BASIC LIFE SUPPORT - ADULT

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<th>Purpose of Issue/Description of Change</th>
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<td>BKW PCT May 2003</td>
<td>3</td>
<td>Policy reviewed. No changes in procedure or legislation since policy revised 12 months ago. Policy remains unchanged.</td>
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<th>Approved by</th>
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<tr>
<td>Resuscitation Group</td>
<td>Provider Services Governance Group</td>
<td>August 2010</td>
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| Policy File: | General Policy | Impact Assessment Screening Complete-September 2006 Full Impact Assessment Required No | No 17 |

Key Performance Indicators

Incident Reporting
Root Cause Analysis
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BASIC LIFE SUPPORT – ADULT

Introduction

Basic Life Support (BLS) comprises the elements: initial assessment, then airway maintenance, chest compression and expired air ventilation (rescue breathing). Basic life support implies that no equipment is employed; where a simple airway or facemask for mouth to mouth ventilation is used, this is defined as “basic life support with airway adjunct”.

The purpose of BLS is to maintain adequate ventilation and circulation until means can be obtained to reverse the underlying cause of the arrest. It is, therefore, a “holding operation”, although on occasions, particularly when the primary pathology is respiratory failure, it may itself reverse the cause and allow full recovery. Failure of the circulation for three to four minutes (less if the casualty is initially hypoxaemic) will lead to irreversible cerebral damage. Delay, even within that time, will lessen the eventual chances of a successful outcome. Emphasis must, therefore, be placed on rapid institution of basic life support by a rescuer who nonetheless should follow the recommended sequence of action.

Rationale Adult Basic Life Support

- For the benefit of health care professionals the key change is based upon the ratio change to 30 compressions : 2 ventilations
- This is to reduce the number of interruptions within the Cardio-Pulmonary Resuscitation cycle and therefore maintain coronary perfusion pressure.
- In the case of non-professional health care workers the key indicator for the diagnosis remains the absence of breathing.
- It is also accepted by the various resuscitation councils that the general public are reluctant to perform mouth to mouth resuscitation. As a result you may find lay rescuers performing compression only resuscitation which will maintain coronary perfusion pressure to an acceptable level. Oxygen levels in a non-asphyxial cardiac arrest victim should remain relatively high for the first few minutes after cardiac arrest.
- It is recommended that when more than one rescuer is present, another should take over chest compressions (with a minimum delay) every 2 minutes to prevent fatigue and maintain the quality of performance.
- **Resuscitation now commences with compressions and not as previously with ventilations.**
### Sequences of actions for adult basic life support

