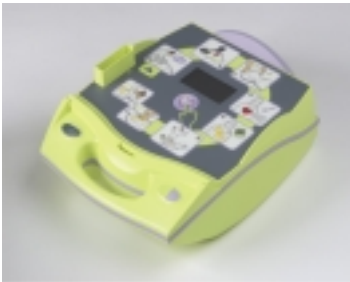


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Australia behind with changes in Resuscitation?

In this particular issue we look at some of the interesting studies being done around the world that are challenging the way in which Resuscitation is not only performed but the way it is taught. Unfortunately it cannot be said that Australia is "up with the times". The reluctance of major teaching organisations to change their ways will simply allow the continuation of poor Resuscitation outcomes despite the introduction of Defibrillators into the community. More needs to be done on simplifying the teaching of Resuscitation. One would be forgiven for thinking that somewhere along the line a group of people purposely got together and to make resuscitation a difficult task not only to remember but perform remember in an emergency - by having lots of numbers, ratios and cycles to adhere to. This author thinks that they succeeded in this.

Has anyone ever questioned where the ABC of Resuscitation came from and how we all believe that "A" must come before "B" then "B" come before "C".

As a training organisation it, has become apparent to us, that a major shift is required if outcomes for resuscitation are to improve. Unfortunately the rank and file of those delivering Emergency Care training, only become aware of international changes and trends when the organisation they represent choose to inform them of these developments.

The following articles summarise some of those trends. Lets hope that the traditional providers (who control changes in Australian guidelines) take note of the evidence based information now available from numerous overseas studies.

"Normal" and "Abnormal" breathing - can you tell the difference?

Current International Guidelines for Resuscitation by first aiders rely on the assessment of "normal breathing" as a sign of circulation.

A recent study in the UK demonstrated that even first year medical students with Basic Life Support training could not reliably identify normal breathing from abnormal breathing (e.g. agonal breathing) resulting in a high proportion of inappropriate and potentially harmful actions (e.g. failure to commence the appropriate resuscitation). These results are similar to the poor performance of pulse checks as a sign of circulation found in other studies. The study suggests that further evaluation of the optimal method for assessing circulation is required. (see page 3 for FRA suggestions on assessment of the collapsed casualty)

Back to basics - not too much of the fancy stuff?

A recent combined study from Norway, Sweden and the UK looking at the CPR performance of Ambulance personnel found that even professionals fall far short of the recommended target values for compressions, ventilations and time allowable for ECG analysis. This results in too much time without perfusion of the myocardium and brain and too shallow compression depths. The study suggests that "no flow time" (hands off time resulting in no flow to vital organs) was due to additional time taken to perform less important interventions such as intubation and intravenous cannulation.

It seems that the lack of good old fashioned "pumping" is showing up in many studies as a major factor affecting the outcome of successful defibrillation.



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Reducing no flow time in AEDs

Poor resuscitation outcomes have been associated with interruptions of CPR imposed by the prompts given by AEDs, mainly the "hand off" time between compressions and delivery of shocks. This varies greatly between varying brands of AEDs. The worst case of this occurs when the rescuer responds to the first sounding signalling the end of a CPR pause whilst the best case occurs when CPR continues until a "stop CPR" or "do not touch patient" prompt is given.

Research from Phillips Medical Systems showed that the interruptions to CPR varied from a best case of 5.2 secs., to a worst case of 28.4 secs. Only one AED achieved an interruption of less than 10 secs. The study showed another large variation in the time taken to deliver 3 shocks and return to CPR, ranging from 39 secs to 90 secs.

Clinical and laboratory data suggest more than a two fold variation in successful outcomes. The research suggest that AEDs need redesigning to minimise this interval to avoid potentially poor outcomes in patient survival.

CPR in children - two hands better than one?

At present the method of performing chest compressions on younger children is to use only one hand. This has probably been recommended in an effort to avoid damage by deep compressions. However a study from Europe concludes that two handed compressions are easier to perform in a test group and the pressure generated using two hands was higher which potentially could produce better blood flow during CPR.

