

Access Delayed Is Access Denied: States with Higher Age-Adjusted Mortality Rate Have Poorer Access to Trauma Center Care

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INTRODUCTION: Timely access to trauma center (TC) care is critical to achieve “zero preventable deaths after injury.” However, it is unknown whether some US states would benefit more readily from improving access to trauma care. Therefore, we chose to investigate, at the state level, the relationship between timely access to TC care, relative proportion of prehospital deaths, and overall age-adjusted mortality rate.

METHODS: State-level analyses of adult trauma deaths reported to CDC Wide-Ranging Online Data for Epidemiological Research (1999 to 2016). Correlation between state-level prehospital to in-hospital death ratio (PH:IH) and age-adjusted mortality rate (AAMR) was determined. States with higher than national average PH:IH and AAMR were classified as high prehospital burden (HPHB) states. These HPHB states were then compared with the non-HPHB states to determine the proportion of population with access to Level I/II/III TC within 45 minutes.

RESULTS: A total of 1,949,375 trauma deaths were analyzed. Overall, 49% (960,554) of deaths occurred prehospital and 42% (n = 810,387) in-hospital (remainder include patients dead on arrival and nursing home and hospice deaths). National average PH:IH was 1.18 and AAMR was 44.4/100,000 population. States with higher overall mortality had relatively more prehospital deaths ($r = 0.70$, Figure). Overall, 28 states, classified as HPHB, had a lower percentage of population with timely access to Level I/II/III TC vs the rest of the states (57% vs 77% within 45 minutes of level I/II/III TCs; $p < 0.001$).

CONCLUSIONS: States with poor TC access have more prehospital deaths, which contributes to higher overall mortality. This suggests that in these states, improving TC access will be critical to achieve “zero preventable deaths after injury.”

Access to Surgical Services across the US: How Far Do You Need to Go for High-Volume Care?

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INTRODUCTION: With an increased emphasis on centralization, patients can face logistical challenges in gaining access to health care. In particular, travel to undergo surgical procedures can represent a burden to patients. We sought to define the geographic distribution of surgical services in the US.

METHODS: Hospitals offering surgical services were identified using the 2015 American Hospital Association annual survey, which was cross-referenced with 2010 Census Bureau data to characterize the distribution of the US population. Using geospatial analytic software, a service area radius was defined for each hospital relative to the population.

RESULTS: A total of 4,575 hospitals provided surgical services (south: 1,722 [37.6%], midwest: 1,377 [30.1%], west: 877 [19.4%], northeast: 589 [12.9%]). Hospitals had a median hospital bed size of 104 (interquartile range [IQR] 35 to 238), median of 6 (IQR 3 to 12) operating rooms, and a median of 3,653 (IQR 1,312 to 7,726) operative procedures. Roughly, 1 in 5 hospitals was in a rural area (n = 909) and 1,101 (24.1%) were critical access hospitals. Overall, 850,959 people (0.3% of US population) lived outside 30-mile radius of a hospital providing surgical services. The highest quartile of surgical volume was performed by 147 hospitals in northeast, 430 in south, 344 in midwest, and 221 in west.

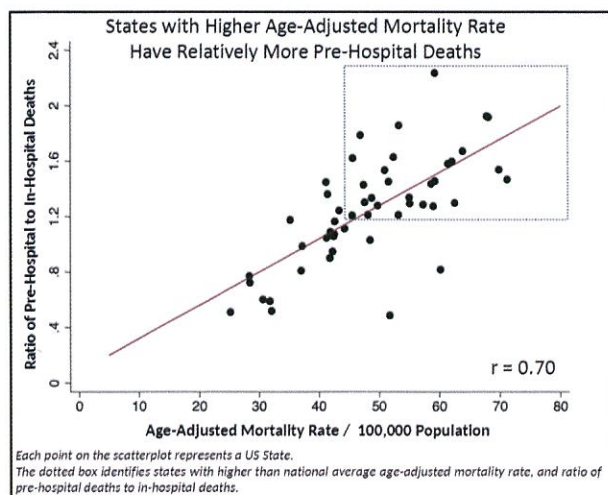


Figure.

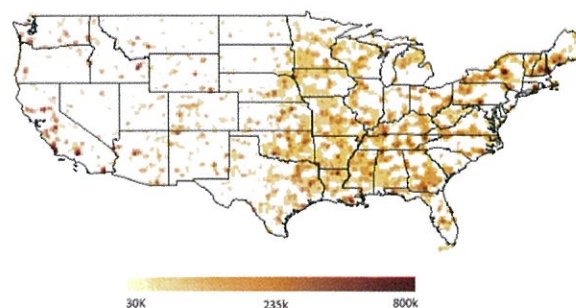


Figure. Heat map of population >30 miles from high-volume surgical hospital >30 miles.