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NHS Kent & Medway

Basic Life Support & AED
for
GP's, Nurses and Practice Staff

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Whatever your First Aid , Fire Safety or Health & Safety requirement, we are here to help you.

There is a degree of flexibility in all course programmes to allow us to accommodate any specific requirements you may have.

Please contact us for further information.

This course is delivered in accordance with the UK Resuscitation Council Guideline 2010 and European Resuscitation Council guidelines 2010.

Background

Each year around 700,000 people across Europe (60,000 in the UK) suffer a cardiac arrest. The survival rate for out of hospital cardiac arrest in the UK is between 5-8%.

Survival rates are much higher in other countries where there is :

- Greater availability of defibrillators
- Greater number of people trained in CPR
- Quicker ambulance response times
- More regular training and re certification of ambulance staff in resuscitation

Chain of Survival

Research led by Dr Richard Cummins of Seattle and the American Heart Association in the early 1980's showed that following a simple, quick and efficient approach to cardiac arrest gave patients the best chance of survival. They called this approach the chain of survival.

Today the Chain of Survival is applied in the UK through our Primary Survey or Basic Life Support protocol often known as DRsABC. The Basic Life Support (BLS) protocol is set down by the UK Resuscitation Council and is reviewed every five years. The current protocols were published in October 2010.

Heart Attack & Cardiac Arrest

People often use these terms interchangeably, but they are not synonyms. A heart attack is when blood flow to the heart is blocked, and sudden cardiac arrest is when the heart malfunctions and suddenly stops beating unexpectedly. A heart attack is a "circulation" problem and sudden cardiac arrest is an "electrical" problem.

Cardiac Arrest

Sudden cardiac arrest occurs suddenly and often without warning. It is triggered by an electrical malfunction in the heart that causes an irregular heartbeat (arrhythmia). With its pumping action disrupted, the heart cannot pump blood to the brain, lungs and other organs. Seconds later, a person loses consciousness and has no pulse. Death occurs within minutes if the victim does not receive treatment.

Cardiac Arrest can occur for lots of reasons Coronary Artery Disease, Heart Attack, Cardiomyopathy, Valvular Heart Disease, Congenital Heart Disease, Electrical problems with the heart as well as electrocution, massive trauma, head injury etc etc.

Primary Survey/Basic Life Support

Our approach to Cardiac Arrest is the same whether we are Doctors, Nurses, Paramedics, First Aiders or Lay rescuers, we call this Basic Life Support or Primary Survey, also known as “DRsABC”.

D is for Danger - check that it is safe for you to offer help to the patient, check that it is safe for the patient to.

R is for Response - check to see if you can get a response from the patient, by talking to them and tapping them on the shoulder.

s is for Shout for Help - it is always good to have help, they can call 999 for you, collect a first aid kit or AED, move bystanders away, or can help with CPR if necessary.

A is for Airway - do a head tilt chin lift manoeuvre on the patient to take the tongue off the back of their airway, if you do not do this they may have a blocked airway and will be unable to breathe.

B is for Breathing - check for Normal breathing, if the patient is not breathing at all or is Agonally breathing (see below) they should assume to be in cardiac arrest. You or your help must call 999 and commence CPR immediately

C is for CPR - if the patient is in Cardiac Arrest you must start CPR, following the protocol later in this leaflet.

Agonal Breathing

More than half the patients in cardiac arrest present with Agonal Gasps or Agonal Breathing. Gasping has been described as snoring, gurgling, moaning, snorting, agonal or laboured breathing. It is usually presented with the tongue being forward in the mouth and with no chest movement. The patient is also likely to be cyanosed. However, bystanders often misinterpret gasping and other unusual vocal sounds as breathing and do not call 999 or start or begin CPR quickly enough. Or, they call 999 and when asked by the dispatcher if the patient is breathing, they often say ‘Yes’ – leading the dispatcher to believe it is not a cardiac arrest and give inappropriate recommendations to the rescuer. A few minutes later, the gasping stops, and only when the rescuer reports back to the dispatcher do they realise they are dealing with cardiac arrest. By that time, precious minutes have been wasted during which the patient’s brain and heart have not received any blood flow.

