The 2017 ACGME Common Work Hour Standards: Promoting Physician Learning and Professional Development in a Safe, Humane Environment

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Work hours of physicians in training have been the subject of debate for more than 4 decades. The profession sees them as emblematic of dedication to patients, whose needs may not be confined to a standard workday, whereas some members of the public view them with concern for the safety of patient care and the well-being of resident and fellow physicians. In July 2003, the Accreditation Council for Graduate Medical Education (ACGME) established the first set of common work hour standards for accredited residency and fellowship programs,[1] and a revision was implemented in July 2011.[2] At that time, the ACGME made a commitment to review the program requirements after 5 years to assess their impact on the clinical education and patient care environment.

During an 18-month period in 2015 and 2016, members of the ACGME Common Program Requirements Phase 1 Task Force (the "Task Force") revised section VI of the ACGME Common Program Requirements. The new requirements were implemented July 1, 2017. A separate task force was charged with the review of the remaining sections of the Common Program Requirements.

Section VI addresses attributes of the learning and working environment, including resident/fellow work hours, supervision, clinical responsibilities, transitions of care, and patient safety. In this article, the members of the Task Force summarize selected elements of these standards, how they were developed, and the anticipated benefits for patient care and physician education.

The 21-member Task Force consisted of ACGME board members, including a public member, Residency Review Committee (RRC) chairs, and resident members. We completed the work through 11 face-to-face meetings and additional meetings via teleconference.

Deliberations, Evidence Considered, and Stakeholder Input

We pursued the assignment in a comprehensive fashion, including review of a recent book on the US residency education system by Kenneth Ludmerer[3] and a document he authored summarizing key principles and concepts for work hour standards.[4] Task Force meetings entailed review of the available evidence, testimony from researchers and experts, intense discussions, small group focused work, and trial votes and decisions. We aimed for revisions that would preserve aspects of the requirements that have proven relevant, beneficial, and durable, and to address the concerns, experiences, and recommendations of the graduate medical education (GME) community and those of patients and the public.

We performed a comprehensive review of the literature on resident work hours and the learning environment, including more than 1050 articles and reviews published between 1971 and early 2016 (provided as online supplemental material). Our focus was on work hour standards implemented in 2003 and 2011 and their impact on the quality and safety

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of patient care, sleep loss and alertness, resident learning and professional development, and resident well-being. We aimed to develop evidence-based standards, yet the available systematic reviews reported limited and mixed findings for the effect of work hour limits on outcomes of interest.[5–15] The exception was impact on resident well-being. The majority of studies that examined the effect of work hour standards reported a positive impact, with 4 of 7 reviews reporting favorable outcomes,[5–8] and 3 indicating mixed or inconclusive outcomes.[9–11] Studies of the response to sleep loss in residents showed a less clear response for alertness than the widely cited laboratory studies in nonphysicians; this likely results from errors in the independent variable in field versus laboratory studies, and the broader and more heterogeneous outcomes assessed in studies in the residency environment.[16]

Findings for other outcomes of interest were mixed or inconclusive, particularly for patient care and educational outcomes for surgical specialties[8] and for the impact of the revisions to the standards implemented in 2011.[11]

The Task Force invited the principal investigators of 2 large, randomized trials[17,18] on the impact of eliminating the 16-hour limit on continuous duty for first-year residents to present to the Task Force. The preponderance of evidence from 1 trial indicated no benefit for quality and safety of care for surgical patients from a 16-hour limit for postgraduate year 1 residents[17] and that the limit was detrimental to education, with a rising concern regarding team training and the development of professional values.[17] A study in internal medicine is ongoing,[18] with results expected in 2019. The literature review and discussion of ongoing studies gave the Task Force a starting point for refining the ACGME common duty hour requirements.

Our deliberations were mindful of the overarching aim of physician education and professional development: (1) to promote a relationship between physicians and patients on their journey through illness; (2) to ensure supervision and mentoring by faculty, which collectively contribute to the quality of patient care; and (3) to facilitate the learning and professional development of physicians in training. To better understand the positions of the profession and the public, we solicited input from experts, the GME community, resident and fellows organizations, and the public; we invited position statements from 120 specialty societies, certifying boards, patient advocacy groups, resident unions, and medical student organizations, and heard testimony from many of those groups. Stakeholders provided more than 1600 pages of comments on the draft standards. The Task Force considered this input in the final revision of the standards. Underpinning the standards is a belief in medicine as an altruistic profession that exists to serve current and future patients, while affirming the need for a humanistic and nurturing learning environment for trainees. A focus on optimizing the care and protection of these groups, and on balancing their potentially competing demands, is a core principle underlying the standards.

Affirming the 80-Hour Weekly Limit

Since the establishment of work hour limits for all accredited programs in 2003, a growing body of evidence has affirmed the benefit of the weekly 80-hour limit.[19,20] This standard currently is widely accepted by the medical education community. The community also has learned that programs that regularly schedule residents and fellows to work 80 hours per week and permit trainee flexibility are likely to exceed 80 weekly hours. Trainees working beyond 80 hours has been found detrimental to safe and effective care.[19] Optimal scheduling approaches need to limit scheduled work to fewer than 80 hours to enable residents to remain beyond those scheduled periods when indicated by patient need or desired from an educational perspective.

