

Frequency of Routine Tracheostomy Tube Changes: A Single-Center Retrospective Review

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INTRODUCTION

- Routine change of single lumen tracheostomy tubes (TT) is a vital part of airway management for patients with a tracheostomy
- There is limited evidence to recommend frequency of TT change
- We hypothesized clinical outcomes and adverse events would remain the same after increasing length between TT change from 7 to 14 days

METHODS

- With IRB approval, a single-center retrospective chart review was conducted from August 2021 to March 2023 on patients whose frequency of TT change decreased from 7 to 14 days
- Data was collected by 4 respiratory therapists (RTs) and validated by 2 additional RTs using standardized operational definitions to ensure alignment of data extraction
- Descriptive statistics were performed, and inter-rater reliability (IRR) was assessed

Adverse event	Biweekly Change (n=43)(%)	Historical Data (n=346)(%)
Skin breakdown	4 (9)	44 (12.7)
Granulation tissue	3 (7)	81 (23.4)
Tracheitis	0	14 (4.1)
Pneumonia	0	2 (0.36)
Cellulitis	0	2 (0.6)
Tracheostomy site bleeding	0	9 (2.6)
Emergency Trach Change	2 (4)	15 (4.3)

Table 1. Adverse events. n = total number of patient admissions reviewed.

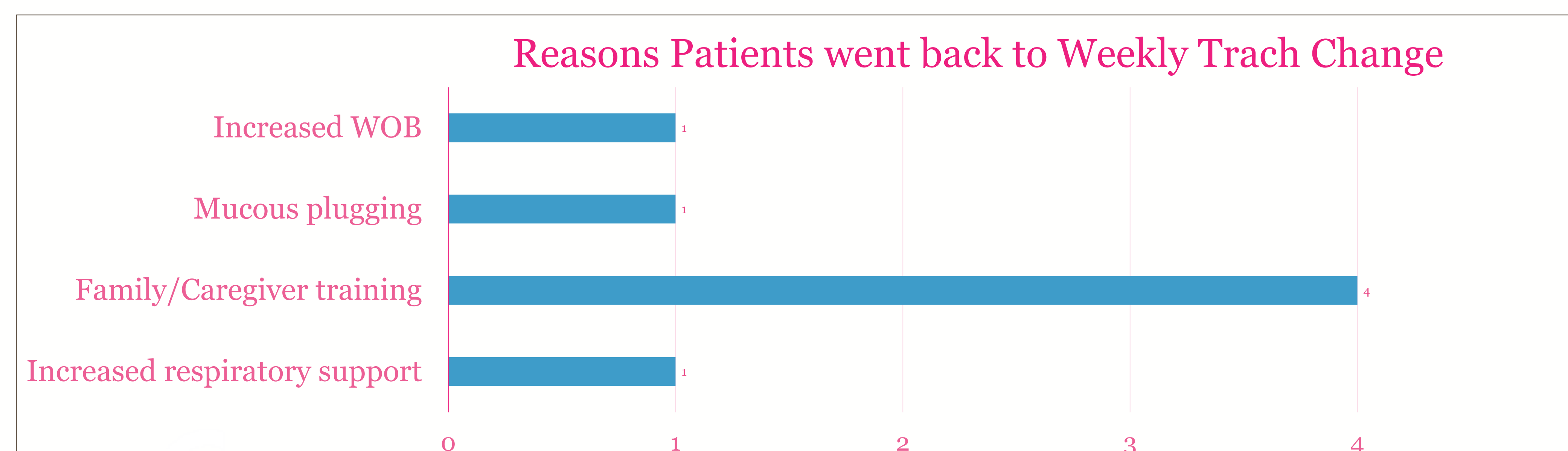


Table 2. 5 of 43 patients (12%) went back to weekly trach changes.
*Two patients had more than one reason for returning to weekly trach changes.

RESULTS

- Forty-three patients (41.9% male, 58.1% female) had routine TT change frequency decreased from 7 to 14 days
- Median age was 21 mos (IQR:10-101)
- Median weight 13.4 kg (IQR:10.3-25.2)
- 96.7% of TT were Bivona, and 91.8% were cuffed
- Unplanned decannulations occurred at an incidence of 18.6%.
- Hospital mortality occurred in 4 patients unrelated to change in frequency of TT changes
- IRR was assessed using percent agreement of 3 factors: 1) Did the patient's respiratory support increase after TT change frequency was changed? 2) Did the patient need to go back to more frequent TT changes? 3) Were adverse events documented between time of change to every 14 days and discharge? 100%, 88.9%, and 66.7% agreement amongst raters was achieved, respectively

CONCLUSIONS

- Frequency of routinely changing single lumen TT in pediatrics can be safely decreased from 7 to 14 days
- The monitoring of adverse events related to this change such as increase secretion tenacity, plugging events, or infection should be monitored and consider returning to weekly changes if they occur
- Given the scarcity of literature on this topic, further research is recommended