Intubation with endotracheal tubes (ETTs) is the most efficient way to protect the airway during general anesthesia (GETA). ETTs used in adults have a cuff that inflates to seal the airway. Cuff over-inflation (>30 Cm H2O) can lead to postoperative sore throat, tracheal mucosal ischemia, tracheal ulceration, rupture, or narrowing. Studies have revealed that ETT cuff pressure cannot be determined by palpation alone and that cuff overinflation is common. However, quantitative measurement of cuff pressures is not standard in most institutions, including Clements University Hospital (CUH). Quality efforts aimed at modifying factors affecting ETT cuff overinflation during general anesthesia should decrease the incidence of cuff overinflation and its clinical manifestations.

The aims of this project were:
1. To decrease the incidence of tracheal cuff overinflation by 50%, and
2. To decrease by 50% the incidence of postoperative sore throat on postoperative day-1.

Progress assessed 10 weeks after an educational intervention to anesthesia providers and documentation implementation within EPIC.

Results and Conclusions
- Baseline data was collected from 75 consecutive patients [48 (64%) women and 27 (36%) men] undergoing non-cardiac procedures under general anesthesia with tracheal intubation.
- Cuff overinflation prior to the intervention occurred in 59% of the patients.
- Cuff overinflation rates were higher when intubation was done by trainees (residents, 76% and student CRNAs, 75%) compared to non-trainees (faculty anesthesiologists, 50% and CRNAs, 42%; P=0.02).
- Patient’s sex, ETT size, laryngoscope type (direct vs. video), and number of airway attempts were not associated with cuff overinflation.
- The baseline incidence of postoperative sore throat was about 60%.
- Sore throat was more frequent when the ETT cuff was over-inflated (73% vs. 26%).

Ten weeks after the intervention, ETT cuff pressures and postoperative sore throat were evaluated in 200 patients.
- The incidence of cuff over-inflation post intervention was 27% (54% decrease).
- The incidence of postoperative sore throat post intervention was 32% (47% decrease).
- Rates of over inflation decreased after intervention for all type of providers (Figure 3).
- ETT cuff pressure EPIC documentation compliance was 82% at 10 weeks.

A follow-up assessment at 16 weeks after the intervention was performed on 58 cases.
- The overall rate of compliance with measurement and documentation of ETT cuff pressures was 76%.
- The rate of cuff over-inflation at week 16 was 36%.
- Conclusions: Education to providers and creation of documentation tabs in EPIC had a significant, durable effect on decreasing the rates of ETT cuff overinflation and decrease in postoperative sore throat.

References: