GUIDELINES FOR THE MANAGEMENT OF TRACHEAL INTUBATION IN CRITICALLY ILL ADULTS

HUMAN FACTORS

ENVIROMENTAL

- Standardised Airway Trolley
- Checklists & Algorithms
- Open, no-blame discussions

TEAM

- Team leader to coordinate
- 4,5 or 6 person team

TEAM BEHAVIOUR & PERFORMANCE

- Introduce team members and their roles
- Leader 'hands free'
- All staff be allowed to speak up
- Prebriefs and checklists

COGNITIVE OVERLOAD

VORTEX approach- 3 attempts each of:

- Facemask ventilation
- Supraglottic Airway
- Intubation

Failure then means FONA

CALL FOR HELP

- Trigger for help outlined at team brief
- Expert (head & neck) may be needed
- Should receive focused handover
- More experienced junior should assert themselves

COMMUNICATION TOOL

SNAPPI

- STOP
- NOTIFY
- APPRAISE
- PLAN
- PRIORITISE
- INVITE COMMENTS

HUMAN FACTORS

Human factors are the most prevalent cause of medical error and were prominent in NAP4 ICU reports.

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PLAN A -Part 1

TEAM ASSEMBLY & BRIEF

- Checklists and allocation of clear roles
- Discussion of Plans A-D

POSITIONING

- Sit up to 25-30 degrees if tolerated
- Sniffing position
- Ear to sternal notch (ramping)

MONITORING

- Oximetry
- Capnoraphy
- BP
- ECG
- End Tidal O2 concentration

PREOXYGENATION

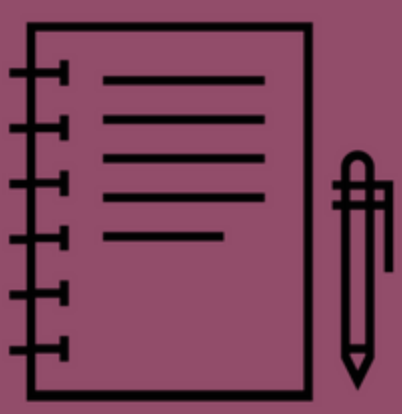
- 10-15L/min 100% 3 mins
- Circuit i/c CPAP valve
- NIV maybe beneficial
- HFNO prolongs apnoea time?
- Delayed sequence induction- ketamine.

PEROXYGENATION

- Nasal O2 @ 15L/min
- 2 Handed technique may help
- Facemask i/c CPAP valve in between attempts
- Facemask vent if hypercarbia an issue

INDUCTION

- **Preoxygenation**
- **Optimal Positioning**
- **IV Induction**
- **Rapid onset NMBA**
- **Discontinue enteral feed**
- **Suction NG**
- **Cricoid?**
- **Preox i/c CPAP**
- **Capnography**



Failure of 'first pass success' occurs in up to 30% of ICU intubations.

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PLAN A -Part 2

INDUCTION DRUGS

- Ketamine becoming more favoured
- Co induction with rapidly acting opioids
- Recommend use of NMBA
- Rocuronium maybe more rational choice

TIME

- Note the time induction commences
- Allocate a team member
- Significant time may pass unnoticed.

LARYNGOSCOPY PATIENT

- Positioned optimally
- Preoxygenated
- Anaesthetised
- Neuromuscularly relaxed

LARYNGOSCOPY OPERATOR

- Primary plan and plan for failure
- Trained and proficient in techniques they intend to use
- Be supported by trained, briefed team

LARYNGOSCOPY

- Limit number of attempts to 3
- Use techniques to improve view or access
- Grade 2b or 3a views- use bougie or stylet
- Failure after 3- move to Plan B/C

VIDEO LARYNGOSCOPY

- **Should be available**
- **If difficulties predicted then video should be used from outset**
- **Poor view with DL? Then use VL**
- **Screen visible to all team**

CONFIRMATION OF INTUBATION

- **Mandatory to use waveform capnography**
- **Auscultation and chest wall movement are unreliable signs.**

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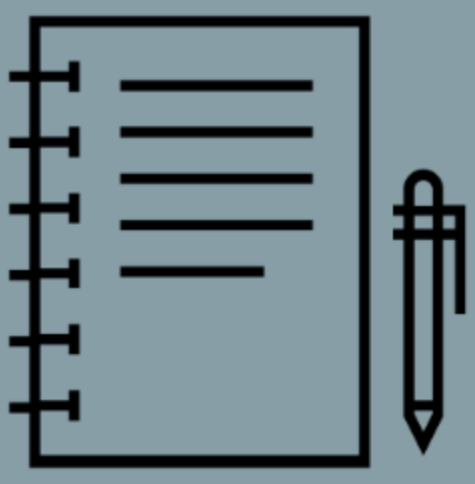
PLAN B/C



VORTEX APPROACH

- Place of effective oxygenation and safety- green zone
- Alternating continuum- intubation, SGA, Facemask
- Max 3 attempts of each before declaring failure

SUPRAGLOTTIC AIRWAY

- During airway rescue SGA insertion preferable
- 2nd generation should be available
- Features intended to reduce risk of aspiration

OPTIMISE SGA INSERTION

- Remove cricoid pressure
- Correct position
- Optimal insertion technique
- Gastric tube does not need removing

STOP, THINK, COMMUNICATE

- Options are:

- Wake the patient
- Wait for an expert
- Intubate via the SGA
- Proceed to FONA

FACEMASK VENTILATION

- Prepare for FONA!
- Success evidenced by waveform capnography
- Still need to consider options- wake, await expert, FONA
- Only allow 3 facemask ventilation attempts

UNSUCCESSFUL VENTILATION

- **Beware task fixation- recognise failure**
- **End tidal capnograph definitive monitor for success or failure**
- **Open FONA set early.**
- **'We need to perform an emergency front of neck airway'**

Failed intubation occurs in 10-30% in critically ill patients and should be anticipated.

Failed intubation is likely to lead to severe hypoxaemia (Sats <80%)

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GUIDELINES FOR THE MANAGEMENT OF TRACHEAL INTUBATION IN CRITICALLY ILL ADULTS

PLAN D-FONA

REMEDIABLE FACTORS FIRST...

Equipment

- Oxygen Failure
- Blocked breathing system
- Blocked airway device
- Poor mask seal

REMEDIABLE FACTORS FIRST...

Airway

- Excessive Cricoid force
- Laryngeal spasm
- Foreign body
- Regurgitated material
- Blood
- Severe bronchospasm

'PRIMING FOR FONA'

- Get FONA set to bedside after one failed attempt
- Open set after one failed facemask or SGA
- Immediate use at CICO declaration

SCALPEL, BOUGIE, TUBE TECHNIQUE

Palpable membrane-

- Transverse stab through cricothyroid membrane
- Turn blade through 90 degrees
- Slip coude tip along blade
- Railroad cuffed tube
- Inflate, ventilate and confirm position

SCALPEL, BOUGIE, TUBE TECHNIQUE

Membrane not palpable-

- Make a large vertical mid line incision
- Blunt dissection with fingers
- Identify and stabilise the larynx
- Proceed as with palpable membrane

NOT RECOMMENDED!

- **Transtracheal jet ventilation (TTJV)**
  - **High risk**
  - **Poor outcomes**
  - **Technique failure**
  - **Poorly suited in critically ill**
- **Seldinger cricothyroidotomy sets**

MANAGEMENT FOLLOWING FONA

- **Waveform capnography to confirm tube placement**
- **Fibreoptic inspection or chest X Ray**
- **Once stabilised airway will need conversion to tracheal tube or tracheostomy**

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