Esophageal Stricture Measuring Device

Client: Dr. Reichelderfer
Advisor: Dr. Tompkins
Team Members: William Stanford (Team Leader)
Karissa Thoma (Communicator)
Dan Frost (BWIG)
Allie Finney (BSAC)

Jan. 25-Jan. 31, 2008

Problem Statement

Esophageal strictures form in the esophagus from built up scar tissue caused by stomach acid entering the esophagus. A previous group designed a device that can measure both the volume of the esophagus at the stricture and the tissue compliance. In the Fall of 2007, a team created a LabVIEW program that was able to measure pressure and volume in real time. The device must now be calibrated for use in procedures. This includes generating curves from esophagi and trying to develop a correlation between stricture size and compliance. With this relationship, it will be possible to warn doctors when they are about to perforate the esophagus. With more research, it may also be possible to produce a stress vs. strain curve to aid in perforation prevention. Once sufficient research has been accomplished, the device will need to be redefined to work in a hospital setting. This will include incasing the sensors and a 5V power supply.

Last Week's Goals

- Assign team roles
- Contact client and set up meeting time
- Read past groups papers
- Acquire prototype and new sensor

Summary of Accomplishments

After picking the project, the team assigned team roles. The team also talked with last semester's team so that they could arrange to pick up the prototype and the new sensor that had been ordered. On Thursday, January 31, 2008, the team met with Dr. Reichelderfer at the hospital to discuss last semester's progress and where he would like to see the project go this semester. He specified that he would like to begin generating curves from procedures on humans and said that he would be in charge of writing the IRB protocol for the device. He also gave the team several articles to read on strictures and the diseases that cause them. Dr. Reichelderfer also suggested the team attend medical grand rounds on Friday, Feb. 1 as the topic pertains to esophageal strictures.

Next Week's Goals

- Attend medical grand rounds
- View endoscopy procedures at the UW Hospital

- Set up advisor meeting
- Read articles
- Test new sensor
- Begin work on PDS

Difficulties

None to date

Activities

Name	Activity	Hours
William Stanford	Client meeting, class time	1.5
Karissa Thoma	Client meeting, class time	1.5
Dan Frost	Client meeting, class time	1.5
Allie Finney	Client meeting, class time	1.5