# Surgeon Availability Tied To Survival Rate In Vehicle Crashes

Researchers at the University of California, San Diego School of Medicine claim that the availability of surgeons is a critical factor in public health and suggest that surgery should become an important part of the primary health care system.

A recent study led by David C. Chang, PhD, MPH, MBA, director of Outcomes Research in the Department of Surgery at UCSD School of Medicine, points out that surgery in the United States continues to be seen as tertiary care and is mainly centered at large urban hospitals, creating an unequal distribution of surgical providers. The report, to be published on line in the *Journal of American College of Surgeons* March 28, shows that the insufficient availability of surgeons in certain regions of the country significantly lowers the quality of patient care and leads to unnecessary loss of lives.

To investigate how access to surgical care impacts health outcomes, Chang and colleagues focused on motor vehicle crashes (MVC) – one of the leading causes of deaths in the United States. The researchers examined the relationship between the three-year average of MVC-related deaths and the availability of surgeons across 3,225 counties in the United States. After adjusting for factors such as density of population, urban versus rural location, and socioeconomic status, they found that there was a significant inverse association between the number of surgeons and the number of road traffic injury-related deaths, especially in rural areas.

Regions with a larger number of surgeons showed lower mortality rates, suggesting that motor vehicle crash victims may get more timely surgical treatment, and therefore be at lower risk of death. According to the study, an increase of one surgeon per million persons in population was associated with 0.16 fewer MVC-related deaths. Importantly, the data also show that an increase in the number of general practitioners would not provide the same benefits.

"The data suggest that better access through trauma systems and an available supply of trauma surgeons are key factors affecting outcomes, and should be a priority for health care reform," said study co-author Raul Coimbra, MD, PhD, FACS, chief of the Division of Trauma at UC San Diego Health System and vice-chair of the American College of Surgeons' Committee on Trauma.

The current study provides an important point of view in an ongoing discussion about the role of surgeons in the health care system. The World Health Organization (WHO) added surgical care to its definition of primary care in 2008.

However, in the United States, a narrow interpretation of primary care still persists. According to the researchers, the Affordable Care Act, passed on May 2010 as a

part of healthcare reform, excluded surgery from primary care. Surgeons were not afforded the same financial incentives provided to traditional primary care providers, such as family and internal medicine practitioners.

Chang and colleagues also suggest possible ways to address the problems of uneven distribution and shortage of surgeons. Apart from attracting more physicians to surgical specialities and extensive training of new surgeons – solutions that may require over a decade to implement – they discuss the possibility of redistributing the available surgical manpower. Additionally, the researchers propose development of hierarchically organized groups of hospitals that would provide patients with different levels of care, inluding surgical and trauma-recovery systems.

"Implementing these ideas could significantly increase access to surgeons in underserved areas and allow more patients to survive and recover from serious injuries," said Chang. "It is important to realize that – especially in low-resource areas like rural America – surgery is at the intersection of medicine and public health."

*Additional contributors to the study include A Brent Eastman, MD; Mark A Talamini, MD; Hayley B. Osen, BA; and Hop S. Tran Cao, MD, all of the UCSD Department of Surgery.*

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