AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

Caring for Cognitive Impairment

Webinar No 10: Cognitive Impairment in the Emergency Department (ED) and Intensive Care Unit (ICU)

Presenters

- **Glenn Arendts**
  Associate Professor Emergency Medicine, University of Western Australia
- **Marghie Murgo**
  Senior Nursing Advisor, ACSQHC
- **Michael Reade**
  Professor of Military Surgery & Medicine, Royal Brisbane Clinical Unit, Faculty of Medicine

Outline

- Cognitive impairment in ED
- Cognitive impairment in ICU
- Questions

Questions

- You can type your questions or comments in the control panel as we go along

- The session will be recorded and the recording and slides uploaded on the campaign website

http://cognitivecare.gov.au/

CARING FOR COGNITIVE IMPAIRMENT

Cognitive Impairment

is an important safety and quality issue for all Australian hospitals

Patients with cognitive impairment such as dementia and/or delirium have more falls, pressure injuries and functional decline

Dementia and delirium are poorly recognised

30-40% of delirium cases can be prevented

Learn how to recognise cognitive impairment

Prevent delirium

Act to keep people with cognitive impairment safe

We can all make a difference

National Safety and Quality Health Service (NSQHS) Standards (second edition)

Standard 1
Clinical Governance Standard

Standard 2
Partnering with Consumers

Standard 3
Preventing & Controlling Healthcare associated infection

Standard 4
Medication Safety

Standard 5
Comprehensive Care Standard

Standard 6
Communicating for Safety

Standard 7
Blood and Blood Products

Standard 8
Recognising and Responding to Clinical Deterioration in Acute Health Care

Screening for risk
Nutrition & hydration
Falls
Pressure injury
Delirium & CI
Self harm & suicide
Aggression & violence
Restraint/seclusion

Preventing delirium and managing cognitive impairment

Action 5.29

The health service organisation providing services to patients who have cognitive impairment or are at risk of developing delirium has a system for caring for patients with cognitive impairment to:

a. Incorporate best-practice strategies for early recognition, prevention, treatment and management of cognitive impairment in the care plan, including the Delirium Clinical Care Standard[226], where relevant

b. Manage the use of antipsychotics and other psychoactive medicines, in accordance with best practice and legislation

Action 5.30

Clinicians providing care to patients who have cognitive impairment or are at risk of developing delirium use the system for caring for patients with cognitive impairment to:

a. Recognise, prevent, treat and manage cognitive impairment

b. Collaborate with patients, carers and families to understand the patient and implement individualised strategies that minimise any anxiety or distress while they are receiving care

Action 8.5

The health service organisation has processes for clinicians to recognise acute deterioration in mental state that require clinicians to:

a. Monitor patients at risk of acute deterioration in mental state, including patients at risk of developing delirium

b. Include the person's known early warning signs of deterioration in mental state in their individualised monitoring plan

c. Assess possible causes of acute deterioration in mental state, including delirium, when changes in behaviour, cognitive function, perception, physical function or emotional state are observed or reported

d. Determine the required level of observation

e. Document and communicate observed or reported changes in mental state

Implementation in ED and ICU

- Key elements need to be considered any setting, for example, but not limited to
  - Screening for cognitive impairment
  - Assessment of delirium
  - Re-assessment with any change
  - Investigation of underlying causes, response to additional risks
  - Delirium prevention
  - Partnering with patient, carers and family
  - Appropriate use of antipsychotics and other psychoactive medicines
  - Supportive environment

- The implementation of the system for cognitive impairment will vary according to the setting to take into account the differences in the
  - Environment
  - Patient profile and risks
  - Screening and assessment processes
  - Model of care

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Achieving International Excellence

The Emergency Department Perspective

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https://www.perkins.org.au/ccrem/team/glenn-arendts/

‘Ideal’ cognitive care in the ED setting

Universal cognitive screening

Taking delirium seriously

Do we know what quality cognitive care looks like?

ORIGINAL CONTRIBUTION

Structural Quality Indicators to Support Quality of Care for Older People With Cognitive Impairment in Emergency Departments

ORIGINAL CONTRIBUTION

Process Quality Indicators Targeting Cognitive Impairment to Support Quality of Care for Older People with Cognitive Impairment in Emergency Departments

Schnitker LM et al. Acad Emerg Med 2015

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Achieving International Excellence

ED Dementia Care Training

Providing best care to older people with dementia in emergency departments

Cognitive screening

Yes please do it

BUT…….

Be honest and realistic

Perhaps heed my stern messages

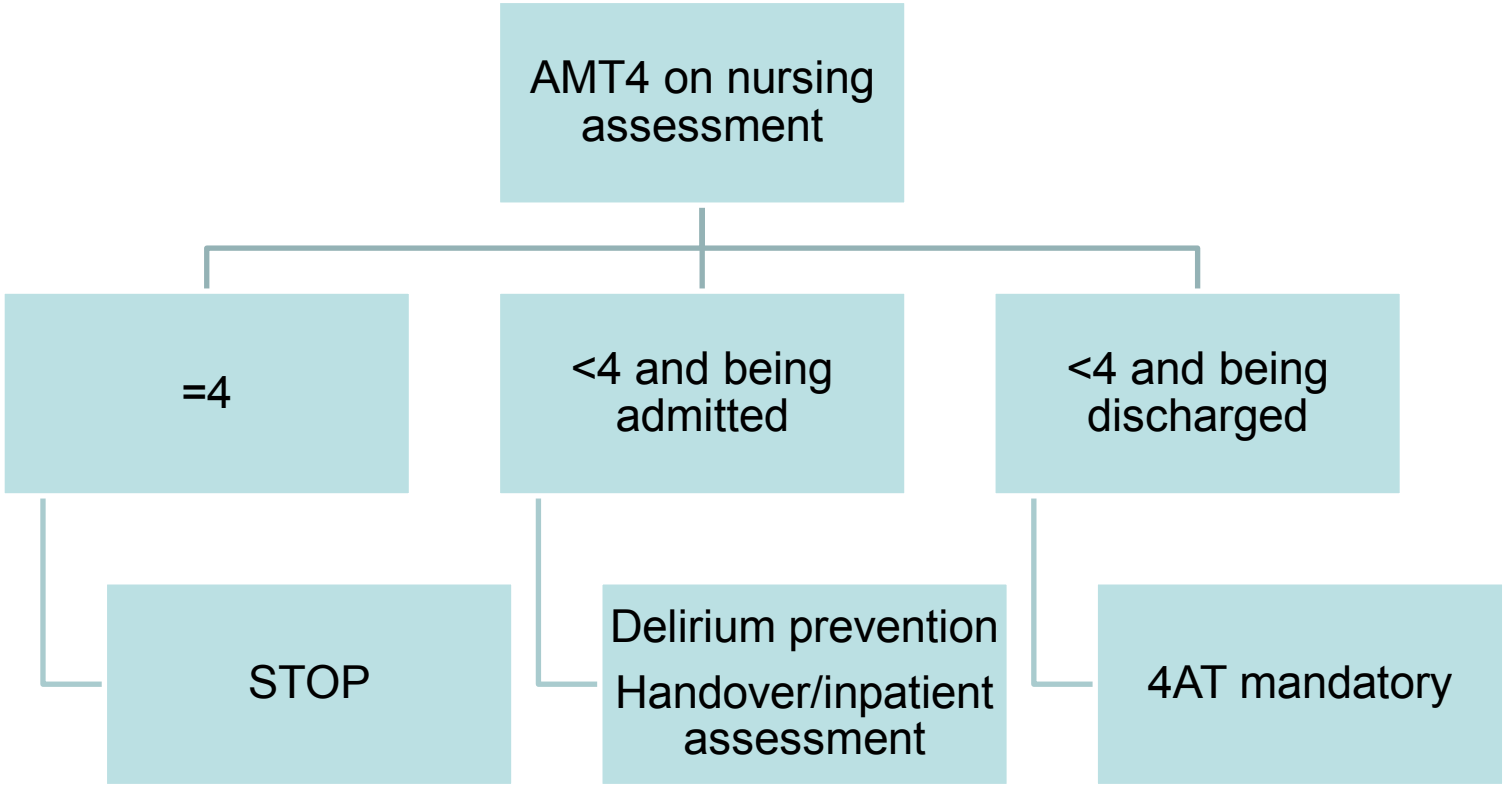
Some "stern" messages from your friendly ED

WHY do you want the ED to screen for you, why can't you do it yourself? Your convenience is not a reason. Ticking accreditation boxes is not a reason.

WHO is the ED champion? Can you talk their language? Do you understand their fear over workloads, and their conflicting demands?

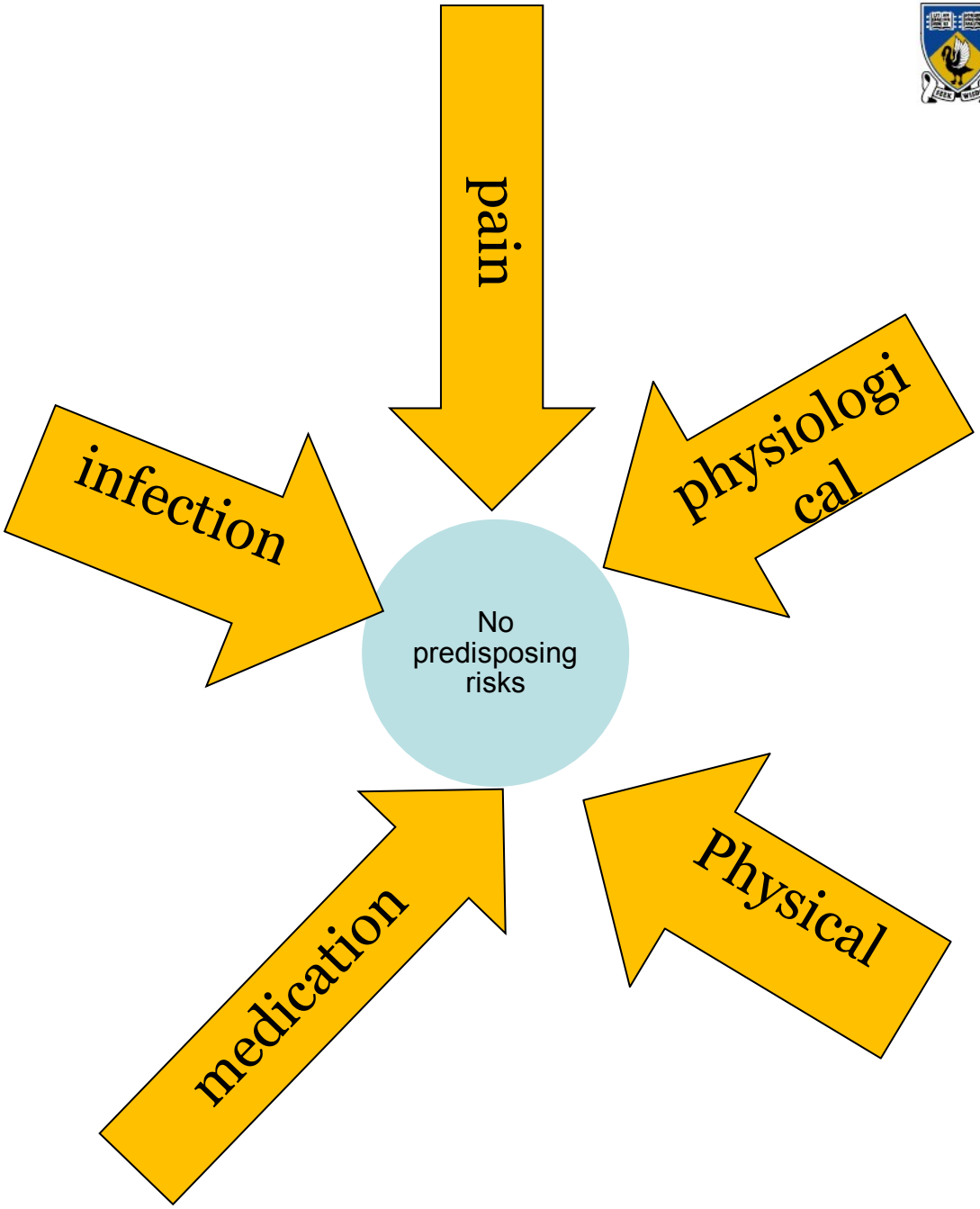
WHAT resources will you supply rather than consume?

