

Abstract

Objective: Assess pediatric tracheostomy knowledge among pediatric residents via an electronic questionnaire.

Methods: An anonymous survey was submitted via e-mail to resident delegates of the American Academy of Pediatrics from March 1 to May 31, 2016. Participants were asked to complete a 17 question survey which determined a resident's competency in airway anatomy, surgical indications, tracheostomy maintenance, and response to emergencies..

Results: A total of 33 residents completed the survey. There were no differences in competency between PGY levels: 33.3% were PGY-1, 54.5% were PGY-2, 9.1% were PGY-3, and 3.0% were PGY-4. 66.7% of respondents could identify how tightly to affix tracheostomy ties; however, only 12.1% understood the purpose of stay sutures. 72.7% knew that they could bag-mask ventilate a child with a dislodged tracheotomy tube when there was no known upper airway obstruction, 60.6% could identify the function of an obturator, 60.6% could identify that a chest x-ray was appropriate ancillary study for a child with postoperative chest crepitus, and 51.5% identified the indications for a Passy-Muir valve. Finally, 87.8% could not identify when a cuff should be inflated and 84.8% did not identify stomal bleeding as an emergency.

Conclusions: Pediatric residents were found to have knowledge gaps in the perioperative management of pediatric tracheostomies. Greater clinical exposure through formal didactics and training provided by otolaryngologists could provide practical educational experiences in understanding the care of a surgical airway.

