THE BRITISH SUB-AQUA CLUB

BSAC Basic Life Support Guidelines

In-water Artificial Ventilation (AV) now Rescue Breaths (RB): Clarification of technique

The early initiation of Rescue Breaths (RB) (previously Artificial Ventilation (AV)) is an essential treatment for a drowning casualty. Current guidance for the treatment of drowning recommends that this should be started in-water if the rescuer is trained to do so (1). The BSAC teaches such a technique. This document will

- describe the technique for effective in-water Rescue Breaths (RB)
- incorporate the recently published guidance on this
- recap BSAC guidance as to the rate of in-water AV issued in 2004

Diving casualties

A non-breathing diving casualty may have suffered many different types of injury to cause the absence of breathing, however because the casualty has suffered these while submerged or immersed in water, drowning must be considered a primary cause or major contributing factor to the casualty's condition and the casualty should be treated for drowning.

Principles of rescue

The casualty must be removed from the water by the fastest and safest means possible. The rescuers should be aware of their personal safety and minimise danger to themselves and the casualty at all times. Variations in technique may be necessary depending upon the physical build and the equipment of both the casualty and rescuer. Therefore the principles of the technique will be emphasised rather than dogmatically require a standard method.

In-water Rescue Breaths (RB)

- **The rescuers should be aware of their personal safety** and minimise danger to themselves and the casualty at all times.
- The casualty must be **removed from the water by the fastest and safest means possible**.

1. The rescuer must make a firm hold on the casualty and maintain this throughout the rescue.
    - Suitable hold includes on the top of the casualty's cylinder, or BC strap
    - Ideally this hold will allow the rescuer to "roll" the casualty towards them in the event of Rescue Breaths (RB) being needed

2. The rescuer should make the casualty and themselves buoyant at the surface.

- Ensure adequate inflation of buoyancy device to float casualty safely with airway clear of the water in the event of spontaneous breathing returning
- Avoid overinflation preventing adequate neck extension
- Consider the dropping of weight belts/pouches to ensure both maintain position on the surface

3. Open the casualty's airway by applying gentle neck extension

- The hand not being used to hold the casualty should be applied to the casualty's chin
- Avoid applying pressure over the centre of the neck (trachea)
- The forearm should be close into the side of the casualties neck (Fig 1) so that the neck can be extended by using the forearm as a "lever"

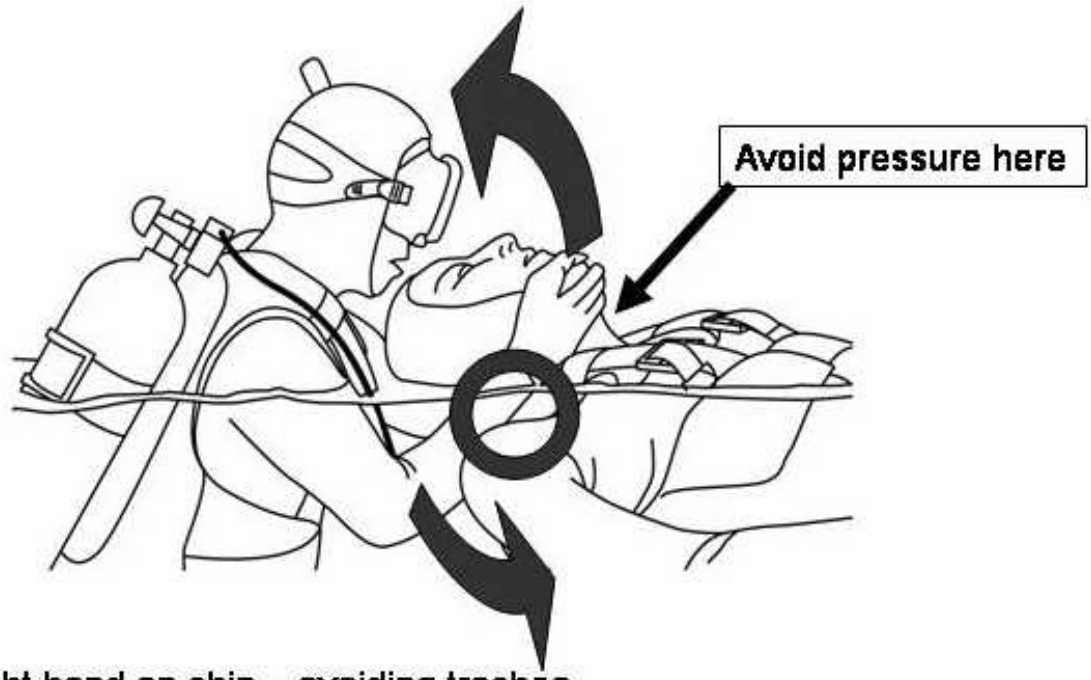

Figure 1
Rescuer's right hand on chin – avoiding trachea
Forearm tight to casualty's neck
Neck extension achieved by using forearm as lever on casualty's shoulder

- The casualty's head should be tilted backwards as if they started out looking straight ahead and then directly overhead, ie the head should not tilt from side to side
- The purpose of neck extension is to prevent the tongue falling back in the throat. In training, a test of the adequacy of the neck extension is that a student simulating the role of "casualty" will have difficulty swallowing if the neck is extended
- During training divers simulating the role of a casualty should be briefed to relax and rescuers briefed not to forcefully gain the neck extension to avoid the risk of injury.

4. If there is no spontaneous breathing on opening the airway in this way give Rescue Breaths (RB) for approximately 1 minute (10 Rescue Breaths)

- The fingers of the hand applied to the casualty's chin should make an airtight seal over the mouth

- This can be achieved in a number of ways e.g.
    - Direct pressure across the lips
    - Pressing the lips upwards towards the nose
- In training, a test of the adequacy of this seal is that a student simulating the role of "casualty" will have difficulty blowing out through the mouth
- The rescuer should "roll" the casualty towards them whilst still maintaining the position in Fig 1
- The rescuer makes a seal with his mouth over the casualty's nose and applies a rescue breath
- Ventilations should be given at a minimum rate of two breaths every 15 seconds
    - Each breath should take approximately 5 seconds allowing 1 second for inflation and the natural deflation of the chest for approximately 4 seconds
    - Careful monitoring for effectiveness and finding a natural rate is more appropriate than slavish adherence to nominal rates

Changes to In-water Rescue Breaths Guidance

In February 2006 the National Diving Committee approved amendments I had proposed to our Basic Life Support Guidance in line with the recommendations of the Resuscitation Council. These changes are summarised in the document 'BSAC Basic Life Support Guidelines 2006' and Instructors, Branch Officers and all divers should make themselves familiar with them. However, one of these changes significantly implicates on the Guidance above and represents a change in our in-water Rescue Breathing (RB) (formerly AV) advice when it comes to dekitting and removal of a casualty from the water. This is summarised in the box below.

1 minute rescue breathing (10 Rescue Breaths)

If no spontaneous breathing returns…

Tow with rescue breathing at 2 breaths/ 15 seconds

When in standing depth, or at boat prior to landing…

1 further minute rescue breathing (10 Rescue Breaths)

Then dekit and land as quickly as possible WITHOUT further rescue breathing

Begin basic life support according to the 2005 algorithm i.e. 30 cardiac compressions initially then two rescue breaths

Andy Procter, Safety & Rescue Skills Advisor - February 2006

Reference

(1) Soar J et al (2005) European Resuscitation Council Guidelines for Resuscitation 2005. Section 7. Cardiac arrest in special circumstances. Resuscitation 67S1, S135-S170