BCEHS TREATMENT GUIDELINES

FOR EMERGENCY MEDICAL RESPONDERS IN BC

Medi-Pro Response Solutions

778-724-9054

training@mediprofirstaid.com

mediprofirstaid.com

Table of Contents

BCEHS TREATMENT GUIDELINES

The Canadian Red Cross, BC Ambulance Service and BC Emergency Medical Assistant's Licensing Branch follow the National Occupational Competency Profile (NOCP) for most EMR skills...as required by the Paramedic Association of Canada (PAC).

In some cases, they also follow the specific protocols required for Emergency Medical Responders in British Columbia, as outlined in the BCEHS Treatment Guidelines.

For the most part, the BCEHS Treatment Guidelines for EMR skills follow the same protocols as the Canadian Red Cross and NOCP.

However, there are a few Provincial BCEHS Treatment Guidelines which differ slightly from the National PAC NOCP, which means you need to be aware of them for BC EMALB EMR Licensing purposes.

BCEHS Treatment Guidelines that are specifically relevant to Emergency Medical Responders in British Columbia are listed in detail in this booklet.

These specific BCEHS Treatment Guidelines include:

- NEXUS Spinal Motion Restriction Decision Matrix
- Estimating Burn Percentage
- On-Scene Cooling Time for Burns
- Definition of Hyperglycemia
- Administration of Glucogel to an Unresponsive Patient
- Determining Cardiac Arrest for Hypothermic Patients
- Using an AED during CPR with Hypothermia
- Administration of Nitroglycerin with or without a Prescription
- Administration of ASA before Vital Signs
- Entonox Administration
- Naloxone Administration
- Which Medications can EMR's Administer in BC

Whenever the BCEHS Treatment Guidelines contradict or supplement the PAC NOCP guidelines included in your Canadian Red Cross Emergency Care Manual, you will follow the BCEHS Treatment Guidelines as an Emergency Medical Responder in BC.

BCEHS NEXUS/MODIFIED NEXUS

Spinal Motion Restriction (SMR) Decision Matrix

What the BCEHS Treatment Guideline says:

"*Spinal trauma accompanies approximately 12% of serious trauma and may be present in lesser degrees with even minor trauma. The cervical spine is the most often injured segment.*

Previously BCEHS used Canadian C-Spine Rules (CCR) to define these patients; however the NEXUS criteria are now being utilized for C-spine injury clearance. "

Contradictory Information in the Emergency Care for Professional Responders text book:

The Canadian Red Cross Emergency Care text book indicates that the "Canadian C-Spine Rules" should be followed for determining when and what type of Spinal Motion Restriction (SMR) is appropriate.

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia will need to be familiar with the **NEXUS / Modified NEXUS SMR Decision Matrix** for determining when SMR measures are appropriate.
- Based on the the **NEXUS / Modified NEXUS SMR Decision Matrix** Emergency Medical Responders in British Columbia will apply either Full SMR measures or Simple SMR measures as appropriate for the patient and circumstances.
- Emergency Medical Responders in British Columbia will also make decisions about patients for whom SMR is not indicated, but may have Thoracolumbar Injuries
- In instances of non-SMR Thoracolumbar Injuries, the patient should be transported without sitting up or raising the head of the stretcher

BCEHS BURN MANAGEMENT

Estimating Burn Percentage

What the BCEHS Treatment Guideline says:

"*Accurate estimation of burn size is essential. Extensive burns are expressed as the total percentage of body surface area (TBSA) with more than superficial burns. Use the Lund and Browder chart to estimate percentage of body surface area…*"

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book indicates that the "Rule of Nines" should be applied for on-scene burn percentage estimates

On-Scene Cooling Time for Thermal Burns

What the BCEHS Treatment Guideline says:

"Limit cooling to 1-2 minutes, including the decontamination time"

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book indicates that burns should usually be cooled for at least 10 minutes.

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia need to be familiar with the Lund & Browder Chart for calculating burn percentages, as well as the "Rule of Nines".
- Emergency Medical Responders in British Columbia should only spend 1-2 minutes cooling major burns, **while on scene**.
- Continue to cool burns following the Emergency Care manual guidelines while enroute.
- Once a burn has been sufficiently cooled, dry sterile dressings should be applied to prevent infection.

BCEHS HYPO / HYPERGLYCEMIA

Defining Hyperglycemia

What the BCEHS Treatment Guideline says:

"*Hyperglycaemia - Elevated glucose level* (*higher than **11 mmol***)"

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book, states that blood glucose levels above **8 mmol** are considered Hyperglycemic.

