

# Emergency Cricothyrotomy Training For Non-Surgeons

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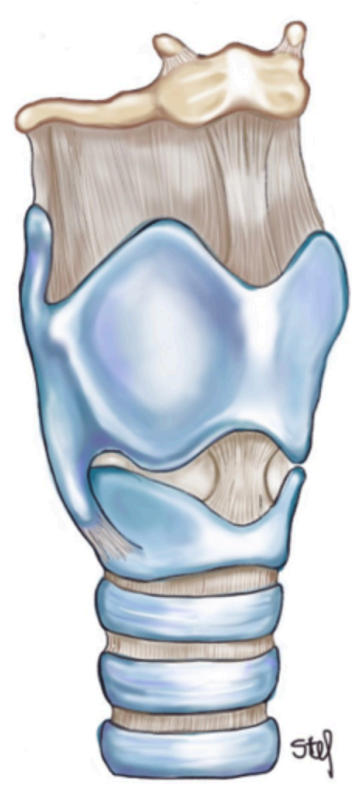
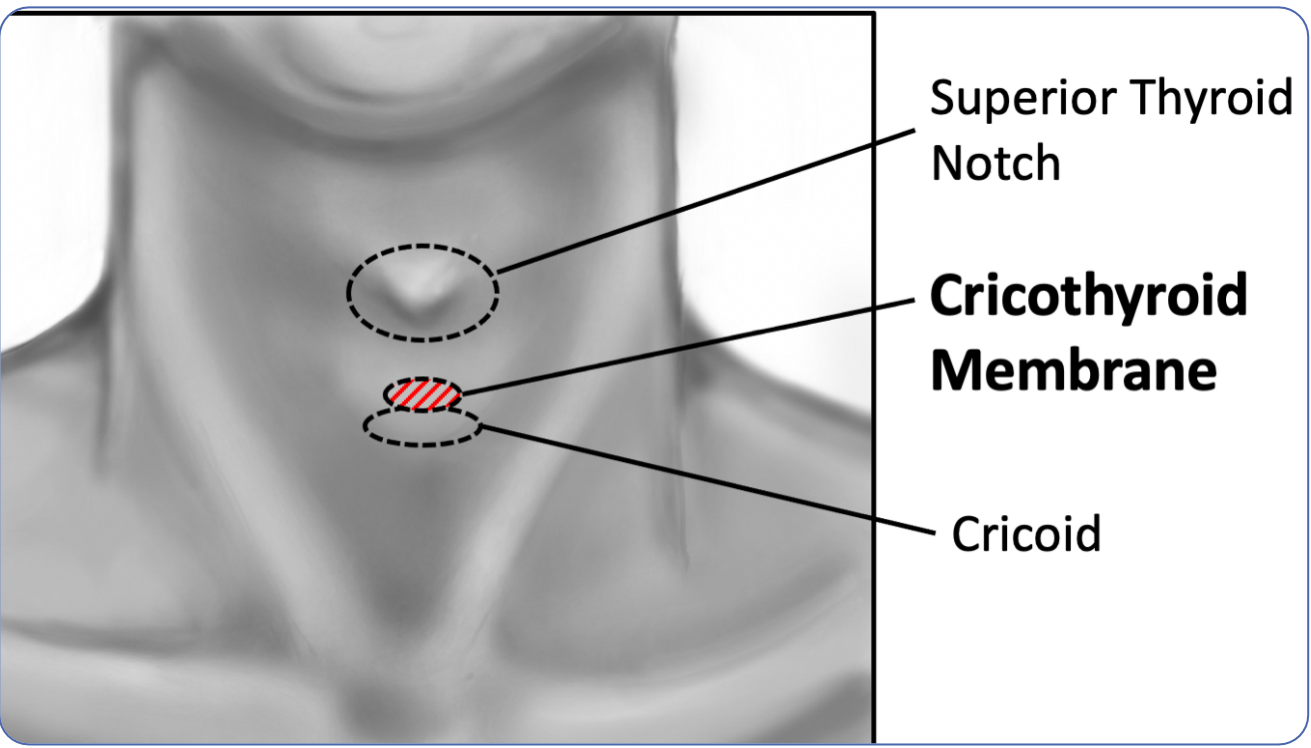
## Project Overview

Cricothyrotomies are life-saving procedures that are infrequently performed in emergency and critical care settings when other forms of intubation are not possible

Limited access to **cadaveric** training for many residents, fellows, attendings

Most training is done in Sim labs on pig tracheas or synthetic materials

Cadaveric training is superior for **tissue** and **landmark fidelity**<sup>1</sup>



## Methods

We implemented a novel training program with cadaveric donors from anatomy programs on Anschutz medical campus

- Expands impact of anatomy donors' gift without interfering with medical training
- Goal to be a sustainable on-campus educational program

Participants: Critical Care (CC) fellows and attendings

- Responded to **pre-survey**:
  - Level of experience with performing cricothyrotomy
  - Subjective anxiety/confidence
- Responded to **post-survey**:
  - Subjective anxiety/confidence after video and training

Reviewed endoscopic recordings for:

- Instrument **excursions** beyond tracheal midplane
  - Associated with incr risk of damaging posterior trachea
- Procedure duration**, or Puncture-to-Tube Time (PTTT)
  - One study considered successful if performed <40s<sup>4</sup>
- Any **aberrancies** in procedure

## Enhanced Curriculum

We hypothesized that the enhanced curriculum improve subjective value and objective training quality of cadaveric session

- Opportunity to perform two techniques
  - Scalpel-bougie-6.0 ET tube** and **Seldinger kit**
- Educational **training video**<sup>2,3</sup>
- Endoscopic** visualization of trachea
  - Allowed participants to review their technique
- Multidisciplinary team and **live coaching**
  - ENT and ED physicians

## Survey Results

100%

Survey response rate

30%

Previous cadaveric experience

Helpfulness

90%

Rated session as "very helpful"

Confidence

80%

Changed from "slightly confident" to "moderately confident"

Anxiety

40%

Indicated reduction in anxiety



## Conclusion

Cadaveric cricothyrotomy training enhanced with a training video, endotracheal endoscopy, and expert coaching results in **improved confidence**, **rapid procedures**, and **refined technique** that may help avoid real-life complications



## Endoscopy Results

20

Endoscopic recordings analyzed

Excursions

1

Trocar needle hit posterior tracheal wall

2

Scalpels passed midpoint of tracheal lumen

PTTT

Range:

15-83s

Mean PTTT:

29.2±1

2.7s\* outlier

excluded due to extended coaching mid-procedure

Aberrancies

1

Bougie placed parallel to the trachea but not within it

## References

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- David T. Wong, Atul J. Prabhu, Margarita Coloma, Ngozi Imasogie, Frances F. Chung; What Is the Minimum Training Required for Successful Cricothyroidotomy?: A Study in Mannequins. *Anesthesiology* 2003; 98:349–353 doi: <https://doi.org/10.1097/00000542-200302000-00013>