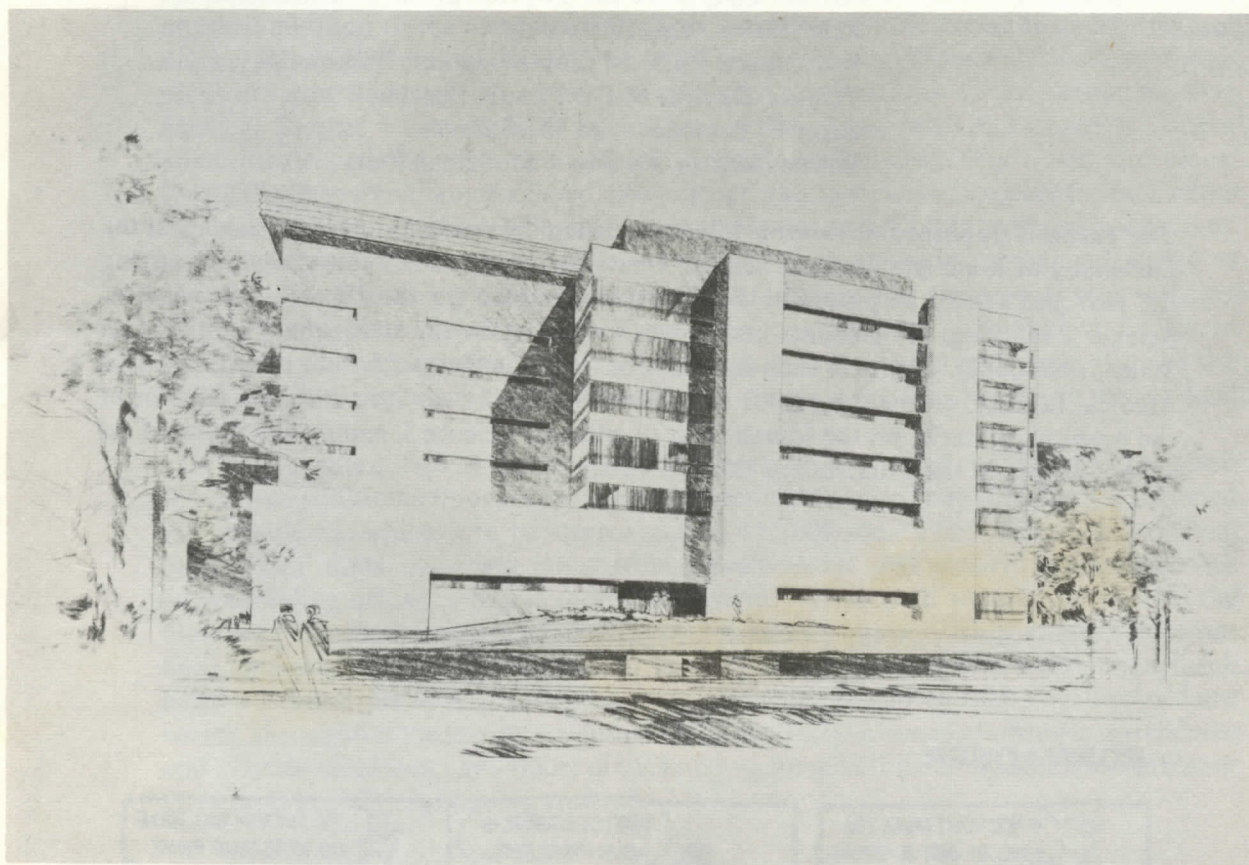




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**Michigan Research:  
Moving Into the Eighties**

# Sleep Deprivation in Internship Programs

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Since it is well known that sleep deprivation is a stress, this question must be asked: "Why are schedules that make such deprivation mandatory a part of the training programs of some of the best and most prestigious medical centers?"

Sleep deprivation is an experience common to most interns; frequently they work 100 or more hours a week, including periods of 24 to 36 hours with little sleep. In the past twenty years, many articles have described the working conditions of interns and recommended decreasing the number of hours they work each week. This article discusses the effects of these working conditions on patients and interns, reasons the conditions still exist, and how they can be changed.

