The Impact of the 2011 ACGME Duty Hour Reform On Quality and Safety of Trauma Care

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Background
In 2011, the Accreditation Council for Graduate Medical Education (ACGME) further limited duty hours for residents beyond the 80-hour workweek limit. They limited PHY-1 residents to 16-hour shifts separated by at least 8 off-duty hours, and 14 off-duty hours for more senior residents. Although studies evaluating the 2011 policy have not shown improvements in nonspecific measures of morbidity and mortality of patients, these outcomes may not reflect changes in more specialty-specific practice patterns and secondary quality measures.

Methods
All trauma admissions within 2 years before and after the reform date (July 1, 2011) at an academic level 1 trauma center were evaluated for 5 primary outcomes including mortality and length of stay (LOS), and 10 secondary quality measures including procedures and OR visits per patient. All variables were compared before and after the reform. In addition, piecewise regression models were used to study temporal trends in all variables.

Results
In this retrospective study, 11,740 patients were included. All primary variables except LOS (7.98d to 7.36d, $p=0.009$) did not change. The total number of procedures per patient (6.72 to 7.34, $p<0.0001$) and OR visits per patient (0.76 to 0.91, $p<0.0001$) were higher in the post-reform group, representing an additional 9,559 procedures and 1,584 OR visits. Minor bedside procedures such as lab and imaging studies increased most strongly.

Conclusion
While most major outcomes did not change, many secondary variables did. Changing resource utilization patterns was strongly associated with the reform to limit resident duty hours, and may influence the cost of care. The least-severely injured patients had the most significant increases in resource use, which is consistent with the reform's focus on PGY-1 residents. Several factors including attending physician oversight may have insulated major outcomes from change. Our findings suggest some untoward impact of the duty hour reform at our institution with specific increases in procedures, OR visits and lab and imaging studies; these trends should be studied further on a national level.