Goals/Objectives:

Tracheal intubation in PICUs is often associated with adverse tracheal intubation-associated events. There is a paucity of data regarding medication selection for safe tracheal intubations in PICUs. Our primary objective was to evaluate the association of medication selection on specific tracheal intubation-associated events across PICUs.
Current Medication Practice and Tracheal Intubation Safety Outcomes From a Prospective Multicenter Observational Cohort Study

Methods/Inclusion:

Using the National Emergency Airway Registry for Children, tracheal intubation quality improvement data were prospectively collected from July 2010 to March 2013. Patient, provider, and practice characteristics including medications and dosages were collected. Adverse tracheal intubation-associated events were defined a priori. A total of 3,366 primary tracheal intubations were reported.
Major Findings:

Adverse tracheal intubation-associated events occurred in 593 tracheal intubations (18%). Fentanyl and midazolam were the most commonly used induction medications (64% and 58%, respectively). Neuromuscular blockade was used in 92% of tracheal intubation with the majority using rocuronium (64%) followed by vecuronium (20%). Etomidate and succinylcholine were rarely used (1.6% and 0.7%, respectively). Vagolytics were administered in 37% of tracheal intubations (51% in infants; 28% in > 1 yr old; p < 0.001). Ketamine was used in 27% of tracheal intubations but more often for tracheal intubations in patients with unstable hemodynamics (39% vs 25%; p < 0.001). However, ketamine use was not associated with lower prevalence of new hypotension (ketamine 8% vs no ketamine 14%; p = 0.08).
Conclusions:

In this large, pediatric multicenter registry, fentanyl, midazolam, and ketamine were the most commonly used induction agents, and the majority of tracheal intubations involved neuromuscular blockade. Ketamine use was not associated with lower prevalence of hypotension.