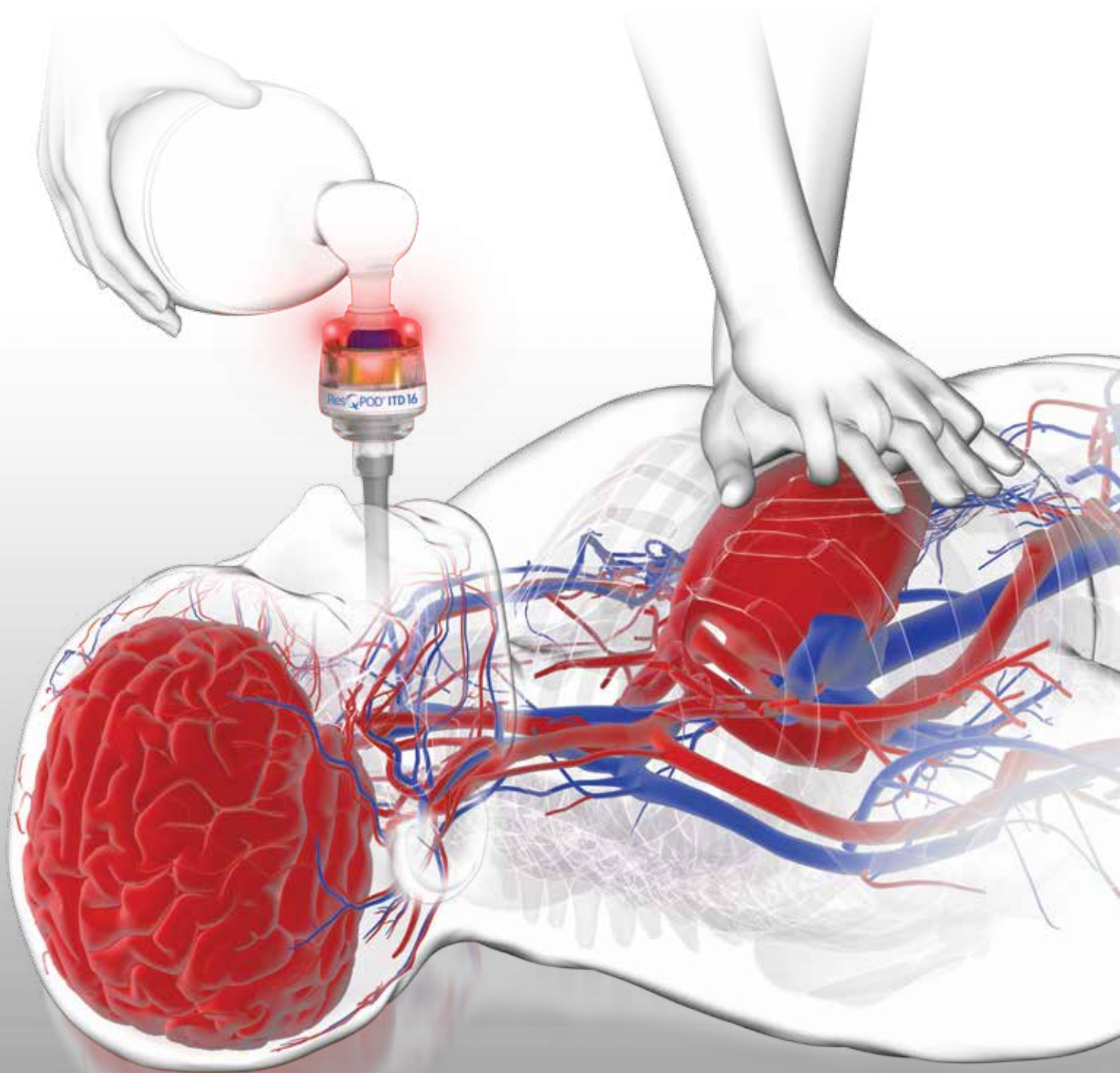



ResQPOD® ITD 16

ZOLL®



More Than A Heartbeat





Improve Perfusion During CPR

Today, only a small number of victims of in-hospital cardiac arrest survive. A focus on high-quality CPR and adoption of new techniques and technologies to facilitate it are helping many systems improve their outcomes. ZOLL's resuscitation platform is designed to help hospitals achieve the highest level of CPR quality, improving overall outcomes.

