Primary Care Paramedic

Medical Directives

ALS PCS 5.3

Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

2024 - v4
PRINT DATE 2024-07-30

The Emergency Health Services Branch of the Ministry of Health Version 5.3 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. As the ALS PCS is a living document, this Medical Directive book may not be an accurate reflection of the current scope of practice and/or ALS PCS. Paramedics are to refer to the CPER website for access to the most up to date version of the ALS PCS and to their certification letter for currently authorized medications and procedures.

Dr. Paul Miller
Regional Medical Director

Dr. Rupinder Singh Sahsi
Assistant Medical Director

Dr. Erich Hanel
Assistant Medical Director

Note: This Paramedic guide contains content from the Ministry of Health Advanced Life Support Patient Care Standards, version 5.3 dated February 9, 2024. To access the full document please refer to www.CPER.ca.

Centre for Paramedic Education and Research
430 McNeilly Road, Unit 201
Stoney Creek, Ontario L8E 5E3
Phone 905 521-2100 x71223
Fax 905 643-1104

Table of Contents

Table of Contents continued

Introduction

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. In the provision of ALS PCS care, paramedics are required to ensure patient care and documentation is provided in accordance with all appropriate Standards as indicated in O. Reg. 257/00.

Comprehensive Care

Although two patient care standards exist, both Standards represent a continuum of care that is to be followed in an integrated fashion during a call for service. 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.

Format of the ALS PCS

This document is comprised of a Preamble section and six (6) sections: Section 1 – PCP Core Medical Directives; Section 2 – ACP Core Medical Directives; Section 3 – PCP Auxiliary Medical Directives; Section 4 – ACP Auxiliary Medical Directives; Section 5 – Certification Standard, and Section 6 – Research Trial Standard

Use of the Medical Directives by Paramedics

These Medical Directives apply to paramedics who are authorized by a RBHP Medical Director to provide patient care. Delegation of controlled acts in the ALS PCS to paramedics falls under the exclusive oversight of the RBHP. Critical Care Paramedics and Advanced/Primary Care Flight Paramedics will perform controlled acts in accordance with the Base Hospital (RBHP) Medical Directives issued by the Ornge Base Hospital Medical Director(s).

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") controlled medical acts or advanced medical interventions may be delegated through use of the Auxiliary Medical Directives. Delegation of Auxiliary Medical Directives by a RBHP Medical Director to paramedics is optional and may be introduced after consultation and mutual agreement between the RBHP 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.

Special Event Medical Directives
Medical Directives have been developed for time limited periods when a mass gathering could potentially strain the resources of the host community. These medical directives shall only be used by paramedics who have completed the necessary training and received Regional Base Hospital Program authorization.

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 plan being proposed.

The elements are required for consent to treatment are:

a) consent must be given by a person who is capable of giving consent with respect to treatment;
b) consent must relate to the treatment plan;
c) consent must be informed;
d) consent must be given voluntarily; and
e) 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:

a) received the following information that a reasonable person in the same circumstances would require in order to make a decision about the treatment plan:
    i. the nature of the treatment;
    ii. the expected benefits of the treatment;
    iii. the material risks of the treatment;
    iv. the material side effects of the treatment;
    v. alternative courses of action;
    vi. the likely consequences of not having the treatment; and
b) 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 incapable with respect to the treatment plan. 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 the treatment plan if the patient is:

a) Able to **understand** the information that is relevant to making a decision about the treatment or alternatives being proposed; **and**

b) Able to **appreciate** the reasonably foreseeable consequences of a decision or lack of decision with respect to the treatment plan.

If a patient is incapable of consenting to a proposed treatment plan, 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).

Discharge from Care

If a paramedic is certified and authorized by their Regional Base Hospital to perform a prehospital discharge from care as per the applicable Medical Directives, the following applies. For the purpose of the applicable Medical Directives, a patient or substitute decision maker (SDM) present at the scene, must be capable to make an informed decision about their treatment plan.

A paramedic authorized to perform a prehospital discharge from care shall:

1. Determine whether a patient may be treated in accordance with the Treat and Discharge component of the applicable Medical Directive,
2. Communicate a clinically reasonable differential diagnosis to the patient or SDM,
3. Discuss the following elements of a discharge treatment plan:
   a. The clinical situation related to the most likely diagnosis and/or differential diagnoses,
   b. The symptoms and signs alerting them to seek further medical care (i.e. clues that the condition is worsening or that the diagnosis may not be correct),
   c. Instructions regarding modifications(s) of activities of daily living following the health event,
   d. Where possible, provide additional contacts for follow up care,
   e. Instructions to call 911 back if their condition worsens or recurs, and
4. Ensure the patient has the necessary support to follow a discharge treatment plan. These supports may include: a. access to food,
   b. access to transportation,
   c. access to alternate health care follow up,
   d. a safe place to stay,
   e. responsible adult at the scene available to monitor the patient, and
   f. consideration of other apparent patient vulnerabilities.

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.

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.

This authorization level can no longer be obtained and only those who have previously received this authorization may continue to practice at this level.

"PCP Autonomous IV" is authorization 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 OBHG MAC.

Home Medical Technology and Novel Medications

As community care advances, new home medical technologies and novel medications are being introduced for home use by patients and caregivers trained in the care required. 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.

A paramedic may accept the claim that a patient or caregiver has knowledge and training about the technology or medication encountered. A paramedic may only assist a patient or caregiver within the authorized paramedic skill set.

For unusual circumstances requiring interventions in the out of hospital setting, the RBH may create local training modules, treatment guidelines or medical directives

Patching

A paramedic shall patch to the Base Hospital when:

a) a medical directive contains a mandatory provincial patch point; **OR**

b) 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**

c) for consultation when, in the paramedics opinion the patient presentation or situation warrants and medical advice is required.

In cases where a treatment option requires the prior authorization by the BHP 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 requires a critical, potentially life-saving, intervention and, in the paramedic's opinion, the intervention would otherwise apply. All patch failures must be reported in a timely manner to the RBHP in accordance with local policy and procedures. Paramedics should document the attempts to patch to the BHP 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 they cannot comply with the direction as it exceeds their 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 RBHP.

Responsibility of Care

Each paramedic is equally responsible for patient care within their scope of practice. If the care exceeds a paramedics scope of practice, responsibility for that continued care shifts to the higher certified paramedic.

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.

The risks to the patient during transport should be assessed and discussed prior to transferring care from a higher to lower level of paramedic (e.g.: ACP to PCP), paramedics must alert the highest-level paramedic of any change of patient status at any time in the call.
When transferring care from one level of paramedic to another, paramedics shall provide:

a) current CTAS level;
b) a history of the patient's current problem(s) and relevant past medical history;
c) pertinent physical findings;
d) a summary of management at scene/en route;
e) the patient's response to treatment, including most recent vital signs; and
f) 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 the 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 MOH.

Patient Care Model

Any patient care model subject to The Patient Care Model Standard (PCMS) requires approvals and training as per the PCMS. Paramedics shall assess and provide treatment to all patients in accordance with the ALS PCS and BLS PCS when patients do not completely meet the specific parameters of approved Patient Care Models.

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 shall initiate the treatment when the indications are first identified unless there is strong clinical rationale to withhold or delay treatment or other extenuating circumstances. A paramedic must document his or her justification for withholding treatment on the ACR.

Medication Doses and Administration

Unless specified within the medical directive, the number of recommended medication doses may be administered regardless of any previous administrations. When more than one route of medication administration is listed, clinical circumstances for each case should determine the final route chosen.

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 RBHP approved 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. 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 (under 18 yrs. is generally considered a pediatric patient). 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. Age will be written as a number of hours, days, or years throughout the medical directives. 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
ALS	Advanced Life Support
ALS PCS	Advanced Life Support Patient Care Standards
ASA	Acetylsalicylic acid
AED	automated external defibrillation

B

BHP	Base Hospital Physician
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
COWS	Clinical Opiate Withdrawal Scale
cm	Centimeter
CPAP	Continuous positive airway pressure

CPR	Cardiopulmonary Resuscitation
CTAS	Canadian Triage and Acuity Scale
CVA	Cerebral vascular accident
CVAD	Central venous access device

D

DKA	Diabetic ketoacidosis
DNR	Do Not Resuscitate

E

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

F

FiO_2	Fraction of inspired oxygen

G

g	Gram
GCS	Glasgow Coma Scale
gtts	Drops

H

H_2O	Water
HR	Heart rate
Hx	History
HF	Hydrofluoric Acid

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
MAC	Medical Advisory Committee
mcg	Microgram
MDI	Metered dose inhaler
mg	Milligram
Min.	Minimum
min	Minute
mL/kg	Milliliter per kilogram
mmHg	Millimeters of mercury
MOH	Ministry of Health
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
PPV	Positive Pressure Ventilation
PO	by mouth/oral
PRN	as needed

Q

q	every

R

RBHP	Regional Base Hospital Program
ROSC	Return of spontaneous circulation
RR	Respiratory rate

S

SAED	Semi-automatic external defibrillation
SC	Subcutaneous
SL	Sublingual
SBP	Systolic blood pressure
SpO_2	Saturation of peripheral oxygen
STEMI	ST-segment elevation myocardial infarction

T

TBI	Traumatic brain injury
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 RBHPs 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 assessment and reflective practice. The reference and educational notes do not define a standard of care and is not a nested document to this standard; however, they should be considered useful in ensuring that an appropriate standard of care is met.

