

# Advanced Care Paramedic

# Medical Directives

ALS PCS 5.3



**Hamilton  
Health  
Sciences**

CENTRE FOR PARAMEDIC  
EDUCATION AND RESEARCH

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Introduction

Airway/  
Breathing

Cardiac/  
Circulation

Level of  
Consciousness

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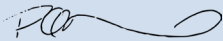
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The Emergency Health Services Branch of the Ministry of Health Version 5.3 of the ALS Patient Care Standards will now be the standard of care. These standards and guidelines include significant advances to the paramedic scope of practice since they 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.



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# Introduction

ADVANCED 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.

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## 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.

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## 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 RBH P. 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).

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## General Structure of a Medical Directive

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

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

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

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## Auxiliary Medical Directives

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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

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### 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.

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## Consent to Treatment in Non-Emergency Situations

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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.

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The elements are required for consent to treatment:

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

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

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- a) received the following information that a reasonable person in the same circumstances would require in order to make a decision about the treatment:
- the nature of the treatment;
  - the expected benefits of the treatment;
  - the material risks of the treatment;
  - the material side effects of the treatment;
  - alternative courses of action;
  - the likely consequences of not having the treatment; and
- 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 capable with respect to the treatment. A paramedic must perform a capacity assessment if it is not reasonable in the circumstances to presume the person is capable of consenting to the treatment.

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

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

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

### Consent to Treatment in Emergency Situations

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

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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.

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## 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 RBH.

## Responsibility of Care

Each paramedic is equally responsible for patient care within their scope of practice. If the care exceeds a paramedic's 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:

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

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

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## Research

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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.

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## Patient Care Model

LOC

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.

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## Conventions

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

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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.

Research /  
Sp. Proj

## Medication Doses and Administration

Medical  
Refer.

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.

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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.

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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  $\geq 100$ mmHg

**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  $\geq 100$  BPM

**Tachypnea**  
RR  $\geq 28$  breath/min

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Guide.**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  $\geq 90$  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
$\geq 2$ yr	$< 4.0$ mmol/L

**Level of Awareness (LOA):**

The word 'altered' refers to a GCS that is less than normal for the patient.

The word 'unaltered' refers to a GCS that is normal for the patient.

This may be a GCS  $< 15$ .**Commonly Used Abbreviations**

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

**A**

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



**B**

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

Airway /  
Breath.**C**

CCP	Critical Care Paramedic
COPD	Chronic obstructive pulmonary disease
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

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DKA	Diabetic ketoacidosis
DNR	Do Not Resuscitate

Proced.

**E**

ECG	Electrocardiogram
ED	Emergency Department
ETCO <sub>2</sub>	End tidal carbon dioxide
ETT	Endotracheal tube

Research /  
Sp.Proj**F**

FiO <sub>2</sub>	Fraction of inspired oxygen
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Medical  
Refer.**G**

g	Gram
GCS	Glasgow Coma Scale
gtts	Drops

Medic.  
Info.**H**

H <sub>2</sub> O	Water
HR	Heart rate
Hx	History

Contact

	<b>I</b>	
Airway / Breath.	IM	Intramuscular
	IN	Intranasal
	IO	Intraosseous
	IV	Intravenous
	<b>J</b>	
Cardiac/ Circula.	j	Joule
	<b>K</b>	
LOC	kg	Kilogram
	<b>L</b>	
	LOA	Level of awareness
Pain/ Sed./ Nausea	LOC	Level of consciousness
	<b>M</b>	
	Max.	Maximum
	MAC	Medical Advisory Committee
Proced.	mcg	Microgram
	MDI	Metered dose inhaler
	mg	Milligram
	Min.	Minimum
	min	Minute
Research / Sp. Proj	mL/kg	Milliliter per kilogram
	mmHg	Millimeters of mercury
	MOH	Ministry of Health
	ms	Milliseconds
	<b>N</b>	
Medical Refer.	N/A	Not applicable
	NaCl	Sodium chloride
	nare	Nostril
Medic. Info.	NEB	Nebulized
	NPA	Nasopharyngeal airway
	NSAID	Non-steroidal anti-inflammatory drug
	<b>O</b>	
Contact	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<sub>2</sub> 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

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**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.

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# Airway/Breathing

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Orotracheal Intubation Medical Directive

*An Advanced 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

#### Lidocaine Spray

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: Orotracheal  
Intubation

#### Orotracheal Intubation

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

### CONTRAINDICATIONS

#### Lidocaine

Allergy or sensitivity to  
lidocaine

Unresponsive patient

#### Orotracheal Intubation

Age <50 years **AND**

current episode of asthma  
exacerbation **AND**

not in or near cardiac arrest.

## TREATMENT

5Rs

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

Consider topical **lidocaine** spray (to the hypopharynx) for orotracheal intubation when GCS is  $\geq 4$

Route	
TOP	
<i>Dose</i>	10 mg/spray
<i>Max. dose</i>	5mg/kg
<i>Dosing interval</i>	N/A
<i>Max. # of doses</i>	20 sprays

Consider **oro**tracheal intubation:

With or without intubation facilitation devices. The maximum number of intubation attempts is 2.

Confirm **oro**tracheal tube placement:

Method	Method
<i>Primary</i>	<i>Secondary</i>
ETCO <sub>2</sub> (Waveform capnography)	ETCO <sub>2</sub> (Non-waveform device)
	Visualization
	Auscultation
	Chest rise
	Esophageal detection device

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp.ProjMedical  
Refer.Medic.  
Info.

Contact

## CLINICAL CONSIDERATIONS

- ▶ An intubation attempt is defined as insertion of the laryngoscope blade into the mouth for the purposes of intubation.
- ▶ Confirmation of orotracheal intubation must use ET<sub>CO</sub><sub>2</sub> (Waveform capnography). If waveform capnography is not available or not working then at least 3 secondary methods must be used. Additional secondary ETT placement confirmation devices may be authorized by the local medical director.
- ▶ ETT placement must be reconfirmed immediately after every patient movement.



