

# **Title: Emergency Cricothyroidotomy**

Date: April 25, 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 has redone testing and had success in puncturing the porcine skin with the cricothyroid membrane underneath. The team hopes to do some more 'relevant' testing and mimic the environment that the device would be used in to test for time it takes to use the device. Currently, data analysis on the puncture wound is undergoing to better understand the damage left by the device.

## **Difficulties / advice requests**

None to report

## Current design



## Materials and expenses

Item	Description	Manufacturer	Mft Pt#	Vendor	Vendor Cat#	Date	#	Cost Each	Total	Link
<b>Semester 1 Expenses</b>										
All expenses									\$29.67	
<b>Semester 2 Expenses</b>										
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	3	15	\$45	
Porcine Skin	Tissue sample to be used in testing of the prototype.	N/A		Asian Midway Market		4/11/2024	1	2.97	\$2.97	
Porcine Skin	Tissue sample to be used in testing of the prototype.	N/A		Asian Midway Market		4/23/2024	1	2.97	\$2.97	
								<b>TOTAL:</b>	\$83.58	

# Major team goals for the next week

The team hopes to conclude testing and begin working on final deliverables

## Next week's individual goals

- Katerina
  - Complete final deliverables
  - Update notebook
- Zac
- Megan
  - Complete final deliverables
  - Update notebook with all testing and receipts
- Mateo
  -

## Timeline

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

- Complete situational testing for device
- Work on final deliverables
- Zac
  - Complete timing test for device
  - Work on final deliverables
  
- Megan
  - Work on final deliverables (poster, presentation, testing analysis, etc)
  - Complete final skin testing
- Mateo
  - Work on final deliverables

## Activities

Name	Date	Activity	Time (h)	Week Total (h)	Sem. Total (h)
Katerina	4/19	Team Meeting to discuss poster	1	7	40.5
		Created final deliverables	0.5		
	4/21	Work on assigned part of poster	0.5		
	4/23	Thaw larynges	1		
		Timing Testing	1.5		
	4/24	Data analysis, statistical analysis	1		
	4/24	Poster rehearsal with team	1		
	4/25	Edit poster	0.5		
Zac	4/19	Team meeting	1	4	30.5
	4/22	Work on poster	1		
	4/23	Timing testing	1		
	4/24	Rehearsal	1		
Megan	4/19	Team meeting to discuss deliverables	1	5.5	40
	4/23	Worked on assigned part of poster	1		
		Timing testing	1.5		
	4/24	Poster rehearsal with team	1		
	4/25	Practice presentations for Friday	1		
Mateo	4/19	Team meeting to discuss deliverables	1	12	42
	4/20	Worked on part of poster	1		
		Commercialization research	1.5		
		Packaging design and printing	6		
	4/23	Timing testing	1		
	4/24	Poster rehearsal with team	1		
	4/25	Print poster	0.5		