"....very enthusiastic and motivating, good content and engaging presentations!"

"very comprehensive and helpful for anybody who wants to start anaesthetics..'

'very good course, physiology teaching was highly relevant..'

read the BMJ review of the ICU course.....

WEBSITE GOOGLE 'UCL INTRO TO ANAESTHESIA'- BOOKLET

Sat 10th July 2021 online	**Venue: Live on Zoom link** https://ucl.zoom.us/j/92668561485?pwd=VWIrOVdrUmVJUW0rWjdmNHAzL2hKQT09 Meeting ID: 926 6856 1485 Passcode: 919625 **See our sister ICU Course the previous day.** **If you need a certifictae please pay on line** - you just need to register - takes 1 min Download our bookelt intro_to_anaesthesia_course_-_2021booklet.pdf
Current Programme 2021	0850- 0900 Register **Zoom info** TBA 0900 Welcome and Introduction: **Drs Rob Stephens, Mo Khaku, Anita McCarron, Hannah Bkyar** 0900 **Airway : Dr Rob Stephens** airway_.pdf 1000 **Breathing: Dr Adam Hunt**

What this is and isn't

So you have

- heard of the key issues
- a framework to think about the problems & solutions
- more confidence or know more about it….

We **can't teach you everything** about Anaesthesia

Certificate

Course booklet

Talks on website for next few weeks.

We hope to record sessions

An Introduction to Anaesthesia

CPOM UCL
Centre for Perioperative Medicine

the centre for Anaesthesia UCL

Airway
Key stuff to know!

DR ROB STEPHENS
Consultant in Anaesthesia
Associate Professor UCL

Thank you to
Dr Mark Lambert

Airway

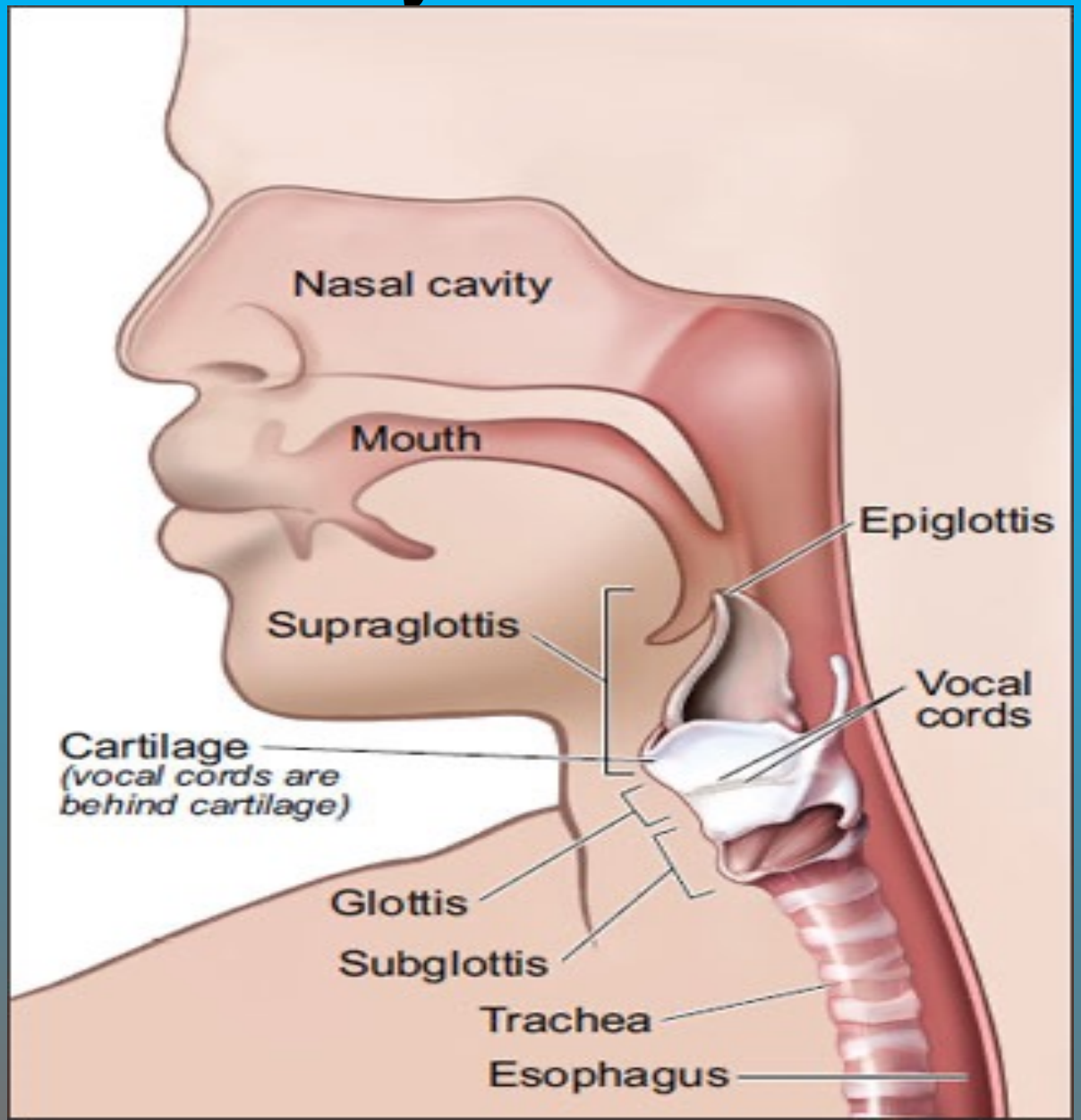
- Because it all starts with ‘A’
- Because we’d die without one
- Anaesthetists are slightly obsessed with airways
- Any hint of an “airway” problem means = call an anaesthetist !
- Most airways are easy… if we follow a pattern


SOUTHERN STYLE
LEX18.COM
BIG STORY
18
NEWS
MAN FORCED TO EAT BEARD
ANDERSON COUNTY

Here's what I hope you might learn

- Airway anatomy for us- lips to carina
- Why might it be a problem ?
- How can we measure if it's OK ?
- How can we deal with an obtunded airway ?
- A basic framework for managing the airway
- I'll show you airway kit after the talk

