Children's Cancer Center as a Clinical Microsystem: Patient Flow

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Introduction
- Established the Children’s Cancer Center (CCC) as a clinical microsystem, or a group of professionals who work together on a regular basis to provide healthcare services to a specific population of patients⁰, that functions as a part of the larger LVHN macrosystem.
- Patient flow is an important process within a clinical microsystem that can have a large impact of a patient’s level of satisfaction with their visit.
- Previous data from May 2019 demonstrated long wait times to see providers within the Children’s Cancer Center.²

Purpose: to assess possible areas of quality improvement in the CCC and improve patient flow as measured by cycle times and family perception.

Methods
Pre-Intervention
- Created a time study to determine wait times between each step in a patient’s visit. They were placed in folders and given to each patient to carry throughout their visit. We collected data from 156 patients with ages ranging 0-25 and with varying diagnoses as well as different types of visits.
- Collected data regarding hurdles efficiency through a post-assessment survey that was provided at the end of each daily huddle to all staff in attendance. Scores were analyzed using a 1-5 numerical scale corresponding to possible responses.
- Patient surveys were created and distributed to assess satisfaction with various aspects of their visits.
- Generated staff surveys to evaluate colleague engagement, high-reliability, and process inefficiencies.
- Staff interviews were conducted with each member of the CCC staff to validate conclusions drawn from surveys.

Interventions
- Established goal of <30 minute patient wait time.
- Implemented patient visibility boards to provide an alternate way for staff to communicate and update each other regarding progression of patient visits.
- Introduced a huddle bundle consisting of:
  - New location for daily morning huddles to provide more privacy and allow patients to enter CCC immediately upon arrival
  - Set start time to promote consistency and punctuality
  - Huddle checklist to provide more uniform structure to daily huddles
  - Standardization of key elements to reduce day-to-day variability

Post-Intervention
- Repeated both the time studies and huddle surveys to compare to pre-intervention data.

Results

<table>
<thead>
<tr>
<th>Patient Wait Times by Visit Type</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Patient</td>
<td>27</td>
<td>57</td>
</tr>
<tr>
<td>Med Inf</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>Sick Visit</td>
<td>36</td>
<td>24</td>
</tr>
<tr>
<td>*Procedure</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Chemo Inf</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Return Visit</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Transfusion</td>
<td>15</td>
<td>25</td>
</tr>
</tbody>
</table>

Discussion
- All patient wait times recorded post-intervention were <30 minutes, however, variability between visit processes and physician work flows may have contributed to some of the discernible differences from previous studies.
- Recently hired physician may have acted as a positive deviance due to different approaches to huddle and patient flow.
- Hawthorne effect, defined as the concept that people perform better when they know they are being watched or are part of a study, may have also had significant impact on results of this study.²
- High variability in patient arrival times can cause delays and affect wait times.

Conclusion
Overall, the Children’s Cancer Center is a fairly efficient microsystem and provides personal and quality care to patients and their families. Patient flow and daily huddles were identified as areas with potential for improvement. Interventions were put in place to test for change in these categories and have shown early improvement post-implementation.

Recommendations
In addition to continuing current countermeasures, it is recommended that staff download Tiger Connect to provide an alternative way for members to communicate about patients in a timely and secure fashion. Improved communication between providers should help to further improve patient flow, overall efficiency, and decrease wait times.

References:
¹ Reed, Kirstin (2019). Children’s Cancer and Multipurpose Infusion Center Process Improvement Report (Rep.).