

SIGNIFICANT VARIATIONS IN MORTALITY OCCUR AT SIMILARLY DESIGNATED TRAUMA CENTERS

Shahid Shafi, MD MPH¹

Ronald M. Stewart, MD²

Larry Gentilello, MD¹

¹Univ. of Texas Southwestern Medical School, Dallas

²Univ. of Texas Health Sciences Center San Antonio

&

Parkland Memorial Hospital, Dallas, TX

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Measuring Performance

Care Varies Widely At Top Medical Centers

*Study Finds NYU, UCLA Used More Services
Vs. Mayo, UC-San Francisco for Similar Patients*

By Ron Wisslow

THE NATION'S academic medical centers are renowned for their high-tech expertise and innovative treatments, but they vary widely in how they care for America's sickest patients.

A new report by researchers at Dartmouth Medical School says chances that patients with chronic disease will be hospitalized or admitted to an intensive-care unit during their last six months of life are as much as five times higher at some major academic hospitals as at others. Similarly, the cost of providing care to such patients over the final two years of their life is more than twice as high at some of the most prestigious medical centers.

The Dartmouth investigators say there is no evidence that higher amounts and greater intensity of care lead to better outcomes for patients.

They note past studies done at Dartmouth—looking at Medicare patients with heart attacks, hip fractures and colon cancer—that suggest centers with the most high-intensity care actually have slightly higher death rates than those with a lower intensity of care. As a result, the researchers say, the bills for patients with similar illness may be two or three times higher at some prestigious institutions, with no apparent additional benefit—

Hospital Stays

Average days Medicare patients with chronic illness spent in selected academic medical centers in the last six months of life.

HOSPITAL	DAYS
New York University Medical Center	32.1
Westchester County Medical Center	27.2
UCLA Medical Center	19.2
Mayo Clinic (St. Mary's Hospital)	12.9
University of Colorado Hospital	10.7
University Medical Center, Tucson, Ariz.	10.2

Source: The Dartmouth Atlas of Health Care

and perhaps some risk of harm.