*NOTE: Refer to page 27 for Pediatric ET Tube Sizing Chart*



*NOTE: Refer to page 171 for ET<sub>CO</sub><sub>2</sub> Waveforms*



## Nasotracheal Intubation Medical Directive – **AUXILIARY**

An Advanced Care Paramedic may provide the treatment prescribed in this AUXILIARY Medical Directive if authorized.

### INDICATIONS

Need for ventilatory assistance or airway control

**AND**

Other airway management is ineffective

### CONDITIONS

<b>Xylometazoline</b>	<b>Lidocaine Spray</b>	<b>Nasotracheal Intubation</b>
AGE: N/A	AGE: N/A	AGE: ≥8 years
LOA: N/A	LOA: N/A	LOA: N/A
HR: N/A	HR: N/A	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: N/A	Other: Gag reflex	Other: Spontaneous Breathing

### CONTRAINDICATIONS

<b>Xylometazoline</b>	<b>Nasotracheal Intubation</b>
Allergy or sensitivity to xylometazoline	Age <50 years <b>AND</b> current episode of asthma exacerbation <b>AND</b> not in or near cardiac arrest.
	Suspected basal skull fracture or mid-face fracture
	Uncontrolled epistaxis
	Anticoagulant therapy (excluding ASA)
	Bleeding disorders
<b>Lidocaine</b>	
Allergy or sensitivity to lidocaine spray	
Unresponsive patient	

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp.ProjMedical  
Refer.Medic.  
Info.

Contact

## TREATMENT



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

Consider **xylometazoline 0.1% spray**:

	<b>Route</b>
	<i>TOP</i>
<i>Dose</i>	2 sprays/nare
<i>Max. single dose</i>	2 sprays/nare
<i>Dosing interval</i>	N/A
<i>Max. # doses</i>	1

Consider topical **lidocaine** spray (to the nares and/or hypopharynx):

	<b>Route</b>
	<i>TOP</i>
<i>Dose</i>	10 mg/spray
<i>Max. single dose</i>	5 mg/kg
<i>Dosing interval</i>	N/A
<i>Max. # doses</i>	20 sprays

Consider **nasotracheal intubation**:

The maximum number of intubation attempts is 2.

Confirm **nasotracheal tube placement**:

<b>Method</b>	<b>Method</b>
<i>Primary</i>	<i>Secondary</i>
ETCO <sub>2</sub> (Waveform capnography)	ETCO <sub>2</sub> (Non-waveform device)
	Auscultation
	Esophageal detection device
	Chest rise

---

## CLINICAL CONSIDERATIONS

- ▶ A nasotracheal intubation attempt is defined as insertion of the nasotracheal tube into a nare.
- ▶ Confirmation of nasotracheal placement must use ETCO<sub>2</sub> (Waveform capnography). If wave-form capnography not available or not working, then at least 2 secondary methods must be used
- ▶ ETT placement must be reconfirmed immediately after every patient movement.

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp.ProjMedical  
Refer.Medic.  
Info.

Contact

## Pediatric Oral Endotracheal Tube (ETT) Sizing Chart

Pediatric Endotracheal Tube Size & Depth Estimation			
Size for children $\geq$ 1year of age:	$\left( \frac{\text{Age in years}}{4} \right) + 4$		
Size for children < 1year of age:	Gestational age	Weight	ETT Size
	< 28 weeks	< 1kg	2.5
	28-34 weeks	1-2 kg	3.0
	34-38 weeks	2-3 kg	3.5
	Term infant	> 3 kg	3.5
	1-6 months	3-5 kg	3.5-4.0
	6-11 months	5-10 kg	4.0
1 year	10-12 kg	4.0-4.5	
Depth (to the teeth) for children > 2 years of age:	$\left( \frac{\text{Age in years}}{2} \right) + 12$		

## Endotracheal Intubation

In general, ETI should be considered only when BLS airway maneuvers have not proven successful in maintaining oxygenation/ventilation. Several studies have indicated worse outcomes when patients are intubated under pre-hospital conditions. Paramedics should always consider the detrimental aspects of performing ETI and reference the Medical Directives to determine the appropriate patient population that may benefit.

- ▶ Attempt basic maneuvers as needed: positioning, suctioning, pharyngeal airway insertion, and BVM IPPV in addition to application of 100% O<sub>2</sub>.
- ▶ Initiate cardiac monitoring, and pulse oximetry (if available).
- ▶ Consider administration of Xylometazoline or Lidocaine (refer to ETI Medical Directive).
- ▶ Pre-oxygenate the patient for 30-60 seconds with 100% O<sub>2</sub> (and IPPV, if required).
- ▶ Choose the appropriate size ETT and check the cuff.
- ▶ Intubate the trachea, confirm tube placement, and secure the tube (see *Intubation Confirmation Procedure*).
- ▶ If intubation is unsuccessful, stop and re-oxygenate to avoid hypoxia. The paramedic may repeat attempt (maximum of 2 attempts) and/or initiate immediate transport.

### CONSIDERATIONS

- ▶ Should the patient require sedation post ETI, refer to the Patient Sedation Medical Directive.
- ▶ Alternative airway adjuncts should be readily available for use in the event of failed intubation.
- ▶ Endotracheal tube must be consistently evaluated for displacement, with special attention paid after every patient movement. The ETCO<sub>2</sub> waveform capnography is critically important for real time monitoring of ventilation status, as well as endotracheal tube placement.

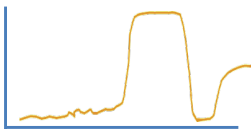
## ENDOTRACHEAL TUBE CONFIRMATION

- ▶ Immediately after intubation, correct tube placement must be confirmed (refer to ETI medical Directive).

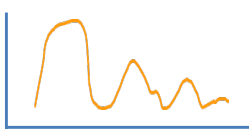
<i>Primary Method</i>	<i>Secondary Method</i>
Visualization	ETCO <sub>2</sub>
Auscultation	EDD
Chest rise	Other

- ▶ At least two primary and one secondary ETT placement confirmation must be used as per the ETI Medical Directive.
- ▶ An ETCO<sub>2</sub> device (quantitative or qualitative) must be used for ETT placement confirmation. It should also be used every time the patient is moved to confirm the ETT has not been dislodged.

