Understanding the High Reliability Organization and Why It's Important to Your Lab

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High Reliability Organization (HRO) Defined

- An organization that could have failed many times with catastrophic consequences but has not
  - Nuclear power plants
  - Air traffic control
  - Aircraft carriers
  - Commercial airlines
  - Banking
  - Wildland Fire Control
  - Theme Parks

- HRO theory focuses on system-level processes
  - In complex, dynamic organizations
  - That deal with uncertainty
  - That make decisions under pressure
  - Often with inadequate information
  - In high-risk situations

- Sounds like your day?
Universal Studios - Orlando

- A small city
- Attractions, food, entertainment
- 15,000 team members
- 50,000 – 60,000 guests every day
- 800 characters, 300 managers
- Goal: Ensure safety of staff and visitors
- Result: Six Sigma level performance with very few adverse events
Universal Studios – Orlando (cont.)

- Have an “Assumption to Failure”
- Design stunts to be highly reliable
- Simplify and standardize processes
- Entire park and each stunt under constant video surveillance
- “Danger is in the routine”
- Repetition of doing things over and over can lead to complacency and mistakes
- Former stunt men run the safety program
- Safety Teams review error information monthly
- Encourage and reward reporting (Safety Bucks, Safety Man)
- Engineer safety into all operations
- Meet with competition (Disney, Sea World, Busch Gardens) every year on safety issues

USS Carl Vinson
The flight deck of an aircraft carrier
The most dangerous 4½ acres in the world!

- 80 aircraft on a 95,000 ton floating city
- Armed lethal weapons
- Launched by 2 million horsepower catapults
- 65,000 pound plane accelerates to 150 MPH in 3 seconds
- “Controlled crashes” – tail hook catches 1 of 4 arresting wires
- Slippery deck – sea water, oil
- Difficult vocal communications
- All run by 19- and 20-year-old kids
- Runway rocks from side to side

Source: K. Weick, “Managing the Unexpected”

Recognizing the Differences…

- Hospitals care for patients not machines
- Hospitals frequently work in silos and labs even more so
- Often little is known about the patient and the patient’s condition and behavior varies over time
- Errors in health care usually only affect one patient at a time
- Higher workforce mobility and team member changes
- Distinguishing between iatrogenic injury and inevitable death of a patient not always easy
Evolution of High Reliability in Health Care

- 1965 - Medicare law required orgs to create utilization committees
- 1971 - Congress created experimental medical care review committees which became models for 1972 creation of professional standards review organizations
- 1983 - PSRO replaced by Medicare Utilization and Quality Control Peer Review Organization programs
- 1989 - AHRQ created to do research on outcomes and effectiveness
- 1999 - NQF formed
- 2000 - IOM Report, To Err is Human
- 2001 - IOM Report, Crossing the Quality Chasm

Increasing Expectations & New Opportunities

Increasing demands for:
- Safe care
- Higher quality
- Better access
- Lower costs through greater efficiency

More rules & laws
- Pay for Reporting
- Hospital-Acquired Conditions
- Value-Based Purchasing
- Shared Savings Program (ACOs)
- Payment Bundling
- Medical Homes
- Readmission Reduction Program
- Center for Medicare & Medicaid Innovation
Is 99% Performance Good Enough?

- 1% of 10 million airline takeoffs = 100,000 unsafe flights
- 1% of 10,105,156* inpatient surgeries = 101,051 wrong site, patient or procedure surgeries
- 1% of 35,760,750* hospitalized patients receiving the wrong medication, the wrong dose or at the wrong time = 357,607 medication errors

**NO!**

Six Sigma is 99.9997% error free or 3.4 DPMOs

* AHA – 2008 Hospital Statistics
Characteristics of High Reliability

- **Sensitivity to operations**
  - Constant awareness of the state of the systems and processes to better identify risks

- **Reluctance to simplify**
  - Doing thorough root cause analysis

- **Deference to expertise**
  - Rely on knowledge, not position

- **Preoccupation with failure**
  - Use near misses and failures to improve processes

- **Resilience**
  - Anticipate and quickly recover from errors

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High Reliability Practices that can Help Achieve Excellence in Patient Care

HROs maintain failure-free performance and improve reliability in high-hazard settings by:

1. Having a preoccupation with failure that encourages open discussion of errors, near misses, and adverse events (safety culture)
2. Being wary of complacency and open to receiving bad news
3. Making a commitment to resilience – detect, contain, and bounce back from inevitable errors
4. Encouraging the involvement of expert staff from all levels with decisions made on the front line

Source: Weick & Sutcliffe “Managing the Unexpected” HRO Interviews
High Reliability = Consistent Excellence

5. Recognizing that their processes are complex, unstable, and unpredictable
6. Paying close attention to front line operations and how things really work
7. Having a well-developed “situational awareness” to make constant adjustments to prevent errors

Source: Weick & Sutcliffe “Managing the Unexpected”
HRO Interviews

Westgard: Principles of Preoccupation with Failure

- Detecting failure as early as possible
  - Early means before harm or delay
  - Detect system fluctuation as well as actual task failure
  - For example, mislabeled test tubes are 40 times more likely to have the wrong blood in tube
    (Lumadue JA, Boyd JS, Nessa PM. Adherence to a strict specimen labeling policy decreases the incidence of erroneous blood grouping or blood bank specimens. Transfusion. 1997;37(11–12):1169–1172.)
- Encourage people to report failure
- Make an effort to anticipate how systems might fail
- Specify mistakes that should not be made
  - Red Rules are errors that should never be made. Examples:
    - Never events from CMS
    - NPSG from Joint Commission
Risk Analysis Resources

- CLSI EP23
- CMS Individualized Quality Control Plan
- FMEA

Risk analysis is required by Joint Commission for diverse activities such as infection control, environment of care, new processes, and vulnerable processes impacting patient safety.

