Clarification of first aid practices:
Position Statement re Control of Bleeding and CPR and Rescue Breaths
ASPA Medical Advisory Committee – July 2013

Over the past couple of months some queries have been raised with the Medical Advisory Committee as to current recommended practice with regard to control of bleeding, CPR and rescue breaths and hands-only CPR. The purpose of this document is to clarify ASPA's position on these issues.

1. Control of Bleeding

ASPA continues to endorse the practices outlined in *ARC Guideline 9.1.1 ((November 2008): Principles for the Control of Bleeding for First Aiders*. A copy of this Guideline is being circulated with the latest issue of *Asparations*. These practices are also referred to in the current ASPA Manual.

In summary, at first instance responders should seek to identify the source of external bleeding and then attempt to control it via firm direct pressure (e.g., using hands or a pad) and maintain this pressure. If bleeding continues, apply another pad over the top of the first pad and a tighter dressing over the wound. This should be combined with elevation and immobilization of the affected part and restricting the movement of the casualty.

If major bleeding continues then the pad(s) may be removed in order to better identify the specific source of the bleeding and then a further direct pressure pad and dressing applied.

Embedded objects should not be removed and padding and pressure should be applied around/above/below the object.

A tourniquet may only be used as a last resort when all other methods of controlling bleeding have failed. A wide bandage (at least 5cm) should be applied high above the bleeding point and should be tight enough to stop both all circulation to the affected limb and stop the bleeding (and the time noted). Once applied a tourniquet should not be removed until the casualty is handed over to definitive care.

2. CPR, Rescue Breaths and Compression-Only CPR

ASPA continues to endorse the practices outlined in *ARC Guideline 5 (December 2010): Breathing*, *Guideline 8 (December 2010): Cardiopulmonary Resuscitation* and *Guideline 10.1 (March 2013): Basic Life Support Training*.

The Medical Advisory Committee has received reports that suggest some training organizations in New South Wales are teaching that compressions should not be paused for ventilations and that rescue breaths are no longer an important part of CPR, compression-only CPR is acceptable for trained rescuers and that these organizations prefer to use the American Heart Association guidelines rather than the ARC Guidelines. These suggestions raise a number of issues.

By way of background, in 2010 the American Heart Association updated its own guidelines, and changed from an "A…B…C…" approach to a "C…A…B…" approach in order to emphasise the importance of commencing chest compressions as quickly as possible.

However, these guidelines clearly state both that rescue breathing remains an integral part of CPR for trained rescuers and that hands-only CPR is better than no CPR in the case of an untrained lay responder (such as someone receiving CPR instructions over the telephone from an emergency dispatcher). The guidelines also refer (in numerous places) to compressions being paused for ventilations and emphasise the importance of minimizing interruptions to compressions and providing high-quality CPR. The only circumstances in which compressions are not paused for ventilations is if an advanced airway (for instance an endotracheal tube) is in situ.

An oropharyngeal ("Guedel") airway is not an advanced airway and should not be used routinely in CPR. Under the ASPA guidelines (refer to the *ASPA Manual*), these devices should only be used by qualified patrollers where airway patency (and thus ventilation) is inadequate using standard airway management practices.

Aside from the matter of "ABC" versus "CAB", the ARC and AHA Guidelines are completely consistent in their recommendations regarding CPR. As ASPA acknowledges the ARC to be the peak body for resuscitation practices in Australia, ASPA continues to support the "A…B…C" approach recommended by the ARC.

ARC Guideline 10.1 (March 2013): Basic Life Support Training states:
"At a minimum, mouth to mouth rescue breathing must be taught and assessed (in conjunction with the learning objectives outlined (*in this Guideline*)), in any training program." The Guideline also recommends regular refreshing and annual recertification of CPR skills.

ARC Guideline 8 (December 2010): Cardiopulmonary Resuscitation states:
COMPRESSION VENTILATION RATIO
"Current consensus is that a universal compression-ventilation ratio of 30:2 (30 compressions followed by two ventilations) is recommended for all ages regardless of the numbers of rescuers present. Compressions must be paused to allow for ventilations."

ARC Guideline 5 (December 2010): Breathing states:
RESCUE BREATHING
"If the unconscious victim is unresponsive and not breathing normally after the airway has been opened and cleared, the rescuer must immediately commence chest compressions and then rescue breathing. Give 30 compressions and then two breaths allowing about one second for each inspiration following the Australian Resuscitation Council and New Zealand Resuscitation Council Basic Life Support Flowchart (Guideline 8). … Care should be taken not to over-inflate the chest.

Look for rise of the victim's chest during each inflation. If the chest does not rise, possible causes are:
• obstruction in the airway (inadequate head tilt, chin lift, tongue or foreign material);
• insufficient air being blown into the lungs;
• inadequate air seal around mouth and or nose.

If the chest does not rise, ensure correct head tilt, adequate air seal and ventilation."
Following inflation of the lungs, rescuers should check for chest fall/exhalation.

In practical terms in order to minimise interruption to compressions for ventilations, some simple strategies may be of assistance. If the person doing the compressions counts down the last few compressions, then the person delivering the ventilations can be ready to deliver the first breath on the upstroke of the thirtieth compression. If the person doing the compressions continues to rest their hands gently on the chest during ventilations, this can serve a dual purpose of monitoring rise and fall of the chest and being ready to restart compressions as soon as exhalation from the second ventilation has occurred.

