Oxygen Adminstration module - OAT0

Basic Life Support

BSAC
Dive with us

Contents

Document change record

Date published	Document Version Number	Page(s) affected	Description of changes	Author
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Basic Life Support

This module provides an introduction to Basic Life Support (BLS) principles and priorities. It is intended for those BSAC members attending courses where competence in BLS is fundamental. For example, Oxygen Administration, Automated External Defibrillator and Lifesaver awards. This module, together with practical module SP1, will fulfil that requirement. It is aimed at those who have not completed Sports Diver training and module ST2 in particular, or the equivalent. It does not cover issues such as, awareness prevention and diver rescue, which form the initial part of module ST2. This module will provide an introduction to the practical skills module SP1.

Achievement targets

At the end of this module, students will be able to:

- **List, in order, the priorities of Basic Life Support (BLS)**
- **Describe how they would assess a casualty's level of responsiveness**
- **Explain what might obstruct a casualty's airway and how they would deal with it**

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- **Describe how they would check whether or not a casualty was breathing normally**
- **Explain how they would recognise cardiac arrest**
- **Explain why an effective rescue breath (RB) should short (one second) and not be forceful**
- **Describe the rate per minute and depth of effective chest compressions (CC)**
- **Explain how many CC and RB are given in each cycle when delivering them in combination**
- **List the items that should be found in an AED container along with the device itself**
- **Describe the first action a rescuer should take when arriving at the casualty with an AED**
- **Explain why an unresponsive casualty who is breathing normally should be placed in a recovery position**

Additional visual aids needed

One resuscitation manikin between two students and manikin wipes. (Manikins should be checked prior to this lesson to ensure they are in clean working order and should also be thoroughly cleaned at the completion of this lesson). A training AED for use by each pair. An assistant to play the role of casualty for the recovery position or a student (a double demonstration will be required if using a student).

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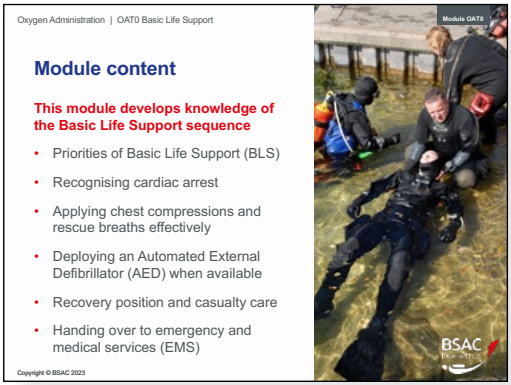
Module content

This module develops knowledge of the Basic Life Support sequence:

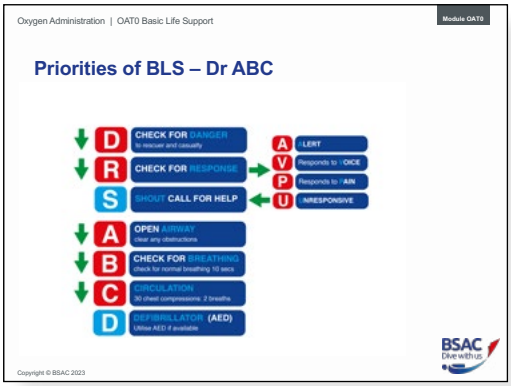


- **Priorities of Basic Life Support (BLS)**
- **Recognising cardiac arrest**
- **Applying chest compressions and rescue breaths effectively**
- **Deploying an Automated External Defibrillator (AED) when available**
- **Recovery position and casualty care**
- **Handing over to emergency and medical services EMS**

Priorities of BLS - Dr ABC

The following VAs can be used in conjunction with the instructor practical demonstrations.

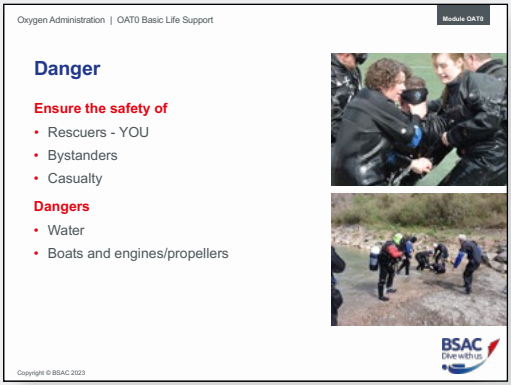
Implementing the priorities of BLS needs to be considered in the context of the normal diving situation, where there should always be other divers around to help. The order of priorities can be remembered using Dr ABC.



