Root Cause Analysis

Causal Factors, Corrective Actions, and Behavioral Health considerations

About SaferCare Texas

We are a department within The University of North Texas Health Science Center at Fort Worth. SaferCare Texas was founded as a response to the national challenge to improve patient safety and is dedicated to improving the quality and safety of care in Texas and throughout the nation.

SaferCare Texas is achieving its objectives through

- Education
- Collaboration
- Innovation
- Community Engagement

We advocate, collaborate, innovate, educate, and serve our communities in our mission to eliminate preventable harm.

Our team is committed to improving communities through patient safety innovation.

Areas of Focus

- Rural and Underserved Health
- Health Literacy
- Maternal Health
- Pediatrics & Teenagers
- Professional & Community Education
- Ambulatory Care
- Geriatrics
- Patient Safety & Quality Improvement
- Asthma Education

Visit SaferCareTexas.org to view a detailed list of our services, upcoming events, and educational blog. Learn how YOU can play a role in eliminating preventable harm.

Together, let's #SpeakUpForSaferCare.

Objectives

- Understand the fundamental principles of root cause analysis (RCA) in healthcare, including its significance in identifying causal factors contributing to adverse events or issues.
- Learn effective methodologies and tools utilized in RCA processes to systematically analyze and uncover root causes underlying complex problems, and how to apply these tools to behavioral health events.
- Gain practical skills in developing comprehensive corrective action plans (CAPs) based on RCA findings, incorporating evidence-based strategies to address identified root causes and prevent recurrence of adverse events or behavioral health challenges.

National Patient Safety Foundation. RCA2: Improving Root Cause Analyses and Actions to Prevent Harm.

- Formalized root cause analysis process developed by a panel of subject matter experts with the goal of preventing future harm
- Focused on both Analysis and Actions (A^2)
- Describes identifying and classifying events, assembling a team, and the event review process
- Includes seven appendixes with tips and tools

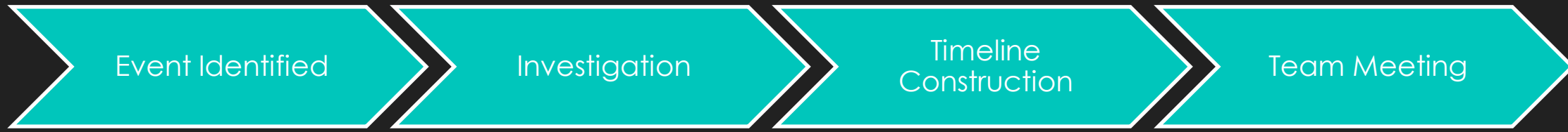
To be thorough, the analysis must do the following:

- Repeatedly ask "Why?" until the analysis identifies the systemic causal factors associated with each step in the sequence that led to the sentinel event
- Focus on systems and processes, not solely on individual performance
- Determine the human and other factors most directly associated with the sentinel event and the process(es) and systems related to its occurrence
- Use the analysis to help determine where redesign might reduce risk
- Inquire into all areas appropriate to the specific type of event
- Identify risk points and their potential contributions to this type of event
- Determine potential improvement in processes or systems that would tend to decrease the likelihood of such events in the future or determine, after analysis, that no such improvement opportunities exist

To be credible, the analysis must do the following:

- Be clear (understandable information)
- Be accurate (validated information and data)
- Be precise (objective information and data without internal inconsistencies)
- Be relevant (focus on issues related or potentially related to the sentinel event)
- Be systematic (methodically conducted)
- Possess depth (ask and answer all of the relevant "Why" questions and explain any "not applicable" finding)
- Possess breadth of scope (cover all possible systemic factors wherever they occur)
- Reflect diverse perspectives (include a process owner or designee, a patient or family member when appropriate, and individuals close to the process under review)

