

# First Responder



Oct. '13 Newsletter

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## New national competencies for First Aid ignores Resuscitation Science - a backward step !

Those in the First Aid Training Industry would now be aware that the 'Community Services and Health Industry Skills Council' (CSHISC) have just released new competencies for First Aid (HLT07 V5.0).

First Response Australia has reviewed these new competencies and is disappointed in the lack of consideration that has been given to current and emerging 'Resuscitation Science'.

*In relation to best practice for CPR in our community the new First Aid competencies now represent CPR techniques that may soon very well become redundant.*

If we think of how many people get trained in basic CPR throughout Australia, the chance to really improve the poor outcomes of CPR has been squandered.

The basic CPR competencies only require the following:

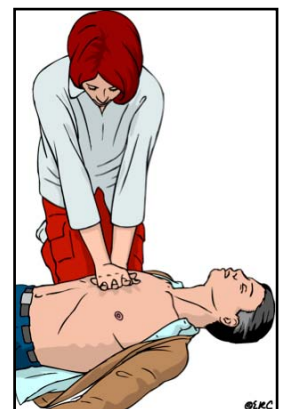
1. Only single rescuer CPR to be taught and assessed
2. CPR training only to be taught and assessed for adult and infant - no children included
3. CPR to be performed for 4 uninterrupted minutes.

At first glance no-one will blink an eyelid regarding this, but for those who follow the science of resuscitation, there are some glaring flaws in this approach. What this approach fails to take into account is the current and emerging science in resuscitation.

International Resuscitation bodies are now recommending that 'compression only CPR' should be the initial action in the commencement of CPR especially in the adult sudden cardiac arrest (SCA) situation. In the witnessed SCA, little oxygen is required in the initial stage of CPR and the emphasis must be on providing forward blood flow to the heart and brain. Therefore 'compression only CPR' is needed to start this blood flow and to evacuate the heart which becomes distended with blood and becomes enlarge to an additional 50% of its size. To interrupt compressions to include breaths will significantly hinder this objective.

However, it is still recommended that compressions and rescue breaths are administered in paediatric patients (child and infant) as their arrest is usually caused by an 'asphyxial' event - i.e. breathing has stopped before the heart has stopped, therefore the need for oxygen via rescue breaths is significant.

Attempting to include 'rescue breaths' with single rescuer adult CPR results in totally unacceptable lengthy interruptions in chest compressions significantly compromising forward blood flow. The average time to complete 2 rescue breaths in single rescuer adult CPR is usually in excess of 15 seconds. The recommended time of interruptions to complete rescue breaths is 5 seconds.



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**November 11**  
**December 16**

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The Australian Resuscitation Council (ARC) recommends that 2 rescuer adult CPR is adopted as soon as possible. This is an easy skill to teach in First Aid classes and results in minimal interruptions to compressions with the average time to complete the 2 rescue breaths being less than 5 seconds (below the recommended interruption time).

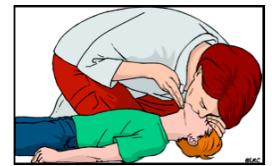
As most First Aid classes are taught for a workplace environment it is wise to suggest that rescue breaths are done with a resuscitation mask. This is a cheap barrier device, easier to use than trying to do 'mouth to mouth' and has been shown by many studies to be superior in delivering the right volumes of air and minimising stomach inflation, therefore avoiding consequent regurgitation which is very common when rescue breaths are done via 'mouth to mouth'.



2 Rescuer CPR is now only taught in 'Advanced Classes'. The new units of competency assume that the average student of a CPR or basic First Aid class is beyond being taught 2 rescuer CPR. Very, very few people will ever do 'advanced classes', so as stated previously, we unfortunately may well be teaching CPR techniques to the community that may soon become redundant.