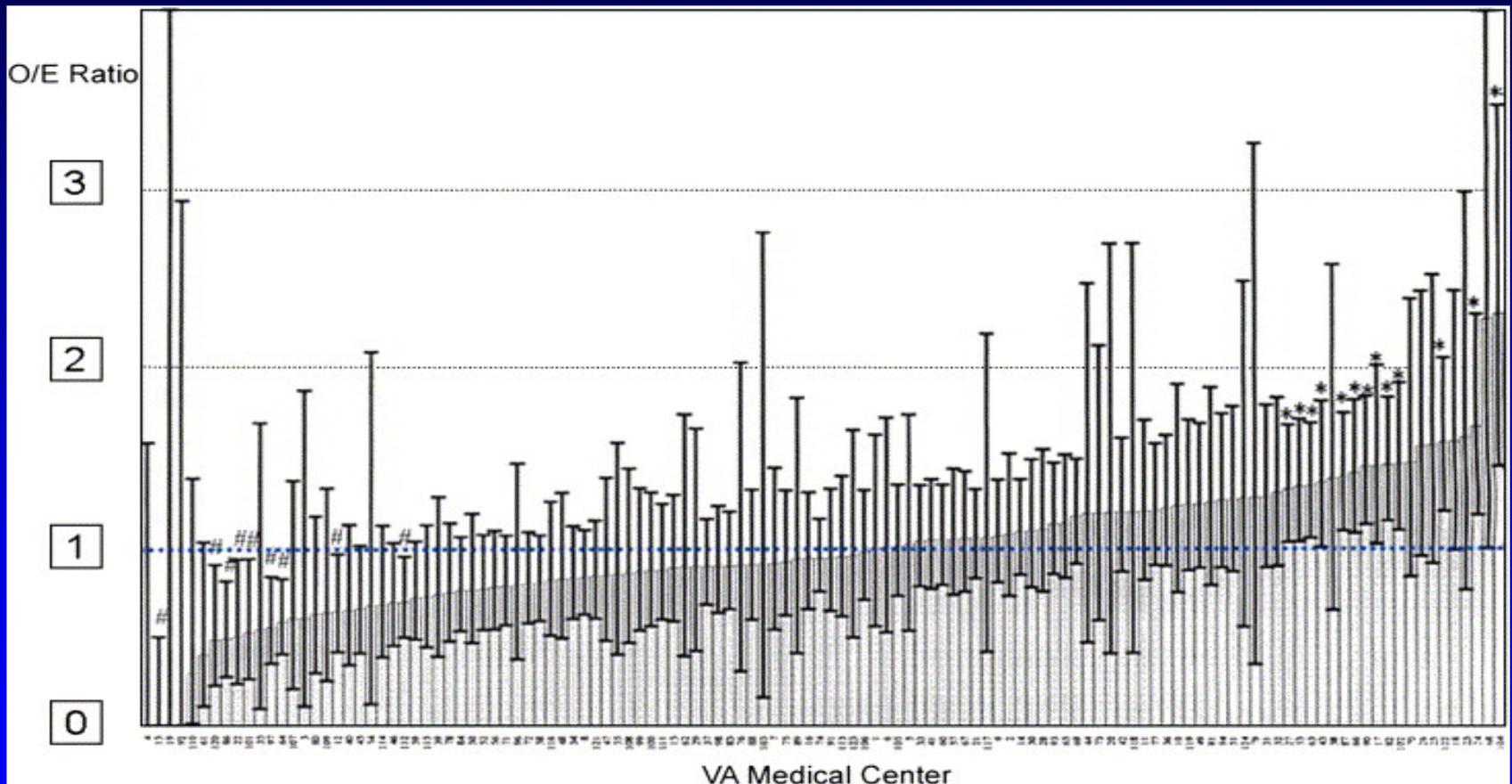
The highest number of days spent in the hospital by chronically ill patients in the final six months of life was at New York University Medical Center, with an average of 32.1 days. That compares with 12.9 days, for instance, for patients treated at St. Mary's Hospital, the principal hospital of the Mayo Clinic in Rochester, Minn. At University of California at Los Angeles Medical Center, this type of patient spent an average of 11.4 days in an intensive-care unit during the last six months of life, compared with 3.3 days at University of California at San Francisco Medical Center, which is in the same health-care system.

The study looked at Medicare patients who had been hospitalized for at least one of 12 serious illnesses such as congestive heart failure or cancer. To address the possibility that certain hospitals may cater to sicker populations that need more care, they looked only at patients who had died, and thus were deemed to have had similar prognoses.

The findings are from the latest edition of the Dartmouth Atlas of Health Care, a project that has documented wide variation in delivery of medical care in the U.S. for the past decade. The new version marks the first time the publication has spotlighted differences in care provided by the nation's

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NSQIP – National Surgical Quality Improvement Program



Khuri SF. Surgery 138:837, 2005.

Pay for Performance

MEDICARE ADDS PERFORMANCE-BASED PAYMENTS FOR PHYSICIANS 11/10/2006 05:48 PM

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MEDICARE ADDS PERFORMANCE-BASED PAYMENTS FOR PHYSICIANS

New Demonstration Program Tests Financial Incentives for Improved Quality and Coordination in Small to Medium Sized Group Practices

The Centers for Medicare and Medicaid Services (CMS) today announced a new initiative to pay physicians for the quality of the care they provide to seniors and disabled beneficiaries with chronic conditions, reflecting the Administration's ongoing commitment to reward innovative approaches to get better patient outcomes for the health dollar.

We intend to provide better financial support for quality care," said CMS Administrator Mark B. McClellan, "Through this demonstration and the rest of our set of value-based payment demonstrations, we are finding better approaches to doing that than ever before. This is another important step toward paying for what we really want: better care at a lower cost, not simply the amount of care provided."

CMS Fact Sheet, Jan. 31, 2005, www.medicare.gov

Trauma Centers Performance

- **Designation process**
- **Performance improvement process**
- **Data registry**

Implicit expectation – Improved quality of care.

