3D-Printed, Anatomy-Based Model for Patient and Caregiver Education in a Multidisciplinary Aerodigestive Clinic

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ABSTRACT

Background: Understanding the pathophysiology of aerodigestive disease is contingent on understanding the close anatomical relationship of the respiratory and digestive tracts. Consent for diagnostic aerodigestive endoscopies highlight the importance of understanding aerodigestive anatomy for families making medical decisions for children with complex medical disease. Previous implementation of a computer-based digital model has been challenging due to technical inefficiencies and tablet availability. The goal of this project is to assess a 3D-printed version of the model for caregiver education. The primary aims are to create a model that is relevant and applicable to medical conditions seen in clinic and to collect open-survey responses from caregivers to understand the impact of the model on clinic visits and understanding.

Methods: This quality improvement project follows a PDSA cycle design. Our study population is twenty caregivers of patients seen in a multidisciplinary Aerodigestive clinic. A questionnaire will be collected at the conclusion of the family's visit to assess primary outcomes.

Results: The results of this work will help to identify the value, as perceived by caregivers and their children, of a 3D-printed, anatomy-based model for patient education of aerodigestive anatomy and procedures in a multidisciplinary Aerodigestive clinic. Preliminary results show that the model is applicable, stimulates interest in pediatric patients, and positively impacts clinic visits for families.

Conclusions: Implementation of the 3D-printed model has less limitations than a digital model. Results will inform future directions for a 3D-printed educational resource that is both easy for provider use in clinic and beneficial for families.