What is High Reliability and Why Does Healthcare Need it?

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President, The Joint Commission
Institute for Healthcare Improvement
25th Annual Forum
Orlando, FL
December 9, 2013

456 patients notified
141 patients notified

UNNECESSARY STENTS

Excela Health: Patients May Not Have Needed Stents
Excela Health says 141 patients who received stents in 2010 didn't medically need them. The announcement comes after a self-initiated internal review conducted at the Westmoreland County hospital.
2011/03/03 in Health, Local, News

The Joint Commission

Operating-Room Fire at Hospital Burns Patient, Prompts Changes

Serving Moore County, NC | August 15, 2013

Operating-Room Fire at Hospital Burns Patient, Prompts Changes

Posted: Friday, August 9, 2013 11:45 am | Updated: 12:17 pm, Mon Aug 12, 2013.
Ted M. Natt Jr., staff writer | 26 comments
FirstHealth of the Carolinas officials should know by the end of the month whether they have taken adequate corrective steps to prevent operating room fires like the one recently that burned the neck and shoulders of a patient during an emergency surgery at Moore Regional Hospital.

The N.C. Division of Health Service Regulation placed Moore Regional on "immediate jeopardy" status following an
'You're taking out wrong kidney, surgeon was told'

by CLARE KITCHEN, Daily Mail

A surgeon accused of killing a patient by taking out the wrong kidney was warned he was making a mistake by a medical student watching the operation, a court heard yesterday.

Dr Mahesh Goel dismissed the concerns of student Victoria Fern and pressed on with the surgery, it was said.

Goel and consultant urologist John Roberts are accused of manslaughter over the 'appalling error' which left 70-year-old Graham Reeves with one diseased kidney.

The Korean War veteran died five weeks after the botched operation.

Roberts, 59, and Goel, 59, had shown a level of care far below that which is expected of competent surgeons, prosecuting Leighdon Davies QC said.

'It was a drastic surgical error described by Mr Roberts himself in the aftermath as the most frightening thing he had done in his life,' said Mr Davies.

He said it was an 'appalling error'.

Mr Reeves, who was single, was due to have his damaged right kidney removed but the surgeons removed his left kidney and before the mistake was realised it was put in a jar of acidic sterilising agent.

'The right kidney was diseased for years and non-functioning,' Mr Davies told Cardiff Crown Court.

'The operation played a significant part in causing his death. It deserves to be condemned as gross negligence and therefore a crime.'

MEDCITY News

Wrong-site surgery leads to more surgeries for patient and more problems for Florida hospital

August 18, 2013 3:42 am by Jamison, Marni | 0 Comments

A patient woke up from surgery at Halifax Hospital Medical Center last month to find her surgeon had operated on the wrong leg.

But, that's not how the cardiovascular surgeon explained it to her, according to a report from Florida's Agency for Health Care Administration, which investigated the July 3 incident. Instead, the surgeon told the patient that her other leg needed to be done anyway. Then he asked her to sign a consent after the fact, according to the report.

Patient 34, as she is referred to in the agency's report, was admitted to the Daytona Beach hospital for vascular disease, which was causing pain in her left leg. She gave her consent to have vascular graft surgery on her left leg. But the surgical staff scheduled the procedure for her right leg.
Current State of Quality

Routine safety processes fail routinely
- Hand hygiene
- Medication administration
- Patient identification
- Communication in transitions of care

Uncommon, preventable adverse events
- Surgery on wrong patient or body part
- Fires in ORs, retained foreign objects
- Infant abductions, inpatient suicides

How Have Others Done It?

“High reliability organizations” manage very serious hazards extremely well

What do they all have in common?
- Highly effective process improvement
- Fully functional safety culture

Discover and fix unsafe conditions early
In health care, we are typically reacting after patients are harmed
How Safe are US Airlines?

