The ROI of Robust Process Improvement

Mark R. Chassin, MD, FACP, MPP, MPH
President and CEO, The Joint Commission and the Center for Transforming Healthcare

Virtual Webinar
August 12, 2021

3000 patients over 6 years
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
Current State of Improvement

We have made some progress

- Project by project: leads to “project fatigue”
- Satisfied with modest improvement

Current approach is not producing the results we want

- Improvement difficult to sustain/spread
- Getting to zero, staying there is very rare

High reliability offers a different approach

- The goal is much more ambitious
- High reliability is not a project

High Reliability Healthcare

Our team has worked for >10 years with academics and practitioners from HROs (nuclear power, military, commercial aviation, amusement parks)

We have created a model for healthcare:

- Leadership committed to goal of zero harm
- Safety culture embedded throughout an organization
- RPI (lean, six sigma, change management)

- Everyone’s job is protecting patients
- Many resources, tools, and programs
Committing to Zero is a Heavy Lift

- Objections
  - It’s impossible
  - We don’t know how
  - It’s too difficult; we’ll fail
  - Too many other priorities
  - The doctors will never go along
  - The board will never go along
  - It will cost way too long
  - It will take way too much

- If not zero, how much harm is OK?
- If not now, when? If not us, who?
What Does Zero Harm Mean?

- It means a commitment to zero as the ultimate goal
  - It will not be achieved rapidly
  - The commitment is the beginning of a journey
- Zero harm is more than eliminating patient complications
  - Zero harm to caregivers
  - Zero missed opportunities to provide effective care
  - Zero episodes of overuse
- Zero harm does not mean striving for zero errors
- Pursuing zero can be carried out while generating + ROI

Center for Transforming Healthcare and High Reliability

- High Reliability Resources (see CTH website)
- Self Assessment Tool for hospitals (Oro®2.0) extensively tested; used by 800+ US hospitals, expanding internationally
- Using high reliability framework on survey in US
- Tools for getting to zero: Center’s TSTs
- Center’s training programs guide healthcare organizations to high reliability by improving culture and adopting RPI
Safety Culture

Organizational culture = “the way we do things around here”
- Culture either supports safety or works against it
- Safety culture requires constant attention

Goal = everyone identifies and reports unsafe conditions
- Healthcare workers must trust each other and management
- Training to identify unsafe conditions and workarounds
- Reports must be acted on promptly to deliver improvement
- Eliminate intimidating, disrespectful behaviors
- Hold everyone accountable for adherence to safe practices
Robust Process Improvement

- Systematic approach to problem solving
- The Joint Commission Enterprise has fully adopted RPI
  - Improve processes and transform culture
  - Focus on our customers, increase value
- The Joint Commission Enterprise is assuring that all components of safety culture are embedded throughout
- We measure RPI and safety culture and report on improvement on these strategic metrics to our Board

Quality Progress
Cover Story
June 2016

http://asq.org/quality-progress/2016/06/basic-quality/how-we-work.html
Lean and Six Sigma

- Lean empowers employees to identify and act on opportunities to improve processes
- Lean tools increase value by eliminating steps in processes that represent pure waste
- Six sigma improves outcomes of processes by identifying and targeting causes of failure
- Together, they are the most effective way to improve processes that we know about

Lean and six sigma routinely produce 50%+ improvement

Technical Solution is Not Enough

- Lean, six sigma provide technical solutions that can markedly improve processes
- Why does improvement fail so often?
  - Not for lack of a good technical solution
  - Failures occur when organization fails to accept and implement a good solution it had
- RPI addresses this challenge directly
- Change management = a systematic way to implement and sustain good solutions
Technical Solution is Not Enough

- Lean, six sigma provide technical solutions that can markedly improve processes
- Why does improvement fail so often?
  - Not for lack of a good technical solution
  - Failures occur when organization fails to accept and implement a good solution it had
- RPI addresses this challenge directly
- Change management = a systematic way to implement and sustain good solutions

Change management is the rocket science of improvement

- Change management = a systematic way to implement and sustain good solutions
RPI in Health Care Today

- An increasing number of hospitals and systems in the US use one or more RPI tools
- RPI is used differently by different organizations
  - Most use only some of the parts
  - Change management is most often left out
  - Most limit training to small group
  - Most do not use it to transform
- Compelling business case for RPI

The Business Case

- Administrative processes in health care are often broken
  - Billing, revenue cycle, supply chain, throughput
  - RPI can save money and improve margins directly
- Learning RPI allows organizations to solve their own problems, eliminate consultants
- Quality improvements often don’t save $$
- Generate positive ROI now while learning how to redesign clinical care processes for the future
- Mayo program ROI = 5:1