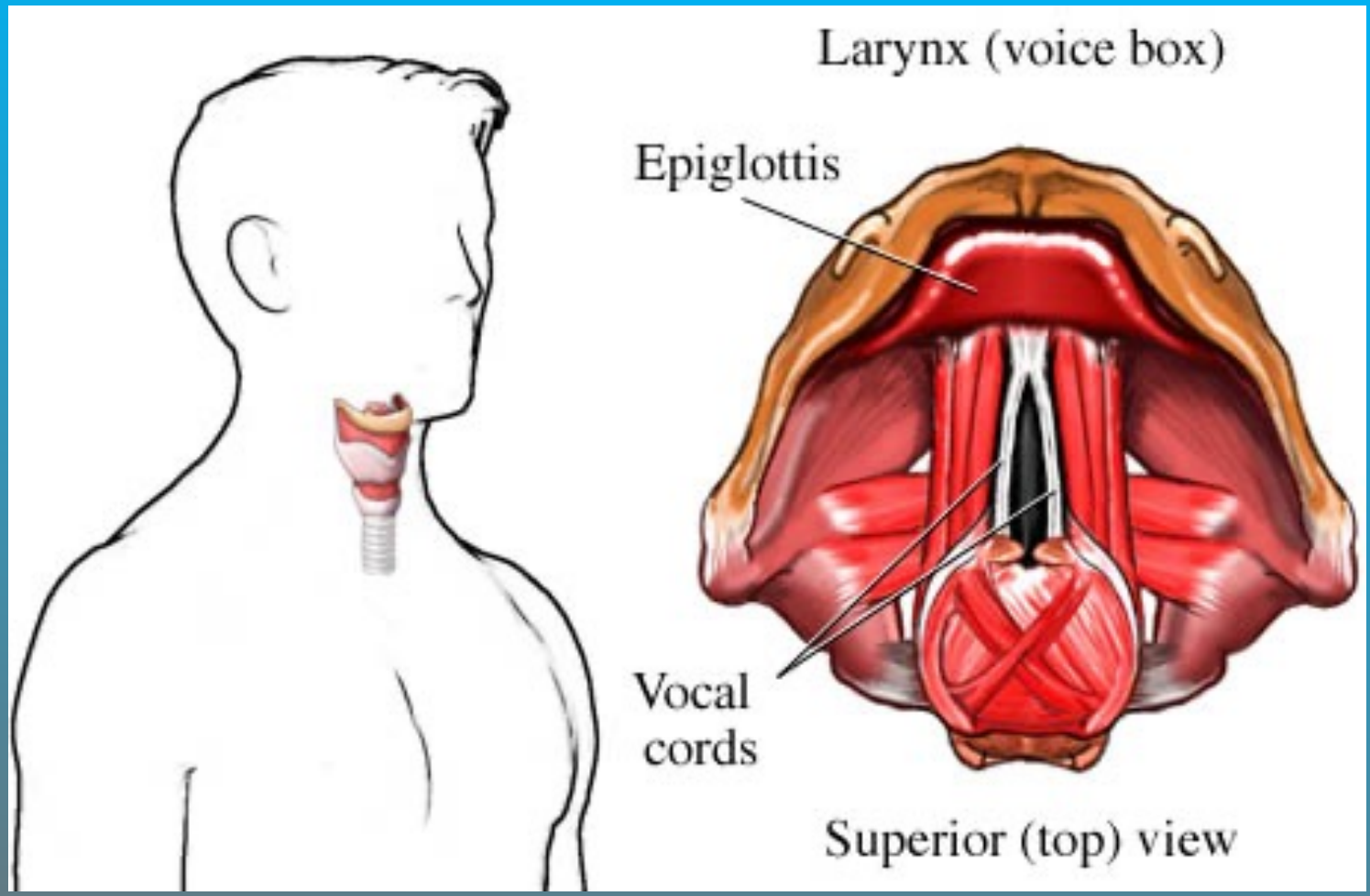
Anatomy



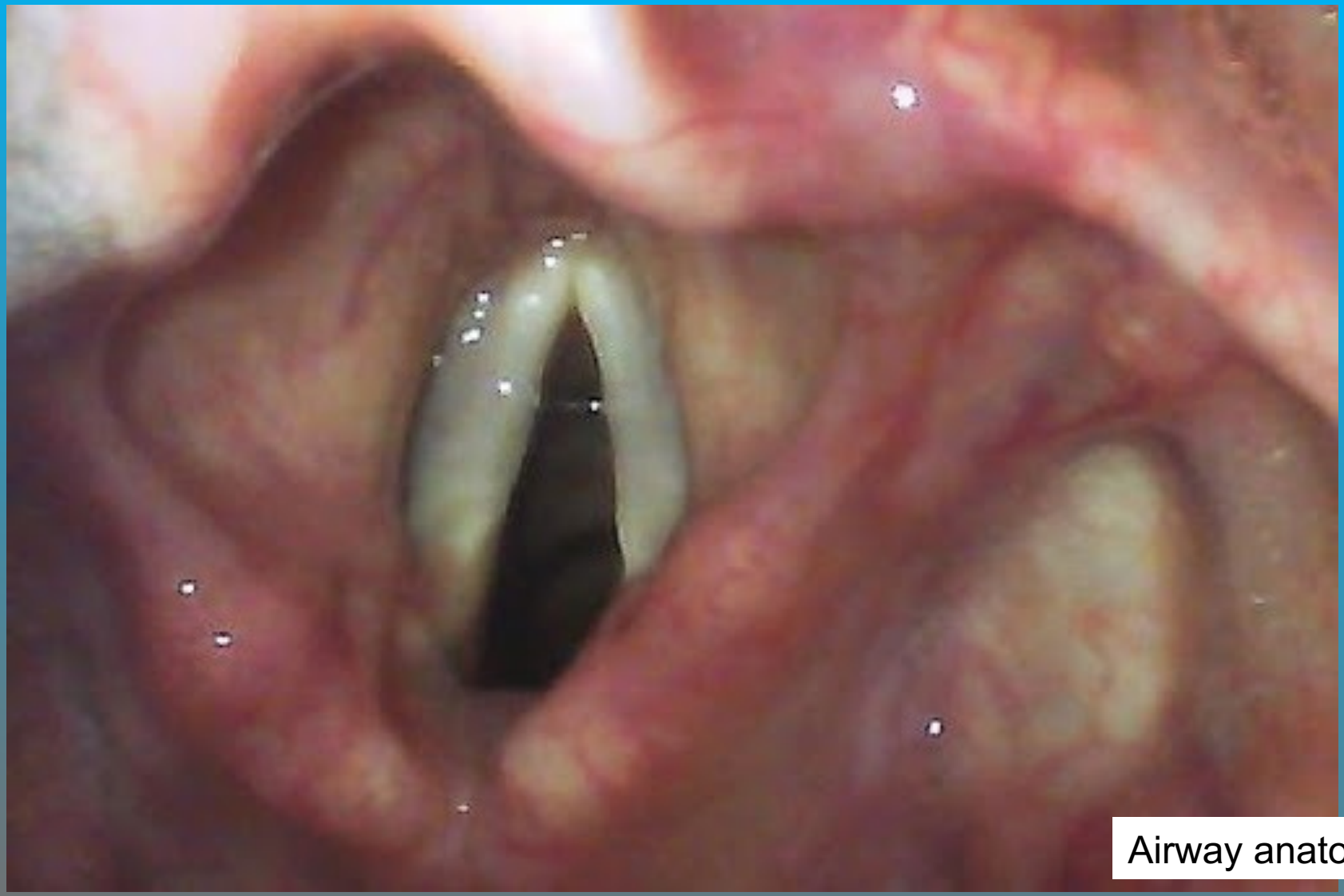
Airway anatomy

Airway anatomy

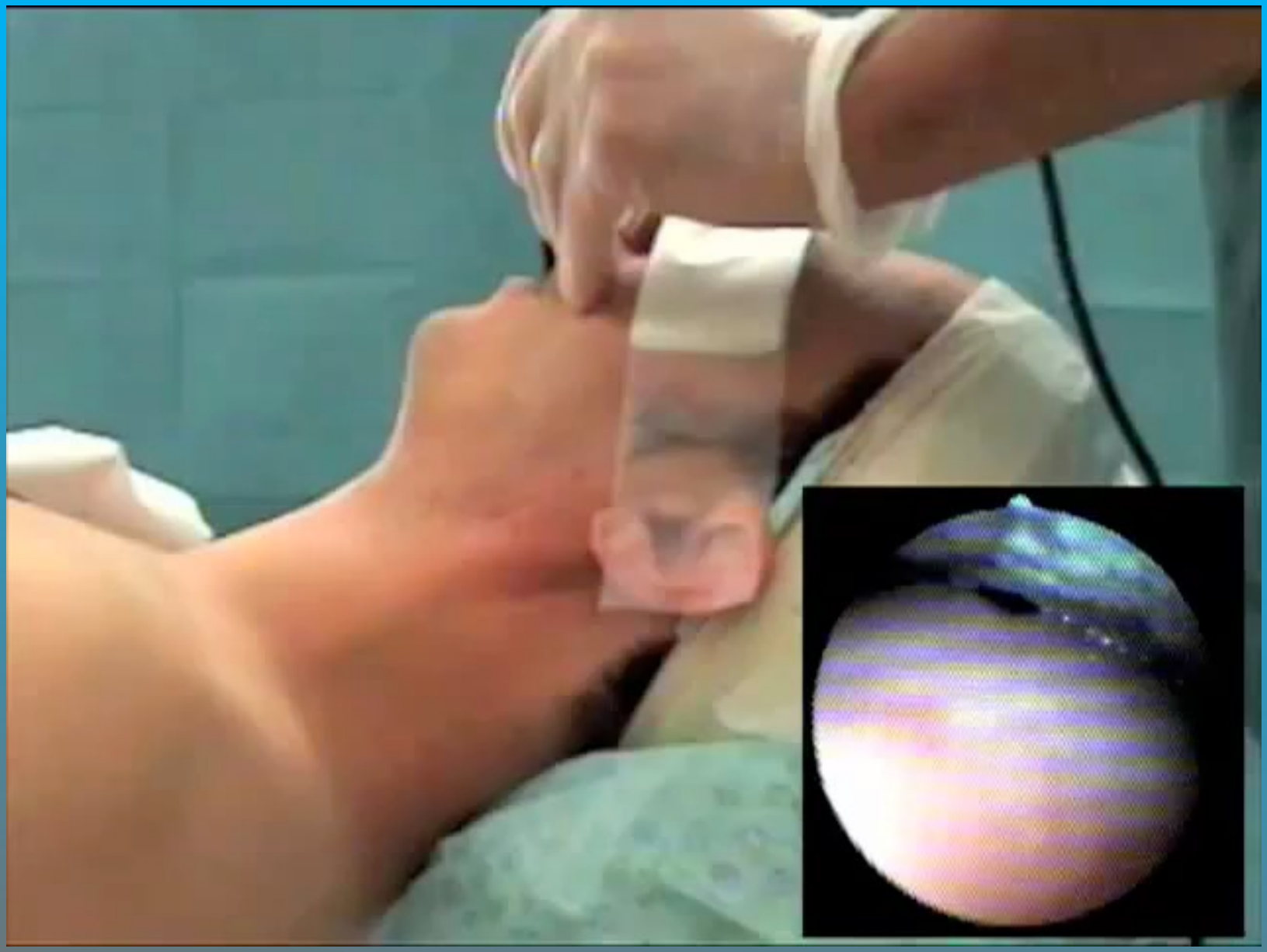
The Glottis



Laryngoscopy



Airway anatomy



Airway anatomy

Airway anatomy: Anaesthetists usually mean

- Upper airway =
  - Nose /teeth to the vocal cords
- Lower airway =
  - below the vocal cords x 23 divisions
  - conducting and respiratory
- Easy to loose the airway= Upper airway
  - Need to sort immediately

Here's what I hope you might learn

- Airway anatomy for us- lips to carina
- Why might it be a problem ?
- How can we measure if it's OK ?
- How can we deal with an obtunded airway ?
- A basic framework for managing the airway
- Kit after the talk

Why might a patient's airway be a problem ?

