

# Patient Safety Tip of the Week

## September 6, 2016 Napping Debate Rekindled

We've done numerous columns on the role of healthcare worker fatigue both on patient outcomes and worker personal health. One of the issues we've often discussed is the role of naps in mitigating these adverse effects of fatigue. Prior studies in nursing have revealed a strong correlation between lack of sleep and errors that have the potential to adversely affect patient care ([Dorrian 2006](#)). That Australian study concluded that less sleep may lead to the increased likelihood of making an error, and importantly, the decreased likelihood of catching someone else's error. Drowsiness, fatigue, and sleep deprivation also have an impact on personal health of nurses. The issue of nurses having accidents while driving home from work drowsy is fairly well known ([Scott 2007](#), [Dorrian 2006](#)). While that applies to drowsiness after any shift, it is more prevalent after night shifts. Working while tired also predisposes to more needle sticks, stress levels, and other health issues.

Back in 2010 when we did our first column addressing the 12-hour nursing shift (see our November 9, 2010 Patient Safety Tip of the Week "[12-Hour Nursing Shifts and Patient Safety](#)") we discussed the use of "**power naps**" that were part of the excellent 3-part series "Is It Time to Pull the Plug on 12-Hour Shifts?" by Geiger-Brown and Trinkoff ([Geiger-Brown 2010](#)). In our April 26, 2011 Patient Safety Tip of the Week "[Sleeping Air Traffic Controllers: What About Healthcare?](#)" we really delved into the issue of why naps, which are well accepted in other industries that operate in long shifts, are not more widely accepted in healthcare.

The issue of napping has been rekindled in a Medscape article following the unfortunate death of a Johns Hopkins nurse in an automobile accident following working a night shift ([Stokowski 2016](#)). The accident was likely due to drowsy driving.

Napping is an evidence-based intervention shown to reduce worker fatigue in a number of industries. The Joint Commission even refers to napping as a strategy in its Sentinel Event Alert on Healthcare Worker Fatigue and Patient Safety ([TJC 2011](#)) as discussed in our January 2012 What's New in the Patient Safety World column "[Joint Commission Sentinel Event Alert: Healthcare Worker Fatigue and Patient Safety](#)".

In our April 26, 2011 Patient Safety Tip of the Week "[Sleeping Air Traffic Controllers: What About Healthcare?](#)" we discussed a study ([Fallis 2011](#)) that included focused interviews with 13 experienced nurses working the night shift in the emergency room or ICU setting in a community hospital in Canada. Ten of the 13 described themselves as "regular" nappers on the night shift (meaning that they often took brief naps on scheduled breaks if circumstances permitted). Three major themes evolved: the environmental scan,

the impact of napping, and the consequences of not napping. The **environmental scan** was an analysis of all the variables taken into consideration in making a decision as to whether a nap was feasible. Those included things like how busy the unit was, what the mix of experienced vs. inexperienced nurses was, who was available for relieving them, and whether anyone was working a double shift. The **impact of napping** could be positive or negative. Most of the regular nappers noted a positive impact, such as awakening refreshed and able to think more clearly. But naps are not for everyone. One of the downsides of naps is occasionally awakening and temporarily feeling disoriented and slow to respond or the phenomenon of “sleep inertia”. Almost a quarter of the interviewees in the Fallis study mentioned this and it was the primary reason that several of them had become “non-nappers”. The **consequences of not napping** included slowed mental processes and “foggy thinking”. Nurses found themselves having to check things multiple times. They gave examples of missing arrhythmias on telemonitoring screens because of decreased vigilance. Many found the period between 4AM and 6AM to be most vulnerable. (Note that almost all studies on fatigue and sleepiness on the night shift do identify a roughly two-hour period where concentration abilities are at their worst but the exact time of that nadir differs from study to study).

Tiredness on the night shift is particularly problematic for a number of reasons. As noted by Geiger-Brown and colleagues ([Geiger-Brown 2016](#)) there is a normal low point in the circadian drive for wakefulness between 2AM and 6AM. Add to that several soporific factors on the night shift such as dim lighting, relative quiet, reduced patient activity and less overall activity.