ZOLL's ResQPOD® ITD 16 Increases Perfusion During High-Quality CPR

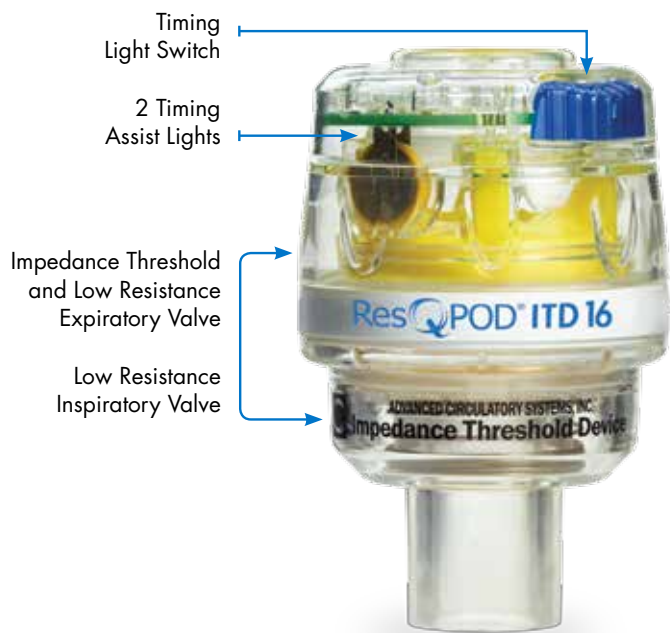
The ResQPOD Impedance Threshold Device (ITD) is a simple, non-invasive device that delivers IPR Therapy during basic or advanced life support CPR to improve perfusion. The ITD lowers intrathoracic pressure during the recoil phase of CPR by selectively restricting unnecessary airflow into the chest. This vacuum increases preload, lowers ICP, and improves blood flow to the brain and vital organs. Pre-clinical studies have shown that the ResQPOD ITD 16:

- Doubles blood flow to the heart¹
- Increases blood flow to the brain by 50%²
- Doubles ETCO₂³

When used with high-quality CPR, the ITD has been shown in clinical studies to improve survival by 25% or more.⁴



A Simple Solution for **More Effective Resuscitation**



ResQPOD® ITD 16

Attached to a facemask or other airway adjunct, the ResQPOD ITD contains airway pressure sensing valves to selectively prevent air from entering the chest during chest wall recoil. This enhances the vacuum that pulls blood back to the heart, increasing preload. Patient ventilation and exhalation are not restricted. Timing lights flash at 10 per minute and guide ventilations at the guidelines recommended rate to discourage hyperventilation.

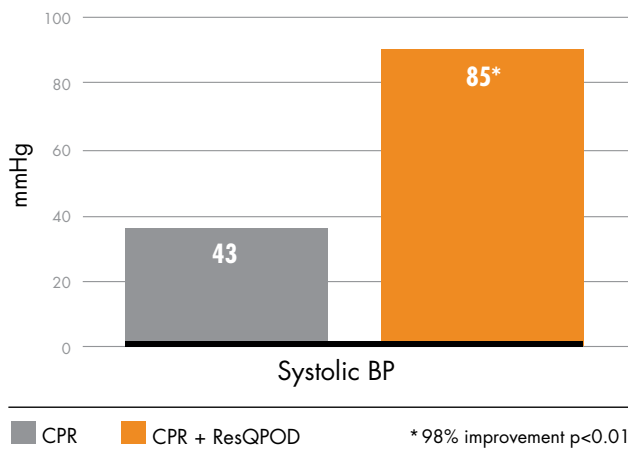
ResQPOD Features and Benefits

- Easy to integrate into resuscitation protocols
- Can be used during BLS and ALS care
- Compatible with all airway adjuncts and ventilation sources
- Timing lights guide ventilations at 10/minute
- Compatible with automated CPR devices
- Cost effective

Studies Support Use of the ResQPOD ITD

Improved Blood Pressure with an ITD

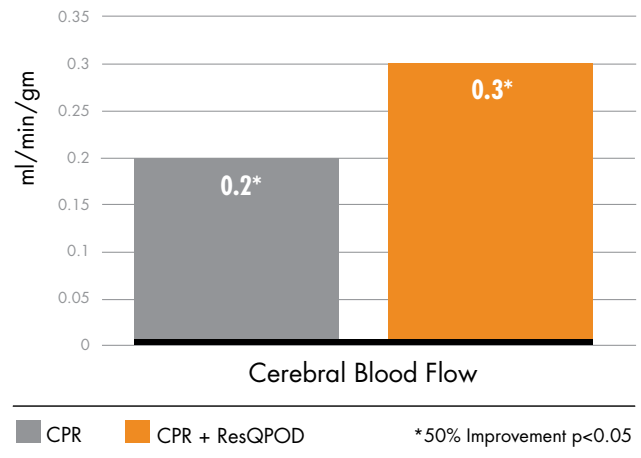
A CLINICAL STUDY SHOWED A 98% INCREASE IN SYSTOLIC BP WHEN AN ITD IS USED.



