



# Healthcare Risk Management®



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## Root-cause analysis might be shallow-cause analysis

Many risk managers who think they are conducting a root-cause analysis (RCA) really aren't, says **Robert Latino**, vice president of The Reliability Center, a risk management consulting firm in Hopewell, VA. Instead, they often are conducting what he calls a "shallow-cause analysis" (SCA) that doesn't reach as far as a true RCA.

"Most people have been conditioned by the quality tools like the fishbone diagram, and they think that if they're using those tools they're doing an RCA," he says. "The fishbone is just one tool and it comes with real limitations, which can be overcome if you use it properly and with the right other tools. A lot of people, however, think they're doing a real RCA as long as they're using those familiar tools."

But that approach isn't always a bad thing, Latino says. There are many situations in which a true RCA is not worthwhile, but some lesser investigation still is warranted, he says.

A good rule of thumb is that you should be conducting a true RCA on the 20% of events that cause 80% of more of your losses, Latino says. "Those will differ from one organization to another, and they warrant the full breadth and depth of a true RCA," he says. "For everything else, I would use less stringent methodologies."

Latino says many of the tools that are commonly used for RCAs fall short of the goal of finding the true root cause of a problem. Typical tools in this category are the 5-Whys, the fishbone diagram, brainstorming, troubleshooting, and problem solving. Those tools can be useful even if they don't fulfill the needs of an RCA, he notes. You just need to know which tools to use for which investigations, he says.

### Brainstorming has limits

One example of how risk managers can think they are doing a RCA when they aren't is brainstorming. This activity usually involves a collec-

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## EXECUTIVE SUMMARY

Risk managers should know when to do a “shallow-cause analysis,” when to do a full root-cause analysis, and the difference between the two. When doing a root-cause analysis, a logic tree may be more productive than some other common strategies.

- A full root-cause analysis should be reserved for the cases that are worth the time and effort.
- A shallow-cause analysis can be sufficient for some cases and yield useful information.
- Some common analytical tools have hidden limitations.

tion of experts throwing out ideas about the causes of a particular event, but Latino says usually such sessions are not structured in a manner that explores cause-and-effect relationships. Instead, people just express their opinions and come to a consensus on solutions.

“When comparing this approach to the essential elements needed for an RCA, brainstorming falls short of the criteria to be called RCA and therefore falls into the shallow-cause analysis category,” he says.

Troubleshooting is another example. It usually is a bandage type of approach to fixing a situation quickly and restoring the status quo, Latino says. Typically, troubleshooting is done by individuals as opposed to teams and requires no proof or evidence to back up assumptions.

“This off-the-cuff process is often referred to as RCA, but clearly falls short of the criteria to qualify as RCA,” he says.

The 5 Whys is a simple approach that is supposed to lead the analyst to the root cause by asking the question “Why?” five times, but Latino says the main flaws with this concept are that failure does not always occur in a linear pattern. Multiple factors combine laterally to allow the undesirable outcomes to occur. Also, there is never a single root cause and this is a misleading aspect of this approach, Latino says. He also notes that people tend to use this tool by themselves and not in a team and rarely back up their assertions with evidence.

The fishbone diagram uses a diagram in which the spine of the fish represents the sequence of events leading to the undesirable outcome. The fishbones themselves represent

categories that should be evaluated as to having been a contributor to the sequence of events. Latino explains that as a brainstorming technique, this tool is less likely to depend on evidence to support hypotheses and more likely to let hearsay fly as fact.

This process is also not cause-and-effect based, but categorically based, Latino says. “The users must pick the category set they wish to use and throw out ideas within that category,” he says. “If the correct categories for the event at hand were not selected, key root causes could be missed.” One risk manager familiar with the differences between RCA and SCA is **Anne Flood**, MA, RN, director of quality, risk, and patient safety at Union Memorial Hospital/Medstar in Baltimore. She says it is easy for health professionals to become accustomed to a bandage approach to fixing problems, and she realized two years ago that she often was using SCA when she thought she was doing an RCA.

She then switched to using the logic tree advocated by Latino, and she says the investigations now yield more reliable results. Flood began using the logic tree methodology only in her department but soon provided it to all departments in the hospital so they can use it without direct involvement from risk management. Union Memorial now is using the logic tree to investigate urinary tract infections, which hospital leaders think are too high.

“One of the strengths of this approach is that you don’t have to wait for a catastrophic event to occur,” Flood says. Instead, you can use it when you detect a chronic problem, she says.

The hospital’s maintenance department also is using the technique to study the cause of flood-

## SOURCES

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ing in the facility and the potential costs and savings from various interventions, she says.

“In the past we would have used some of the common quality tools and stopped at the more obvious causes,” Flood says. With the logic tree, “we feel like we’re digging deeper and getting the real causes more often,” she says. ■

## Logic tree can get to real cause of a systemic error

**R**obert Latino, vice president of The Reliability Center, a risk management consulting firm in Hopewell, VA, recommends a tool developed by his firm calls the “logic tree” for investigating chronic problems or adverse events. The logic tree is a tool specifically designed for use within root-cause analysis, showing cause and effect relationships that queued up in a particular sequence to cause an undesirable outcome to occur. These cause and effect relationships are validated with hard evidence as opposed to hearsay.

“The data lead the analysis, not the loudest expert in the room,” Latino explains.

A logic tree starts off with a description of the facts associated with an event, then you work your way down by asking how that event could have happened. A key part of this tool that makes it different from others is that you must ask “how could this specific step have happened” instead of simply “why” it happened.

“We find that when simply asking why, we are connoting a singular answer and to a point, an opinion,” Latino explains. “When asking how could, we are seeking all the possibilities, not only the most likely, and evidence to back up what did and did not occur.”

