

# Patient Safety Tip of the Week

## July 11, 2017 The 12-Hour Shift Takes More Hits

We've discussed the pros and cons of the 12-hour nursing shift in many columns. On the "pro" side the only real theoretical advantage is fewer handoffs. However, also on the "pro" side is that many nurses do like the flexibility of work hours and having more time to spend with family or other activities. And many nurse administrators like the flexibility of scheduling.

But on the "con" side there are many more arguments. The most salient ones are the impact of fatigue on patient care and the personal health of nurses.

Now a new study comes out of the [RN4CAST study](#), which has provided many good lessons learned in the past. Ball and colleagues ([Ball 2017a](#)) used survey data from the RN4CAST study to correlate measures of nurse-reported quality with shift duration. They found the odds of poor quality care were 1.64 times higher for nurses working  $\geq 12$  hours. And rate of "care left undone" (our Patient Safety Tips of the Week for November 26, 2013 "[Missed Care: New Opportunities?](#)" and May 9, 2017 "[Missed Nursing Care and Mortality Risk](#)") was 1.13 times higher for nurses working  $\geq 12$  hours. In addition, job dissatisfaction was higher the longer the shift length, with nurses more than 50% more likely to report job dissatisfaction when working 12-hour shifts compared to 8-hour shifts.

The care left undone finding is particularly bothersome. In our May 9, 2017 Patient Safety Tip of the Week "[Missed Nursing Care and Mortality Risk](#)" we noted a striking finding in a previous study by Ball ([Ball 2017b](#)) that a 10% increase in the amount of care left undone by nurses was associated with a 16% increase in mortality. While that study focused more on overall nurse staffing levels and care left undone, the current Ball study suggests that care left undone is a significant problem with 12-hour shifts and one might assume that same effect on mortality rates might apply.

A systematic review of the relationship between shift length and nurse errors ([Clendon 2015](#)) found that the risk of making an error appears higher among nurses working 12 hour or longer on a single shift in acute care hospitals. Though some of the smaller studies included in that systematic review did not show such an association, 6 studies that made up 89% of the total sample size showed a strong relationship between errors and 12 hour or longer shifts.

In our October 2014 What's New in the Patient Safety World column "[Another Rap on the 12-Hour Nursing Shift](#)" we discussed another study from the RN4CAST Consortium ([Griffiths 2014](#)) which showed nurses working shifts of 12 hours or more were more

likely to perceive poor or failing patient safety, poor or fair quality of care, and more care activities being left undone. Working overtime, regardless of shift length, was also associated with nurses' perception of poor or failing patient safety, poor or fair quality of care, and more care activities being left undone.

Multiple studies, discussed in our prior columns, have described the negative effects of 12-hour shifts on nurse health, well-being, and job satisfaction. In our September 29, 2015 Patient Safety Tip of the Week "[More on the 12-Hour Nursing Shift](#)" we noted another RN4CAST study that provides insight into the impact of 12-hour shifts on nurse well-being ([Dall'Ora 2015](#)). Those researchers found that, while all shift lengths greater than 8 hours were associated with more nurse adverse outcomes, nurses working shifts  $\geq 12$  h were more likely to experience burnout, have emotional exhaustion, depersonalization, and low personal accomplishment. Moreover, they were more likely to have job dissatisfaction, dissatisfaction with work schedule flexibility, and report intention to leave their job due to dissatisfaction. Nurses working shifts of 12 hours or more were 40% more likely to report job dissatisfaction and 29% more likely to report their intention to leave their job due to dissatisfaction.

Another yet unpublished study from the RN4Cast study apparently shows that nurses are more likely to call in sick and miss work after a 12-hour shift ([Merrifield 2017](#)).

One of the problems with studies on shift duration and any sort of outcome is that there may be a difference between scheduled 12-hour shifts and unscheduled (i.e. overtime) ones or between circumstances where nurses choose to work 12-hour shifts vs. those where the extra hours are mandated. Note that the term "mandated" overtime is used loosely. Even when overtime cannot be truly "mandated", most nurses feel obligated to work overtime when unexpected absences lead to nurse shortages on an upcoming shift.

Ball and colleagues note that a key issue of 12-hour shifts is that "it depends on how it's done". They acknowledge that future research should focus on how 12-hour shifts might be optimized to minimize the potential risks.

While evidence continues to accumulate regarding the downside of 12-hour shifts, we don't expect them to disappear entirely any time soon. In several of our columns we have talked about interventions like the use of power naps to reduce the likelihood of fatigue.

But other issues remain. For example, we've said that a "pro" for 12-hour shifts is fewer handoffs. But are handoffs well done after 12-hour shifts? Do we allow enough time to do adequate handoffs between those 12-hour shifts? Moreover, there is probably less time available for educational activities when 12-hour shifts are being used. And we don't know how 12-hour shifts impact team building or social support issues.

Meanwhile, an experiment in the opposite direction – reducing the hours in the workday – met with mixed findings. In Gothenburg, Sweden, an "old persons home" looked at the impact of a 6-hour workday ([Greenfield 2017](#), [Heath 2017](#)). While the outcomes on nurses' health and sick leave were largely positive, the cost was considered to be too

high. The study ended after 23 months when funding ran out. So it is not clear how sustainable any savings on healthcare expenses might be.

Nurses working six hours took 4.7 percent fewer sick days and fewer work absences than when they worked eight-hour days. Nurses in the control group (working eight hour days) actually increased the number of sick days during the trial by 62.5 percent. Nurses working six hours overall were more active, less sick, less stressed and had less back and neck pain than nurses working eight-hour shifts.

The home had to hire 17 additional staff to cover the shifts, increasing the payroll by about 22%. Theoretically, if the savings on sick leave are sustainable and if job satisfaction translates to reduced turnover, the increased costs might be offset in the long run. But we'll probably never find out, since the study has been terminated.

However, outcomes regarding patient health and patient safety have not been reported. While (anecdotally) nurses spent more time with patients, we've not seen any data on patient outcomes. Of course, one concern with the shorter workday is that the number of handoffs is higher, increasing the chance for communication errors.

So don't expect a shift to 6-hour workdays any time soon!

We hope that you'll go back to some of our prior columns on the 12-hour shift that highlight the important contributions of researchers like Geiger-Brown, Stimpfel, Trinkoff, and others.

### **Our previous columns on the 12-hour nursing shift:**

November 9, 2010	<a href="#">“12-Hour Nursing Shifts and Patient Safety”</a>
February 2011	<a href="#">“Update on 12-hour Nursing Shifts”</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>
September 29, 2015	<a href="#">“More on the 12-Hour Nursing Shift”</a>

### **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>
September 6, 2016	<a href="#">“Napping Debate Rekindled”</a>
April 18, 2017	<a href="#">“Alarm Response and Nurse Shift Duration”</a>

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