RCA Process



- Team notified
- 2nd victim support
- Immediate actions

- Interviews
- Documentation
- Environment
- Equipment
- Policies/Protocols

- Focused and relevant
- Omission/Commission
- Compare the THREE timelines

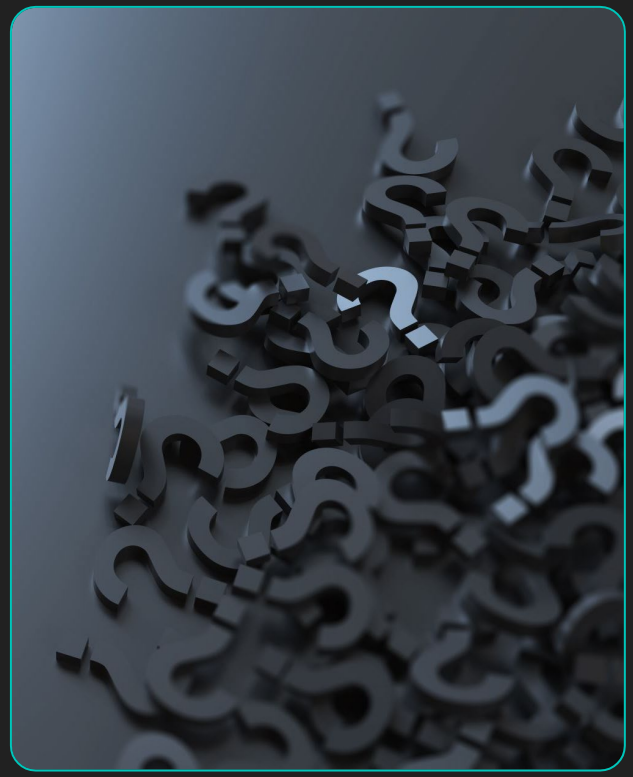
- Event review
- Timeline agreement
- Trigger Questions
- Initial Actions
- Parking lot

Process Flags

- Stay relevant to the event
- Error of Commission - Actions that occurred that should not have occurred
- Error of Omission - Actions that should have occurred but did not
- Note all process flags regardless of severity, note expected actions

Review Trigger Questions

- RCA² Appendix 2
- Identifies areas of inquiry that might have been missed
- 75 Yes/No Questions, note any "no" answers for further investigation
  - Communication
  - Training
  - Fatigue/Scheduling
  - Environment/Equipment
  - Rules/Policies/Procedures
  - Barriers
- Match all process flags with a trigger question
- Collect additional information as needed



5 Whys

Map each process flag from timeline to at least one trigger question

Use the trigger question as your first 5 Why question

Continue to drill down through the causal factors

Identify Causal Factors

- A Causal Factor is NOT a root cause, it is one of many contributing influences or conditions
- Define sequence of events that lead to the event
- Each step is linked to previous step, fill in gaps
- Identify as many contributing factors and conditions as possible

Develop Causal Statements

- Apply the Five Rules of Causation
- Must be focused on correcting system issues
- Must emphasize why corrective actions are required
- Causal statements are written to describe (1) Cause, (2) Effect, and (3) Event.
  - Something (Cause) leads to something (Effect) which increases the likelihood that the adverse Event will occur.
  - Example: A high volume of activity and noise in the emergency department led to (cause) the resident being distracted when entering medication orders (effect) which increased the likelihood that the wrong dose would be ordered (event).

Rules of Causal Statements

- Rule 1. Clearly show the "cause and effect" relationship.
  - INCORRECT: A resident was fatigued.
  - CORRECT: Residents are scheduled 80 hours per week, which led to increased levels of fatigue, increasing the likelihood that dosing instructions would be misread.

Rules of Causal Statements

- Rule 2. Use specific and accurate descriptors for what occurred, rather than negative and vague words. Avoid negative descriptors such as: Poor; Inadequate; Wrong; Bad; Failed; Careless.
  - INCORRECT: The manual is poorly written.
  - CORRECT: The pumps user manual had 8 point font and no illustrations; as a result nursing staff rarely used it, increasing the likelihood that the pump would be programmed incorrectly.

Rules of Causal Statements

- Rule 3. Human errors must have a preceding cause.
  - INCORRECT: The resident selected the wrong dose, which led to the patient being overdosed.
  - CORRECT: Drugs in the Computerized Physician Order Entry (CPOE) system are presented to the user without sufficient space between the different doses on the screen, increasing the likelihood that the wrong dose could be selected, which led to the patient being overdosed.

Rules of Causal Statements

- Rule 4. Violations of procedure are not root causes, but must have a preceding cause.
  - INCORRECT: The techs did not follow the procedure for CT scans, which led to the patient receiving an air bolus from an empty syringe, resulting in a fatal air embolism.
  - CORRECT: Noise and confusion in the prep area, coupled with production pressures, increased the likelihood that steps in the CT scan protocol would be missed, resulting in the injection of an air embolism from using an empty syringe.

Rules of Causal Statements

- Rule 5. Failure to act is only causal when there is a pre-existing duty to act.
  - INCORRECT: The nurse did not check for STAT orders every half hour, which led to a delay in the start of anticoagulation therapy, increasing the likelihood of a blood clot.
  - CORRECT: The absence of an assignment for designated RNs to check orders at specified times increased the likelihood that STAT orders would be missed or delayed, which led to a delay in therapy.

