

**Title:** Hydrocephalus Shunt Valve

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

**Date:** 1/27/17-1/2/17

**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 plan a schedule.
- *Andrew Miller, Communicator/BPAG:* Contacted patent holder over device and (attempting to) schedule client meeting time.
- *Karl Fetsch, BWIG:* No updates to the webpage were needed this week.
- *Catharine Flynn, BSAC:* Met with committee to discuss notebook standards.

**Summary of Design Accomplishments:** The team has done a variety of research on hydrocephalus, finished the progress report, and has started the brainstorming process.

**Activities:**

<b>Name</b>	<b>Total Hours</b>	<b>Activities</b>
Emma Alley	5	1/28 Independent research (1 hrs) 1/29 Team Meeting (2.5 hrs) 2/1 Writing and editing PDS segments (1.5 hrs)
Andrew Miller	4.5	1/29 Brainstorming team meeting (2.5 hours) 1/28 Research on current shunt valves and common malfunctions (1 hr) 2/1 Individual work on PDS (1 hr)
Karl Fetsch	4.5	1/29 Brainstorming team meeting (2.5 hours) 2/1 Research on shunt valve materials (1 hour) Individual work on PDS (1 hour)
Catherine Flynn	4	1/29 Brainstorming team

		meeting (2.5 hours) 1/31 Found Resources through FDA website (5 min) Reviewed ECFR for shunt regulations (25 min) 2/1 Located sections of CFR relating to device classification (20 min) Directly cited FDA standards in notebook and PDS (10 min) Located primary resources for FDA consensus standards (20 min) Recorded FDA consensus standards in notebook and PDS (10 min)
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**Statement of Team Goals:** The Team is planning on doing an extensive patent search for shunt valves to see what already exists. Research on physiology, intracranial pressure and pressure differences on both sides of the shunt valve, and basic fluid properties of CSF needs to be completed.

**Individual Goals:**

- *Emma:* Plan how the team should approach brainstorming shunt valve ideas
- *Andrew:* Contact the client about team meetings
- *Karl:* Needs to upload the PDS to the webpage
- *Catherine:* Attend BSAC meetings as necessary.

**Difficulties:** The team is starting to move into the brainstorming process, and most of the difficulties that we are encountering are how to approach the problem. The biggest of these difficulties is figuring out how to prevent tissues from clogging the shunt valve. We will need to research how other devices or medical instruments avoid this problem.

**Project Schedule/Timeline:**

<b>Week (starts on Fridays)</b>	<b>Goals Before the Start of the Week</b>
January 10	Continue to research as necessary, Brainstorm ideas, create the design matrix criteria

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
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**Expenses:** The team has not made any purchases yet.