



A legacy of ensuring patient safety

Position of the American College of Surgeons on Restrictions on Resident Work Hours

presented to the Institute of Medicine Consensus Committee
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American College of Surgeons Division of Education

The following report was developed by the American College of Surgeons Task Force on the Resident 80-Hour Work Week. This special Task Force was appointed by then-President of the ACS Gerald B. Healy, MD, FACS, FRCSI(Hon), and was chaired by L. D. Britt, MD, MPH, FACS. Members of the Task Force are listed at the end of this document. This report was presented to the Institute of Medicine of the National Academies, Committee on Optimizing Graduate Medical Trainee (Resident) Schedules to Improve Patient Safety, on March 4, 2008, in Irvine, California. Work of the Task Force was supported by the ACS Division of Education.

I. Key issues

The American College of Surgeons (ACS) has had a sustained emphasis on patient safety since its inception in 1913. As the umbrella organization for the house of surgery, the ACS represents the specialties of general surgery, cardiothoracic surgery, colon and rectal surgery, gynecology and obstetrics, neurological surgery, ophthalmic surgery, orthopaedic surgery, otolaryngology–head and neck surgery, pediatric surgery, plastic and maxillofacial surgery, urology, and vascular surgery. Patient safety is the overarching theme for all ACS initiatives for the 21st Century. As the threats to quality medical care and patient safety continue to mount, the ACS attempts to effectively address each challenge. Irrespective of the context, anything that is deemed potentially dangerous to a patient is expeditiously addressed by the ACS (such as surgical errors, fatigue of health care providers, and workforce issues), for it is incumbent on this professional organization to consistently advocate for the safety of the patient. Current initiatives focus on the use of contemporary principles of surgical education to address knowledge and skills,¹ acquisition of new surgical skills and procedures, verification of knowledge and skills, simulation-based surgical education, and team training. Research in the aviation arena has proven that teams in which individuals may not have worked together may be at the highest risk for error, unless steps are taken to overcome this deficiency. In surgery, frequently these teams are composed of individuals who are unfamiliar with each other and thus must take extra care in preparing to perform a task such as an operative intervention.² Acknowledging that communication failure is a leading source of adverse events in health care, the ACS has established courses and educational modules which address the importance of communication skills and related topics, including professionalism and ethics. In addition, the ACS is currently exploring the development of a potential methodology for improving the transfer of patient information (the patient hand-offs), which has become much more complex with the reduction of duty hours and the ever-changing group of caregivers interacting with any one patient. It is in this spirit that the ACS must emphasize the

importance of critically evaluating resident duty hours in the broader context of patient safety and the quality of surgical care.

As we approach the ninth anniversary of the landmark report by the Institute of Medicine, *To Err Is Human: Building a Safer Health System*,³ there has been no evidence-based study linking surgery resident duty hours with improved patient safety. Although the effects of the 2003 Accreditation Council for Graduate Medical Education (ACGME) duty hour restrictions are still being assessed, there have been no peer-reviewed publications demonstrating enhanced patient safety or improved outcomes in surgical patients as a result of these restrictions. Medicare and Veterans Administration studies have not demonstrated improved outcomes following the implementation of the 2003 ACGME resident duty hour limitations. Furthermore, it is well known that the origin of the work hour restrictions was New York state.⁴ The hospitals with surgery training programs in the state of New York, which were subject to more stringent work hour restrictions for a longer period of time, also failed to demonstrate improvement in any of the patient safety measures in surgical patients. This is important given the fact that 15 percent of all U.S. residents are in New York.⁵ As mentioned previously, the literature does currently highlight concerns regarding increased transfer of patient care responsibilities (“hand-offs”) and possible medical errors associated with diminished continuity of patient care. With no objective data analyses documenting an association between surgery resident work hours and serious threats to patient safety, it would serve no meaningful purpose to arbitrarily recommend a further reduction of resident duty hours without first conducting rigorous, large-scale studies on the entire spectrum of issues impacting the safe care of surgical patients.

The combination of quality medical care, excellence in training, and patient safety has been the cornerstone of this nation’s health care system at every level, from undergraduate and graduate medical education to continuing medical education. The current emphasis by the ACGME on the six core competencies and the establishment of Maintenance of Certification (MOC) by member boards of the American

Board of Medical Specialties (ABMS) are a testament to the continuous improvement process undertaken to ensure sustained quality health care, which is the underpinning of any patient safety initiative.

Optimum training of surgery residents requires a longitudinal, comprehensive curriculum that focuses on the cognitive elements, technical skills, and judgment that are critical to providing safe patient care. The educational process involves progressive transfer of responsibility from faculty to residents over a period of time. Achievement of expertise requires sustained deliberate practice,⁶ and retention of skills requires periodic reinforcement. Structured experiences in simulated environments are key to achieving the requisite skills.⁷ The surgical boards, academies, and residency review committees have worked together to develop standards and state-of-the-art curricula that are especially designed to address the aforementioned elements and promote patient safety. The educational goals are difficult, if not impossible, to address during limited experiences that do not permit appropriate coverage of the content and adequate interaction between faculty and residents. In particular, the diagnosis and management of emergencies may be severely compromised with significant restrictions on duty hours. These critical elements need to be considered and addressed in order to provide optimum patient care and to offer residents the requisite experiences for them to function as safe and effective members of the future work force.