But there is surprisingly scant high quality evidence on the impact of napping. A randomized controlled trial of naps on the night shift for both physicians and nurses working in the ER applied a battery of cognitive and performance tests to physicians (residents) and nurses who worked at least 3 consecutive night shifts in the ER were randomized to a nap group or a control no-nap group ([Smith-Coggins 2006](#)). The tests were administered at 4AM and 7:30AM and then a driving simulation was done at 8AM. Those in the nap group had fewer performance lapses at 7:30AM and took less time to insert an IV. They also reported less fatigue and sleepiness and more vigor. On the driving simulation they did not perform better overall than the non-nap group, though they showed less dangerous driving tendencies and fewer behavioral signs of tiredness during the simulation. Interestingly, in view of the comments about sleep inertia in the Fallis study mentioned above, those in the nap group performed more poorly on a memory test administered at 4AM (immediately after the nap). So this study strongly supports the concept of the restorative nap during the night shift even though actual impact on patient outcomes was not measured or assessed.

A systematic review on the effect of napping in night-shift workers in multiple industries done in 2014 ([Ruggiero 2014](#)) found such variability in study size and design that they had to do a “narrative” systematic review. Of the 13 relevant studies only one was a randomized controlled trial and 12 had quasi-experimental designs. Overall they found that planned naps during night shifts (or simulated night shifts) reduced nocturnal

sleepiness and improved sleep-related performance deficits in a number of populations and settings.

A Canadian study reported the attitudes of 47 critical care nurse managers toward napping and this demonstrated numerous barriers to implementation of napping as a safety tool ([Edwards 2013](#)). While most were aware of the patient safety issues caused by nurse fatigue and also aware of the worker safety issues (eg. needle sticks, accidents driving home, etc.) they had numerous concerns about napping. Most respondents felt that their administrators would disapprove of napping and most stated their hospital lacked a formal policy on napping or were unaware of one. Many expressed concern that napping might create patient care coverage shortages or that coverage would be being provided by nurses who knew little about their patients. Others noted the lack of suitable facilities for napping. And many felt that patients or their families would look unfavorably upon nurses napping. Some also feared “sleep inertia”. The latter is a “groggy” feeling sometimes perceived when one wakes up from sleep. We discussed an article on sleep physiology ([Amin 2012](#)) in our November 2012 What's New in the Patient Safety World column “[The Mid-Day Nap](#)” which noted short naps are typically not associated with the phenomenon of “sleep inertia” that is often seen after one awakens from a long nap.

Another recent study from Geiger-Brown and colleagues highlights the barriers in implementing power nap programs for nurses ([Geiger-Brown 2016](#)). They had planned implementation of a night shift nurse napping program at 6 units in two hospitals. However, the implementation never got off the ground in 4 of the units and was waylaid in a 5<sup>th</sup> unit. Therefore, it was only actually fully implemented in one of the six units. Several barriers were encountered but the major one was that nurse managers did not buy in. They often never even presented the project to their staff nurses. Many were concerned about short staffing. One was concerned that nurses would not be available to respond to rapid response team calls. Lack of adequate space for napping was another concern. Interestingly, on some units nurses never took extended breaks at all, even though they may be working 12-hour shifts. But the one unit that implemented the napping program did so very successfully. Over the 3-month pilot project naps averaged 31 minutes and on over half the naps nurses noted actual sleep occurred. Nurses noted an average score of 6.1 (scale 1 to 9 with 9 being the most sleepy) on a sleepiness scale prior to napping (with 44% having scores between 7 and 9). After napping 56% of nurses felt “alert and refreshed” and sleep inertia was relatively rare. And, though not formally measured, many nurses noted that napping had eliminated drowsy driving on their way home after work.

