Silicone Oil Applicator

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Background

- Silicone oil aerosol spray is used by anesthesiologists and doctors
- Lubricant applied to inside and outside of tubes during surgeries
- Some devices requiring lubrication:
  - Bronchoscopes
  - Double lumen endotracheal tubes
  - Airway exchange catheters
  - Laryngeal mask airways

Fig 1 – Rusch Silkospray used by anesthesiologists.

Problem Statement

- A different effective method of applying the silicone oil lubricant is sought
- Current method of application causes:
  - Slippery work environment
  - Risk for cryogenic burns
  - Release of particles into air that can be inhaled

Design Requirements

Alternative methods of applying the silicone oil must:

- Make use of current aerosol spray
- Not allow lubricant into external environment
- Prevent hazardous work conditions
- Lubricate tubes 2.5 to 9 mm internal diameter
- Lubricate devices up to13.7 mm outer diameter

Final Design

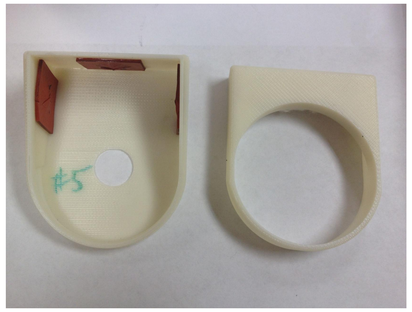


Fig 2 – In two pieces for discounted manufacturing

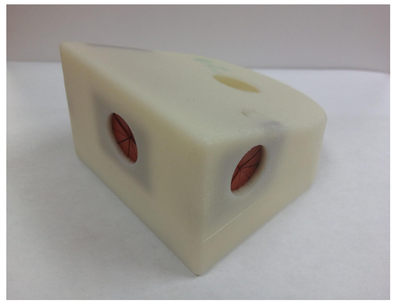


Fig 3 – Two parts snap together

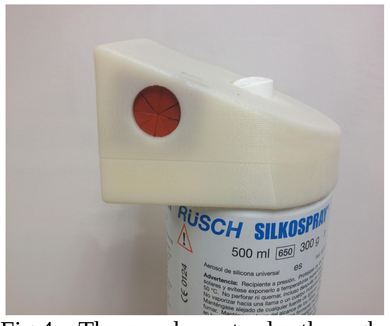


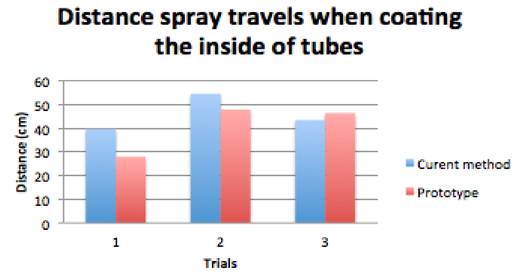
Fig 4 – The nozzle protrudes through the top hole

Fig 5 – The front hole fits a universal 15mm adaptor.

Final Design: Enclosed Box

- Contains overspray
- Allows for lubrication of inside and outside of devices
  - 2 holes for coating outside of devices
  - 1 hole for coating inside of devices
- Ridges "snap" box onto spray can
- Slanted angle allows aerosol nozzle to protrude
- Gaskets prevent spray from escaping
- 2 pieces for injection molding
- Cotton pads absorb excess silicone oil
- Ergonomically friendly
- Disposable
- Materials: High-density polyethylene for the body (transparent); FDA approved silicone for the gasket.

Testing



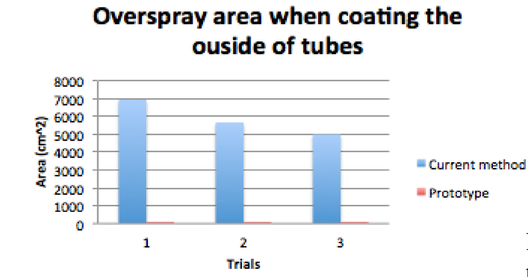


Fig 6 – Testing results: Overspray reduction and distance traveled

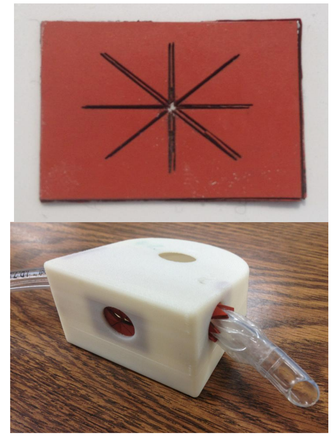


Fig 7 – The silicone gaskets were tested with 1cm diameter rod. The rods went through the gaskets 75 times without fatigue.

Business Potential

- Niche market in the clinics
- No FDA approval required
- Patentable design endorsed by clients and advisors
- Established contact with manufacturers and partnership with business associates
- Market potential: 1.1 million thoracic and bronchoscopic procedures performed in the US annually
- Financial potentials:
  - Low startup cost: $72,096 by financial forecast
  - Estimate 85% market penetration in 3 years
  - Break-even within 12 months

AvertaMed LLC

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