

Patient safety

Fighting fatigue for perioperative staff

Staying for hours to complete cases. Volunteering for extra shifts. Working into the night on call and reporting for a full day's work the next morning.

They're part of the life of perioperative staff.

But they also contribute to fatigue, an issue of increasing concern for patient safety and the staff's well-being.

The literature documents the hazards of fatigue. In fact, the long hours some nurses work is one of the most serious threats to patient safety, according to the 2004 Institute of Medicine (IOM) report, *Keeping Patients Safe: Transforming the Work Environment of Nurses*.

Fatigue saps energy, slows reaction time, leads to lapses in attention, impairs problem solving, and reduces motivation.

In one of the first studies to look at nurse work hours, Ann E. Rogers and colleagues found errors began to rise when shifts exceeded 8.5 hours and increased significantly after nurses worked 12.5 hours in a day.

Long hours also take a personal toll on health and family life (sidebar).

The IOM called on organizations to develop policies and procedures to prevent nurses from providing direct care for more than:

- 12 hours in a 24-hour period
- 60 hours in a 7-day period.

In the OR, call is a major reason for extended hours. Hospitals typically cover off-shifts with staff who are "on call"; that is, available on short notice for urgent and emergent cases. Call staff may work long and unpredictable hours, depending on cases that arrive during that period. If scheduled to work the next day, they can easily work for more than 12 hours at a stretch.

This spring, the Association of peri-Operative Registered Nurses (AORN) approved a guidance statement advising facilities to create call schedules that consider the effect of long hours on patient safety and the staff.

Added staffing challenge

For OR managers, preventing long work hours adds to their staffing difficulties. Faced with tight staffing, some ORs are using more overtime and allowing staff to volunteer for extra shifts for premium pay. They're also competing for staff who have high expectations for flexible hours and working conditions.

Managers know that if they limit staff who work extended shifts—often by choice—others will have to pick up the slack.

Managers and directors we talked to say they've begun discussions and are collecting data on extended hours. But they do not yet have formal policies. For the time being, they're monitoring fatigue from day to day, encouraging tired staff to speak up, and finding ways to cover so they can go home.

"It's interesting—the staff will talk about all of these patient safety issues," observes Carol Majewski, RN, MS, clinical director of perioperative services at Dartmouth-Hitchcock Medical Center, Lebanon, NH. "But when we began talking about limiting call shifts for patient safety reasons—which might mean more frequent but shorter on-call shifts—they didn't want to hear about it. This is a cultural shift, and it's going to take time."

Another nursing leader notes that nurses have been slow to think about their own health.

"I think nurses are the last group to look after themselves," comments Pat

Givens, RN, EdM, assistant hospital director for nursing and clinical operations at Vanderbilt Children's Hospital, Nashville, Tenn, which has drafted a policy to limit nurse work hours.

"We look after our equipment, and hospitals have restricted work hours for residents. Now we need to start looking after all of the team."

Peds hospital drafts policy

Vanderbilt Children's Hospital drafted its work-hour-limit policy following discussions at national meetings of the Child Health Corporation of America, a network of children's hospitals.

Vanderbilt University Medical Center also has discussed fatigue as part of its organizationwide implementation of crew resource management. Borrowed from aviation, crew resource management focuses on safety training through effective team management.

Under the draft policy, nurses' work would be limited to:

- 16 hours in a 24-hour period
- no more than 4 or 5 contiguous 12-hour shifts without a 24-hour break.

There would be exceptions for mass casualties and other emergencies.

The hospital has been looking at the policy's potential impact and planning for a transition, says Givens.

Impact is expected to be the greatest in small programs that require a high level of technical expertise, such as extracorporeal membrane oxygenation (ECMO), which provides life support to newborns and children with cardiac and respiratory disease. These programs have fewer staff to share the workload. Yet Givens sees problems in granting exceptions.

"We have to be careful not to speak out of both sides of our mouths by saying extended hours are OK for some but not others. It may be that we will have to look at how we are allocating resources," she says.

Givens has some data to indicate there have been occurrences related to long hours.

"When you're holding a child's life in your hands by calculating medication doses, participating in surgery, and monitoring patients, you have to make sure the industry is safe both for the patients and employees.

"There may be a cost, but there's a cost the other way, too," she says.

OR, PACU address fatigue

The ORs and postanesthesia care unit (PACU) at Vanderbilt Children's have begun to address fatigue with changes in call practices, notes Donna Williams, RN, MSN, CNOR, administrative director of perioperative and procedural services.

