

Conducting the Post Mortem a.k.a. Root Cause Analysis

Remember the purpose of doing Post-Mortems, or Root Cause Analyses (RCAs). When they are done properly the results will:

- 1) Help develop expertise
- 2) Include many perspectives
- 3) Find causal relationships
- 4) Assist at all levels of the organization: You, Your office, Your agency
- 5) Reveal latent causes; i.e., those causes that are present long before the event unfolds.
- 6) Help you pinpoint what's wrong, and keep doing what's right.

When To Conduct a Post-Mortem

There are many schools of thought on when to conduct Post-Mortems. They can be event driven, and are subject to available resources. It will take some time. Maybe your office, or you personally, want to develop some process guidelines for certain situations.

Generally, use Post-Mortems any time you want to find *casual relationships*. Not just the facts —but how everything fit together. Pick one warning outcome or decision.

"Organizations that only do good investigations on big ones soon will have another big one to investigate."



Dr. Bill Corcoran of
Nuclear Safety Review
Concepts Corporation

How To Conduct a Post-Mortem

One example is presented here, but this is certainly not the only way — or maybe even the best way to do the process. This is one we'll use.

For this analysis (shown below), the “thing that happened” (either good or bad) is what you start with. You locate at least two contributors to that, listed here as A, B, and C. In this method, A, B, and C must all have occurred together. If you take A away, no problem. If you take C away, no problem. All must have occurred together.

Then each of these has a list of contributors, and so on. This process will end when: You get enough information to work solutions, you run out of time, or the “branch” you're going down is cost or time prohibitive or out of your control.

You will find that the further back you go, the more likely you are to reveal latent causes; those are the holes in the Swiss cheese that have been sitting around doing no harm (by themselves).

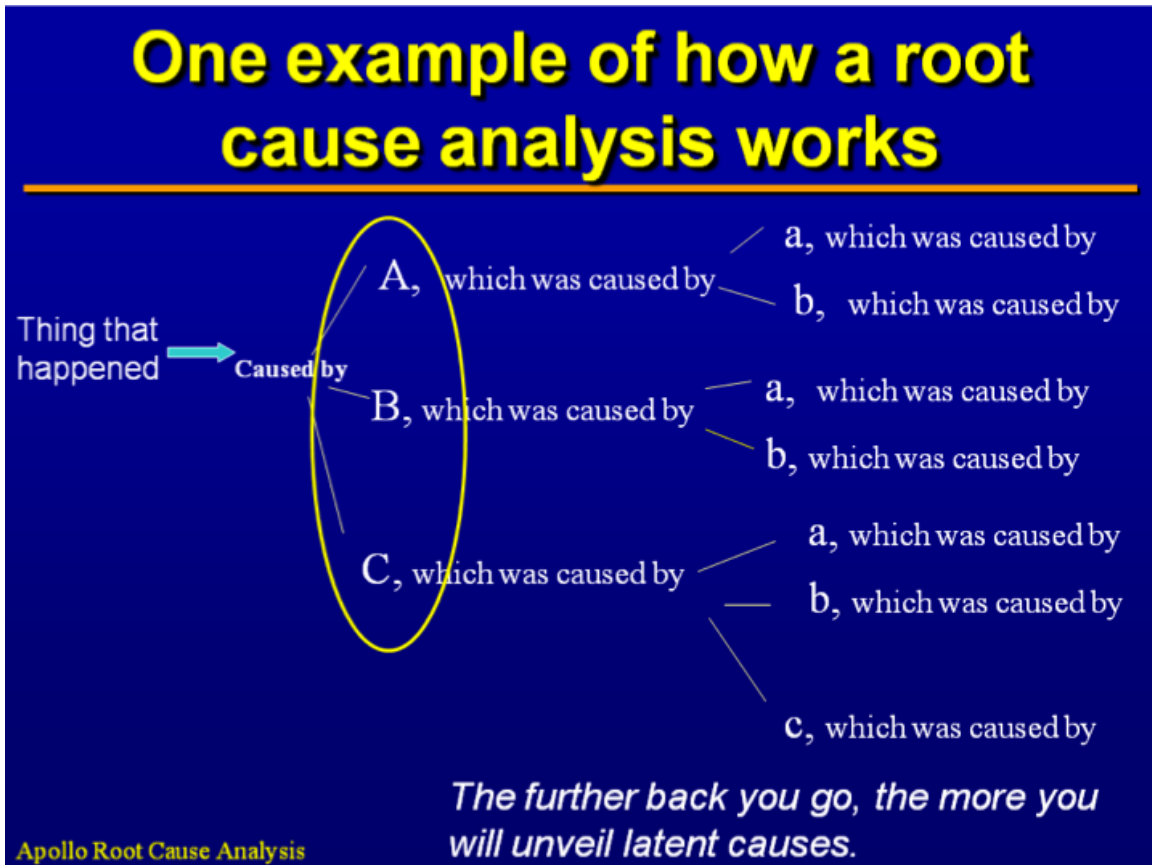


Figure 1: Structure of a Post-Mortem (a.k.a. RCA)

Ask the Hard Question

One of the most challenging — yet beneficial — reasons for doing root cause analysis is that it helps us take a close look at our own actions.

