Impact Following Implementation of Routine Pediatric Feeding Tube Exchanges in Interventional Radiology

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ABSTRACT

We aimed to analyze the impact of implementing routine pediatric feeding tube exchanges as a quality improvement initiative. 81 encounters were identified from October 2021 to October 2023. Before the protocol change, 81% (26/32) of the exchanges were done as an ED/inpatient encounter compared to 45% (22/49) of tube exchanges after the protocol change, X2 (1,N=81)=10.6, p=0.001. This resulted in a 37% decrease in the total number of ED/inpatient days (41 vs 26 days). Implementing routine 6-month pediatric feeding tube exchanges reduced ED/inpatient encounters and the total number of ED/inpatient days for tube-related issues. This promising preliminary investigation promotes reductions in acute care hospital resources and attenuation of the stress associated with emergent procedures for patients and their families.

INTRODUCTION

At our institution, all pediatric gastrostomy, gastrojejunostomy, and jejunostomy (G/GJ/J) tubes were formerly exchanged only when tube-related issues were encountered, requiring emergency department (ED) visits and inpatient admissions. Oftentimes, significant resources are involved in exchanging these tubes, including prolonged admissions due to resource constraints in Interventional Radiology and Pediatric Anesthesiology and the availability of custom low-profile tubes.



METHODS

Routine six-month pediatric tube exchanges were implemented in October 2022. All patients under age 18 who underwent G/GJ/J tube exchange were retrospectively identified within one year before and one year following the protocol change. Custom low-profile tubes were ordered and stocked prior to scheduling routine exchanges. Exchanges were evaluated to determine whether they were performed under an ED/inpatient encounter or an outpatient setting. Additionally, for exchanges completed during an ED/inpatient encounter, the number of days spent in the hospital was recorded. A chi-square test was performed to compare differences before and after the protocol change.

RESULTS

81 encounters were identified from October 2021 to October 2023. Before the protocol change, 81% (26/32) of the exchanges were done as an ED/inpatient encounter compared to 45% (22/49) of tube exchanges after the protocol change, X2 (1,N=81)=10.6, p=0.001. This resulted in a 37% decrease in the total number of ED/inpatient days (41 vs 26 days).

Table 1. Visual characterization of nodules within each cluster

	Before	After
ED/Inpatient Encounter	26	22
Outpatient Encounter	6	27
Total	32	49

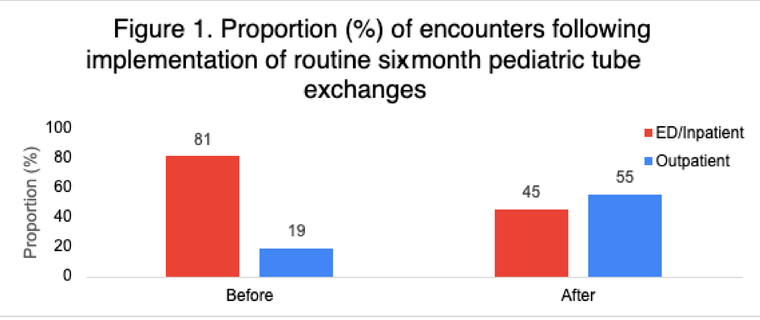


Figure 1. Graphical comparison of the proportion of ED/Inpatient encounters to Outpatient encounters one year before and one year after implementation of routine six-month pediatric tube exchanges.

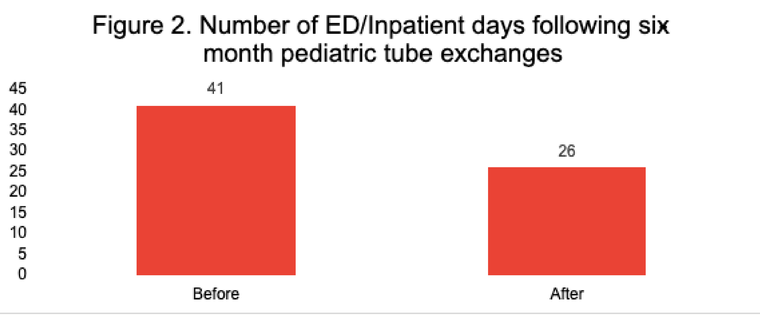


Figure 2. Number of ED/Inpatient days before and after implementation of routine six-month pediatric tube exchanges.

CONCLUSION

Implementing routine 6-month pediatric feeding tube exchanges reduced ED/inpatient encounters and the total number of ED/inpatient days for tube-related issues. The protocol change supports ongoing efforts to decrease resource burden in the acute hospital setting and reduces patient distress. Future consideration is being given to further optimizing the interval for exchanges to balance resources and outcomes.