

Step 1. Outline

What	Problem(s)	Patient overdose, death
When	Date	October 15, 2010
	Different, unusual, unique	Baby born premature; compounding system did not communicate with dispensing system
Where	State, city	Illinois
	Facility, site	Hospital
	Task being performed	Receiving sodium chloride intravenously

Impact to the Goals

Patient Safety	Death of infant
Employee Impact	?
Compliance	"Never event"
Organization	Wrongful death lawsuit
Patient Services	Overdose of sodium chloride
Environmental	?
Property, Equip, Mtls	?
Labor, Time	?

Frequency: 370 reports of problems involving health information technology since January 2008

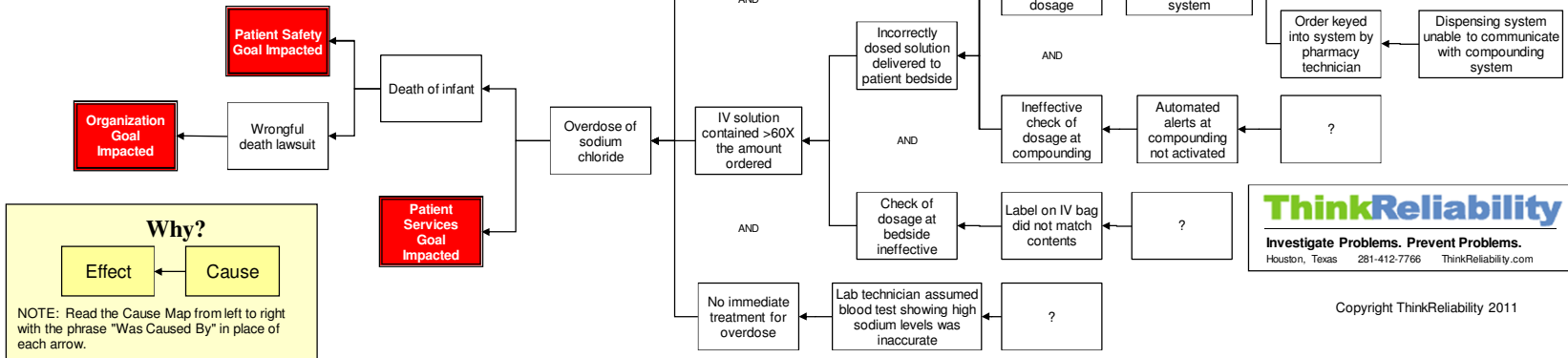
**Infant Death Due to Sodium Chloride Overdose
Illinois, 2010**

On October 15, 2010, a 40-day old prematurely born infant died from a sodium chloride overdose at an Illinois hospital. Because a computerized system was involved, this case has been noted as a harbinger for possible issues resulting from the use of computerized systems. To learn more about what happened, we can look at the case in a visual root cause analysis, or Cause Map, to examine all the causes.

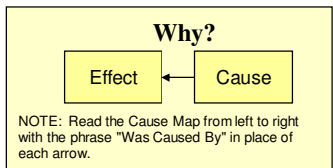
First we begin with the impact to the goals. The infant's death was an impact to the patient safety goal. A death resulting from a medication error is a "never event", which is an impact to the compliance goals. There is a related wrongful death lawsuit, which is an impact to the organization's goals. The overdose of sodium chloride delivered to the patient is an impact to the patient services goal.

We begin the analysis with the impacts to the goals and ask why questions to fill out the Cause Map. The infant death was caused by the sodium chloride overdose, which occurred when the infant received more than 60 times the dosage ordered by the doctor intravenously. The infant was receiving sodium chloride intravenously to provide nutrition, as he had been born prematurely. Although a blood test indicated abnormally high levels of sodium, it has been reported that the lab technician assumed they were inaccurate, resulting in the infant not receiving immediate care for the overdose.

**Step 2. Cause Map
Detail Level**



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When a process - in this case, the medication delivery process - does not work correctly (such as occurs when an overdose is given), it means that the checks at every level of the process were ineffective. The final check at the patient's bedside was ineffective because the label on the IV bag did not match the actual contents. It's unclear how that occurred. The error was made at the pharmacy, when a pharmacy technician entered an incorrect number into the compounding system. Normally entering a too-high dose would trigger an alert with an automated system, but the alerts were turned off. Part of the reason for the error was that the pharmacy technician had to manually enter the prescription in the first place. A doctor enters a prescription via the automated dispensing system. However, the automated dispensing system, and the computerized compounding system did not communicate with each other, so for orders that required compounding, a technician had to transfer the order from one system to the other, manually.

A computerized system is no better if it's not used properly. If parts of the system don't communicate with each other, and safety checks are turned off, a computerized system may actually be less safe, especially if people expect the automatic checks are being performed, and so don't perform any of their own. Computerized systems have a lot to offer - namely, reducing the number of medication errors relating to illegible handwriting or providing automatic checks for drug interactions. But these systems are not fail-safe and checks used to ensure that patients are receiving the correct medication must still occur.