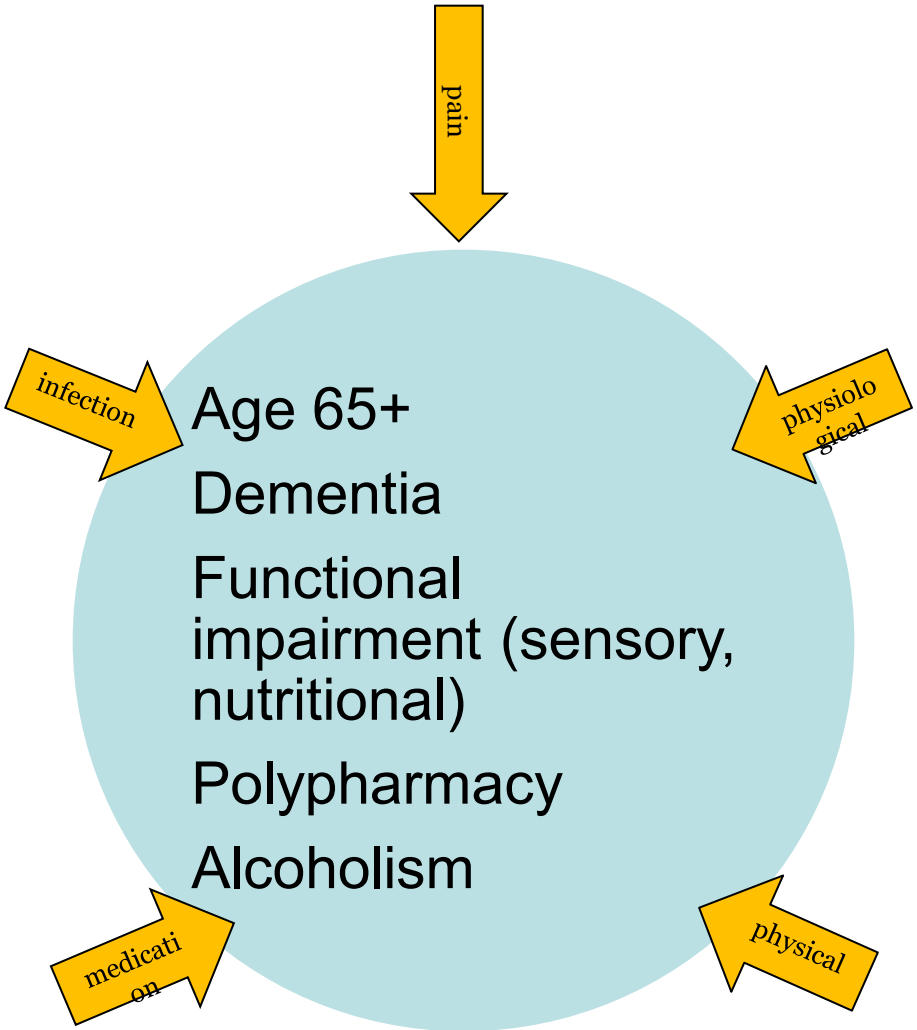
In other words, WHERE and WHEN is the first meeting of your ED geriatric reference group?


AMT4 on nursing assessment
=4
<4 and being admitted
<4 and being discharged
STOP
Delirium prevention
Handover/inpatient assessment
4AT mandatory

Clinical reality of delirium (to get attention of the ED folk)

Acute Brain Failure


pain
infection
physiologi cal
No predisposing risks
medication
Physical


pain
infection
physiolo gical
Age 65+
Dementia
Functional impairment (sensory, nutritional)
Polypharmacy
Alcoholism
medicati on
physical

Characteristic	Delirium negative (n=3477)	Delirium positive (n=414)
Median (IQR) length of stay	3 (1-6) days	7 (3-13) days
% mortality	3%	7%
% newly discharged to RACF	3%	18%
Injurious falls / 1000 patient days	0.8	2.2
In-hosp aspiration pneumonia rate	1%	1%
Sedation usage	4%	17%

Arendts G et al. J Am Geriatr Soc 2017

TADA

TOLERATE

ANTICIPATE

DON'T AGGRAVATE

1. Flow factors

a. Preferentially triage

b. Minimise room and staffing changes

2. Humanitarian factors

a. Encourage mobility and engage patients in cognitively meaningful activities

b. Frequent offering of food and fluids, toilet, access to sensory aids

c. Actively involve family and caregivers

3. Clinical factors

a. Assess and treat pain using appropriate pain assessment tools

b. Avoid drugs implicated in delirium.

c. Look for a medical cause

Pharmacology

Antipsychotics for treatment of delirium in hospitalised non-ICU patients (Review)

Burry L, Mehta S, Perreault MM, Luxenberg JS, Siddiqi N, Hutton B, Fergusson DA, Bell C, Rose L

1. Antipsychotics do not reduce delirium severity, resolve symptoms, or improve mortality
2. No reported data to determine whether antipsychotics altered the duration of delirium, length of hospital stay, discharge disposition, or health-related

Comprehensive Care

Delirium and ICU

Marghie Murgo
Senior Nursing Advisor, Partnering with Consumers

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

NSQHS STANDARDS

Should delirium be a vital sign?

- Why should it be measured?
- When should it be measured?
- How should it be measured?
- Systems and processes

Why should it be measured?

- Approximately one third of ICU patients
- May be associations with:
  - Increased hospital LOS
  - Increases length of mechanical ventilation
  - Increased hospital mortality
  - Greater long term consequences for patients (e.g. CI 12 months post D/C)

A Systematic Review of Risk Factors for Delirium in the ICU*

Irene J. Zaal, MD[1]; John W. Devlin, PharmD[2]; Linda M. Peelen, MSc, PhD[1,3]; Arjen J. C. Slooter, MD, PhD[1]

- Evidence for:
  - Age
  - Dementia
  - Hypertension
  - Coma
  - Emergency surgery
  - High APACHE II score
  - Delirium previous day
  - Trauma
- These aren't modifiable…

Critical Care Medicine
Society of Critical Care Medicine
The Intensive Care Professionals

Executive Summary: Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU

Devlin, John W., PharmD, FCCM[1,2]; Skrobik, Yoanna, MD, FRCP(c), MSc, FCCM[3,4]; Gélinas, Céline, RN, PhD[5]; Needham, Dale M., MD, PhD[6]; Slooter, Arjen J. C., MD, PhD[7]; Pandharipande, Pratik P., MD, MSCI, FCCM[8]; Watson, Paula L., MD[9]; Weinhouse, Gerald L., MD[10]; Nunnally, Mark E., MD, FCCM[11,12,13,14]; Rochwerg, Bram, MD, MSc[15,16]; Balas, Michele C., RN, PhD, FCCM, FAAN[17]; van den Boogaard, Mark, RN, PhD[18]; Bosma, Karen J., MD[19]; Brummel, Nathaniel E., MD, MSCI[20]; Chanques, Gerald, MD, PhD[21,22]; Denehy, Linda, PT, PhD[23]; Drouot, Xavier, MD, PhD[24,25]; Fraser, Gilles L., PharmD, MCCM[26]; Harris, Jocelyn E., OT, PhD[27]; Joffe, Aaron M., DO, FCCM[28]; Kho, Michelle E., PT, PhD[27]; Kress, John P., MD[29]; Lanphere, Julie A., DO[30]; McKinley, Sharon, RN, PhD[31]; Neufeld, Karin J., MD, MPH[32]; Pisani, Margaret A., MD, MPH[33]; Payen, Jean-Francois, MD, PhD[34]; Pun, Brenda T., RN, DNP[35]; Puntillo, Kathleen A., RN, PhD, FCCM[36]; Riker, Richard R., MD, FCCM[26]; Robinson, Bryce R. H., MD, MS, FACS, FCCM[37]; Shehabi, Yahya, MD, PhD, FCICM[38]; Szumita, Paul M., PharmD, FCCM[39]; Winkelman, Chris, RN, PhD, FCCM[40]; Centofanti, John E., MD, MSc[41]; Price, Carrie, MLS[42]; Nikayin, Sina, MD[43]; Misak, Cheryl J., PhD[44]; Flood, Pamela D., MD[45]; Kiedrowski, Ken, MA[46]; Alhazzani, Waleed, MD, MSc[16,47]

How and when should delirium be measured

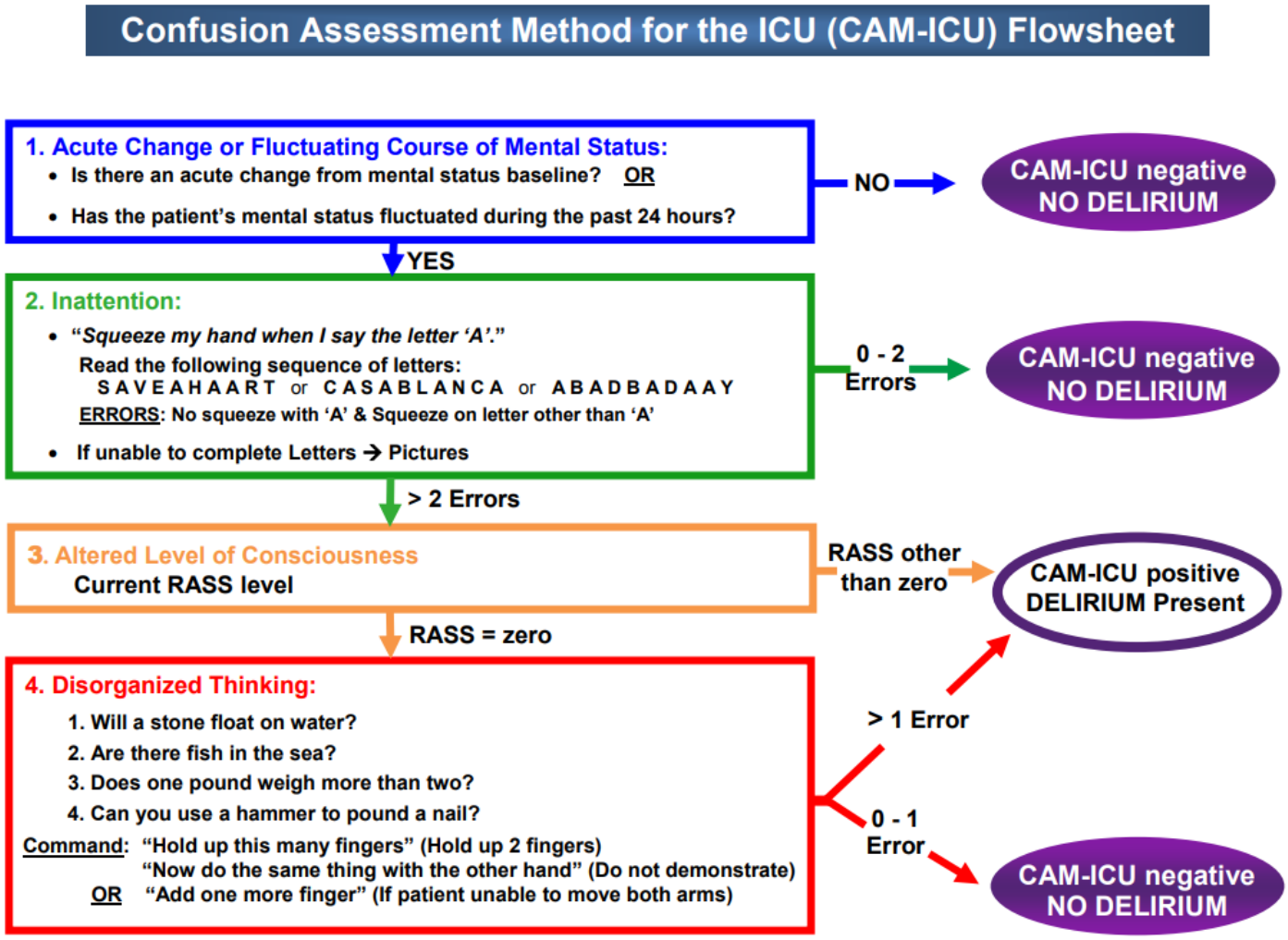
Delirium

Should we assess for delirium using a valid tool (compared with not performing this assessment with a valid tool) in critically ill adults?

