Simple Changes to Improve Event Response, Causal Analysis and Risk Mitigation

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a division of HQI
Goals

• Improve your practices with some simple rules of thumb
  – Based on opportunities for improvement identified in CHPSO database
  – 790,000 reports as of Oct 28, 2015

• Not intended to be full review of the subject
Outline

• Event Response
• Causal Analysis
• Risk Mitigation
EVENT RESPONSE
Event Response

• Look for trouble
• Prioritize
Look for Trouble

• Overlooking near misses and low-severity events ignores emerging and potentially catastrophic risks

• For most serious events, there will be a multitude of warnings: glitches in procedures, near misses, uncomfortable situations (i.e., dangerous conditions)—close calls 10 to 300 times more likely than actual events

• Learn about recovery modes

• Can’t investigate everything: prioritize
Moving from Reacting to Protecting
Decision to Investigate/Mitigate or Not

• How common is the problem?
• How severe the anticipated outcome?
  – Actual outcome gives minimum severity, anticipated outcome may be much worse.
• How complex is the issue?
  – Simpler issues addressable in a single department may be “farmed out” to them to investigate and report back.
Prioritization

• Video case example
Prioritization Risk Matrix

RISK RATING MATRIX (adapted from AS/NZ 4360, 2004 MODEL)

<table>
<thead>
<tr>
<th>LIKELIHOOD</th>
<th>CONSEQUENCE (Potential Impact)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insignificant</td>
</tr>
<tr>
<td>Almost certain</td>
<td></td>
</tr>
<tr>
<td>(will undoubtedly recur, a</td>
<td></td>
</tr>
<tr>
<td>persistent issue)</td>
<td></td>
</tr>
<tr>
<td>Likely</td>
<td></td>
</tr>
<tr>
<td>(will probably recur, not a</td>
<td></td>
</tr>
<tr>
<td>persistent issue)</td>
<td></td>
</tr>
<tr>
<td>Possible</td>
<td></td>
</tr>
<tr>
<td>(may recur occasionally)</td>
<td></td>
</tr>
<tr>
<td>Unlikely</td>
<td></td>
</tr>
<tr>
<td>(do not expect it to happen</td>
<td></td>
</tr>
<tr>
<td>again)</td>
<td></td>
</tr>
<tr>
<td>Rare</td>
<td></td>
</tr>
<tr>
<td>(can’t believe it will ever</td>
<td></td>
</tr>
<tr>
<td>happen again)</td>
<td></td>
</tr>
</tbody>
</table>

Risk Rating

- **Low**
- **Medium**
- **High**
- **Extreme**
## Impact Table

Impact Table 2 (based on facts available about the incident)

*This table may also be used to assess the impact of risks in order to analyse future risks*

<table>
<thead>
<tr>
<th>Impact Level</th>
<th>Description</th>
<th>Resources (Premises, money, equipment, business interruption, problems with service provision)</th>
<th>Environment (Air, Land, Water, Waste management)</th>
<th>Reputation (Adverse publicity, Complaints, Legal/Statutory Requirements, Litigation)</th>
<th>Quality and Professional Standards (including government priorities, targets and organisational objectives)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CATASTROPHIC</td>
<td>Incident that lead to one or more deaths</td>
<td>Severe organisation wide damage / loss of services / unmet need</td>
<td>Toxic release affecting off-site with detrimental effect requiring outside assistance.</td>
<td>National adverse publicity; DHSSP executive investigation following an incident or complaint; Criminal prosecution;</td>
<td>Gross failure to meet external standards, priorities</td>
</tr>
<tr>
<td>MAJOR</td>
<td>Permanent physical/emotional injury / trauma / harm</td>
<td>Major damage, loss of property / service / unmet need</td>
<td>Release affecting minimal off-site area requiring external assistance (fire brigade, radiation, protection service etc)</td>
<td>Local adverse publicity; External investigation or Independent Review into an incident/complaint; Criminal prosecution / prohibition notice</td>
<td>Repeated failure to meet external standards.</td>
</tr>
<tr>
<td>MODERATE</td>
<td>Semi permanent physical/emotional injury / trauma / harm (recovery expected within 1 year)</td>
<td>Moderate damage, loss of property / service / unmet need</td>
<td>On site release contained by organisation</td>
<td>Damage to public relations; Internal investigation (high level) into an incident/complaint; Civil action</td>
<td>Repeated failure to meet internal standards or follow protocols.</td>
</tr>
<tr>
<td>MINOR</td>
<td>Short-term injury / harm, Emotional distress, (Recovery expected within days / weeks)</td>
<td>Minor damage, loss of property / service / unmet need</td>
<td>On site release contained by organisation</td>
<td>Minor risk to organisation; Local level internal investigation into an incident/complaint; Legal challenge</td>
<td>Single failure to meet internal standards or follow protocol.</td>
</tr>
<tr>
<td>INSIGNIFICANT</td>
<td>No injury / harm or no intervention required / near miss</td>
<td>No damage or loss, no impact on service / insignificant unmet need</td>
<td>Nuisance release</td>
<td>Minimal risk to organisation; Informal complaint</td>
<td>Minor non compliance,</td>
</tr>
</tbody>
</table>