Several key factors aided that successful implementation. The nursing director met with the supervisors and charge nurses prior to implementation and discussed potential barriers and concerns. Staff nurses were then engaged and had input. An appropriate space for napping that ensured complete privacy was provided. Nap breaks, with plans for patient care coverage for napping nurses, were planned at the beginning of each shift. Also important was that several of the nurses had experienced nap programs elsewhere,

they already had a “buddy” system in place to cover patient care, and they had a high level of trust among each other.

Note that the program was continued on the one unit after the pilot study was completed and several other units expressed interest in implementing a napping program. Some also felt that other nurses now wanted to “float” to this unit after they heard about the napping program. The napping protocol was modified to include an additional 5 minutes before and after the 30 minutes of actual sleep time.

The optimal timing of naps remains unclear. The systematic review by Ruggiero and Redeker ([Ruggiero 2014](#)) noted that further studies are needed to determine the optimal timing of naps in order to minimize the possible hazards associated with sleep inertia.

So here are the key lessons learned for implementing a napping program:

- Get buy-in from hospital and nursing administration
- Make sure your nurse managers are on board
- Emphasize that napping programs are evidence-based and promote both patient safety and worker safety
- Make sure your staff nurses have input into program development
- Nurses must be willing to take completely relieved breaks
- Having a “buddy” system in place can help nurses feel comfortable that their patients will be well cared for during their break or nap break
- Provide space and location that will allow uninterrupted napping
- Keep the actual napping period short (30 minutes or less) but consider allowing an additional 5 minutes before and after the nap
- Incorporate napping plans at the beginning of each shift, including planned patient care coverage for nurses on nap break
- Measure sleepiness/alertness results on a formal scale of some sort and provide feedback on the results
- Measure rates of adverse patient care occurrences on units before and after implementation of napping programs
- Solicit feedback from staff on their perception of the program

Many nurses remain concerned about what their patients or patient families may think about nurses napping. To that we recommend you have a prepared script with which to respond if questioned. That script should mention the adverse impact of healthcare worker fatigue on patient care, that napping has been shown to be an effective means of reducing fatigue, that The Joint Commission actually recommends napping programs, and use the analogy of how the aviation industry sets work hour limits to reduce pilot fatigue and allows naps for pilots on long flights.

The time has come to break down the many barriers that have prevented implementation of napping programs. The safety of our patients and the personal safety and health of our nurses demands that we step up to the plate and address this important issue. It would be very helpful to have a study that shows both a reduction in patient safety events and worker health events after implementation of a program with an analysis of the financial

savings that might be accrued from such a program. However, hospitals shouldn't have to wait for such study to begin implementation of napping programs.

**Some of our other columns on the role of fatigue in Patient Safety:**

November 9, 2010	<a href="#">“12-Hour Nursing Shifts and Patient Safety”</a>
April 26, 2011	<a href="#">“Sleeping Air Traffic Controllers: What About Healthcare?”</a>
February 2011	<a href="#">“Update on 12-hour Nursing Shifts”</a>
September 2011	<a href="#">“Shiftwork and Patient Safety”</a>
November 2011	<a href="#">“Restricted Housestaff Work Hours and Patient Handoffs”</a>
January 2012	<a href="#">“Joint Commission Sentinel Event Alert: Healthcare Worker Fatigue and Patient Safety”</a>
January 3, 2012	<a href="#">“Unintended Consequences of Restricted Housestaff Hours”</a>
June 2012	<a href="#">“June 2012 Surgeon Fatigue”</a>
November 2012	<a href="#">“The Mid-Day Nap”</a>
November 13, 2012	<a href="#">“The 12-Hour Nursing Shift: More Downsides”</a>
July 29, 2014	<a href="#">“The 12-Hour Nursing Shift: Debate Continues”</a>
October 2014	<a href="#">“Another Rap on the 12-Hour Nursing Shift”</a>
December 2, 2014	<a href="#">“ANA Position Statement on Nurse Fatigue”</a>
August 2015	<a href="#">“Surgical Resident Duty Reform and Postoperative Outcomes”</a>
September 2015	<a href="#">“Surgery Previous Night Does Not Impact Attending Surgeon Next Day”</a>

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