Glucogel for Unresponsive Hypoglycemic Patients

What the BCEHS Treatment Guideline says:

Glucogel can only be administered to Patients who are able to obey commands and maintain their own airway

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book outlines the procedure for administering Glucogel to an unresponsive patient, but does stipulate that this is only to done where local protocol permits.

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia will consider capillary blood glucose (capBgl) levels higher than **11 mmol** to be clinically Hyperglycemic**.**
- CapBgl levels below 11 mmol will **not** be considered clinically Hyperglycemic.
- Unresponsive patients will **not** receive Glucogel or any oral sugar.

BCEHS HYPOTHERMIA

Determining Cardiac Arrest for Hypothermic Patients

What the BCEHS Treatment Guideline says:

*"The hypothermic patient has reduced metabolic demands and may have significant bradycardia and decreased respiratory rate. For this reason, **30 - 45 seconds** should be taken to accurately detect the presence of spontaneous respirations and a pulse."*

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book states that up to **60 seconds** should be taken to assess the pulse of a patient with suspected Hypothermia.

Using an AED during CPR with Hypothermia

What the BCAS Treatment Guideline says:

*"AED: analyze **once** only and Shock if indicated"*

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia should assess the pulse of a patient in suspected Hypothermia for no more than **45 seconds** before beginning CPR-AED protocols.
- Emergency Medical Responders in British Columbia should only utilize an AED for one cycle of analyzing followed by a single shock/no-shock indication, if the patient is Hypothermic.

BCEHS GROSS DEFORMITY

Realignment of Grossly Deformed Limbs

What the BCEHS Treatment Guideline says:

"*Limb Realignment*

1. *If a gross deformity that could compromise transport exists, apply in-line traction and realign the limb towards anatomical position*
2. *Attempt in-line traction once, if distal neurovascular status is compromised"*

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book, states that a single attempt may be made to straighten a fractured limb **if more advanced medical care is not available within 30 minutes**.

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia will utilize in-line traction and make a single attempt to realign a limb that is grossly deformed or if circulation is compromised distal to the injury.
- **This is regardless of distance to medical care**

BCEHS OPEN CHEST WOUNDS

Care for Open Chest Wounds

What the BCEHS Treatment Guideline says:

"*Trauma Management – Intervention Guidelines*

- *Cover open chest wounds with vented occlusive dressing or chest seal"*

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book, states that only non-occlusive dressings should be used for treatment of an open chest wound.

What this all means for Emergency Medical Responders in BC:

- Emergency Medical Responders in British Columbia will utilize a Vented Occlusive Dressing or Chest Seal to treat an open chest wound.

BCEHS NITROGLYCERIN

BCEHS permits Licensed EMRs in BC to administer Nitroglycerin Spray to patients suffering suspected Myocardial Infarction (Acute Coronary Syndrome)

Administration of Nitroglycerin with or without a prescription

What the BCEHS Treatment Guideline says:

Indications:

- *Chest Discomfort of suspected cardiac ischemic origin*

Contraindications:

- *Allergy or know hypersensitivity to nitroglycerin or other nitrates*
- *Viagra or Levitra use in the past 24 hours*
- *Cialis use in the past 48 hours*
- *Hypotension or uncorrected hypovolemia*
- *Severe anaemia*
- *Constrictive pericarditis and pericardial tamponade*

*Nitroglycerin for patient **WITH** a prior prescription*

- *0.4 mg spray, q 3-5 minutes **provided systolic blood pressure remains above 90 mmhg***
- *Consider CliniCall consultation if needing to go beyond 3 doses*
- *1-833-829-4099*

*Nitroglycerin for patients **WITHOUT** a prior prescription*

- *0.4 mg spray, q 3-5 minutes **provided:***
- *Systolic blood pressure of > 100 mmHg*
- *HR of >50 and <150*
- ***This may only be done following a mandatory consult with CliniCall***
- *1-833-829-4099*

Contradictory Information in the Emergency Care for Professional Responders text book:

The Emergency Care text book states that a Systolic Blood Pressure of **less than 100 mmHg** contraindicates the administration of Nitroglycerin.

The Emergency Care text book also stipulates that Nitroglycerin can be administered once every 5 minutes, to a maximum of 3 doses.

