COVID-19 Simulation Training

Endotracheal intubation

Dr C Diaz-Navarro, 15th March 2020
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
- 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?

PREPARE EQUIPMENT
- Check kit
  - BMV or Mapleson C with HME attached
  - Guerdel
  - Working suction
  - Video laryngoscope
  - Bougie/stylet
  - Two tracheal tubes, ties and syringe
  - 2nd generation SGA
  - eFONA set

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

- Weight?
- Allergies?

PREPARE FOR DIFFICULTY
- 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 & 2nd generation SGA
- eFONA set

- Confirm agreed plan
- Does anyone have any concerns?

IN THE ROOM
- Airway assessment
  - Identify CTM
  - MACCOHA
- Apply monitors
  - Waveform capnography
  - SpO2 probe
  - ECG
  - Blood pressure
- Checked IV access (x2)
- Optimise position
  - Consider ramping
  - Reverse Trendelenburg

- Optimal preoxygenation
  - 3 mins
  - ETO2 > 85%
  - Low flow nasal O2
- Optimise patient condition be optimised any further before intubation?
  - Fluid/pressor/ inotrope
  - Aspirate NGT
  - Delayed sequence induction?

AFTER AND LEAVING
- 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

Personnel and PPE
Staff must don full checked PPE and share plan for failure
Most appropriate airway manager to manage airway

Pre-oxygenate and Checklist
Position: head up if possible
Assess airway and identify cricothyroid membrane
Waveform capnograph
Pre-oxygenate: Mapleson C / Anaesthetic circuit - with HME
Optimise cardiovascular system
Share plan for failure

Note the time

Plan A: Tracheal Intubation

Laryngoscopy
Maximum 3 attempts
Maintain oxygenation
- May use low flow, low pressure 2-person mask ventilation
Full neuromuscular block
Videolaryngoscopy +/- bougie or stylet
External laryngeal manipulation
Remove cricoid

Succeed
Confirm with capnography

First failure
Call HELP
- Before entering room staff must don full checked PPE
- Get Front Of Neck Airway (FONA) set

Fail
Declare "failed intubation"
Fail: Declare "failed intubation"

Plan B/C: Rescue Oxygenation

- 2nd 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

This flowchart forms part of the 2020 COVID-19 Airway Guideline for tracheal intubation. Refer to the full document for further details.
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 (≤ 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
THE VORTEX

FOR EACH LIFELINE CONSIDER:

MANIPULATIONS:
- HEAD & NECK
- LARYNX
- DEVICE

ADJUNCTS

SIZE / TYPE

SUCTION / O₂ 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
<table>
<thead>
<tr>
<th>Type of exposure</th>
<th>Asymptomatic HCW with exposure within the past 14 days</th>
<th>14 day work exclusion</th>
<th>Other actions</th>
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</thead>
<tbody>
<tr>
<td>5</td>
<td>Contact with a symptomatic possible case whilst wearing recommended PPE with no breaches</td>
<td>No</td>
<td>No restrictions</td>
</tr>
<tr>
<td>6</td>
<td>Contact with a confirmed case whilst wearing recommended PPE with no breaches</td>
<td>No</td>
<td>No restrictions, but passive follow up for 14 days after last exposure</td>
</tr>
<tr>
<td>7</td>
<td>Contact with a symptomatic possible case without wearing recommended PPE</td>
<td>No</td>
<td>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</td>
</tr>
<tr>
<td>8</td>
<td>Contact with a confirmed case without wearing recommended PPE</td>
<td>Yes</td>
<td>Self-isolation at home for 14 days after last contact (HPT will advise on follow-up)</td>
</tr>
<tr>
<td>Household or other setting outside of work</td>
<td>Contact with a possible case</td>
<td>No</td>
<td>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</td>
</tr>
<tr>
<td>10</td>
<td>Contact with a confirmed case</td>
<td>Yes</td>
<td>Self-isolation at home for 14 days after last contact (HPT will advise on follow-up)</td>
</tr>
</tbody>
</table>
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)
Any questions?