Danger

Ensure the safety of:

- **Rescuers - YOU**
- **Bystanders**
- **Casualty**



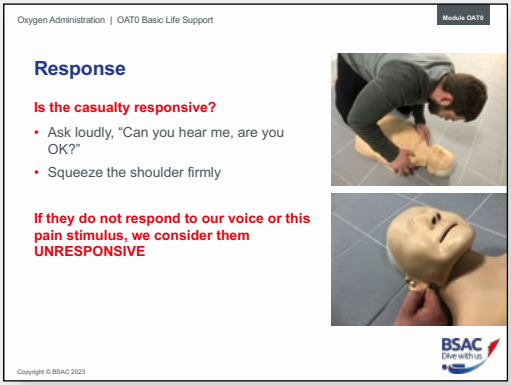
Dangers

For example, water, boat propellers and rocks are a danger, so rescuer and casualty need to be landed safely either to the shore or boat.

- **Water**
- **Boats and engines/propellers**

Response

Check the casualty's level of response by calling loudly, “Hello, are you OK, can you hear me?”



Is the casualty responsive?

- **Ask loudly, “Can you hear me, are you OK?”**
- **Squeeze the shoulder firmly**

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If they do not respond to our voice or this pain stimulus, we consider them UNRESPONSIVE

If the casualty does not respond to your voice, apply a controlled pain stimulus, such as squeezing the shoulder firmly. After a demonstration by the instructor, the students should practice the shoulder squeeze on each other.

Levels of response:

- **A - Alert**
  Aware and responding to people and events around them
- **V - Responds to Voice**
  Responds when asked a question or instructed to do something
- **P - Responds to Pain**
  Responds to shoulder squeeze or other controlled pain
- **U - Unresponsive**
  No response to any stimulus

Shout / call for help

Get support from your team/passers-by

- **Ensure they know you are dealing with a casualty and need their help**
  Make sure the rest of your group and others around you are aware that you are dealing with a casualty.

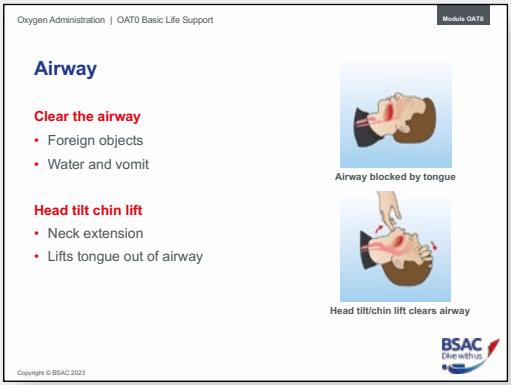
- **The quicker you get help the better**
- **Allocate tasks:**

These people can help by calling the emergency services, collecting an AED and helping you move a casualty if appropriate and necessary.

- » Find/collect AED
- » Call emergency services
- » Set up oxygen administration equipment
- » Move casualty if necessary

Airway

Explain and demonstrate using the manikin.



Clear the airway

- **Foreign objects**
  Look in the mouth and remove any foreign matter found in it. Loose dentures can also be a problem and should be removed.
- **Water and vomit**
  If there are fluids in the mouth and upper airway, turn the casualty on their side away from you to allow them to drain away. Regurgitation often occurs when someone has ingested water into the stomach or recently had a meal.

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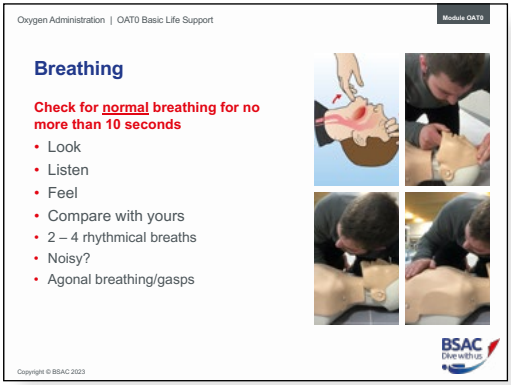
Head tilt chin lift

- **Neck extension**
- **Lifts tongue out of airway**
  In an unconscious casualty laid on their back, the relaxed muscles of the tongue will allow it to sag downwards and block the airway. Tilting the casualty's head back by lifting the chin will lift the tongue out of the airway.

