



# CAPNOGRAPHY LIFEPAK 12



## Escambia County, Florida - ALS/BLS Medical Protocol

Capnography shall be used when available with all endotracheal, nasotracheal, and rescue airways such as the King Airway LTS-Ds utilizing the Medtronic's LP12 Capnography.

The LP12 monitor is a capnometric and capnographic device that measures the amount of CO<sub>2</sub> during each breath, displays the CO<sub>2</sub> waveform, and reports the amount present at the end of the exhalation as an indication of breathing efficacy (ETCO<sub>2</sub>).

ETCO<sub>2</sub> monitoring is used in acute cardiopulmonary care and to detect trends in the level of expired CO<sub>2</sub>, for example, to determine if adequate compressions are being performed during CPR or to rapidly detect whether an endotracheal tube has been placed successfully.

The ETCO<sub>2</sub> monitor is intended for use on adult and pediatric patients.



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### PROCEDURE:

1. Attach the capnography sensor to the endotracheal tube, nasotracheal tube, and or rescue airway device.
2. Press print to obtain 6 to 12 second EKG strip.
3. Note the CO2 level and waveform changes. These will be documented on each respiratory failure, cardiac arrest, that receives advanced airway interventions to include RSI procedures.
4. The capnography shall remain in place with the airway and be monitored continuously throughout prehospital care and transport to include to the ER bedside for transfer of patient care to the ER staff and or ER Physician confirmation of tube placement.
5. Any loss of CO2 detection or waveform indicates an airway problem. This should be documented and the defect or change in presentation be remediated by keeping the "DOPE" mnemonic of D-Displaced, O-Obstruction, Pneumothorax, E-Equipment Failure as primary causes. \*

#### Clinical Presentations to Be Explored Include:

##### A. Loss of airway function.

- Improper placement of the ETT or other equipment malfunction.
- Apnea

##### B. Loss of circulatory function

- Massive pulmonary embolism
- Cardiac Arrest
- Exsanguinations



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### C. Equipment malfunction

- ETT extubation
  - ETT obstruction
  - Loss of oxygen source or powered ventilation
6. The capnography should be monitored as procedures are performed to verify and or correct the airway problem and to ascertain the efficacy of drugs, interventions, and or patient condition such as ROSC.
7. Document the procedure and results on/with the Patient Care Report and pass on a Code Summary to the ER staff to include the Capnography Summary.

### **ETCO2 MONITORING SETUP LP12:**

When activated, the ETCO2 monitor draws power from the defibrillator.

The LP12 activates the ETCO2 monitor by sensing the attachment of the CO2 tubing with the port opening.

Initialization, self-test, and warm up of the ETCO2 monitor may take up to two-and-one-half-minutes:

1. Open the CO2 tubing connector door and connect the tubing by turning it clockwise.

See display below:



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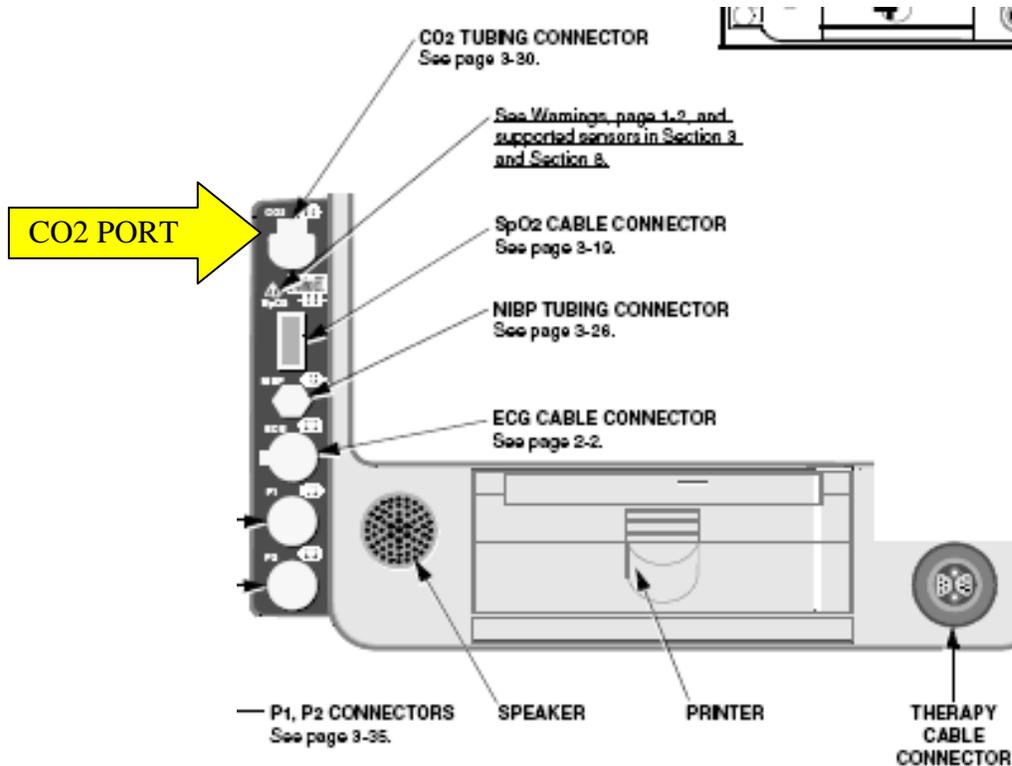
  
