

# Direct Observation of Bed Utilization in the Pediatric Intensive Care Unit

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**BACKGROUND:** The pediatric intensive care unit (PICU), with limited number of beds and resource-intensive services, is a key component of patient flow. Because the PICU is a crossroads for many patients, transfer or discharge delays can negatively impact a patient's clinical status and efficiency.

**OBJECTIVE:** The objective of this study was to describe, using direct observation, PICU bed utilization.

**METHODS:** We conducted a real-time, prospective observational study in a convenience sample of days in the PICU of an urban, tertiary-care children's hospital.

**RESULTS:** Among 824 observed hours, 19,887 bed-hours were recorded, with 82% being for critical care services and 18% for non-critical care services. Fourteen activities accounted for 95% of bed-hours. Among 200 hours when the PICU was at full capacity, 75% of the time included at least 1 bed that was used for non-critical care services; 37% of the time at least 2 beds. The mean waiting time for a floor bed assignment was 9 hours (median, 5.5 hours) and accounted for 4.62% of all bed-hours observed.

**CONCLUSIONS:** The PICU delivered critical care services most of the time, but periods of non-critical care services represented a significant amount of time. In particular, periods with no bed available for new patients were associated with at least 1 or more PICU beds being used for non-critical care activities. The method should be reproducible in other settings to learn more about the structure and processes of care and patient flow and to make improvements.

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