Building Patient-Safety Skills
Avoiding Pitfalls in Conducting a Root Cause Analysis
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INTRODUCTION
Most hospitals are familiar with the root cause analysis (RCA) process, having conducted many RCAs in the more than 15 years since The Joint Commission first required its use to investigate sentinel events. RCA is the most basic type of event investigation; it is an analytical approach to problem-solving that seeks to identify why adverse events happen and how to prevent them.

The Institute for Safe Medication Practices (ISMP) has reviewed many RCAs associated with medication-related events. Although the ISMP has seen a steady rise in the use of this tool, it continues to observe common pitfalls encountered during the conduct of RCAs, often rendering the process less useful than intended.

These pitfalls are not surprising, given the lack of well-designed patient-safety and quality improvement curricula available to health care professionals during their training and after graduation. Many of these professionals learn the science and skills associated with quality improvement and patient safety, including RCA, through informal on-the-job training, even when workshops on these topics are available only periodically. Most would agree that not enough has been done to prepare health care professionals to anticipate, identify, analyze, and resolve problems related to patient safety.

COMMON PITFALLS TO AVOID Skipping the Chronology
Many RCAs do not include a sequence of events, a flow chart, or a narrative that adequately describes what happened. To be effective, the RCA must start with an accurate sequence of events and a timeline to reveal all gaps where human error occurred or when unsafe behavioral choices were made. This step helps staff members define the problems that need to be addressed, understand the relationship between contributory factors and the underlying causes, and ensure that all aspects of the event are analyzed. Although developing an event chronology is time-consuming, this step should not be skipped despite time constraints and a desire to quickly “get to the bottom” of the event.

Relying on Policies and Procedures
Some RCAs fail to uncover the real-world conditions that led to a drug-related event, because the team relies too much on the written content of policies and procedures to illustrate what normally happens when care is provided. Basic questions that should be answered during a RCA are listed in Table 1.

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<th>Question #2 (What normally happens?)</th>
<th>Question #3 (What do the policies and procedures require?)</th>
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<td>Question #4 (What do the policies and procedures require?)</td>
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Table 1 Basic Questions to Answer During a Root Cause Analysis

Failing to Investigate At-Risk Behavior
Many RCAs do not dig deeply enough to uncover entrenched system-based causes of events or latent failures. To learn about latent failures, staff members must ask probing questions about how the organization was managing information, the environment, human resources, equipment and technology, and associated human factors at the time of the event. When a system or human factor has been identified as contributory, the process of repeatedly asking “why” leads to uncovering more deep-seated latent failures in the system.

Failing to Look Into Human Error and Human Factors
The investigation of a medication-related event sometimes ends when human error is identified as the cause. However, an investigation into human error should always be conducted to uncover pre-existing performance-shaping factors (e.g., task complexity, workflow, time availability or urgency, process design, experience, training, fatigue, and stress) or other environmental conditions, system weaknesses, or equipment design flaws that allowed the error to occur and to reach the patient. The investigation is incomplete if it ends with human error as the root cause, because it does not reveal how such an error got through the system and reached patients. Obtaining this information is critical for planning the redesign of systems.

Not Seeking Outside Knowledge
RCA team members may get so involved in the analysis of a drug-related event that they fail to recognize the value of looking outside the system for similar occurrences or looking at relevant literature to see what they might learn. Internal error databases might uncover related events that have not led to harm, which can help identify and clarify risks. Professional literature, including research and anecdotal case reports, may also help in
analyzing the event and in selecting high-leverage, evidence-based, risk-reduction strategies. Applicable regulations, standards, professional guidelines, and consultation with clinical and safety experts can enhance the RCA process and can lead to greater success with interventions.

The ISMP has also encountered RCA teams that are so entrenched in discussions that they fail to move out of the meeting room to visit the clinical areas involved in the event. As a result, the team neglects to observe the environment and processes firsthand or fails to conduct a safe simulation when it has the chance.

**Not Linking a Cause to an Action**

Sometimes the RCA action plan fails to show clearly a relationship between the proposed actions and the causative factors. For administrators and staff to agree on the action plan, it is important that they be able to follow the logic of the RCA team. Each intervention should be clearly linked to one or more causative factors.

