Impedance Threshold Device (ITD) (Optional)

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PURPOSE
Conventional CPR provides 15% of normal blood flow to the heart and blood flow to the brain is 25% of normal. Current survival rates average 5%.

PROTOCOL

The ITD is an impedance threshold device that prevents unnecessary air from entering the chest during the decompression phase of CPR. When air is prevented from rushing into the lungs as the chest wall recoils, the vacuum (negative pressure) in the thorax pulls more blood back to the heart, resulting in a:

- Doubling of blood flow to the heart.
- 50% increase in blood flow to the brain.
- Doubling of systolic blood pressure.

<u>Pre-Medical Control</u>
MFR/BASIC/SPECIALIST/PARAMEDIC

Indications:
1. Cardiopulmonary arrest (medical etiology)

Contraindications:
1. Cardiopulmonary arrest related to trauma

Procedure:
1. Confirm absence of pulse and begin CPR immediately. Assure that chest wall recoils completely after each compression.

2. <u>Using the ITD on a facemask:</u>
   A. Connect ITD to the facemask.
   B. Connect ventilation source (BVM) to top of ITD. If utilizing a mask without a bag, connect a mouthpiece.
   C. Establish and maintain a tight face seal with mask throughout chest compressions. Use a two-handed technique or head strap.
   D. Do not use the ITD's timing lights during CPR utilizing a facemask for ventilation.
   E. Perform ACLS interventions as appropriate.
   F. Prepare for endotracheal intubation.

3. Using the ITD on an endotracheal tube or Supraglottic Airway Device (SAD):
   A. Endotracheal intubation is the preferred method of managing the airway when using the ITD.
   B. Place endotracheal tube or SAD and confirm placement. Secure the tube.
   C. Move the ITD from the facemask to the advanced airway and turn on timing assist lights (remove clear tab).
   D. Continue CPR with minimal interruptions:
      a. Provide continuous (no pauses) chest compressions (approximately 10 per light flash) and ventilate asynchronously over 1 second when light flash 10/min).
   E. Perform ACLS interventions as appropriate.
   F. If a pulse is obtained, remove the ITD and assist ventilations as needed.

Special Notes:

1. Always place $ETCO_2$ detector between the ITD and ventilation source.
2. Administer endotracheal medications directly into endotracheal tube.
3. Do not interrupt CPR unless absolutely necessary.
4. If a pulse returns, discontinue CPR and the ITD. If the patient rearrests, resume CPR with the ITD.
5. Do not delay compressions if the ITD is not readily available.
6. Initial training and ongoing competency skills shall be monitored by the agency.