

Emergency Cardiac Care: Decision Support Tool #1
RN-Initiated Emergency Cardiac Care
Without Cardiac Monitoring/Manual Defibrillator or Emergency Cardiac Drugs

**This tool was developed in collaboration with subject matter experts
from all Health Authorities in British Columbia**

PURPOSE

To guide registered nurses who may manage clients experiencing sudden or unexpected life-threatening cardiac emergencies. This DST applies to situations in which a patient has sudden (expected or unexpected) collapse, loss of consciousness or decreased level of consciousness, and there is neither a physician/nurse practitioner present, nor cardiac monitoring, manual defibrillator or emergency cardiac drugs available. It outlines the nursing actions that may be taken during the first 10 – 15 minutes, or until medical input is received.

BACKGROUND

Patients may experience sudden and life-threatening cardiac arrhythmias, due to either an acute coronary syndrome or other causes (e.g. hypovolemia, tension pneumothorax, electrolyte imbalance, shock, congenital heart defects). Once cardiac arrest has occurred, rapid resuscitation is critical to ensure survival. Although approximately 21% of patients experiencing an *unwitnessed* in-hospital cardiac arrest are successfully resuscitated, only 1% survive to hospital discharge; for *witnessed* in-hospital cardiac arrest, the rate of successful resuscitation is approximately 48%, but survival to hospital discharge is only 22%. Ideally, nurses should recognize clinical deterioration prior to cardiac arrest (using early warning systems or other protocols) and intervene by providing or accessing appropriate care to prevent the arrest. However, some arrest events are sudden and nurses are very likely to be the first health professional to discover a patient in cardiac arrest or with a life-threatening arrhythmia, and must be able to recognize the condition and intervene immediately.

Recognition of cardiac arrhythmias and use of specialised equipment (e.g. cardiac monitors, defibrillators, bag-valve-mask ventilation) requires additional education and regular practice.

The use of AEDs and high-quality CPR is associated with the highest rates of survival and therefore is strongly encouraged. Nurses who treat cardiac arrest in hospitals and other facilities with on-site AEDs or defibrillators should provide immediate CPR and should use the AED/defibrillator as soon as it is available. Other modes of emergency cardiac care (e.g., cardiac monitoring and administration of medications) can be used in conjunction with AEDs, if they become necessary.

When possible, efforts should be made to ascertain if the patient or family has expressed any directives or preferences for care before the current cardiac emergency (e.g., from the family or those accompanying the patient). This information should be communicated to and discussed with the physician and family members, as appropriate, at the first opportunity. Follow organizational directives/policies related to advance directives.

Registered nurses are **NOT** authorized to initiate emergency cardioversion and transcutaneous pacing without a physician's order. However, in areas where there may be a long interval before a physician arrives (e.g. rural settings), it is recommended that physicians, employers and nurses collaborate to devise mechanisms to address this need. Options include a client-specific order (including telephone orders) or college-approved delegation. See more information [here](#).

If cardiac monitoring and emergency drugs are available, **refer to Emergency Cardiac Care Decision Support Tool #2**

INITIAL ASSESSMENT AND INTERVENTION

- 1) Perform point-of-care risk assessment, to determine scene safety and level of PPE required
- 2) Perform rapid assessment of circulation, airway and breathing. Start basic life support (BLS) as per most recent Heart and Stroke Foundation of Canada guidelines
Note: if you are alone in the facility, prioritize calling for help and obtaining an AED before starting CPR. If there is more than one person available, start CPR while someone else activates the emergency response and obtains the AED.
- 3) Follow prompts on AED, if used.
- 4) Notify physician as soon as possible

CONTINUING CARE

- Continue to support patient as per BLS guidelines, until another health professional provides relief, or a physician or nurse practitioner provides direction
- After 30 minutes of no response, contact physician or nurse practitioner to discuss discontinuing.

NOTE: the nurse must possess the competencies (specialised knowledge, skill, judgment) as outlined by Providence Health Care

<https://www.heartcentre.ca/sites/default/files/Core%20Competencies%20for%20Emergency%20Cardiac%20Care.pdf>

and maintain competency through regular practice of these skills and interventions.

SPECIAL CONSIDERATIONS/PRECAUTIONS

Proficiency in CPR requires regular practice and feedback.

Follow organizational infection precaution and control measures as indicated for patient's condition.

The rhythm strips from the AED are invaluable for the patient's ongoing care. Ensure they are **included with the transfer documentation**, if obtainable.

