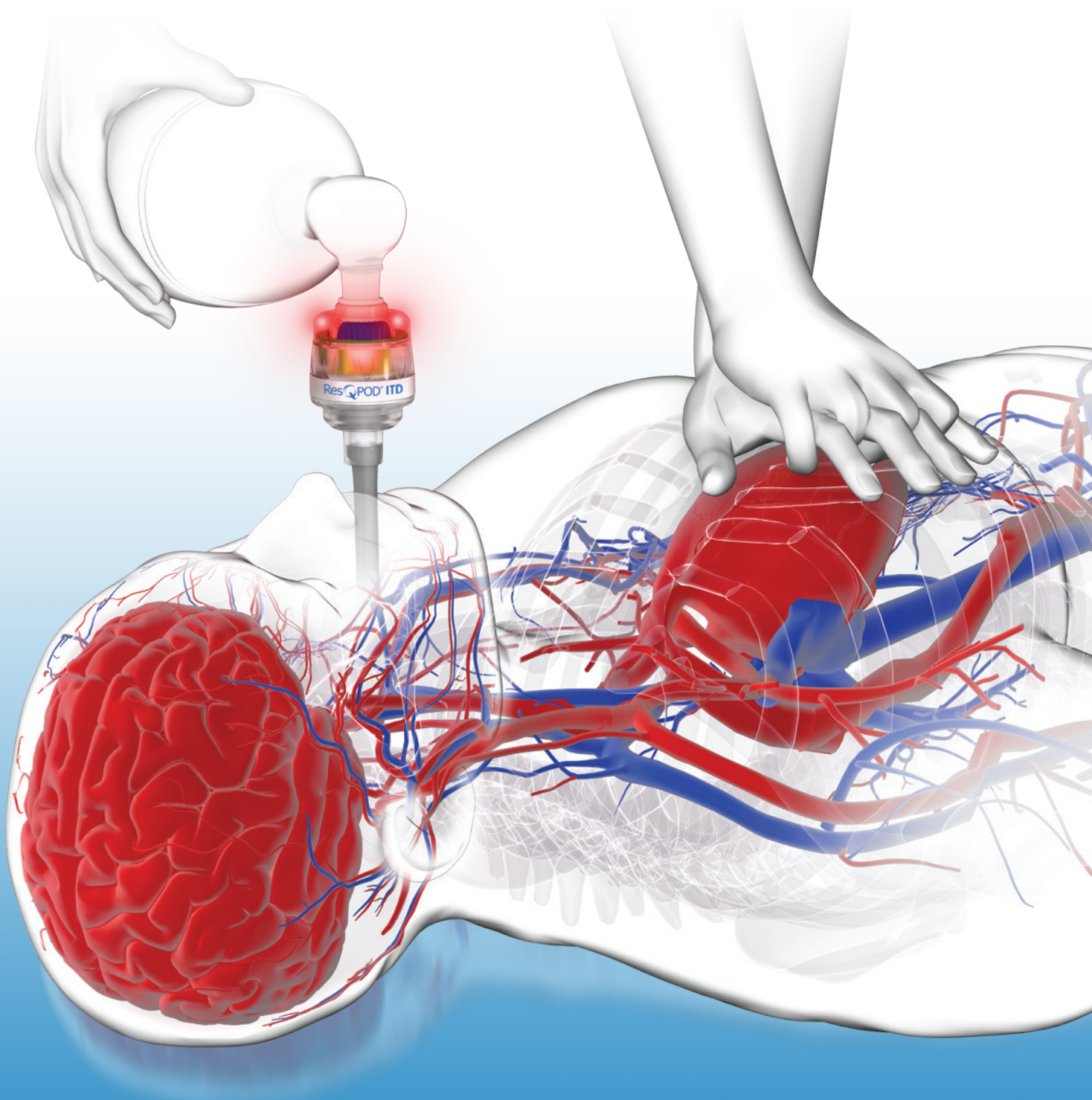


ResQPOD® ITD 10

ZOLL®



Enhanced Perfusion **During CPR**



Improve Perfusion During CPR

Today, only a small number of out-of-hospital cardiac arrest victims survive. A focus on high-quality CPR and adoption of new techniques and technologies to facilitate it are helping many systems improve their outcomes. Cardiac arrest survival rates can be improved.

