A steep price to pay: Fatigue compromises staff and patient safety

It’s not uncommon for nurses to work 3 12-hour shifts at 1 hospital and then work another 3 at a different hospital, yet anyone who works 12 hours is putting their patients in jeopardy, Sheryl A. Michelson, MS, RN-BC, said at the AORN Congress in March 2013.

“This is not what nurses want to hear, but we need to think about this. We didn’t go into nursing to hurt people,” Michelson said during a compelling presentation on worker fatigue.

“When we allow people to work 6 12-hour shifts in a row, we are pretty much signing their death certificate or maybe someone else’s in the community who gets hit by the person driving home,” Michelson told a packed audience.

Having known 2 nurses who died from falling asleep at the wheel after working long shifts, Michelson is highly attuned to the dangers of auto accidents. “One was a very dear friend of mine. She left 3 young children, and it had a huge impact on me,” she said.

As the manager of perioperative education at Stanford University Hospital in Stanford, California, Michelson is on call every fourth or fifth weekend, working from 3 pm Friday until Monday morning as the administrative manager. Over time, she has noticed an increase in complaints about staff behavior among people working long shifts, such as lack of teamwork, yet she also found more staff were requesting more hours.

Michelson, a member of Stanford’s needlestick injury committee, sought to learn the association between injury incidence and length of shift. Through an extensive literature search, she learned some startling facts about the effects of fatigue: $18 billion per year is lost in productivity and accidents (among nurses and other shift workers such as fire fighters and the police), and there are at least 1,500 fatalities, 100,000 auto crashes, and 76,000 injuries annually.

It’s important to know that fatigue constitutes overwhelming tiredness and impaired cognitive and physical function, she said. Nurses will admit to feeling exhausted, but they don’t know when they are dangerous. Often, it’s not until a major error occurs that people realize how much fatigue affects their performance. In one study, among 22,000 RNs who rotated shifts, 35.5% admitted to falling asleep while caring for patients.

At Stanford, an academic institution with more than 600 beds that treats mainly adult patients, “we don’t force people to do 24-, 48-, or 72-hour call shifts, but many places do that,” she said. Some people take long hours voluntarily, and others are being mandated to do so because of how their hospital schedule is run. “They don’t feel that they have the ability to say ‘this is not safe,’” Michelson said.

Fallout from fatigue
Safety risks increase after working 8 hours, so working 10- or 12-hour shifts significantly increases the risk that nurses will harm themselves or their patients, according to Michelson.

“Sleep duration is linked to metabolism and appetite regulation. Glucose tolerance is altered by short-term sleep restriction, so even being sleep-deprived just 1
Research defines dangers of shift work sleep disorder

The combination of 12-hour shifts and call can be lethal. That may be 1 reason why more than half (51%) of surgical services directors don’t use 12-hour shifts, according to the 2013 OR Manager Salary/Career Survey. For those who do use 12-hour shifts, most respondents use them for weekdays, weekends, and holidays (58%); but slightly more than a third (38%) use them only for weekdays, and just 4% use them only for weekends and holidays.

Even if you don’t have 12-hour shifts in your OR, you may have part-time employees who are working these shifts elsewhere, and taking call can easily disrupt normal sleep cycles. OR leaders must be aware of the potential problem of sleep disturbances, including shift work sleep disorder (SWSD). Employees with SWSD have a difficult time staying awake when working the night shift even if they had sufficient sleep before the shift. They may also have difficulty getting to sleep during the daytime, sleep too much during the day, or have difficulty waking up to go to work at night.

SWSD dangers
Jeanne Geiger-Brown, PhD, RN, FAA, associate professor and assistant dean for research at the University of Maryland School of Nursing, says her sleep research has identified 4 primary areas of neurocognitive changes with SWSD: performance deficits such as not performing a task as well as when rested; impaired information processing such as decline in short-term memory and reduced ability to learn; cognitive flexibility, which results in faulty risk assessments and less ability to recognize better alternatives; and impaired mood, including anxiety, depression, and decreased communication skills.

These deficits not only can lead to patient harm but may cause the employee personal physical harm (through accidental needlesticks or falling asleep at the wheel of a car) and may adversely affect interpersonal relationships.