Our company employees the two handed technique in an effort to standardise teaching across the board. We believe it produces better performance and retention of skills, in our classes.

Initial breaths - two, five or none - is it needed?

Another area of confusion in resuscitation is the need for initial breaths. At present there is no evidence to support the application of initial breaths in lieu of applying just continuous breathing. We know that in Australia the reluctance to delete initial breaths from resuscitation has resulted in many political arguments from traditional training organisations citing that lives would be in jeopardy if such a change were to occur.

A study from London found that the confusion over initial breaths exists there as well and found no evidence to support the concept of always starting resuscitation with a set of initial breaths. The study suggested that the emphasis be placed on the effectiveness of Expired Air Resuscitation and not initial breaths.

Our company supports this idea. It is not uncommon to see (in training) over inflation and poor airway management demonstrated on manikins, due to the entrenched concept of applying 2 or 5 initial breaths. As we should be aware, this would potentially have drastic consequences in the real life situation (see page 3 for FRA suggestions on assessment of the collapsed casualty)

Chest compression rates - too slow

The performance of CPR in a cardiac arrest is considered critical and there is an assumption that trained health care providers generally perform CPR well. A study from Chicago USA shows otherwise.

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The study showed that poor survival correlated to sub optimal compressions rates where as good survival correlated to faster compression rates. The recommended rate for compressions is a minimum of 100 / minute. This study analysed a number of health professionals carrying actual CPR. It showed that in 39% cases the compression rate was below 80 / minute and 22% of cases the compression rate was below 70 / minutes.

Again, this poor performance is often seen in our classes, where refresher training has not been conducted more recently than is currently recommended. We believe that for those who have a high probability in responding to a cardiac arrest, continual refresher training (greater than annually) is the key to maintaining the necessary motor skills such as rate and depth of compressions in CPR.

Is Endotracheal Intubation really the "Golden Standard" ?

For many years the skill of "Endotracheal Intubation" (ETT) was regarded as the "Golden Standard" in airway management. Indeed it has been regarded as the ultimate skill held by paramedics, but unfortunately its use is associated with mortality and morbidity statistics. This "standard" is now being challenged with the recent introduction of a disposable laryngeal mask airway (LMA) which has provided paramedics with an alternative to tracheal intubation.

The use of LMAs is now being seen not only in hospital and ambulance use, it is indeed used in "first aid" situations by "First Responders" and "Occupational First Aiders". It is a skill that can be readily mastered on manikins in a very short time without the need for "real life" practice and has a low skill degradation rate. It has had over an estimated 100 million uses with no reported cases of mortality or morbidity. The report incidence of pulmonary aspiration in emergency use is below an impressive 0.1% .