Pirrallo et al. Resuscitation 2005;66:13-20

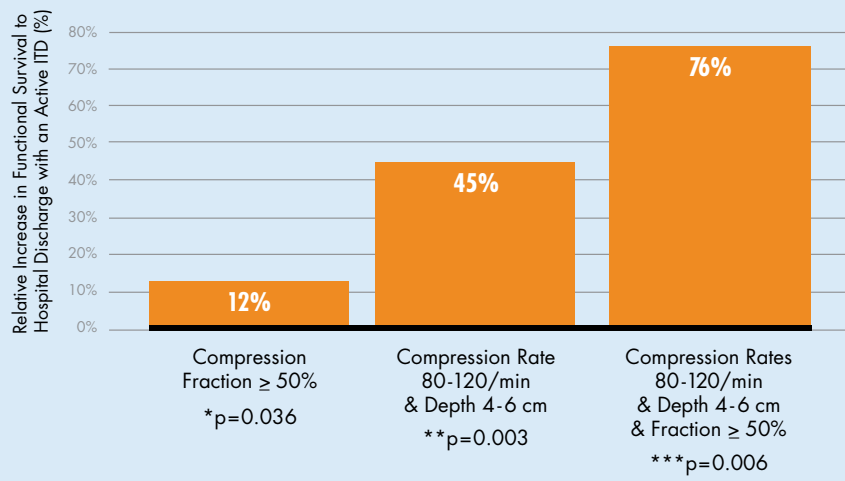
Improved Blood Flow to the Brain with an ITD

PRE-CLINICAL DATA SHOWED A 50% INCREASE IN BLOOD FLOW TO THE BRAIN WHEN AN ITD IS USED.



Lurie et al. Chest 1998;113:1084-1090.

Relative Increase in Survival with Active ITD



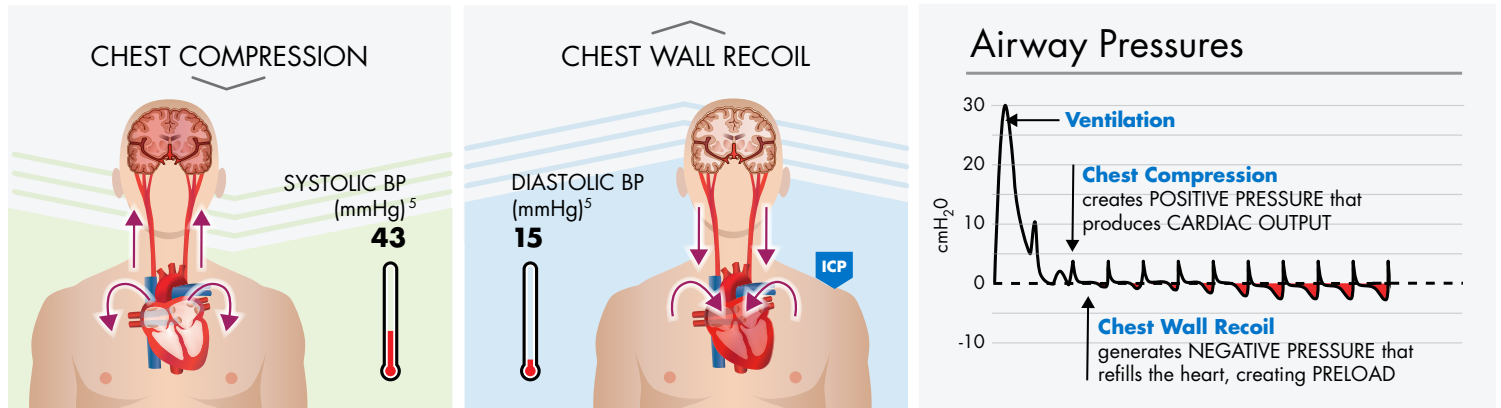
Yannopoulos et al. Circulation 2014;130:A9.

An analysis of the ROC PRIMED data by Yannopoulos et al showed that when an ITD was used, survival rates improved as the quality of CPR improved. Performance of CPR at a rate of 80-120 compressions per min, a compression depth of 4-6 cm, with a fraction of ≥ 50% resulted in the highest survival rates when an ITD was used compared to a sham ITD.