RPI Solves Revenue Cycle Problems

Mount Sinai: RPI uncovered significant problems billing for cardiac stents, pacemakers, and implantable defibrillators

- Complex process involving many stakeholders: hospital, cardiology, cath lab, IT, finance, faculty practice, nursing
- 63% error rate---- reduced to 5.6%
- $5M increase in annual revenue---right to bottom line

Mount Sinai: RPI solved longstanding problems in billing for chemotherapy: $1.7M in increased revenue

MSJM 2008;75:45-52

Health Facilities Management Magazine

2014 ES DEPARTMENT OF THE YEAR: WENTWORTH-DOUGLASS HOSPITAL

ES 2014 Environmental Services Department of the Year
WINNER 2014 June 2014

WENTWORTH-DOUGLASS HOSPITAL
SEACOAST CANCER CENTER

RPI Improves Housekeeping

- New wing added in 2012: 130,000 SF
- Challenge to ES staff:
  - Add this building to existing 364,000 SF
  - No new staff, same high-quality cleaning
- Used RPI to redesign workflow
- Met the challenge
- Saved the hospital about $440,000

Wentworth-Douglass RPI program = 3:1 ROI
(only 60% of projects aim at financial goals)

Training and Deployment

- We have a large group of experts in lean, six sigma, and change management (RPI)
  - Studied experience of major corporations
  - Extensive experience with 27 hospitals and systems in applying RPI tools to solve safety and quality problems
- CTH is training large and small hospitals/systems worldwide, (including Ministries of Health) and behavioral health systems:
  - Get the most out of RPI tools and methods
  - Embed RPI throughout their organizations
How the Center Fits into TJC

CTH created in 2008 as a separate company to allow it to focus on developing tools for improving safety and quality

- TJC = US domestic accreditation and certification
- JCR = Publication, education and accreditation support (includes JCI, the international accreditation program)
- CTH = does not participate in accreditation; it is devoted solely to producing tools and training programs for helping healthcare organizations work toward high reliability

CTH activities inform many other components of TJC, including how we conduct surveys and foster improvement
One Vision

All people always experience the safest, highest quality, best-value health care across all settings

Center for Transforming Healthcare
- Using RPI together with leading US hospitals and health systems to solve most difficult quality/safety problems
- Project topics:
  - Hand hygiene, wrong site surgery, hand-off communications, colorectal surgical site infections (SSIs)
  - Safety culture improvement, preventable heart failure hospitalizations, falls with injury prevention
  - Sepsis mortality, insulin safety, C. difficile prevention
  - VTE, hospital-acquired pressure injury prevention
RPI Delivers Results

- “One-size-fits-all” best practice is inadequate
- Complex processes require more sophisticated problem-solving methods
- Three crucial and consistent findings:
  - Many causes, each requiring a different intervention
  - A few (5-6) key causes explain vast majority of failures
  - Key causes differ from place to place
- **RPI**: producing next generation best practices; solutions customized to your key causes

RPI Drives Major Improvements

<table>
<thead>
<tr>
<th>Selected Center Projects</th>
<th>Results (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand hygiene</td>
<td>71↑</td>
</tr>
<tr>
<td>Hand-off communication failures</td>
<td>56↓</td>
</tr>
<tr>
<td>Wrong site surgery risks</td>
<td></td>
</tr>
<tr>
<td>• Scheduling</td>
<td>46↓</td>
</tr>
<tr>
<td>• Pre-op</td>
<td>63↓</td>
</tr>
<tr>
<td>• Operating Room</td>
<td>51↓</td>
</tr>
<tr>
<td>Falls with injury</td>
<td>62↓</td>
</tr>
<tr>
<td>Colorectal surgical site infections</td>
<td>32↓</td>
</tr>
<tr>
<td>ICU pressure injuries</td>
<td>62↓</td>
</tr>
</tbody>
</table>

Targeted Solutions Tools (TST)

- Web-based tools: secure extranet channel
  - Available to all accredited customers now
  - No added cost, voluntary, confidential
- Educational, no jargon, no special training needed
- Coaches available to facilitate most effective implementation
- Targeting your causes means you don’t waste resources
- 1400+ organizations using today: hand hygiene, safe surgery, hand-off communication, preventing falls with injury, and reducing sepsis mortality
Preventing Falls With Injury

- Rate = 4 per 1000 patient days: 30-50% with injury
- 30 different causes, varied by hospital
  - Problems with fall risk assessments
  - Not just a nursing problem; all staff must be involved
  - Engage and educate patients and families
- 5 Center hospitals used targeted solutions:
  - Reduced falls with injury by 62%
  - Reduced injury rate from 33% to 19%

Implications for Typical Hospitals

200 Beds
- Expect 358 falls/yr
  - 117 injuries
  - $1.6M in costs
- Annual impact
  - 72 fewer injuries
  - $1M in costs avoided

400 Beds
- Expect 659 falls/yr
  - 216 injuries
  - $2.4M in costs
- Annual impact
  - 133 fewer injuries
  - $1.9M in costs avoided
Why is Hand Hygiene Noncompliance Such a Difficult Problem to Solve?

