What can I do about Sudden Cardiac Arrest?

Arrhythmia Alliance

The Heart Rhythm Charity

Promoting better understanding, diagnosis, treatment and quality of life for individuals with cardiac arrhythmias

You can make a difference - Restart The Heart

www.heartrhythmcharity.org.uk

What can I do about Sudden Cardiac Arrest?

This booklet is intended for use by people who wish to understand more about sudden cardiac arrest. The information within this booklet comes from research and patients' experiences. The booklet offers an explanation of sudden cardiac arrest and how it is treated, alongside true life success stories. Additional information can be sourced at the provided websites.

Arrhythmia Alliance is leading a national campaign to place AEDs in local communities. For more information about **RESTART THE HEART** and making your community Heart Safe please e-mail: rth@stars.org.uk.

Arrhythmia Alliance (**A-A**) is a coalition of charities, patient groups, patients, carers, medical groups and allied professionals.

These groups remain independent, however, work together under the **A-A** umbrella to promote timely and effective diagnosis and treatment of arrhythmias.

A-A supports and promotes the aims and objectives of the individual groups.

Contents

Arrhythmia Alliance patient booklets are reviewed annually.
This booklet will be next updated March 2010,
if you have any comments or suggestions
please contact A-A.

Glossary

AED
Automated External Defibrillator; a portable device used to shock the heart if it is needed

BLS
Basic Life Support

CPR
Cardiopulmonary Resuscitation; a temporary measure used to continue a minimal supply of oxygen to the brain and other organs

Defibrillation
The re-establishment of the heartbeat

SCA
Sudden cardiac arrest; when the heart stops beating suddenly and unexpectedly without warning

VF
Ventricular Fibrillation; a dangerously fast heart rhythm which causes the heart to stop pumping blood effectively. This rhythm needs a shock to stop it and return the heart back to a normal rhythm. Sudden cardiac arrest can soon follow if the rhythm is not treated quickly with a shock

VT
Ventricular Tachycardia; a fast heart rhythm which can cause collapse or degenerate into VF

ICD
Implantable Cardioverter Defibrillator; a device which functions like an AED, but is small enough to be implanted in a patient to allow automatic defibrillation at any time

SVT
Supraventricular Tachycardia; a fast rhythm that starts in the upper chambers of the heart; less commonly associated with SCA

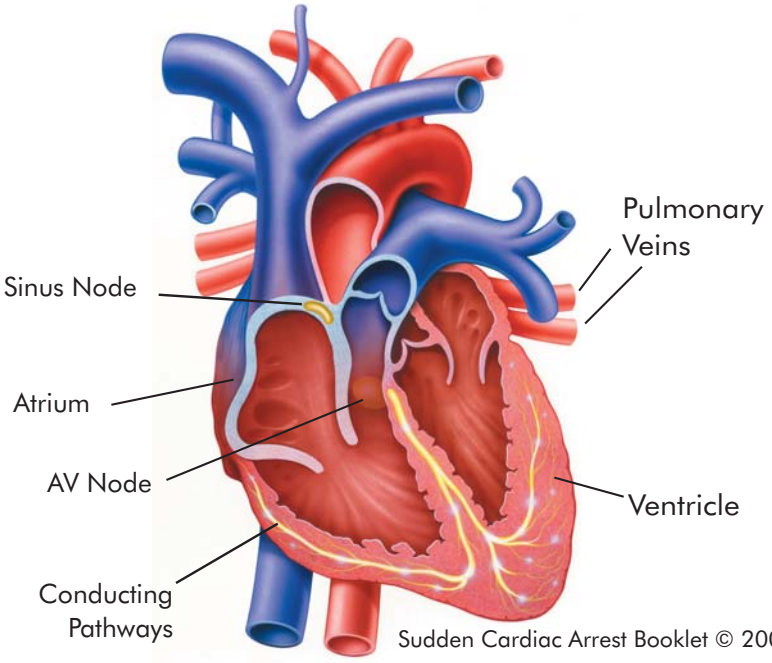
WPW
Wolff-Parkinson-White Syndrome; a cause of fast heart rhythms

What is Sudden Cardiac Arrest (SCA)?

