

Patient Safety Tip of the Week

January 3, 2023

Helping Inpatients Sleep – Failing Grades

Common sense tells us that helping inpatients get restful sleep is desirable and doing so without using sleep meds makes even more sense. 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.

We know the many factors contributing to poor sleep in inpatients:

- excessive noise
- light exposure
- other environmental factors like temperature
- pain
- stress related to medical conditions
- psychological stress
- waking patients to obtain vital signs
- waking patients for phlebotomy

And we already have lots of tools and programs that can address many of those factors and make it easier for inpatients to sleep (see below for details). 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.

So how are we doing? Pretty poorly, according to a recent study. Affini et al. ([Affini 2022](#)) surveyed and interviewed section chiefs of Hospital Medicine at the 2020 US News and World Report (USNWR) Honor Roll pediatric and adult hospitals. Nearly all (96%) hospitalist leaders at those top hospitals rated patient sleep as important, but fewer than half (43%) were satisfied with their institution's efforts to improve patient sleep.

Fifty-two percent of the surveyed institutions reported having no sleep-friendly practices in place. The most common practices in those that did have some practices included:

- reducing overnight vital sign monitoring (43%)
- decreasing ambient ward lights (43%)
- adjusting lab and medication schedules (35%)
- implementing quiet hours (30%)

The researchers identified both barriers to adoption of sleep-promoting practices and factors that helped adoption of such practices. Barriers to success were related to the hospital environment and culture (e.g., inflexible workflow, time conflicts, noisy alarms) and fixed standards of care (not differentiating low-risk and high-risk patients). A key contributor to successfully improving patient sleep was buy-in from hospital staff. Examples included providers reducing room entries through batched care or enforcing quiet hours among peers. External initiatives, such as patient care initiatives or funded innovation projects were also important for patient sleep.

Respondents also suggested that grouping tasks and decreasing interventions, when appropriate, would be opportunities for improvement.

Affini et al. also asked about sleep equity and found that only one hospital addressed sleep equity (but did not reveal how it did so). By sleep health equity the authors meant improving sleep for racial/ethnic minorities, patients with pre-existing risk factors, communication barriers, or limited familiarity with hospital services.

The authors conclude that some key reasons for slow progress are that (1) the culture is such that providers want to improve patient sleep, but not at the expense of changing standard workflow, and (2) there is a lack of incentives and programs to support changes. They call upon both clinicians and hospital leaders to address the issues, develop a culture that promotes sleep, and adopt best practices for patient sleep.

It's worth reiterating here recommendations from our prior columns. In our "[Let Me Sleep!](#)" column we noted that the Hospital Elder Life Program (HELP) program ([Inouye 2013](#)) includes a systemic effort to improve sleep in hospitalized patients by noise reduction, a nonpharmacologic sleep protocol, and coordination of nighttime care. Inouye points out that besides vital sign monitoring and blood draws, patients' sleep is often disrupted by medication administration, IV changes or IV alarms, intermittent pneumatic compression devices, breathing treatments, fingersticks for glucose monitoring, paging systems, room or hallway lights, conversations, cleaning and waxing floors at night, etc. Moreover, Inouye notes there is often a striking **lack of coordination amongst staff** that could minimize these disruptions. Simply having the phlebotomist tag team with the nurse or aide doing vital signs could avoid one disruption.

Another study ([Bartick 2010](#)) implemented the "Somerville Protocol" and documented a 38% reduction in patients noting sleep disruption due to hospital staff and a 49%

reduction in patients receiving prn sedatives (actually a 62% reduction for patients aged 65 and older). The protocol consisted of 10 components:

- “Quiet Time” designated as 10PM to 6AM
- Timing of “routine” vital signs changed to 6AM, 2PM and 10PM
- Getting physicians to understand the difference between daily, BID, TID, QID vs. q24 hours, q12 hours, q8 hours, q6 hours
- Avoid standing diuretic doses after 4PM
- Avoid blood transfusions during Quiet Time where possible
- Use of a noise detection device in the nursing station
- Lullaby over the PA system at 10PM to alert patients, staff, visitors, etc. to Quiet Time
- Timer to dim hallway lights automatically at 10PM
- Nurses perform a bedtime routine before Quiet Time (vital signs, bedtime meds, toilet patient, ensure IV bag won’t empty at night, close patient door, etc.)
- Avoid antecubital IV catheter site where possible (easier to occlude flow here and set off alarm at night) and even avoid nighttime IV fluids if possible

A couple of those interventions merit further discussion. 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).

