

# Health science

## Study guide - unit 7 - Cardiopulmonary resuscitation

### What is CPR?

It is a skill used in emergency situations when a person's heart stops beating. Providing high-quality CPR alongside the use of an AED machine can save a person's life.

### Basic health assessment

This is a physical examination of a person. The results will tell you about the health status of that person.

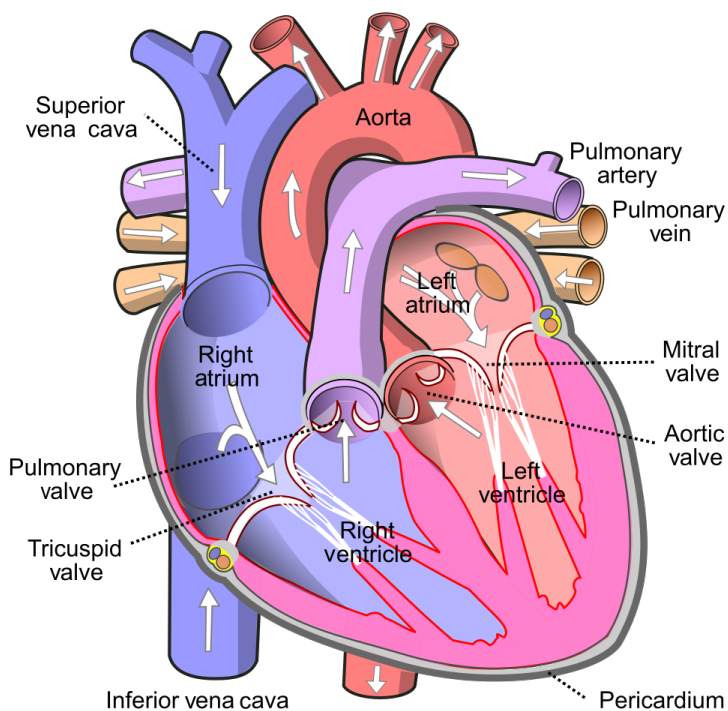
The assessment can be multiple tests. A basic health assessment will vary depending on the person and the situation.

### Normal Vital signs

·Temp	37c - 98.6 F
·PULSE	60 – 100 bpm
·RESP	12 - 20 p/m
·BP	120 / 80
·Pulse Press extra Sound	

### Anatomy of the heart ♥

The heart is divided into four sections, the right atrium and the left atrium; and the right ventricle and left ventricle.



### Fun fact

Most medical terms come from the Latin language

Atrium = entry hall  
Ventricle = little belly

The left side of the heart receives oxygen-rich blood from the lungs and carries it around the body.

The right side of the heart receives oxygen-poor blood after it has been delivered to the organs in the body. The oxygen-poor blood contains carbon dioxide which returns to the lungs where it gets exhaled.

# Why might the heart stop beating?

## Left-Sided vs. Right-Sided Heart Failure

### Left-Sided

Most common type of heart failure

Heart loses some of its ability to pump blood out to your body after it's been re-oxygenated

Usually caused by coronary artery disease



### Right-Sided

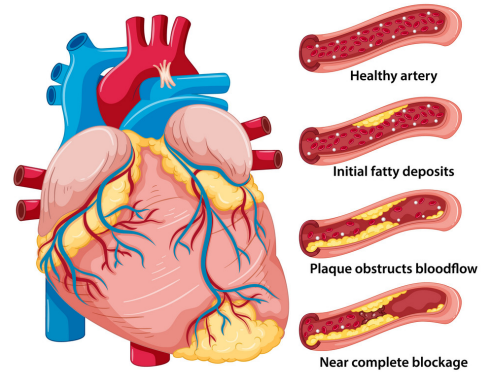
Heart loses some of its ability to move oxygen-depleted blood to the lungs to pick up new oxygen

Most often caused by left-sided heart failure

Can also occur even when the left side of the heart is apparently normal

verywell

## CORONARY ARTERY DISEASE



VectorStock

VectorStock.com/33807046

## CARDIAC ARREST VS. HEART ATTACK

People often use these terms interchangeably, but they are not the same.

### WHAT IS CARDIAC ARREST?

**CARDIAC ARREST** occurs when the heart malfunctions and stops beating unexpectedly.

Cardiac arrest 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.



