*Now **everyone** can help save a life*

HEARTSTART

FIRST AID DEFIBRILLATOR

Defibrillation is now part of the Australian Resuscitation Council (ARC) Guidelines. Dr. ABC is now DRABCD[4]

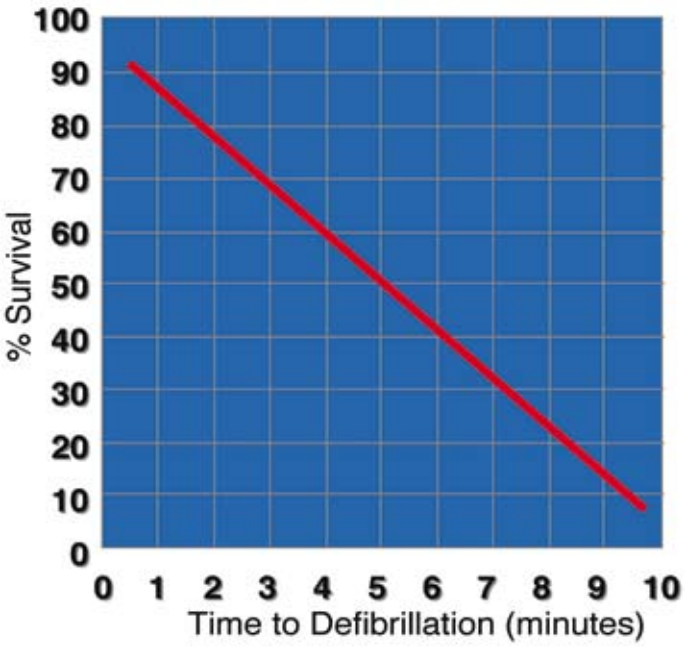
Laerdal
helping save lives

Sudden Cardiac Arrest - Increasing the Chance of Survival

Each year sudden cardiac arrest (SCA) strikes approximately 30,000 people in Australia alone.[1] Many of these people have no warning, since they show no prior symptoms. And, sadly, fewer than 5% survive,[2] often because the Ambulance Service cannot reach them in time.

When sudden cardiac arrest strikes, the electrical system of the heart short-circuits, most often causing an abnormal rhythm known as ventricular fibrillation. Lacking proper blood flow, the person loses consciousness, stops breathing, and will die unless promptly treated. CPR (cardiopulmonary resuscitation) can help a person in cardiac arrest, but it alone cannot save lives. A "shock" from a defibrillator – defibrillation therapy – is needed to restore the heart's normal pumping rhythm. A victim's best chance of surviving SCA is to receive that shock within 5 minutes of collapse.[3]

Relationship between sudden cardiac arrest survival rate and time to defibrillation.



For every minute defibrillation is delayed the chance of survival decreases by about 10%.* * AHA 2000 Guidelines.

1. Estimate as provided by the Australian Resuscitation Council.
2. Meyer ADM, Cameron PA, Smith KL, et al. Out-of-hospital cardiac arrest. Med J Aust 2000; 172: 73-76.

   Barnard S. Outcome from prehospital cardiac arrest in Melbourne, Australia. Emerg Med 1998; 10: 25-29.
3. AHA 2000 Guidelines.
4. Australian Resuscitation Guidelines 2005

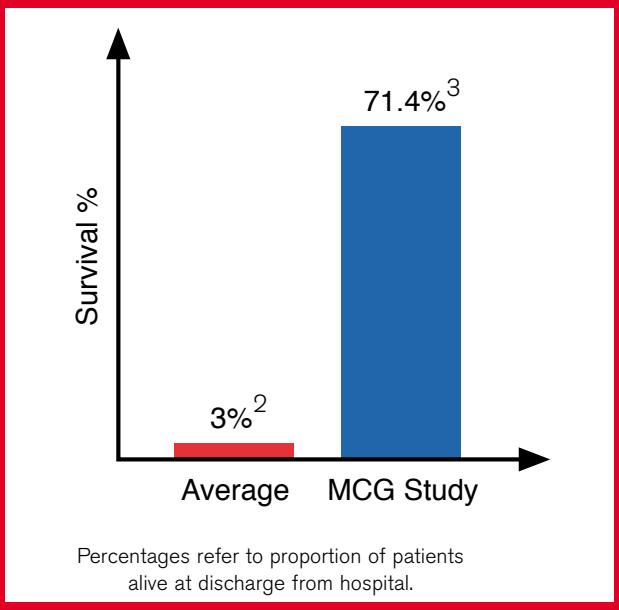
The Movement to Save More Lives

Over the last 20 years, there has been a widespread effort to move defibrillators into communities where they can be accessed and used by trained citizens, who might be present at the onset of SCA or first on the scene. To that end, the easy-to-use automated external HeartStart First Aid Defibrillator enables almost anybody to treat SCA quickly and effectively, wherever it happens - at work or at play - now everyone can help save a life.

