

## Patient Safety Tip of the Week

March 16, 2021

### Sleep Program Successfully Reduces Delirium

We've done several columns highlighting the poor job we do at allowing patients to sleep when they are hospital inpatients (see our Patient Safety Tips of the Week for August 6, 2013 "[Let Me Sleep!](#)", May 15, 2018 "[Helping Inpatients Sleep](#)", and November 6, 2018 "[More on Promoting Sleep in Inpatients](#)"). Our November 6, 2018 Patient Safety Tip of the Week "[More on Promoting Sleep in Inpatients](#)" cited several studies showing inpatients average significantly less sleep in hospital compared to at home.

In the inpatient setting we see excessive noise, light exposure, and other environmental factors like temperature, combine with physiological factors like pain, stress related to the medical condition, and psychological stress to disrupt patient sleep patterns.

But, in delivering care, we often introduce other factors that disrupt sleep. At many (perhaps most) hospitals, the incoming nursing staff gets vital signs when their shift starts. Hence, many patients get their vital signs checked between 11PM and midnight. Simply changing policy and procedure so that vital signs are checked by the outgoing staff at 10PM can help avoid one obvious potential sleep disruption. (Of course, you'd have to look for potential unintended consequences such as interfering with shift handoffs). Sometimes, a patient might be wakened to take vital signs and then wakened a short time later for blood drawing. Simply changing timing so such interventions coincide can reduce the number of such awakenings. A 'late' dose of a diuretic can cause a patient to waken to urinate in the middle of the night.

We also mentioned how physicians may inadvertently cause some of those disruptions. Getting physicians to understand that "three times daily" and "every 8 hours", for example, are not the same takes some time and hard work. If I order a medication today at 10AM and enter it as "every 8 hours" my patient will be wakened at 2AM to get a dose. On the other hand, if the order is written for "three times daily" the hospital will have standard times that such are given to avoid that disruptive nighttime dose. (Note that you have to be very careful. Today's CPOE systems often don't make it clear when the first dose will be given. We have seen some systems where the first dose or even all the first day's doses will not be given when the order is written this way.) And we often reflexly order vital signs to be taken "every 4 hours" or "every 6 hours" when they really

don't need to be taken during the wee hours of the morning (being careful not to overlook times when vital signs really do need to be taken so frequently).

It's certainly logical to focus on noise reduction as one strategy to promote more natural sleep in your inpatients. But your program needs to be a multiple component one and we think the primary focus needs to be on coordinating care so that interruptions are kept to a minimum.

Lastly, don't forget one of our goals is to minimize use of sedative/hypnotic drugs and their detrimental side effects. It is still common for physicians to leave orders for prn sleep meds in the admission orders, presumably so no phone call is needed at night requesting such. In our March 23, 2010 Patient Safety Tip of the Week "[ISMP Guidelines for Standard Order Sets](#)" we stressed the importance of avoiding inclusion of "prn" sleep meds in standard order sets.

Avoiding sleep meds and using non-pharmacologic interventions to promote sleep is something every hospital should strive for. We want to avoid using sedative/hypnotic medications to induce sleep in such patients because they are risk factors for falls, delirium, medication-induced respiratory depression, and other undesirable complications.

We've also pointed out in our many columns on **delirium** (see the full list below) that disruption of sleep-waking cycles is an important factor contributing to the occurrence of delirium. Sleep disruption is one of the few potentially modifiable risk factors for development of delirium.

This month there is an interesting study addressing both these issues. Gode et al. ([Gode 2021](#)) did an internal assessment at their hospital and found that up to 25% of all patients on their medical-surgical units had a diagnosis of delirium while in the hospital. So, they implemented a project to reduce the development of delirium through sleep promotion on 2 inpatient units, using evidence-based practices.

They began with an environmental assessment of each unit to identify loud noises that could wake a patient; One example they found was that, on the medical oncology unit, there was a positive air pressure handler that was being reset daily at 2 AM, It produced a noise described by patients as sounding "like a jet airplane taking off" and consistently woke patients from sleep. The air handler was successfully rescheduled to reset instead at 2 PM when patients are typically awake.

They developed a sleep "menu" for what they named their "No Wake Zone" (NWZ). Menu items, in a checkbox format, included:

- Ear plugs
- Eye mask
- Lavender essential oil
- Water
- Blanket

- Warm tea
- Hand, foot, or back rub
- Adjustments to room temperature
- Adjustments to lighting
- Opening or closing shades
- Opening or closing door
- TV
- Music
- Relaxing imagery
- Sound machine or cell phone app “white noise”

Patients were identified as candidates for the NWZ if they were medically stable and were a minimum of 24 hours after admission or surgery. The tool used for delirium screening was the Nursing Delirium Screening Scale (NuDESC). Patients were educated on the NWZ program and allowed to choose items from the menu that they wanted implemented.

They also included an often overlooked step - review of the medication profile by a pharmacist, who can recommend changing the timing of doses of some medications that might interfere with sleep.