Usually, this gasping or agonal breathing stops within about four minutes, the gasping is a survival reflex triggered by the brain. Patients in Cardiac Arrest often also show signs of muscle movement or spasm in hands lower arms or whole arms, similarly these should not be confused as signs of life.

Remember , do your breathing check, if the patient is not breathing or is agonally breathing, they are in cardiac arrest, mobilise emergency medical services and commence CPR without delay.

Primary Survey

D anger

R esponse

Shout for help

A irway

B reathing

C PR for a non-breathing casualty

Cardio Pulmonary Resuscitation (CPR)

Cardiopulmonary resuscitation, commonly known as CPR, s an emergency procedure performed in an effort to manually preserve intact brain function until further measures are taken to restore spontaneous blood circulation and breathing in a person who is in cardiac arrest.

In the current Resuscitation Council (UK) Resuscitation guidelines issued in 2010, CPR involves chest compressions at a depth of 5 to 6 cm and at a rate of 100 to 120 compressions per minute in an effort to create artificial circulation by manually pumping blood through the heart and thus the body. The rescuer may also provide breaths by either exhaling into the subject's mouth or nose pushing air into the subject's lungs. This process of externally providing ventilation is termed artificial respiration. Current recommendations require a combination of chest compressions plus artificial respiration (if you are willing and able). There is an expectation of those in the healthcare environment (or when doing home visits) that they will be suitably prepared to give both chest compressions and rescue breaths. This will probably mean having access to face masks, pocket masks or bag valve and mask so respirations can be given.

A simplified CPR method involving chest compressions only is recommended for untrained rescuers. And this is what has been promoted through The British Heart Foundation Vinnie Jones TV campaign “Push Hard and Fast”.

CPR alone is unlikely to restart the heart. Its main purpose is to restore partial flow of oxygenated blood to the brain and heart. The objective is to delay tissue death and to extend the brief window of opportunity for a successful resuscitation without permanent brain damage.

Automatic External Defibrillator (AED)

Administration of an electric shock to the subject's heart, termed defibrillation, is usually needed in order to restore a viable or "perfusing" heart rhythm. Defibrillation is effective only for certain heart rhythms, namely ventricular fibrillation or pulseless ventricular tachycardia, rather than asystole or pulseless electrical activity. CPR may succeed in inducing a heart rhythm that may be shockable. In general, CPR is continued until the patient has a return of spontaneous circulation (ROSC) or is declared dead.

To administer an electric shock we use an Automated External Defibrillator or AED. An AED should be attached to any patient in cardiac arrest (not breathing or not breathing normally).

Firstly we need to prepare the chest. We expose the upper chest completely by cutting or ripping clothing down to flesh level (including cutting of bras on female patients). If the patient has any patches (hormone, GTN) etc on the torso these need to be removed as they contain glycerin and can explode under shock conditions.

If the patients chest is hairy where the pads this should be prepared by shaving the areas where the pads go with the razor that should be with the AED. This is necessary to ensure the AED pads stick properly to the flesh and deliver a good shock.

Finally if the patient is wet or clammy the chest needs to be wiped where the pads are to be fixed to ensure that they stick properly, AEDs normally come with a suitable towel.

If the patient has any metal nipple piercing's you should not attempt to remove them but make sure the pad is at least 4 cms away from the piercing.

Pads should now be fixed on the upper right and lower left hand side of the patients body.

Once the AED is attached you should listen carefully to the prompts and follow the instructions. The AED will what to analyse the heart to see whether the patient is in a shockable rhythm. The AED will say something like “DO NOT TOUCH PATIENT ANALYSING RHYTHM” it is important that you stop CPR and do not touch the patient during this time.

The AED will decide whether the patient is in a shockable rhythm (VF or VT) and will advise you by stating “SHOCK ADVISED CHARGING” or something similar. When the AED is ready to shock it will say “STAND CLEAR - PRESS RED FLASHING BUTTON TO DELIVER SHOCK” or something similar. You MUST make sure there is nobody touching the patient, including yourself, then issue your own safety command by saying loudly “Stand Clear Shocking”, then press the red flashing button to deliver the shock. The patient will jolt as the shock is delivered. You should now be prepared to CPR again following the prompts that the AED issues.