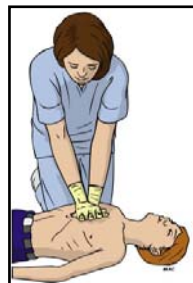
The new units of competency also assume that if you have done resuscitation training on an adult manikin that there is no need to change any of the techniques for children. This is clearly wrong for the following reasons:

1. Volumes of air for rescue breathing vary dramatically between adults and children (an adult requires approximately 500mls to see the chest rise but a 5 year old child may only require 150mls to obtain adequate rise of the chest. And an infant may only require approximately 50mls).



2. Head tilts need to be minimised to avoid accidental closure of the airway and inflation of the stomach. To utilise a full head tilt (recommended for adults) may easily compromise the patency of the child's airway by actually restricting it.

3. Chest compression depth is again quite different in that of an adult. Science has shown that attempting to compress the chest to 1/3 its depth for all sizes of casualties is clearly wrong. Firstly, it is almost impossible to compress the chest of a large adult to 1/3 and science has now shown that the optimum depth is 5-6 cms regardless of the adult size range.



So when taking into account the variations in chest size, lung volumes and airway structure, it is clear to us that the specific techniques for child resuscitation should be taught in CPR training as it is for infants.

All Resuscitation bodies around the world now suggest that after 2 minutes of someone doing 'chest compressions' the performance drops dramatically due to fatigue and deterioration of technique. But the new 'units of competency' are insisting on a total of 4 minutes of uninterrupted single rescuer CPR with no emphasis of changing with other persons. Again this problem would be eliminated by teaching and promoting 2 rescuers CPR and promoting regular changes for compressions.

*It is now quite apparent that these 'new' units of CPR and First Aid competencies have ignored emerging 'Resuscitation Science'.*

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## What can be done now?

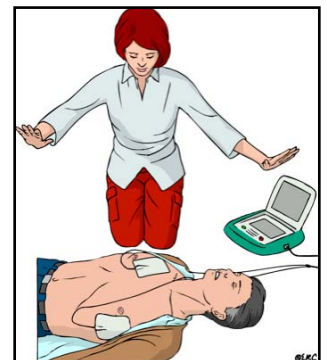
Firstly, the First Aid training industry needs to become more involved in the development of these competencies and insist that during the development of any future competencies, that appropriate clinical representation and recognition of the current science is assured.

Training organisations that deliver any First Aid training need to become more aware of emerging trends and science. Sadly, this may be hard to achieve as a large proportion of organisations in this field, do not deliver first aid programs as their core business, and the underpinning knowledge of owners and trainers is lacking.

So, to all the First Aid training companies out there, here are some hints as to how we can turn it around and improve the poor Cardiac Arrest outcomes through the delivery of quality training and assessment.

Make sure that all your learning participants leave your CPR and First Aid classes having undertaken extensive scenario based training with the emphasis on the following:

1. Knowing how to recognise a cardiac arrest and understand what 'agonal breathing' really is. The term 'abnormal breathing' is quite inadequate to describe this common phenomena.
2. In all adult CPR initiate 'compression only CPR' immediately whilst assistance is on its way.
3. 'Rescue breaths' for adult CPR are conducted by a second person utilising a barrier device, preferably a resuscitation mask.
4. All participants are taught the correct use of Resuscitation Masks for 2 rescuer adult CPR.
5. Make sure that changes occur every 2 minutes for the person doing compressions.
6. Application of an AED as soon as possible.
7. All Resuscitation training, assessment and scenarios must be conducted on Adult, Child and Infant manikins.
8. All CPR for paediatrics (children & infants) includes single and two rescuer CPR (compressions and rescue breaths).
8. All participants are taught and assessed fully in the use of AEDs. Instead of just 'show and tell'.



*So, for all the organisations or individuals about to participate in First Aid and CPR training, you should be asking questions of your provider to see if they are up to date with the 'science'.*

*Charles Makray  
Director*

## Survival Rates for out of hospital cardiac arrest decrease in NSW !!

The Australian Resuscitation Council's (ARC) NSW Branch, last month released a paper showing that more people are dying from cardiac arrest survival in NSW than a few years ago. People who have a cardiac arrest outside hospital in NSW are now less likely to survive than they were in the past, a major new study has found.

