

St. John Ambulance Saint-Jean

Council for Ontario

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Conseil de l'Ontario

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DATE: February 14th, 2000

TO: Branches and Brigade Units

c. Area Commissioners and District Chairs

FROM: Brian Cole, Provincial Chief Staff Officer
Manager, Community Service

**RE: **PROVINCIAL COMMISSIONER'S DIRECTIVE 02-2000
USE OF AUTOMATED EXTERNAL DEFIBRILLATION (AED)
BY BRIGADE PATIENT CARE PROVIDERS IN ONTARIO****

Attached is Provincial Commissioner's Directive 02-2000. This directive outlines the use of Automated External Defibrillation (AED) by Brigade Patient Care Providers, including associated protocols for training and delivery.

This directive should be incorporated into section 99 (Provincial Commissioner's Directives) of the Branch/Brigade Administration Manual. Please ensure that every member receives a copy of this memorandum, directive and support documentation.

Requests for Brigade AED training will be coordinated through the Brigade Provincial Training Officer c/o the Brigade Community Services department at Council, and training will only be conducted once a Brigade Unit has met the following conditions:

- i. An assessment of need has been conducted in the community, in consultation with the community's emergency services and base hospital (if applicable).
- ii. At least 60% of the Brigade Unit's active patient care providers are trained to the BTS 1 standard.
- iii. The Branch/Brigade Unit has acquired approved AED equipment (see below).
- iv. AED course candidate prerequisites have been met.

To facilitate the training and delivery of this patient care adjunct within the Brigade, the Brigade Community Services Department of Council, in conjunction with the Medical Directors (physicians) of St. John Ambulance's AED programs have reviewed AED equipment and suppliers and are recommending the Medtronic Physio-Control Lifepak

500 for use province-wide by the Brigade. The Lifepak 500 was chosen for its functionality, clinical advantages, versatility and training support.

Also included with this directive is a breakdown of the negotiated purchase arrangement with Medtronic Physio-Control and product information on the Lifepak 500.

Branches and Brigade Units interested in taking advantage of this purchasing opportunity are encouraged to contact:

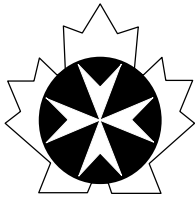
Steve Ellis, Account Consultant
Medtronic Physio-Control
Unit 6 – 30 West Beaver Creek Road
Richmond Hill, Ontario L4B 3K1
Tel 1-800-373-1381 ext. 341
Fax (416) 932-0115

Questions regarding the directive can be addressed to the AED Medical Director, c/o Brigade Community Services at the St. John Council for Ontario.

**Medtronic Physio-Control
St. John Ambulance Brigade
Province-wide Set Pricing Discount
February 2000**

<u>Package</u> [*]	<u>List Price</u>
LP500 biphasic AED with audio	\$ 5,266
LP500 carrying case	\$ 158
LP500 non-rechargeable lithium battery pak (5 year battery)	\$ 295
AMBU First Response Kit	\$ 41
AED to modem cable	\$ 67
Quick Combo Ready Pak electrodes (2 sets)	\$ 54
AED trainer	\$ 577
AED trainer carrying case	\$ 80
AED training electrodes (2 sets)	\$ 34
AED Challenge (interactive computer training program)	\$ 130
Defibrillation: What You Should Know	\$ 6
Challenging Sudden Death: A Community Guide to Help Save Lives Brochures, marketing materials	\$ 10
	<hr style="width: 100%; border: 0.5px solid black;"/>
	\$ 6,718
 St. John Ambulance Brigade Discount Price (complete package):	 \$ 5,800

* Package includes complete response, training and community program development tools.



PROVINCIAL COMMISSIONER'S DIRECTIVE

Directive No.

02-2000

Issued

February 15, 2000

Supersedes

USE OF AUTOMATED EXTERNAL DEFIBRILLATION (AED) BY BRIGADE PATIENT CARE PROVIDERS

MEDICAL CONTROL

In Ontario, the medical authority to delegate the use of AEDs to Brigade patient care providers will be the St. John Ambulance Brigade appointed provincial AED Medical Director.

The provincial AED Medical Director will supervise the training of AED Instructors and delegate certification and re-certification to them on an annual basis.

The provincial AED Medical Director will be the delegating physician for use of AED by the Brigade in Ontario. This delegation applies to the treatment of adult patients in Ontario, while providing patient care at events authorized by St. John Ambulance. AED is to be performed only using St. John Ambulance authorized AED equipment, and within the boundaries and jurisdiction of the St. John Ambulance Brigade in Ontario.

