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Surgical Airway and Difficult Airway Algorithm

Part of Airway Management Module

Airway Module: A4-2

This project was possible due to funding made available by Health Workforce Australia

HealthWorkforce AUSTRALIA

An Australian Government Initiative

NSW GOVERNMENT Health

Sydney Clinical Skills and Simulation Centre

HETI HEALTH EDUCATION & TRAINING INSTITUTE

THE UNIVERSITY OF SYDNEY

Sponsor

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Introductions

General Aims

- Learn in a team setting
- Blend clinical skills with team skills
- Reflect critically on practice

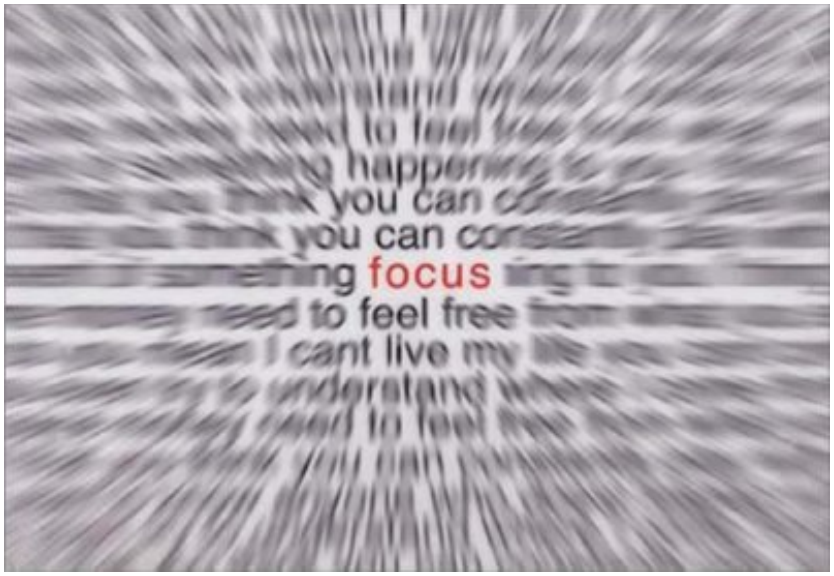
Ground Rules

- Participation
- Privacy
- Confidentiality
- Disclaimer
- Debriefing
- Mobile phones

Session Objectives

- To review the difficult airway algorithm
- To rehearse the use of
  - the melker kit and
  - the bougie assisted cricothyroidotomy
- To practice crisis resource management skills required for a structured team approach

Patients don't die from failure to intubate……they die from failure to oxygenate.



DON'T GET FIXATED ON THE PLASTIC

Emergency Department Airways

- Assessment
  - History
  - Examination
    - Look
    - Listen
    - Feel
  - Difficulty
    - BOOTS
    - LEMON
  - Available Skills

Management Options

- Simple airway maneuvers
- Nasal Prongs
- Oxygen Masks – variable and fixed
- Airway Adjuncts
- Bag Valve Masks
- Non-Invasive Ventilation
- Laryngeal Masks
- Intubation – 7 P's
- Surgical Airway

ED Intubation Checklist

Team

- ☐ ED Consultant aware of RSI?
- ☐ Out-of-hours, if difficulty anticipated, anaesthetics contacted?
- ☐ All members introduced by name & role and each briefed in turn by TL
- ☐ Difficult intubation plan briefed?
- ☐ Difficult airway trolley at hand?
- ☐ Anticipated problems – does anyone have questions or concerns?

Patient

- ☐ Pre-oxygenation optimal?
  - Add nasal prongs or NIV
- ☐ Patient position optimal?
- ☐ Patient haemodynamics optimal?
  - Fluid bolus?
  - Pressor?
- ☐ Does it look like it might be difficult:
  - Difficult BVM?
  - Difficult laryngoscopy?
  - Difficult cricothyroidotomy?