HQI Annual Conference
Actions Based on Risk Rating

- Red: Fix it right now!
- Orange: Fix it expeditiously
- Yellow: Schedule a fix
- Green: Nice to fix
Near Miss

• Video case example
CAUSAL ANALYSIS
Causal Analysis

- Errors and omissions
- Fault-finding
- Poor staff performance
- Communication
- Workarounds
Errors and Omissions

• Video case example
Errors and Omissions

- “Human error” is not an acceptable cause
- Never stop at an action, find out why
Poor Staff Performance

• Video case example
Poor Staff Performance

• Always look for design improvements that may be exposed by the person.

• Identify ways to detect problem staff and intervene before harm occurs.
  – Problem people usually exhibit many warning signs
    • Failure to intervene much more common than failure to detect
  – OPPE Ongoing Professional Practice Evaluation
“To address this mistake we need to utilise our thorough system of root cause analysis. I will begin, if I may, by pointing out that it’s not my fault.”
Fault-Finding

• Clearly separate individual performance issues from causal analysis
  – Legal reasons
  – Culture

• Fault-finding poisons causal analysis
  – Inappropriate focus on isolated parts of system
Communication

• Video case example
Communication

• Communication is always involved
  – Merely identifying “communication” as a cause fixes nothing

• Clarify what is needed for communication

• Precision important
  – “Isn’t this a lot of fluid?” versus “600 ml seems too much for a 10 kg child”
Workarounds

• Video case example
Workarounds

• Workarounds illuminate process problems
  – Existence of workaround should trigger reevaluation of process design and implementation

• Some workarounds may be desirable, others not so much
  – “Surfacing” workarounds speeds organizational learning
    • Should have mechanism for gathering info about workarounds
  – Implement some
  – Design around others
RISK MITIGATION
Risk Mitigation

• Developing a plan
• Strength of actions
• Policies and procedures
• Equipment
When Developing a Mitigation Plan

• Include strong or intermediate-strength actions
• Build in follow-up
  – Plans don’t always work
• Consider 3 disciplines
  – Human Factors
  – Resiliency
  – Accountability
Human Factors

• Video case example
Human Factors

• Everyone makes errors, all the time
• “Be more careful” is almost always an unrealistic expectation
• Better system and process design can reduce but not prevent errors
• Design should also reduce or eliminate the impact of errors
Resiliency

• Video case example
Resiliency

• Given the right information, humans are better than machines at recognizing and fixing unexpected problems

• Don’t design the human out of a process whenever there is unpredictability or rare serious events
  – Most health care processes will always require human oversight
Accountability ("Just Culture")

• Video case example
Accountability ("Just Culture")

• People held accountable for their actions when:
  – Reckless, impaired, intentionally harmful, or consistently underperforming
  – Organization responsible for responding to personnel issues

• System held accountable for everything else
  – Organization responsible for responding to system issues
Action Strength

• **Weak**
  – Double checks
  – Warnings
  – New procedure/policy
  – Training

• **Intermediate**
  – Redundancy
  – Address distractions
  – Simulation training and refresher courses
  – Checklists and other cognitive aids

• **Strong**
  – Architectural/physical plant changes
  – New devices with usability testing
  – Forcing functions
  – Process simplification
  – Equipment and/or process standardization
  – Leadership involvement
Policies and Procedures

