

# ***Introduction to Root Cause Analysis (RCA)***

## ***Understanding the Causes of Events***

**Infection Monitoring in Rural Hospitals  
Learning Session 1:  
How to Conduct a Successful QI Project  
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*Information for Health Care Improvement*



## ***Objectives***

- Learn about how human factors, human errors, and communication issues relate to Root Cause Analysis (RCA) principles.
- Understand RCA components.
- Obtain tools to assist your facility in conducting an RCA.

2

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## **Definitions for Root Cause Analysis**

**Formal definition:** An analytic technique that can be used to perform a comprehensive, system-based review of performance failures and unexpected events.

**Working definition:** A way of looking at unexpected events and undesirable outcomes to determine all of the underlying causes and recommend changes that are likely to improve them.

3

## **Types of Error**

- **Errors of commission:** doing something that has the potential to result in an undesirable outcome (doing something that shouldn't be done)
- **Errors of omission:** failing to do something that has the potential to prevent an undesirable outcome (not doing something that should be done)
- **Errors of execution:** doing something that should be done but doing it incorrectly

4

## ***Human Error: Poor Execution Unintentional Omission/Commission***

- **Unintentionally** doing something that has the potential to result in an undesirable outcome
- **Unintentionally** failing to do something that has the potential to prevent an undesirable outcome
- Doing what should be done but **doing it incorrectly**

5

## ***Willful Disregard: Intentional Omission/Commission***

- **Intentionally** doing something that has the potential to result in an undesirable outcome
- **Intentionally** failing to do something that has the potential to prevent an undesirable outcome

6

## ***Causes that Contribute to Undesirable Outcomes***

- No policy/process in place
- Policy/process not followed
- Policy/process followed but insufficient
- Policy/process followed but execution deficient

7

## ***Digging Deeper: Looking for the Roots***

- **No policy/process in place...Why???**
  - Need not recognized
  - Not considered important
  - Not a high priority
  - Don't know what it should be
  - No one responsible for writing it
  - Responsible party does not have the time to write it
  - Don't know who should approve it

8

## ***Digging Deeper: Looking for the Roots***

- **Policy/process not followed...Why???**
  - Willful disregard
  - Workaround (why?? inefficient??)
  - Not aware/trained regarding the policy/process
  - Lack of time or resources (i.e., equipment, supplies) to follow policy/process

9

## ***Digging Deeper: Looking for the Roots***

- **Policy/process followed but insufficient...Why???**
  - Missing essentials
  - Lacks evidence

10

## ***Digging Deeper: Looking for the Roots***

- **Policy/process in place but execution deficient...Why???**
  - Insufficient training/skills
  - Human factors
    - Lapse in attention
    - Fatigue
    - Poor judgment (commission)
    - Miscommunications/misunderstandings
    - Fear of insubordination (omission)

11

## ***Why Event Investigation Is Difficult***

- Natural reactions to failure
- Tendency to stop too soon
- False belief in a single reality
- “One Root Cause” Myth

***Remember: the goal to investigation is to  
UNDERSTAND WHY it happened***

12

## ***Reacting to Failure***

Natural reactions to failure are:

- Retrospective—hindsight bias.
- Proximal—focus on the sharp end.
- Counterfactual—lay out what people could have done.
- Judgmental—determine what people should have done, the fundamental attribution error.

13

## ***Stopping too Soon***

- Lack training in event investigation
  - We don't ask enough questions
  - Shallow understanding of the causes of events
- Lack resources and commitment to thorough investigations

14

## ***False Belief in a Single Reality***

- People perceive events differently
- Common sense is an illusion
  - Unique senses
  - Unique knowledge
  - Unique conclusions

15

## ***New View of Human Error***

- Human error is not the cause of events, it is a symptom of deeper troubles in the system.
- Human error is not the conclusion of an investigation, it is the beginning.
- Events are the result of multiple causes.

16

## ***The Institute of Medicine (IOM) Report***

- 1999 *To Err is Human*
  - “at least 44,000 Americans die each year as a result of medical errors . . . results of the New York study suggest that number may be as high as 98,000”



17

## ***IOM's Proposed Solution***

Health care organizations should:

- Define leadership responsibility.
- Identify and learn from errors.
- Set performance standards.
- Implement safety systems [e.g., surveillance].

18

## ***Barriers that Impact Safety***

- Unclear organizational values
- Fear of punishment
- Lack of systematic analysis of mistakes
- Complexity of the work
- Inadequate teamwork

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Vol.24/No.3 Pg. 143

**19**

## ***Incidents Surrounding Communication***

Ineffective communication is a root cause for nearly 66 percent of all sentinel events reported.