- Easy to 'loose' the airway
- Need to sort immediately
- No O_2 in, CO_2 out

Why might airways be a problem ?

- **Anaesthetic drugs**
  - Cause relaxation of tongue & upper airway muscles
  - Cause respiratory depression / apnoea
  - Depress/abolish airway reflexes- lost protection
- **Airways vary between people**
  - In health and disease
- **In an emergency**
  - Airways can suddenly obstruction
  - Failure to oxygenate/ventilate – need to do something

Here's what I hope you might learn

- Airway anatomy for us- lips to carina
- Why might it be a problem ?
- How can we know/measure if it's OK ?
- How can we deal with an obtunded airway ?
- A basic framework for managing the airway
- Kit after the talk

How can we measure if the airway is OK ?

Before surgery: assess airway- see booklet

Lots of ways- chat later..

History:	Previous difficult airway- old anaesthesia charts
	Other disorders- many, depends on context
Examination:	none are very sensitive or specific
	Neck flexion and extension
	Mouth opening
	Mallampati score (MP) Range 1-4
	Thyromental distance
	Atlanto-axial range of movement
Investigations:	Imaging e.g. CT; flexion/extension spine x-ray
	Obstructive lung defects

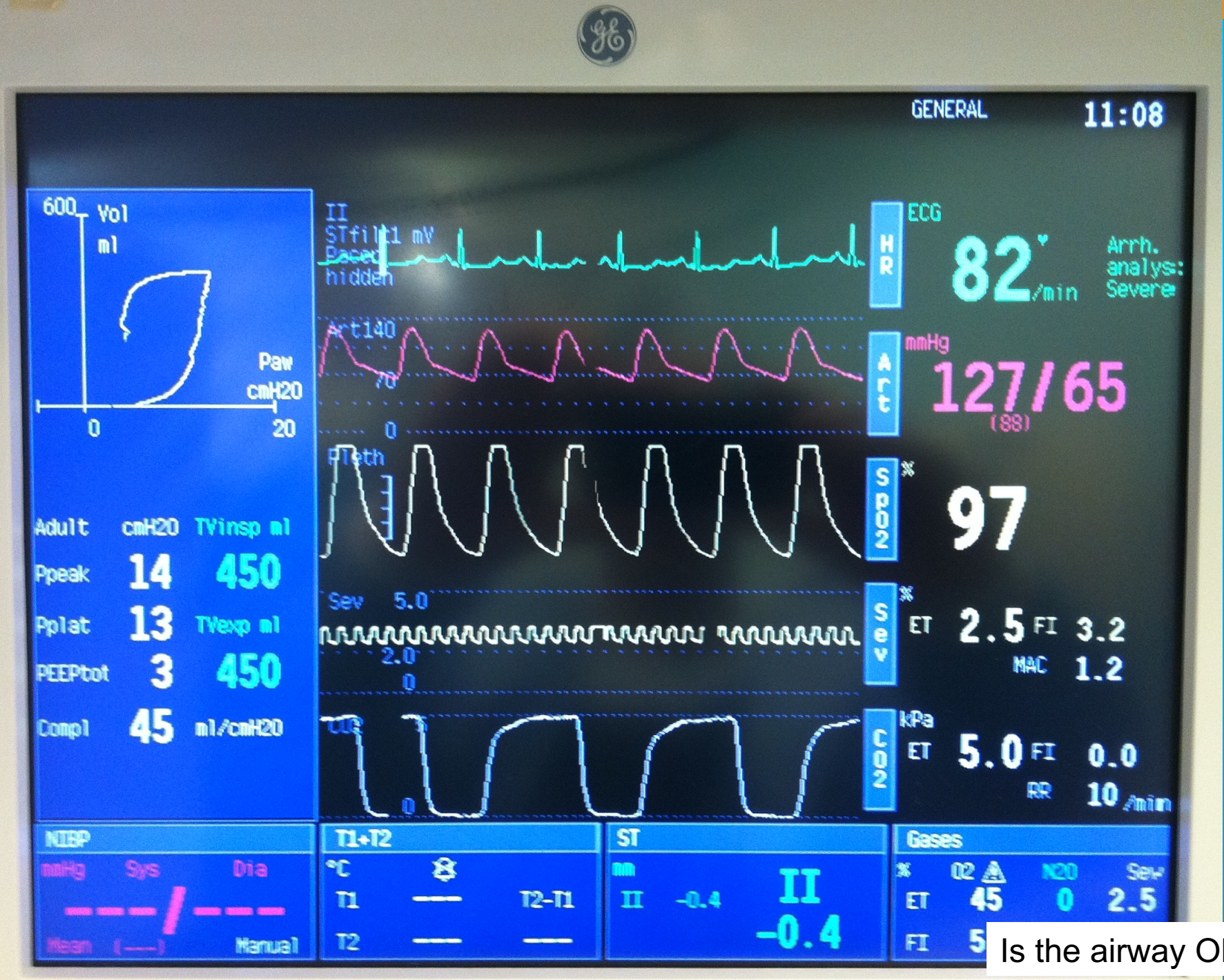
We'll still plan for difficult airway thanks!

How can we measure if the airway is OK ?

- Depends…
  - if patient anaesthetised / breathing on own
- Chest rising and falling normally
- Look for obstruction – ‘sea saw’ pattern
- Humid gas coming out of the lungs= clear & mist?
- ET CO_2 visible? seconds to disappear
- SaO_2 takes minutes to fall…. a late sign

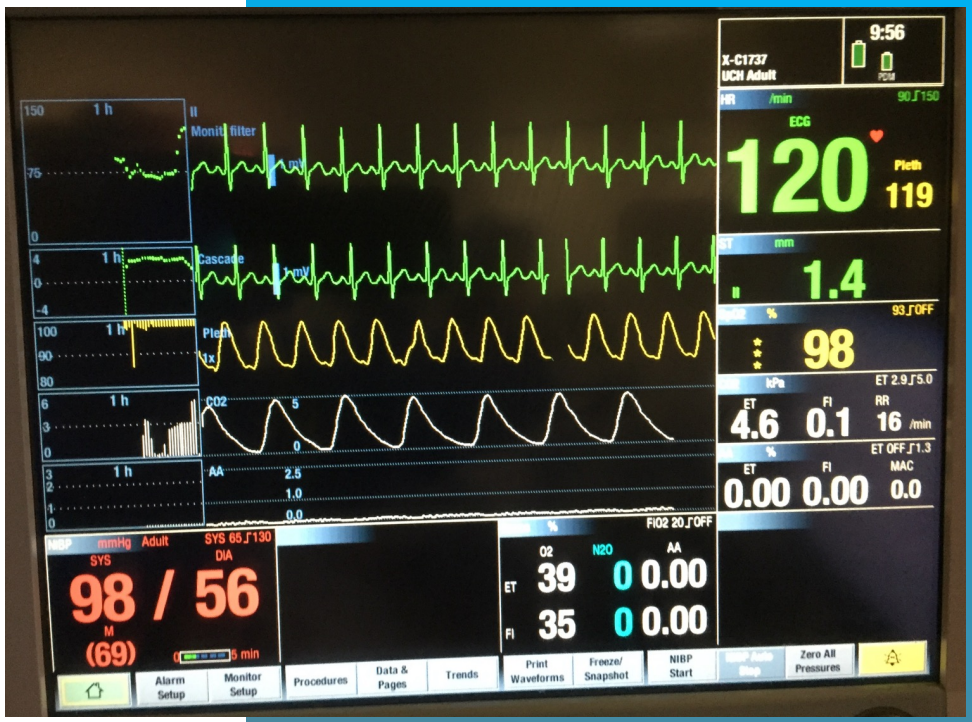
Intubated patient

Is the airway OK ?



Is the airway OK ?

Breathing spontaneously on a facemask



Is the airway OK ?