Trauma Centers Performance

The Journal of TRAUMA® Injury, Infection, and Critical Care

A Twelve-Year Analysis Of Disease and Provider Complications on an Organized Level I Trauma Service: As Good As it Gets?

David B. Hoyt, MD, FACS, Raul Coimbra, MD, PhD, Bruce Potenza, MD, Jay Doucet, MD, Dale Fortlage, BA, Peg Holingsworth-Fridlund, RN, and Troy Holbrook, PhD

Background: The development of trauma systems reduces preventable mortality and the measurement of standardized complications creates further opportunity for improvement in morbidity. The annual incidence of complications in a trauma population has been previously reported but the frequency change over time in a single institution is not well studied.

Methods: All patients who were hospitalized for more than 24 hours, who died, were admitted to the Intensive Care Unit (ICU) or Intermediate Care Unit (IMU), or were inter-facility transfers prospectively evaluated for 12 consecutive

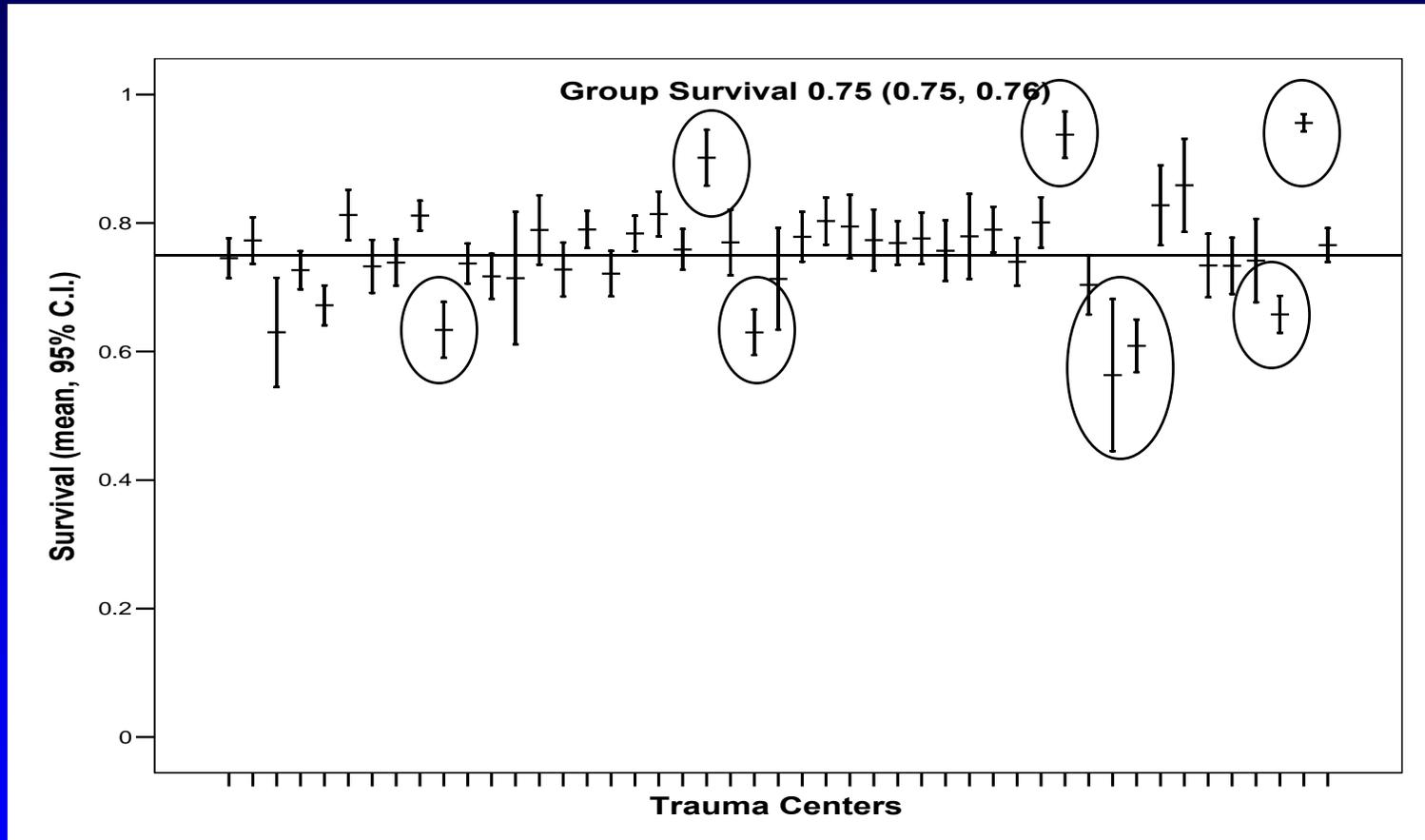
years. A total of 13,382 patients were studied (range, 862–1234 patients per year). Complication events were collected using 135 standardized definitions including disease and provider outcomes.