In the ORs, weekday call from 7 pm to 7 am is covered by a night team that receives 40 hours of straight-time pay. The regular staff takes call on the weekends, which they self-schedule.

"The staff tells us that not taking call during the week is wonderful," Williams says.

In the PACU, 2 RNs were recently hired for a permanent night shift.

With PACU staff routinely working 12-hour shifts, call became an impossibility, Williams notes, especially if patients had to spend the night in the PACU because of a lack of inpatient beds. If no patients are in the PACU, the night nurses float to other units, such as the emergency department or pediatric intensive care unit. They don't take a patient assignment but relieve for breaks and provide other assistance.

"The night shift coverage has been a huge satisfier for the PACU nurses," says Williams, who adds that recruiting for the night-shift positions was not difficult.

Are 24-hour call shifts safe?

At Dartmouth, Majewski and her staff are discussing 2 work-hour issues:

- Is it safe to have 24-hour call shifts on weekends?
- Should staff be allowed to schedule themselves for 2 12-hour shifts with a call shift in between, as some do for personal convenience?

Staff who work these shifts are unlikely to be called in for long periods because there is in-house staff, she notes.

Dartmouth, with 23 ORs, is a Level I trauma center and teaching hospital. It is recognized as a Magnet hospital for excellence in nursing.

The staff self-schedules for call, which works out to 1 weeknight in 3 weeks and 1 12-hour or 24-hour shift every third weekend. On weeknights, the call team works for 5% to 7% of the call-shift hours scheduled; in other words, if 100 call hours were scheduled, the staff would work 5 to 7 of those hours.

"Converting these 24-hour shifts to 12 hours would mean more call," she notes. Majewski collects data on call, including how many hours were worked during call, the length of time worked, and breaks between call stints.

She hasn't documented safety incidents from long shifts, "but we're trying to be proactive," she says. "Even at 12 hours, we have documented there is fatigue."

To help the staff get rest on call, the hospital, which is in a rural area, has an apartment for OR staff to use. The apartment is a pleasant place to rest and allows the staff to comply with the 30-minute arrival time if called in. There also are sleeping rooms at the hospital.

On a daily basis, the person running the OR's control desk notes who has worked on call the night before and tries to relieve them.

Majewski encourages the staff to be open about fatigue. For example, when someone says, "I'm exhausted. I was up all night. Can I go home?" she tries to be supportive and let them leave.

Dartmouth is taking steps to encourage staff to be accountable for fatigue. A proposed addition to staff nurse performance expectations is a statement that addresses nurses' professional responsibility to monitor their personal health and fatigue and promote a safe work environment.

Limiting hours is tough, Majewski says, because staffing is tight, and about one-fourth of the staff is travelers. The hospital opened 4 new ORs in the fall, and volume is growing. Recruiting to Dartmouth's location in rural New Hampshire is difficult, particularly for younger staff who prefer the social life of urban areas.

Teamwork promotes flexibility

Extended hours and call shifts are a concern for community hospitals because they typically rely on call for all of their off shifts. Though there isn't a formal policy for limiting work hours, Southern Maine Medical Center in Biddeford is keenly aware of staff fatigue and takes steps to manage it.

A strong sense of teamwork among the staff and managers promotes flexibility, says Toni Clark, RN, director of surgical services for the 5-OR department.

"The OR team knows they can leave a note on the message board and take the next day off if they feel too tired to work, and they frequently do so," she says. The time off is taken without pay or as paid time off.

To help staff earn more paid time off, the hospital grants an additional 1 hour of paid time off for every 8 hours actually worked on call.

Standard call pay is \$2 per hour plus time-and-a-half for working on call. Staff receive a minimum of 2 hours of overtime pay when called in.

The entire OR staff takes call, as does staff in the PACU and endoscopy unit. Ambulatory surgery staff take backup call for the PACU. PACU nurses are always scheduled to be off after working on call. Endoscopy nurses take call a week at a time. They mostly work part time and are infrequently called in.

To help cover for staff who ask to leave, the OR has a float team consisting of one person from each job category. The extra staffing, supported by the administration, provides added assistance to the surgeons for case turnover and retractor holding as well as coverage for breaks, lunch, and other absences.

The OR manager, Laura Mullin, RN, works hard to prevent long hours by minimizing the number of cases that run late. Clark calls Mullin "a superb manager" who's adept at negotiating with surgeons to move cases up to fill gaps in the schedule. Mullin has also led a campaign to start first cases of the day on time to avoid running late. The staff volunteers to stay late to finish cases when necessary so the call team is not burdened in the late evening.

