

Residency Restructured

by Maneesh Singh

Investigating the aftermath of the eighty-hour workweek

On a March night in 1984 Libby Zion, an 18-year old woman, was admitted to Cornell Medical Center's Emergency Room. She died a few hours later in the care of resident physicians. Due primarily to the efforts of Mrs. Zion's father and his belief that her death was due to sleep-deprived and undersupervised residents, the tragedy galvanized a grand jury investigation and subsequent examination of the country's residency programs. Though the grand jury found neither the hospital nor physicians liable for the death, they did find faults in residency education.

Nearly two decades later, the issue was revived with the introduction of a bill to the House of Representatives on November 6, 2001. The bill, HR 3236, proposed rigorous federal regulations on resident work hours in an effort to diminish critical

errors in patient care. The Accreditation Council of Graduate Medical Education (ACGME), a nonprofit organization responsible for overseeing residency programs nationwide, was quick to respond to the introduction of this bill and preemptively altered its stipulations for residency hours. The two major modifications banned shifts in excess of 24 hours and limited workweeks to 80 hours averaged over four weeks.

But are medical residents really being overworked and will these changes in the residency program actually improve health care? Residency programs nationwide hustled, and in some cases struggled, to meet the July 1, 2003 deadline; in the aftermath of this residency restructuring, it has become increasingly apparent that these questions involve much more than the notion that a well-rested



Surgical residents have in recent history endured workweeks in excess of 120 hours to get into the operating room as often as possible. Will cuts to resident hours in turn decrease the training our future physicians will receive in these delicate procedures?



physician is a better physician.

Reaching the breaking point

Residency has been considered a hazing period of sorts for physicians. The grueling hours are seen as a rite of passage on the path to ascending the ranks of financially secure physicianship. But to most, the workload and hours put in by a resident seem bizarre. What exactly led the residency system to reach this point, having interns and residents often log more than 100 hours per week? What is it about residency that makes this seemingly absurd work schedule necessary?

Some argue that the nature of health care makes such hours essential. Staying with a patient throughout the night can be common in programs where patients need to be continually monitored. Furthermore, medicine has changed over the decades. A heart attack in the 1960's required an average of 21 days in the hospital while today the same condition usually requires much less inpatient time, making room for sicker patients in need of constant care. Finally, knowledge of human physiology and surgical procedures is continually expanding, demanding increasingly more time from residents in order to be learned and mastered.

Though these factors may seem to legitimize the long workweeks for residents, the ACGME has deemed them detrimental to the health of patients. In fact, in an informal survey performed by the American Medical School Association (AMSA), 41% of residents attributed their most serious mistake to fatigue. Furthermore, in an article published in *Nature*, an Australian research group determined that staying up for 24 hours has similar effects on cognitive psychomotor performance as a blood alcohol concentration of .10% - a value on par with being too drunk to drive a vehicle in the United States. Armed with these studies and a desire to keep the general public satisfied, the ACGME demanded that residency programs nationwide comply with the new work hour regulations. Indirectly, however, the new regulations have led to a significant reformation of the culture of residency, throwing into question just how much patient care will improve.

Changing the culture of residency

Although residency programs' top priority is providing a clinical education for residents, it must also be understood that teaching hospitals depend heavily on the healthcare provided and hours worked by residents. Thus, accommodating the new regulations necessitated not just logging residents' hours but also finding ways to provide the same quality and quantity of healthcare with fewer work hours.

To accomplish this daunting feat, residency programs attempted to improve organization and increase efficiency through three major

implementations. Residency program directors attempted to redefine residents' scope of work by eliminating any tasks that could be done by other personnel. This typically included paperwork, patient transport, and specimen delivery. Secondly, additional ancillary support positions were created to take over not only these tasks, but also any non-patient care or non-educational tasks. Finally, a night-float system



Dr. Ralph Greco, chief of general surgery and residency program director of Stanford's General Surgery division.

was employed to reallocate existing residency work hours. By providing replacement teams for residents who had worked all day, chronic fatigue was reduced while maintaining a specified number of residents in the hospital at all times.

