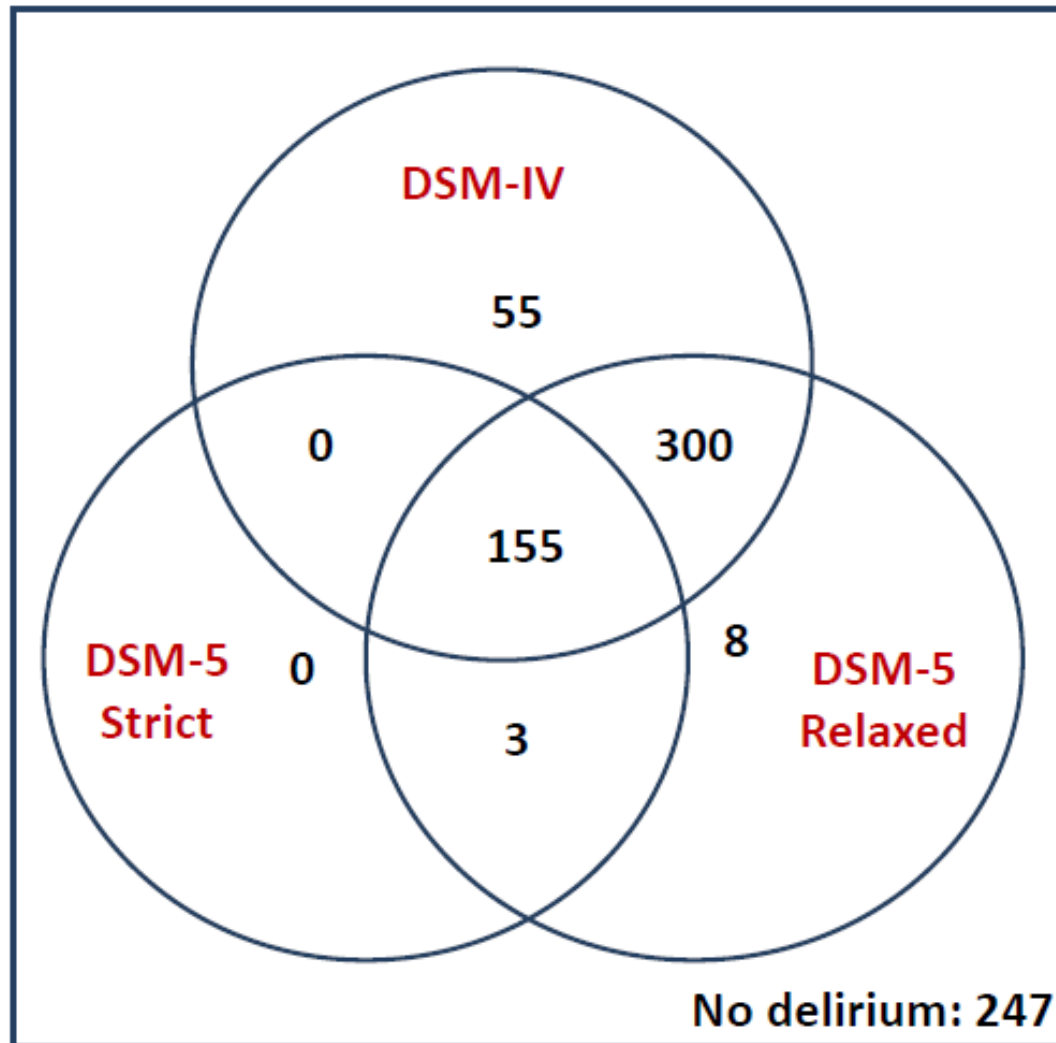
Note: Relaxed interpretation of DSM-5 criteria allows for considerable overlap with DSM-IV in respect of delirium diagnosis, while strict interpretation only identified 30% of DSM-IV cases as delirium.

Meagher D et al, BMC Medicine 2014

Depending on the interpretation of criteria that is applied, between 11-70% of cases of DSM-IV delirium did not meet the new criteria, which has important implications for case identification in clinical and research activity. Overlystrict adherence for some new text details in DSM-5 criteria would greatly reduce numbers of delirium cases diagnosed; however a more "relaxed" approach renders DSM-5 criteria comparable to DSM-IV with minimal impact on their actual application.

La diagnosi di delirium secondo DSM-IV/DSM-5:

- **Richiede un training approfondito ed esperienza**
- **Tempo**
- **Può essere eseguita solo dai medici e non altre figure sanitarie**

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The CAM (Confusion Assessment Method)*

Criteria	**Evidence**

1. Cambiamento acuto dello stato mentale e/o fluttuazione dei sintomi nello spazio di minuti o ore

2. Incapacità di mantenere l'attenzione

+

3. Alterati livelli di coscienza   4. Pensiero disorganizzato

* I primi 2 criteri più o il terzo o il quarto devono essere presenti per confermare la diagnosi di delirium

Inouye SK et al, Ann Int Med, 1990

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+

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+

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* I primi 2 criteri più o il terzo o il quarto devono essere presenti per confermare la diagnosi di delirium

Inouye SK et al, Ann Int Med, 1990

Nurses' Recognition of Delirium and Its Symptoms

Comparison of Nurse and Researcher Ratings

Inouye SK, et al. Arch Intern Med 2001

Sharon K. Inouye, MD, MPH; Marquis D. Foreman, PhD, RN; Lorraine C. Mion, PhD, RN; Karol H. Katz, MS; Leo M. Cooney, Jr, MD

- 2721 valutazioni appaiate (infermieri CAM vs ricercatore) …..9% delirium
- Sensibilità 19%!!!

- Deficit attenzione riconosciuto solo in 25 di 163 casi quando era presente (15%)

Table 5. Final Independent Risk Factors Associated With Underrecognition of Delirium by Nurses in 760 Patients*

Variable	Adjusted OR (95% CI)
Hypoactive delirium	7.4 (4.2-12.9)
Age ≥80 y	2.8 (1.7-4.7)
Vision impairment	2.2 (1.2-4.0)
Dementia	2.1 (1.2-3.7)
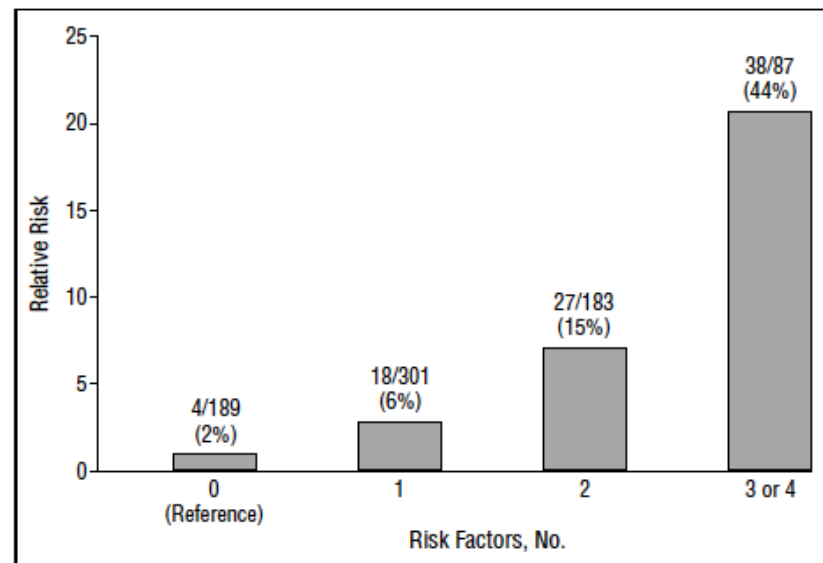
Validation of the Delirium Rating Scale-Revised-98: Comparison With the Delirium Rating Scale and the Cognitive Test for Delirium

Paula T. Trzepacz, M.D.
Dinesh Mittal, M.D.
Rafael Torres, M.D.
Kim Kanary, B.S.
John Norton, M.D.
Nita Jimerson, M.S.N.

