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.
  - To organize and further clarify information about the event, some teams create a flowchart**,** simple tool that allows you to draw a picture of what happened in the order it occurred.