AED PROVIDER TRAINING

Training will take place in accordance with the guidelines of the St. John Ambulance Automated External Defibrillation Program.

A Brigade patient care provider must have a minimum of both BTS Level 1 and Basic Rescuer CPR successfully completed within the previous twelve months. Prerequisites must be have been met before the first training session takes place.

Training must take place on St. John Ambulance approved equipment (or manufactures' unit-specific trainer) to meet the learning outcome of understanding all functional components of the AED, including visual and auditory commands.

AED INSTRUCTORS

The qualifications for AED instructors within the Brigade will be the same as for AED instructors for the St. John Ambulance Association.

AED Instructors must be currently certified to perform AED under medical control.

AED Instructors will provide the Brigade AED Medical Director (through the Brigade Community Services department of Council) with a list of those Brigade patient care providers certified and the date of certification after each course. Once the Brigade AED Medical Director receives this, a Brigade Standing Order will be issued to that patient care provider authorizing him or her to perform automated external defibrillation in accordance with the guidelines developed.

CERTIFICATION & RE-CERTIFICATION

Certification will take place upon successful completion of the first training session.

The maximum allowable time elapsed before re-certification is one year.

The minimum allowable time elapsed before re-certification is at the discretion of the AED Medical Director.

Supervised practice within the context of patient care must take place every six months. If this does not take place, certification must be completed in full.

The member's certificate must be signed at least every six months by an AED instructor to indicate that supervised practice took place. Re-certification cannot take place without this signature.

Unsupervised continuing medical education (CME) may be required quarterly or semi-annually, as directed by the AED Medical Director.

The AED Medical Director reserves the right to de-certify any St. John Ambulance AED provider who does not comply with training, CME, certification, safety or reporting standards, or is deemed incompetent, unprofessional or a potential risk to public safety in the utilization of a defibrillator.

A Brigade patient care provider must receive a Standing Order (see Annex A) signed by the AED Medical Director before performing automated external defibrillation as a Brigade patient care provider.

AED EQUIPMENT

The minimum acceptable standard for all equipment is the capacity of producing a monitoring or rhythm strip; either real-time or post-event via data download. Rhythm strips will be used for quality assurance purposes and for attachment to the Patient Care Record (if real-time rhythm strip).

All AED equipment must be semi-automatic.

Compatibility with Emergency Medical Services may be a consideration.

Calibration of the equipment must be carried out as per the manufacturer's recommendations.

The equipment must be checked and signed off at the beginning and end of each duty, utilizing the Defibrillator Check Sheet (see Annex B) and After Use Check List (see Annex C).

Defective defibrillator equipment must be forwarded to the AED Medical Director c/o the Brigade Community Services department at the St. John Council for Ontario. Defective equipment is forwarded for the purpose of coordinating contact with manufactures and quality control.

INDICATIONS FOR USE

Use of the Automatic External Defibrillator (AED) with defibrillation pads is required for the following patients:

- a) All Vital Signs Absent (VSA) patients **EXCEPT** patients who:
 - ✓ Have a mass of 40 kg. or less
 - ✓ Meet the criteria of obvious death (partial or complete decapitation)
 - ✓ Have a cardiac arrest due to obvious penetrating trauma

- b) St. John Ambulance AED Providers are required to take the AED with them to the patient immediately upon arrival at the scene for the following call types:
 - ✓ VSA
 - ✓ Unconscious/decreased level of consciousness
 - ✓ Collapse
 - ✓ Syncopal (fainting) episode
 - ✓ Chest Pain
 - ✓ Shortness of breath
 - ✓ Seizures
 - ✓ Overdose
 - ✓ Electrocution
 - ✓ Hanging
 - ✓ Drowning/near drowning
 - ✓ Hypothermia and heat related illness
 - ✓ Unknown

In Hazardous Material incidents the main priority remains safety. While it is a mandate to perform AED as soon as possible, AED providers must ensure that the scene is completely safe before proceeding to any treatment.

- c) If use of the AED is indicated it must remain connected to the patient and turned on for the entire call until an ambulance crew arrives and care of the patient is transferred.