HeartStarts Are Already Saving Lives

A study of incidents at the MCG and Shrine of Remembrance showed that: "Out of 28 victims of sudden cardiac arrest 86% left the venue alive",[1] having been treated at the scene with a Laerdal HeartStart defibrillator. Compare this to the average survival rate in Australia of around 3%.[2]

Can you risk not having one?



Percentages refer to proportion of patients alive at discharge from hospital.

1. Wassertheil, J. "Cardiac Arrest Outcomes at the Melbourne Cricket Ground and Shrine of Remembrance Using a Tiered Response - a Forerunner to Public Access Defibrillation" *Resuscitation 44* (2000) 97-104
2. Bernard, S. "Outcome From Prehospital Cardiac Arrest in Melbourne, Australia" *Emergency Medicine*, 1998, vol 10, 25-29
3. Wassertheil, J. *Resuscitation 44* (2000) 97-104

The HeartStart First Aid Defibrillator

THE HEARTSTART FIRST AID DEFIBRILLATOR IS DESIGNED TO ENABLE YOU TO HELP SAVE A LIFE IN EXTRAORDINARY CIRCUMSTANCES.

- **Fast to learn:** So simple to operate that a first aider with minimal training can potentially save the life of a co-worker, friend, or member of the family or public.
- **Easy to use:** Using the Heartstart First Aid is simple. Calming and clear natural voice instructions coach you through step by step of first aid defibrillation and CPR.
- **Always Ready:** Comprehensive automatic self tests check all the Heartstart's Vital functions on a daily, weekly, and monthly schedule so as to ensure that the Heartstart is always ready for emergency life saving. They also alert you if any part of the defibrillator needs attention. The Heartstart is powered by long-life (4 Year) disposable battery.
- **Safe:** Heartstart First Aid will not allow shock to be applied unless a shockable rhythm has been detected.
- **Versatile:** Available for use on anyone of any age, including children and infants. (Infant/child pads available separately)
- **Effective:** Patented SMART Analysis heart rhythm assessment and SMART Biphasic defibrillation therapy, clinically proven in over 10 years of use. No other biphasic waveform is as well documented.
- **CPR Coaching:** Clear and easy to follow instructions can also talk you through the latest CPR guidelines if required.
- **Lightweight:** Fully equipped at just 1.5 kg

THE HEARTSTART DEFIBRILLATOR IS AS EASY TO USE AS 1-2-3!

1

Pull Handle

2

Apply Pads

3

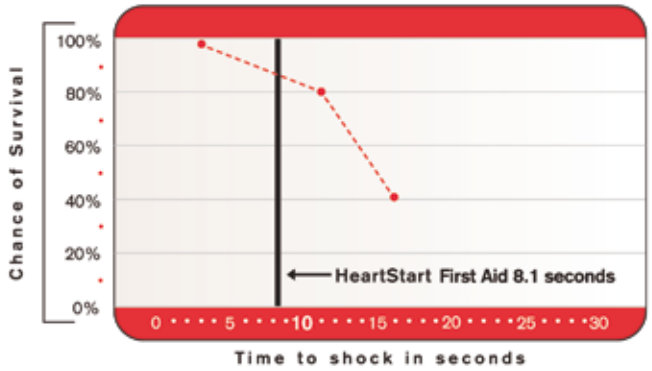
Shock

QUICK SHOCK THE HEARTSTART ADVANTAGE

QUICK SHOCK

Quick Shock is a unique new feature offered only by Laerdal on its HeartStart First Aid Defibrillator. The HeartStart First Aid is able to deliver a shock in less than 10 seconds after the end of a CPR pause. No other automated external defibrillator is able to do this as quickly.

Survival is closely linked to the speed of shock delivery after CPR



Survival data: 7 minute ventricular fibrillation model from Y et.al.[3]

CPR HELPS

For longer down time patients, e.g. longer than 5 minutes, good CPR prior to defibrillation shock can help restore a normal heart-beat in more patients.[1,2]

QUICK SHOCK MAXIMIZES THE BENEFITS OF CPR

The beneficial effect of CPR disappears very rapidly once it is stopped, so time to shock is very important.[3,4] Quick Shock helps by minimizing the interruption of CPR chest compressions and increasing the chance that a shock will result in a successful return to spontaneous circulation.

