Impedance Threshold
Device: ResQPOD
The Impedance Threshold Device (ResQPOD)

- Intended for use only in cardiac arrest patients because it:
  - Increases blood flow to the heart and brain during assisted ventilation
  - Increases the opportunity for survival and normal neurological outcome
  - Is effective with standard CPR and works in conjunction with all standard resuscitation techniques and equipment
  - Recommended as a circulatory enhancer for the treatment of cardiac arrest by the AHA.
  - "Doubles the blood flow during CPR"
    (Advanced Circulatory Systems Inc.)
RECOIL: CPR alone delivers approximately 15% of normal blood flow to the heart

RECOIL: ResQPOD doubles blood flow back to the heart
Blood Flow to Brain

**COMPRESSION:** CPR alone delivers approximately 25% of normal blood flow to the brain.

Greater Blood Flow to Brain

**COMPRESSION:** ResQPOD delivers 50-70% of normal blood flow to the brain.
What is Negative Pressure and why is it important?

- Negative Pressure is basically a vacuum
- It is the vacuum that helps bring blood back to the heart during the recoil phase of CPR
Why is Regular CPR Inefficient?

During the recoil phase of CPR, the negative pressure created will cause air to rush into the lungs from an unimpeded airway. The ResQPOD has a one-way valve that requires a greater force for air to pass through. This is why it is utilized only in cardiac arrest. The ResQPOD would inhibit spontaneous ventilations and as such is never indicated for patients with Return of Spontaneous Circulation (ROSC). Air is allowed to move into the tube freely, which interrupts the vacuum.
The ResQPOD Maintains the Vacuum

- The ResQPOD impedes air from entering the lungs during recoil.
- This preserves the vacuum, allowing for greater blood return to the heart.

Air is impeded from rushing in and breaking the vacuum seal.
A Breakdown of the ResQPOD

Ventilation Port

Ventilation Timing Assist Lights
provide guidance to the rescuer on proper ventilation rate to optimize cardiac output and oxygenation.

Atmospheric Pressure Sensor System
augments blood flow to the heart when intrathoracic pressures are < 0 ATMs.

Ventilation Guidance Switch
slide for use of the ventilation timing assist lights.

Single Use Only

Patient Port
allows fast and easy connection to an endotracheal tube or other airway adjuncts.
Ventilation Timing Assist Lights

For CPR with an Advanced Airway in Place:

- Give 1 breath every 6 to 8 seconds
  (approximately 8 to 10 breaths per minute)
  - (page 32, AHA ACLS Textbook)
  - (page 26, AHA BLS for HCP Textbook)
  - (page 55, LSEMS Protocols)
  - (potential test question on next protocol test)
Using the ResQPod on an Advanced Airway

1. Confirm tube placement
2. Secure tube
3. Connect in-line capnography
4. Connect ResQPOD to an Advanced Airway
5. Connect ventilation source to ResQPOD
6. Continue chest compressions
7. Coordinate ventilations with timing light
ResQPOD Use

- Utilize the timing assist light to guide ventilation rate
- Perform CPR
  - Prime the Pump
- Remove ResQPOD as soon as ROSC occurs
Troubleshooting

- At times, secretions normally encountered from CPR can accumulate inside the device
- The ResQPOD will need to be cleared of these secretions
- To clear accumulated secretions:
  - Shake the device
  - The BVM can be utilized to clear the device
    - Be contentious of potentially infectious bodily fluids
Indications per LSEMS Medical Director

- Only use the ResQPOD when your patient is intubated with an advanced airway:
  - CUFFED ET Tube or
  - King Airway
  - And only for non-traumatic cardiac arrests

- The ResQPOD is contraindicated for:
  - Traumatic cardiac arrest
Thank You