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	EPINEPHrine	Dexamethasone
AGE: N/A	AGE: N/A	AGE: N/A
LOA: N/A	WEIGHT: N/A	LOA: N/A
HR: N/A	LOA: N/A	HR: N/A
RR: N/A	HR: N/A	RR: N/A
SBP: N/A	RR: BVM ventilation required	SBP: N/A
Other: N/A	SBP: N/A	Other: Hx of asthma OR COPD OR 20 pack-year history of smoking
	Other: Hx of asthma	

CONTRAINDICATIONS

Salbutamol	EPINEPHrine	Dexamethasone
Allergy or sensitivity to salbutamol	Allergy or sensitivity to EPINEPHrine	Allergy or sensitivity to steroids Currently on PO or parenteral steroids

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.

Consider **dexamethasone**

	Route
	PO/IM/IV
Dose	0.5 mg/kg
Max. single dose	8 mg
Dosing interval	N/A
Max. # of doses	1

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

Current history of URTI;

AND

Barking cough or recent history of a barking cough

CONDITIONS

EPINEPHrine	
AGE:	≥ 6 months to <8 years
LOA:	N/A
HR:	<200 bpm
RR:	N/A
SBP:	N/A
Other:	Stridor at rest

Dexamethasone	
AGE:	≥ 6 months to <8 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	For mild, moderate and severe croup

CONTRAINDICATIONS

EPINEPHrine	Dexamethasone
Allergy or sensitivity to EPINEPHrine	Allergy or sensitivity to steroids Steroids received within the last 48 hours Unable to tolerate oral medications

TREATMENT

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

Consider **EPINEPHrine**

	Weight <10 kg Route NEB Concentration 1 mg/mL = 1:1,000	Weight ≥10 kg Route NEB Concentration 1 mg/mL = 1:1,000
Dose	2.5 mg	5 mg
Max. single dose	2.5 mg	5 mg
Dosing interval	N/A	N/A
Max. # of doses	1	1

Consider **dexamethasone**

	Age ≥ 6 months to < 8 years Route PO
Dose	0.5 mg/kg
Max. single dose	8 mg
Dosing interval	N/A
Max. # of doses	1

CLINICAL CONSIDERATIONS

N/A

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%

Confirm CPAP pressure by manometer (if available)

CLINICAL CONSIDERATIONS

N/A

Supraglottic Airway Medical Directive

A Primary Care Paramedic may provide the treatment prescribed in this 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:	Absent gag reflex

CONTRAINDICATIONS

Supraglottic Airway
Airway obstructed by a foreign object
Known esophageal disease (varices)
Trauma to the oropharynx
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 should use $ETCO_2$ (Waveform capnography). If waveform capnography is not available or is not working, then at least 2 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	Emergency Tracheostomy Reinsertion
AGE: N/A	AGE: N/A
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: 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 are presented with a tracheostomy cannula for the identified patient

CONTRAINDICATIONS

Suctioning	Emergency Tracheostomy reinsertion
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.

Intentionally Left Blank

Intentionally Left Blank

Intentionally Left Blank

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.

PRIMARY CLINICAL CONSIDERATION(S)

In the following settings, consider very early transport after a minimum of one analysis (and defibrillation if indicated) once an egress plan is organized:

1. pregnancy presumed to be ≥ 20 weeks gestation (fundus above umbilicus, ensure manual displacement of uterus to left);
2. hypothermia;
3. airway obstruction;
4. non-opioid drug overdose/toxicology, or;
5. other known reversible cause of arrest not addressed.

For patients in refractory VF or pulseless VT, transport of the patient should begin after the third consecutive shock. Refractory VF or pulseless VT is defined for the purpose of this directive, as persistent VF or pulseless VT after 3 consecutive shocks.

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: ≥ 24 hours
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: VF **OR** pulseless VT

AED or SAED Defibrillation

AGE: ≥ 24 hours
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Defibrillation indicated

If not using manual defibrillation

EPINEPHrine

AGE: ≥ 24 hours
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Anaphylaxis suspected as causative event

Medical TOR

AGE: ≥ 16 years
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Arrest not witnessed by paramedic **AND** No ROSC after 20 minutes of resuscitation **AND** No defibrillation delivered

CONTRAINDICATIONS

CPR

Obviously dead as per BLS PCS

Meet conditions of the BLS PCS *Do Not Resuscitate (DNR) Standard*

Manual Defibrillation

Rhythms other than VF or pulseless VT

AED or SAED Defibrillation

Non-shockable rhythm

EPINEPHrine	Medical TOR
Allergy or sensitivity to EPINEPHrine	Known reversible cause of the arrest unable to be addressed Pregnancy presumed to be ≥ 20 weeks gestation Suspected hypothermia Airway obstruction Non-opioid drug overdose/toxicology

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **CPR as per current Heart and Stroke Foundation of Canada Guidelines**

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

	Age ≥24 hours to <8 years	**Age** ≥8 years
Dose	1 defibrillation	1 defibrillation
First dose	2 J/kg	As per RBHP / manufacturer
Subsequent and max. dose(s)	4 J/kg	As per RBHP / manufacturer
Dosing interval	2 min	2 min
Max. # of doses	N/A	N/A

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

	Age	Age
	≥24 hours to <8 years	≥8 years
Dose	1 defibrillation with or without pediatric attenuator cable	1 defibrillation
Max. single dose	As per RBHP / manufacturer	As per RBHP / manufacturer
Dosing interval	2 min	2 min
Max. # of doses	N/A	N/A

Consider **EPINEPHrine** (only if anaphylaxis is 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 consider Medical TOR (if applicable).

If the patch fails or if Medical TOR does not apply, transport to the closest appropriate hospital following ROSC or 20 minutes of resuscitation without ROSC.

Patch early (e.g. following the 4th analysis) to consider TOR if there are extenuating circumstances surrounding egress, prolonged transport or significant clinical limitations where the paramedic considers ongoing resuscitation to be futile.

CLINICAL CONSIDERATIONS

Consider regional base hospital advanced airway strategy (e.g. SGA medical directive) where more than OPA/NPA and BVM is required.

There is no clear role for routine administration of naloxone in confirmed cardiac arrest.

The BHP might **not** authorize TOR even though the patient meets TOR rule. Factors may include: location of the patients, EtCO2, age, bystander witnessed, bystander CPR, transportation time, and unusual cause of cardiac arrest such as electrocution, hanging, and toxicology.

The BHP may authorize TOR even though the patient does **not** meet the TOR rule. Factors that may be taken into account include extenuating egress limitations, prolonged transport, caregiver wishes, existence of DNR confirmation form, and underlying end stage progressive illness.

LOCAL BHP CONSULTATION ADVISORY

In extenuating circumstances during unusual or prolonged codes, Paramedics may choose to patch for consultation.
Extenuating circumstances may include, but are not limited to, the following:

1. Unusual cardiac arrest causes (ie. FBAO, hypothermia, electrocution, toxicity)
2. Excessive epinephrine administration (>5-6mg) in prolonged resuscitations.
3. Excessive number of shocks (>3 with vector change) delivered without change in refractory dysrhythmia.

Patient presentation/underlying cause of cardiac arrest should be considered when carrying out a treatment plan.

*NOTE: Refer to page 46 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 120 for **CPR Guidelines***

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 or SAED Defibrillation

AGE: ≥24 hours
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Defibrillation indicated

Manual Defibrillation

AGE: ≥24 hours
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**
Rhythm Asystole **AND**
No signs of life at any time since fully extricated **OR**
Signs of life when fully extricated with the closest ED ≥30 min transport time away **OR**
Rhythm PEA with the closest ED ≥30 min transport time away.