ET Tube Confirmation with ETCO<sub>2</sub>



ET Tube Displacement with ETCO<sub>2</sub>



- ▶ The appearance of a 4 phase capnography waveform post ETI is indication of proper tube placement.
- ▶ Loss of the 4 phase capnography is an indication that the ET tube may have become displaced.
- ▶ Numeric value >10 mmHg or numeric value gradually rising is evident of correct placement.
- ▶ Numeric value of ETCO<sub>2</sub> may be low or zero if arrest has been prolonged. Generally ETCO<sub>2</sub> should be  $\geq 4$  mmHg and should continue to rise during CPR.
- ▶ When an ET tube is inserted into the esophagus of a patient who recently ingested carbonated beverages the initial ETCO<sub>2</sub> may be normal but will rapidly decrease to < 4mmHg after a few ventilations.

## Supraglottic Airway Medical Directive

*An Advanced 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

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain /  
Sed. /  
Nausea

Proced.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

Destinat.  
Guide.

## TREATMENT

Consider **supraglottic airway insertion**

The maximum number of supraglottic airway insertion attempts is 2

Confirm **supraglottic airway placement**

Method <i>Primary</i>	Method <i>Secondary</i>
ETCO <sub>2</sub> (Waveform capnography)	ETCO <sub>2</sub> (Non-waveform device)
	Auscultation
	Chest rise

## CLINICAL CONSIDERATIONS

- ▶ An attempt at supraglottic airway insertion is defined as the insertion of the supraglottic airway into the mouth.
- ▶ Confirmation of supraglottic airway must use ETCO<sub>2</sub> (Waveform capnography). If waveform capnography is not available or is not working, then at least 2 secondary methods must be used.



## Bronchoconstriction Medical Directive

*An Advanced 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	WEIGHT: N/A
HR: N/A	LOA: N/A	LOA: N/A
RR: N/A	HR: N/A	HR: N/A
SBP: N/A	RR: BVM ventilation required	RR: N/A
Other: N/A	SBP: N/A	SBP: N/A
	Other: Hx of asthma	Other: Hx of asthma <b>OR</b> COPD <b>OR</b> 20 pack-year history of smoking

### CONTRAINDICATIONS

<p><b>Salbutamol</b></p> <p>Allergy or sensitivity to salbutamol</p>	<p><b>EPINEPHrine</b></p> <p>Allergy or sensitivity to EPINEPHrine</p>
<p><b>Dexamethasone</b></p> <p>Allergy or sensitivity to steroids</p> <p>Currently on PO or parenteral steroids</p>	

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain /  
Sed. /  
Nausea

Proced.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

## TREATMENT



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

Consider **salbutamol**:

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

\* 1 puff=100mcg

Consider **EPINEPHrine**:

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

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

Consider **dexamethasone**

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

## CLINICAL CONSIDERATIONS

- ▶ EPINEPHrine should be the 1<sup>st</sup> 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)
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

*An Advanced 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

AGE: N/A

WEIGHT: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: For anaphylaxis only

#### DiphenhydrAMINE

AGE: N/A

WEIGHT:  $\geq 25$  kg

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

### CONTRAINDICATIONS

#### EPINEPHrine

Allergy or sensitivity to EPINEPHrine

#### DiphenhydrAMINE

Allergy or sensitivity to diphenhydrAMINE

## TREATMENT

**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** (if available):

	Weight ≥25 kg to <50 kg	Weight ≥50 kg
	Route	Route
	IV/IM	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.



NOTE: Refer to page 35 for EPINEPHrine 1mg/mL = 1:1000 IM Dosing Chart.

## Croup Medical Directive

*An Advanced 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:  $\geq 6$  months to  $< 8$  years

LOA: N/A

HR:  $< 200$  bpm

RR: N/A

SBP: N/A

Other: Stridor at rest

#### Dexamethasone

AGE:  $\geq 6$  months to  $< 8$  years

LOA: Unaltered

HR: N/A

RR: N/A

SBP: N/A

Other: For mild, moderate and severe croup

### CONTRAINDICATIONS

#### EPINEPHrine

Allergy or sensitivity to EPINEPHrine

#### Dexamethasone

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

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain /  
Sed./  
Nausea

Proced.

Research /  
Sp.Proj

Medical  
Refer.

Medic.  
Info.

Contact

Destinat.  
Guide.

## TREATMENT



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

Consider **EPINEPH**rine

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

Consider **dexamethasone**

	Age
	≥ 6 months to < 8 years
	Route
	PO
<i>Dose</i>	0.5mg/kg
<i>Max. single dose</i>	8 mg
<i>Dosing interval</i>	N/A
<i>Max. # of doses</i>	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
<b>Inspiratory Stridor</b>	-	Audible with stethoscope	Audible without stethoscope	-	-	-
<b>Retraction</b>	-	Mild	Moderate	Severe	-	-
<b>Air entry</b>	Normal	Decreased	Severely decreased	-	-	-
<b>Cyanosis</b>	None	-	-	-	With agitation	At rest
<b>Conscious level</b>	Normal	-	-	-	-	Altered

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

Airway /  
Breath.Cardiac/  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

Destinat.  
Guide.

## Tension Pneumothorax Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Pre-arrest or VSA

#### AND

Absent or severely diminished breath sounds on the affected side(s)

### CONDITIONS

#### Needle Thoracostomy

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: Hypotension or VSA

Other: N/A

### CONTRAINDICATIONS

#### Needle Thoracostomy

N/A

### TREATMENT

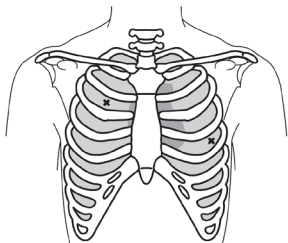
Consider **Needle Thoracostomy**

### CLINICAL CONSIDERATIONS

Needle thoracostomy may be performed at the 4<sup>th</sup> intercostal space anterior axillary line **OR** the 2<sup>nd</sup> intercostal space in the midclavicular line.