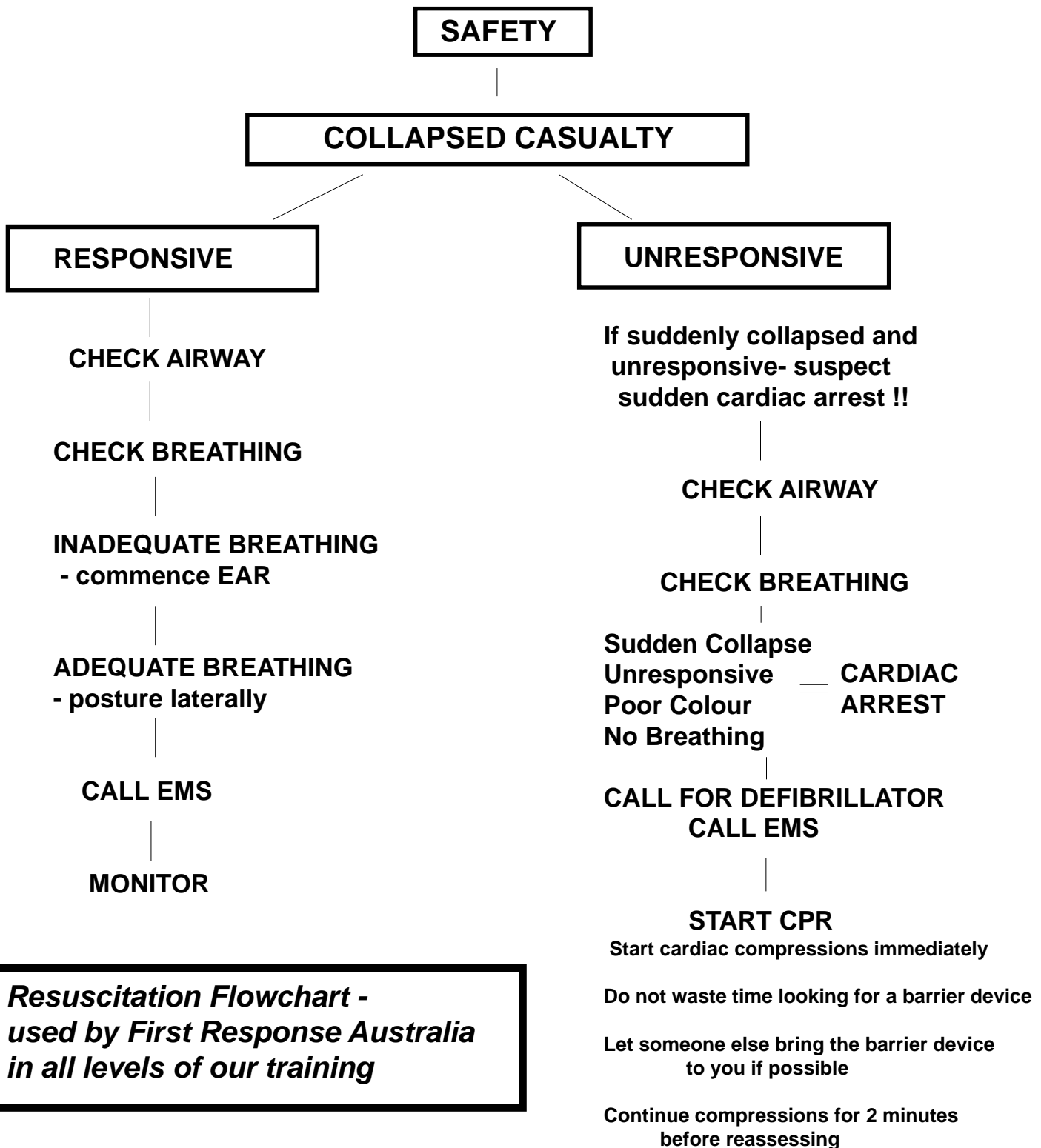
The skill is indeed that easy, it is been taught to "First Responders". But in Australia, ambulance officers are generally only allowed to use the device when they reach year 3-4 in their training. Quite absurd given that it is almost as easy to use as a pocket mask and more forgiving as once secured, head tilt is not required.

A study conducted in the UK compared the time taken to secure the airway and ventilate the patient using the two devices (LMA v ETT) in patients undergoing elective surgery. Patients undergoing general anaesthesia for cardiac surgery were studied. Paramedics trained in LMA use and ETT participated in the study. A LMA was inserted and removed then followed by an ETT. Time taken from beginning of the procedure to ventilation of the patient was recorded. LMA insertion and ETT intubation was attempted on 44 patients. LMA insertion was successful in 95.5% (42/44) patients; ETT intubation was successful in 70.5% (31/44) patients (after no more than 2 attempts). When laryngeal mask/tracheal tube insertion were both successful (n= 30), there was no significant difference in median time to secure the airway. Laryngeal mask insertion was successful in 92.3% (12/13) patients in whom tracheal intubation had failed.

Paramedic intubation is associated with significant morbidity and failure to secure the airway. **This study concluded that even under optimal conditions, it was demonstrated that approximately 30% attempts at intubation fail.** The disposable LMA has a high success rate in securing the airway and overall, secures the airway more reliably than tracheal intubation.

First Response Australia offers short courses in Advanced Airway Management utilising the disposable Laryngeal Mask Airway.

*Edited by Charles Makray
Managing Director*



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