This cycle will repeat itself every tow minutes with the AED analysing and if necessary shocking the patient.

You should continue CPR until:

- The patient shows signs of recovery
- The ambulance arrives and the paramedics take over
- The AED tells you to stop doing CPR
- You are too tired to continue
- The patient is pronounced dead (this can only be done by Doctors and Paramedics)

Pacemakers

AEDs can be used with patients fitted with a Pacemaker or an Implantable Cardioverter Defibrillator (ICD), internal defib. These are usually on the upper left chest of the patient and therefore well away from the area where the pads are placed. On some occasions the pacemaker or ICD site is on the upper right chest. In this instance the placement of the pad should be at least 4 cm above the pacemaker/ICD location.

Other Considerations

CPR always needs to be done on a firm flat surface, this generally means the floor. CPR can not be done in a bed unless it is a hospital bed designed for these purposes. Therefore patients found in cardiac arrest in a bed need to be taken out of bed onto the floor as quickly as possible before CPR is commenced.

Pad placement may need to be reversed in patients with certain medical conditions. Pads should be reversed ie patients upper left and lower right if you are aware that the patients has Dextrocardia or Situs Inversus as this will mean the heart will not be in the normal position and will be slightly right of centre of the patient, rather than slightly left of centre. You will only be aware of these conditions if the patient is known to you, where some form of medic alert giving this information or the patient has markings on their chest such as a tattoo indicating this.

Adult patients that have drowned should be given an initial 5 rescue breaths before commencing the standard 30:2 ratio of compressions to rescue breaths.

Paediatric Resuscitation and AED use

In children and infants the CPR protocol is slightly different in these cases we give five initial rescue breaths before entering into the normal 30 chest compressions to 2 rescue breaths routine. Chest compressions are given at the same rate of 100 - 120 compressions a minute and the depth of compressions is a third of the depth of the chest. We use two fingers to do compressions in infants and one hand in children.

Recovery Position

A patient who shows signs of recovery (ie starts breathing) when doing CPR and using an AED can be put in the recovery position. AED pads should be left in place and you should constantly monitor the patient in case they go into cardiac arrest again. Should the patient arrest again they should be rolled back on to their back, the AED pads reattached to the AED, and we should follow our Primary Survey/BLS protocol and turn the AED on and follow the prompts.

The recovery position is also used when doing our primary survey and finding that we have an unconscious patient who is breathing normally.

The purpose of the recovery position is as follows:

- It is a safe and stable position to leave our patient in if we really have to
- It maintains an open airway
- If the patient vomits, the vomits flows out of the airway and does not block it
- It is a position that minimises body contact with the ground and therefore heat loss through conduction.

IT IS IMPORTANT TO REMEMBER THAT ONLY PATIENTS WHO ARE BREATHING NORMALLY CAN BE PUT IN THE RECOVERY POSITION

Pregnant ladies should always be inclined to their left hand side when placing in the recovery position so that the unborn baby does not place pressure on the inferior vena cava and reduce venous blood flow back to the heart.

