

Patient Safety Tip of the Week

November 13, 2012

The 12-Hour Nursing Shift: More Downsides

When we first reviewed the available literature on the impact of 12-hour shifts for nursing (see our November 9, 2010 Patient Safety Tip of the Week “[12-Hour Nursing Shifts and Patient Safety](#)”) we concluded the literature to date really did not answer the question as to whether those shifts had a detrimental impact on patient outcomes. Then in our February 2011 What’s New in the Patient Safety World column “[Update on 12-hour Nursing Shifts](#)” we highlighted a study ([Trinkoff 2011](#)) that attempted to correlate patient outcomes with the duration of the nursing shift using a number of AHRQ Quality Indicators at hospitals in two states where they had data on nursing shifts. They found that a number of undesirable outcomes, including mortality for select conditions like pneumonia, were higher in those hospitals where nurses reporting the longer shifts. Just as significant was the association between such undesirable outcomes and nurses’ lack of time off.

Now 2 new studies using a multi-state nursing database ([Stimpfel 2012a](#), [Stimpfel 2012b](#)) show further evidence that quality of patient care suffers when nurses work longer shifts. Furthermore, there is also a detrimental impact on nurses themselves. The researchers, from the University of Pennsylvania School of Nursing, analyzed data from over 500 acute care general hospitals in 4 states (California, Pennsylvania, New Jersey, and Florida) participating in the Multi-State Nursing Care and Patient Safety Study.

We knew that there has been a steady trend in hospitals using 12-hour nursing shifts. That’s why we originally began looking at the issue back in 2010. However, we’re surprised at the magnitude of that trend. In fact, the most common shift length in the study is 12-13 hours, worked by 65% of nurses responding to the surveys ([Stimpfel 2012a](#))! Those long shifts were even more commonly worked by ICU nurses.

The nurses in the first study ([Stimpfel 2012a](#)) were asked to rate both nursing care quality and hospital safety. (Note that [McHugh et al. 2012](#) have shown nurses’ ratings of hospital quality and safety correlate well with more formal measures.) There was a significant correlation between longer shift length and nurses reporting nursing care quality as “fair

or poor". Similarly, there was a correlation between longer shift length and nurses reporting poor hospital safety grades. The odds of a nurse reporting poor quality or safety ratings were double in those nurses working the longest shifts compared to those working 8-9 hour shifts. The findings persisted even after adjustment for variables such as nurses' age, gender, unit specialty, staffing patterns, hospital bed size, etc.

Their study also looked at breaks and break length. There was substantial variability by state since some states (eg. California) have mandated a 30-minute meal break and additional 30-minute break for those working beyond 8 hours. However, overall the study confirmed that most nurses are not regularly taking breaks during the workday. Though this study did not specifically correlate quality and safety ratings with absence of breaks, they cite other studies ([Rogers 2004](#)) showing that longer breaks reduce error rates.

In the second study using the same database ([Stimpfel 2012b](#)) the investigators demonstrated that nurses working the longer shifts were more dissatisfied and had higher burnout rates. Moreover, patient satisfaction scores on multiple measures captured by the HCAHPS survey were lower when the proportion of nurses working shifts longer than 13 hours was high. They found nurses working shifts of ten hours or longer were up to two and a half times more likely than nurses working shorter shifts to experience burnout and job dissatisfaction and to intend to leave the job.

But there's a real paradox here. The overwhelming majority of nurses responding to the multi-state survey report that they are satisfied with their schedules and like the flexibility they provide. Yet the likelihood of job dissatisfaction, burnout and intent to leave the job is much higher in those working these long shifts.

It's, of course, not surprising that the HCAHPS scores were lower. We have long known that staff dissatisfaction often leads to poorer performance on many HCAHPS measures.

However, there remain questions still not resolved. The problem with almost all research to date on the issue is that there are too many confounding variables in retrospective studies. In the multi-state database shift duration was calculated by asking the nurses what was the duration of their last shift worked. It's not clear to us then whether those longer shifts were voluntary (i.e. regularly scheduled 12-hours shifts) or involuntary (i.e. overtime). Similarly, we don't know about other factors such as time off and whether nurses are working the same shift each day or rotating shifts or whether they are also working other jobs on their days off. There are also other issues in interpreting data from large databases such as the multi-state nursing database ([Welton 2011](#)).

As we've said before, the only way we are going to be able to answer that question is to do a randomized controlled trial where the only variable changing is the duration of the individual shift. It would require a well-designed study with hard outcome parameters done in a setting where a legitimate control group can be used (for example, implementing 12-hour shifts on one or several med/surg floors where the other comparable floors maintain their current 8-hour shifts). That will be a difficult study to actually carry out. But the time has come to get those critical answers.

The issue basically is the same one we contend with in assessing the impact of housestaff work hours and patient safety and quality outcomes. Theoretically, we are balancing the negative impact of fatigue and inattention due to long hours against the potentially positive impact of better continuity and fewer handoffs. But we also cannot ignore the impact of long hours on staff well-being and job satisfaction. There is a plethora of literature on negative personal impacts from long hours (see our November 9, 2010 Patient Safety Tip of the Week “[12-Hour Nursing Shifts and Patient Safety](#)”), including needlestick injuries, musculoskeletal and other work-related injuries, increased rates of motor vehicle collisions or near-misses while driving home from extended shifts and potential health consequences of long-term sleep deprivation.

Stimpfel et al. ([Stimpfel 2012b](#)) suggest that policies regulating work hours for nurses, similar to those set for resident physicians, may be warranted and that we need to respect nurses’ days off and vacation time, promote nurses’ prompt departure at the end of a shift, and allow nurses to refuse to work overtime without retribution.

We recommend you read our November 9, 2010 Patient Safety Tip of the Week “[12-Hour Nursing Shifts and Patient Safety](#)” to see some of the excellent prior work that has been done by Geiger-Brown and colleagues ([Geiger-Brown 2010](#)) and Fallis and colleagues ([Fallis 2011](#)) regarding some of the strategies to mitigate nurse fatigue and also our columns listed below on the impact of fatigue in healthcare and other industries and use of strategies such as power naps.

Updates: See our July 29, 2014 Patient Safety Tip of the Week “[The 12-Hour Nursing Shift: Debate Continues](#)” and our October 2014 What’s New in the Patient Safety World column “[Another Rap on the 12-Hour Nursing Shift](#)”.

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

November 9, 2010	“ 12-Hour Nursing Shifts and Patient Safety ”
April 26, 2011	“ Sleeping Air Traffic Controllers: What About Healthcare? ”
February 2011	“ Update on 12-hour Nursing Shifts ”
September 2011	“ Shiftwork and Patient Safety ”
November 2011	“ Restricted Housestaff Work Hours and Patient Handoffs ”
January 2010	“ Joint Commission Sentinel Event Alert: Healthcare Worker Fatigue and Patient Safety ”
January 3, 2012	“ Unintended Consequences of Restricted Housestaff Hours ”
June 2012	“ June 2012 Surgeon Fatigue ”
November 2012	“ The Mid-Day Nap ”
July 29, 2014	“ The 12-Hour Nursing Shift: Debate Continues ”

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