

Title: Hydrocephalus Shunt Valve

Names: Emma Alley, Andrew Miller, Karl Fetsch, Catharine Flynn

Date: 2/3/17-2/9/17

Problem Statement: When the heart beats, it approximately moves blood at a rate of 1000 ml/min. Only about 1 ml/min enters the blood brain barrier and is later reabsorbed. For patients with hydrocephalus, the body's ability to reabsorb the fluid is significantly diminished, causing pressure to accumulate in the skull. In order to decrease the intracranial pressure, hydrocephalus patients must have surgery to insert a shunt valve to allow for fluid drainage. The current valves are not without fault, and fail 40% of the time. The goal of this project is to improve upon mechanical shunt valves by incorporating ambient pressure like in US patent 9526879.

Summary of Team Roles and Accomplishments:

- *Emma Alley, Leader:* Set up meeting times and sent corrected PDS to the client.
- *Andrew Miller, Communicator/BPAG:* Attempted to contacted patent holder over device and schedule client meeting time.
- *Karl Fetsch, BWIG:* No updates to the webpage were needed this week.
- *Catharine Flynn, BSAC:* Meets with BSAC as necessary

Summary of Design Accomplishments: The team has created a design matrix and synthesized a few ideas for how to approach the design.

Activities:

Name	Total Hours	Activities
Emma Alley	3	2/3/17 Meeting with client (25min) 2/4/17 Made corrections to PDS (5min) 2/5/17 Team meeting (1hr) 2/7/17 Read US patent (30 min) 2/9/17 Brainstorming, equation research, and dialysis membrane search (1hr)
Andrew Miller	4.42	2/3/17 Client meeting (25min) 2/5/17 Team meeting (1hr) Reading fall semester team report (1.5 hr) 2/6/17 Attempting to reach patent holder (30min)

Karl Fetsch	2.5	2/3/17 Client meeting (25min) 2/5/17 team meeting (1hr) Research and design (1 hr and 5min)
Catherine Flynn	2.5	2/3/17 Team meeting with advisor (20 min) Team meeting with client (25 min) Located the information about previous team's work (5 min) 2/5/17 Team meeting for design ideas and matrix (20 min) 2/7/17 Read ASTM F647-94(2014) (30 min) 2/8/17 Read ASTM F647-94(2014) (20 min) Met with client to discuss the designs made on 2/5 (30 min)

Statement of Team Goals: The team is planning on finishing up our brainstorming and using the design matrix to pick a final design. We are also planning to create and practice our power point presentation.

Individual Goals:

- *Emma:* Plan how the team should create a power point presentation for the shunt valve designs
- *Andrew:* Contact the client about team meetings
- *Karl:* Update the website as necessary
- *Catherine:* Attend BSAC meetings as necessary.

Difficulties: The team is starting to pick the preliminary design for our presentation. Our difficulties, as to be expected, are picking the right combination of design ideas to accomplish the end goal of the project. By applying our designs to the design matrix and having subsequent meetings with our client, we should overcome these obstacles.

Project Schedule/Timeline:

Week (starts on Fridays)	Goals Before the Start of the Week
February 17	Finalize the ideas, create the design matrix, complete the power point, practice presenting, put power point on the webpage, start the prelim report
February 24	Submit the preliminary report, notebook, and peer evaluations before 4:00PM Wednesday. Finalize design choice.
March 3	Plan out testing procedures, fabrication procedures, and modeling procedures for our design

Expenses: The team has not made any purchases yet.