Sudden cardiac arrest (SCA) is a condition in which the heart stops beating suddenly and unexpectedly due to a malfunction in the heart's electrical system. The malfunction that causes SCA is a life-threatening abnormal rhythm; an arrhythmia. The most common arrhythmia is Ventricular Fibrillation (VF).

When in VF, the heart's rhythm is so chaotic (called "fibrillating") that the heart merely quivers, and is unable to pump blood to the body and brain. Once a heart has entered VF, a sudden cardiac arrest may occur. During SCA a victim first loses his or her pulse, then consciousness and finally the ability to breathe. All of this can happen quickly - in fact, in a matter of seconds...

Sudden cardiac arrest strikes without warning. It knows no boundaries, claiming hundreds of thousands of lives around the world every year. People of all ages, fitness levels and walks of life can succumb to it and most do not survive.



Sudden Cardiac Arrest Facts

- It strikes without warning; killing 250 people a day in the UK
- In the UK, less than 5% of victims survive out of hospital
- It kills more people than lung cancer, breast cancer and AIDS combined
- It can happen to anyone, even young athletes
- Together with CPR, defibrillation is the only way to re-establish the heart's natural rhythm

Who can be affected by SCA?

Unfortunately, anyone can suffer a sudden cardiac arrest. SCA is unpredictable and can happen to anyone, anytime, anywhere - even teenagers. Risk factors of SCA include a previous heart attack, previous SCA event, fast rhythm in the lower part of the heart, family history of SCA and heart failure. Although pre-existing heart disease is a common cause of cardiac arrest, many victims have never had a heart problem. Among the causes of SCA in younger people (without a previous heart attack or heart failure) are inherited or congenital arrhythmias; these include Wolff-Parkinson-White Syndrome, Long QT Syndrome and Brugada Syndrome.

Wolff-Parkinson-White Syndrome (WPW)

WPW results from some "extra wiring" connecting the upper (atria) and lower (ventricles) chambers of the heart. This additional circuit occasionally allows very fast and unstable rhythms to develop and this can lead to SCA. These rhythm disturbances most often become apparent in teenage years or early twenties, but occasionally start earlier or later. The most common rhythm disturbance is SVT, involving both the normal and additional conduction circuits in the heart, but this can occasionally degenerate into VF. The diagnosis is usually obvious from an Electrocardiogram (ECG), although sometimes the characteristic appearances are not evident and may require additional testing to diagnose. However, many patients with WPW have few or no problems throughout their lives.

Long QT Syndrome

Long QT is a syndrome which can cause a disturbance in the electrical system of the heart. This can predispose a person to Ventricular Tachycardia (VT) which can quickly degenerate into VF. The cause lies in the heart muscle cells which take slightly longer to recover from a heart beat (only by about a tenth of a second). In the presence of Long QT Syndrome, SCA may be precipitated by such things as certain types of exercise, loud noises, or other sudden stimuli. Events usually occur in children or young people, but can be variable. The diagnosis is apparent from an ECG, which should also be offered to relatives of a patient shown to have Long QT Syndrome.

Brugada Syndrome

Brugada Syndrome is a rare inherited tendency to SCA which relates to the functioning of the heart muscle cells. It most commonly presents in people in their thirties and has a tendency to cluster in certain countries. It can usually be diagnosed from an ECG but additional tests may be required. Affected people suffer sudden collapse (''syncope'') due to VF or a very rapid form of VT called Torsade de Pointes. This can lead rapidly to SCA unless treated with defibrillation.

Patients with previous heart attack, heart failure or other known heart problems

SCA is usually caused by VT and/or VF starting in scars or damaged areas of the heart muscle, or very occasionally due to the effects of medication that the patient may be taking.

Is sudden cardiac arrest the same as a heart attack?

SCA is not the same as a heart attack, although a person suffering a heart attack has an increased risk of SCA.

HEART ATTACK

Caused by a blockage in an artery that supplies blood to the heart. The affected heart muscle then begins to die due to lack of oxygen.

Symptoms include central 'crushing' chest pain, often radiating to arms and jaw. The patient usually remains awake and alert.

SUDDEN CARDIAC ARREST

Caused by an abnormal heart rhythm, usually Ventricular Fibrillation.

