

# Patient- and Family-Centered Care: The Impact on Patient Safety and Satisfaction

## A Comparison Study of Intensive Care Units at an Academic Medical Center

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# Background – PFCC at the Medical College of Georgia Hospitals and Clinics (MCGHealth)



- **Nationally Recognized Leader in PFCC**
- **MCGHealth featured in 2006 PBS special “Remaking American Medicine”**
- **Journey began in 1993 with the design and construction of Award Winning Children’s Medical Center**
- **Journey Continues as PFCC has become the business model and is central to the values, strategic plan, and personnel policies and practices.**
- **Unit by unit the Health system is being transformed.**

# Background: Why Study Intensive Care Units?

- ICUs are dangerous places!
- Studies suggest an incidence of two errors per patient per day.
- “If it were not for the potential for the ICU to prolong and occasionally save the lives of critically ill patients, no sane person would place themselves so squarely in harms way.”

# Critical Care Medicine

- American College Critical Care Medicine published clinical guidelines in support of the family in the patient-centered intensive care unit
- Acknowledges families are essential to patients' health and well being and are allies for quality and safety within the healthcare system
- No other place is the need for PFCC greater, than in the ICU.

# Adult ICUs at MCG

- PFCC concept is fully implemented across the MCGHealth system.
- Neuroscience ICU is only adult ICU that has been completely redesigned and staffed based on the PFCC model.



# Objectives

- Compare selected outcomes at an ICU with PFCC to those at an ICU providing traditional care.
- Measures:
  - Rates of Complications and AHRQ Safety Indicators
  - Performance measures, specifically Costs and LOS
  - Patient and Family Satisfaction Scores

# Methods

- Data were obtained from the University Health System Consortium Clinical Database (UHC CDB).
- Population: Adult ICU patients admitted in 2007 to either the Neuroscience ICU (PFCC) or the Trauma ICU (No PFCC).
- Measures: UHC data, UHC case mix controlled outcomes predicted by UHC models.

# Measures and Analysis

- Examined
  - Complications
  - AHRQ Safety Indicators
  - dCost (Observed cost – Expected cost per MSDRG)
  - dLOS (observed LOS – Expected LOS per MSDRG)
- Data were analyzed with SAS version 9.2.

# Patient Satisfaction

## Methods

- Used summary results from Press Ganey Patient Satisfaction Surveys.
- Examined responses to the five specific PFCC measures.
- Compared frequency of rating these five measures as “very good”

## 5 Specific Measures PFCC

- Family able to participate in decisions
- Staff explained roles in care
- Staff supported family throughout
- Staff respected family with
- Staff respected cultural/spiritual needs

# Results

- Complications and AHRQ Safety Indicators
- DCost and DLOS
- Patient Satisfaction

# Study Population

## Neuroscience

- N=705
- Slightly more females
- More Black and less White patients.
- More Medicare patients. (34%-22%)
- Slightly more were discharged directly home.
- Mean Age=51.70 years

## Trauma

- N=440
- Slightly more males
- More patients categorized as Severe Illness (57%-38%)
- More Privately Insured patients.(39%-30%)
- Mean Age=47.24 years

# AHRQ Safety Indicators

<b>AHRQ Safety Indicator</b>	<b>Total (%)</b>
<b>Postop PE or DVT</b>	<b>29.6</b>
<b>Failure to Rescue</b>	<b>22.2</b>
<b>Postop Resp. Failure</b>	<b>22.2</b>
<b>Decubitus Ulcer</b>	14.9
<b>Postop Hemorrhage/hematoma</b>	7.4
<b>Infection due to med. care</b>	3.7

# Complications

<b>Complication</b>	<b>Total (%)</b>
aspiration pneumonia	7.2
miscellaneous complications	14.4
other complications of procedures	11.3
post-proc hemorrhage or hematoma	8.2
postop ami	2.1
postop infections not pneumonia/wound	1.0
postop pneumonia	1.0
postop pulmonary compromise	33.0
postoperative stroke	3.1
proc related perforations or lacerations	5.2
venous thrombosis/pulmonary embolism	5.2

# Complications and Safety Indicators

## Complications

	Yes(%)
Neuro	40(5.67)
Trauma	91 (20.68)

## Safety Indicator

	Yes(%)
Neuro	14(1.99)
Trauma	24(5.45)

# At Least One Complication

Complication Yes	Model 1- OR (CL) <i>p</i>	Model 2 – OR (CL) <i>p</i>	Model 3 – OR (CL) <i>p</i>
<b>Group</b> Trauma v Neuro	<b>4.335</b> (2.924 – 6.426) <b>&lt;0.0001</b>	<b>3.772</b> (0.133 – 0.291) <b>&lt;0.0001</b>	<b>3.662</b> (2.404 – 5.709) <b>&lt;0.0001</b>
<b>Gender</b> Female v Male		<b>0.470</b> (0.318 – 0.696) <b>0.0102</b>	<b>0.593</b> (0.391 - .0899) <b>0.0139</b>
<b>Illness Severity</b> Severe v Less Severe		<b>6.112</b> (3.749 – 9.964) <b>&lt;0.0001</b>	<b>6.091</b> (3.748 -9.898 ) <b>&lt;0.0001</b>
<b>Age</b>		<b>1.018</b> (1.005 – 1.031) <b>0.0068</b>	<b>1.015</b> (1.005 -1.026) <b>0.0045</b>