Unfortunately, people may not be aware of the danger. “Research has shown that with repeated days of not getting enough sleep each night, vigilant performance gets worse and worse, but a sleep-deprived person doesn’t have a parallel increase in sleepiness, so they can have a false impression that they aren’t as impaired as they actually are,” Geiger-Brown says.

People at risk for SWSD include women, older individuals, and those working in health care. “Most nurses are women, have an average age of 46, and are working in health care, so it’s not surprising they’re at risk for SWSD,” says Kathryn Lee, PhD, RN, FAAN, CBSM, professor and associate dean for research at the University of California at San Francisco School of Nursing. An experienced sleep researcher, Lee adds that other risk factors include an anxious personality and lack of internal locus of control.

Although it relies on subjective responses, the Epworth Sleepiness Scale can be helpful in identifying how much the disrupted sleep is affecting the shift worker.

SWSD solutions
It’s vital to help employees find relief from SWSD. Although correlation doesn’t imply causation, it’s worth noting the night shift has been associated with an increased risk of breast cancer, vascular disease, metabolic syndrome, irregular menstrual cycles, lower birth weight infants, and diabetes. The most common complaints are gastrointestinal symptoms such as irritable bowel syndrome and abdominal pain.

Managing SWSD includes better sleep hygiene (see main article). In some cases, treatment with modafinil or armodafinil may be necessary.


—Cynthia Saver, MS, RN

or 2 days a week raises the risk of being overweight or prediabetic,” Michelson said, adding that at least one-third of the attendees in the room were likely diabetic.

Other risks associated with sleep deprivation include a higher likelihood of injury, preterm birth, and rate of accidents. In a small study of 45 ICU nurses working 12-hour shifts, she said, all but 2 staff members surveyed admitted to having had an auto accident in the previous 12 months.

In a study of 47,000 nurses, 54% admitted to being impaired in some way from
fatigue during a 28-day period. Inadequate rest is also linked to moodiness, cognitive problems, reduced job performance and motivation, depression, worse hand-eye coordination, and decreased memory.

**Strategies to catch some z’s**

Sleeping in a darkened, cool room, napping and exercising in a timely manner, and using caffeine appropriately are some ways nurses can get better sleep. And studies support the benefits of working shorter shifts, even though this is not a popular option, she said.

Among the changes Michelson suggested are to avoid scheduling people for more than 2 or 3 consecutive night shifts and allow 10 to 12 hours of recovery time between shifts. The airline industry has altered pilots’ schedules to increase safety, she noted, and the health care industry should do likewise.

In 2011, following a deadly plane crash, the Federal Aviation Administration instituted new rules about the number of consecutive hours pilots are allowed to fly, including a 30-hour period each week when they must not work. The airlines require annual training on topics such as nutrition, exercise, and sleep disorders, she added.

The average RN gets 25.7 minutes of break during a shift, and nurses who work longer shifts tend to get shorter breaks than those who work shorter shifts. Studies have shown that short naps lasting less than 45 minutes are effective at restoring energy and alertness, she said—so it’s important to take a break and sleep for a short period, if possible.

Caffeine (at least 200 mg) can be helpful if it’s consumed 15-30 minutes before starting a shift or during the period between 3 am and 5 am when people tend to get very sleepy.

To the dismay of many in the audience, she advised using it only at work and never at home because drinking caffeine routinely will diminish its effectiveness.

Likewise, she noted that exercise helps people sleep better, but it must be carefully timed; it’s better to exercise after a shift than before going to work.

**What’s next?**

When asked whether she thought the Joint Commission would mandate changes to shifts, Michelson said the Commission has mandated that institutions begin taking some responsibility and look at how they are attempting to mitigate worker fatigue. “Hospitals will be hard-pressed to justify letting people work 24-hour shifts,” she said.

As these changes evolve, nurses will have to take call on days when they’re not working because they won’t be allowed to take call after their regular shifts, and it may be necessary to hire additional full-time employees. But Michelson stressed that nurses can be proactive and try to adjust their schedules before anything is mandated.

—Elizabeth Wood