CONTRAINDICATIONS

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 or SAED Defibrillation

Non-shockable rhythm

Trauma TOR

Age <16 years

Defibrillation delivered

Signs of life at any time since fully extricated medical contact

Rhythm PEA and closest ED <30 min transport time away

Patients with penetrating trauma to the torso or head/neck and Lead Trauma Hospital < 30 min transport time away

TREATMENT

Consider **CPR as per the current Heart and Stroke Foundation of Canada guidelines**

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

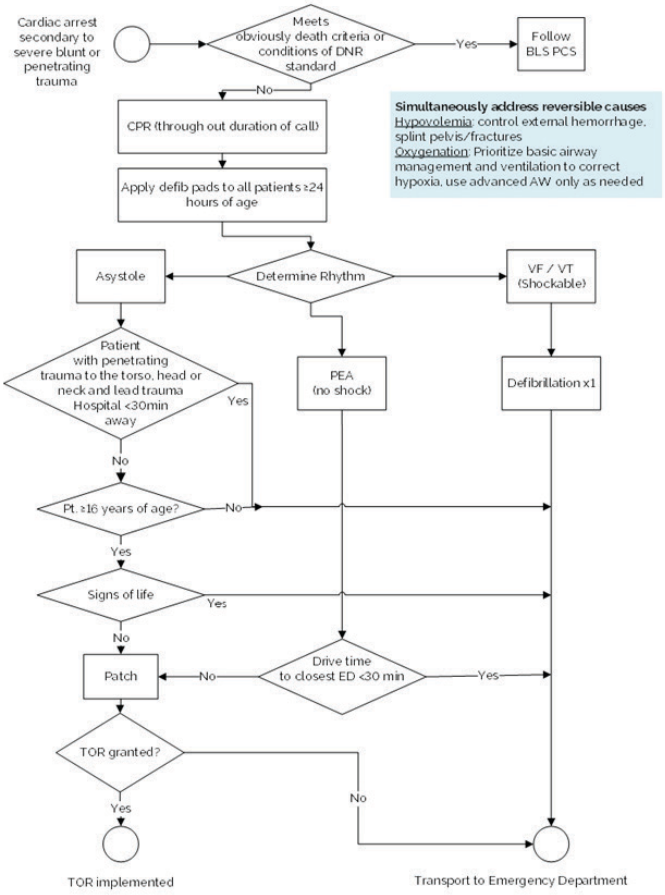
	Age ≥24 hours to <8 years	**Age** ≥8 years
Dose	1 defibrillation	1 defibrillation
Initial dose	2 J/kg	As per RBHP / manufacturer
Dosing interval	N/A	N/A
Max. # of doses	1	1

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

	Age ≥24 hours to <8 years	**Age** ≥8 years
Dose	1 defibrillation With or without Pediatric Attenuator Cable	1 defibrillation
Max. single dose	As per RBHP / manufacturer	As per RBHP / manufacturer
Dosing interval	N/A	N/A
Max. # of doses	1	1

⚠ Mandatory Provincial Patch Point ⚠

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


Cardiac arrest secondary to severe blunt or penetrating trauma
Meets obviously death criteria or conditions of DNR standard
Yes
Follow BLS PCS
No
CPR (through out duration of call)
Apply defib pads to all patients ≥24 hours of age
Simultaneously address reversible causes
Hypovolemia: control external hemorrhage, splint pelvis/fractures
Oxygenation: Prioritize basic airway management and ventilation to correct hypoxia, use advanced AW only as needed
Asystole
Determine Rhythm
VF / VT (Shockable)
Patient with penetrating trauma to the torso, head or neck and lead trauma Hospital <30min away
Yes
PEA (no shock)
Defibrillation x1
No
Pt. ≥16 years of age?
No
Yes
Signs of life
Yes
No
Patch
No
Drive time to closest ED <30 min
Yes
TOR granted?
Yes
No
TOR implemented
Transport to Emergency Department

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.

Signs of life: specifically any spontaneous movement, respiratory efforts, organized electrical activity on ECG, and reactive pupils.

An intravenous fluid bolus may be considered, where it does not delay transport and should not be prioritized over management of other reversible pathology.

*NOTE: Refer to page 46 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 120 for **CPR Guidelines***

Newborn Resuscitation Medical Directive

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

INDICATIONS

Newborn patient.

CONDITIONS

Positive Pressure Ventilation (PPV)	
AGE:	<24 hours
LOA:	N/A
HR:	< 100 bpm
RR:	N/A
SBP:	N/A
Other:	N/A

CPR	
AGE:	<24 hours
LOA:	N/A
HR:	< 60 bpm
RR:	N/A
SBP:	N/A
Other:	After 30 seconds of PPV using room air

CONTRAINDICATIONS

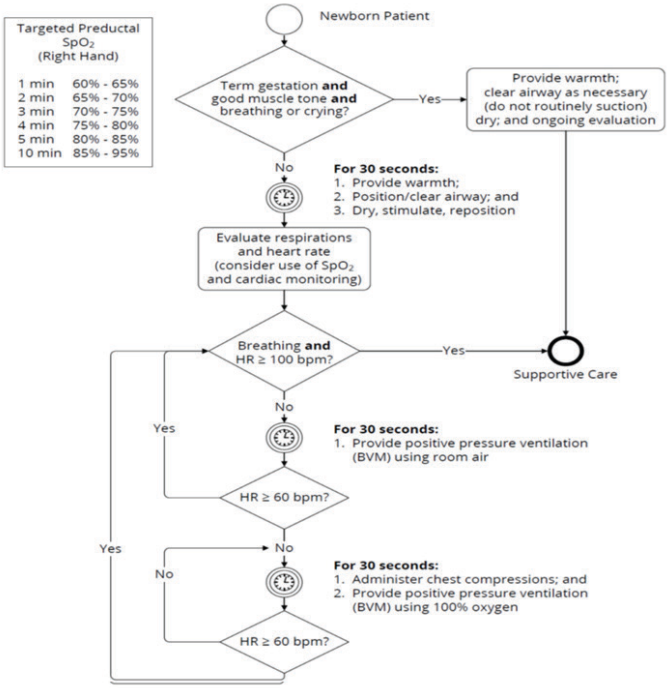
Positive Pressure Ventilation (PPV)
Obviously dead as per BLS PCS
Presumed gestational age less than 20 weeks

CPR
Obviously dead as per BLS PCS
Presumed gestational age less than 20 weeks

TREATMENT

Consider PPV as per the treatment flowchart

Consider CPR as per the current Heart and Stroke Foundation of Canada Guidelines



CLINICAL CONSIDERATIONS

If newborn resuscitation is required, initiate cardiac monitoring and right-hand pulse oximetry monitoring.

Infants born between 20-25 weeks gestation may be stillborn or die quickly. Initiate resuscitation and transport as soon as feasible.

If gestational age cannot be confirmed, initiate resuscitation and rapid transport.

If newborn is less than 20 weeks gestation, resuscitation is futile. Provide the newborn with warmth and consider patching to BHP for further direction.

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

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 *IV*	**Route** *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 118 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 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 at minimum V4R to confirm (ST-elevation ≥ 1mm in V4R).

Do not administer nitroglycerin to a patient with Right Ventricular STEMI.

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

Apply defibrillation pads when a STEMI is identified.

The goal for time to 12-lead ECG from first medical contact is < 10 minutes where possible.

*NOTE: Refer to page 118 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

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

Consider **nitroglycerin**

	SBP ≥100 mmHg to <140 mmHg	SBP ≥140 mmHg	
	IV or Hx* *Yes*	**IV or Hx*** *No*	**IV or Hx*** *Yes*
	Route *SL*	**Route** *SL*	**Route** *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 118 for **12 Lead ECG Placement***

Cardiogenic Shock Medical Directive - *AUXILIARY*

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

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

CONTRAINDICATIONS

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 fluid 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.

CLINICAL CONSIDERATIONS

"PCP Assist IV" authorizes 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 this Medical Directive. PCPs authorized for PCP Assist IV are not authorized to administer IV fluid or medication therapy.

Microdrips and/or volume control administration sets should be considered when IV access is indicated for patients <12 years of age.

An intravenous fluid bolus may be considered for a patient who does not meet trauma TOR criteria, where it does not delay transport and should not be prioritized over management of the other reversible causes.

*NOTE: Refer to page 46 for **Defibrillation Joule Setting Reference Chart.***

*NOTE: Refer to page 120 for **CPR Guidelines***

Intentionally Left Blank

Intentionally Left Blank

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

Suspected hypoglycemia

CONDITIONS

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

Glucagon	
AGE:	N/A (≥ 4 years for IN powder)
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

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

Consider **glucometry**

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

	Age ≥ 2 years	
	Concentration	**Concentration**
	10% dextrose	50% dextrose
	Route	**Route**
	IV	IV
Dose	0.2 g/kg (2 mL/kg)	0.5 g/kg (1 mL/kg)
Max. single dose	25 g (250 mL)	25 g (50 mL)
Dosing interval	10 min	10 min
Max. # of doses	2	2

Titrate dextrose to a level of awareness where the patient can safely consume complex carbohydrate.

