# CAPNOGRAPHY

## USES OF CAPNOGRAPHY (ACTAS):

- verify initial position of ETT
- monitor continuing tracheal position of ETT
- assist in assessment of adequacy of chest compressions
- assist with confirmation of ROSC
- aid in determination of cessation of resuscitation efforts
- monitor effective IPPV in patients with critical $CO_2$ requirements

## MONITORING PROCEDURE:

1. Open $CO_2$ connector door on monitor, connect Microstream tubing by turning clockwise. (The monitor will sense the presence of the tubing and activate the $EtCO_2$ function automatically. Self-test, auto-zeroing and warm up may take up to 2 ½ minutes).

2. Connect the tubing to the patient (distal to the bacterial filter is preferred).

3. Display $EtCO_2$ waveform on channel 3.

4. Adjust scale if required. (Monitor is configured to "Autoscale". This means that the monitor will over-select the scale based on the measured $EtCO_2$ measurement).

5. The $EtCO_2$ is displayed in mmHg. A respiratory rate is also displayed. (No respiratory rate is displayed if the $EtCO_2$ is less than 8mmHg. The waveform is still valid).

**Note:** rapid altitude changes may cause the machine to attempt to purge the tubing. If this occurs, disconnect the tubing briefly from the monitor, and then reconnect it.

## INTERPRETATION OF RESULTS:

➢ It is important to utilise waveform to assist in interpretation of information; do not rely only on the numerical reading.

➢ NOTE: $PaCO_2$ is generally 3mmHg higher than $EtCO_2$.

➢ Critical values in critical patients:

- **cardiac arrest**: $EtCO_2$ consistently above 15mmHg seems to have some positive correlation with ROSC

- patients with **acute intracranial pathology** – $PaCO_2$ should be in the range of 30 – 45mmHg. Therefore, *$EtCO_2$ should be in the range of 27 – 40mmHg*
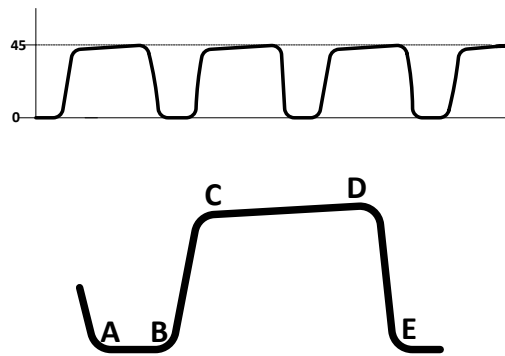
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**DOCUMENTATION OF RESULTS:**

- Serial $EtCO_2$ readings may be recorded in the appropriate section of the ACTAS PCR.

- Waveform printouts (important for verification of ETT placement) may be attached to the PCR from either a screen print or the code summary.

- $EtCO_2$ values will be included in the vital signs summary printout for later reference.
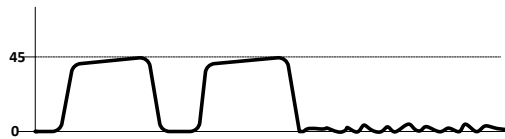
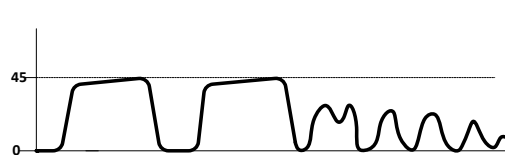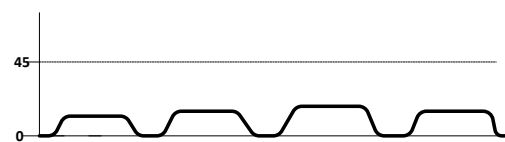| | |
|---|---|
| **Normal waveform:**<br><br>**A – B**   Respiratory baseline<br><br>**B – C**   Expiratory upslope<br><br>**C – D**   Expiratory plateau<br><br>**D**       End-tidal value – peak $CO_2$ concentration – at the end of the exhalation<br><br>**D – E**   Inspiratory downstroke | |
| **Sudden loss of waveform, $EtCO_2$ near zero:**<br><br>• ET tube disconnected, dislodged, kinked or obstructed<br><br>• loss of circulatory function | |
| **Decreasing $EtCO_2$ with loss of plateau:**<br><br>• ETT cuff leak or deflated cuff<br><br>• ETT in hypopharynx<br><br>• partial obstruction | |
| **CPR assessment:**<br><br>• attempt to maintain minimum 10mmHg | |
| **Sudden increase in $EtCO_2$:**<br><br>• return of spontaneous circulation | |