

Patient Safety Alert

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ENSURING AUTOMATED EXTERNAL DEFIBRILLATORS ARE ACCESSIBLE AND OPERATIONAL

Sudden cardiac arrest is a condition in which the heart unexpectedly stops beating. Arrhythmias (abnormal heart rhythms) such as ventricular fibrillation cause most sudden cardiac arrests. Early intervention with defibrillation plays an important role in increasing survival rates following cardiac arrest. The use of an automated external defibrillator (AED) when combined with cardiopulmonary resuscitation can improve a person's odds of survival. AEDs must be fully charged and operational to be effective during a cardiac emergency.

During an emergency response to an in-patient who was choking, an AED was brought to the scene and the pads applied to the patient. The device noted "no shock advised" and also registered a "low battery warning". It is unclear if the device would have been able to deliver a shock if it had been required. In this situation, the patient's condition worsened and staff initiated cardiopulmonary resuscitation. Unfortunately, the patient did not survive.

RECOMMENDATIONS

The Ministry of Health recommends to the Saskatchewan Health Authority and health care organizations that:

- **All facilities which have an AED on the premises establish policy and / or standard work for ongoing monitoring and maintenance of the device to ensure it is operational when required.**
- **This includes:**
 - Follow the manufacturer's recommended maintenance and testing schedule for the device. This will include establishing a testing schedule to verify the AED's status is operational, check the pad and accessories, check the batteries, and clean the device.
 - Create a maintenance checklist and schedule to keep with the device. All testing and servicing of the device should be included on the checklist.
 - Keep at least one spare, working battery with the device.
 - Follow manufacturer's recommended guidelines for replacing batteries (typically every year, but can vary by device manufacturer and model). Note that even rechargeable batteries need to be replaced as charge can wear down over time.

- Follow manufacturer's recommended guidelines for replacing pads (typically every two years, but can vary by device manufacturer and model).
- Verify that all necessary auxiliary supplies are included in a kit with the device (such as pocket mask/CPR face shield, scissors, razor, gloves, absorbent gauze/towel). Refresh, replenish, or replace supplies as necessary.
- Address service or maintenance issues that arise from voice or visual prompts or a self-test. Contact the manufacturer when the device indicates that servicing is needed.

Supporting Documents

1. Example of a Manufacturer (Philips) Maintenance Checklist for an AED

Background of the Critical Incident

A 58-year-old inpatient of a health facility was eating lunch independently in a common area. The patient became distressed and tried to leave the room by wheelchair. Co-patients urgently notified staff of the situation. Upon initial assessment, the patient was unable to speak, had an audible wheeze and stridor when attempting to breathe, central cyanosis, and was determined to have an upper airway obstruction due to foreign body. Calls were made for EMS stat assistance and a code blue was called. Three abdominal thrusts were delivered but failed to remove the foreign object, and the patient remained distressed. Three more abdominal thrusts were applied and the patient experienced minor relief. He was laid on the floor in the recovery position and the facility's AED was delivered to the patient. AED pads were applied to the patient and the device noted "no shock advised". The device registered a "low battery warning" and it is unclear if it would have been able to deliver a shock if required. The patient's pulse became non-palpable, care staff initiated CPR which continued until EMS arrived. The patient was pronounced deceased following EMS arrival.

Summary of Contributory Factors and Analysis

- AEDs are an important lifesaving technology and have an important role to play in treating sudden cardiac arrest in a facility.
- Organizations can become reliant on the technology and can have an expectation that if and when needed suddenly, the equipment will be fully operational.
- As with any lifesaving equipment, such as a fire extinguisher or smoke detector, routine maintenance checks are necessary to ensure the equipment functions as intended when required.

Patient safety alerts may be issued by the Ministry of Health following the review of at least one critical incident reported to the Ministry. A critical incident is defined as a serious adverse health event including, but not limited to, the actual or potential loss of life, limb or function related to a health service or a program operated by the Saskatchewan Health Authority (SHA), the Saskatchewan Cancer Agency or a health care organization.

The purpose of a patient safety alert is to recommend actions that will improve the safety of patients who may be cared for under similar circumstances. Recommendations are intended to support the development of best practices and to act as a framework for improvement and can be adapted to fit the needs of the health service organization. When possible, policies or initiatives that have been developed by the SHA or the Saskatchewan Cancer Agency will be shared, to support adoption of policies or actions.

Patient Safety Alerts online: www.ehealthsask.ca/services/resources/Pages/Patient-Safety.aspx

Maintenance Checklist:

Automated External Defibrillator

Please make several copies of the
maintenance checklist for your monthly
inspections!

Philips HeartStart FRx® AED



Date: _____ Location: _____
Inspection performed by: _____

Criteria	Status (Please check off)	Corrective Action/Comments
AED:		
Placement visible, unobstructed and near phone (if possible)		
Verify battery is installed in AED. (DO NOT TAKE OUT UN-NECESSARILY)		
Check the flickering green LED status indicator light (Found on right / front side of case) It will flicker every 4-5 seconds		
Verify absence of visual/audible service alarm		
Ensure AED is clean, no dirt or contamination; no damage present on AED or accessories		
Supplies (Found in Red Case):		
1 set of AED electrode pads attached in AED and 1 in sealed package in red carry case. Check expiration dates.		
Scissors are present in red carry case		
Pediatric key (pink) is present (If applicable)		
Fast Response Kit (Red bag attached to case):		
1 x Pocket mask with one-way valve		
1 x Set gloves (At least 1 pair)		
1 x Pair of scissors		
1 x Razors (for shaving chest)		
1 x Absorbent gauze or hand towels		
Wall Mounted Alarmed Security Box (If applicable – i.e. AED may be in bracket or hard case):		
9V battery in cabinet has been changed yearly on this date: _____		*** The 9V battery that works the alarm <u>must be changed yearly</u> (i.e. same time as when we change batteries in smoke detectors).

***Please refer to manufacturer's User Manual for more information and proper annual maintenance procedures.**
For more information on best practices regarding Automated External Defibrillators (AED) in Manitoba, please contact:



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