

Endotracheal tube adaptor for administration of aerosolized medications

Client: Dr. Mark E. Schroeder

Team Members: Ryan Childs (BSAC)
Ozair Chaudhry (Communicator)
Timothy Barry (BWIG)
Evan Joyce (Leader)

Date: December 4 to December 11, 2009

Problem Statement

The goal of this project is to make design changes to an endotracheal tube adaptor that was fabricated last semester for product optimization. The adaptor works as an interface to introduce aerosolized medication (e.g. Albuterol) from a pressurized canister into an anesthesia circuit to an anesthetized, intubated patient. This project was initiated due to a recent change in the Albuterol canister used by the UW-Hospital. The new canisters have been fitted with a non-removable, plastic, actuation counter resulting in a mechanical incompatibility with the old adaptor used at the hospital. The adaptor should not impede the anesthesia circuit which flows at a rate of 4-5 Liters of air/minute and should solely act as a port to deliver medication should it be needed during surgery.

Last semester a prototype adaptor was produced that is universally compatible with all aerosolized medication canisters and also compatible with a specific gas sampling Luer port. It acts as a syringe to dispense medication in a simple fashion, with one hand, into the Luer port. This semester's objectives are: make the adaptor compatible with all Luer ports, adjust the size of the aperture at the distal end of the prototype for optimal medication delivery, and thoroughly test the prototype to ensure efficacy. The prototype will also be designed and constructed in a way such that it can be injection molded. Other objectives for the semester that put a spin on the "design" aspect of the class are: performing a market analysis of our adaptor, obtaining a design or utility patent, and licensing the technology to a medical supply company.

Last Week's Goals

- Run laser diffraction test on our new prototype
- Finish poster for final poster presentation
- Begin work on final report (due next week)

Accomplishments

- Poster presentation!