Critically ill adults should be regularly assessed for delirium using a valid tool (Good Practice Statement).

2018 PADIS guidelines

Measurement: CAM-ICU



Measurement: ICDSC

Intensive Care Delirium Screening Checklist (ICDSC)

Give a score of "1" to each of the 8 items below if the patient clearly meets the criteria defined in the scoring instructions. Give a score of "0" if there is no manifestation *or* unable to score. If the patient scores ≥4, notify the physician. The diagnosis of delirium is made following clinical assessment; document in the Assessment and Intervention record (RN) and progress note (MD).

Assessment	Scoring Instructions	Score
1. Altered Level of Consciousness*	• If MAAS portion of VAMAAS is 0 (no response) or 1 (response to noxious stimulus only), record "U/A" (unable to score) and do not complete remainder of screening tool. • Score "0" if MAAS score is 3 (calm, cooperative, interacts with environment without prompting) • Score "1" if MAAS score is 2, 4, 5 or 6 (MAAS score of 2 is a patient who only interacts or responds when stimulated by light touch or voice – no spontaneous interaction or movement; 4, 5 and 6 are exaggerated responses).	
If MAAS ≠ 0 or 1, screen items 2-8 and complete a total score of all 8 items.		
2. Inattention	"1" for any of the following: • Difficulty following conversation or instructions • Easily distracted by external stimuli • Difficulty in shifting focuses	
3. Disorientation	"1" for any obvious mistake in person, place or time	
4. Hallucination/ delusions/ psychosis	"1" for any one of the following: • Unequivocal manifestation of hallucinations or of behaviour probably due to hallucinations (e.g.catching non-existent object) • Delusions • Gross impairment in reality testing	
5. Psychomotor agitation or retardation	"1" for any of the following: • Hyperactivity requiring additional sedatives or restraints in order to control potential dangerousness (e.g. pulling out IV lines, hitting staff) • Hypoactivity or clinically noticeable psychomotor slowing. Differs from depression by fluctuation in consciousness and inattention.	
6. Inappropriate speech or mood	"1" for any of the following (score 0 if unable to assess): • Inappropriate, disorganized or incoherent speech. • Inappropriate display of emotion related to events or situation.	
7. Sleep wake/cycle disturbance	"1" for any of the following: • Sleeping less than 4 hours or waking frequently at night (do not consider wakefulness initiated by medical staff or loud environment). • Sleeping during most of day.	
8. Symptom fluctuation	"1" for fluctuation of the manifestation of any item or symptom over 24 hours (e.g., from one shift to another).	
TOTAL SCORE (0-8/8):	A score ≥ 4 suggests delirium. A score > 4 is not indicative of the severity of the delirium.	

Last reviewed August 22, 2014

Adapted with permission (Skrobik, Y)
Bergeon, et al, 2001, Intensive Care Medicine

Systems and process- Implementation?

Policy Directive

Intensive Care Service: Analgesia, Sedation and Delirium Protocol

Document No:	PD2013_017
Functional Sub-Group:	Clinical Governance Corporate Governance
Summary:	This guideline provides information to staff to support appropriate assessment of pain, sedation and delirium with suggested strategies for management.
National Standard:	Standard 1 Governance for Safety and Quality in Healthcare
Policy Author:	Clinical Nurse Consultant Intensive Care Service
Approved by:	General Manager
Publication (Issue) Date:	May 2013
Next Review Date:	May 2018

Delirium Management

The primary management strategy is to minimise risk factors and are non-pharmacological. The list below is not in any specific order.

- Maintain haemodynamic and oxygenation endpoints
- Monitor hydration
- Orientate the patients by providing visual and hearing aids
- Encourage communication and repeated reorientation of patients to time, date and place.
- Ensure a clock is visible
- Avoid moving the patient between bed spaces
- Ask the family to provide familiar objects from home in the patients bed area such as photographs
- Prioritise consistent staff allocation
- Provide music via ear phones
- Provide cognitive stimulation multiple times a day
- Reduce isolation
- Encourage 'normal' day/night routines
- Turn as many lights off in the Intensive Care Service at night as practical
- Mobilise patients early and provide range of motion exercises and physiotherapy
- Minimise unnecessary noise
- Remove lines and restraints as soon as practical

How does it stack up?

Should a multicomponent, nonpharmacologic strategy (vs no such strategy) be used to reduce delirium in critically ill adults?

We suggest using a multicomponent, nonpharmacologic intervention that is focused on (but not limited to) reducing modifiable risk factors for delirium, improving cognition, and optimizing sleep, mobility, hearing, and vision in critically ill adults.

Remarks: These multicomponent interventions include (but are not limited to) strategies to reduce or shorten delirium (e.g., reorientation, cognitive stimulation, use of clocks), improve sleep (e.g., minimizing light and noise), improve wakefulness (i.e., reduced sedation), reduce immobility (e.g., early rehabilitation/mobilization), and reduce hearing and/or visual impairment (e.g., enable use of devices such as hearing aids or eye glasses).

2018 PADIS guidelines

Sustainability?

Year	Number of documented assessments	CAM-ICU Positive	CAM-ICU Negative
2013	3406	667	2739
2014	4546	739	3807
2015	2828	409	2419
2016	2260	285	1975
2017	2040	195	1845
2018	1141	121	1020

Barriers and facilitators

- Complexity
- Support and resources
- Time
- Knowledge, belief, skills
- Communication, cooperation
- Culture
- Data, comparators, incentives
- Workflow

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Interpreting and Implementing the 2018 Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption Clinical Practice Guideline

Balas, Michele C., PhD, RN, CCRN-K, FCCM, FAAN[1,2]; Weinhouse, Gerald L., MD[3,4]; Denehy, Linda, PT, PhD[5]; Chanques, Gerald, MD, PhD[6]; Rochwerg, Bram, MD, MSc[7]; Misak, Cheryl J., DPhil[8]; Skrobik, Yoanna, MD, FRCP(c), MSc, FCCM[9]; Devlin, John W., PharmD, FCCM[10,11]; Fraser, Gilles L., PharmD, MCCM[12,13]

Critical Care Medicine: September 2018 - Volume 46 - Issue 9 - p 1464–1470
doi: 10.1097/CCM.0000000000003307
Clinical Investigations

Comprehensive Care Standard

Criterion 1:
Systems supporting clinicians to deliver comprehensive care

Criterion 2:
Developing the plan of care

Criterion 3:
Delivering the plan of care

Criterion 4:
Minimising harm including identifying and mitigating harm

Criteria 4: Minimising risk of harm

- Minimising patient harm from specific risks including:
  - preventing falls
  - pressure injuries
  - malnutrition
  - **delirium and cognitive impairment**
  - self harm and suicide
  - restraint and seclusion
  - managing aggression and violence

Conceptual model for Comprehensive Care

Prevention & treatment of delirium in critically-ill patients

Michael Reade, MBBS MPH DPhil DMedSc FANZCA FCICM

Professor of Military Medicine and Surgery, University of Queensland

Consultant Anaesthetist & Intensivist, Royal Brisbane & Women's Hospital

THE UNIVERSITY OF QUEENSLAND

AUSTRALIA

Potential conflicts

- Unrestricted grant funding from Hospira, the manufacturer of dexmedetomidine, for the ANZICS CTG-sponsored DahLIA study
- Unrestricted grant funding from Hospira for the ANZICS CTG-sponsored SPICE trial of sedation management
- Unrestricted grant funding from Orion for the ANZICS CTG-sponsored SPICE trial of sedation management
- Industry advisory boards for Hospira (dexmedetomidine) and GlaxoSmithKline (remifentanil)
- Speaker fee from AstraZeneca, the manufacturer of quetiapine and Diprivan (propofol)

Delirium in the ICU

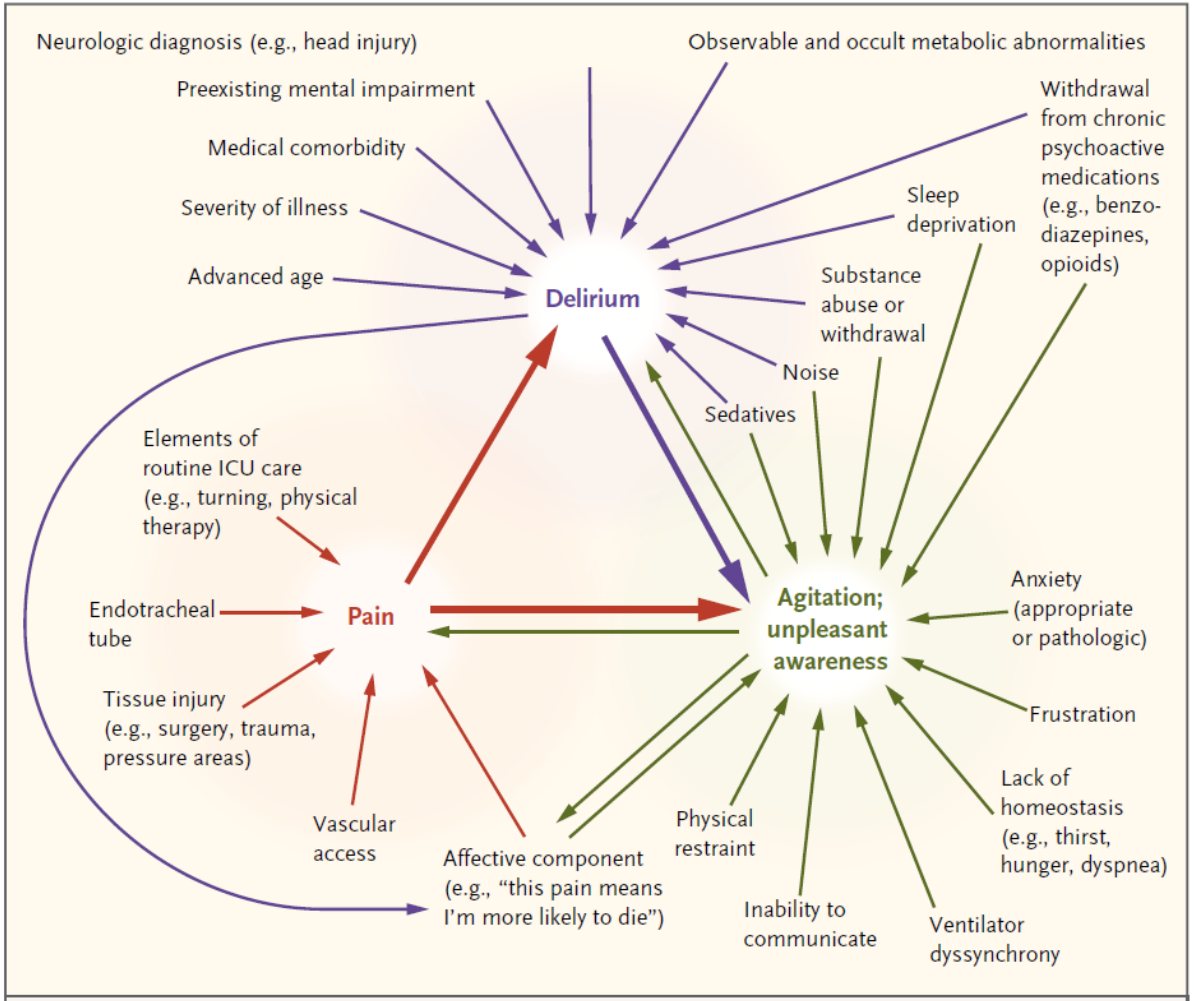


Figure 1. Causes and Interactions of Pain, Agitation, and Delirium.

