Using Root Cause Analysis to Drive Improvement

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Session Objectives

• Discuss the importance of using a structured way of identifying systems and contributing factors that lead to serious adverse events.
• Recognize benefits to using root cause analysis in the health care setting.

Scenario

• Esther, age 87, is a resident at a Minnesota nursing home. She has been there for three years. She was able to walk with a walker when she arrived, but now needs a great deal of assistance getting in and out of bed, and generally uses a wheelchair when out of her room.

• One morning, Esther was being moved from her bed to a chair using a Hoyer-type lift. She called for a CNA to help her.
• As the CNA was moving her, Esther fell and suffered a serious head injury as well as some superficial scratches.
• Esther was briefly hospitalized for evaluation of her head injury; a CT showed no intracranial bleeding, and she was released the next day.
Scenario

• During an investigation following the fall, the CNA admitted that she did not follow the policy that required two staff members assist with all transfers.
• The investigation found that the CNA was not compliant with the facility’s policy for transfers.
• She was given a warning and re-trained on the importance of the policy.

How do we respond?
How do we respond?

But what if?

- What if it happens again?
- What if someone else does the same thing?
- What if it goes deeper than that?
**Root Cause Analysis (RCA)**

- The goal of the RCA process is to find out what happened, why it happened, and to determine what can be done to prevent it from happening again.

**RCA**

- Grew out of theories of accident analysis, systems design, safety engineering
- Required by the Joint Commission in response to sentinel events
- Required by Veteran's Administration
- Used primarily in hospitals (Adverse Events), but starting to be used in some nursing homes
- Compatible with MDH regulatory role

**RCA definition**

- A structured way to look at events from a systems perspective
- A way to look at and investigate incidents, accidents, adverse events, and outcomes to determine all underlying causes, and recommend changes that are likely to improve them.

**Why event investigation is difficult**

- Natural reactions to failure
  - hindsight bias
  - focus on the "sharp end"
  - lay out what people could have done
  - determine what people should have done, the fundamental attribution error
- Tendency to stop too soon
  - Lack training in event investigation
  - We don’t ask enough questions

Adapted from *Introduction to Root Cause Analysis: Understanding the Causes of Events, Incident Investigation and Root Cause Analysis*, © 2001-2004 HealthInsight
Why event investigation is difficult

- Lack resources and commitment to thorough investigations
- Overconfidence in our re-constructed reality
  - People perceive events differently
  - Common sense is an illusion
- “The root cause” myth
  - Root cause analysis (RCA) is not about finding one root cause
  - Accidents have multiple causes

Different theories that relate to investigation of serious events

- The blame game
- Human factors
- Tunnel vision
- Swiss cheese

The blame game

- Blame/shame (Whose fault is this?)
- Guilt (I screwed up—waiting for hammer to fall)
- Moving from who did it to why did this happen (Why things happen)

Different theories that relate to investigation of serious events

- The blame game
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Human factors

- Human factors are those elements that influence the performance of people operating equipment or systems; they include behavioral, medical, operational, task-load, machine interface and work environment factors.
- These elements include both physical and cognitive abilities.

Nominal human error rates

<table>
<thead>
<tr>
<th>Activity</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error of commission (misreading a label)</td>
<td>0.003</td>
</tr>
<tr>
<td>Error of omission without reminders</td>
<td>0.01</td>
</tr>
<tr>
<td>Error of omission when items imbedded in a procedure</td>
<td>0.003</td>
</tr>
<tr>
<td>Simple math error with self-checking</td>
<td>0.03</td>
</tr>
<tr>
<td>Monitor or inspector fails to detect error</td>
<td>0.1</td>
</tr>
<tr>
<td>Personnel on different shifts fail to check hardware unless required by checklist</td>
<td>0.1</td>
</tr>
<tr>
<td>General error in high stress when dangerous activities occurring rapidly</td>
<td>0.25</td>
</tr>
</tbody>
</table>

Salvendy G. Handbook of Human Factors & Ergonomics, 1997

To err is human


Human factors engineering

- Human Factors Engineering: study of designs that are "human-centered"
- Such designs support or enhance a person's performance
- Contrast this to designs that force the user to stretch or to make an extra effort to interact successfully with an interface or device
- Dangerous devices may trick or mislead users into an unintentional error
Anyone have one of these?

Human factors principles and systems design
- Avoid reliance on memory and vigilance
  - Use protocols and checklists
- Simplify processes
- Standardize procedures to reduce unintended variation
- Use constraints and forcing functions

Different theories that relate to investigation of serious events
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Tunnel vision
- In reconstructing an event, we may view the event with hind-sight bias
- We look at the event seeing all the options the staff person could have or should have done
- We perceive it to be so clear
Getting inside the tunnel

Outside the tunnel
- Outcome determines culpability
- “Look at this! It should have been so clear!”
- We judge people for what they did

Inside the tunnel
- Quality of decisions not determined by outcome
- Realize evidence does not arrive as revelations
- Refrain from judging people for errors

Lessons from the tunnel
- We haven’t fully understood an event if we don’t see the actors’ actions as reasonable
- The point of a human error investigation is to understand why people did what they did—not to judge them for what they did not do

On investigating human error
“The point of a human error investigation is to understand why actions and assessments that are now controversial, made sense to people at the time. You have to push on people’s mistakes until they make sense—relentlessly.”