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

<table>
<thead>
<tr>
<th>Main Causes of Failure to Clean Hands (across all participating hospitals)</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>
</tr>
</thead>
<tbody>
<tr>
<td>Ineffective placement of dispensers or sinks</td>
<td>✔</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>Hand hygiene compliance data are not collected or reported accurately or frequently</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of accountability and just-in-time coaching</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety culture does not stress hand hygiene at all levels</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ineffective or insufficient education</td>
<td>✗</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hands will</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wearing gloves interfere with process</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perception that hand hygiene is not needed if wearing gloves</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health care workers forget</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distractions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: 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.

## Memorial Hermann: Getting to Zero

### The Joint Commission Journal on Quality and Patient Safety

**2012 John M. Eisenberg Patient Safety and Quality Awards**

**Memorial Hermann: High Reliability from Board to Bedside**

Innovation in Patient Safety and Quality at the National Level

M. Michael Salkov, MD, FACP; Douglas Moore, MD, MBA; Juan Isacina, MBA, FACHE; FABC; CPHQ; Debbi Gehrke, RN, MSN, CPHRM, CPHQ, CPSO; Anne Claire Faure, PhD, CPHQ, MBA, FACHE

**Article-at-a-Glance**

Background: In 2006 the Memorial Hermann Health System (MHHS), which includes 12 hospitals, began applying principles embraced by high reliability organizations (HROs). These factors include: (1) aligned organizational structure with transparent management systems and comprehensive nursing programs; (2) robust Process Improvement (PI) with high-reliability interventions; and (3) cultural establishment, sustainability, and evolution.

Frequency of Causes of HH Noncompliance

11 Memorial Hermann Hospitals: Oct 2010 - June 2011
System - Ventilator Associated Pneumonias: All Adult ICUs
Michael Shabot, MD
Memorial Hermann System EVP

“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.”
High Reliability Certified Zero Award

To: Memorial Hermann Northeast Hospital
Zero Catheter-Associated Urinary Tract Infections
Hospital-wide for 12 months
February 2016 to January 2017

Benjamin K. Chu, M.D.
President & Chief Executive Officer

M. Michael Shabot, M.D.
System Chief Clinical Officer

Deborah M. Cannon
Chair, Health System Board

High Reliability Certified Zero Award

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

Dan Whitenstein
President & Chief Executive Officer

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

Robert G. Crayton
Chair, Health System Board
2011-2020: 456 Certified Zero Awards

Acute Hemolytic Transfusion Reactions
Transfusion Events Jan 2007 – June 2019

- 3,514,000 Adjusted Admissions
- 18,940,000 Adjusted Pt Days
- 1,498,000 Transfusions

Hospital Acquired Conditions
“Never Events”
Hospital Acquired Conditions
“Never Events”

Acute Hemolytic Transfusion Reactions
Transfusion Events Jan 2007 – June 2019

Zero

The Joint Commission Center for Transforming Healthcare is now training Memorial Hermann in expanding its RPI program to the entire system.
Getting the Most Benefit from RPI

- Train all employees in RPI; multiple levels of training
  - Partner with HR to identify “best and brightest”
  - RPI training creates a new path for staff development
  - Executives, directors build RPI training into evaluations

- RPI becomes transformative when it is “the way we work”
  - Front-line employees see opportunities and have the tools to initiate and implement improvement
  - Creates critically important component of high reliability

- Don’t forget to produce a + ROI---engage CFO early on

Center for Transforming Healthcare and High Reliability

- We must have much more ambitious goals for healthcare improvement: zero harm
  - Current methods are inadequate
  - Culture change is difficult, takes time

- RPI delivers impressive results
  - ROI of at least 4:1 is readily achievable
  - Some hospitals/systems are approaching zero

- CTH has many ways to help; we look forward to learning about and aiding your organization’s high reliability goals
Lori Hannon MHA,
Director, Business Development
lhannon@jointcommission.org
(630) 272-2600

www.centerfortransforminghealthcare.org