Drugs and other treatments for pain, agitation, and delirium form an "ICU triad" cognitive management analogous to the "triad of anesthesia," which highlights interactions among hypnotics, analgesics, and muscle relaxants to encourage balanced anesthesia. The "ICU triad" concept highlights that changing one element is unlikely to be as effective as a coordinated approach.

CRITICAL CARE MEDICINE

Sedation and Delirium in the Intensive Care Unit

Michael C. Reade, M.B., B.S., D.Phil., and Simon Finfer, M.D.

N Engl J Med 2014;370:444-54.

Delirium in the ICU

Current management

Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU

www.ccmjournal.org September 2018

John W. Devlin, PharmD, FCCM (Chair)[1,2]; Yoanna Skrobik, MD, FRCP(c), MSc, FCCM (Vice-Chair)[3,4]; Céline Gélinas, RN, PhD[5]; Dale M. Needham, MD, PhD[6]; Arjen J. C. Slooter, MD, PhD[7]; Pratik P. Pandharipande, MD, MSCI, FCCM[8]; Paula L. Watson, MD[9]; Gerald L. Weinhouse, MD[10]; Mark E. Nunnally, MD, FCCM[11,12,13,14]; Bram Rochwerg, MD, MSc[15,16]; Michele C. Balas, RN, PhD, FCCM, FAAN[17,18]; Mark van den Boogaard, RN, PhD[19]; Karen J. Bosma, MD[20,21]; Nathaniel E. Brummel, MD, MSCI[22,23]; Gerald Chanques, MD, PhD[24,25]; Linda Denehy, PT, PhD[26]; Xavier Drouot, MD, PhD[27,28]; Gilles L. Fraser, PharmD, MCCM[29]; Jocelyn E. Harris, OT, PhD[30]; Aaron M. Joffe, DO, FCCM[31]; Michelle E. Kho, PT, PhD[30]; John P. Kress, MD[32]; Julie A. Lanphere, DO[33]; Sharon McKinley, RN, PhD[34]; Karin J. Neufeld, MD, MPH[35]; Margaret A. Pisani, MD, MPH[36]; Jean-Francois Payen, MD, PhD[37]; Brenda T. Pun, RN, DNP[23]; Kathleen A. Puntillo, RN, PhD, FCCM[38]; Richard R. Riker, MD, FCCM[39]; Bryce R. H. Robinson, MD, MS, FACS, FCCM[39]; Yahya Shehabi, MD, PhD, FCICM[40]; Paul M. Szumita, PharmD, FCCM[41]; Chris Winkelman, RN, PhD, FCCM[42]; John E. Centofanti, MD, MSc[43]; Carrie Price, MLS[44]; Sina Nikayin, MD[45]; Cheryl J. Misak, PhD[46]; Pamela D. Flood, MD[47]; Ken Kiedrowski, MA[48]; Waleed Alhazzani, MD, MSc (Methodology Chair)[16,49]

- Routinely measure pain with CPOT or BPS
- IV opioids are first-line analgesics, but always consider analgesia adjuvants
- Analgesia-first sedation
- Target light sedation using RASS or SAS, using either sedation-interruption or nursing-protocolised targets
- Avoid benzodiazepines
- Ambivalent on physical restraint (noting prevlance of 0-75%)
- Target absence of delirium using CAM-ICU or ICDSC
- Prevent delirium by early mobilisation, improving sleep, assisting perception

Prevention of ICU delirium

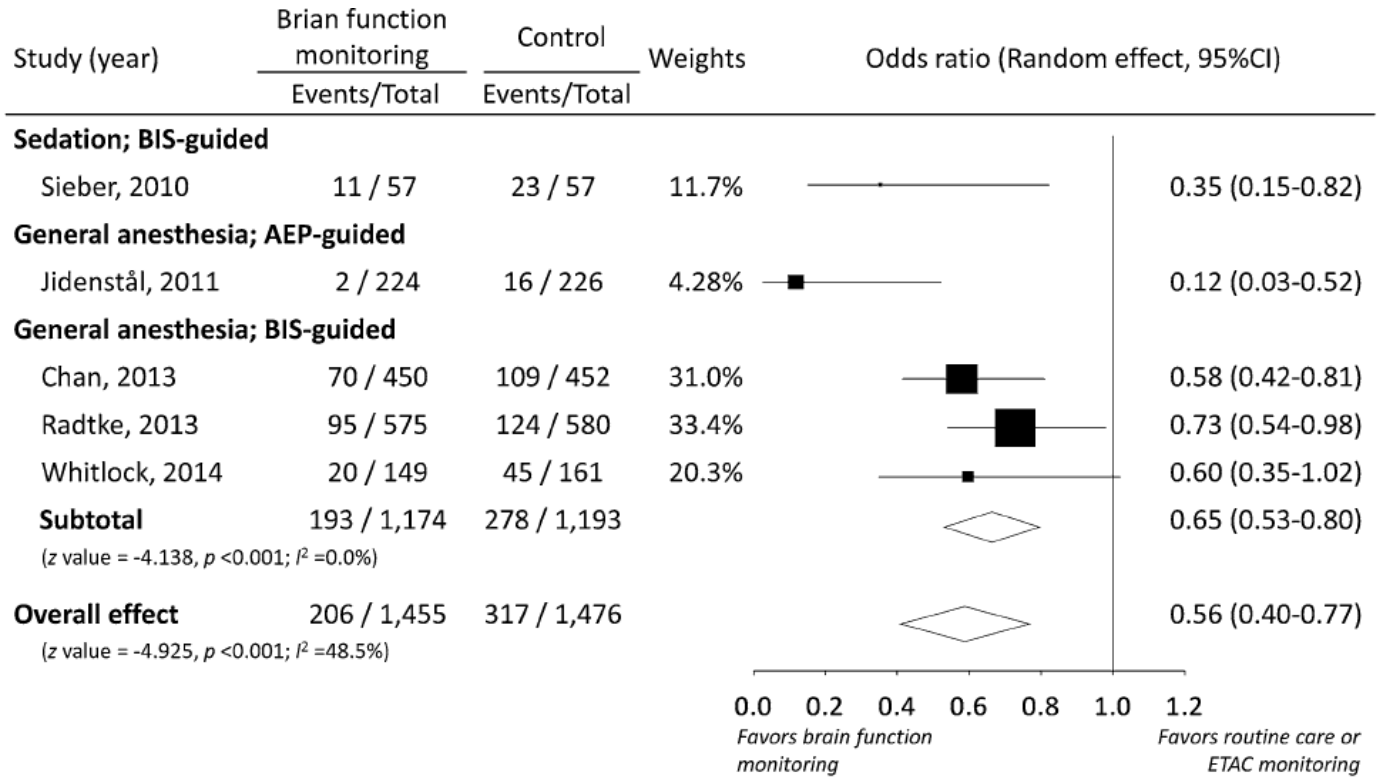
Prevention of ICU delirium

Depth of anaesthesia

Depth of Anesthesia and Postoperative Delirium

Terence T. H. Luk · Bo Jia · Etonia Y. T. Pang · Vivian N. M. Lau · Carmen K. M. Lam · Mandy H. M. Chu · Ruquan Han · Matthew T. V. Chan

Curr Anesthesiol Rep (2015) 5:1–9



Prevention of ICU delirium

Lorazepam Is an Independent Risk Factor for Transitioning to Delirium in Intensive Care Unit Patients

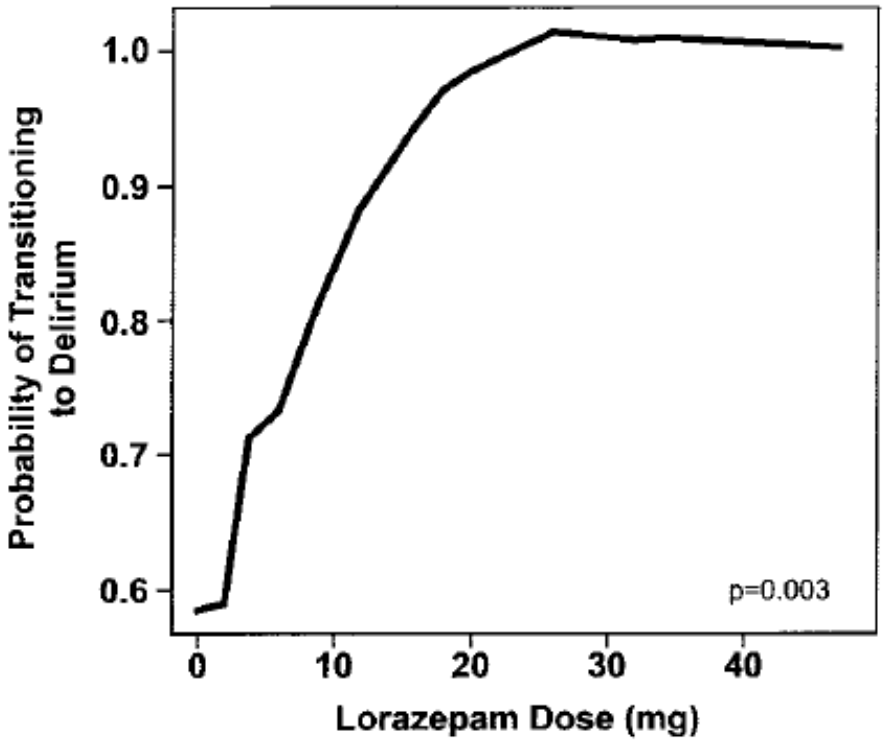
Pratik Pandharipande, M.D., M.S.C.I., Ayumi Shintani, Ph.D., M.P.H.,† Josh Peterson, M.D., M.P.H.,‡ Brenda Truman Pun, R.N., M.S.N., A.C.N.P.,§ Grant R. Wilkinson, Ph.D., D.Sc.,‖ Robert S. Dittus, M.D., M.P.H.,# Gordon R. Bernard, M.D.,** E. Wesley Ely, M.D., M.P.H.††*

Anesthesiology 2006; 104:21–6

Delirium/Coma or Delirium Only*

Medication	Transitioning to Delirium Only Odds Ratio (95% CI)	*P* Value
Fentanyl	1.2 (1.0–1.5)	0.09
Morphine	1.1 (0.9–1.2)	0.24
Propofol	1.2 (0.9–1.7)	0.18

adult, mechanically ventilated patient admitted to the medical or coronary ICUs at Vanderbilt University's 631-bed medical center from February 2000 to May 2001.



