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## Isle of Man Public Access Defibrillator Group

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# Adding a link in the chain of survival



## INTRODUCTION

Automated External Defibrillators (AEDs) are now a common sight in various locations around the Island. However, the vast majority are situated in shops and offices and are therefore unavailable outside normal business hours.

The concept of Public Access Defibrillators (PAD) within the Isle of Man initially started in the south of the Island but the demand for providing such facilities within local communities has significantly grown in recent years.

The IOM Ambulance Service, Rushen Emergency Ambulance, Craig's Heartstrong Foundation, St John Ambulance (IOM) and the Manx Heart Foundation have formed a Public Access Defibrillator steering group which aims to ensure a standard approach to providing PAD's exists across the Island. Members of the public may be directed to these PAD sites by the Emergency Services Joint Control Room and it is therefore vital that they meet the requirements of the IOM Ambulance Service and that the equipment is regularly checked and serviceable.

The scheme aims to provide support to those who wish to install Automated External Defibrillators (AEDs) in the Isle of Man. Specific focus will be given to provide PAD sites in areas which fall outside the optimum response time of either the Ambulance Service or a volunteer First Responder or where large numbers of people regularly gather.

## SUDDEN CARDIAC ARREST

### WHAT IS SUDDEN CARDIAC ARREST?

Sudden Cardiac Arrest (SCA) is a condition whereby 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 heart rhythm, the most common being Ventricular Fibrillation.

When in Ventricular Fibrillation the heart's rhythm is so chaotic that the heart merely quivers and is unable to pump blood around the body and the brain. A victim first loses his or her pulse, then consciousness and finally the ability to breathe. All this can happen in a matter of seconds.

### WHO IS AT RISK FROM SUDDEN CARDIAC ARREST?

Anyone can suffer a sudden cardiac arrest; it is unpredictable and can strike at anytime, anywhere and often without warning. It knows no boundaries – people of all ages, fitness levels and walks of life succumb to sudden cardiac arrest and most don't survive! At present only 7% of those who receive resuscitation survive.

Risk factors include a previous heart attack, family history of sudden cardiac arrest and heart failure. Although pre-existing heart disease is a common cause of cardiac arrest, many victims have never had a problem with their heart.

## WHAT ARE THE SURVIVAL RATES OF SUDDEN CARDIAC ARREST?

The majority of Sudden Cardiac Deaths occur before being admitted to hospital. Only 8% of individuals who suffer a cardiac arrest out of hospital survive. Each minute of delay to defibrillation reduces the probability of survival to hospital discharge by 10%.

## THE CHAIN OF SURVIVAL

The Chain of Survival describes a sequence of steps that together maximize the chance of survival following cardiac arrest.

- The first link in the chain is the immediate recognition of cardiac arrest and calling for help.
- The second is the prompt initiation of CPR.
- The third is performing defibrillation as soon as possible.
- The fourth is optimal post resuscitation care.

Like any chain, it is only as strong as its weakest link, so if one stage is weak the chances of successful resuscitation are compromised.



Strengthening each link in the chain helps to prevent a sudden cardiac arrest from becoming sudden cardiac death.

## CPR AND DEFIBRILLATION

Cardiopulmonary Resuscitation (CPR) alone will not restart the heart – whilst a vital part of the chain of survival it is only a temporary measure to continue to supply oxygen to the brain and vital organs.

When someone is in cardiac arrest, defibrillation is the only way to re-establish the heart's natural rhythm.

When responding to a cardiac arrest, the best approach is to combine CPR efforts with early Defibrillation.

Defibrillation within 3–5 min of cardiac arrest can produce survival rates as high as 50–70%. This can be achieved through public access defibrillation, when a bystander uses a nearby AED to deliver the first shock.

## AUTOMATED EXTERNAL DEFIBRILLATORS

### WHAT IS AN AUTOMATED EXTERNAL DEFIBRILLATOR?



An automated external defibrillator (AED) is an emergency life-saving device for use in cardiac arrest. It is a portable appliance that analyses the heart rhythm and administers an electrical shock to the heart if needed which re-establishes a regular heart rhythm.

Only within the first few minutes following cardiac arrest will a victim be in a shockable rhythm; rapid defibrillation is therefore vital. Placing AEDs in the community can dramatically reduce the time from collapse to defibrillation and can greatly improve survival rates.

