# Study of hospital relocation provides insights to aid in disaster planning

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Restricting elective surgeries, limiting incoming transfers and enhancing the efficiency of the discharge process helped one major hospital reduce capacity before a relocation without interrupting emergency or trauma services, according to a report in the September issue of *Archives of Surgery*. Similar principles could help hospitals absorb patients in the aftermath of a disaster, the authors observe.

Planning to respond to natural or manmade disasters has become a priority for health care facilities around the world, according to background information in the article. "Thorough preparation requires a coordinated effort to determine the appropriate allocation of hospital resources to accommodate an acute influx of patients with needs for various services, including operative and other procedures," the authors write. Surge capacity is the term used to describe this ability to accommodate a sudden arrival of patients. "Surge capacity is rarely tested, as most disaster drills terminate after triage and immediate treatment in the emergency department and operating rooms."

UCLA Medical Center relocated to the new Ronald Reagan UCLA Medical Center site in June 2008, providing a unique opportunity to examine surge capacity issues. Howard C. Jen, M.D., and colleagues at the David Geffen School of Medicine, UCLA, analyzed hospital operations for one-week periods beginning two weeks and one week prior to move day. The researchers also analyzed regional hospital and emergency department capacity.

The medical center had an average daily census (point-in-time number of patients) of 525 patients before relocation planning began, and set a target of 350 patients for move day. "There were three components to our census management strategy," the authors write. "First, the elective surgery schedule was restricted beginning one week prior to move day, and operative volume was reduced by 45 percent. Second, incoming transfers were limited, leading to a reduction in both urgent and emergent admissions to medical and surgical services without limitation of trauma and emergency department admissions. Finally, a centralized multidisciplinary discharge team was used to enhance the efficiency of the discharge process."

Through these strategies, hospital census was reduced 36 percent, from 537 two weeks before move day to 345 on move day, with no change in rate of death among patients. Surgical services were reduced more than non-surgical services (46 percent vs. 30 percent); the number of elective operations decreased significantly while the number of emergency operations did not change. Hospital admissions decreased by 42 percent and discharges per occupied bed increased by 8 percent.

"The majority of our strategies required three to four days to achieve significant census gains and would be particularly useful during disasters, such as hurricanes or illness epidemics, with longer lead times," the authors write. "When lead times are brief, such as earthquakes, urban bombings or other mass casualty incidents, strategies to bolster emergency department and trauma center preparedness are the first priority. Inpatient capacity for continued hospital care of injured patients must also be generated simultaneously, and our model provides useful tools for this purpose."

The findings are particularly important given results of the analysis of regional capacity, which found that during a period in which the southern California population increased 8.5 percent, the number of

acute care beds decreased by 3.3 percent. In addition, Los Angeles County emergency departments experienced a 13 percent diversion rate due to overcrowding. "Hospitals should create an internal plan using these principles of census management with modifications to reflect local characteristics," the authors conclude. "Finally, as many hospitals are currently operating at capacity, a regional and integrated systems approach to surge capacity creation is needed."

More information: Arch Surg. 2009;144[9]:859-864.

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