Introduction

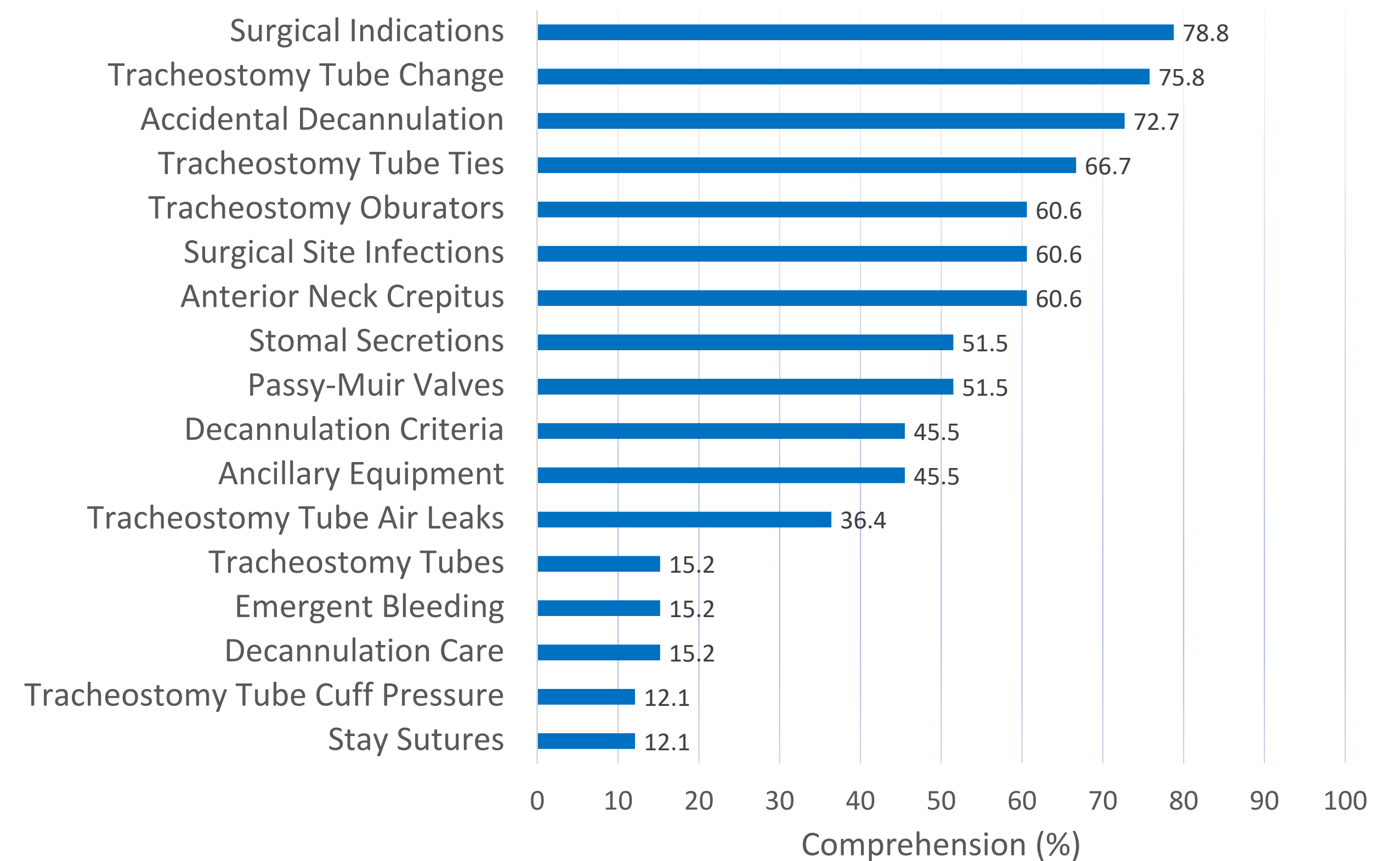
Tracheotomies are one of the most commonly performed procedures among critically ill patients.¹ Very little formal education is offered to non-surgical providers, despite frequent exposure and care of tracheostomy patients. Moreover, efficient education programs have previously shown the capability of increasing scores on knowledge base evaluations and simulation performance.^{2,3,4} Currently, tracheostomy care is mainly based on consensus statements and guidelines, without standardized practice across institutions.^{5,6} However, subsequent studies have revealed a uniform approach to tracheostomy care through a multidisciplinary team can result in decreased morbidity and mortality.^{7,8} Pediatric patients are a common population requiring tracheostomies for congenital or acquired conditions leading to ventilator dependence, increased need for pulmonary toilet, and upper airway obstruction. In particular, tracheostomy care in children tends to be interdisciplinary with involvement of surgical, primary non-surgical, and nursing teams. There are many facets of tracheostomy care that all care teams should be comfortable with, including long term management, routine decannulation, ancillary equipment, and emergency situations.⁹ Hence, the purpose of this study is to assess the knowledge base of pediatric tracheostomy among pediatric residency trainees.

Methods and Materials

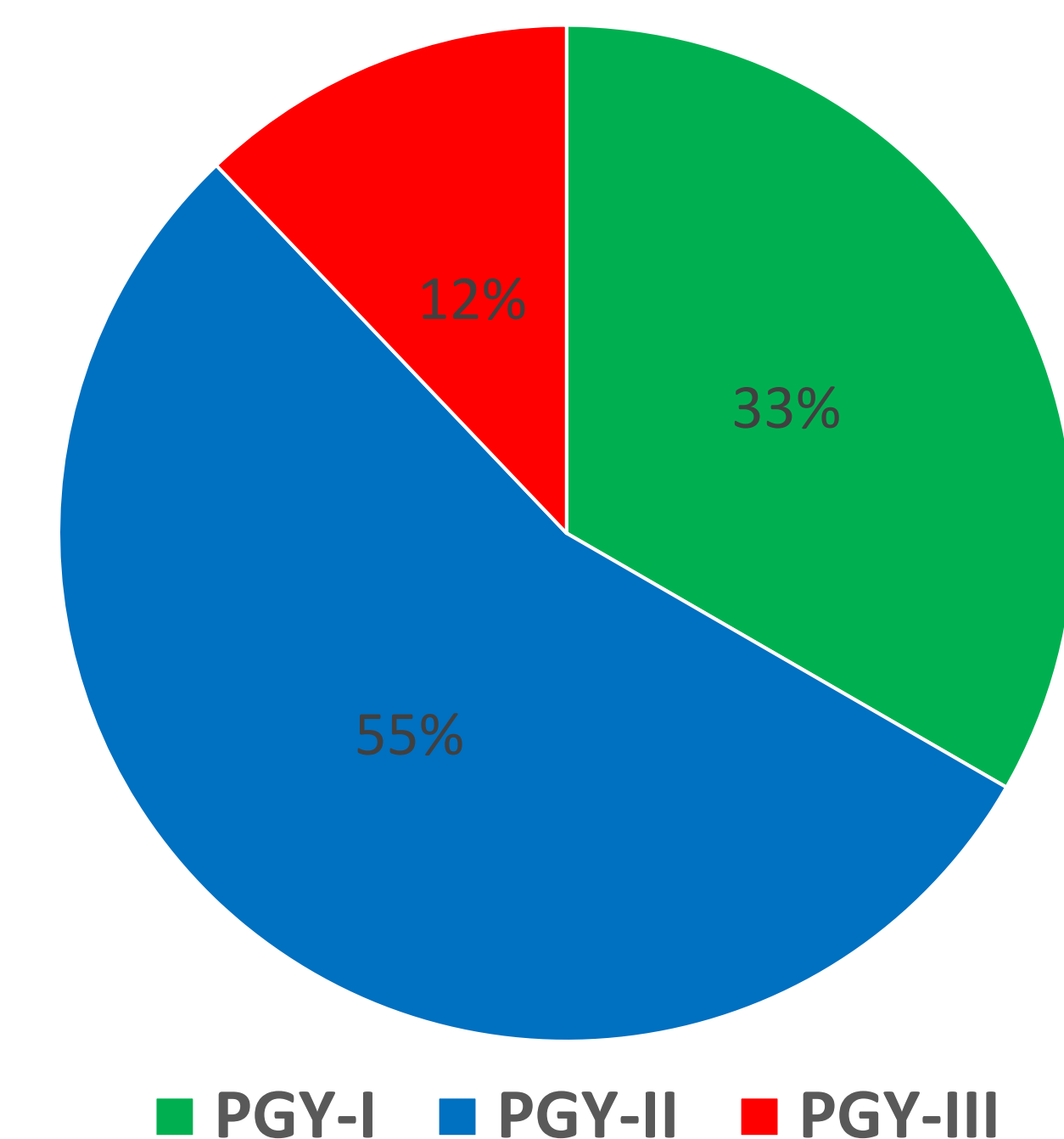
The American Academy of Pediatrics (AAP) directory was used to identify potential prospective subjects. An anonymous questionnaire was submitted via e-mail to resident physicians from March 1, 2016 to May 31, 2016. Participants were asked to complete a seventeen question survey which determined a resident's competency in airway anatomy, surgical indications, tracheostomy maintenance, and response to emergency scenarios. Resident delegates were classified into one of three groups, based upon responses to the survey (PGY-1, PGY-2, and PGY-3). Descriptive statistical analyses were performed using SPSS statistical software (IBM) on Windows 7.

Results

Pediatric Tracheostomy Knowledge



Questionnaire Respondents



Discussion

Increasing numbers of patients are undergoing tracheotomy, which in parallel requires professionals providing medical care to be knowledgeable in the perioperative care of these patients. There are several studies which reveal knowledge gaps that exist among various medical personnel which range from nurses, medical students, and attending physicians. It was our goal to delineate whether a specific group of medical personnel have knowledge gaps and what topics are the least well-understood. The design of a standardized comprehensive tracheostomy care curriculum guided by otolaryngologists can provide a significant increase in provider knowledge and confidence in the management of pediatric tracheostomies.

Conclusions

Pediatric residents were found to have knowledge gaps in the perioperative management of pediatric tracheostomies. Greater clinical exposure through formal didactics and training provided by otolaryngologists could provide practical educational experiences in understanding the care of a surgical airway.

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