OPERATIONAL DEFINITION
MEASUREMENT: Percent of Patients Delayed

I. Description and Rationale
This measure answers the question:
How efficiently is the flow through the ED, PICU, and PACU to beds on inpatient units?

This is a composite measure of (1) ED patients waiting 1 hour or more for admission, (2) patients waiting 2 hours or more for a transfer from the PICU to a unit, and (3) patients waiting less than 20 minutes in the PACU for transfer to a unit. It measures the percent of patients who were delayed from either of these units to an inpatient bed. A delay is defined as:

<table>
<thead>
<tr>
<th>Flow</th>
<th>Delay</th>
<th>Time Measured from</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED to Inpatient Bed</td>
<td>1 hour or Greater</td>
<td>Care completed in the ED until patient arrives on the unit</td>
</tr>
<tr>
<td>PICU to Inpatient Bed</td>
<td>2 hours or Greater</td>
<td>Time the transfer order is written until the patient arrives on the unit</td>
</tr>
<tr>
<td>PACU to Inpatient Bed</td>
<td>Greater than 20 minutes</td>
<td>Time discharge criteria is met until the time the patient actually leaves the PACU</td>
</tr>
</tbody>
</table>

II. Population Definition
Population includes: 1) All patients who transfer from the PICU or the CICU to an inpatient bed, 2) patients with a PACU stay who are admitted to an inpatient bed, and 3) ED patients who are admitted to an inpatient bed.

III. Data Source(s)
Flow Data Source
ED to Inpatient Bed EPIC, Emstat
PICU to Inpatient Bed EPIC
PACU to Inpatient Bed EPIC
IV. Sampling and Data Collection Plan

**Data Source**

<table>
<thead>
<tr>
<th>Flow</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED to Inpatient Bed</td>
<td>All ED patients that are transferred to an inpatient unit</td>
</tr>
<tr>
<td>PICU to Inpatient Bed</td>
<td>All patients who are transferred from B5CC or B6HI to an inpatient unit are collected out of EPIC system. Prior to July, 2010, a random number generator is run to randomly pull 40 of these transfers. These patients are manually looked up in ICIS to get their transfer order information. After July 2010, all data is being pulled from EPIC.</td>
</tr>
<tr>
<td>PACU to Inpatient Bed</td>
<td>All PACU patients that are transferred to an inpatient unit</td>
</tr>
</tbody>
</table>

**V. Calculation**

**Prior to July 2010**

\[
\text{Weighted Percent of patients delayed} = \frac{N_1 + N_2 + \frac{N_3}{D_{3\text{Total}}}}{D_1 + D_2 + D_{3\text{Total}}}
\]

where:

\(N_1\) = Number of patients who are admitted through the ED and wait one hour or more from care completed in the ED until arriving on the unit

\(D_1\) = Total number of patients who are admitted through the ED.

\(N_2\) = Number of patients waiting more than 20 minutes in the PACU for an inpatient bed.

\(D_2\) = Number of total cases (excluding SDS) entering the PACU.

\(N_3\) = Number of patient transfers from the PICU to an inpatient bed who wait 2 hours or more from the time the transfer order is written until the patient arrives in their step-down inpatient unit.

\(D_{3\text{Sample}}\) = Number of patients in Random Sample of patient transfers from the PICU to an inpatient bed

\(D_{3\text{Total}}\) = Total number of patient transfers from the PICU to an inpatient bed

**After July 2010**

\[
\text{Weighted Percent of patients delayed} = \frac{N_1 + N_2 + N_3}{D_1 + D_2 + D_3}
\]

where:

\(N_1\) = Number of patients who are admitted through the ED and wait one hour or more from care completed in the ED until arriving on the unit

\(D_1\) = Total number of patients who are admitted through the ED.

\(N_2\) = Number of patients waiting more than 20 minutes in the PACU for an inpatient bed.

\(D_2\) = Number of total cases (excluding SDS) entering the PACU.

\(N_3\) = Number of patient transfers from the PICU or CICU to an inpatient bed who wait 2 hours or more from the time the transfer order is written until the patient arrives in their step-down inpatient unit.

\(D_3\) = Total number of patient transfers from the PICU or CICU to an inpatient bed
VI. Analysis Plan and Frequency of Reporting
Data is pulled from daily, with a 2 day lag. Reports are pulled together monthly & quarterly or on an ad-hoc basis.

VII. Reporting Venues
- Results are reported on the CCHMC Hospital Scorecard under “Health Care Delivery”
- Results are posted to the “System Level Measures for Healthcare Delivery” quarterly
- Monthly results are posted to the Centerlink, Patient-Centered Flow Site and on the Patient-Centered Flow Strategic Improvement Priority’s monthly report.

VIII. Limitations
- (Prior to July 2010) The measure of patients delayed from the PICU to an inpatient bed is subject to sampling error.
- The ED and PICU flow measure defines arrival on the unit as the stop time while the PACU measure defines leaving the PACU as the stop time (a surrogate for arrival to the unit).
- PACU delays represent delays in the PACU as well as delays on the floor. For example, they could be delayed waiting on orders to be written. In other words, the delay doesn’t just represent floor or transportation delays.

VIII. Experts/Resources

X. Revision History

<table>
<thead>
<tr>
<th>Version</th>
<th>Primary Author(s)</th>
<th>Description of Version</th>
<th>Date Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft</td>
<td>AMA</td>
<td></td>
<td>12/30/2005</td>
</tr>
<tr>
<td>Final</td>
<td>AMA</td>
<td>• Added limitations</td>
<td>01/26/2006</td>
</tr>
<tr>
<td>Revision 1</td>
<td>AMA</td>
<td>Sampling Plan for PICU delay measure</td>
<td>6/30/2006</td>
</tr>
<tr>
<td>Revision 2</td>
<td>VMB</td>
<td></td>
<td>10/13/2009</td>
</tr>
<tr>
<td>Revision 3</td>
<td>AMA</td>
<td>• Data will now include the CICU</td>
<td>7/12/2010</td>
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<tr>
<td></td>
<td></td>
<td>• Data for ICU delays includes 100% of data from EPIC</td>
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<tr>
<td></td>
<td></td>
<td>• Changed/Update Reporting Venues section</td>
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