Memorial Hermann’s Journey to High Reliability Healthcare

IHI – Minicourse M2
Leading the Way to High Reliability
December 10, 2012

M. Michael Shabot, M.D.
System Chief Medical Officer
Presenter has nothing to disclose

Memorial Hermann Healthcare System

Fiscal Year Ended June 30, 2012

- Total Hospitals: 12 (9 Acute, 2 Rehab, 1 Children’s)
- Ambulatory Surgery Centers: 18
- Heart & Vascular Institutes: 3
- Imaging Centers: 21
- Breast Care Centers: 9
- Sports Medicine & Rehab Centers: 32
- Diagnostic Laboratories: 21
- Retirement/Nursing Center: 1
- Home Health Branches: 3
- Cancer Centers: 7

- Adjusted Admissions: 256,175
- Annual Emergency Visits: 450,010
- Annual Deliveries: 23,111
- Employees: 20,241
- Beds (acute licensed): 3,147
- Medical Staff Members: 5,790
- Physicians in Training: 1,694
- Annual Labor Cost: $1.191 billion
Transformation to a High Reliability Organization

August 14, 2006

A Call to Action on Patient Safety

Transfusion Errors
Serious Safety Events

Burning Platform
Role of the Board

Moving the Memorial Hermann Healthcare System from Safety as a priority to

**Safety is our Core Value**

....

Leadership behavioral expectations change when safety is the core value

MHHS Safety Culture Training

<table>
<thead>
<tr>
<th>Hospital Training Complete</th>
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<tbody>
<tr>
<td>&gt;20,000 Employees Trained</td>
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<tr>
<td>&gt;2,000 Physicians Trained</td>
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<tr>
<td>&gt;540 Safety Coaches Trained</td>
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<td>&gt;$18M Expense</td>
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Safety Culture Training

• Step 1: Set Behavior Expectations
  Define Safety Behaviors & Error Prevention Tools proven to help reduce human error

• Step 2: Educate
  Educate our staff and medical staff about the Safety Behaviors and Error Prevention Tools

• Step 3: Reinforce & Build Accountability
  Practice the Safety Behaviors and make them our personal work habits

Breakthroughs in Patient Safety Training
Self-Checking With STAR* (Stop, Think, Act, & Review)

Support Each Other: CUSS Words

- I am Concerned
- I am Uncomfortable
- This is for Safety
- Stand up and Stand Together
Edna Coutts, R.N.
Sugar Land Hospital Safety Champion of the Month

Safety Success Stories

Self-Check with STAR
(Stop, Think, Act, & Review)

“Good for Her”

Edna Coutts, R.N.
Sugar Land Hospital Safety Champion of the Month
Red Rules

Absolute Compliance

1. Patient Identification
2. Time Out
3. Two Provider Check

Hospital Acquired Conditions
“Never Events”

Hemolytic Transfusion Reactions

Transfusion Events Jan 2007 – Aug 2012

1,335,000 Adjusted Admissions
7,227,000 Adjusted Pt Days
679,000 Transfusions
Hospital Acquired Conditions
“Never Events”

Hemolytic Transfusion Reactions
Transfusion Events Jan 2007 – Aug 2012

Adult Transfusion reaction /1000

Zero

Hospital Acquired Infections (HAIs) – “The Cure”

HAI Prevention Bundle Audit
HOSPITAL ACQUIRED INFECTION INDICATORS

Date: Oct 08, 2011

TJC Hand Hygiene Compliance
Center for Transforming Healthcare

Baseline Compliance 44%
Adult ICU Central Line Associated Blood Stream Infections (CLABSI)

NICU Central Line Associated Blood Stream Infections (CLABSI)
Adult & Pedi ICU Ventilator Associated Pneumonias (VAP)

MH System Compliance Rate

High Reliability Core Measures

MH System Compliance Rate
Memorial City Med Center
High Reliability AMI Care

Acute Myocardial Infarction - Core Measure AMI-8a
Door-to-Percutaneous Coronary Intervention

![MHMC - Time to PCI](chart)