ELECTRODE SELECTION AND PLACEMENT

- a) When using the defibrillator capability of the AED it is imperative that a fresh pair of large electrodes are used.
- b) It is necessary to completely expose the chest. Clothing should be quickly removed. (Cutting clothing away is appropriate in the management of cardiac arrest).
- c) The preferred electrode position is:
 - ✧ Sternum: below the distal portion of the right clavicle and to the right of the sternum;
 - ✧ Apex: mid axillary line, below left pectoral muscle.
- d) Causes of poor electrode placement include: excessive hair, excessive moisture, and placement over bony area. The chest should be dried with a towel before applying the electrodes even if the chest does not appear damp. If the patient is lying on an excessively wet or metal surface, they should be removed before defibrillating.
- e) If a patient is wearing a pacemaker, do not place electrodes directly over a pacemaker. Place the electrodes at least one inch away from the pacemaker.
- f) If the “check electrode” message continues in spite of proper skin preparation and electrode placement, the defibrillation pads should be replaced with a new set. The malfunctioning pads are to be sent to the Brigade Community Services department at Council outlining the problem encountered.
- g) If either ‘check electrodes’ message continues after all reasonable attempts to prepare the chest have been made and a second set of electrodes has been tried unsuccessfully, continue CPR until ambulance crew arrives. Retain the sets of defibrillation pads and send them to the Brigade Community Services department at Council outlining the problem encountered.

DEFIBRILLATION PROCESS

Note: If the patient is wearing patch medication, remove patch and wipe the area clean.

- a) Begin Basic Life Support (BLS) resuscitation (CPR).
- b) Place defibrillator electrodes on chest and turn on device.
- c) Call “Stand Clear” and stop cardiac compressions.

- d) Press analyze switch. **DO NOT ATTACH AED or ANALYZE TO ANY PATIENT WITH VITAL SIGNS.**
- e) If shock is advised: Call “STAND CLEAR!”
- f) Press the “SHOCK” button.
- g) The machine will automatically reanalyze after each shock, in groups of 3 shocks.

- h) Three initial defibrillations are permitted. If rhythm is not converted after three defibrillation attempts, perform CPR for one minute and analyze again. Continue this sequence of 3 shocks followed by 1 minute of CPR until:
 - ✎ Patient has return of pulse OR
 - ✎ Ambulance crew arrives OR
 - ✎ No Shock Indicated message is given; then complete No Shock protocol in which case follow algorithm for non-shockable.

See treatment algorithm for shockable rhythm on page 6.

PROCEDURE FOR NO SHOCK INDICATED

If after the first analysis, there is no shock indicated and no pulse, perform CPR for 1 minute. Analyze again and if no shock indicated and no pulse, perform CPR for 1 minute then analyze a third time. After third no shock indicated, continue CPR until ambulance arrives.

See treatment algorithm for non-shockable rhythm on page 7.

VSA CPR AND DEFIBRILLATION PROCEDURE

Protocol for Ventricular Fibrillation and Pulseless Ventricular Tachycardia Shockable Rhythm

Arrest Witnessed by Emergency Personnel

Initiate Basic Life Support (BLS)

Check Pulse – If no pulse

Arrested Before Arrival Of Emergency Personnel (unwitnessed)

Initiate BLS

Check pulse – If no pulse

CPR until AED is attached

AED Automatically Analyzes
Press the "SHOCK" button to defibrillate
↓
AED Automatically Analyzes
Press the "SHOCK" button to defibrillate
↓
AED Automatically Analyzes
Press the "SHOCK" button to defibrillate

Check pulse – if no pulse
CPR x 1 minute

Press Analyze
Press the "SHOCK" button to defibrillate
↓
AED Automatically Analyzes
Press the "SHOCK" button to defibrillate
↓
AED Automatically Analyzes
Press the "SHOCK" button to defibrillate