Here's what I hope you might learn

- Airway anatomy for us- lips to carina
- Why might it be a problem ?
- How can we measure if it's OK ?
- How can we deal with an obtunded airway ?
- A basic framework for managing the airway
- Kit after the talk
-

How can we deal with an obtunded airway ?

Ventilate with facemask

Call for help

Put in an LMA

Have a quick coffee

Tracheostomy

Fibreoptic laryngoscopy

Intubate

Catch up on reruns of Love Island/new series

Get out iPhone

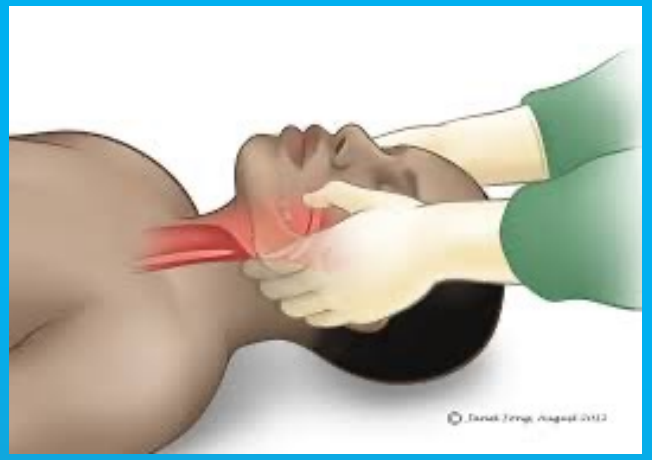
Ask your ODA/ODP/Anaesthetic nurse to bail you out

Airway Manouvres

How can we deal with an obtunded airway ?

- Give 0_2 keep asleep
- Airway manouvres
- Insert Guedel
- Put in
  - LMA or
  - Endotracheal Tube
  - FONA Front Of Nexk Access

Airway Manouvres



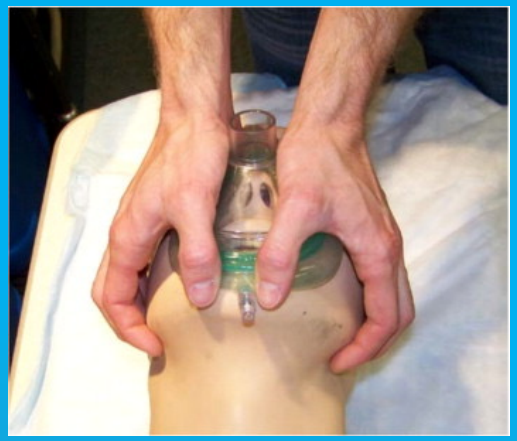
- Are they breathing on their own?

- Yes: relieve the obstruction
  - Head tilt
  - Chin lift
  - Jaw thrust

  = the no 1 skills of an anaesthetist

Obtunded airway

Facemask ventilation



- Are they breathing on their own?
- No:
  - relieve the obstruction *and*
  - Ventilate = blow gas in / out

- Harder than it looks
- One person / two person
- ‘Adjuncts’ to help us

Obtunded airway

Facemask ventilation adjuncts

- Oropharyngeal airway

- Size : Incisor to angle of jaw (or ask your ODP)

Obtunded airway

Facemask ventilation adjuncts

- Nasopharyngeal airway

- Size :
  - Women 6
  - Men 7

- use plenty of lubrication
- can cause nasal bleeding- I don’t use them
- not if you suspect basal skull fracture

Obtunded airway

Facemask ventilation adjuncts

- What shall I do now?
- This operation is….
  - going to go on for ages!

A Keep doing chin lift/jaw thrust

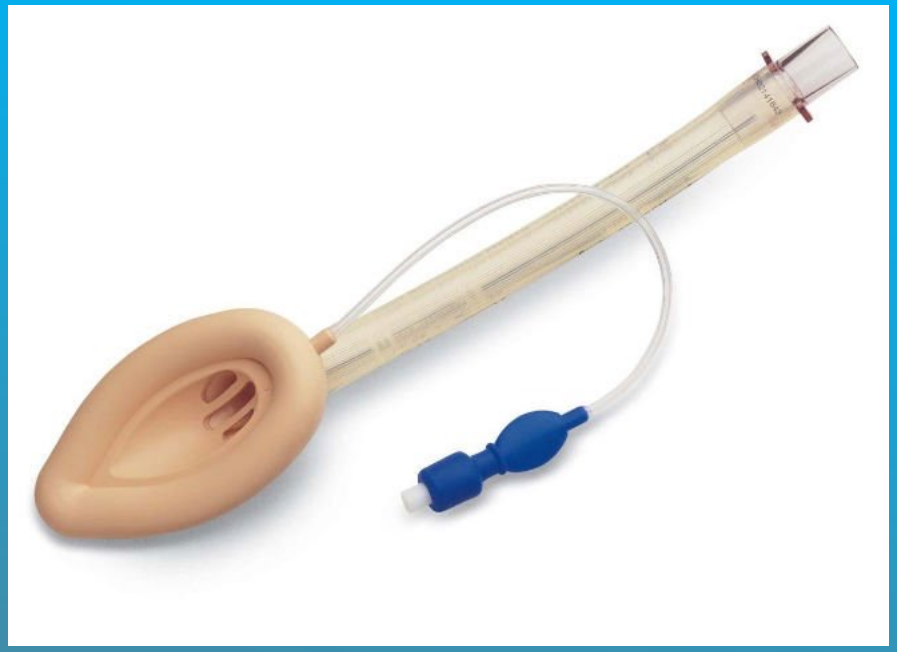
B Put another airway in

C No idea!

D Chill, just read the newspaper/ iPhone /iPad

Laryngeal mask airway (LMA) ‘Classic’

- Blind insertion
- Cuff to improve seal
- Hands free
- Sits above the glottis



- Lots of ‘second generation’ devices available
  - all work on a similar principle

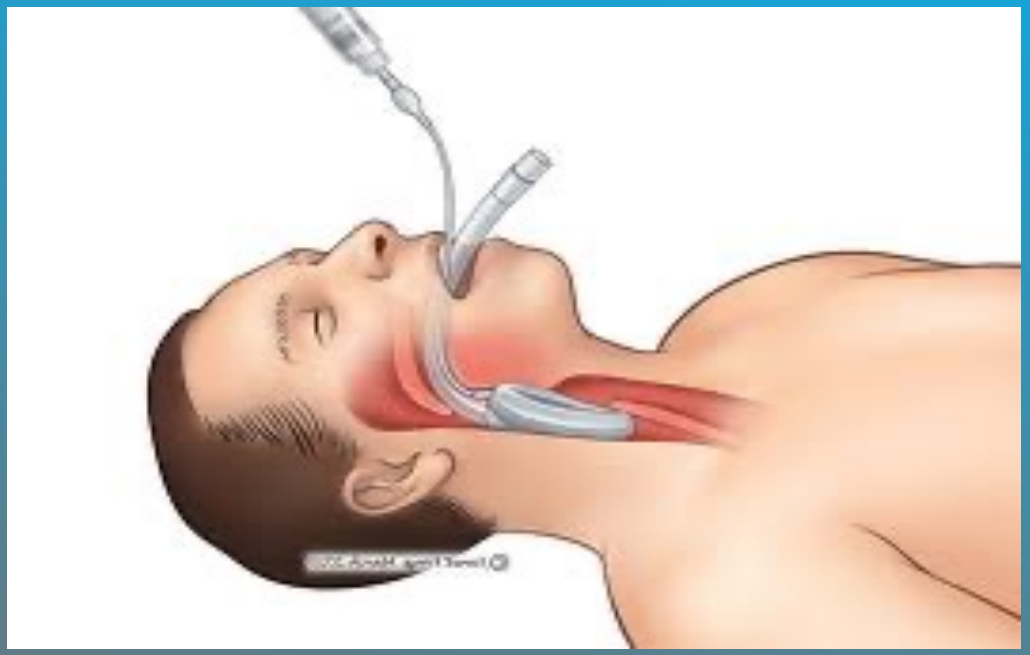
Second generation SADs (LMAs)

