



Bwrdd Iechyd Prifysgol  
Caerdydd a'r Fro  
Cardiff and Vale  
University Health Board



# COVID-19 Simulation Training

## Endotracheal intubation

Dr C Diaz-Navarro, 15th March 2020



GIG  
CYMRU  
NHS  
WALES

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# Learning objectives

By the end of this session, delegates will be able to

1. Safely perform donning and doffing PPE according to HEE guidance
2. Keep safe when performing tasks and clinical duties
  - a. Intubating
  - b. Inserting an NG tube
3. Build resilience and support others in emotionally challenging situations



# COVID-19 Airway management principles

## COVID-19 airway management: SAS

- Safe – for staff and patient
- Accurate – avoiding unreliable, unfamiliar or repeated techniques
- Swift – timely, without rush or delay

## Emergency tracheal intubation checklist COVID-19

### Personal Protective Equipment

### Prepare Equipment

### Prepare for Difficulty

### In the Room

### Post-procedure and Safety

#### OUTSIDE ROOM

#### INSIDE ROOM

#### AFTER AND LEAVING

PPE – be thorough, don't rush

- Wash hands
- Put on PPE
  - Long sleeved gown
  - FFP3 mask
  - Gloves
  - Eyewear
  - Wipeable shoes
  - ± Headwear

- Check fully by buddy with checklist
- Names on visors

- Allocate roles:
  - Team leader and intubator
  - Cricoid force and intubator's assistant
  - Drugs, monitor, timer
  - Runner (outside)
  - eFONA

- How do we contact further help if required?

- Check kit
  - BMV or Mapleson C with HME attached
  - Guedel
  - Working suction
  - Videolaryngoscope
  - Bougie/stylet
  - Two tracheal tubes, ties and syringe
  - 2<sup>nd</sup> generation SGA
  - eFONA set

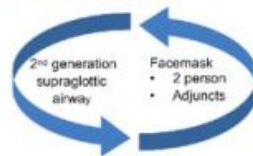
- Do you have all the drugs required?
  - Ketamine
  - Relaxant
  - Vasopressor
  - Maintenance sedation

- Weight?

- Allergies?

- If the airway is difficult, could we wake the patient up?

- What is the plan for a difficult intubation?
  - Plan A: RSI
  - Plan B/C: 2-handed 2-person BMV & 2<sup>nd</sup> generation SGA



- Plan D: e.g. Front of neck airway; scalpel bougie tube

- Confirm agreed plan

- Does anyone have any concerns?

- Airway assessment
  - Identify CTM
  - MACOCHA
- Apply monitors
  - Waveform capnography
  - SpO<sub>2</sub> probe
  - ECG
  - Blood pressure

- Checked IV access (x2)

- Optimise position
  - Consider ramping or reverse Trendelenburg

- Optimal preoxygenation
  - 3 mins
  - ETO<sub>2</sub> > 85%
  - Low flow nasal O<sub>2</sub>

- Optimise patient condition be optimised any further before intubation?
  - Fluid/pressor/ inotrope
  - Aspirate NGT
  - Delayed sequence induction?

- Airway management
  - Establish ventilation after cuff inflation
  - Check waveform capnography
  - Clamp tracheal tube before each disconnection
  - Avoid unnecessary disconnections

