

# Patient Safety Tip of the Week

## March 21, 2017 Success at Preventing Delirium

Our many columns on delirium have stressed the importance of prevention, since treatment of delirium is difficult. Two of the most common settings in which we see delirium are the ICU and the postoperative setting.

We've frequently mentioned multi-component non-pharmacological interventions such as HELP, the Hospital Elder Life Program (see our October 21, 2008 Patient Safety Tip of the Week "[Preventing Delirium](#)") and our September 2011 What's New in the Patient Safety World column "[Modified HELP Helps Outcomes in Elderly Undergoing Abdominal Surgery](#)") or tools like the ABCDEF Bundle (see our September 20, 2016 Patient Safety Tip of the Week "[Downloadable ABCDEF Bundle Toolkits for Delirium](#)").

Another recent study examined the impact of a delirium prevention bundle (DPB) on ICU patients ([Smith and Grami 2017](#)). Bundle components were similar to many from the above mentioned bundles and included sedation cessation, pain management, sensory stimulation, early mobilization, and sleep promotion. The bundle was implemented on one ICU and another ICU with comparable patients served as the control. Nurses assessed patients with the CAM-ICU and RASS tools that we've described in multiple columns.

For those patients on mechanical ventilation a spontaneous awakening trial, if successful, was followed by a spontaneous breathing trial. The sensory stimulation included not only placing familiar objects (clock, calendar) nearby but also opening/closing window blinds to create diurnal variation, and wearing any devices (hearing aids, glasses) that a patient would wear at home. Mobilization was tailored to the physical capabilities of the patient and ranged from range-of-motion exercises to actual ambulation. Sleep was promoted by clustering nursing interventions in a manner to avoid waking the patient as much as possible, dimming lights and closing blinds, and minimizing ambient noise.

The odds of delirium were reduced by 78% on the intervention unit compared to the control unit.

But perhaps the biggest contribution of the study is the description of the difficulties encountered in delivering the delirium prevention bundle. Implementing a bundle like this is not easy. Smith and Grami point out that barriers were encountered with almost every facet of the multicomponent intervention. For example, families were often reluctant to bring in the patients' hearing aids or glasses for fear of these items getting lost. And not all physicians were using the sedation cessation protocol. And the sleep

promotion was less than satisfactory because of lights and sound in the ICU. And the early mobilization program suffered from lack of staff and equipment plus the “incongruity” between physical therapy and more aggressive mobilization guidelines. And some details about the pain management were missing (their intended data collection included information about not just pain levels but also pain medication doses and times and pain scores one hour following administration).

So it’s pretty remarkable that they were still able to demonstrate a 78% reduction in delirium. But it really demonstrates that a predominantly nurse-led intervention bundle can have a significant impact on preventing this serious complication. Kudos to the dedication of that nursing staff for their persistence in doing the right thing!

Postoperative delirium is the other very problematic entity that needs prevention. Our December 2014 What’s New in the Patient Safety World column “[American Geriatrics Society Guideline on Postoperative Delirium in Older Adults](#)” discussed the work done by the American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults. They developed a clinical practice guideline ([AGS 2015a](#)) that was followed by a best practice statement published in the Journal of the American College of Surgeons ([AGS 2015b](#)). The guideline describes the nonpharmacologic prevention and treatment of postoperative delirium. It recommends that hospitals and healthcare systems have educational programs with frequent refresher sessions on delirium. It recommends that an interdisciplinary team implement a multicomponent nonpharmacologic intervention program and follow that patient throughout the hospital course. It notes such interventions have reduced the incidence of delirium 30-40%. It also describes the medical evaluation that should be undertaken once a patient is diagnosed as having delirium. It notes again that multicomponent interventions have been successful in reducing delirium duration and severity, length of stay, etc. but that it is not possible to conclude which specific component(s) are responsible.

So the results of a recent survey of anesthesiologists who were attendees of the 16th World Congress of Anaesthesiologists in Hong Kong last year were somewhat bothersome ([Agres 2017](#)). Though the vast majority of respondents acknowledged they frequently or occasionally encountered postoperative delirium, 77% lacked a process to screen for at-risk patients. Moreover, 84% said their hospital or clinic did not have protocols to prevent postoperative delirium and 73% lacked protocols to manage delirium. The survey was commissioned by [POND Awareness](#).