IVI/Drugs

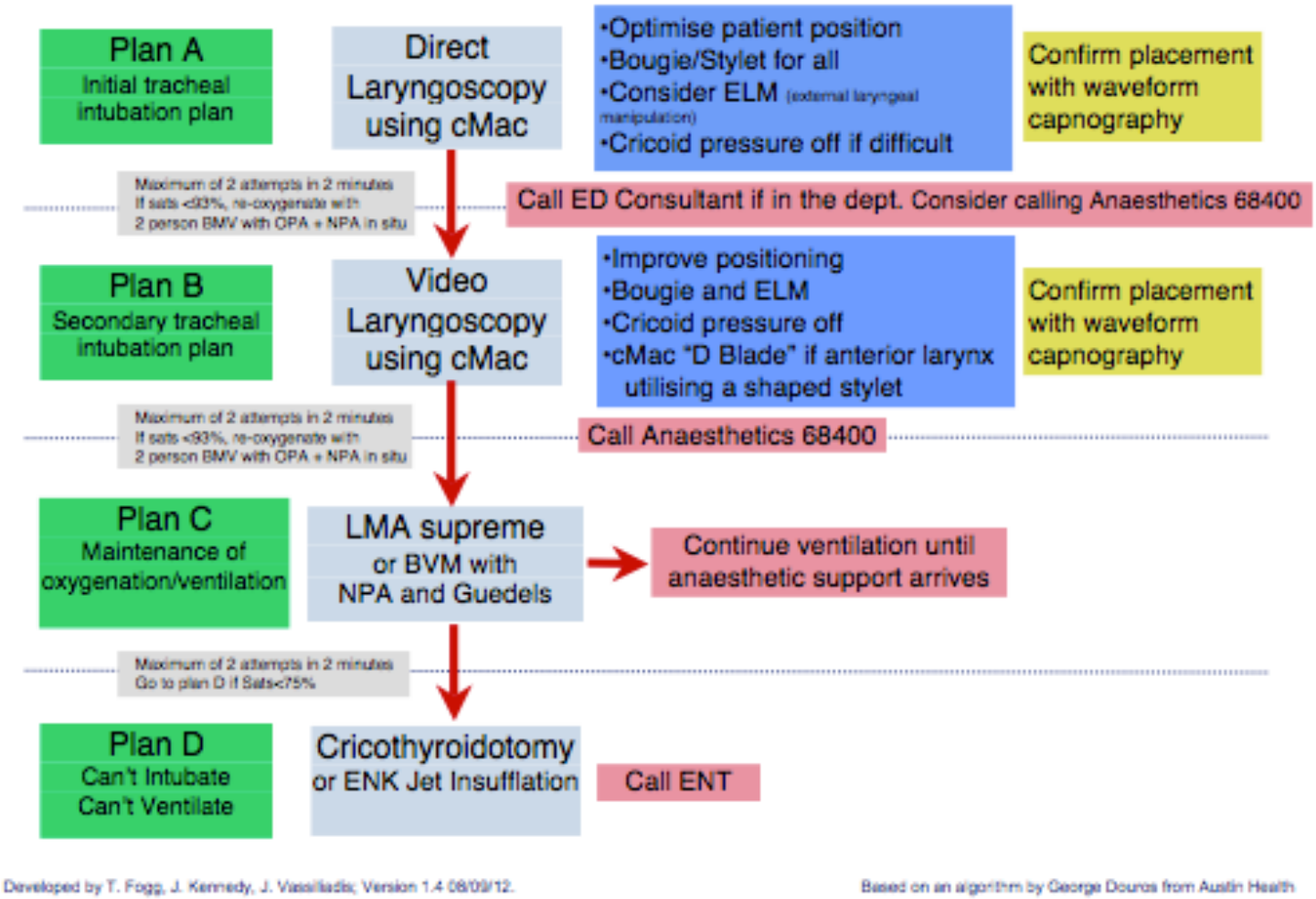
- ☐ Fluids connected, runs easily?
- ☐ Spare IVC?
- ☐ Monitor: ECG, BP, SaO2.
- ☐ RSI drugs drawn up, doses chosen?
- ☐ Post-intubation anaesthesia plan - drugs drawn up?

Equipment

- ☐ Suction working?
- ☐ BVM with ETCO2 connected
- ☐ OPA and NPA available?
- ☐ 2 x laryngoscopes working? Correct blade size?
- ☐ Tubes chosen, cuff tested
- ☐ Bougie or stylet in tube?
- ☐ Tube tie or tapes ready?
- ☐ Ventilator circuit available?
- ☐ LMA sized & available?