To be considered acceptable, the corrective action plan must do the following:

- Identify changes that can be implemented to reduce risk, or formulate a rationale for not undertaking such changes
- Identify, in situations in which improvement actions are planned, the following:
  - Who(by title) is responsible for implementation
  - When the action will be implemented (including any pilot testing)
  - How the effectiveness of the actions will be evaluated
  - How the actions will be sustained
  - The point at which alternative actions will be considered if improvement targets are not met
  - At least one stronger- or intermediate-strength action

Actions

- The most important step in the RCA2 process is the identification and implementation of actions to eliminate or control system hazards or vulnerabilities that have been identified in the contributing factor statements
- Actions should prevent occurrence or reduce severity
- At least one strong or intermediate action

Less memory or reliance on individual performance

Greater reliance on memory and individual performance

Stronger Actions	Architectural/physical plant changes New devices with usability testing before purchasing Engineering control or interlock (forcing functions) Simplify the process and remove unnecessary steps Standardize on equipment or process Tangible involvement and action by leadership in support of patient safety
Intermediate Actions	Redundancy Increase in staffing/decrease in workload Software enhancements/modifications Education using simulation-based learning with a competency assessment completed on a recurring basis Eliminate/reduce distractions (sterile medical environment) Checklist/cognitive aid Eliminate look and sound-alikes Repeat-back/Read-back Enhanced documentation/communication
Weaker Actions	Double checks Warnings and labels New procedure/memorandum/policy Traditional training Additional study/analysis

Sample RCA Action Plan

Process Failure	The Root Cause	Risk Mitigation Strategies	Responsible Person/s	Implementation Due Date	Describe MOS Measurement	Numerator Sample Size *(Table 1)*	Denominator Population Size *(Table 1)*	Expected % Compliance *(Not Less than 90%)*	Monitoring Period *(No less than 4 months)*	Oversight Committee(s)	Action Category	Action Strength

SMART Goals

SPECIFIC

MEASURABLE

ACHIEVABLE

RELEVANT

TIME-BOUND

Stratify Your Action Plans

- Break actions down into small, specific steps instead of large complex goals
- Identify shorter timeframes and more frequent due dates instead of an overall date in the future
- Every action should have an appropriate measure of success (MOS)
- Process measurements – Are the new actions implemented?
- Outcome measurements – Are the new actions working?

Accountability

- Action plan updates should be reported to a committee or routine meeting
- Provide mechanism for data entry or documentation
- Allow for failure, acknowledge ineffective actions and reconfigure plans
- Provide feedback to staff at town halls, forums, or safe table sessions

Sustainability

- Communicate event and actions with all staff
- Honesty and transparency
- Leadership involvement and accountability
- Share and leverage wins, acknowledge setbacks

Behavioral Health RCA tips

- Unique challenges with patient involvement
  - Unlike most adverse events, the patient may be a contributing factor
  - Isolate controllable variables outside of patient behavior
  - Examine assessment and intervention opportunities
  - Review safety guardrails and prevention tactics for failure

Behavioral Health RCA tips

Expand your timeline from admission to discharge to capture any opportunities for process improvement

Don’t stop at examining the steps leading up to the event, examine the immediate response and ongoing actions required to restore and maintain safety after an event.

Include employee safety, treatment, and second victim support

Lessons Learned

- Share the story with your staff to maximize improvement
- Executive leadership Involvement
  - Present the event honestly
  - Discuss actions taken and improvement goals
  - Commit to improvement
  - Provide simple take-aways for all staff

References

- *Performance Measure - Sampling Requirement | Health Care Staffing Services | Performance Measurement and Improvement HSPM*. (n.d.). Performance Measure - Sampling Requirement | Health Care Staffing Services | Performance Measurement and Improvement HSPM | the Joint Commission. https://www.jointcommission.orghttps://www.jointcommission.org/standards/standard-faqs/health-care-staffing-services/performance-measurement-and-improvement-hspm/000001637/
- RCA2: Improving Root Cause Analyses and Actions to Prevent Harm. Citation Text: Boston, MA: National Patient Safety Foundation; 2015. Boston, MA: National Patient Safety Foundation; 2015.
- The Joint Commission. (2020). Framework for root cause analysis and corrective actions - joint commission. Retrieved April 17, 2023, from https://www.jointcommission.org/-/media/tjc/documents/resources/patient-safety-topics/sentinel-event/rca_framework_101017.pdf?db=web&hash=B2B439317A20C3D1982F9FBB94E1724B