Results: The overall incidence of complications has remained stable over time. Provider events, disease events, and patients developing three or more complications have remained unchanged as well. Specific disease complications including pneumonia, deep vein thrombosis (DVT), and small bowel obstruction have fallen over time. Improvements in provider errors have also occurred.

Conclusion: This data suggests that most complications have a finite threshold despite the use of a stable trauma staff, implementation of standardized protocols, and emphasis on consistency of practice. Further reductions will require new research for disease-related treatment and new strategies for consistency and error reduction rather than our current models of continuous quality improvement.

Key Words: Trauma systems, Complications, Quality assessment, Missed injuries, Errors in diagnosis.

Care of the Injured – Uniform?



Shafi S, Friese R, Gentilello LM. Arch Surg (in press)

Hypothesis

Similarly designated trauma centers do not achieve similar outcomes, even after accounting for differences in their patient populations.

Methods

- **Texas statewide trauma registry 2003**
- **Designated Level 1 and 2 centers**
- **Adults: age 15 – 99 years**
- **Survival and injury severity known**
- **Exclusion: Centers with < 100 patients**

Patients Selection

Total Registry 73,439
294 centers, 20 Level 1 or 2
Inclusion criteria 20,794



Study Population 18,584



7 Level 1 Centers
10,620 patients



8 Level 2 Centers
7964 patients

Risk Adjustment

- **Outcome: Survival to Discharge**
- **Covariates: age, gender, race, mechanism of injury, injury severity**
- **Injury severity measures:**
 - ♦ **Injury Severity Score**
 - ♦ **Blood Pressure at presentation**
 - ♦ **Glasgow Coma Scale at presentation**

Risk Adjustment Model

- **Multivariate Logistic Regression**
- **Covariates and interactions with backward elimination**
- **Random equal split: training & validation set**
- **Final model with trauma center ID**

Data Analysis

- **Observed - Expected Survival ratio for comparison within center**
- **Odds ratio of Survival for comparison between centers**
- **Referent Center – Busiest Level 1 center**

Results – Patient Population

- **Age \geq 65 years:** 8% to 26%
- **Male gender:** 63% to 74%
- **Caucasian race:** 25% to 76%
- **Mechanism blunt:** 70% to 88%
- **ISS \geq 25:** 5% to 20%
- **SBP \leq 90 mm Hg:** 3% to 12%
- **GCS \leq 8:** 3% to 19%

