

Dear all,

This week our team met to discuss our initial brainstorm design ideas. We discussed two possible solutions, both of which are described in the SciNote weekly report PDF and are hand drawn in the attached design_ideas.jpg. One solution involves a balloon structure that can be inflated with a liquid such as saline, with a structure in the middle that allows airflow. A second solution involves a claw-like structure that would hinge on the back of the trachea with a piston/motor to expand it against the scar tissue. We recognize our need for design criteria in which to weigh our design ideas against each other. Before our next group meeting, each individual member will be brainstorming all possible design criteria to consider for our design, as well as other possible device design ideas. Our thoughts on these topics will include consideration of Dr. Yin's and Alison's feedback in our preliminary report and presentation.

Sincerely,

Brian Dallesasse, Kyle Sachdev, Taylor Hughes

Project created on 06.09.2016 02:03.

Report for project Senior Design

Task created on 03.11.2016 18:48.

Design Ideas Meeting 1

No due date

All members present.

Task tags: *No tags*

 Design Hand Drawings [*design_ideas.jpg*]

Uploaded by Brian on 03.11.2016 19:38.



* Group Design Idea Brainstorm Created by Brian on 03.11.2016 19:27.

Next steps Design criteria Basis for how much we are going to expand device 10 mm in its smallest size (via client, will do more background research to verify) male w/ fairly severe stenosis length of time each device would need to stay in trachea for

Ideas

1. Expandable balloon fill w/ saline - syringe to fill/empty the fluid) cylindrical ring inside of balloon that stays a constant size to allow airflow device to control syringe sits on body somewhere Lip on outside top part of balloon to affix device to cartilage and prevent slippage This is a current problem in surgical balloon procedures
2. "Claw" like structure with a hinge on back of trachea cut made in scar tissue with CO2 laser (current practice) claw expands and tissue heals at larger diameter motor/piston on inside to expand the device

For next week: Design criteria for pugh chart (each person brainstorms individually before meeting)

Activity of task Design Ideas Meeting 1

03.11.2016 18:48 *Taylor Hughes* created task **Design Ideas Meeting 1**.

03.11.2016 18:55 *Taylor Hughes* created Step 1 **Design Ideas**.

03.11.2016 19:27 *Brian* added text result **Group Design Idea Brainstorm**.

03.11.2016 19:38 *Brian* added file result **Design Hand Drawings**.

03.11.2016 19:43 *Brian* created Step 2 **Brainstorm notes**.

03.11.2016 19:44 *Brian* changed task **Design Ideas Meeting 1**'s description.

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🔹 Samples of task Design Ideas Meeting 1

No samples