Prevention of ICU delirium

Benzodiazepine vs. no benzodiazepine sedatives

Less delirium with dexmedetomidine

Dexmedetomidine vs Midazolam for Sedation of Critically Ill Patients

A Randomized Trial

Richard R. Riker, MD
Yahya Shehabi, MD
Paula M. Bokesch, MD
Daniel Ceraso, MD
Wayne Wisemandle, MA
Firas Koura, MD
Patrick Whitten, MD
Benjamin D. Margolis, MD
Daniel W. Byrne, MS
E. Wesley Ely, MD, MPH
Marcelo G. Rocha, MD
for the SEDCOM (Safety and Efficacy of Dexmedetomidine Compared With Midazolam) Study Group

Figure 2. Daily Prevalence of Delirium Among Intubated Intensive Care Unit Patients Treated With Dexmedetomidine vs Midazolam

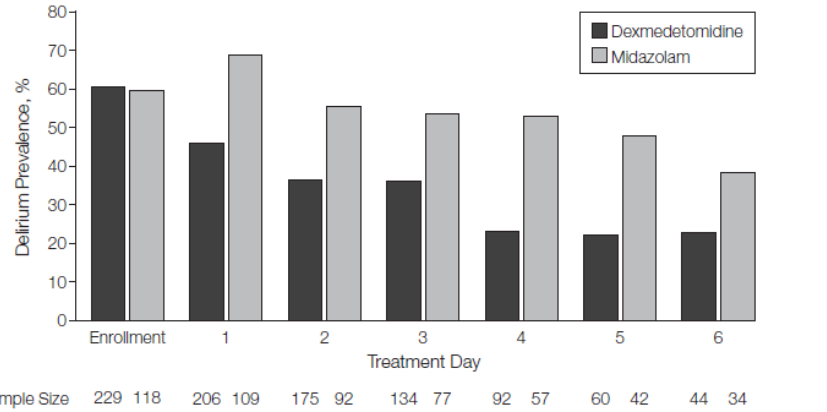
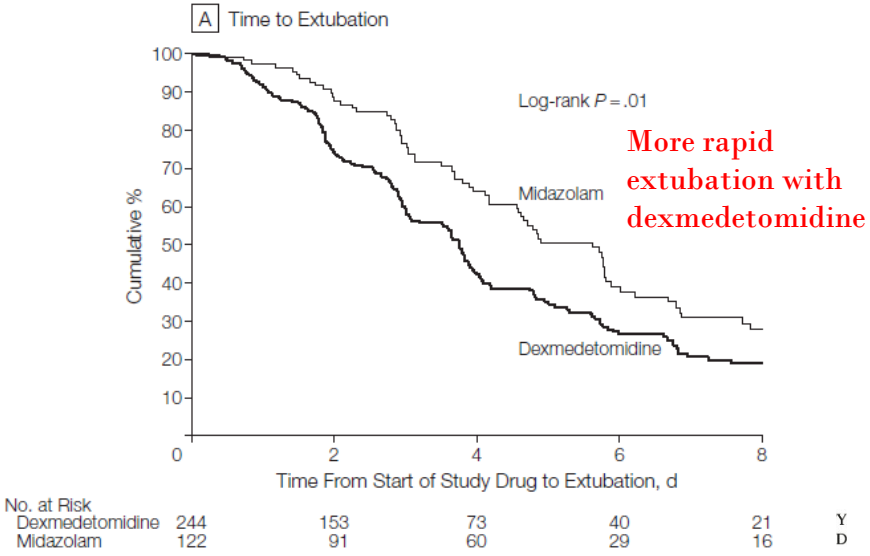


Table 2. Efficacy Outcomes in Patients Treated With Dexmedetomidine vs Midazolam

Outcome	No. (%) Dexmedetomidine (n = 244)	No. (%) Midazolam (n = 122)	*P* Value
Time in target sedation range (RASS score −2 to +1), mean, %[a]	77.3	75.1	.18
Patients completing all daily arousal assessments	225 (92)	103 (84.3)	.09
Patients requiring study drug interruption to maintain RASS score −2 to +1	222 (91)	112 (91.8)	.85
Duration of study drug treatment, median (IQR), d	3.5 (2.0-5.2)	4.1 (2.8-6.1)	.01
Time to extubation, median (95% CI), d[b]	3.7 (3.1-4.0)	5.6 (4.6-5.9)	.01
ICU length of stay, median (95% CI), d[b]	5.9 (5.7-7.0)	7.6 (6.7-8.6)	.24
Delirium			



More rapid extubation with dexmedetomidine

Prevention of ICU delirium

Benzodiazepine vs. no benzodiazepine sedatives

Early Goal Directed Sedation vs. Standard Care

In Mechanically Ventilated Critically Ill Patients

Early = within 12hr of intubation

anzic research centre

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Prevention of ICU delirium

Drug-based prophylaxis

Prophylactic antipsychotics: mixed results E.g.

Efficacy of risperidone for prevention of postoperative delirium in cardiac surgery

Anaesth Intensive Care 2007; 35: 714-719

U. PRAKANRATTANA*, S. PRAPAITRAKOOL†
Department of Anaesthesiology, Siriraj Hospital, Mahidol University, Bangkok, Thailand

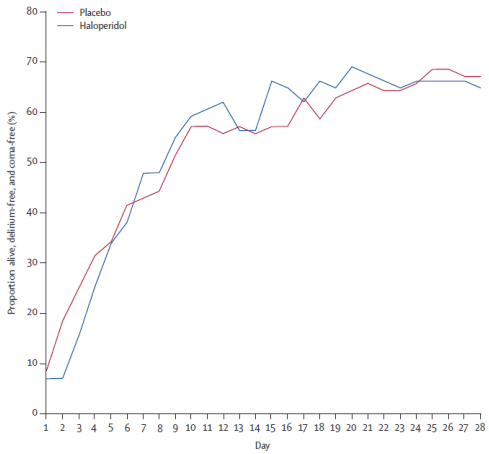
Postoperative delirium and other postoperative outcomes

	Risperidone n=63	Placebo n=63	*P* value
Postoperative complications			
Delirium	7 (11.1)	20 (31.7)	0.009*
Day of onset			
Day of surgery	3	15	
Postoperative day 1	2	2	
Postoperative day 2	2	1	
Postoperative day 3	0	2	
>Postoperative day 3	0	0	

Effect of intravenous haloperidol on the duration of delirium and coma in critically ill patients (Hope-ICU): a randomised, double-blind, placebo-controlled trial

Valerie J Page, E Wesley Ely, Simon Gates, Xiao Bei Zhao, Timothy Alce, Ayumi Shintani, Jim Jackson, Gavin D Perkins, Daniel F McAuley

Lancet Respir Med 2013;
1: 515–23



Prevention of ICU delirium

Drug-based prophylaxis

Dexmedetomidine for prevention of delirium in elderly patients after non-cardiac surgery: a randomised, double-blind, placebo-controlled trial

www.thelancet.com Published online August 16, 2016

Xian Su, Zhao-Ting Meng, Xin-Hai Wu, Fan Cui, Hong-Liang Li, Dong-Xin Wang, Xi Zhu, Sai-Nan Zhu, Mervyn Maze, Daqing Ma

Methods We did this randomised, double-blind, placebo-controlled trial in two tertiary-care hospitals in Beijing, China. We enrolled patients aged 65 years or older, who were admitted to intensive care units after non-cardiac surgery, with informed consent. We used a computer-generated randomisation sequence (in a 1:1 ratio) to randomly assign patients to receive either [redacted] (intravenous normal saline). Participants, care providers, and investigators were all masked to group assignment.

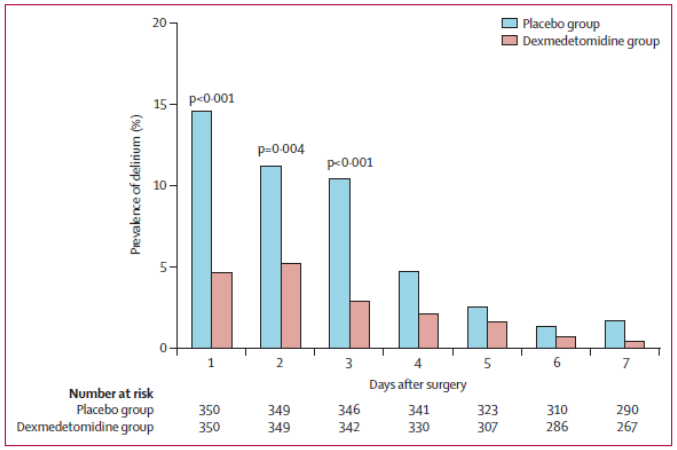


Figure 2: **Daily prevalence of postoperative delirium**
Sample sizes differ from the first to seventh day because some patients were discharged from hospital or died during this period.

	Placebo group (n=350)	Dexmedetomidine group (n=350)	OR, HR, or difference (95% CI)	p value
Primary endpoint				
Overall incidence of delirium*	79 (22·6%)	32 (9·1%)	OR=0·35 (0·22 to 0·54)	<0·0001
Secondary endpoints				
Time to extubation† (h)	6·9 (5·2 to 8·6) (n = 191)	4·6 (3·4 to 5·8) (n = 191)	HR=1·25 (1·02 to 1·53)	0·031
Overall incidence of non-delirium complications‡	73 (20·9%)	52 (14·9%)	OR=0·66 (0·45 to 0·98)	0·039
Length of stay in ICU (h)	21·5 (20·7 to 22·3)	20·9 (20·4 to 21·4)	HR=1·18 (1·02 to 1·37)	0·027

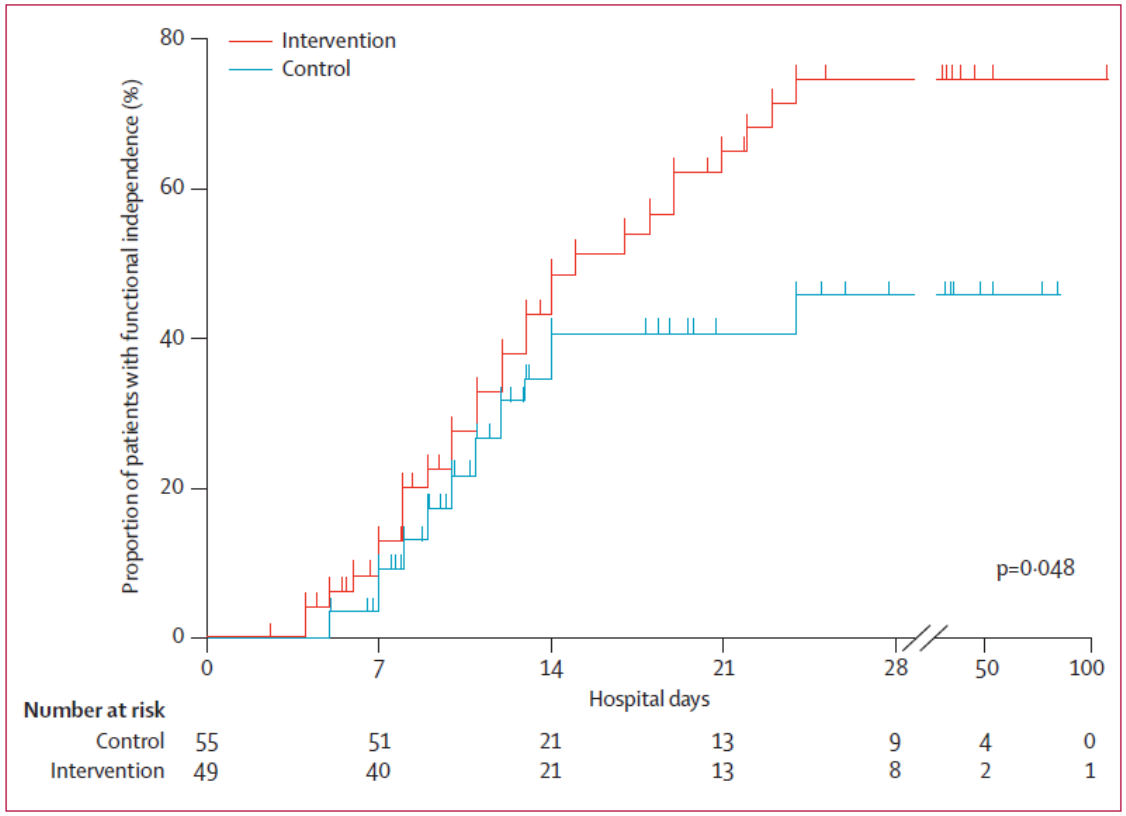
Prevention of ICU delirium

Non-pharmacological prophylaxis

Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial

William D Schweickert, Mark C Pohlman, Anne S Pohlman, Celerina Nigos, Amy J Pawlik, Cheryl L Esbrook, Linda Spears, Megan Miller, Mietka Franczyk, Deanna Deprizio, Gregory A Schmidt, Amy Bowman, Rhonda Barr, Kathryn E McCallister, Jesse B Hall, John P Kress