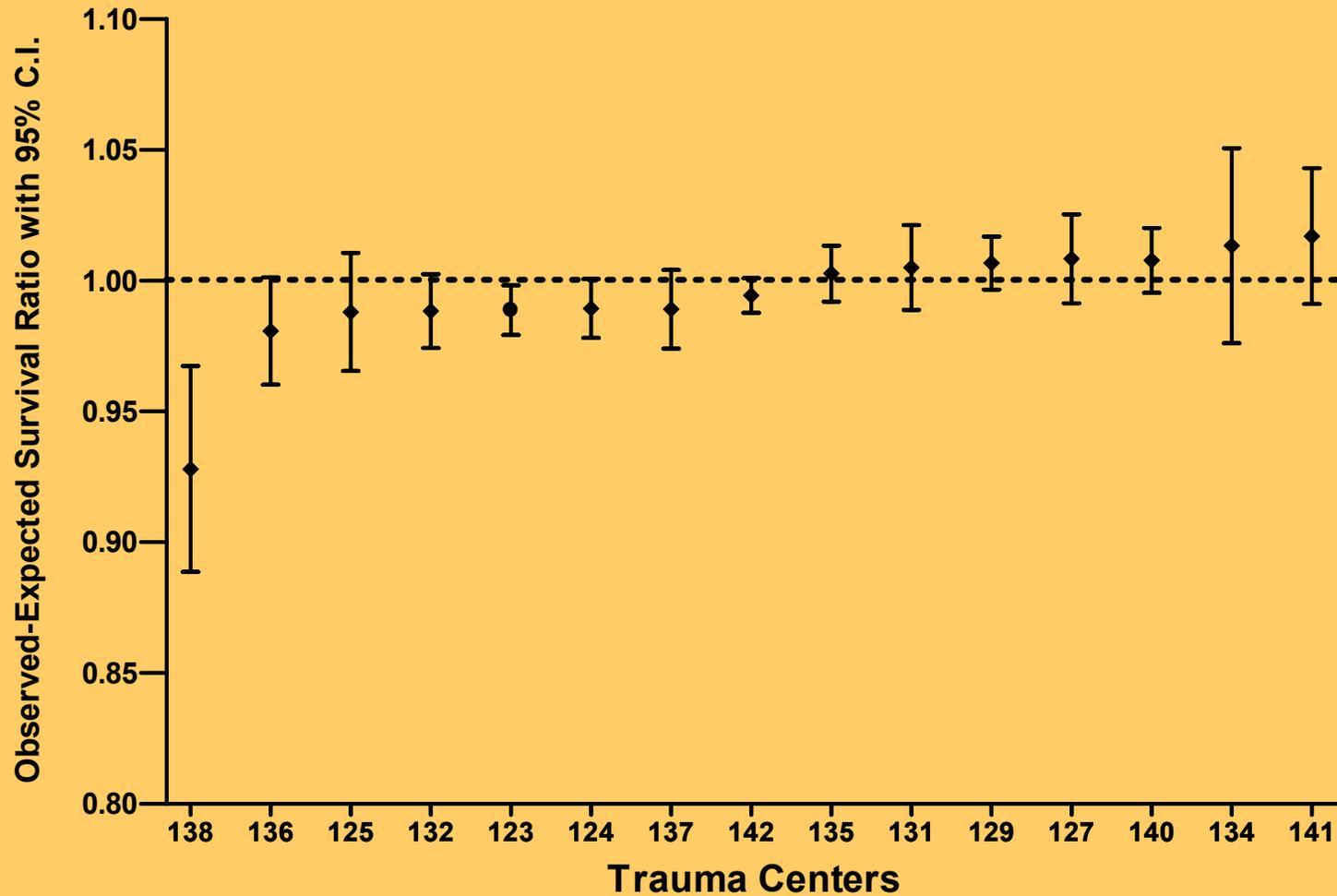
Independent Predictors of Mortality

- Age \geq 65 years
- ISS \geq 25
- SBP \leq 90 mm Hg
- GCS \leq 8
- Mechanism of Injury
- Specific Trauma centers