DRS-R-98 consente di differenziare il delirium da altre diagnosi

FIGURE 1. Boxplots of DRS, DRS-R-98 Total, DRS-R-98 Severity, and CTD scores for each of the five diagnostic groups. Median scores are denoted by the solid line within the boxes. The boxes represent the middle 50% of the scores. Outliers are denoted by open circles. DRS = Delirium Rating Scale; CTD = Cognitive Test for Delirium.
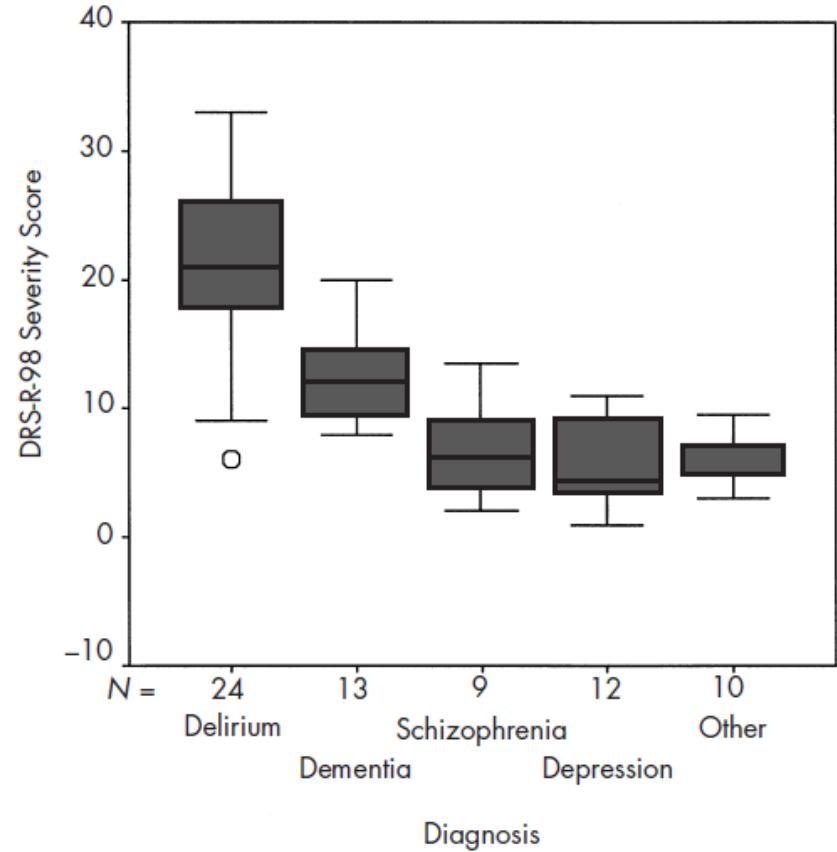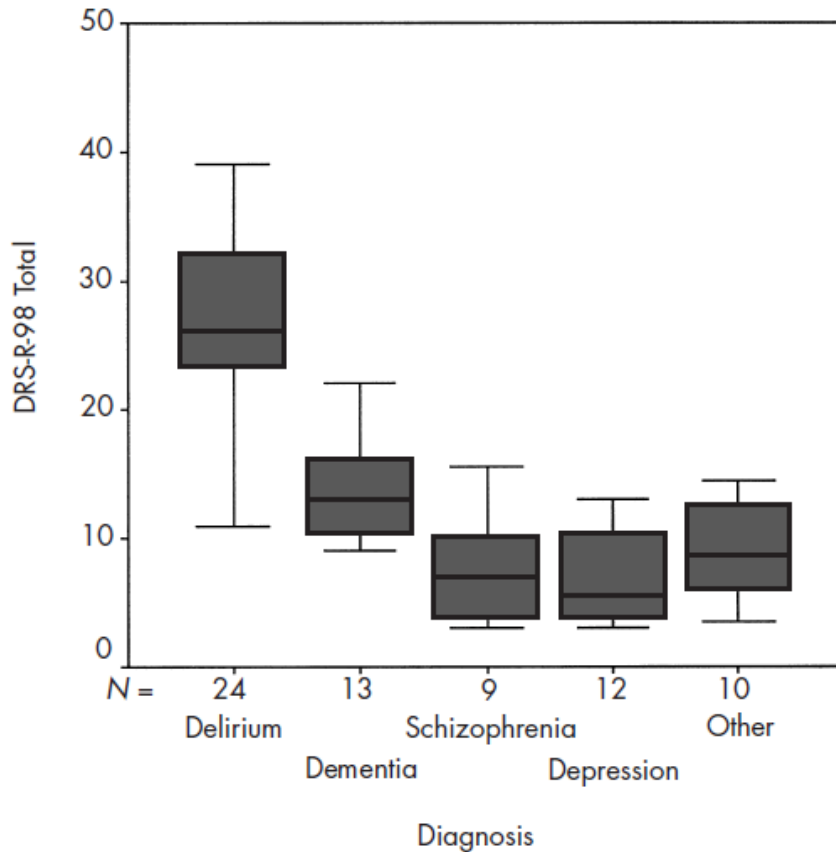
DELIRIUM RATING SCALE-R-98 (DRS-R-98)

- 1. Sleep-wake cycle disturbance
- 2. Perceptual disturbances and hallucinations
- 3. Delusions
- 4. Lability of affect
- 5. Language
- 6. Thought process abnormalities
- 7. Motor agitation
- 8. Motor retardation
- 9. Orientation
- 10. Attention
- 11. Short-term memory
- 12. Long-term memory
- 13. Visuospatial ability
- 14. Temporal onset of symptoms
- 15. Fluctuation of symptom severity
- 16. Physical disorder

Memorial Delirium Assessment Scale (MDAS) [©1996]

INSTRUCTIONS: Rate the severity of the following symptoms of delirium based on current interaction with subject or assessment of his/her behavior or experience over past several hours (as indicated in each item.)

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)
☐ 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)

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 several occasions with minimal inappropriate behavior that does not disrupt the interview)
☐   3: severe   (frequent or intense illusions or hallucinations with persistent inappropriate behavior that disrupts the interview or interferes with medical care)

ITEM 8-DELUSIONS: Rate delusions inferred from inappropriate behavior during the interview or admitted by the 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 misinterpretations or delusions)
☐   1: mild   (misinterpretations or suspiciousness without clear delusional ideas or inappropriate behavior)
☐   2: moderate   (delusions admitted by the patient or evidenced by his/her behavior that do not or only marginally disrupt the interview or interfere with medical care)
☐   3: severe   (persistent and/or intense delusions resulting in inappropriate behavior, disrupting the interview or seriously interfering with medical care)

APPENDIX 1. DELIRIUM-O-METER

	0	1	2	3	Score
1. Sustained attention	Is able to concentrate for longer periods of time during activities/ conversation	Absent-minded, questions needs 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 about a previously discussed topic	Much difficulty shifting attention towards new activities/topics	Not at all able to raise attention or shift it towards new topics/activities	
3. Orientation (Test!)	Says correct date, knows where he is/his way around, recognizes persons	No problems other than saying the exact date and day of the week	Disoriented in time and place, doesn't find his own room, doesn't know where he is	Disoriented in time and place and person, recognizes family members insufficiently	
4. Consciousness	Appears wide awake and alert during the day	Distracted look, as if he just woke up and is not quite well awake	Clearly appears to be sleepy, eyes are shut frequently, but does respond	Hard to awake, hardly responds when spoken to	
5. Apathy	Starts conversation, shows interest, appears to be motivated to do something	Shows interest only when others invite him/her, but does not appear 'empty'	Almost no initiative and shows little interest in others (appears 'empty')	Does not do anything, appears to be emotionally 'empty'	
6. Hypokinesia/ Psychomotor retardation	Normal spontaneous pattern of movements	Often sits inactively but just a little encouragement leads to activity	Little spontaneous movements, arms motionless or crossed before chest	No movement of arms or legs unless stimulated strongly	
7. Incoherence	What the patient says is easy to understand even for someone who does not know him very well	What the patient says is not always easy to understand, sometimes jumps from one topic to another	Clearly hard to follow, associative, sentences appear unrelated, sometimes stops in the middle of a sentence	Not able to express a coherent thought, unfinished sentences, loose words, yells, moaning	
8. Fluctuations in functioning	No diurnal variation in functioning, normal sleep-wake cycle	Minimal fluctuations (during the day or in sleep-wake cycle)	Moderate fluctuations (during daytime or in sleep-wake cycle)	Very marked diurnal variations or severely disrupted sleep-wake cycle	
9. Restlessness	Is able to sit and relax, work on something or speak with someone without being restless	A little bit jumpy, fidgety, restless, rocks chair	Agitated, paces up and down the room, slightly irritated, restless arm movements	Extremely restless, irritated, plucking, oppositional behavior, pulls out catheter, restrictive measures used	
10. Delusions (thinking)	Thoughts are 'in sinc' with reality, no unfounded or unrealistic beliefs, no suspiciousness, distrustful attitude	Somewhat distrustful, suspicious, sometimes thinks he is put behind, often asks 'why this . . .'	Clearly suspicious, has unrealistic, unfounded or bizarre ideas, e.g. says he lives in the hospital	Is extremely suspicious or convinced of bizarre ideas and that makes it very hard to redirect the patient	
11. Hallucinations (perceiving)	Perception; what he sees/hears/ smells/senses/tastes matches reality	Occasional distorted perception of objects, e.g. curtains/wallpaper motifs seen as little animals	Perceives persons, objects, smells, tastes, sounds or animals that are actually not there, can be redirected	Constantly perceives things that aren't there, can not be redirected, is hard to interact with	
12. Anxiety/fear	Feels at ease, not anxious	Somewhat apprehensive about what is going on or what will happen	Clearly anxious, fearful, needs some reassurance	Extremely anxious, frightened, needs a lot of reassurance	

