Project Title: An airway pressure device for use in an MRI machine

Team Members:
Laura Sheehan - Leader
Jon Cappel – Communications
Noelle Simatic – BWIG
Kevin Johnson – BSAC

Client: Victor Haughton, M.D.
UW Department of Radiology
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Phone: 263-5306
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Advisor: Mitch Tyler

Date: 9/16/05 – 9/22/05

Problem Statement: Our client Dr. Haughton is currently studying CSF flow during Valsalva maneuvers performed by children with Chiari I malformations. Current research suggests that CSF flow decreases during Valsalva maneuvers in these patients. The airway pressure device would help monitor the exhalation force exerted by each child during a Valsalva maneuver in the MR suite. Knowing the pressure exerted by each patient in the study would be extremely beneficial for data analysis and accuracy.

Last Week’s Goals:
- Get website up to date
- Continue background research (Airway pressure devices, Spirometers, Valsalva maneuver, Chiari I)
- Brainstorm and research possible design ideas (Mouthpieces, valves, tubing, nanometers, pressure sensors, monitoring capabilities, etc.)
- Start evaluating design alternatives
- Outline Midsemester Presentation
- Determine section headings for paper and assign individual tasks

Individual Goals:
Laura – Progress report, research anesthesia and ventilation systems
Jon – Research Valsalva maneuver and mouthpieces
Noelle – Work on project website, research Chiari I malformations
Kevin – Research spirometers, other commercially available airway pressure devices, and MR safety regulations

Summary of Accomplishments:
- Made updates to website
- Completed background research and wrote background sections for the final paper
- Brainstormed possible design ideas
- Determined strengths and weaknesses of design alternatives

**This Week’s Goals:**
- Discuss all possible design ideas and components (Mouthpieces, valves, tubing, nanometers, pressure sensors, monitoring capabilities, etc.)
- Divide the design up into components/materials and investigate suppliers, pricing, and features; Each team member will look into different components
- Gather enough information to be able to create a list of what needs to be ordered by Friday, September 30
- Divide up work on PowerPoint for Midsemester Presentation and final paper

**Project Difficulties:** None

**Activities:**
- **Laura** – In-class meeting, progress report, research, work on paper, brainstorming: 4 hours
- **Jon** – In-class meeting, research, work on paper, brainstorming: 4.5 hours
- **Noelle** – In-class meeting, work on project website, research, work on paper, brainstorming: 5 hours
- **Kevin** – In-class meeting, research, work on paper, brainstorming: 4.5 hours

**Team Total Hours for this Week:** 18 hours

**Project Schedule:**

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