- March 2007
- 67 Months
- Oct 2012

Hospital Acquired Infections, Conditions and Patient Safety Indicators

- Central Line Associated Bloodstream Infections
- Ventilator Associated Pneumonias
- Surgical Site Infections
- Retained Foreign Bodies
- Iatrogenic Pneumothorax
- Accidental Punctures and Lacerations
- Pressure Ulcers Stages III & IV
- Hospital Associated Injuries
- Deep Vein Thrombosis and/or Pulmonary Embolism
- Deaths Among Surgical Inpatients with Serious Treatable Complications
- Birth Traumas
- Serious Safety Events
Central Line Associated Bloodstream Infections
Ventilator Associated Pneumonias
Surgical Site Infections
Retained Foreign Bodies
Iatrogenic Pneumothorax
Accidental Punctures and Lacerations
Pressure Ulcers Stages III & IV
Hospital Associated Injuries
Deep Vein Thrombosis and/or Pulmonary Embolism
Deaths Among Surgical Inpatients with Serious Treatable Complications
Birth Traumas
Serious Safety Events
Patient Safety Indicator
Iatrogenic Pneumothorax

Central Line Associated Iatrogenic Pneumothorax

Patient Safety Indicator
Iatrogenic Pneumothorax

Central Line Associated Iatrogenic Pneumothorax
Bedside Real Time Ultrasound Guidance
Chest Tube Insertion for iatrogenic Pneumothorax

MH Southeast Hospital
iatrogenic Pneumothorax

MH Southeast Hospital
Southeast Adult iatrogenic Pneumothorax
Do No Harm Rate/1000 Discharges for Secondary Diagnosis

2009 2010 2011
Reporting Months

Produced by System Quality and Patient Safety
Real Time Ultrasound Guidance

MH Southeast Hospital

Driver Graph:
Real-Time Ultrasound Guidance for Central Line Insertion
2011

Memorial Hermann

High Reliability Certified Zero Award
To: Memorial Hermann Southeast Hospital
Zero iatrogenic Pneumothorax for 12 Months
February 1, 2010 to January 31, 2011

Dan Heineman
President & Chief Executive Officer

M. Michael Shamot, M.D.
System Chief Medical Officer

Robert G. Croyle
Chair, Health System Board
High Reliability Certified Zero Award

1. Zero Events
2. 12 Consecutive Months
3. Certified Zero Category

Katy: Zero Pressure Ulcers Stages 3 & 4
MH Northeast Hospital Zero Iatrogenic Pneumothorax

Northeast Adult Iatrogenic Pneumothorax
On No Harm
Rate/1000 Discharges for Secondary Diagnosis

15 Months
Zero Iatrogenic Pneumothorax

To: Memorial Hermann Northwest Hospital
Zero Retained Foreign Bodies for 24 Months
January 1, 2010 to December 31, 2010

Northwest: Zero Retained Foreign Bodies

Northwest Adult FB
Foreign Body Left During Procedure
Rate/1000 Discharges for Secondary Diagnosis

Zero Retained Foreign Bodies x 24 Months
Sugar Land: Zero ICU Central Line Blood Stream Infections

MH Katy: Zero Central Line Blood Stream Infections Hospital-Wide
Woodlands: Zero Hospital Acquired Injuries

[Graph showing hospital acquired injuries per 1000 inpatients with a line indicating zero injuries for 21 months.]

TeamHealth 8 EDs: Zero Iatrogenic Pneumothorax

[Certificate of High Reliability Certified Zero Award for TeamHealth 8 EDs for 12 months with no iatrogenic pneumothorax.]
**TIRR: Zero Serious Safety Events**

**TIRR SSE Monthly Rate**

- **Serious Safety Events Monthly Rate per 10,000 Adjusted Patient Days**

![Graph showing monthly rate of serious safety events](image)

- **ICU Central Line Associated Bloodstream Infections**: 6
- **Hospital-Wide Central Line Associated Bloodstream Infections**: 1
- **Ventilator Associated Pneumonias**: 15
- **Surgical Site Infections**: Retained Foreign Bodies (17)
- **Iatrogenic Pneumothorax**: 10
- **Accidental Punctures and Lacerations**: 2
- **Pressure Ulcers Stages III & IV**: 15
- **Hospital Associated Injuries**: 3
- **Deep Vein Thrombosis and/or Pulmonary Embolism**: 77
- **Deaths Among Surgical Inpatients with Serious Treatable Complications**: 7
- **Birth Traumas**: 7
- **Serious Safety Events**: 1

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**High Reliability 2011-12 Certified Zero Awards**

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- **Birth Traumas**: 7
- **Serious Safety Events**: 1

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*Generated 6/15/2011 12:31 PM by System Quality and Patient Safety*
System Zero Achievements
July - September 2012

Zero Adverse Events for a Month for all Memorial Hermann Hospitals:
Hospital Acquired Infections
Patient Safety Indicators
Hospital Acquired Conditions

