

Chorionic Villus Sampling- Transcervical Model

Client: Dr. Jesus Iruretagoyena

Advisor: Professor Kreeger

Team Members: Derek Klavas (Leader)
Mason Jellings (Communications)
Jon Mantes (BSAC)
Andy LaCroix (BWIG)

Week of April 3- April 9, 2009

Problem Statement:

Chorionic villus sampling is a prenatal diagnosis procedure that involves extracting placental tissue from the uterus of a pregnant woman in her first trimester of pregnancy. This tissue contains the same genetic information as the unborn fetus. Testing thus allows chromosomal abnormalities and genetic defects to be diagnosed early on in the gestation period. The current, and most difficult, method for chorionic villus sampling requires a catheter to be inserted through the woman's vagina and into the cervix (also known as the transcervical approach). However, doctors and residents currently do not have a model to simulate female anatomical structures and practice the transcervical method. The goal of this project is to develop a realistic and affordable model that precisely replicates the anatomy of a pregnant woman, is constructed out of ultrasound permeable materials, and can be repeatedly used to practice the transcervical approach.

Last week's goals:

- Start and finish exterior ABS box casing
- Meet with Greg Gion to get the materials necessary for building a mold, and learn how to properly mix the silicone material prior to pouring.

Accomplishments:

- Constructed the exterior box casing out of ABS
- Began shaping uterine mold and found 2mm straw to simulate cervical canal

This week's goals: (April 10- April 16, 2009)

Project Difficulties:

The main difficulty at this point in the semester is designing a way to pour the silicone material into our casing/mold, in order to create the desired model with accurate dimensions and

with a contoured top to simulate a stomach. Getting this correct the first time is crucial, because we do not want to waste materials that have cost our client valuable dollars.

Activities:

Member	Description of Activity	Hours this week	Cumulative Hours
Derek	Wrote Progress report.	0.5	14.5
Mason			13.0
Jon	Attended BSAC meeting	0.5	14.5
Andy	Updated website.	0.5	13.5
Entire team	Took inline quizzes to obtain shop-use certification. Met last Friday to develop exact dimensions and angles, along with discuss the contour of the top of the abdominal wall.	2.0	26.5

Project Timeline:

Tasks	February				March				April				May	
	6	13	20	27	6	13	20	27	3	10	17	24	1	8
Meetings														
Advisor														
Client														
Product Development														
Research														
Brainstorming														
Design Prototype														
Order Materials														
Manufacture Prototype														
Testing														
Deliverables														
Progress Reports														
PDS														
Midsemester Powerpoint														
Final Poster Presentation														

Expenses:

- 1 sheet of ABS plastic 24" x 24" x 3/8" thick = \$74.91
- 4 EcoFlex silicone 00-30 trial kits = \$114.68
- Total cost = \$189.59