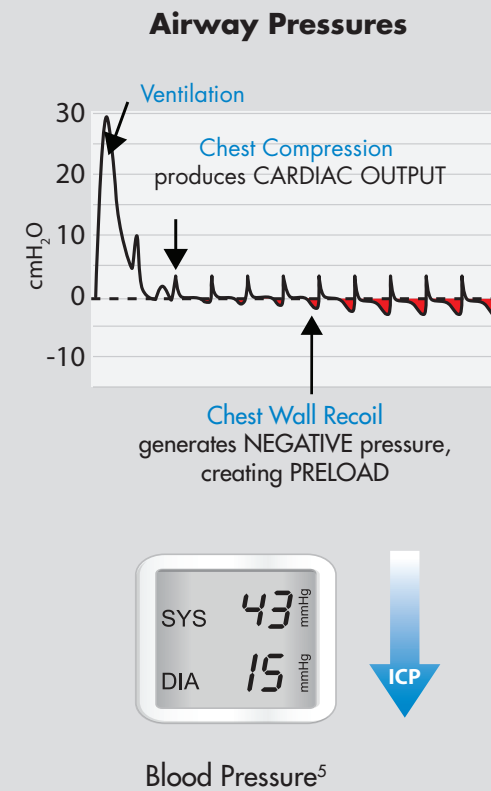


## Conventional CPR Limited Blood Flow

Chest compression forces air out of the lungs and blood out of the heart. During chest wall recoil, air is drawn in and eliminates the vacuum (negative pressure) that is needed to fill the heart. Intracranial pressure (ICP) is also slightly lowered during this phase.

### Blood flow may be limited due to:

1. Air rushing back into the lungs during chest wall recoil, minimizing the critical vacuum, and resulting in suboptimal preload and cardiac output.
2. Incomplete chest wall recoil, which compromises preload.
3. CPR quality issues (e.g., ventilating and compressing too fast or too slow).



## ResQCPR Improved Perfusion and Near-Normal Circulation

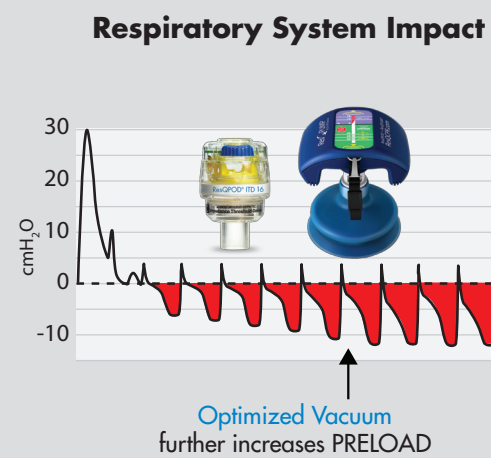
The ResQCPR devices work together to optimize perfusion:

### ResQPOD ITD 16

1. Regulates airflow into the lungs during chest wall recoil (except when intended during ventilation), enhancing the vacuum that generates preload and further lowering ICP.
2. Timing lights promote proper ventilation rate.

### ResQPUMP ACD-CPR Device

1. Allows the user to perform ACTIVE decompression, which further enhances the vacuum.
2. Gauge displays compression and lift forces.
3. Metronome promotes proper compression rate.



### Hemodynamic Impact



## Performing High-Quality ResQCPR

1. Confirm absence of pulse and send for AED.
2. Begin chest compressions with ResQPUMP.
3. Attach the ResQPOD to a facemask, using a two-handed technique to maintain a tight facemask seal and airway position. Move it to the advanced airway once intubated, and turn on lights to guide ventilations.
4. Begin using both devices as soon as possible so that the patient receives the benefit of ResQCPR at the earliest opportunity.
5. Perform chest compressions at the recommended compression-to-ventilation ratio. Use a 50% duty cycle, spending equal time compressing and lifting. Avoid interruptions.
6. Use the force gauge to monitor forces and rescuer fatigue. Rotate ACD-CPR duties every two minutes (or more often) to avoid fatigue.
7. If the patient has a return of spontaneous circulation (ROSC), use of both devices should be discontinued. If the patient re-arrests, resume ResQCPR immediately.
8. **NOTE:** Signs and symptoms of improved cerebral blood flow (e.g., eye opening, gagging, spontaneous breathing, limb or body movement) have been reported in patients without a pulse who are undergoing ResQCPR. If these occur, check quickly to see if a pulse has returned. If the patient remains in cardiac arrest, continue ResQCPR and contact your medical control authority for guidance on managing these signs and symptoms in an arrested patient. If ROSC occurs, discontinue ResQCPR and support ventilations as indicated.