Consider **glucagon** (if not using dextrose) intranasal powder (if aythorized and available)

	Age N/A		
	Weight <25 kg	**Weight** ≥25 kg	**Weight** N/A
	Route IM	**Route** IM	***Route*** IN
Dose	0.5 mg	1 mg	3 mg
Max. single dose	0.5 mg	1 mg	3 mg
Dosing interval	20 min	20 min	20 min
Max. # of doses	2	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.

Intranasal glucagon is a powder that is supplied in a commercially available single-dose intranasal device

CONSIDERATIONS FOR TREAT AND DISCHARGE (IF AUTHORIZED)

All of the following criteria must be met:

- the patient is ≥18 AND <65 years old;
- the patient has a diagnosis of diabetes;

- the hypoglycemia can be explained by insulin administration with inadequate oral intake;
- the hypoglycemia promptly responded to a single administration of dextrose or glucagon as per the Medical Directive and/or consumed oral glucose or other complex carbohydrates;
- this was a single isolated episode of symptomatic hypoglycemia within the past 24 hours;
- the blood glucose is ≥4.0mmol/L after treatment;
- the patient has a return to their normal level of consciousness and is asymptomatic;
- a complete set of vital signs are within expected normal ranges;

AND

- not an intentional overdose;
- the hypoglycemia must not be related to alcohol or substance abuse or withdrawal;
- no seizure or reported history of seizure prior to paramedic treatment,
- not on an oral hypoglycemic medication;
- hypoglycemia is not considered to be related to an acute medical illness, and;
- the patient is not pregnant.

In addition to the above criteria, if all of the following requirements have been met, the patient can be discharged by paramedics:

- the patient has access to appropriate carbohydrates;
- a responsible adult agrees to remain with the patient for the next 4 hours;
- all of the patient or substitute decision makers questions were answered and a care plan was developed;
- the patient or substitute decision maker has been advised to follow up with their primary health care team or provider;
- clear instructions to call 911 were provided should symptoms redevelop;
- patient or substitute decision maker has the ability to access 911 should symptoms redevelop, and;
- patient or substitute decision maker consents to the discharge.

CLINICAL CONSIDERATIONS (TREAT AND DISCHARGE)

Patch to BHP for consultation if you are unclear if the patient meets all of the discharge criteria.

Dextrose Dosing Guide

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

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

INDICATIONS

Nausea or vomiting.

CONDITIONS

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

DimenHYDRINATE	
AGE:	< 65 years
WEIGHT:	≥ 25 kg
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

CONTRAINDICATIONS

Ondansetron	DimenHYDRINATE
Allergy to ondansetron	Allergy or sensitivity to dimenHYDRINATE or other antihistamines
Prolonged QT symdrome (known to patient)	Overdose on antihistamines or anticholinergics or tricyclic antidepressants
Apomorphine use	Co-adminstration of diphenhydraMINE

TREATMENT

Patient • Drug • Dose • Route • Time.

Consider **ondansetron**

	Weight ≥ 25 kg **Route** PO
Dose	4 mg
Max. single dose	4 mg
Dosing interval	N/A
Max. # of doses	1

Consider **dimenHYDRINATE**

	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

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 D5W. If administered IM do not dilute

If a patient has received Ondansetron and has no relief of their nausea & vomiting symptoms after 30 minutes, dimenHYDRINATE may be considered (or vise versa.

dimenhyDRINATE can be used in patients ≥ 65 if ondansetron is not available.

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: N/A

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 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 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

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

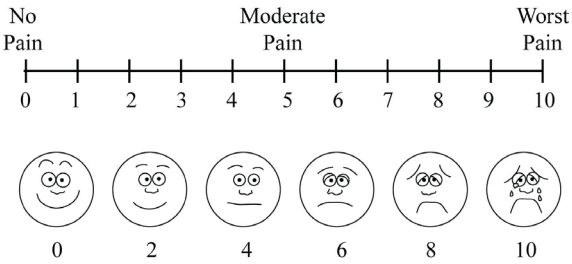
Whenever possible, consider co-administration of acetaminophen and ibuprofen.

Suspected renal colic patients should routinely be considered for NSAIDs, either ibuprofen or 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 and Withdrawal Medical Directive

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

INDICATIONS

Suspected opioid toxicity.

CONDITIONS

Naloxone	
AGE:	≥ 24 hours
LOA:	Altered
HR:	N/A
RR:	<10 breaths/min
SBP:	N/A
Other:	Inability to adequately ventilate **OR** persistent need to assist ventilations

burprenorphine/naloxone	
AGE:	≥ 16
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Received naloxone for current opioid toxicity episode **AND** Patient is exhibiting acute withdrawal with a COWS* score ≥ 8

CONTRAINDICATIONS

Naloxone	buprenorphine/naloxone
Allergy or sensitivity to naloxone	Allergy or sensitivity to buprenorphine Taken methadone in the past 72 hours

TREATMENT

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

Consider **naloxone**

	Route IV	Route IM	Route IN	Route SC
Dose	Up to 0.4 mg*	0.4 mg	2-4 mg	0.8 mg
Max. single dose	0.4 mg	0.4 mg	2-4 mg	0.8 mg
Dosing interval	5 min	5 min	5 min	5 min
Max. # of doses	3	3	3	3

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

Consider **buprenorphine/naloxone (if available and authorized)**

	Route BUC/SL
Initial dose	16 mg
Subsequent dose(s) dose	8 mg
Dosing interval	10 minutes
Max. cumulative dose	24 mg

CLINICAL CONSIDERATIONS

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

Upfront aggressive management of the airway is paramount and the initial priority.

If no response to initial treatment; consider patching for further doses.

If the patient does not respond to airway management and the administration of naloxone, glucometry should be considered.

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.

*Clinical Opiate Withdrawal Scale (COWS)

< 5 – No active withdrawal	13-24 – Moderate withdrawal	< 36 – Severe withdrawal
5-12 – Mild withdrawal	25-36 – Moderately severe withdrawal	

A score of ≥ 8 is an indication for buprenorphine/naloxone administration

Resting Pulse Rate _____ beats/minute
Measured after patient is sitting or lying for one minute
0 pulse rate 80 or below
1 pulse rate 81–100
2 pulse rate 101–120
4 pulse rate greater than 120

Sweating *over past ½ hour not accounted for by room temperature or patient activity*
0 no report of chills or flushing
1 subjective report of chills or flushing
2 flushed or observable moistness on face
3 beads of sweat on brow or face
4 sweat streaming off face

Restlessness *observation during assessment*
0 able to sit still
1 reports difficulty sitting still, but is able to do so
3 frequent shifting or extraneous movements of legs/arms
5 unable to sit still for more than a few seconds

Pupil Size
0 pupils pinned or normal size for room light
1 pupils possibly larger than normal for room light
2 pupils moderately dilated
5 pupils so dilated that only the rim of the iris is visible

Bone or Joint Aches *If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored*
0 not present
1 mild diffuse discomfort
2 patient reports severe diffuse aching of joints/muscles
4 patient is rubbing joints or muscles and is unable to sit still because of discomfort

Runny Nose or Tearing
Not accounted for by cold symptoms or allergies
0 not present
1 nasal stuffiness or unusually moist eyes
2 nose running or tearing
4 nose constantly running or tears streaming down cheeks

GI Upset *over last ½ hour*
0 no GI symptoms
1 stomach cramps
2 nausea or loose stool
3 vomiting or diarrhea
5 multiple episodes of diarrhea or vomiting

Tremor *observation of outstretched hands*
0 no tremor
1 tremor can be felt, but not observed
2 slight tremor observable
4 gross tremor or muscle twitching

Yawning *observation during assessment*
0 no yawning
1 yawning once or twice during assessment
2 yawning three or more times during assessment
4 yawning several times/minute

Anxiety or Irritability
0 none
1 patient reports increasing irritability or anxiousness
2 patient obviously irritable anxious
4 patient so irritable or anxious that participation in the assessment is difficult

Gooseflesh Skin
0 skin is smooth
3 piloerrection of skin can be felt or hairs standing up on arms
5 prominent piloerrection

Total Score _____
The total score is the sum of all 11 items.

Initials of person completing assessment: _____

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 an 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

5Rs *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.