There is rarely a warning and the patient always loses consciousness.

How is sudden cardiac arrest treated?

When someone suffers a sudden cardiac arrest, defibrillation together with CPR is the only way to re-establish the hearts natural rhythm.

Cardiopulmonary Resuscitation (CPR) alone will not restart a heart following a sudden cardiac arrest.

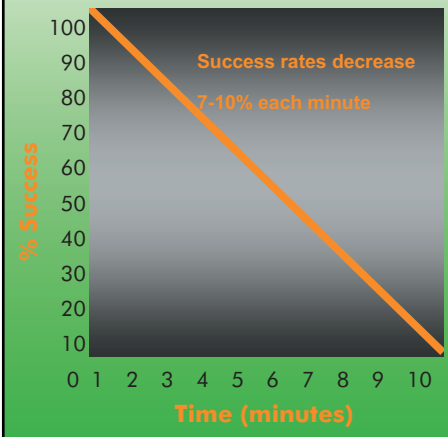
CPR alone = 5% Survival
CPR + Early Defibrillation = 50% Survival

What is CPR?

CPR is a temporary measure used to continue a minimal supply of oxygen to the brain and other organs.

CPR is otherwise known as Basic Life Support (BLS) and guidelines are available for out-of-hospital adults, children, and newborns. The 'Resuscitation Guidelines 2005' are published by the Resuscitation Council (UK) and are available at www.resus.org.uk

Early defibrillation is the key to surviving SCA



- Survival rates drop 7 - 10 percent every minute without defibrillation[1].
- CPR is a temporary measure that maintains blood flow and oxygen to the brain. It will not return the heart to a normal rhythm. Only defibrillation can return a heart to a normal rhythm.
- Quick action by the first person on the scene can truly make a difference in saving a life.
- Automated External Defibrillators make early defibrillation readily available and are easy to use, even for lay people with minimal training.

1. Cummins, R.O. 1989. From concept to standard-of-care? Review of the clinical experience with automated external defibrillators. Annals of Emergency Medicine 18: 1269-75

What is an Automated External Defibrillator (AED)?

An AED is a small, portable device that analyses the heart's rhythm and prompts the user to deliver a shock only if it is needed. Once activated, the AED guides the user through each step of the defibrillation process by providing voice and/or visual prompts.

Who can use an AED? …Anyone!…
…Minimal Training…No Medical Background!…

Putting AEDs in the community; offices, shops, public places, home, etc can dramatically reduce the time from collapse to defibrillation and has been shown to greatly improve survival rates.

Using an AED is as simple as . . .

AEDs are designed for use by anyone with minimal training and little or no experience.

The Chain of Survival

Worldwide guidelines for response to sudden cardiac arrest include 'The Chain of Survival'. Quick action by the first person on-scene can truly make a difference in saving a life.

The Chain of Survival represents the sequence of four events that must occur quickly to optimise a person's chance of surviving a cardiac arrest.

The four links of the chain are:

- Early Access - Dial 999 immediately.
- Early CPR - Provide CPR to help maintain blood flow to the brain and organs until the arrival of the defibrillator and advanced care.
- Early Defibrillation - Defibrillation is the only way to re-establish the heart's natural rhythm following a sudden cardiac arrest.
- Early Advanced Cardiac Life Support - after defibrillation. An emergency team provides advanced cardiac care on scene, such as intravenous medicine.

Mini-Anne CPR & AED Training Kit

Arrhythmia Alliance is proud to introduce the 'Mini-Anne Self Directed CPR & AED Skills Learning Programme'.

With a fully interactive DVD, the self-directed Mini-Anne CPR & AED Kit allows individuals to learn the core skills of Cardiopulmonary Resuscitation (CPR) and the use of an Automated External Defibrillator (AED) in less than an hour.