See product insert for complete instructions for use. The ResQCPR System is intended for use as a CPR adjunct to improve the likelihood of survival in adult patients with non-traumatic cardiac arrest. Risk information: Improper use of the ResQCPR System could cause ineffective chest compressions and decompressions, leading to suboptimal circulation during CPR and possible injury to the patient. The ResQCPR System should only be used by personnel who have been trained in its use. The ResQPUMP should not be used in patients with a recent sternotomy as this may potentially cause serious injury. Improper positioning of the ResQPUMP suction cup may result in possible injury to the rib cage and/or internal organs, and may also result in suboptimal circulation during ACD-CPR. Pre-clinical studies may not be indicative of clinical outcomes.

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269 Mill Road  
Chelmsford, MA 01824  
978-421-9655  
800-804-4356  
www.zoll.com

For subsidiary addresses and fax numbers, as well as other global locations, please go to [www.zoll.com/contacts](http://www.zoll.com/contacts).

# ResQCPR™ System

Better Blood Flow. Improved Survival.

<sup>1</sup>Andreka P, et al. *Curr Opin Crit Care*. 2006;12:198-203.

<sup>2</sup>Lurie KG, et al. *Cardiovasc Electrophysiol*. 1997;8:584-600.

<sup>3</sup>Plaisance P, et al. *Circulation*. 2000;101:989-994.

<sup>4</sup>ResQCPR System Summary of Safety and Effectiveness Data submitted to FDA.

<sup>5</sup>Pirrallo RG, et al. *Resuscitation*. 2005;66:13-20.

# What is the ResQCPR System?

The ResQCPR™ System is the only CPR adjunct on the market with an FDA-approved indication to **increase the likelihood of survival** in adult patients with non-traumatic cardiac arrest.

The performance of ResQCPR relies on the use of two devices: the ResQPOD® ITD 16, an impedance threshold device (ITD), in combination with active compression-decompression cardiopulmonary resuscitation (ACD-CPR), performed with the ResQPUMP® ACD-CPR Device. No other device on the market is approved to deliver true ACD-CPR with 10 kg of lift.

Even though high-quality manual or automated CPR has been shown to increase survival, it provides only about 25%–40% of normal blood flow to the heart and brain.<sup>1</sup>

The ResQCPR devices work synergistically to deliver improved hemodynamics during cardiac arrest. By increasing preload and cardiac output, and lowering intracranial pressure (ICP) during CPR, the ResQCPR System has been shown in a pre-clinical study to provide near-normal blood flow to the brain, and in a clinical study to provide near-normal blood pressure.<sup>2,3</sup>

More importantly, a large clinical trial comparing conventional manual CPR to ResQCPR showed a **49% increase in one-year survival** in adult patients who arrested from a cardiac etiology and who received the ResQCPR System.<sup>4</sup>



## ResQPOD® ITD 16

The ResQPOD regulates airflow during the chest wall recoil phase of CPR to enhance the vacuum in the patient's chest. This results in more blood being returned to the heart (preload) and a lowering of intracranial pressure (ICP).

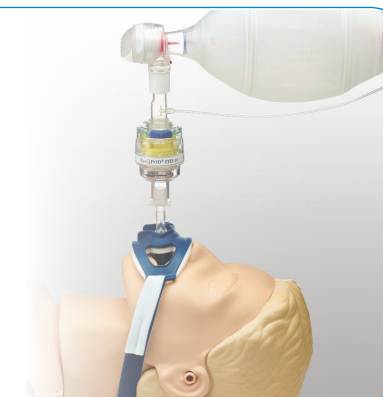
### Using the ResQPOD on a Facemask

1. Connect the ResQPOD to a facemask.
2. Open the airway, lifting the jaw to facemask. Establish and maintain tight face seal with mask throughout chest compressions; a head strap and two-handed technique are recommended.
3. Connect the ventilation source to the top of the ResQPOD.