The ResQPOD ITD 10 Increases Perfusion During CPR

The ResQPOD® impedance threshold device (ITD) is a simple, non-invasive device that delivers intrathoracic pressure regulation (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 intracranial pressure (ICP), and improves blood flow to the brain and vital organs. Preclinical studies have shown that the ResQPOD ITD:

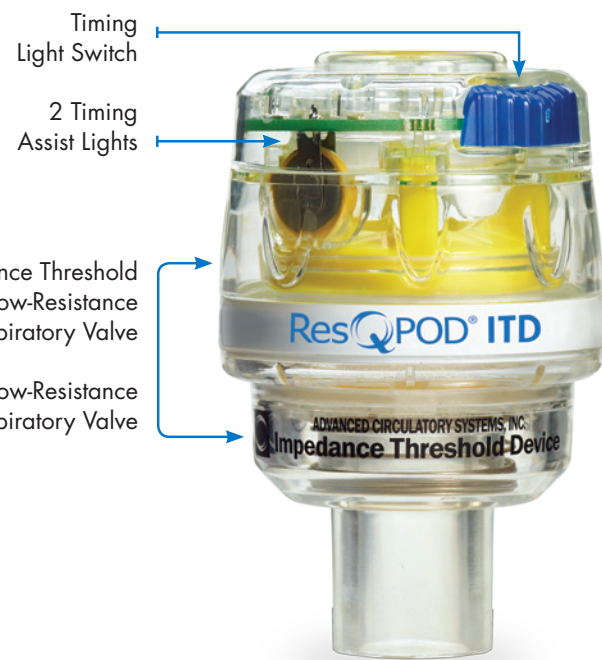
- Doubles blood flow to the heart¹
- Increases blood flow to the brain by 50%²
- Doubles EtCO₂³

When used with high-quality CPR, the ITD has been shown in clinical studies to improve survival by 25% or more.⁴⁹

A Simple Solution for More Effective Resuscitation



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 to promote the proper ventilation rate and discourage hyperventilation.



ResQPOD® ITD 10

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 assist lights guide ventilations at 10/minute
- Compatible with automated or active compression-decompression (ACD) CPR devices
- Cost effective

ResQCPR—Better Blood Flow. Improved Survival.

ResQCPR™ involves use of the ResQPOD ITD in combination with active compression-decompression CPR (ACD-CPR), performed with the CardioPump®. ACD-CPR actively lifts the chest during chest wall recoil to further enhance negative intrathoracic pressure. This device combination works synergistically to optimize the vacuum and improve hemodynamics. ResQCPR has been shown to increase functional survival from cardiac arrest by 53%.¹⁰

