

Tracheotomy tube security device

Client: Dr. Timothy McCulloch

Team Members: Katie Pollock (Leader)

Becca Clayman (Communicator)

Kim Safarik (BWIG)

Paul Fossum (BSAC)

February 20 to February 26, 2009

Problem Statement

In patients who have had a tracheotomy performed, a major post surgery problem is discomfort from the tracheotomy collar. The collar must be secured tightly to keep the tracheotomy tube in place so the patient can breathe. However, if the collar is kept at the proper tension, it can cause ulcers on the patient's skin. Our goal is to design a tracheotomy strap that is comfortable, easy to clean, and equipped with monitoring devices to ensure that proper pressure is exerted on the tube and neck.

Last Week's Goals

- Find a better gantt chart
- Finish design matrix after refining ideas

Summary of Accomplishments

- The team met with Prof Thompson on Friday to discuss our ideas for where the project is headed. We plan to take into consideration what our nurse contact said, but in the long run, elaborate our design to create something a little more complex than just a padded strap.
- Each member of the group did additional individual research on various topics of the design. With this information, we were able to judiciously consider all of our ideas and create a comprehensive design matrix to decide on a final design.
- Our group met on Monday 2/23 and drew up the design matrix for each element of our strap. See attached document. We plan on using adjustable but secure straps on the front of our design that resemble the snaps on a baseball hat. For the strap material, we plan on using backpack mesh, or something like it. For the back pressure design, we plan on using a water filled pouch that has a one way valve to automatically adjust for pressure.

- The team also divided the project into portions for presenting. Becca will be doing the background. Katie will be doing the design and matrix for the front strap connections. Kim will be doing the back pressure design and matrix. Paul will be doing the strap and matrix, final design selection (compilation of previous presenters conclusions) and future work for the project.

This week's goals

- Assemble a powerpoint for our presentation.
- Produce detailed drawings of each design element that we can scan in and put in the presentation (if not hand drawn, complete with paint, powerpoint, or some other computer application).
- PRACTICE for the presentation.

Project Difficulties

None to report at this time. We must budget our time wisely this week to make sure we finish everything before the presentation next week.

Activities –Team total should be added to each individual total

Member	Activity	Hours	Cumulative
Katie Pollock	Progress Report New gantt chart	.25 .5	3
Becca Clayman			1.25
Kim Safarik	Update Website	.25	1.25
Paul Fossum			1
TEAM	Met with advisor Individual Research Assembled and completed design matrix to select final design	.5 1 1.5	12.325

Project Schedule

Number	Task	Start	End	Duration	1/23	1/30	2/6	2/13	2/20	2/27	3/6	3/13	3/20	3/27	4/3	4/10	4/17	4/24	5/1	5/8	
1	Assign teams and duties	1/23/09	1/24/09	1	█																
2	Research project statement and contact client	1/23/09	1/30/09	7	█	█															
3	Initial Brainstorming	1/30/09	2/13/09	14		█	█	█													
4	Client meeting, obtained basic materials	2/4/09	2/5/09	1			█														
5	Refined brainstorming	2/5/09	2/21/09	22			█	█	█	█											
6	PDS	2/13/09	2/20/09	7				█													
7	Design Matrix	2/21/09	2/27/09	6					█												
8	Select final idea	2/27/09	2/28/09	1						█											
9	Work on mid-semester presentation	2/27/09	3/6/09	7						█											
10	Mid semester report	2/6/09	3/13/09	7							█										
11	Mid semester presentation	3/6/09	3/7/09	1								█									
12	Order materials	3/7/09	3/14/09	7									█								
13	Spring Break	3/14/09	3/22/09	8										█							
14	Fabrication of strap	3/23/09	4/10/09	18											█	█	█	█			
15	Comfort testing/safety	4/10/09	4/11/09	1																	
16	evaluation	4/17/09	4/24/09	7																	
17	Redesign	4/21/09	4/25/09	1																	
18	Final testing	4/21/09	4/25/09	1																	
19	Final presentation	4/27/09	5/1/09	4																	
20	Report	5/2/09	5/8/09	6																	

We are currently ahead of schedule and working on preparing our presentation. Attached is the excel file, this image came out fuzzy.

Expenses

None incurred at this time