Version 1.2
Developed by T Fogg, J Kennedy and J Vassiliadis, RNSH ED 20/04/2012

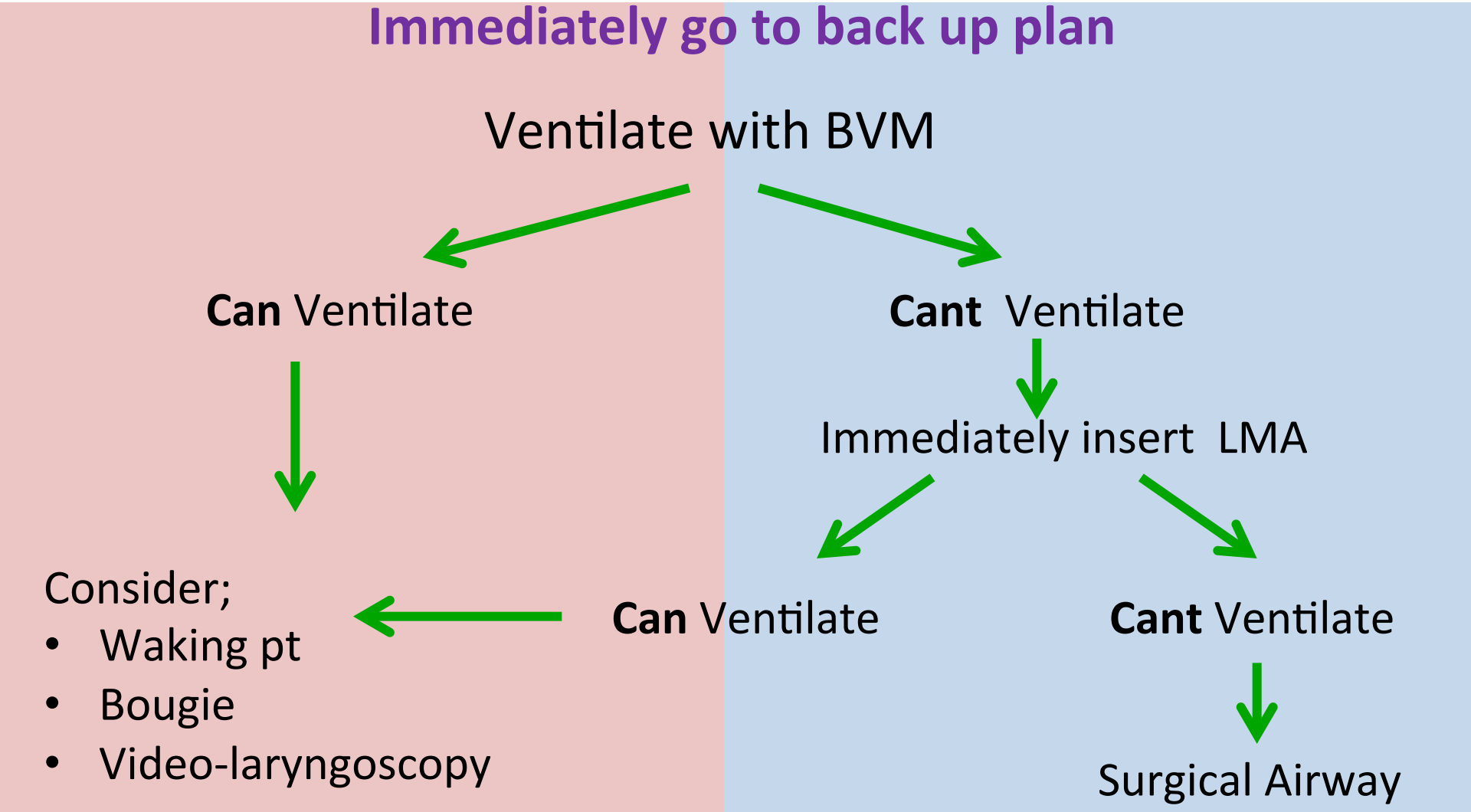
RNSH Emergency Department Airway Algorithm



Developed by T. Fogg, J. Kennedy, J. Vassiliadis; Version 1.4 08/09/12.