The physician/nurse practitioner makes the decision to discontinue resuscitation. It is reasonable to consider discontinuing after 30 minutes of resuscitation. However, resuscitation should **never** be stopped:

- before 30 minutes (unless "no CPR" order discovered or futility determined, in consultation with physician)
- when there is only *intermittent* return of spontaneous circulation
- when there is a likely cause, and the treatment for that cause has not yet been given (tension pneumothorax, tamponade, hypoxia, hyperkalemia)
- when hypothermia is the cause, and rewarming to normothermia has not yet been achieved

INTENDED CLINICAL OUTCOMES

Cardiac output that is adequate to perfuse all organs will return by restoring cardiac rate and rhythm. This will likely require access to definitive emergency cardiac care (i.e., ACLS/PALS).

Indicators:

- return to previous level of consciousness

- return to previous blood pressure
- return to previous respiratory status
- freedom from symptoms of cardiac ischemia (e.g. angina or equivalent)

PATIENT AND FAMILY EDUCATION AND SUPPORT

When possible, regardless of patient's level of consciousness, explain to them where they are, what has happened, and what you are doing to help them throughout process. Facilitate communication amongst patient, family and team; encourage and support family to be with patient, if they so desire and there is sufficient staff available to support them.

In agencies where a standard of care for family presence during resuscitation has been fully implemented, families should be permitted into the resuscitation room. Otherwise, when patient care priorities permit, inform family of patient's condition and what is being done, and facilitate communication with physician. **Allow family to see patient as soon as possible.**

DOCUMENTATION

Document initial assessment, including:

- Time of assessment
- Presence of pulse, respirations
- Level of consciousness

List all health professionals in attendance.

Document all subsequent assessments, interventions and patient's response.

A documentation tool designed specifically for cardiac emergencies can streamline the documentation process and improve completeness. Use of such a tool is recommended.

If care is transferred to emergency paramedics or a cardiac arrest team, responsibility for further documentation should rest with them (but may be delegated to first or second responders). Indicate the time of this transfer of care.

Obtain and mount ECG rhythm strip for each discharge of AED (if AED used) if obtainable.

Document time and content of each communication with physician or other health professionals.

Document any specimens obtained and sent to laboratory.

Document time and content of communication with family members.

REFERENCES

American Heart Association (2016). Basic Life Support, Heart and Stroke Foundation of Canada ebook.

Brindley, P. G., Markland, D. M., Mayers, I., & Kutsogiannis, D. J. (2002). Predictors of survival following in-hospital adult cardiopulmonary resuscitation. *Canadian Medical Association Journal*, 167(4), 343-8.

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APPENDIX I: Definitions and Abbreviations

<p>Definitions and Abbreviations</p>	<p>Emergency cardiac care: All responses necessary to treat sudden, life-threatening events affecting the cardiovascular and respiratory systems, with a particular focus on sudden cardiac arrest</p> <p>CPR: cardiopulmonary resuscitation. Emergency procedure for persons who have circulatory and/or respiratory arrest. The two main components of conventional CPR are chest compressions and rescue breathing/ventilations (preferably via adjunctive airway or bag-valve-mask)</p> <p>BLS: basic life support</p> <p>AED: automated external defibrillator. Device that, when applied to the chest, automatically detects life-threatening arrhythmias and, if ventricular fibrillation or ventricular tachycardia is detected, delivers a shock to restore a normal heart rhythm (defibrillation).</p> <p>ACLS: advanced cardiac life support. Components of emergency cardiac care that entail more advanced skills, e.g., interpreting cardiac rhythm, use of manual defibrillator, administration of emergency cardiac drugs</p> <p>PALS: pediatric advanced life support. Components of emergency cardiac care for children that entail more advanced skills, as above.</p>
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APPENDIX II: Regulation, Limits and Conditions

<p>Applicable Nurses (Registered) and Nurse Practitioners Regulation</p>	<p>Excerpts from Section 6 of the Health Professions Act: Nurses (Registered) and Nurse Practitioners Regulation (activities that CAN be carried out without a physician’s order): Section 6(1): A registrant in the course of practicing nursing may: (a) make a nursing diagnosis identifying a condition as the cause of the signs or symptoms of an individual; (e)(i)(A) administer oxygen by inhalation (j) apply electricity for the purpose of defibrillation in the course of emergency cardiac care</p>
<p>Applicable BCCNM Limit and Condition</p>	<p>(1) Registered nurses who, in the course of providing emergency cardiac care, apply electricity using a manual defibrillator, must possess the competencies established by Providence Health Care and follow decision support tools established by Providence Health Care. https://www.heartcentre.ca/professionals/decision-support-tools</p>
<p>Related Resources, Policies and Standards</p>	<p>Core Competencies for Emergency Cardiac Care https://www.heartcentre.ca/sites/default/files/Core%20Competencies%20for%20Emergency%20Cardiac%20Care.pdf</p> <p>Scope of Practice for Registered Nurses https://www.bccnm.ca/RN/ScopePractice/Pages/Default.aspx</p> <p>BCCNM Scope of Practice: “Acting within autonomous scope of practice” https://www.bccnm.ca/RN/ScopePractice/part2/autonomous/Pages/Default.aspx</p>