Enhancing Perfusion During CPR

The ResQPOD impedance threshold device (ITD) enhances circulation during basic or advanced life support CPR. This simple, non-invasive device regulates pressures in the chest and improves blood flow to the heart and brain.

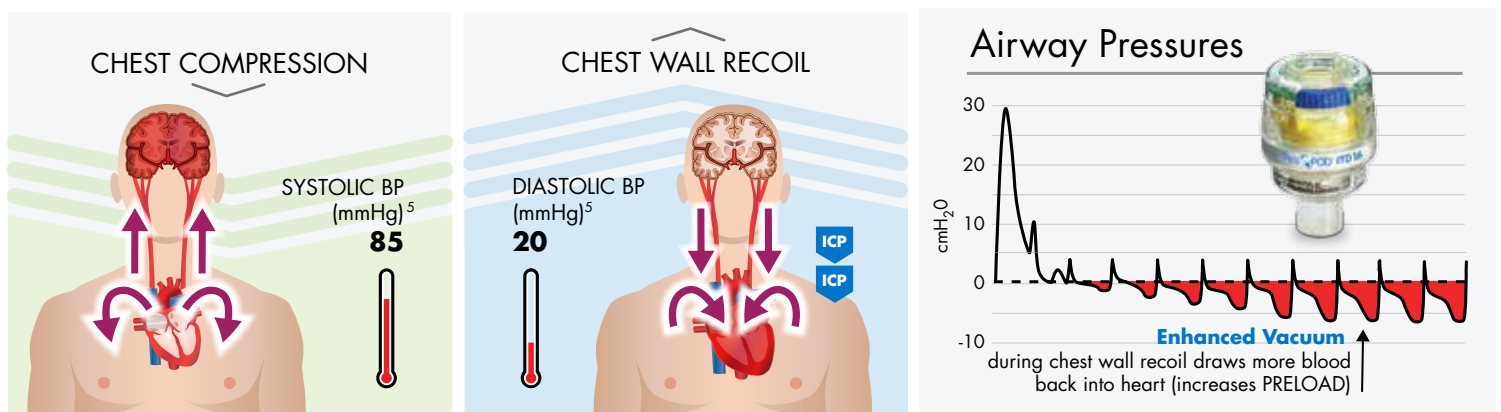
Conventional CPR



Conventional CPR – Limited Blood Flow

Even though high-quality CPR has been shown to increase survival, it only provides 25-40% of normal blood flow to the heart and brain.⁶ Limited blood flow is due, in part, to the open airway. During chest wall recoil, air is drawn in and depletes the vacuum (negative pressure) that is needed to fill the heart. This limits cardiac output and blood circulated with compressions.