Sidney Dekker
Different theories that relate to investigation of serious events

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Swiss cheese model

- Swiss cheese model likens human systems to multiple slices of Swiss cheese, stacked together, side by side
- An organization's defenses against failure are modeled as a series of barriers, represented as slices of Swiss cheese

Swiss cheese model (continued)

- Holes in the cheese slices represent individual weaknesses in individual parts of the system; the holes are continually varying in size and position in all slices
- System produces a failure when all the holes in each of the slices momentarily align
Creating the holes

- Active Failures
  - Errors and violations (unsafe acts) committed at the sharp end of the system
  - Have direct and immediate impact on safety, with potentially harmful effects
- Latent conditions
  - Present in all systems for long periods
  - Increase likelihood of active failures

Root causes

- A root cause is typically a finding related to a process or system that has potential for redesign to reduce risk
- Active failures are rarely root causes
- Latent conditions over which we have control are often root causes

Remember the goal of RCA

- Find out what happened and why it happened to determine what can be done to prevent it from happening again
- You want to protect your residents
- But you also want to protect your staff from having to experience a serious incident
RCA and accountability

Does looking at serious events from a systems perspective mean there is no staff accountability?

Just culture

- A just culture recognizes that individuals should not be held accountable for system failings over which they have no control
- However, a just culture does not tolerate intentional reckless behavior that places a resident in unjustifiable risk

The behaviors we can expect

- Human error: inadvertent action; inadvertently doing other than what should have been done; a slip, lapse, mistake
- At-risk behavior: behavior that increases risk where risk is not recognized, or is mistakenly believed to be justified
- Reckless behavior: behavioral choice to consciously disregard a substantial and unjustifiable risk
How should we respond?

Scenario
- An investigation after Esther’s fall discovered the following:
  - The lift had been used many times before, and there were no known problems with it.
  - There were two lifts on the floor, but one was already in use.
  - Both lifts were older models that required two people to use correctly.

Scenario
- The CNA was aware of the policy requiring two people for transfers with Hoyer-type lifts. Before assisting Esther, she tried to find someone to help her. Of the two other CNA’s on duty, both were busy helping other residents.
  - The CNA was running behind in her work, and she knew that Esther tended to get agitated if she had to wait very long to get help.
Scenario

• The CNA had used this lift by herself before without incident; she believed that she could use it safely again, so she made a decision to do the transfer unassisted.
• The CNA was trained in how to use the lift.
• When she was transferring Esther, she had to maneuver the lift around some obstacles in Esther’s crowded room; this led to Esther’s feet getting tangled in the lift, making her lose her balance.

Scenario

• Contributing factors for Esther’s fall:
  – Environmental (crowded room, old lift)
  – Staffing (other staff busy, no plan for getting assistance)
  – Policy (no provision for situations when backup not available)
  – Culture (acceptance of shortcuts, individual vs team approach)

Scenario

• Action Plan:
  – Explore purchase of lifts that can be used by just one person, are more stable
  – Consider assistance with transfers when developing workplans/priorities for staff
  – Increased management follow-up to assess effectiveness of modified workplans
  – Nurture team approach to care/less individualized focus on roles

Two approaches

• Focus on individual errors
• Individual blame
• Punishing errors
• Expectation of perfect performance
• Solutions tend to be disciplinary or focused on training
• Focus on conditions/systems that allow errors to happen
• Changing systems
• Learning from errors
• Expectation of professional performance within a system that compensates for human limitations
• Solutions might involve training, equipment, cultural change, staffing
### When to consider RCA

- Events with serious outcome for the resident
- Repeating incidents
- Near Misses/Good Catches
- Examples:
  - Falls
  - Medication Errors
  - Plan of Care not followed

### Who to involve

- Staff from departments/units directly and indirectly involved in the event
- Nursing Administration
- Medical Director
  - Physician/Provider as needed
- Quality Representative
- Administrator
- Facilitator *
- Others as identified

### RCA meeting

- Tell the story
- Brief overview of resident
- Start with the person who found resident/patient
  - Try to obtain details of what happened
- Encourage people to share
  - Facilitator captures data
  - Try to identify opportunities/gaps as the story is presented
  - Why, Why, Why?
  - How were they laying? Where was the wheel chair?
  - What is the purpose having the wheel chair across the room?

### Triage questions

- Helps team understand event
- Assures thoroughness of investigation – “buckets”
  - Human factors
    - Staffing
  - Communication/Information
  - Equipment/Environment
  - Uncontrollable external factors
  - Training
  - Rules/Policies/Procedures
  - Barriers
What you should end up with

- Understanding of the preceding causes
- Determination of human and other factors
- Identification of related processes and systems that contributed to the event
- Corrective Actions
- Measurement plan to determine if the actions are being done as planned and having the desired effect

“No matter how well equipment is designed, no matter how sensible regulations are, no matter how much humans can excel in their performance, they can never be better than the system that bounds them.”

Captain Daniel Maurino, Human Factors Coordinator
International Civil Aviation Organization

Questions?

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