



**Emergency
Care Institute**
NEW SOUTH WALES



ACI NSW Agency
for Clinical
Innovation

GOING DOWN THE TUBE

Learning from our Incidents:
RED FLAGS in the Emergency Department



The case

A batphone is called for a 24 year old male with a gunshot wound to his head. The ambulance officer tells you he is GCS 3/15 and has non reactive pupils.

The case

On arrival, his signs were as follows;

- *Airway patent*
- *SpO₂ 93% on 6L O₂*
- *HR 80*
- *BP 110/80*
- *GCS 3*
- *BSL 8.2*

The case

His primary survey reveals no evidence of chest or abdominal or pelvic trauma, and he remains hemodynamically stable.

You decide to proceed with a rapid sequence induction to protect his airway with an endotracheal tube in view of the low GCS.

What are the important aspects when preparing for an RSI?

The case

The ED registrar proceeds with a rapid sequence induction and inserts a 7.5 mm cuffed oral endotracheal tube.

**How would you confirm placement of
the endotracheal tube?**

The case

The registrar notes that it was a grade II view and that the ETT was seen to pass through the vocal cords.

After intubation, SpO₂ are 100%, movement of the chest is noted with bag ventilation, and bilateral air entry is noted on auscultation of the chest.

The ETT is tied at 24 cm at the lips, and the patient is connected to a ventilator with a side stream CO₂ detector in the circuit.

A CO₂ wave form is not seen, which is felt to be equipment failure, and a different monitor is sought and attached. There is still no CO₂ trace on the monitor, which is again considered to be due to equipment failure.

**Are you confident the
endotracheal tube is in the
correct place?**

The case

At 6 minutes post intubation the patient is noted to desaturate, and the ETT is withdrawn to 22 cm at the lips as it is felt that the desaturation is due to right main bronchus intubation.

A FAST scan is attended and is assessed as showing a right sided pneumothorax. Needle decompression is undertaken on the right with a marked increase in air entry noted.

At 18 minutes post intubation the patient becomes bradycardic and desaturates to 74%, and after a further 2 minutes the patient arrests. CPR is commenced but is unsuccessful and the patient is declared deceased.

The case

At post mortem it was determined that this was a missed oesophageal intubation

What are the lessons here?

Auscultation and fogging of the tube can be positive immediately after an oesophageal intubation.

SpO₂ can remain 100% initially after an oesophageal intubation due to patient pre-oxygenation.

>> CAPNOGRAPHY MUST BE USED IN EVERY INTUBATION IN THE EMERGENCY DEPARTMENT.



What are the lessons here?

A checklist should be used for all emergency department intubations.

A checklist should include preparation of the patient, equipment/drugs and team, and preparation for difficulty.



What is the evidence?

Airway checklist

- There is overwhelming evidence that airway checklists improve first pass success rates, and decrease rate of complications. Several sites have published improvements in their data after introducing mandatory and standardised checklists.
- NAP4 – the 4th National Audit Project of the Royal College of Anaesthetists recommends that a checklist be used for every emergency intubation
- A checklist should include preparation of the patient, equipment/drugs and team, and preparation for difficulty – an example of a generic, adaptable checklist can be seen next.

Checklist for Intubations in the Emergency Department

TEAM

- Further help required
- Team members introduced by name & role, briefing by team leader:
 - Manual Inline Stabilisation
 - Laryngeal manipulation/cricoid
 - Drugs
 - Assistant intubator
- Difficult intubation plan brief
- Anticipated problems – does anyone have questions or concerns?
- Further help required

PATIENT

- Pre-oxygenation optimal
 - Nasal prongs
 - Consider NIV
- Patient position optimal
- Patient haemodynamics optimal
- Fluid bolus
- Pressors

Does it look like it might be a:

- Difficult BVM
- Difficult laryngoscopy
- Difficult supraglottic airway
- Difficult cricothyroidotomy

IV / DRUGS / MONITORING

- Fluids connected, IV/IO runs e
- Spare IVC
- Monitor: ECG, BP, SaO2
- NIBP opposite arm to IVC
- Baseline BP seen
- RSI drugs drawn up, doses cho
- Post-intubation sedation plan
- Drugs drawn up

EQUIPMENT

- Suction working
- BVM with EtCO2 connected
- Oropharyngeal and 2 x Nasopharyngeal airways availa
- C-MAC as first-line
- 2 x working laryngoscopes
 - correct blade size
- ETTs chosen, cuffs tested
- Bougie/stylet
- Tube tie or tapes ready
- Ventilator circuit attached
- LMA sized and available
- Surgical airway equipment ava

What is the evidence?

Capnography

- *NAP4 notes that “The required standard of satisfactory tracheal placement is repeated capnograph traces (at least 6 breathing cycles) with appropriate values of end-tidal carbon dioxide. Without this pattern the tube must be assumed to be in the oesophagus and should be re-sited and checked again”*
- In case of cardiac arrest, where the ETT is in the correct place and where CPR is ongoing the CO₂ waveform may be smaller, but **will not be flat.**

Access the ECI Clinical Tool:

Airway Checklist

<https://www.aci.health.nsw.gov.au/networks/eci/clinical/clinical-resources/clinical-tools/airway-management/airway-checklists>

References

<https://www.rcoa.ac.uk/system/files/CSQ-NAP4-Section2.pdf>