INTRODUCTION
Subglottic stenosis (SGS) is the most common indication for tracheostomy tube placement in neonates and is often implicated in chronic upper airway obstruction in children. Operative laryngoscopy/bronchoscopy, while the gold standard for diagnosis, is associated with significant risk. This study examines the efficacy of office video laryngoscopy (OVL) for detecting SGS and estimating SGS severity in infants and children.

METHODS
A pediatric otolaryngology department database was queried to identify children under five years who underwent operative laryngoscopy/bronchoscopy within four months of OVL. Videos were randomized and independently reviewed by three, blinded pediatric otolaryngologists during a single session. When SGS was suspected, the Cotton-Myer grade was estimated. Operative bronchoscopy and OVL findings were compared, using operative findings as the gold standard. Sensitivity, specificity, and positive and negative predictive values were calculated. To evaluate intra-rater and inter-rater reliability, 20 randomly selected exam videos were reviewed three times by each reviewer.

RESULTS
There were 102 children with 129 OVLs who met inclusion criteria. One hundred OVLs (77.5%) afforded an adequate view of the subglottis, which allowed 47 opportunities to detect some degree of SGS. Sensitivity for detecting stenosis was 51.6% (grade I, 75.0% (grade II) and 100% (grade III). Sensitivity for detecting clinically significant stenosis (grades II-IV), or those which might require operative intervention) was 81.3%. Consistently accurate estimations of SGS severity were only seen in high grade lesions (Table 1).

DISCUSSION
This study supports OVL as a method for the diagnosis of moderate to severe SGS, provided an adequate view of the subglottis can be obtained. In this study, the absence of surgically relevant stenosis (Grade 2 or above) was correctly identified by all three otorhinolaryngologists in over 90% of cases (Table 2).

The goal of this study was to determine if children without significant SGS identified by OVL (those thought to have Grade I stenosis or no stenosis) could avoid subsequent operative laryngoscopy/bronchoscopy. These results suggest that the use of OVL alone may fail to identify high risk SGS patients as often as 31% of the time (Table 2).

REFERENCES