

## 1. Introduction





This guideline is to inform regarding the use of capnography within intensive care.

## 2. Scope

This guideline applies to all invasively ventilated patients on intensive care.

## 3. Guideline Standards and Procedures

- 3.1. Capnography should be used for all critically ill patients during the procedures of tracheostomy or endotracheal intubation when performed in the intensive care unit.
- 3.2. Continuous capnography should be used for all ventilated patients in the intensive care unit whose trachea is intubated.
- 3.3. Capnography should be used in all critically ill patients who require mechanical ventilation during inter-hospital or intra-hospital transfer.
- 3.4. If a capnograph trace is completely flat, oesophageal intubation should be assumed until proven otherwise. No Trace = Wrong place
- 3.5. Capnogram during a cardiac arrest is an attenuated trace and it is NOT a flat trace. If CPR is ongoing the attenuated trace is more prominent. If NO Trace, oesophageal intubation should be actively excluded.
- 3.6. Rare situations in which capnography is misleading can be reduced by increasing staff familiarity with the equipment, and by re- laryngoscopy or the use of bronchoscopy to actively exclude oesophageal intubation or confirm tube placement where the tube may be displaced but remains in the respiratory tract. If tube position cannot be confirmed remove and ventilate by alternative airway control.

Good	Bad
 <p data-bbox="344 367 505 394">Top hat – good</p> <p data-bbox="185 426 573 453">Indicates – clear unobstructed airway</p>	 <p data-bbox="834 367 995 394">Dunce hat – bad</p> <p data-bbox="683 426 964 453">Indicates – significant leak</p>
 <p data-bbox="344 699 505 726">Ascot hat – OK</p> <p data-bbox="185 758 589 814">Indicates – bronchospasm - partially obstructed airway</p>	 <p data-bbox="829 699 1013 726">No hat – very bad</p> <p data-bbox="683 758 1149 877">Indicates – dislodged/displaced tracheal tube or tracheostomy - oesophageal intubation - lack of ventilation</p>

'Hats and caps' guide to capnography traces on intensive care

3.7. Capnography offers the potential for non-invasive measurement of additional physiological variables including physiological dead space and total CO<sub>2</sub> production.

3.8. Capnography is not a substitute for estimation of arterial CO<sub>2</sub>.

3.9. Capnometry is an alternative to capnography where capnography is not available, for example where endotracheal intubation is required in general ward areas.

#### **4. Education and Training**

Capnography training is mandatory as part of anaesthesia training and should, in addition, be provided as part of critical care teaching.

#### **5. Monitoring and Audit Criteria**

Element to be Monitored	Lead	Method	Frequency	Reporting arrangements
Compliance	Local audit leads for ICU	Snapshot Audit	2 yearly	To local consultant meeting Q and S board for assurance

### 6.Supporting References

Capnography guidelines 2014. Intensive Care Society. "The Intensive Care Society - Guidelines And Standards". *Ics.ac.uk*. N.p., 2016. Web. 14 Apr. 2016.

<https://www.rcoa.ac.uk/safety-standards-quality/guidance-resources/capnography-no-trace-wrong-place>

Hats and caps' capnography training on intensive care [T. M. Cook,F. E. Kelly,A. Goswami](https://doi.org/10.1111/anae.12173) First published: 11 March 2013  
<https://doi.org/10.1111/anae.12173>

### 7.Key Words

Capnography  
Intensive Care  
Critical Care

CONTACT AND REVIEW DETAILS	
<b>Guideline Lead (Name and Title)</b>  Dr Ravindra Pochiraju,Locum Consultant Critical care Dr Emily Mugambi, Specialty doctor Critical care	<b>Lead Committee or Executive Lead</b>  <b>ITU Head of Service</b>
<b>Date of Next Review by Approval Committee:</b>	<b>Details of Changes made during review:</b>