Seizure Medical Directive

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

CONSIDERATIONS FOR TREAT AND DISCHARGE (IF AUTHORIZED)

All of the following criteria must be met:

- the patient is ≥18 AND <65 years old;
- patient must have a history of epilepsy;
- the patient is taking their anticonvulsant medication as prescribed;
- the patient must have only had a single seizure episode in the past 24 hours;
- the seizure pattern and duration must be similar to past seizures;
- the patient has returned to their normal level of consciousness;
- a complete set of vital signs including temperature are within expected normal ranges;

AND

- the seizure must not be related to hypoglycemia, alcohol or substance abuse or withdrawal;
- the patient must not have received midazolam by paramedics;
- the patient did not injure themselves during seizure activity;
- the patient must not have a fever, preceding illness or recently started a new medication, and;
- the patient is not pregnant.

In addition to the above criteria, if all of the following requirements have been met, the patient can be discharged by paramedics:

- a responsible adult agrees to remain with the patient for the next 4 hours;
- all of the patient or substitute decision makers questions were answered and a care plan was developed;
- the patient or substitute decision maker has been advised to follow up with their primary health care team or provider;
- clear instructions to call 911 were provided should symptoms redevelop;
- patient or substitute decision maker has the ability to access 911 should symptoms redevelop, and
- patient or substitute decision maker consents to the discharge.

CLINICAL CONSIDERATIONS (TREAT AND DISCHARGE)

Patch to BHP for consultation if you are unclear if the patient meets all of the discharge criteria.

Intentionally Left Blank

Procedural

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

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 or 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
Other:	N/A

CONTRAINDICATIONS

Home Dialysis Emergency Disconnect
N/A

TREATMENT

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 and/or placenta.

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 **AND/OR**
Shoulder Dystocia **AND/OR**
Breech Delivery **AND/OR**
Prolapsed Cord

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

Oxytocin

AGE: Childbearing years
LOA: N/A
HR: N/A
RR: N/A
SBP: < 160 mmHg
Other: Postpartum delivery
AND/OR
Placental delivery

CONTRAINDICATIONS

Delivery

N/A

Umbilical Cord Management

N/A

External Uterine Massage

Placenta not delivered

Oxytocin

Allergy or sensitivity to oxytocin

Undelivered fetus

Suspected or known pre-eclampsia with current pregnancy

Eclampsia (seizures) with current pregnancy

≥4 hours post placenta delivery

TREATMENT

Consider **delivery**

Position the patient and deliver neonate.

Consider **shoulder dystocia delivery**

Perform ALARM twice on scene. If successful; deliver neonate. If unsuccessful; transport to closest appropriate facility

Consider **breech delivery**

HANDS OFF the breech. Allow neonate to deliver to umbilicus; consider carefully releasing the legs & arms as they are delivered; otherwise hands off.

Once hairline is visible **AND/OR** 3 mins has passed since umbilicus was visualized attempt the Mauriceau Smellie-Veit maneuver.

If successful; deliver neonate. If unsuccessful; transport to closest appropriate facility.

Consider **prolapsed cord delivery**

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.

Consider **umbilical cord management**

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**

Post placental delivery

Consider **oxytocin (where authorized and available)**

	Route
	IM
Dose	10 units
Max. single dose	10 units
Dosing interval	N/A
Max. # of doses	1

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 labour is 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.

Intentionally Left Blank

Intentionally Left Blank

Palliative Care / Research

PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

PALLIATIVE CARE MEDICAL DIRECTIVE

A Primary Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized to a patient with a life limiting illness **OR** a patient nearing end of life, requiring management for the following symptoms: Dyspnea, Nausea/Vomiting, Hallucinations/Delirium/Agitation, and/or Terminal Congested Breathing (noisy breathing or excessive secretions.

Patch
If a paramedic determines that the patient would benefit from any other management that is not included in this medical directive, a patch to a Base Hospital Physician **is necessary.**

Management of Patients with Palliative Care Needs
Patients with palliative care needs may require a different approach to assessment and treatment that reflects their unique goals of care. Therefore, for this defined patient population, paramedics should consider prioritizing 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, paramedics should consider usual care (vitals and monitoring) per the ALS and BLS PCS in conjunction with the patients' goals of care; they may also consider symptom treatments below if indicated.

Medical Directive
This Medical Directive is written in five sections including five symptom-based sections (Dyspnea, Hallucinations/Delirium/Agitation, Nausea/Vomiting and Terminal Congested Breathing) as well as a Treat and Refer directive. Any of these directives can apply, individually or in combination, to a patient with palliative care needs. The Treat and Refer part of this directive can be applied even if no symptoms listed in the directive are present or treatments have not been provided. All patients who remain at home must be referred to their primary care physician or a palliative care team to ensure follow up of their presenting complaint.

When in doubt, consult/patch to a Base Hospital Physician (BHP).

Pocket Orders
Orders received from the base hospital physician that are for the **same patient** on the **same shift administered by the same paramedic.** They are designed for the paramedic to alleviate repeat calling when seeing the patient multiple times in a shift. If a different paramedic attends to the same patient, a new patch is required.

Subcutaneous Infusion Device
A paramedic may insert a subcutaneous infusion device providing they have been trained and authorized **and** their employer has approved the use of this device and policies are in place supporting this technique

Dyspnea Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring symptom management for dyspnea.

CLINICAL CONSIDERATIONS

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

CONDITIONS

Salbutamol
AGE: ≥18
LOA: N/A
HR: N/A
RR: N/A
SBP: N/A
Other: For dyspnea with suspected bronchoconstriction

CONTRAINDICATIONS

Salbutamol
Allergy to salbutamol

TREATMENT

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

Consider **Salbutamol:**

	Weight <25 kg		**Weight** ≥25 kg	
	Route	**Route**	**Route**	**Route**
	MDI*	NEB	MDI*	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

Nausea/Vomiting Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring symptom management for nausea/vomiting.

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.

CONDITIONS

Haloperidol	**Ondansetron**	**DimenhyDRINATE**
AGE: ≥18 LOA: N/A HR: N/A RR: N/A SBP: N/A Other: N/A	AGE: ≥18 LOA: N/A HR: N/A RR: N/A SBP: N/A Other: contraindication to haloperidol	AGE: ≥18 LOA: N/A HR: N/A RR: N/A SBP: N/A Other: contraindication to haloperidol AND ondansetron

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 of tricyclic

TREATMENT

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

Consider **Haloperidol**

	Route
	SC/IV
Dose	0.5-1mg
Max. single dose	1 mg
Dosing interval	30 min
Max. total dose	2

Consider **Ondansetron**

	Route
	PO/IV/SC/CVAD
Dose	4 mg
Max. single dose	4 mg
Dosing interval	N/A
Max. total dose	1

Consider **DimenhyDRINATE**

	Route
	SC/IV
Dose	25-50mg
Max. single dose	50mg
Dosing interval	N/A
Max. total dose	1

Hallucinations/Delirium/Agitation Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring symptom management for hallucinations, delirium or agitation.

CLINICAL CONSIDERATIONS

- Haloperidol should be used as the first line agent for the treatment of agitation or hallucinations.
- The patient receiving an approach to palliative care may shows signs of **opioid toxicity.** Paramedics need to be cognizant of such conditions. In such cases patients may display signs of agitation, urticaria, myoclonus, hyperalgesia, pin point pupils. This can sometimes be interpreted as further pain. Consideration should be given to limit any further opioid dosing.
- If hallucinations, delirium or agitation has not been relieved after maximum dosing, paramedics must consult with a Base Hospital Physician for further orders.

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/IV
Dose	0.5-1mg
Max. single dose	1mg
Dosing interval	30 min
Max. total dose	2

Terminal Congested Breathing Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring symptom management for terminal congested breathing (excessive secretions or noisy breathing),

Intended use of this medication is for a patient with a decreased level of consciousness in their last hours of life

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.

CONDITIONS

Glycopyrrolate	Atropine
AGE: ≥18	AGE: ≥18
LOA: GCS 3-6	LOA: GCS 3-6
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

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

Consider **Glycopyrrolate**

	Route
	SC/IV
Dose	0.4mg
Max. single dose	0.4mg
Dosing interval	N/A
Max. total dose	1

Consider **Atropine**

	Route
	SC
Dose	0.4mg
Max. single dose	0.4mg
Dosing interval	N/A
Max. total dose	1

Intravenous Cannulation Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring parenteral hydration or venous access.

CLINICAL CONSIDERATIONS

- A follow up plan should be in place to ensure ongoing management of the intravenous line (such as follow up by MRP (most responsible practitioner) or community paramedic).
- A period of observation is recommended after the administration of any fluid if this patient is not transported to ensure adequate response and no unexpected immediate adverse effects.
- When a paramedic is requested to start an IV solely for the purpose of MAID (Medical Assistance in Dying) by the patient's care team, the paramedic has the right to refuse this request.