### WHO CAN USE AN AED?

The United Kingdom Resuscitation Council now specify that the use of AEDs should **NOT** be restricted to trained persons and technological advances have meant that they can now be used by persons with no training.

Training would obviously be beneficial in coping with such a stressful situation and we work closely with St John Ambulance who provide AED and other First Aid courses to the public.

### HOW DOES AN AED WORK?

When switched on, the AED will instruct the user to connect the pads to the patient's bare chest and to then press a button to deliver a shock. After the shock is delivered it will instruct the user to commence CPR for two minutes after which the AED will again analyse the heart rhythm. It really is as easy as 1,2,3!



**An AED is safe to use and will only deliver a shock if a particular heart rhythm is detected and required. You cannot kill anyone in cardiac arrest by using an AED but you can save their life!**

### STORAGE OF THE AED

The AEDs are stored in special cabinets which have an electrical supply to them. These are marked with the internationally recognised symbol for an AED and are fitted with a combination lock for security. By placing the AEDs outside, we can ensure that there is 24 hour access to the unit. We engage with local authorities and local businesses to gain approval to site AEDs on either public or private easily accessible buildings.

The cabinet markings inform the user to dial 999. The operator at the Emergency Services Joint Control Room will then assess the call and issue the combination code to open the AED cabinet. An Ambulance and/or First Responder will also be mobilised.

The cabinet is fitted with a small heater which will activate when required to keep the AED at the required temperature for use. The cabinet also contains a small emergency pack containing gloves, scissors and other equipment.

## OFFICIAL SUPPORT

The scheme has the full backing of the Isle of Man Ambulance Service who assist in choosing suitable locations for the AEDs based on call statistics.

The project also has the full backing of the Operations Manager of the Emergency Services Joint Control Room who is fully supportive of the protocol whereby control room operators the code number for the AED cabinet.

## REQUIREMENTS FOR A PUBLIC ACCESS DEFIBRILLATOR

The group aims to provide a standardised scheme and equipment across the Isle of Man so any individuals or organisations who are contemplating provision of a Public Access Defibrillator are urged to discuss their plans with the IOM Ambulance Service, Rushen Emergency Ambulance, Craig's Heartstrong Foundation or St John Ambulance.

- IOM Ambulance Service – [defibs@gov.im](mailto:defibs@gov.im)
- Rushen Emergency Ambulance – [office@rushenambulance.org.im](mailto:office@rushenambulance.org.im)
- St John Ambulance – [info@sjambulance.org.im](mailto:info@sjambulance.org.im)
- Craig's Heartstrong Foundation - [paul@craigshheartstrongfoundation.co.uk](mailto:paul@craigshheartstrongfoundation.co.uk)
- British Heart Foundation (IOM) -

It must be noted that planning consent may be required to site this type of equipment in the community. Please contact Martin Benson from Rushen Emergency Ambulance to arrange for a site visit. Following a site visit Martin can liaise with planning to gain the necessary approvals for the PAD site.

## SUMMARY

It is intended to try and ensure that a person suffering from sudden cardiac arrest has access to an AED as soon as possible thereby increasing their chance of survival from 5% to 50%.

We are convinced that with sufficient funding and support we can make this an island wide scheme bringing the concept to as many members of the island population as possible. We can provide them with security and peace of mind knowing that in the event of a member of their community suffering a sudden cardiac arrest, they will potentially be able to save a life prior to the arrival of the emergency services.

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## KEY POINTS

- Sudden Cardiac Arrest is the number one killer in the UK, killing more people than lung cancer and breast cancer combined.

- Sudden Cardiac Arrest can strike anyone, at anytime, anywhere, without warning.
- CPR alone is not enough to save the life of someone who is in cardiac arrest. The chance of survival increases from 5% to 50% if CPR is carried out with the addition of an AED.
- Administration of CPR followed by rapid defibrillation is the ONLY way to re-establish a normal heart rhythm.
- Survival rates decrease by approximately 10% for every minute that passes without defibrillation following a cardiac arrest; early intervention is vital. Only 1 in 10 of out of hospital cardiac arrests survives (British Heart Foundation).
- Less than 5% of patients survive out-of-hospital sudden cardiac arrests - this number can be improved if AEDs are more widely available and accessible in the community and if more people know what they are.
- In the UK, fewer than 2% of victims have an AED deployed before the ambulance arrives.