

Enhanced Safety and Visualization for Endoscopic Sinus Surgery.

Project Design Specification (PDS)

Team Members: Leah Brandon, Adam Budde, Kieran Sweeney, Tom Knight, Sara Worzella

Client: Dr. Ashley Anderson

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Function: Currently endoscopic sinus surgery telescopes present a fire danger in the operating room, as they can ignite paper drapes. In addition, inserting and extracting the scope from the nose frequently results in blood on the lens. This project will attempt to address both those problems with a scope caddy containing defogging solution, and an alar (nose) opening retractor which will reduce contamination of the scope during insertion. In addition, other ergonomic and practical improvements to this procedure will be considered, including the possibility of incorporating an irrigation system into the retractor.

Client Requirements:

The client requires the design to:

- Enhance safety of endoscopic equipment
- Lens defogging and cleaning
- Reduce wire clutter
- Expand nasal passage

1. Physical and Operational Characteristics

a. *Performance requirements:* Disposable for single use. Must be practically incorporated into hospital

b. *Safety:* Biocompatible with nasal environment. Minimize heat and fire hazard.

c. *Accuracy and Reliability:*

d. *Life in Service:* Onetime use.

e. *Shelf Life:* Approximately one year prior to use.

f. *Operating Environment:* Operating room.

g. *Ergonomics:* Should incorporate into OR environment with accessibility and ease of use. Suit various endoscopic devices.

- h. *Size*: Minimal size and footprint. Can't interfere with operation.
- i. *Weight*: Minimal.
- j. *Materials*: Chemical and biological inert plastic.
- k. *Aesthetics, Appearance, and Finish*: Secondary to safety and functionality.

2. Production Characteristics

- a. *Quantity*: Must be mass produced.
- b. *Target Product Cost*: TBD.

3. Miscellaneous

- a. *Standards and Specifications*: Must be FDA approved for OR use.
- b. *Customer*: Hospitals and medical staff. ENT surgeons
- c. *Patient-related concerns*: Materials, chemicals, or necessary electronics may not endanger patient.
- d. *Competition*: Informed that no similar product currently exists. However, patent research is needed to definitively establish this.