Breathing

Explain and demonstrate using the manikin.



Check for normal breathing for no more than 10 seconds

Normal, as you are breathing now, a steady rhythm of two and four breaths should be observed (heard, seen and felt) in not more than 10 seconds. Look, listen and feel. Your ear near the casualty's mouth, looking down across their chest and with your hand on the lower part of their chest/upper abdomen.

- **Look**
- **Listen**
- **Feel**
- **Compare with yours**
- **2 – 4 rhythmical breaths**

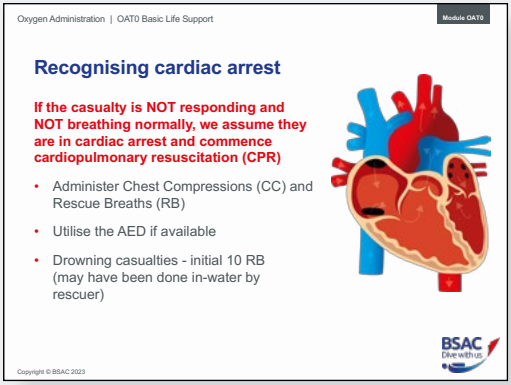
- **Noisy?**
- **Agonal breathing/gasps**
  Isolated gasps are not normal breathing. Often referred to as agonal gasps or agonal breathing, they should not distract you from giving chest compressions and rescue breaths.

Note: An episode of the ABC production Bondi Beach Lifeguards shows a drowning casualty being resuscitated on a beach. This vividly illustrates agonal gasps and the other movements of facial and chest muscles, and of limbs, in cardiac arrest. It is not subject to copyright.

If the casualty IS breathing normally, we must protect their airway and prevent them from getting worse. The recovery position, demonstrated later, achieves this.

Recognising cardiac arrest

If the casualty is NOT responding and NOT breathing normally, we assume they are in cardiac arrest and commence cardiopulmonary resuscitation (CPR)



- **Administer Chest Compressions (CC) and Rescue Breaths (RB)**
  Having ensured that emergency services have been contacted, we then move on to either rescue breaths (RB), where the casualty is drowned, or chest compressions (CC) in all other adult casualties.

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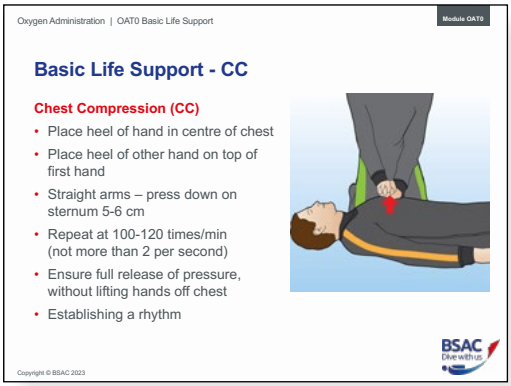
- **Utilise the AED if available**
- **Drowning casualties – initial 10 RB (may have been done in water by rescuer)**
  In drowning casualties, we start with 10 rescue breaths. Demonstrate on manikin.

Basic Life Support - CC

Chest Compressions (CC)

Kneel by the side of the casualty - choose the side you are comfortable with or where space allows.

Where space is limited, kneel, with a knee either side of the casualty's head.



Effective chest compressions (CC) will pump blood out of the heart and around the body and lungs.

- **Place heel of hand in centre of chest**
- **Place heel of other hand on top of first hand**
- **Straight arms – press down on sternum 5-6 cm**
  Delivered in groups of 30, pushing down on the centre of the sternum with both hands interlocked 5-6 cm.
- **Repeat at 100-120 times/min (not more than 2 per second)**

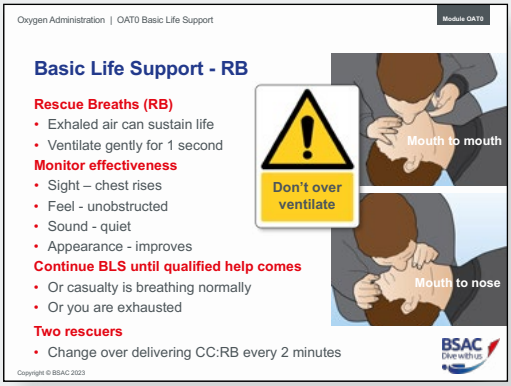
100-120 times each minute (not more than two compressions per second). Use your shoulder weight and do not allow your elbows to bend.