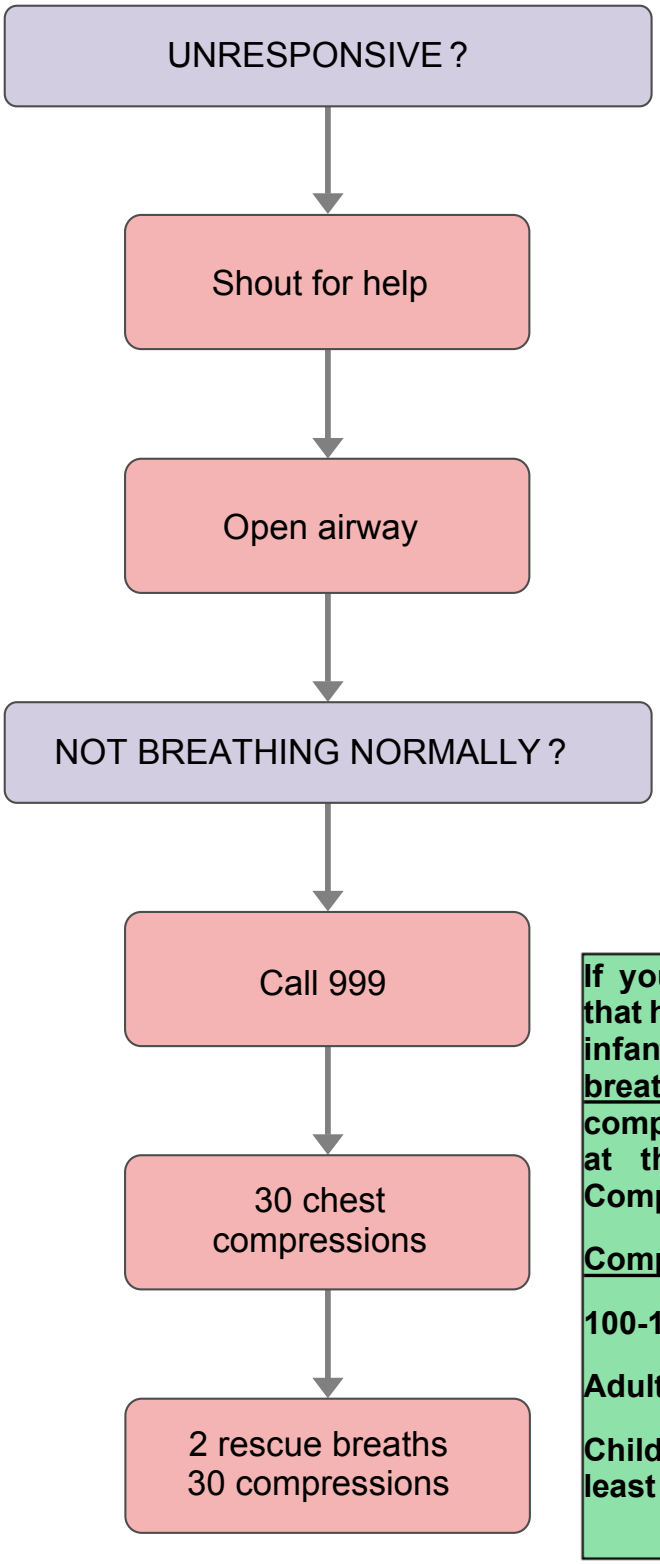
What Next

Keeping ourselves up to date with our Basic Life Support protocols and in doing CPR is essential. Research has shown where an AED is attached and CPR is started early (in 1 to 2 minutes) by people who regularly train the chance of the patient surviving increases significantly.

You can keep current by occasionally reading this leaflet, undertaking scenario based exercises in your practice or by using an interactive solution such as the Resuscitation Council (UK) Lifesaver App at **www.life-saver.org.uk**

Recovery Position

Adult Basic Life Support



If your casualty is an Adult that has drowned or a child or infant, <u>give 5 initial rescue breaths</u> before starting chest compressions (then continue at the ratio of 30 Chest Compressions to 2 Breaths).

