

## Adult basic life support Guidelines

### Authors

Gavin D Perkins

Mick Colquhoun

Charles D Deakin

Christopher Smith

Michael Smyth

Nigel Barraclough

Liz Yeates

Barry Klaassen

Lynn Thomas

Andrew Lockey

Jasmeet Soar

Jonathan Wyllie

Sue Hampshire

Mike Bower

Published May 2021.

[View PDF](#)

## Key points

- There are no major changes in the 2021 Basic Life Support Guidelines.
- Cardiac arrest recognition remains a key priority as it is the first step in triggering the emergency response to cardiac arrest.
- Recognise cardiac arrest has occurred in any unresponsive person with absent or abnormal breathing.
- The ambulance call handler will assist with instructions for confirming cardiac arrest, starting compression-only CPR, and locating, retrieving and using an AED.
- Provide chest compressions as soon as possible after cardiac arrest is confirmed.
- Send someone to fetch an AED and bring it to the scene of the cardiac arrest. The British Heart Foundation database, “The Circuit” serves as a

national resource for the location of AEDs.

- Use the recovery position, only if a person's conscious level is reduced and they do not meet the criteria for starting CPR.

## Introduction

Guidelines 2021 are based on the International Liaison Committee on Resuscitation 2020 Consensus on Science and Treatment Recommendations for Basic Life Support and Automated External Defibrillation and the European Resuscitation Council Guidelines for Resuscitation (2021) Adult Basic Life Support. Refer to the ERC guidelines publications for supporting reference material.

Guidelines 2021 prioritises supporting members of our communities to have the confidence, knowledge and skills to act when someone sustains an out of hospital cardiac arrest. Few major changes have been introduced as the principles of CPR remain unchanged. The guidelines emphasise that it is more important that people feel able to do something to help than they become focused on small details or concerned about causing harm. No greater harm can occur than failing to act when someone requires CPR and defibrillation.

The community response to cardiac arrest remains critical to saving lives. Bystander cardiopulmonary resuscitation (CPR) and use of an automated external defibrillator (AED) increase the chances of survival by two to four-fold and are a critical part of UK government's strategies to improving survival from cardiac arrest.

These guidelines are intended to support members of our communities who may be called upon to act in an emergency and to help saves someone's life. This includes members of the public, children and family members, first responders, and those with a duty to respond (e.g. lifeguards, first aiders). They complement the Resuscitation Council UK [Quality Standards for Cardiopulmonary Resuscitation and Automated External Defibrillation Training in the Community](#) which describe that when cardiac arrest occurs, systems and education should be in place to ensure that:

- cardiac arrest is recognised early
- help is sought – shout for nearby help and dial 999
- CPR is promptly started according to current guidelines
- an AED is located, retrieved and used as early as possible.

Management of cardiac arrest in patients with known or suspected COVID-19 is not specifically included in these guidelines, but is covered within the separate [COVID-19 guidance which is accessible from the RCUK website](#).

The process used to produce the Resuscitation Council UK Guidelines 2021 is accredited by the National Institute for Health and Care Excellence (NICE). The guidelines process includes:

- systematic reviews with grading of the certainty of evidence and strength of recommendations
- Consensus on Science with Treatment Recommendations, led by the International Liaison Committee on Resuscitation (ILCOR)
- the involvement of stakeholders from around the world including members of the public and cardiac arrest survivors.
- Details of the guidelines development process can be found in the Resuscitation Council UK [Guidelines Development Process Manual](#).

## **Guidelines**

### **How to recognise cardiac arrest**

- Start CPR in any unresponsive person with absent or abnormal breathing.
- Slow, laboured breathing (agonal breathing) should be considered a sign of cardiac arrest.
- A short period of seizure-like movements can occur at the start of cardiac arrest. Assess the person after the seizure has stopped: if unresponsive and with absent or abnormal breathing, start CPR.

### **How to alert the emergency services**

Alert the emergency medical services (EMS) immediately by dialling 999 on your phone, if a person is unconscious with absent or abnormal breathing.

- A lone bystander with a mobile phone should dial 999, activate the speaker or another hands-free option on the mobile phone and immediately start CPR assisted by the dispatcher.
- If you are a lone rescuer and you have to leave a victim to ring the ambulance service, alert the ambulance service first and then start CPR.

## High-quality chest compressions

- Start chest compressions as soon as possible.
- Deliver compressions on the lower half of the sternum ('in the centre of the chest').
- Compress to a depth of at least 5 cm but not more than 6 cm.
- Compress the chest at a rate of 100-120 min<sup>-1</sup> with as few interruptions as possible.
- Allow the chest to recoil completely after each compression; do not lean on the chest.
- Perform chest compressions on a firm surface whenever feasible.

## Rescue breaths

- If you are trained to do so, after 30 compressions, provide 2 rescue breaths.
- Alternate between providing 30 compressions and 2 rescue breaths.
- If you are unable or unwilling to provide ventilations, give continuous chest compressions.

## AED

### How to find an AED

- The location of an AED should be indicated by [clear signage](#).
- Ambulance services should have available up to date information on defibrillator locations, either through regional databases or national databases such as [the Circuit](#). There are a number of apps available for the public that list defibrillator locations.