From the physiological perspective, both circulation and oxygenation are required in order to give the casualty the best possible chance of neurologically intact survival. This requires both good quality CPR and effective ventilations.

As mentioned above, unless there is an advanced airway in place, both the ARC and the AHA state that compressions must be paused for ventilations in order to facilitate effective delivery of air into the lungs. Forceful chest compression at the time of delivering a rescue breathing ventilation is likely to result in mechanical obstruction and ineffective ventilation, gas exchange and oxygenation. There is also a risk of trauma to the casualty from raised airway pressure against an obstruction and that air will preferentially travel down the oesophagus as a path of least resistance into the stomach, increasing the risk of regurgitation and aspiration.

Compression-only CPR

It is important to note that this is only currently recommended for trained rescuers in situations where standard CPR is not possible and as being better than no CPR for untrained lay responders.

ARC Guideline 8 (December 2010): Cardiopulmonary Resuscitation states:
CHEST COMPRESSIONS ONLY
"If rescuers are unwilling or unable to do rescue breathing they should do chest compressions only. If chest compressions only are given, they should be continuous at a rate of approximately 100/min."

There is an expectation that ski patrollers (as trained rescuers) will always attempt rescue breathing in addition to compressions unless there is a compelling reason as to why this is not possible.

The ARC has placed some explanatory information in the Frequently Answered Questions" section of its website dealing with compression-only CPR. This is reproduced below by way of information.

Australian Resuscitation Council - FAQ 9 – Compression-only CPR
The available published data reveals conflicting evidence regarding benefit versus no benefit for compression-only CPR. Strategies to improve the number of cardiac arrest patients receiving bystander CPR should be encouraged but not to the abandonment of conventional CPR.

Compression-only CPR should be viewed as the first resuscitation step which should be followed as soon as possible by rescue breathing and other basic life support interventions.

The Australian Resuscitation Council continues to hold the view that any attempt at resuscitation is better than no attempt, and if rescuers are unwilling or unable to do rescue breathing they should do chest compressions only. If chest compressions only are given, they should be continuous at a rate of approximately 100/min.

Australian Resuscitation Council – FAQs - The End of CPR as We Knew it?
In a recent email [date unknown] from the USA, it was quoted: "In what may prove to be the biggest shift in emergency care of cardiac arrest in 40 years, cities across the country are leading a move away from the familiar practice of using mouth-to-mouth resuscitation. In its place, the cities are recommending simple chest compressions pushing down repeatedly on the victim's chest – to mimic a steady heartbeat.

The emergency medical directors who are behind the shift say research in Seattle and Richmond, Va, suggests it will save many lives. The movement became a full-fledged national trend last week at a meeting of emergency medical services (EMS) medical directors from 21 of the nation's largest cities. Doctors from a dozen cities, including New York, Los Angeles and Chicago, decided to make the switch. They join at least seven other cities that are already advising 911callers to do chest compressions without mouth-to-mouth "rescue breathing"".

This issue has received media attention in the USA following a recent meeting of EMS medical directors. There has also been a recent article in the Weekend Australian newspaper. It mainly results from a study by Dr Hallstrom and published in *Critical Care Medicine* in 2000. In this study, callers to EMS reporting a cardiac arrest and who did not know CPR, were asked if they wanted to be instructed on how to do CPR. Those agreeing were randomised to receive instructions over the phone to either do full CPR or just chest compressions. This is often referred to 'dispatcher assisted CPR'. The results of the study showed that the number of survivors in each group to be similar (14.6% for compression only vs 10.4% for full CPR)

It is important to note that the findings of this study refer only to situations where no trained bystanders were performing CPR. It shows that giving minimal telephone instructions (i.e. compressions only) seems to be as effective in terms of survival as giving full CPR instructions over the phone. However, this study does not compare the outcomes of untrained rescuers who receive dispatcher assisted CPR with that of CPR being performed by trained rescuers.

As such, inferring that mouth to mouth is not required when doing CPR is not supported by any clinical evidence. Furthermore, it ignores other causes of cardiac arrest such as drowning, and cardiac arrest in children, where ventilation (ie mouth to mouth) is vital. Readers should be aware that the recommendations of the EMS directors were that "compression only" CPR advice should be given to callers receiving assistance from EMS dispatchers. It did not recommend removing mouth to mouth ventilation from CPR training or practice, as has been generally presented in the media.

Futher Reading:
Hallstrom AP. Dispatcher-assisted "phone" cardiopulmonary resuscitation by chest compression alone or with mouth-to-mouth ventilation. *Critical Care Medicine* 2000;28(11 Suppl):N190-N192.

The Chair of the ASPA Medical Advisory Committee has had the privilege (on a couple of occasions) of participating in a meeting of the National Council of the Australian Resuscitation Council and has observed at first hand the scientifically rigorous, lengthy and complex procedure that is involved in creating and updating the ARC Guidelines. This work is done by people who are internationally recognised experts in resuscitation science and is based on the best available evidence and expert opinion. The Guidelines are the "gold standard" and a safety net for first aid providers. Emergency responders who choose to operate outside the Guidelines are potentially placing both themselves and casualties at risk. ASPA wishes to protect both patrollers and casualties and will continue to look to the ARC for guidance on resuscitation practices.

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For and on behalf of the ASPA Medical Advisory Committee
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This Position Statement was peer-reviewed and endorsed by the members of the ASPA Medical Advisory Committee.
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