

# 1 Problem

<b>What</b>	Problem(s)	Legionnaires' disease outbreak
<b>When</b>	Date	See timeline
	Different, unusual, unique	Underlying medical conditions/smoking makes infected individuals more susceptible; legionella resistant to chlorine
<b>Where</b>	Facility, site	South Bronx, New York City
	Unit, area, equipment	Cooling towers
	Task being performed	Exposure to contaminated mist

<b>Impact to the Goals</b>	
<b>Safety</b>	12 deaths; 115 infected
<b>Customer Service</b>	Outbreak of Legionnaires' Disease
<b>Environmental</b>	At least 11 cooling towers contain legionella bacteria
<b>Property/ Equipment</b>	
<b>Regulatory</b>	Increased regulation of cooling towers
<b>Labor/ Time</b>	Testing, disinfection (>350 workers)

Frequency >260 cases of Legionnaires' in New York City so far this year (average 200-300/ year); 4,458 cases in US in 2013 (compared to 1,127 in 2000)

# LEGIONNAIRES' DISEASE OUTBREAK

## 12 Dead in New York City

### Cause Map

An outbreak of Legionnaires' disease has affected at least 115 and killed 12 in the South Bronx area of New York City. While Legionnaires', a respiratory disease caused by breathing in vaporized Legionella bacteria, has struck the New York City area before, the magnitude of the current outbreak is catching the area by surprise. (Because the vaporization is required, drinking water is safe, as is home air conditioning.) It's also galvanizing a call for actions to better regulate the causes of the outbreak.

"Hindsight is 20-20, but it's not a new disease. And it's not like we haven't known about the risk of cooling towers, and it's not like people in New York haven't died of Legionnaires' before."

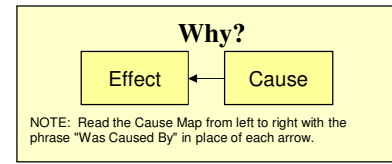
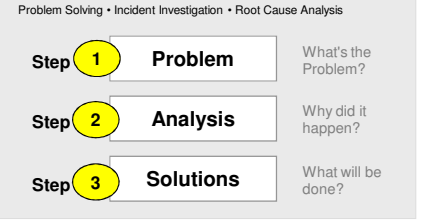
- Bill Pearson, member of the committee that wrote standard to address the risk of legionella in cooling towers

"Why, instead of doing a good job responding, don't we do a good job proactively inspecting?"