## Chest Needle Thoracostomy

- ▶ Chest needle thoracostomy is performed in the setting of suspected tension pneumothorax. Refer to the Tension Pneumothorax Medical Directive for indications, conditions and contraindications.
- ▶ Prepare equipment including appropriate sized needle and syringe.
- ▶ Identify the appropriate landmark
  - 4th intercostal space, anterior axillary line (preferred)
  - 2nd intercostal space, mid clavicular line



- ▶ Cleanse the needle insertion site using aseptic technique.
- ▶ Insert the needle with attached syringe into the appropriate intercostal space on the affected side along the superior aspect of the rib with the bevel facing toward the rib.
- ▶ Aspirate for air as you advance the needle into the thoracic cavity.
- ▶ Once free air has been aspirated, advance the needle 2 mm further to ensure bevel and catheter are through the chest wall and into the pleural space.
- ▶ Advance the catheter over the needle to the hub, hold onto the catheter and remove the needle/syringe. A rush of air *may* be heard when you remove the needle/syringe.
- ▶ Place the needle into the biohazard container.
- ▶ Secure the catheter in place with tape.
- ▶ Place the flutter valve mechanism over the needle, being careful not to bend the catheter.
- ▶ Frequently reassess the patency of the needle thoracostomy site and clinical status of the patient

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

Destinat.  
Guide.

## CONSIDERATIONS

- ▶ The primary indicator of a successful needle decompression will be the improvement in patient condition in both hemodynamic status and partial or complete relief of respiratory symptoms.
- ▶ In the setting of a tension pneumothorax, it is preferred to not provide positive pressure ventilation (eg: with BVM) unless absolutely required and move quickly to chest needle decompression.

## Continuous Positive Airway Pressure (CPAP) Medical Directive – *AUXILIARY*

Airway /  
Breath.

*An Advanced Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.*

Cardiac/  
Circula.

### INDICATIONS

Severe respiratory distress

#### AND

Signs and/or symptoms of acute pulmonary edema **OR** COPD

LOC

### CONDITIONS

#### CPAP

AGE:  $\geq 18$  years

LOA: N/A

HR: N/A

RR: Tachypnea

SBP: Normotension

Other: SpO<sub>2</sub> <90% or accessory muscle use

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. Proj

### 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

Medical  
Refer.Medic.  
Info.

Contact

## TREATMENT

Consider **CPAP**:

<i>Initial setting</i>	5 cm H <sub>2</sub> O	Or equivalent flow rate of device as per RBHP direction
<i>Titration increment</i>	2.5 cm H <sub>2</sub> O	Or equivalent flow rate of device as per RBHP direction
<i>Titration interval</i>	5 min.	
<i>Max. setting</i>	15 cm H <sub>2</sub> O	Or equivalent flow rate of device as per RBHP direction

Consider increasing **FiO<sub>2</sub>** (if available):

<i>Initial FiO<sub>2</sub></i>	50-100%
<i>FiO<sub>2</sub> increment (if available on device)</i>	SpO <sub>2</sub> <92% despite treatment and/or 10cm H <sub>2</sub> O pressure or equivalent flow rate of device as per RBHP direction
<i>Max FiO<sub>2</sub></i>	100%

Confirm **CPAP pressure by manometer** (if available)

## CLINICAL CONSIDERATIONS

N/A

# Endotracheal and Tracheostomy Suctioning & Reinsertion Medical Directive

*An Advanced Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

Airway /  
Breath.Cardiac /  
Circula.

## INDICATIONS

Patient with endotracheal or tracheostomy tube

### AND

Airway obstruction or increased secretions

LOC

## 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 <b>AND</b> Respiratory distress <b>AND</b>  Inability to adequately ventilate <b>AND</b> Paramedics are presented with a tracheostomy cannula for the identified patient

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. ProjMedical  
Refer.

## CONTRAINDICATIONS

Suctioning	Emergency tracheostomy reinsertion
N/A	Inability to landmark or visualize

Medic.  
Info.

Contact

## TREATMENT

### Consider **suctioning**

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

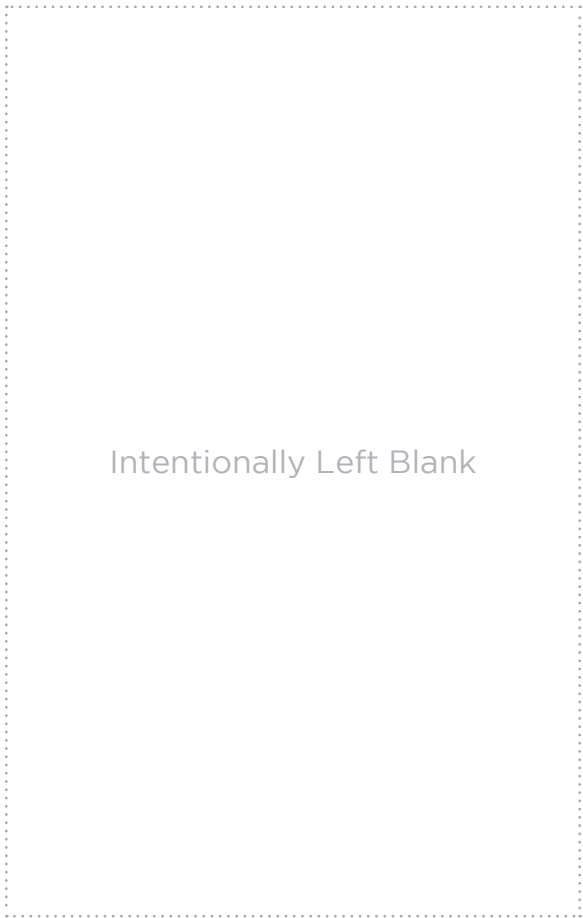
### **Emergency Tracheostomy Reinsertion:**

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.





Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

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Airway /  
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# Cardiac/Circulation

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Medical Cardiac Arrest Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Non-traumatic cardiac arrest.

### PRIMARY CLINICAL CONSIDERATIONS

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  $\geq 20$  weeks gestation (fundus above umbilicus, ensure manual displacement of uterus to left);
- 2) hypothermia;
- 3) airway obstruction;
- 4) non-opioid drug overdose/toxicology, and;
- 5) other known reversible cause of the arrest unable to be addressed.

For patients in refractory VF or pulseless VT, transport following 3 rounds of epinephrine (or after 3rd consecutive defibrillation if no IV/IO/CVAD/ETT access). Refractory VF or pulseless VT is defined for the purpose of this directive, as persistent VF or pulseless VT after 3 consecutive shocks.

**CONDITIONS**

<p style="text-align: center;"><b>CPR</b></p> <p>AGE: N/A LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Performed in 2 minute intervals</p>	<p style="text-align: center;"><b>Manual Defibrillation (preferred method)</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: VF <b>OR</b> pulseless VT</p>	<p style="text-align: center;"><b>AED or SAED Defibrillation</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Defibrillation indicated Not using manual defibrillation</p>
<p style="text-align: center;"><b>EPINEPHrine</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Anaphylaxis suspected as causative event, IM route may be used</p>	<p style="text-align: center;"><b>Amiodarone</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: VF <b>OR</b> pulseless VT as an equivalent to lidocaine</p>	<p style="text-align: center;"><b>Lidocaine</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: VF <b>OR</b> pulseless VT as an equivalent to amiodarone</p>
<p style="text-align: center;"><b>0.9% NaCl Fluid Bolus</b></p> <p>AGE: ≥ 24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: <b>PEA OR</b> Any other rhythm where hypovolemia is suspected</p>	<p style="text-align: center;"><b>Medical TOR</b></p> <p>AGE: ≥ 16 years LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Arrest not witnessed by paramedic <b>AND</b> No ROSC after 20 minutes of resuscitation <b>AND</b> No defibrillation delivered</p>	

**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**

Allergy or sensitivity to  
EPINEPHrine

**Amiodarone**

Allergy or sensitivity to  
amiodarone

**Lidocaine**

Allergy or sensitivity to  
lidocaine

**0.9% NaCl Fluid  
Bolus**

Fluid overload

**Medical TOR**

Known reversible cause of the arrest unable to be  
addressed  
Pregnancy presumed to be  $\geq 20$  weeks gestation  
Suspected hypothermia  
Airway obstruction  
Non-opioid drug over/dose/toxicity

**TREATMENT**

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

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

Consider **Manual defibrillation**

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

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

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

Consider **EPINEPHrine** (if anaphylaxis is suspected as the causative event of the cardiac arrest)

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

\* The EPINEPHrine dose may be rounded to the nearest 0.05 mg

Consider **EPINEPHrine**

	Age ≥24 hours to <12 years		Age ≥12 years	
	Route		Route	
	IV/IO/CVAD	ETT	IV / IO /CVAD	ETT
<i>Solution</i>	0.1 mg/mL = 1:10,000	1 mg/mL = 1:1,000	0.1 mg/mL = 1:10,000	as per RBHP
<i>Dose</i>	0.01 mg/kg*  (0.1 mL/kg)	0.1 mg/kg to a max of 2 mg  (0.1 mL/kg to a max of 2mL)	1 mg	2 mg
<i>Min. single dose</i>	0.05 mg	0.5 mg	1 mg	2 mg
<i>Dosing interval</i>	4 min	4 min	4 min	4 min
<i>Max. # of doses</i>	N/A	N/A	N/A	N/A

\* The EPINEPHrine dose may be rounded to the nearest 0.05 mg

Consider **amiodarone**

	Age ≥24 hours to <12 years	Age ≥12 years
	Route	Route
	IV / IO / CVAD	IV / IO / CVAD
<i>Initial Dose</i>	5 mg/kg	300 mg
<i>Max. initial dose</i>	300 mg	300 mg
<i>Subsequent dose(s)</i>	5 mg/kg	150 mg
<i>Max. repeat dose</i>	150 mg	150 mg
<i>Dosing interval</i>	4 min	4 min
<i>Max. # of doses</i>	2	2



Consider **lidocaine** (if not using amiodarone)

	Age ≥24 hours to <12 years		Age ≥12 years	
	Route		Route	
	IV / IO / CVAD	ETT	IV / IO / CVAD	ETT
<i>Initial Dose</i>	1 mg/kg	2 mg/kg	1.5 mg/kg	3 mg/kg
<i>Second Dose</i>	1 mg/kg	2 mg/kg	0.75 mg/kg	1.5 mg/kg
<i>Min. single dose</i>	N/A	N/A	N/A	N/A
<i>Dosing interval</i>	4 min	4 min	4 min	4 min
<i>Max. # of doses</i>	2	2	2	2

Consider **0.9% NaCl fluid bolus**

	Age ≥24 hours to <12 years	Age ≥12 years
	Route	
	IV / IO / CVAD	IV / IO / CVAD
<i>Infusion</i>	20 mL/kg	20 mL/kg
<i>Infusion interval</i>	Immediate	Immediate
<i>Reassess every</i>	100 mL	250 mL
<i>Max. volume</i>	2,000 mL	2,000 mL

### **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 circumstance: egress, prolonged transport or significant clinical limitations where the paramedic considers ongoing resuscitation to be futile.

## CLINICAL CONSIDERATIONS

Consider regional base hospital program advanced airway strategy where more than OPA/NPA and BVM is required.

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

The IV/IO/CVAD routes of medication administration are preferred over the ETT route. However, ETT administration may be used if the IV/IO/CVAD routes are delayed (e.g.  $\geq 5$  min).

