



Emergency Medicine Society of South Africa

**PRACTICE GUIDELINE
EM008**

DEFIBRILLATION

This Practice Guideline details the standard of care to be employed in the use of defibrillators in both the prehospital and hospital setting.

This Practice Guideline is the minimum level of knowledge required by a healthcare provider regarding defibrillators.

Excluding the cover page, this Practice Guideline is **6** pages.

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Responsible committee member: Prof Lee A Wallis

In order to safely use a defibrillator, the following applies:

*A **healthcare provider** refers to any person in the health system who may have cause to use a defibrillator during their duties, and includes Doctors, Nurses and Emergency Medical Services personnel, according to their Scope of Practice.*

Basic Life Support

Healthcare providers are to be trained in Basic Life Support, and updated in this skill at least every 2 years (and as guidelines change). Facilities are to maintain registers of staff competencies.

Indications

Healthcare providers must know the indications for the use of defibrillators in accordance with Resuscitation Council of Southern Africa algorithms. These algorithms are to be displayed next to the defibrillator at all times. These algorithms are appended to this Practice Guideline. These algorithms can be found at www.resuscitationcouncil.co.za

Usage

- All facilities must audit their defibrillators and identify them as being monophasic or biphasic, and the manufacturer recommended shock dosages.
- The institution must ensure that the recommended energy settings for that machine are clearly identified on the machine.

Healthcare providers must be able to use a defibrillator safely and efficiently. This requires knowledge of the following:

- How to operate the machine, mechanics of the defibrillator including power supply, presence of a battery, on/off switch, etc.
- Identify the required shock energy setting. Type of defibrillator (for example, monophasic or biphasic).
- How to use the paddles / pads to identify a shockable rhythm.
- How to deliver a shock safely, rapidly and effectively.
- Layout and functions of the defibrillator.
- Defibrillator capabilities (e.g. pacing).
- Correct Joule setting to be used in adults and children.
- Safety procedures before, during and after use.
- Position of paddle or pad application and appropriate defibrillator gel.
- Steps in using the defibrillator correctly.

Daily checks

A nominated post (such as lead nurse on shift) is to be responsible for daily maintenance and checks of the defibrillator. A log of daily checks must be kept on the defibrillator trolley.

The following constitute the daily check:

- Is the defibrillator plugged in?
- Is the battery charging?
- Is there adequate and spare recorder paper?
- Are ECG electrode stickers available?
- Checking cables and connectors.
- Is appropriate defibrillator conductive gel (not ultrasound or KY) available?
- Availability of pads (essential for transcutaneous pacing)
- Perform a test shock at the manufacturer's recommended test energy level, on battery power (disconnected from AC power).
- Print out and file the defibrillation test strip.

