

Capnography Tea Trolley Training – 5 minute plan

- a) **Introduction:** “this teaching is all about the whole team recognising the different capnography waveform shapes and their significance”
- b) **Talk through the capnography teaching sheet (attached), explaining:**
- We should ideally see a capnography trace with a row of ‘top hats’ – this suggests a patent airway
 - Good Hats (left of the sheet) = no action required: “Posh hats are best in Bath!”
 - i. Top Hat (patent airway)
 - ii. Ascot Hat (patent airway but likely bronchospasm/airflow limitation)
 - Bad Hats on the right of the sheet = action needed
 - i. Dunce Hat (likely leak around the tracheal tube) = *urgent action* unless using an uncuffed tracheal tube
 - ii. No Hat = *emergency action required*
 1. Actively rule out oesophageal intubation, using repeat laryngoscopy (ideally videolaryngoscopy) +/- re-intubate. Consider using bronchoscopy to visualise the tracheal rings/carina
 2. Other explanations include:
 - a. blockage/kinking/disconnection/displacement of tracheal tube/tracheostomy or ventilator tubing
 - b. blockage/kinking/disconnection of capnography tubing
 - c. lack of ventilation
 - d. severe bronchospasm
 3. Remove tracheal tube if unsure
 - “No Trace = WRONG PLACE!” – if you see a flat capnograph trace, oesophageal intubation should be actively excluded
 - Use of Capnography in CPR – we should still see a capnograph wave during CPR for a cardiac arrest if an airway and capnography is correctly sited, although it may have an attenuated shape (as shown in the teaching guide). If no capnography waveform trace is seen during CPR, remember “No trace=wrong place” and actively exclude oesophageal intubation as above
- c) **All members of the anaesthetic team should be able to recognise the different shapes**
- If you do not see a row of ‘top hats’ then raise your concerns with your anaesthetist and team as soon as possible
 - Following intubation, there should be 6 or more ‘top hats’ (“sustained capnography”) – and if not please raise your concerns with your anaesthetist/team
- d) **Thank you and any questions?** - Feedback forms, register and treats!

Capnography Tea Trolley Training – 10 minute plan

1. Introduce yourselves and explain what is being taught

- Training on the use of and importance of capnography traces
- What is capnography? A wave form generated by measuring the amount of CO₂ exhaled by a patient over time. The waveforms can give us useful information about the quality of the airway in place

2. Why?

- Important safety update and awareness drive
- Recently highlighted following the case of Glenda Logsdail, a retired radiographer who died in 2020: unrecognised oesophageal intubation resulted in a prolonged period of hypoxia and subsequent irreversible hypoxic brain injury
- Drive from the RCoA, DAS, SALG and Association of Anaesthetists to improve care
- Failure to use capnography in patients dependent on an artificial airway contributed to more than 70% of ICU-related airway deaths in NAP4
- The goal is to prevent instances of unrecognised oesophageal intubation

3. Capnography Hats

Using the Teaching sheet as a visual guide for the learners:

- Good Hats – Top Hat and Ascot Hat
- Bad Hats – Dunce Hat and Flat Cap
- “No Trace = WRONG PLACE!” – upon recognition of a flat capnograph trace oesophageal intubation should be actively excluded
- Use of Capnography in CPR – we should still see a capnograph wave during CPR for a cardiopulmonary arrest if an airway and capnography is correctly sited, although it may have an attenuated shape (as shown in the teaching guide)

4. Quiz Time!

- Flash a waveform and have the recipients call out if the waveform is ‘good’ or ‘bad’ and award bonus points if they can tell us what the cause for that trace may be
- Extra Quiz cards - to engage those members of staff with more knowledge regarding capnography traces

5. What to do if you spot a bad hat or even no hat?

- All team members should feel empowered to raise this with the person managing the airway
- Local procedures to rule out oesophageal intubation

6. Thank you!

- Treats and registers/feedback forms

We found that encouraging the learners to wear one of the hats while delivering the teaching, and/or acting out the shapes of the hats with their arms, was a great way to help engage everyone and anchor the teaching in their memory!