

# **STRONG CHILDREN'S RESEARCH CENTER**

## **Summer Research Scholar**

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### **ABSTRACT**

**Title: Risk Factors Influencing Acquired Neonatal and Pediatric Subglottic Stenosis: A Descriptive Study**

**Background:** Subglottic stenosis (SGS) is an abnormal narrowing of the body's tracheal lumen at the subglottis, the area in between the vocal cords and lower cricoid cartilage, that can cause respiratory distress symptoms and severe attenuation of airflow. Acquired SGS is a common complication in children following prolonged endotracheal intubation or multiple intubation attempts, often due to internal laryngeal trauma, as well as may result in morbidity and potential mortality. Despite studies investigating acquired SGS in general, there is little evidence in literature regarding the risk factors associated with this condition for neonates and young infants in intensive care units.

**Objective:** The research team's purpose is to use of an interprofessional quality improvement (QI) process and develop a QI biomedical science approach define important preventable risk factors of acquired SGS in children admitted in URMC neonatal and pediatric intensive care units.

**Results:** The average age of the study participants was 1.4 years. Also, the race and ethnicity demographics are reflective of the general patient population. On average, there were around 5 documented intubations for all patients who developed acquired subglottic stenosis. The average endotracheal tube size per intubation attempt was 3.0-3.5mm. Documented endotracheal tubes used were 3x more frequently cuffed (65%) versus uncuffed (35%). The level of operator expertise included the following categories: Attending, Fellow, Resident, APP.

**Conclusion:** The greatest risk factor for developing acquired SGS is prolonged intubation with inappropriately sized ETT. Minimizing trauma during intubations, avoiding recurrent extubation/reintubation and using appropriately sized ETTs may help better prevent the development of acquired SGS.

Word Count: 250