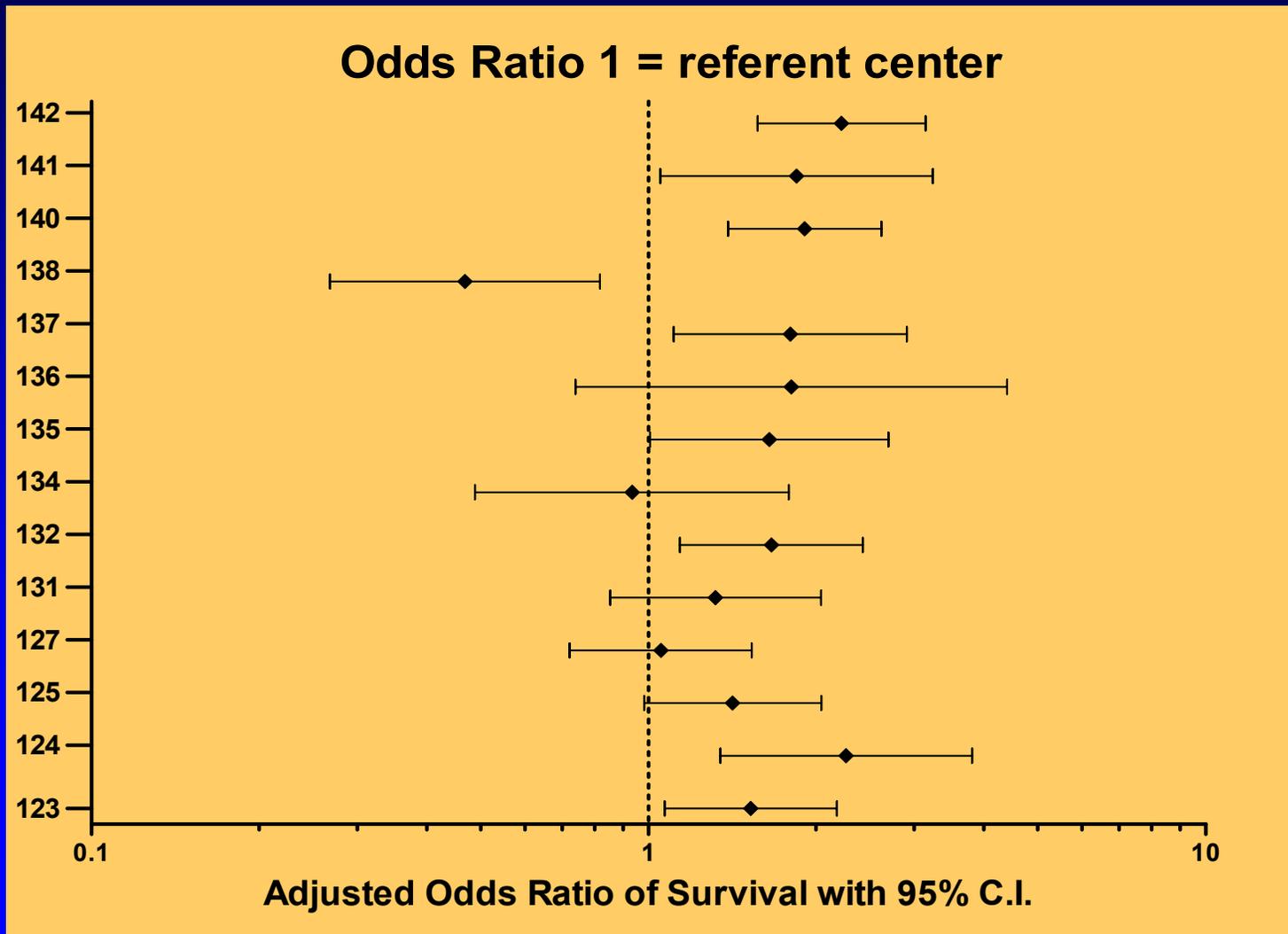
Effect of Risk Adjustment

<u>Odds of Survival</u>	<u>Number of Centers</u>
Improved	5
Worsened	1
No change	8

