The Purpose of High Reliability Organizing

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The Purpose of HRO

Why HRO?

- Liminality (threshold)
  - Experience beyond one’s control
  - Emotion/fear/survival
- Context from environment
  - Effect of environment on culture
  - High vs. Low Context Cultures
- Behaviors (Tinbergen’s Four Questions)
  - Part of being human
  - Common to HROs
  - Specific to an industry
  - Learned by individuals
The Purpose of HRO

Why hospitals should become an HRO

- Vulnerability
  - Organizations that do not plan for failure will fail
    (Todd LaPorte)
- Outlier
  - Random, independent event
  - What is possible, early herald
- Decision making
- Responsiveness and Agility
  - Information flow
  - Authority migration
The Purpose of HRO

Beyond Six Sigma and Lean

- Limits
  - Narrowing variability in system
  - Reducing “waste”

- Environment (context)
  - Variability in environment
  - Environment demands and resources
  - Performance of individuals and organization

- Surge capacity to meet demands
  - Vigor and Strength for the unexpected
The Purpose of HRO

Agile shift between static and dynamic states

- Control Operator
  - Contain energy, hazard, and system
  - Deviations *from* processes
- Emergency Responder
  - Escaped hazard
  - Deviations as early heralds
- Effect of environment (context)
The Purpose of HRO

Control Operator Systems

- Purpose- to contain hazards
- Protected environment
- Rely on protocols, policies, and processes (rule-based)
  - Conformity and obedience
  - Convergent thinking
- Decision processes are linear
- Constant vigilance
  - Outliers escaped from system
  - Deviations *from* processes
  - Early heralds of failure *within* the system
The Purpose of HRO

Emergency Responder System

- Purpose- response to escaped hazards
- Unstable environment
- Problem solving
  - Creativity and ingenuity
  - Divergent thinking
- Decision processes with responsiveness, feedback
- Vigilance and engagement
  - Outliers herald what is possible
  - Deviation as cascading failure
  - Active search for discrepancy
The Purpose of HRO

Control Operator and Emergency Responder

- We fill both roles at different times in our jobs
- The training is different
  - Should be stressed at separate sessions
- Debrief does not occur as often as it should after an emergency response
  - Particularly for an entire group "lessons learned" session
The Purpose of HRO

In crisis we shift from control operator to emergency responder

- Modulate fear response of fight, flight, freeze
  - As leader, monitor your team and individuals
- Authority migration
  - To those with local knowledge
  - Actively reduce authority gradient
- Information flow
  - vs. Communication
  - Objective, articulate, succinct
  - Ambiguous information- we give it meaning
Leadership when the threat is present and the leader is absent
Vulnerability

- Covert- hidden, subtle
- Latent- dormant, not actualized
- Progressive- dynamic, developing

Failure is an option, the crisis has a vote in your plans

Organizations that do not plan for failure will fail
(Todd LaPorte)
Vulnerability

The first encounter

- The individual at the edge of the problem
  - Executive - political reasonability
  - Middle managers - translate between levels
  - Line workers - operations

- The unexpected
  - Outlier
  - Early herald
Vulnerability

Events are local

- Local knowledge
- Local resources
- Local expertise (situational)

- Self-organization
  - Nonlinear response to local environment
Vulnerability

Events are local

- Uncontrolled energy (thermodynamics)
  - Energy transforms or escapes
  - Mechanical, thermal, electrical, chemical, radiation (ionizing)
- Uncontrolled behavior (self-protection)
  - Criminal, mental illness
  - Personality disorder (subclinical)
  - Emotion (fight, flight, freeze)
- Uncontrolled physiology
Vulnerability

The Environment

- Confounder
  - Controlled in research design
  - Uncontrolled in life
- Constraints
  - Austere environment
  - Financial, physical, staffing
- Resources
- Context
  - We give meaning to context
  - Context gives meaning to circumstances
Vulnerability

The Environment

- Culture
  - Social response to the environment
  - Behaviors, beliefs (values and attitudes)
  - Social knowledge - stories and modeling

- High and low context environments
  - Edward T. Hall

- Change
  - Formal elements - almost impossible
  - Informal elements - elicits strong emotions
  - Technical - amenable to change
The Purpose of HRO

Why hospitals should become an HRO

- Outlier
  - Random, independent event
  - What is possible, early herald
Outlier

Normal distribution

Power distribution
Outlier

**Bell Curve**
- Most nodes have the same number of links
- No highly connected nodes

**Power Law Distribution**
- Very many nodes with only a few links
- A few hubs with large number of links
The outlier

- Normal distribution
  - $P_1 + P_2 = P_T$
  - Random, independent event
  - Easily disregarded

- Power distribution
  - $P_1 \times P_2 = P_T$
  - Shows what is possible
  - Early herald of cascading failure

- Air France and Atlantic Ocean crash
The Purpose of HRO

Why hospitals should become an HRO
- Decision making
Decision Making

(Duncan Dieterly, NASA)

Problem solving
- Goal directed
- The problem space- You decide within this space
  - Situation, actions, and goal

Decision making
- Process
- Task directed toward a choice of action
- The decision space- You act within this space
  - Too soon, too late
  - Too much, too little
Decision-Problem Condition Models

I

INTUITIVE

II

UNDEFINED

III

IV

V

VI

VII

VIII

Situation

Intervention(s)