Latino offers an example of using a logic tree to investigate an endobronchial fire during surgery using a laser. (See p. 40 for this example in a logic tree.) The logic tree begins with the sentinel event and then works down by asking what could have happened. The first line of answers is it could have happened before, during, or after the procedure. Before and after are eliminated, and then the next question is how the fire began — inside or outside the right bronchus.

Then the next question is how oxygen, fuel, and ignition source were all present.

### ***Must explore all options***

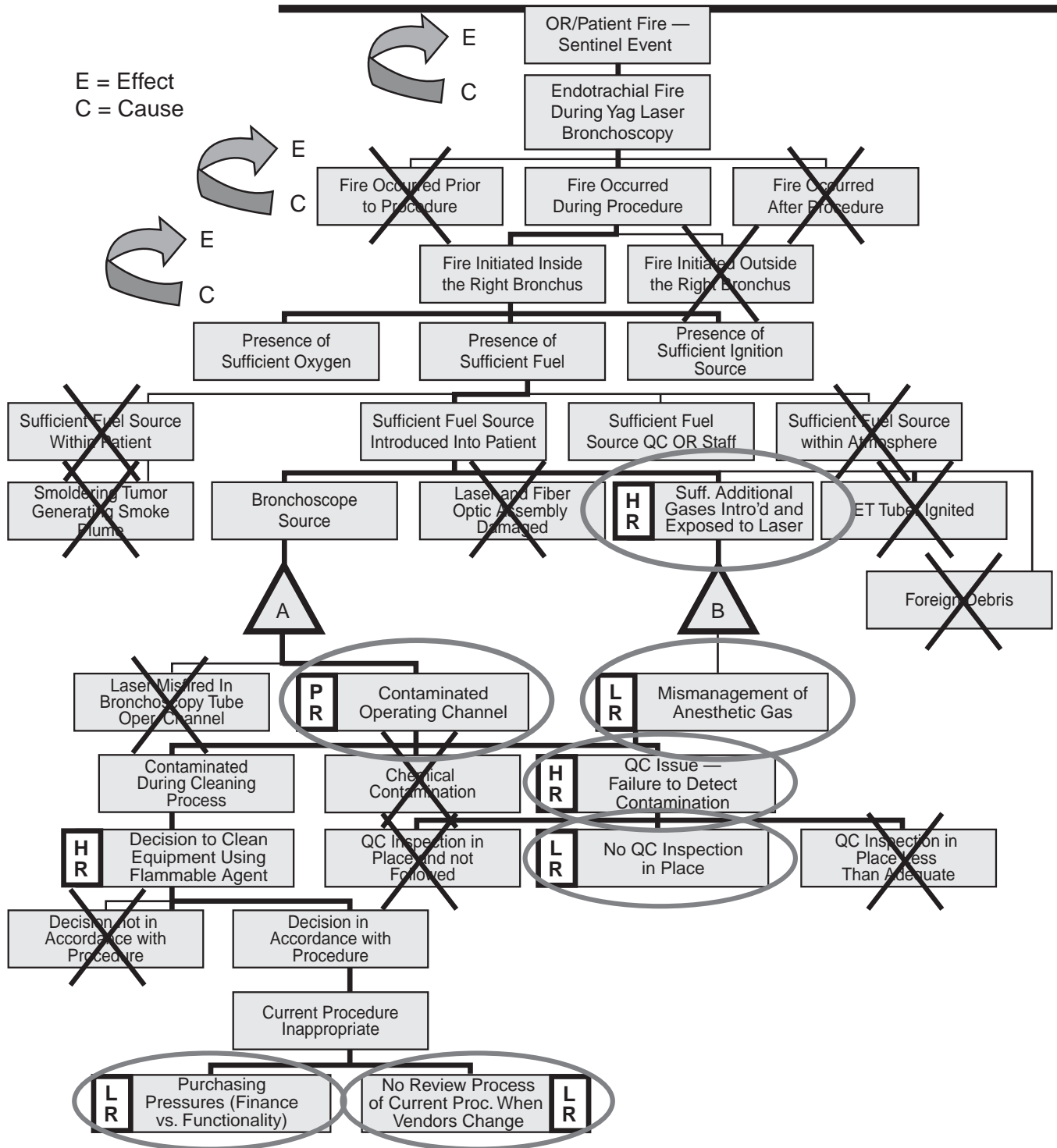
By exploring all the possible answers to each of those questions and eliminating those that don’t apply, you end up with a more reliable, thorough answer than simply charting the one answer that everyone thinks is correct, Latino says. In this example, the logic tree leads to two conclusions: First, an operating channel in the bronchoscope was contaminated with a flammable cleaning agent, which was used because financial concerns led to inadequate procedures. The hospital switched to using a less expensive solution for cleaning the bronchoscopes, and the hospital had no system in place for assessing the potential implications on patient safety of such a change. Second, anesthetic gas was mismanaged because there was no quality control inspection.

“I could have done a ‘5 Whys’ and easily concluded that the anesthesiologist mismanaged the gasses, or I could have used a fishbone and never gotten to the fact about inappropriate cleaning of the instruments. There wouldn’t be a category for that because it’s not something you immediately think of,” he explains.

Latino says the logic tree helps show how much seemingly unrelated issues and actions can combine to threaten patient safety or otherwise cause a problem for the organization.

“The failure of a process to achieve its designed objective has to do with the design of the linkages between steps in the process, how the steps relate to one another, the hand-offs,” he says. “It is the interrelationships that are themselves prone to failure and that propagate the effects of a failure to other parts of the process, often in ways that are unexpected or not immediately evident.” ■

# Sample Logic Tree



Source: The Reliability Center, Hopewell, VA.