In the following Post-Mortem example, the analyst realized that his overconfidence and unwillingness to question the discrepancy between what he was thinking and what he was hearing others say both contributed to the outcome. He was determined to do something about this. While it's tempting to limit your sights on what everyone else did wrong, it is far more revealing — and more productive — to look at what *you* could have done differently. After all, you can only change your behavior, not that of others.

In "Another example" (shown below), the forecaster missed an event, so he did a quick Post-Mortem to see what it revealed. He started with "Negative lead time on tornado." There were two immediate, parallel causes: "Tornado occurred" and "no warning." Why? He had not perceived a threat. This person found their problems could be traced to a level of overconfidence that kept him from looking into his inconsistency with others'

opinions. He had also used the technology in a way that prevented him from seeing the newest data as soon as it came in.

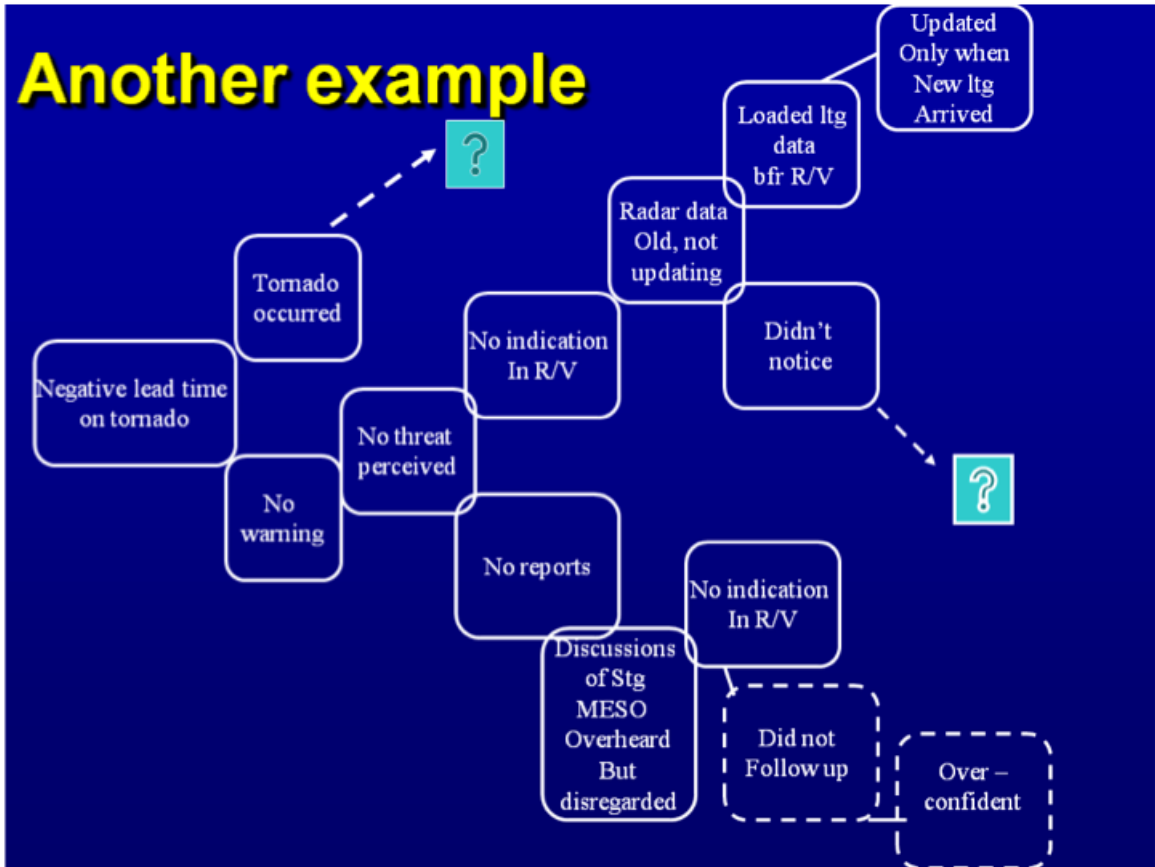


Figure 2: "Another example"

Tips on Conducting Meaningful Post-Mortems

Be ready to ask the tough question. In this case, tough questions are why the discussions about a strong mesocyclone were disregarded. Sure, there wasn't an indication in the reflectivity or velocity, but why didn't this forecaster follow up? A productive root cause analysis includes tough self-reflection.

Focus on things you can control. Two question marks appear in "Another example" above. They are in place of answers to "Why did a tornado occur?" and "Why didn't he notice?" While it could be interesting to pursue why a tornado occurred, it is best to focus on identifying things you *can* address.