(continued next page…)

BCEHS NITROGLYCERIN (cont.)

What this all means for Emergency Medical Responders in BC:

- Nitroglycerin should be considered when the Indications have been met and the Contraindications have been ruled out
- Nitroglycerin can be administered to a patient with a prior prescription if their Systolic blood pressure is above 90 mmHg
- Nitroglycerin can be administered to a patient without a prior prescription if their Systolic blood pressure is above 100 mmHg and their heart rate is between 50 – 150 beats per minute.
- CliniCall must be consulted before administering Nitroglycerin to a patient without a prior prescription. (1-833-829-4099)
- CliniCall must be consulted before administering a 4th (or more) dose of Nitroglycerin to any patient, regardless of whether or not they have prior prescription. (1-833-829-4099)
- Nitroglycerin can be administered every 3-5 minutes (q 3-5), provided the Indications continue to be met, and the Contraindications continue to be ruled out.

BCEHS ACETYLSALICYLIC ACID (ASA)

BCEHS permits Licensed EMRs in BC to administer ASA to patients suffering suspected Myocardial Infarction (Acute Coronary Syndrome)

Administration of ASA before Vital Signs

Specific BC EMALB Licensing Requirement

BC EMALB has released a position statement outlining the importance of administering ASA as soon as possible, when appropriate for the management of cardiac related chest pain.

Specifically, this document stipulates that ASA should be administered (if appropriate) before or during the collection of Vital Signs…not after.

What this all means for Emergency Medical Responders in BC

- When a patient is showing Signs and Symptoms suggestive of a possible heart attack, Responders should immediately utilize the SAMPLE-OPQRST mnemonics (History) to determine if ASA is appropriate.
- If appropriate, have the patient chew two 81mg ASA or one 325 mg ASA before initiating transport or assessing the Vital Signs.
- ASA is the only medication which does not require a full set of Vital Signs before Administration.

BCEHS ENTONOX

BCEHS permits Licensed EMRs in BC to administer Nitrous Oxide (Entonox)

Nitrous Oxide (Entonox) Administration

You should be familiar with the Indications, Contraindications and dosages stipulated in the BCEHS Treatment Guidelines outlined below…

Entonox Indications:

- Relief of moderate to severe pain
- Cardiac related chest pain, where Nitroglycerin will be of no value, or is contraindicated. Must be followed by high flow oxygen when discontinued
- Isolated extremity injuries, pain associated with burns excluding mechanisms associated with potential inhalation injury, etc.

Entonox Contraindications:

- Artificial, traumatic or spontaneous pneumothorax
- Air Embolism
- Decompression sickness following a recent scuba dive
- Severe bullous emphysema
- Gross abdominal distension
- Altered mental status
- Inability to comply with instructions
- Inhalation injury
- Nitroglycerin use within 5 minutes of administration

BCEHS Entonox Contraindication Mnemonic:

C – ability to COMPLY
D – DECOMPRESSION sickness
C – altered level of CONSCIOUSNESS
P – PNEUMOTHORAX
A – AIR emboli
I – INHALATION injury
N – NITROGLYCERIN use within 5 mins

Entonox Precautions:

- Ensure adequate ventilation of area

BCEHS Entonox Precaution Mnemonic:

S – SHOCK
A – ABDOMINAL distenstion
D – DEPRESSANT drugs
C – COPD
F – FACIAL injuries

Alternative Entonox Contraindication Mnemonic:

S – SCUBA with decompression sickness
P – Pneumothorax
I - Inhalation injuries
D – Distended abdomen (gross distension)
E – Emphysema (bullous)
R – Refuses to follow instructions
M – Mental status altered
A – Air embolism
N – Nitroglycerin in the past 5 minutes

BCEHS NALOXONE (NARCAN)

BCEHS permits Licensed EMRs in BC to administer Naloxone (Narcan)

Naloxone (Narcan) Administration

You should be familiar with the Indications, Contraindications and dosages stipulated in the BCEHS Treatment Guidelines outlined below…

Naloxone Indications:

- To reverse respiratory depression/depressed mental status secondary to actual or suspected narcotic use. Examples of other narcotics include Demerol, Heroin, Codeine, Oxymorphone (Numorphan), Hydromorphone (Dilaudid), Diphenoxylate (Lomotil), Propoxphene (Darvon), and Pentazocine (Talwin).

