Changes in Hospital Mortality after Regulations to Restrict Resident Doctors' Work Hours

Summaries for Patients are a service provided by *Annals* to help patients better understand the complicated and often mystifying language of modern medicine.

The full report is titled "Changes in Hospital Mortality Associated with Residency Work-Hour Regulations." It is in the 17 July 2007 issue of *Annals of Internal Medicine* (volume 147, pages 73-80). The authors are K.D. Shetty and J. Bhattacharya.

What is the problem and what is known about it so far?

For many years, people have been concerned that doctors in training (called *residents*) might be making mistakes because they do not get enough sleep when they are on duty at the hospital. The organization that is responsible for ensuring good learning conditions for residents made a rule: After July 2003, residents could spend no more than 80 hours per week at work. Moreover, they could spend no more than 24 consecutive hours at work without leaving the hospital. No one was sure how this new rule would affect patient care. On the one hand, residents would probably make fewer errors if they got more sleep. On the other hand, if a resident spends less time in the hospital, another resident must take care of his or her patients when the resident is away. The new resident probably will not know the patients' problems as well as the resident who has principal responsibility for the patients, which may increase errors in patient care.

Why did the researchers do this particular study?

To understand the effects of reducing residents' work hours by measuring the death rate for hospital patients before and after the new rules went into effect.

Who was studied?

Patients admitted to community hospitals throughout the United States between January 2001 to June 2003 (before the new work-hour rules) and July 2003 to December 2004 (after the new work-hour rules). The community hospitals included some that had medical residents (teaching hospitals) and some that did not have residents (nonteaching hospitals). Information about the diagnoses and outcomes of individual patients were provided by the hospitals for a survey done by the U.S. government. To protect patients' privacy, the government removed the names of the patients.

How was the study done?

The researchers measured the death rate at teaching hospitals and nonteaching hospitals during 30 months before the start of the new rules and 18 months after the change. They calculated the change in death rates before versus after the work-hour rules went into effect. If the new work-hour rules improve patient care, the death rate should change more in teaching hospitals than in nonteaching hospitals.

What did the researchers find?

The death rate decreased more in teaching hospitals after July 2003, when the new rules went into effect, than in nonteaching hospitals. The difference between teaching and nonteaching hospitals was especially large for patients who were 80 years of age or older and for patients with severe infections. The difference occurred only for patients with medical diagnoses, not for patients with surgical diagnoses.

What were the limitations of the study?

The researchers could not fully explain why the death rate decreased more in teaching hospitals after residents were limited to 80 hours of work per week. The number of surgical patients was too small to be sure of the effect of limiting surgery residents' work hours.

What are the implications of the study?

Limiting the amount of time that residents can work in the hospital probably reduces the death rate for patients with medical diagnoses, such as infections and heart failure.