Comparison Within Centers

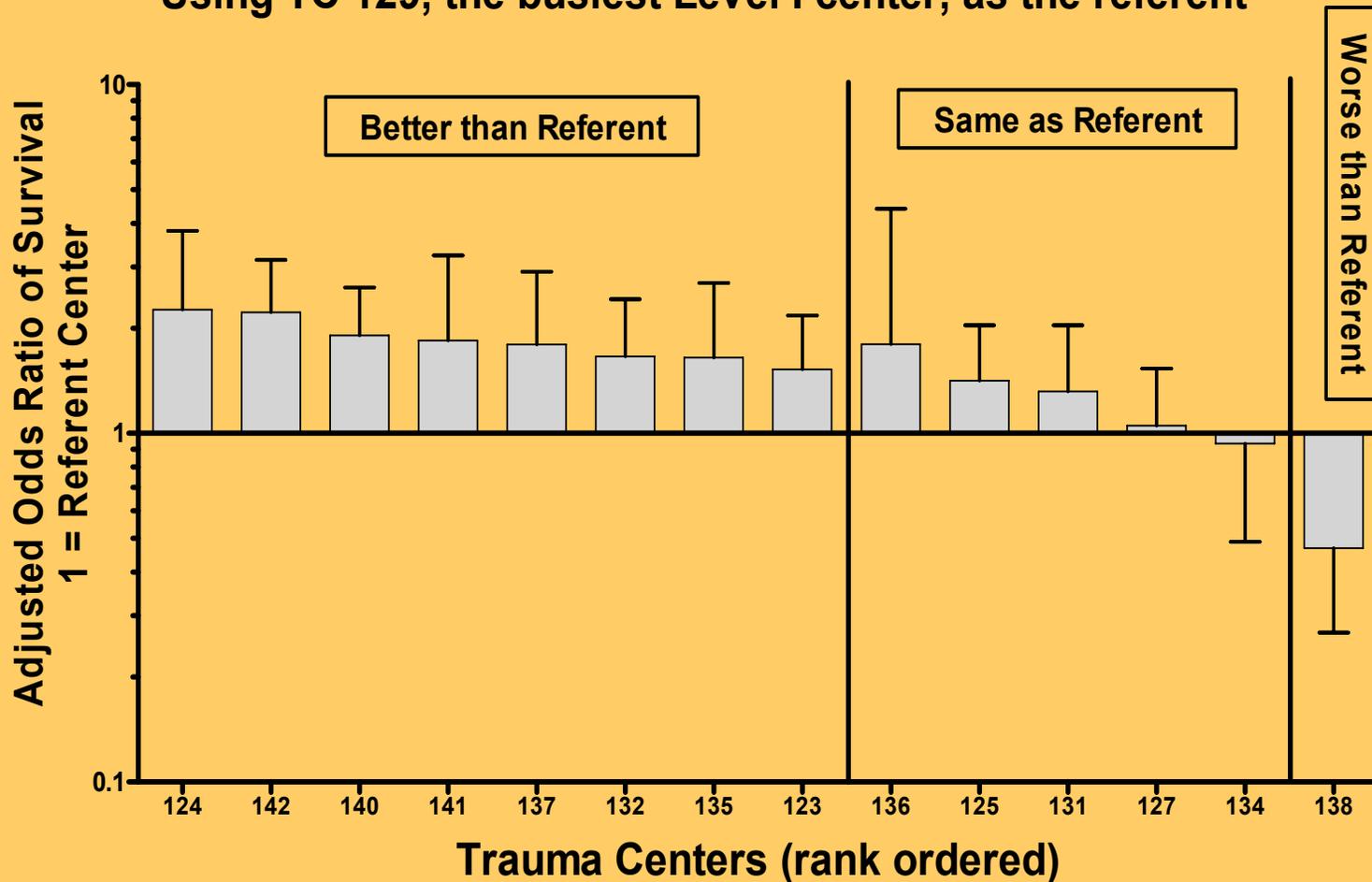


Risk Adjusted Odds of Survival



Comparison Between Centers

Using TC 129, the busiest Level I center, as the referent



Limitations

- **Retrospective analysis of a single state**
- **Quality of registry data from multiple centers**
- **Comorbidities missing**
- **Different number of patients from each center**
- **Exclusions**

Analysis of Excluded Patients

- **Excluded patients: 12% to 70%**
- **Three assumptions for imputation:**
 - All excluded patients were high risk**
 - All excluded patients were low risk**
 - Excluded patients not different from included**
- **Estimates of OR changed for all centers**
- **Significance of OR changed at three centers**

Summary

- **Similarly designated trauma centers did not achieve similar outcomes despite similar resources.**
- **Risk adjustment altered the performance measures at a large number of centers.**
- **Both within and between trauma center comparisons are necessary.**

Conclusions

- **Significant variations in risk-adjusted outcomes occur at similarly designated trauma centers.**
- **Trauma center designation process should go beyond resource availability to include performance measures - TQIP**

