

Patient Safety 104: Root Cause and Systems Analysis

Summary Sheet

Lesson 1: Root Cause Analysis Helps Us Learn from Errors

- A **root cause analysis** (RCA) is a systematic approach to understanding the causes of an adverse event and identifying system flaws that can be corrected to prevent the error from happening again.
 - By definition, RCAs are *retrospective*: they look back at an error that occurred.
 - An RCA is not appropriate in cases of *negligence* or *willful harm*.
- Laying events out in chronological order is one way to understand the past, but when we start to group events into categories, we begin to see them in a different way.
- Focusing on system causes, rather than blame, is the central feature of root cause analysis.
 - A systems approach to error asks, “What circumstances led a reasonable person to make reasonable decisions that resulted in an undesirable outcome?”
- **Accidents in health care almost never stem from a single, linear cause.** They come from a mix of active failures, work conditions, and deeply embedded latent failures – what some safety experts call contributory factors – that all align precisely to slip through every existing defense.

Lesson 2: How a Root Cause Analysis Works

- Typically, an RCA team consists of four to six people from a mix of different professionals.
 - The team should include individuals at all levels of the organization who are close to and have fundamental knowledge of the issues and processes involved in the incident.
 - Experts disagree on whether people involved in the event should be on the team.
 - Some RCA teams include patients and family members.
 - It’s important for clinical and administrative leaders to support RCAs.
- There are six steps common to most RCAs:
 - **Step 1: Identify what happened.** The team must try to describe what happened accurately and completely.
 - To organize and further clarify information about the event, some teams create a flowchart, a simple tool that allows you to draw a picture of what happened in the order it occurred.
 - **Step 2: Determine what should have happened.** The team has to determine what would have happened in ideal conditions.
 - It can be useful to create a flow chart based on this information and compare it to the chart from Step 1.
 - **Step 3: Determine causes (“Ask why five times”).** This is where the team determines the factors that contributed to the event.
 - Teams look at direct causes (most apparent) and contributory factors (indirect in nature) during this process.
 - Some experts recommend that RCA teams “ask why five times” to get at an underlying or root cause.

- One useful tool for identifying factors and grouping them is a **fishbone diagram** (also known as an “Ishikawa” or “cause and effect” diagram), a graphic tool used to explore and display the possible causes of a certain effect.
 - Seven different factors influence clinical practice and medical error: patient characteristics, task factors, individual staff member, team factors, work environment, organizational and management factors, institutional context.
- **Step 4: Develop causal statements.** A causal statement links the cause (identified in Step 3) to its effects and then back to the main event that prompted the RCA in the first place.
 - By creating causal statements, we explain how the contributory factors – which are basically a set of facts about current conditions – contribute to bad outcomes for patients and staff.
 - A causal statement has three parts: the cause (“This happened ...”), the effect (“... which led to something else happening ...”), and the event (“... which caused this undesirable outcome”).

Lesson 3: How a Root Cause Analysis Can Help Improve Health Care

- **Step 5: Generate a list of recommended actions to prevent the recurrence of the event.** Recommended actions are changes that the RCA team thinks will help prevent the error under review from occurring in the future.
 - Recommendations often fall into one of these categories:
 - i. Standardizing equipment
 - ii. Ensuring redundancy, such as using double checks or backup systems
 - iii. Using forcing functions that physically prevent users from making common mistakes
 - iv. Changing the physical plant
 - v. Updating or improving software
 - vi. Using cognitive aids, such as checklists, labels, or mnemonic devices
 - vii. Simplifying a process
 - viii. Educating staff
 - ix. Developing new policies
 - Some actions are more effective than others at dealing with the root causes of error. The National Center for Patient Safety defines strong, intermediate, and weak actions:
 - i. A strong action is likely to eliminate or greatly reduce the likelihood of an event.
 - ii. An intermediate action is likely to control the root cause or vulnerability.
 - iii. A weak action by itself is less likely to be effective.
- **Step 6: Write a summary and share it.** This can be an opportunity to engage the key players to help drive the next steps in improvement.

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