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

Strumenti diagnostici «raffinati»

Vantaggi

- Accuratezza diagnostica simile ai criteri DSM
- Molti studi a supporto
- Utile per studi di biomarkers e per definire caratteristiche fenomenologiche (es severità)
- Alcuni strumenti consentono diagnosi differenziali (es DRS-R-98)

Svantaggi

- Time consuming
- Richiedono training e long-expertise
- Non favoriscono la disseminazione del tema fuori da una ristretta cerchia di «deliriumologi»

Outline

- Perché c'è bisogno di fare il punto sul problema
- Il gold standard diagnostico
- **I vantaggi e i limiti degli strumenti più comuni**
  - I «raffinati»
  - **I «rapidi»**
  - Gli «infermieristici»
- Quali strumenti usare nella valutazione del delirium in paziente affetti da demenza grave

Brief Confusion Assessment Method (bCAM) Flow Sheet

Feature 1 - Altered Mental Status or Fluctuating Course

— No → **bCAM Negative No Delirium**

Yes ↓

Feature 2 - Inattention
"Can you name the months backwards from December to July?"

— 0 or 1 errors → **bCAM Negative No Delirium**

> 1 errors ↓

Feature 3 - Altered Level of Consciousness?
Richmond Agitation Sedation Scale

— Yes → **bCAM POSITIVE DELIRIUM PRESENT**

No ↓

Feature 4 – Disorganized Thinking

1) *Will a stone float on water?*
2) *Are there fish in the sea?*
3) *Does one pound weigh more than two pounds?*
4) *Can you use a hammer to pound a nail?*

Command: "Hold up this many fingers" (Hold up two fingers). "Now do the same thing with the other hand" (Do not demonstrate).

— Any Errors → **bCAM POSITIVE DELIRIUM PRESENT**

— No Errors → **bCAM Negative No Delirium**

The Brief Confusion Assessment Method (bCAM) is adapted from:
Ely EW, et al. *JAMA.* 2001; 286: 2703-2710. Confusion Assessment Method for the

Step 2: Brief Confusion Assessment Method
Confirmation: Highly Specific

Feature 1 - Altered Mental Status or Fluctuating Course

— No → **bCAM Negative** / **No Delirium**

↓ Yes

Feature 2 - Inattention
"Can you name the months backwards from December to July?"

— 0 or 1 errors → **bCAM Negative** / **No Delirium**

↓ > 1 errors

Feature 3 - Altered Level of Consciousness?
RASS

— Yes → **bCAM POSITIVE** / **DELIRIUM PRESENT**

↓ No

Feature 4 – Disorganized Thinking

1) *Will a stone float on water?*
2) *Are there fish in the sea?*
3) *Does one pound weigh more than two pounds?*
4) *Can you use a hammer to pound a nail?*

Command: "Hold up this many fingers" (Hold up two fingers). "Now do the same thing with the other hand" (Do not demonstrate).

— Any Errors → **bCAM POSITIVE** / **DELIRIUM PRESENT**

— No Errors → **bCAM Negative** / **No Delirium**

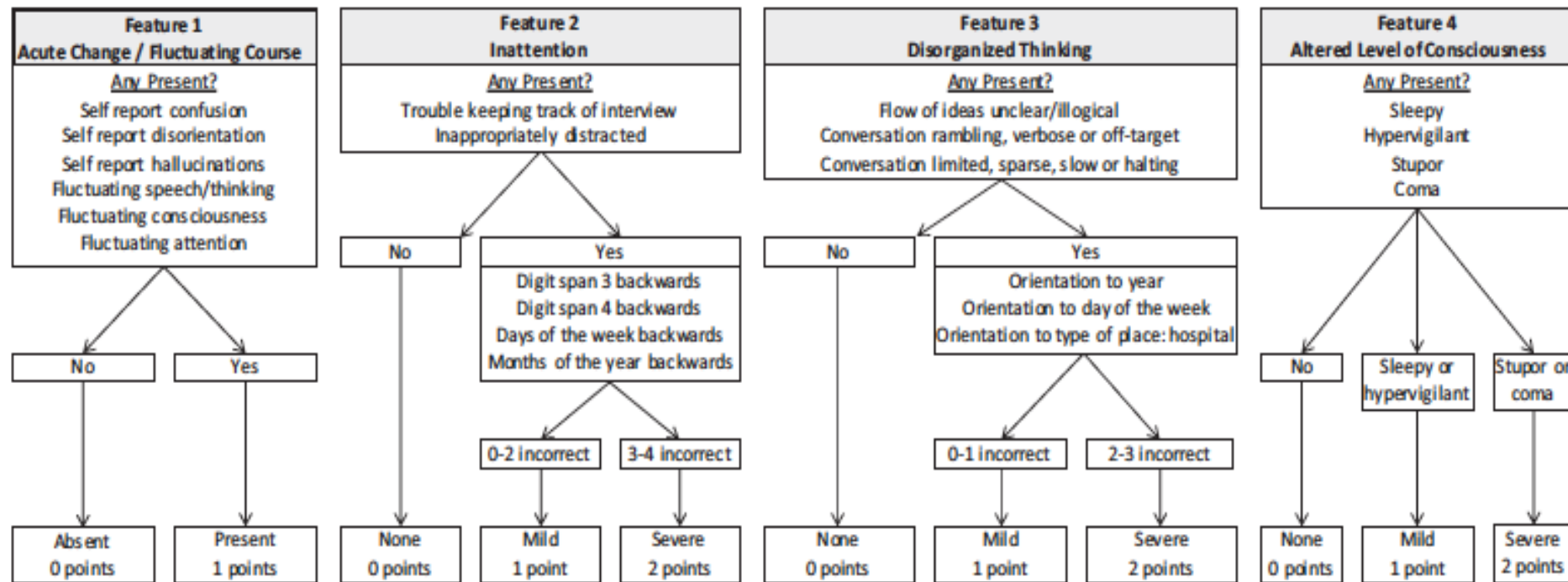# Diagnosing Delirium in Older Emergency Department Patients: Validity and Reliability of the Delirium Triage Screen and the Brief Confusion Assessment Method

Jin H. Han, MD, MSc; Amanda Wilson, MD; Eduard E. Vasilevskis, MD, MPH; Ayumi Shintani, MPH, PhD;
John F. Schnelle, PhD; Robert S. Dittus, MD, MPH; Amy J. Graves, SM, MPH; Alan B. Storrow, MD; John Shuster, MD;
E. Wesley Ely, MD, MPH

Results: Of 406 enrolled patients, 50 (12.3%) had delirium diagnosed by the psychiatrist reference standard. The DTS was 98.0% sensitive (95% CI 89.5% to 99.5%), with an expected specificity of approximately 55% for both raters. The DTS's negative likelihood ratio was 0.04 (95% CI 0.01 to 0.25) for both raters. As the complement, the bCAM had a specificity of 95.8% (95% CI 93.2% to 97.4%) and 96.9% (95% CI 94.6% to 98.3%) and a sensitivity of 84.0% (95% CI 71.5% to 91.7%) and 78.0% (95% CI 64.8% to 87.2%) when performed by the physician and research assistant, respectively. The positive likelihood ratios for the bCAM were 19.9 (95% CI 12.0 to 33.2) and 25.2 (95% CI 13.9 to 46.0), respectively. If the research assistant DTS was followed by the physician bCAM, the sensitivity of this combination was 84.0% (95% CI 71.5% to 91.7%) and specificity was 95.8% (95% CI 93.2% to 97.4%). If the research assistant performed both the DTS and bCAM, this combination was 78.0% sensitive (95% CI 64.8% to 87.2%) and 97.2% specific (95% CI 94.9% to 98.5%). If the physician performed both the DTS and bCAM, this combination was 82.0% sensitive (95% CI 69.2% to 90.2%) and 95.8% specific (95% CI 93.2% to 97.4%).

Conclusion: In older ED patients, this 2-step approach (highly sensitive DTS followed by highly specific bCAM) may enable health care professionals, regardless of clinical background, to efficiently screen for delirium. Larger, multicenter trials are needed to confirm these findings and to determine the effect of these assessments on delirium recognition in the ED. [Ann Emerg Med. 2013;xx:xxx.]

