

First Responder



November '09 Newsletter

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Tasmanian Ambulance first to use ResQPOD

The Tasmanian Ambulance Service is the first state service in Australia to trial the internationally acclaimed life-saving device the ResQPOD which uses 'Impedance Threshold Device' technology. A simple, non-invasive device that fits in the palm of the hand, the ResQPOD quickly and effectively increases circulation and blood flow to the brain and when used in conjunction with cardiopulmonary resuscitation (CPR) helps supply more blood to the heart during the process. Sudden cardiac arrest is the leading cause of death among adults worldwide.

Experienced by over million people annually more than 95% of victims do not survive despite receiving CPR, as at best it can deliver only 25% of normal blood flow to the brain and 15% of normal blood flow to the heart. The ResQPOD utilises Impedance Threshold Device (ITD) technology which increases circulation flow to vital organs in states of low blood flow such as in a Cardiac Arrest. It works by enhancing the vacuum created during the decompression phase of chest compressions which increases the return of blood to the heart and therefore increases the amount of blood push out from the heart during the compression phase of chest compression. The device can be used in Basic Life Support by attaching it to a simple resuscitation mask or used in Advanced Life Support by attaching it to advanced airway devices.



Already in use at more than 1,500 hospitals and emergency management systems across the U.S. the ResQPOD has also proved successful across Europe, the Middle East and Hong Kong, Singapore and The Philippines and been used by industry in Australia for some months. Emergency services personnel worldwide are reporting a dramatic overall increase in their ability to 'get back a pulse' and more significantly increase the rates of 'neurologically intact' hospital discharge.

Dr. Susannah Sherlock, Medical Director for Tasmanian Ambulance Services is excited to be trialing the device. "I am pleased to be able to trial the use of the Impedance Threshold Device with the Tasmanian Ambulance Service," she said. "The European Resuscitation Guidelines 2005 have indicated it may be of great benefit in cardiac arrest".

The ResQPOD is also recognised by the American Heart Association as the only technology to be given a Class IIa recommendation (the second highest class) in its guidelines for purposes of increasing circulation and resuscitation rates ahead of any other intervention required in cardiac arrest situations, including widely used drug therapies.

Charles Makray, Director of First Response Australia, provider of emergency medical response courses and equipment, trains clients in the use of the ResQPOD which has already resulted in saving a number of lives by an aviation rescue service in Victoria. "Increasing blood flow to the heart and brain until the heart can be restarted is critical to improving survival rates with normal neurological functioning," Mr Makray said.

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\$ 4,999.00 (GST Free)

KIT INCLUDES:

- ★ Oxy Resus Soft Pack
 - ★ ZOLL AED PLUS
 - ★ ResQPOD
 - ★ IGEL AIRWAYS (3 sizes) plus accessories
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 - ★ X-Collar Cervical Splint
 - ★ Instructions for Use
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“The ResQPOD (ITD) doubles both blood flow to the heart and doubles systolic blood pressure, allowing more effective circulation of drugs, increasing the likelihood of successful defibrillation and ultimately increasing the neurologically intact survival rate of the patient. “When coupled with Active Compression Decompression CPR utilising the Cardio Pump the combination of ACD+ITD CPR produces normal blood pressures during CPR which has been unheard of in the history CPR.

A related product, soon to be released in Australia, the ResQGARD(TM), utilises the same ITD technology and is used on spontaneously breathing patients to help improve blood flow and circulation in breathing patients that are suffering from low blood pressure as a result of traumatic injuries, shock, dehydration, dialysis and orthostatic intolerance.

Obese patients put strain on EMS responders

American emergency crews are straining their backs and budgets due to the ever increasing number of morbidly obese patients requiring transport to hospitals. Ambulances are transporting more supersize patients than ever — several a day, including some as large as 350-400 Kgs.(800 pounds). Especially during a life-threatening emergency, the process requires not only brute strength but creativity on the fly. Ambulance workers have enlisted brawny firefighters, makeshift pulleys, tarps, plywood and even a hydraulic-lift truck to get patients down stairs, through hallways, out of houses and on the road.

Although specialty equipment is making the process easier for ambulance workers and more dignified for patients, the devices are expensive and still not widely used. A relatively small number of ambulance providers nationwide to have a bariatric ambulance. These vehicles features a reinforced floor and shocks, a ramp and a motorized winch to pull a loaded gurney into the back. While standard stretchers hold up to 200 Kgs the bariatric stretcher can support 400 Kgs when extended or 800 Kgs when lowered.

Spending on health care for obese American adults increased 82 percent from 2001 to 2006, according to a government report compiled by the Agency for Healthcare Research and Quality.

