Primary Care Paramedic

Medical Directives

ALS PCS 4.8

Hamilton Health Sciences

CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

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The Emergency Health Services Branch of the Ministry of Health and Long Term Care Version 4.8 of the ALS Patient Care Standards will now be the standard of care. These standards and guidelines include significant advances to the paramedic scope of practice since they were last published.

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PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Introduction

ADVANCED LIFE SUPPORT PATIENT CARE STANDARDS

Levels of Paramedics

In Ontario, there are 3 levels of qualification for paramedics which lead to Certification as a: Primary Care Paramedic (PCP), Advanced Care Paramedic (ACP), and Critical Care Paramedic (CCP). The qualification for each are set out in Ontario Regulation 257/00 made under the *Ambulance Act*, RSO 1990, c A-19. The qualifications for each include a requirement that the paramedic be authorized by a Medical Director of a Regional Base Hospital (RBH) to perform the controlled acts set out in Schedules 1, 2 and 3 to O. Reg 257/00.

A paramedic may be authorized by the Medical Director to perform controlled acts from the Schedule immediately above their Certification. In this circumstance, the paramedic is required to perform the controlled act to a specific standard as set out in the *Advanced Life Support Patient Care Standards* (ALS PCS). All advanced medical procedures that are not listed as controlled acts in Schedules 1, 2 and 3, shall also be performed as set out in the ALS PCS.

Purpose of Standards

The ALS PCS reflects current practices for paramedics in Ontario and provides benchmarks for paramedic performance. It also communicates the standards of practice and care by paramedics in Ontario to paramedics, patients, other disciplines and the public in general.

Format of the Advanced Life Support Patient Care Standards

This document is comprised of a Preamble section and six (6) appendices: Appendix 1 – PCP Core Medical Directives; Appendix 2 – ACP Core Medical Directives; Appendix 3 – PCP Auxiliary Medical Directives; Appendix 4 – ACP Auxiliary Medical Directives; Appendix 5 – Chemical Exposure Medical Directives; and Appendix 6 – Certification Standard. Critical Care Paramedics and Advanced/Primary Care Flight Paramedics will perform controlled acts in accordance with the Base Hospital (BH) Medical Directives issued by the Ornge Base Hospital Physician (BHP).

Use of the Medical Directives by Paramedics

These Medical Directives apply to paramedics who are authorized by a RBH Medical Director to provide patient care. Delegation of controlled acts in the ALS PCS to paramedics falls under the exclusive oversight of the RBH Programs.

General Structure of a Medical Directive

All Medical Directives follow the same format and are comprised of the following sections:

Indication:	The general medical complaint or problem to which the Medical Directive applies.
Conditions:	Clinical parameters that must be present for a procedure to be performed or for a medication to be administered.
Contraindications:	Clinical parameters that if present, preclude the performance of a procedure or the administration of a medication.
Treatment:	Description of the type of procedure to be performed or the dosing of a medication.
Clinical Considerations:	Key clinical points that provide general guidance to the proper performance of a procedure or the administration of a medication.

All of these sections must be taken into account before and during the implementation of a Medical Directive.

Auxiliary Medical Directives

Additional ("Auxiliary") skills may be delegated through use of the Auxiliary Medical Directives. Delegation of Auxiliary Medical Directives by a RBH Medical Director to paramedics is optional and may be introduced after consultation and mutual agreement between the RBH and the certified ambulance service that employs the paramedic. Some PCP and ACP Medical Directives contain the phrase, "(if available and authorized)". This phrase qualifies the skill or procedure as optional (*i.e.* auxiliary) even if included in PCP or ACP Medical Directives.

Consent to Treatment in Non-Emergency Situations

Except in emergency circumstances described below, paramedics shall obtain consent prior to administering treatment. If a patient is incapable of consenting to the treatment being proposed by a paramedic, consent may be given or refused on his or her behalf by the patient's substitute decision-maker (SDM). Consent may be expressed or implied. Implied consent may be assumed where a person provides a physical indication that they consent to the treatment being proposed. For example, a patient who cannot speak but extends his hand to a paramedic after the paramedic indicates she is going to perform a simple procedure, such as a blood glucose determination, may be giving implied consent to the treatment.

The elements are required for consent to treatment:

- consent must be given by a person who is capable of giving consent with respect to treatment;
- consent must relate to the treatment;
- consent must be informed;
- consent must be given voluntarily; and
- consent must not be obtained through misrepresentation or fraud.

Consent to treatment is informed if, before it is given to the person, he or she has:

- received the following information that a reasonable person in the same circumstances would require in order to make a decision about the treatment:
  - the nature of the treatment;
  - the expected benefits of the treatment;
  - the material risks of the treatment;
  - the material side effects of the treatment;
  - alternative courses of action;
  - the likely consequences of not having the treatment; and
- received responses to his or her requests for additional information about those matters.

Valid consent requires that a person has the capacity to provide consent. A person is presumed to have the capacity to provide consent with respect to treatment and a paramedic may rely on that presumption unless the paramedic has reasonable grounds to believe that the person is capable with respect to the treatment. A paramedic must perform a capacity assessment if it is not reasonable in the circumstances to presume the person is capable of consenting to the treatment.

A patient is capable with respect to treatment if the patient is:

- Able to **understand** the information that is relevant to making a decision about the treatment or alternatives beings proposed; **and**
- Able to **appreciate** the reasonably foreseeable consequences of a decision or lack of decision with respect to treatment.

If a patient is incapable of consenting to a proposed treatment, and the paramedic is aware or is made aware that the person has a prior capable wish with respect to the proposed treatment, they must respect that wish (for example, if the person does not wish to be resuscitated).

Consent to Treatment in Emergency Situations

Where the person for whom the treatment is being proposed is apparently experiencing severe suffering or is at risk of sustaining serious bodily harm if the treatment is not administered promptly, it is considered to be an emergency.

For situations involving consent to treatment in emergency situations, a paramedic shall comply with the applicable directions contained in the *Basic Life Support Patient Care Standards* (BLS PCS).

Refusal of Treatment

If a patient refuses treatment, either in whole or in part, a paramedic shall comply with the applicable directions contained in the BLS PCS.

Comprehensive Care

While initiating and continuing treatment prescribed by these Medical Directives, a paramedic must ensure that the patient simultaneously receives care in accordance with the BLS PCS.

It is acknowledged that there may be circumstances and situations where complying with ALS PCS is not clinically justified, possible, or prudent (*e.g.* multiple crews on scene, trapped patient, extenuating circumstances, competing patient care priorities). When treatment deviates from the standards, a paramedic must document the care provided, including reasoning for deviating from the ALS PCS.

Intravenous (IV) Access and Therapy by Primary Care Paramedics

There are 2 types of authorization for PCPs IV cannulation and therapy.

"PCP Assist IV" is authorization for a PCP to cannulate a peripheral IV at the request and under the direct supervision of an ACP. The patient must require a peripheral IV in accordance with the indications listed in the Intravenous and Fluid Therapy Medical Directive - Auxiliary. The ACP will perform all IV therapy in accordance with the Intravenous and Fluid Administration Medical Directive once intravenous access is obtained. PCPs authorized in PCP Assist IV are not authorized to administer IV therapy.

"PCP Autonomous IV" is authorized for a PCP to independently cannulate an IV according to the Intravenous and Fluid Therapy Medical Directive – Auxiliary. PCPs authorized in PCP Autonomous IV are authorized to administer IV therapy according to applicable Medical Directives.

Authorization for each type shall meet the requirements established by the provincial Medical Advisory Committee.

Home Medical Technology and Novel Medications

As community care advances, new home medical technologies and novel medications are being introduced for home use by highly trained patients and caregivers. They are generally used by patients with complex medical histories who may require emergent interventions which are not described in, or aligned with, the BLS PCS or ALS PCS.

A “home medical technology” is an external or internal mechanical device prescribed by a member of a regulated health profession for the purpose of treating a medical condition.

A “novel medication” is a self/caregiver-administered medication prescribed by a member of a regulated health profession that is required to treat patients with generally rare and unusually complex chronic medical conditions which are often end stage. The medication may be self/caregiver-administered by any route into any part of the body.

These can be encountered unexpectedly by paramedics without any prior knowledge that these technologies or medications are being used in the community. Paramedics may not be familiar with the use of these technologies or medications, even though they may be required to provide care.

In some cases, when Base Hospital Medical Directors are alerted to these devices, medications or care requirements, a local medical directive may be issued to guide specific care for these patients. Such directives should be followed until further consideration by the Medical Advisory Committee. A paramedic may assume patients or caregivers have knowledge about the technology or medication if they confirm that they were trained in its use and/or administration. A paramedic should advise the patient or caregiver to follow any specific steps or provide any advice about restarting/stopping the device or novel medication. A paramedic may only assist a patient within the authorized paramedic skill set.

When care requirements are uncertain, but the patient is stable, transport the patient. If the patient is unstable, consider patching to the BHP. Alternatively, consider contacting the responsible member of a regulated health profession.

A paramedic may follow written advice provided by their Base Hospital Medical Directors even if this advice is outside the conditions and contraindications of the BLS PCS and ALS PCS.

Patching

A paramedic shall patch to the Base Hospital when:

- a medical directive contains a mandatory provincial patch point;

OR

- an RBH introduces a mandatory BH patch point;

OR

- for situations that fall outside of these Medical Directives where the paramedic believes the patient may benefit from online medical direction that falls within the prescribed paramedic scope of practice;

OR

- there is uncertainty about the appropriateness of a medical directive, either in whole or in part.

In cases where a treatment option requires the prior authorization by the BHP (*i.e.* mandatory provincial patch point or mandatory BH patch point) AND the BHP cannot be reached despite reasonable attempts by the paramedic to establish contact, a paramedic may initiate the required treatment without the requisite online authorization if the patient is in severe distress and, in the paramedic's opinion, the medical directive would otherwise apply. Clinical judgement must be applied and an acceptable standard of care must be met. This may be based on peer and expert review. In such cases, a paramedic should continue attempts to contact the BHP after the treatment has been initiated. All patch failures must be reported in a timely manner in accordance with local policy and procedures. Paramedics should document the attempts to patch to the BH on the Ambulance Call Report (ACR).

If a BHP directs a paramedic to perform an assessment or intervention that exceeds the paramedic's scope of practice, the paramedic must advise the BHP of such and notify the physician that he or she cannot comply with the direction as it exceeds his or her scope of practice. In such cases, a paramedic should ask the BHP to provide alternative direction.

Incident Reporting

Paramedics shall adhere to their ambulance service policies and the *Ontario Ambulance Documentation Standards* (incorporated by reference in Ontario Regulation 257/00) for incident reporting. Paramedics shall also adhere to additional RBH policies regarding reporting of clinical care incidents to the RBH.

Responsibility of Care

While on scene, the highest level paramedic shall assess the patient and make a decision on the level of care required, and on the level of paramedic required for the care of the patient. The highest level paramedic is the ultimate patient care authority on the scene. If there is any disagreement between paramedics, the Base

Hospital physician may be contacted. It is expected that when an intervention has been performed, the paramedic most appropriate for that intervention will remain responsible for the patient.

In all patient care, the highest level of paramedic is responsible for the care of the patient, including decisions on the level of care required during transport. A paramedic may choose to assign aspects of care and procedures to an alternate level paramedic, as long as the care and procedures are within that paramedic's scope of practice. Paramedics must alert the highest level paramedic of any change of patient status.

When transferring care from one level of paramedic to another, paramedics shall provide:

- current CTAS level;
- a history of the patient's current problem(s) and relevant past medical history;
- pertinent physical findings;
- a summary of management at scene/enroute;
- the patient's response to treatment, including most recent vital signs; and
- the reason for transfer in cases of inter-facility transfers.

The transfer of responsibility of patient care is a critical juncture along the clinical care continuum. When transferring patient care to another health care provider (e.g. nurse, physician, etc.), a paramedic must comply with BLS PCS regarding such transfers.

Research

Clinical research is fundamental to the practice of medicine and the development of safer, more effective treatment options for patients. At times, research protocols require temporary changes to patient care standards. Changes to patient care standards will be approved and introduced by the MOHLTC.

Conventions

"Conventions" refers to a consistent application of terms throughout the Medical Directives based on definitions below.

The word 'consider' is used repeatedly throughout the Medical Directives. Where this word appears, it indicates that a paramedic should initiate the treatment unless there is strong clinical rationale to withhold it. A paramedic must document his or her justification for withholding treatment on the ACR.

Medication Doses and Administration

Medication doses may be either in per kilogram or fixed doses, depending on common clinical practice. The number of recommended medication doses may be administered regardless of any previous self-administration by a patient. When more than one route of medication administration is listed, the order of preference for route of administration is from left to right. Clinical circumstances for each case should determine the final route chosen.

Pediatric medication doses can vary slightly according to the source of expert opinion. The pediatric medication doses in the ALS PCS are the preferred doses. However, medication doses as determined by an up-to-date version of a widely accepted pediatric emergency tape (*e.g.* Broselow Tape) are an acceptable alternative. Use of a pediatric emergency tape shall be documented on the ACR when it is used to determine a pediatric medication dose.

Medication doses may be calculated based upon weight or other factors and result in a fraction that cannot be measured accurately. Depending on the delivery method used, medication doses may require rounding from the exact dose calculated. In these cases, the medication dose delivered will be rounded to the closest dose that can accurately be measured.

Age and Vital Signs

The general age cut off between adults and pediatrics is 18 years. There is a wide range of "normal" for vital signs in adults and especially pediatrics. As much as possible, ages for pediatrics and cut off points for vital signs have been kept consistent throughout the Medical Directives. However, clinical research and expert opinion have resulted in a number of exceptions which in each case has been deliberately chosen and is clearly noted in each Medical Directive. There is a deliberate gap in the definition of normotension and hypotension in adults.

ADULTS

Normotension SBP ≥100mmHg
Hypotension SBP <90 mmHg
Heart rate Heart rate is always in beats per minute according to a cardiac monitor when it is applied. In situations where a cardiac monitor is not indicated then the heart rate is equal to the pulse rate.
Bradycardia HR <50 BPM
Tachycardia HR ≥100 BPM
Tachypnea RR ≥28 breath/min

PEDIATRICS

Age	Respiratory Rate	Heart Rate
0-3 months	30-60	90-180
3-6 months	30-60	80-160
6-12 months	25-45	80-140
1-3 yr	20-30	75-130
6 yr	16-24	70-110
10 yr	14-20	60-90

Normotension SBP ≥ 90 mmHg + (2 x age in years)
Hypotension SBP < 70 mmHg + (2 x age in years)
Weight (kg) (age x 2) + 10

HYPOGLYCEMIA

Age	Blood glucose level
<2 yr	<3.0 mmol/L
≥2 yr	<4.0 mmol/L

Level of Awareness (LOA):
The word 'altered' refers to a GCS that is less than normal for the patient.

The word 'unaltered' refers to a GCS that is normal for the patient.
This may be a GCS <15.

Commonly Used Abbreviations

The following abbreviations, in alphabetical order, appear in the Advanced Life Support Patient Care Standards:

A

ACP	Advanced Care Paramedic
AED	Automated external defibrillation
ALS	Advanced Life Support
ALS PCS	Advanced Life Support Patient Care Standards
ASA	Acetylsalicylic acid
AV	Atrioventricular

B

BH	Base Hospital
BHP	Base Hospital Physician
BLS	Basic Life Support
BLS PCS	Basic Life Support Patient Care Standards
BPM	Beats per minute
BVM	Bag-valve-mask

C

CCP	Critical Care Paramedic
COPD	Chronic obstructive pulmonary disease
cm	Centimeter
CPAP	Continuous positive airway pressure
CPR	Cardiopulmonary Resuscitation
CPSO	College of Physicians and Surgeons of Ontario
CTAS	Canadian Triage and Acuity Scale
CVA	Cerebral vascular accident
CVAD	Central venous access device

D

DKA	Diabetic ketoacidosis
DNR	Do Not Resuscitate

E

ECD	Electronic control device
ECG	Electrocardiogram
EDD	Esophageal detection device

ED	Emergency Department
$ETCO_2$	End tidal carbon dioxide
ETT	Endotracheal tube

F

FiO_2	Fraction of inspired oxygen
FRI	Febrile respiratory infection

G

g	Gram
GCS	Glasgow Coma Scale
Gtts	Drops

H

H_2O	Water
HR	Heart rate
Hx	History

I

IM	Intramuscular
IN	Intranasal
IO	Intraosseous
IV	Intravenous

J

J	Joule

K

kg	Kilogram

L

LOA	Level of awareness
LOC	Level of consciousness

M

Max.	Maximum
Mcg	Microgram
MDI	Metered dose inhaler
Mg	Milligram

Min.	Minimum
Min	Minute
mL/kg	Milliliter per kilogram
mmHg	Millimeters of mercury
MOHLTC	Ministry of Health and Long-Term Care
Ms	Milliseconds

N

N/A	Not applicable
NaCl	Sodium chloride
nare	Nostril
NEB	Nebulized
NPA	Nasopharyngeal airway
NSAID	Non-steroidal anti-inflammatory drug

O

OBHG-MAC	Ontario Base Hospital Group - Medical Advisory Committee
OPA	Oropharyngeal airway

P

PCP	Primary Care Paramedic
PEA	Pulseless electrical activity
Ped	Pediatric
PO	by mouth/oral
PRN	as needed

Q

q	every

R

RBH	Regional Base Hospital
ROSC	Return of spontaneous circulation
RR	Respiratory rate

S

SC	Subcutaneous
SL	Sublingual
SBP	Systolic blood pressure
SpO_2	Saturation of peripheral oxygen

T

TBI	Traumatic brain injury
TCA	Tricyclic antidepressant
TCP	Transcutaneous pacing
TOP	Topical
TOR	Termination of Resuscitation

U

URTI	Upper respiratory tract infection

V

VF	Ventricular Fibrillation
VT	Ventricular Tachycardia
VSA	Vital signs absent

W

WNL	Within normal limits

Reference and Educational Notes

The RBHs have created a companion document of reference and educational notes intended to assist paramedics in implementing these Medical Directives. This will facilitate regular updating of these notes without having to issue frequent changes to the standards. It is expected that paramedics have mastered the relevant information as part of initial training and certification and have maintained their knowledge through continuing education and self-study. The reference and educational notes do not define a standard of care; however, they should be considered useful in ensuring that an appropriate standard of care is met.

Intentionally Left Blank

Airway/Breathing

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Bronchoconstriction Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Respiratory distress;

AND

Suspected bronchoconstriction

CONDITIONS

Salbutamol	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Epinephrine	
AGE:	N/A
WEIGHT:	N/A
LOA:	N/A
HR:	N/A
RR:	BVM ventilation required
SBP:	N/A
Other:	Hx of asthma

CONTRAINDICATIONS

Salbutamol	Epinephrine
Allergy or sensitivity to salbutamol	Allergy or sensitivity to epinephrine

TREATMENT

5Rs *Patient • Drug • Dose • Route • Time.*

Consider **salbutamol**

	Weight <25 kg		Weight ≥25 kg	
	Route *MDI**	**Route** *NEB*	**Route** *MDI**	**Route** *NEB*
Dose	Up to 600 mcg (6 puffs)	2.5 mg	Up to 800 mcg (8 puffs)	5 mg
Max. Single Dose	600 mcg	2.5 mg	800 mcg	5 mg
Dosing interval	5-15 min. PRN	5-15 min. PRN	5-15 min. PRN	5-15 min. PRN
Max. # of doses	3	3	3	3

* 1 puff=100mcg

Consider **epinephrine**

	Route *IM*
	Concentration *1 mg/mL = 1:1,000*
Dose	0.01 mg/kg**
Max. single dose	0.5 mg
Dosing interval	N/A
Max. # of doses	1

** The epinephrine dose may be rounded to the nearest 0.05 mg.

CLINICAL CONSIDERATIONS

Epinephrine should be the 1st medication administered if the patient is apneic. Salbutamol MDI may be administered subsequently using a BVM MDI adapter.

Nebulization is contraindicated in patients with a known or suspected fever or in the setting of a declared febrile respiratory illness outbreak by the local medical officer of health.

When administering salbutamol MDI, the rate of administration should be 100 mcg approximately every 4 breaths.

A spacer should be used when administering salbutamol MDI.

Epinephrine 1 mg/mL = 1:1000 IM Dosing Chart

Dose (0.01 mg/kg) is rounded to the nearest 0.05mg Use a 1 mL syringe			
AGE	**WEIGHT**	**DOSE (mg)**	**VOLUME (mL) (rounded)**
3 months	5 kg	**0.05 mg**	**0.05 mL**
6 months	8 kg	**0.08 mg**	**0.10 mL**
9 months	10 kg	**0.10 mg**	**0.10 mL**
1 year	12 kg	**0.12 mg**	**0.10 mL**
2 years	14 kg	**0.14 mg**	**0.15 mL**
3 years	16 kg	**0.16 mg**	**0.15 mL**
4 years	18 kg	**0.18 mg**	**0.20 mL**
5 years	20 kg	**0.20 mg**	**0.20 mL**
6 years	22 kg	**0.22 mg**	**0.20 mL**
7 years	24 kg	**0.24 mg**	**0.25 mL**
8 years	26 kg	**0.26 mg**	**0.25 mL**
9 years	28 kg	**0.28 mg**	**0.30 mL**
10 years	30 kg	**0.30 mg**	**0.30 mL**
11 years	32 kg	**0.32 mg**	**0.30 mL**
12 years	34 kg	**0.34 mg**	**0.35 mL**
13 years	36 kg	**0.36 mg**	**0.35 mL**
14 years	38 kg	**0.38 mg**	**0.40 mL**
Adult	50 kg	**0.50 mg**	**0.50 mL**

Note: Dosage administered can be calculated by the weight based calculation in the Medical Directive and/or by using the above chart. Administered dosage in the chart may be rounded to the nearest volume increment that can be accurately measured.

Moderate to Severe Allergic Reaction Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this medical directive if authorized.