Based on an algorithm by George Douros from Austin Health

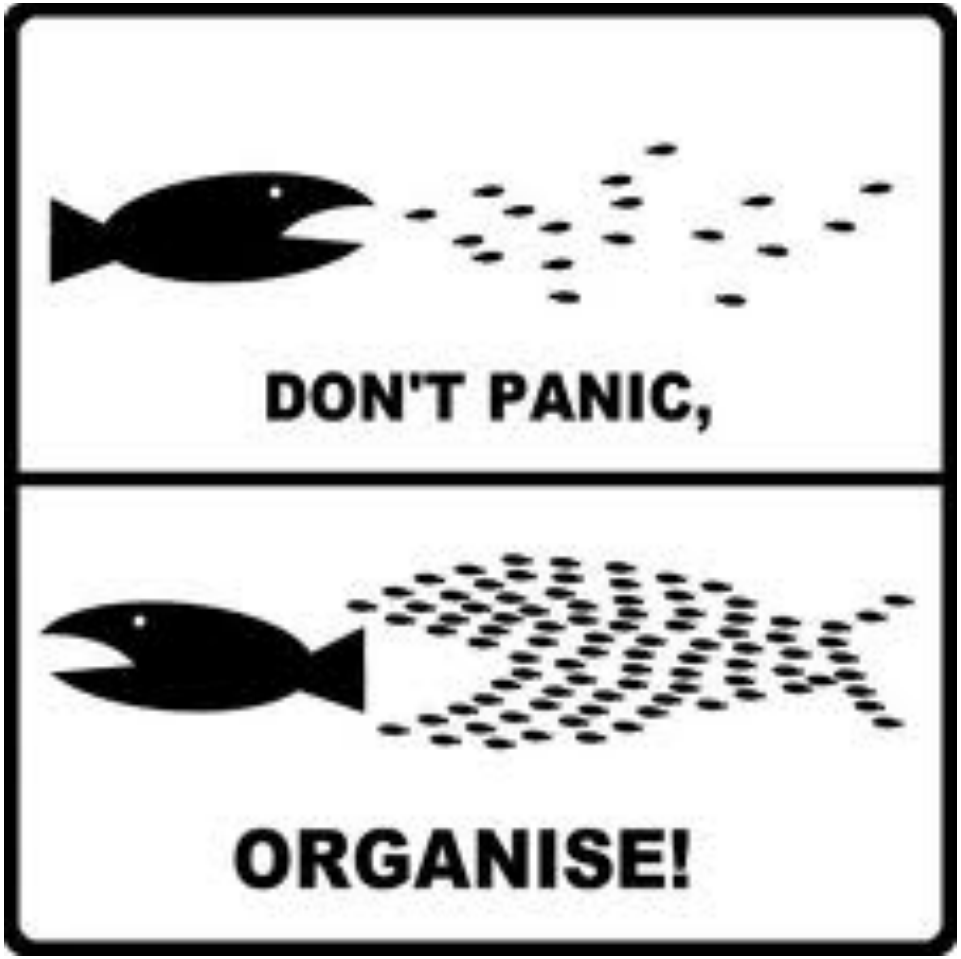
Failed intubation



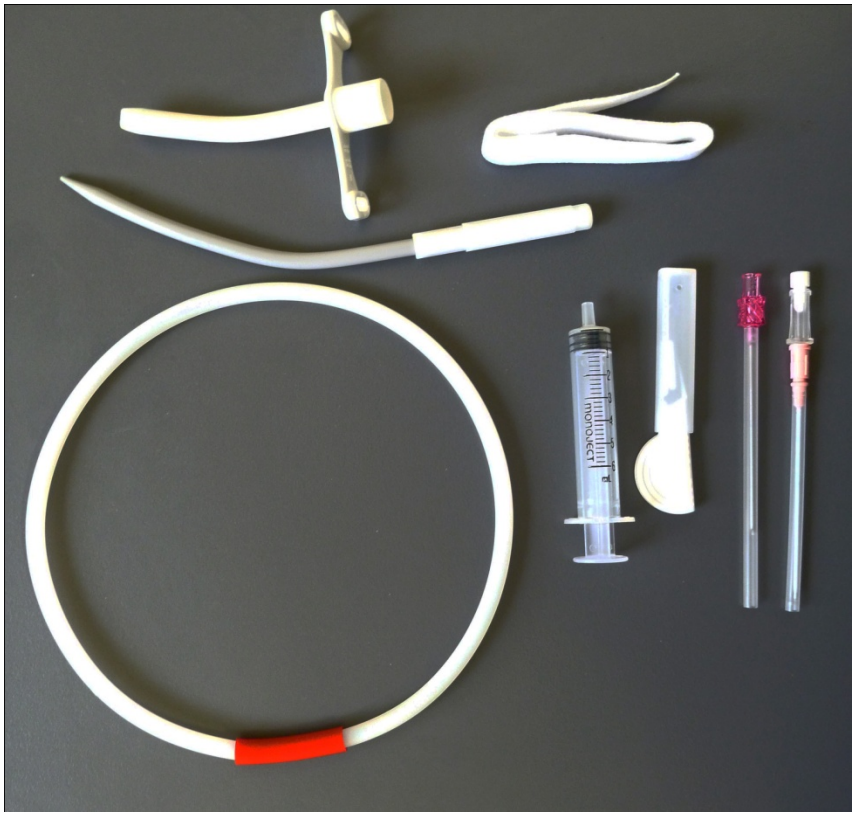
Can’t intubate, can’t ventilate

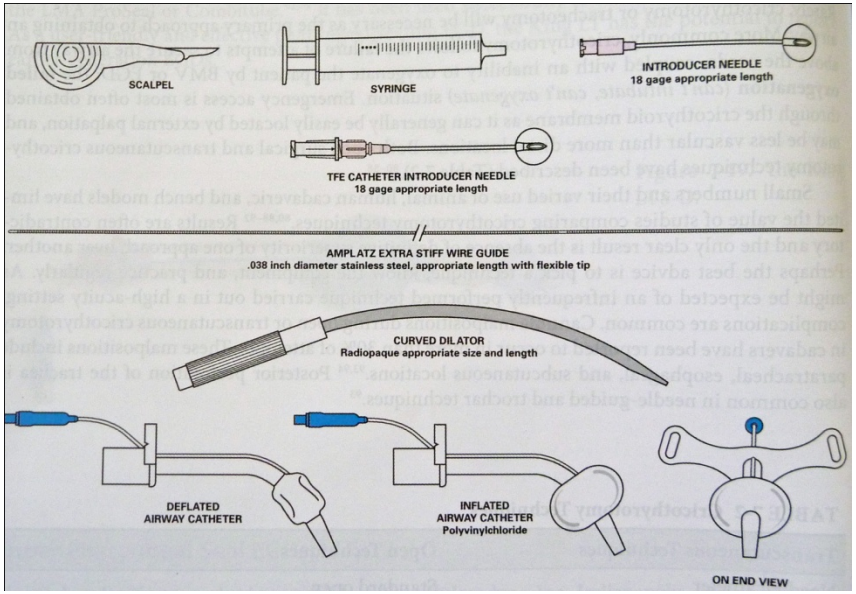