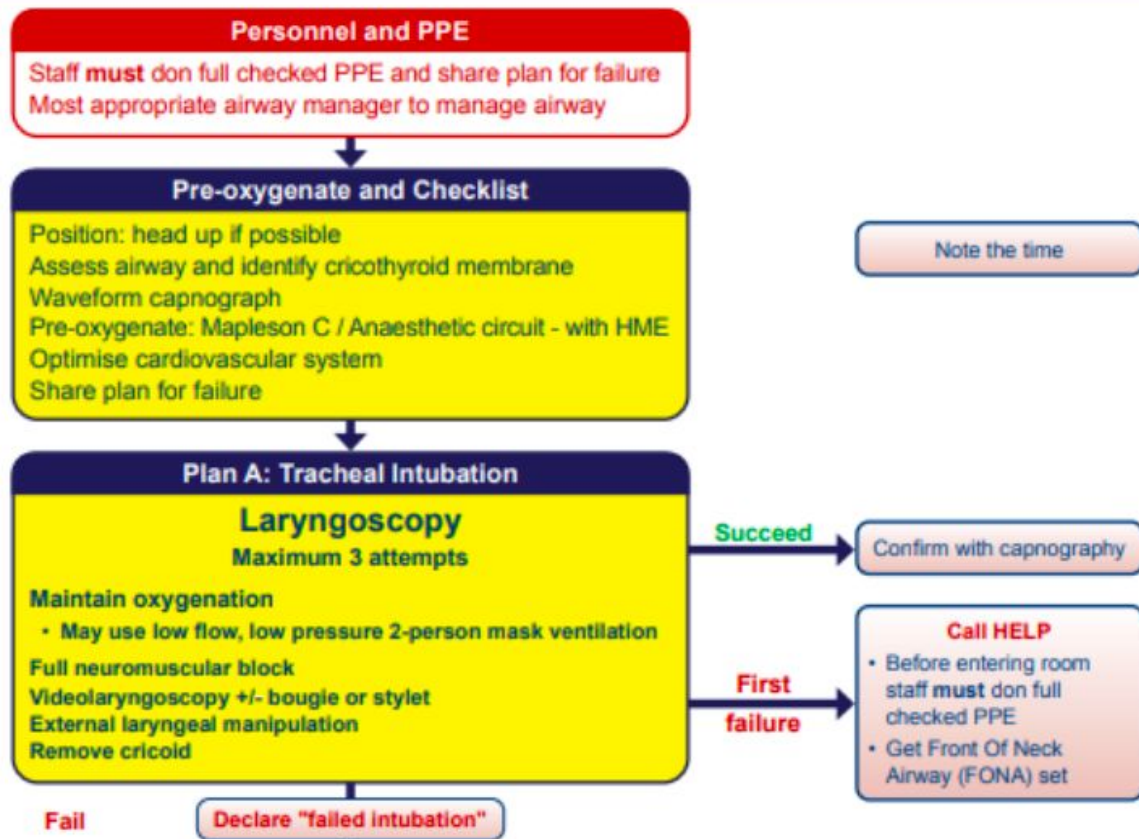
- Other
  - Insert NGT
  - Consider deep tracheal viral sample

- Careful equipment disposal
- Decontamination of reusable

- Remove PPE
  - Observed by buddy
  - Use checklist
  - Meticulous disposal
  - Wash hands

# Tracheal intubation of critically ill adults

## Adapted for COVID-19



Fail

Declare "failed intubation"

### Plan B/C: Rescue Oxygenation

2<sup>nd</sup> generation  
supraglottic  
airway

Facemask  
• 2 person  
• adjuncts

Maximum 3 attempts each  
Change device / size / operator  
Open Front Of Neck Airway set

Succeed

Stop, think,  
communicate

#### Options

- Wake patient if planned
- Intubate via supraglottic airway x1
- Front Of Neck Airway

Fail

Declare "can't intubate, can't oxygenate"

### Plan D: Front Of Neck Airway: FONA

Use FONA set

Scalpel cricothyroidotomy

Extend neck  
Neuromuscular blockade

# Can't Intubate, Can't Oxygenate (CICO) in critically ill adults Adapted for COVID-19

CALL FOR HELP



Declare "Can't Intubate, Can't Oxygenate"

## Plan D: Front Of Neck Airway: FONA

Extend neck

Ensure neuromuscular blockade

Exclude oxygen failure and blocked circuit

### Personnel and PPE

New staff **must** don full checked PPE

Most appropriate airway manager to perform FONA

### Scalpel cricothyroidotomy

- Equipment:**
1. Scalpel (wide blade e.g. number 10 or 20)
  2. Bougie ( $\leq 14$  French gauge)
  3. Tube (cuffed 5.0-6.0mm ID)