Derivation and Validation of a Severity Scoring Method for the 3-Minute Diagnostic Interview for Confusion Assessment Method--Defined Delirium

Feature 1 — Acute Change / Fluctuating Course
Any Present?
Self report confusion
Self report disorientation
Self report hallucinations
Fluctuating speech/thinking
Fluctuating consciousness
Fluctuating attention
→ No → Absent 0 points
→ Yes → Present 1 points

Feature 2 — Inattention
Any Present?
Trouble keeping track of interview
Inappropriately distracted
→ No → None 0 points
→ Yes:
Digit span 3 backwards
Digit span 4 backwards
Days of the week backwards
Months of the year backwards
→ 0-2 incorrect → Mild 1 point
→ 3-4 incorrect → Severe 2 points

Feature 3 — Disorganized Thinking
Any Present?
Flow of ideas unclear/illogical
Conversation rambling, verbose or off-target
Conversation limited, sparse, slow or halting
→ No → None 0 points
→ Yes:
Orientation to year
Orientation to day of the week
Orientation to type of place: hospital
→ 0-1 incorrect → Mild 1 point
→ 2-3 incorrect → Severe 2 points

Feature 4 — Altered Level of Consciousness
Any Present?
Sleepy
Hypervigilant
Stupor
Coma
→ No → None 0 points
→ Sleepy or hypervigilant → Mild 1 point
→ Stupor or coma → Severe 2 points

Vasunilashorn SM et al, J Am Geriatr Soc 2016

4AT istruzioni per l'uso

1] VIGILANZA/AROUSAL

Sopore/agitazione-iperattività durante test.
Osservare il paziente. Se dorme, provare a

2] AMT4

Età, data di nascita, luogo (nome dell'ospedale e dell'edificio), anno corrente

In uno studio di validazione su pazienti in Geriatria e Riabilitazione ha dimostrato buona sensibilità e specificità verso delirium in confronto a CAM e DSM IV

- • Chiaramente anomala   =4

4] CAMBIAMENTO ACUTO/FLUTTUAZIONI

3] ATTENZIONE

4 o più: possibile delirium +/- deterioramento cognitivo (necessarie informazioni più dettagliate);
1-3: possibile deterioramento cognitivo (altri test necessari);
0: improbabile delirium o deterioramento cognitivo (ma delirium può essere presente se il punto 4 è incompleto)

- • NO   =0
- • SI   =4

- • è in grado di ripetere senza errori >7 mesi   =0
- • Inizia ma riporta < 7 mesi/ rifiuta di iniziare   =1
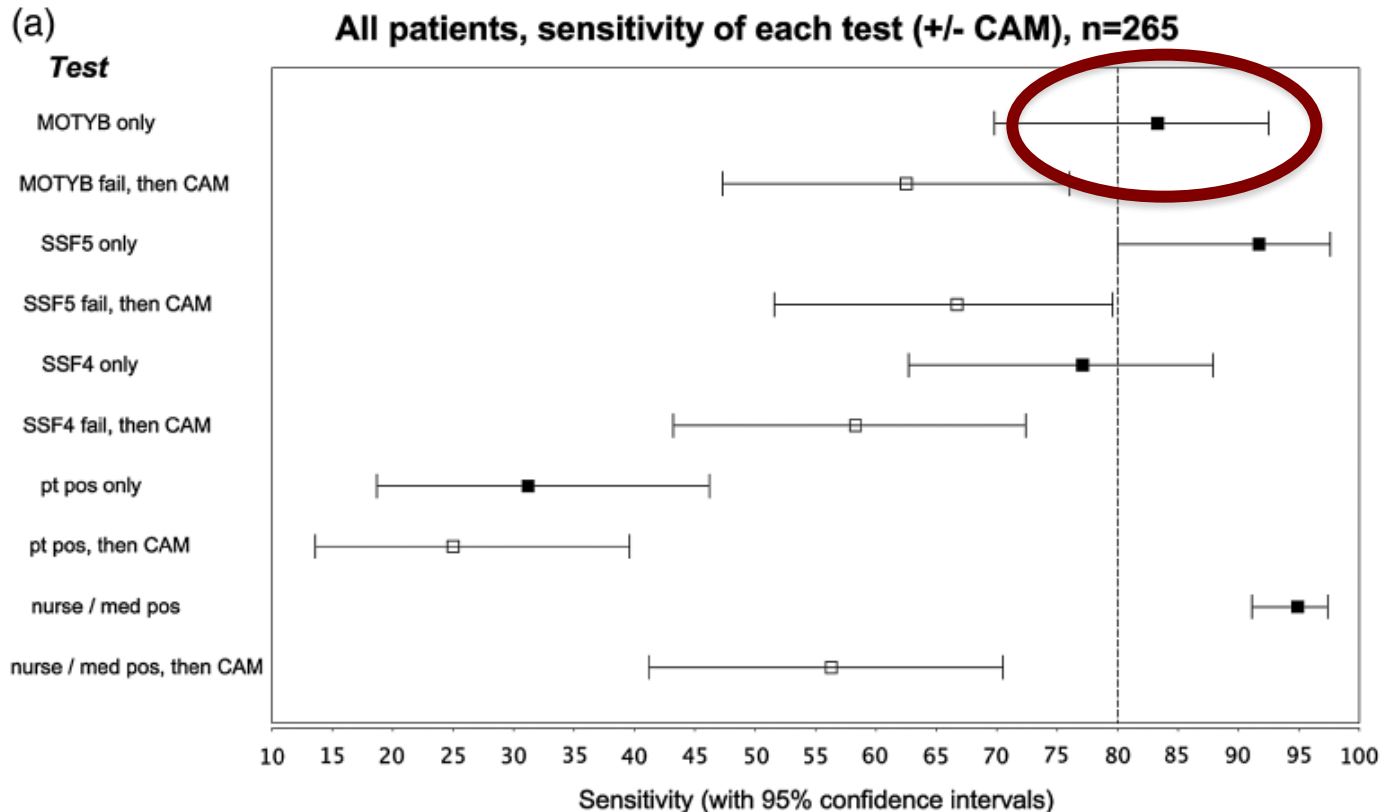- • non effettuabile (assonnato o disattento)   =2

Bellelli G et al, Age Ageing 2014

Research paper

OPEN ACCESS

Attention! A good bedside test for delirium?

Niamh A O'Regan,[1] Daniel J Ryan,[1] Eve Boland,[2] Warren Connolly,[2] Ciara McGlade,[1] Maeve Leonard,[3] Josie Clare,[4] Joseph A Eustace,[5] David Meagher,[6,7] Suzanne Timmons[1]

(a)

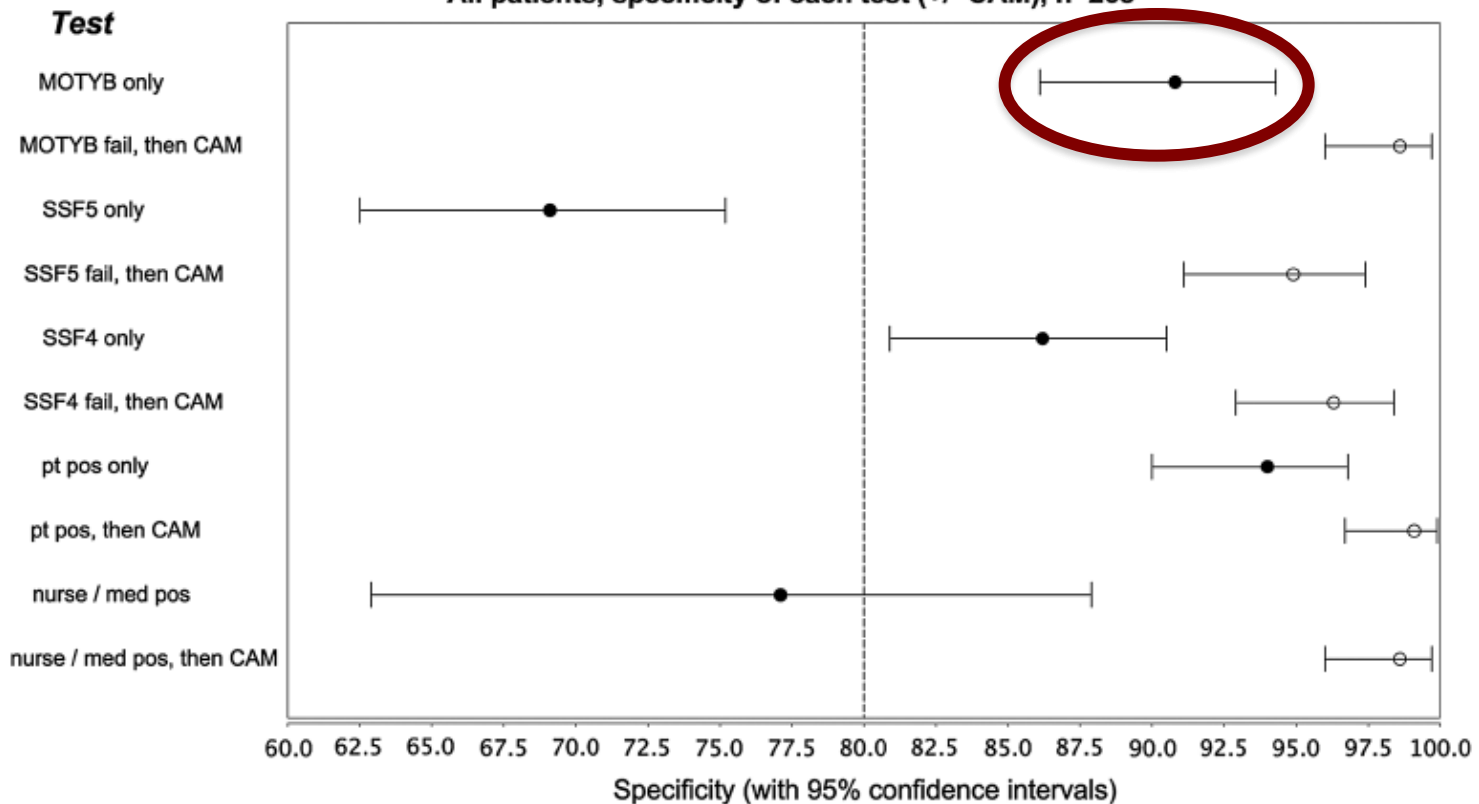All patients, sensitivity of each test (+/- CAM), n=265

