

# Capnography

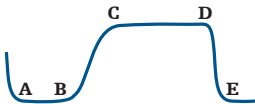
## Quick reference guide

Capnography is an objective monitoring tool for assessing respiratory status in the intubated and non-intubated patient.

### **2015 ERC and AHA Guidelines\* recommend waveform capnography for the following:**

- Confirming correct ET tube placement
- Monitoring ET tube placement
- An indication of compression effectiveness
- An indication of return of spontaneous circulation (ROSC)

#### **Normal Waveform:**



**A-B** Respiratory baseline

**B-C** Expiratory upslope

**C-D** Expiratory plateau

**D** End-tidal value—peak CO<sub>2</sub> concentration—at the end of exhalation

**D-E** Inspiratory downstroke

# Intubated Patient

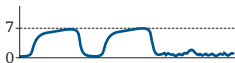
## Applications on intubated patients include:

- Verify and monitor ET tube placement
- Demonstrate effectiveness of rescue efforts during CPR
- Detect early signs of ROSC

### Examples:

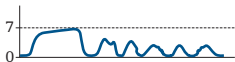
#### Sudden loss of waveform

- ET tube disconnected, dislodged, kinked or obstructed
- Loss of circulatory function



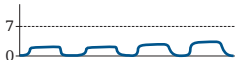
#### Decreasing EtCO<sub>2</sub>

- ET tube cuff leak
- ET tube in hypopharynx
- Partial obstruction



#### CPR Assessment

- Attempt to maintain minimum of 1.33 kPa



#### Sudden increase in EtCO<sub>2</sub>

- Return of spontaneous circulation (ROSC)



## Non-intubated Patient

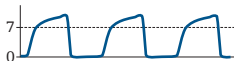
### Applications on non-intubated patients include:

- Detect obstructive lung diseases such as emphysema or asthma
- Detect hypoventilation during sedation, analgesia, alcohol or drug intoxication, or post-seizure
- Rapidly assess and triage patients; this can be particularly useful when assessing high volumes of critically ill patients

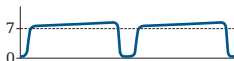
### Examples:

#### Bronchospasm (“Shark-fin” appearance)

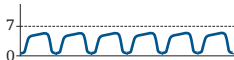
- Asthma
- COPD



#### Hypoventilation



#### Hyperventilation



#### Decreased EtCO<sub>2</sub>

- Apnea
- Sedation



\* Link M, Berkow L, Kudenchuk P, et al. Part 7: adult advanced cardiovascular life support: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 2015;132(suppl 2):S444-S464.

Soar J, Nolan J, Bottiger B, et al. European Resuscitation Council Guidelines for Resuscitation 2015 Section 3. Adult advanced life support. *Resuscitation*. 2015;95:100-147.

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