A cardiac catheterization lab was temporarily shutdown after four patients tested positive for hepatitis C. All four patients have the same strain of hepatitis C which means they contracted the virus from the same source. The investigation into this incident is ongoing, but no other connection other than the cardiac lab has been found between the four patients.

This issue can be analyzed by building a Cause Map, an intuitive root cause analysis that visually lays out the cause-and-effect relationship between the factors that contribute to an incident. The first step in building a Cause Map is to determine the impact to the overall organizational goals. The basic information about an incident and the impacts to the goals are documented in an Outline. In this example, the safety goal was impacted because four patients contracted hepatitis C and there is potential that more people were also infected. The customer service goal is also impacted because hundreds of people need to be tested to ensure that they are not also infected. Once the impact to the goals is determined, “why” questions are asked to find the causes that belong on the Cause Map.

New Hampshire Division of Public Health and hospital officials are still investigating to determine the source of the hepatitis C. It was likely medical equipment of some type since hepatitis C is spread through blood to blood contact. Once the investigation is complete, any additional information can be easily added to the Cause Map so that it documents all relevant information for the issue.

Once the investigation is completed, the lab will be able to make whatever changes are necessary to ensure that all equipment is properly sterilized and this type of event doesn’t occur again.

<table>
<thead>
<tr>
<th>What</th>
<th>Problem(s)</th>
<th>When</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where</td>
<td>Lab in New Hampshire, USA</td>
<td>Date</td>
<td>All four were patients at the same cardiac catheterization lab, all</td>
</tr>
<tr>
<td>Impact to the Goals</td>
<td></td>
<td></td>
<td>four have the same strain of hepatitis C, no longer connection has</td>
</tr>
<tr>
<td>Safety</td>
<td>4 patients contracted hepatitis C</td>
<td></td>
<td>been found</td>
</tr>
<tr>
<td>Safety</td>
<td>Potential for many more hepatitis C infections</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cust. Service</td>
<td>Hundreds of people need to be tested</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Total</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Step 2. Build Cause Map

- Hepatitis C can have severe long-term consequences
- Hepatitis can cause cirrhosis
- Hepatitis can cause death
- Lab sees hundreds of other patients
- Lab is more likely source of infection
- No other connection between 4 patients found
- 4 infected were all patients at same cardiac catheterization lab

Evidence: Findings from investigation, review of medical histories of infected patients.

Hepatitis is passed through blood to blood contact

Evidence: Patients all have the same strain of hepatitis C, meaning the infections came from a common source.

Evidence: Patients exposed to hepatitis C

No other connection between 4 patients found

Evidence: The source of the hepatitis as not been found yet.

Hepatitis can be treated

AND

Hepatitis is often asymptomatic

AND

Patients exposed to hepatitis C

Evidence: Findings from investigation, review of medical histories of infected patients.

Hepatitis C can be treated with medication and cured in 50–80% cases, but there cases that cause severe liver issues.

Testing is necessarily because hepatitis C is often asymptomatic for many years so many infected individuals will not know unless they are tested. Hepatitis C can be treated with medication and cured in 50–80% cases, but there cases that cause severe liver issues.

651 patients had used the cardiac catheterization lab since August 2011 and all are being tested along with 30 staff members. Test results take to 10 days to process so the final results on how many people were infected aren’t available yet.