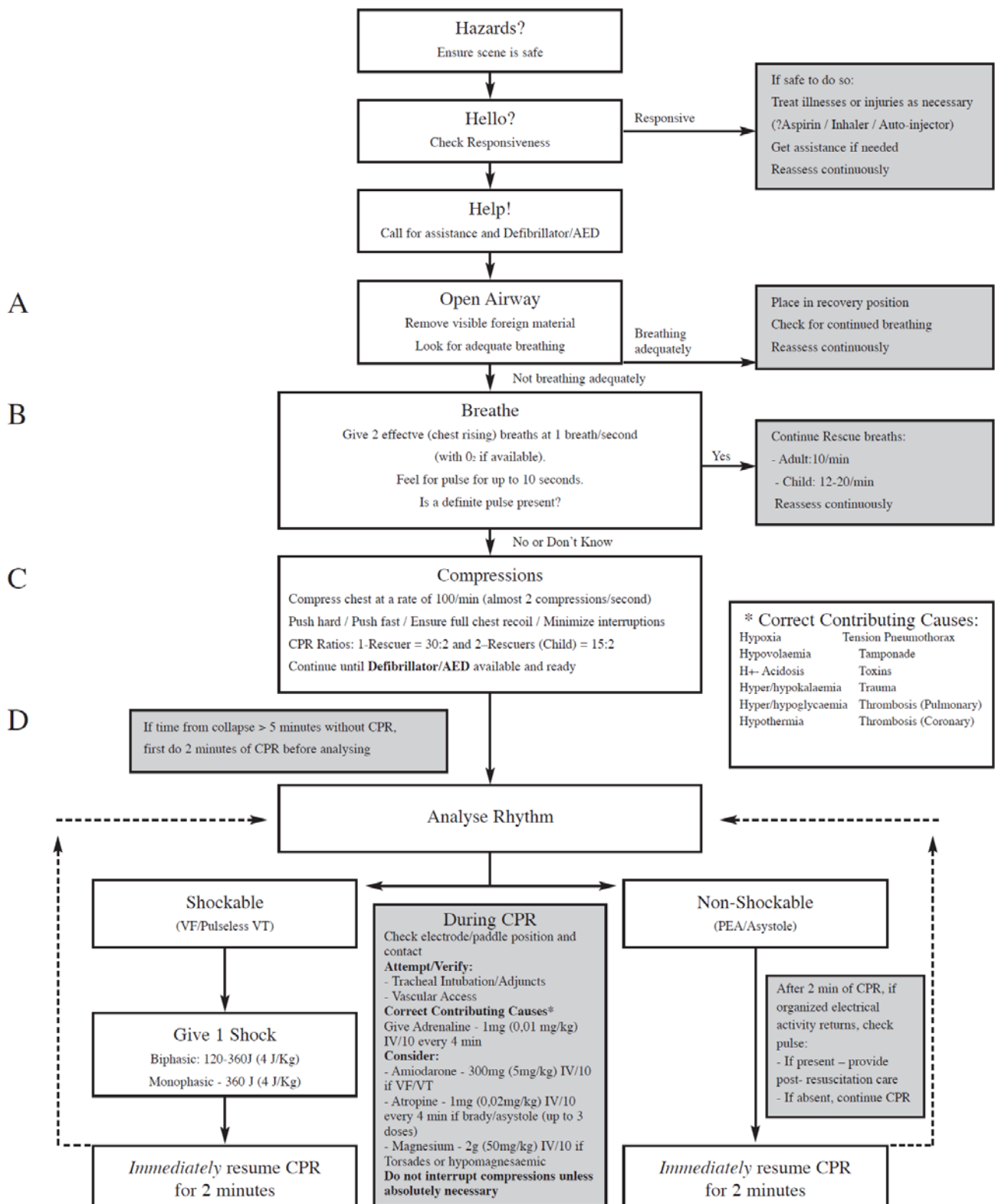
Accountability

It is the responsibility of the Health Care Institution to ensure that all Healthcare providers in their employ are trained in basic defibrillation usage, daily checking and maintenance. This knowledge is to be updated at least every 2 years.

A nominated individual is to be in charge of a log of healthcare provider training at each facility, and formal recording and filing of defibrillator daily checking and technical maintenance including battery maintenance.

Advanced Life Support for Healthcare Providers

(Adult and Child)



Do not interrupt chest compressions unless absolutely necessary

Resuscitation Council of Southern Africa
www.resuscitationcouncil.co.za

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Recommended Defibrillator Energy Settings in Cardiac Arrest

(Adult and Child)

Paediatric Patients (Pre-Puberty)

Monophasic & Biphasic Defibrillators - 4 Joules/kg (1st and subsequent shocks)

Adult Patients (Post-Puberty)

Monophasic Defibrillators - 360 Joules (1st and subsequent shocks)

Biphasic Defibrillators - As per Manufacturer's recommendations (See Table)

Defibrillator Make	Distributor in SA	Biphasic Waveform	Recommended Energy Setting in Cardiac Arrest (Joules)			
			1st Shock	2nd Shock	Subsequent Shock	Paed
H P / Heartstart	Philips	BTE	150 J	150 J	150 J	4 J/kg
Laerdal/Heartstart	Survival	BTE	150 J	150 J	150 J	4 J/kg
Life-Pak	Medtronic	BTE	200 J	300 J	360 J	4 J/kg
MRL	Welch Allyn	BTE	150 J	200 J	300 J	4 J/kg
Nihon Kohden	SSEM	BTE	150 J	200 J	270 J	4 J/kg
Powerheart AED	SSEM	BTE(VE)	200 J	300 J	360 J	4 J/kg
Responder	Medhold	BTE(VE)	200 J	300 J	360 J	4 J/kg
Zoll	Stat Medical	Rectilinear	120 J	150 J	200 J	4 J/kg