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2. Connect the other end of the tubing to the patient.

### FilterLine® Products



15MM  
ADAPTOR  
END OF  
TUBING

3. Press ON if the monitor is not already on to power the unit up.
4. Verify that the ETCO<sub>2</sub> monitor display is on.
5. Display the CO<sub>2</sub> waveform preferring assigned to Channel 3 on the display.
6. Adjust the scale if necessary by high lighting the CO<sub>2</sub> Block on the left of the display between the SPO<sub>2</sub> and NIBP sections.

This will display the following in the picture below:



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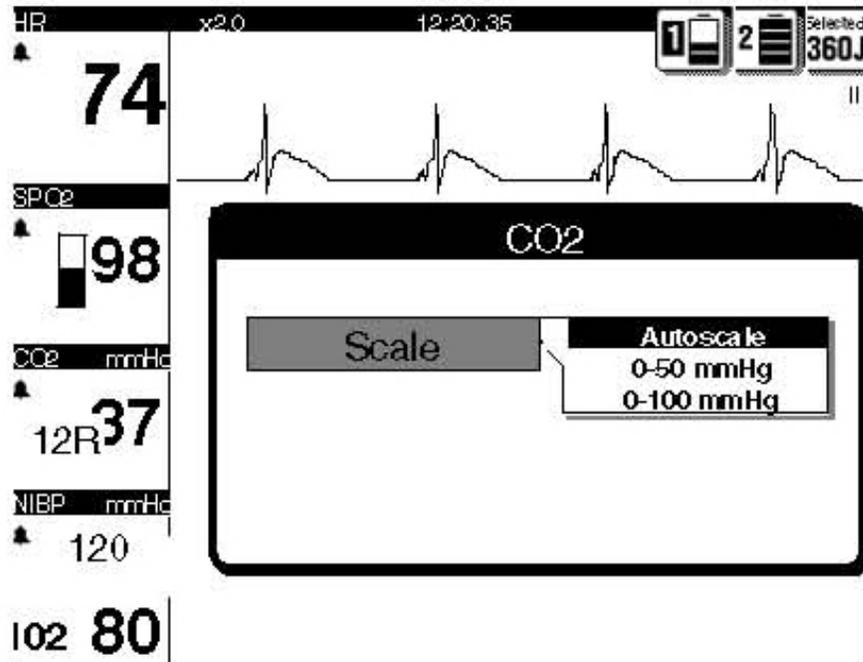
  
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There are three options available for the display scale.

To change the CO2 scale, select CO2 and choose the desired scale from the scale overlay.

1. Autoscale is the default and selects the appropriate scale based on the current measured CO2 value.
2. 0-50mm Hg is a value
3. 0-100mm Hg



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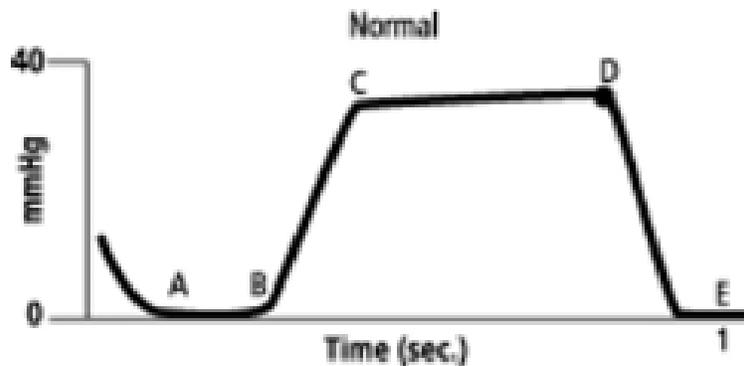
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## NORMAL VALUES AND WAVEFORMS:

**EtCO<sub>2</sub> Values**

Normal 35 – 45 mmHg  
Hypoventilation > 45 mmHg  
Hyperventilation < 35 mmHg

FIGURE 1: Normal Waveform



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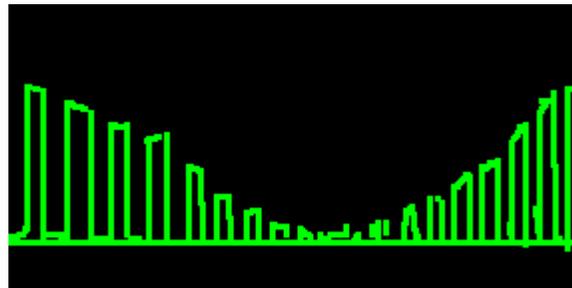
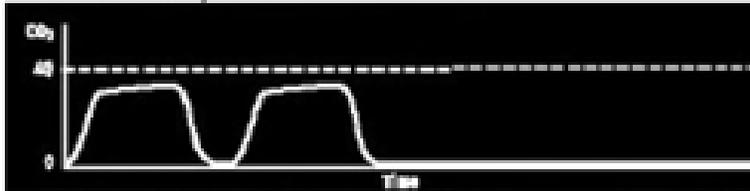


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FIGURE 3: Respiratory Failure



FIGURE 4: Airway Obstruction



CPR  
COMPRESSIONS



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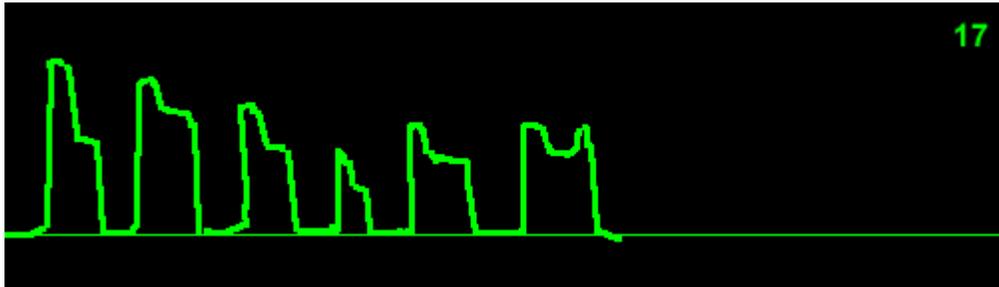
  
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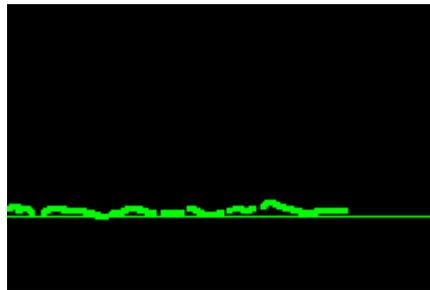
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**CARBONATED  
BEVERAGES**



**ESOPAHAGEAL  
INTUBATION**



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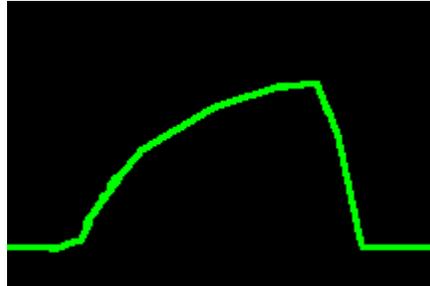


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**EMPHYSEMA  
ASTHMA  
BRONCHOSPASM**

## **CERTIFICATION REQUIREMENTS:**

Each Paramedic should maintain a knowledge base of the indications, contraindications, techniques, and possible complications of the procedure.

Assessment of this knowledge may be accomplished via quality assurance mechanism, classroom demonstrations, skills stations, or other mechanisms as deemed appropriate by ECEMS.

\*Questions other than what is covered above may be answered from the LP12 operating manual



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