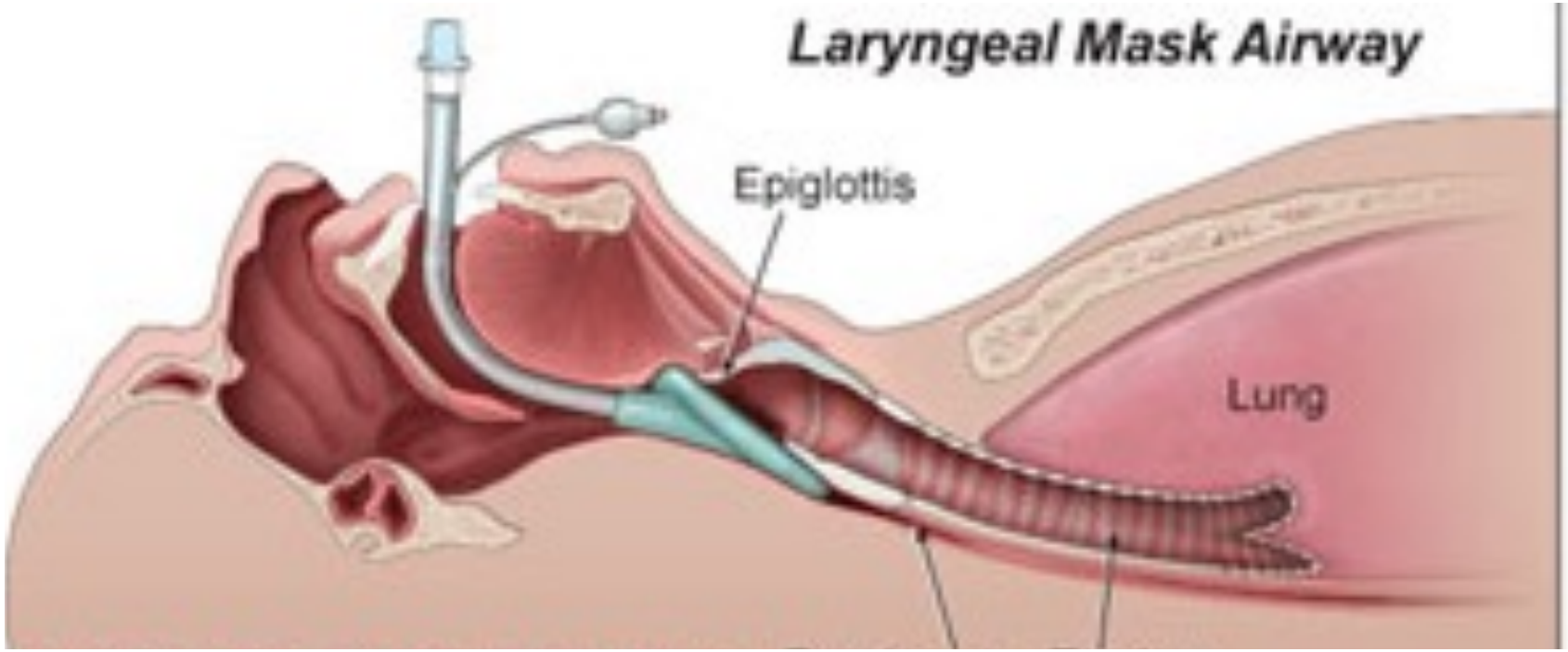
‘Proseal’

‘iGel’

LMA position

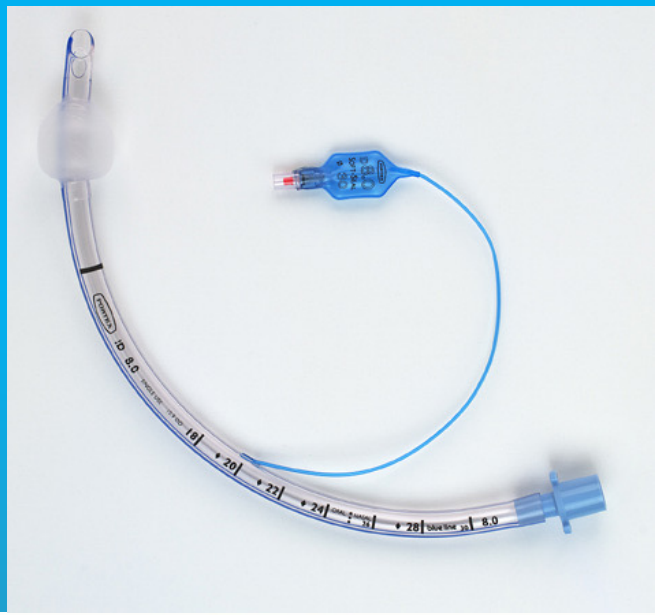
- Like a facemask over the larynx
- No protection against aspiration
- Might help difficult facemask ventilation
- Can fall out/ dislodge

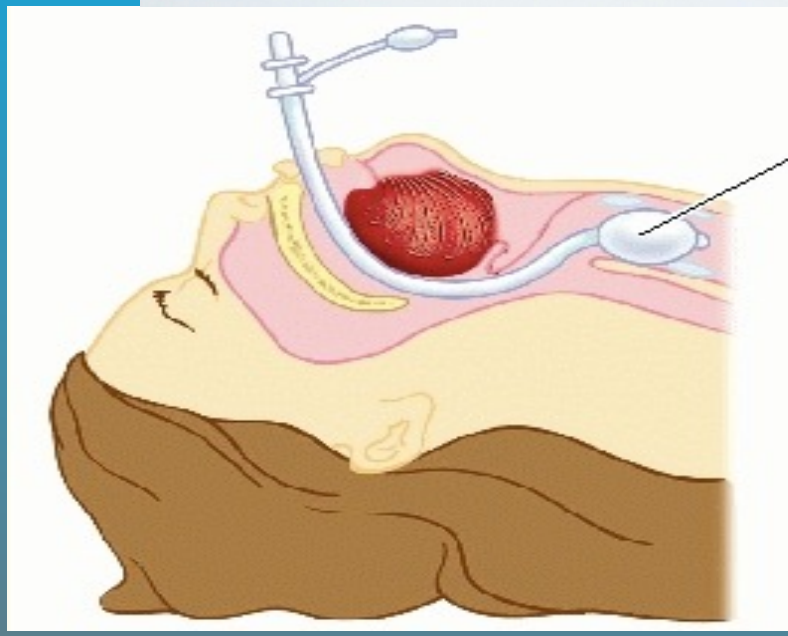



Laryngeal Mask Airway
Epiglottis
Lung

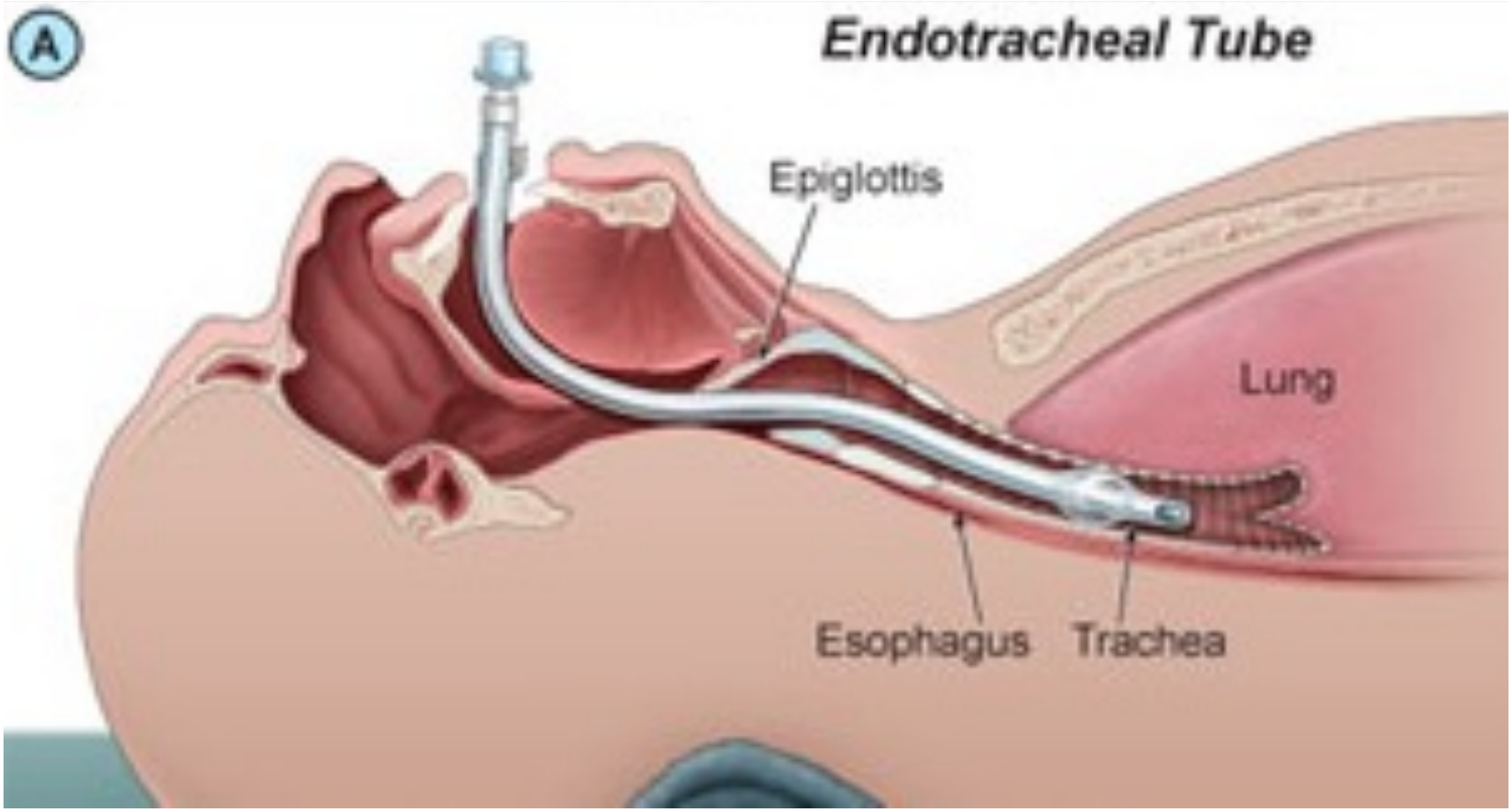
Endotracheal tube = ‘Intubation’