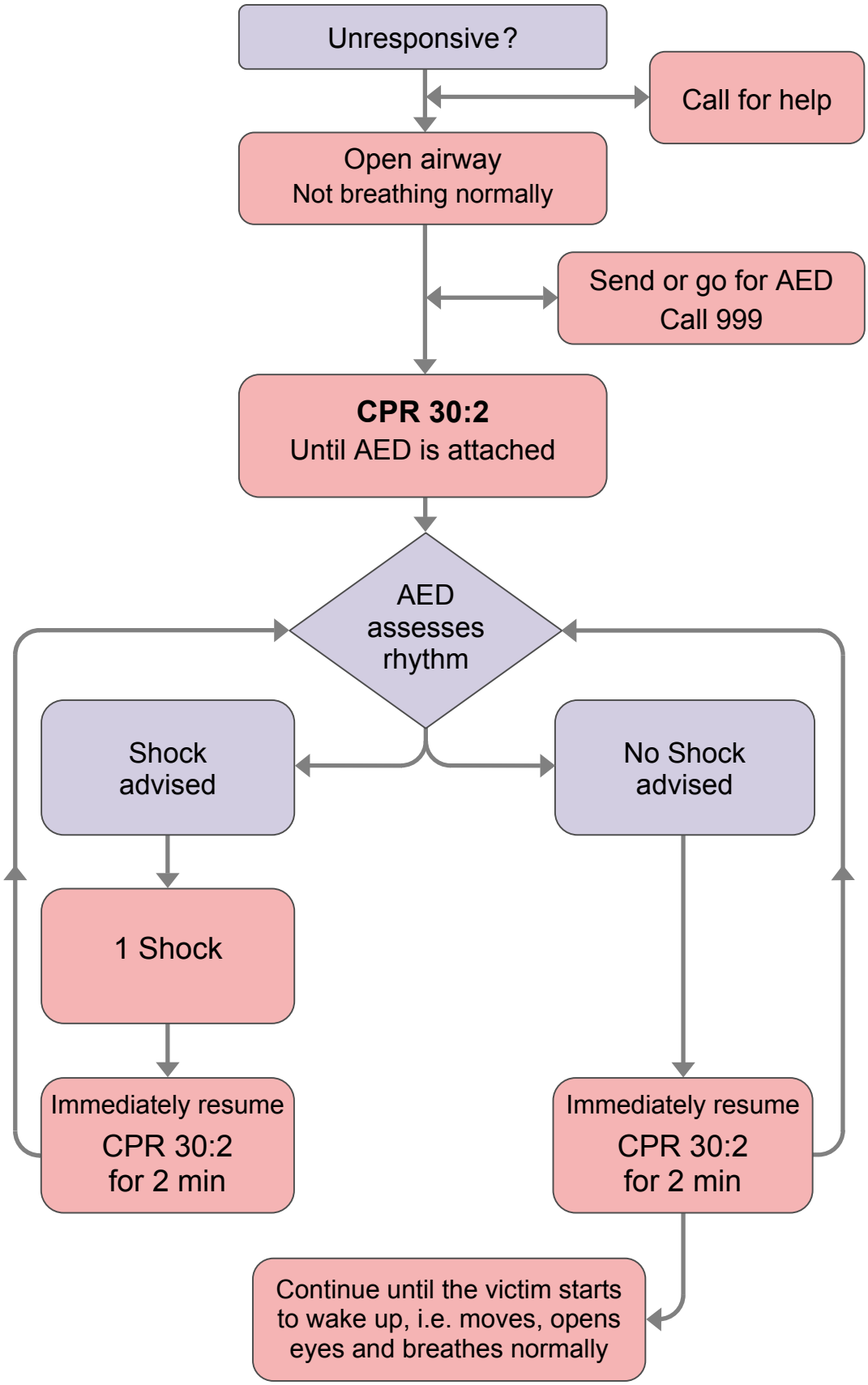
<u>Compressions</u>

100-120 a minute

Adult - Depth 5-6 cm

Child/Infant - compress to at least one-third of chest depth.

AED Algorithm



More Information Available at:

Resuscitation Guidelines 2010

http://www.resus.org.uk/pages/guide.htm

We hope you have found your training session useful and informative.

We are able to offer a range of other training courses and services, some of which are listed below:

Training

Level 2 Emergency First Aid at Work (1 DAY)

Level 3 First Aid at Work (3 Day) and Requals

Level 2 Activity First Aid, Level 2 Paediatric First Aid

Basic First Aid, AED Training

Medical Gasses Training

Fire Marshal/Fire Warden, Level 2 Fire Safety

Fire Extinguisher (including live fire)

Level 2 Health & Safety, Level 3 Health & Safety

Level 2 Manual Handling

Postal Bombs and Telephone Bomb Threats

Bespoke Health & Safety, First Aid and Fire Safety Training

Documentation, Advice and Support

Health & Safety Policies, Manuals and Procedures

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Manual Handling, COSHH and DSE Assessments

Safety Inspections and Audits, Accident Investigations

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