### Using the ResQPOD on an Endotracheal (ET) Tube

1. Confirm ET tube placement and secure with a commercial tube restraint.
2. Connect ResQPOD to ET tube.
3. Place EtCO<sub>2</sub> detector between ResQPOD and ventilation source (preferred).
4. Connect ventilation source to top of EtCO<sub>2</sub> detector.
5. Turn on timing assist lights. Ventilate during active decompression phase (preferred) at timing light flash rate of 10/min.



### Additional Information for Caregiver

- Perform CPR at recommended compression-to-ventilation ratios.
- Ventilate over 1 second until chest rises.
- Do not hyperventilate!
- Clear secretions from the ResQPOD by blowing out using the ventilation source.

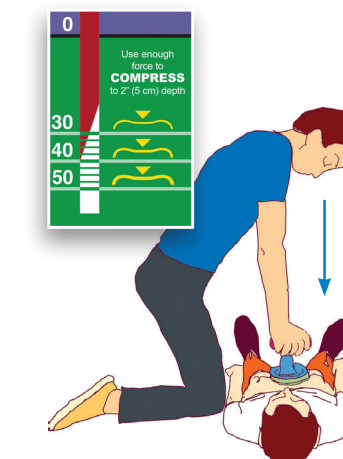
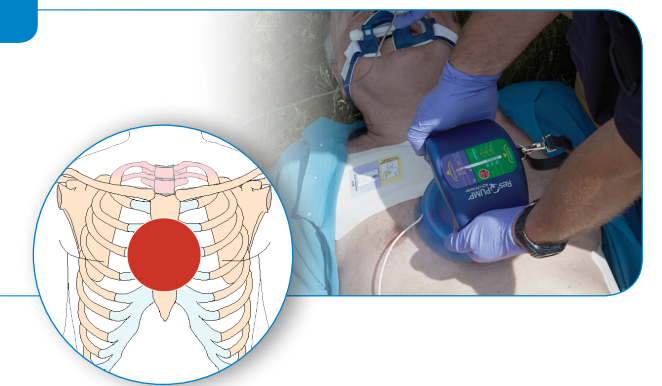


## ResQPUMP® ACD-CPR Device

The ResQPUMP further enhances the effect of the ResQPOD by actively re-expanding the chest, rather than relying on it to passively recoil. It also promotes proper ResQCPR compression rates (80/min), and helps guide compression and lifting forces.

### Rescuer and ResQPUMP Positioning

Kneel close to the patient's side with shoulders directly over the patient's chest. Place the ResQPUMP in the middle of the chest, between the nipples, but above the xiphoid process. Shaving may be needed to achieve good suction.



### Compress

Compress to recommended depth (e.g., 2 in or 5 cm). Observe the force required to achieve that depth, as it will vary according to how compliant the chest is. The tip of the red arrow indicates the force being applied.

The approximate amount of force required to compress the chest 2 inches is:

- 30 kg: soft/supple chest
- 40 kg: chest of average compliance
- 50 kg: stiff/rigid chest

Once the amount of force required is known, use that target as a guide for continued compressions.

Arms should be straight with shoulders directly over the sternum. Bend at the waist and compress, using the entire upper body and large thigh muscles. Compress at a rate of 80/min using the metronome (push button) as a guide. This rate allows for more filling time. Compress on one tone, lift on the other tone.



### Lift

To fully achieve the benefits of ACD-CPR, actively pull up until the tip of the red arrow on the force gauge registers ≈ 10 kg. Lift using the upper body and large thigh muscles, and bending at the waist. If the suction cup dislodges, then pull up slightly less. It is not necessary to lift with more than 10 kg of force. The ResQPUMP is the only device that allows rescuers to deliver true ACD-CPR.