1990-2001
• 129 deaths per year
• 9.3 million flights per year
• Rate = 13.9 deaths per million flights

2002-2012
• 15 deaths per year
• 10.3 million flights per year
• Rate = 1.46 deaths per million flights

Safety: Airlines vs. Health Care

IOM “To Err is Human” estimate
• 44,000-98,000 deaths in hospitals due to errors in care
• 34.4 million hospitalizations per year
• Rate = 1300-2800 deaths per million hospitalizations

US Airlines: 2002-2012
• Rate = 1.46 deaths per million flights

Hospital care is 890-1918 times less safe
Airlines vs Health Care---II

- Best study of errors and harm in hospital care showed that 1% of hospital patients were injured due to negligent errors
  - Hospital rate = 10,000 per million
- US Airlines rate (death plus serious injury)
  - 2002-2012 = 380 people/113.6M flights
  - US Airlines rate = 3.34 per million
- On this measure, hospital care is 2994 times less safe than air travel

High Reliability Science

- Research has defined how HROs produce sustained excellence over time
  - We cannot simply and directly import the practices of HROs to healthcare
  - No guidance on how to transform organizations from low to high reliability
  - Joint Commission created roadmap for health care to build toward high reliability
High Reliability Healthcare

Our team has learned a lot by working with experts from academia and HROs:
- Aviation, military, amusement parks
- Nuclear power, wild land firefighting

We have created a model for healthcare
- New resources, strategies, and tools
- Some hospitals and systems are beginning to commit to the goal

Leadership

Trust

Improve

Report

Safety Culture

High Reliability
High-Reliability Health Care: Getting There from Here

MARK R. CHASSIN and JEROD M. LOEB

The Joint Commission

Context: Despite serious and widespread efforts to improve the quality of health care, many patients still suffer preventable harm every day. Hospitals find improvement difficult to sustain, and they suffer "project fatigue" because so many problems need attention. No hospitals or health systems have achieved consistent excellence throughout their institutions.
High Reliability Self-Assessment

- Four stages of maturity: beginning, developing, advancing, approaching

- **Leadership**: Board, CEO, physicians, quality strategy, quality measures, IT

- **Safety culture**: trust, accountability, identifying unsafe conditions, strengthening systems, assessing safety culture

- **Performance improvement**: methods, training, spread through organization
Joint Commission
High Reliability Initiatives

- High Reliability Resource Center
- High Reliability Self Assessment Tool (HRST)
- South Carolina Safe Care Commitment
  - Hospitals working toward high reliability
  - HRST: strengths and weaknesses
- Tools for helping get to zero: Center for Transforming Healthcare and TST

Leadership

All components of leadership must be committed to the goal of high reliability:
Board, management, MD and RN leaders

- Commitment means setting an ultimate goal of zero harm (patients and staff)
- Quality program must go beyond what is required by regulators or other outside entities
- Improvement efforts directed at most important causes of harm in your patient population
Safety Culture

- Aim is not a “blame-free” culture
- A true safety culture balances learning with accountability
- Must separate blameless errors (for learning) from blameworthy ones (for discipline, equitably applied)
- Assess errors and patterns uniformly
- Eliminate intimidating behaviors

Sentinel Event Alert on Intimidating Behaviors

**Behaviors that undermine a culture of safety**

Intimidating and disruptive behaviors can foster medical errors, contribute to poor patient satisfaction and to preventable adverse outcomes; increase the cost of care and cause qualified clinicians, administrators and managers to seek new positions in more professional environments. Safety and quality of patient care is dependent on teamwork, communication, and a collaborative work environment. To assure quality and to promote a culture of safety, health care organizations must address the problem of behaviors that threaten the performance of the health care team.
Accountability

- Health care also fails to apply disciplinary procedures equitably and uniformly
- Lack of uniform accountability also erodes trust, stifles reporting of unsafe conditions
- Belief in a completely “blame-free culture” can impair progress toward accountability
- Striking the balance is critical:
  - Learning from blameless errors
  - Accountability for adhering to safe practices

Robust Process Improvement

- Systematic approach to problem solving: (RPI = lean, six sigma, change management)
  - Far more effective than prior approaches
  - Using same tools increases effectiveness
  - Data starting to show high impact of RPI
- The Joint Commission has fully adopted RPI
- The Joint Commission is adopting all components of safety culture
- We measure and report metrics to Board
Delivering products at no added cost

- TJC: $25M; 9 other major donors
- AHA, BCBSA, BD, Cardinal Health
  Ecolab, GE, GSK, J&J, Medline