- Ruben Diaz Jr., Bronx borough president

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

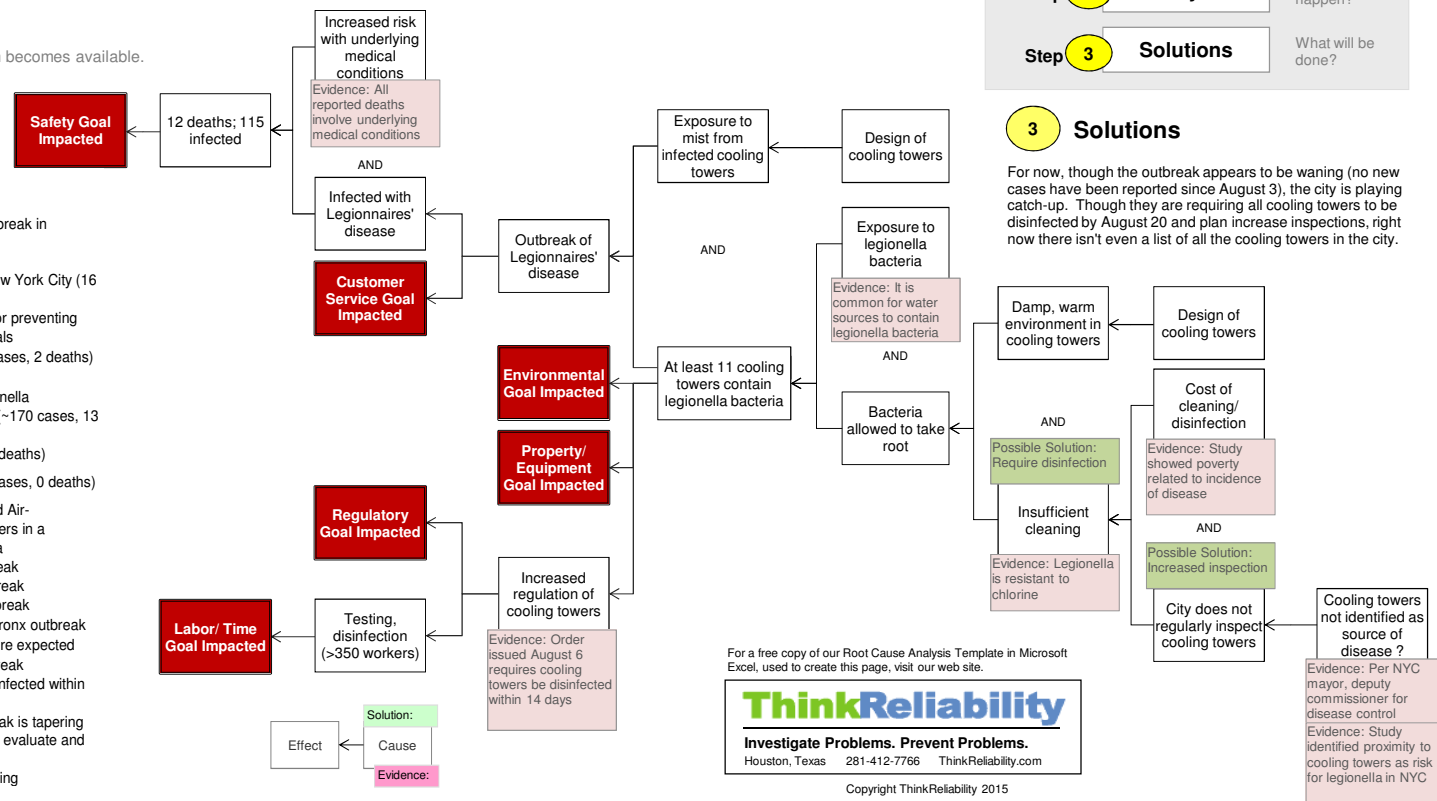
### CAUSE MAPPING



# 2 Analysis

More Detailed Cause Map - Add detail as information becomes available.

Timeline	Date	Description
	1976	Legionnaires' disease given its name after outbreak in Philadelphia
	1977	First confirmed case in New York City
	1994	Outbreak on cruise ship that departed from New York City (16 confirmed, 34 suspected cases, 1 death)
	2000	Failed resolution to determine best practices for preventing Legionnaires' disease at New York City hospitals
	2005	Outbreak at local NYC hospital (7 confirmed cases, 2 deaths)
	2006	Outbreak in the Bronx (6 deaths)
	2010	Hearing on indoor air hazards discusses Legionella
	2012	Outbreak in Quebec City tied to cooling tower (~170 cases, 13 deaths)
	December-January	Outbreak in the Bronx (12 confirmed cases, 0 deaths)
	May	Outbreak in Flushing, Queens (9 confirmed cases, 0 deaths)
	June	American Society of Heating, Refrigerating and Air-Conditioning Engineers addresses cooling towers in a standard aimed to reduce the risk of Legionella
	July 8, 2015	Onset date of first case of current Bronx outbreak
	July 10, 2015	First death associated with current Bronx outbreak
	July 12, 2015	First confirmed diagnosis in current Bronx outbreak
	August 3, 2015	Onset/ diagnosis date of last case of current Bronx outbreak
	August 4, 2015	Mayor announces 86 cases, 7 deaths, with more expected
	August 4, 2015	Last death associated with current Bronx outbreak
	August 6, 2015	City issues order that all cooling towers be disinfected within 14 days
	August 6, 2015	Mayor says 108 have been infected but outbreak is tapering off; outlines plan for 200 city workers to locate, evaluate and disinfect water cooling towers
	August 8, 2015	Governor deploys 150 workers to do more testing



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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Evidence: Per NYC mayor, deputy commissioner for disease control

Evidence: Study identified proximity to cooling towers as risk for legionella in NYC