Stanford University's Internal Medicine Residency program has instituted its own night-float system. Two night-float residents arrive at 10 p.m. and take over for the other team of residents. The night floats remain in the hospital until 7 a.m., at which point the initial resident team returns to complete the day's work.

According to Peter Pompei, associate program director for Stanford's internal medicine residency program, initial efforts were directed at increasing efficiency while working with fewer residents in the hospital at a given time. To sustain the high quality

of patient care, residents have been reallocated to ensure adequate numbers during high volume times.

In the case of Stanford and other residency programs, the regulations have been met. Our confidence, however, that these changes have actually improved patient care is debatable. Guided by the philosophy that a well-rested physician makes

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for a better physician, it seems logical to conclude that the new regulations will improve care. However, breaking continuity of care and decreasing resident training are all possible consequences that counter the benevolent aim of the 80-hour workweek.

Where's my doctor?

In complying with the ACGME, Dr. Ralph Greco, residency program director of Stanford's General Surgery division, has noticed a "trade-off between a greater number of doctors, potentially some of which are fatigued in the hospital and less, albeit well-rested, physicians available to provide care." Translated, letting residents go home early means fewer residents available to provide health services and thus a higher frequency of shift rotations. This has led to a break in continuity of care. By sending residents home, patients find themselves with others less familiar with their condition. To resolve this matter, some residency programs have set up a formal exchange of patient information at shift changes in an attempt to make a more seamless transition.

Though this system may minimize mistakes, it also brings to light another question troubling residency program organizers – are patients better off with shifts of fresh physicians less familiar with their particulars than they were with tired physicians who had cared for them throughout the night?

Health providers nationwide will need much more time and experience with the new regulations before they can answer this question. In the meantime, there are other serious issues at play for teaching hospitals besides patient care.

Making up for lost time

One main issue that concerned coordinators was the fact that resident physicians represent some of the cheapest educated labor in the nation. Earning between \$30,000 and \$40,000 a year while working an average of 80 hours a week translates to an hourly wage below that of just about any other hospital employee. Thus reducing the hours this labor force is allowed to work has left teaching hospitals strapped for cash to provide pre-regulation levels of health

care.

The other serious concern of residency coordinators deals with resident training. The reduction of resident hours has left skeptics wondering whether our future health providers will be on par with our current generation of physicians. Some programs have worked through this problem by increasing the efficiency of their training, having residents spend more time with patients and less time doing non-educational tasks. In spite of this, there still lies another worry: With fewer hours in the hospital, how many times will, say, a cardiac surgery resident have to perform a bypass before he or she is "sufficiently trained?" Will we see that number drop to accommodate the decrease in work hours? As the regulations are less than a year old, this question remains to be answered.

The future of residency and patient care

The first era of restructuring has come to a close and with the revision of the whole culture of residency comes a great deal of concern. Are we destined to produce less qualified physicians or will the new environment lead to more efficient ways of training our residents? In regard to the training of physicians, Greco first cited the fact that residency programs around the globe were typically under 80 hours a week. After some thought he then stated, "right now, I'm fairly comfortable in saying that 80 hours [a week] is okay."

But what about patient care? When Pompei was asked whether he felt the regulations would improve healthcare quality, he admitted that patient care initially may suffer as there "is always a risk of things

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not being fully carried over in a handoff of a patient to a replacement physician." However, he was quick to state that he and most other faculty also recognize the importance of preserving residents' time off. Herein lies the problem in determining whether the new regulations will truly be beneficial to patients - there is always this tradeoff. Which side will prove more consequential to healthcare quality remains to be seen.

But until the time when this question can be answered, patients can look forward to a better-rested and possibly happier physician, given Greco's more optimistic take on the issue: "I think where we had lost track was over the issue of having a life outside the hospital - being able to retain and develop other interests, be a good parent and have a full-fledge personality. Residents, now, will be able to do that." **S**