- **Ensure full release of pressure, without lifting hands off chest**
  Ensure that the hands stay in gentle contact with the casualties chest on full release of the compression, i.e. do not lift hands off.
- **Establishing a rhythm**
  Establishing a rhythm increases effectiveness and is less tiring.

Explain the option of compressions only BLS in non-drowning casualties.

Basic Life Support - RB

Rescue Breaths (RB)



- **Exhaled air can sustain life**
  Exhaled air can sustain life – you exhale around 16-17% oxygen, their lungs may be very depleted.
- **Ventilate gently for 1 second**
  Ventilate gently for 1 second – a gentle inflation, sufficient to make the chest rise. Forceful or over long and aggressive inflations will force air into the stomach. Increasing likelihood of regurgitation.

Monitor effectiveness

Go back

- **Sight – chest rises**
- **Feel - unobstructed**
  You can feel the air going in
- **Sound - quiet**
  No gurgling or other obstruction
- **Appearance - improves**
  Healthy colour will return to a cyanose or pale casualty

Continue BLS until qualified help comes

Do not stop BLS until they are ready to take over from you.

- **Or casualty is breathing normally**
- **Or you are exhausted**

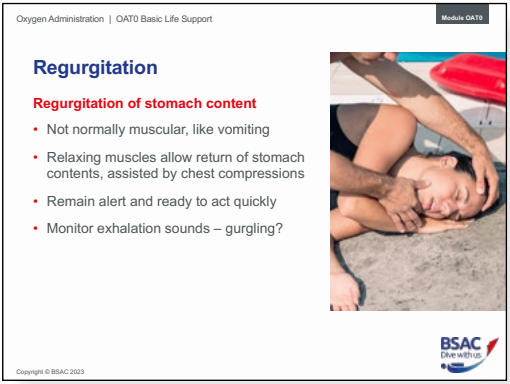
Two rescuers

- **Change over delivering CC:RB every 2 minutes**
  If there is more than one rescuer, another should take over BLS every two minutes to minimise fatigue and increase effectiveness. If using an AED, this fits in with the two-minute interval between analysis of the casualty.

Regurgitation

Regurgitation of stomach content

Regurgitation of stomach content is not unusual, particularly in drowning



- **Not normally muscular, like vomiting**
- **Relaxing muscles allow return of stomach contents, assisted by chest compressions**
- **Remain alert and ready to act quickly**
  Threat to casualty's airway
- **Monitor exhalation sounds – gurgling?**

Action

- **Supporting the casualty's head**
- **Quickly roll them away from you**
- **Allowing stomach content to drain from upper airway and mouth**
- **Scoop out any remaining solids**
- **If they are not breathing normally**
- **Roll them back over, protecting head, and continue CC and RB**

Note: The instructor will demonstrate this technique and ask students to practice it in the practical module.

Basic Life Support - AED

Utilise an AED if you have access to one. In most cases, the AED will arrive when we have already started the BLS sequence. Do not delay in deploying the AED but do not interrupt or get in the way of the

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person doing CC and RB. The effectiveness of an AED is increased by good quality CC and RB.

In a diving situation, it is likely that BLS will have been initiated in the water by a buddy or lone rescuer. Once the casualty is out of water, other members of the diving group will be available to help. When receiving a casualty from a lone rescuer, start again with DrABC. Whether or not you are a diver, you will be a real asset as a member of the team.

AED use

- **Switch on AED**
  Various method – green button, lifting up front cover or pads container
- **Follow AED voice instructions**
  Listen to and follow the sequence. Do not ad-lib.
- **AED pads must make a good contact with the casualty's skin (dry and shaved)**
- **Casualty's chest must be naked and dry**
  To ensure good electrode pad adhesion
- **Casualty's chest may need to be shaved and dried**
  Safety razor and towel in AED case

Safety

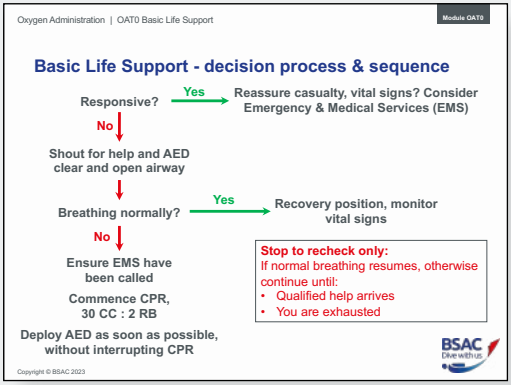
- **Ensure oxygen is removed from casualty before an AED shock is given**
  >1m recommended

- **Ensure nobody is touching the casualty when AED is analysing rhythm or delivering a shock**
  >0.3m recommended

Note: There is a free BSAC AED Awareness resource available online. **www.bsac.com/aedawareness**

Basic Life Support – decision process and sequence

The instructor should take the students through each of these pathways on the slide, filling in the detail.