Research paper

Attention! A good bedside test for delirium?

Niamh A O'Regan,[1] Daniel J Ryan,[1] Eve Boland,[2] Warren Connolly,[2] Ciara McGlade,[1] Maeve Leonard,[3] Josie Clare,[4] Joseph A Eustace,[5] David Meagher,[6,7] Suzanne Timmons[1]

(b)

All patients, specificity of each test (+/- CAM), n=265

Specificity (with 95% confidence intervals)

Strumenti diagnostici «rapidi»

Vantaggi

- Non necessaria formazione specifica
- Possono essere usati in setting in cui sono richiesti tempi rapidi
- Consentono disseminazione del tema tra i non addetti ai lavori
- In studi come il DD 2015 hanno dimostrato buone performances diagnostiche

Svantaggi

- Richiedono conferma diagnostica
- Non utilizzabili per caratterizzazione della fenomenologia del delirium
- Sono necessari altri studi (che includano misure di outcomes forti) per confermarne l'utilità

Outline

- Perché c'è bisogno di fare il punto sul problema
- Il gold standard diagnostico
- **I vantaggi e i limiti degli strumenti più comuni**
  - I «raffinati»
  - I «rapidi»
  - **Gli «infermieristici»**
- Quali strumenti usare nella valutazione del delirium in paziente affetti da demenza grave

Fast, Systematic, and Continuous Delirium Assessment in Hospitalized Patients: The Nursing Delirium Screening Scale

Jean-David Gaudreau, MSc, Pierre Gagnon, MD, François Harel, MSc,
Annie Tremblay, MD, and Marc-André Roy, MD, MSc

Features and descriptions	Symptoms Rating (0-2)		
Symptom Time Period	Midnight - 8 AM	8 AM - 4 PM	4 PM - Midnight
I. Disorientation Verbal or behavioural manifestation of not being oriented to time or place or misperceiving persons in the environment			
II. 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.			
III. Inappropriate communication Communication inappropriate to place and/or for the person; e.g., incoherence, noncommunicativeness, nonsensical or unintelligible speech.			
IV. Illusions/Hallucinations Seeing or hearing things that are not there; distortions of visual objects.			
V. Psychomotor retardation Delayed responsiveness, few or no spontaneous actions/words; e.g., when the patient is prodded, reaction is deferred and/or the patient is unarousable.			
Total score			

Fig. 1. The Nursing Delirium Screening Scale (Nu-DESC). Symptoms are rated from 0 to 2 based on the presence and intensity of each symptom and individual ratings are added to obtain a total score per shift. The first four items of the Nu-DESC are included in the CRS. This table may be reproduced without permission. For clinical use only.

R.A.D.A.R.

Recognizing Acute Delirium As part of your Routine
© Philippe Voyer

www.fsi.ulaval.ca/radar

Logo of your institution

When you gave the patient his/her medication... (Check Yes or No)		Date :			Date :			Date :			Date :			Date :			Date :			Date :		
		Yes	No	Initials	Yes	No	Initials	Yes	No	Initials	Yes	No	Initials	Yes	No	Initials	Yes	No	Initials	Yes	No	Initials
1. ...was the patient drowsy?	08:00																					
	12:00																					
	17:00																					
	HS																					
2. ... did the patient have trouble following your instructions?	08:00																					
	12:00																					
	17:00																					
	HS																					
3. ... were the patient's movements slowed down?	08:00																					
	12:00																					
	17:00																					
	HS																					

Name	Initials	Name	Initials	Name	Initials	Name	Initials

Specific elements

RADAR items	Pointers
1 ...Was the patient drowsy?	Did he/she have a tendency to fall asleep? Did he/she have difficulty staying awake?
2 ... Did the patient have difficulty following your instructions?	Did he/she take the medication when you gave it to him/her? Did he/she hold out his/her hand? Did he/she bring the medication up to his/her mouth? Did he/she take the glass of water (or drink it) when you offered it to him/her? Did his/her gaze follow your movements or gestures when you spoke to him (visual contact)?
3 ... Were the patient's movements slowed down?	Did he/she move slowly? Was the patient slow when he/she sat, walked and took his/her medication?
	If you happened to observe one of those behaviours since the distribution of the medication, **check "yes"**. In case of doubt, **also check "yes"**.

To learn more about RADAR, please visit the website www.fsi.ulaval.ca/radar

UNIVERSITÉ **LAVAL**

Faculté des sciences infirmières

Outline

- Perché c'è bisogno di fare il punto sul problema
- Il gold standard diagnostico
- I vantaggi e i limiti degli strumenti più comuni
  - I «raffinati»
  - I «rapidi»
  - Gli «infermieristici»
- Quali strumenti usare nella valutazione del delirium in paziente affetti da demenza grave
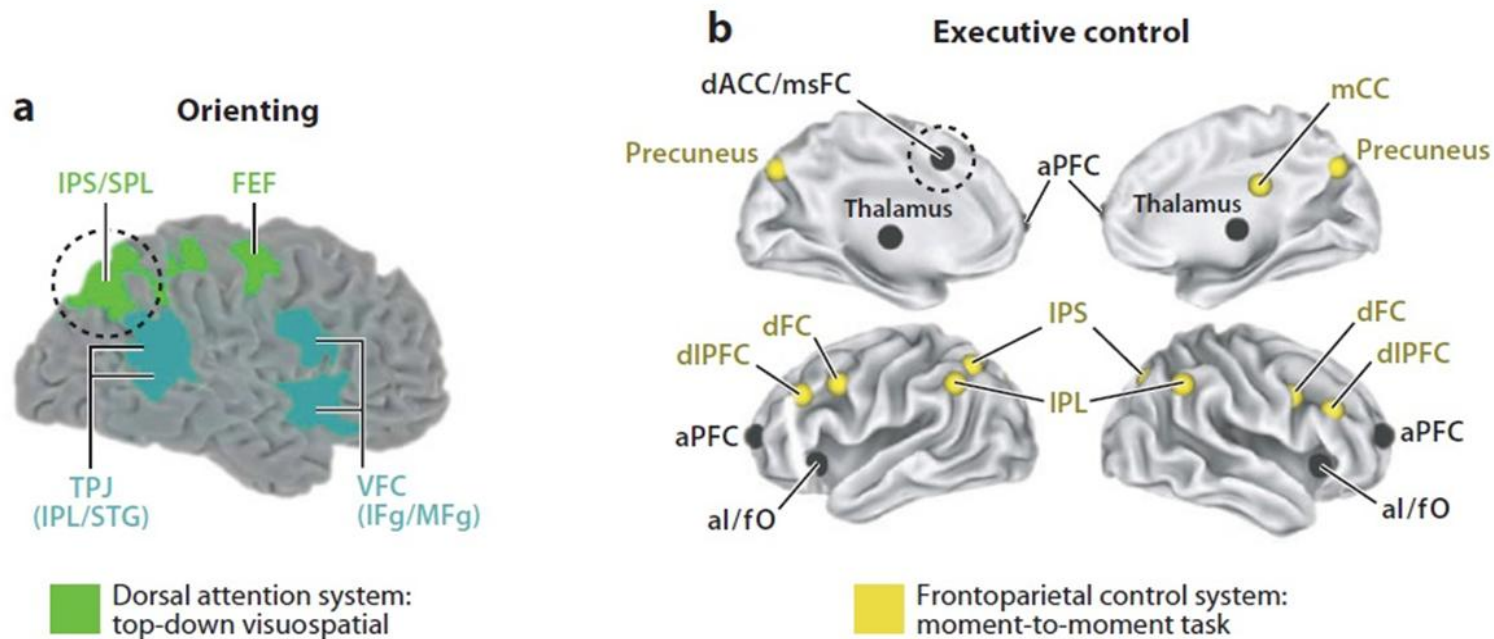
Delirium is a disorder of attention