INDICATIONS

Exposure to a probable allergen;

AND

Signs and/or symptoms of a moderate to severe allergic reaction (including anaphylaxis)

CONDITIONS

Epinephrine	Diphenhydramine
AGE: N/A	AGE: N/A
WEIGHT: N/A	WEIGHT: ≥25 kg
LOA: N/A	LOA: N/A
HR: N/A	HR: N/A
RR: N/A	RR: N/A
SBP: N/A	SBP: N/A
Other: For anaphylaxis only	Other: N/A

CONTRAINDICATIONS

Epinephrine	Diphenhydramine
Allergy or sensitivity to epinephrine	Allergy or sensitivity to diphenhydramine

TREATMENT

5Rs *Patient • Drug • Dose • Route • Time.*

Consider **epinephrine**

	Route *IM*
	Concentration *1 mg/mL = 1:1,000*
Dose	0.01 mg/kg*
Max. single dose	0.5 mg
Dosing interval	Minimum 5 min
Max. # of doses	2

*The epinephrine dose may be rounded to the nearest 0.05 mg.

Consider diphenhydramine:

	Weight *≥25 kg to <50 kg* **Route** *IV/IM*	**Weight** *≥50 kg* **Route** *IV/IM*
Dose	25 mg	50 mg
Max. single dose	25 mg	50 mg
Dosing interval	N/A	N/A
Max. # of doses	1	1

CLINICAL CONSIDERATIONS

Epinephrine administration takes priority over IV access.

IV administration of diphenhydramine applies only to PCPs authorized for PCP Autonomous IV.

*NOTE: Refer to page 24 for **Epinephrine 1 mg/mL = 1:1000 IM Dosing Chart**.*

Croup Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Severe respiratory distress;

AND

Stridor at rest;

AND

Current history of URTI;

AND

Barking cough or recent history of a barking cough.

CONDITIONS

Epinephrine	
AGE:	<8 years
LOA:	N/A
HR:	<200 bpm
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Epinephrine
Allergy or sensitivity to epinephrine

TREATMENT

5Rs Patient · Drug · Dose · Route · Time.

Consider **epinephrine**

	Age *<1 year*		**Age** *≥1 year to <8 years*
	Weight *<5 kg*	**Weight** *≥5 kg*	**Weight** *N/A*
	Route *NEB*	**Route** *NEB*	**Route** *NEB*
	Concentration *1 mg/mL = 1:1,000*	**Concentration** *1 mg/mL = 1:1,000*	**Concentration** *1 mg/mL = 1:1,000*
Dose	0.5 mg	2.5 mg	5 mg
Max. single dose	0.5 mg	2.5 mg	5 mg
Dosing interval	N/A	N/A	N/A
Max. # of doses	1	1	1

CLINICAL CONSIDERATIONS

- The minimum initial volume for nebulization is 2.5 mL.

Croup Assessment

- Croup is an upper respiratory infection that is generally the result of a viral infection.
- It tends to occur in children aged 6 months to 3 years, and is most prevalent at the age of 2 years.
- It is characterized by swelling and irritation of the respiratory tract, and is often associated with a “barking style” cough.
- The severity of the symptoms can be characterized using the guideline below.
- Generally speaking, patients with moderate to severe croup should be considered for therapy as per the Medical Directive.

WESTLEY CROUP SCORE:

This allows the severity of symptoms to be classified. Maximum score possible is 17.

	Score					
	0	**1**	**2**	**3**	**4**	**5**
Inspiratory Stridor	-	Audible with stethoscope	Audible without stethoscope	-	-	-
Retraction	-	Mild	Moderate	Severe	-	-
Air entry	Normal	Decreased	Severely decreased	-	-	-
Cyanosis	None	-	-	-	With agitation	At rest
Conscious level	Normal	-	-	-	-	Altered

- Score of 2-3: Indicates mild croup.
- Score of 4-7: Indicates moderate croup.
- Score of >7: Indicates severe croup.

Continuous Positive Airway Pressure (CPAP) Medical Directive - *AUXILIARY*

A Primary Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.

INDICATIONS

Severe respiratory distress;

AND

Signs and/or symptoms of acute pulmonary edema or COPD.

CONDITIONS

CPAP	
AGE:	≥18 years
LOA:	N/A
HR:	N/A
RR:	Tachypnea
SBP:	Normotension
Other:	SpO_2 < 90% or accessory muscle use

CONTRAINDICATIONS

CPAP
Asthma exacerbation
Suspected pneumothorax
Unprotected or unstable airway
Major trauma or burns to the head or torso
Tracheostomy
Inability to sit upright
Unable to cooperate

TREATMENT

Consider **CPAP**

Initial Setting	5 cm H_2O	Or equivalent flow rate of device as per BH direction
Titration increment	2.5 cm H_2O	Or equivalent flow rate of device as per BH direction
Titration interval	5 min	
Max. setting	15 cm H_2O	Or equivalent flow rate of device as per BH direction

Consider increasing **FiO_2** (if available)

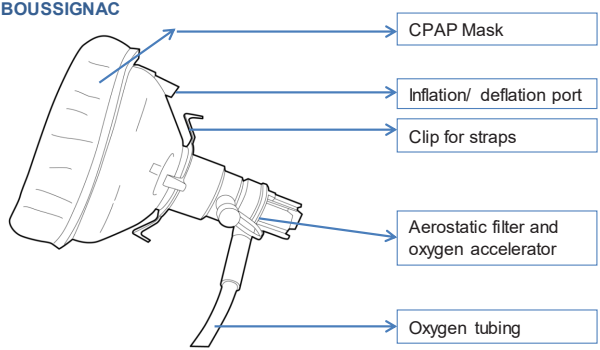
Initial FiO_2	50-100%
FiO_2 increment (if available on device)	SpO_2 <92% despite treatment and/or 10 cm H_2O pressure or equivalent flow rate of device as per BH direction
Max FiO_2	100%

CLINICAL CONSIDERATIONS

N/A

Continuous Positive Airway Pressure (CPAP)

BOUSSIGNAC

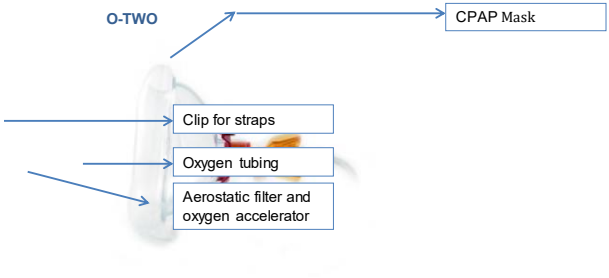


- Refer to Continuous Positive Airway Pressure Medical Directive for indications, conditions and contraindications for use.
- Connect funnel end of Green Oxygen Tubing to an O_2 source (D-tank)
- Turn the valve on the tank to open
- Insert white end of the valve into the face mask
- Explain procedure to the patient
- Turn the flow control to 15 L/min to begin the CPAP at 5 cmH_20
- Guide mask to the patient's face and ensure tight seal
- Gradually adjust the flow to achieve the desired level of CPAP as per the current CPAP Medical Directive
- Attach the head strap on the hook rings
- Check around the mask for any leaks and adjust mask and/or head strap accordingly

PRESSURE DELIVERED

Oxygen Flow Rate	CPAP Delivered
15 liters per minute	5.0 cm H20
20 liters per minute	7.5 cm H20
25 liters per minute	10 cm H20

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

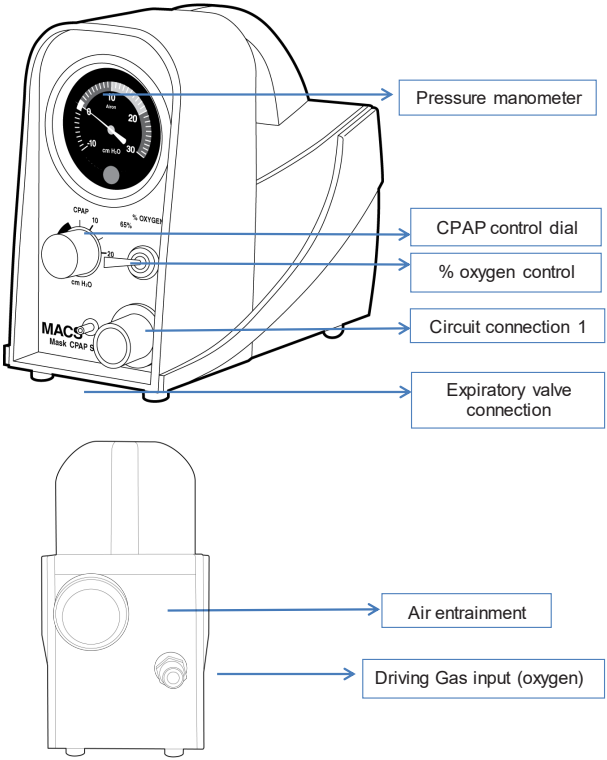


- Refer to Continuous Positive Airway Pressure Medical Directive for indications, conditions and contraindications for use.
- Attach the O_Two CPAP to the oxygen source.
- Connect accelerator and O_2 tubing to the CPAP mask.
- Turn the valve on the tank to open.
- Explain procedure to the patient
- Turn the flow control to 8 L/min to begin the CPAP at 5cmH_2O
- Guide mask to the patient's face and ensure tight seal
- Gradually adjust the flow to achieve the desired level of CPAP
- Attach the head strap on the hook rings
- Check around the mask for any leaks
- Adjust the mask and/or head strap accordingly

Flow Rate (L/min)	**8**	**10**	**12**	**15**
Pressure (cmH_2O)	5.0	8.0	10.0	15.0
Oxygen (%)	45	50	55	65

Continuous Positive Airway Pressure (CPAP)

MACS CPAP DEVICE



MACS CONTINUED

- Refer to Continuous Positive Airway Pressure Medical Directive for indications, conditions and contraindications for use.
- Attach a high pressure oxygen hose to the rear of MACS
- Attach this hose to O_2 tank
- Attach the circuit to the front of the MACS
- Set Oxygen control to 65%
- Turn on oxygen source
- Adjust the CPAP control to the level desired as per the current CPAP Medical Directive
- Explain procedure to the patient
- Guide mask to the patient's face
- Ensure a tight seal
- Gradually set and adjust the dial to achieve the desired level of CPAP as per the current CPAP Medical Directive
- Attach the head strap on the hook rings
- Check around the mask for any leaks
- Adjust the mask and/or head strap accordingly

OXYGEN TANK TIMES

CPAP	65% O2	100% O2
5 CM H2O	65 MINUTES	44 MINUTES
10 CM H2O	45 MINUTES	29 MINUTES
15 CM H2O	34 MINUTES	22 MINUTES

CONSIDERATIONS

- CPAP may be briefly interrupted to provide medications when necessary.The positive pressure in the thorax may impede ventricular filling resulting in decreased preload. Patients should be continuously monitored for signs of hypo-perfusion.

Supraglottic Airway Medical Directive - *AUXILIARY*

A Primary Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.

INDICATIONS

Need for ventilatory assistance or airway control;

AND

Other airway management is ineffective.

CONDITIONS

Supraglottic Airway	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Patient must be in cardiac arrest

CONTRAINDICATIONS

Supraglottic Airway
Active vomiting
Inability to clear the airway
Airway edema
Stridor
Caustic ingestion

TREATMENT

Consider **supraglottic airway insertion**

The maximum number of supraglottic airway insertion attempts is 2.

Confirm **supraglottic airway placement**

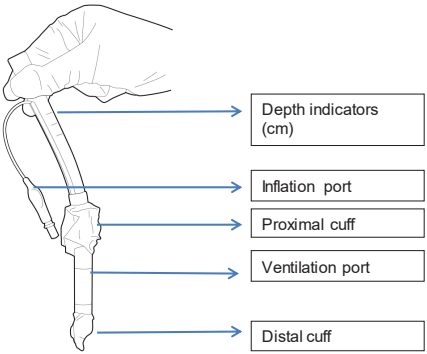
Method	Method
Primary	*Secondary*
$ETCO_2$ (Waveform capnography)	$ETCO_2$ (Non-waveform device)
	Auscultation
	Chest rise

CLINICAL CONSIDERATIONS

An attempt at supraglottic airway insertion is defined as the insertion of the supraglottic airway into the mouth.

Confirmation of supraglottic airway must use $ETCO_2$ (Waveform capnography). If waveform capnography is not available or is not working, then at least 2 secondary methods must be used.

Supraglottic Airway Device – King LT



- Refer to the Supraglottic Airway Medical Directive for indications, conditions and contraindications.
- Pre-oxygenate the patient for 30-60 seconds.
- Check the tube cuff to ensure there are no leaks
- Ensure that the 15mm adaptor is securely seated on the SGA.
- Hold the King LT at the connector with dominant hand.
- With non-dominant hand, open mouth and perform chin lift.
- Using a lateral type approach, introduce tip of device into airway.
- Advance the tip. As it passes the base of the tongue, rotate the device so the blue orientation line is in the midline position of the mouth.
- Advance tube until base of connector is in line with teeth or gums.
- Inflate device with appropriate volume of air for the size of SGA selected.
- Attach BVM and assess for adequate ventilation.
- If SGA has been inserted too deep, gently withdraw the tube until adequate ventilation is achieved.
- If SGA has been inserted too shallow, deflate the cuff and gently advance the tube until properly seated, reinflate cuff and assess for adequate ventilation.
- Adjust inflation volume, if necessary and secure device.

INFLATION VOLUMES AND SIZING CHART

	Size				
	#2	**#2.5**	**#3**	**#4**	**#5**
Patient Criteria	35-45 in 90-115 cm	41-51 in 105-130 cm	4-5 feet 122-155 cm	5-6 feet 155-180 cm	>6 feet >180 cm
Volume	Max 35 mL	Max 45 mL	45-60 mL	60–80 mL	70-90 mL

- Immediately after insertion, correct tube placement must be confirmed.

Primary Method	***Secondary Method***
ETCO2 Waveform capnography	$ETCO_2$ (Non-wavveform device)
	Auscultation
	Chest Rise

- Consideration:
  - Confirmation of supraglottic airways must use $ETCO_2$ (waveform capnography). If waveform capnography is not availbable or is not working, then at least two secondary methods must be used.

Endotracheal and Tracheostomy Suctioning & Reinsertion Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Patient with endotracheal or tracheostomy tube;

AND

Airway obstruction or increased secretions

CONDITIONS

Suctioning	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Emergency Tracheostomy Reinsertion	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Patient with an existing tracheostomy where the inner and/or outer cannula(s) have been removed from the airway **AND**
	Respiratory distress **AND**
	Inability to adequately ventilate **AND** Paramedics presented with a tracheostomy cannula for the identified patient

CONTRAINDICATIONS

Suctioning	Emergency Tracheostomy Tube
N/A	Inability to landmark or visualize

TREATMENT

Consider **suctioning**

	< 1 year	≥ 1 year to < 12 years	≥ 12 years
Dose	Suction at 60-100 mmHg	Suction at 100-120 mmHg	Suction at 100-150 mmHg
Max. single dose	10 seconds	10 seconds	10 seconds
Dosing interval	1 minute	1 minute	1 minute
Max. # of doses	N/A	N/A	N/A

Consider **Emergency Tracheostomy Reinsertion**

The maximum number of attempts is 2.

CLINICAL CONSIDERATIONS

Suctioning:
Pre-oxygenate with 100% oxygen.

In an alert patient, whenever possible, have patient cough to clear airway prior to suctioning.

Emergency tracheostomy reinsertion:
A reinsertion attempt is defined as the insertion of the cannula into the tracheostomy. A new replacement inner or outer cannula is preferred over cleaning and reusing an existing one.
Utilize a family member or caregiver who is available and knowledgeable to replace the tracheostomy cannula.

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Cardiac/Circulation

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Medical Cardiac Arrest Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Non-traumatic cardiac arrest.

CONDITIONS

CPR	
AGE:	N/A
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Performed in 2 minute intervals

Manual Defibrillation	
AGE:	≥ 30 days
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	VF **OR** pulseless VT

AED Defibrillation	
AGE:	≥ 30 days
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Defibrillation indicated

Epinephrine	
AGE:	N/A
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Anaphylaxis suspected as causative event

Medical TOR	
AGE:	≥ 18 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Arrest not witnessed by EMS **AND** No ROSC **AND** No defibrillation delivered

CONTRAINDICATIONS

CPR	Manual Defibrillation	AED Defibrillation
Obviously dead as per BLS PCS Meet conditions of *Do Not Resuscitate (DNR) Standard*	Rhythms other than VF or pulseless VT	Non-shockable rhythm

Epinephrine	Medical TOR
Allergy or sensitivity to epinephrine	Arrest thought to be of non-cardiac origin

TREATMENT

5Rs ***Patient • Drug • Dose • Route • Time.***

Consider **CPR**

Consider ***Manual defibrillation*** (if available and authorized)

	Age ≥30 days to <8 years	Age ≥8 years
Dose	1 defibrillation	1 defibrillation
First dose	2 J/kg	As per BH / manufacturer
Subsequent and max. dose(s)	4 J/kg	As per BH / manufacturer
Dosing interval	2 min	2 min
Max. # of doses	4	4

Consider **AED defibrillation** (if not using manual defibrillation)

	Age ≥30 days to <8 years		Age ≥8 years
	With Pediatric Attenuator Cable	*Without Pediatric Attenuator Cable*	*N/A*
Dose	1 defibrillation	1 defibrillation	1 defibrillation
Max. single dose	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
Dosing interval	2 min	2 min	2 min
Max. # of doses	4	4	4

Consider **epinephrine** (only if anaphylaxis suspected as causative event)

	Route IM **Concentration** 1 mg/mL = 1:1,000
Dose	0.01 mg/kg*
Max. single dose	0.5 mg
Dosing interval	N/A
Max. # of doses	1

* The epinephrine dose may be rounded to the nearest 0.05 mg

⚠ Mandatory Provincial Patch Point ⚠

Patch to BHP for authorization, following the 3rd analysis, to consider Medical TOR (if applicable). If the BH patch fails, or the medical TOR does not apply, transport to the closest appropriate receiving facility following ROSC or the 4th analysis.

CLINICAL CONSIDERATIONS

Consider very early transport after the 1st analysis (and defibrillation if indicated) in the following settings: pregnancy presumed to be ≥20 weeks gestation (fundus above umbilicus, ensure manual displacement of uterus to left), hypothermia, airway obstruction, suspected pulmonary embolus, medication overdose/toxicology, or other known reversible cause of arrest not addressed.

Similarly, plan for extrication and transport for patients with refractory ventricular fibrillation and pediatric cardiac arrest (after 3 analyses), ensure quality CPR can be continued.

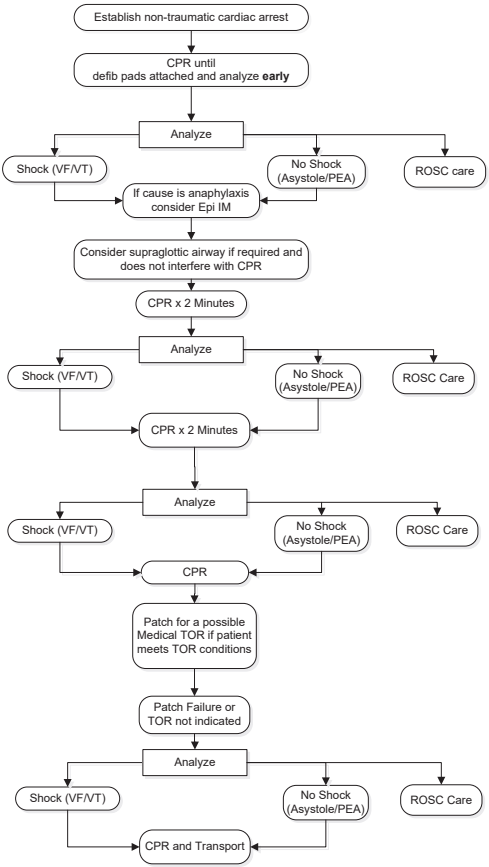
In cardiac arrest associated with opioid overdose, continue standard medical cardiac arrest directive. There is no clear role for routine administration of naloxone in confirmed cardiac arrest.

Follow the *Deceased Patient Standard* once TOR has been implemented.

*NOTE: Refer to page 52 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 122 for **CPR Guidelines***

PCP Medical Cardiac Arrest Algorithm



Pediatric Defibrillation Joule Setting Chart

Age	Approx Weight	First Defib Setting (2J/kg)	Subsequent Defib Setting (4J/kg)
0 to 30 days		N/A	N/A
≥1 month to <3 months	<5kg	10 J	20 J
≥3 months to <1 year	≥5 to <12kg	15 J	30 J
≥1 to <5 years	≥12 to <20kg	30 J	70 J
≥5 to <8 years	≥20 to <30kg	50 J	100 J
≥8 years		Adult Manual Defibrillation settings	

Adult Defibrillation Joule Settings Reference

Manufacturer:	Series:	Joule Settings:
Medtronic	Lifepack	200, 300, 360 Joules
Phillips	MRX / FR2	150 Joules non escalating
ZOLL	E, M, or X Series	120, 150, 200 Joules

Trauma Cardiac Arrest Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Cardiac arrest secondary to severe blunt or penetrating trauma.

CONDITIONS

CPR

AGE: N/A
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Performed in 2 minute intervals

AED Defibrillation

AGE: ≥30 days
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Defibrillation indicated

Manual Defibrillation

AGE: ≥30 days
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: VF **OR** pulseless VT

Trauma TOR

AGE: ≥16 years

LOA: Altered

HR: 0

RR: 0

SBP: N/A

Other: No palpable pulses **AND** No defibrillation delivered **AND** Monitored HR = 0 **OR** Monitored HR >0 with the closest ED ≥30 min transport time away.