=

Surgical airway


DON'T PANIC,
ORGANISE!

Melker cricothyrotomy catheter set

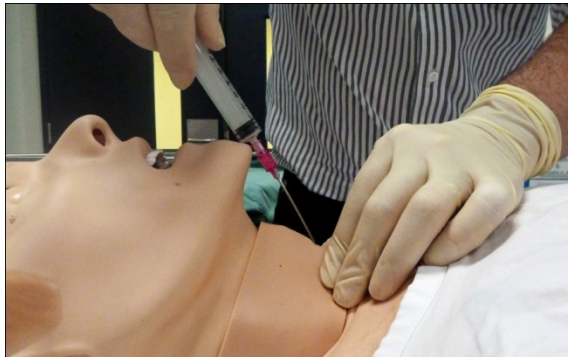


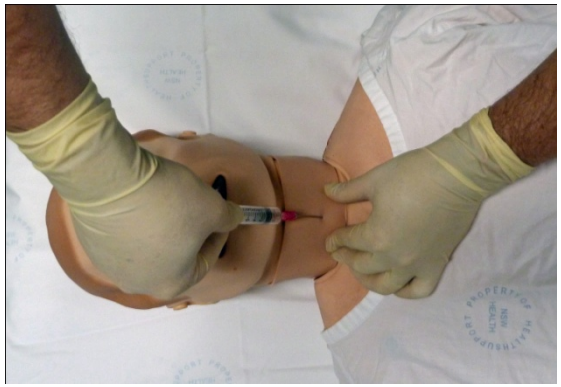


Insertion

Identify the cricothyroid membrane.

