

1 Problem

What	Problem(s)	Botched surgery, loss of both legs
When	Date	July 9, 2009
Where	Different, unusual, unique	Damage to aorta
	State, city	Travis Air Force Base
	Facility, site	David Grant Medical Center
	Task being performed	Gallbladder removal

Impact to the Goals			
Patient Safety	Potential for patient death	\$54.8 million	
Employee Impact	No disciplinary action by Air Force		
Compliance	Charges of negligence		
Organization	Lawsuit		
Patient Services	Loss of both legs		
Environmental	N/A		
Property, Equip, Mtls	N/A		
Labor, Time	?		
Frequency	This incident		?
	Annualized Cost		?

BOTCHED SURGERY

Airman Loses Both Legs

A former member of the US Air Force lost both legs after a routine gallbladder surgery and was medically retired. During the surgery, his aorta was lacerated. Subsequent delays meant his legs were without blood flow for hours.

"I've reviewed the cases and they're pretty compelling. If there's a systemic, or a pattern of malpractice, then we need to get to the bottom of it and we need to make sure that they correct it."

Democratic Representative Jerry McNerney of Pleasanton

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

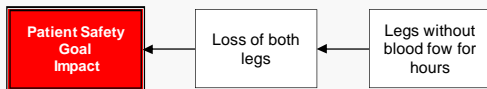
CAUSE MAPPING

Problem Solving • Incident Investigation • Root Cause Analysis

- Step 1 Problem** - What's the Problem?
- Step 2 Analysis** - Why did it happen?
- Step 3 Solutions** - What will be done?

2 Analysis

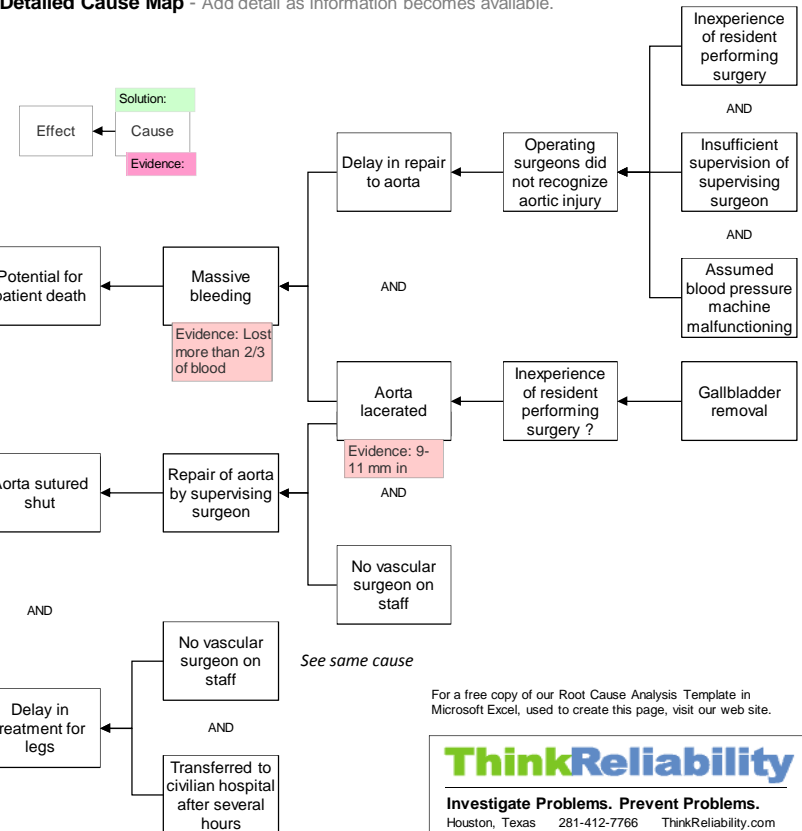
Basic Level Cause Map - Start with simple Why questions.



Basic Cause-and-Effect

After the damage to the aortic laceration was repaired, still more time passed before the patient was transferred to a civilian hospital for treatment. The Air Force Medical Center did not have a vascular surgeon on-site. By the time the legs were removed, the patient had lost more than 2/3 of his blood volume.

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



More Detailed Cause-and-Effect

Multiple issues contributed to the injuries received by the airman. We can examine these issues in a visual root cause analysis presented as a Cause Map. First we determine the impacts to the goals. The patient safety goal was impacted due to the potential for patient death during the surgery and aftermath. Although there was no disciplinary action taken by the Air Force, a \$54.8 million lawsuit has been filed that claims negligence. Last but certainly not least, the loss of both of the patient's legs can be considered an impact to the patient services goal.

We begin with the impacted goals and ask "Why" questions to determine the cause-and-effect relationships that led to the impacted goals. In this case, the patient's legs had to be removed after they were without blood flow for several hours. The blood loss was caused by a laceration to the aorta, made during the gallbladder surgery, and the subsequent accidental suturing of the aorta during the repair. The repair to the aorta was delayed as it was not immediately recognized. A surgical resident was performing the operation, and it is likely inexperience and lack of supervisor from the supervising surgeon contributed to this delay. Additionally, although the operating room staff was unable to get a blood pressure reading from the patient, it was assumed that the machine was malfunctioning. After the aorta repair, there was further delay in recognizing and treating the loss of blood flow to the legs. As there was no vascular surgeon on-site, the patient was eventually transferred to a civilian facility, where both legs were amputated.