Check pulse – if no pulse
CPR x 1 minute

Repeat set of three stacked shocks

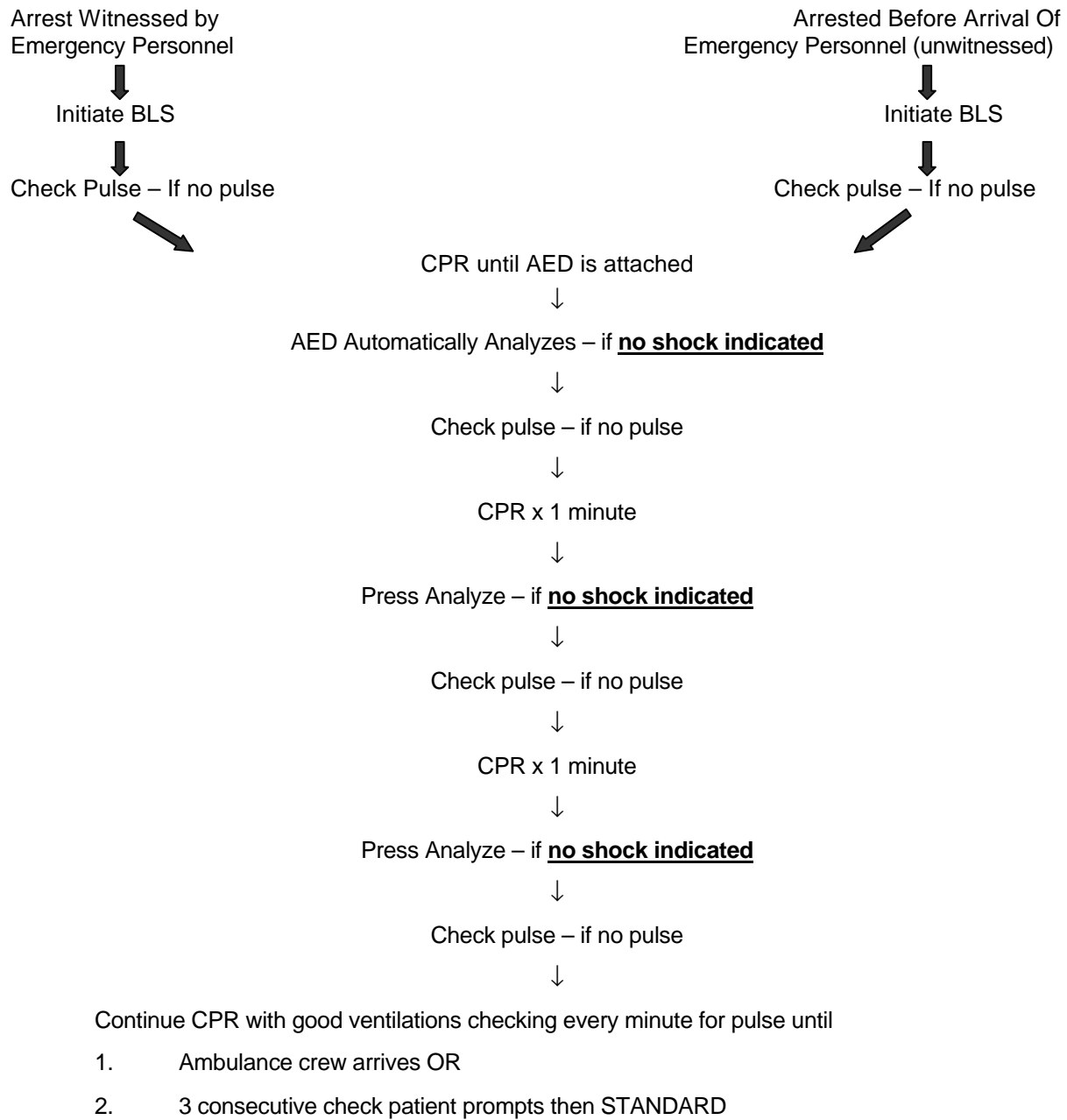
Continue this sequence until:

1. Ambulance crew arrives
2. The patient goes into a non-shockable rhythm then follow that protocol.

REMEMBER TO CHECK PULSE PRIOR TO STARTING ANY CPR.

NOTE: If you get a return of pulse at any time continue to ventilate the patient and monitor the pulse closely as the patient may suffer a cardiac arrest again.

**Protocol for
Asystole or Pulseless Electrical Activity
Non-shockable Rhythm**



NOTE: If you get a return of pulse at any time continue to ventilate the patient and monitor the pulse closely as the patient may suffer a cardiac arrest again.

OPERATING GUIDELINES FOR A VSA TRAUMA PATIENT

The AED should not be applied to victims of obvious trauma with gross bleeding who are VSA. Their cardiac rhythm is seldom ventricular fibrillation and cardiac arrest is due to hypovolemia. AED assessment delays other necessary interventions and/or rapid transport to an Emergency Department where the resuscitation measures they need are available. Therefore, initiate ventilation and CPR if indicated.

Upon arrival of the ambulance crew, the Ambulance Officer (Paramedic) will decide if the defibrillator should be applied subsequent to an assessment.

NOTE: Although victims of electrocution will usually have serious traumatic injuries, you **MUST** attempt to defibrillate these patients if VSA. These people may be VSA primarily due to an electrical disturbance that can be corrected by the use of the AED.

HYPOTHERMIA AED PROTOCOL

In cases where you suspect that the patient may be in arrest **due to hypothermia** the following procedures and precautions should be followed.

