The Impact of Long Working Hours on Resident Physicians

Timothy B. McCall, M.D.
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Without long hours, residency training would be stressful. Multiple demands are placed on house officers, who often find there is more work to do than time to do it. The beeper interrupts; pages come more quickly than they can be answered. Residents feel insecure about their competence; they must assume major responsibility for medical decisions, even though their knowledge and clinical skills are at times inadequate. The sense of inadequacy is exacerbated by the competitive environment and the intimidating nature of teaching rounds, especially in university hospitals. To disagree with attending physicians over questions of patient care can bring stress, especially when the disagreement concerns the appropriateness of aggressive measures in a critically ill patient.1 The constant exposure to death, suffering, and disability tests the house officer's emotional stability. It is especially difficult for residents when younger patients die. Because of the acquired immunodeficiency syndrome (AIDS), many residents are seeing a dramatic increase in deaths of young persons. The AIDS epidemic has also added to residents' anxieties about themselves. Even though AIDS is not easily transmitted to medical personnel, residents fear inadvertent inoculation with the virus during invasive procedures — especially when they are deprived of sleep. Other sources of stress for residents bear no relation to their work in the hospital. The normal pressures of young adulthood include separating from parents, forming committed relationships, and having children. Relocating geographically for residency training adds stress by separating residents from friends and family just when social support is most needed. Moreover, it is difficult to develop new support systems when free time is so limited.2

Finally, huge debts from medical school are a constant worry.3 , 4 The average expenses of 1988 medical school graduates will be almost $50,000 at public institutions and twice as much at private schools. Many house officers moonlight to earn extra money, thus adding to their already very heavy work schedule.

THE IMPACT OF LONG HOURS ON RESIDENTS' LIVES

But more than anything else, long hours add to the stresses of an already demanding job. House officers frequently work more than 100 hours per week. In

such a week, assuming two nights on call, sleep consumes 44 hours: 8 hours on nights off and a 2-hour nap after each night on call. Transportation may take 5 to 10 hours, depending on the commute. Getting ready for work takes 5 hours, allowing 1 hour to shower, dress, and eat each morning. This leaves 9 to 14 hours free per week. In those hours, residents must recover from a stressful job, spend time with their spouses and families, and take care of errands. There is little time to pursue hobbies or visit friends. Moreover, residents are expected to study medicine while off duty.

Lack of free time interferes greatly with personal relationships. Even if residents have time when they come home from work, they are often so emotionally and physically drained that they have little energy left to give to their mates. Residents wanting only to "turn their brains off" may be resented by partners who have not seen them for days. In one study, more than 40 percent of medical residents and fellows reported major problems with their spouses or lovers; 72 percent of these respondents thought the problems were due to their residency. Of those with major relationship difficulties, 21 percent thought their work at the hospital was also being adversely affected.5

Residents not in relationships have little opportunity to form them, given the time constraints. This problem is particularly difficult for women residents approaching the end of their safe reproductive years.

The high rate of depression among residents has been well documented.6 Thirty percent of first-year residents became depressed for an average of five months. Four of 53 studied thought of suicide, and three had a plan.6 Two other studies show similar rates of depression.7 , 8

THE IMPACT OF LONG HOURS ON QUALITY OF CARE

Sleep Deprivation

Long working hours and the resulting sleep deprivation affect the lives of residents profoundly, but do they lower the quality of medical care? A highly publicized court case in New York recently made this question the subject of intense public debate. In the case, a grand jury found that the long working hours of residents had contributed to the death of Libby Zion, a young woman who was under their care. The grand jury was convinced that the conditions leading to her death prevailed at many teaching hospitals.9

Common sense suggests that residents' abilities are impaired by fatigue. Few would choose to ride in a car driven by a resident coming off a 36-hour shift. It should

come as no surprise that the public would question the ability of sleep-deprived residents to make life-and-death decisions.

The cognitive abilities of residents have been shown to be impaired after a night on call. One study found the ability of residents to recognize electrocardiographic arrhythmias significantly reduced after being on call.10 Another found their mathematical abilities decreased.11 Neither study measured the quality of patient care directly, but there is every reason to believe it too would be impaired. Even a simple error in arithmetic could have tragic consequences.