Most surgeons and educators agree that the

base of knowledge and skills required to be proficient practitioners has expanded rather than contracted in recent years. Further reduction in the hours available for training would be expected to translate into patients being cared for by less qualified surgeons.⁸⁻¹⁰ Many residents concerned about their readiness to enter practice are selecting subspecialty fellowship training in order to feel more prepared. Alternatively, the length of training programs could be expanded; however, this would be an additional deterrent to medical students considering surgery as a career, many of whom are already daunted by the prospect of five to seven years of surgical training and the overwhelming educational debt burden this creates.¹¹⁻¹² As surgery becomes a less attractive career option and increased subspecialization continues,¹³ the patients of this country will encounter increasing difficulties finding a surgeon and accessing quality care at the local level. Thus, the impending surgeon workforce shortage most likely would be exacerbated.

Our position is not speculative commentary. The adverse effects of reduced work hours have been featured in the medical literature in the United Kingdom and throughout Europe.¹⁴⁻¹⁵ The European Working Time Directive (EWTD) was initiated for the “protection of the clinical personnel against overwork for the benefit of patients.” With over a decade of experience with the EWTD, it has been considered by the greater medical community as a failure that has resulted in inadequately trained residents. The Association of Surgeons in Training (ASIT) at the Royal College of Surgeons of England highlighted that

Table I

Approaches to providing current level of care to compensate for the impact of proposed work hour restriction

Scenario 1: Replace lost resident hours/FTEs with incremental new residents					
Provider	FTEs (current)	FTEs (incremental)	Current cost (at 80 hours)	Projected total cost (at 56 hours)	Incremental cost (% change) (at 56 hours)
Residents	411	176	\$24,872,322	\$35,424,009	\$10,551,687 (42%)
Fellows	142	61	\$10,824,354	\$15,463,298	\$4,638,943 (43%)
Total	553	237	\$35,696,676	\$50,887,306	\$15,190,630 (43%)

the EWTD has been “severely detrimental” to surgical training. Observed reductions in index operative cases performed in a large study of surgical trainee logbooks were cited. ASIT also reported that EWTD resulted in suboptimal patient care within the current National Health Service (NHS) through poorly structured work patterns leading to cumulative fatigue, increased incidence of medical errors, and decreased continuity of care.

A recent communication from William E. G. Thomas, MS, FRCS, Chairman of Education for the Royal College of Surgeons of England, has highlighted concerns regarding limited experiences of surgical trainees and inadequate focus on the whole patient, resulting from the severe work hour restrictions in the United Kingdom.¹⁶ He has cited a recent inquest on a patient who died in left ventricular failure and the surgical trainee involved in this patient’s care admitted to the coroner that he did not know how to manage this condition. A major enquiry into medical training in the UK has been led by

Sir John Tooke, an educationalist. Sir John has made several recommendations to the government, such as not including training time in the work hour restrictions in view of the special educational needs of a procedural specialty like surgery.¹⁶ These experiences underscore the need for a well-rounded educational program for surgical residents that addresses cognitive elements, technical skills, and judgment, and is offered over an adequate period of time.

A reduction in duty hours may well need to be offset by expanding the number of residents in the system, or by adding physician extenders to care for the patients. Either way, the financial impact of reducing duty hours would likely be substantial. In a personal communication, H. Hunt Batjer, chair, department of neurologic surgery, Northwestern University Feinberg School of Medicine, conveyed results of a financial analysis of what the costs would be for one tertiary medical center to provide the current level of care when duty hours are limited to 56 hours (see Tables I and II, pages 13 and 14).¹⁷

Table II

Approaches to providing current level of care to compensate for the impact of proposed work hour restriction

Scenario 2: Replace lost resident hours/FTEs with other health care providers			
Provider	FTEs*	% of FTEs	Incremental cost
Certified midwives	4.2	2.2%	\$474,013
Physician assistants	112.8	58.6%	\$11,539,262
Clinical nurse specialists	0.0	0.0%	\$ —
Nurse practitioners	2.8	1.5%	\$316,009
Registered nurse first assists	23.2	12.1%	\$2,812,567
Certified registered nurse anesthetists	29.9	8.8%	\$3,534,542
Residents	4.0	2.2%	\$335,737
Laborists	1.0	0.5%	\$214,375
Hospitalists	27.0	14.1%	\$4,961,250
Faculty	0.0	0.0%	\$ —
Total	192.0	100%	\$24,187,755
*Note: Midlevel FTEs have been adjusted. (Midlevel providers work a 40-hour week and cannot replace resident FTEs working 56 hours on a 1 for 1 basis.)		Current costs:	\$35,696,676
		Projected costs:	\$59,884,431

II. Statement of purpose

The mission of the American College of Surgeons is improving the care of the surgical patient and safeguarding standards of care in an optimal and ethical practice environment. The ACS supports all efforts to enhance patient safety that include thoughtful, evidence-based evaluation of all the important contributing factors and the potential outcomes of such efforts. Areas of concern should not be addressed in isolation and without appropriate evidence; rather, they must be considered in the broader context of systems of patient care and surgical education, including continuity of care (hand-offs), a comprehensive curriculum to produce qualified surgeons, team training to enhance safety, costs to the health care system, and implications for access to high quality care for patients.

