

What's New in the Patient Safety World

September 2015

Surgery Previous Night Does Not Impact Attending Surgeon Next Day

We've done numerous columns discussing the role of fatigue in healthcare. We've also done numerous columns discussing the conflicting studies on the impact of resident work hour restrictions on patient outcomes, noting that overall there does not seem to be an impact of such restrictions in either direction. We've always suspected that any improvement due to reduction of resident fatigue is offset by the increased number of handoffs and reduction of continuity of care.

But most of the literature has focused on residents and training programs rather than attending physicians. Therefore, a new study from Ontario, Canada sheds important light on the impact on patient outcomes when their attending surgeon has performed late night surgery the previous night. The Canadian researchers ([Govindarajan 2015](#)) were able to use administrative (billing) data to identify cases in which a surgeon likely performed one or more procedures after midnight and then performed another surgery the next day. They then created a control group matched for the same surgeon and type of procedure and adjusted for other clinical variables. They essentially found no significant difference in outcomes between the two groups for the primary outcome (a composite of death, complications, and readmission within 30 days) or a number of secondary measures.

The study is limited in that the researchers did not know whether surgeons may have cancelled some cases voluntarily if they felt fatigued after a late night surgery or had lightened their elective schedule in anticipation of night call. They also had no measure of the actual hours of sleep a surgeon may have had the prior day/night. It also is limited by the use of administrative billing data to identify time of surgery. Nevertheless, the study included almost 39,000 patients operated on by 1448 attending surgeons and included data from 12 of the most commonly performed surgical procedures. We think their conclusion that the risks of adverse outcomes for elective daytime procedures were similar whether the surgeon had provided medical services the previous night is likely valid.

Note that this is a very different question from one we have addressed on numerous occasions. Several of our columns have questioned whether surgery should be done "after hours", particularly for procedures that may not be true emergency ones (see our What's

New in the Patient Safety World columns for September 2009 “[After-Hours Surgery – Is There a Downside?](#)”, October 2014 “[What Time of Day Do You Want Your Surgery?](#)”, December 2014 “[Another Procedure to Avoid Late in the Day or on Weekends](#)” and January 2015 “[Emergency Surgery Also Very Costly](#)”).

In those columns we have pointed out that such surgeries and procedures involve considerations far beyond just the surgeon. Why should “after hours” surgery be more prone to adverse outcomes than regularly scheduled elective surgery? There are many reasons aside from the fact that patients needing emergency and after hours surgery are generally sicker. You are operating with a team that is likely different from your daytime team. All members of that team (physicians, nurses, anesthesiologists, techs, etc.) may not have the same level of expertise as your regular daytime team and the team dynamics between members is likely to be different. The post-surgery recovery unit is likely to be staffed much differently after-hours as well. The staff may be more likely to be unfamiliar with things like location of equipment. And some of the other hospital support services (eg. radiology, laboratory) may have lesser staffing after-hours. Just as importantly, many or all of the “on-call” staff that make up the after-hours surgical team have likely worked a full daytime shift that day so fatigue enters as a potential contributory factor. And there are always time pressures after hours as well. In addition, one of the most compelling reasons surgery is done at night rather than deferred to the next morning is the schedule of the surgeon or other physician for that next morning (either in surgery or the cath lab or his/her office). Because the surgeon does not want to disrupt that next day schedule, he/she often prefers to go ahead with the current case at night. Similarly, many hospitals run very tight OR schedules and adding a case from the previous night can disrupt the schedule of many other cases.

The current Canadian study is reassuring in that outcomes for the “next day” case do not seem to be adversely impacted by the surgeon’s previous night procedures. But it does not address outcomes of the cases done the previous night.

We highly recommend hospitals take a hard look at surgical cases done “after hours”. In particular, you need to determine which cases truly needed to be done after hours and, perhaps more importantly, which ones could have and should have been done during “regular hours”. If the latter are significant, you need to consider system changes such as reserving some “regular hours” for such cases to be done the following morning. You may have to alter the scheduling of cases for individual surgeons as well. For example, perhaps the surgeon on-call tonight should not have elective cases scheduled tomorrow morning. That way, if a case comes in tonight that should be done tomorrow morning you will have both a “free” OR room and a “free” surgeon. And you would need to develop a list of criteria to help you triage cases into “regular” or “after-hours” time slots.

Some of our previous columns on the “weekend effect” or “after-hours effect”:

- February 26, 2008 “[Nightmares....The Hospital at Night](#)”
- December 15, 2009 “[The Weekend Effect](#)”
- July 20, 2010 “[More on the Weekend Effect/After-Hours Effect](#)”

- October 2008 “[Hospital at Night Project](#)”
- September 2009 “[After-Hours Surgery – Is There a Downside?](#)”
- December 21, 2010 “[More Bad News About Off-Hours Care](#)”
- June 2011 “[Another Study on Dangers of Weekend Admissions](#)”
- September 2011 “[Add COPD to Perilous Weekends](#)”
- August 2012 “[More on the Weekend Effect](#)”
- June 2013 “[Oh No! Not Fridays Too!](#)”
- November 2013 “[The Weekend Effect: Not One Simple Answer](#)”
- August 2014 “[The Weekend Effect in Pediatric Surgery](#)”
- October 2014 “[What Time of Day Do You Want Your Surgery?](#)”
- December 2014 “[Another Procedure to Avoid Late in the Day or on Weekends](#)”
- January 2015 “[Emergency Surgery Also Very Costly](#)”
- May 2015 “[HAC’s and the Weekend Effect](#)”
- August 2015 “[More Stats on the Weekend Effect](#)”

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](#)”
- November 13, 2012 “[The 12-Hour Nursing Shift: More Downsides](#)”
- July 29, 2014 “[The 12-Hour Nursing Shift: Debate Continues](#)”
- October 2014 “[Another Rap on the 12-Hour Nursing Shift](#)”
- December 2, 2014 “[ANA Position Statement on Nurse Fatigue](#)”
- August 2015 “[Surgical Resident Duty Reform and Postoperative Outcomes](#)”

Some of our other columns on housestaff workhour restrictions:

- December 2008 “[IOM Report on Resident Work Hours](#)”
- February 26, 2008 “[Nightmares: The Hospital at Night](#)”
- January 2010 “[Joint Commission Sentinel Event Alert: Healthcare Worker Fatigue and Patient Safety](#)”
- January 2011 “[No Improvement in Patient Safety: Why Not?](#)”
- November 2011 “[Restricted Housestaff Work Hours and Patient Handoffs](#)”
- January 3, 2012 “[Unintended Consequences of Restricted Housestaff Hours](#)”

June 2012	“Surgeon Fatigue”
November 2012	“The Mid-Day Nap”
December 10, 2013	“Better Handoffs, Better Results”
April 22, 2014	“Impact of Resident Workhour Restrictions”
January 2015	“More Data on Effect of Resident Workhour Restrictions”
August 2015	“Surgical Resident Duty Reform and Postoperative Outcomes”

References:

Govindarajan A, Urbach DR, Kumar M, et al. Outcomes of Daytime Procedures Performed by Attending Surgeons after Night Work. N Engl J Med 2015; 373: 845-853
<http://www.nejm.org/doi/full/10.1056/NEJMsa1415994>



<http://www.patientsafetysolutions.com/>

[Home](#)

[Tip of the Week Archive](#)

[What's New in the Patient Safety World Archive](#)