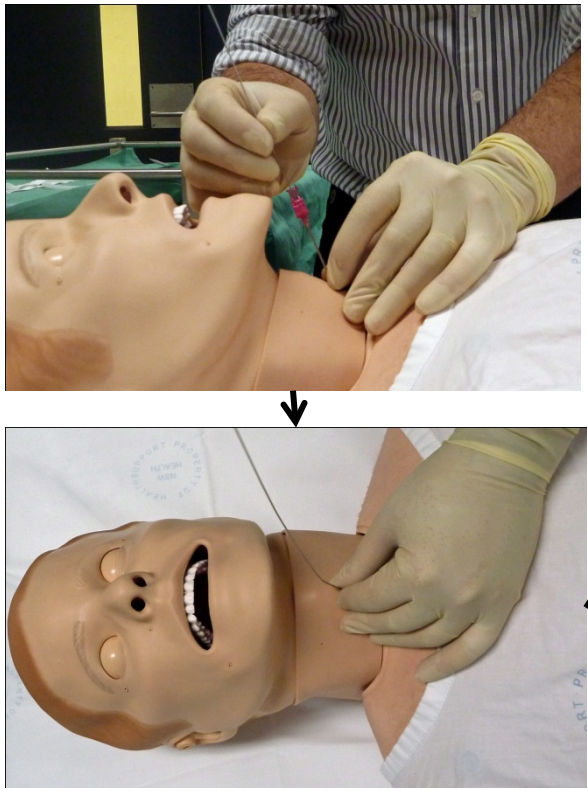
Enter the cricothyroid membrane with the cannula.





Insertion

Once you are in the airway place wire down the needle.

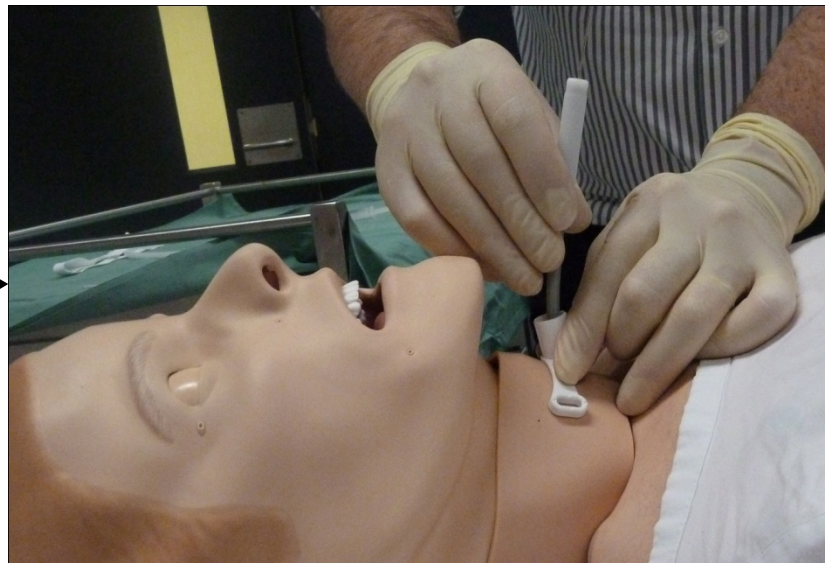


Make an incision away from the wire.

Insertion

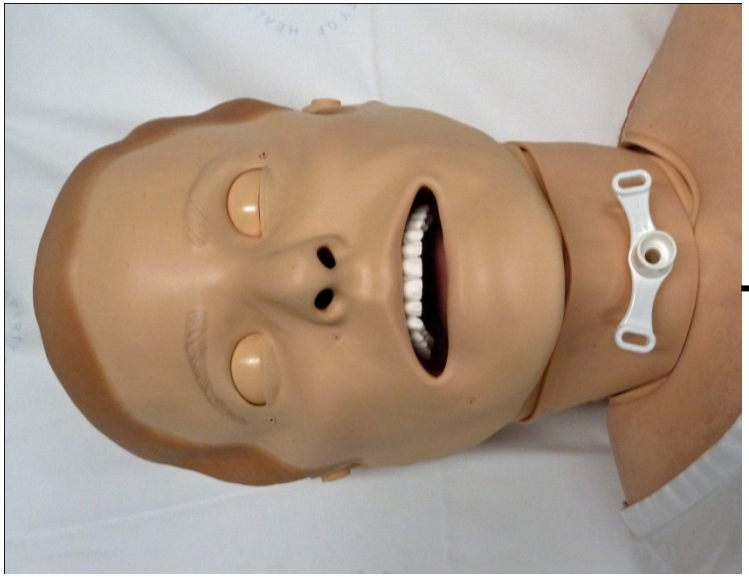
The dilator and cannula are advanced over the wire into the airway.

