

Title: Emergency Cricothyroidotomy

Date: April 11, 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 is repeating testing this week. All animal models have been acquired and proper fixation devices have been designed. All testing protocols have been properly updated. The sample size of this next round of testing is 5 larynges.

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	Tissue sample to be used in testing of the prototype.	N/A		Asian Midway Market		2/10/2024	1	2.97	\$2.97	
Porcine larynx/trachea	Tissue samples to be used in testing of the prototype.	N/A		USDA UW Madison Meat Plant		4/8/2024	5	15	\$75	
								TOTAL:	\$107.64	

Major team goals for the next week

Next week's individual goals

- Katerina

- Begin preparing preliminary deliverables
- Zac
 - Test handle design
 - Revise and make safety cap for device
- Megan
 - Complete outreach documents
 - Finish all testing
 - Begin working on final deliverables
- Mateo
 -

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	X	X	X	X	X	X					
Background...	X	X	X	X	X	X	X	X	X	X	X					
Prototyping				X	X											
Testings				X												
Deliverables																
Progress Reports	X	X	X	X	X	X	X	X	X	X	X					
Prelim presentation			X			X										
Final Poster																
Meetings																
Client		X														
Advisor	X	X	X	X	X	X	X	X	X	X	X					
Website																
Update	X	X	X	X	X	X	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 successful protocol that allows for adequate tension of the animal tissue
 - Test the device for multiple layers
- Zac
 - Finalize handle device
 - Test the device on new samples
- Megan

- Obtain the pig tracheas/larynges (and hopefully pig skin as well)
- Help create a way to effectively test multiple layers of tissue together
- Test the device on new samples
- Mateo
 - Brainstorm method of affixing tissue for testing
 - Conduct final porcine testing

Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Katerina	4/10	Research fixation devices that other literature has done	1	1	26
Zac	4/8 4/11	Pick up porcine larynges Updated handle and 3d printed	1.5 2		23
Megan	4/5 4/5 4/7 4/9 4/11	Write funding request document and email Dr. P Confirm details about pick up with Dillon Confirm and set up funding string Edit and submit WARF idea disclosure Help create testing fixation device	2 0.5 0.5 1 1	5	29.5
Mateo	4/8 4/11	Procure porcine larynges Create testing fixation device	1.5 1	2.5	24.5