CONDITIONS

IV Cannulation

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

CONTRAINDICATIONS

IV Cannulation

N/A

TREATMENT

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

Consider IV Cannulation

Subcutaneous Line Placement Medical Directive

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

INDICATIONS

A patient with a life limiting illness **OR** a patient nearing end of life, requiring symptom management and parenteral administration of palliative care symptom relief medications is clinically indicated AND It is expected more than one medication administration will be required and thus the patient will benefit from placement of a subcutaneous line

CLINICAL CONSIDERATIONS

- A follow up plan should be in place to ensure ongoing management of the subcutaneous line (such as follow up by MRP or community paramedic).
- A period of observation is recommended after the administration of any medication if the patient is not transported to ensure adequate response and no unexpected immediate adverse effects.
- Adverse events after insertion include pain at the site (from the irritation of the drug or the injection was fast, this is prevented by injecting the drug slowly). If pain remain then the needle may be pulled back into the intradermal space (put a folded 2x2 gauze under the butterfly wings to elevate the needle to 45 degrees. If pain persist, then you need to change needle).

CONDITIONS

Subcutaneous Line Placement

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

CONTRAINDICATIONS

Subcutaneous Line Placement

N/A

TREATMENT

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

Consider Subcutaneous Line Placement

Treat and Refer Medical Directive

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

INDICATIONS

Symptoms improved to patient/Substitute Decision Maker (SDM) satisfaction

And

After informed discussion of goals of care, patient/SDM preference is to remain at home

And

After DNR and/or previous goals of care discussion with primary care provider

CLINICAL CONSIDERATIONS

- A period of observation is recommended after the administration of any medication if the patient is not transported to ensure adequate response and no unexpected immediate adverse effects
- Transport should be considered if there is strong suspicion of reversible causes including but not limited to:
    - Complete bowel obstruction with no prior history of same
    - New Spinal Cord Compression
    - New Superior Vena Cava (SVC) Obstruction
    - Airway obstruction
    - Suspected new pathologic fracture

  If the patient does not meet the treat and refer conditions, paramedics should consider consulting BHP, follow the patient refusal standard and document appropriately

CONDITIONS

Treat and Refer

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

CONTRAINDICATIONS

Treat and Refer

Concerns of patient abuse or neglect

Patient/SDM cannot demonstrate decision-making capacity based on the Aid to Capacity Evaluation Tool

Uncontrolled or new seizures

TREATMENT

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

Paramedics may assess and/or treat the patient according to this medical directive and, in collaboration with the patient/SDM, honour wishes to remain at home (treat and refer). Paramedics will notify the patients' palliative care team where the patient will remain at home to ensure follow up for their presenting complaint.

If the patient is not being followed by a palliative care team, the paramedic will make a referral to ensure follow up by a Community Agency or the Primary Care Physician.

The PRIME Trial Medical Directive

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

Indications

Pediatric non-traumatic cardiac arrest

Conditions

CPR	
Age	≥ 24 hours to 17 years
LOA	Altered
HR	N/A
RR	N/A
SBP	N/A
Other	Performed in 2 minute intervals

Manual Defibrillation	
Age	≥ 24 hours to 17 years
LOA	Altered
HR	N/A
RR	N/A
SBP	N/A
Other	VF **OR** pulseless VT

AED Defibrillation	
Age	≥ 24 hours to 17 years
LOA	Altered
HR	N/A
RR	N/A
SBP	N/A
Other	Defibrillation indicated

Epinephrine	
Age	≥ 24 hours to 17 years
LOA	Altered
HR	N/A
RR	N/A
SBP	N/A
Other	N/A

Contraindications

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

Epinephrine
Allergy or sensitivity to epinephrine

Treatment

Consider CPR as described in the BLS PCS

Consider manual defibrillation (if available and authorized)

	Age	Age
	≥ 24 hours to < 8 years	≥ 8 years to 17 years
Dose	1 defibrillation	1 defibrillation
Initial dose	2 J/kg	As per BH / manufacturer
Subsequent dose(s)	4 J/kg	As per BH / manufacturer
Dosing interval	2 min	2 min
Max. # of doses	N/A	N/A

Consider AED defibrillation (if not using manual defibrillation)			
	Age		**Age**
	≥ 24 hours to < 8 years		≥ 8 years to 17 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	N/A	N/A	N/A

Consider EPINEPHrine Preload (if available)					
	Route IM				
	Weight				
	≥ 3 kg to < 5 kg	≥ 5 kg to < 10 kg	≥ 10 kg to < 20 kg	≥ 20 kg to < 30 kg	≥ 30 kg
Dose	0.3 mg	0.5 mg	1 mg	2 mg	3 mg
Total # of injections	1	1	1	1	1
Dosing interval	N/A	N/A	N/A	N/A	N/A
Max. # of doses	1	1	1	1	1

Consider EPINEPHrine				
	Route IM			
	Weight			
	≥ 3 kg to < 5 kg	≥ 5 kg to < 10 kg	≥ 10 kg to < 20 kg	≥ 20 kg
Dose	0.3 mg	0.5 mg	1.0 mg	2 mg
IM autoinjector used	0.3 mg	0.5 mg	0.5 mg	0.5 mg
Total # of injections	1	1	2	4
Dosing interval	N/A	N/A	N/A	N/A
Max. # of doses	1	1	1	1

Clinical Considerations

IM epinephrine to be administered as soon as feasible after the initial analysis is completed by paramedics.

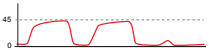
Continue standard care as per the Medical Cardiac Arrest Directive once IM epinephrine has been administered.

Medical References

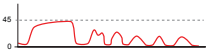
PRIMARY CARE PARAMEDIC MEDICAL DIRECTIVES

$ETCO_2$ Waveforms

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

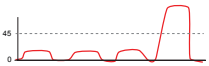


Decreasing EtC2
- ET tube cuff leak
- ET tube in hypopharynx
- Partial obstruction

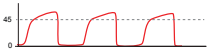


CPR Assessment
- Attempt to maintain minimum of 10 mmHg

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

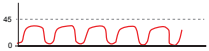


Bronchospasm ("Shark-fin" appearance)
- Asthma
- COPD

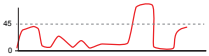


Hypoventilation

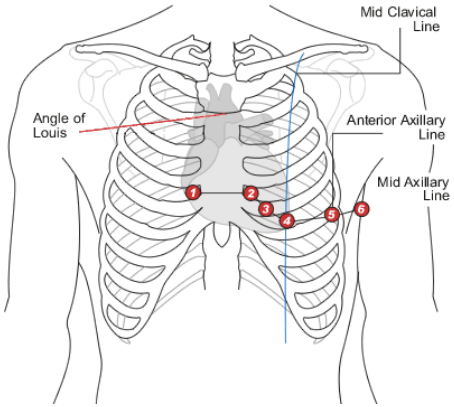
Hyperventilation



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

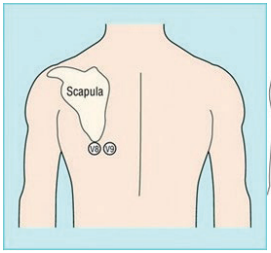
NOTE:

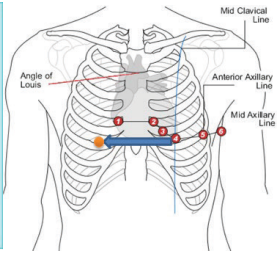
Refer to the Medical Directives for the clinical situations where a 12-Lead ECG should be considered. This may include patients experiencing cardiac ischemia, acute cardiogenic pulmonary edema, tachycardias, bradycardias, shortness of breath or upon ROSC.

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

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.

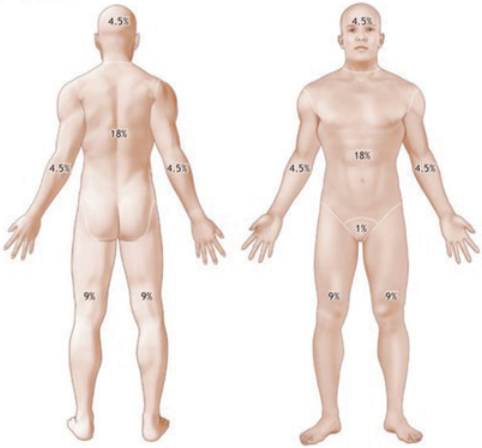
ETCO2 IN CARDIAC ARREST

- 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 taut and use the “Z-track” technique to displace the skin and soft tissue. Insert the needle with syringe/medication at a 90 degree angle using a “dart style” motion. The Z-track method reduces the chance the medication will leak from the muscle into the subcutaneous tissue.
- Inject the correct dose of medication.
- Remove the needle and immediately dispose of it in the biohazard container.
- Apply gentle pressure to the site with a dry gauze. Do not rub or massage. Apply a band-aid if needed.