*(JCAHO Root Causes and Percentages for Sentinel Events (All Categories)  
January 1995–December 2005)*

**20**

## ***Silence Kills***

- Broken rules
- Mistakes
- Lack of support
- Incompetence
- Poor teamwork
- Near misses

21

## ***Event Accountability***

“To promote a culture in which we learn from our mistakes, organizations must re-evaluate just how their disciplinary system fits into the equation. Disciplining employees in response to honest mistakes does little to improve overall system safety. Yet, mishaps accompanied by intoxication or malicious behavior present an obvious and valid objection to today’s call for blame-free error reporting systems.”

22

David Marx, 2001

## ***Safety Processes***

- Checklist
- Standardized
- Redundancy
- Simplification
- Forcing functions
- Interrupt-free zone
- Prompts and reminders

23

## ***Barriers to Near-Miss Reporting***

- Confusion about what constitutes an adverse event
- Additional work
- Fear of reprisals
- Loss of reputation
- Potential loss of employment
- Perceived lack of effectiveness

24

## ***Benefits of Near-Miss Reporting***

- **Analysis** can lead to:
  - System process improvements.
  - Identification of risk-management concerns.
  - Detection of training concerns.
  - Proactive interventions.

25

## ***Successful Characteristics***

- Safe, nonpunitive environment
- Reporting forms simple to use
- Timely and valuable
- Incentives for voluntary reporting
- Open culture
- Sustained leadership support

Leape, 2002

26

## ***Lessons to be Learned***

- Reward incident reporting
- Focus on identifying system issues
- Promote open communication
  - Feedback
  - Education
- Involve everyone
  - Nonjudgmental analysis

27

## ***Near Miss***

A situation in which an event or omission or a sequence of events or omissions arising during clinical care fails to develop further—whether or not as the result of compensating actions—thus preventing injury to the patient.

28

## ***Benefits of Near Misses***

- Greater frequency of reporting
- Decreased barriers to data collection
- Limited liability
- System improvements are identified

29

## ***Strategies for Near Misses***

- Don't wait for a near miss to become a direct hit
- Be proactive with a solution
- Avoid blame behaviors
- Share, share, share

30

## ***Analysis Should Include***

- How did the incident happen?
- What factors contributed to the incident—at what level?
- Were policy/process intentionally disregarded?
- Were mitigating strategies for intervention identified prior to the event?

31

## ***Remember: The Goal Is to UNDERSTAND WHY***

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

Sidney Dekker

32

## Getting Inside the Tunnel

33

Search Begins Here for Health Care Improvement

<u>Outside the Tunnel</u>	<u>Inside the Tunnel</u>
<ul style="list-style-type: none"><li>■ Outcome determines culpability.</li><li>■ “Look at this! It should have been so clear!”</li><li>■ We judge people for what they did.</li></ul>	<ul style="list-style-type: none"><li>■ Quality of decisions not determined by outcome.</li><li>■ Realize evidence does not arrive as revelations</li><li>■ Refrain from judging people for errors</li></ul>

34

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## **Root Cause Analysis Exercise**



35

## **Aviation and Health Care Parallels**

- **Aviation**
  - Stressful working environment
  - Need for highly functioning teams
  - Accurate and precise communication
  - High costs associated with failure
- **Health Care**
  - Stressful working environment
  - Need for highly functioning teams
  - Accurate and precise communication
  - High costs associated with failure

36

## **High Profile Accidents**

The Tenerife collision took place on March 27, 1977, at 17:06:56, when two Boeing 747 airliners collided at Los Rodeos on the island of Tenerife, Canary Islands, Spain, killing 583 people. The accident has the highest number of fatalities (excluding ground fatalities) of any single accident in aviation history.

The aircraft involved were Pan American World Airways Flight 1736, under the command of Captain Victor Grubbs, and KLM Royal Dutch Airlines Flight 4805, under the command of Captain Jacob Veldhuyzen van Zanten. KLM 4805, taking off on the only runway of the airport, crashed into the Pan Am aircraft which was taxiing in the opposite direction on the same runway.

37

## **Root Cause Analysis Exercise**



38

## ***Accident Findings***

- ...
- ...
- ...
- ...
- ...
- ...
- ...
- ...

39

## ***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.

40

## Summary

- New view of human error
- Events are the result of many causes
- Root causes are causes with potential for redesign to reduce risk
- Getting inside the tunnel will help us understand why events occur

41

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42

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43

*Over 1 million drug-related injuries occur every year in health care settings. The Institute of Medicine estimates that at least a quarter of these injuries are preventable.*

**To find out how to prevent medication errors, go to**  
<http://www.hsag.com/drugsafety/>.



[www.hsag.com](http://www.hsag.com)

44