Our January 24, 2017 Patient Safety Tip of the Week “[Dexmedetomidine to Prevent Postoperative Delirium](#)” focused on the study by Su et al. ([Su 2016](#)) on using low dose dexmedetomidine to prevent postoperative delirium. However, in that column we also mentioned several of the other interventions, primarily non-pharmacological, used to prevent delirium.

We noted the recent pragmatic clinical trial that addressed delirium prevention in patients age 65 and older who underwent surgery for hip fracture ([Freter 2016](#)). Rather than intervene with all the elements of multifactorial interventions that have been used for

delirium prevention, the researchers used only those that lent themselves to easy incorporation into postoperative preprinted orders. Those that fit included interventions for nausea, nighttime sedation, pain control, and bowel and bladder care. The postoperative preprinted orders had the same elements as the standardized postoperative orders for hip surgery patients with several differences:

- Acetaminophen was ordered on a scheduled, rather than prn, basis and the doses and frequency of as-needed opioid analgesics were lower.
- Trazadone was used for required nighttime sedation (control patients often received chloral hydrate or zopiclone).
- For nausea, domperidone was used instead of dimenhydrinate.
- Urinary catheters were removed on POD#2, followed by determination of post-void residuals.
- Laxatives were given on a scheduled, rather than prn, basis.
- For severe agitation low doses of haloperidol were specified.

Delirium occurred significantly less frequently (27% vs. 42% in controls on POD#1 and 7% vs. 30% in controls on POD#5) despite the fact that more patients in the intervention group had pre-existing dementia, a known risk factor for delirium. More patients in the intervention group had early postoperative bowel movements and more urinary catheter removals on POD#2. Significantly, intervention patients received less opioid analgesia (24 mg morphine equivalents vs. 44 mg morphine equivalents in controls). But, although the intervention group had less postoperative delirium, there were no differences in length of stay, mortality, or nursing home placement rates.

As an aside, in follow up to the article in our January 24, 2017 Patient Safety Tip of the Week “[Dexmedetomidine to Prevent Postoperative Delirium](#)” by Su et al. on use of dexmedetomidine to prevent postoperative delirium ([Su 2016](#)), there was a recent discussion in *The Lancet* about the potential neuroprotective effects of dexmedetomidine ([Avramescu 2017](#), [Su 2017](#)). They note its effects could be due to reducing sedative drug consumption, enhancing sleep quality, and relieving surgical stress and inflammatory responses after surgery. However, they note that dexmedetomidine use is still only recommended in highly monitored settings because of its potential cardiorespiratory effects but express hope that safety and efficacy studies in other venues might be performed.

So while you are waiting for the dexmedetomidine study to be replicated and validated in other clinical settings, take the opportunity to implement one of the non-pharmacologic multicomponent interventions that have proven successful. The very practical protocols put in place by Smith and Grami and by Freter and colleagues show good results are possible. But be prepared to encounter some of the barriers that Smith and Grami described.

**Some of our prior columns on delirium assessment and management:**

- October 21, 2008 “[Preventing Delirium](#)”