Cardiac arrest is an **"ELECTRICAL"** problem.

### WHAT IS A HEART ATTACK?

**A HEART ATTACK** occurs when blood flow to the heart is blocked.

A blocked artery prevents oxygen-rich blood from reaching a section of the heart. If the blocked artery is not reopened quickly, the part of the heart normally nourished by that artery begins to die.



A heart attack is a **"CIRCULATION"** problem.

### WHAT HAPPENS

Seconds later, a person becomes unresponsive, is not breathing or is only gasping. **Death occurs within minutes if the victim does not receive treatment.**

### WHAT TO DO



Cardiac arrest can be reversible in some victims if it's treated within a few minutes. First, call your local emergency number and start CPR right away. Then, if an Automated External Defibrillator (AED) is available, use it as soon as possible. If two people are available to help, one should begin CPR immediately while the other calls your local emergency number and finds an AED.

### CARDIAC ARREST is a LEADING CAUSE OF DEATH.

Cardiac arrest affects thousands of people annually with about three quarters of them occurring in the home.

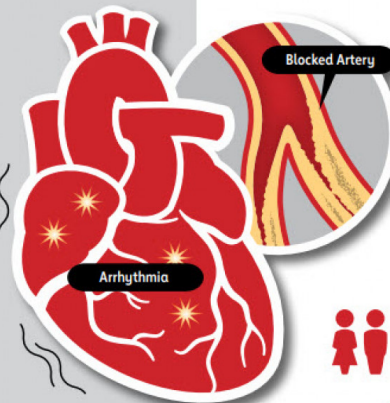


**Fast action can save lives.**

For more information on American Heart Association CPR training classes in your area go to [heart.org/cpr](http://heart.org/cpr).

Follow us:

[facebook.com/AHACPR](https://www.facebook.com/AHACPR) [twitter.com/HeartCPR](https://twitter.com/HeartCPR) [#CPRsaveslives](https://www.instagram.com/CPRsaveslives)



Blocked Artery

Arrhythmia

### WHAT HAPPENS

Symptoms of a heart attack may be immediate and may include intense discomfort in the chest or other areas of the upper body, shortness of breath, cold sweats, and/or nausea/vomiting. More often, though, symptoms start slowly and persist for hours, days or weeks before a heart attack. Unlike with cardiac arrest, the heart usually does not stop beating during a heart attack. **The longer the person goes without treatment, the greater the damage.**



The heart attack symptoms in women can be different than men (shortness of breath, nausea/vomiting, and back or jaw pain).

### WHAT TO DO



Even if you're not sure it's a heart attack, call your local emergency number. Every minute matters! It's best to call your local emergency number to get to the emergency room right away. Emergency medical services (EMS) staff can begin treatment when they arrive—up to an hour sooner than if someone gets to the hospital by car. EMS staff are also trained to revive someone whose heart has stopped. Patients with chest pain who arrive by ambulance usually receive faster treatment at the hospital, too.



American Heart Association.

© Copyright 2019 American Heart Association, Inc., a 501(c)(3) not-for-profit. All rights reserved. trademark of the AHA. Unauthorized use prohibited. 8/190514900.



CPR is a lifesaving technique that is used on someone who is in cardiac arrest. It helps to pump blood around the persons body when their heart cannot do it on its own.

## The chain of survival



# DRSABCD

IN AN EMERGENCY CALL **TRIPLE ZERO (000)** FOR AN AMBULANCE



**D**

## Dangers?

Check for danger to yourself, bystanders and the patient.



**R**

## Responsive?

Check for a response: ask name, squeeze shoulders.  
**No response?** Send for help.  
**Response?** Make comfortable, monitor breathing and response.



**S**

## Send for help

Call triple zero (000) for an ambulance or ask a bystander to make the call.  
Stay on the line.



**A**

## Open Airway

Open the mouth and check the airway for foreign material.  
**Foreign material?** Place in the recovery position and clear the airway.  
**No foreign material?** Leave in position.  
Open the airway by tilting the head back with a chin lift.



**B**

## Normal Breathing?

Check for breathing: look, listen, feel for 10 seconds.  
**Not normal breathing?** Ensure an ambulance has been called and start CPR.  
**Normal breathing?** Place in the recovery position and monitor breathing.



**C**

## Start CPR

30 chest compressions : 2 breaths.  
Continue CPR until help arrives or the patient starts breathing.