Sentara Health Care approach to High Reliability

Four key patient safety practices:

1. Safety is a core organizational value – safety performance affects leaders and staff pay (40% of top leaders variable pay, 50% of staff bonus program)
2. Employees must adopt “safety habits”
3. Simplify processes through CPGs/checklists/other tools
4. RCA used to pinpoint solution to identified causes of events
Sentara HRO Practice Examples

- Put red tape around the medication dispensing machines to warn people not to interrupt the person using them (A “Red Rule” – everyone trained)
- Pays attention to identify potential problems before they happen
- Analyzes less serious events (near misses) through an apparent cause analysis
- Developed a one-page handout on key concepts required for safety
- Use simplification experts to review focus and processes
- Train staff in Lean, Six Sigma human factors

Leadership Commitment Example: Denver Health

- Empower staff to have a questioning attitude
- Break down silos and improve teamwork
- Chiefs and nurse managers have gone through formal Lean and change management training
- Staff actively report events and near misses through “Patient Safety Net” and get a “thank you” (~1,300 reports per quarter)
- Information used for improvement and to improve Trust
- A culture of transparency – report physicians and unit performance
- CEO reviews report out on all Rapid Improvement Events
- Passionate Leadership
- Physician- and nurse-led Department of Patient Safety
- Strong IT support
Safety Culture

- Enduring despite changes in management
- Expect things will fail – develop defenses
- Trust culture – based on an atmosphere of openness and trust
- Informed culture – people willing to report errors and near misses are analyzed
- Learning culture – use assessment of actual vs. desired performance to guide improvement efforts
- Just culture – defines and distinguishes blame free and culpable acts

Source: J. Reason, Managing Maintenance Errors

Complaint Reporting

- Required for all laboratories within Joint Commission hospitals to encourage and publicize complaint reporting by employees and public
- Patient involvement
Reluctance to Simplify

- Overreliance on the easy solutions
  - Inadequate RCA
  - CAPA not aligned with RCA
- Stop me if you have heard this one…
  - “Random error” on unsuccessful PT
  - “Human error” for process failures
  - “Isolated” incident or system failure
  - “Training” issue
  - Repeat the QC until it comes in
  - Add another layer of review at end of process
- Using limited resource pool for decision

Wentworth-Douglass Hospital
The Right Infrastructure for Process Improvement

Lean/Six Sigma Steering Committee
Provide leadership and support for the overall deployment
- Master Black Belt
- Project Champions
Provide clear objectives, defined goals, and management support
- Black Belts
- Green Belts
Manage strategic projects/Manage department projects
- Team Members
- Process owners, subject matter experts
  - 3-8 member teams
Wentworth-Douglass Hospital
2009 Deployment of Lean/Sig Sigma

- Focus on improving patient safety quality and reliability throughout the organization
- Improved revenue $1 million
- Costs $420,000
- Returns 2.5:1

Wentworth-Douglass Hospital
Lean/Six Sigma Project Examples

- Stroke/TIA Lab turn-around time
- ER door-to-triage
- Improved hand-off communications
- DVT Prophylaxis costs
- MRI outpatient time slots
High Reliability Stages of Maturity
Model & Assessment of Reliability Tool
5 Goals:

- Translate high reliability practices for health care
- Describe the incremental steps an organization should take to “approach” the achievement of high reliability
- Provide an assessment tool accredited organizations can use to determine the “maturity” of their organization’s adoption of practices that can lead to high reliability
- Results of the Assessment of Reliability Tool can be used by the organization to target needed improvements
- The Joint Commission Enterprise will provide an array of products and services targeted at helping organizations in various stages of “maturity” improve their performance
Seven Critical Quality of Care Questions

1. What is the current state of the quality and safety of patient care in your organization?
2. Is it highly reliable?
3. Is it consistently excellent?
4. Do all patients, always receive safe, high quality patient care in all settings?
5. How many patients are harmed by the care delivery system in your organization each day/week/month/year?
6. What type of preventable harm is occurring?
7. How many “near misses” occur in your organization and are they used as learning opportunities for improvement?
Where Might a Lab Look For Potential Failures?

- Specimen collection issues
  - Labeling
  - Identification
  - Handling
- Clerical errors including HER
- Procedure work-around
- Document control
- Other?
  - Check most frequent findings from surveys as a starting point
  - Check error logs

Lab Involvement

- How many of you have HRO Initiatives?
- How many by next year?