The wire and the dilator are removed leaving the cannula in place.



Insertion

The cannula now sits flush and is in the airway.

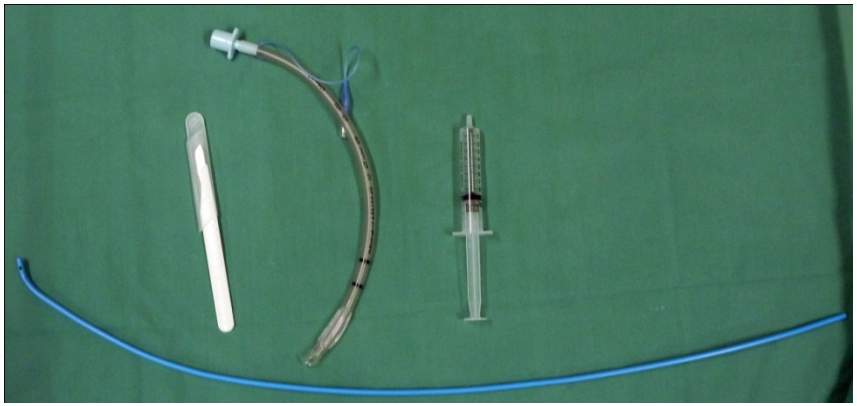


Secure it using tape supplied and ventilate the patient.

Melker cricothyrotomy video

Now--- the bougie assisted cricothyrotomy

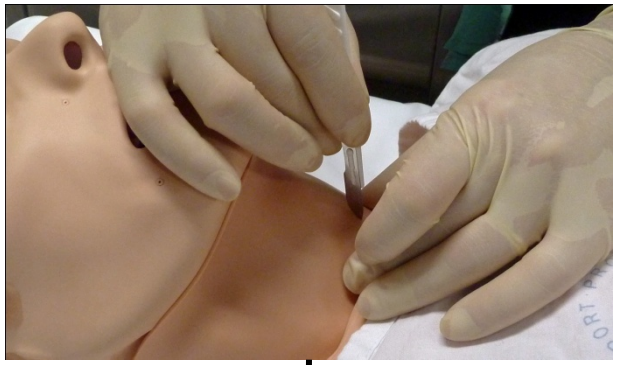
Equipment required

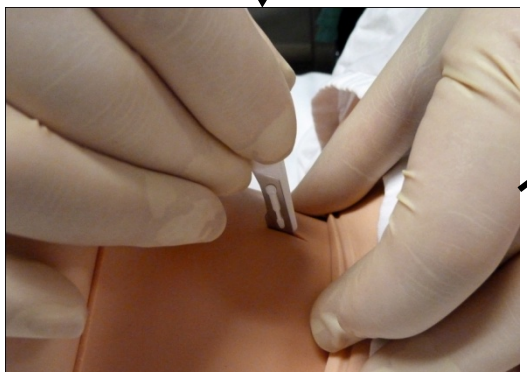


Again identify the cricothyroid membrane.

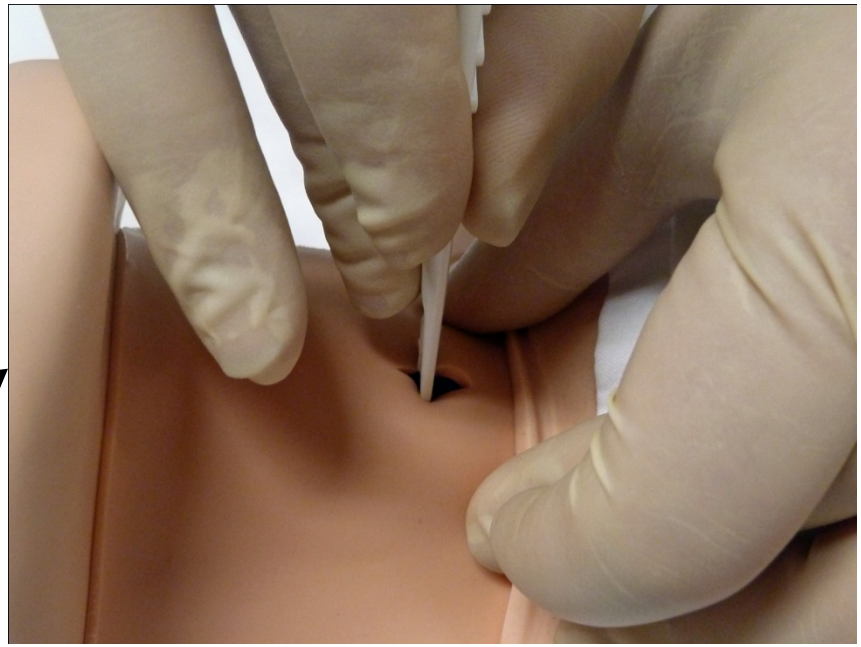
Insertion

First a vertical incision over the cricothyroid membrane.