CONTRAINDICATION

CPR

Obviously dead as per BLS PCS

Meet conditions of *Do Not Resuscitate (DNR) Standard*

Manual Defibrillation

Rhythms other than VF or pulseless VT

AED Defibrillation

Non-shockable rhythm

Trauma TOR

Age <16 years

Defibrillation delivered

Monitored HR >0 and closest ED <30 min transport time away

TREATMENT

Consider **CPR**

Consider **Manual defibrillation** (if available and authorized)

	Age ≥30 days to <8 years	**Age** ≥8 years
Dose	1 defibrillation	1 defibrillation
Initial dose	2 J/kg	As per BH / manufacturer
Dosing interval	N/A	N/A
Max. # of doses	1	1

Consider **AED defibrillation** (if not using manual defibrillation)

	Age *≥30 days to <8 years*		**Age** *≥8 years*
	With Pediatric Attenuator Cable	*Without Pediatric Attenuator Cable*	*N/A*
Dose	1 defibrillation	1 defibrillation	1 defibrillation
Max. single dose	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
Dosing interval	N/A	N/A	N/A
Max. # of doses	1	1	1

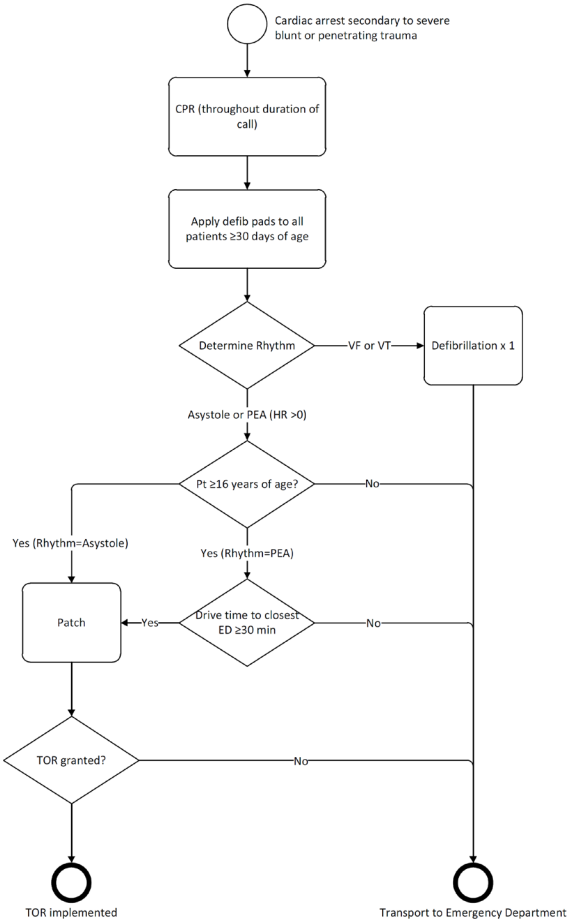
⚠ Mandatory Provincial Patch Point ⚠

Patch to BHP for authorization to apply the *Trauma TOR* if applicable. If the BH patch fails, or the Trauma TOR does not apply, transport to the closest appropriate receiving facility following the 1st analysis/ defibrillation.

CLINICAL CONSIDERATIONS

If no obvious external signs of significant blunt trauma, consider medical cardiac arrest and treat according to the appropriate medical cardiac arrest directive.

Treatment – Algorithm for Trauma Arrest



Hypothermia Cardiac Arrest Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Cardiac arrest secondary to severe hypothermia

CONDITIONS

CPR	Manual Defibrillation	AED Defibrillation
AGE: N/A	AGE: ≥30 days	AGE: ≥30 days
LOA: Altered	LOA: Altered	LOA: Altered
HR: N/A	HR: N/A	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: Performed in 2 minute intervals	Other: VF **OR** pulseless VT	Other: Defibrillation indicated

CONTRAINDICATIONS

CPR	Manual Defibrillation	AED Defibrillation
Obviously dead as per BLS PCS Meet conditions of *Do Not Resuscitate (DNR) Standard*	Rhythms other than VF or pulseless VT	Non-shockable rhythm

TREATMENT

Consider **CPR**

Consider **Manual defibrillation** (if available and authorized)

	Age ≥30 days to <8 years	Age ≥8 years
Dose	1 defibrillation	1 defibrillation
Initial dose	2 J/kg	As per BH / manufacturer
Dosing interval	N/A	N/A
Max. # of doses	1	1

Consider **AED defibrillation** (if not using maual defilbrillation)

	Age ≥30 days to <8 years		Age ≥8 years
	With Pediatric attenuator cable	*Without Pediatric attenuator cable*	
Dose	1 defibrillation	1 defibrillation	1 defibrillation
Max. single dose	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
Dosing interval	N/A	N/A	N/A
Max. # of doses	1	1	1

CLINICAL CONSIDERATIONS

Transport to the closet appropriate facility without delay following the 1st analysis.

*NOTE: Refer to page 52 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 122 for **CPR Guidelines***

Foreign Body Airway Obstruction Cardiac Arrest Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Cardiac arrest secondary to an airway obstruction.

CONDITIONS

CPR		Manual Defibrillation		AED Defibrillation	
AGE:	N/A	AGE:	≥30 days	AGE:	≥30 days
LOA:	Altered	LOA:	Altered	LOA:	Altered
HR:	N/A	HR:	N/A	HR:	N/A
RR:	N/A	RR:	N/A	RR:	N/A
SBP:	N/A	SBP:	N/A	SBP:	N/A
Other:	Performed in 2 minute intervals	Other:	VF **OR** pulseless VT	Other:	Defibrillation indicated

CONTRAINDICATIONS

CPR	Manual Defibrillation	AED Defibrillation
Obviously dead as per BLS PCS Meet conditions of *Do Not Resuscitate (DNR) Standard*	Rhythms other than VF or pulseless VT	Non-shockable rhythm

TREATMENT

Consider **CPR**

Consider **foreign body removal** (utilizing BLS PCS maneuvers)

Consider **Manual defibrillation** (if available and authorized)

	Age ≥30 days to <8 years	**Age** ≥8 years
Dose	1 defibrillation	1 defibrillation
Initial dose	2 J/kg	As per BH / manufacturer
Dosing interval	N/A	N/A
Max. # of doses	1	1

Consider **AED defibrillation** (if not using manual defibrillation)

	Age ≥30 days to <8 years		**Age** ≥8 years
	With Pediatric Attenuator Cable	*Without Pediatric Attenuator Cable*	*N/A*
Dose	1 defibrillation	1 defibrillation	1 defibrillation
Max. single dose	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
Dosing interval	N/A	N/A	N/A
Max. # of doses	1	1	1

CLINICAL CONSIDERATIONS

If the patient is in cardiac arrest following removal of the obstruction, initiate management as a medical cardiac arrest.

If the obstruction cannot be removed, transport to the closest appropriate facility without delay following the 1st analysis.

*NOTE: Refer to page 52 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 122 for **CPR Guidelines***

Neonatal Resuscitation Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Neonatal patient.

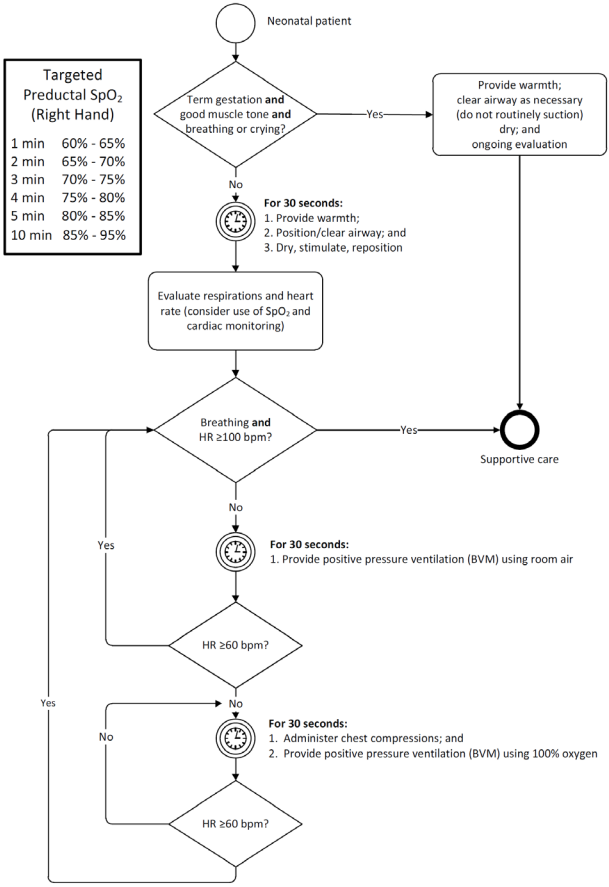
CONDITIONS

Resuscitation	
AGE:	< 30 days of age
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Resuscitation
N/A

TREATMENT


Neonatal patient
Targeted Preductal SpO_2 (Right Hand)
1 min 60% - 65%
2 min 65% - 70%
3 min 70% - 75%
4 min 75% - 80%
5 min 80% - 85%
10 min 85% - 95%
Term gestation and good muscle tone and breathing or crying?
Yes
Provide warmth; clear airway as necessary (do not routinely suction) dry; and ongoing evaluation
No
For 30 seconds:
1. Provide warmth;
2. Position/clear airway; and
3. Dry, stimulate, reposition
Evaluate respirations and heart rate (consider use of SpO_2 and cardiac monitoring)
Breathing and HR ≥100 bpm?
Yes
Supportive care
No
Yes
For 30 seconds:
1. Provide positive pressure ventilation (BVM) using room air
HR ≥60 bpm?
Yes
No
No
For 30 seconds:
1. Administer chest compressions; and
2. Provide positive pressure ventilation (BVM) using 100% oxygen
HR ≥60 bpm?

CLINICAL CONSIDERATIONS

If neonatal resuscitation is required, initiate cardiac monitoring and pulse oximetry monitoring.

APGAR Score Reference

Parameter	0	1	2
Heart rate (bpm)	0 (absent)	Slow (< 100)	≥ 100
Respiratory effort	Absent	Slow, irregular	Good, crying
Muscle tone	None, limp	Some flexion	Active motion
Reflex irritability (suction of nares, tactile stimulation)	None	Some grimace	Good grimace, cough, cry
Colour	Blue or pale	Pink body with blue extremities	Completely pink

- APGAR performed at 1 minute & 5 minutes after delivery
- Maximum possible total score is 10 (5 parameters x maximum score 2 for each parameter)
- Don't wait for APGAR to make decision on resuscitation

Neonatal Pre-ductal Oxygen Saturation Reference

TARGETED PRE-DUCTAL SpO2

After Birth	
1 min	60-65%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

In all neonates, only apply the pulse oximeter to the **RIGHT HAND**. Target the above values when:

- Resuscitation is anticipated
- PPV is required for more than a few breaths
- Persistent central cyanosis, or if you need to confirm your perception of central cyanosis
- Any administration of supplemental oxygen

Return of Spontaneous Circulation (ROSC) Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Patient with return of spontaneous circulation (ROSC) after the resuscitation was initiated.

CONDITIONS

0.9% NaCl Fluid Bolus

AGE: ≥ 2 years
LOA: N/A
HR: N/A
RR: N/A
SBP: Hypotension
Other: Chest auscultation is clear

CONTRAINDICATIONS

0.9% NaCl Fluid Bolus

Fluid overload
SBP ≥90 mmHg

TREATMENT

Consider **optimizing ventilation and oxygenation**

Titrate oxygenation 94-98%

Avoid hyperventilation and target ETCO2 to 30-40 mmHg with continuous waveform capnography (if available)

Consider **0.9% NaCl fluid bolus** (If available and authorized)

	Age ≥2 years to <12 years	**Age** ≥12 years
	Route	**Route**
	IV	*IV*
Infusion	10 mL/kg	10 mL/kg
Infusion interval	Immediate	Immediate
Reassess every	100 mL	250 mL
Max. volume	1,000 mL	1,000 mL

Consider **12 lead ECG acquisition and interpretation**

CLINICAL CONSIDERATIONS

Consider initating transport in parallel with the above treatment.

IV fluid bolus applies only to PCPs authorized for PCP Autonomous IV.

*NOTE: Refer to page 120 for **12 Lead ECG Placement***

Cardiac Ischemia Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Suspected cardiac ischemia.

CONDITIONS

ASA	
AGE:	≥18 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Able to chew and swallow

Nitroglycerin	
AGE:	≥18 years
LOA:	Unaltered
HR:	60-159 bpm
RR:	N/A
SBP:	Normotension
Other:	Prior history of nitroglycerin use **OR** IV access obtained

CONTRAINDICATIONS

ASA
Allergy or sensitivity to ASA or NSAIDS
If asthmatic, no prior use of ASA
Current active bleeding
CVA or TBI in the previous 24 hours

Nitroglycerin
Allergy or sensitivity to nitrates
Phosphodiesterase inhibitor use within the previous 48 hours
SBP drops by one-third or more of its initial value after nitroglycerin is administered
12-lead ECG compatible with Right Ventricular MI

TREATMENT

Consider **ASA**

	Route
	PO
Dose	160-162 mg
Max. single dose	162 mg
Dosing interval	N/A
Max. # of doses	1

Consider **12-lead ECG acquisition and interpretation for STEMI**

Consider **nitroglycerin**

	STEMI	
	No	**Yes**
	SBP ≥100 mmHg	**SBP** ≥100 mmHg
	Route *SL*	**Route** *SL*
Dose	0.3 **OR** 0.4 mg	0.3 **OR** 0.4 mg
Max. single dose	0.4 mg	0.4 mg
Dosing interval	5 min	5 min
Max. # of doses	6	3

CLINICAL CONSIDERATIONS

Suspect a Right Ventricular MI in all inferior STEMIs and perform 15-lead ECG to confirm (ST-elevation ≥1mm in V4R). Do not administer nitroglycerin to a patient with Right Ventricular STEMI.

IV fluid bolus applies only to PCPs authorized for PCP Autonomous IV.

*NOTE: Refer to page 120 for **12 Lead ECG Placement***

Acute Cardiogenic Pulmonary Edema Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Moderate to severe respiratory distress;

AND

Suspected acute cardiogenic pulmonary edema.

CONDITIONS

Nitroglycerin

AGE: ≥18 years
LOA: N/A
HR: 60-159 bpm
RR: N/A
SBP: Normotension
Other: N/A

CONTRAINDICATIONS

Nitroglycerin

Allergy or sensitivity to nitrates

Phosphodiesterase inhibitor use within the previous 48 hours

SBP drops by one-third or more of its initial value after nitroglycerin is administered

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **nitroglycerin**

	SBP ≥100 mmHg to <140 mmHg	SBP ≥140 mmHg	
	IV or Hx*	**IV or Hx***	**IV or Hx***
	Yes	*No*	*Yes*
	Route	**Route**	**Route**
	SL	*SL*	*SL*
Dose	0.3 mg **or** 0.4 mg	0.3 mg **or** 0.4 mg	0.6 mg **or** 0.8 mg
Max. single dose	0.4 mg	0.4 mg	0.8 mg
Dosing interval	5 min	5 min	5 min
Max. # of doses	6	6	6

*Hx refers to a patient with a prior history of nitroglycerin use

Consider **12-lead ECG acquisition and interpretation**

CLINICAL CONSIDERATIONS

IV condition applies only to PCPs authorized for PCP Autonomous IV.

*NOTE: Refer to page 120 for **12 Lead ECG Placement***

Cardiogenic Shock Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

STEMI-positive 12-lead ECG;

AND

Cardiogenic shock.

CONDITIONS

0.9% NaCl Fluid Bolus	
AGE:	≥18 years
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	Hypotension
Other:	Chest auscultation is clear

CONTRAINDICATIONS

0.9% NaCl fluid bolus
Fluid overload
SBP ≥90 mmHg

TREATMENT

Consider **0.9% NaCl fluid bolus**

	Age
	≥18 years
	Route
	IV
Infusion	10 mL/kg
Infusion interval	N/A
Reassess every	250 mL
Max. volume	1,000 mL

CLINICAL CONSIDERATIONS

N/A

Intravenous and Fluid Therapy Medical Directive - *AUXILIARY*

A Primary Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized for PCP Autonomous IV.

INDICATIONS

Actual or potential need for intravenous medication **OR** fluid therapy.

CONDITIONS

IV Cannulation	
AGE:	≥ 2 years
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

0.9% NaCl Fluid Bolus	
AGE:	≥ 2 years
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	Hypotension
Other:	N/A

CONTRAINDICATION

IV Cannulation	0.9% NaCl Fluid Bolus
Suspected fracture proximal to the access site.	Fluid overload

TREATMENT

Consider **IV cannulation**

Consider **0.9% NaCl** maintenance infusion

	Age ≥2 years to <12 years	Age ≥12 years
	Route	**Route**
	IV	*IV*
Infusion	15 mL/hr	30-60 mL/hr
Infusion interval	N/A	N/A
Reassess every	N/A	N/A
Max. volume	N/A	N/A

⚠ Mandatory Provincial Patch Point ⚠

Patch to BHP for authorization to administer 0.9% NaCl bolus to hypotensive patients ≥ 2 years to <12 years with suspected Diabetic Ketoacidosis (DKA)

Consider **0.9% NaCl fluid bolus**

	Age ≥2 years to <12 years	Age ≥12 years
	Route	**Route**
	IV	*IV*
Infusion	20 mL/kg	20 mL/kg
Infusion interval	N/A	N/A
Reassess every	100 mL	250 mL
*Max. volume**	2,000 mL	2,000 mL

*The maximum volume of NaCl is lower for patients in cardiogenic shock and return of spontaneous circulation.

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Level of Consciousness/Pain/Nausea

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Hypoglycemia Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Agitation; **OR** altered LOA; **OR** seizure; **OR** symptoms of stroke.

CONDITIONS

Dextrose	
AGE:	≥2 years
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Hypoglycemia

Glucagon	
AGE:	N/A
LOA:	Altered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Hypoglycemia

CONTRAINDICATIONS

Dextrose
Allergy or sensitivity to dextrose

Glucagon
Allergy or sensitivity to glucagon
Pheochromocytoma

TREATMENT

Consider glucometry

TREATMENT

5Rs *Patient • Drug • Dose • Route • Time.*

Consider **dextrose** *(if available and authorized)*

	Age *≥2 years*	
	Route *IV*	
	Concentration	
	D10W	**D50W**
Dose	0.2 g/kg (2 mL/kg)	0.5 g/kg (1 mL/kg)
Max. single dose	10 g (100 mL)	25 g (50 mL)
Dosing interval	10 min	10 min
Max. # of doses	2	2

Consider **glucagon** *(if not using dextrose)*

	Age *N/A*	
	Weight <25 kg	**Weight** *≥25 kg*
	Route IM	***Route*** *IM*
	Concentration N/A	**Concentration** N/A
Dose	0.5 mg	1 mg
Max. single dose	0.5 mg	1 mg
Dosing interval	20 min	20 min
Max. # of doses	2	2

CLINICAL CONSIDERATIONS

If the patient responds to dextrose or glucagon, he/she may receive oral glucose or other simple carbohydrates.

If only mild signs or symptoms are exhibited, the patient may receive oral glucose or other simple carbohydrates instead of dextrose or glucagon.

If a patient initiates an informed refusal of transport, a final set of vital signs including blood glucometry must be attempted and documented.

IV administration of dextrose applies only to PCPs authorized for PCP Autonomous IV.

Dextrose Reference

Age	Weight kg	Blood Sugar mmol/L	Dextrose prep	Initial dose / Repeat dose		
				Dose g/kg	*Volume* ml/kg	***Amt*** **ml**
< 30 days	2	< 3.0	**D10W** Waste 40 mls replace w/ Normal Saline	0.2	2	**4**
	3				2	**6**
	4				2	**8**
	5				2	**10**
≥30 days to **< 2 years**	3	< 3.0	**D25W** Waste 25 mls replace w/ Normal Saline	0.5	2	**6**
	4				2	**8**
	5				2	**10**
	6				2	**12**
	8				2	**16**
	10				2	**20**
	12				2	**24**
	14				2	**28**
≥ 2 years	10	< 4.0	**D50W**	0.5	1	**10**
	15				1	**15**
	20				1	**20**
	25				1	**25**
	30				1	**30**
	35				1	**35**
	40				1	**40**
	45				1	**45**
	> 50				1	**50**

Nausea / Vomiting Medical Directive - *AUXILIARY*

A Primary Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.

INDICATIONS

Nausea or vomiting.

CONDITIONS

Dimenhydrinate	
AGE:	N/A
WEIGHT:	≥25 kg
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Dimenhydrinate

Allergy or sensitivity to dimenhydrinate or other antihistamines

Overdose on antihistamines or anticholinergics or tricyclic antidepressants

TREATMENT

5Rs ***Patient • Drug • Dose • Route • Time.***

Consider **dimenhydrinate**

	Weight ≥25 kg to <50 kg		Weight ≥50 kg	
	Route	**Route**	**Route**	**Route**
	IV	*IM*	*IV*	*IM*
Dose	25 mg	25 mg	50 mg	50 mg
Max. single dose	25 mg	25 mg	50 mg	50 mg
Dosing interval	N/A	N/A	N/A	N/A
Max. # of doses	1	1	1	1

CLINICAL CONSIDERATIONS

IV administration of dimenhydrinate applies only to PCPs authorized for PCP Autonomous IV.

Prior to IV administration, dilute dimenhydrinate (concentration of 50 mg/1 mL) 1:9 with Normal Saline or sterile water. If administered IM do not dilute.