Lancet 2009; 373: 1874–82



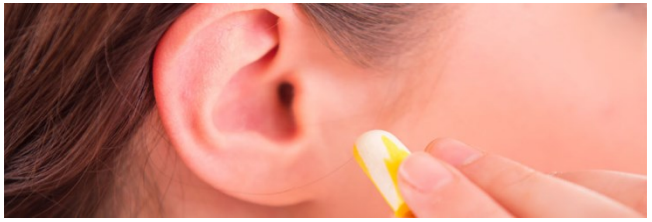
Prevention of ICU delirium

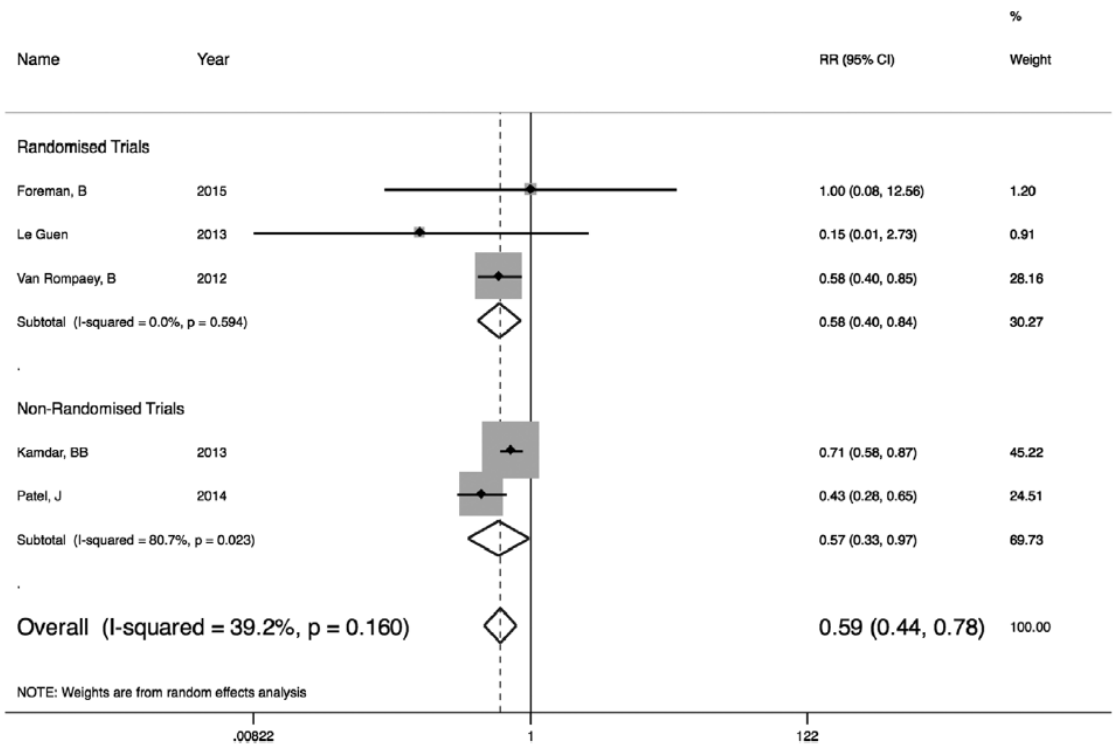
Non-pharmacological prophylaxis

(*Crit Care Med* 2016; 44:992–999)

The Efficacy of Earplugs as a Sleep Hygiene Strategy for Reducing Delirium in the ICU: A Systematic Review and Meta-Analysis*

Edward Litton, MBChB, FCICM, MSc[1,2]; Vanessa Carnegie, MBBS[3]; Rosalind Elliott, RN, PhD[4]; Steve A. R. Webb, MBBS, FRACP, FCICM, MPH, PhD[5,6]





Treatment of ICU delirium

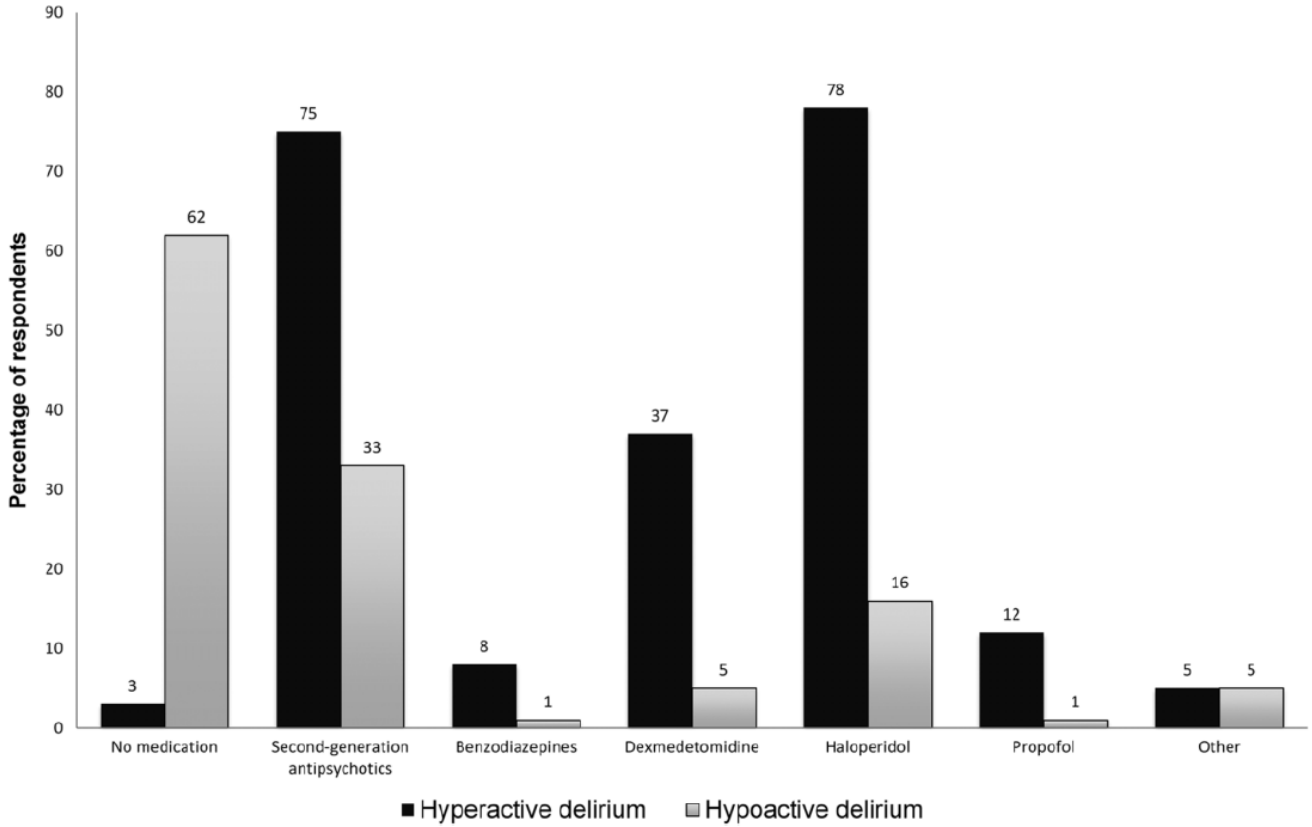
Current treatment for ICU delirium

Practice Patterns and Opinions on Current Clinical Practice Guidelines Regarding the Management of Delirium in the Intensive Care Unit

Yoonsun Mo, MS, PharmD, BCPS, BCCCP[1], Anthony E. Zimmermann, BS, PharmD[1], and Michael C. Thomas, PharmD, BCPS, FCCP[1]

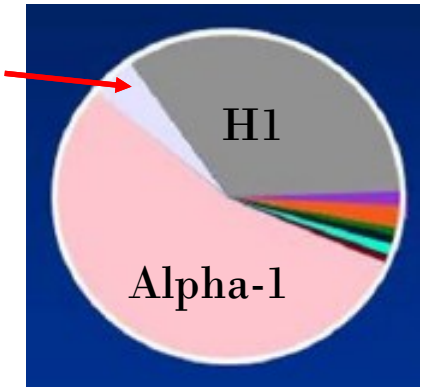
Journal of Pharmacy Practice
2017, Vol. 30(2) 162-171

A total of 635 respondents completed the survey.

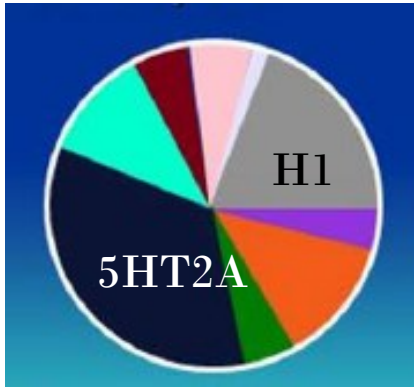


Antipsychotic receptor occupancy

Quetiapine

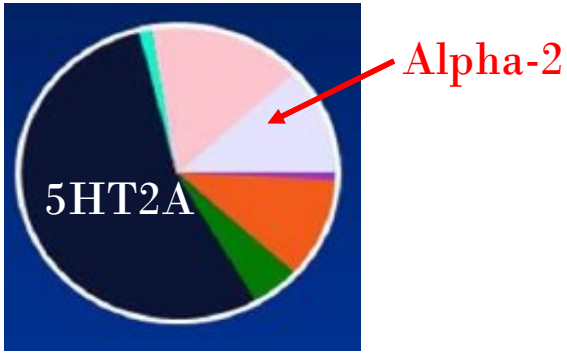


Olanzapine

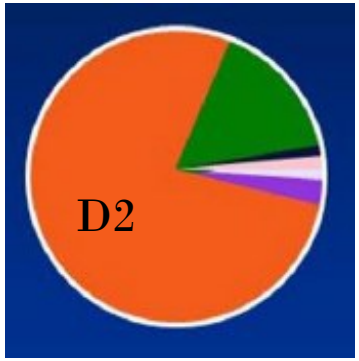


Ziprasadone

Risperidone



Haloperidol



'Antipsicóticos Atípicos y otros usos en Psiquiatría'. Posted by Salvador Ojeda Fuentes

'Haloperidol is the 'go to' drug for delirium, but are atypicals a better option?' J.W. Devlin, Slideshare.net

Trials of particular note

Devlin - Quetiapine

Efficacy and safety of quetiapine in critically ill patients with delirium: A prospective, multicenter, randomized, double-blind, placebo-controlled pilot study*

Crit Care Med 2010 Vol. 38, No. 2

John W. Devlin, PharmD; Russel J. Roberts, PharmD; Jeffrey J. Fong, PharmD; Yoanna Skrobik, MD; Richard R. Riker, MD; Nicholas S. Hill, MD; Tracey Robbins, RN; Erik Garpestad, MD

Quetiapine resolves delirium more quickly than placebo

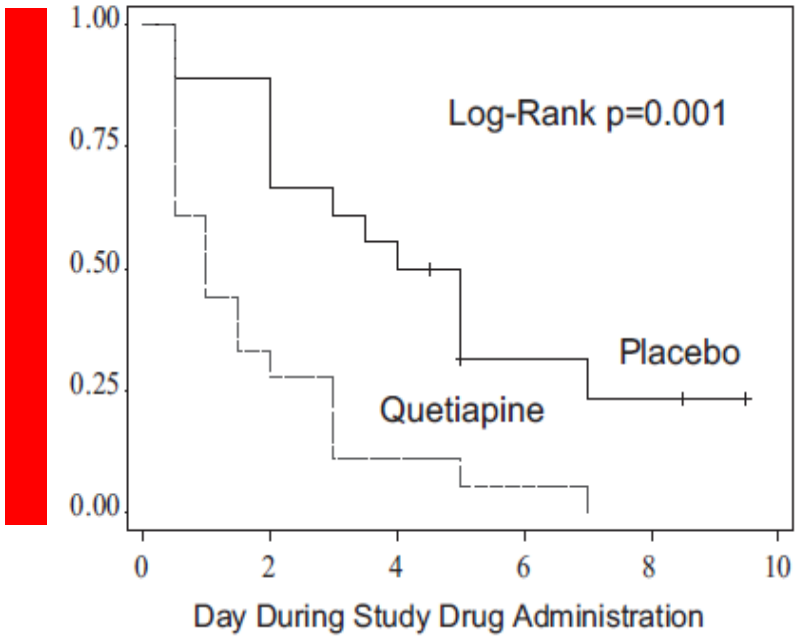
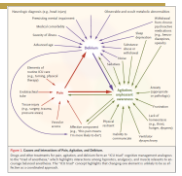


Figure 2. Proportion of patients with first resolution of delirium over time between quetiapine (n = 18) and placebo (n = 18) groups. Both groups of patients were treated using the same as-needed intravenous haloperidol protocol.