Since medicine is a service industry, the quality of patient care given by interns at any time is important. A natural question is, "What kind of judgement or scientific competence is it reasonable to expect of a physician who hasn't had any sleep for 32 hours?"

In 1971, Friedman and associates reported in the *New England Journal of Medicine* the results of their study of the effects of sleep deprivation on fourteen internal medicine interns. They administered a 20 minute electrocardiographic arrhythmia detection task to interns in both sleep-deprived and well-rested states. As an incentive to do well, prizes of \$50 and \$25 were to be awarded at a prestigious conference to the two interns who made the fewest errors when deprived of sleep. The authors concluded that in comparison to their performance when rested, interns deprived of sleep were significantly less able to recognize arrhythmias on the electrocardiographic task.

The authors also administered questionnaires to the interns assessing mood and perceived psychophysiologic states. When deprived of sleep, twelve of the fourteen interns reported difficulty in thinking, ten reported depression, nine reported hyperirritability, six reported inappropriate affect, and five reported recent memory loss. The interns also made the following comments, which support the idea that sleep deprivation diminishes the quality of patient care:

When I'm tired, even though my mind is active, I can't concentrate. I can't put things together in my mind so I don't even try. If a patient is really sick, I can pull myself together but I can't write down what I've done in the chart. What I write is a reflection of a fragmented thought process. Writing in charts is important to me. I write for attendings, residents, and students. It gets me scared when this happens because it means that I am losing control of my ability to think.

I would forget what I just said so my next sentence would make no sense. I also stop sentences midway a lot because I forgot what I wanted to say.



In 1975, Wilkinson and co-workers published the results of a questionnaire sent to 6500 Junior and Senior House Officers in England, Scotland, and Wales. They asked, among other questions, "Do you think that your hours of duty are so long as to impair your ability to work with adequate efficiency?" Of the 2452 who replied, 3.3% chose always, 34.0% chose often, and 47.6% chose occasionally, as opposed to rarely or never. 1411 felt the issue was important enough to add comments. 721 commented that long hours noticeably affected their efficiency and 141 mentioned actual errors.

Some may dispute these findings with the claim that they have performed at their peak when deprived of sleep. Poulton verified that it is possible to compensate for a considerable loss of sleep, but the task must be short (about 3 minutes) and the subject must respond to the challenge of the task. When a task requires 20 minutes of sustained attention, like Friedman's electrocardiographic task, an intern will probably perform worse than when well rested. Thus, to perform optimally in an emergency, a fatigued intern must first be alert enough to recognize that it is an emergency and second, be fortunate that it doesn't require 20 minutes or more of sustained concentration.

Fatigued interns, besides providing poorer quality medical care, also have problems empathizing with patients. Decreased empathy was also reported for other specialties. A report in *Lancet* describing the results of a survey of 64 British interns concluded that lack of sleep among interns adversely affected their relationships with patients—commonly-28%, occasionally-53%, or not at all-19%.

Another study compared the psychotherapy skills of 22 psychiatry residents with an internship and 25 without such training. The superiority of the noninternship residents led the authors to suggest that "internship may even have a negative impact on subsequent education . . . primarily in the area of empathic skills." The authors attributed this effect of internship partly to the fatigue of the interns.

The authors of a study of 94 pediatric interns suggested that internship "may have deleterious effects on interns' sensitivity to patients and on their personal life." Although they didn't directly relate this to sleep deprivation, they did note that fatigue was the source of stress most frequently cited by interns, and that the interns' long working hours and loss of sleep "will inevitably lead to profound fatigue."

A third effect of sleep deprivation is on the intern himself. Valko and Clayton reported that 30% of 53 interns had a depression during their internship, including 9 surgical interns working 130 hours a week. 5 interns said they wouldn't choose medicine again as a career.

