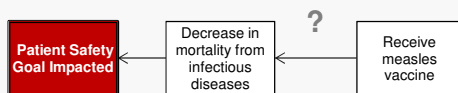


1 Problem

What	Success!	Children who receive the measles vaccine are less likely to die from other infectious diseases
When	Date	1960s to present
Where	Different, unusual, unique	?
	Facility, site	Worldwide
Impact to the Goals	Task being performed	Vaccination against measles
	Patient Safety	Decrease in childhood deaths from all infectious diseases Decrease in childhood deaths from measles
	Frequency	Up to 80% reduction in mortality

2 Analysis

Basic Level Cause Map - Start with simple Why questions.



Basic Cause-and-Effect

For previously unknown reasons, children who received the measles vaccine were less likely to die from infectious diseases other than measles. Based on epidemiological data from countries before and after the measles vaccine was introduced, scientists believe they may have an explanation that is part correlation and part causation.

CORRELATION VS. CAUSATION

Cause Map

Multiple Protections Provided by Measles Vaccine

"In some developing countries, where infectious diseases are very high, the reduction in mortality has been up to 80 percent. So it's really been a mystery - why do children stop dying at such high rates from all these different infections following introduction of the measles vaccine?"

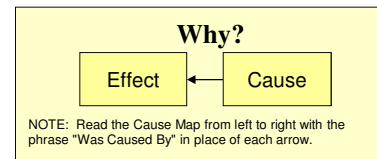
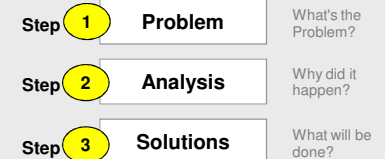
- Michael Mina, postdoc in biology, Princeton University and medical student, Emory University

"The reduction in overall child mortality that follows measles vaccination is much greater than previously believed. I think this paper will provide additional evidence - if it's needed - of the public health benefits of measles vaccine. That's an important message in the U.S. right now and in countries continuing to see measles outbreaks."

Cause Mapping is a Root Cause Analysis method that captures basic cause-and-effect relationships supported with evidence.

CAUSE MAPPING

Problem Solving • Incident Investigation • Root Cause Analysis



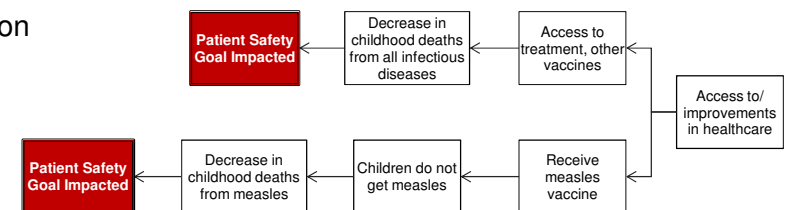
Correlation means that two or more events tend to occur about the same time and might be associated with each other, but aren't necessarily connected by a cause-and-effect relationship. Causation means that a specific action causes a second event to happen. A cause-and-effect relationship results from causation. Sometimes it's very difficult to distinguish between the two. This is where the importance of evidence comes in.

In this case, part of the decrease in death due to infectious diseases can be considered due to correlation. In this case, children who received the measles vaccine must have had access to healthcare, including the measles vaccine. If they received the measles vaccine, they were also likely to receive other vaccines and treatment for other infectious diseases, meaning their death rates from other diseases were also lower. The measles vaccine did not cause the reduction in deaths from infectious diseases, the access to healthcare did. Getting the measles vaccine also resulted from the same cause, access to healthcare.

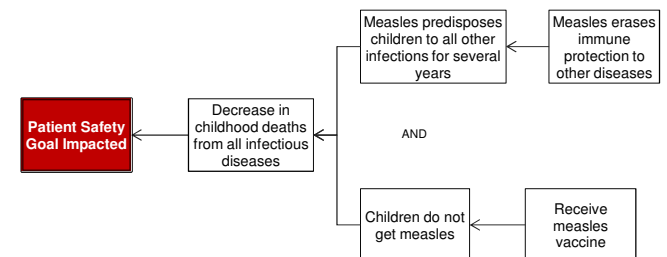
In addition to this correlation, epidemiological data from several countries from prior to the introduction of the measles vaccine shows that the number of measles cases predicted the number of deaths from other infectious diseases two to three years later. Their hypothesis, supported by studies in monkeys, suggest that the measles virus actually erases immune protection to other diseases. So, if a child gets measles, he or she loses some of the immune system's "memory" of how to fight diseases can also be wiped out. Preventing a child from getting the measles (by getting a measles vaccine) is believed to prevent deaths from other infectious diseases as well.

Although more testing is needed to verify the causation, scientists hope it will provide more evidence for parents to vaccinate their children.

Correlation



Causation



For a free copy of our Root Cause Analysis Template in Microsoft Excel, used to create this page, visit our web site.



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