<table>
<thead>
<tr>
<th>Action</th>
<th>Rationale</th>
</tr>
</thead>
</table>
| Upon finding a collapsed unresponsive patient check it is safe to approach and start shouting for help  
Do not start resuscitation if alone you must get or go for help and call for paramedic assistance  
“Shake and Shout” | When finding a collapsed unresponsive patient it is obvious that you will require assistance as soon as possible. Start shouting for help immediately even though you have not made a full assessment of the victim yet. The quick arrival of the paramedic is imperative as most patients during a cardiac arrest go into Ventricular Tachycardia or Ventricular Fibrillation (a shockable rhythm that can only be reversed by defibrillation) |
| No response Open up the airway | A patient whose level of consciousness has diminished will be in danger of airway obstruction. The main threat to patients airway is their own tongue falling back to the back of the throat |
| Open the airway head tilt and chin lift | The best and most effective way of opening the airway is with the head tilt and chin lift manoeuvre. This lifts the tongue and straightens out the airway |
| If cervical spine injury suspected the jaw thrust method should be used  
Finger tips of each hand to be placed either side underneath the jaw and thrust upwards | This maintains cervical spine stability  
It must be remembered that if the jaw thrust is proving ineffective the rescuer may have to revert back to a small amount of head tilt chin lift as the airway always takes priority |
| Look For Chest Movements  
Listen For breath sounds and feel for the carotid pulse if trained  
Feel for expired air on side of face  
Ten seconds max | Check Breathing and Carotid pulse for no more than 10 seconds |
| Unresponsive and breathing patient put them into the recovery position  
Turn the patient on their side in the method that you know best  
Continue to monitor patient regularly Pulse and respirations | Put an unconscious but breathing casualty into the recovery position  
The priority of the recovery position is to maintain the airway (head tilt chin lift) when the patient is on their side. This will ensure the tongue is removed from the back of the throat and will allow any secretions and or vomit to drain from the mouth reducing the risk of aspiration Condition may deteriorate and life support may have to be instigated |
<p>| No breathing and No pulse if performed | Commence life support |</p>
<table>
<thead>
<tr>
<th><strong>30 chest compressions</strong></th>
<th><strong>Expose the chest area to skin level. The rescuer should put the heel of one hand in the middle of the lower half of the sternum and place the other hand on top. They should pull the fingers back so only the heel of the hand is in contact with the centre of the breast bone.</strong></th>
<th><strong>As this is likely to cause less damage</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lean over the patient with the shoulders above hands. keep arms straight and elbows lock</strong></td>
<td></td>
<td><strong>To maximise the effectiveness of the compressions</strong></td>
</tr>
<tr>
<td><strong>Press down vertically by 4-5 cms. keeping the movements smooth</strong></td>
<td></td>
<td><strong>To maximise the effectiveness of the compressions</strong></td>
</tr>
<tr>
<td><strong>The rate of compressions 100 per minute.</strong></td>
<td></td>
<td><strong>To give the maximum circulatory perfusion</strong></td>
</tr>
<tr>
<td><strong>Follow 30 chest compressions with 2 ventilations. Tilt head back and lift chin and pinch patient’s nose take a good breath get a good seal around patients mouth and blow steadily</strong></td>
<td></td>
<td><strong>To facilitate good air entry into patient’s lungs</strong></td>
</tr>
<tr>
<td><strong>Each Ventilation 1 second 1 second should make the chest rise and 1 second to watch it fall.</strong></td>
<td></td>
<td><strong>Do not over ventilate as this increases the chance of the patient vomiting, regurgitating and aspirating</strong></td>
</tr>
<tr>
<td><strong>Following the 2 ventilations the rescuer should quickly return to the chest compressions</strong> <strong>Ratio 30:2</strong></td>
<td></td>
<td><strong>To give the maximum circulatory perfusion</strong></td>
</tr>
<tr>
<td><strong>During Basic Life support do not stop to recheck breathing/ pulse unless the patient is shows signs of life</strong></td>
<td></td>
<td><strong>The likelihood of basic life support reversing the cause of cardiac arrest is unlikely. Consequently in rechecking for signs of life interrupts CPR which is oxygenating the patient</strong></td>
</tr>
<tr>
<td><strong>Continue with CPR until help arrives</strong></td>
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Chest compressions only CPR
A significant numbers of professionals and lay rescuers are reluctant to perform mouth to mouth resuscitation. If a rescuer is reluctant to perform mouth to mouth ventilation compression only CPR can be provided whilst the emergency services are en route. Combined with head tilt and chin lift to provide a patent airway, chest compressions alone provide some ventilation to the patient’s lungs.
Respiratory Arrest
In a non breathing patient if a carotid pulse or other signs of life have been detected the rescuers should now follow the respiratory arrest guidelines. This is to continue ventilating the patient and re checking carotid pulse and/or signs of life every 10 breaths/ventilations
Remember the patient may start to breath or a respiratory arrest may progress to a cardiac arrest and full CPR will be needed

Dissemination of Policy
This Policy will be available for staff via the intranet.

Document Control
It is the responsibility of the policy author to ensure archive of old versions of policies and ensure distribution of new versions of policies.

Related policies
Health Records Policy
Incident Reporting Policy

Archiving Arrangements
Policies need to kept for a minimum of 10 years (DOH 2006 – Records Management: NHS Code of Practice) for litigious purposes. It is important that the version of the policy is clearly recorded on the front cover of the policy.

First issue relates to the organisation which first issued the policy. This is important when NHS organisations change in case of future claim or complaint. In which case, it is the policy in place at the time of an incident which is used to defend a case.

Process for Retrieving Archived Documents
When a new version of an existing policy has been distributed for dissemination the team leader or individual responsible for the policy file within each team will need to replace the old policy version for the new one, fill in the version control sheet (Appendix 5 for a worked example) and shred the old copy once instructed to do so by the policy author.

Monitoring Compliance of This Policy
The Key Performance Indicators identified on the front of this policy will be used to monitor compliance with this document. It is the responsibility of the author of the policy to ensure that they are a robust test of compliance. The policy content will dictate the monitoring questions to be asked.

Reference List
Appendix 1 Adult Basic Life Support

Check Safe to Approach

Unresponsive

**Shout for help**

Open Airway
Head Tilt/Chin Lift

Assess breathing
If trained carotid Pulse

Not breathing normally
If still alone go for help

30 Chest Compressions

2 Ventilations

CPR 30:2
Appendix 2

Adult Choking treatment
(including children over 1 year)

Assess severity

Severe
Airway obstruction
(Ineffective cough)

Mild
Airway obstruction
(Effective cough)

Unconscious
Start CPR

Conscious
5 back blows
5 abdominal thrusts

Encourage cough
Continue to check for deterioration to ineffective cough or relief of obstruction

Source: Resuscitation Council (UK) 2005
Appendix 3  
The Use of Automated External Defibrillators (AED)  
Within Community Services

Resuscitation Council (UK) Guidelines 2005

Introduction

This section contains guidelines for the use of AEDs by Health Care Professionals responding with an AED within community Services. These guidelines are appropriate for all AEDs including those that are fully automatic.