- 2009-10: hand hygiene, wrong site
  surgery, hand-off communications, SSIs
- 2011: safety culture, preventable HF
  hospitalizations, and falls with injury
- 2012: sepsis mortality, insulin safety
- 2013: C. difficile prevention
Participating Hospitals

- Atlantic Health
- Barnes-Jewish
- Baylor
- Cedars-Sinai
- Cleveland Clinic
- Exempla
- Fairview
- Floyd Medical Center
- Froedtert
- Intermountain
- Johns Hopkins
- Kaiser-Permanente
- Mayo Clinic
- Memorial Hermann
- New York-Presbyterian
- North Shore-LIJ
- Northwestern
- OSF
- Partners HealthCare
- Sharp Healthcare
- Stanford Hospital
- Texas Health Resources
- Trinity Health
- Virtua
- Wake Forest Baptist
- Wentworth-Douglass

Current State of Quality

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The Way We Do Improvement

Usual approach: best practices, toolkits, protocols, checklists, “bundles”
- Typical best practice is “one-size-fits-all”
- Can produce modest improvement
- Difficult to get to zero
- Difficult to sustain

The “one-size-fits-all” approach works well only for simple problems that do not vary

Toughest problems are not simple

A New Way is Delivering Results

Complex processes require more sophisticated problem-solving methods

Three crucial and consistent findings:
- Many causes of the same problem
- Each cause requires a different strategy
- Key causes differ from place to place

RPI = lean, six sigma, change management
- Producing next generation best practices
- Solutions customized to your causes
Semmelweis’ Original Data

Monthly Death Rates

Handwashing Program

1841 1842 1843 1844 1845 1846 1847 1848

Some Important Causes of Hand Hygiene Failures

1. Faulty data on performance
2. Inconvenient location of sinks or hand gel dispensers
3. Hands full
4. Ineffective education of caregivers
5. Lack of accountability

→ Each requires a very different strategy to eliminate
### Causes Differ by Hospital

#### Main Causes of Failure to Clean Hands
( across all participating hospitals)

<table>
<thead>
<tr>
<th>Cause</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
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</thead>
<tbody>
<tr>
<td>Ineffective placement of dispensers or sinks</td>
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<td>Hand hygiene compliance data are not collected or reported accurately or frequently</td>
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<td>Lack of accountability and just-in-time coaching</td>
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<td>Safety culture does not stress hand hygiene at all levels</td>
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<td>Ineffective or insufficient education</td>
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<td>Hands fall</td>
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<td>Wearing gloves interferes with process</td>
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<tr>
<td>Perception that hand hygiene is not needed if wearing gloves</td>
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<td>Health care workers forget</td>
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<td></td>
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<td>Distractions</td>
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Each letter = one hospital

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### Results are Consistent

- More sophisticated improvement methods (RPI) required for complex problems
  - Identify specific causes and how they vary among different organizations
  - Target interventions to specific causes
  - Avoid “one-size-fits-all” solutions
- Same findings for every problem tackled: wrong site surgery risk, SSIs, patient falls
- This is the Center’s unique capability

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Note that not all of the main causes of failure appear in every hospital. The chart above represents the validation of the root causes across hospitals. This underscores the importance of understanding hospital-specific root causes so that appropriate solutions can be targeted.
Targeted Solutions Tool (TST)

Web-based tools: secure extranet channel
- No added cost, voluntary, confidential
- Simplified, RPI-driven problem solving
  - Educational, no jargon, no special training
  - Guides users to customized, proven solutions
- Targeting only your causes means you don’t use resources where they aren’t needed
- 2010: hand hygiene; 2012: wrong site surgery and hand-off communication
Hand Hygiene TST: 3 Years

849 projects are using interventions

- **Baseline** = 58% (n = 110,255)*
- **Improve** = 84% (n = 584,025)*

*\( p<0.0001 \)

<table>
<thead>
<tr>
<th>Unit</th>
<th>Baseline</th>
<th>Improve</th>
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</thead>
<tbody>
<tr>
<td>Adult critical care</td>
<td>62%</td>
<td>80%</td>
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<tr>
<td>Emergency dept.</td>
<td>51%</td>
<td>80%</td>
</tr>
<tr>
<td>Adult med-surg</td>
<td>51%</td>
<td>84%</td>
</tr>
<tr>
<td>Long term care</td>
<td>61%</td>
<td>86%</td>
</tr>
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20% have improved to greater than 90%

