Pediatric Emergency Department Observation Unit Improves Emergency Department and Hospital Flow and Capacity During Highest Census Months

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BACKGROUND
- Pediatric Emergency Department (ED) observation services are provided when the need for hospitalization is unclear after initial ED evaluation and management.
- EDs continue to experience the burden of overcrowding and inpatient boarding.
- High census months can see volume surges as high as 30%.
- Observation units have the potential to:
  - Increase ED capacity
  - Increase hospital capacity
  - Decrease ED boarding
  - Avoid unnecessary hospital admissions
  - Improve hospital and ED workflow.

OBJECTIVES
To examine the effects of an ED extended care unit on ED and inpatient capacity and flow in a our large ED with a census of > 90,000 patients per year

RESULTS
- Daily ED census increased from 286.7±25.3 to 306.2±44.6 (p=0.004).
- Daily LOS improved from 142.9±25.3 minutes to 136.3±21.2 minutes (Fig. 1).
- LWBS rate decreased from 1.77% to 0.85% (p<0.0001). Odds of LWBS rate < 1.5% was 1.9 times more likely in 2016 (95% CI = 0.8, 4.3) (Fig. 2).
- Daily admissions decreased from 27.4±6.9 to 24.0±6.4 (p=0.006). Admission rate decreased 9.3% to 8.0% (χ² = 19.7; p < 0.0001). Admit holds decreased from 19.9±5.7 to 12.4±5.2 (p=0.0006) (Fig 3).
- Bed hold hours decreased from 37.9±18.5 to 26.7±15.8 (p=0.006) (Fig 4).

METHODS
- Retrospective review of ED data the first two months when the ED observation unit was opened (Feb - Mar 2016) to the same calendar months from the previous year (Feb - Mar 2015).
- Time periods reflect our yearly highest ED and hospital census.
- Examined: ED census; length of stay (LOS); left without being seen (LWBS) rate; total daily admits; admission rates; admit holds (>1 hour from time of admission order); and daily bed hold hours.
- Comparison made using χ², t-tests, odds ratios and 95% CI.

CONCLUSIONS
In our large pediatric health care system, an ED observation unit improved overall ED metrics (LWBS and LOS), ED boarding, and avoided unnecessary admissions, thereby improving access to both ED and inpatient beds by expediting hospital flow and increasing capacity throughout the system.