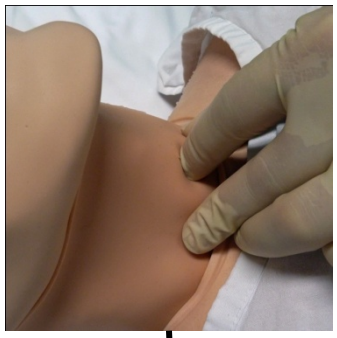


Then rotate and puncture the membrane horizontally.

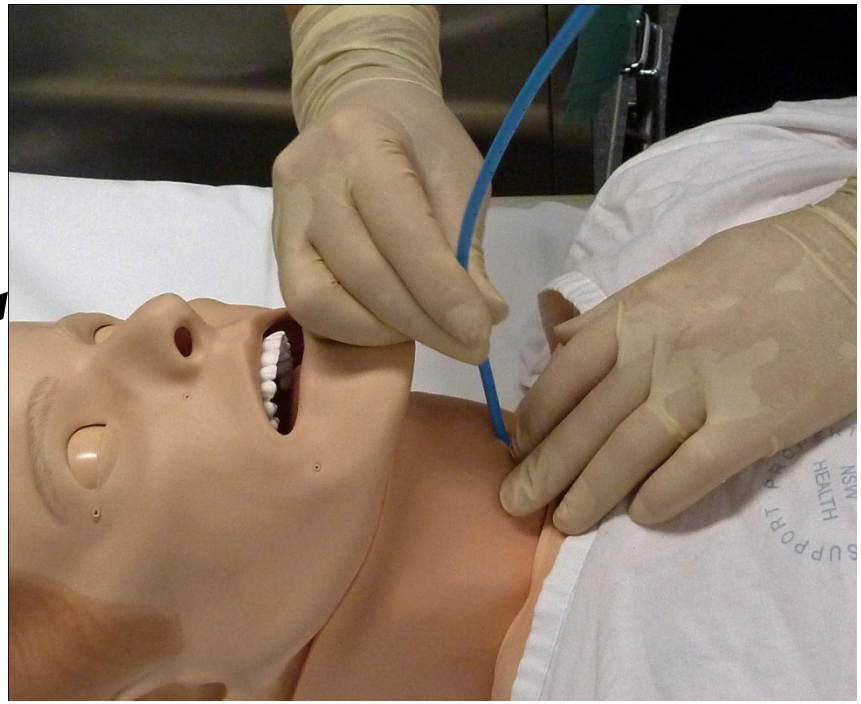


Insertion

Place your finger in the opened membrane and then guide in the bougie.



Advance the bougie.



Insertion

The ETT is railroaded over the bougie into the airway.

Bougie removed, Cuff inflated the patient can be ventilated.

Bougie assisted cricothyrotomy

Scenario

- Harrison Ford, 44 year old man

  Presents with increasing shortness of breath and cough, having had a fever for the past 4 days. Past history of stable angina and is a heavy smoker.

  He has a cannula in situ and is triaged category 2 to the resuscitation bay.

Scenario

- Mickey Rourke, 34 year old male
  - Please take the IMIST AMBO handover from the paramedics

In Summary…

- Importance of a structured approach to assessment and management of patients with a difficult airway using an algorithm
- There are effective, rapid surgical options to gain an airway in the situation where you "can't intubate, can't ventilate.
- Importance of non-technical skills.

References

- Heard et al. The formulation and introduction of a can't intubate can't ventilate algorithm into clinical practice. Anaesthesia, 2009, 64:601-608
- Henderson et al. The Difficult Airway Society guidelines for management of the unanticipated difficult intubation. Anaesthesia 2004, 59:675-694
- Carley et al. Rapid sequnce induction in the emergency department: a strategy for failure. Emergency Medical Journal 2002: 19:109-113

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