Equipment in Use by PCT

The PCT currently uses automatic AEDs with the exception of Dental at Arrowe Park Hospital which has a manual defibrillator.

Target Group

This Appendix is for those departments who have an AED as listed below. The following services have AEDs situated within their department.

- Wirral Heart Support Centre, St Catherine’s Hospital automatic defibrillator
- Wallasey Heart Centre, Victoria Central Hospital automatic defibrillator
- Walk In Centre Victoria Central Hospital Automatic Defibrillator
- Walk In Centre Arrowe Park Hospital Automatic Defibrillator
- GPOOH’s Arrowe Park Hospital Automatic Defibrillator
- Dental (Oxton Clinic, Victoria Central Hospital, Bridle Road (Treetops) Bromborough, Pasture Road Moreton, Leasowe and Neston)

Automatic External Defibrillation should only be attempted by PCT staff who have received training in the uses of AED to aid resuscitation and maintain their competency with yearly updates

This policy should be read in conjunction with:

1. NHS Wirral Basic Life Support Policy (Adult and Paediatric)
2. Relevant manufacturer’s instructions
3. Departmental/Directorate procedures

Many victims of sudden cardiac arrest can survive if bystanders act immediately while ventricular fibrillation (VF) is present; successful resuscitation is unlikely once the rhythm has deteriorated to asystole (Larsen MP et al 1993).

Electrical defibrillation is well established as the only effective therapy for cardiac arrest caused by VF or pulseless ventricular tachycardia (VT). The scientific evidence to support early defibrillation is overwhelming; the delay from collapse to delivery of the first shock is the single most important determinant of survival. The chances of successful defibrillation decline at a rate of 7% - 10% with each minute of delay; basic life support will help to maintain a shockable rhythm that is not a definitive treatment.
The Resuscitation Council (UK) strongly recommends a policy of early attempted defibrillation.

**Guideline Changes**

The Resuscitation Council (UK) introduced changes in ‘Guidelines 2005’. Although Guidelines 2005 contain recommendations for changes in the sequence of shock delivery, there are no fundamental changes to the sequence of actions, since users should be taught to determine the need for AED, switch on the machine, attach the electrodes, and follow the prompts.

The main guideline changes are:

1. Place the axillary electrode pad vertically to improve efficiency
2. If possible, continue CPR whilst the pads are being applied
3. Programme AEDs to deliver a single shock followed by a pause of 2 minutes for the immediate resumption of CPR. Software update available if required from EBME, Wirral Hospital Trust

**Types of AEDs**

AEDs are sophisticated, reliable, safe, computerised devices that deliver defibrillatory shocks to victims of cardiac arrest. They use voice and visual prompts to guide rescuers, and are suitable for use by lay rescuers and Health Care Professionals. There are two types of AED; most are semi automatic in our PCT, but a few automatic AEDs are available Walk In Centres. All AEDs analyse the victim’s rhythm, determine the need for a shock and then the rescuer delivers a shock. Some semi-automatic AEDs have the facility to enable the operator (normally a health care professional) to override the device and deliver a shock manually, independently of any prompts.

The PCT has Automatic External Defibrillators which cannot be overridden.

**Maintenance**

Each AED must be registered on the Trust Medical Devices Register and also with EBME who will initiate annual equipment and battery checks.

Weekly equipment and battery checks must be carried out by designated department staff and recorded.
AED Algorithm

Unresponsive

Call for help

Open airway
Not breathing normally

Send or go for AED
Call 999* (80-2222 APH WIC)

CPR 30:2
Until AED is attached

AED assesses rhythm

Shock advised

1 Shock
150-360 J biphasic
Or 360 J monophasic

Immediately resume CPR 30:2 for 2 mins

No shock advised

Immediately resume CPR 30:2 for 2 mins

Continue until the victim starts to breathe normally
Procedure

The following sequence is for the use of both semi-automatic and automatic AEDs:

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>RATIONALE</th>
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</thead>
<tbody>
<tr>
<td>1. Make sure the victim, any bystanders and you are safe</td>
<td>To ensure safety of staff and others</td>
</tr>
</tbody>
</table>
| 2. If two rescuers are present assign tasks                               | To prevent any delay and to ensure continuity of intervention  
| 3. Check if victim is unresponsive and not breathing normally; if breathing absent, call for an ambulance, send someone for AED. *(each dept should have their own procedure to guide the emergency services to the victim)* If you are on your own, do this yourself; You may need to leave the victim. | To ascertain if emergency services are required and to ensure that professional help is on its way. Appropriate emergency intervention must be commenced as soon as possible  
To prevent delay in emergency services arrival.  
You may need to leave the victim.  
| 4. Commence CPR 30:2 according to the guidelines                           | To maintain viable circulation prior to defibrillation                                                                                                                                               |
| 5. On arrival of AED, switch on and attach single use electrode pads. If more than one rescuer is present, continue CPR whilst this is done. Follow the voice/visual prompts and ensure that nobody touches the victim whilst the AED is analysing the rhythm. | To visualise electrical activity of the heart  
To minimise artefact and interference                                                                                                                                                               |
| 6. If a shock **is** indicated:                                           | To deliver effective defibrillation to a shockable rhythm  
Ensure that nobody touches the victim  
Push the shock button as directed  
(Fully automatic AEDs will deliver the shock automatically)  
Continue as directed by the voice/visual prompts  
Immediately resume CPR using a rate of 30 compressions to 2 rescue breaths for 2 minutes or until sinus rhythm restored or patient regains consciousness |
7. If no shock is indicated

- Immediately resume CPR using a rate of 30 compressions to 2 rescue breaths
- Continue as directed by the voice/visual prompts

Rationale: To maintain cerebral perfusion until emergency services arrive

8. Continue to follow the AED prompts until:

- Qualified help arrives and takes over
- The victim starts to breathe normally or
- You become exhausted

Rationale: To maintain cerebral perfusion until emergency services arrive

### Placements of AED pads

The victim’s chest must be sufficiently exposed to enable correct electrode pad placement. Chest hair will prevent the pads adhering to the skin and will interfere with electrical contact. Shave the chest only if the hair is excessive, and even then spend as little time as possible on this. Defibrillation electrodes are single use and have an expiry date. **Do not delay defibrillation if a razor is not immediately available.**

Place one pad to the right of the sternum, below the clavicle. Place the other pad in the mid-axillary line, approximately level with the V6 electrode position or the female breast. This position should be clear of any breast tissue. It is important that this electrode is placed sufficiently laterally. In order to improve efficiency, place the mid-axillary pad with its long axis vertical (Deakin CD, 2003)

Although most AED pads are labelled left and right, or carry a picture of their correct placement, it does not matter if they are reversed. It is important to teach that if an ‘error’ is made, the pads should not be removed and replaced as this wastes time and they may not adhere adequately when re-attached

### CPR before defibrillation

Immediate defibrillation, as soon as an AED becomes available, has always been a key element in guidelines and teaching. This concept has recently been challenged. There are studies showing that when the time between calling for an ambulance and its arrival exceeds 5 min, a period of chest compression before defibrillation may improve survival. However, in these studies CPR was performed by paramedics, who also protected the airway by intubation and delivered 100% oxygen. Similar results may not be achievable in the community. For these reasons the Resus Council continues to recommend an immediate shock as soon as the AED is available.
**Voice prompts**

Voice prompts are usually programmable and it is recommended that they are set as follows:

- A single shock only when a shockable rhythm is detected;
- No rhythm, breathing or pulse check after the shock;
- A voice prompt for immediate resumption of CPR after the shock;
- Two min allowed for CPR before a voice prompt to assess the rhythm, breathing, or a pulse is given.

**Children**

Smaller, paediatric, self-adhesive pads, that attenuate the delivered current during defibrillation, are available for use with AEDs. Standard AEDs are suitable for use in children older than 8 years. In children between 1 and 8 years paediatric pads or a paediatric mode should be used if available; if not, the AED should be used as it is. There is insufficient evidence to support a recommendation for or against the use of AEDs in children less than one year. Staff would require paediatric life support training prior to attempting paediatric defibrillation.

**References**

Deakin CD, Sado DM, Petley GW, Clewlow F. “Is the orientation of the apical defibrillation paddle of importance during manual external defibrillation?” Resuscitation 2003;56: 15-8

APPENDIX 4

Critical Incident Review

Each resuscitation attempt must be recorded on a PCT incident form to monitor and improve standards of practice

Training

- PCT BLS trainer or Designated Resuscitation Officer/ BLS trainer
- It is mandatory for all staff that have a client/patient group attend an bi-annual Basic Life Support session with the exception of specific services identified locally for example the Wirral Walk In Centres staff will require annual BLS training.
- Training programmes will be organised through the Training Department or locally within department ie Cardiac Rehab, Walk In Centres
- Records of BLS training for individuals and their working areas will be maintained on a database at the Training Department and personal mandatory training portfolio
- All new members of staff should read this policy as part of their induction programme
- All new members of staff with direct patient contact BLS training as soon as possible after commencing work
- It is the responsibility of the individual member of staff and their line manager to ensure BLS skills are updated
## Appendix 5

### Example - Version Control Sheet

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<th>Shredded Yes/No</th>
<th>Replacement Number</th>
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<td>Maggie Johnson</td>
<td>Outdated</td>
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Basic Life Support - Adult