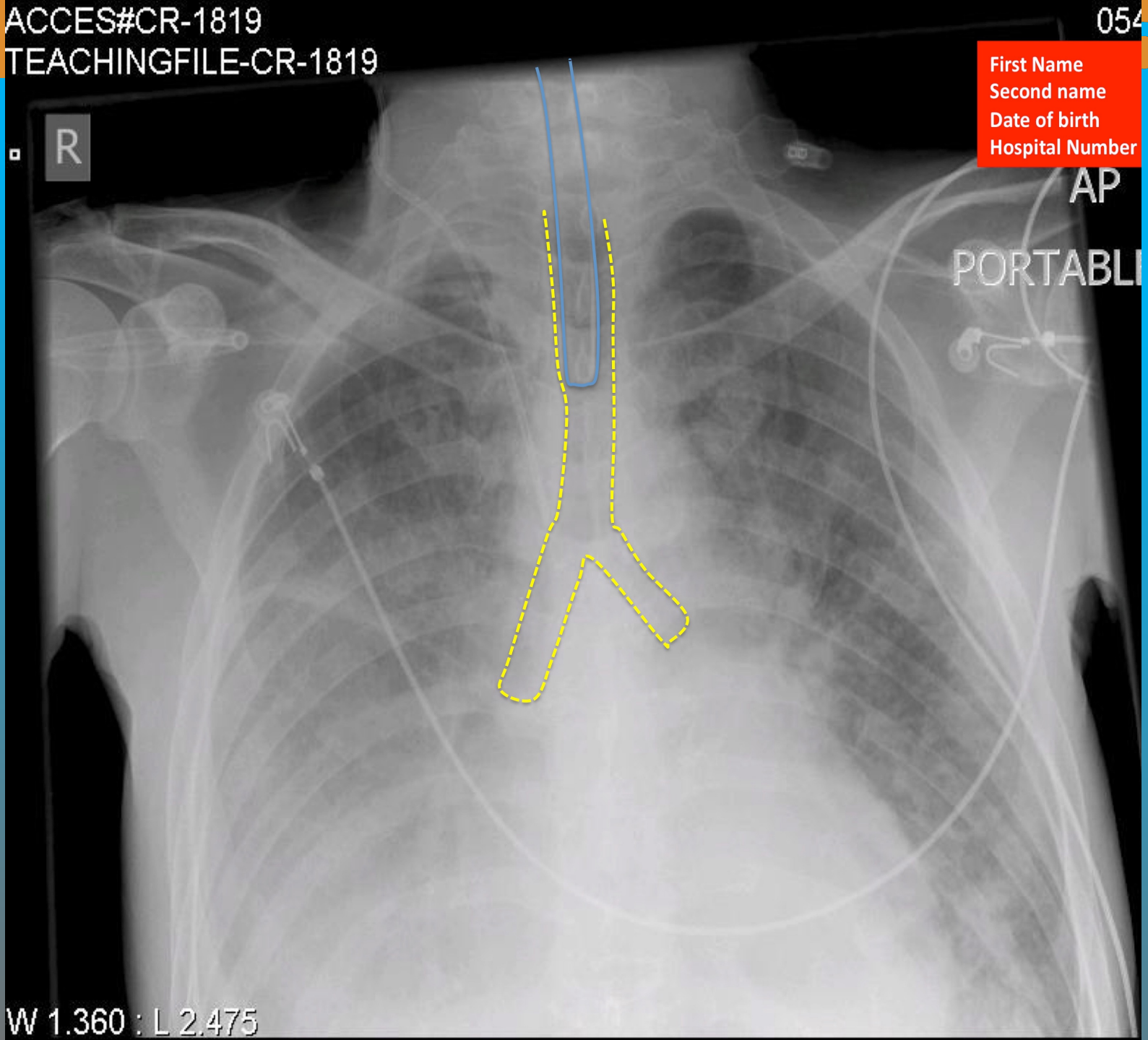
- “A secure airway is a cuffed tube in the trachea”
  - Allows ventilation
  - Protects against aspiration
- Normally placed under direct vision (laryngoscopy)





'Intubated patient’



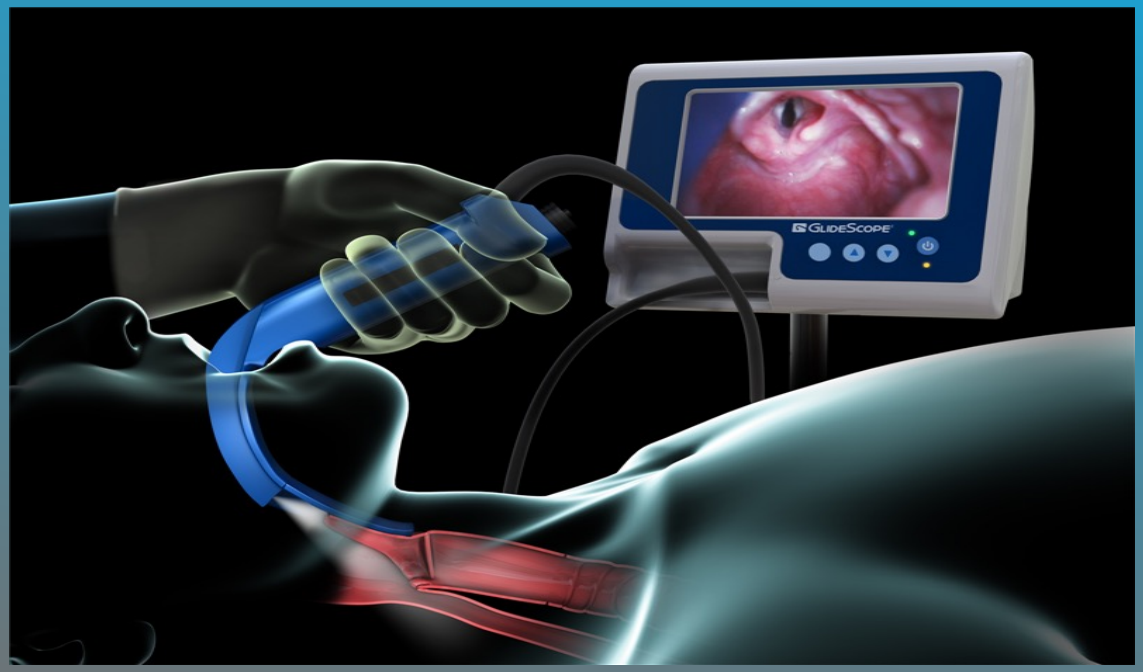

ACCES#CR-1819
TEACHINGFILE-CR-1819
First Name
Second name
Date of birth
Hospital Number
R
AP
PORTABLE
W 1.360 : L 2.475

Direct Laryngoscopy

- Uses a metal blade with a light source to create a direct line of sight to the glottis
- Can be stressful (for you and the patient)
- Laryngoscopes come in a variety of shapes and sizes