ONLY £25

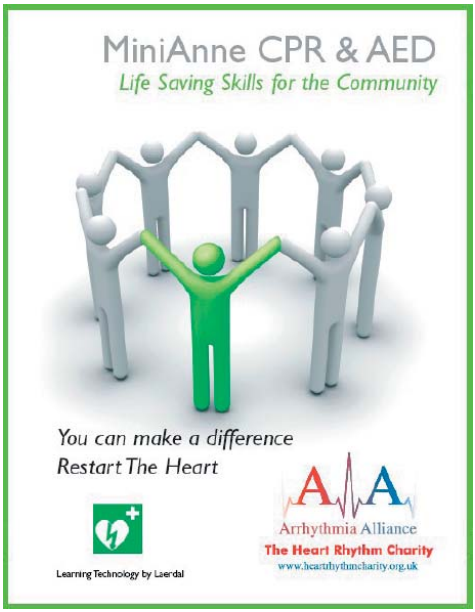
The kit includes the complete set of apparatus needed to simulate the process of performing CPR and using an AED; from identifying a patient in need of medical assistance to the arrival of the emergency services.

The interactive DVD is a revolutionary method of teaching these life-saving skills. It employs a unique "watch and do" technique where the user can practice CPR (30 compressions: 2 breaths) on a personal manikin (Mini-Anne) and learn how to use an AED.

The Mini-Anne CPR & AED Kit is suitable for people of all ages and levels of prior knowledge, providing an invaluable source of AED training and demonstration. The information given is clear, concise and easy to follow and is complimentary to additional AED training that may be supplied (either by the ambulance service or medical professional). In addition to this, trained personnel may also benefit from the kit as a means of providing refresher training.

Pass it on

Those who receive the kit are able to share the programme with their loved ones. By passing the kit on to family members and friends, one 'Mini Anne CPR & AED Training Kit' can go a long way to help make a community 'Heart Safe'.



FRONT

BACK

Purchasing a Mini-Anne CPR & AED Training Kit

The Mini-Anne CPR & AED Training Kits are available directly from Arrhythmia Alliance and an order form can be found in this toolkit. They are priced at £25 each and a discount is available for orders of five units or more.

For more information, or to order your own Mini-Anne CPR & AED Kit(s), please contact a member of the Arrhythmia Alliance team or complete and return the purchase order (at the end of this booklet) and a member of the team will contact you.

The Gary Humphries Story

It's not until you save a life, or meet someone who has survived a sudden cardiac arrest that you realise the difference an AED can make…

Kick start your heart

Gary Humphries will never forget the time his heart stopped beating for more than two minutes as he played his weekly game of squash. The 49 year old suffered a heart attack and cardiac arrest in the middle of a game in November 2003 and had no pulse or heartbeat. "I actually died on the squash court floor", says Gary of Caerphilly, South Wales.

Fortunately for Gary, he and his squash partner were playing at the Hawthorn Leisure Centre in Rhonda Cynon Taff, where a new type of resuscitation device was available. The LIFEPAK® defibrillator was put on his chest and moments later his heart was beating again.

Gary said "I felt nothing, no pain or anything. In fact, I remember very little about it. I was clinically dead for 2 minutes. I would not have pulled through but for the defibrillator and if we hadn't gone to that particular leisure centre I'd be dead".

Seven out of ten cardiac arrests, such as that suffered by Gary, happen outside of hospital and only a tiny fraction of victims survive; largely because of the lack of rapidly available resuscitation equipment.

Less than 5% of people in the UK survive cardiac arrests outside of hospital, whereas the rate in Seattle, America climbed to over 40% after defibrillators had been made available to the public.

The Sir Ranulph Fiennes Story, 'A Good Day to Die'

Sir Ranulph Fiennes, as described by the Guinness Book of Records, is the greatest living explorer. In 1993, he and Mike Stroud became the first men to walk unaided across the Antarctic continent, overcoming life-threatening situations in the process.

When you hear his name you think fitness and stamina, but in June 2003 after boarding a flight to Edinburgh at Bristol airport, he suffered a massive heart attack and cardiac arrest.

Fortunately, airport fire-fighters were able to revive Sir Ranulph using an automated external defibrillator, a device that shocks the heart. He later underwent a double heart bypass operation at Bristol Royal Infirmary. Sir Ranulph doesn't remember anything three days previous to the attack, as well as three days after the attack, so his thoughts on his heart stopping are all second hand. He says of the cardiac arrest, "I know I am amazingly lucky to have had a heart attack at an airport that had a defibrillator in easy reach and had the expert assistance of the Blue Watch at the Bristol Airport Fire Station who were able to attend immediately".