A changing clinical care environment with high patient census and high acuity, combined with limits on resident hours, has resulted in work compression. This has increased stress on residents and fellows, and pressure on faculty supervisors. A key concept of the 2017 standards is to ensure a manageable workload for trainees that can be accomplished during scheduled work hours in a team-based approach to care, and that trainees are not overburdened with nonphysician duties. In addition, program leadership is expected to monitor resident workload and ensure it is appropriately distributed, while sponsoring institutions need to ensure faculty availability for teaching and supervision.

Limits on Continuous Hours

The Task Force examined evidence related to a 16-hour limit for first-year residents instituted as part of the 2011 standards. The information considered included nearly 6 years of experience with the standard, a review of the literature, and a dialogue with experts on sleep deprivation and performance. The single literature review focusing on the 2011 standards found the impact on patient safety was inconclusive, the effect on resident well-being was variable, and the standards had an unintended negative impact on resident education, particularly for interns.[11] Other studies have shown a negative

impact on patient care and resident learning[21,22] and found that compliance with the 16-hour limit may have been achieved by compressing work, with a resulting increase in resident workload and stress.[23] Studies of the impact of workload have found increased risk to patients[24–26] and higher risk for burnout in interns.[27]

The Task Force was presented with a consensus recommendation from senior residents, specialty societies, certifying boards, and the GME community to eliminate the 16-hour requirement for first-year residents due to its unintended negative effects. Widely cited factors included a significant *increase* in the number of patient handoffs and stressful transitions between shifts; the amount of time interns engaged in caring for patients they had not admitted and did not know well; delay in the maturation of junior residents' clinical and professional skills; and concerns about "shift" mentality. The 2011 standards for interns reduced opportunities to observe the natural history of an illness and the consequence of clinical decisions. Some patient advocacy groups expressed concern about lengthening the continuous duty period. After careful deliberation, we ultimately decided that the literature did not offer sufficient evidence to support maintaining the 16-hour limit for interns, although programs that find 16-hour schedules or night float effective are able to retain them under the current standards.

The new program requirements allow up to 4 additional hours at the end of the 24-hour limit for transitioning care and formal didactics. The requirements emphasize the added hours should not be used to care for new patients. The 2017 requirements provide residents with added flexibility over schedules, allowing them to remain, on a voluntary basis, beyond the 24-hour maximum, when warranted by patient care needs, learning, or humanistic considerations. These hours are counted toward the 80-hour weekly limit.

Work in the Hospital and at Home

The Task Force affirmed an expectation that schedules be structured to allow trainees to complete most of their work during scheduled clinical work hours. The 2017 requirements acknowledge the changing landscape of medicine, including use of the electronic health record (EHR), and an increasing amount of work residents may choose to do from home. The requirements provide flexibility to do that, while ensuring that clinical work from home is included within the 80-hour weekly maximum. This seeks to avoid shifting clinical work to unaccounted *personal time*. Reading and preparation for cases, study, and research done at home do not count toward the 80 hours.

Resident Well-Being

Task Force deliberations on a humane learning environment resulted in the explicit mention of resident well-being in the 2017 requirements, although we realized that area was complex due to the lack of a clear association among work hours, burnout, and satisfaction.[28] However, fostering a culture of respect, accountability, and support in the clinical learning environment is crucial to physicians' ability to deliver high-quality care to patients in the long term. This is an impetus for the ACGME leveraging its resources to support an increased emphasis on physician well-being, including education, research, continued guidance, and collaboration with other organizations.[29] A critical consideration to resident wellness is meaning in work, and the ACGME's Council of Resident Review Committee Residents has instituted "Back to Bedside" as an initiative to empower residents and fellows to develop transformative projects that combat burnout by fostering meaning in their learning environments, including creating opportunities for more time engaged in direct, meaningful patient care and to develop a sense of teamwork and respect among colleagues.[30]

Promoting Compliance and Assessing Impact

Monitoring of compliance by the ACGME and its review committees will consider the added areas of flexibility under the 2017 standards, while assessing and enforcing compliance with the 2017 standards, particularly the 80-hour weekly limit. The ACGME will collect information from the community on compliance challenges and the effectiveness of the standards in achieving the aims set out in this document. Future work will develop the means for a robust, holistic assessment of the effectiveness of the new standards in contributing to a humane working and learning environment, without compromising educational rigor or patient safety. This research will need to shift the focus beyond assessing the effect of individual numeric standards, to how the new standards collectively reshape the learning and working environment for physicians in training.

Conclusion

The 2017 common requirements are a "living" document that will continue to evolve in response to changing medical and educational practices, cultural

mores, and research findings. The standards recognize that many factors affect the quality of physician education, including GME funding, the nature and needs of the patients seen by residents, the regulatory and legal environment, and the degree to which compassion and time with patients are permitted to remain a foundational part of medical education. The ACGME invites input on the new standards from professional stakeholders and the public, because the quality of physician education in the nation is not merely a professional issue, but a societal concern.

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