

Progress Report - Week 12

Title: Vaginal Self-Swab Device to Minimize Contact Contamination

Client: Dr. Jean Riquelme

Advisor: Dr. Megan McClean

Team:

Sara Morehouse (Leader)

Cherry Qiu (Communicator)

Katherine Kafkis (BWIG and BSAC)

Adam Berdusco (BPAG)

Date: April 25, 2024

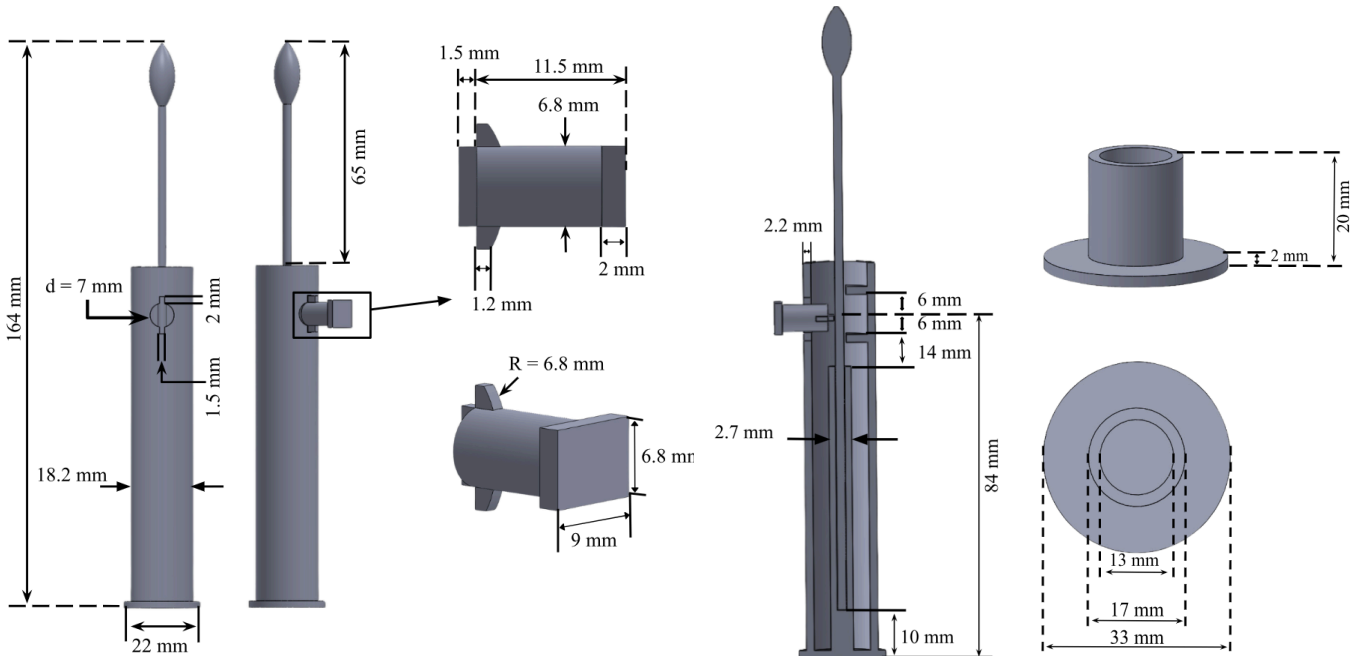
Problem Statement:

Quality sexual health is important for every woman to sustain, but with women ages 15-24 accounting for 43% of undiagnosed STI cases, the system supporting women's sexual health could use some improvement (CDC). The team has developed a novel self-swab STI testing device that allows women the privacy of swabbing themselves without the potential discomfort of a physician present. This was conceived with the goal in mind of making STI testing more accommodating while reducing contamination of the testing environment. However, the current design has issues with media leaking from the device after use, as well as with the aesthetics of the design. Additionally, the device requires the addition of a thin, puncturable film to the cap to contain transport media. The team is tasked with modifying the original design to address the issues currently being faced while still seeking to limit contamination of the device and testing environment as well as account for patient comfort.

Brief Status Update:

This week we worked on finishing our poster for our final presentation on Friday. We have been working hard and are excited to share our work! We have also printed a couple of prototypes with some last minute modifications to ensure that we have the best possible one for the presentation. Looking forward, we will be completing our final report early next week.

Current Design:



The current design consists of a full-length base with a 3-point bending mechanism to break the swab. The device attaches to the Aptima transport media tube via a compression fit, and it utilizes a button to apply a force at the perforation on the swab in order to snap it off for sample collection. Additionally, we designed a stable base for the media tube to stand in while sample collection is taking place to prevent spillage.

Materials and Expenses:

Item	Description	Manufac - turer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	2/27	n/a	n/a	\$3.34	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	3/18	n/a	n/a	\$0.96	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	3/20	n/a	n/a	\$4.92	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	4/8	n/a	n/a	\$0.87	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	4/18	n/a	n/a	\$0.95	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	4/19	n/a	n/a	\$1.76	n/a
3D print	Material: PLA	n/a	n/a	Makerspace	n/a	4/22	n/a	n/a	\$3.73	n/a
Poster	For final presentation	n/a	n/a	UW Madison Libraries	n/a	4/25	n/a	n/a	\$48.00	n/a
-								TOTAL:	\$64.53	

Major team goals for the next week:

1. Complete the final report and design notebook.

Next week's individual goals:

- Sara:
 - Complete assigned sections of the report.
- Katherine:
 - Continue working on the final report
 - Ensure the notebook is up to date
- Cherry:
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- Adam:
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Timeline:

Task	Jan	Feb				March					April				May	
	26	2	9	16	23	1	8	15	22	29	5	12	19	26	3	10
Project R&D																
Background research	X	X	X	X	X	X	X									
Design development				X	X	X	X	X	X		X	X	X			
Prototyping						X			X		X	X	X	X		
Testings												X	X	X		
Deliverables																
Progress Reports		X	X	X	X	X	X	X	X		X	X	X	X		
PDS			X			X	X									
Prelim presentation/report						X	X									
Final Poster													X	X		
Meetings																
Client			X					X								
Advisor	X	X	X	X	X			X			X	X	X			
Website																
Update	X	X	X	X	X	X	X	X	X		X	X	X	X		

Previous week's goals and accomplishments:

- Goal: Ensure the final prototype is printed.
 - We have printed out the final prototype.
- Goal: Complete poster for final presentation.
 - The poster is complete and we are looking forward to presenting.
- Goal: Begin work on the final report.
 - We have started working on the final report.

Activities:

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Katherine	4/19	Modified the final prototype to have curved flanges on the keyed push-button and printed it at the makerspace	1	5.5	40
	4/20 - 4/21	Created thoroughly dimensioned drawings of the final prototype and completed the final design section of the poster	2		
	4/22	Printed an additional copy of the final prototype	0.5		
	4/23-4/24	Worked on assigned sections of the final report	2		
Sara	4/21/24	Analyzed contamination testing results	2.5	7	38
	4/22/24	Worked on poster, creating figures, and final report.	3		
	4/25	Finalized poster, printed poster	1.5		
Cherry					25.75
Adam					29