There have been many studies of the effects of sleep deprivation, and a few have been made specifically of residents. Reviewing these studies, Asken and Raham found several consistent findings. "With few exceptions," they state, "behavioral and psychomotor performances show decrements with sleep deprivation." Psychological and emotional indexes deteriorate even more dramatically.12 Much of the recent attention to residency training has pointed up the lengthy shifts and the resulting acute sleep deprivation, but chronic sleep deprivation may be a more important problem. Chronic sleep deprivation reflects the total hours worked per week, more than the length of any one shift. In addition, the constant changes in the daily schedule disrupt normal patterns and exacerbate chronic sleep deprivation. When residents who are chronically deprived of sleep work 36-hour shifts, the resulting acute sleep deprivation may be particularly hard for them to endure.

Because of the lingering effect of previous sleep loss, even residents not acutely deprived of sleep may be impaired in their ability to care for patients. Therefore, studies that compare "rested" residents with those on call the night before tend to underestimate the effect of sleep deprivation, since the control group cannot be said with confidence to be truly rested.

Residents' Survival Techniques

Long hours change residents' attitudes, with personal survival often assuming major importance. To ensure survival, residents embrace a variety of strategies for reducing their volume of work. They maximize efficiency. They do write-ups as quickly as possible and see patients only as long as it takes to gather pertinent data. When they try to catch more sleep or leave the hospital early, patient care suffers. Residents avoid time-consuming activities that interfere with the completion of daily work. Because they may not go home until the entire day's work is done, any time spent talking with patients or studying medicine is subtracted from that allotted to other duties and means more hours in the hospital.

House officers can be ruthless in preserving the precious hour or two of sleep they may be able to take while on call. Rather than replace a patient's intravenous line in the middle of the night, they routinely substitute intramuscular medications, ignoring the question of patient discomfort and the possibility of more erratic absorption of the drug.

Residents sometimes resist evaluating patients when called by nurses to do so. It is much easier for them to give a telephone order than to take the time to talk with and examine a patient, respond to the problem, and write a note in the patient's chart. Conscientious residents evaluate personally any situation that sounds serious, but it can be difficult to judge the degree of severity over the phone. When personal motives influence a resident's decision, patient care suffers.
Similarly, house officers can lighten their workload by pushing for the early discharge of hospitalized patients. The amount of work a resident does depends on the number of patients he or she cares for. Since residents have little control over the number of patients admitted, their workload depends on the number discharged. Many residents pride themselves on their ability to manipulate attending physicians to get patients "out the door" earlier.

Interaction with Patients

Long hours affect the relationships between doctors and patients adversely as well. Residents are not rewarded for getting to know patients or for lending a sympathetic ear. As we have seen, such behavior is effectively punished, since any additional time spent with patients means more hours in the hospital and less free time.

Failure to spend enough time with patients damages the quality of medical care. A complete knowledge of one's patient is the foundation of good medicine. Patients also need psychological support, and residents often do not provide it. Failure to spend adequate time and inability to communicate effectively are among the complaints leveled most frequently against physicians. These bad habits, learned during residency, fuel the current malpractice crisis.

Overwork during residency fosters the development of arrogant attitudes, which patients also resent. Too few residents emerge from training thankful for the opportunity to practice in a fascinating and intellectually challenging field. Instead, many believe that the world owes them something for what they have been through. Extreme time limitations even lead residents to resent patients, reacting poorly to unanticipated delays or to extra work caused by patients. If a patient's needs delay a resident's departure from the hospital, for instance, the resident may, out of frustration, blame the patient subconsciously.

THE IMPACT OF LONG HOURS ON MEDICAL EDUCATION

The justification given for long hours is that they are vital to medical education. 13 Maximal continuity of care is said to improve the quality of patient care, as well as the resident's understanding of the disease process. Although this theoretical argument suggests that long hours improve the experience of learning during residency, there is no scientific support for this claim. Nor are there data to support the contention that the quality of care is improved. That a discipline so dedicated to scientific proof would base its whole training system on untested assumptions is curious.

In fact, the present system is less than optimal from the standpoint of learning scientific medicine.14Residents are so drained by their schedules that they are rarely in the best state of mind to learn from their experiences. Even an interesting case may not interest an overworked resident. Too much hands-on experience may also cut down on time for other types of learning activities.