In 2001, expenditures for obese Americans totaled \$167 billion compared with \$303 billion in 2006. Costs for adults who were overweight rose 36 percent during that time period, while costs for normal weight adults increased 25 percent.

Health-care expenditures for obese Americans accounted for 35 percent of all costs in 2006, the report noted. From 2001 to 2006, the number of obese Americans increased from 48 million to 59 million people. Obese people are more likely to suffer from several chronic health problems.

In Australia the story is not very different. Most state ambulance services have now commissioned specialised vehicles and stretchers to deal with the problems of transport obese patients.

DHS Emergency and Emergency Transport Technologies have lead the way with the technology needed in bariatric transport being the only Australian company to produce specialised stretchers and Ambulances.



Above: Power Lift Stretcher-produced in Australia from DHS Emergency has an amazing 500Kg lifting capacity.

Below: Bariatric Ambulance from ETT (Australia)



INTRASOSSEOUS VASCULAR ACCESS PROGRAM

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**Oxygen Resuscitation
Trauma Kit
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- Adult disposable including mask, tubing and reservoir
- Therapy masks (adult)
- Oropharyngeal Airways
Set of 4
- V-Vac Suction Kit
- Glucometer (Accu-chek)
- Sphygmomanometer
(palm style)
- Stethoscope (Sprague)
- Penlight torch
- Paramedic shears
- Sharps container
- X-Collar Cervical Splint
- Instructions for Use

Should children be taught CPR?

Many First Aid training organisations are asked if CPR can be taught to young children. For many years this has created a dilemma amongst providers and recommendations have waxed and waned over the time.

A recent European study has addressed this issue. Published in the *Critical Care* journal the study showed that nine-year olds can and should be taught CPR. Although some of the children may lack the requisite strength, the knowledge of how to perform basic life support is well retained by young children.

A research team from the Medical University of Vienna, Austria, studied children who had received six hours of life support training. Upon examination four months after the training, 86% performed CPR correctly. The lead researcher said, "The usefulness of CPR training in schools has been questioned since young students may not have the physical and cognitive skills needed to perform such complex tasks correctly. We found that, in fact, students as young as 9 years are able to successfully and effectively learn basic life support skills. As in adults, physical strength may limit depth of chest compressions and ventilation volumes, but skill retention is good."

Also included in the skills taught to the children were automatic defibrillator deployment, providing CPR, usage of the recovery position and calling for the emergency services. For the critical skills of CPR and mouth-to-mouth resuscitation, Body Mass Index (BMI) was the factor that had the biggest influence on depth of compressions and amount of air inhaled. Age did not play a role, indicating that a well-built nine-year-old can be just as capable as an older child.

The researchers conclude, "Given the excellent performance by the students evaluated in this study, the data support the concept that CPR training can be taught and learnt by school children and that CPR education can be implemented effectively in primary schools at all levels. Even if physical strength may limit CPR effectiveness, cognitive skills are not dependent on age, and with periodic retraining, children's performance would likely improve over time."

Singapore government launches ICE scheme

Although patients can be transported to hospital relatively quickly nowadays it may take several hours to trace next of kin in order to get consent for various procedures sometimes delaying essential care. It is a problem that could be solved by keeping contact numbers on mobile phones under the acronym ICE (In Case of Emergency)

This year the Singapore Civil Defense Force, launched a program to get people to do just that. Mobile phone users should save their next of kin's number in their phonebooks under headings such as 'ICE-Husband', for example, so paramedics or even bystanders will know who to call.

Civil Defense Force Commissioner Peter Lim Sin Pang highlighted the role that technology can play to help paramedics, firefighters and police officers. 'By having a uniform approach to storing emergency contacts inside a mobile phone, emergency responders can rapidly identify and contact the victim's next of kin in the event of an emergency.'

Welcoming the program, Dr Tan Seow Hwee, Medical Director of the A&E Department at Parkway Shenton, said ICE would come in handy when trying to trace contacts of patients who may be unable to talk because of injury, for example.

He said: 'There have been cases of children who may be traumatised and unable to speak.

'Checking their phones for ICE would be a good way of contacting their next of kin, especially when minors are involved, so that we can get permission to carry out medical procedures which may be vital to treatment.'

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- ★ Bag Valve Mask
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- ★ Gloves
- ★ Carry Case

\$ 399.00

(GST Free)

Flat AED battery results in \$3.2.m award

Failure to maintain the batteries in an AED has resulted in a \$3.2 million dollar (USD) settlement being awarded to the family of a 49 year-old man who died from a heart attack in which the defibrillator batteries did not work.

Frederick Partyka, a stationary engineer who worked for the city of Chicago, was using a snow blower in front of his home in the 2700 block of North New England when he collapsed on Jan. 22, 2005. Partyka's son, a paramedic with the Hillside Fire Department, witnessed the incident, called 911 and administered CPR to his father while waiting for help.