Whenever possible, we need to get an unresponsive diving casualty safely out of the water and onto a hard surface without delay so that we can start Basic Life Support Chest Compressions. These can not be done in the water.

Often it is not possible to remove them from the water immediately. For example, when diving from a boat or a distance from the shore and a suitable point for safe recovery. In each of these cases, there will be a delay before we are able to remove the diver from the water.

Where we suspect drowning, such as when bringing or finding an unresponsive diver on the surface, it may be beneficial to the casualty if we open the airway and give 10 rescue breaths immediately. Particularly if we are waiting for a boat to pick us up or it is a long swim to the shore.

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Thereafter, and with casualties who are not believed to have drowned, the process is as follows:

- **30 compressions: 2 breaths delivered by one rescuer**
- **Utilise the AED if available**
  The AED may detect a shockable rhythm and is the most effective way of dealing with a sudden cardiac arrest.
- **Monitor effectiveness**
  Rescue breaths - maintain head tilt and chin lift. Between breaths, look across the casualty's body and watch for the chest to fall.

Only stop if:

- **Normal breathing resumes – you observe (see, feel, hear) the normal, rhythmic cycle of breathing.**
  Do not stop to check breathing.
- **Medical assistance arrives and are ready to take over from you.**
  This is their job - they will have skills, experience, additional equipment and medication.
- **Exhausted**
  You are exhausted and unable to maintain effective CPR.

Two rescuers

- **Change over delivering CC:RB every 2 minutes**
  If there is more than one rescuer, another should take over BLS every two minutes to minimise fatigue and increase effectiveness. If using an AED, this fits in with the two-minute interval between analysis of the casualty.

Recovery position - two kinds

If the casualty is still unresponsive but is breathing normally, place them in the recovery position.

Two types:

- **The 'how position'**
- **More stable position**
  The added stability of the second position may be of benefit when the casualty is subject to the motion of a boat. Placing an unconscious breathing casualty in a recovery position is more important than the precise details of which position it is. Ensuring an airway and normal breathing is maintained is paramount.
- **Casualty's closest arm placed either in the 'how' position or underneath the casualty's buttock**

Note: ensure that the hand is placed well underneath the soft part of the buttock - not under the point of the pelvic bone - and that the palm is against the buttock, not flat on the floor.

- **Casualty's far leg bent at knee and used as lever to roll casualty towards you**
- **Head protected during roll**
  Carefully support the head. With no muscle tone, the neck will be very 'floppy' and inadequate support may result in injury to head and neck/spine.
- **Closest arm/leg keep pressure off chest**

Go back

- **Head placed on hand, angled downward to ensure drainage of any fluid**
- **Check normal breathing in the new position**

Casualty care

Tender loving care (TLC)

The rescuer's attitude is often significant in affecting the casualty's response and well-being.

- **Reassure at all times**
  At all times the casualty should be reassured and subjected to TLC. This is true even for unresponsive casualties, many of whom will still be aware of what their rescuers are saying around them. Always remain positive and encouraging.
- **Protect from the elements**
  A casualty going into shock will be cooling down. Monitor this, even on hot days. Also, be aware of any signs of heat illnesses.
- **Casualty records**
  If possible, the rescuer should note down the incident history, i.e. time of event, signs of the problem and first aid actions applied. Even better, get someone else to do this for them. A written record with approximate timings can assist in the subsequent treatment of the casualty by qualified medical aid. BSAC produces a casualty assessment and incident procedures form and slate for this purpose. This slate is used as a part of many BSAC courses where casualty management is involved. This includes diver training, oxygen administration, practical rescue management and first aid for divers.

- **Friends or family contact**
  Depending on the circumstances, the rescuer may need to contact friends and family about the incident. This should only be done in consultation with the emergency services or medical authorities who are transporting or treating the casualty.