The study, to be published this week examined NSW Ambulance Service data, to determine the number of people who had out-of-hospital cardiac arrests and their survival rates. It compared two one-year periods, in 2004-05 and 2009-10, to test how cardiac arrest survival rates had changed over time.

The main findings of the study are:

- \* The incidence cardiac arrest fell during the study period. In 2004-05, there were 52.6 out-of-hospital cardiac arrests in NSW for every 100,000 people. By 2009-10 this had fallen to 48.4 out-of-hospital cardiac arrests for every 100,000 people. This suggests fewer people in NSW are having out-of-hospital cardiac arrests.

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**Do you have qualifications and work experiences not formally recognised ?**

**Talk to us about RPL (recognition of prior learning)**

**Sought after qualifications include:**

**Certificate IV in Emergency Medical Response**  
Code: 1036NAT

**Certificate IV in Healthcare (Ambulance)**  
Code: HLT41007

**Diploma in Paramedical Science (Ambulance)**  
Code: HLT50407

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or Email:

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\* 12.3% of people who had an out-of-hospital cardiac arrest in NSW in 2004-05 were still alive 90 days later. By comparison, only 10.2% of people who had an out-of-hospital cardiac arrest in 2009-10 were alive 90 days later. This suggests a significant decrease in survival rates.

The findings of this latest study contrast the general upward trend in survival of Cardiac Arrest.

The NSW ARC Branch is calling on the state government to take action to reverse the decline in the survival rate

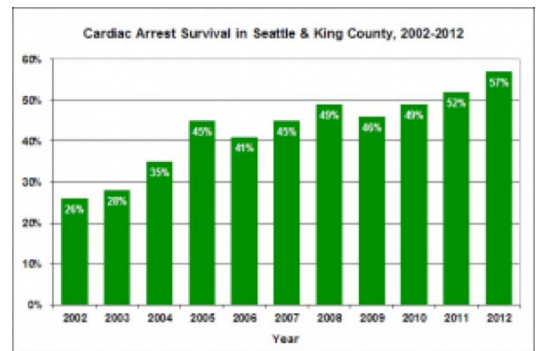
*Editor's note: If we look at the American attitude to improving cardiac arrest survival rates it is nothing short of impressive.*

*Two short years ago, they radically changed the guidelines for lay person CPR. At the same time 'compression only CPR' was introduced across the country. If a bystander is not trained in CPR, the bystander should provide 'compression-only CPR' for the adult victim who suddenly collapses, with an emphasis to "push hard and fast" on the center of the chest, or follow the directions of the EMS dispatcher. The rescuer should continue Hands-Only CPR until an AED arrives and is ready for use or EMS providers or other responders who take over care of the victim.*

*Cardiac arrest victims may present with seizure-like activity or agonal gasps that may confuse potential rescuers. Dispatchers should be specifically trained to identify these presentations of cardiac arrest to improve recognition the of cardiac arrest and prompt provision of CPR. To help bystanders recognize cardiac arrest, dispatchers should ask about an adult victim's responsiveness, if the victim is breathing and if the breathing is normal, in an attempt to distinguish victims with agonal gasps (ie, in those who need CPR) from victims who are breathing normally and do not need CPR. The lay rescuer should be taught to begin CPR if the victim is 'not breathing or only gasping'. The healthcare provider should be taught to begin CPR if the victim has 'no breathing or no normal breathing (ie, only gasping)'.*

*Note the emphasis on 'gasping' and 'seizure-like activity'. In Australia if one was to quiz all First Aid instructors about the relevance of these phenomena and how they pertain to the early recognition of Cardiac Arrest, we would be dismayed at the lack of knowledge in this area. This information is simply not being taught at the basic level of CPR !!!!*

*In Seattle, USA, the statistics of survival from out-of-hospital-cardiac arrest are amazing (see graph). The survival rate from Cardiac Arrest in King County has reached an all time high of 57%. This is in stark contrast to the national average of around 10%. This city has embarked upon a massive educational program to have all citizens trained in basic CPR and the inclusion of 'compression only CPR' has played a vital part in this success story.*



*Unfortunately in Australia, cardiac arrest 'victims' are thought of just that - 'victims'. Until we see these people as patients, we may not see a change in the poor outcomes.*





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## What you really need to know about Sudden Cardiac Arrest !!

