Assessing High Reliability in Inpatient Pediatric Units

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Assessing High Reliability in Inpatient Pediatric Units

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INTRODUCTION

As a children’s hospital we feel it is imperative that we strive for perfection and zero unnecessary harm. Health care is highly complex; risks are high and the pace fast-moving. Despite improvements in technology, errors continue to occur.

Many have suggested that applying high-reliability principles to health care improves patient safety and other outcomes. High-reliability is achieved when the team or system 1) is preoccupied with failure, 2) is sensitive to operations, 3) defers to front-line experts, 4) is able to contain and bounce back from unexpected events and errors, and 5) is reluctant to oversimplify. It is achieved when the team or system achieves a high level of mindfulness about what has happened, what is happening, and what might happen.

Our main objective was to assess behaviors and practices that are common in high reliability organizations within inpatient pediatric units at Lehigh Valley Children's Hospital.

METHODS

Over the past year, the hospital has implemented key High-Reliability practices (figure 1) (ref 1) and Lean Daily Management methods and tools (figure 2) (ref 2) including standard work for huddles and rounds (see below).

In order to determine whether or not the hospital has achieved a culture of high-reliability, we did the following:

- Staff Survey using validated questions from Weick and Sutcliffe (ref 1)
- Structured observations of service line and unit huddles as well as family-centered rounds (collaborative rounding)
- Staff interviews

RESULTS

Table 1: Scores of the Principles of Mindfulness obtained from survey. (N=78)

<table>
<thead>
<tr>
<th>Mindfulness</th>
<th>NICU</th>
<th>PICU</th>
<th>Peds</th>
<th>All Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>75.6%</td>
<td>75.6%</td>
<td>62.3%</td>
<td>74.4%</td>
<td></td>
</tr>
<tr>
<td>Preoccupation with failure</td>
<td>67.3%</td>
<td>71.3%</td>
<td>73.6%</td>
<td>70.2%</td>
</tr>
<tr>
<td>Resilience</td>
<td>72.7%</td>
<td>78.8%</td>
<td>78.2%</td>
<td>75.9%</td>
</tr>
<tr>
<td>Sensitivity to operations</td>
<td>69.1%</td>
<td>75.4%</td>
<td>79.2%</td>
<td>73.4%</td>
</tr>
<tr>
<td>Difference to expertise</td>
<td>73.1%</td>
<td>76.9%</td>
<td>79.7%</td>
<td>76.4%</td>
</tr>
</tbody>
</table>

Table 2: Service Line Huddle Report

<table>
<thead>
<tr>
<th>Information type</th>
<th>% Reported</th>
<th>Analysis &amp; Action</th>
<th>% Discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Events in last 24 hours</td>
<td>48%</td>
<td>Causes analysis</td>
<td>74%</td>
</tr>
<tr>
<td>Concerns for today</td>
<td>54%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daily metrics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whole group</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Follow-ups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Announcements</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 3: A view of the trends by unit in overall mindfulness.

Figure 4: Staff survey responses for selected survey questions.

DISCUSSION

Staff Survey

- All three units had a culture of high-reliability according to published standards.
- The Pediatrics unit had the highest score of high-reliability, followed by the PICU and then the NICU.
- The area with the lowest score for all units was “Reluctance to Simplify.”

Service Line Huddle

- There are a lot of discussions and sharing of ideas.
- There were fewer concerns/risk reported than expected with some variability regarding what was considered a concern or risk (i.e. patients with central lines).
- Daily metrics were not always reported because the person who had the information was not present or the information was not passed on.
- Extent of condition was described typically only with a cause analysis, which was not always discussed first day. Action plans were not always stated.

Unit Huddles

- NICU would provide more detailed discussions about events that occurred and concerns for the day with countermeasures often listed on their huddle board.
- PICU would list more concerns about patients likely due to the higher acuity.
- Peds reviewed all issues that were listed on the huddle board each day whether they had changed or not, which allowed for more staff to be included.

Family-Centered Rounds

- Families were always invited to join in on the rounds and voice their questions, comments, and concerns.
- When families received written reports of labs and written information, in general, they were appreciative.

CONCLUSIONS

- In high-risk, high-complexity environments where the unexpected occurs not infrequently, high-reliability principles and practices are critical for ensuring minimal defects/errors in care and for not ignoring ambiguous threats that could result in significant adverse events.
- By implementing a service line huddle, individual unit huddles, daily management visibility boards, and other standard work including bundles and clinical pathways, the Lehigh Valley Children's Hospital has achieved a culture of high-reliability.

References:

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