Another impediment to linking a cause to an action is the veil of secrecy under which RCAs are performed. Although confidentiality is important, sufficient information needs to be shared with the staff members, who will be required to implement changes so that they understand the purpose and importance of the plan.

**Selecting Weak Risk-Reduction Strategies**

The most effective risk-reduction strategies involve redesigning systems to make them more resistant to human error and enabling staff members to make safe behavioral choices by removing the system-based and cultural-based incentives for cutting corners. Yet developing new rules and educating staff (considered to be weak interventions) are among the most common risk-reduction strategies that occur in RCAs.

A manual double-check, often the next step early in the process, does little to prevent errors later. Strategies that rely heavily on human memory and vigilance are much weaker than strategies that prevent the staff from carrying out tasks the wrong way, that “force” them to carry out tasks the correct way or that involve automation to provide just-in-time decision support, to verify accuracy, and to halt progress when errors are made. Layering action plans with multiple strategies also helps to ensure success.

**Failing to Carry Out the Action Plan and Measure Success**

RCAs are useful only if they result in a positive change. However, the ISMP has sometimes encountered RCA action plans with critical interventions that were not implemented or that were not realistic for future implementation. Their progress was not monitored, and no structured format existed to support implementation of the action plan or to monitor accountability. Further, some changes that were implemented were later abandoned because of one or more reasons:

- They were designed without consideration of the workflow.
- Barriers were encountered but were not addressed.
- The reason for the change was not clearly communicated to the staff.
- Measures were not in place to quantify or monitor the scope of change and its effect on patient safety.

Staff members need motivation to make changes. To sustain change, they require information that links the change to positive patient outcomes. Interventions should be tested on a small scale, revised as necessary, and disseminated throughout the organization in all applicable areas. Even the best-laid plans don’t always work out; if that happens, the RCA team needs to develop new ways to deal with the risks.

**Having a Focus That Is Too Narrow or Too Broad**

Sometimes RCAs don’t look broadly enough at the risks they uncover to determine whether these same risks are present in other parts of the organization or among other processes of care. For example, a deadly mix-up between look-alike products in one area of the hospital could happen in another area of the hospital. Yet an intervention might target the risks at a single area of the facility or fail to address other products that looked similar to the ones that caused confusion.

When a risk is identified, the focus that was appropriately narrow during initial analysis of a drug-related event needs to be broadened to analyze the same or similar risks throughout the organization and in other areas of care. Similarly, interventions addressing these risks should not be narrowly defined for implementation only in the immediate area involved in the event.

On the other hand, the ISMP has occasionally encountered organizations that attempted to learn too much about distant system issues from a single event. This occurred most often when the staff made assumptions about risk and how interventions could be implemented without conducting an investigation or without receiving input from dissimilar clinical areas (such as inpatient and outpatient services).

**Not Addressing Unjust Punitive Actions**

Some RCAs have been weakened by unjust punitive actions taken against practitioners shortly after a medication-related event, largely because of hindsight bias and a prevailing (but unfair) outcome-based justice system. These actions are common in health care, with the patient’s outcome dictating the degree of punishment. The ISMP has observed that some organizations hold a clinician accountable for duties that were not in place before the event occurred or that did not apply to the situation. For example, a double-check might have averted a poor outcome but was not a required procedure, or perhaps a physician was not consulted because the clinician was unaware that the situation warranted such an action.

In either case, the RCA team is more inclined to focus on individual shortcomings (as determined by organizational leadership, often before the RCA begins) and may be less inclined to uncover the underlying system causes of these actions. Further, because of the punitive action, individuals involved in the event might not be available to provide important details during the RCA. This situation often leads to inaccurate assumptions.

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The reports described in this column were received through the ISMP Medication Errors Reporting Program (MERP). Errors, close calls, or hazardous conditions may be reported on the ISMP Web site (www.ismp.org) or communicated directly to ISMP by calling 1-800-FAILSAFE or via e-mail at ismpinfo@ismp.org.