The BHP might **not** authorize TOR even though the patient meets TOR rule. Factors may include: location of the patients, EtCO<sub>2</sub>, 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 35 for Epinephrine 1mg/mL = 1:1000 IM Dosing Chart**

 **NOTE: Refer to page 58 for Defibrillation Joule Setting Reference Chart.**

 **NOTE: Refer to page 174 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:
<b>Medtronic</b>	Lifepack	200, 300, 360 Joules
<b>Phillips</b>	MRX / FR2	150 Joules non escalating
<b>ZOLL</b>	E, M, or X Series	120, 150, 200 Joules

## Trauma Cardiac Arrest Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Cardiac arrest secondary to severe blunt or penetrating trauma.

### CONDITIONS

	<b>CPR</b>	<b>Manual Defibrillation</b>	<b>AED or SAED Defibrillation</b>
	AGE: N/A LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Performed in 2 minute intervals	AGE: ≥24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: VF <b>OR</b> pulseless VT	AGE: ≥24 hours LOA: Altered HR: N/A RR: N/A SBP: N/A Other: Defibrillation indicated  If not using manual defibrillation
	<b>Needle thoracostomy</b> AGE: N/A LOA: N/A HR: N/A RR: N/A SBP: N/A Other: Suspected tension pneumothorax <b>AND</b> absent or severely diminished breath sound on the affected side(s)	<b>Trauma TOR</b> AGE: ≥16 years LOA: Altered HR: 0 RR: 0 SBP: N/A Other: No palpable pulses <b>AND</b> No defibrillation delivered <b>AND</b> Rhythm Asystole <b>AND</b> No signs of life at any time since fully extricated <b>OR</b> Signs of life when fully extricated with the closest ED ≥30 min transport time away <b>OR</b> Rhythm PEA with the closest ED ≥30 min transport time away	

## CONTRAINDICATIONS

<p><b>CPR</b></p> <p>Obviously dead as per BLS PCS</p> <p>Meet conditions of the BLS PCS <i>Do Not Resuscitate (DNR) Standard</i></p>	<p><b>Manual Defibrillation</b></p> <p>Rhythms other than VF or pulseless VT</p>	<p><b>AED or SAED Defibrillation</b></p> <p>Non-shockable rhythm</p>
<p><b>Needle thoracostomy</b></p> <p>N/A</p>	<p><b>Trauma TOR</b></p> <p>Age &lt;16 years</p> <p>Defibrillation delivered</p> <p>Signs of life at any time since fully extricated.</p> <p>Rhythm PEA and closest ED &lt;30 min transport time away</p> <p>Patients with penetrating trauma to the torso or head/neck and Lead Trauma Hospital &lt; 30 min transport time away</p>	

## TREATMENT

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

Intro

Airway /  
Breath.Cardiac /  
Circula.Consider **Manual defibrillation** (if available and authorized)

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

LOC

Pain/  
Sed./  
Nausea

Proced.

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

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

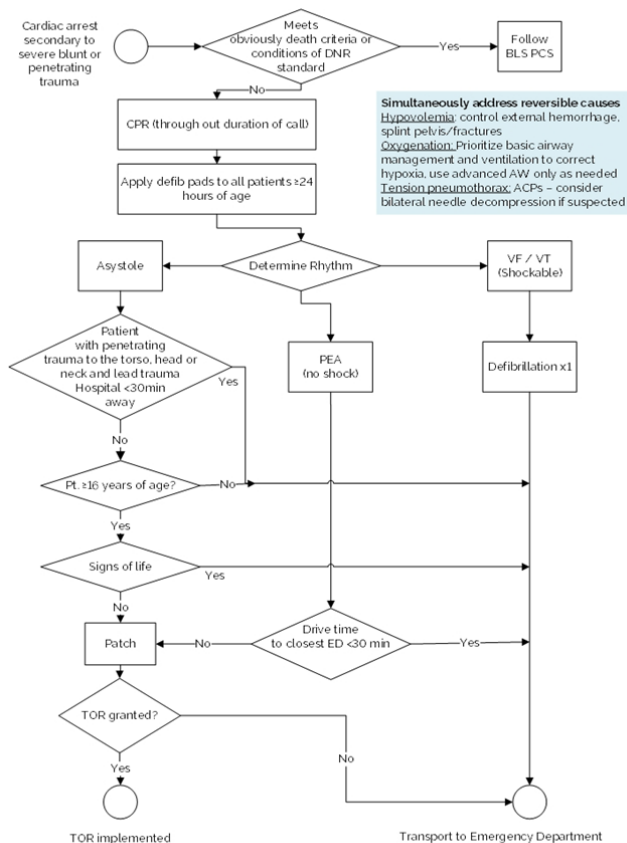
Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

Destinat.  
Guide.Consider **needle thoracostomy****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 1<sup>st</sup> analysis/defibrillation.

# Treatment – Algorithm for Trauma Arrest



Intro

Airway /  
Breath.Cardiac/  
Circula.

LOC

Pain/  
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Refer.

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Guide.

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## 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 58 for **Defibrillation Joule Setting Reference Chart.***



*NOTE: Refer to page 174 for **CPR Guidelines.***



# Newborn Resuscitation Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

## INDICATIONS

Newborn patient.

## CONDITIONS

PPV	CPR	EPINEPHrine
AGE: <24 hours	AGE: <24 hours	AGE: <24 hours
LOA: N/A	LOA: N/A	LOA: N/A
HR: <100 bpm	HR: <60 bpm	HR: <60 bpm
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: N/A	Other: After 30 seconds of PPV using room air	Other: After 30 seconds of PPV <b>AND</b> 30 seconds of CPR

## CONTRAINDICATIONS

PPV	CPR
Obviously dead as per BLS PCS Presumed gestational age less than 20 weeks	Obviously dead as per BLS PCS Presumed gestational age less than 20 weeks
EPINEPHrine	
Allergy or sensitivity to EPINEPHrine Presumed gestational age less than 20 weeks	