They did not, as we recommended above, stop the vital signs and nursing assessments that took place shortly after the 11 PM nursing change of shift. Instead, they designated a 5-hour period from 1 AM to 6 AM as the timeframe to maximize sleep.

An order for the NWZ was required in the electronic medical record (EMR). The nursing team would then establish a sleep plan for the patient. Such would include bundling patient care activities, medication, laboratory timing, and bathroom needs. While the patient sleeps, nurses continue to perform safety assessments without waking the patient. (Keep in mind that certain patients, particularly those with some neurological conditions, may actually need to be wakened for assessments).

Their efforts appear to have paid off, both clinically and financially. Answers to the HCAHPS question “During this hospital stay, how often was the area around your room quiet at night?” showed a statistically significant increase. Positive delirium risk screening decreased from 26.3% to 17.9% on the medical oncology unit (a 33% decrease) and from 14.1% to 7.8% on the surgical spine unit (a 45% decrease). Estimated cost avoidance was \$160,505 for the medical oncology unit and \$241,802 for the surgical spine unit.

Significant education of all staff, using multiple modalities, had to take place prior to the program’s initiation and discussion of the NWZ program during rounds was important.

They identified both barriers and facilitators to success. Barriers and challenges included prompting the provider to order the NWZ for eligible patients, because of weekly rotation of hospitalist coverage. There was also difficulty in identifying when patients on the

medical oncology unit were medically appropriate to initiate the NWZ due to the complexity of their condition and “nebulous” trajectory.

Facilitators included use of an interprofessional team approach, involvement of frontline nurses and support staff, and involvement of the pharmacist reviewers. In addition, an advanced practice nurse practitioner on the surgical spine unit consistently ordered the NWZ once patients met eligibility criteria.

There are, of course, several other protocols and programs for improving sleep in hospital inpatients. See our November 6, 2018 Patient Safety Tip of the Week “[More on Promoting Sleep in Inpatients](#)” for descriptions of the “Quiet Time”, Sommerville, and “TUCK-in” protocols, plus the Hospital Elder Life Program (HELP) program.

The Gode study shows such programs can improve inpatient sleep and reduce delirium rates, positively impacting both patient outcomes and satisfaction and the bottom line.

**Some of our previous columns on safety issues associated with sleep meds and promoting sleep in inpatients:**

August 2009	“ <a href="#">Bold Experiment: Hospitals Saying No to Sleep Meds</a> ”
March 23, 2010	“ <a href="#">ISMP Guidelines for Standard Order Sets</a> ”
May 2012	“ <a href="#">Safety of Hypnotic Drugs</a> ”
November 2012	“ <a href="#">More on Safety of Sleep Meds</a> ”
March 2013	“ <a href="#">Sedative/Hypnotics and Falls</a> ”
June 2013	“ <a href="#">Zolpidem and Emergency Room Visits</a> ”
August 6, 2013	“ <a href="#">Let Me Sleep!</a> ”
June 3, 2014	“ <a href="#">More on the Risk of Sedative/Hypnotics</a> ”
May 15, 2018	“ <a href="#">Helping Inpatients Sleep</a> ”
June 2018	“ <a href="#">Deprescribing Benzodiazepine Receptor Agonists</a> ”
November 6, 2018	“ <a href="#">More on Promoting Sleep in Inpatients</a> ”
June 2019	“ <a href="#">FDA Boxed Warning on Sleep Meds</a> ”
August 2019	“ <a href="#">Tools for Reducing Sleep Meds in Hospitals</a> ”

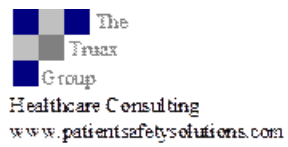
**Some of our prior columns on delirium assessment and management:**

- 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](#)”
- March 21, 2017 “[Success at Preventing Delirium](#)”
- July 2017 “[HELP Program Reduces Delirium Rate and LOS](#)”
- January 2018 “[What Happens After Delirium?](#)”
- February 20, 2018 “[Delirium and Falls](#)”
- October 2018 “[Rapid Screening for Delirium](#)”
- November 13, 2018 “[Antipsychotics Fail in ICU Delirium](#)”
- February 12, 2019 “[2 ER Drug Studies: Reassurances and Reservations](#)”
- September 17, 2019 “[American College of Surgeons Geriatric Surgery Verification Program](#)”
- March 2021 “[The Fiscal Costs of Delirium](#)”

## References:

Gode A, Kozub E, Elizabeth Joerger K, et al. Reducing Delirium in Hospitalized Adults Through a Structured Sleep Promotion Program. *Journal of Nursing Care Quality* 2021; 36(2): 149-154  
[https://journals.lww.com/jncqjournal/Abstract/2021/04000/Reducing\\_Delirium\\_in\\_Hospitalized\\_Adults\\_Through\\_a.11.aspx](https://journals.lww.com/jncqjournal/Abstract/2021/04000/Reducing_Delirium_in_Hospitalized_Adults_Through_a.11.aspx)



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