**Methods**

- **An intact pilot balloon is crucial to proper function of a cuffed endotracheal tube (ETT).**
- **Failure of the pilot balloon or disruption of the inflation tubing results in cuff deflation which may lead to inadequate ventilation and aspiration of oropharyngeal secretions.**
- **We describe a method that we employed using readily available components to repair a pilot balloon and inflation tubing, and report on the effectiveness of the repair method, as tested in vitro.**

**Results**

- Eight-hour interval measurements in 10 intact vs. 10 repaired ETTs demonstrated a difference in the mean pressure drop of 0.5 cm H2O (95% CI -2.2 to 1.2 cm H2O, P = 0.54) (Fig. 2).
- No visible air leak from the repaired inflation tubing segments when cuff inflated to 120 mm Hg.
- Tensile strength testing revealed that the mean force needed to break intact inflation tubing was 36.4 ± 2.7 N (N=7).
- Repaired inflation tubing was only able to withstand a mean force of 14.5 ± 3.7 N (N=7) before disruption (mean difference =21.9 N, 95% CI 18.1 to 25.7 N, P < 10^-6) (Fig. 3).
- Repairs using ETTs ranging in size from 3.0 to 8.0 and various manufacturers were successful; in some cases, a 24g IV catheter was required as the stent.

**Conclusions**

- Our ETT repair method allows for quick, reliable repair of the pilot balloon using readily available supplies.
- A commercial product, BE 409 Pilot Tube Repair Kit (Instrumentation Industries Inc.; PA, USA) is available, using a metal tapered needle as the stent. However, the assembly is not MRI compatible and is not widely available.
- Our described method can be effectively used as a temporizing measure in a situation where ETT exchange is difficult or poses patient risk.
- Due to the reduced tensile strength of the repaired segment, we recommend identifying the repaired tubing with a marker, such as colored tape, in order to alert practitioners.