

## **Study Links High Hospital Occupancy to Higher Death Risk**

John Commins, for HealthLeaders Media, March 9, 2010

A new study found that patients admitted to full or near-full hospitals increased their risk of dying by 5.6%.

University of Michigan Health System researchers evaluated four factors that can affect hospital deaths: occupancy, nurse staffing levels, weekend admissions, and seasonal flu.

Having more nurses made patients safer, decreasing risk by 6%. But weekend admission raised the risk by 7.5% and admission during seasonal flu had the greatest impact by increasing the risk of death by 11.7%, according to the study, which was published today in *Medical Care*.

"The study establishes that there is indeed a connection between hospital occupancy and death rates in U.S. hospitals," said lead author Peter L. Schilling, MD, a resident in orthopedic surgery at UMHS, and Robert Wood Johnson clinical scholar. "It's important to emphasize though that this study does not identify a specific occupancy level above in which patient care suffers and deaths abruptly become more common. The key occupancy level may differ for each hospital."

The study included 166,920 adult patients admitted to 39 Michigan hospitals over three years, and can be generalized to hospitals nationwide, Schilling said.

The study—the first to compare all four factors at once—found that each factor had a significant impact even while evaluated in a model simultaneously. "The good news is that each can be modified in some way," says co-author Darrell A. Campbell Jr., MD, chief of clinical affairs at the UMHS.

For example, during peak flu season, hospitals can reinforce the importance of hand washing and covering coughs and sneezes. The impact of seasonal flu may also be diminished by improving vaccination rates in the community and among healthcare workers.

Researchers calculated the occupancy of the hospitals every day for the years 2003-2006. On average, patients in the study were admitted while hospital occupancy was 73% of full capacity. One-third of patients were admitted on high occupancy days, at average levels of 80% or more.

Study patients were admitted after being seen in the ED for heart attack, congestive heart failure, stroke, pneumonia, hip fracture or gastrointestinal bleeding.

"Hospital occupancy changes from day to day, so patients shouldn't try to choose a hospital based on its occupancy level," said co-author Matthew M. Davis, MD, co-director of the Robert Wood Johnson Foundation Clinical Scholars Program at the UMHS. "But these kinds of study findings should prompt hospitals to look at the flow of patients and processes of their care teams during high occupancy times. Those are more challenging moments when more things can go wrong."

The UMHS study also examined the impact of "access block" when a full hospital prevents ED patients from accessing an inpatient hospital bed. While a wave of accident victims to the ED is impossible to predict, hospital administrators can control occupancy by managing the number of elective surgical cases scheduled for admission.

The authors said restricting these profitable procedures can cost hospitals money since they've become increasingly important to hospital finances in recent years. "However if access block is a true phenomenon, a hospital full of elective surgical admissions may be limited in its ability to safely handle an influx of urgent admissions through the ED," Schilling said.