In Wilkinson's study, 181 interns complained about their lack of a social life because all of their off duty time was spent recovering. Bates found that of all hospital personnel, only interns felt their job interfered with their family life. These problems are merely made worse by medical educators who have been described as dealing with interns "only in regard to their professional role; aspects of their personal development and family life tend to be viewed as irrelevant to their professional functioning." It is ironic that the medical profession denies to its new members the opportunities for personal development and a strong family life that it deems so healthy for society as a whole.

The medical profession, by creating sleep deprived physicians, has unfortunately created a new class of impaired physicians. Those deprived of sleep share many characteristics with those addicted to drugs. Both suffer from excessive stress, psychological problems, strained relationships with family or friends, and decreased efficiency at work. Yet sleep deprived physicians aren't treated because many don't see anything wrong with the cause of their impairment.

There are at least six reasons why sleep deprivation still plagues interns. The first, and perhaps most important reason, is a tradition of hazing:

I went through it and it made a better doctor out of me. Besides, why should today's interns have it easier than I did?

The perpetuation of internship as an initiation rite into an elite fraternity is explained by cognitive dissonance theory; Cognitive dissonance theory predicts that when one has been through an unpleasant experience which is voluntary the very unpleasantness of it makes one more likely, retrospectively, to advocate it for others.

Thus, physicians may view their internship much differently now than when they were doing it: "You expect a vigorous time, you welcome it, you know it is the only way to learn."

Although interns may not like their schedules, when they are in position of authority, they will probably raise new interns under similar conditions, since these are the only ones they have any experience with. In an analogous manner, parents abused as children depend on their experiences and rear their children with abuse.

The second reason this problem exists is that interns are afraid or unwilling to take the risks necessary to change their working conditions. Some have gone on strike to protest their schedules (their unusual strike demands were 80-90 hour work weeks with no shifts lasting more than 34 hours). Most, however, wouldn't want to risk their life-long goal of being a physician and all their work towards this goal, especially when they aren't sure that they can do anything to change the system.

Interns may feel that they shouldn't complain since they knew what they were getting into. One intern drank 15-20 cups of coffee a day to stay awake and was briefly hospitalized for a suspected duodenal ulcer. Yet after describing the rage he felt during periods of sleep loss, he said:

I wanted this internship and I wouldn't settle for anything else. I knew what I was getting into and if I had to do it over again, I would choose the same internship.



The third reason these conditions still exist is the belief that long hours are needed to develop skills and gain experience. Surgeons are reported to say, "The only disadvantage of call every other night is that you miss half the cases." Yet the flaws in this logic are many. In McManus's study, 46 of 64 interns felt 24 hour duty wasn't essential. One intern commented:

24-hour duty is not essential for learning medicine . . . skill is gained on a law of diminishing returns and would hardly be affected by reducing hours worked at night.

A New York house officer pointed out another problem:

Fourteen straight hours on emergency room duty can reduce the most competent and dedicated intern to a mechanical robot and render the most valuable experience meaningless.

Experience is important in medical education, but it isn't worthwhile if one is too tired to appreciate its lessons.

It has also been reported that if a person first performs a task when he is fatigued, his poor performance may carry over and affect his subsequent performance when he is rested, even if this is eight days later. The person acquires bad habits when he is tired. He continues to perform in a similar manner when he is fresh. Thus, it doesn't make sense to try to learn when fatigued.

A fourth reason sleep deprivation persists is that it fulfills a psychological need:

The sleep deprived intern acts out an unconscious wish widely held by physicians to possess abilities and powers that transcend what is ordinarily thought of as human. To assume that a person who is repeatedly awake for 36 hours or more can continue to function efficiently is to deny his human limitations. The search for omnipotence may be understood as the acting out by particular members of the physician group of a defense against anxiety generated daily by the often frustrating struggle against disease and death.

Interns constantly deal with sick patients and a wealth of knowledge difficult to master. When they don't succeed in saving lives, they can at least console themselves: "See, I am blameless. I have done all that I could, even working to the edge of total exhaustion."