"I also feel very lucky to be alive, because the truth is most people who suffer a cardiac arrest are not in hospital surrounded by doctors, but at home or in public places. Many do not survive because life-saving treatment simply does not come quickly enough".

"The surgeons and fire-fighters who worked on me all say the key item in surviving a sudden cardiac arrest is the availability of a defibrillator within two or three minutes. This means that defibrillators should be available in places where there are lots of people, i.e. supermarkets, shopping centres, airports, etc".

"In future, all expeditions I embark on will have a defibrillator as standard kit along with morphine and a first aid kit, etc".

"If you had a defibrillator (a small, comparatively inexpensive item) set up in these places it would make all the difference, I know I'm alive because there was one at an airport".

There are 250+
sudden cardiac arrests
every day in the UK
– you can help reduce this
number with an AED.

Find out how you can help to save a life
with public access defibrillation.

Save a life today with an AED!

Are there treatments for patients who survive a SCA?

Patients who survive a SCA or who are diagnosed as being at risk of SCA can be treated in a number of ways. Many will be implanted with an ICD, a device like a pacemaker which is placed beneath the skin (usually on the upper chest wall) and has wires connecting it to the heart. This device constantly monitors the heart and will deliver a shock to defibrillate the heart if needed. Being fully implanted and completely automatic, the patient is able to lead a normal life with few limitations, safe in the knowledge that the ICD will respond immediately if required (see the A-A leaflet on ICD/CRT Patient Information). Some patients may only need to take medication alone, or in addition to an ICD. Occasionally some causes of SCA (such as WPW) can be treated by a curative procedure whereby the additional wiring is destroyed by a small burn inside the heart, using a technique known as 'Catheter Ablation' (see the A-A leaflet on *Catheter Ablation*).

All patients who have survived a SCA should be reviewed by a cardiac electrophysiologist (a specialist in heart rhythm disturbances) in order to determine how best to prevent further events and to consider whether family members need to be screened.

RESTART THE HEART

Sudden Cardiac Arrest can strike anyone, anytime, anywhere...

CPR alone = 5% Survival
CPR + AED = 50% Survival

An Automatic External Defibrillator (AED) together with CPR is the ONLY way to re-establish the heart's natural rhythm!

CAN YOUR COMMUNITY RISK NOT HAVING ONE...?

Arrhythmia Alliance
Heart Rhythm Charity
Registered Charity No.1107496

Arrhythmia Alliance is helping to place AEDs in local communities

HELP US TO HELP YOU

PO Box 3697 Stratford-upon-Avon Warwickshire CV37 8YL

Tel: +44 (0)1789 451830 Email: rth@stars.org.uk

www.heartrhythmcharity.org.uk

Useful websites

A list of useful sites can be found at:- www.heartrhythmcharity.org.uk This list is not exhaustive and it is constantly evolving. If we have excluded anyone, please accept our sincerest apologies and be assured that as soon as the matter is brought to the attention of the Arrhythmia Alliance, we will quickly act to ensure maximum inclusiveness in our endeavours.

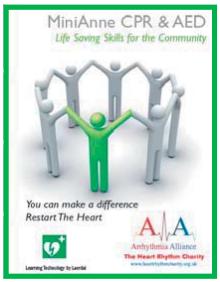
If you wish to contact us direct please phone on 01789 450 787 or email: info@heartrhythmcharity.org.uk

Further reading

The following list of Arrhythmia Alliance patient booklets are available to download from our website or to order please call 01789 450 787.

- Arrhythmia Checklist - Could your heart rhythm problem be dangerous?
- Atrial Fibrillation (AF)
- AF Checklist
- Blackouts Checklist
- Bradycardia (Slow Heart Rhythm)
- CRT/ICD
- CRT Patient Information
- Catheter Ablation
- Drug Treatment for Heart Rhythm Disorders (Arrhythmias)
- Electrophysiology Studies
- Exercising with an ICD
- FAQs
- Genetic Testing for Inherited Heart Disorders
- Highlighting the Work of Arrhythmia Alliance
- ICD
- Implantable Device Recall
- Implantable Loop Recorder
- Long QT Syndrome
- National Service Framework Chapter 8
- CRT/Pacemaker
- Pacemaker
- Palpitation Checklist
- Remote Monitoring for ICDs
- Sudden Cardiac Arrest
- Supraventricular Tachycardia (SVT)
- Tachycardia (Fast Heart Rhythm)

Please feel free to discuss any concerns with your doctor, physiologist or specialist nurse, at any time.