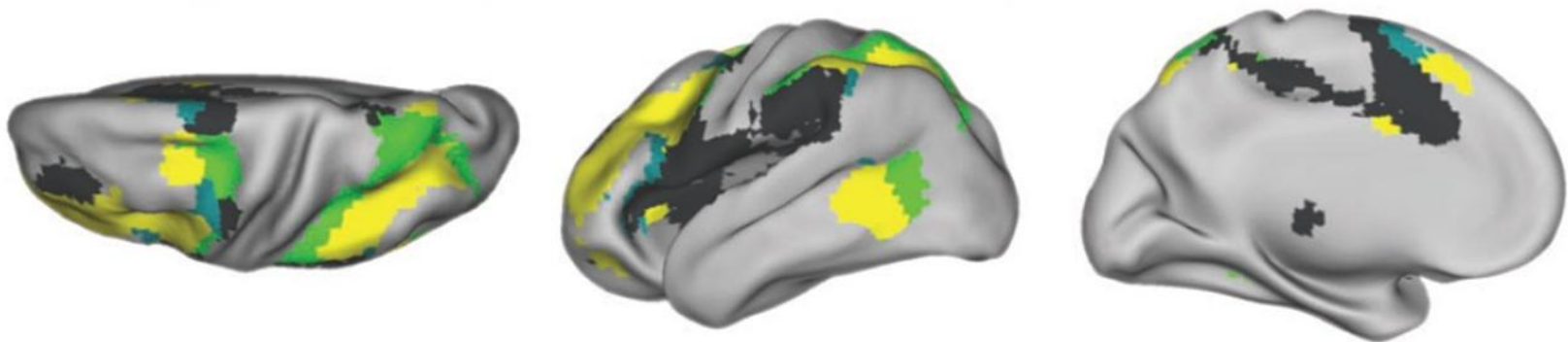| Attention subtype	Description
Sustained attention	Maintain attention over time
Selective attention	Inhibit irrelevant information; enhance relevant information
Switching attention	Disengage, shift, and rengage
Divided attention	Attend no more than 1 task simultaneously
Working memory	Short-term memory, mental manipulation, supervisory attentional control

Rudolph J. JAMDA 2016

Arousal and attention

Alerting

Locus coeruleus: norepinephrine
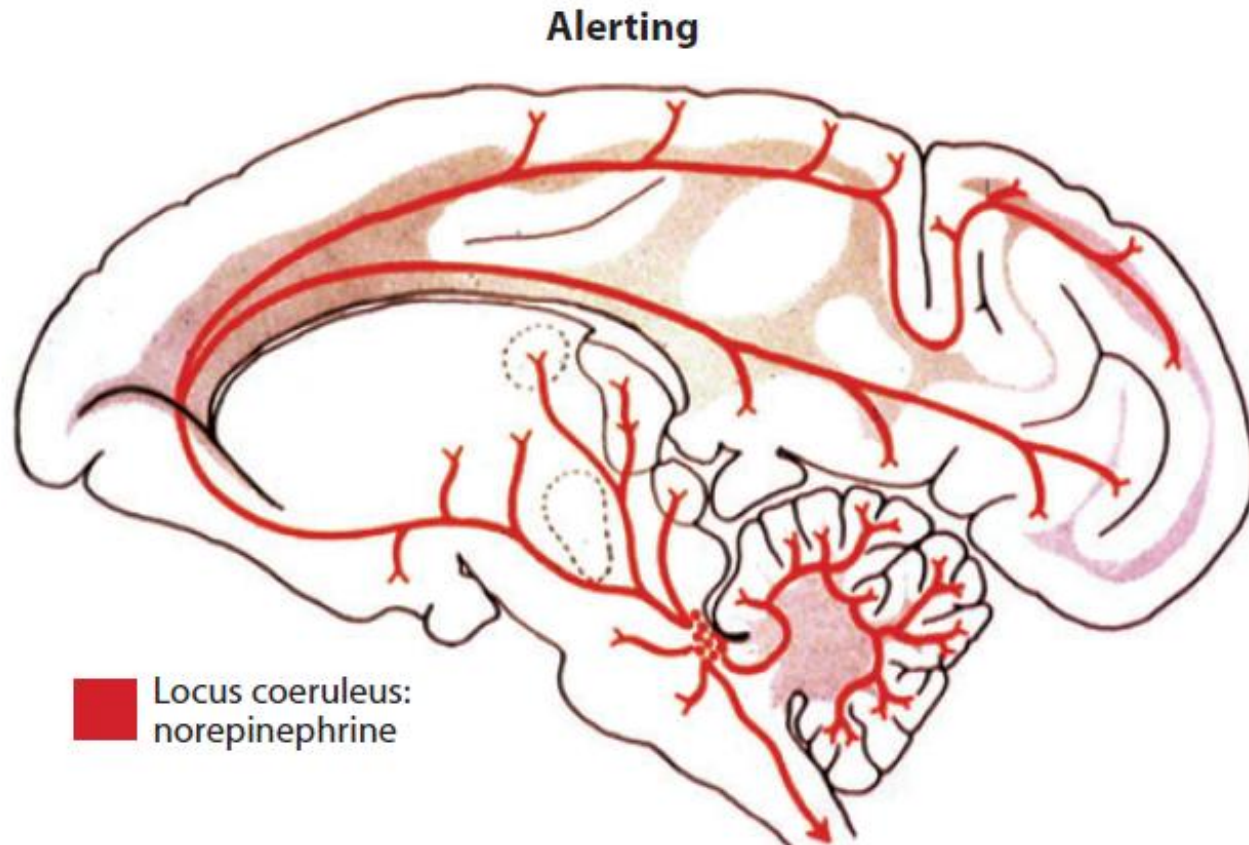
The locus coeruleus projections of the alterting system shown on a macaque brain. The diffuse connections interact with other, more strongly localized systems. The alerting system also includes regions of the frontal and parietal cortices

Reproduced from Aston-Jones & Cohen 2005

The RASS and the m-RASS

The RASS[9,10] and m-RASS[11]

Score	RASS	m-RASS
+4	Combative: Combative, violent, immediate danger to staff	Combative: No attention; overtly combative, violent, immediate danger to staff
+3	Very agitated: Pulls to remove tubes or catheters, aggressive	Very agitated: Very distractible; repeated calling or touch required to get or keep eye contact or attention; cannot focus; pulls or removes tube(s) or catheter(s); aggressive; fights environment not people
+2	Agitated: Frequent nonpurposeful movement, fight ventilator	Slightly agitated: Easily distractible; rapidly loses attention; resists care or uncooperative; frequent nonpurposeful movement
+1	Restless: Anxious, apprehensive, movements nonaggressive	Restless: Slightly distractible; pays attention most of the time; anxious, but cooperative; movements nonaggressive or vigorous
0	Alert and Calm: Spontaneously pays attention to caregiver	Alert and Calm: Pays attention; makes eye contact, aware of surroundings; responds immediately and appropriately to calling name and touch
−1	Drowsy: Not fully alert, but has sustained awakening to voice (eye opening and contact >10 s)	Wakes easily: Slightly drowsy; eye contact >10 s; not fully alert, but has sustained awakening; eye opening/eye contact to voice >10 s
−2	Light sedation: Briefly awakens to voice (eyes open and contact)	Wakes slowly: Very drowsy; pays attention some of the time; briefly awakens with eye contact to voice <10 s
−3	Moderate sedation: Movement or eye opening to voice (no eye contact)	Difficult to wake: Repeated calling or touch required to get or keep eye contact or attention; needs repeated stimuli (touch or voice) for attention, movement, or eye opening to voice (but no eye contact)
−4	Deep sedation: No response to voice, but movement or eye opening to physical stimulation	Can't stay awake: Arousable but no attention; no response to voice, but movement or eye opening to physical stimulation
−5	Unarousable: No response to voice or physical stimulation	Unarousable: No response to voice or physical stimulation

Ely EW et al 2003   *Chester JG, et al 2012*

DSM 5 Neurocognitive disorders section - guidance

- Normal attention/arousal, delirium, and coma lie on a continuum, with coma defined as the lack of any response to verbal stimuli. The ability to evaluate cognition to diagnose delirium depends on there being a level of sufficient arousal for response to verbal stimulation; hence, delirium should not be diagnosed in the context of coma (Criterion D).