#### Laryngeal handshake to identify cricothyroid membrane

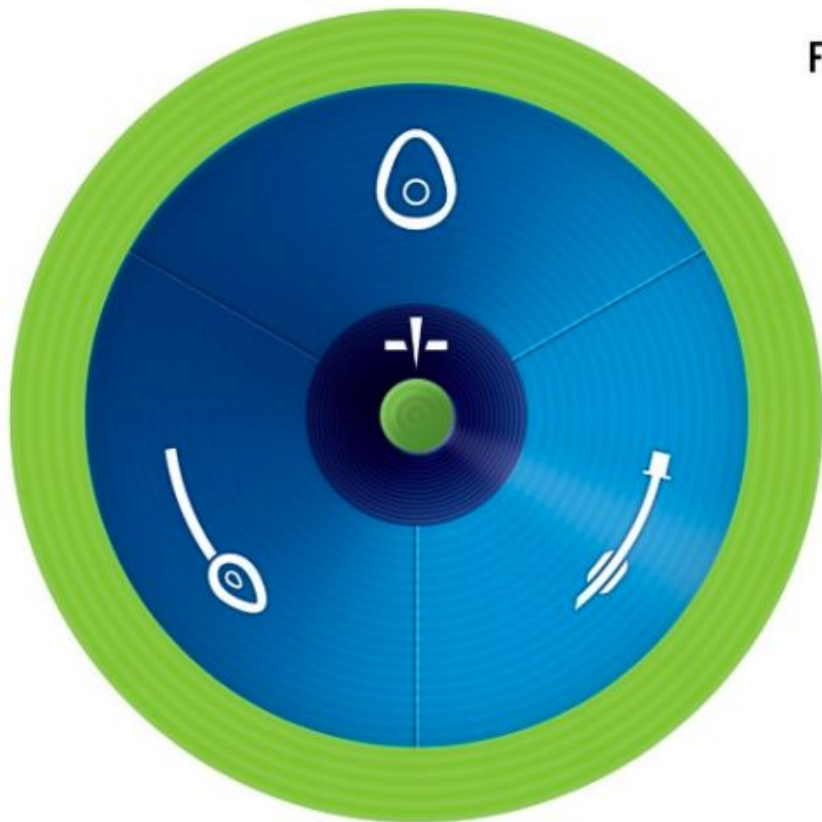
#### Palpable cricothyroid membrane

- Transverse stab incision through cricothyroid membrane
- Turn blade through 90° (sharp edge towards the feet)
- Slide Coudé tip of bougie along blade into trachea
- Railroad lubricated cuffed tube into trachea
- Inflate cuff, ventilate and confirm position with capnography
- Secure tube

#### Impalpable cricothyroid membrane

- Make a large midline vertical incision
- Blunt dissection with fingers to separate tissues
- Identify and stabilise the larynx
- Proceed with technique for palpable cricothyroid membrane as above

# T H E V O R T E X



FOR EACH LIFELINE CONSIDER:



**MANIPULATIONS:**

- HEAD & NECK
- LARYNX
- DEVICE



**ADJUNCTS**



**SIZE / TYPE**



**SUCTION / O<sub>2</sub> FLOW**



**MUSCLE TONE**

MAXIMUM THREE ATTEMPTS AT EACH LIFELINE (UNLESS GAMECHANGER)

AT LEAST ONE ATTEMPT SHOULD BE BY MOST EXPERIENCED CLINICIAN

CICO STATUS ESCALATES WITH UNSUCCESSFUL BEST EFFORT AT ANY LIFELINE OR WITH UNSUCCESSFUL ATTEMPTS AT ANY TWO CONSECUTIVE LIFELINES



VortexApproach.org





Type of exposure	Asymptomatic HCW with exposure within the past 14 days	14 day work exclusion	Other actions
	5 Contact with a symptomatic possible case whilst wearing recommended PPE with no breaches	No	No restrictions
	6 Contact with a confirmed case whilst wearing recommended PPE with no breaches	No	No restrictions, but passive follow up for 14 days after last exposure
	7 Contact with a symptomatic possible case without wearing recommended PPE	No	Exclusion and self-isolation may be recommended in certain circumstances based on a risk assessment by occupational health, employers, or the local health protection team
	8 Contact with a confirmed case without wearing recommended PPE	Yes	Self-isolation at home for 14 days after last contact (HPT will advise on follow-up)
Household or other setting outside of work	9 Contact with a possible case	No	Exclusion and self-isolation may be recommended in certain circumstances based on a risk assessment by occupational health, employers, or the local health protection team
	10 Contact with a confirmed case	Yes	Self-isolation at home for 14 days after last contact (HPT will advise on follow-up)



Guidance

# Stay at home: guidance for people with confirmed or possible coronavirus (COVID-19) infection

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- if you have symptoms of coronavirus infection (COVID-19), however mild, do not leave your home for 7 days from when your symptoms started. (See [ending isolation](#) section below for more information)



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Any questions?