Decreased Mortality in Level 1 Trauma Centers

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Grady Health System is the largest public hospital–based health system in the Southeast. Included are Grady Memorial Hospital; Children’s Healthcare of Atlanta at Hughes Spalding; Crestview Health and Rehabilitation Center; and nine neighborhood health centers.

Background

Following surgical critical care fellowship training at an integrated group practice, Dr. Matthews implemented several practice elements designed to standardize and coordinate care within the surgical ICU practice at Grady Memorial Hospital. The hypothesis was that a patient-centered, physician-led model of care would reduce mortality risk rate at the level 1 trauma center.

Methods

Researchers retrospectively examined records of 4,618 patients (Figure 1) included in the Grady trauma registry from 2000 to 2008. From 2000 to 2006, traditional methods were used in patient care:

- Decisions were made based on each physician’s preference and best judgment rather than the latest evidence
- Attending physicians saw patients within 24 hours of admission
- Patients were heavily sedated on ventilators, often developing pneumonia that caused longer ICU stays

![Admissions](image)

**Figure 1:** Admissions to the Grady Memorial Hospital trauma ICU between 2000 and 2008.
During 2007 and 2008, an integrated model of care was incorporated into the practice. Components included:

- A multidisciplinary team approach
- Close resident supervision by attending physicians
- Patients seen by the attending physician within six hours of admission
- Standardization based upon best practices. Specific changes included:
  - Change from inverse-ratio ventilation to low TV/high PEEP strategy for patients with acute respiratory distress syndrome (ARDS)
  - Daily monitoring of PaO2/FIO2 ratio for early detection and assessment of ARDS
  - Nutritional therapy using TPN/enteral nutrition and glutamine supplement
  - Discontinue use of paralytics in intubated patients
  - Sedation “holiday” for ventilated patients

**Results**

The overall mortality rate declined from 9.3 percent to 5.0 percent in the intervention-exposed group, with a relative mortality risk reduction of 46.3 percent. (See Figure 2.)

**Figure 2:** Mortality rates dropped significantly in 2007 and 2008 when a model of coordinated, integrated, evidence-based care was applied to practices in the ICU.

**Conclusion**

A patient-centered, physician-led model of care reduces mortality risk rate in a level 1 trauma center when compared to traditional medical practices.