

Chorionic Villus Sampling- Transcervical Model

Client: Dr. Jesus Iruretagoyena

Advisor: Professor Kreeger

Team Members: Derek Klavas (Leader)
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Week of April 17- April 23, 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:

- Finish the uterine mold
- Meet with Dr. Iruretagoyena to make sure he approves of the mold dimensions
- Pour the Smooth-On EcoFlex material into our model with the help of Greg Gion
- Finish constructing the back piece of the casing

Accomplishments:

- Met with Dr. Iruretagoyena to gain his approval of the size and orientation of the uterine mold
- Finished the uterine mold by coating fast-setting plaster around the existing foam piece
- Met with Greg Gion to pour Smooth-On EcoFlex into the box(with the mold inside)
- Constructed vagina piece out of soft, flexible rubber

Expenses:

- 1 sheet of ABS plastic 24" x 24" x 3/8" thick = \$74.91
- 4 EcoFlex silicone 00-30 trial kits = \$114.68
- Acetone, foam sealant, rubber gloves (for vagina rubber) = \$17.00
- Total cost = \$206.59