Result

Known

Unknown
Decision Making

Problem typology

- Trivial problem- protocol
- Defined problem- identify what works
- Undefined problem- choose an objective
- Intuitive problem- engage
Decision Making

Decision architecture

- Protocol from Jacquard loom (1839)
- Decision trees for capital investment (1962, ‘64)
- Loop decision, feedback, for air combat (1968)
  - OODA Loop, John Boyd
    - Observe
    - Orient
    - Decide
    - Act
Decision Making

Heuristics, biases

- Availability - what you think of first is most important
- Representativeness - what you see represents events
- Confirmation bias - search for supporting information
- Overconservative revision - require more information to stop action than to start
Decision Making

Conflicted Decision Making
Janis & Mann

- Restriction of activity, sensory deprivation, lack of contact with supportive persons
- Stress, unexpected threats, no good choice, time pressure

- Unconflicted Adherence
- Unconflicted Change
- Defensive Avoidance
Decision Making

Conflicted Decision Making
Janis & Mann

Hypervigilance
- Nonselective information search
- Rapid, cursory evaluation of data
- Consider limited alternatives
- No review of decisions
- Thought processes simplistic, easily disrupted
Decision Making

Conflicted Decision Making
Janis & Mann

Vigilance

- Mediating conditions
- Awareness of serious risks
  - If *no* protective action is taken
  - If protective actions *are* taken
- Hope that a search for information will lead to a better solution
- Belief there is sufficient time to search and deliberate
Decision Making

Conflicted Decision Making
Janis & Mann

Vigilance
- Characterized by
  - Systematic, organized information search
  - Thorough consideration of all available alternatives
  - Devote sufficient time to evaluate each alternative
  - Reexamination and review of data before a decision
Decision Making

Deductive reasoning
- Facts guarantee the hypothesis
- Focus on collecting facts
- Linear, precision

Inductive reasoning
- Evidence supports the conclusion
- Focus on strengthening evidence
  - Discard weak evidence
- Adjust conclusion constantly
- Nonlinear, accuracy
Decision Making

Error

- Can you be wrong in the novel encounter?
- Strong-but-wrong rule (James Reason)
- When you find the person involved, *then* you begin your investigation (Chris Hart, NTSB Chairman)
The Purpose of HRO

Why hospitals should become an HRO

- Responsiveness and Agility
  - Information flow
  - Authority migration
Responsive, Agile

Information flow

- Communication
  - A behavior
  - Subjective
  - Occurs between subcultures and disciplines
  - Encode – Transmit – Decode

- Communication corrupts information
  - Shannon Information Entropy
Responsive, Agile

Information flow

- Information
  - Objective vs. Subjective (intent, persuasion)
  - Articulate – connected and flowing
  - Succinct

- The individual
  - Identify
  - Interpret
  - Translate
Responsive, Agile

Authority Migration

- Authority to decide and act migrates to the individual with the necessary information and experience
- Rapid response and responsiveness
- Leader-leader
  - When you find a problem you lead the solution until relieved of command
Responsive, Agile

Authority Gradient

- Formal
- Informal
- Enacted
  - Countenance (the face as the great communicator)
  - Stance
  - Tone
  - Words (just, only, etc.)
- Creates docility
- Command is the duties you cannot legally delegate
The Purpose of HRO

Why hospitals should become an HRO

- HRO leadership
HRO Leadership

- This is about leading
  - When you are not present
  - When threat trumps *all* plans and design

- Self-preservation
  - Fight, flight, freeze
  - Justification

- Collaboration
  - Act and engage
Good leadership is invisible occurring long before it is needed.

Faced with impeding harm, people respond by self-preservation.

Few people are adept at engaging novel, risky situations or recovering from failure.

If taught, we need better teachers.

If learned (attitudes and modeled), we need better leaders.
HRO Leadership

Uncertainty and ambiguity
Looming threat
Little time to respond

Can you influence someone’s fear response?
Is this response taught or learned?
When does leadership occur?
Is this for death, finance, or image?
High Reliability Organizing

Preoccupation with Failure

Ignoring small failures leads to cascading failure and even larger catastrophic events.

Reluctance to Simplify

When we accept simple explanations we stop looking deeper or further.

We are reluctant to accept these simplifications.

Simple, Complex, Simple

“If you cannot explain something simply, you do not understand it,” Richard Feynman.
High Reliability Organizing

Sensitivity to Operations
Adjust plans in response to changes in operations

Commitment to Resilience
Ability to maintain or regain equilibrium after a dynamic event
The organization must identify errors early for correction while improvising solutions within constraints.

Deference to Expertise
Defer to local knowledge
High Reliability Organizing

The Five Principles as Attitudes

- *Attitude toward failure*
- Attitude toward the expertise of others
- Attitude toward simplification
- Attitude toward resilience and outcome
- Attitude toward plans over operations
High Reliability Organizing

HRO Core Values  D van Stralen and TA Mercer

Dignity- Acknowledge and value everybody’s contribution. Discipline, do not take away dignity

Honesty- What is said represents what is happening

Humility- The unexpected can happen to any of us, we can all fail

Empathy- We work in tough situations, people are going to fail and it could be us

Duty- We will not let others down, we have duty to our larger community
<table>
<thead>
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<tr>
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<tr>
<td></td>
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<td>Power distribution</td>
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High Reliability Organizing

Questions?

Comments?

Concerns?
Thank you