

Patient Safety Tip of the Week

May 2, 2023

ACGME Work Hour Guidelines Not Good Enough

When this author was a medical resident at Johns Hopkins Hospital, we worked roughly 120 hours per week. So, the ACGME move to restrict resident work hours to 80 hours per week looked like a good improvement. But think about that – that’s still double the typical work week for anybody else! Is that really safe for our patients? Or for the health of our residents? Multiple studies on fatigue in nurses have demonstrated that extended work hours are associated with not only more errors in patient care, but also with detrimental effects on the personal health of nurses.

Barger and colleagues ([Barger 2023](#)) conducted a nationwide prospective cohort study of resident-physicians in the US in their second year or beyond. They found that working more than 48 hours per week was associated with an increased risk of self-reported medical errors, preventable adverse events, and fatal preventable adverse events as well as near miss crashes, occupational exposures, percutaneous injuries, and attentional failures (all $P < 0.001$).

Working between 60 and 70 hours per week was associated with more than twice the risk of a medical error (odds ratio 2.36) and almost three times the risk of preventable adverse events (OR 2.93) and fatal preventable adverse events (OR 2.75).

Also, working one or more shifts of extended duration in a month while averaging no more than 80 weekly work hours was associated with an 84% increased risk of medical errors, a 51% increased risk of preventable adverse events, and an 85% increased risk of fatal preventable adverse events.

Regarding resident personal safety, working one or more shifts of extended duration in a month while averaging no more than 80 weekly work hours also increased the risk of near miss crashes and occupational exposures. Working one or more shifts of extended duration while averaging no more than 80 hours per week in a month significantly increased the near miss crash risk (incidence rate ratio 1.47). And the combination of

more weekly work hours (>80) and shifts of extended duration further increased the risk of a near miss crash (incidence rate ratio 2.54).

The authors conclude that exceeding 48 weekly work hours or working shifts of extended duration endangers even experienced (ie, PGY2+) resident physicians and their patients. They suggest that regulatory bodies in the US and elsewhere should consider lowering weekly work hour limits and eliminating shifts of extended duration to protect physicians training and their patients.

When designing resident work schedules, we are always balancing several factors – patient safety, personal safety, educational needs, and (the elephant in the room) workforce needs. Let’s face it – even having more hospitalists and using nurse practitioners and physician’s assistants, most hospitals still rely substantially on residents for providing 24-hour coverage of hospitalized patients.

Of course, what is still not known is what impact a reduction in resident work hours to 48 hours per week would actually have on patient safety outcomes. The other serious consideration in reducing resident work hours is that the number of handoffs will increase and we know that handoffs introduce new vulnerabilities in patient safety. A small study ([Cappuccio 2009](#)) involving 19 residents examined the impact of the European Working Time Directive (EWTD) that limited the maximum required working hours to 48 per week. Review of medical records of those residents who worked fewer than 48 hours per week showed a third fewer medical errors than those who worked a 56 work hour limit per week. That’s reassuring.

Most previous studies looking at resident work hours have focused on those residents during their first postgraduate year (PGY1). The current study was on residents during more advanced years, but the findings are very similar to those seen in PGY1 residents.

Studies now in both nursing and physicians-in-training show a detrimental effect of long hours for both patients and the individuals personally. It will be interesting to see how the AGCME responds to the challenge raised by this study by Barger et al.

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”
September 2015	“Surgery Previous Night Does Not Impact Attending Surgeon Next Day”
March 2016	“Does the Surgical Resident Hours Study Answer Anything?”
April 2019	“iCOMPARE Study on Resident Work Hour Rules”
August 2020	“New Twist on Resident Work Hours and Patient Safety”

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 2012	“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”
September 2015	“Surgery Previous Night Does Not Impact Attending Surgeon Next Day”
September 29, 2015	“More on the 12-Hour Nursing Shift”
September 6, 2016	“Napping Debate Rekindled”
April 18, 2017	“Alarm Response and Nurse Shift Duration”
July 11, 2017	“The 12-Hour Shift Takes More Hits”
February 13, 2018	“Interruptions in the ED”
April 2018	“Radiologists Get Fatigued, Too”
August 2018	“Burnout and Medical Errors”
September 4, 2018	“The 12-Hour Nursing Shift: Another Nail in the Coffin”
August 2020	“New Twist on Resident Work Hours and Patient Safety”
August 25, 2020	“The Off-Hours Effect in Radiology”
September 2020	“Daylight Savings Time Impacts Patient Safety?”
January 19, 2021	“Technology to Identify Fatigue?”
October 12, 2021	“FDA Approval of Concussion Tool – Why Not a Fatigue Detection Tool?”
February 2022	“Does Time of Day Matter?”

Our previous columns on the 12-hour nursing shift:

November 9, 2010	“12-Hour Nursing Shifts and Patient Safety”
February 2011	“Update on 12-hour Nursing Shifts”
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”
September 29, 2015	“More on the 12-Hour Nursing Shift”
July 11, 2017	“The 12-Hour Shift Takes More Hits”
May 29, 2018	“More on Nursing Workload and Patient Safety”
September 4, 2018	“The 12-Hour Nursing Shift: Another Nail in the Coffin”
February 9, 2021	“Nursing Burnout”

References:

Barger LK, Weaver MD, Sullivan JP, et al. Impact of work schedules of senior resident physicians on patient and resident physician safety: nationwide, prospective cohort study. *BMJ Medicine* 2023; 2: e000320
<https://bmjmedicine.bmj.com/content/2/1/e000320>

Cappuccio FP, Bakewell A, Taggart FM, et al. Implementing a 48 H EWTD-compliant rota for junior doctors in the UK does not compromise patients’ safety: assessor-blind pilot comparison. *QJM* 2009; 102: 271-282
<https://academic.oup.com/qjmed/article/102/4/271/1550702>



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