(BTE = Biphasic Truncated Exponential) (VE = Variable Escalating)

Labeling of all Defibrillators

- Labels containing Recommended Energy Settings for Manual Defibrillators are available from the Defibrillator Distributors, and should be placed on each machine (Monophasic and Biphasic). Please contact the appropriate Distributor as soon as possible to ensure that every defibrillator that you may have access to is correctly labeled.
- AED's that have been modified to comply with the latest international guidelines will be labeled "2006 Protocol Compliant". AED users are advised to follow the AED voice prompts, and to contact their AED Distributor to upgrade their device as a matter of urgency.

DEFIBRILLATOR	DISTRIBUTOR	TELEPHONE	FAX	CONTACT PERSON
Hewlett Packard / Heartstart AED	Philips Medical	011 471 5000	011 471 5384	Renier Hattingh
Laerdal / Heartstart AED	Survival Technology	011 792 2190	011 793 4234	Janine O'Donnell
Physio-Control / Life-Pak	Medtronic Africa	011 677 4809	011 616 1104	Tony Soares
MRL	Welch Allyn	011 777 7555	011 777 7556	Lezanne de Koning
Nihon Kohden / Powerheart AED	Specialised Systems Electro Medical	011 444 8184	011 444 8171	Lizelle Grindell
Responder	Medhold GEMS	011 975 0633	011 975 3870	Terence Dobie
Zoll	Stat Medical	011 462 3112	011 462 3113	Tom Watson

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MANUAL DEFIBRILLATORS : OPERATOR'S CHECKLIST

Date _____ Name _____ Location _____

Mfr/Model No. _____ Serial No. _____

At the beginning of each shift, inspect the unit. Indicate whether all requirements have been met. Note any corrective actions taken. Sign the form.

	OK as found	Corrective Action / Remarks
1. Defibrillator Unit Clean / no spills / clear of objects on top / casing intact		
2. Paddles (including paediatric*) <ol style="list-style-type: none"> Clean / not pitted Release from housing easily If internal paddles are included, verify their availability in a sterile package* 		
3. Cables / Connectors <ol style="list-style-type: none"> Inspect for cracks / broken wire / damage Connectors engage securely and are not damaged 		
4. Supplies <ol style="list-style-type: none"> Two sets of defibrillation pads in sealed packages, within expiry date* Monitoring electrodes Alcohol wipes Hand towel Scissors Razor Spare ECG paper Spare charged battery available* Gel or other conductive medium present and stored properly 		
5. Power Supply <ol style="list-style-type: none"> Battery-powered units <ol style="list-style-type: none"> Verify fully charged battery in place Spare charged battery available Follow appropriate battery rotation schedule as per manufacturer's recommendations AC / battery back-up units <ol style="list-style-type: none"> Plugged into live outlet to maintain battery Test on battery power and reconnect to line power 		
6. Indicators / ECG Display <ol style="list-style-type: none"> Power on display Self-test OK* Monitor display functional "Service" message display off Battery charging: "low battery" light off Correct time displayed 		
7. ECG Recorder <ol style="list-style-type: none"> Adequate ECG paper Recorder prints 		
8. Charge-Display Cycle for Paddle or Adhesive Pad Defibrillation <ol style="list-style-type: none"> Disconnect AC plug – battery back-up units Charge to manufacturer's recommended test energy level Charge indicators working Discharge as per manufacturer's instructions Reconnect line power 		
9. Pacemaker* <ol style="list-style-type: none"> Pacer output cable intact Pacer pads present (set of two) Inspect as per manufacturer's operational guidelines 		
Major problem(s) identified		

* Applicable only if the unit has this supply or capacity

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