Airway Bronchoscope

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Technology description

Invention Summary

A novel rigid bronchoscope and forceps system has been developed. The device design improves the flow of gases during instrumentation in order to prevent hypoxemia and hypercarbia during foreign body removal (FBR), particularly in pediatric patients (18-30 months old). The position and design of the rigid bronchoscope, forceps, illumination source, and shaft allow for continuous viewing of the airway while not compromising airflow. The device is also designed to require minimal assembly, for most efficient and rapid intervention to restore ventilation.

Each year there are nearly 2.5 million foreign body aspirations in the United States, which accounts for roughly 2,000 deaths per year. Foreign body aspiration is the 3rd and 4th leading cause of accidental death of children ages 0-1 and 1-4 years old, with a 3.4% mortality rate of children hospitalized due to foreign body aspiration. In the US, it has been reported that there is $337M worth of FBR equipment with at least $13M being spent each year on replacing old equipment (many instruments in an FBR kit need to be replaced every 5-7 years). In 2016, there were nearly 17,100 bronchoscopes sold with an average annual growth rate of 11.5%. In addition, there are other potential markets in which this device could be used, such as for first responders (total market $194M) and in pediatric intensive care units ($15M total market), as well as minimally invasive surgery and adult bronchoscopy.

Advantages

Continuous viewing of the airway while not compromising airflow.
Increased ventilation decreases incidences of hypoxemia and hypercarbia
Designed to require minimal assembly, allowing rapid intervention.

Institution

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