

**Impure Injections Used**  
**Columbia University, NY**  
 2006-2010

A thorough root cause analysis built as a Cause Map can capture all of the causes in a simple, intuitive format that fits on one page.

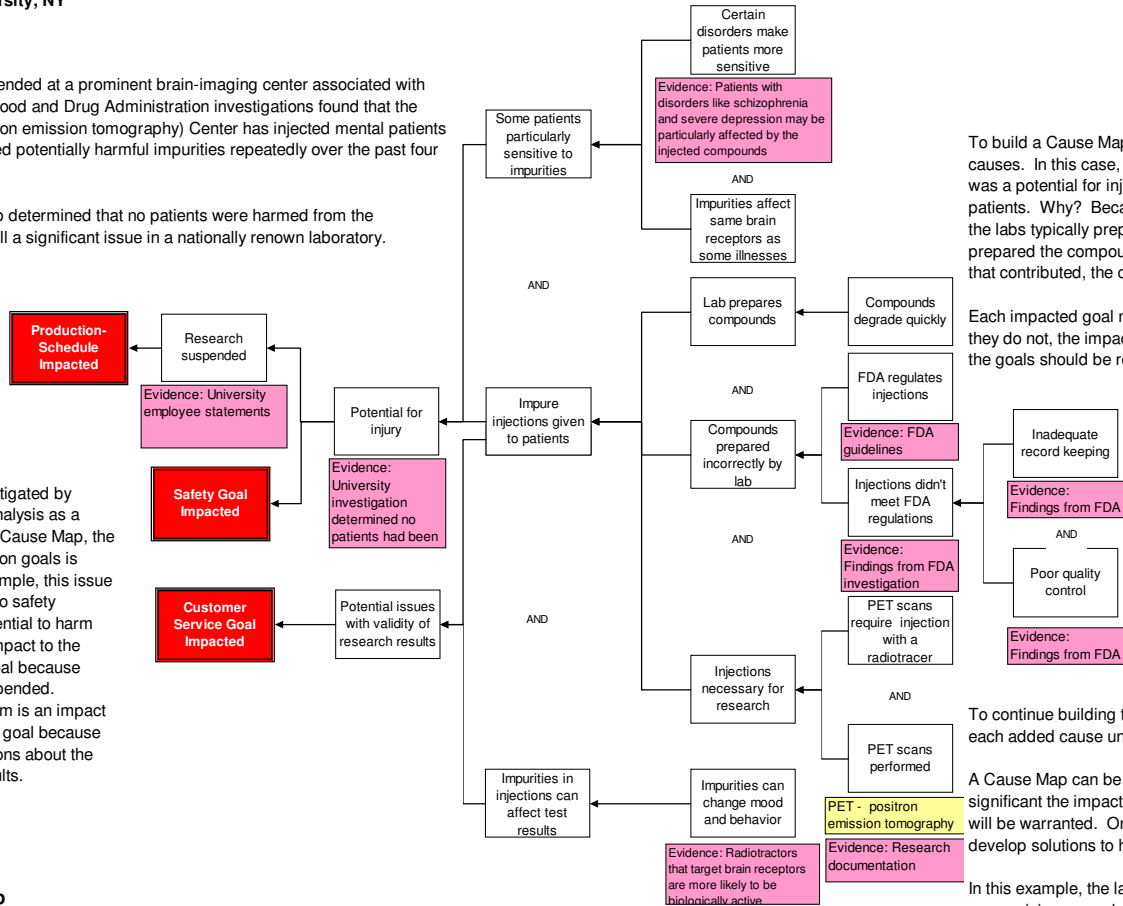
Even more detail can be added to this Cause Map as the analysis continues. As with any investigation the level of detail in the analysis is based on the impact of the incident on the organization's overall goals.

Research is been suspended at a prominent brain-imaging center associated with Columbia University. Food and Drug Administration investigations found that the Kreitchman PET (positron emission tomography) Center has injected mental patients with drugs that contained potentially harmful impurities repeatedly over the past four years.

Investigations by the lab determined that no patients were harmed from the impurities, but this is still a significant issue in a nationally renown laboratory.

How did this happen?

This issue can be investigated by building a root cause analysis as a Cause Map. To start a Cause Map, the impact to the organization goals is determined. In this example, this issue is obviously an impact to safety because there was potential to harm patients. It is also an impact to the production-schedule goal because research has been suspended. Additionally, this problem is an impact to the customer service goal because this issue raises questions about the validity of research results.



To build a Cause Map, select one goal and start asking "why" questions to add causes. In this case, the first goal considered will be the safety goal. There was a potential for injury. Why? Because impure injections were given to patients. Why? Because the injections are necessary for research, because the labs typically prepare the compounds themselves and because the lab prepared the compounds incorrectly. When there is more than one causes that contributed, the causes are added vertically with an "and" between them.

Each impacted goal needs to eventually connect to the same Cause Map. If they do not, the impacted goal may not be caused by the same problem and the goals should be revisited.

To continue building the Cause Map, keep asking "why" questions for each added cause until the level of detail is sufficient.

A Cause Map can be as high level or as detailed as needed. The more significant the impact to the goals, the more likely a detailed Cause Map will be warranted. Once the Cause Map is completed, it can be used to develop solutions to help prevent the problem from reoccurring.

In this example, the lab is currently changing management and reorganizing procedures to help prevent the similar problems in the future.

**Cause Map**  
 High Level



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