III. Questions and recommendations

A. Questions that should be addressed by the Institute of Medicine during its deliberations are as follows:

1. What is the optimal balance between required resident duty hours and rest periods that will ensure continuity of care and patient safety?
2. If duty hours are further constrained, how will training programs be able to provide the necessary volume and mix of clinical/operative activity to ensure that well-qualified surgeons are available to care for patients in the future?
3. Restricted duty hours will necessitate an increased number of hand-offs with critically ill patients. Will any gains in patient safety from less fatigued residents be overshadowed by the consequences of increased errors generally associated with hand-offs?
4. What are the unintended consequences of duty hour limitations on undergraduate medical education?¹⁸
5. If further reduction of resident duty hours results in a need to extend the duration of training, who will provide the necessary graduate medical education (GME) funding?

B. Recommendations

1. A fully funded, multi-institutional study should be recommended by the Institute of Medicine to evaluate not only the impact of further reductions in duty hours but myriad other issues, including optimal duty hours to achieve curriculum objectives, to maintain continuity of care, and to address team training efforts. Discipline-specific outcome measures are needed in the areas of surgical patient safety and surgery resident education.
2. Effective team training initiatives need to be established with an emphasis on patient safety (similar to the crew resource management training concept utilized in the aviation industry).
3. Advanced information technology and simulation must be integrated in all aspects of surgical residency training and health care delivery in order to enhance educational experiences and ensure patient safety.
4. The chief surgical resident should be exempt from the duty hour limitation to allow a more realistic transition to a postgraduate career, and to acquire the knowledge and skills for practice, including full and independent patient responsibility.
5. The restrictive “cap” on CMS funded GME positions should be removed. The inability to increase residency training position(s) would be counterproductive to the current efforts to expand the undergraduate medical student pool in order to meet the future workforce needs.

IV. Executive summary

Patient safety in an environment with escalating challenges (including new treatment paradigms and technologies, along with a growing and aging population) cannot be achieved by arbitrarily decreasing resident work hours without thoughtful consideration of all issues impacting the care of the surgical patient. Rather, efforts should be focused on optimal utilization of information technology, electronic health records, telemedicine, and simulation to better support the health care system and residency education in surgery. Such initiatives are needed to facilitate reliable and safe hand-

offs, to streamline work, and to make training more efficient. Development of strategies to improve the system would do more to address quality and patient safety concerns than merely assuming that a reduction of working hours will improve safety.

Any initiative that calls for less exposure to the course of a patient's illness must be examined closely. In July 2003, the Accreditation Council for Graduate Medical Education implemented new requirements that limited hours in all specialties to 80 per week, with continuous duty being limited to 24 hours. No evidence-based consensus has emerged regarding the optimal paradigm for surgical residents to avoid medical errors and enhance patient safety; further reduction of the resident work hours without careful study could result in deteriorating quality and more severe health care disparities than presently exist. Moreover, further reductions could cause irrevocable damage to a surgical residency training system that is already severely stressed and has many programs struggling to meet educational goals and obtain the necessary clinical/operative experiences to produce well qualified surgeons.

Similar to other professions, mastery in surgery requires extensive and immersive experiences that extend over a substantial period of time. Also, the hallmark of the surgical professional is commitment to and responsibility for the continuum of care for the surgical patient. This critical sense of responsibility is inculcated in residents only through appropriate experiences that require sufficient duty hours. Commitment and mastery are respected symbols of this profession that will always be associated with hard work and dedication, and the highest level of patient safety and quality care can only be achieved by providing an immersive experience in surgical training.

Multi-institutional studies should be undertaken to fully understand the impact of further duty hour limitations before any changes to the current requirements are considered. As mentioned, these studies must also include all the other elements that impact safe care. Anything less could negatively impact the quality of care being provided to current and future surgical patients. □

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VI. Acknowledgments

ACS Task Force on the Resident 80-Hour Work Week

The American College of Surgeons Task Force on the Resident 80-Hour Work Week is composed of leaders of the ACS and the broad house of surgery who serve in key roles relative to the education and certification of surgeons. Specialties represented include general surgery, neurological surgery, obstetrics and gynecology, thoracic surgery, otolaryngology, urology, and pediatric surgery. Virtually all of the members have served as chairs, members, or ex officio members of the Residency Review Committees of the Accreditation Council for Graduate Medical Education. Furthermore, the vast majority have served as chairs or directors on the cer-

tification boards for their respective specialties. Finally, additional input was sought beyond the membership of the Task Force to confirm currency and broad representation from the house of surgery, and staff support for the Task Force was provided by the ACS Division of Education.

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