PEER-REVIEWED RESEARCH SUPPORTS QUICK SHOCK

Two independent Circulation-published articles support Quick Shock. In one article, Dr. Yu et al, concluded, "Interruptions of precordial compression for rhythm analyses that exceed 15 seconds before each shock compromise the outcome of CPR and increase the severity of post resuscitation myocardial dysfunction."[3A] second study by Dr. Eftestol et al, similarly concluded "The interval between discontinuation of chest compressions and delivery of a shock should be kept as short as possible."[4] Simply put, getting a shock to the heart as soon as possible after CPR can save more lives.

THE BENEFITS OF GOOD CPR CAN BE SQUANDERED

All automated external defibrillators can deliver a shock after CPR; but they cannot do it in less than 10 seconds. This means that the chances of a return of spontaneous circulation may be dramatically reduced.

HOW DOES HEARTSTART'S QUICK SHOCK COMPARE AGAINST OTHER DEVICES?

The HeartStart Quick Shock feature – less than 10 seconds to deliver a shock following a CPR pause – **is the fastest automated external defibrillator with respect to this critical measure**. The HeartStart First Aid is able to deliver a shock in as little as 8 seconds. Other technologies fall farther out on this curve, wasting the benefits of CPR. No other manufacturer's device is even close to the HeartStart First Aid Defibrillator.

LAERDAL HEARTSTART DEFIBRILLATORS – AN EXCELLENT CHOICE

Quick Shock is one of the innovative capabilities that set HeartStart Defibrillators apart. HeartStart defibrillators are backed by more peer-reviewed research than any other defibrillator.[5] HeartStart Defibrillators have provided more than 10 billion hours of operational service to customers.

1. Cobb LA, Fahrenbruch CE, Walsh TR, et al. Influence of cardiopulmonary resuscitation prior to defibrillation inpatients with out-of-hospital ventricular fibrillation. JAMA. 1999 Apr 7; 281(13):1182-8.2 Wik L, Hansen TB, Fylling F, et al. Delaying Defibrillation to Give Basic Cardiopulmonary Resuscitation to Patients With Out-of-Hospital Ventricular Fibrillation: A Randomized Trial. JAMA. 2003 Mar 19; 289(11):1389-953 Yu T, Weil MH, Tang W. Adverse Outcomes of Interrupted Precordial Compression During Automated Defibrillation. Circulation. 2002; 106:368-372.4 Eftestol T, Sunde K, Steen PA. Effects of Interrupting Precordial Compressions in the Calculated Probability of Defibrillation Success During Out-of-Hospital Cardiac Arrest. Circulation. 2002;105:2270-2273.5 Philips Researchers have published eighteen peer reviewed medical journal manuscripts to prove the safety and effectiveness of the core technology of the Philips HeartStart Defibrillators.

TECHNICAL SPECIFICATIONS

HEARTSTART
FIRST AID DEFIBRILLATOR

DEFIBRILLATOR

Defibrillator Model	M5067A HeartStart First Aid Defibrillator
Waveform	Truncated Exponential Biphasic. Waveform parameters adjusted as a function of each patient's impedance.
Energy	Single energy output. Adult: nominal 150 Joules into a 50 ohm load. Infant/Child: nominal 50 Joules into a 50 ohm load. Automatically set based on type of SMART Pads cartridge installed.
Shock-to-Shock Cycle Time	Typically less than 20 seconds.
Protocol	Voice prompts and indicators guide user through protocol. Follows preconfigured settings. Can be modified with HeartStart Event Review software.
Voice Instructions	Detailed voice messages guide responder through use of the defibrillator.
CPR Voice Coaching	Voice instructions in adult and infant/child CPR available at user's option.
Shock Delivery	Via adhesive pads placed on patient's bare skin as illustrated on pads.
Controls	Green SMART Pads cartridge handle, Green On/Off button, Blue i-button, Orange shock button.
Indicators	Ready light; Blue i-button; Caution light.