Reade et al.: Dexmedetomidine

Reade et al.: Dexmedetomidine



Dexmedetomidine

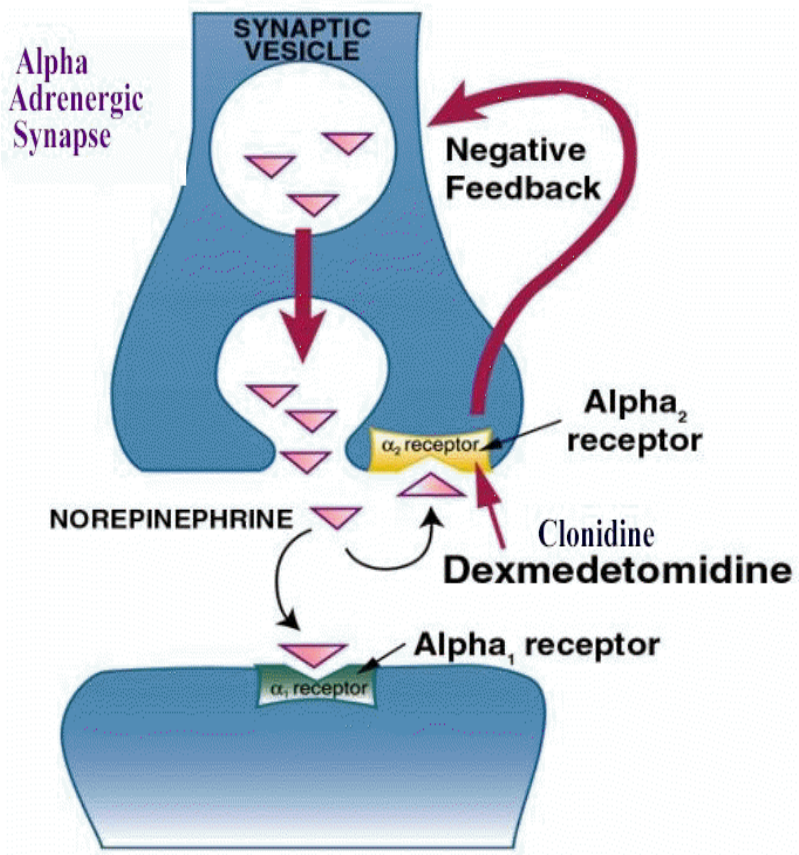
Sedative α_2 agonist

Less hypotension than clonidine (1/8 α_1 effect for equivalent sedation)

Licensed for use in the post-operative period up to 24 hours

Characterised by:

- Analgesia
- Hypotension / bradycardia
- 'rousable sedation with little respiratory depression'
- Anxiolysis



Reade et al.: Dexmedetomidine

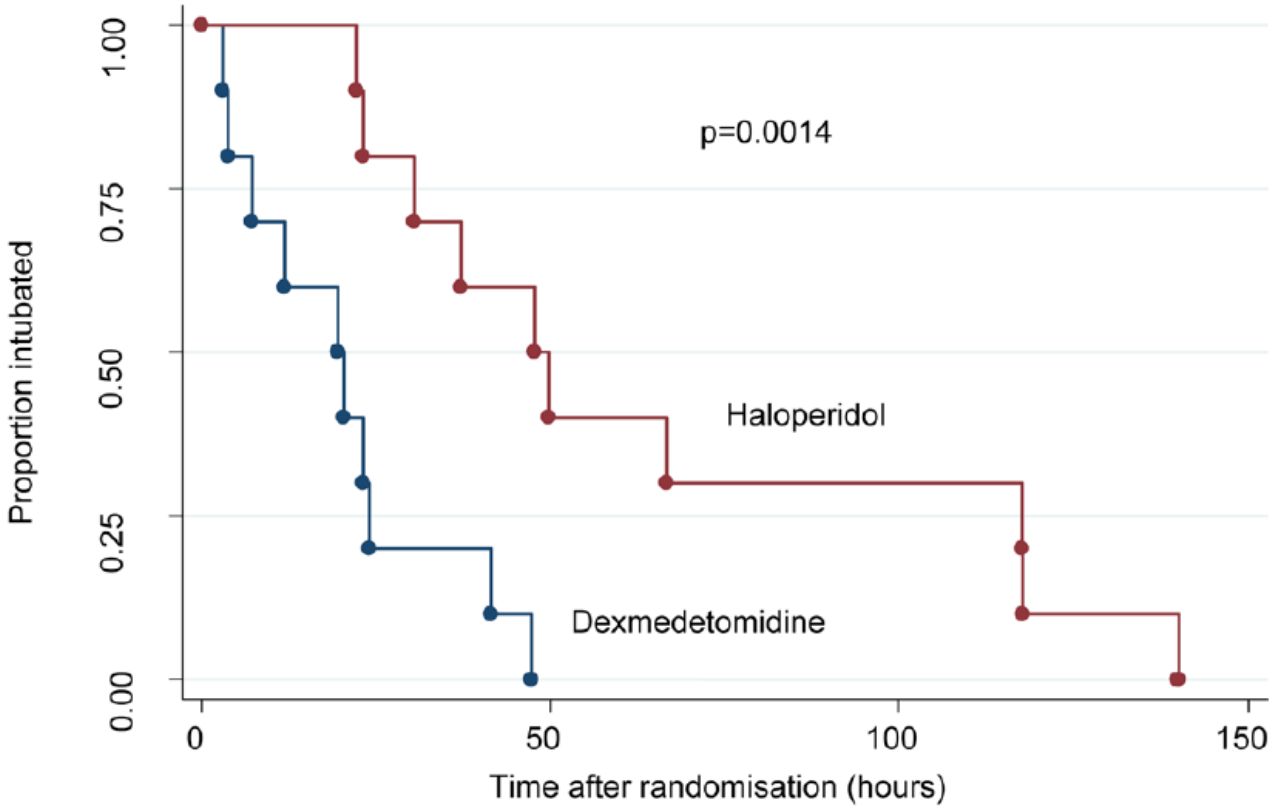
Research

Open Access Highly accessed

Dexmedetomidine vs. haloperidol in delirious, agitated, intubated patients: a randomised open-label trial

Michael C Reade, Kim O'Sullivan, Samantha Bates, Donna Goldsmith, William RSTJ Ainslie and Rinaldo Bellomo

Critical Care 2009, 13:R75 (doi:10.1186/cc7890)



Reade et al.: Dexmedetomidine

Effect of Dexmedetomidine Added to Standard Care on Ventilator-Free Time in Patients With Agitated Delirium
A Randomized Clinical Trial

JAMA. doi:10.1001/jama.2016.2707
Published online March 15, 2016.

Michael C. Reade, DPhil, FCICM; Glenn M. Eastwood, RN, PhD; Rinaldo Bellomo, MD, FCICM; Michael Bailey, PhD; Andrew Bersten, MD, FCICM; Benjamin Cheung, MBBS, FCICM; Andrew Davies, MBBS, FCICM; Anthony Delaney, PhD, FCICM; Angaj Ghosh, MBBS, FCICM; Frank van Haren, PhD, FCICM; Nerina Harley, MD, FCICM; David Knight, MBBS, FCICM; Shay McGuiness, MBChB, FCICM; John Mulder, MBChB, FCICM; Steve O'Donoghue, MBChB, FCICM; Nicholas Simpson, MBBS, FCICM; Paul Young, MBChB, FCICM; for the DahLIA Investigators and the Australian and New Zealand Intensive Care Society Clinical Trials Group

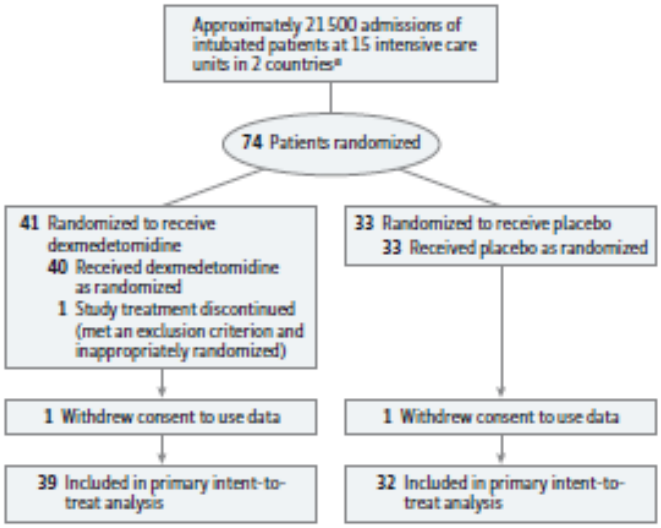
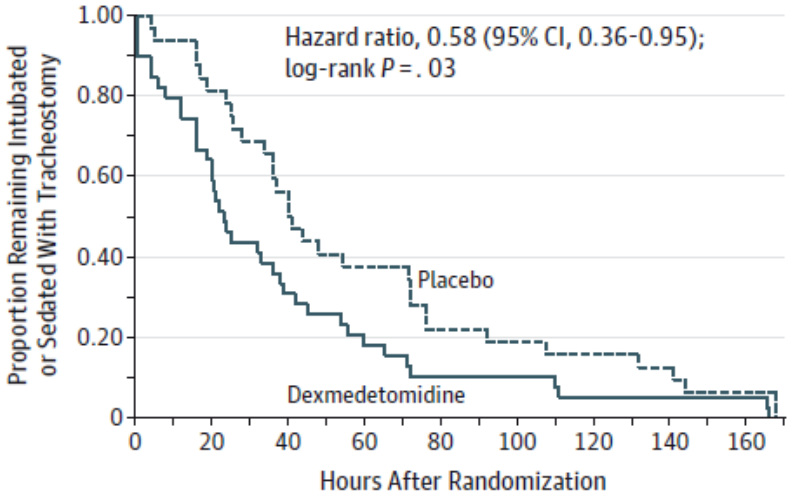


Figure 2. Kaplan-Meier Analysis of the Proportion of Patients Remaining Intubated During the First 7 Days of the Study



No. at risk				
Dexmedetomidine	39	10	4	2
Placebo	32	13	6	2

Reade et al.: Dexmedetomidine

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Table 3. Primary and Secondary Study Outcomes

