State of Tennessee, Department of TennCare. We calculated correlations between the weekly proportions of visits by insurance class within a ten-week moving window and calculated the ratios of post-disenrollment proportions relative to pre-disenrollment proportions as a measure of relative change.

Results: There were 7,060,633 visits that met inclusion criteria. Total ED visits among the uninsured increased by 95,464 and total ED visits among TennCare beneficiaries decreased by 160,823 from the pre- to post-disenrollment period. The largest weekly correlation (−0.95) between proportional ED visitation rates of TennCare enrollees and the uninsured corresponded exactly to the period where disenrollment began. Betweeen the pre- and post-disenrollment periods, the proportion of ED visits among the uninsured increased from 12.7% to 17.2% (ratio of proportions 1.356, 95% CI: 1.350-1.362), the proportion of ED visits among TennCare beneficiaries decreased from 30.6% to 24.6% (ratio of proportions 0.805, 95% CI: 0.803 - 0.808), and the admission rate of uninsured visits increased from 7.5% to 9.3% (ratio of proportions 1.240, 95% CI: 1.220 - 1.259). These increases were seen in both urban and rural locations. The incidence of ED visits among the uninsured increased by a relative 34.5% (relative rate 1.345, 95% confidence interval 1.208 - 1.498), from 44.0 visits/100 persons/year in 2004 to 59.2 visits/100 persons/year in 2006. The incidence of ED visits among TennCare beneficiaries did not significantly change over the same period.

Conclusions: TennCare disenrollment was associated with an abrupt and sustained increase in ED utilization and hospital admission among the uninsured that is unexplained by other demographic and socioeconomic factors in Tennessee.

6 Transfer of Emergency Department Boarders to Inpatient Hallways: A Four-Year Experience

Viccellio AW, Santora C, Singer AJ, Thode Jr HC, Henry MC/Stony Brook University, Stony Brook, NY

Study Objective: A recent IOM report highlighted ED crowding and the contribution of emergency department (ED) boarding of admitted patients to this crisis. We developed and implemented an institutional protocol aimed at reducing crowding by admitting boarded patients to hospital in-patient hallways. We describe our experience with this protocol over the last 4 years.

Methods: Study Design-retrospective cohort study. Setting-suburban, academic ED, annual census 65,000. Subjects-consecutive patients visiting our ED between 1/04-1/08. Interventions-in 2001, a multidisciplinary team developed and implemented an institutional protocol in which admitted adult patients boarded in the ED were transferred to hospital in-patient hallways if they were deemed clinically stable, there were more than 3 admitted patients boarded in the ED, and there was no space to see incoming ED patients. An electronic medical record system was used to extract demographic and clinical data. Measures and Outcomes-patient demographics, ED disposition (discharge, admit to floor, admit to hallway), ED and hospital length of stay (LOS), in-hospital mortality. Data Analysis-descriptive statistics were used to compare ED and hospital LOS, subsequent transfer to an ICU, and mortality between patients admitted to standard and hallway in-patient beds.

Results: There were 278975 ED visits, of which 57487 were admitted; there were 1798 deaths. Of all admission, 2036 went to a hallway, 51336 went to a standard bed (type of admit was unknown for 4115). Patients admitted to standard and hallway beds were similar in age (median [IQR] 55 [37-72]) and sex (48.2% female). The median (IQR) times from ED triage to actual admission in patients admitted to standard and hallway beds were 426 (306-600) and 624 (439-895) respectively; P<0.001. Median ED census at time of triage was higher for hallway patients then for standard bed admissions (50 [38-61] vs. 44 [33-53], respectively, P < 0.001). In-hospital mortality rates were higher among patients admitted to standard compared to hallway beds (2.5% vs. 1.1%; difference 1.5% [95% CI, 0.9-1.9%]). ICU admissions were also higher in the standard bed admissions (6.9% vs. 2.6%, difference 4.4% [95% CI 3.6-5.0%].

Conclusions: Transfer of ED boarded admitted patients to an in-patient hallway is associated with higher waiting times for admission, but lower mortality and lower ICU admissions. The increase in waiting times could be explained by the higher census.