**TREATMENT**

Consider **PPV** as per the treatment flowchart

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

Consider **EPINEPHrine**

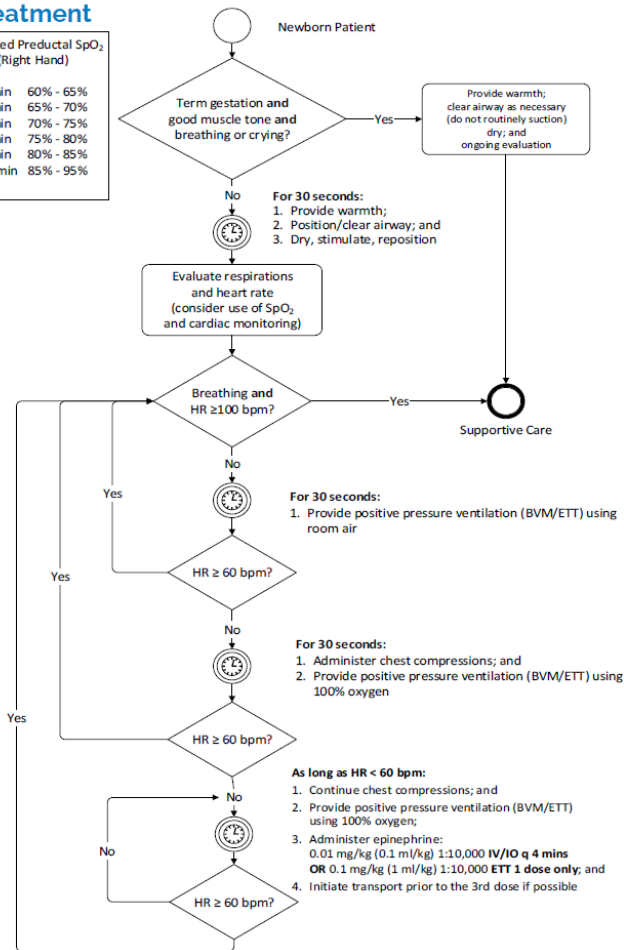
	Age	
	< 24 hours	
	Route	
	IV/IO	ETT*
<i>Solution</i>	0.1 mg/mL = 1:10,000	0.1 mg/mL = 1:10,000
<i>Dose</i>	0.01 mg/kg (0.1 mL/kg)	0.01 mg/kg (1.0 mL/kg)
<i>Min. single dose</i>	0.05 mg (0.5 mL)	N/A
<i>Max. single dose</i>	N/A	0.3 mg (3.0 mL)
<i>Dosing interval</i>	4 min	N/A
<i>Max. # of doses</i>	N/A	1

**\* EPINEPHrine is to be administered IV/IO after the single ETT dose if the conditions are still met**

## Treatment

Targeted Preductal SpO<sub>2</sub>  
(Right Hand)

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



Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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Guide.

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## 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
<b>Heart rate (bpm)</b>	0 (absent)	Slow (< 100)	≥ 100
<b>Respiratory effort</b>	Absent	Slow, irregular	Good, crying
<b>Muscle tone</b>	None, limp	Some flexion	Active motion
<b>Reflex irritability (suction of nares, tactile stimulation)</b>	None	Some grimace	Good grimace, cough, cry
<b>Colour</b>	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 SpO<sub>2</sub>

#### 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

An Advanced 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	Dopamine
AGE: N/A	AGE: $\geq 8$ years
LOA: N/A	LOA: N/A
HR: N/A	HR: N/A
RR: N/A	RR: N/A
SBP: Hypotension	SBP: Hypotension
Other: Chest auscultation is clear	Other: N/A

### CONTRAINDICATIONS

0.9% NaCl Fluid Bolus	Dopamine
Fluid overload	Allergy or sensitivity to dopamine
	Tachydysrhythmias excluding sinus tachycardia
	Mechanical shock states
	Pheochromocytoma

**TREATMENT****5Rs****Patient • Drug • Dose • Route • Time.**Consider **optimizing ventilation and oxygenation**

Titrate oxygenation 94%-98%

Avoid hyperventilation and target ETCO<sub>2</sub> to 30-40 mmHg with continuous waveform capnography (if available)Consider **0.9% NaCl fluid bolus**

	Age	Age
	<12 years	12 years
	Route	Route
	IV/IO/CVAD	IV/IO/CVAD
<i>Infusion</i>	10 mL/kg	10 mL/kg
<i>Infusion interval</i>	Immediate	Immediate
<i>Reassess every</i>	100 mL	250 mL
<i>Max. volume</i>	1,000 mL	1,000 mL

Consider **DOPamine**

	Age
	≥8 years
	Route
	IV
<i>Initial Infusion Rate</i>	5 mcg/kg/min
<i>Titration increment</i>	5 mcg/kg/min
<i>Titration interval</i>	5 min
<i>Max infusion rate</i>	20 mcg/kg/min

**NOTE:** Titrate DOPamine to achieve a SBP of ≥90 to <110mmHg. If discontinuing dopamine electively, do so gradually over 5-10 minutes.Consider **12 lead ECG acquisition and interpretation**



---

## CLINICAL CONSIDERATIONS

Consider initiating transport in parallel with the above treatment.

Adult IO administration of a NaCl bolus requires the ACP to be authorized.

Notify receiving hospital staff if DOPamine drip goes interstitial.



*NOTE: Refer to page 172 for 12 Lead ECG Placement Reference.*

Intro

Airway /  
Breath.

Cardiac/  
Circula.

LOC

Pain/  
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Nausea

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## "Single Strength" DOPamine Dosing Guide

DOPAMINE INFUSION RATE (mL or drops/min with a microdrip set)  
[Using an 800mcg/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

## Cardiac Ischemia Medical Directive

An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

### INDICATIONS

Suspected cardiac ischemia.