Intramuscular Injection Sites

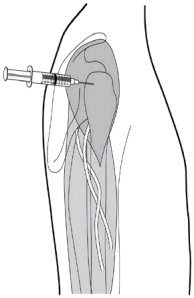


Figure 1 - Deltoid

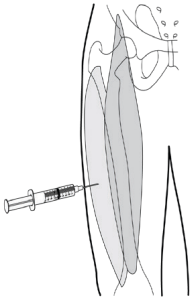


Figure 2 – Vastus Lateralis

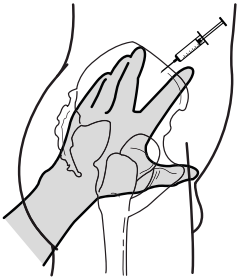


Figure 3 – Ventrogluteal

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.

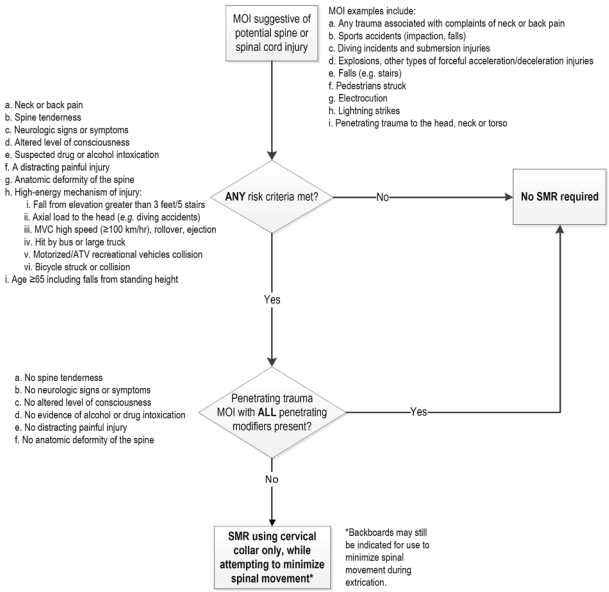
OXYGEN TANK DURATION:

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: up tp 0.1mg/kg (IV/IM/IN); max single dose 5mg; max 2 doses

Dosing for Adult Combative Patient up to 0.1mg/kg (IV/IO/CVAD/IN); max single dose 5mg; max total dose 10mg

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	0.06mL	0.05mL
<1	6 kg	6 mcg	0.12mL	0.1mL
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.

Intentionally Left Blank

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

DEXAMETHASONE	
CLASS	Adrenocoritcal steroid
ACTION	Binds to the glucocorticoid receptors inhibiting the release of pro-inflammatory signals through cytokine inhibition, resulting in decreased edema, fibrin deposition, capillary leakage and migration of inflammatory cells.
ONSET	5-15 min(IV); 30 min (PO)60 minutes
DURATION	3 days
HALF-LIFE	4 hours

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.

GLYCOPYRROLATE	
CLASS	anticholinergic
ACTION	Inhibits the acetylcholine activity on smooth muscles and structures innervated by postganglionic nerves. Causes bronchodilation, decreased volume and acidity of gastric secretions, as well as control of excessive pharyngeal, tracheal and bronchial secretions. Also has antimuscarinic properties, antagonizes muscarinic effects induced by cholinergic medications
ONSET	Rapid
DURATION	2-4 hours
HALF-LIFE	1.25 hours

HALOPERIDOL	
CLASS	Antipsychotic
ACTION	Butyrophenone antipsychotic unclear mechanism of action. Possible effect through central dopamine, adrenergic, cholinergic and histaminergic receptors.
ONSET	Rapid
DURATION	4-6 hours

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

HYDROMORPHONE	
CLASS	Opioid analgesic
ACTION	Binds to the mu-opioid receptors in the CNS causing inhibition of the ascending pain pathways, altering the perception of and response to pain. Produces generalized CNS depression
ONSET	5 minutes
DURATION	3-4 hours
HALF-LIFE	2-3 hours

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

ONDANSETRON	
CLASS	5-HT3 antagonist
ACTION	Selective 5-HT3 receptor antagonist. Mechanism of action through blocking the action of 5-HT3 selectively peripherally and through the vagus nerve, a natural substance that may cause nausea and vomiting. Centrally the chemoreceptor trigger zone is effected.
ONSET	20-30 min
HALF-LIFE	3-6 hrs (PO); 5-8 HRS (IV, IM)
DURATION	4-8 hrs (PO); 5-8 hrs (IV, IM)

OXYTOCIN	
CLASS	Hormone
ACTION	Promotes uterine contractions by increasing intracellular calcium levels. Greatest effect during labor at term due to increased oxytocin receptor concentrations in uterine myometrial tissue
ONSET	3-5 min
HALF-LIFE	2-3 hrs
DURATION	1-6 min

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

Intentionally Left Blank

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).


ONLINE MEDICAL CONSULTATION
Enhanced dedicated BHP support for Paramedic consultation and new Patient Care Models
CPER REGIONAL PATCH NUMBER
1-888-554-8011
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
CONNECTION ISSUES
Use CACC / Radio Backup to reach OMC BHP
In Partnership With
REGIONAL PARAMEDIC PROGRAM FOR EASTERN ONTARIO
Hamilton Health Sciences
Centre for Prehospital Care
Health Sciences North

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	Regional Medical Director			millerpa@hhsc.ca
Dr. Rupinder Sahsi	Assistant Medical Director			rupinder@sahsi.net
Dr. Erich Hanel	Assistant Medical Director			erich.hanel@medportal.ca
Dr. Gina Agarwal	Senior Medical Advisor			agarg@mcmaster.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	Lead Quality Specialist		289-286-0975	aburgess@cper.ca
Kailash Selvaratinam	Quality Specialist		905-870-4457	kselvar@cper.ca
Carrie Schneider	Quality Specialist		519-503-6632	cschneider@cper.ca
Kathy Winter	Quality Specialist		416-436-5428	winterkat@hhsc.ca
Stephanie Coletta	Lead Paramedic Educator		905-515-0659	scoletta@cper.ca
David Plyley	Paramedic Educator		289-219-1952	dplyley@cper.ca
Jenn Radoslav	Paramedic Educator		289-260-3268	jradoslav@cper.ca
Bhaven Kapadia	Paramedic Educator			kapadiab@hhsc.ca
Peggy D'Eath	Outreach Specalist		365-324-8389	pdeath@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 (Community Care Access Centre): 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

Intentionally Left Blank

Intentionally Left Blank

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;

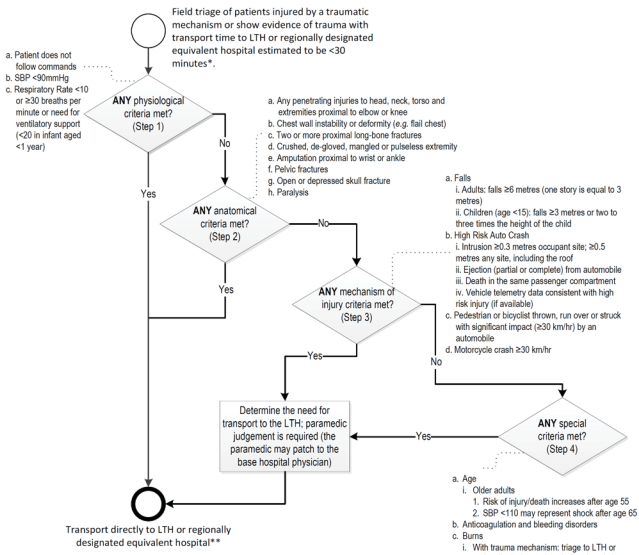
4. if the patient meets the anatomical criteria listed in paragraph 3 above and the land transport time is estimated to be <30 minutes* to the LTH or regionally designated equivalent hospital, transport the patient directly to the LTH or regionally designated equivalent hospital;
5. if unable to secure 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

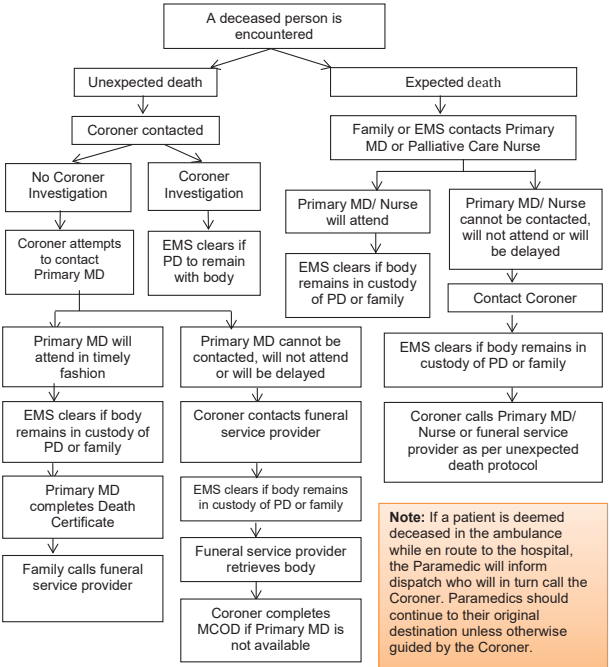
Upon confirmation that the air ambulance helicopter is responding, the paramedic shall follow the guidelines set out by the Ornge Aviation Safety Department, which can be found on Ornge's "Aircraft Safety" website at: https://www.ornge.ca/aircraft-safety.