- a) Avoid any sudden or unnecessary movement of the patient. The hypothermic heart is very unstable and if the patient is jostled this may cause the heart to go into ventricular fibrillation.
- b) Assess the airway and breathing as per normal but for a longer period of time (45 seconds), if required, begin ventilating the patient at a rate of not more than 8-10/minute. Do not hyperventilate and if possible try to avoid the use of airways and if required, suction gently.
- c) Perform a carotid pulse check for a span of 30 to 35 seconds to determine pulselessness, for which CPR should be started immediately.
- d) Connect the AED and if, on analysis, the machine begins to charge, proceed to give a total of 3 shocks if possible.
- e) After 3 shocks have been delivered or the No Shock protocol has been completed, without a return of spontaneous circulation (remember to check pulses for an extended period of time), continue CPR. **DO NOT DELIVER MORE THAN 3 SHOCKS.**
- f) Remember to handle the patient as gently as possible, cut away any wet clothing.

The hypothermic myocardium may not respond to defibrillation, however, when core temperature cannot be measured in the field, an attempt to defibrillate the heart should be made.

Additional documentation that **must** be included for patients treated under this protocol include:

- ✓ Location where patient was found
- ✓ Estimated length of time of exposure
- ✓ Description of patient's clothing
- ✓ Core temperature at receiving hospital.

PREGNANT PATIENT

If the patient is pregnant proceed with normal algorithms.

TRANSFER OF RESPONSIBILITY AT THE SCENE

It is essential that the transfer of patient care from the St. John Ambulance AED Provider to the Ambulance Officer (Paramedic), at the scene, proceed smoothly and promptly.

IF THE ST. JOHN AMBULANCE AED Provider THREE-SHOCK PROTOCOL IS IN PROGRESS, THIS WILL NOT BE INTERRUPTED.

WHEN THE AMBULANCE OFFICERS (PARAMEDICS) ARRIVE:

- a) CPR is continued by current providers.
- b) The St. John Ambulance AED Provider reports the situation to the arriving ambulance officer (Paramedic) including patient history, number of shocks indicated, number of shocks given.
- c) **THE FOLLOWING SEQUENCE WILL ALWAYS TAKE PLACE DURING THE TIME THAT CPR IS BEING PERFORMED FOR 1 MINUTE. NEVER INTERRUPT A SERIES OF THREE SHOCKS.**
- d) The St. John Ambulance AED Provider's cables are disconnected at the pad site by the Ambulance Officer (Paramedic) and the ambulance service AED cables and electrodes (if required) will be attached to the patient.
- e) The ambulance officer (Paramedic) will halt CPR and verify that the patient is VSA.
- f) A St. John Ambulance AED Provider should accompany the patient and the ambulance officer (Paramedic) to the receiving hospital, assisting with CPR if requested to do so.
- g) The ambulance officer (Paramedic) will provide the medical report to the receiving health care professional.
- h) The St. John Ambulance AED Provider is to complete the St. John Ambulance – Patient Care Record Form.

STANDARD OPERATING GUIDELINES FOR A PHYSICIAN AT SCENE

If a physician arrives at the scene of a cardiac arrest patient and wants you to DEVIATE from the accepted defibrillation protocol, the following actions should be taken:

The AED Provider will, in the event of a physician at the scene issuing orders, give a brief explanation of AED to the physician, explain to the physician that the AED provider is functioning under the license and supervision of a Medical Director, and confirm that the physician at the scene is taking full and complete responsibility for the patient care.

The AED Provider will only institute approved Clinical Protocol.

A physician at the scene must provide valid and current proof of licensure to practice medicine in the Province of Ontario.

NOTE: If a medical doctor offers to assist with CPR or ventilation and does NOT ask you to deviate from your AED protocol, then there is NO need to ask him/her for proof of medical licensure. Accept his/her help!

EQUIPMENT CHECK OF AED

The equipment must be checked and signed off at the beginning and end of each duty.

Inspection checks:

- a) Verify the device shows no obvious signs of damage to the exterior of the device, cables and other accessories. Insert fully charged batteries.
- b) Verify the device turns on when the "ON" button is pushed down.
- c) Verify the "Self-Test OK" message appears.
- d) Verify the clock time is correct.
- e) Verify the "Needs Service, Low Battery or Service Mandatory" messages do not appear.
- f) Verify defibrillator recognizes V-fib, Normal Sinus rhythm, and delivers a shock.
- g) Verify a package of defibrillation electrodes are in place and a spare package of electrodes, and one battery are available (if battery re-charging is required).
- h) Ensure a cleared Memory.

