

Title: Emergency Cricothyroidotomy

Date: February 22nd, 2024

Client: Dr. Lenard Markman

Advisor: Darilis Suarez-Gonzalez

Team:

Katerina Smereka

Zac Mayhew

Megan Finell

Mateo Silver

Problem statement

Every year in the United States over 5,000 people die due to choking. There are only a few precious minutes between loss of the airway and brain death. By creating a device which can establish an airway in case of blockage (either caused by choking or anaphylaxis), many of these people could be saved. Crucial to the success of the device is its availability. The device will be low-cost and easy to use, so it can be added to first aid kits and placed in public areas. Unlike current devices on the market, which are expensive and difficult to use, our product aims to be accessible when emergencies occur.

Brief status update

The team had a consultation with the TEAMLABS on how to make the device sharper. Two directions will be pursued: one which directly machines the current device and another which changes the fabrication protocol. The team is eager to test and hope that the new device will be sharp enough for testing.

Difficulties / advice requests

None to report

Current design



Materials and expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
Semester 1 Expenses										
All expenses									\$29.67	
Semester 2 Expenses										
Porcine Skin		N/A		Asian Midway Market		2/10/2024	1	2.97	\$2.97	
									\$2.97	
								TOTAL:	\$32.64	

Major team goals for the next week

1. Resharpen the device and retest

Next week's individual goals

- Katerina
 - Sharpen device in TeamLab
 - Complete airflow testing
 - Deliver preliminary reports

- Zac
 - Help with sharpening device in Teamlab
 - Test sharpened device
 - Finish section of preliminary report
- Megan
 - Help with fabricating sharper point in TEAM lab
 - Test if sharpened device punctures pig skin
 - Discuss airflow testing and method/protocol with team
 - Complete my sections of preliminary deliverables
- Mateo
 - Help with fabrication in TEAM lab
 - Test sharpened device
 - Preliminary deliverables

Timeline

Task	Jan	Feb				March					April				May	
	26	2	9	16	23	1	8	15	22	29	5	12	19	26	3	10
Project R&D																
Empathize	X	X	X	X	X											
Background...	X	X	X	X	X											
Prototyping				X	X											
Testings				X												
Deliverables																
Progress Reports	X	X	X	X	X											
Prelim presentation			X													
Final Poster																
Meetings																
Client		X														
Advisor	X	X	X	X	X											
Website																
Update	X	X	X	X	X											

Filled boxes = projected timeline

X = task was worked on or completed

Previous week's goals and accomplishments

- Katerina
 - Create a functional redesign that allows for a sharper edge of the distal end
 - Design a cap
- Zac

- Finalize new design idea
- Begin creating a protocol for airflow testing
- Megan
 - Research ways to test airflow volume through the device
 - Investigate possible redesigns and/or ways to sharpen the tip of our design
- Mateo
 - Research how we can improve our design so it can cut more easily

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Katerina	2/21	Meeting with teamlab	1	1	7.5
Zac	2/21	Meeting with teamlab	1	1	9.5
Megan	2/21	Design consultation with TEAM lab	1	1	8.5
Mateo	2/17 2/21	Additional design research Design consultation	2 1	3	12