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.

Intentionally Left Blank

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.
3. Perform a secondary screen for a Large Vessel Occlusion (LVO) stroke using the Los Angeles Motor Scale (LAMS) and inform the CACC/ACS to aid in the determination of the most appropriate destination.

*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.

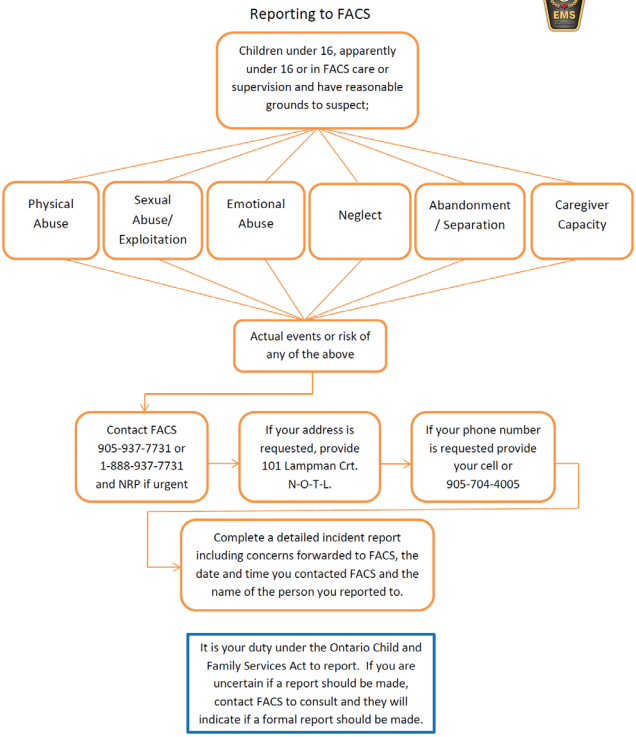
**Patients whose symptoms improve significantly or resolve during transport will continue to be transported to a Designated Stroke Centre.

*** 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



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.

Niagara EMS Hospital Destination Policy

Policy # IV 3.12a Hospital Destination Policy
May 1, 2022

HOSPITAL DESTINATION POLICY - Niagara Region

The URGENT CARE CENTRE will only accept PATIENTS that meet the established guidelines

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 the Air Ambulance Utilization Standard for FTT All trauma patients meeting Field Trauma Triage (FTT) Standard Criteria where the incident location is within 60 minutes transport time to a Lead Trauma Centre will be transported to the Lead Trauma Centre in accordance with the guidelines (Policy IV-3.12h). *If transport time to Lead Trauma Centre will exceed 60 minutes, or survival to Lead Trauma Hospital is unlikely (see exception in Policy IV-	**Trauma Center/ Closest Emergency Department ***

	3.12h), patients meeting FTT criteria will be transported to the closest Emergency Department.	
HEAD TRAUMA ***Hospitals with CT:*** *GNG, SCS, WH Sites and WLMH 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, WLMH and HGH)**
STROKE EMERGENCIES ***Stroke Centers:*** *GNG Site and Hamilton General Hospital* ***Hospitals with CT:*** *GNG, SCG, WH Sites and WLMH 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 A2 - 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 to Juravinski in Hamilton for patients picked up West of RR24)**	**St. Catharines Site (*consideration* for Juravinski West of RR24)**

Policy # IV 3.12a Hospital Destination Policy
May 1, 2022

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)**	**Major: Closest hospital with Ortho (peds to SCS or MUMC)** **Minor: Closest hospital or UCC**

	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.	

Revised: May 1, 2022

Policy # IV 3.12a Hospital Destination Policy
May 1, 2022

PARAMEDIC PROMPT CARD
Niagara Regional Acute Stroke Protocol

Refer to **current Paramedic Prompt Card for Acute Stroke Protocol** contained within **the** current **Basic Life Support Patient Care Standards**.

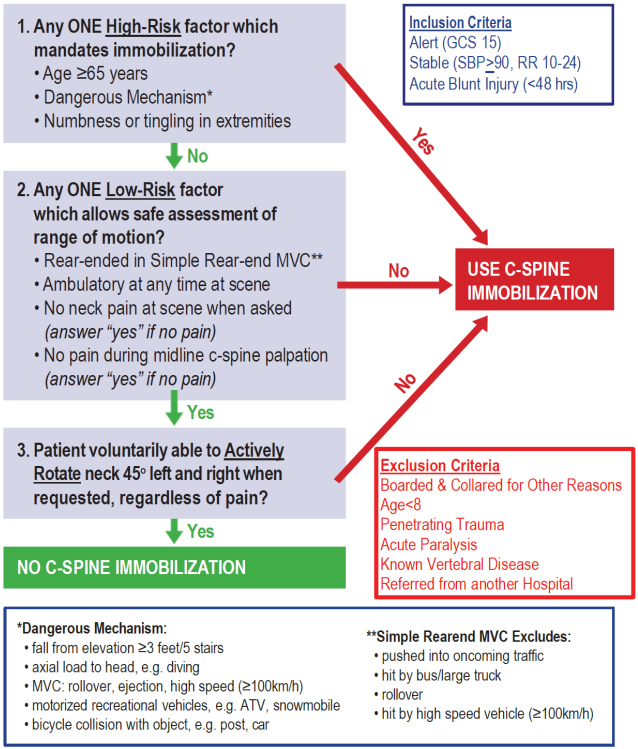
The closest Stroke Centre is defined in the CAD.

Notify the Receiving Hospital that they will be receiving a "Stroke Alert" patient that meets the Acute Stroke Protocol.

Transport CTAS Level 2 to the Emergency Department of the closest Stroke Centre.

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

"The Canadian CSPINE Rule"



STEMI Hospital Bypass Prompt Card

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).

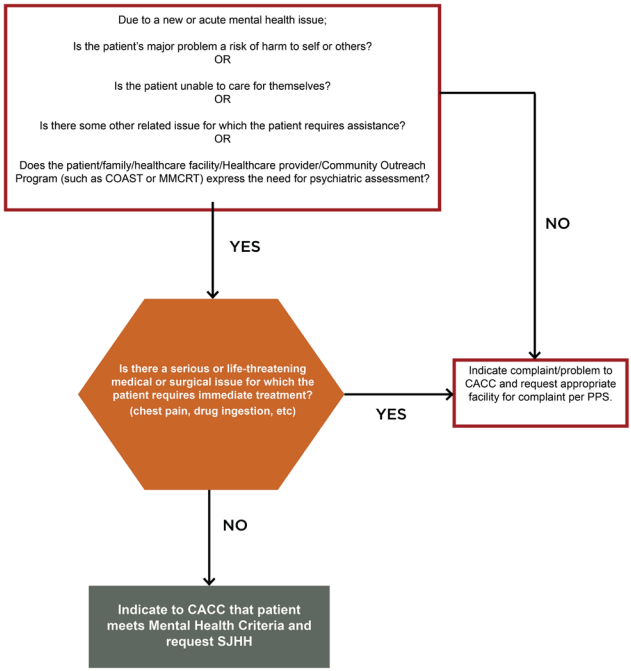
Education notes:

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

Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH

Intentionally Left Blank

LIST OF MANDATORY PROVINCIAL PATCH POINTS

Medical Cardiac Arrest

- TOR

Trauma Cardiac Arrest

- Trauma TOR

IV & Fluid Therapy

- Fluid bolus for hypotensive patients <12 years of age with suspected DKA

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**

PRINT DATE: 2024-07-30
ALS PCS 5.3

Hamilton Health Sciences
CENTRE FOR PARAMEDIC EDUCATION AND RESEARCH