Analgesia Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Pain

CONDITIONS

Acetaminophen	
AGE:	≥12 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Ibuprofen	
AGE:	≥12 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Ketorolac	
AGE:	≥12 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	Normotension
Other:	Restricted to those who are unable to tolerate oral medications

CONTRAINDICATIONS

Acetaminophen
Acetaminophen use within previous 4 hours
Allergy or sensitivity to acetaminophen
Hx of liver disease
Active vomiting
Unable to tolerate oral medication
Suspected ischemic chest pain

Ibuprofen
NSAID and Ibuprofen use within previous 6 hours
Allergy or sensitivity to ASA or NSAIDs
Patient on anticoagulation therapy
Current active bleeding
Hx of peptic ulcer disease or GI bleed
Pregnant
If asthmatic, no prior use of ASA or other NSAIDs
CVA or TBI in the previous 24 hours
Known renal impairment
Active vomiting
Unable to tolerate oral medication
Suspected ischemic chest pain

Ketorolac
NSAID or Ibuprofen use within previous 6 hours
Allergy or sensitivity to ASA or NSAIDs
Patient on anticoagulation therapy
Current active bleeding
Hx of peptic ulcer disease or GI bleed
Pregnant
If asthmatic, no prior use of ASA or other NSAIDs
CVA OR TBI in the previous 24 hours
Known renal impairment
Suspected ischemic chest pain

TREATMENT

5Rs **Patient • Drug • Dose • Route • Time.**

Consider ***acetaminophen***

Route	Age ≥12 years to <18 years PO	Age ≥18 years PO
Dose	500-650 mg	960-1,000 mg
Max. single dose	650 mg	1,000 mg
Dosing interval	N/A	N/A
Max. # doses	1	1

Consider ***ibuprofen:***

Route	Age ≥12 years PO
Dose	400 mg
Max. single dose	400 mg
Dosing interval	N/A
Max. # doses	1

Consider ***ketorolac:***

Route	Age ≥12 years IM/IV
Dose	10-15 mg
Max. single dose	15 mg
Dosing interval	N/A
Max. # doses	1

CLINICAL CONSIDERATIONS

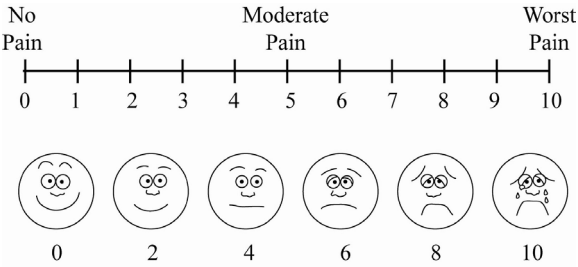
Whenever possible, consider co-administration of acetaminophen and ibuprofen.

Suspected renal colic patients should routinely be considered for ketorolac.

IV administration of ketorolac applies only to PCPs authorized for PCP Autonomous IV.

Pain Scale Reference

Can be utilized for patients 3 years of age and older



Opioid Toxicity Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Altered LOC;

AND

Respiratory depression;

AND

Inability to adequately ventilate;

AND

Suspected opioid overdose.

CONDITIONS

Naloxone	
AGE:	≥12 years
LOA:	Altered
HR:	N/A
RR:	<10 breaths/min
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Naloxone
Allergy or sensitivity to naloxone
Uncorrected hypoglycemia

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **naloxone**

	Route *SC*	Route *IM*	Route *IN*	Route *IV*
Dose	0.8 mg	0.8 mg	0.8 mg	Up to 0.4 mg
Max. single dose	0.8 mg	0.8 mg	0.8 mg	0.4 mg
Dosing interval	10 min	10 min	10 min	immediate
Max. # of doses	3	3	3	3*

*For the IV route, titrate naloxone only to restore the patient's respiratory status.

CLINICAL CONSIDERATIONS

IV administration of naloxone applies only to PCPs authorized for PCP Autonomous IV.

Naloxone may unmask alternative toxidromes in mixed overdose situations (leading to possible seizures, hypertensive crisis, *etc.*).

Naloxone is shorter acting than most narcotics and these patients are at high risk of having a recurrence of their narcotic effect. Every effort should be made to transport the patient to the closest appropriate receiving facility for ongoing monitoring.

Combative behaviour should be anticipated following naloxone administration and paramedics should protect themselves accordingly, thus the importance of gradual titrating (if given IV) to desired clinical effect: respiratory rate ≥10, adequate airway and ventilation, not full alertness. If adequate ventilation and oxygenation can be accomplished with a BVM and basic airway management, this is preferred over naloxone administration.

Suspected Adrenal Crisis Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

A patient with primary adrenal failure who is experiencing clinical signs of adrenal crisis.

CONDITIONS

Hydrocortisone	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Paramedics are presented with a vial of hydrocortisone for the identified patient **AND** Age-related hypoglycemia **OR** GI symptoms (vomiting, diarrhea, abdominal pain) **OR** Syncope **OR** Temperature ≥38C or suspected/history of fever **OR** Altered level of awareness **OR** Age-related tachycardia **OR** Age-related hypotension

CONTRAINDICATIONS

Hydrocortisone
Allergy or sensitivity to hydrocortisone

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **hydrocortisone**

	Route
	IM/IV
Dose	2 mg/kg*
Max. single dose	100 mg
Dosing interval	N/A
Max. # doses	1

*Dose should be rounded to the nearest 10 mg

CLINICAL CONSIDERATIONS

IV Administration of hydrocortisone applies only to PCP's authorized for PCP Autonomous IV.

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Procedural

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Electronic Control Device Probe Removal Medical Directive - *AUXILIARY*

A Primary Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.

INDICATIONS

Electronic Control Device probe(s) embedded in patient.

CONDITIONS

Probe Removal	
AGE:	≥18 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Probe Removal
Probe embedded above the clavicles, in the nipple(s), or in the genital area

TREATMENT

Consider **probe removal**

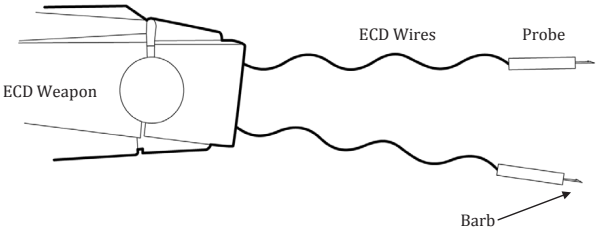
CLINICAL CONSIDERATIONS

Police may require preservation of the probe(s) for evidentiary purposes.

This directive is for removal of ECD only and in no way constitutes treat and release, normal principles of patient assessment and care apply.

Electronic Control Device Probe Removal

- See the Electronic Control Device (ECD) Probe Removal Medical Directive for indications, conditions and contraindications.
- Ensure the wires from the probe to the conducted energy device have been deactivated by the Police Department.
- Remember that removal of probes embedded above the clavicle(s), in the nipple(s) or in the genitals is contraindicated and is best addressed in the Emergency Department.
- Use appropriate PPE, including gloves.
- Stretch and stabilize the skin near the puncture site with your non dominant hand to fully expose the surrounding tissue.
- Using your dominant hand, carefully grasp the blunt end of the ECD probe with hemostats (preferred, especially if the ECD probe is through clothing) or hand and pull the ECD probe out quickly using a slight twisting motion; while applying counter-traction to the skin with the other hand.
- Visually inspect the wound site, probe and barb to ensure they are intact and that no fragments remain within the wound.
- Apply a dressing and pressure if necessary to the puncture wound.



CONSIDERATIONS

- The Police Department may wish to keep all components of the ECD as evidence. If so, place the ECD probe and/or dart in a container provided by the police officers. If not required by the Police Department, dispose of the ECD probe in the biohazard container.
- All patients who have received an ECD discharge should be assessed for transport to the local ED. Patients who have pre-existing medical conditions have been known to suffer serious consequences, including death after receiving an ECD discharge.

Home Dialysis Emergency Disconnect Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Patient receiving home dialysis (hemo or peritoneal) and connected to dialysis machine and requires transport to the closest appropriate receiving facility;

AND

Patient is unable to disconnect;

AND

There is no family member of caregiver who is available and knowledgeable in dialysis disconnect.

CONDITIONS

Home Dialysis Emergency Disconnect	
AGE:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A

CONTRAINDICATIONS

Home Dialysis Emergency Disconnect
N/A

Consider **Home Dialysis Emergency Disconnect**

CLINICAL CONSIDERATIONS

Generally, emergency disconnect kit with materials and instructions can be found hanging from dialysis machine or nearby on the wall.

Ensure both the patient side and machine side of the connection are clamped before disconnecting and attaching end caps.

Emergency Dialysis Disconnect Prompt Card

Hemodialysis Disconnect

- Clamp patient side tubing clamps
- Clamp machine side clamps
- Attach sterile Luer Lock caps to the ends of the patient tubing
- Disregard any alarms that may sound from the machine
- Secure patient tubing and cover with abdo pad

Continuous Ambulatory Peritoneal Dialysis (CAPD)

- Close the twist clamp
- Clamp both the fill and drain bag tubing with clamps supplied in disconnect kits
- Screw a sterile Luer Lock on the patient side tubing
  - Snap a sterile Luer Lock on the machine side tubing
- Secure patient tubing and cover with abdo pad

Automatic Peritoneal Dialysis (APD)

- Push “Stop” button on ADP machine
- Close the twist clamp
- Disconnect the patient tubing from the machine tubing
- Screw a sterile mini cap on the patient tubing
- Snap a mini cap on the machine tubing
- Secure patient tubing and cover with abdo pad

Emergency Childbirth Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

INDICATIONS

Pregnant patient experiencing labour; **OR**

Post-partum patient immediately following delivery.

CONDITIONS

Delivery

AGE: Childbearing years
LOA: N/A
HR: N/A
RR: N/A
SBP: N/A
Other: Second stage labour and/or imminent birth

Umbilical Cord Management

AGE: Childbearing years
LOA: N/A
HR: N/A
RR: N/A
SBP: N/A
Other: Cord complications **OR** if neonatal or maternal resuscitation is required **OR** due to transport considerations

External Uterine Massage

AGE: Childbearing years
LOA: N/A
HR: N/A
RR: N/A
SBP: N/A
Other: Post-placental delivery

CONTRAINDICATIONS

Delivery

N/A

Umbilical Cord Management

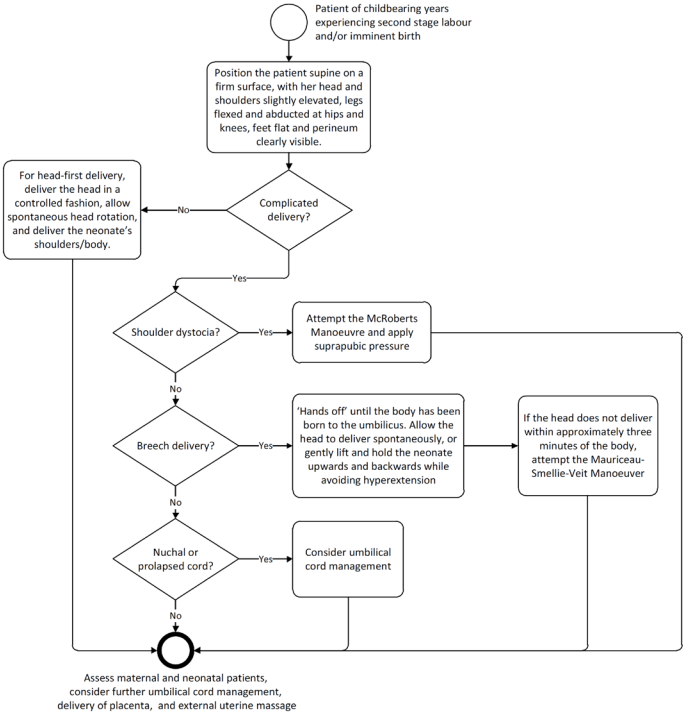
N/A

External Uterine Massage

N/A

TREATMENT

Consider **delivery**



Consider **umbilical cord management**

If a cord prolapse is present, the fetal part should be elevated to relieve pressure on the cord. Assist the patient into a knee-chest position or exaggerated Sims position, and insert gloved fingers/hand into the vagina to apply manual digital pressure to the presenting part which is maintained until transfer of care in hospital.

If a nuchal cord is present and loose, slip cord over the neonate's head. Only if a nuchal cord is tight and cannot be slipped over the neonate's head, clamp and cut the cord, encourage rapid delivery.

Following delivery of the neonate, the cord should be clamped and cut immediately if neonatal or maternal resuscitation is required. Otherwise, after pulsations have ceased (approximately 2-3 minutes), clamp the cord in two places and cut the cord.

Consider **external uterine massage**

CLINICAL CONSIDERATIONS

If the patient presents with limb-presentation, do not attempt to push the limb back into the vagina; discourage the patient from pushing, cover the limb using a dry sheet to maintain warmth, and initiate transport as per the *Load and Go Patient Standard* of the BLS PCS.

If the labour if failing to progress, discourage the patient from pushing or bearing down during contractions.

If delivery has not occurred at scene within approximately ten minutes of initial assessment, consider transport in conjunction with the following:

a. Patient assessment findings:
    i. Lack of progression of labour
    ii. Multiple births expected;
    iii. Neonate presents face-up;
    iv. Pre-eclampsia;
    v. Presence of vaginal hemorrhage
    vi. Premature labour;
    vii. Primip;
b. Distance to the closest appropriate receiving facility

When the placenta is delivered, inspect it for wholeness, place in a plastic bag from the OBS kit, label it with the maternal patient's name and time of delivery, and transport it with the maternal or neonatal patient. Delivery of the placenta should not delay transport considerations/initiation.

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Research / Special Projects

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Special Project Palliative Care Medical Directive

A Primary Care Paramedic may provide the treatment, transport and/or referral prescribed in this Medical Directive for registered patients if authorized.

These registered palliative care patients require a different approach to assessment and treatment that reflects their goals of care. Therefore paramedics, for this defined patient population, should prioritize patient comfort and are not required to follow the described regimen of strict vital signs, cardiac monitoring and transport as directed in the Basic Life Support Patient Care Standard (BLS PCS). If patient transport is initiated however, paramedics should proceed with usual care per the BLS PCS. If a paramedic determines that the patient would benefit from any other medical directives in the Advanced Life Support (ALS) PCS that is not included in this special project medical directive, a patch to a base hospital physician (BHP) is necessary.

DYSPNEA

INDICATIONS

Patient registered in palliative care program

And

Uncontrolled dyspnea with suspected bronchoconstriction

CONDITIONS

Salbutamol

AGE: ≥18

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: For Dyspnea with suspected bronchoconstriction only

CONTRAINDICATIONS

Salbutamol

Allergy to salbutamol

TREATMENT

5Rs *Patient · Drug · Dose · Route · Time.*

Consider **Salbutamol**

	Route *MDI**	Route *NEB*
Dose	Up to 800 mcg (8 puffs)	5 mg
Max. dose	800 mcg	5mg
Dosing interval	5-15 min prn	5-15 min prn
Max. # of doses	3	3

*1 puff – 100 mcg

CLINICAL CONSIDERATIONS

- Salbutamol should only be used in patients whose dyspnea is accompanied by wheezing or a history of response to bronchodilators.

HALLUCINATIONS OR AGITATION

INDICATIONS

Patient registered in palliative care program

And

Increasing agitation or suspected new or increased hallucinations

CONDITIONS

Haloperidol	
AGE:	≥18
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Haloperidol
Allergy to haloperidol
Known Parkinson's or Lewy Body Dementia
Neuroleptic Malignant Syndrome

TREATMENT

5Rs ***Patient • Drug • Dose • Route • Time.***

Consider **Haloperidol**

	Route
	SC
Dose	0.5-1 mg
Max.single dose	1 mg
Dosing interval	30 min
Max. # of doses	2

CLINICAL CONSIDERATIONS

N/A

NAUSEA OR VOMITING

INDICATIONS

Patient registered in palliative care program

And

Nausea and/or vomiting

CONDITIONS

Haloperidol	Ondansetron	Dimenhydrinate
AGE: ≥18	AGE: ≥18	AGE: ≥18
LOA: N/A	LOA: N/A	LOA: N/A
HR: N/A	HR: N/A	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: N/A	Other: Contraindication to Haloperidol	Other: Contraindication to Haloperidol

CONTRAINDICATIONS

Haloperidol	Ondansetron	Dimenhydrinate
Allergy to haloperidol Known Parkinson's or Lewy Body Dementia Neuroleptic Malignant Syndrome	Allergy to ondansetron	Allergy to dimenhydrinate or other antihistamines Overdose on antihistamines or anticholinergics or tricyclic antidepressants

TREATMENT

5Rs *Patient • Drug • Dose • Route • Time.*

Consider **Haloperidol**

	Route *SC*
Dose	0.5-1 mg
Max. single dose	1 mg
Dosing interval	30 min
Max. # of doses	2

Consider **Ondansetron**

	Route *PO/SC*
Dose	4 mg
Max. single dose	4 mg
Dosing interval	N/A
Max. # of doses	1

Consider **Dimenhydrinate**

	Route *SC*
Dose	25-50 mg
Max.single dose	50 mg
Dosing interval	N/A
Max. # of doses	1

CLINICAL CONSIDERATIONS

- Dimenhydrinate is rarely used in the palliative care population as it can cause delirium, increase drowsiness, and does not target the appropriate receptors to control the nausea in most patients. It should only be used in patients with contraindications to haloperidol where ondansetron cannot be used and should be started at low doses.

TERMINAL CONGESTED BREATHING

INDICATIONS

Patient registered in palliative care program

And

Congested/loud/rattling breathing in patients near the end of life

CONDITIONS

Glycopyrrolate	Atropine
AGE: ≥18	AGE: ≥18
LOA: N/A	LOA: N/A
HR: N/A	HR: N/A
RR: N/A	RR: N/A
SBP: N/A	SBP: N/A
Other: N/A	Other: N/A

CONTRAINDICATIONS

Glycopyrrolate	Atropine
Allergy to glycopyrrolate	Allergy to atropine

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **Glycopyrrolate**

	Route
	SC
Dose	0.4 mg
Max. single dose	0.4 mg
Dosing interval	N/A
Max. # of doses	1

OR

Consider **Atropine**

	Route
	SC
Dose	0.4 mg
Max. single dose	0.4 mg
Dosing interval	N/A
Max. # of doses	1

CLINICAL CONSIDERATIONS

- Patient repositioning and gentle turning of the head to the side can be done instead of medication however suction of the oropharynx is not appropriate as it will likely cause discomfort and a gag reflex.

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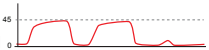
Medical References

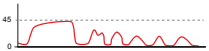
PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

$ETCO_2$ Waveforms

Sudden loss waveform
- ET tube disconnected, dislodged, kinked or obstructed
- Loss of circulatory function

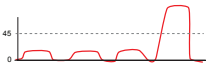


Decreasing EtC2
- ET tube cuff leak
- ET tube in hypopharynx
- Partial obstruction

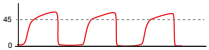


CPR Assessment
- Attempt to maintain minimum of 10 mmHg

Sudden increase in EtCO2
- Return of spontaneous circulation (ROSC)

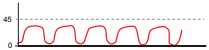


Bronchospasm ("Shark-fin" appearance)
- Asthma
- COPD

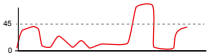


Hypoventilation

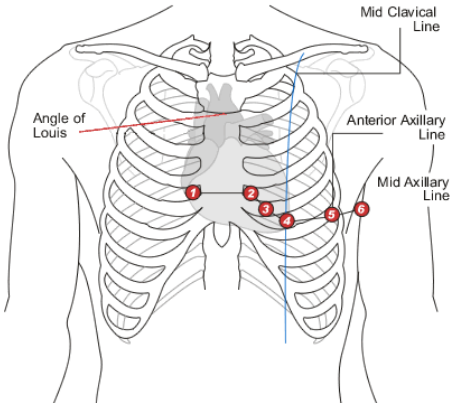
Hyperventilation



Decreased EtCO2
- Apnea
- Sedation



12 Lead ECG Placement



PRECORDIAL LEADS:

V1 - 4th intercostal space to the right of the sternum
V2 - 4th intercostal space to the left of the sternum
V3 - directly between leads V2 and V4
V4 - 5th intercostal space at left midclavicular line
V5 - level with lead V4 at left anterior axillary line
V6 - level with lead V5 at left midaxillary line

LIMB LEADS

RA - right forearm or wrist
LA - left forearm or wrist
LL - left lower leg
RL - right lower leg

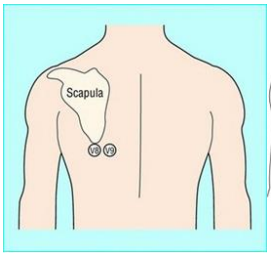
NOTE:

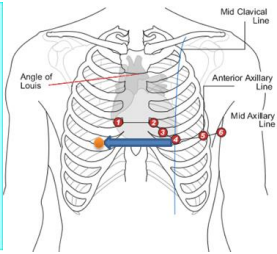
Refer to the Medical Directives for the clinical situations where a 12-Lead ECG should be considered. This may include patients experiencing cardiac ischemia, acute cardiogenic pulmonary edema, tachycardias, bradycardias, shortness of breath or upon ROSC.

STEMI Anatomical Location

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

15-Lead ECG Placement





V4 becomes	**V4R**	- fifth intercostal space at **right** midclavicular line (similar position as V4 but on right side of chest)
V5 becomes	**V8**	- level with V6 at left midscapular line
V6 becomes	**V9**	- level with V6 at left paravertebral line

NOTE:

- Limb leads should be placed on the limbs and not on the chest
- Consider assessing V4R when the 12 Lead identifies an inferior STEMI or ST depression in any of the septal leads (V1/V2).
- Consider assessing V8 and V9 when the 12 lead shows ST depression in the precordial leads or the 12 lead appears 'normal'.
- ST elevation of ≥ 1 mm in V4R and inferior ST-elevation, suggests a Right Ventricular involvement.
- ST elevation of ≥ 1 mm or greater in V8 and V9 suggests Posterior MI.