Video-laryngoscopy

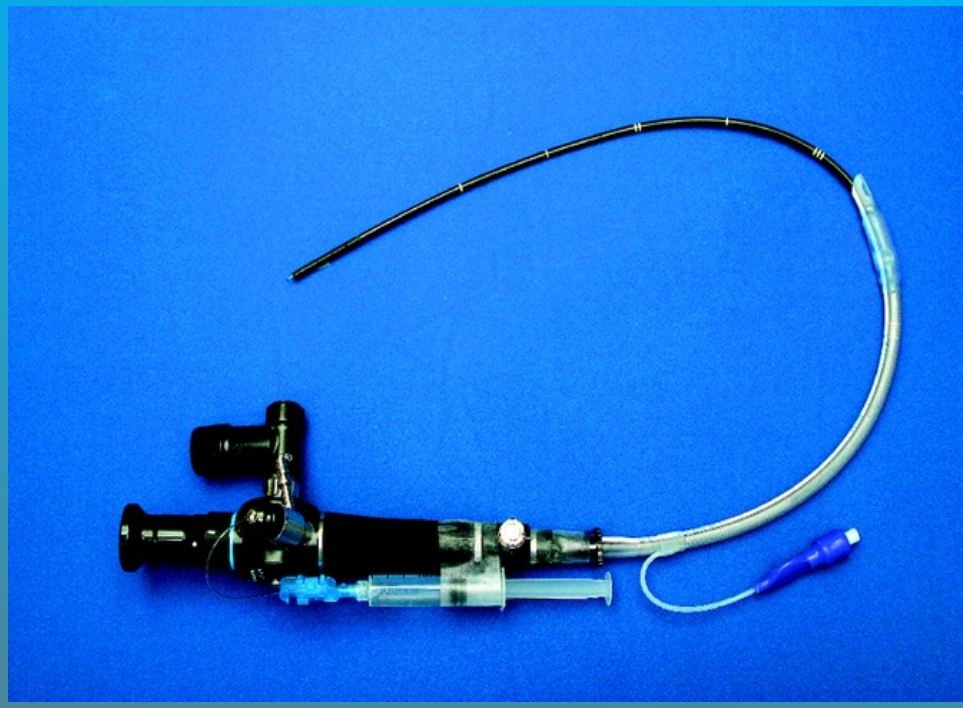
- Uses a camera and screen to allow visualisation of the glottis without direct line of sight



*But you still have to get the tube in!!!

Fibre-optic Laryngoscopy

- Fibreoptic scope used to provide an indirect view of the glottis/trachea
- Scope then used as a guide to pass ETT into trachea

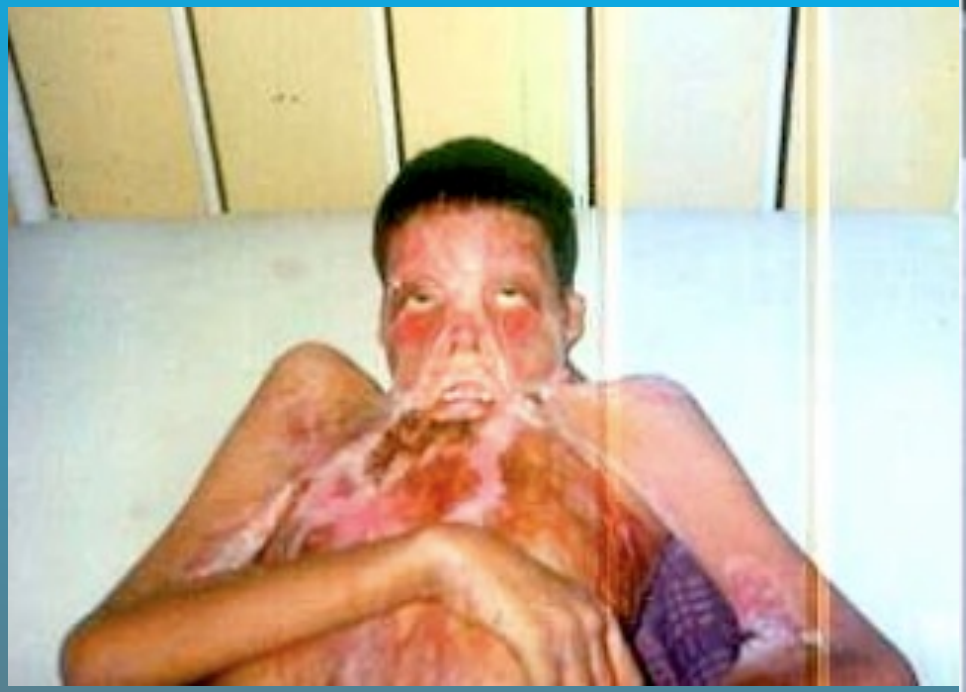


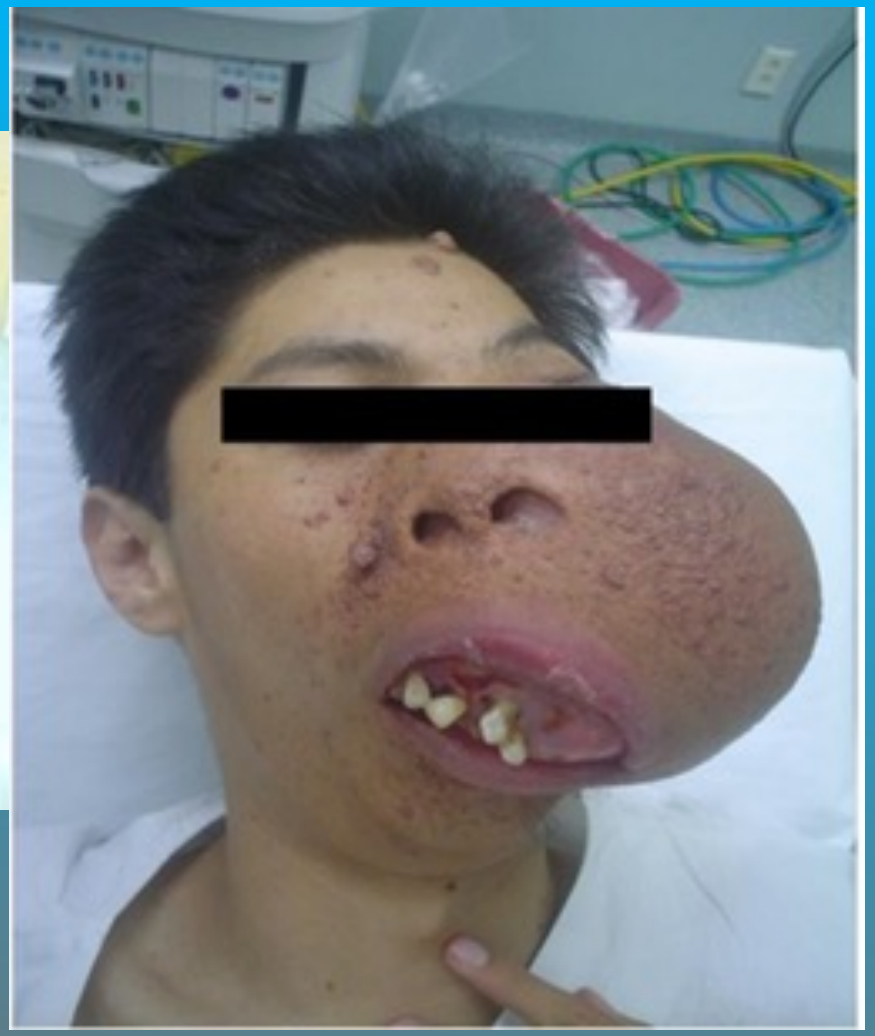
Recognising when airway management is going to be difficult

= hard to ventilate/oxygenate…. or hard to intubate/see cords

- **History**
  - Previous anaesthetic problems / difficult airway alert
  - Congenital disorders associated with difficult airway (Anatomy)
  - Co-morbid conditions (Pathology)
- **Examination**
  - General appearance
  - Specific tests
- **Special investigations**
  - Rarely used (nasal endoscopy/CT)