System Zero Adult Retained Foreign Bodies

Each Month:
12,000+ Admissions
60,000+ Days of Care

Lower is Better
System Zero Adult Iatrogenic Pneumothorax

Each Month:
12,000+ Admissions
60,000+ Days of Care

Lower is Better

System Zero Ventilator Associated Pneumonia

Each Month:
12,000+ Admissions
60,000+ Days of Care

Lower is Better
System Zero Pediatric
Accidental Puncture & Laceration

Each Month:
12,000+ Admissions
60,000+ Days of Care

Lower is Better

System Zero Adult Death in Low Mortality DRGs

Each Month:
12,000+ Admissions
60,000+ Days of Care

Lower is Better
System Zero Pediatric Pressure Ulcer

Each Month:
12,000+ Admissions
60,000+ Days of Care

High Reliability Jul-Sep 2012
System Zero Achievements

System Zero Months July - September 2012

ICU Central Line Associated Bloodstream Infections (1)
Ventilator Associated Pneumonias (2)
Adult Retained Foreign Bodies (3)
Pediatric Retained Foreign Bodies (3)
Iatrogenic Pneumothorax (1)
Pediatric Iatrogenic Pneumothorax (3)
Adult Pressure Ulcers Stages III & IV (1)
Pediatric Pressure Ulcers Stages III & IV (3)
Pediatric Accidental Punctures or Lacerations (3)
Death in Low Mortality DRGs (2)
Adult Would Dehiscence (3)
Eliminate Medication Errors

“56 Rights” Checking:

- Right patient?
- Right drug?
- Right dose?
- Right route?
- Right time?
- Right labs?
Wrong Patient

Warning
The scanned patient does not match the open chart.

Wrong Med

Warning
The medication scanned, promethazine (promethazine 25 mg TAB), was not dispensed for this patient.
Wrong Labs

Potential ADE Alert
This patient has a potassium level of 6.1 as of November 07, 2011 07:57:00 CST that may be exacerbated by the current order for potassium chloride. Please communicate with physician for possible next step:
1. Hold dose
2. Cancel order
If physician has already indicated reason to continue, you may continue to administer the medication by providing an appropriate override reason

Alert Action
☐ Do Not Administer potassium chloride
☐ Continue to Administer potassium chloride

“Good Catches”
Decision Support Alerts

2009 3,286* 4 mos. data
2010 7,163
2011 8,831
2012 11,626 (Projected)

“Good Catches” Errors Prevented by CDS
Does All This Make A Difference at Memorial Hermann?

Safety/Quality Leader

15 Top Health Systems; Top 5 Large Health Systems (2012)

National Health System Patient Safety Leadership Award, Sponsored by VHA Foundation and the National Business Group on Health (2009)


HealthGrades®
- America's 50 Best Hospitals (2010, 2011 & 2012)
- Distinguished Hospital for Clinical Excellence (2011)

MH Hospital System America's #1 Quality Hospital for Overall Care (2011 & 2012)

Texas Hospital Association Bill Aston Quality Award (2011)

2011 Texas Healthcare Foundation Quality Improvement Awards (9 Memorial Hermann Campuses)
Healthcare as a High Reliability Organization

A new standard

Aim for safety of planes, nuclear plants

Everyone counts on high-reliability organizations to ensure that safety, whether flying on commercial airlines or visiting near-nuclear power plants. Air traffic control, nuclear submarines, nuclear aircraft carriers, and nuclear reactors all have well-deserved reputations for high-reliability operation.

But can hospitals be evaluated by HRO standards? In general, the answer seems to be "Yes," beginning with the Institute of Medicine's 2000 publication of "To Err is Human" and continuing to the 2004 report by IOM, "The Culture of Safety: A Review of Institute of Medicine's To Err is Human." The report found that 11% of Medicare beneficiaries suffer a preventable adverse event, and the costs of these events are astronomical. A recent study found that 40% of hospital patients suffer at least one preventable event during their hospital stay.

States are now monitoring hospital events and enforcing new regulations. In 2009, a high-reliability program was implemented in all intensive care units and operating rooms. Memorial Hermann worked with the IOM's Cultivating the Label for Transforming Healthcare (C4T) to identify opportunities for improvement. In 2008, the Memorial Hermann Healthcare System in Houston embarked on a quest to become an HBO. The high-reliability program is a key element of this new focus.
Healthcare as a High Reliability Organization

Nuclear Aircraft Carriers
Air Traffic Control
Commercial Aviation

MHHS as a High Reliability Organization

Memorial Hermann Healthcare System
Nuclear Aircraft Carriers
Air Traffic Control
Commercial Aviation
Thank you!

“You must be the change you want to see in the world”

Mahatma Gandhi (1869-1948)

Discussion