In Australia, approximately 30,000 sudden cardiac arrests occur each year. This is equivalent to:

- \* *57 X A380 aircraft crashes with all on board perishing*
- \* *This is twice as many deaths as those from colon cancer, breast cancer and prostate cancer combined*
- \* *It is equivalent to 22 years worth of road fatalities on Australian Roads*

If no CPR is given before the Ambulance arrives, only 5% probably survive

If CPR is given before the Ambulance arrives, only 9% probably survive

If an AED is applied before the Ambulance arrives up to 24% probably survive

*The scary fact is that an AED being available is probably 2-5 % of the time.*

In the USA its estimated that if an AED was available 100% at the time, 30,000 people would survive a cardiac arrest.

## Standard CPR still best for children in Cardiac Arrest

The American Heart Association recommends cardiopulmonary resuscitation (CPR) by bystanders with chest compression only for adults who have cardiac arrests, but not for children. The effect of CPR (conventional with rescue breathing or chest compression only) by bystanders on outcomes after out-of-hospital cardiac arrests in children was assessed.

In a nationwide, prospective, population-based, observational study, 5170 children aged 17 years and younger were enrolled, who had an out-of-hospital cardiac arrest from Jan 1, 2005, to Dec 31, 2007. Data collected included age, cause, and presence and type of CPR by bystander. The primary endpoint was favourable neurological outcome 1 month after an out-of-hospital cardiac arrest, defined as Glasgow-Pittsburgh cerebral performance category 1 or 2.

**FINDINGS:** 3675 (71%) children had arrests of non-cardiac causes and 1495 (29%) cardiac causes. 1551 (30%) received conventional CPR and 888 (17%) compression-only CPR.

Children who were given CPR by a bystander had a significantly higher rate of favourable neurological outcome than those not given CPR (4.5% vs 1.9% ).

In children aged 1-17 years who had arrests of non-cardiac causes, favourable neurological outcome was more common after bystander CPR than no CPR (5.1% vs 1.5% )

However, conventional CPR produced more favourable neurological outcome than compression-only CPR (7.2% vs 1.6% ).

In children aged 1-17 years who had arrests of cardiac causes, favourable neurological outcome was more common after bystander CPR than no CPR (9.5% vs 4.1%), and did not differ between conventional and compression-only CPR (9.9% vs 8.9%). In infants (aged <1 year), outcomes were uniformly poor (1.7% ) with favourable neurological outcome.

### INTERPRETATION:

For children who have out-of-hospital cardiac arrests from non-cardiac causes, conventional CPR (with rescue breathing) by a bystander is the preferable approach to resuscitation. For arrests of cardiac causes, either conventional or compression-only CPR is similarly effective.

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*Price GST Free*

*Normal retail price \$ 2,999.00*

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Studies show the ResQPOD increases blood flow to the brain by 50%.<sup>1</sup>

### Give your Patients MORE

#### Studies Show

- 50% MORE Blood Flow to the Brain
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- 25% or MORE Increase in Neurologically-intact Survival



Attached to an airway during CPR, the ResQPOD Impedance Threshold Device (ITD) provides Perfusion on Demand™ (POD) by regulating pressure in the chest.

Studies show that the ITD's unique technology increases blood flow to the heart, lowers intracranial pressure and enhances blood flow to the brain non-invasively. No other device does this.

The ResQPOD ITD is easy to use and helps the user ensure high quality CPR. The ITD's timing lights provide guidance on the proper compression and ventilation rates.

When combined with high quality CPR, the ResQPOD has been shown in studies to increase neurologically intact survival by 25% or more.

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