Naloxone Contraindications:

- Allergy or known hypersensitivity to naloxone
- Neonatal patient

Naloxone Precautions:

- Be prepared for patient combativeness
- In the chronic narcotic abuser, may precipitate withdrawal symptoms
- Miscarriage or premature labour
- Very short half-life; monitor patient closely and prepare to re-dose if deterioration occurs

Naloxone Adverse Effects:

- Reversal of narcotic effect and combativeness
- Signs and symptoms of severe drug withdrawal
- Hypotension, hypertension
- Nausea and vomiting, sweating, tachycardia
- Ventricular fibrillation, asystole

Naloxone Dosages:

Adult Dose:

- 1st Dose: 0.4mg
- 2nd Dose: 0.4mg (after 3 mins if needed)
- 3rd Dose: 0.8mg (after 3 mins if needed)
- 4th Dose: 2.0mg (after 3 mins if needed)

Pediatric Dose (<12 years):

- 0.1mg/kg (max. 0.4mg) per Dose
- Total maximum of 2mg

BCEHS METHOXYFLURANE (PENTHROX)

BCEHS permits Licensed EMRs in BC to administer Methoxyflurane (Penthrox)

Methoxyflurane (Penthrox) Administration

You should be familiar with the Indications, Contraindications and dosages stipulated in the BCEHS Treatment Guidelines outlined below…

Penthrox Indications:

- Moderate to severe pain associated with trauma in adults or interventional medical procedures.

Penthrox Contraindications:

- Children < 18 years old
- Inadequate understanding/lack of patient cooperation
- Decreased level of consciousness
- Clinically significant renal impairment
- History of liver dysfunction secondary to previous halogenated anesthetics
- Concurrent use of tetracycline antibiotics
- Personal or family history of malignant hyperthermia
- Muscular Dystrophy
- Are pregnant, intending to become pregnant or if you are breast feeding

Penthrox Precautions:

- Supratherapeutic doses have been shown to lead to serious irreversible nephrotoxicity (follow dosing limitations)
- Maximum daily dose of 6 ml should be used in a single 48 hour period
- A treatment of Penthrox should be limited to a total dose of 15 ml over one week

Penthrox Dosages (Adults):

- 3 ml via inhaler
- Repeat 3 ml dose after 20 minutes
- Total dosage maximum 6 ml (in a 48 hour period)

Penthrox Onset & Duration:

- Onset: 1-3 minutes
- Duration: 1 hour

Penthrox Side-Effects:

- Altered level of consciousness (drowsiness)
- Cough
- Decreasing blood pressure and bradycardia (rare)

BCEHS PENTHROX (continued)

Penthrox Special Considerations

- Chronic exposure carries theoretical risks to Paramedics
- Only one dose of 3 ml per patient while inside the ambulance
- No single employee should administer more than three dosages in the ambulance per shift
- Where possible, ambulances are to be adequately ventilated
  (Exhaust Fan on and cab heater/AC turned to anything except max AC)
- Ensure patient exhales through the carbon filter

Penthrox Route and Method of Administration:

- Self-administration as needed under direct supervision
- One 3 ml bottle to be vaporized in the inhaler
- One additional bottle of 3 ml (to a maximum of 6 ml) may be used if needed

BCEHS MEDICATIONS

BCEHS restricts Emergency Medical Responders to Administering only specific Medications

As an Emergency Medical Responder holding a BC EMALB License, you are authorized to carry administer the following medications, while employed in your duties as an EMR:

- ☑ Oxygen
- ☑ Glucogel
- ☑ Nitroglycerin
- ☑ Acetylsalicylic Acid (ASA)
- ☑ Nitrous Oxide (Entonox)
- ☑ Naloxone (Narcan)
- ☑ Methoxyflurane (Penthrox)

As an EMR Licensed through BC EMALB you are not authorized or Licensed to Administer any other Medications.

Assisting with Medications

You are, however, trained and certified to Assist patients with any Medication, following the principles of Assisting and the 6-Rights of Medication.

Medications that you are not authorized to carry or Administer, but might routinely Assist a patient with during your duties as an EMR include:

- Ventolin
- Salbutamol
- Albuterol
- Epinephrine (EpiPen)

Vital Signs before Administering Medications

You must assess and record an initial “baseline” set of Vital Signs before Administering Nitroglycerin, Entonox, Glucogel, or Naloxone.

This is so you have a comparison for subsequent Vital Sign results, to assess the effects that the medication is having on the patient after Administration.

ASA is the exception to this, due to the significant benefits of immediate Administration.