DHMC was recently reverified as a Level I trauma center by the American College of Surgeons. It's one of only 45 centers nationwide with level I "adult and pediatric" designation.

Study examines patterns in patient transfers

Which accident patient with minor injuries has the greatest chance of being transferred—for nonmedical reasons—from a small emergency department to a major trauma center: Male or female? White, black, or Hispanic? Young or elderly? Insured or uninsured?

These were questions that Dartmouth researchers sought to answer in a study published in the *Journal of Bone and Joint Surgery*. Their findings suggest that nonmedical transfers occur with substantial frequency and provide grounds for examining the role that gender, age, race, and other biases may play.

Data: Kenneth Koval, M.D., and Kevin Spratt, Ph.D., both members of the Department of Orthopaedics, and Chad Tingey, M.D., a DMS student at the time of the study, based their analysis on the National Trauma Data Bank. They qualified 97,393 patient records from the 1.2 million in the database—choosing patients with an Injury Severity Score of 9 or less (on a scale of 0 to 75). All were treated first at a hospital without a level I trauma center; 21% were later transferred to a level I center. There were many expected and a few unexpected findings:

- Children (0-17) were 19% more likely to be transferred than adults (18-64) and 254% more likely than seniors (65+).
- Seniors were 67% less likely to be transferred than adults.
- Males were 46% more likely to be transferred than females.
- Blacks were 28% more likely to be transferred than whites and 81% more likely than Hispanics.
- Patients with Medicaid were 102% more likely to be transferred than insured patients, but there was no significant difference between patients with and without insurance.
- Transfers were 125% more likely in the evening or at night than in the morning or afternoon.

"It appears that some people might have been cherry-picking," Koval says of transfer decisions made by sending hospitals. But, he concedes, some transfers might have been caused by a breakdown in the lower-level center's normal capabilities. "For instance," he speculates, "the neurosurgeon just wasn't there."

However, the study's focus on low-severity injuries was intended to counter that likelihood. To further test the idea that the selected transfers were unnecessary, the team analyzed a subgroup with Injury Severity Scores of 3 or less. The results, Koval says, were "remarkably similar." Other factors mitigating the sample's limitations were its robust size and parallels between the transferred and non-transferred patient groups.

When transfers unwarranted by medical necessity occur, says Koval, they mean excess travel and inconvenience for patients. They may also tax level I centers to the detriment of those who need their sophisticated services. And, of course, they shift the economic burden of treatment.

This study did not address the question of what can be done about such transfers. According to Koval, multicenter prospective studies of the phenomenon are the next step.

JAMES DICLERICO

Are patient transfers done for the right reasons?

Can calcium help?

A recent Dartmouth study in the *Journal of the National Cancer Institute* showed that calcium may provide some protective effect against colorectal cancer. John Baron, M.D., and colleagues examined data from an earlier trial that had randomly assigned 930 patients with a recent adenoma to take either a placebo or a 1200-mg calcium supplement. Adenomas are benign tumors that may progress to colorectal cancer. The new analysis, of 822 records, found that in the first five years after patients' treatment ended, the risk of another adenoma was 31.5% in the calcium group and 43.2% in the placebo group. The protective effect was not evident after five years, however.

Cellular call

Ethan Dmitrovsky, M.D., led a team that identified a new way in which arsenite, a form of arsenic, acts against a rare cancer called acute promyelocytic leukemia (APL). The study, published in the *Journal of the National Cancer Institute*, showed that arsenite causes rapid destabilization of lysosomes, a part of the cell containing enzymes that are able to destroy APL cells; when the lysosomes break apart, the enzymes are released. It had previously been known that arsenite was effective against APL, but the reason was poorly understood. ■