# Surgeon Availability Tied To Crash Victim Survival Rate

Having more surgeons working in a geographic area has a direct impact on the likelihood that victims will survive motor vehicle crashes, according to a new research study presented at the 2010 Annual Clinical Congress of the American College of Surgeons.

The study, led by David C. Chang, PhD, MPH, MBA, at the Center for Surgical Systems and Public Health, in the department of surgery at the University of California-San Diego (UCSD) School of Medicine, analyzed public health data of 3,225 U.S. counties between 2001 and 2003. Their analysis took into account the density of primary care providers and surgeons, as well as poverty rates and whether counties were urban or rural in character. “Even accounting for those other factors, we found that the density of surgeons had a significant association with the reduction in motor vehicle deaths—in fact much more so than the impact of general practitioners,” stated Dr. Chang.

The UCSD study calculated deaths from motor vehicle crashes and other variables per 1 million of population. The study determined the median number of surgeons per 1 million was 55 compared with 424 general practitioners. The median number of motor vehicle crash deaths was 226 per 1 million.

Each increase of one surgeon per 1 million in population was associated with 0.38 fewer motor vehicle crash deaths, or about 2.5 surgeons for one life, according to the study. In adjusting for socioeconomic status and urbanicity (the degree to which a geographic area is urban), the authors determined that about six surgeons would increase motor vehicle crash survival by a factor of one life, compared with 25 general practitioners.

The study did not specifically address the growing surgeon shortage in many communities throughout the United States, but Dr. Chang acknowledged that it is a contributing factor in survivability after motor vehicle crashes. Last year, the American College of Surgeons, along with 15 other physician and public health groups, launched Operation Patient Access: Quality Surgical Care for All, an effort to call attention to urgent issues facing access to quality surgical care in the United States.

“The shortage of primary care physicians has been well documented and thoroughly discussed, especially as we determined the priorities for health care reform,” Dr. Chang said. “Our paper will challenge the public to re-examine our definition of primary care, to actually include care such as trauma surgery, which has so far been considered tertiary care. It’s important to realize that especially in low-resource areas, such as rural America, surgery is in the unique position of being at

the intersection of medicine and public health."

Training a new surgeon can take a decade or more, according to Dr. Chang. Efforts to attract more physicians to surgical specialties are addressing the underlying issues, such as medical liability and reimbursement issues that deter many of them. In the meantime, Dr. Chang suggested a focus on shoring up trauma systems. "A significant part of the country does not have organized trauma systems—by that I mean having an organized EMS (emergency medical service), having protocols designating what health care facilities patients should go to, and having policies that list specific capabilities and requirements of trauma centers," he said.

"The data presented suggests that better access through trauma systems and an available supply of trauma surgeons are key factors in affecting trauma outcomes, and should be a priority for health care reform, since trauma is an epidemic disease," observed study coauthor, Raul Coimbra, MD, PhD, FACS, who is chief, division of trauma at the University of California-San Diego and Vice-Chair of the ACS Committee on Trauma.

"Our study shows that surgery really is an important part of the primary health care system," Dr. Chang concluded.

Co-authors of the study with Dr. Chang and Dr. Coimbra were Brent Eastman, MD, FACS; Mark A Talamini, MD, FACS; Hop S. Tran Cao, MD; and Hayley B. Osen, BA.

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