- Many noncomatose patients have a reduced level of arousal. **Those patients who show only minimal responses to verbal stimulation are incapable of engaging with attempts at standardized testing or even interview. This inability to engage should be classified as severe inattention**

Am Psychiatr Assoc, May 2013

The effect of an impaired arousal on short- and long-term mortality of elderly patients admitted to an acute Geriatric Unit
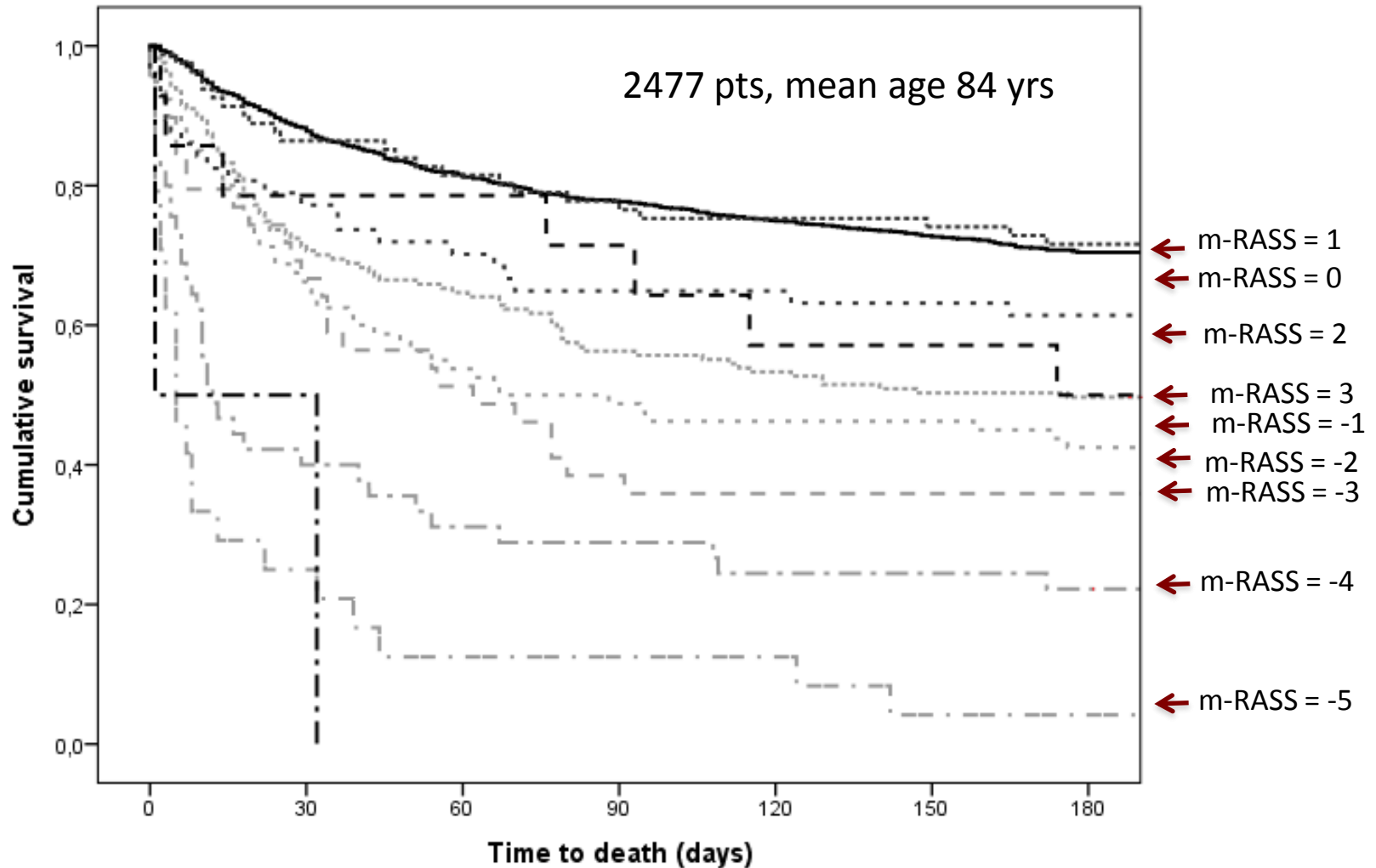

2477 pts, mean age 84 yrs

← m-RASS = 1
← m-RASS = 0
← m-RASS = 2
← m-RASS = 3
← m-RASS = -1
← m-RASS = -2
← m-RASS = -3
← m-RASS = -4
← m-RASS = -5

Cumulative survival

Time to death (days)

Bellelli G et al, JAMDA 2015

Detecting Delirium Superimposed on Dementia: Evaluation of the Diagnostic Performance of the Richmond Agitation and Sedation Scale

Alessandro Morandi MD, MPH [a,b,*], Jin H. Han MD, MSc [c], David Meagher MD, PhD [d], Eduard Vasilevskis MD [e,f,g], Joaquim Cerejeira MD [h], Wolfgang Hasemann RN, PhD [i], Alasdair M.J. MacLullich MRCP (UK), PhD [j], Giorgio Annoni MD, PhD [k], Marco Trabucchi MD [b,l], Giuseppe Bellelli MD [b,k]

Enrollment	Setting	Delirium Diagnosis	Diagnosis of Dementia
Group 1			
Cremona (Italy)	In-hospital rehabilitation	DSM-IV	SF-IQCODE
Limerick (Ireland)	Old-age psychiatry consultation-liaison	DSM-IV	SF-IQCODE
Coimbra (Portugal)	Psychiatry, acute geriatric ward	DSM-IV	SF-IQCODE
Basel (Switzerland)	General surgery and orthopedic surgery	DSM-IV	SF-IQCODE
Monza (Italy)	Acute geriatric ward	DSM-IV	SF-IQCODE
Group 2			
Monza (Italy)	Acute geriatric ward	4AT	Clinical records
Group 3			
Cremona (Italy)	In-hospital rehabilitation	DSM-IV	CDR
Group 4			
Limerick (Ireland)	Palliative care	DRS-R-98	Clinical records
Group 5			
Nashville (TN, USA)	Emergency department	DSM-IV	SF-IQCODE

Detecting delirium superimposed on dementia: evaluation of the diagnostic performance of the Richmond Agitation and Sedation Scale
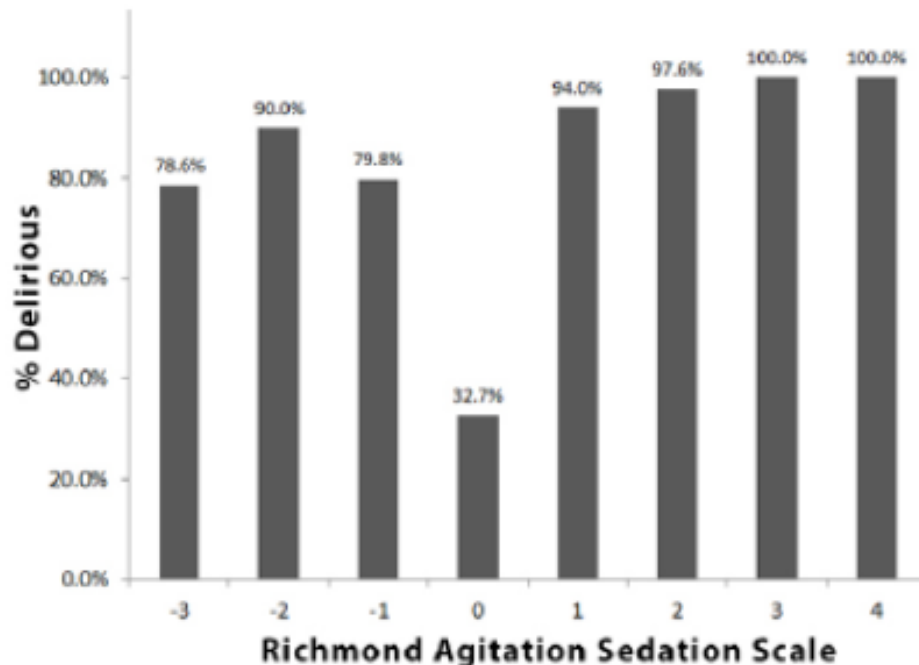
- A RASS/m-RASS score ≠0 was 70.5% sensitive (95% CI: 65.9% - 75.1%) and 84.8% (CI: 80.5% - 89.1%) specific for DSD.