When the fire engine arrived at 3:16 p.m., the paramedic found Partyka in ventricular tachycardia, a life-threatening condition. But when the paramedic attempted to shock Partyka's heart back into rhythm, the defibrillator didn't work, a lawyer for the Partyka family said. The batteries were old and did not hold a charge.

When the old batteries were replaced with spare batteries, the defibrillator powered off again, the lawyer said. At 3:22 p.m., an ambulance arrived with a working defibrillator. But it was too late. Partyka was already dead.

"The industry standard required -- and the manufacturer recommended -- that this particular defibrillator battery had to be replaced every two years," said Susan Schwartz, an attorney representing the Partyka family.

"But, on Jan. 22, 2005, no battery had been purchased by the city since October 2000. They didn't properly maintain the batteries for these defibrillators."

During Monday's Finance Committee meeting, First Deputy Corporation Counsel Karen Seimetz told aldermen that the defibrillators used on that day were replaced in March 2005. The new version uses batteries "automatically changed out with the manufacturer every two years," she said. "In the thousands and thousands and thousands of times these defibrillators have been used, this is the first known instance where this has ever occurred," she said.

Under questioning from aldermen, Seimetz acknowledged that no one knows whether a working defibrillator would have saved Partyka. But, she said, "The problem is under the law, if there's any percentage chance that a person could have survived but for the alleged negligence, that's enough to recover [damages]. Even though he had an underlying heart disease, this might have made the difference. There was no damage to the heart on autopsy."

Editor's Note: This case underlines the need for workplaces to ensure regular maintenance on life saving equipment.

Suspension Trauma (Part 1)

Suspension syndrome and suspension trauma have been largely overlooked and poorly appreciated in EMS and rescue training. The appropriate life-saving treatment of patients who have been suspended in an upright and motionless position is counterintuitive; the intuitive and routine rescue procedures that would involve immediately placing patients supine are highly lethal due to reflow syndrome.

Several types of deaths occur after upright suspension in a harness and are categorized as **rescue deaths**. These include **suspension syndrome, suspension trauma syndrome, orthostatic hypotension** and reflow syndrome. In these closely related syndromes, patients may appear stable and uninjured while suspended and before being freed.



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Sometimes, the patient will feel faint or have already fainted prior to the release but will not have suffered any physical injuries. These patients, including those with no injuries at all and no feeling of faintness, are at risk of death upon rescue if the responders are not aware of appropriate care. Two ancient forms of death by suspension are hanging and crucifixion. Death by hanging is a form of execution, lynching or suicide that most commonly causes death by fracturing several cervical vertebrae and causing rapid strangulation asphyxiation. Execution by crucifixion was commonly practiced for several thousand years.

Crucifixion was once thought to be a very slow and agonizing death, taking place over several days. However, observations of several recent suspension catastrophes and rescues led researchers to question how long suspension deaths took to occur. Research now shows that patients suspended in a motionless position, such as in motor vehicle collisions, in snow or ice, or during vertical rescues, are at a high risk of rapid death—sometimes within just a few minutes.

Because patients can deteriorate very quickly and the wrong intervention can mean the difference between a rescue and a recovery mission, first responders and EMS providers must know the current recommendations for suspension trauma rescues and the underlying theories and pathophysiology of suspension trauma syndrome.

Research on suspension trauma was triggered by several events in which a number of survivors later died of suspension trauma syndrome. In the early 1970s, researchers investigated the deaths of eight climbers who had not been seriously injured in a fall but were suspended for hours. Eight of 10 climbers had managed to survive hanging free, some for half an hour and others up to eight hours. They were rescued alive and survived for as short as 30 minutes and up to 11 days later; however, all eight eventually died as a result of having been suspended.

Reports of the deaths upon release from prolonged suspension, both immediate and in the following weeks, led to a series of medically monitored suspension tests. Many of the research subjects experienced critical circulatory collapse within 30 minutes of being suspended in a harness.

Five volunteers in one research study were suspended in various harnesses for up to 30 minutes. Three reported severe discomfort, and one lost consciousness at 28 minutes.

Sixty-five comparative tests of several sit-harness designs and one full-body harness showed that the mean times that suspension was tolerable were as little as 30 seconds and only up to 17 minutes. The test subjects experienced numerous symptoms, including narrowing pulse pressures.

Pathophysiology

When a person is suspended in a harness or held immobile in an upright position, gravity pools blood in the lower extremities. Depending on the underlying health of the patient's cardiovascular system and the ability of the patient to compensate for the pooling blood in the lower extremities, the patient may remain free of symptoms for several hours. Ultimately, however, a loss of consciousness will occur, soon followed by death. It's important to realize that even an individual who is symptom-free is at risk of sudden death due to myocardial rupture and infarct when moved rapidly to a horizontal position after being released from suspension and especially if they were motionless.

