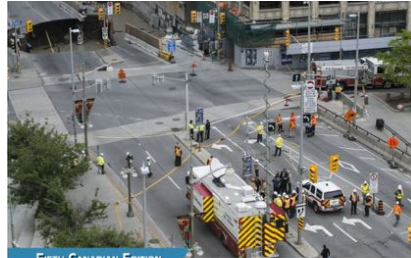


Emergency Medical Responder: A Skills Approach

Fifth Canadian Edition



FIFTH CANADIAN EDITION

EMERGENCY MEDICAL RESPONDER

A SKILLS APPROACH

MEETS PARAMEDIC ASSOCIATION OF CANADA'S
NATIONAL OCCUPATIONAL COMPETENCY PROFILE



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Chapter 8

Circulation

Objectives (1 of 2)

- List eight reasons for the heart to stop beating.
- Describe each of the five links in the Chain of Survival for adult and pediatric patients and how they relate to the EMS system.
- Define the components of CPR.
- Demonstrate the steps of infant, child, and adult one- and two-rescuer CPR.



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Objectives (2 of 2)

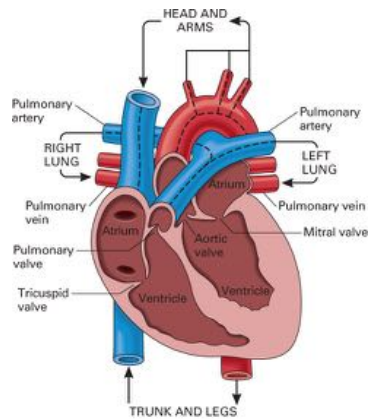
- Describe the technique for external chest compressions on infants, children, and adult patients.
- Explain when the EMR is able to stop CPR.
- Understand and be able to respond to the feelings of the family of a patient during a cardiac event.

Cardiac Arrest Patients

The best chance of survival requires

- Immediate CPR
- Advanced medical care
- Defibrillation within 8 to 10 minutes of collapse

The Heart Consists of Four Chambers



RIGHT HEART:
Receives blood from the body and pumps it through the pulmonary artery to the lungs, where it picks up fresh oxygen.

LEFT HEART:
Receives oxygenated blood from the lungs and pumps it through the aorta to the body.

Figure 8-1 The heart.

Clinical Death

When a patient is in respiratory arrest (not breathing) and cardiac arrest (heart not beating).

Immediate CPR may

- Reverse clinical death
- Restore the patient without damage

Adult Chain of Survival



Figure 8-2 Adult Chain of Survival.

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Assessment of the Patient

Airway

Breathing

Circulation

Steps Preceding CPR (1 of 3)



Figure 8-3a Determine unresponsiveness.

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Figure 8-3b Activate the EMS system.

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Steps Preceding CPR (2 of 3)



Figure 8-3c Position the patient on a firm, flat surface.

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Figure 8-3d Look for signs of breathing and check pulse.

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Steps Preceding CPR (3 of 3)



Figure 8-3e If no pulse, begin chest compressions.




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Figure 8-3f Perform artificial ventilation.

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Table 8-1 CPR Summary

TABLE 8-1 CPR SUMMARY			
	Adult (puberty and older)	Child (1 year to puberty)	Infant (under 1 year)
			
Hand Position	Two hands on lower half of sternum (breastbone)	Heel of one hand (two hands for larger patients) on lower half of sternum (breastbone)	Two fingers just below nipple line on centre of chest (two thumbs encircling hands for two-rescuer CPR)
Compressions	At least 5 cm (2 inches) in depth but not more than 6 cm (2.4 inches)	At least one-third the depth of the chest. About 5 cm (2 inches)	At least one-third the depth of the chest. About 4 cm (1½ inches)
Breaths	Two effective breaths each causing the chest to rise	Two effective breaths each causing the chest to rise	Two effective breaths, each causing the chest to rise
Cycle	30 compressions, two breaths (one- or two-rescuer CPR)	30 compressions, two breaths for one-rescuer CPR (15:2 for two-rescuer CPR)	30 compressions, two breaths for one-rescuer CPR (15:2 for two-rescuer CPR)
Rate	100-120 per minute	100-120 per minute	100-120 per minute

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Signs of Successful CPR (1 of 2)

- When sternum is compressed, you feel a pulse in the carotid artery
- Chest rises and falls with each ventilation
- Pupils react or appear to be normal
- Heartbeat returns

Signs of Successful CPR (2 of 2)

- Spontaneous gasp occurs
- Patient's skin colour improves or returns to normal
- Patient moves his or her arms or legs
- Patient tries to swallow

Mistakes in Performing CPR (1 of 2)

- Failing to maintain adequate head tilt
- Failing to maintain adequate seal around the patient's mouth, nose, or both
- Failing to release seal when patient exhales
- Completing two breaths in longer than four seconds

Mistakes in Performing CPR (2 of 2)

- Failing to watch and listen for exhalation
- Not giving one-second breaths
- Providing breaths too rapidly

Complications Caused by CPR

- Sternum fracture
- Pneumothorax
- Hemothorax
- Cuts and bruises to the lungs
- Lacerations to the liver

Infant and Child CPR (1 of 2)



Figure 8-12a After determining unresponsiveness and breathlessness or insufficient breathing, activate EMS.

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Figure 8-12b Determine pulselessness at the infant's brachial artery or the child's carotid or femoral artery.

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Figure 8-12c Locate the correct hand position.

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Figure 8-12d Compress the sternum at a rate of 100-120 per minute.

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Infant and Child CPR (2 of 2)



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Figure 8-12e Cover the infant's mouth and nose with a pocket mask. Then ventilate.

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Figure 8-12f Give two one-second breaths after every thirtieth compression.

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Figure 8-12g Perform CPR while carrying the patient.

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