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.)

A noise monitoring device for the nursing station doesn’t need to be expensive. If a teacher can use a free or \$0.99 decibel meter for his/her iPhone to alert him/her to classroom noise exceeding a specified level, we can certainly find a cheap solution to avoiding excessive noise at the nursing station or elsewhere. But even Bartick and colleagues note that reduction in noise and light probably did not significantly improve patients’ sleep. Rather, a reduction in the physical disruptions probably played the major role.

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.

Promoting natural sleep is also not simply a nocturnal event. What you do during the daytime is also important in promoting sleep. Regular exercise is an example of an important contributor to nocturnal sleep. Reducing ambient light at night is highly recommended. But what about light levels at other times? In our December 2013 What's New in the Patient Safety World column "[Lighten Up Your Patient's Day](#)" we noted a study ([Bernhofer 2013](#)) that used light meters and wrist actigraphy to assess the sleep-waking patterns of hospital inpatients and correlated those parameters with patients' pain levels and mood. Light exposure levels were low and sleep time was poor and fragmented. There was little sleep-wake synchronization with light. Fatigue and total mood disturbance scores were high and inversely associated with light. Pain levels were also high and positively associated with fatigue, but not directly with light exposure. Low light exposure significantly predicted fatigue and total mood disturbance. They concluded that inpatients were exposed to light levels insufficient for circadian entrainment. Nevertheless, higher light exposure was associated with less fatigue and lower total mood disturbance in participants with pain. Though the study was small (40 total patients) this research demonstrates the need for further studies to see if altering light exposure for inpatients would be beneficial in affecting sleep-wake disturbances, mood and pain.

Our May 15, 2018 Patient Safety Tip of the Week "[Helping Inpatients Sleep](#)" also noted a non-pharmacologic multidimensional program at an academic tertiary care hospital which produced promising results ([Herscher 2018](#)). Components of the intervention were:

- an education and awareness campaign for day and evening staff through staff meetings and daily huddles, and use of signs and posters
- identification of local unit champions from nursing and patient care advocates (PCA's)
- delivery of a sleep package that included an eye mask, earplugs, lavender scent pad, and non-caffeinated tea
- the PCA's asked patients whether they would like the TV turned off, blinds closed, lights off, or anything else to improve sleep

And see our March 16, 2021 Patient Safety Tip of the Week "[Sleep Program Successfully Reduces Delirium](#)" for a study by Gode et al. ([Gode 2021](#)) that successfully reduced delirium by focusing on a program to improve non-pharmacologic sleep in inpatients.

Avoiding sleep meds and using non-pharmacologic interventions to promote sleep is something every hospital should strive for. Don't forget that we often have ourselves to blame. 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. We also refer you back to our August 2019 What's New in the Patient Safety

World column “[Tools for Reducing Sleep Meds in Hospitals](#)” for some interventions to avoid use of sleep medications in hospitalized patients.

We do have the means to promote non-pharmacologic sleep in our inpatients. We need to institutionalize the importance of this issue and foster a culture that is more patient-centered. That means abandoning some of our old customary practices

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

August 2009	“ Bold Experiment: Hospitals Saying No to Sleep Meds ”
March 23, 2010	“ ISMP Guidelines for Standard Order Sets ”
May 2012	“ Safety of Hypnotic Drugs ”
November 2012	“ More on Safety of Sleep Meds ”
March 2013	“ Sedative/Hypnotics and Falls ”
June 2013	“ Zolpidem and Emergency Room Visits ”
August 6, 2013	“ Let Me Sleep! ”
June 3, 2014	“ More on the Risk of Sedative/Hypnotics ”
May 15, 2018	“ Helping Inpatients Sleep ”
June 2018	“ Deprescribing Benzodiazepine Receptor Agonists ”
November 6, 2018	“ More on Promoting Sleep in Inpatients ”
June 2019	“ FDA Boxed Warning on Sleep Meds ”
August 2019	“ Tools for Reducing Sleep Meds in Hospitals ”
March 16, 2021	“ Sleep Program Successfully Reduces Delirium ”
January 4, 2022	“ Spin or Not: A Useful Secondary Finding in a Study ”

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<https://www.ismp.org/guidelines/standard-order-sets>

<http://www.patientsafety solutions.com/>

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