Improving Pediatric Sepsis Outcomes (IPSO) is a Children’s Hospital Association collaborative

GOAL: Reduce mortality from severe sepsis and reduce incidence of hospital onset severe sepsis

IPSO builds upon work from prior sepsis collaboratives and addresses the entire continuum of care from the ED to the ICU as well as the general care and heme/onc units

Described here is the methodology used to increase electronic data capture and uniformity across 54 participating sites using standardized metric and variable development

Methods

- Outcome, Process and Balancing Metrics are represented
- "Time to" and "Percent Adherence" Metrics were both chosen if applicable as the former often demonstrates improvement earlier
- Variables and Statistical Process Control (SPC) were mapped to each metric (Table 1)

- Preference given to metrics that could be automatically abstracted from the EHR
- Time zero was defined both as time of earliest sepsis recognition as determined electronically (Figure 1) and a clinically derived time zero that was manually abstracted to identify earliest physiologic onset of sepsis

- 44 final variables (40 able to be automated from EHR, including Epic and Cerner)
- 22 metrics

Most variables mapped to metrics but some were abstracted for population description only, such as lactate, hypotension time and steroid utilization (Table 1)

- Challenging variables to abstract and thus reported in <50% of encounters: clinically derived time zero, high risk conditions, PRISM score and bedside huddle time

To date 87% of expected data has been submitted (Figure 2)

Results

IPSO Collaborative – Measures and Related Variables

<table>
<thead>
<tr>
<th>Process Measure</th>
<th>Measure Name</th>
<th>Measure Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sepsis Mortality at Day 1</td>
<td>Total Sepsis Deceased</td>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Sepsis Mortality at Day 30</td>
<td>Total Sepsis Deceased</td>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Hospital Admissions - Day 1</td>
<td>Average Time</td>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Hospital Admissions - Day 7</td>
<td>Average Time</td>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Hospital Acquisitions</td>
<td>Average Time</td>
<td>Hospital Admissions</td>
</tr>
<tr>
<td>Hospital Admissions - Day 1</td>
<td>Hospital Acquisitions</td>
<td>Hospital Admissions</td>
</tr>
</tbody>
</table>

Outcome, Process and Balancing Metrics are represented

Figure 1. IPSO Functional Time Zero is a variable that can be automatically abstracted from the EHR to identify the earliest point of sepsis recognition. Clinical Time Zero is manually abstracted and augments Functional Time Zero.

Figure 2. % Overall submission progress across 49 hospitals participating 12 months or more.

Table 1. Collaborative metrics with corresponding variables and statistical process control (SPC) charts.

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