Singularities, Odds Ratios, and Significance: California Emergency Department Closures and Los Angeles

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The conclusions of the earnest study by Hsia et al[1] of the effect of emergency department (ED) closures on vulnerable populations between 1998 and 2008 are less about California than they are about Los Angeles, where most of the closures occurred. The authors demonstrated statistical acumen in deriving odds ratios from variables in a statewide database collected each year from acute care hospitals. But their approach to ED closures in Los Angeles did not take into account the complex interactions between markets, cultures, and politics in a landscape that is better understood as a city-state in our global community. The population of Los Angeles County alone is greater than that of 42 of the other 49 states in the United States and exceeds the population of Hong Kong, Singapore, or Dubai, surpassing them in diversity.[2-4]

The main counterargument about the effect of ED closures was carried by Melnick and Fonkych[5] at RAND and the University of Southern California. Beginning with the same primary source of data used by Hsia et al[1], the California Office of Statewide Health Planning and Development, Melnick and Fonkych[5] reported an increase of 17% in total ED capacity in terms of licensed beds between 2001 and 2007.[5] They also reported that capacity increased more rapidly than the state population, though not as rapidly as overall ED visits, 19% and 15%, respectively.

Hsia et al found that ED closures were more likely to occur at lower-volume EDs and for-profit hospitals, which is consistent with prevailing market forces in Los Angeles and elsewhere in California; the remaining hospitals continue to seek economies of scale through system consolidation and profitable service lines.[1] In Darwinian terms, policymakers cannot compel less viable facilities left behind by stronger competitors to continue to remain open with operating losses. As the founders of one faith-based, not-for-profit hospital system famously preached, "No margin, no mission."

Because of the high density of hospitals in Los Angeles, Melnick and Fonkych[5] also found that 44% of displaced ED patients had to travel only 2 more miles to reach the next closest ED, and 88% had to travel less than 5 miles as a result of closures. In September 2011, the Los Angeles County EMS Agency still reported 73 paramedic receiving centers within their jurisdiction.[6] Although anyone who has been trapped in their car on Los Angeles freeways knows a mile can seem like a lifetime, current delays in ED care in Los Angeles have less to do with ED closures than with loss of functional capacity because of crowding, state-mandated nurse staffing ratios, boarding of inpatients, or patients leaving without being seen.[7-9]

Hsia et al appeared to believe that policymakers respond to statistically significant trends about access to care for minorities or other underserved populations.[1] The fiscal reality is that local and state policymakers face a moral hazard as regulators of the hospital industry while they own or support public hospitals. In addition to the higher odds of ED closures at rural county hospitals reported by the authors, the state's largest safety net hospital, Los Angeles County/USC Medical Center, was replaced by a new facility with 200 fewer licensed inpatient beds during the study period.[10]

History shows that policymakers in California—indeed, America—are more likely to respond to singularities, extraordinary events that defy mathematic models and disrupt long periods of entropy and inequity, as the following examples show.

On a hot summer day in 1965, a white highway patrolman in Watts pulled over a black motorist, and decades of smoldering interracial bias erupted spontaneously into rioting that killed dozens during several days. Governor Pat Brown appointed a commission to assess the root causes, which identified access to health care as a major deficiency, and Los Angeles County built Martin Luther King Hospital in nearby Willowbrook.

In 1985, a black man was stabbed in the head at a crack house before being taken to the ED at Brookside Hospital, where several neurosurgeons in the northeast Bay Area refused to treat the medically indigent patient. He was ultimately transferred to the trauma center at San Francisco General Hospital where he died 3 days later. A local member of the House of Representatives was outraged by the publicity that followed and slipped a 4-page amendment into the Omnibus Budget Reconciliation Act. Though unfunded, the Emergency Treatment and Active Labor Act (EMTALA) became the most important expansion of access to care by the federal government

between the enactment of Medicare and Medicaid in 1965 and the Patient Protection and Affordable Care Act in 2010.