**D**

## Attach defibrillator

and follow the voice prompts.



Learn first aid | 1300ST JOHN | [www.stjohn.org.au](http://www.stjohn.org.au)

THIS INFORMATION IS NOT A SUBSTITUTE FOR FIRST AID TRAINING. FORMAL INSTRUCTION IS ESSENTIAL. © St John Ambulance Australia Inc, 2017

If you see an adult who may have gone into cardiac arrest:

- Make sure the scene is safe
- Check for a response
- Shout for help
- Call 998 and get an AED
- Check for normal breathing

## What to do if you are not sure

If you think someone needs CPR but you are not sure, give them CPR. You may save that persons life. High-quality CPR is not likely to cause harm if the person is not in cardiac arrest.

# RESUSCITATION (CPR)

## D

### DANGER

Check for hazards & ensure safety

## R

### RESPONSE

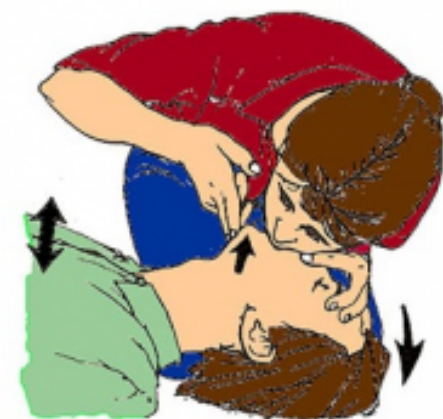
Check to see if Unresponsive/Unconscious

## S

### SEND FOR HELP

Call the ambulance on 000

## Adults & Children



A casualty who is unresponsive and not breathing normally needs urgent resuscitation

## A

### AIRWAY

Open airway, Head tilt/Chin Lift

## B

### BREATHING

Check breathing, if not breathing / abnormal breathing commence CPR

## C

### CPR

30 compressions : 2 breaths  
(if unwilling or unable to do breaths, consider doing chest compressions only)

## D

### DEFIBRILLATOR (AED)

Attach AED as soon as available and follow its prompts

## Infants Under 12 months



**Continue sequence until responsiveness or normal breathing returns, or help arrives**

	HEAD TILT	PRESSURE	DEPTH	BREATHS	RATIO	COMPRESSION RATE
ADULTS & CHILDREN	Yes	2 Hands	$\frac{1}{3}$ chest depth (Approx 5 cm)	Full breaths	30 Compressions:2 Breaths	Compressions should be performed at the rate of almost 2 per second (i.e. continuous rate of 100 per minute)
INFANT (birth – 1 )	No	2 Fingers	$\frac{1}{3}$ chest depth (Approx 4 cm)	Puffs	30 Compressions:2 Breaths	



# AUTOMATED EXTERNAL DEFIBRILLATOR

## A life-saving technique everyone should know

**Use an AED in a safe environment.** Check the area for wet surfaces, metallic surfaces and flammable gases.



**1**

**2**

**Turn on the AED and follow the voice prompt.**

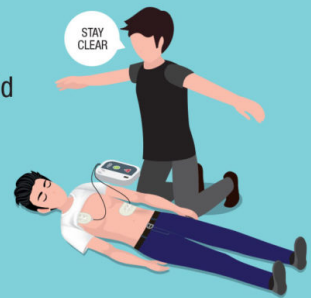
**3**

**Place the AED electrode pad one at a time, firmly to the bare chest according to the diagram.**

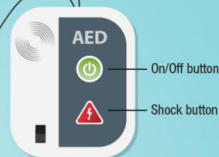


**4**

**When the AED starts analysing heart rhythm, no one should touch the casualty. Spread both arms out and shout "Stay Clear".**



Ensure chest is bare, dry & clean.



Look around before/when pressing the shock button.



### "Shock advised"

- Shout "Stay Clear"
- Ensures no one is touching the casualty before pressing the shock button.
- After shock is applied, resume chest compressions, and follow the AED prompts.

### "No shock advised"

Resume chest compressions and follow the AED prompts.



**Note:** Don't worry. You can't accidentally shock a person, as the AED is programmed to shock only when needed.

### STOP chest compressions when:

- AED analyses heart rhythm
- The casualty wakes up and/or regains normal breathing
- The paramedics take over