CPR with ResQPOD® ITD 16

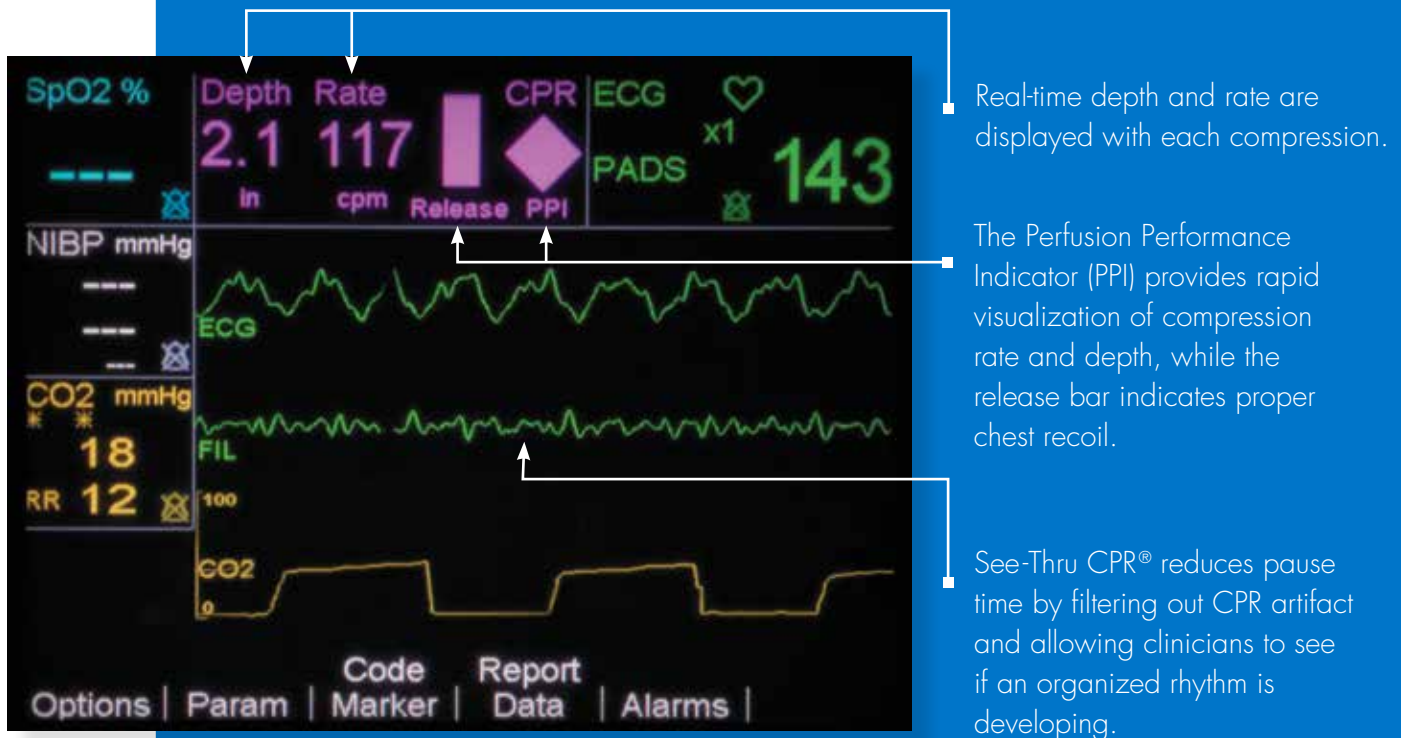


CPR with the ResQPOD ITD – More Blood Circulated

Attached to a facemask or other airway adjunct, the ResQPOD selectively prevents air from entering the lungs during the chest wall recoil phase (except when intended with ventilations). This enhances the vacuum, which pulls more blood back into the heart and lowers intracranial pressure (ICP).⁷ As a result, more blood is circulated to the brain and vital organs until the heart can be restarted. When used with high-quality CPR, the ITD has been shown in clinical studies to improve survival by 25% or more.⁴

ZOLL Resuscitation Platform


ZOLL's resuscitation platform is designed to promote consistent, high-quality, high-perfusion CPR and high-current defibrillation for adults and pediatrics. Its technologies include Real CPR Help® to provide real-time feedback on compression quality, See-Thru CPR® to help reduce pause time by filtering the CPR artifact, and EtCO₂ to signal the earliest changes in patient condition. Utilizing these technologies to help achieve the highest quality CPR will ensure that you recognize the full benefit of the ResQPOD ITD.



1. Langhelle A, Stromme T, Sunde K, et al. Inspiratory impedance threshold valve during CPR. *Resuscitation* 2002;52:39-48.
2. Lurie KG, Mulligan KA, McKnite S, Detloff B, Lindstrom P, Lindner KH. Optimizing standard cardiopulmonary resuscitation with an inspiratory impedance threshold valve. *Chest* 1998;113(4):1084-1090.
3. Yannopoulos D et al. *Critical Care Med* 2006;34(5):1444-1449.
4. Idris AH, Guffey D, Pepe PE, et al. The interaction of chest compression rates with the impedance threshold device and association with survival following out-of-hospital cardiac arrest. *Circulation* 2012;126:LBB5-22813-AHA.
5. Pirralo RG, Aufderheide TP, Provo TA, Lurie KG. Effect of an inspiratory impedance threshold device on hemodynamics during conventional manual cardiopulmonary resuscitation. *Resuscitation* 2005;66:13-20.
6. Andreka P, Frenneaux MP. Haemodynamics of cardiac arrest and resuscitation. *Curr Opin Crit Care* 2006;12:198-203.
7. Aufderheide TP, Alexander C, Lick C, et al. From laboratory science to six emergency medical services systems: new understanding of the physiology of cardiopulmonary resuscitation increases survival rates after cardiac arrest. *Crit Care Med* 2008;36(11):S397-S404.

Studies available upon request. The generally cleared indication for the ResQPOD ITD available for sale in the United States (US) is for a temporary increase in blood circulation during emergency care, hospital, clinic, and home use. Research is ongoing in the US to evaluate the long-term benefit of the ResQPOD for other specific indications. The studies referenced here are not intended to imply specific outcomes-based claims not yet cleared by the US FDA.

Products

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