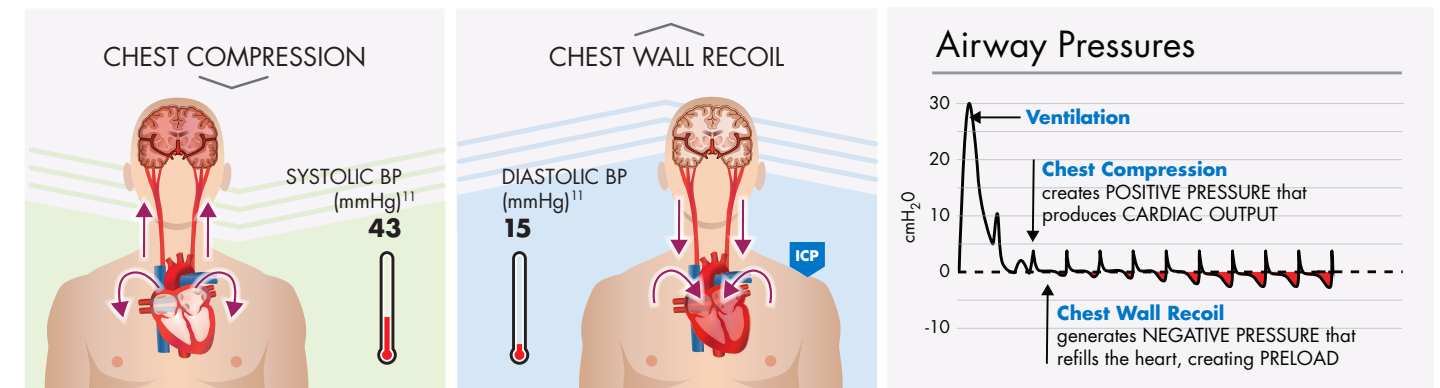


ResQCPR™

Enhancing Perfusion During CPR

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

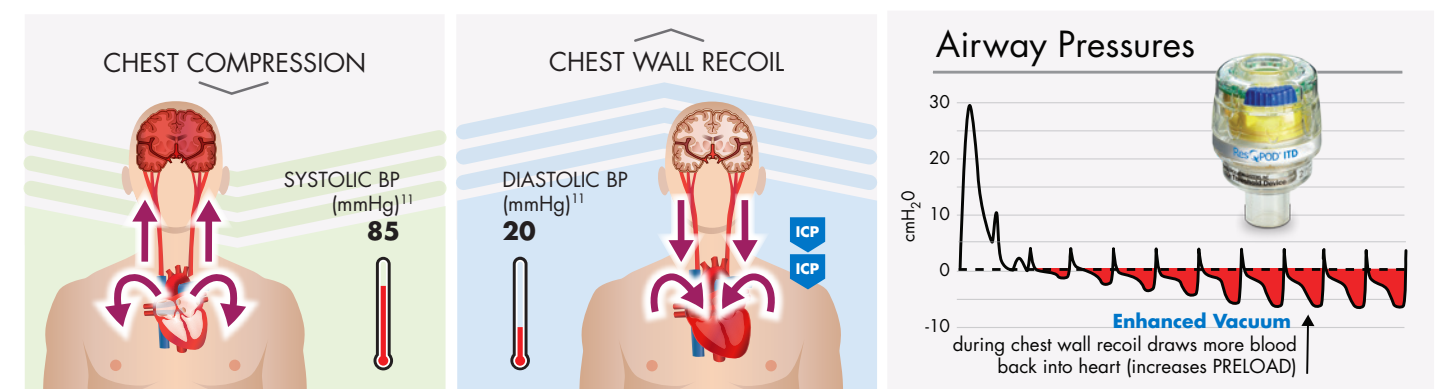
Conventional CPR



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.¹² Limited blood flow is due, in part, to the open airway. During chest wall recoil, air is drawn in and wipes out the vacuum (negative pressure) that is needed to fill the heart. This limits cardiac output and the blood that is circulated forward with compressions.

CPR with ResQPOD ITD



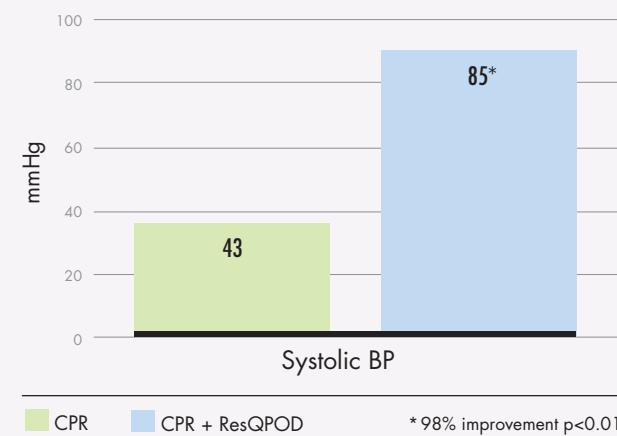
CPR with the ResQPOD ITD—More Blood Circulated

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 ICP.¹³ As a result, more blood is circulated to the brain and vital organs until the heart can be restarted. In studies, use of the ResQPOD with high-quality CPR improved survival 25% or more compared to high-quality CPR without an ITD.^{4,9}