• Video case example
Did you know that every third person constantly opens doors incorrectly? Do not be a bad door opener, for there is hardly anything easier than opening a door. The rule of thumb for opening a door is that the door is always opened in the same way. It's important to properly learn basic door opening. The door is approached calmly. Three meters before the door your steps have to be adjusted so that the left foot stops about 5 cm from the threshold. Right foot stays behind. The prerequisite for opening a door in a rhythmically successful way is that your weight rests on your left foot. Your posture is correct, if you can effortlessly lift your right foot in the air, and rotate it without falling. Now you'll extend your left arm towards the door handle, while your weight shifts forward. Due to this maneuver your weight also moves to your left hand, which sort of automatically pushes the handle down. From the emerged opening you'll slip your right foot in, rotating on it, turning your front side towards the entry direction, while releasing your grip from the handle, but at the same time grabbing the handle with your right hand while shifting your weight to the right. The door closes. Thus you've learned to open and close a door that opens away from you.

It should be remembered that this time we only taught you to open a door in a situation where the door is opened from the right side with a push.
Policies and Procedures

• Are weak at best
• Unreasonable to script everything
• Written *after* developing good work design
  – Policy should memorialize design
  – Don’t design by policy
Hikers and bikers
Stop and move to the side of the road when a vehicle approaches.
Policies and Procedures

• Can never cover everything
• Video case example
Policies and Procedures

• Many events occur when staff shift into problem-solving mode without having good criteria for acceptable solutions
• Should provide staff with problem-solving methods when policy doesn’t work
• AKA “winging it”
• Most problem solving should involve more than one person
Equipment
FOR SALE

Parachute. Only used once, never opened, small stain.
Equipment

• We buy many of our problems

• Usability in your organization should be tested thoroughly before buying anything important (e.g., infusion pumps)
  – Many manufacturers are not sophisticated regarding usability

• Consistency with other devices in institution also important
Usability Testing Varies Widely Among EHR Vendors

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Est. Revenue</th>
<th># Employees</th>
<th># Usability Staff</th>
<th>Usability Sophistication</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>≥ $1 B</td>
<td>≥ 6,000</td>
<td>15–20</td>
<td>well-developed</td>
</tr>
<tr>
<td>2</td>
<td>≥ $1 B</td>
<td>≥ 6,000</td>
<td>≥ 30</td>
<td>well-developed</td>
</tr>
<tr>
<td>3</td>
<td>≥ $1 B</td>
<td>≥ 6,000</td>
<td>N/A</td>
<td>basic</td>
</tr>
<tr>
<td>4</td>
<td>≥ $100 M</td>
<td>≥ 2,000</td>
<td>≥ 30</td>
<td>well-developed</td>
</tr>
<tr>
<td>5</td>
<td>≥ $100 M</td>
<td>≥ 500</td>
<td>N/A</td>
<td>misconceptions</td>
</tr>
<tr>
<td>6</td>
<td>≥ $100 M</td>
<td>≥ 2,000</td>
<td>≥ 30</td>
<td>well-developed</td>
</tr>
<tr>
<td>7</td>
<td>≥ $20 M</td>
<td>≥ 500</td>
<td>1–5</td>
<td>basic</td>
</tr>
<tr>
<td>8</td>
<td>≥ $20 M</td>
<td>≥ 250</td>
<td>1–5</td>
<td>basic</td>
</tr>
<tr>
<td>9</td>
<td>≥ $20 M</td>
<td>≥ 150</td>
<td>N/A</td>
<td>misconceptions</td>
</tr>
<tr>
<td>10</td>
<td>≥ $10 M</td>
<td>≥ 50</td>
<td>N/A</td>
<td>basic</td>
</tr>
<tr>
<td>11</td>
<td>≥ $300 K</td>
<td>≥ 10</td>
<td>N/A</td>
<td>misconceptions</td>
</tr>
</tbody>
</table>
Extended case example
Descent Below Visual Glidepath and Impact with Seawall

Asiana Airlines Flight 214
Boeing 777-200ER, HL7742
San Francisco, California
July 6, 2013
DCA13MA120
RESOURCES
Resources

• CHPSO: members can request causal analysis reviews and issue research assistance
  – Membership free for CHA and regional hospital association members, very low cost for out-of-state members

• NPSF: *RCA2 Improving Root Cause Analyses and Actions to Prevent Harm*

Resources