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Healthcare-associated Infections (HAIs) are an Enormous Quality Problem

- **HAIs** occur frequently...
  - 1,700,000 Documented cases of hospital HAIs annually (US)

- **HAI Mortality rate** = 5.8%
  - 99,000 Patient deaths attributable to HAIs (US)

- ...and cost many billions
  - $28-34 billion Costs of HAIs per year in the US

Hand hygiene failure is a major contributor to HAIs

Improving Hand Hygiene Reduces HAIs

Hand hygiene affects all HAIs
- C diff, MRSA, other MDRO
- Urinary tract (CAUTI)
- Central line (CLABSI)
- Ventilator pneumonia (VAP)

Average TST improvement
- 35% drop in HAIs
- Impact is substantial

Using the TST Prevents HAIs, Saves Lives, and Avoids Millions in Costs

- 1,450 Lives saved by hospitals using the Hand Hygiene TST
- $300-650 million Costs saved by use of the TST Hand Hygiene tool

Hospitals using the TST have prevented tens of thousands of HAIs
- 25,000 Number of HAIs prevented by hospitals using Hand Hygiene TST

Over 250 organizations have employed the TST Hand Hygiene tool to reduce the risk of HAIs in their facilities

1 Ranges from 18,000 – 30,500
2 Ranges from 1,050 – 1,800
Note: Impact estimates through the end of 2012; includes 196 organizations using the TST since May of 2010 with >100 observations; Impact estimates exclude ambulatory care facilities employing the TST. Source: The Center for Transforming Healthcare TST user survey, BCG analysis
# Impact of TST on Typical US Hospital

<table>
<thead>
<tr>
<th>Bed Capacity</th>
<th>HAIs/yr</th>
<th>Annual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 Beds</td>
<td>555</td>
<td>194 fewer HAIs, 12 lives saved, $3.7M cost avoided</td>
</tr>
<tr>
<td>600 Beds</td>
<td>1100</td>
<td>388 fewer HAIs, 24 lives saved, $7.5M cost avoided</td>
</tr>
</tbody>
</table>

TST improves HH, reduces HAIs by 35%.

*Used TST to achieve >95% hand hygiene compliance.*

Bloodstream infections fell by 2/3.
C. Difficile Rate Declines as Hand Hygiene Improves

MRSA Rate Decreases as Hand Hygiene Improves
Memorial Hermann’s Story: Getting to Zero

- 12 hospital system in Houston
- Leadership committed to high reliability
- Embarked on culture change initiative
- Participated in CTH hand hygiene project
- 2010: MH committed to use TST to improve hand hygiene throughout their system
- Baseline (150 inpatient units) = 44%
  - Range (12 hospitals): from 23% to 65%
  - Aim: to exceed 90%

TJC Hand Hygiene Compliance
Center for Transforming Healthcare
Adult ICU Central Line Associated Blood Stream Infections (CLABSI)

Ventilator Associated Pneumonias (VAP)
Michael Shabot, MD  
Memorial Hermann System CMO

“We fully attribute to the Center for Transforming Healthcare’s hand hygiene TST the final drop in HAI rates to zero or near-zero system-wide. After implementing the hand hygiene TST, our hospitals began to report zeros as their most common monthly CLABSI and VAP result. Our mothers were right after all! Feel free to quote me. This actually saves lives.”
The Joint Commission and High Reliability

- Consistent excellence is the vision
- Leadership + safety culture + RPI
- Joint Commission: expanding programs
  - Provide resources to all
  - Hands on work in South Carolina
  - Center provides tools and solutions
- Helping health care organizations begin or make progress on journey to high reliability

The Rest of the Day

Three sections: process improvement (RPI), safety culture (AM), and leadership plus the story of one health system’s journey (PM)

- Great speakers, lots of interaction; discussion at your tables with speakers
- Keep your cellphones handy!
- Audience poll: key questions
- Conclude with Q&A, discussion with speakers
- 15 min break a little after 10, lunch around noon, and another 15 min break in afternoon