Studies Support Use of the ResQPOD ITD

Improved Blood Pressure with an ITD

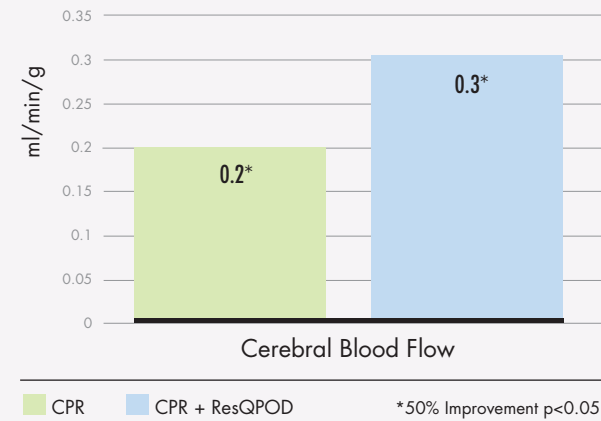
A CLINICAL STUDY SHOWED A 98% INCREASE IN SYSTOLIC BP WHEN AN ITD IS USED.



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

Improved Blood Flow to the Brain with an ITD

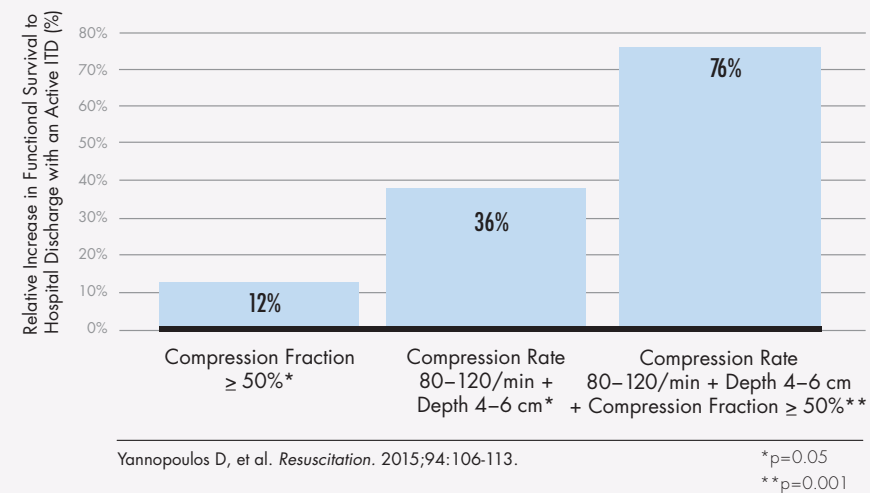
PRE-CLINICAL DATA SHOWED A 50% INCREASE IN BLOOD FLOW TO THE BRAIN AFTER 9 MINUTES OF CPR WHEN AN ITD IS USED.



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

Relative Increase in Survival with an ITD

A POST HOC ANALYSIS OF 6,199 PATIENTS SHOWED AN INCREASE IN SURVIVAL AS THE QUALITY OF CPR IMPROVED.



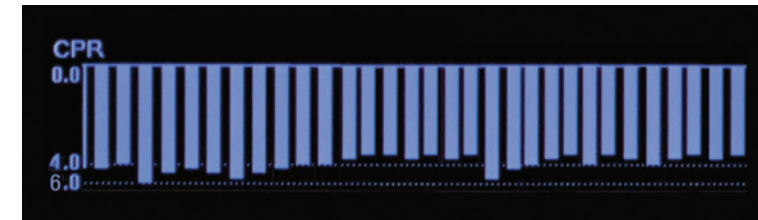
Significant Increase in Chance of Survival

A post hoc analysis of the ROC PRIMED data by Yannopoulos, et al. showed that less than 50% of the patients in the ROC study actually received acceptable-quality CPR, defined as a rate of 80–120 compressions/min, a compression depth of 4–6 cm, with a compression fraction of $\geq 50\%$. However, as the quality of CPR improved, so did the survival impact of the ResQPOD ITD. And when acceptable-quality CPR was performed, patients who received the ResQPOD ITD had a significantly higher (76%) chance of survival compared to those who received high-quality CPR alone. This analysis demonstrates the importance of utilizing tools to help monitor CPR quality since it appears to have a dose-related impact on the ResQPOD ITD's effectiveness. The better the CPR quality, the more impact the ITD has on survival.

