

Female Barrier Model

Week 14: April 21st – April 27th 2009

Advisor: Professor William Murphy

Client: Marge A. Sutinen

Team members: Karen Chen (Leader)
Tu Hoang Anh Mai (BWIG)
Rexxi Prasasya (Communication/BSAC)

Problem statement: Students in the advance Contemporary Issues of HIV/AIDS of the Medical Genetic department need to learn to demonstrate the proper use of female barriers against sexually transmitted disease by the end of the semester. Currently, an adequate model to show proper use of female barrier is unavailable, thus, instructors have resort to illustrated figure to educate students in this matter. The goal of this project is to design a pelvic model to be used as a teaching tool to demonstrate proper installation of female barrier devices. The model needs to be compatible with over-the-counter female condoms and dental dam.

Last week goals:

1. Borrow model from Dr. Bersu on Monday
2. Test the pressure content of the inflatable pelvic model on Tuesday
 - i. Generate the survey questions and ask Marge about them
 - ii. Visit "A Woman's Touch" to look for suitable masturbation sleeve
3. Meeting with Greg on Wednesday at 3pm, and we will bring along the following items to his office:
 - i. The models/sleeve borrowed from sex-out-loud (to show Greg the texture)
 - ii. The model to be borrowed from Dr. Bersu and images to facilitate the fabrication process
 - iii. We will be molding the external tissue, and attach/glue it to the transparent tube
 - iv. The inflatable pelvic model to try if the silicone tube fits
4. Try to combine the two separate sections into one piece on Friday
5. Prepare a rough budget outline

Summary of accomplishments:

- On 4/21, Karen and Rexxi met to measure the pressure content of the inflatable model. Initially, a tire pressure gage was checked out from the shop to measure the pressure of the model; however, the size of the valve on the model is not compatible with the size of the tire pressure gage. An adaptor must be used in order to fix the two ends tight. A visit was then made to bike shop nearby, but they still do not have an appropriate or compatibility between the two openings. The next stop was to the chemistry building to request for a pressure gage for a chemistry experiment. Rexxi said she will be asking the TA for permission to borrow the pressure gage.

- On 4/22, Chou borrowed the optimal anatomical model from Dr. Bersu before the visit to Greg. Upon arriving at Greg's office, the team started to modify the anatomical model to make it suitable for casting. A more anatomically correct model of the external tissues in the pubic region was made from additional wax pieces to be used for the creation the negative mold. Liquid silicone was poured into the casted mold and cured after 30 minutes. The mold was then removed from the cast and checked. However, it was discovered that the material of the purchased sleeve is made from thermoplastic rather than thermoset. This makes the two materials incompatible and difficult for the two components to bond.
- On 4/23, Karen and Rexxi discussed about how to attach the two parts. The overall conclusion was to pay another visit to Greg's office to create the whole structure from silicone through one mold.
- On 4/24, the team met to confirm the time of next visit to Greg's office on Saturday. Karen and Rexxi will go first and Chou will meet up.
- On 4/24, the team met with the advisor and updated the current progress. We talked about current status and mentioned about the visit to Greg's on the following day. We also talked about the paper due dates, which will be on Friday of the last week of class.
- On 4/24, the team met with the client and two of her students to update our current progress. We have presented to them the parts of the prototype that we currently have. We also talked about the schedule for next week: Monday to meet and teach the two students about how to present with the current prototype; Wednesday to meet with the test subjects for testing.
- On 4/25, the team visited Greg and molded a whole sleeve with the external tissue. An additional piece was attached to the previous plaster mold to create the whole sleeve. Silicone was poured into the new mold and created a whole sleeve. The ratio of the silicone mixture was 2 silicone A: 2 silicone B: 1 deadener for the external labia and tubing, whereas the mixture ratio for the internal labia was 1A:1B:2D. While the silicone was left to cure, the team also went to Menards to purchase the adaptor head (1/4 female to female) for the pressure gage, Teflon tape for wrapping to prevent air leakage during pressure testing, and small hand pump to inflate the model.

This week goals:

1. Meet with two HIV/AIDS class students (France and Madison) on Monday: to teach them how to use our model; to ask them to comment on the questions that we have generated
2. Meet to put together the poster information on Tuesday (or exchange the poster information online)
3. Meet with the HIV/AIDS students (both advance and basic classes) to conduct our testing on Wednesday, both surveying and hands on testing
 - i. Send the compiled poster to the advisor
 - ii. Obtain survey data and conduct data analysis on Wednesday
4. Finalize the poster on Thursday and practice for the presentation

- i. Send the poster for printing
5. Update website before Friday
- i. Poster presentation on Friday
 - ii. Journal write up

Project Challenges: After meeting with Greg on Saturday, we tried to remove the silicone sleeve from the tubing. It fits very tight and snug to the plastic tubing, thus we have to safely remove the silicone from the mold. Also, there are some bubbles inside the silicone mold; we have to fix the bubbles to improve the aesthetics of the external tissues.

Activities:

Date	Group/Individual	Description	Hours
4/21	Karen, Rexxi	Rexxi purchased sleeve Test pressure content of the inflatable model Look for appropriate pressure gages	1.00h
4/22	Chou	Chou borrowed model from Dr. Bersu	2.50h
	Karen	Visit Greg Gion to mold the external tissue from silicone	6.00h
	Rexxi	Make plaster mold Attach sleeve to silicone	3.50h
4/23	Karen, Rexxi	Attach sleeve to silicone	0.50h
4/24	Team	Meeting	0.50h
4/24	Team	Advisor meeting	1.75h
4/24	Team	Client and student meeting	1.00h
4/25	Chou	Remold the silicone as a whole tube	4.50h
	Karen	Shop at Menards to purchase parts	7.00h
	Rexxi		7.00h
4/24,27	Karen	Progress report	1.00h
4/24	Team	Meeting with HIV/AIDS students	2.00h
N/A	Chou, Karen, Rexxi	Layout week goal/ work on poster outline	2.00h

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	January		February				March/April				April/May				
Research				Diagonal					S						
Brainstorming				Purple	Purple	Diagonal			P						
Prototype Design				Blue	Blue	Blue	Blue	Blue	Diagonal						
Ordering/shopping									I	Cyan	Cyan	Cyan	Diagonal		
<i>K12 Outreach</i>									N				Diagonal		
Manufacturing									G	Yellow	Yellow	Yellow	Yellow	Diagonal	
(Re)Testing													Orange	Diagonal	
Re-design							Dark Blue	Dark Blue	B	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue
Client meeting		Grey	Grey	Grey					R	Grey	Grey	Grey	Grey	Grey	Grey
Group meeting		Green	Green	Green	Green	Green	Green	Green	E	Green	Green	Green	Green	Green	Green
Presentations							Cyan		A					Cyan	
Deliverables/PDS			Blue	Blue					K						Blue
Progress Report		Pink	Pink	Pink	Pink	Pink	Pink	Pink		Pink	Pink	Pink	Pink	Pink	Pink