- October 14, 2008 “[Managing Delirium](#)”
- February 10, 2009 “[Sedation in the ICU: The Dexmedetomidine Study](#)”
- March 31, 2009 “[Screening Patients for Risk of Delirium](#)”
- June 23, 2009 “[More on Delirium in the ICU](#)”
- January 26, 2010 “[Preventing Postoperative Delirium](#)”
- August 31, 2010 “[Postoperative Delirium](#)”
- September 2011 “[Modified HELP Helps Outcomes in Elderly Undergoing Abdominal Surgery](#)”
- December 2010 “[The ABCDE Bundle](#)”
- February 28, 2012 “[AACN Practice Alert on Delirium in Critical Care](#)”
- April 3, 2012 “[New Risk for Postoperative Delirium: Obstructive Sleep Apnea](#)”
- August 7, 2012 “[Cognition, Post-Op Delirium, and Post-Op Outcomes](#)”
- February 2013 “[The ABCDE Bundle in Action](#)”
- September 2013 “[Disappointing Results in Delirium](#)”
- October 29, 2013 “[PAD: The Pain, Agitation, and Delirium Care Bundle](#)”
- February 2014 “[New Studies on Delirium](#)”
- March 25, 2014 “[Melatonin and Delirium](#)”
- May 2014 “[New Delirium Severity Score](#)”
- August 2014 “[A New Rapid Screen for Delirium in the Elderly](#)”
- August 2014 “[Delirium in Pediatrics](#)”
- November 2014 “[The 3D-CAM for Delirium](#)”
- December 2014 “[American Geriatrics Society Guideline on Postoperative Delirium in Older Adults](#)”
- June 16, 2015 “[Updates on Delirium](#)”
- October 2015 “[Predicting Delirium](#)”
- April 2016 “[Dexmedetomidine and Delirium](#)”
- April 2016 “[Can Antibiotics Lead to Delirium?](#)”
- July 2016 “[New Simple Test for Delirium](#)”
- September 20, 2016 “[Downloadable ABCDEF Bundle Toolkits for Delirium](#)”
- January 24, 2017 “[Dexmedetomidine to Prevent Postoperative Delirium](#)”

## References:

Smith CD, Grami P. Feasibility and Effectiveness of a Delirium Prevention Bundle in Critically Ill Patients. Am J Crit Care 2017; 26(1): 19-27  
<http://ajcc.aacnjournals.org/content/26/1/19.full?sid=bbc68db0-bd05-4271-bfc6-1346268290de>

The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults. American Geriatrics Society Abstracted Clinical Practice Guideline for Postoperative Delirium in Older Adults. J Am Geriatr Soc 2015; 63(1): 142-150  
<http://onlinelibrary.wiley.com/doi/10.1111/jgs.13281/abstract;jsessionid=061298C6A2620459456AFA6523F6F765.f03t01>

The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults. Postoperative delirium in older adults: best practice statement from the American Geriatrics Society. J Am Coll Surg 2015; 220: 136-148.e1  
<http://www.journalacs.org/article/S1072-7515%2814%2901793-1/fulltext>

Agres T. Protocol Lacking for Post-op Delirium. Anesthesiology News 2017; February 6, 2017  
<http://www.anesthesiologynews.com/Clinical-Anesthesiology/Article/02-17/Protocol-Lacking-for-Post-op-Delirium/40198>

POND Awareness website.  
<http://www.pondawareness.com/>

Su X, Meng Z-T, Wu X-H, et al. Dexmedetomidine for prevention of delirium in elderly patients after non-cardiac surgery: a randomised, double-blind, placebo-controlled trial. The Lancet 2016; 388(10054): 1893-1902 Published: 15 October 2016  
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(16\)30580-3/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)30580-3/fulltext)

Freter S, Koller K, Dunbar M, MacKnight C, Rockwood K. Translating Delirium Prevention Strategies for Elderly Adults with Hip Fracture into Routine Clinical Care: A Pragmatic Clinical Trial. J Am Geriatr Soc 2016; Early View 22 NOV 2016  
<http://onlinelibrary.wiley.com/doi/10.1111/jgs.14568/epdf>

Avramescu S, Wang D-S, Choi S, Orser BA. Preventing delirium: beyond dexmedetomidine. The Lancet 2017; 389: 1009  
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)30661-X/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)30661-X/fulltext)

Su X, Wang D-X, Ma D. Preventing delirium: beyond dexmedetomidine – Authors' reply. The Lancet 2017; 389: 1009-1010  
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(17\)30658-X/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(17)30658-X/fulltext)



The  
Truax  
Group  
Healthcare Consulting  
[www.patientsafetysolutions.com](http://www.patientsafetysolutions.com)

<http://www.patientsafetysolutions.com/>

[Home](#)

[Tip of the Week Archive](#)

[What's New in the Patient Safety World Archive](#)