RESTOCKING (AFTER USE)**ENSURE THE MEDICAL DATA IS FORWARDED TO AED MEDICAL DIRECTOR.**

- a) Discard used electrodes. NOTE: If there is a suspected problem with the electrode pads they should be forwarded to the Brigade Community Services department at Council outlining the problem encountered.
- b) Replace electrodes with a new package. Check that the electrodes have not reached their expiration date.
- c) Remove battery from unit and follow instructions for charging a depleted battery (if re-charging is required).
- d) **ENSURE DATA FROM PREVIOUS EVENT IS CLEARED ONLY AFTER YOU HAVE CONFIRMED THAT ST. JOHN AMBULANCE AED MEDICAL DIRECTOR HAS A HARD COPY OR DOWNLOAD OF THE DATA.**
- e) Install a fully charged battery (if battery re-charging is required).
- f) Follow previously described inspection checks.
- g) Return the device to use if no problems are noted.

PROCEDURE FOR DEFECTIVE DEFIBRILLATOR EQUIPMENT, ELECTRODE PADS AND PACKAGING ENVELOPES

The AED Medical Director must be informed of all failures of AED equipment, electrode pads, and packaging envelopes that you feel have a potential problem or defect.

Forward defective packaging envelopes and defective defibrillator pads to the Brigade Community Services department at Council outlining the problem encountered. These will in turn be turned over to the AED Medical Director.

- ✎ Any Cardiac Arrest call in which the voice prompt continuously states “check electrodes” “check electrodes”. This includes the calls in which the pads were corrected and the message cancelled.
- ✎ Any Cardiac Arrest calls in which the pads were changed. Please forward both sets of pads and both packaging envelopes to the Brigade Community Services department at Council outlining the problem encountered.

All pad sets that exceed the manufacturer’s expiry date must be returned to the manufacturer/distributor.

In the event of any equipment malfunction during a cardiac arrest, notify the Brigade Community Services department immediately and identify the problem area with appropriate call information, dates, times, and AED provider name.

DOCUMENTATION

Ideally, there is a requirement for two rhythm strips: one to accompany the Patient Care Record for emergency personnel when responsibility for care of the patient is turned over to them, and one to be retained by the AED Medical Director for quality assurance. If two rhythm strips cannot be produced at the scene, then one should be printed as soon as possible after each use and submitted with one copy of the Patient Care Record to the Brigade AED Medical Director.

The Patient Care Record Form (Annex D) in triplicate will be used for all patient care provided by St. John Ambulance Brigade patient care providers.

When AED is used,

- a) one copy (white) must be retained locally (with Branch or Brigade Unit) for St. John Ambulance records. From time to time Council may request a photocopy of the white copy in response to a record release request.
- b) one copy (canary) is given to emergency medical/hospital personnel upon transfer of the patient, with a rhythm strip attached (if possible);
- c) one copy (pink), along with a rhythm strip (or data download) attached must be sent to the St. John Ambulance Brigade AED Medical Director, c/o the Brigade Community Services department at Council. This copy is used for quality assurance, data management, and follow-up.

The Patient Care Record Form should be filled out as completely as possible, including name, address, and phone of the patient and arrest details as described on the second half of the form.

Please remember to send the appropriate copy of the patient care record and associated material to the Brigade AED Medical Director within 24 hours of each use of AED.



FOLLOW-UP SUPPORT

Upon review of each cardiac arrest incident a support session should occur in conjunction with the AED Medical Director, or designate for all AED providers involved in the incident and if necessary Critical Incident Stress (CIS) teams should be called in. A province-wide listing of CIS teams is available from the Brigade Community Services department at Council.

For additional information please reference the following:

- i. Brigade Training System – Brigade Specialized Training Modules (BSTM) Standards and Reference Guide: Automated External Defibrillation (AED) Training Program for Brigade Members, March 1999
- ii. St. John Ambulance Automated External Defibrillation Instructor Guide, 1999

Questions regarding the above directive and associated protocols can be addressed to:
Brigade AED Medical Director, Brigade Community Services, St. John Council for Ontario,
46 Wellesley Street East, Toronto, ON M4Y 1G5.

Authority	
	Medical Officer
Authority	
	Provincial Commissioner



St. John Ambulance Saint-Jean

ANNEX A

Council for Ontario

46 Wellesley Street East
Toronto, Ontario M4Y 1G5
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Conseil de l'Ontario

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Automated External Defibrillation

Brigade Standing Order

I Dr. _____, as AED Medical Director authorize _____ to perform automated external defibrillation in accordance with the guidelines of the St. John Ambulance Automated External Defibrillation program and the St. John Ambulance Brigade. This standing order applies to the treatment of adult patients in Ontario, while providing patient care at events authorized by St. John Ambulance.

To maintain authorization the AED provider must:

1. participate in unsupervised continuing medical education every _____ months, and
2. _____ in supervised practice every _____ months
3. certify with my _____ date 12 _____ days from _____ date of certification recorded below.