"I have rarely been in a position of insisting that a staff member go home due to fatigue," Clark says. "They know our flexibility and that their team will work short rather than expect a too-tired person to come in."

Flexibility and teamwork are a reflection of the hospital's emphasis on staff retention, Clark says. The OR is fully staffed. The CEO has a volunteer work-life enhancement team of employees that meets with him monthly to develop strategies to promote retention and staff satisfaction. The hospital competes with hospitals in Portland 20 minutes to the north and Boston 1 hour south.

Ten-hour shifts provide call relief

A staff schedule of 4 10-hour work days helped another community hospital provide call relief and reduce overtime. Staff on call are automatically scheduled to be off the following day.

At UPMC Northwest, Seneca, Pa, the OR's 10 RNs and 8 STs rotate call responsibilities. The hospital, with 5 ORs and an annual surgical volume of about 5,600 cases, is part of the University of Pittsburgh Medical Center.

The change to 10-hour from 8-hour shifts took place in 1997, notes Vivian Todd, RN, CNOR, program director for surgical services. The hospital was seeking to save on overtime, having spent \$12,000 on overtime in one 3-month period. The 8-hour shifts also were tough for call.

"Our staff would sometimes work until 8, 9, or 10 pm and possibly come back in the middle of the night," Todd says.

Now, most of the staff works from 6 am to 4:30 pm. Two teams are scheduled from 7 am to 5:30 pm, one being the call team.

"Very infrequently—only 2 to 3 times a year—do we need more than these 2 teams past 4:30 pm," Todd says.

Savings on overtime have been dramatic, decreasing to about \$1,700 a month.

"Our total overtime hours for the past fiscal year were 635 hours, or about 35 hours per staff person," Todd says.

Initially reluctant, staff now are happy with the 10-hour shifts, she says. Recently, when there was a discussion about moving some staff to 8-hour shifts, they said they didn't want to go back.

"They like the extra day off. They also know there are going to get out on time and have a specific day off," Todd says. ❖

References

Association of periOperative Registered Nurses. AORN guidance statement: Safe on-call practices in perioperative practice settings. *2005 Standards, Recommended Practices, and Guidelines*. Denver: AORN, 2005. www.aorn.org

Institute of Medicine. *Keeping Patients Safe: Transforming the Work Environment of Nurses*. Washington, DC: National Academies Press, 2004. <http://books.nap.edu/catalog/10851.html>

Rogers A E, Hwang W, Scott L D, et al. Working hours of hospital staff nurses and patient safety. *Health Affairs*. July/August 2004; 202-212.

Fallout from fatigue

A hazard to patient safety

In one of the first studies to look at nurse work hours, 393 RNs completed shift logs:

- Half of the shifts exceeded 10 1/2 hours.
- In 39% of shifts, nurses worked at least 12.5 hours.
- Errors began to rise when shifts exceeded 8.5 hours and increased significantly after nurses worked 12.5 hours in a day.

—Rogers A E, Hwang W, Scott L D, et al. *Working hours of hospital staff nurses and patient safety*. Health Affairs. July/August 2004; 202-212.

Staying awake for 20 to 25 hours has the same effect on performance as a blood alcohol concentration of 0.10%, the level of intoxication.

—Lamond N, Dawson D. *J Sleep Res*. December 1999; 8:255-262.

A literature review comparing 8-hour and 12-hour shifts across industries found that while some workers prefer the shorter workweek offered by 12-hour shifts, they experienced fatigue and diminished alertness toward the end of the shift. On the plus side, 12-hour shifts reduced the number of hand-offs from one shift to another, a cause of mistakes.

—Smith L, et al. *Occup Environm Med.* 1998; 55:217-229.

A threat to personal well-being

Employees working fixed night shifts are more likely to be divorced or separated within a 5-year time span than their day-shift counterparts.

Working more than 60 hours a week has been associated with:

- gastrointestinal disorders
- cardiovascular disease
- musculoskeletal injuries.

Employees who work extended hours are more likely to:

- smoke
- rely on stimulants
- have sleep-related problems.

Extended hours are costly. Employers that staff their organizations 24/7 spend an additional \$1,181 in health costs annually per extended-hour employee.

(Extended hours are defined as working outside 7 am to 7 pm.)

—Circadian Technologies
(www.circadian.com)

For medical interns, the odds of reporting a motor vehicle crash and a near-miss incident after an extended work shift were 2.3 and 5.9 times greater respectively than after a shift not of extended duration.

—Barger L K, et al. *N Engl J Med.* Jan 13, 2005; 352:125-134.