Interns, like many physicians, set high standards for themselves and are very competitive. They don't want to damage the superhuman doctor myth by displaying their weaknesses, like the need for sleep. They also don't want to admit that they can't perform as well as their peers or the "iron men" who preceeded them.

A fifth reason sleep deprivation persists is that long hours by interns are thought to be in the best interest of the patient:

Doesn't every patient want his own personal physician? And, unfortunately, patients get sick at all hours of the day.

Patients may prefer care by one physician, but there is no evidence that I am aware of that care suffers when physicians work in shifts. Nurses give personal care and yet their shift schedules are accepted. Furthermore, it would seem to be in the best interest of the patient to be treated by an alert physician who likes the conditions of his job rather than by one who wishes the patients and nurses would leave him alone and let him sleep.

The final reason sleep deprivation still exists is economic; interns are cheap labor and will accept the conditions dictated to them. The internship has been called "America's last sweat shop." Although internship is part of a training program it is significant that an intern earning \$18,000 a year working 50 weeks for 80 hours a week earns only \$4.50 an hour. Interns are much cheaper for hospitals than physician assistants, nurse clinicians or staff physicians. This reason, like the others, doesn't justify perpetuating current conditions.

What follows are eight ideas that may help to remedy the problem of sleep deprivation in interns and other house officers.

(1) *Recognize the problem.*

The first step is for doctors and other medical people to realize that the problem exists and demands attention.

(2) *Increase public awareness.*

So we have to go to the public, the consumers, and show them that it is a question of quality of care. Consumers will be able to force a reduction in working hours, and once this happens, fundamental changes will have to occur. But we have to let them know what is going on.

(3) *Increase medical staffing.*

If interns work fewer hours, hospitals will have to hire more people. These may be physicians, physician assistants, or nurse clinicians. Some hospitals may only need to hire more ancillary personnel, like blood drawers or messengers.

(4) *Increase sensitivity by the medical staff.*

The biggest drawback of the houseyear is the almost callous disregard by the senior medical staff, and to a lesser extent by nursing staff, of the need of a houseman for sleep.

(5) *Incorporate humane schedules into the residency accreditation process.*

The Accreditation Council for Graduate Medical Education, the body which accredits residency programs, should be urged to set up standards for hours worked. A reasonable standard would be a guaranteed sleep period of six hours per 24 hours plus one guaranteed day off per week for doctors and other personnel.

(6) *Publicize schedules for internships at the different hospitals.*

Currently, the AMA Directory of Residency Programs describes many features of residency programs, such as the number of outpatient visits, that help students decide which residencies to select. Simply by having this directory publish the work schedules of interns could diminish the severity of these schedules. Some hospitals would change their policies to avoid having to admit to inhumane schedules. Others would be forced to change because students would tend to avoid their programs. Competition among hospitals can alleviate poor working conditions if interns have the data to compare hospital programs.



(7) *Present the increased risk of malpractice suits to hospital administrators.*

At a time when the public is malpractice-suit prone, it would appear that the vulnerability of the hospital, medical school, or both to legal action would be sufficient to change the custom.

Although I know of no law suits where sleep deprivation of physicians was an issue, and certainly don't mean to suggest that people should sue on these grounds, such a suit may happen and it may help solve the problem. Just making administrators aware of this risk might be effective in alleviating harsh schedules.

(8) *Supporting shifts for interns.*

This solution to the problem of sleep deprivation of interns has been advocated by many sources. Shifts are now assigned for all hospital workers in around-the-clock jobs except physicians. Smooth continuation of care by physicians could be ensured by conferences at shift changes and good progress notes, ideas used successfully by nurses. Shift lengths might vary for different services and might require adjusting, but eventually, shift schedules would be found that provide high quality patient care and prevent sleep deprivation of interns.

The University of Michigan is part of one of the best and most prestigious medical centers. I hope that the unsound tradition of sleep deprivation of interns will be halted here and elsewhere:

The custom of overworking interns has long since outlived its usefulness. It doesn't lead to the making of better physicians. It is inconsistent with the public interest. It is really not worthy of the tradition of medicine.

## EEK AND MEEK