Date of AED provider certification: _____

Date standing order authorized: _____

AED Medical Director (signature): _____

To be completed six months from the date of AED provider certification

Supervised Practice Date: _____ AED Instructor: _____

(Please attach evidence of unsupervised continuing medical education)

This standing order expires 12 months from the date of AED provider certification recorded above.

The AED Medical Director reserves the right to de-certify any St. John Ambulance AED provider who does not comply with training, CME, certification, safety or reporting standards, or is deemed incompetent, unprofessional or a potential risk to public safety in the utilization of a defibrillator.



**ST. JOHN AMBULANCE
DEFIBRILLATOR CHECK SHEET**

DATE: _____ **EVENT:** _____

Directions: Perform the following inspections & tests at the start of duty, initial off each item and note any corrective actions that were taken on back of form.

CHECK LIST	
Device & storage case clean	
Case is not cracked or damaged	
Cables are not cut, abraded or damaged	
Snap connectors are clean & undamaged	
Two sets of pads in sealed package within expiration date	
Electrode packages in good condition & stored flat	
Two razors in pouch	
Alcohol wipes in pouch	
One towel in case	
One pair of scissors in case	
Two PCR forms	
Battery in defibrillator removed – placed in charger (if re-charging is required)	
Spare battery placed in defibrillator (if battery re-charging is required)	
Battery in charger placed in pouch as spare (if battery re-charging is required)	
Turn unit on to verify self-test okay message appears	
Verify the "Memory" is cleared	
Verify the "Needs Service", "Low Battery", or "Service Mandatory" messages do not appear. The "Check Electrodes" message should come on	
Using tester, verify defibrillator recognized V-fib, Normal Sinus Rhythm and Delivers a shock	
Conduct manual self-test – verified OK	
Time set correctly	



**ST. JOHN AMBULANCE
DEFIBRILLATOR AFTER USE CHECK LIST**

DATE: _____ EVENT: _____

LOCATION: _____

AED PROVIDER RESPONSIBLE FOR DEFIB: _____

Directions: Perform the following checks after defibrillator use. Initial off each item.

CHECK LIST	
Used electrode discarded. Note: If there is a suspected problem with the electrode pads, they are to be forwarded to the Brigade Community Services department at the St. John Council for Ontario for appropriate action along with the foil pouch they were packaged in. These will in turn be forwarded to the AED Medical Director	
Electrodes replaced with new package and are within their expiration date.	
If more than 12 shocks delivered, battery changed as per protocol (if battery re-charging is required).	
Defibrillator rechecked according to Defibrillator Check Sheet.	
CARDIAC ARREST DATA FORWARDED TO MEDICAL DIRECTOR	
AED unit returned to service	

LIFEPAK[®] 500

automated external defibrillator

PHYSIO
CONTROL

NEW!
2-Button
Version

Cost-effective

Choice of simple 2- or
3-button operation

Low maintenance

Portable, lightweight

Rugged, durable

Powerful, user-friendly
data management

Compatible with
Physio-Control
electrodes and
LIFENET[®] data
management system



The LIFEPAK 500 automated external defibrillator is designed to be used by first responders to cardiac emergencies. This affordable, rugged device is extremely portable at only seven pounds (3.2kg). Low maintenance requirements and intuitive operation make it the ideal product for infrequent AED users.

Features include pre-connected QUIK-COMBO[™] electrodes that save valuable time on scene and are compatible with other LIFEPAK defibrillators; clear, concise voice prompting for defibrillation and CPR; LCD for text messages, shock count, and real-time clock. Choice of simple 2- or 3-button operation allows the 500 to meet the needs of responders with a variety of training and experience levels. Automatic self-testing saves time and improves testing consistency. Battery options include a rechargeable lead acid battery and a high capacity extended shelf-life lithium battery that requires no recharging and no maintenance.

The 500 utilizes the same field-proven Shock Advisory System[™] used in thousands of Physio-Control AEDs over the past ten years. It employs the industry standard Edmark defibrillation waveform at energy levels recommended by the American Heart Association and European Resuscitation Council.

ECG data and on-scene audio (optional) are stored digitally within the device for maximum durability and simplicity. Incident data can be conveniently transmitted from the 500 to medical control via modem. CODE SUMMARY[™] reports can be printed directly to a standard printer for rapid access to information. User-friendly PC-based software allows complete, efficient review of both ECG and audio data. 500 data can be stored in a CODE-STAT[™] database with other Physio-Control defibrillator and 12-lead data for comprehensive system-wide review and reporting.