Although the authors of this study of health disparities affirmed that communities with large numbers of Medicaid beneficiaries are more likely to experience ED closures, this has already been shown in a national study.[11] Their only unique finding, that black Californians are more likely to lose EDs than other minorities, irrespective of health care coverage, is better understood as an observation about Los Angeles, where the black population is greater than that of other California counties yet remains less than 10% of a metropolitan area in which 47% are Hispanic and another 13% are Asian. Nor did the authors find that race alone is predictive of ED closure for Hispanics or Asians. The authors seemed to agree that the most attractive solutions for policymakers would be cost-effective and culturally sensitive expansion of access to primary and specialty care in community settings, not more EDs.

The most profound ED loss for black Angelenos during the study period was also the result of a singularity. By May 2007, the legacy leadership of MLK Hospital was struggling to meet the many needs of an increasingly nonblack community. The adjacent Charles Drew University of Medicine and Science had lost accreditation for graduate medical education, and the hospital had lost its accreditation from The Joint Commission. The Los Angeles Times won a Pulitzer Prize for a series of articles that documented a tragedy of mismanagement, corruption, and political infighting between multiple layers of government and powerful unions of county health care workers. Then a black triage nurse in the ED ignored a Hispanic woman with abdominal pain, who bled out from bowel rupture in the waiting room. The Centers for Medicare & Medicaid Services rendered a death sentence for MLK.[12]

During the study period, each ED closure in LA displaced more patients from low-income neighborhoods, who filled up the waiting rooms of remaining EDs and disrupted emergency medical services ambulance traffic. But the MLK closure created a tsunami effect that raised the specter of EMTALA protections for the medically indigent being used by state regulators to cite the only remaining safety net facilities willing to treat them. UCLA/Harbor General Hospital, the closest county hospital to MLK, was used as a life raft to which local officials lashed licensure, accreditation, and specialty referrals for the remaining ambulatory care clinic services on the old MLK campus. For a time, one of the best-contracted payers for private hospitals near MLK was the County of Los Angeles, desperate to find inpatient capacity for the medically indigent. And a private emergency medical group was temporarily brought in to staff the waiting room at Harbor to reduce delays and unacceptably high numbers of ED patients leaving without being seen while residents in emergency medicine and their faculty continued to treat the most acutely ill or injured in the main ED.

If the official response to the financial market crisis of the last few years showed that some banks are too big to fail, the hospital industry corollary may be that some safety net facilities are too essential to fail. After the end of the study period, Governor Schwarzenegger signed legislation that would allow MLK to reopen as a public-private enterprise outside of the county hospital system, with a projected reopening as a community hospital by 2013.[13] Construction is under way at both the MLK and Harbor campuses for additional acute care capacity.[14]

Whether the unresolved public-private issues in Los Angeles and elsewhere about access, quality, and the cost of the acute care continuum will be resolved by singularities or statistically significant research remains to be seen. The outcome of elections, solutions to fiscal shortfalls, and judicial decisions are independent variables as well. The favorite games of policymakers will probably continue to be kick-the-can and chicken. In the meantime, my challenge to health care researchers is to define how we add value for the entire US population at the interface between communities and advanced hospital care and how the ED can better integrate care for populations that are underserved or affect public health with community-based providers.

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IMAGES IN EMERGENCY MEDICINE

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DIAGNOSIS:

Oropharyngeal high-pressure injection injury. Computed tomography (CT) revealed pharyngeal injury with retropharyngeal emphysema and pneumomediastinum (Figure 2). The patient received broad-spectrum antibiotics and analgesics and was admitted to surgery, with otolaryngology and thoracic surgery consultations. The 7-day hospital course was uncomplicated, requiring no surgical interventions.

The hallmark of high-pressure injection injuries is minimal external damage that is typically associated with significant internal injury. The morbidity from these injuries depends on the type of material and the velocity and location of the injection. A MEDLINE search revealed 3 previous cases[1-3] of high-pressure water injuries to the oral cavity, 1 requiring intubation. Close attention to airway management, as well as empiric antibiotic coverage to avoid mediastinitis and other deep-space infections, is crucial in managing these cases.

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