7 Trauma Centers: What Are the Risk Factors for Closure?

Hsia RY, Shen Y/University of California at San Francisco, San Francisco, CA; Naval Postgraduate School, Monterey, CA

Study Objectives: Concerns about the increasing number of trauma centers have been growing, with specific attention paid to the financial vulnerabilities of trauma centers. Previous research has suggested that financial factors are related to closure, yet there is no empirical study of closures that actually occurred looking at specific risk factors for closure. The objective of this study is to identify risk factors associated with trauma center closure.

Methods: We use data from the American Hospital Association annual surveys to study all hospitals with trauma center services in urban areas in the continental US between 1990 and 2005. We link these data with Medicare cost reports, and supplement our analysis with other sources, such as the Area Resource File, to provide demographic characteristics of the population. Factors we analyze in this study include financial pressures (eg, profit margin, Medicare payment generosity, and HMO penetration level); county population characteristics (eg, minorities, poverty, elderly, uninsured); and hospital and market characteristics (eg, for-profit status, ownership, teaching status, case mix, total visits to emergency department, share of Medicaid discharges). We conducted multivariate analysis using discrete-time proportional hazard models to look at the main outcome measure of hazard rates of closure.

Results: We analyzed 344 closures and 788 non-closures over the study period of 1990-2005, with a total of 9566 "trauma center-years" for the survival analysis. We found that risk factors associated with higher trauma center closure included profit margin less than negative 5% (hazard ratio 1.34, p<0.01), high HMO penetration level (ratio 1.98, p<0.01), areas with high shares of minorities (ratio 1.85, p<0.01) or elderly (ratio 1.30, p<0.01) or poor (ratio 1.29, p<0.01), and several hospital characteristics, including for-profit status of the hospital (ratio 1.99, p<0.01). "Protective" factors with decreased risk of closure included: areas with high cost of living (ratio 0.52, p<0.01), more generous Medicare reimbursement (ratio 0.66, p<0.01), teaching status (ratio 0.46, p<0.05), and total visits to ED (ratio 0.86, p<0.01). Interestingly, factors that were not associated with decreased or increased likelihood of closure included Medicaid load and areas with high levels of the uninsured.

Conclusion: Our findings show empirical evidence to suggest that financial pressures as indicated by a negative profit margin or high HMO penetration rate, as well as institutional characteristics (eg, for-profit status) are associated with a higher rate of closure. Disturbingly, we also find areas with higher shares of vulnerable populations - even when other factors such as the financial, institutional, and market characteristics are controlled for - are still at higher risk of trauma center closure. These findings suggest that there are serious systems-level disparities in trauma center access and that policy interventions directed in these areas may be warranted.

Table 1: Discrete-Time Proportional Hazard Model for Likelihood of Trauma Center Clo

	Hazard Ratio	p-value
Financial Pressure Measures		
Profit margin		
Hospital with (-5,5)% margin	1.000	
Hospital with <-5% profit margin	1.340	0.00
Hospital with >5% profit margin	1.021	0.75
Medicare payment generosity		
reimbursement	1.000	
Received more generous Medicare reimbursement than average	0.660	0.00
HMO penetration level		
Low HMO markets	1.000	
Medium HMO markets	1.657	0.00
High HMO markets	1.980	0.00
County Population Characteristics		
Minority population		
Low share (lower 1/3)	1.000	
Medium share	1.310	0.00
High share	1.854	0.00
Population under poverty line		
Low share (lower 1/3)	1.000	
Medium share	1.064	0.38
High share	1.285	0.01
Elderly population		
Low share (lower 1/3)	1.000	
Medium share	1.117	0.09
High share	1.302	0.00
Uninsured population in 2000		
15 percent or lower	1.000	
Greater than 15 percent	0.945	0.42
Other population characteristics		
Population (log transformed)	1.009	0.76
Cost of living (log transformed)	0.524	0.01
Hospital Characteristics		
For-profit hospital	1.990	0.00
Government hospital	0.871	0.10
Teaching hospital	0.463	0.00
Member of a system	1.240	0.00
Case mix index (log transformed)	0.081	0.00
Total visits to ED (log transformed)	0.857	0.00
Hospital Market Characteristics		
Share of Medicaid discharges twice as much as the average competitor within 15-mile radius	0.834	0.07
Competitive hospital market (Hospital Herfindahl index < 0.25)	0.764	0.00
Percent for-profit hospitals within 15-mile radius	1.035	0.84
Percent government hospitals within 15-mile	1.408	0.09