

# A Certain Future for Regional Advanced Emergency Care



Samuel J. Stratton, MD, MPH\*

\*Corresponding Author. E-mail: [strattos@ucla.edu](mailto:strattos@ucla.edu).

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The most widely implemented regional emergency care systems in the United States are for the treatment of victims of major trauma. Evidence shows trauma centers can reduce the most severely injured people's risk of dying and improve functional outcomes for some injuries.<sup>1</sup> Further regionalism of other specialized emergency care includes pediatrics and conditions such as acute myocardial infarction and stroke. Regrettably, supporting medical evidence has lagged behind the development of regional systems.<sup>2</sup> In this issue of *Annals*, Elmer et al<sup>3</sup> present evidence that regional hospital services for selected adult cardiac arrest victims are associated with reduced mortality.

Although the study by Elmer et al is limited by retrospective evaluation of registry data, the methods are thorough and the investigators took care to reduce the effects of bias. While restricted to the outcome measure of mortality as opposed to intact neurologic survival, the study supports expeditious nonspecialty (community) hospital transfer of adult cardiac arrest victims with return of spontaneous circulation on hospital arrival to regional specialty centers. By design, the research included both nontrauma and trauma cardiac arrest victims. The study did not examine inhospital cardiac arrest.

Regional specialty care of high-acuity emergencies is economically controversial because it shifts selected patient populations away from community hospitals. Moreover, regionalism of health care encourages hospital corporations to consolidate specialty services in population-dense urban medical centers compared with suburban and rural hospitals. Ironically, urbanization of specialized emergency medical care increases risk for lack of access to acute medical treatment for individuals in rural and outlying suburban areas. Regionalism also places

strain on advanced life support ambulance systems and can result in additional medical cost when emergency transports are over long distances or reliant on air ambulance services.

An important aspect of the study by Elmer et al is that it is limited to patients who arrive at a cardiac arrest specialty center or to a community hospital with return of spontaneous circulation restored. Therefore, the study supports a regional interfacility transfer strategy among hospitals and does not address out-of-hospital (emergency medical services [EMS]) triage. Of interest is that the authors report that patients transported directly to a regional cardiac arrest center had a statistically higher risk for mortality compared with cardiac arrest victims transported by EMS to nonspecialty centers. This counterintuitive finding is likely due to selection bias because some victims arriving at nonspecialty hospitals likely failed to stabilize for safe transfer or died soon after community hospital arrival.

As the authors report, the external validity of the study is unknown. To generalize outcomes and facilitate comparison of data for out-of-hospital cardiac arrest, it is standard to report population and outcome variables with the Utstein template for nontrauma out-of-hospital cardiac arrest.<sup>4</sup> In their study, Elmer et al combine both nontrauma and trauma victims into a single cohort of cardiac arrest study subjects. Through the combination of trauma arrest into an overall category of cardiac arrest, the application of the Utstein template may be inappropriate for the study.

The work by Elmer et al supports regional emergency medical care beyond the categories of trauma, pediatrics, myocardial infarction, and stroke. Adding cardiac arrest to these categories further supports consolidation and limiting advanced emergency services to a few hospital centers. Economic-based consolidation of hospital services supported by increasing medical evidence, such as presented by Elmer et al, points to a certain future of regional delivery of all advanced emergency care.

*Supervising editor:* Robert A. De Lorenzo, MD, MSM

*Author affiliations:* From the Fielding School of Public Health, University of California, Los Angeles, Los Angeles, CA, and the Orange County (California) Health Care Agency, Emergency Medical Services Agency, Santa Ana, CA.

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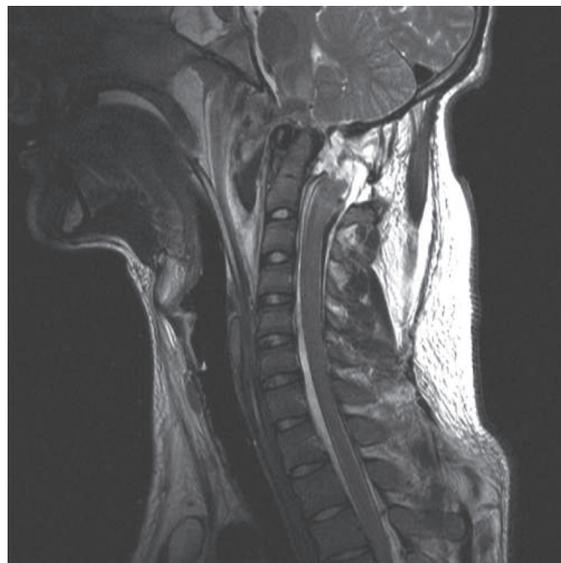
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“Long-Term Survival Following Complete Medulla/Cervical Spinal Cord Transection” by Gautschi and Zellweger, April 2007, Volume 49, #1, pp. 540, 545.