A Quality Improvement Process to Decrease Same Day Cancellations of Pediatric Hematology-Oncology Patients Undergoing Procedural Sedation

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Introduction:

Timeliness and efficiency are one of the six quality metrics identified by the SPS for achieving quality in pediatric procedural sedation (PPS).
Oncology patients need lumbar puncture's and/or bone marrow aspirations during therapy. However, some patients are unable to have PPS due to same day cancellations (SDC) leading to inconsistent care and sub-optimal resource utilization.

Objectives: To identify factors affecting SDC of pediatric oncology patients undergoing PPS and put in place a process to maximize throughput of patients thus increasing number and volume of sedations completed.

Methods

Using an interrupted time series analysis (ITS), the trend in sedation completion rates before and after changes to our prescreening and scheduling of oncology patients requiring PPS was examined. Changes were made in July 2016 and data collected from October 2015-February 2017 (66 weeks). Sedation completion rates were tabulated in two week intervals (calculated as completed procedures/total # scheduled) Sedation volume was calculated as an average number of patients sedated per day (defined as total # sedated/unique sedation days). Segmented regression was used to compare changes between the two time periods.

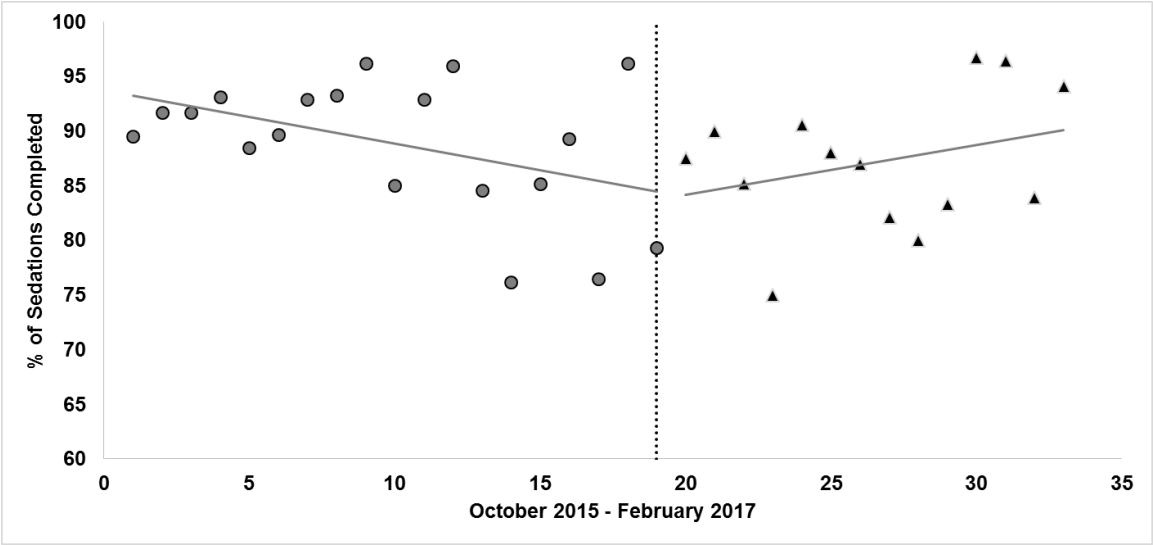
Results

A total of 878 sedations (455 pre-intervention and 423 post-intervention) were analyzed. Overall same day cancellation rate was 12% (11% pre-intervention and 13% post-intervention p=0.26). However ITS analysis suggested a significant increasing trend in sedation completion post-intervention (slope=0.56, p=0.03, Figure 1). There was no change in sedation volume after intervention (average 3.7± 0.5 vs. 4.1±0.4); However, ITS analysis showed a non-significant increasing trend in volume (Figure 2).

Discussion

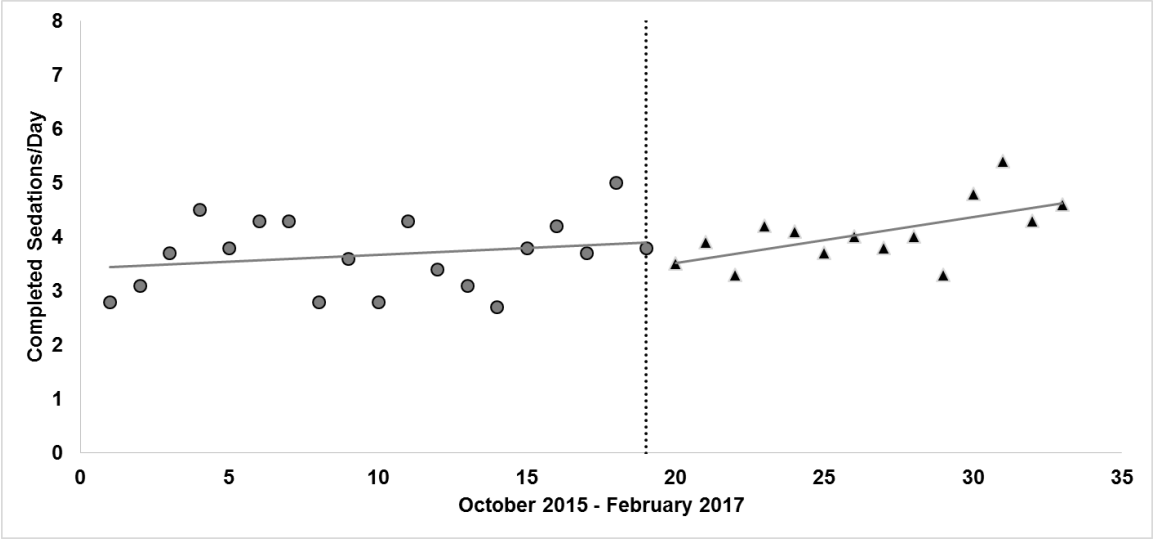
Identification of factors leading to same day cancellation of pediatric oncology patients undergoing procedural sedation, and making changes to prescreening and scheduling process can lead to improved efficiency and timeliness. These results can inform future multicenter research to standardize prescreening, scheduling and throughput in this patient cohort.

Figure 1: Scatter plot showing sedation completion rates by time



The x-axis shows the number of 2-week intervals during the study period. Total study period was 66 weeks (33, two-week intervals). Policy changes went into effect on July 1 (week 38). Significant increasing trend noted after intervention ($p = 0.04$).

Figure 2: Scatter plot showing average number of sedations/day over time



The x-axis shows the number of 2-week intervals during the study period. Total study period was 66 weeks (33, two-week intervals). Policy changes went into effect on July 1 (week 38). Non-significant increasing trend noted after intervention (p = N.S.).