CPR Guidelines

Component	Recommendations		
	★ Adults	★ Children	★ Infants
Recognition	★★★ Check for responsiveness (for all ages) ★★★ No breathing or only gasping (ie, abnormal) ★★★ No pulse palpated within 10 seconds for all ages ★★ HR < 60 and signs of hypoperfusion		
CPR sequence	★★★ C-A-B		
Compression rate	★★★ 100-120/min		
Compression depth	★ 5.0 – 6.0 cm (2.0 - 2.4 inches)	★ At least 1/3 AP diameter ★ About 5 cm (2 inches)	★ At least 1/3 AP diameter ★ About 4 cm (1 1/2 inches)
Chest wall recoil	★★★ Allow complete recoil between compressions Rotate compressors every 2 minutes		
Compression interruptions	★★★ Minimize interruptions in chest compressions Attempt to limit interruptions to < 10 seconds		
Airway	★★★ Head tilt-chin lift or where trauma is suspected, jaw thrust		
Compression-to-ventilation ratio (until advanced airway placed)	★ 30:2 1 or 2 rescuers	★★ 30:2 Single rescuer ★★ 15:2 2 HCP rescuers Neonates: 3:1	
Ventilations with advanced airway (HCP)	★★★ 1 breath every 6-8 seconds (10 breaths/min) Asynchronous with chest compressions About 1 second per breath without too much force Visible chest rise		
Defibrillation	★★★ Attach and use AED as soon as available. Minimize interruptions in CPR pre & post rhythm interpretation/defibrillation to < 10 seconds		

CPR NOTES:

- Rate: 100-120 compressions/minute and allow full chest recoil.
- Switch person doing compressions every 2 minutes and focus on high quality CPR.
- Minimize interruptions to chest compressions at all times.
- Give ventilations over 1 second just to point of seeing chest rise.

ADULTS:

Non-intubated: ratio 30:2 as above.
Intubated: 10 ventilations per minute without interrupting chest compressions.
SGA inserted: 10 ventilations per minute without interrupting chest compressions

PEDIATRICS (30 DAYS TO AGE 12):

Non-intubated: ratio 15:2 as above.
Intubated: 10 ventilations per minute without interrupting chest compressions.
Ventilations for resp. arrest only, non-intubated: 12-20/min.

NEONATE:

Non-intubated **AND** intubated 3:1 ratio as above.

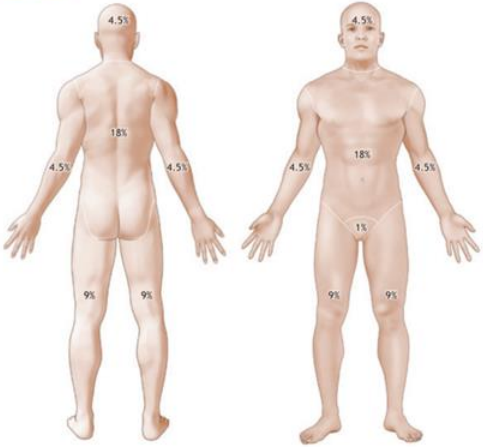
ETCO2 IN CARDIAC ARREST

- When a SGA or ETT is in place, the following concepts apply:
- Continuous waveform capnography is recommended in addition to clinical assessment as the most reliable method of confirming and monitoring correct placement of an endotracheal tube
- Waveform capnography should be used to confirm and monitor endotracheal tube and SGA placement at all times
- Studies on waveform capnography have shown nearly 100% sensitivity and 100% specificity in identifying correct endotracheal tube and SGA placement
- Using quantitative waveform capnography is recommended in patients to monitor CPR quality, optimize chest compressions, and detect ROSC during chest compressions or when rhythm check reveals an organized rhythm (in addition to pulse checks)
- If waveform capnography abruptly increases to a normal value (35 to 40 mm Hg or higher) and is sustained, this may represent ROSC; wait for the next rhythm check to check for a pulse (or stop sooner if the patient exhibits signs of life)
- An $ETCO_2$ < 10 mmHg in VSA patients after 20 minutes of ACLS have a very poor prognosis; and can be used with clinical factors for the BHP to determine if TOR is appropriate.

Rule of Nines, Burn Percentage Chart

PEDIATRIC

ADULT



Advanced Trauma Life Support, 9th Edition 2012 ; The American College of Surgeons.

Intramuscular Injection

- An intramuscular (IM) injection is a parenteral medication administration route commonly used by paramedics. It involves injecting a pharmacological agent directly into muscle tissue. Muscle tissue is very vascular, and as a result IM injections tend to have a faster onset of action than subcutaneous administrations.
- Identify patient that meets criteria for an intramuscular medication administration (refer to the Medical Directives or BHP order).
- Ensure all the "rights" of medication administration have been met
- Confirm medication and dose with paramedic partner if available.
- Follow safe process for responsible medication administration.
- Landmark the intended injection site. Generally the deltoid and the vastus lateralis are easily accessible and appropriate sites for IM injections; however other sites may be appropriate and can be landmarked as per the diagram on the following page.
- Select the appropriate size and gauge needle.
- Cleanse the needle insertion site using aseptic technique.
- Prepare the appropriate medication and dose into the syringe and needle ensuring all air bubbles are removed prior to injection.
- Stretch the skin taught while displacing it slightly to mitigate the opportunity for the fluid to exit the injection site. Then insert the needle with syringe/medication at a 90 degree angle using a "dart style" motion.
- Inject the correct dose of medication.
- Remove the needle and immediately dispose of it in the biohazard container.
- Massage the insertion site and apply gauze or Band-Aid.

Intramuscular Injection Sites

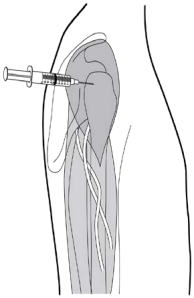


Figure 1 - Deltoid

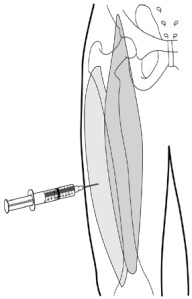


Figure 2 – Vastus Lateralis

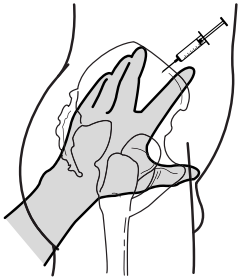


Figure 3 – Ventrogluteal

Formulas

NOTE: The formulas below are for reference purposes only. Paramedics must refer to the Medical Directives and/or Base Hospital Physician patch orders for appropriate treatment options.

IV FLOW RATE CALCULATION:

gtt/min = $\frac{\text{Amount (ml) to be infused} \times \text{Drops per ml (gtt/ml) of administration set}}{\text{Total time of infusion (min)}}$

MEDICATION INFUSION RATE:

ml/hr = $\frac{\text{Desired dose (mg/min)} \times 60 \text{ min/ hr}}{\text{Drug concentration (mg/ml)}}$

Note: Units must be consistent throughout the calculation. For example, the desired dose can be in mcg/ min, as long as the concentration is also converted into mcg/ml.

PEDIATRIC BODY WEIGHT:

For use with children aged 1 to 10 years.

(Age in years x 2) + 10 = Approximate child body weight in kg.

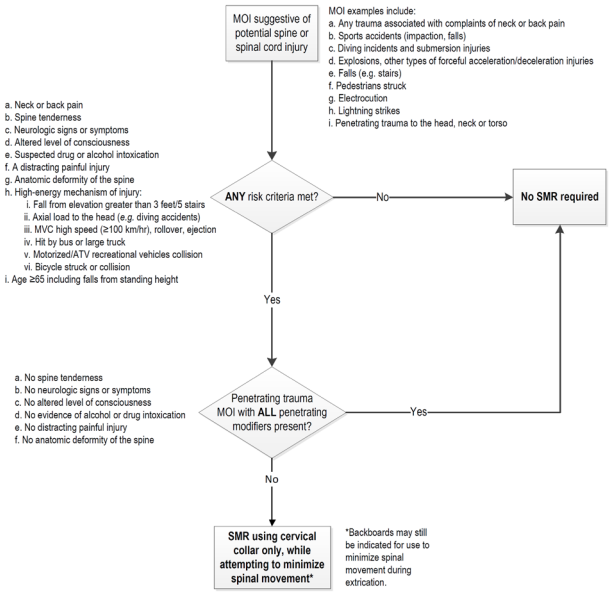
OXYGEN TANK DURATION:

Duration of flow (minutes) = $\frac{\text{Gauge pressure – Safe residual pressure}}{\text{Flow rate (L/min)}} \times \text{Cylinder factor}$

Cylinder Factor: D-tank = 0.16; M-tank = 1.56

Spinal Motion Restriction Standard Prompt Card

This prompt card provides a quick reference of the *Spinal Motion Restriction (SMR) Standard* contained in the *Basic Life Support Patient Care Standards* (BLS PCS). Please refer to the BLS PCS for the full standard.



Ontario

"Single Strength" Dopamine Dosing Guide

DOPAMINE INFUSION RATE (mL/hr or drops/min with a microdrip set)
[Using an 800 mcg/mL ('single strength') solution]

Weight (kg)	Drip Rate (drops/min)				
	2 (mcg/kg/minute)	5 (mcg/kg/minute)	10 (mcg/kg/minute)	15 (mcg/kg/minute)	20 (mcg/kg/minute)
5	1	2	4	6	8
10	2	4	8	11	15
15	2	6	11	17	23
20	3	8	15	23	30
25	4	9	19	28	38
30	5	11	23	34	45
35	5	13	26	39	53
40	6	15	30	45	60
45	7	17	34	51	68
50	8	19	38	56	75
55	8	21	41	62	83
60	9	23	45	68	90
65	10	24	49	73	98
70	11	26	53	79	105
75	11	28	56	84	113
80	12	30	60	90	120
85	13	32	64	96	128
90	14	34	68	101	135
95	14	36	71	107	143
100	15	38	75	113	150
105	16	39	79	118	158
110	17	41	83	124	165
115	17	43	86	129	173
120	18	45	90	135	180

Seizure Medical Directive Dosing Guide

Midazolam Dosing Guide

Age	Weight	Route: IM/IN/Buccal Dose: 0.2 mg/kg Supplied: 10 mg/2 mL Use 1 mL syringe Undiluted			Route: IV/IO Dose: 0.1 mg/kg Supplied: 10 mg/2 mL Use 10 mL syringe diluted to 1 mg/mL		
		Dose	Calculated Volume	Volume to Administer (rounded)	Dose	Actual Volume	Volume to Administer (rounded)
Neonate	3 kg	0.6 mg	0.12 mL	0.10 mL	0.3 mg	0.3 mL	0.4 mL
< 1	6 kg	1.2 mg	0.24 mL	0.25 mL	0.6 mg	0.6 mL	0.6 mL
1	12 kg	2.4 mg	0.48 mL	0.50 mL	1.2 mg	1.2 mL	1.2 mL
2	14 kg	2.8 mg	0.56 mL	0.55 mL	1.4 mg	1.4 mL	1.4 mL
3	16 kg	3.2 mg	0.64 mL	0.65 mL	1.6 mg	1.6 mL	1.6 mL
4	18 kg	3.6 mg	0.72 mL	0.70 mL	1.8 mg	1.8 mL	1.8 mL
5	20 kg	4.0 mg	0.80 mL	0.80 mL	2.0 mg	2.0 mL	2.0 mL
6	22 kg	4.4 mg	0.88 mL	0.90 mL	2.2 mg	2.2 mL	2.2 mL
		Supplied: 10 mg/2 mL Use 3 mL or 10 mL syringe Undiluted			Supplied: 10 mg/2 mL Use 10 mL syringe Diluted to 1 mg/mL		
7	24 kg	4.8 mg	0.96 mL	1.0 mL	2.4 mg	2.4 mL	2.4 mL
8	26 kg	5.2 mg	1.04 mL	1.0 mL	2.6 mg	2.6 mL	2.6 mL
9	28 kg	5.6 mg	1.12 mL	1.2 mL	2.8 mg	2.8 mL	2.8 mL
10	30 kg	6 mg	1.20 mL	1.2 mL	3.0 mg	3.0 mL	3.0 mL
11	32 kg	6.4 mg	1.28 mL	1.2 mL	3.2 mg	3.2 mL	3.2 mL
12	34 kg	6.8 mg	1.36 mL	1.4 mL	3.4 mg	3.4 mL	3.4 mL
	40 kg	8 mg	1.60 mL	1.6 mL	4.0 mg	4.0 mL	4.0 mL
	45 kg	9 mg	1.80 mL	1.8 mL	4.5 mg	4.5 mL	4.5 mL
Max	>50 kg	10 mg	2.00 mL	2.0 mL	5.0 mg	5.0 mL	5.0 mL

Note: Dosage administered can be calculated by the weight based calculation in the Medical Directive and/or by using the above chart. Administered dosage in the chart may be rounded to the nearest volume increment that can be accurately measured.

Note: Dosing for Adult Procedural Sedation: 2.5-5 mg IV; maximum 2 doses
Dosing for Adult Combative Patient 2.5-5 mg IV/IM; maximum 2 doses

Analgesia Medical Directive - Adult & Pediatric

Morphine Dosing Guide

Age	Weight	Route: Subcutaneous Pediatric dosage 0.05 mg/kg Supplied: 10 mg/mL Use 1 mL Syringe Undiluted			Route: Intravenous Pediatric dosage 0.05 mg/kg Supplied: 10 mg/mL Use 1 mL Syringe Diluted to 1 mg/mL		
		Dose	Calculated Volume	Volume To Administer (rounded)	Dose	Calculated Volume	Volume To Administer (rounded)
		⚠ Mandatory Provincial Patch Point			For patients < 12 years		
Neonate	3 kg	0.15 mg	0.015 mL	---- mL	0.15 mg	0.15 mL	0.15 mL
<1	6 kg	0.3 mg	0.03 mL	0.05 mL	0.3 mg	0.3 mL	0.3 mL
1	12 kg	0.6 mg	0.06 mL	0.05 mL	0.6 mg	0.6 mL	0.6 mL
2	14 kg	0.7 mg	0.07 mL	0.05 mL	0.7 mg	0.7 mL	0.7 mL
3	16 kg	0.8 mg	0.08 mL	0.10 mL	0.8 mg	0.8 mL	0.8 mL
4	18 kg	0.9 mg	0.09 mL	0.10 mL	0.9 mg	0.9 mL	0.9 mL
5	20 kg	1.0 mg	0.10 mL	0.10 mL	1.0 mg	1.0 mL	1.0 mL
6	22 kg	1.1 mg	0.11 mL	0.10 mL	1.1 mg	1.1 mL	1.0 mL
7	24 kg	1.2 mg	0.12 mL	0.1 mL	1.2 mg	1.2 mL	1.2 mL
8	26 kg	1.3 mg	0.13 mL	0.1 mL	1.3 mg	1.3 mL	1.4 mL
9	28 kg	1.4 mg	0.14 mL	0.1 mL	1.4 mg	1.4 mL	1.4 mL
10	30 kg	1.5 mg	0.15 mL	0.2 mL	1.5 mg	1.5 mL	1.6 mL
11	32 kg	1.6 mg	0.16 mL	0.2 mL	1.6 mg	1.6 mL	1.6 mL
		Supplied: 10 mg/mL Use 1 mL Syringe Undiluted			Supplied: 10 mg/mL Use 10 mL Syringe Diluted to 1 mg/mL		
Youth (12-17)	34 kg	1.7 mg	0.17 mL	0.2 mL	1.7 mg	1.7 mL	1.8 mL
	40 kg	2.0 mg	0.20 mL	0.2 mL	2.0 mg	2.0 mL	2.0 mL
	45 kg	2.25 mg	0.225 mL	0.2 mL	2.25 mg	2.25 mL	2.2 mL
	50 kg	2.5 mg	0.25 mL	0.3 mL	2.5 mg	2.5 mL	2.6 mL
	55 kg	2.75 mg	0.275 mL	0.3 mL	2.75 mg	2.75 mL	2.8 mL
	60 kg	3.0 mg	0.30 mL	0.3 mL	3.0 mg	3.0 mL	3.0 mL
	65 kg	3.25 mg	0.325 mL	0.3 mL	3.25 mg	3.25 mL	3.2 mL
	70 kg	3.5 mg	0.35 mL	0.4 mL	3.5 mg	3.5 mL	3.6 mL
	75 kg	3.75 mg	0.375 mL	0.4 mL	3.75 mg	3.75 mL	3.8 mL
	80 kg	4.0 mg	0.40 mL	0.4 mL	4.0 mg	4.0 mL	4.0 mL
	85 Kg	4.25 mg	0.425 mL	0.4 mL	4.25 mg	4.25 mL	4.2 mL
	90 kg	4.5 mg	0.45 mL	0.5 mL	4.5 mg	4.5 mL	4.6 mL
	95 kg	4.75 mg	0.475 mL	0.5 mL	4.75 mg	4.75 mL	4.8 mL
	100 kg	5 mg	0.5 mL	0.5 mL	5.0 mg	5.0 mL	5.0 mL
Pediatric **Maximum** Single **Dose**		5 mg	0.50 mL	0.5 mL	5.0 mg	5 mL	5 mL

Dosing Interval: 1**5 minutes** Pediatric **Max** # of **Doses**: 4

Analgesia Medical Directive - Adult & Pediatric

Morphine Dosing Guide

	Supplied: 10 mg/mL Use 1 mL Syringe Undiluted		Supplied: 10 mg/mL Use 10 mL Syringe Diluted to 1 mg/mL	
Adult N/A	2 - 10mg	0.2 - 1.0 mL	2 – 10 mg	2 - 10 mL
Adult **Maximum** Single **Dose**	10 mg	1.0 mL	10 mg	10 mL

Dosing Interval: 1**5 minutes** Adult **Max** # of **Doses**: **4**

Analgesia Medical Directive - Adult & Pediatric

Fentanyl Dosing Guide

Route: Intravenous or Intranasal
Supplied: 100 mcg in 2 mL
*Intranasal Max Fluid : 1 mL per nare
Use 1 mL Syringe, undiluted
Maximum Pediatric Dosage: up to 1 mcg/kg (administer in divided doses)

⚠ **Mandatory Provincial Patch Point for Children < 12 years old**

Age	Weight	Maximum Dose	Calculated Volume	Volume to administer (rounded)
Neonate	3 kg	3 mcg	0.03 mL	----
<1	6 kg	6 mcg	0.06 mL	0.05 mL
1	12 kg	12 mcg	0.24 mL	0.2 mL
2	14 kg	14 mcg	0.28 mL	0.3 mL
3	16 kg	16 mcg	0.32 mL	0.3 mL
4	18 kg	18 mcg	0.36 mL	0.4 mL
5	20 kg	20 mcg	0.40 mL	0.4 mL
6	22 kg	22 mcg	0.44 mL	0.4 mL
7	24 kg	24 mcg	0.48 mL	0.5 mL
8	26 kg	26 mcg	0.52 mL	0.5 mL
9	28 kg	28 mcg	0.56 mL	0.6 mL
10	30 kg	30 mcg	0.60 mL	0.6 mL
11	32 kg	32 mcg	0.64 mL	0.6 mL
Youth* (12-17)	34 kg	34 mcg	0.68 mL	0.7 mL
	40 kg	40 mcg	0.80 mL	0.8 mL
	45 kg	45 mcg	0.90 mL	0.9 mL
	50 kg	50 mcg	1.0 mL	1.0 mL
	55 kg	55 mcg	1.1 mL*	1.1 mL*
	60 kg	60 mcg	1.2 mL*	1.2 mL*
	65 kg	65 mcg	1.3 mL*	1.3 mL*
	70 kg	70 mcg	1.4 mL*	1.4 mL*
	75 kg	75 mcg	1.5 mL*	1.5 mL*
Pediatric Maximum Single Dose*		75 mcg	1.5 mL*	1.5 mL*
Adults ≥ 18 years		25 – 75 mcg	0.50 -1.5 mL*	0.50 -1.5 mL*
Adult Maximum Single Dose		75 mcg	1.5 mL*	1.5 mL*

*for pediatric dosing, consider administering in divided doses of one-third to one-half and titrate to effect similar to adult dosing.

Epinephrine 1 mg/mL = 1:1000 IM Dosing Guide

Dose (0.01 mg/kg) is rounded to the nearest 0.05mg Use a 1 mL syringe			
AGE	**WEIGHT**	**DOSE (mg)**	**VOLUME (mL) (rounded)**
3 months	5 kg	**0.05 mg**	**0.05 mL**
6 months	8 kg	**0.08 mg**	**0.10 mL**
9 months	10 kg	**0.10 mg**	**0.10 mL**
1 year	12 kg	**0.12 mg**	**0.10 mL**
2 years	14 kg	**0.14 mg**	**0.15 mL**
3 years	16 kg	**0.16 mg**	**0.15 mL**
4 years	18 kg	**0.18 mg**	**0.20 mL**
5 years	20 kg	**0.20 mg**	**0.20 mL**
6 years	22 kg	**0.22 mg**	**0.20 mL**
7 years	24 kg	**0.24 mg**	**0.25 mL**
8 years	26 kg	**0.26 mg**	**0.25 mL**
9 years	28 kg	**0.28 mg**	**0.30 mL**
10 years	30 kg	**0.30 mg**	**0.30 mL**
11 years	32 kg	**0.32 mg**	**0.30 mL**
12 years	34 kg	**0.34 mg**	**0.35 mL**
13 years	36 kg	**0.36 mg**	**0.35 mL**
14 years	38 kg	**0.38 mg**	**0.40 mL**
Adult	50 kg	**0.50 mg**	**0.50 mL**

Note: Dosage administered can be calculated by the weight based calculation in the Medical Directive and/or by using the above chart. Administered dosage in the chart may be rounded to the nearest volume increment that can be accurately measured.

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Medication Information

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Medication Information

ACETAMINOPHEN	
CLASS	Antipyretic and analgesic. Mild anti-inflammatory effects.
ACTION	Exact mechanism is not known. Rapidly absorbed through GI tract. Believed to raise the pain threshold.
ONSET	15 minutes and lasts up to 3 hours.
METABOLISM	At normal therapeutic dosages, primary hepatic metabolism. A toxic dose (as little as 4g daily) can cause hepatic cell necrosis. Oral administration is subject to first pass metabolism.

ADENOSINE	
CLASS	Antiarrhythmic
ACTION	Slows conduction time through the AV node, interrupting the re-entry pathways through the AV node, restoring normal sinus rhythm. Adenosine also causes coronary vasodilation and increases blood flow in normal coronary arteries with little to no increase in stenotic coronary arteries; thallium-201 uptake into the stenotic coronary arteries will be less than that of normal coronary arteries revealing areas of insufficient blood flow.
ONSET	Rapid
HALF-LIFE	< 10 seconds
METABOLISM	Blood and tissue.