  Using a RASS/m-RASS value >+1 or <-1 as a cut-off, the sensitivity was 30.6% (CI: 25.9% - 35.2%) and the specificity was 95.5% (CI: 93.1% - 98.0%).

Morandi A et al, JAMDA 2016

Editorial

Arousal, Attention, and an Abundance of Opportunity to Advance Delirium Care

James L. Rudolph MD, SM *

- The exciting feature of the Morandi et al study is the performance of the RASS/mRASS for delirium in patients with dementia.

- First, the prevalence of delirium (58%) and impaired arousal (46%) were high, which suggest hospitalized patients with dementia have both conditions.

- Second, understanding baseline arousal in the home environment could provide a reference standard that would enable providers to identify change from baseline a key diagnostic criteria for delirium. Finally, the ease of administration of the RASS/mRASS could provide objectivity to the identification of delirium in those with dementia, such as a vital sign for mental status

Are Fluctuations in Motor Performance a Diagnostic Sign of Delirium?

Giuseppe Bellelli, MD, Salvatore Speciale, MD, Sara Morghen, PsyD, Tiziana Torpilliesi, MD, Renato Turco, MD, and Marco Trabucchi, MD

Table 1. *Baseline Characteristics of the 4 Study Groups*

	Delirium Alone (n = 15)	DSD (n = 15)	No Del–No Dem (n = 15)	Dementia Alone (n = 15)	P
Demographics					
Age, y	81.4 ± 6.2	84.8 ± 6.8	79.3 ± 4.6	83.2 ± 5.6	.06
Female, n (%)	11 (73.3)	10 (66.7)	10 (66.7)	12 (80.0)	.82
Education, y	5.8 ± 3.3	5.7 ± 2.1	6.2 ± 2.8	4.4 ± 1.4	.22
Living alone, n (%)	3 (20.0)	3 (20.0)	8 (53.3)	6 (40.0)	.14
Biological and somatic health status					
Body Mass Index, kg/m^2	23.9 ± 4.0	22.7 ± 4.2	25.8 ± 3.6	24.4 ± 4.6	.25
Albumin serum levels, g/dL	3.3 ± 0.3	3.3 ± 0.5	3.6 ± 0.3	3.2 ± 0.9	.20
No. of drugs on admission	6.0 ± 2.0	6.5 ± 2.0	5.9 ± 2.2	6.0 ± 3.0	.89
Charlson comorbidity index	2.0 ± 1.9	3.6 ± 1.8[c]	1.3 ± 1.4[b]	2.8 ± 1.8	.007
Primary diagnosis, n (%)					
Postorthopedic surgery	2 (13.3)	3 (20.0)	3 (20.0)	1 (6.7)	.74
Neurological and musculoskeletal gait disorders	2 (13.3)	3 (20.0)	1 (6.7)	1 (6.7)	
Cardiologic and respiratory diseases	11 (73.3)	9 (60.0)	11 (73.3)	13 (86.7)	
Mini Mental State Examination (0–30)	23.2 ± 2.4[b,c,d]	12.0 ± 4.8[a,c,d]	27.2 ± 1.2[a,b,d]	17.8 ± 4.4[a,b,c]	<.005
Clinical Dementia Rating Scale (0–5)	0.7 ± 0.6[b]	2.1 ± 1.0[a,c]	0.03±1.2[b,d]	1.4 ± 0.9[c]	<.005
Barthel Index on admission (0–100)	49.0 ± 25.6[c]	34.7 ± 23.6[c,d]	79.9 ± 12.1[a,b]	64.5 ± 17.4[b]	<.005
Total length of rehabilitation stay, days	40.2 ± 11.6	38.4 ± 14.3	31.2 ± 7.6	35.8 ± 10.8	.16

Trunk control score e delirium

Bellelli et al. JAMDA 2011 Oct;12:578-83
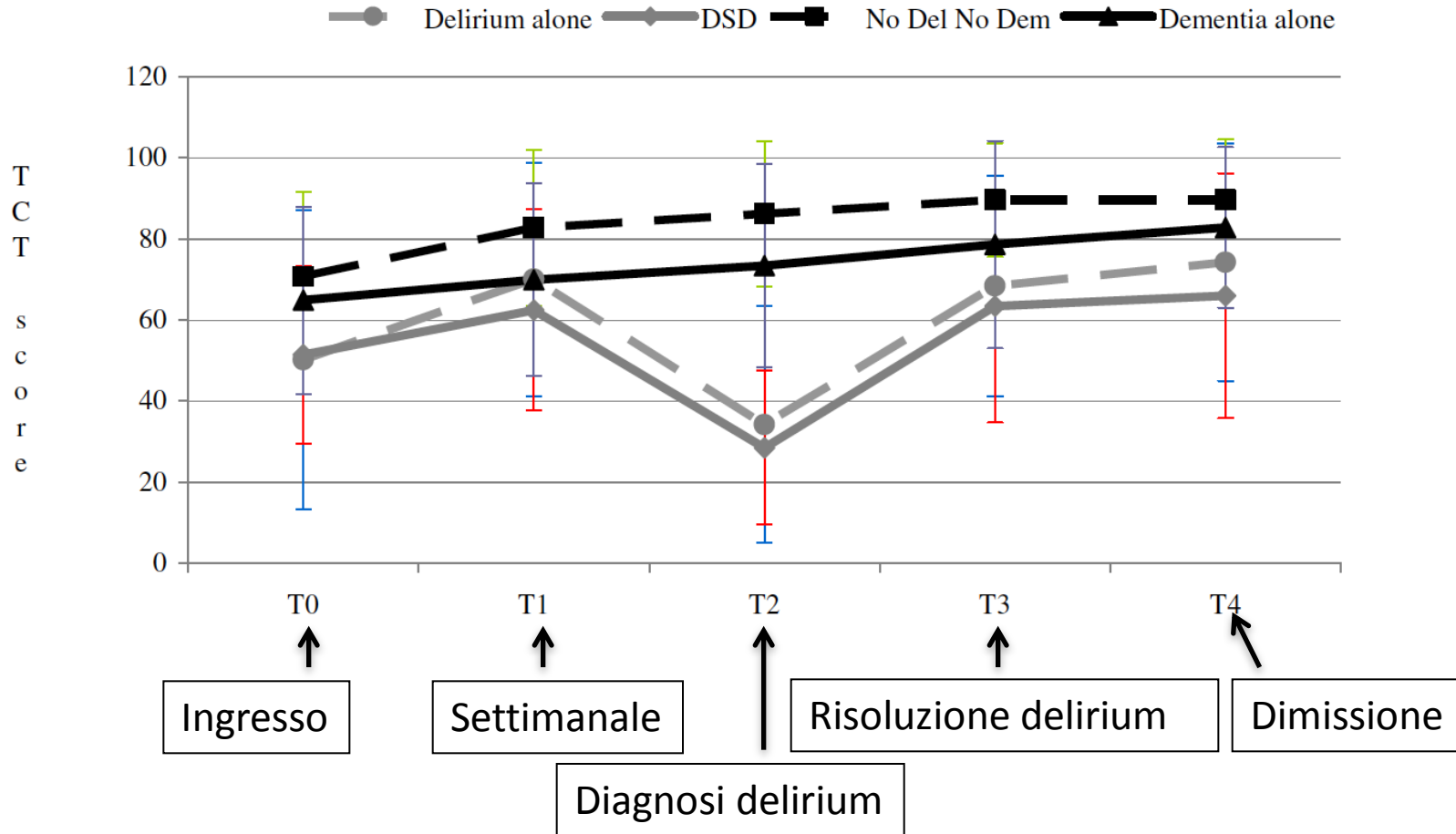
Conclusioni

- La strategia dell' "I know it when I see it" è foriera di errori e va dunque combattuta

- La scelta dello strumento appropriato per la diagnosi di delirium dipende dall'uso che se ne vuole fare,
  - per la pratica clinica il 4AT è ideale

- Nei pazienti con pre-esistente grave demenza particolare attenzione alla vigilanza (e alla perdita repentina di abilità motorie), in quanto potrebbero indicare la presenza di delirium