Mini-Anne CPR & AED Kit
PURCHASE ORDER

Arrhythmia Alliance
PO Box 3697
Stratford-upon-Avon
Warwickshire
CV37 8YL

T: +44 (0)1789 450787 **F: +44 (0)1789 450682** **rth@stars.org.uk**
www.heartrhythmcharity.org.uk

INVOICE TO:		
NAME		
ORGANISATION		
PURCHASE ORDER NUMBER		
ADDRESS	**Invoice to:**	**Deliver to:**
POSTCODE		

Please supply the following items:

Description	Quantity Required	Cost per Unit	Total Cost
Mini-Anne CPR & AED Skills Learning Kit. Kit includes: Inflatable Mini-Anne Manikin Interactive DVD Model AED Model Mobile Telephone Arrhythmia Alliance Literature Cleansing Wipes		£25.00	
Post and Packaging (*£3.95 per Kit*)			

SUB TOTAL:	
VAT (17.5%):	
TOTAL:	

Payment may be made by Cheque or Bank Transfer
Please make Cheques payable to: **Arrhythmia Alliance**

Bank transfers should be made to the following bank account:
Account Name: **Arrhythmia Alliance**
Sort Code: **30-98-26**
Account Number: **02685818**
IBAN: **GB17 LOYD 3098 2602 6858 18**

SIGNED		**DATE**	
NAME (printed)			

Registered Charity Number: 1107496

Arrhythmia Alliance

The Heart Rhythm Charity

Arrhythmia Alliance is helping to place AEDs in local communities

For more information:

Tel: +44 (0)1789 450787 E-mail: rth@stars.org.uk www.heartrhythmcharity.org.uk

Please help us to improve services for all those affected by arrhythmias and to save lives by making a donation today. Please complete the donation form below and return to P.O Box 3697, Stratford upon Avon, CV37 8YL or visit www.heartrhythmcharity.org.uk and click the donate icon.

Membership is free to individuals, however, if you would like to make a DONATION please complete and return.

I would like to make a donation to A-A and enclose:	£
I have made a donation to A-A via PAYPAL at www.arrhythmiaalliance.org.uk to the sum of:	£
I have arranged a standing order from my Bank/ Building Society Account to A-A, (min amount £10p.a.)	£
Please tick here if you agree to Gift Aid your subscription/donation	☐ Tick here

Gift Aid

Name of taxpayer:.....

Address:.....

..... Postcode: .....

Please allow Arrhythmia Alliance to claim an extra 28p for every £1 you donate at no cost to you. I want Arrhythmia Alliance to treat all donations I have made since 6 April 2000, and all donations I make from the date of this declaration until I notify you otherwise, as Gift Aid donations. I currently pay an amount of income tax and/or capital gains tax at least equal to the tax that Arrhythmia Alliance reclaims on my donations in the tax year. I may cancel this declaration at any time by notifying A-A. I will notify A-A if I change my address. Please note full details of Gift Aid tax relief are available from your local tax office in leaflet IR 65. If you pay tax at a higher rate you can claim further tax relief in your Self-Assessment tax return.

Standing Order Authority

My Bank:

Bank Address:

Please Pay: A-A, Account: 02685818 Sort Code: 30-98-26, Lloyds TSB Plc, 22 Bridge St, Stratford upon Avon, CV37 6AG

The Sum of £/€/$:	On (1st Date): / / 20.....
And after this, every: Month / Year (delete)	Account No.:
Sort Code:	Signature:
Date:	Please hand this form in to your Bank

Credit Card Payment

Card Type:	Expiry Date:
Card Number:	Amount of £/€/$:
Name on Card:	Address:

Arrhythmia Alliance
The Heart Rhythm Charity

Executive Committee

endorsed by DH Department of Health

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Please remember these are general guidelines and individuals should always discuss their condition with their own doctor.

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