AMIODARONE	
CLASS:	Antiarrhythmic (Class I, II, III, and IV)
ACTION:	Blocks sodium channels; lengthens cardiac potential. Slows cardiac conduction through the AV node. Antisympathetic action and negative inotropic effects in cardiac nodal tissue. Used for ventricular arrhythmias (ventricular tachycardia/ventricular fibrillation) and some atrial arrhythmias (atrial fibrillation, but takes hours)
ONSET	15 minutes
TIME TO PEAK	1 to 4 hours
DURATION	3 to 6 hours
HALF-LIFE	9-36 hours
METABOLISM	Hepatic

ASPIRIN (ASA)	
CLASS:	Platelet aggregation inhibitor, analgesic, antipyretic and anti-inflammatory
ACTION:	Decreases clotting by inactivating cyclooxygenase, interfering with Thromboxane A2 production within the platelets. Thromboxane A2 also causes arteries to constrict. Reduced morbidity/mortality in adults with C/P from an AMI.
ABSORPTION	Rapid
TIME TO PEAK	1-2 hours
METABOLISM	Hydrolyzed to salicylate (active) in GI mucosa, RBC, synovial fluid and blood. Metabolism of salicylate primarily by the liver.

ATROPINE	
CLASS	Parasympatholytic, anticholinergic
ACTION	Blocks the action of acetylcholine at parasympathetic sites in smooth muscle, secretory glands and the CNS. Results in increased cardiac output and dries secretions.
ONSET	Rapid
HALF-LIFE	2-3 hours
DISTRIBUTION	Widely throughout the body; crosses placenta; trace amounts enter breast milk; crosses blood-brain barrier.
METABOLISM	Hepatic

CALCIUM GLUCONATE 10%	
CLASS	Minerals and electrolytes
ACTION	Calcium protects the myocardium from the deleterious effects of hyperkalemia. It stabilizes the cardiac cell membrane.
ADVERSE REACTION	When given too rapidly can cause hypotension, bradycardia and syncope. If administered IM or extravagates it can cause necrosis/abscess. When given to someone on digoxin this may cause sudden death from ventricular fibrillation.
ADMIN	Slow IV push over 2-3 minutes Incompatible with Sodium Bicarbonate in same IV line.
ONSET	Rapid
DURATION	30 minutes - 2hours
SIDE EFFECTS	Chalky taste, N&V, Dry mouth

DEXTROSE (D50) IN WATER	
CLASS	Carbohydrate
ACTION	Replenishes blood glucose levels, reversing hypoglycemia.
METABOLISM	Metabolized to carbon dioxide and water.

DIMENHYDRINATE (GRAVOL)	
CLASS	Antiemetic, Antihistamine
ACTION	Competes with histamine for H1-receptor sites on effector cells in the GI tract, blood vessels and respiratory tract; blocks chemoreceptor trigger zone, diminishes vestibular stimulation and depresses function through its central anticholinergic activity.
ONSET	1-5 minutes (IV). 15-30 minutes (oral)
PEAK EFFECTS	1-2 hours
DURATION	3-6 hours

DIPENHYDRAMINE (BENADRYL)	
CLASS	Antihistamine
ACTION	Competes with histamine and H1-receptor sites on effector cells in the GI tract, blood vessels and respiratory tract; anticholinergic and sedative effects are also seen.
ONSET	1-5 minutes (IV). 1-3 hours (oral)
PEAK EFFECTS	1-2 hours (IV). 2-4 hours (oral)
HALF-LIFE	2-10 hours
DURATION	4-8 hours

DOPAMINE	
CLASS	Sympathomimetic agent
ACTION	Stimulates both adrenergic and dopaminergic receptors, lower doses are mainly dopaminergic stimulating and produce renal and mesenteric vasodilation. Higher doses have both dopaminergic and β1-adrenergic stimulating and produce cardiac stimulation and renal vasodilation. Large doses stimulate α-adrenergic receptors.
ONSET	5 minutes
HALF-LIFE	2 minutes
METABOLISM	Renal, hepatic and plasma (25% gets converted to norepinephrine).

EPINEPHERINE	
CLASS	Sympathomimetic agent
ACTION	Stimulate β1, α1 and β2-adrenergic receptors resulting in relaxation of smooth muscle of the bronchial tree, cardiac stimulation (increasing myocardial O2 consumption) and dilation of skeletal muscle vasculature. Small doses can cause vasodilation via β2-vascular receptors; large doses may produce constriction of skeletal and vascular smooth muscle.
ONSET	5-10 minutes (bronchodilation).
METABOLISM	Hepatic

FENTANYL	
CLASS	Analgesic, opioid
ACTION	Binds to opioid mu-receptors in the CNS causing inhibition of ascending pain pathways, altering the perception of and response to pain; produces generalized CNS depression, respiratory depression, and can cause apnea. Can cause muscle rigidity if rapid IV injection.
ONSET	IV: almost immediately IN: 5-15 minutes
PEAK EFFECT	IV: 6 minutes IN: 12 minutes
METABOLISM	Hepatic

GLUCAGON	
CLASS	Glucose elevating agent
ACTION	Stimulates adenylate cyclase to produce increased cyclic AMP, which promotes hepatic glycolysis and gluconeogenesis, resulting in a rise in blood glucose levels.
ONSET	30 minutes (IM)
HALF-LIFE	8-18 minutes
DURATION	60-90 minutes
METABOLISM	Primarily hepatic, some occurs renally and in the plasma.

HYDROCORTISONE	
CLASS	Adrenal glucocorticoid, corticosteroid
ACTION	Short-acting corticosteroid; when used in adrenal crisis or adrenocortical deficiency it replaces/mimics the person's own cortisol which regulates glucose, regulates the immune system, and is released during stressors to help support the cardiovascular system
ONSET	1-2 hours
PEAK EFFECT	1.5 – 2 hours
DURATION	6-12 hours
METABOLISM	Hepatic

IBUPROFEN	
CLASS	Antipyretic, analgesia and non-steroid anti-inflammatory
ACTION	Its pharmacological effects are believed to be due to inhibition COX-2 which decreases the synthesis of prostaglandins involved in mediating inflammation, pain, fever and swelling. Antipyretic effects may be due to action on the hypothalamus, resulting in an increased peripheral blood flow, vasodilation, and subsequent heat dissipation.
PEAK EFFECT	120 minutes
ONSET	15 minutes
DURATION	4-6 hours
ADVERSE EFFECTS	HTN, MI, GI bleeding, increased the risk of gastric ulcers and damage and renal failure.
METABOLISM	Ibuprofen and its metabolites pass easily across the placenta. More than 90% of an ingested dose is excreted in the urine as metabolites or their conjugates.

KETOROLAC (TORADOL)	
CLASS	Analgesic, antipyretic and non-steroid anti-inflammatory
ACTION	Blocks prostaglandin formation thereby decreasing nociceptor stimulation.
ONSET	10 minutes (IM/IV)
PEAK EFFECT	2-3 hours
DURATION	6-8 hours
METABOLISM	Mostly the hepatic

LIDOCAINE (XYLOCAINE)	
CLASS	Class 1b antiarrhythmic
ACTION	Suppresses automaticity of conductive tissue by increasing the electrical stimulus threshold of the ventricles, His-Purkinje system and spontaneously depolarization of the ventricles during diastole (by direct action on the tissues). Blocks both the initiation and conduction of nerve impulses by decreasing the neural membranes permeability to Na ions, which results in inhibition of depolarization with resultant blockade of conduction.
ONSET	45-90 seconds
DURATION	10-20 minutes
METABOLISM	90% hepatic

MIDAZOLAM (VERSED)	
CLASS	Benzodiazepine, CNS depressant, Sedative and Amnesic
ACTION	Binds to stereospecific benzodiazepine receptors on the post-synaptic GABA neuron at several sites within the CNS (including limbic system and reticular formation). Enhancement of the inhibitory effect of GABA on neural excitability results by increased neural membrane permeability to chloride ions. This shift in chloride.
ONSET	45-90 seconds
DURATION	10-20 minutes
METABOLISM	90% hepatic

MORPHINE	
CLASS	Opioid analgesia
ACTION	Binds to opiate receptors in the CNS causing inhibition of ascending pain pathways, altering the perception of and response to pain; produces generalized CNS depression.
ONSET	2-5 minutes (IV)
PEAK EFFECT	20 minutes (IV)
METABOLISM	Hepatic

NALOXONE (NARCAN)	
CLASS	Narcotic Antagonist
ACTION	Competitive narcotic antagonist. Displaces and narcotics bound to opiate receptor sites reversing their effects.
ONSET	2-5 minutes (IM). 8-18 minutes (IN). 2 minutes (IV)
HALF-LIFE	3-4 hours (neonates). 0.5-1.5 hours (adults)
DURATION	30-120 minutes
DISTRIBUTION	Crosses placenta
METABOLISM	Hepatic

NITROGLYCERIN	
CLASS	Coronary vasodilator, smooth muscle relaxant and anti-anginal
ACTION	Vasodilation of peripheral veins and arteries with more prominent effects on the veins. Reduces myocardial oxygen demand by decreasing preload; may modestly reduce afterload; dilates coronary arteries and improves collateral flow to ischemic tissues. In smooth muscle, nitric oxide activates smooth muscle relaxation.
ONSET	1-3 minutes (SL). 15-30 minutes (topical). 30 minutes (transdermal)
HALF-LIFE	1-4 minutes
DURATION	25 minutes (SL), 7 hours (topical), 10-12 hours (transdermal)
METABOLISM	Extensive first-pass effect; hepatic, RBC and vascular walls

SALBUTAMOL (VENTOLIN)	
CLASS	Sympathomimetic, β2 agonist
ACTION	Relaxes bronchial smooth muscle by action on β2-receptors with little effect on heart rate
ONSET	10 minutes (Neb/Inhalation)
HALF-LIFE	3-8 hours (inhaled)
DURATION	3-4 hours (Neb/Inhalation)
METABOLISM	Hepatic to an inactive sulfate

XYLOMETAZOLINE (OTRIVIN)	
CLASS	Sympathomimetic Adrenergic Alpha-agonist, decongestant
ACTION	When sprayed into the nares, causes vasoconstriction of the nasal mucosa, resulting in a decrease in blood flow in the nasal passages, decreased nasal congestion, and may help stop epistaxis.
ONSET	5-10 minutes

Contact

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Physician On-Scene Reference

For the Paramedic:

If a paramedic encounters a physician on-scene that would like to assist or direct care, the paramedic will follow the Ontario BLS-PCS for any BLS care and the Medical Directives in this document for any ALS care. Inform the physician that paramedics are not able to accept delegation for controlled medical acts from any physician other than an affiliated Base Hospital Physician. The paramedic may show the following information to the on-scene physician to assist in next steps and provide further information.

To the On-Scene Physician:

Thank you for your assistance.

The paramedics would usually take responsibility for the patient(s) upon their arrival. If, as a physician, you wish to assist with the emergency after the providers have arrived you have three options:

1. Offer your assistance or suggestions that follow the Ontario Basic Life Support Patient Care Standards and/or the Paramedic Medical Directives. If your instructions are not in accordance with these documents, the paramedics cannot follow this direction but can contact the Regional Base Hospital Physician for direction.

2. Take complete responsibility for patient - in which case you will need to accompany the patient to hospital. The paramedics will assist you, but cannot perform skills that do not follow their directives. You may be asked to show identification that you are a physician licensed to practice medicine in Ontario.

3. Request to speak with the Regional Base Hospital Physician (via patch) to offer advice and consult on the best management of the patient(s).

Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

i identification	Identify BHP & Introduce yourself (OASIS, Service, ACP / PCP)
S SITUATION	ORDERS SOUGHT age, sex, weight problem / concern ETA to hospital
B BACKGROUND	Pertinent +/- HPI (OPQRST) PMHx (SAMPLE)
A ASSESSMENT	Pertinent +/- Physical Exam Vitals Signs, ECG
R RESPONSE	Response to treatment Reiterate orders sought Receive orders REPEAT BACK ORDERS

Patch Physician Reference Sheet

The following document is the reference sheet that BHPs use when Paramedics from the CPER region patch to them:

Date: _____ **Time of call**: _____

☐ **ACP** ☐ **PCP** **Paramedic ID** (OASIS#)**:** _____

EMS Service:

☐ Brant ☐ Dufferin ☐ Guelph-Wellington
☐ Haldimand ☐ Hamilton ☐ Niagara
☐ Norfolk ☐ Six Nations ☐ Waterloo

Call Information:

Age: _____ ☐ Male ☐ Female

☐ VSA ☐ CP ☐ SOB ☐ SEIZURE

Other: _____

Patient information and/or paramedic management

_____
_____
_____
_____

Orders by BHP:

_____
_____
_____

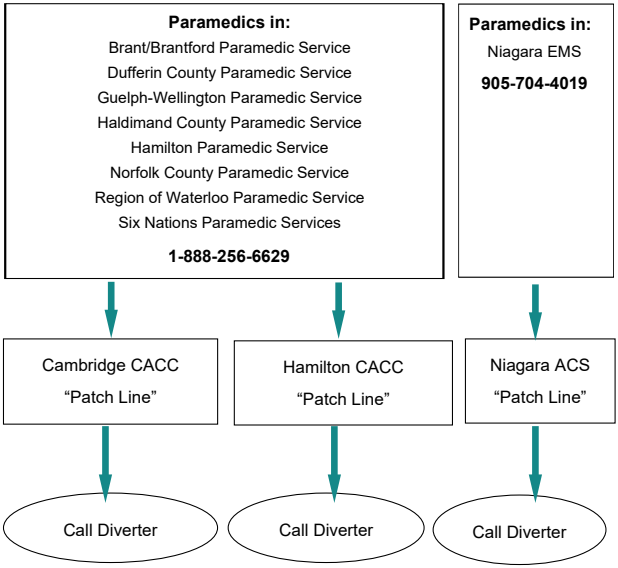
☐ Termination of Resuscitation (TOR) Time: _____

For PCP Medical TOR, must meet all three of the following:

☐ Unwitnessed ☐ No Shocks ☐ No ROSC

BHP Name: _____ **BHP #**: _____

Base Hospital Physician
PATCH FLOW CHART



Central Answering Point: Call is forwarded to the Base Hospital Physician on call 0630 – 23:00 and Hamilton General Hospital Emergency Department 23:00 – 06:30.

BASE HOSPITAL PHYSICIAN LIST

Centre for Paramedic Education & Research

Physicians Name	BHP Number
Dr. K. Barker	209
Dr. A. Dixon	212
Dr. E. Hanel	140
Dr. P. Miller	116
Dr. R. Sahsi	211

Physicians Name	BHP Number
Dr. C. Sellens	206
Dr. E. Shih	218
Dr. C. Wallner	216
Dr. M. Welsford	201

Hamilton General Hospital

Physicians Name	BHP Number
Dr. B. Baw	131
Dr. M. Beyea	180
Dr. K. Caners	162
Dr. S. Caron	111
Dr. T. Chan	144
Dr. A. Chorley	167
Dr. H. Cowan	158
Dr. J. Crossley	076
Dr. B. Dew	126
Dr. K. DeWit	150
Dr. K. Dong	172
Dr. K. Dorosh	161
Dr. K. English	102
Dr. F. Fung	181
Dr. A. Greenwald	142
Dr. R. Grewal	121
Dr. G. Gupta	143
Dr. K. Hawley	096
Dr. A. Hersi	104
Dr. C. Heyd	175
Dr. M. Jalayer	141
Dr. J. Jowett	093
Dr. W. Krizmanich	058
Dr. M. Liebreghts	148

Physicians Name	BHP Number
Dr. P. MacDougall	048
Dr. J. Mahn	173
Dr. R. Mallin	122
Dr. A. McCulloch	152
Dr. J. Owen	146
Dr. A. Pardhan	177
Dr. F. Pervaiz	179
Dr. I. Price	133
Dr. D. Quinlan	159
Dr. K. Rigg	171
Dr. S. Sandhanwalia	169
Dr. D. Sehdev	136
Dr. S. Sennik	147
Dr. S. Sharif	176
Dr. L. Shipp-Dey	165
Dr. K. Sidhu	174
Dr. J. Singh	139
Dr. J. Tang	149
Dr. J. Taves	170
Dr. J. Thompson	163
Dr. K. van Diepen	160
Dr. J. Wojtowicz	128
Dr. A. Worster	070

Contact Information

430 McNeilly Road, Unit 201
Stoney Creek, Ontario L8E 5E3
Telephone Number: 905-521-2100 x71223
Fax Number: 905-643-1104

Name:	Position:	EXT:	Mobile:	Email Address:
Tim Dodd	Regional Program Manager/ Director		905-515-4818	tdodd@cper.ca
Dr. Paul Miller	Interm Medical Director			millerpa@hhsc.ca
Dr. Clare Wallner	Associate Medical Director			wallnerc@mcmaster.ca
Dr. Rupinder Sahsi	Assistant Medical Director			rupinder@sahsi.net
Dr. Erich Hanel	Assistant Medical Director			erich.hanel@medportal.ca
Colette Easton	Administration Assistant (To the Directors)	71226		ceaston@cper.ca
Audrey Collie	Administration Assistant (To the Programs)	71229		acollie@cper.ca
Jackie Swing	Administration Assistant	71223		jswing@cper.ca
Angela Burgess	Quality Specialist		289-286-0975	aburgess@cper.ca
Kailash Selvaratinam	Quality Specialist		905-870-4457	kselvar@cper.ca
Stephanie Coletta	Paramedic Educator		905-515-0659	scoletta@cper.ca
David Plyley	Paramedic Educator		289-219-1952	jgyuran@cper.ca
Jenn Radoslav	Paramedic Educator		289-260-3268	jradoslav@cper.ca

HHS Centre for Paramedic Education and Research Additional Contact Information Reference

Central Ambulance Communication Centres (CACC):

CACC – Cambridge	800-265-2215
CACC – Hamilton	905-574-1414
CACC – Hamilton (Alternate)	800-263-5767
CACC – Niagara Ambulance Communication Centre	905-704-4005 866-895-6227

Emergency Medical Services:

Brant / Brantford Paramedic Service	519-756-4570
Dufferin County Paramedic Service	519-941-9608
Guelph-Wellington Paramedic Service	519-824-1677
Haldimand County Paramedic Services	905-318-5932
Hamilton Paramedic Service	905-546-2424
Niagara EMS	905-641-0827
Norfolk County Paramedic Services	519-426-4115
Region of Waterloo Paramedic Service	519-650-8295
Six Nations Paramedic Services	519-445-4000

Community Support Referral Contact Information

The following contact information is provided for cases where:

- Patients are **refusing** transport to the hospital, and
- An assessment shows that the patient has the **capacity to refuse**, and
- The patient does not appear to be of **immediate danger to themselves or others,** and
- Paramedics have **ongoing concerns** regarding the living conditions in their home (CCAC), their need for victim's support services (victim's services) or the patient's mental health (COAST, Hamilton only)
- OR the family of a patient needs support services (Victims Services).

These community service organizations are available to assist people with these concerns. Paramedics can give the information directly to the patient or assist them by making the referral on their behalf. Please note that if the Paramedic assists the patient by calling the organization he/she must get the patient's consent to do so. If the Paramedic contacts the organization directly, the agency will require the patient's name, address, phone number and nature of the concern. The Paramedic must then leave the information about the organization called with the patient.

CCAC (**C**ommunity **C**are **A**ccess **C**entre): provides services for persons with living condition concerns (message can be left).

Brantford CCAC:	800-810-0000
Dufferin County CCAC:	519-925-5452
Guelph-Wellington CCAC:	519-823-2550
Haldimand / Hamilton CCAC:	800-810-0000
Niagara Region CCAC:	800-810-0000
Norfolk / Simcoe CCAC:	800-810-0000
Six Nations (Ohsweken)	519-445-2418
Waterloo - Kitchener CCAC:	519-748-2222

Victims Services: provides short-term emotional support and community referral and assistance to victims of crime, tragic circumstance or disaster (24/7).

Brantford	519-752-3140
Cambridge	519-585-2369 / 519-570-5143
Dufferin County	519-942-1452
Guelph-Wellington	519-824-1212 ext. 7304
Haldimand County	800-264-6671
Hamilton Victim Services	905-546-4904
Kitchener	519-585-2369 / 519-570-5143
Niagara Region	905-682-2626
Norfolk County	800-264-6671
Six Nations (Ohsweken)	519-752-3140
Waterloo Region	519-585-2369 / 519-570-5143

COAST (Crisis Outreach And Support Team): provides services for persons with mental health concerns in the Hamilton area only (24/7).

Hamilton – Only (24/7)	905 972-8338

Child in Need of Protection

Paramedics have a duty to report under the Child and Family Services Act (CFSA) and this extends to any child they encounter in their professional duties and is not limited to the person (s) requesting 9-1-1 services[1]. This duty overrides any other provincial statue, including any provisions that would otherwise prohibit someone from making a disclosure (i.e. PHIPA). This failure to report a suspicion in the circumstances set out in the CFSA is an offence under the Act.[2]

Children's Aid Societies in Ontario

Dufferin Child and Family Protection Services	Bus: (519) 941-1530
Family & Children's Services of Guelph and Wellington County	Bus: (519) 824-2410
Children's Aid Society of Hamilton	Bus: (905) 522-1121
Catholic Children's Aid Society of Hamilton	Bus: (905) 525-2012
Family & Children's Services Niagara	Bus: (888) 937-7731
Children's Aid Society of Haldimand and Norfolk	Bus: (519) 587-5437 Toll Free: (888) 227-5437
Brant Family and Children's Services	Bus: (519) 753-8681 Toll Free: (888) 753-8681
Family & Children's Services of the Waterloo Region	Bus: (519) 576-0540

[1] Training Bulletin 116 -Child in Need of Protection Standard March 2015 Version 1.0

[2] Basic Life Support Patient Care Standards –Version 2.2

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Destination Guidelines

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

Field Trauma Triage Standards

Definitions

For the purposes of the *Field Trauma Triage Standard*:

Regionally Designated Equivalent Hospital

means an appropriately resourced hospital facility as defined by the Regional Trauma Network of Critical Care Services Ontario and included in a local PPS.