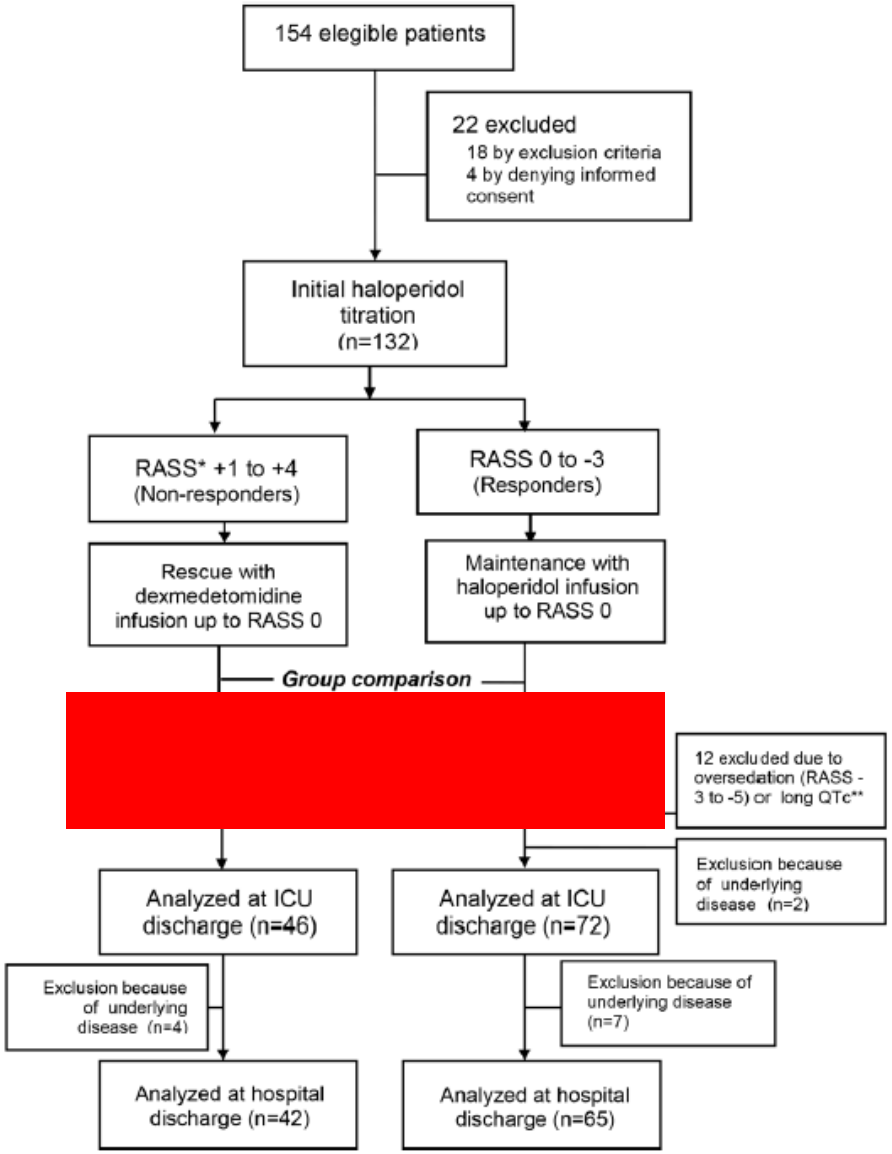
	Dexmedetomidine (n = 39)	Placebo (n = 32)	Difference Between Groups (95% CI)	*P* Value
Primary Outcome				
[redacted]				
Secondary Outcomes				
Time taken to achieve a satisfactory sedation score, median (IQR), d[a]	1 (1 to 1)	1 (1 to 1)	0 (0 to 0)	.90
[redacted]				
Confusion Assessment Method for the ICU				
[redacted]				
Required mechanical restraint on any day, No. (%)	10 (26.3)[f]	15 (46.9)[b]	−20.6 (−42.8 to 1.7)	.07
ICU length of stay, median (IQR), d				
Postrandomization	2.9 (2.1 to 4.9)	4.1 (3.0 to 7.9)	−1.0 (−2.1 to 0.1)	.09
Overall	5.9 (3.7 to 10.2)	7.5 (4.7 to 11.7)	−1 (−3 to 1)	.29

Carrasco et al.: Dex. in delirious non-intubated patients

Dexmedetomidine for the Treatment of Hyperactive Delirium Refractory to Haloperidol in Nonintubated ICU Patients: A Nonrandomized Controlled Trial

Genís Carrasco, PhD, MD; Nacho Baeza, MD; Lluís Cabré, PhD, MD; Eugenia Portillo, RN; Gemma Gimeno, RN; David Manzanedo, RN; Milagros Calizaya, MD

(*Crit Care Med* 2016; XX:00–00)



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(*Crit Care Med* 2016; XX:00–00)

TABLE 4. Comparison of Effectiveness During Study Drugs ($n = 132$)

Variable	Dexmedetomidine ($n = 46$)	Haloperidol ($n = 86$)	p
Primary			
Secondaries			
Removal of physical restraint during treatment, % (95% CI)	97.8 (92.0–100)	93.1 (87.6–98.3)	0.11
Mean doses of additional analgesics: mean ± SD (95% CI), mg/kg/d			
Paracetamol	20.8 ± 5.3 (19.2–22.3)	21.7 ± 7.8 (20.0–23.3)	0.15

Carrasco et al.: Dex. in delirious non-intubated patients

Dexmedetomidine for the Treatment of Hyperactive Delirium Refractory to Haloperidol in Nonintubated ICU Patients: A Nonrandomized Controlled Trial

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(*Crit Care Med* 2016; XX:00–00)

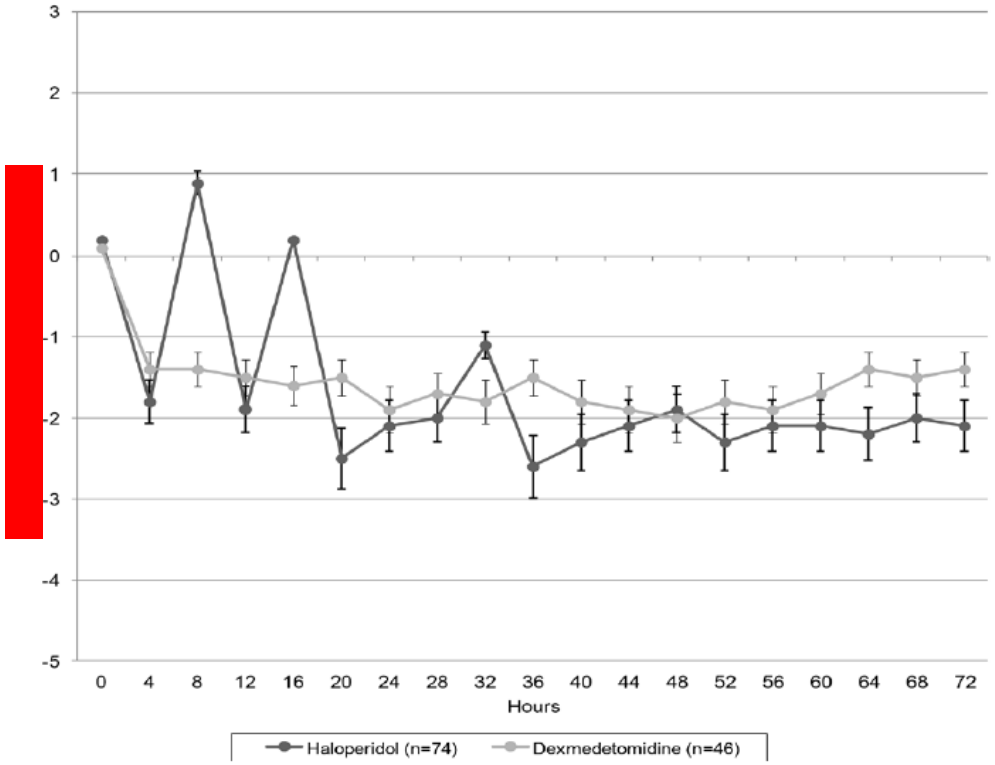


Figure 3. Evolution of sedation level (level of arousal) during the 72 hr of group comparison. Both drugs maintained all patients in the desired range of sedation (level of arousal) assessed as Richmond Agitation Sedation Scale score of 0, −1, or −2 to the end of treatment but dexmedetomidine achieved greater stability in sedative effect compared with the more fluctuating profile of haloperidol.

Non-pharmacological delirium treatment

- Address the affective component of pain: talk to the patient!

- Noise reduction
- Pressure area care
- Good medical care: adequate hydration, medication optimisation, bladder/bowel care
- Early mobilisation

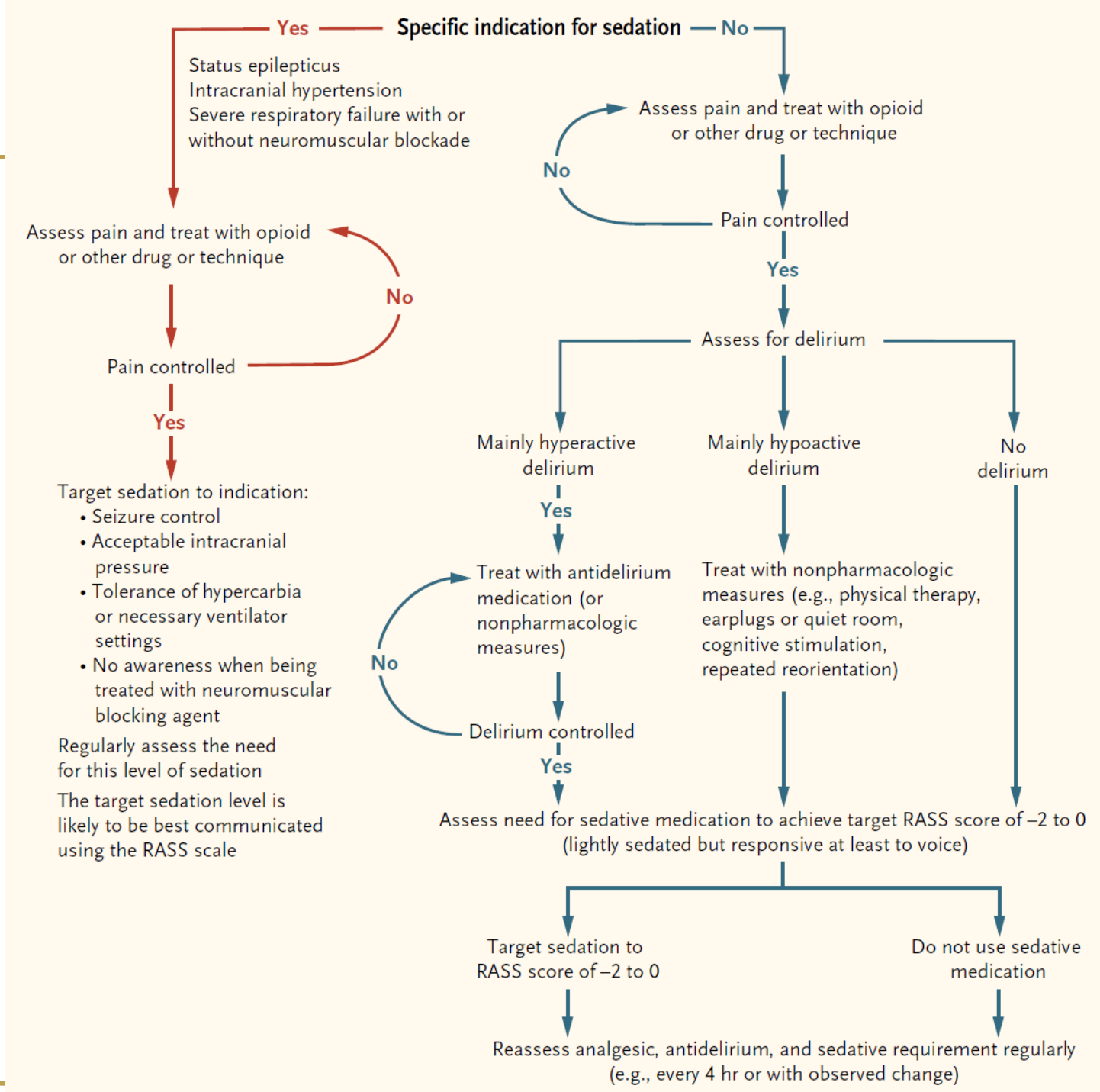
- Mechanical restraint vs. drug treatment??

Treatment of hypoactive delirium

- Find & treat the cause (like fever!)
- Avoid sedatives
- Avoid sedating antipsychotics (probably …)

“Real world” practice in Brisbane

Protocol



Sedation and Delirium in the Intensive Care Unit

Michael C. Reade, M.B., B.S., D.Phil., and Simon Finfer, M.D.

N Engl J Med 2014;370:444-54.

Resources

- NSQHS Standards Online Resource Portal - webpage
- The ED Dementia Care Training Program: Providing best care to older people with dementia in emergency departments - resource
- Recognising delirium in ED – a nurse's perspective - video
- Dementia and delirium: Providing a safe and supportive environment in hospital - video
- Delirium in Intensive Care – video
- Clinical Practice Guidelines for the Prevention and Management of Pain, Agitation/Sedation, Delirium, Immobility, and Sleep Disruption in Adult Patients in the ICU 2018 - guideline
- Rates of Delirium Diagnosis Do Not Improve with Emergency Risk Screening: Results of the Emergency Department Delirium Initiative Trial - research article

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

cognitive.impairment@safetyandquality.gov.au

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Please provide your feedback by participating in a short survey after this webinar

Thank you