**\*\*Model 2 - Race and Payer were held constant but were found not to be significant.**

# At Least One AHRQ Safety Indicator

Safety Indicator	Model 1- OR (CL) <i>p</i>	Model 2 – OR (CL) <i>p</i>	Model 3–OR (CL) <i>p</i>
Yes			
Group Trauma v Neuro	<b>2.848</b> <b>(1.457 – 5.566)</b>	<b>2.300</b> <b>(1.090 – 4.851)</b>	<b>2.173</b> <b>(1.077- 4.381)</b>
Gender Female v Male		<b>0.484</b> <b>(0.225 – 1.042)</b>	<b>0.0638</b>
Illness Severity Severe v less severe		<b>19.884</b> <b>(4.719 – 83.796)</b>	<b>21.254</b> <b>(5.065 - 89.191)</b>
Age			<b>1.017</b> <b>(1.000 - 1.035)</b>
**Race, Age and Payer held constant in Model 2 but were found not to be significant.			

# DLOS

<b>DLOS</b>	<b>Model 1</b>	<b><i>P</i></b>	<b>Model 2</b>	<b><i>P</i></b>	<b>Model 3</b>	<b><i>P</i></b>
	<b>Days</b>		<b>Days</b>		<b>Days</b>	
<b>Trauma</b>	<b>3.32</b>	<b><i>&lt;0.0001</i></b>	<b>3.50</b>	<b><i>&lt;0.0001</i></b>	<b>3.42</b>	<b><i>&lt;0.0001</i></b>
<b>Neuro</b>	<b>0.80</b>		<b>1.23</b>		<b>1.19</b>	
			<b>Sex</b>	<b><i>0.1900</i></b>		
			<b>Race</b>	<b><i>0.4342</i></b>		
			<b>Payer</b>	<b><i>0.0004</i></b>	<b>Payer</b>	<b><i>0.0002</i></b>
			<b>Age</b>	<b><i>0.9376</i></b>		
			<b>Ill Severity</b>	<b><i>0.0017</i></b>	<b>IllSeverity</b>	<b><i>0.0006</i></b>

# DCost

DCost	Model 1 DCost\$	<i>P</i>	Model2 DCost \$	<i>P</i>	Model 3 DCost \$	<i>P</i>
Trauma	-297.59	0.0005	-80.71	<0.0001	-259.38	0.0002
Neuro	-3250.80		-3546.69		-3484.32	
			Sex	0.9782		
			Race	0.9845		
			Payer	0.0196	Payer	0.0198
			Age	0.7863		
			Ill Severity	0.1660		

# Results – Patient Satisfaction

- Neurosciences (n=200)  
>50% rated care as very good in each of the five PFCC measures
- Shock Trauma (n=39)
  - 20% rated three of the measures as very good  
\*results are influenced by the care received in ‘step down’ unit.
  - 0 rated “staff supported family throughout” and “staff respected cultural/spiritual” as very good.



# Summary of Findings

- Increased odds of suffering at least one complication in the Trauma ICU as compared to the Neuroscience ICU after controlling for other variables.
- Increased odds of suffering at least one AHRQ Safety Indicator in the Trauma ICU as compared to the Neuroscience ICU after controlling for other variables.

# Summary of Findings

- The difference in LOS and expected LOS per MSDRG is greater in the Trauma ICU than in the Neuroscience ICU after controlling for other variables.
- The difference in Cost and expected Cost per MSDRG is greater in the Trauma ICU than in the Neurosciences ICU after controlling for other variables.
- Patients and Families rated the Neuroscience ICU higher in patient satisfaction

# Significance of Findings

- Increased LOS is associated with increased costs and greater potential for complications and safety indicators.
- More frequent potentially avoidable complications increase costs and LOS.

# Significance of Findings

- AHRQ safety indicators are associated with increased mortality and costs. In years 2004 to 2006, 238,337 potentially preventable deaths were attributed to safety indicators. Safety indicators were associated with \$8.8 BILLION of excess costs during these same years.
  - \* 42% of the patients experiencing at least one safety indicator expired.
- Greater patient and family satisfaction which leads to less clinician/patient-family conflict, which in turn has been shown to decrease litigation.

# Conclusions

- Study suggests that PFCC has a positive effect on performance measures such as LOS and costs, quality of care, patient safety, and patient and family satisfaction.
- Further research is required in the areas of performance measures to validate study's findings and to further illustrate the benefits of PFCC on outcomes and performance including the "bottom line."
- PFCC should be implemented across the continuum of healthcare.
- PFCC not only feels right, it is the right thing to do both for patient and family satisfaction and for patient safety and quality care.

# References

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