Transport Time

means the time from scene departure to time of arrival at destination.

General Directive

The paramedic shall follow the procedure below when conducting field triage of patients injured by a traumatic mechanism or who show evidence of trauma.

The paramedic shall also use this standard to assess the clinical criteria (*i.e.* to determine if the patient meets the clinical criteria) as required by the *Air Ambulance Utilization Standard*.

The paramedic shall consider using the Trauma Termination of Resuscitation (TOR) contained in the *Trauma Cardiac Arrest Medical Directive* as per the ALS PCS.

CACC/ACS may authorize the transport once notified of the patient's need for re-direct or transport under the *Field Trauma Triage Standard*.

Procedure

The paramedic shall:

1. assess the patient to determine if he/she has one or more of the following **physiological criteria** (Step 1):
   a. Patient does not follow commands,
   b. Systolic blood pressure <90mmHg, or
   c. Respiratory rate <10 or ≥30 breaths per minute or need for ventilatory support (<20 in infant aged <1 year);
2. if the patient meets the physiological criteria listed in paragraph 1 above, **AND** the land transport time is estimated to be <30 minutes* to a Lead Trauma Hospital (LTH) or regionally designated equivalent hospital, transport the patient directly to the LTH or regionally designated equivalent hospital;
3. if the patient does not meet the criteria listed in paragraphs 1 and 2, assess the patient to determine if he/she has one or more of the following **anatomical criteria** (Step 2):

a. Any penetrating injuries to head, neck, torso and extremities proximal to elbow or knee,
b. Chest wall instability or deformity (*e.g.* flail chest),
c. Two or more proximal long-bone fractures,
d. Crushed, de-gloved, mangled or pulseless extremity,
e. Amputation proximal to wrist or ankle,
f. Pelvic fractures,
g. Open or depressed skull fracture, or
h. Paralysis;

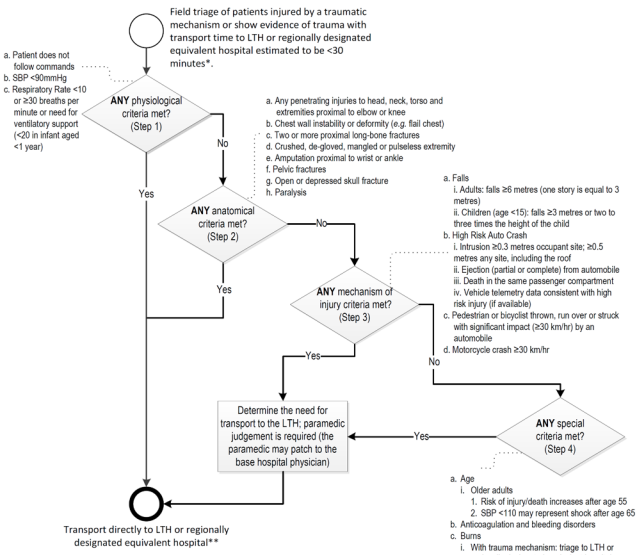
4. if the patient meets the anatomical criteria listed in paragraph 3 above and the land transport time is estimated to be <30 minutes* to the LTH or regionally designated equivalent hospital, transport the patient directly to the LTH or regionally designated equivalent hospital;
5. if unable to secure the patient's airway or survival to the LTH or regionally designated equivalent hospital is unlikely, transport the patient to the closest emergency department despite paragraphs 2 and 4 above;
6. despite paragraph 5 above, transport the patient directly to an LTH or regionally designated equivalent hospital if the patient has a penetrating trauma to the torso or head/neck, and meets **ALL** of the following:
   a. Vital signs absent yet not subject to TOR described in the *General Directive* above, and
   b. Land transport to the LTH or regionally designated equivalent hospital is estimated to be <30 minutes*;
7. if the patient does not meet the physiological or anatomical criteria listed above, use the following **criteria** to determine if the patient may require other support services at the LTH or regionally designated equivalent hospital as a result of his/her traumatic **mechanism of injury** (Step 3):
   a. Falls
      i. Adults: falls ≥6 metres (one story is equal to 3 metres)
      ii. Children (age <15): falls ≥3 metres or two to three times the height of the child
   b. High Risk Auto Crash
      i. Intrusion ≥0.3 metres occupant site; ≥0.5 metres any site, including the roof
      ii. Ejection (partial or complete) from automobile
      iii. Death in the same passenger compartment
      iv. Vehicle telemetry data consistent with high risk injury (if available)
   c. Pedestrian or bicyclist thrown, run over or struck with significant impact (≥30 km/hr) by an automobile
   d. Motorcycle crash ≥30 km/hr;
8. if the patient meets the mechanism of injury criteria listed in paragraph 7 above, **AND** the land transport time is estimated to be <30 minutes* to an LTH or regionally designated equivalent hospital, determine the need for patient transport to the LTH or regionally designated equivalent hospital;

9. in conjunction with the physiological, anatomical, and mechanism of injury criteria listed above, consider the following **special criteria** (Step 4):
   a. Age
      i. Risk of injury/death increases after age 55
      ii. SBP <110 may represent shock after age 65
   b. Anticoagulation and bleeding disorders
   c. Burns
      i. With trauma mechanism: triage to LTH
   d. Pregnancy ≥20 weeks; and
10. if the patient meets any of the special criteria listed above, **AND** the land transport time is estimated to be <30 minutes* to an LTH or regionally designated equivalent hospital, determine the need for patient transport to the LTH or regionally designated equivalent hospital.

***Note: The 30 minute transport time may be amended to up to 60 minutes as per an ambulance service PPS, but may not exceed 60 minutes.**

Field Trauma Triage Prompt Card

This prompt card provides a quick reference of the *Field Trauma Triage Standard* contained in the *Basic Life Support Patient Care Standards* (BLS PCS). Please refer to the BLS PCS for the full standard.



*The 30 minute transport time may be amended to up to 60 minutes as per an ambulance service PPS, but may not exceed 60 minutes.

If unable to secure the patient's airway or survival to the LTH or regionally designated equivalent hospital is unlikely, transport the patient to the closest ED (unless** patient has penetrating trauma to the torso or head/neck). Consider the Trauma TOR as per the ALS PCS.

Ontario

Air Ambulance Utilization Standard

General Directive

Requests for an on-scene air ambulance response should meet at least one of the bulleted operational criteria **PLUS** one of the clinical criteria (*e.g.* known clinical criteria as listed in the *Field Trauma Triage Standard* or from the bulleted list of medical or obstetrical criteria listed below).

Procedure

The paramedic shall:

1. assess the scene response to meet one or more of the following **operational criteria**:
   a. The land ambulance is estimated to require more than 30 minutes to reach the scene and the air ambulance can reach the scene quicker.
   b. The land ambulance is estimated to require more than 30 minutes to travel from the scene to the closest appropriate hospital* and the air ambulance helicopter can reach the scene and transport the patient to the closest appropriate hospital* quicker than the land ambulance.
   c. The estimated response for both land and air is estimated to be greater than 30 minutes, but approximately equal, and the patient needs care which cannot be provided by the responding land ambulance.
   d. There are multiple patients who meet the clinical criteria and the local land ambulance resources are already being fully utilized.
2. if the scene response meets the requirements of paragraph 1 above, assess the patient to determine if he/she meets one or more of the following **clinical criteria**:
   a. Patients meeting the criteria listed in the *Field Trauma Triage Standard.*
   b. Patients meeting one or more of the following:
      i. **Medical**:
         1. Shock, especially hypotension with altered mentation (*e.g.* suspected aortic aneurysm rupture, massive gastrointestinal bleed, severe sepsis, anaphylaxis, cardiogenic shock, *etc.*)
         2. Acute stroke with a clearly determined time of onset or last known to be normal <6.0 hours
         3. Altered level of consciousness (GCS <10)
         4. Acute respiratory failure or distress
         5. Suspected STEMI or potentially lethal dysrhythmia
         6. Resuscitation from respiratory or cardiac arrest
         7. Status epilepticus
         8. Unstable airway or partial airway obstruction

ii. **Obstetrical**:
    1. Active labour with abnormal presentation (*i.e.* shoulder, breech or limb)
    2. Multiple gestation and active labour
    3. Umbilical cord prolapse
    4. Significant vaginal bleeding (suspected placental abruption or placenta previa or ectopic pregnancy);

3. in conjunction with the ACO, assess if an on-scene air ambulance helicopter is appropriate, based on:
    a. the perceived severity of the reported injuries and without confirmation that the clinical criteria have been met, or
    b. the patient cannot reasonably be reached by land ambulance (*e.g.* sites without road access such as islands; geographically isolated places, *etc.*);
4. if the requirements listed in paragraph 2 or 3 above are met, request an on-scene air ambulance helicopter response:
    a. Provide the ACO with the information set out in operational and clinical criteria above. In order for the ACO to determine if an air ambulance response and transport will be quicker than land ambulance, the paramedic will provide the ACO with the estimated time to prepare the patient for transport, identify separately any time required for patient extrication, provide the estimated land ambulance driving time to the closest appropriate hospital and any additional information as required.
    b. The paramedics shall not delay patient transport by waiting for the air ambulance helicopter, unless the air ambulance helicopter can be seen on its final approach to the scene. If the air ambulance helicopter is en route but not on final approach to the scene, and the land paramedics have the patient in his/her ambulance, then the land ambulance will proceed to the closest local hospital with an emergency department. The air ambulance helicopter will proceed to that local hospital and, if appropriate, assist hospital personnel prepare the patient for rapid evacuation.
    c. While en route to the local hospital, paramedics may rendezvous with the air ambulance helicopter if:
        i. the air ambulance helicopter is able to land along the direct route of the land ambulance; and
        ii. it would result in a significant reduction in transport time to the most appropriate hospital.
5. if the call's circumstances and patient(s) fail to meet the criteria set out in this standard and an air ambulance helicopter is known to be responding based on the merits of the initial request for ambulance service, contact the CACC/ACS and advise that an on-scene air ambulance helicopter response is not required and why it is not required.

Guideline

Air Ambulance Helicopter Landing Site Safety and Coordination

Upon confirmation that the air ambulance helicopter is responding, the paramedic shall follow the guidelines set out by the Ornge Aviation Safety Department, which can be found on Ornge's "Aircraft Safety" website at: https://www.ornge.ca/aircraft-safety.

Other Use of Air Ambulance Helicopter

- Air ambulance helicopters are not permitted to respond to night calls which require a landing at a site other than night licensed airports, helipads or night approved remote landing sites.
- Air ambulance helicopters are not permitted to conduct search and rescue calls.
- In cases where a land ambulance can reach the patient(s) and an on-scene response by air ambulance helicopter is appropriate, the ACO will assign a land ambulance and continue the land response until the flight crew requests that the land ambulance be cancelled.
- In cases where a land ambulance arrives on-scene prior to the air ambulance helicopter, paramedics shall inform the CACC/ACS as clinical events occur.

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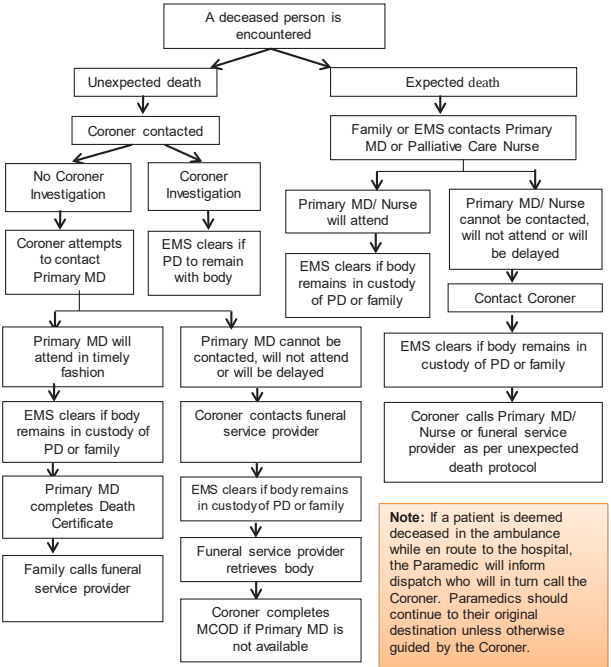
Deceased Patient Standards



Note: If a patient is deemed deceased in the ambulance while en route to the hospital, the Paramedic will inform dispatch who will in turn call the Coroner. Paramedics should continue to their original destination unless otherwise guided by the Coroner.

Deceased patient means a patient who is:

i) Obviously dead – code 5
ii) Subject to a MCOD presented to the paramedic
iii) VSA and subject to a valid DNR
iv) VSA and is subject to a Termination of Resuscitation Order
v) VSA and is subject to a Withhold Resuscitation Order

Note: When a Termination of resuscitation Order is received, and the deceased person has not been removed from the place of death, paramedics should not remove the body, but rather they should follow the appropriate procedure as outlined.

Paramedic Prompt Card for Acute Stroke Protocol

This prompt card provides a quick reference of the *Acute Stroke Protocol* contained in the *Basic Life Support Patient Care Standards* (BLS PCS). Please refer to the BLS PCS for the full protocol.

Indications under the Acute Stroke Protocol

Redirect or transport to the closest or most appropriate Designated Stroke Centre* will be considered for patients who meet **ALL** of the following:

1. Present with a new onset of at least one of the following symptoms suggestive of the onset of an acute stroke:
    a. Unilateral arm/leg weakness or drift.
    b. Slurred speech or inappropriate words or mute.
    c. Unilateral facial droop.
2. Can be transported to arrive at a Designated Stroke Centre within 6 hours of a clearly determined time of symptom onset or the time the patient was last seen in a usual state of health.

*A Designated Stroke Center is a Regional Stroke Centre, District Stroke Centre or a Telestroke Centre regardless of EVT capability.

Contraindications under the Acute Stroke Protocol

ANY of the following exclude a patient from being transported under the Acute Stroke Protocol:

1. CTAS Level 1 and/or uncorrected airway, breathing or circulatory problem.
2. Symptoms of the stroke resolved prior to paramedic arrival or assessment**.
3. Blood sugar <3 mmol/L***.
4. Seizure at onset of symptoms or observed by paramedics.
5. Glasgow Coma Scale <10.
6. Terminally ill or palliative care patient.
7. Duration of out of hospital transport will exceed two hours.

**Patients whose symptoms improve significantly or resolve during transport will continue to be transported to a Designated Stroke Centre.

*** If symptoms persist after correction of blood glucose level, the patient is not contraindicated.

CACC/ACS will authorize the transport once notified of the patient's need for redirect or transport under the Acute Stroke Protocol.

Ontario

Reporting to FACS Niagara

Children under 16, apparently under 16 or in FACS care or supervision and have reasonable grounds to suspect:

- Physical Abuse
- Sexual Abuse/ Exploitation
- Emotional Abuse
- Neglect
- Abandonment / Separation
- Caregiver Capacity

Actual events or risk of any of the above

Contact FACS 905-937-7731 or 1-888-937-7731 and NRP if urgent

If your address is requested, provide 509 Glendale Ave. E. N-O-T-L.

If your phone number is requested provide your cell or 905-704-4005

Complete a detailed incident report including concerns forwarded to FACS, the date and time you contacted FACS and the name of the person you reported to.

It is your duty under the Ontario Child and Family Services Act to report. If you are uncertain if a report should be made, contact FACS to consult and they will indicate if a formal report should be made.

Paramedic Prompt Card for Sepsis

Paramedic Prompt Card for Sepsis Reference	YES	NO
Suspected or Confirmed Signs and Symptoms of Infection? **Skin:** Cellulitis, Wound, Burns **Immunocompromised Neuro:** LOC changes, Weakness, Indwelling Medical Device **Chest:** Cough, SOB, Recent Surgery/Invasive Procedure **Abdomen:** Pain, Vomiting, Diarrhea, History of Fever or Rigors (shakes) **Urine:** Dysuria, Frequency, Odour		
Age : ≥ 18		
At Least **2 OR MORE**: **Temperature:** < 36° C OR ≥ 38° C **Pulse:** ≥ 90 bpm **Respiratory Rate:** ≥ 20bpm		
And at least ONE of the following Signs of Hypoperfusion (O2 Sat <92%) Systolic BP <90mmHg New Altered mental status		
Suggested Treatment IV access obtained Intravenous & Fluid Therapy Directive (bolus)		
Notify ED of ***Sepsis Alert***		

Paramedic Prompt Card for Sepsis (NEMS)

Paramedic Prompt Card for Sepsis Reference	YES	NO
Suspected or Confirmed Signs and Symptoms of Infection? • ***Skin***: Cellulitis, Wound, Burns • ***Immunocompromised /Neuro***: LOA changes, Weakness, Indwelling Medical Device , Chemotherapy • ***Chest***: Cough, SOB, Recent Surgery/Invasive Procedure • **Abdomen**: Pain, Vomiting, Diarrhea with a history of fever or rigors • ***Urine***: Dysuria, Frequency (increased or decreased), Odour		
Age : ≥ 18		
At Least **2 OR MORE of the following**: • ***Temperature***: < 36° C OR ≥ 38° C • ***Pulse***:≥ 90 bpm • ***Respiratory Rate***:≥ 20bpm		
And at least ONE of the following • Signs of Hypoperfusion (mottled extremities, poor cap refill, etc) • Systolic BP <90mmHg • New altered LOA		
If you answer yes to all of the above then Notify ED of ***Sepsis Alert***		

Suggested Treatment

- IV access
- Intravenous & Fluid Therapy Directive
- If the patient clearly meets the Sepsis Alert **AND** they do not meet the Medical Directive for fluid therapy, consider contacting the BHP for IV fluid orders.

HOSPITAL DESTINATION POLICY - Niagara Region

The URGENT CARE CENTRE will only accept PATIENTS that meet the established guidelines (effective October 2009)

The Paramedic will:

Make a decision regarding receiving facility and transport the patient to that facility or an alternate facility as confirmed or directed by:

- an ambulance dispatcher, or
- an attending physician, with dispatch confirmation, or
- a base hospital physician, with dispatch confirmation, or
- approved local transfer guidelines, or
- the patient, with dispatch approval.

In the absence of direction, transport to the closest or most appropriate hospital emergency department capable of providing the medical care apparently required by the patient. The goal is to expedite time to definitive care. When there are two or more hospitals equal in time from the level 1 or 2 patient, the Paramedic may choose among available sites in consultation with NEMS Communications.

If in the paramedic's judgment, the patient can be managed en route the patient will be transported to the most appropriate hospital (as indicated below).

If the patient deteriorates during transport, and survival to the directed receiving facility is questionable, **the paramedic will** transport the patient to the **closest** or most appropriate hospital emergency department capable of providing the medical care immediately required by the patient. **The paramedic will** immediately notify dispatch of any destination change, and notify or ask dispatch to **notify** the **initial** and **receiving** facility.

Patient preference for a specific hospital, other than the closest, will be considered where resources permit based on clinical factors or continuity of care.