PHYSICAL

Size	
Height	7 cm
Width	21 cm
Depth	19 cm
Weight	
With battery and pads cartridge	1.5 kg
Without battery or pads cartridge	1 kg

ENVIRONMENTAL/PHYSICAL REQUIREMENTS

Sealing	Drip proof per EN60529 class IPX1. Solid Objects per EN60529 class IP2X.
Temperature	Operating: 32° - 122° F (0° - 50° C) Standby: 50° - 109° F (10° - 43° C)
Humidity	Operating: 0% to 95% relative, non-condensing Standby: 0% to 75% relative, non-condensing
Altitude	Operating: 0 to 15,000 feet Standby: 0 to 8,500 feet >48 hours and 8,500 to 15,000 feet <48 hours
Shock/Drop Abuse	Withstands 1 metre drop to any edge, corner or surface.
Vibration	Meets meets EN1785 random and swept sine, road ambulance specification in operating and standby states.
EMI (Radiated/Immunity)	Meets EN55011 Group 1 Level B Class B and EN61000-4-3.

PATIENT ANALYSIS SYSTEM

Patient Analysis	Evaluates patient ECG and signal quality to determine if a shock is appropriate, and evaluates connection impedance for proper defibrillation pad contact.
Sensitivity/Specificity	Meets AAMI DF39 guidelines and AHA recommendations for adult defibrillation (*Circulation* 1997;95:1677-1682.)
Artifact Detection	The effects of pacemaker artifact and electrical noise are minimised with artifact detection.

BATTERY (M5070A)

Type	9 Volt DC, 4.2 Ah, lithium manganese dioxide, disposable long-life primary cell.
Capacity	Minimum 90 shocks or 3 hours of operating time.
Install-By Date	Battery is labelled with an install-by date of at least five years from date of manufacture.
Standby Life	Four years typical when battery is installed by the install-by date. (Will power the AED in standby state within the specified standby temperature range, assuming one battery insertion test and no defibrillation uses.)

SMART PADS

Adult SMART Pads Cartridge	M5071A Defibrillation pads for patients 8 years of age and older or 55 lbs. (25 kg) and over.
Infant/Child SMART Pads Cartridge	M5072A Defibrillation pads for patients under 8 years of age or 55 lbs. (25 kg).
Cable Length	Adult pads: 54 inch (137.1 cm) Infant/Child pads: 40 inch (101.6 cm)
Use-By Date	Cartridge is labelled with a use-by date of at least two years from date of manufacture.

TRAINING PADS

Adult Training Pads Cartridge	M5073A
Infant/Child Training Pads Cartridge	M5074A
Function	Special pads place the HeartStart First Aid into training mode and disable its energy delivery capability. Feature 8 real-world training scripts.

AUTOMATED AND USER-ACTIVATED SELF-TESTS

Daily Automatic Self-tests	Tests internal circuitry, waveform delivery system, pads cartridge and battery capacity.
Pads Integrity Test	Specifically tests readiness-for-use of pads (gel moisture).
Battery Insertion Test	Upon battery insertion, extensive automatic self-tests and user-interactive test check device readiness.
Status Indicator	Blinking green Ready light indicates ready for use.

DATA RECORDING AND TRANSMISSION

Infrared	Wireless transmission of event data to personal computer using the IrDA protocol.
Data Cable	ACT-IR Datacable for HeartStart First Aid HS1
HeartStart Event Review Software	M3834A Data management software "optional" for download and review of data retrieved through defibrillator's infrared data port.
Data Stored	First 15 minutes of ECG and the entire incident's events and analysis decisions.

Refer to HeartStart First Aid Defibrillator Instructions for Use for detailed product instructions. All specifications based on 25° C unless otherwise noted. The defibrillator and its accessories are made of latex-free materials.

*** All HeartStart First Aid Defibrillators are now sold compliant to 2005 guidelines**

HEARTSTART
FIRST AID DEFIBRILLATOR

Australia: LAERDAL Pty. Ltd.

23 Edward Street,

Oakleigh, Victoria 3166

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Free Fax: 1800 635 835

E-mail: customer.service@laerdal.com.au

www.heartstart.com.au

New Zealand: Laerdal New Zealand Ltd

PO Box 11952,

Ellerslie, Auckland 1542

Free Call: 0800 523 732

Free Fax: 0800 528 852

E-mail: customer.service@laerdal.co.nz

www.heartstart.co.nz

When you order a HeartStart First Aid Kit it includes the Defibrillator, User Guide, Battery Pack, adult SMART pads (one pair) and carry case (slim type).

Other accessories available include:

Standard Case*
941340

HeartStart Wall Bracket
M3857A

HeartStart Wall Box with Alarm
941343

Adult Training Pads
M5073A

*HeartStart Carry Cases come with an accessory kit containing Laerdal Face Shield, scissors, gloves and paper cloth.

Laerdal acknowledges the support of Philips Medical Systems in the production of this brochure.

Laerdal
helping save lives