Editor's Note: Part 2 of "Suspension trauma" will be featured in our next newsletter and looks at the deadly reflow syndrome, orthostatic hypotension and the pre-hospital care rescue required.

FRA launches Diploma in Paramedical Science

First Response Australia launches its new pre-hospital care program in December. Enrollments open for the intake to our inaugural Diploma of Paramedical Science (Ambulance).

This unique program will be run in 2010 and be divided into 5 stages with 4 residential blocks. What makes the program differ from others is that at each of the five stages the participants exit with useable qualifications. Each stage becomes the prerequisite for the next whilst incorporating units of competency from the Diploma.

Stage One (January) consists of our Certificate IV in Emergency Medical Response with participants gaining valuable EMT qualifications along with additional electives in Wound Closure and Intraosseous Vascular Access.

Stage Two & Three (March) consists of the Certificate III in Non Emergency Patient Transport again providing the participant with qualifications enabling them to gain employment as Patient Transport Officers then followed by Certificate IV in Basic Health Care (Ambulance) which includes additional skills in Emergency Patient Transport.

Stage Four (August) consists of the balance of Diploma competencies including Advanced Life Support, Delivery of Standard Health Care, Advanced Patient assessment, Pharmacology, Paediatric and Geriatric Care and much more.

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Stage Five (November) consists of final assessments and evaluations. Throughout the program students will be required to complete self paced study and assignments before commencing the next stage.

Clinical placements are also required to attain the final qualification of the Diploma as well as Certificate III in Non-Emergency Patient Transport and Certificate IV in Health Care (Ambulance)

Many of our clients wishing to do the Diploma have already completed Stage One (EMT) and will only need to obtain currency by attending the 2 day Pre-Hospital Emergency Resuscitation and Trauma (PHERT) program. Applicants needing to enroll in all five stages will need to have their enrollments in by December 18, 2009 as pre course study is required for Stage One.

Participants can elect to pay their fees in stages or by monthly installments. A fact sheet regarding the Diploma will be emailed to all our existing clients and will be posted on our web site at the end of November.

In the meantime please feel free to register your interest by calling Neil Trehwella (Pre-Hospital Care Training Manager) or Charles Makray (Managing Director).

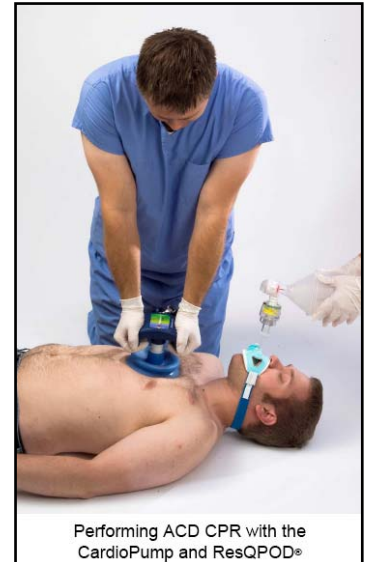
New products @ FRA

CPR / Airway Kit

For the first time in Australia a resuscitation kit incorporating life saving "Impedance Threshold Device" technology and innovative airway management.

Standard CPR only delivers approximately 20% of normal blood flow to the heart and brain.

The technology in this kits allows your CPR to now deliver normal blood pressures and normal blood flow dramatically increasing survival.



Performing ACD CPR with the CardioPump and ResQPOD®

This kit contains:

CardioPump and ResQPOD

- producing normal blood pressures and blood flow during CPR

I-gel Airways (size 4 & 5)

- allowing a secured airway to be established in 6 seconds

Bag Valve Mask device

- providing effective ventilation



Retail Price \$ 750.00 (GST Free)



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This unique 2-3 day multi-disciplinary program is designed to further develop and enhance knowledge and skills of health care professionals.

Suitable to refresh qualifications and gain currency in skills for pre hospital care providers and provide valuable professional development to any allied health care worker.

This program is accredited by the Australian College of Rural and Remote Medicine (ACRRM) and recognised by the Australasian Registry of Emergency Medical Technicians (AREMT).



Quality Prehospital Care Providers

This program delivers the latest advances (innovations) in medical & trauma emergencies management including:

Advanced Airway Management

Impedance Threshold Device Technology

Haemorrhage Control

Intravenous Therapy

Intraosseous Vascular Access

Spinal Immobilisation

Musculoskeletal Immobilisation

Chemical Splashes & Burns Management

Wound Care & Closure

Multi Casualty Incidents

The program is practical based and includes case studies, skill stations and scenarios.



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