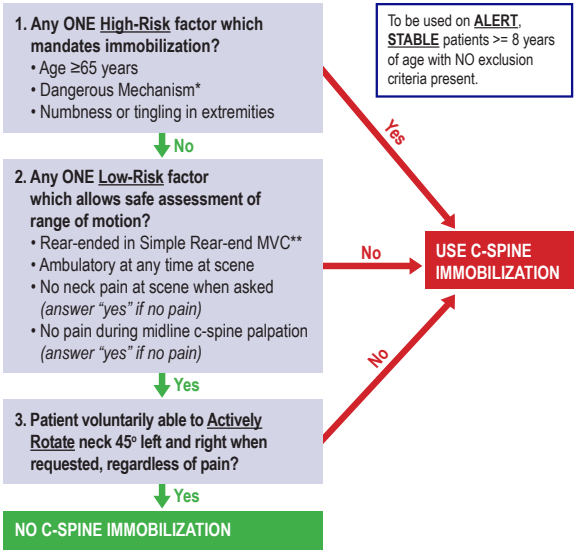
CONDITION	DESCRIPTION	DESTINATION
TRAUMA	Paramedics/ Dispatchers will consider utilization of the Field Trauma Standard for Air Ambulance All critical trauma patients meeting Field Trauma Triage (FTT) Standard Criteria where the incident location is within 30 minutes transport time to a Lead Trauma Centre (Trauma Geofence) will be transported to the Lead Trauma Centre in accordance with the guidelines (Policy 3.12h). All critical trauma patients meeting FTT Standard Criteria but outside the Trauma Geofence will be transported to the closest Emergency Department	**Closest Emergency Department/Trauma Center**
HEAD TRAUMA ***Hospitals with CT:*** *GNG, SCS and WH Sites in Niagara* ***HGH Site in Hamilton***	All patients with head trauma & **an altered LOC not meeting FTT Standard** will be taken to the closest hospital with a **functioning** CT. If they are in active resuscitation then the patient is to be transported to the closest ED.	**Closest Emergency Department with a functioning CT (GNG, SCS, WH and HGH)**

STROKE EMERGENCIES ***Stroke Centers:*** *GNG Site and Hamilton General Hospital* ***Hospitals with CT:*** *GNG, SCG and WH Sites in Niagara* ***HGH in Hamilton***	**Patients meeting the criteria of the Paramedic Prompt Card will be taken to the closest Stroke Centre for evaluation (attached)** Those stroke patients who do **not** meet the Paramedic Prompt Card criteria will be taken to the closest hospital with a functioning CT. If CT is down at the GNG Site, patients who meet the Provincial Paramedic Prompt Card criteria will be taken to the closest site with a functioning CT with "next on table" priority. They will then be transported to the GNG Site for assessment by the Stroke Team (see attached Appendix A_2 - CT Downtime Contingency Plan for Stroke Thrombolysis (tPA).	**Closest Stroke Center**
SEXUAL ASSAULT	All victims of sexual assaults will go to the **closest** hospital for medical clearance. Following patient triage, registration, and physician assessment appropriate transfer arrangements to SCS/**HGH** will be made by the receiving site if the patient requires sexual assault services.	**Closest hospital for medical clearance – then may require transfer to SCS or HGH as appropriate**
DIALYSIS EMERGENCIES	All hemo/ peritoneal dialysis with **related complaints** will be transported to SCS unless the patient is actively being resuscitated, patients will be transported to the closest hospital. - **Consideration will be given to St. Joseph's Health Care Hamilton for patients picked up West of RR24**	**St. Catharines Site or St. Joseph's Health Care**
OBSTETRICAL & GYNECOLOGICAL EMERGENCIES	Patients whose chief complaint is Obstetrical in nature will be taken to the SCS (**or WLMH if closer**) unless active resuscitation is in progress or in the case of a laboring patient a presenting fetal part is visible (e.g. crowning). These patients will be taken to the closest Emergency Department. If childbirth has occurred, and no active resuscitation is required, infant and mother should be transported to SCS **or WLMH, whichever is closest.** **Note: WLMH should typically only be considered for patients greater than 36 weeks gestation.** Patients whose presentation is highly suggestive of an ectopic pregnancy, for eg. sudden onset severe abdominal pain in a female of child bearing age, should also be considered for transport to SCS or **WLMH if closer.** *Pregnant patients whose chief complaint is clearly* ***NOT*** *OB/GYN in nature will be transported under the appropriate destination for that complaint as outlined within this policy.*	**St. Catharines Site or WLMH, whichever is closest, unless active resuscitation in progress OR presenting fetal part is visible.**
ONCOLOGY and PALLIATIVE EMERGENCIES	Patients will go to the hospital where they have been receiving treatment within Niagara Region if they can be managed en route. **Niagara's Regional Cancer Program is the SCS.** **(*Consideration* will be given Juravinski in Hamilton for patients picked up West of RR24)**	**St. Catharines Site (*consideration* for Juravinski West of RR24)**

PAEDIATRIC EMERGENCIES (less than 16 yrs. of age)	Paediatric patients triaged as **Level 1, or who require active resuscitation,** will go to the closest hospital for immediate assessment and stabilization. Non-complex Paediatric patients will be taken to the **closest** hospital or may be transported to a UCC in accordance with the Urgent Care Destination Criteria. **Complex patients, such as those with indwelling medical devices, with medically complex histories or injuries, or who are currently receiving treatment at St. Catharines Site, should be transported to the closest hospital with a pediatrician available (SCS in Niagara, MUMC in Hamilton) if the patient can be managed during transport.** All other patients will be transported to the closest appropriate hospital as outlined in this policy (for example, orthopedics or trauma).	**If active resuscitation go to closest hospital.** Complex patients go to St. Catharines Site or MUMC depending on location
MENTAL HEALTH EMERGENCIES	Patients of all ages where **mental illness is the primary problem** will be taken to a **schedule 1 facility:** SCS in Niagara, or **St. Joseph's Healthcare in Hamilton if closer**. Patients should be taken to the closest of the two sites. Consideration for previous treatment history with a facility may be considered in choosing an appropriate destination. Patients with a history of mental illness, but in whom the **primary problem** is medical (i.e. overdose etc.) or surgical emergency will go to the **closest** appropriate hospital as outlined elsewhere in this policy.	**If primary problem is medical go to closest hospital.** **If Mental Illness is the primary problem then go to St. Catharines Site, or SJHH if closer.**
ORTHOPEDIC EMERGENCIES	Patients with major orthopedic emergencies (i.e. long bone fracture, spinal or pelvic fracture, open fracture or gross deformity) will be taken to the closest appropriate hospital i.e. where there is an Orthopedic Surgeon on-call if they can be managed en route. **This includes HGH to the West**. Patients under 16 should be transported to SCS **(MUMC if closer)** *Patients with minor orthopedic emergencies (i.e. isolated orthopedic injury, fractured wrist, ankle etc.) will be taken to the closest hospital ED or UCC if they meet the Urgent Care Centre Destination Criteria.*	**Major: Closest hospital with Ortho (peds to SCS or MUMC)** **Minor: Closest hospital or UCC**

Appendix A_2 – CT Downtime Contingency Plan for Stroke Thrombolysis (tPA)

"The Canadian CSPINE Rule"



***Dangerous Mechanism:**
- fall from elevation ≥3 feet/5 stairs
- axial load to head, e.g. diving
- MVC: rollover, ejection, high speed (≥100km/h)
- motorized recreational vehicles, e.g. ATV, snowmobile
- bicycle collision with object, e.g. post, car

****Simple Rearend MVC Excludes:**
- pushed into oncoming traffic
- hit by bus/large truck
- rollover
- hit by high speed vehicle (≥100km/h)

Paramedic Prompt Card for STEMI Hospital Bypass Protocol

This prompt card provides a quick reference of the *STEMI Hospital Bypass Protocol* contained in the *Basic Life Support Patient Care Standards* (BLS PCS). Please refer to the BLS PCS for the full protocol.

Indications under the STEMI Hospital Bypass Protocol

Transport to a PCI centre will be considered for patients who meet **ALL** of the following:

1. ≥18 years of age.
2. Chest pain or equivalent consistent with cardiac ischemia/myocardial infarction.
3. Time from onset of current episode of pain <12 hours.
4. 12-lead ECG indicates an acute AMI/STEMI*:
    a. At least 2 mm ST-elevation in leads V1-V3 in at least two contiguous leads; **AND/OR**
    b. At least 1 mm ST-elevation in at least two other anatomically contiguous leads; **OR**
    c. 12-lead ECG computer interpretation of STEMI and paramedic agrees.

*Once activated, continue to follow the STEMI Hospital Bypass Protocol even if the ECG normalizes.

Contraindications under the STEMI Hospital Bypass Protocol

ANY of the following exclude a patient from being transported under the STEMI Hospital Bypass Protocol:

1. CTAS 1 and the paramedic is unable to secure patient's airway or ventilate.
2. 12-lead ECG is consistent with a LBBB, ventricular paced rhythm, or any other STEMI imitator
3. Transport to a PCI centre ≥60 minutes from patient contact.**
4. Patient is experiencing a complication requiring PCP diversion:**
    a. Moderate to severe respiratory distress or use of CPAP.
    b. Hemodynamic instability or symptomatic SBP <90 mmHg at any point.
    c. VSA without ROSC.
5. Patient is experiencing a complication requiring ACP diversion:**
    a. Ventilation inadequate despite assistance.
    b. Hemodynamic instability unresponsive/not amenable to ACP treatment/management.
    c. VSA without ROSC.

**The interventional cardiology program may still permit the transport to the PCI centre.

CACC/ACS will authorize the transport once notified of the patient's need for bypass under the STEMI Hospital Bypass Protocol.

Ontario

Pediatric Patient Priority System (PPS)

Pediatric patients (less than 18 years) will be transported according to the Basic Life Support Patient Care Standards, Patient Transport Standard. The following presentations should be taken to the facility listed as the most appropriate hospital capable of providing the medical care apparently required by the patient. VSA, pre-arrest or unresolved airway compromise patients should be transported to the closest facility unless otherwise directed by provincial guidelines/ standards.

Decision Priorities		
1	• Patient meets Provincial Field Trauma Triage Guidelines 16 years old and over.	HHS General Site*
2a	• Pregnant patients ≥ 32 weeks gestation in labour or expected complications for fetus or mother	Obstetrics Assessment Area SJH or MUMC (planned site of care or closest if no planned site)
2b	• Pregnant patients 20-31 weeks gestation in labour or expected complications for fetus or mother	Obstetrics Assessment Area MUMC
2c	• Pregnant patients < 20 weeks gestation in labour or expected complications for fetus or mother	MUMC ED
3	• All other Pediatric Patients	McMaster Children's Hospital

NOTE:
Suspected Ebola Virus Disease (EVD) disease patients must be considered according to the tool attached
*In any case that a regional hospital is closed to any incoming patients (i.e. fire in the hospital), CACC will decide the hospital destination.

Adult Patient Priority System (PPS) (HPS)

Adult patients 18 years and older will be transported according to the Basic Life Support Patient Care Standards, Patient Transport Standard. The following presentations should be taken to the facility listed as the most appropriate hospital capable of providing the medical care apparently required by the patient. VSA, pre-arrest or unresolved airway compromise patients should be transported to the closest facility unless otherwise directed by provincial guidelines/standards.

Decision Priorities		
1	• Patient meets Field Trauma Triage Guidelines, including pregnant patient meeting Field Trauma Triage Guidelines • Possible ST Elevation MI (Provincial Paramedic Prompt Card) • Acute Stroke (Provincial Paramedic Prompt Card) • Major Burn >25% Total Body Surface or airway problems • Smoke Inhalation Injury with altered LOC • Diving/Decompression Incidents	**HHS General Site***
2	• Dialysis patient • Psychiatric emergency (as per Recognition Tool)	**St. Joseph's Healthcare***
3a	• Pregnant patients ≥ 32 weeks gestation in labour or expected complications for fetus or mother	**Obstetrics Assessment Area SJH or MUMC (planned site of care or closest if no planned site)**
3b	• Pregnant patients 20-31 weeks gestation in labour or expected complications for fetus or mother	**Obstetrics Assessment Area MUMC**
3c	• Pregnant patients < 20 weeks gestation in labour or expected complications for fetus or mother • All other Pregnant patients regardless of gestational age with non-FTTG injury or other medical concern	**St. Joseph's Healthcare ED**
4	• Known or suspected Sexual Assault	**HHS General Site or HHS Juravinski Site**
5	• Possible GI Bleed (as per Recognition Tool) • Possible Hip Fracture (as per Recognition Tool)	**St. Joseph's Healthcare* or HHS Juravinski Site***
6	• Patients with musculoskeletal injury possibly requiring surgery (as per Recognition Tool)	**St. Joseph's Healthcare* or HHS General Site***
7	• UCC Patients (St. Joseph's King Street East Campus UCC, and HHS Main Street West UCC) transported to the "arranged" Emergency Department for continuation of the patient care.	**Any "arranged" ED or direct to any "arranged" unit (with immediate transfer of care).**
8	Patients with a recent history at a particular hospital for a related problem (defined as inpatient within 14 days)	**Facility with most recent history (as defined).**
9	Attending physician has made arrangements, as confirmed by Hamilton CACC with the receiving hospital and the "accepting" physician identified.	**Any "arranged" ED or direct to any "arranged" hospital unit.**
10	**All other patients.**	**As directed by CACC considering all factors**

NOTE: For Decision Priorities #7 through #9, CACC will endeavor to distribute patients in a manner that facilitates equity and prompt transfer of care.
Suspected Ebola Virus Disease (EVD) disease patients must be considered according to the tool attached
***In any case that a regional hospital is closed to any incoming patients (i.e. fire in the hospital), CACC will decide the hospital destination.**

GI Bleed Recognition Tool (HPS)

For the purposes of the Patient Priority System:

Patients with possible "GI bleeds" (gastrointestinal bleeding) recognized by the guidelines below should be transported to the appropriate Emergency Department (St. Joseph's Healthcare or HHS Juravinski Site) as directed by CACC.

INCLUSION

The patient must be; ≥ 18 years of age and meet the following:

- 1. Vomiting blood (hematemesis) bright red blood, dark red blood, dark brown/black blood ("coffee grounds") or blood clots.
- 2. Passing red blood rectally (hematochezia) bright red blood, dark red blood or blood clots (with or without stools)
- 3. Passing black stools (melena) sticky, black, "tarry", stools with a typical foul smell – may be mixed with red or maroon blood.

EXCLUSION

Patients < 18 years should be transported as per the Pediatric Destination Determination Guidelines and not according to this Tool.

Education notes:

Relevant history:
If a patient with a possible "GI bleed" has an extensive history with one site (eg: such as post operative, oncology, dialysis, multiple admissions, or discharged patient), it would be preferable for the patient to be transported to that site (excluding McMaster Children's Hospital or HHS Hamilton General Site).

Isolated Hip Fracture Recognition Tool (HPS)

For the purposes of the Patient Priority System:

Patients with possible "isolated" hip fracture recognized by the guidelines below should be transported to the Emergency Department as directed by CACC (St. Joseph's Healthcare or HHS Juravinski Site).

INCLUSION

Mechanism: Fall from sitting (chair), bed, or standing (not height or MVC); may have other minor injuries (i.e. contusions); AND

History of: Pain in hip or groin at rest or with patient initiated movement (paramedic should not intentionally move joint); AND

Examination: May have externally rotated and/or shortened leg.

EXCLUSION

1. Patient meets the Trauma Triage Guidelines

2. Patient with hip joint replacement on same side (Pt should be transported to site of original joint replacement surgery. If original site is unknown normal distribution guidelines will apply).

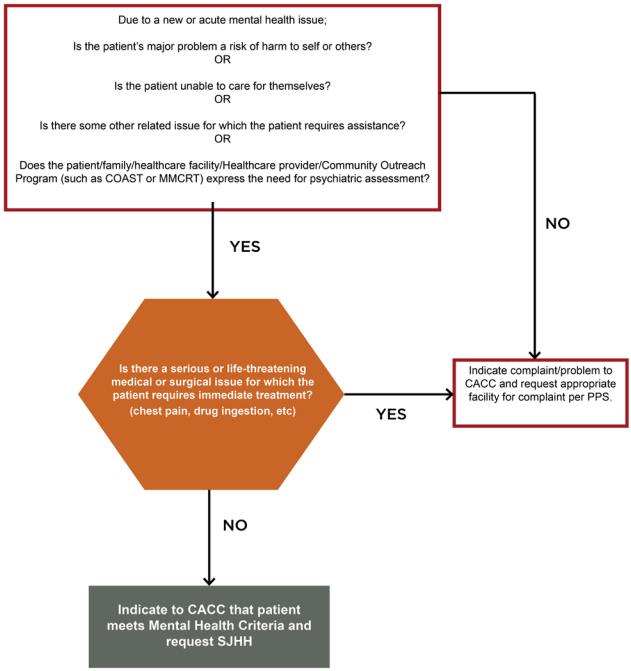
Education notes:

1. "Isolated" hip fracture: Refers to no other recognized significant injuries.

2. Mechanism:
The intention of the above listed mechanism is to select those patients that are unlikely to have additional injuries (significant trauma mechanism). Although the tool states fall from sitting, lying, standing, this may also include a single step or curb but is meant to exclude more significant falls.

3. Relevant history:
If a patient with a possible hip fracture has an extensive history with one site (i.e. such as post-operative, oncology, dialysis, multiple admissions, or discharged patient), it would be preferable for the patient to be transported to that site (excluding McMaster Children's Hospital or HHS Hamilton General Site).

Psychiatric Emergency Recognition Tool (HPS)



Musculoskeletal Injury Recognition Tool (HPS)

For the purposes of Patient Priority System:

Patients with suspected significant orthopedic fractures which might require immediate surgery (excluding hip) by the guidelines below should be transported to the Emergency Departments of St. Joseph's Hospital or Hamilton General Hospital as directed by CACC.

INCLUSION

Adult patients (≥18) with:

1. Suspected "open" fracture of any limb, OR

2. Severe bony deformity of an injured lower limb

EXCLUSION

1. Patient's injury is at site of known joint replacement (prosthetic joint), then transport to the Emergency Department to the site where the joint replacement surgery was performed or the Juravinski or St. Joseph's Hospital as directed by CACC.

2. Receiving active oncology treatment at the Juravinski Cancer Clinic, transport to the Juravinski Emergency Department.

Education notes:

1. If Patient meets the Provincial Trauma Triage Guidelines, then transport to Hamilton General Hospital as directed by CACC.

2. If Patient meets the Possible Hip Fracture Identification Tool, preferentially follow that tool, then transport to the Emergency Department of the Juravinski or St. Joseph's Hospital as directed by CACC.

3. "Open" fracture or compound fracture: Refers to a fracture with an associated wound. This can include circumstances where the bone fragments can be seen protruding through a wound, where there is a large skin defect or even just a small puncture sized wound where the bone may have penetrated the skin but is no longer visible. Any open injury (other than an abrasion) associated with a suspected fracture can be considered a suspected "open" fracture for the purposes of this guideline.

4. The Juravinski Hospital will continue to treat pathological fractures associated with a malignancy

5. All Sites, including the Juravinski Hospital, will continue to manage patients with fractures not requiring immediate surgery, dislocations and soft tissue injuries.

Ebola Virus Disease (EVD) Screening Recognition Tool

For the purposes of the Patient Priority System:

Patients who are screened as positive (suspected EVD) using the most current Ministry of Health and Long Term Care (MOHLTC) EVD Screening Tool, and who meet specific destination protocol criteria, will be preferentially transported as indicated below:

Adult patient ≥18 years of age and screened positive for EVD:

- For Decision Priority 1 through 4, follow the current Adult PPS by transporting the patient to the identified destination as per normal practice.
- For Decision Priority 5 through 10, transport the adult patient to the Juravinski Hospital

Pediatric patient <18 years of age and screened positive for EVD:

- For all Decision Priority criteria follow the current Pediatric PPS by transporting the patient to the identified destination as per normal practice.

Education Notes:

1. When a patient has screened positive for EVD, a patch to notify the receiving facility must be completed by the Paramedics regardless of transport priority.

2. The following hospitals are designated EVD testing sites although the ambulance destination decision will follow the direction above:
   - Juravinski Hospital – Adult patients (≥18 years of age)
   - McMaster Children's Hospital – Pediatric patients (<18 years of age)

Radio Channel Change Locations

Hamilton

QEW and Fifty Road=====NIA REG2 COM, contact Hamilton CACC

London

QEW and Fifty Road=====NIA REG2 COM, contact Hamilton CACC

Hwy 403 and County Road 25 (Middle Townline Road)=====NIA MOH ZN 1, contact London CACC

This is about 15-20 km west of Brantford

Mississauga

QEW and Fifty Road====NIA REG2 COM, contact Hamilton CACC

QEW and Hwy 403 (base of Burlington Skyway)=====NIA MOH ZN 1, contact Mississauga CACC

Toronto

QEW and Fifty Road====NIA REG2 COM, contact Hamilton CACC

QEW and Hwy 403 (base of Burlington Skyway)=====NIA MOH ZN 1, contact Mississauga CACC

QEW and Hwy 427====NIA PROV COM, contact Toronto CACC

When returning, the locations for changing back are the same.

If transporting a patient on return to Niagara, switch to NIA TAC 1 at Fifty Road. If you are returning empty, switch to NIA North at Fifty Road.

All channels are within the NIA folder and can be found by simply turning the Channel Selector.

Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

FAST Sepsis Pre-Alert for GWPS, HPS, and ROWPS

Do you suspect or know there is an infection? If yes, apply ParaHEWS (below)
If ParaHEWS **≥5**: notify receiving hospital of "Sepsis Pre-Alert" and Apply Capnography

Physiological Parameters	3	2	1	0	1	2	3
Heart Rate / Pulse		<41	41-50	51-100	101-110	111-130	≥131
Systolic BP	<71	71-90		91-170		171-200	≥201
Respiratory Rate	<8	8-13		14-20		21-30	≥31
Temperature (C)	<35		35.0-36.0	36.1-37.9 (or not available)	38.0-39.0	≥39.1	
O_2 Saturation	<85		85-92	≥93			
O_2 Therapy				Room Air	O_2 via nasal prongs		O_2 via face mask
Change in CNS from Baseline		New Confusion		Alert or Usual Self	Voice	Pain	Not responsive

www.sepsis-prealert.ca

STEMI Protocol Pearls

Symptoms

PAIN

Pain can be typical or atypical (but not only non-specific symptoms of dyspnea, nausea, fatigue, etc)

ACUTE

An acute history of symptoms of < 12 hours

ECG

QUALITY

Ensure good quality ECG

- Shave chest
- No moving/talking

REPEAT

If negative, do serial ECGs

(1) before treatment
(2) in ambulance prior to leaving scene
(3) in ambulance prior to moving into ED

CAUTION

ECGs can be tricky, rule out mimics
If not certain, go to closest appropriate ED

Geography

60 MINUTES

Maximum 60 minutes from first medical contact to PCI centre

If you are quicker on scene (eg: 15 minutes), this will allow longer transport time (eg: 45 minutes)

BOUNDARIES

Know the PCI centres in your area
CACC may be able to assist

HGH **1-844-832-6830**

Brampton **1-416-747-3500,1**

St. Mary's **1-519-653-4074**

Southlake **1-905-952-2466**

Trillium **1-888-493-3568**

Prepare

CAUTION

Caution with nitro and morphine

Neither of these medications are life-saving in STEMI patients & can cause adverse events

"PADS ON"

Defibrillation pads are placed on all patients with suspected STEMI

BE READY

Be familiar with the common complications that can occur:

- dysrhythmias
- pump failure
- cardiac arrest

Be ready to manage them

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Patch Process

Based on your area, call:

Brant / Brantford Paramedic Service
Dufferin County Paramedic Service
Guelph-Wellington Paramedic Service
Haldimand County Paramedic Service
Hamilton Paramedic Service
Norfolk County Paramedic Service
Region of Waterloo Paramedic Service
Six Nations Paramedic Services

1-888-256-6629

Niagara EMS

905-704-4019

Busy Signal	Another patch is ongoing. Wait 30 seconds for diverter to reset. Call again.	If unsuccessful, Call CACC for direct patch to HGH BHP
Voicemail	Both BHP's are busy with a patch. Wait 30 seconds. Call again.	If unsuccessful, Call CACC for direct patch to HGH BHP
Dropped call	Check connectivity. Call again.	If unsuccessful, Call CACC for direct patch to HGH BHP

Please email report to CQI@CPER.CA if unsuccessful with radio patch

Medication Safety Starts with You

When you see the "5Rs" symbol throughout this guidebook, it is a reminder to always confirm:

- RIGHT **PATIENT**
- RIGHT **DRUG**
- RIGHT **DOSE**
- RIGHT **ROUTE**
- RIGHT **TIME**

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