LIFEPAK 500

automated external defibrillator

DEFIBRILLATOR

Input: ECG via QUIK-COMBO or FAST-PATCH® disposable electrodes. Standard placement (anterior-lateral).

Electrical Protection: Input protected against high voltage defibrillator pulses per IEC 60601/EN60601. Type BF Input Protection.

Safety Classification: Internally powered equipment, IEC 60601/EN60601-1, 5.1.

Waveform: Monophasic pulse (Edmark) per AAMI DF2-1989, 3.2.1.5.1.

Output Energy Sequence: (200, 200, 360, 360,...) or (200, 300, 360, 360,...) Joules

Charge Time: With a new, nonrechargeable battery pak, or a new fully-charged rechargeable battery pak:
200 joules in less than 9 seconds and to 360 joules in less than 15 seconds.

Controls:
ON/OFF Turns device power on or off.
ANALYZE (optional) Starts ECG analysis.
SHOCK Delivers defibrillation energy. Active only when Shock Advisory System advises defibrillation.

Clock Set Two switches provided to set the clock.

Display: Two-line, 20-character dot-matrix liquid crystal display.

Low Battery Indicator: Low Battery Icon:
At least 11 discharges remaining with nonrechargeable battery pak.
At least 6 discharges remaining with rechargeable battery pak.

Service Indicator: Service Icon

Displayed Messages: Messages prompt user through complete operating sequence.

Audible Tones: Coded tones assist user through device operation and alert operator of display messages.

Voice Prompts: Prompt user through complete operation sequence.

EVENT DOCUMENTATION

Type: Internal digital memory

Memory Capacity: 20 minutes audio recording - OPTIONAL. ECG and event log of operator/device actions: At least 20 minutes if unit is configured with audio recording and audio recording setup option is ON. At least 80 minutes if configured with audio recording and audio recording setup option is OFF. At least 60 minutes if not configured with audio recording.

Report Types: CODE SUMMARY report, Event Log report, Test Log report.

Capacity: 300 Event Log events, 30 Test Log device tests (assuming no fault codes).

Communications: Options: Direct connection to personal computer; modem connection to personal computer using Hayes AT-compatible modem; print direct with EPSON® ESC/P protocol for printers with 9-pin printheads.

Data Review: LIFENET® system compatible. Options: DATA TRANSFER™ 500 information management program; QUIK-VIEW™ 500 data review program; CODE-STAT SUITE data management system.

ENVIRONMENTAL

Note: All performance specifications defined assume that the unit has been stored (two hours minimum) at the operating temperature prior to operation.

Operating Temperature: 0 to +50°C (+32 to +122°F)

Storage Temperature: -30 to +65°C* (-22 to +149°F) without battery and electrodes.
-30 to +65°C* (-22 to +149°F) with battery and electrodes, maximum exposure time limited to one week.

Atmospheric Pressure: 760mmHg to 429mmHg, 0 to 15,000 ft above sea level.

Relative Humidity: 10 to 95% (non-condensing)

Water Resistance: IEC 60529/EN60529 IPX4 "Splash proof" with electrodes or connector cover installed.

Shock: MIL-STD-810E, Method 516.4, Procedure 1, (40g, 6-9ms pulse, 1/2 sine each axis)

Vibration: MIL-STD-810E, Method 514.4 Category 10

***Note:** See Operating Instructions for information on caring for batteries.

BATTERIES

Rechargeable Battery Pak Type: Sealed Lead Acid, 8V, 2.5 amp-hours.

Capacity: Typical: Fifty-nine (59) full discharges with a fully charged new battery.
Minimum: Forty-three (43) full discharges with a fully charged new battery.

Battery Charge Time: 10+/-1 hours. Battery charging limited to 15 to 35°C (+59 to 95°F).

Recommended Replacement Interval: 2 years or 200 battery charge/discharge cycles, whichever comes first, using recommended battery maintenance procedures.

Weight: 0.9kg (1.9 lb)

Nonrechargeable Battery Pak Type: Sealed lithium, 12V, 7.5 Amp-hours.

Capacity: Typical: Three hundred twelve (312) full discharges with a new battery.
Minimum: Two hundred thirty (230) full discharges with a new battery.

Shelf Life: 5 years (4 years for aircraft use)

Weight: 0.5kg (1.2 lb)

GENERAL

Physical Characteristics

Height: 10.2cm (4.0 in)

Width: 26.7cm (10.5 in)

Depth: 29.5cm (11.6 in) including handle.

Weight: 2.76kg (6.1 lb) without battery or electrodes.

All specifications at 20°C unless otherwise stated.



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