Graduated Bowman Probes

Date: January 23 to January 30, 2025

Client: Dr. James Law
Advisor: Professor Monica Ohnsorg
Team:
Neel Srinivasan nsrinivasan8@wisc.edu (Team Leader/BPAG)
Caden Robinson carobinson5@wisc.edu (BSAC)
Caleb White cfwhite@wisc.edu (BWIG)
Cole Miller ctmiller8@wisc.edu (Communicator)

Problem Statement

Bowman probes are the standard instrument used in interrogation of the nasolacrimal (tear duct) system in Ophthalmology. They are available in various sizes and provide tactile feedback to the surgeon when probing the canalicular/nasolacrimal system, allowing them to assess for strictures, discontinuities, obstruction, or other abnormality within its lumen. Probing is typically performed prior to the passage of implants such as nasolacrimal stents (eg. Crawford, Lacriflow, Nunchucku, Monoka), to confirm patency of the nasolacrimal system. Available probes on the market do not have any markings on them which may allow the surgeon to make measurements to points within the canalicular/nasolacrimal lumen (eg. a stricture at 30 mm distal to the punctum), which can be helpful in correlating with imaging findings, or for accurate clinical documentation and therefore inform management of nasolacrimal pathologies. We propose the development of such a stent with inscribed bands corresponding to millimeter markings which may be referenced during canalicular or nasolacrimal probing.

Brief Status Update

The full team was decided at the project draft and all project roles were set. The team has begun preliminary research to begin to get information on the subject matter and have contacted the client to set up an initial meeting to set semester and project expectations.

Summary of Weekly Team Member Design Accomplishments

- Team:
    - Began researching Bowman's Probe material composition, uses, existing/competing designs, and community impact
    - Reached out to client and advisor to schedule meetings

- Neel Srinivasan:
    - Conducted literature search & review for relevant materials, costs, and uses for Bowman's Probes
    - Watched videos on Bowman's Probe usage during nasolacrimal duct obstruction procedures

- Caden Robinson:
    - Met with the team and discussed positions and dates for meeting with the client
    - Started looking at competing designs
    - Began researching procedures where bowman probes are used

- Caleb White:
    - Met the team and discussed everyone's roles for the semester, myself being assigned the BWIG, responsible for the group's website.
    - Began researching all things Bowman Probe including the biological context for creation and in what clinical applications they are utilized.
    - I also looked into the economic standpoint of Bowman Probe in the current economy and their projected growth as a medical device with the gradual increase in general epiphora and other ophthalmological medical issues.

- Cole Miller:
    - Contacted Client to set up meeting
    - Performed preliminary research on background of project
    - Performed literature search to find reliable sources to inform project

Weekly/Ongoing Difficulties

N/A

Upcoming Team and Individual Goals

- Team:
    - Generate necessary design questions for first client meeting
    - Continue general research & add to LabArchives
    - Assign sections and work on PDS

- Neel Srinivasan:
    - Continue researching nasolacrimal duct obstruction
    - Begin researching overall environmental impact of Bowman Probe usage along with primary audiences to gauge design constraints
    - Work on PDS with teammates

- Caden Robinson:
    - Continue researching bowman probes and their applications
    - Meet with the client to discuss design specifications and get a scope of how the project will be completed

- Caleb White:
    - Continue research into the current Bowman Probe models used in the current medical sphere and attempt to identify immediate areas improvement either noted by the authors themselves or through my own perception.
    - Work on group deliverables, specifically the groups PDS and the following progress report.
    - Meet with the client to set project expectations and ask all required questions to allow for specific tailoring of research and the first formulations of design.

- Cole Miller:
    - Continue preliminary research
    - Prepare questions for client meeting #1
    - Organize and facilitate client meeting #1

Project Timeline

Project Goal	**Deadline**	**Team Assigned**	**Progress**	**Completed**
Meet with client	2/2	All		
Product Design Specification	2/5	All		

Preliminary Presentations	2/20	All		
Preliminary Deliverables	2/25	All		
Show and Tell	3/20	All		
Poster Presentations	4/24	All		
Final Deliverables	4/29	All		

Expenses

Item	Description	Manufacturer	Part Number	Date	QTY	Cost Each	Total	Link
Component 1								
Component 2								
Component 3								
TOTAL:								**$0.00**