Post incident support & considerations

- **Support required**
  Even quite minor diving incidents can be very stressful for those involved, both casualties and rescuers. It is normal to have strong feelings, including feeling upset, angry, confused or even thinking, 'what more could I have done'. Support is available from a range of organisations. If you don't know who to speak with, BSAC HQ staff will provide advice on this.
- **BSAC Incident Report**
  Whatever the nature of the incident, we can help others to learn from our experiences and maybe avoid finding themselves in the same situation. Reports are handled in confidence. When published in the annual reports, the incidents are stripped of personal details.
- **Successful rescues**
  We also learn from incidents where rescue skills are applied successfully. If an incident occurs and the outcome is good, please let BSAC know by submitting an incident report.

Feedback important

- **Part of maintaining safety record of our sport**
  It also confirms the efficacy of rescue procedures and skills we teach.

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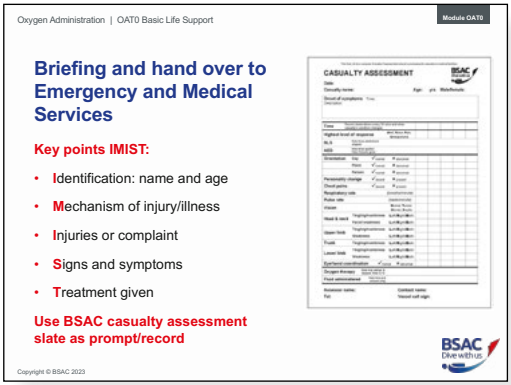
Briefing and hand over to Emergency and Medical Services

In transmitting a message or providing a brief, we need to be concise and focus on essential information. The person receiving the information may ask you to expand on particular points. We can collect the information on the BSAC Incident Procedure and Casualty Assessment form/slate.



Key points IMIST:

- **Identification: name and age**
  First and family name, their apparent age (DoB if known).
- **Mechanism of injury/illness**
  What happened to lead to their condition. Timeline.
- **Injuries or complaint**
  What is their principal injury or complaint? Any other significant issues?
- **Signs and symptoms**
  Initially and any changes. ABC, Level Of Consciousness (LOC), respiration rate, pulse rate etc. Timeline.
- **Treatment given**
  What have you done for them? First aid actions. Timeline.

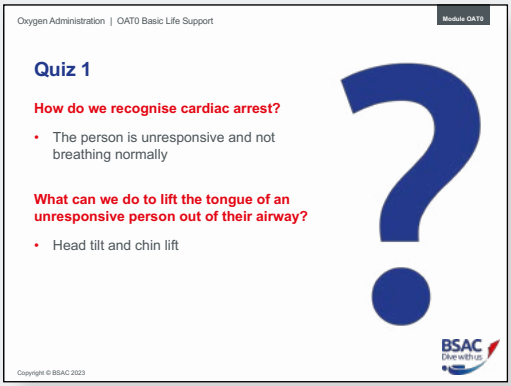
Use BSAC Casualty Assessment slate as prompt/record

In OAT4 and scenarios, the BSAC Incident Procedure and Casualty Assessment slate will be introduced as a prompt/record.

Quiz 1

How do we recognise cardiac arrest?

- **The person is unresponsive and not breathing normally**



What can we do to lift the tongue of an unresponsive person out of their airway?

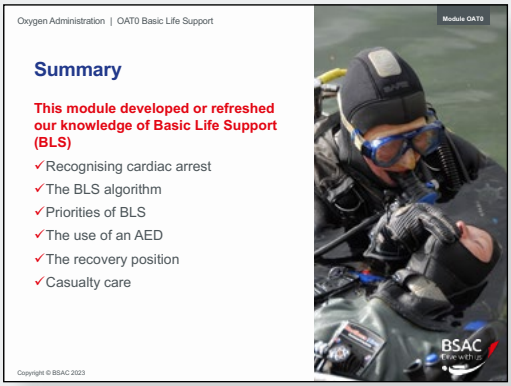
- **Head tilt and chin lift**

Summary

Summarise the key points covered in this module.

This module developed or refreshed our knowledge of basic life support (BLS)

- **Recognising cardiac arrest**
- **The BLS algorithm**
- **Priorities of BLS**
- **The use of an AED**



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- **The recovery position**
- **Casualty care**

Consider asking some additional questions to check transfer of knowledge.

Any questions?

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