### When and how to use an AED

- As soon as the AED arrives, or if one is already available at the site of the cardiac arrest, switch it on.
- Attach the electrode pads to the person's (who has sustained cardiac arrest) bare chest according to the position shown on the AED or on the pads.
- If more than one rescuer is present, continue CPR whilst the pads are being attached.
- Follow the spoken (and/or visual) prompts from the AED.
- Ensure that nobody is touching the person whilst the AED is analysing the heart rhythm.

- If a shock is indicated, ensure that nobody is touching the person. Push the shock button as prompted. Immediately restart CPR with 30 compressions. If no shock is indicated, immediately restart CPR with 30 compressions.
- In either case, continue with CPR as prompted by the AED. There will be a period of CPR (commonly 2 minutes) before the AED prompts for a further pause in CPR for rhythm analysis.

### **Compressions before defibrillation**

- Continue CPR until an AED (or other type of defibrillator) arrives on site and is switched on and attached to the person.
- Do not delay defibrillation to provide additional CPR once the defibrillator is ready.

### **Fully automatic AEDs**

- If a shock is indicated, fully automatic AEDs are designed to deliver a shock without any further action by the rescuer. The safety of fully automatic AEDs has not been well studied.

### **Safety of AEDs**

- Many studies of public access defibrillation have shown that AEDs can be used safely by bystanders and first responders. Although injury to the CPR provider from a shock by a defibrillator is extremely rare, do not continue chest compression during shock delivery.

### **Safety**

- Make sure you, the person and any bystanders are safe.
- Members of the public should start CPR for presumed cardiac arrest without concerns of causing harm to those not in cardiac arrest.
- Members of the public may safely perform chest compressions and use an AED as the risk of infection during compressions and harm from accidental shock during AED use is very low.

### **How technology can help**

- EMS systems should consider the use of technology such as smartphones, video communication, artificial intelligence and drones to assist in recognising cardiac arrest, to dispatch first responders, to communicate with bystanders, to provide dispatcher-assisted CPR and to deliver AEDs to the

site of cardiac arrest.

- The GoodSAM app ([goodsamapp.org](https://goodsamapp.org)) is an example of technology that is used widely in the UK and internationally.

## Foreign body airway obstruction

- Suspect choking if someone is suddenly unable to speak or talk, particularly if eating.
- Encourage the person to cough.
- If the cough becomes ineffective, give up to 5 back blows:
  - Lean the person forward.
  - Apply blows between the shoulder blades using the heel of one hand.
- If back blows are ineffective, give up to 5 abdominal thrusts:
  - Stand behind the person and put both your arms around the upper part of their abdomen.
  - Lean the person forwards.
  - Clench your fist and place it between the umbilicus (navel) and the ribcage.
  - Grasp your fist with the other hand and pull sharply inwards and upwards.
- If choking has not been relieved after 5 abdominal thrusts, continue alternating 5 back blows with 5 abdominal thrusts until it is relieved, or the person becomes unresponsive.
- If the person becomes unresponsive, start CPR.

## Recovery Position

- For adults and children with a decreased level of responsiveness due to medical illness or non-physical trauma, who do not meet the criteria for the initiation of rescue breathing or chest compressions (CPR), RCUK recommends they be placed into a lateral, side-lying recovery position. Overall, there is little evidence to suggest an optimal recovery position, but RCUK recommends the following sequence of actions:
  - Kneel beside the person and make sure that both legs are straight.
  - Place the arm nearest to you out at right angles to the body with the hand palm uppermost.
  - Bring the far arm across the chest, and hold the back of the hand against the person's cheek nearest to you.
  - With your other hand, grasp the far leg just above the knee and pull it up, keeping the foot on the ground.

- Keeping the hand pressed against the cheek, pull on the far leg to roll the person towards you onto their side.
- Adjust the upper leg so that both the hip and knee are bent at right angles.
- Tilt the head back to make sure the airway remains open.
- Adjust the hand under the cheek if necessary, to keep the head tilted and facing downwards to allow liquid material to drain from the mouth.
- Check regularly for normal breathing.
- Only leave the person unattended if absolutely necessary, for example to attend to other people.
- It is important to stress the importance of maintaining a close check on all unresponsive individuals until the EMS arrives to ensure that their breathing remains normal. In certain situations, such as resuscitation-related agonal respirations or trauma, it may not be appropriate to move the individual into a recovery position.

## References

ERC Guidelines 2021: <https://cprguidelines.eu/>

Olasveengen TM, Mancini ME, Perkins GD, et al. Adult Basic Life Support: International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. Resuscitation 2020;156:A35-A79.

Related content

[Lifesaver learning](#)

[CPR Right Now](#)

[Restart a Heart](#)

[FAQs: Basic Life Support \(CPR\)](#)

Downloads

[Adult Basic Life Support Algorithm 2021](#) 31.02 KB

[Adult in hospital resuscitation Algorithm 2021](#) 39.36 KB

[Adult Choking Algorithm](#) 31.54 KB