If they are to benefit fully from their clinical experience, house officers must read, but they often lack time. First-year residents (interns) almost never get a chance to read. In subsequent years there is more opportunity, but even then, residents who do a great deal of reading often do so by making themselves inaccessible to interns, forcing the latter to fend largely for themselves in providing patient care — a situation that rarely benefits patients.

A similar dilemma prevails with respect to hospital conferences. With a fixed amount of work to do each day, one hour spent in a conference can mean an hour's delay in getting out of the hospital. Is it any wonder low attendance at conferences is a constant problem?

Finally, residents' long working hours may affect the education of medical students adversely. Overworked residents may lose interest in teaching, since it keeps them from other work. In turn, medical students may pick up bad habits from residents and be influenced by their cynicism.

RECOMMENDATIONS

Residency training should not be easy, for learning to practice medicine takes hard work. Beyond a certain point, however, additional hours almost certainly bring diminishing educational returns and increase the physical and psychological burden.

The concern over long hours that has been generated by the Libby Zion case has led officials in New York State to propose regulations limiting the length of residents' work shifts. These proposals may be just the beginning of a larger movement for change in residency training. Patients, their families, state legislatures, and the courts are becoming increasingly concerned about the quality of care. Pressure is also being applied by the growing house-staff unions, which are concerned about the quality of patient care and the well-being of their members. Further changes are on the horizon. If the medical profession wishes to participate, it should do so now or the opportunity may be lost. Failure to make substantive changes will permit those outside the medical profession to dictate the structure of residency training.

Some argue against major changes in residency training, saying that residents' working conditions have already improved greatly. Representatives of the American College of Physicians, for instance, testified recently before New York legislators that "residency training has changed in the resident's favor — progressively and dramatically." 13

In fact, despite changes designed to improve conditions for residents, job stress has grown. Data suggest that the occurrence of emotional impairment in interns increased from 1979 through 1984.15 There are several reasons for this increased stress. One is the intensification of inpatient medicine. The average patient today is sicker, and more aggressive interventions are employed routinely; conditions once managed only in intensive care units are commonly seen on regular hospital wards. 14 , 16 Today's residents have greater responsibilities16 and are expected to command an increasingly large base of factual knowledge.4 , 16 Residents may have fewer nights on call, but there are more patients to cover on these nights.16 As the AIDS epidemic broadens, the workload of residency and the corresponding emotional and physical toll will continue to mount.17Looking to the future, these trends will bring a progressive increase in the overall stress of residency training. Working hours will have to be decreased, if only to keep stress at present levels. Therefore, the total number of hours residents work per week must be reduced substantially. The length of shifts must likewise be limited, as proposed in New York. Principles drawn from the study of biorhythms should be applied to work schedules to avoid frequent changes between day and night shifts. Increased supervision would also help.

Support groups and other stress-reduction measures are frequently suggested, 4 , 16 , 18 , 19 but at best these are only part of the solution. Unless they are combined with fundamental changes in residency training, such measures will act only as band-aids. The fundamental problem is not that residents need outlets for

their stress. Rather, it is simply that their working conditions create too much stress.

Reducing hours will undoubtedly result in increased costs, since some work now being done by residents will have to be done by others. This is problematic, given the current cost-cutting atmosphere in health care. Considering the legal climate, however, it may be even more expensive to maintain long working hours. In light of the New York experience, malpractice lawyers will now scrutinize any mishap in patient care involving residents. If it is argued successfully that regulations similar to those proposed in New York might have prevented the mishap, teaching hospitals could be held liable. Many additional salaries could be paid with the settlement of one large malpractice claim.

House officers are overworked, sleep-deprived, and unduly stressed. The result is damage to their wellbeing, to medical education, to patient care, and to the entire profession. Changes in residency training are coming. Some in medicine oppose them. Perhaps, as has happened before in medicine, many opponents will later view the changes as desirable. Residents and patients certainly will.

Timothy B. McCall, M.D.
Cambridge, MA

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Timothy McCall, MD is a board-certified internist who teaches Yoga As Medicine Seminars and Teacher Trainings worldwide. He is the medical editor of *Yoga Journal* and the best selling author of *Yoga as Medicine*. He runs www.MedicalVetting.com, a service that edits health-related books and articles for style, clarity and medical accuracy. This article was published in the *New England Journal of Medicine*.