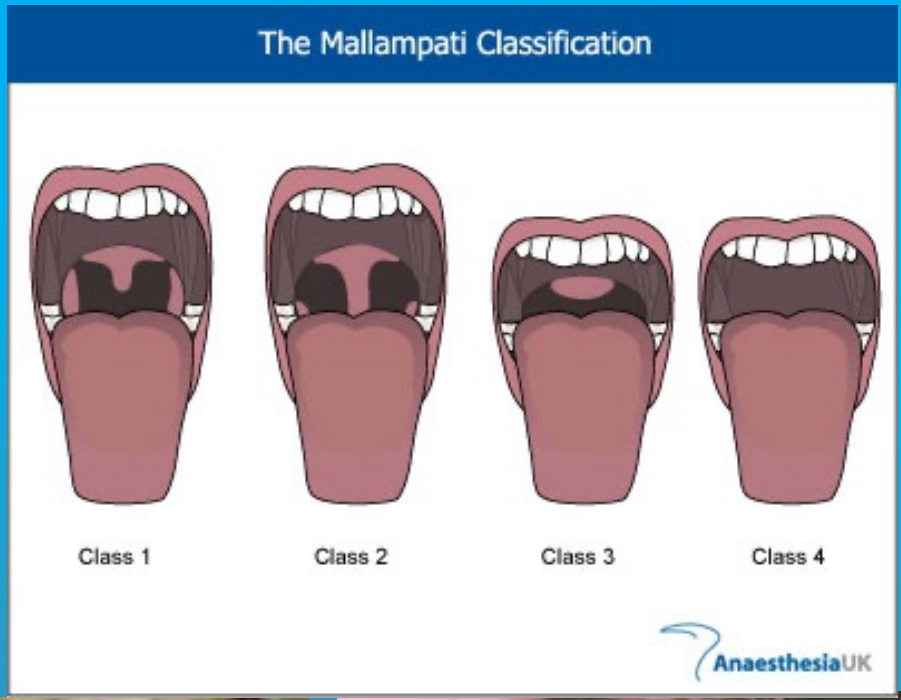
Sometimes it's obvious

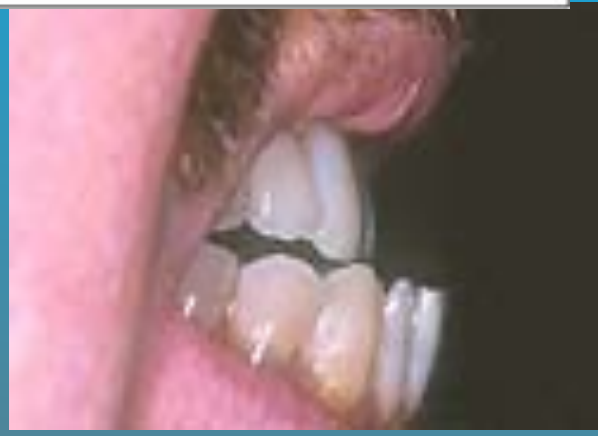




Specific ‘airway’ tests

- Mallampati (Samsoon-Young)
- Mouth opening
- Neck movement
  - Thyromental distance
- Jaw protrusion





But….

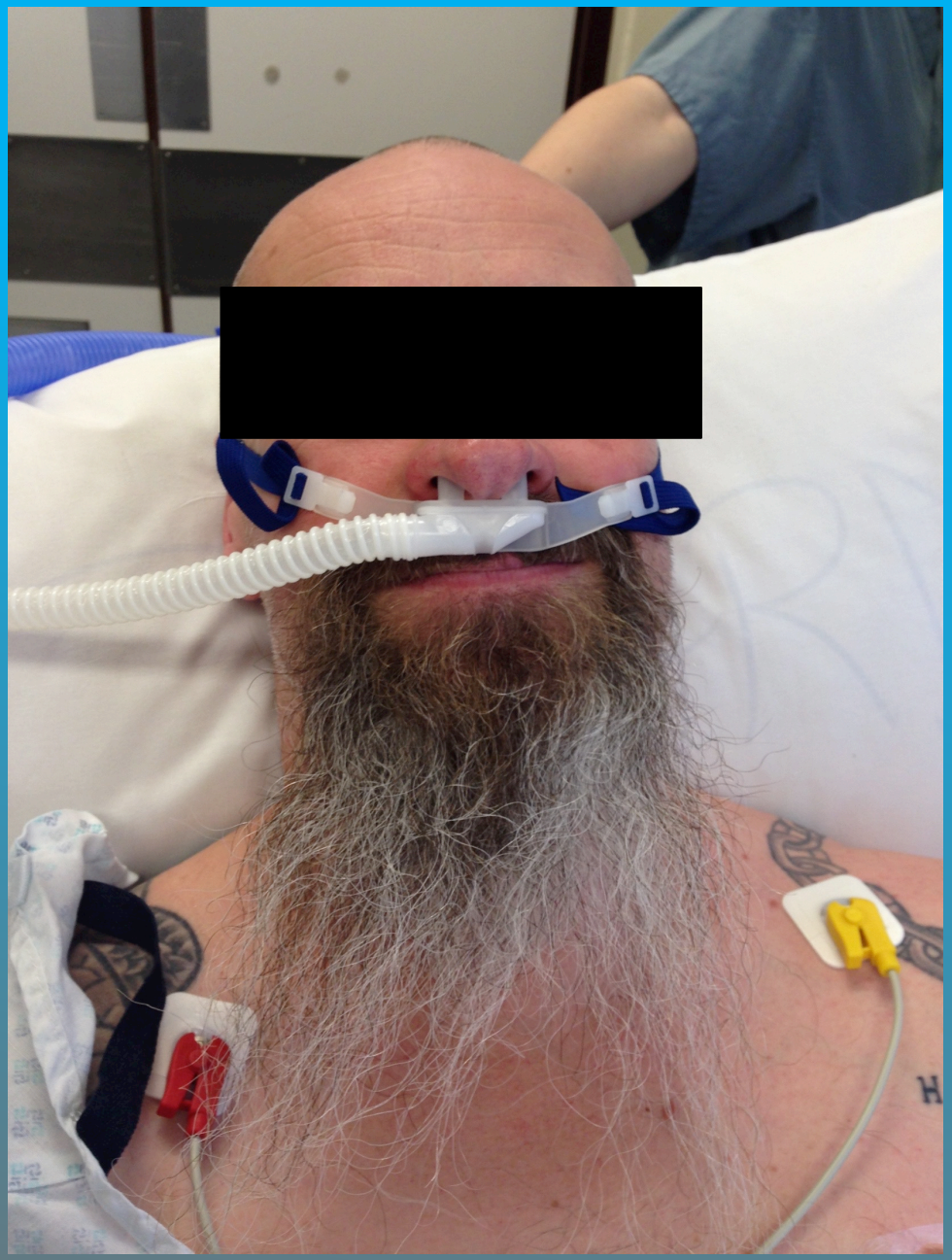
- Tests are notoriously unreliable and focus on difficult intubation
- **Difficult facemask ventilation** is more worrying than difficult intubation
  - Beards / big neck / high BMI / Elderly
- Trust your instincts!
  - Ask for senior advice or help early

Planning for failure

- Always have a plan B for managing the airway (and communicate this to the rest of the team)
  - If not possible to place an endotracheal tube what next?
    - Plan B – LMA (and call for help)
    - Plan C – Facemask ventilation (+/- Guedel) (+/- wake up)
    - Plan D – Emergency cricothyroid puncture
- Call seniors, ‘optiflow’ and video laryngoscopy?
- Guidelines exist to help plan for the unexpected
- Much easier if you’ve identified trouble beforehand

Modern preoxygenation? If you're worried

- 'Optiflow'
  - High flow oxygen
  - Heated + humidified
  - Apneoic mass transfer of O_2 to alveoli
  - Can be apneic for 5-20+ mins without desaturation



Management of unanticipated difficult tracheal intubation in adults

2015

Plan A: Facemask ventilation and tracheal intubation

Optimise head and neck position
Preoxygenate
Adequate neuromuscular blockade
Direct / Video Laryngoscopy (maximum 3+1 attempts)
External laryngeal manipulation
Bougie
Remove cricoid pressure
Maintain oxygenation and anaesthesia

If in difficulty → call for help

Succeed → Confirm tracheal intubation with capnography

Declare failed intubation

Plan B: Maintaining oxygenation: SAD insertion

2nd generation device recommended
Change device or size (maximum 3 attempts)
Oxygenate and ventilate

Succeed →

STOP AND THINK

Options (consider risks and benefits):

1. Wake the patient up
2. Intubate trachea via the SAD
3. Proceed without intubating the trachea
4. Tracheostomy or cricothyroidotomy

Declare failed SAD ventilation

Plan C: Facemask ventilation

If facemask ventilation impossible, paralyse
Final attempt at facemask ventilation
Use 2 person technique and adjuncts

Succeed → Wake the patient up

Declare CICO

Plan D: Emergency front of neck access

Scalpel cricothyroidotomy

Post-operative care and follow up

- Formulate immediate airway management plan
- Monitor for complications
- Complete airway alert form
- Explain to the patient in person and in writing
- Send written report to GP and local database

This flowchart forms part of the DAS Guidelines for unanticipated difficult intubation in adults 2015 and should be used in conjunction with the text.

Extubation… can be dangerous too

- Taking the airway device out can be as risky as putting the device in
- If you had difficulties at intubation then extubation also likely to be troublesome…
- ?Keep the tube in for a while- take to ICU…

Key Points

- Go though a plan.. Mask, guedel, LMA or ETT
- Always think ‘oxygenation’
- Will mask ventilation or intubation will be hard?
  - Trust your instincts
  - Ask for help early
- Have a back-up plan ready and make sure everyone else knows what it is

Here's what I hope you have learnt

- Airway anatomy for us- lips to carina
- Why might it be a problem ?
- How can we measure if it's OK ?
- How can we deal with an obtunded airway ?
- A basic framework for managing the airway
- I'll show you airways kit after the questions

Any questions….? I'll look at the chat!

Thanks!