For further study information, please review our clinical summary.

ZOLL CPR Quality Tools

ZOLL's CPR technology can help you achieve the highest quality CPR and ensure your patients get the full benefit of the ResQPOD ITD. This easy-to-use technology works seamlessly with ZOLL monitors and provides real-time feedback on CPR quality.



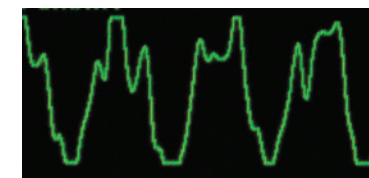
Real CPR Help

Real CPR Help® alerts rescuers when compressions fall out of range. When medics are fresh and delivering good compressions, it is silent. As fatigue sets in and compression quality erodes, prompts gently guide them back to high-quality compressions.

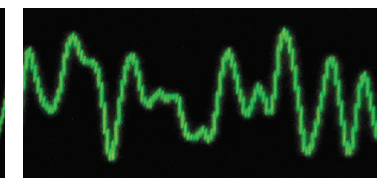


CPR Dashboard

The CPR Dashboard™ is a real-time window that gives team leaders an at-a-glance look at the quality of CPR compressions.



Unfiltered ECG signal during CPR



Signal filtered by See-Thru CPR

See-Thru CPR

See-Thru CPR® reduces the length of interruptions with a filter that lets responders see underlying organized rhythms during compressions.

ZOLL AutoPulse

The AutoPulse® Resuscitation System is an automated CPR device that delivers customized, high-quality CPR wherever—and whenever—it's needed. Designed for *Resuscitation on the Move™*, it provides high-quality CPR at any angle, allowing rescuers to provide CPR without interruption from the scene all the way to the hospital. The AutoPulse has the highest survival rates among all automated CPR devices in large clinical trials (>2000 patients),¹⁴⁻¹⁶ and in a meta-analysis of 12 comparative clinical trials, the AutoPulse improved the odds of return of spontaneous circulation (ROSC) by 62% when compared to manual CPR.¹⁷



¹Langhelle A, et al. *Resuscitation*. 2002;52:39-48.

²Lurie KG, et al. *Chest*. 1998;113(4):1084-1090.

³Yannopoulos D, et al. *Critical Care Med*. 2006;34(5):1444-1449.

⁴Yannopoulos D, et al. *Resuscitation*. 2015;94:106-113.

⁵Thigpen K, et al. *Respir Care*. 2010;55(8):1014-1019.

⁶Thayne R, et al. *Resuscitation* 2005;67(1):103-108.

⁷Aufderheide TP, et al. *Heart Rhythm*. 2010;9(10):1357-1364.

⁸Lick CJ, et al. *Crit Care Med*. 2011;39(1):26-33.

⁹Idris AH, et al. *Circulation*. 2012;126:LBBS-22813-AHA.

¹⁰Aufderheide TP, et al. *Lancet* 2011;377:301-311.

¹¹Pirrallo RG, et al. *Resuscitation*. 2005;66:13-20.

¹²Andreka P, et al. *Curr Opin Crit Care*. 2006;12:198-203.

¹³Aufderheide TP, et al. *Crit Care Med*. 2008;36(11):S397-S404.

¹⁴Wik L, et al. *Resuscitation*. 2014;85:741-748.


¹⁵Perkins GD, et al. *Lancet*. 2015;385[9972]947-955.

¹⁶Rubertsson S, et al. *JAMA*. 2014;311(1):53-61.

¹⁷Wesfall M, et al. *Crit Care Med*. 2013 Jul;41(7):1782-1789.

Studies available upon request. The generally cleared indication for the ResQPOD ITD available for sale in the United States (U.S.) 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

PRODUCT	ORDER #
 <p data-bbox="354 1522 560 1554">ResQPOD ITD 10</p>	12-0242-000

ZOLL MEDICAL CORPORATION

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