### CONDITIONS

ASA	Nitroglycerin	Morphine
AGE: ≥18 years	AGE: ≥18 years	AGE: ≥18 years
LOA: Unaltered	LOA: Unaltered	LOA: Unaltered
HR: N/A	HR: 60-159 bpm	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: Normotension	SBP: Normotension
Other: Able to chew and swallow	Other: Prior history of nitroglycerin use <b>OR</b> IV access obtained	Other: Severe pain

### CONTRAINDICATIONS

ASA	Nitroglycerin	Morphine
Allergy or sensitivity to NSAIDS	Allergy or sensitivity to nitrates	Allergy or sensitivity to morphine
If asthmatic, no prior use of ASA	Phosphodiesterase inhibitor use within the previous 48 hours	SBP drops by one-third or more of its initial value after morphine is administered
Current active bleeding	SBP drops by one-third or more of its initial value after nitroglycerin is administered	
CVA or TBI in the previous 24 hours	12-lead ECG compatible with Right Ventricular MI	

## TREATMENT



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

Consider **ASA**

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

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

Consider **nitroglycerin**

	STEMI	
	NO	YES
	<b>SBP</b>	<b>SBP</b>
	≥100 mmHg	≥100 mmHg
	<b>Route</b>	<b>Route</b>
	SL	SL
<i>Dose</i>	0.3 mg <b>OR</b> 0.4 mg	0.3 mg <b>OR</b> 0.4 mg
<i>Max. single dose</i>	0.4 mg	0.4 mg
<i>Dosing interval</i>	5 min	5 min
<i>Max. # of doses</i>	6	3

Consider **morphine** (after the 3<sup>rd</sup> dose of nitroglycerin or if nitroglycerin is contraindicated)

	Route
	IV
<i>Dose</i>	2 mg
<i>Max. single dose</i>	2 mg
<i>Dosing interval</i>	5 min
<i>Max. # of doses</i>	5

---

## CLINICAL CONSIDERATIONS

Suspect a Right Ventricular MI in all inferior STEMIs and perform at minimum V4R to confirm (ST-elevation  $\geq$  1mm in V4R).

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

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 172 for 12 Lead ECG Placement Reference.*

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp.Proj

Medical  
Refer.

Medic.  
Info.

Contact

## Acute Cardiogenic Pulmonary Edema Medical Directive

*An Advanced 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:  $\geq 18$  years

LOA: N/A

HR: 60-159 bpm

RR: N/A

SBP: Normotension

Other: N/A

### CONTRAINDICATIONS

#### Nitroglycerin

Allergy or sensitivity to nitrates

Phosphodiesterase inhibitor use within the previous 48 hours

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

## TREATMENT



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

Consider **nitroglycerin**

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

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

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

## CLINICAL CONSIDERATIONS

N/A



*NOTE: Refer to page 172 for 12 Lead ECG Placement Reference.*

## Cardiogenic Shock Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

STEMI-positive 12-lead ECG;

#### AND

Cardiogenic shock.

### CONDITIONS

#### 0.9% NaCl Fluid Bolus

AGE:  $\geq 18$  years

LOA: N/A

HR: N/A

RR: N/A

SBP: Hypotension

Other: Chest auscultation is clear

#### DOPamine

AGE:  $\geq 18$  years

LOA: N/A

HR: N/A

RR: N/A

SBP: Hypotension

Other: N/A

### CONTRAINDICATIONS

#### 0.9% NaCl Fluid Bolus

Fluid overload

SBP  $\geq 90$  mmHg

#### DOPamine

Allergy or sensitivity to dopamine

Tachydysrhythmias excluding sinus tachycardia

Mechanical shock

Hypovolemia

Pheochromocytoma



## TREATMENT



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

Consider **0.9% NaCl Fluid Bolus**

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

**NOTE:** If NaCl bolus contraindicated due to pulmonary crackles, consider DOPamine.

Consider **DOPamine**

	Route
	IV
<i>Initial infusion rate</i>	5 mcg/kg/min
<i>Titration increment</i>	5 mcg/kg/min
<i>Titration interval</i>	5 min
<i>Max. infusion rate</i>	20 mcg/kg/min

**NOTE:** Titrate DOPamine to achieve a SBP of ≥90 to <110 mmHg. If discontinuing dopamine electively, do so gradually over 5-10 minutes.

## CLINICAL CONSIDERATIONS

Contact BHP if patient is bradycardic.

## Symptomatic Bradycardia Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Bradycardia;

#### AND

Hemodynamic instability.

### CONDITIONS

<b>Atropine</b>	<b>Transcutaneous Pacing</b>	<b>DOPamine</b>
AGE: ≥18 years	AGE: ≥18 years	AGE: ≥18 years
LOA: N/A	LOA: N/A	LOA: N/A
HR: <50 bpm	HR: <50 bpm	HR: <50 bpm
RR: N/A	RR: N/A	RR: N/A
SBP: Hypotension	SBP: Hypotension	SBP: Hypotension
Other: N/A	Other: N/A	Other: N/A

### CONTRAINDICATIONS

<b>Atropine</b>	<b>Transcutaneous Pacing</b>	<b>DOPamine</b>
Allergy or sensitivity to atropine	Hypothermia	Allergy or sensitivity to dopamine
Hypothermia		Mechanical shock
History of heart transplant		Pheochromocytoma

## TREATMENT



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

Airway /  
Breath.

Consider **Rhythm determination**

Cardiac/  
Circula.

Consider **12 lead ECG acquisition and interpretation** (if this won't delay therapy)

Consider **atropine**

	Route
	IV
<i>Dose</i>	1 mg
<i>Max. single dose</i>	1 mg
<i>Dosing interval</i>	5 min
<i>Max. # of doses</i>	2

LOC

Pain/  
Sed./  
Nausea

Consider **transcutaneous pacing**

Proced.

Consider **DOPamine**

	Route
	IV
<i>Initial infusion rate</i>	5 mcg/kg/min
<i>Titration increment</i>	5 mcg/kg/min
<i>Titration interval</i>	5 min
<i>Max. infusion rate</i>	20 mcg/kg/min

Research /  
Sp. Proj

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Refer.

**NOTE:** Titrate DOPamine to achieve a SBP of  $\geq 90$  to  $< 110$  mmHg. If discontinuing dopamine electively, do so gradually over 5-10 minutes.

Medic.  
Info.

Contact

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## CLINICAL CONSIDERATIONS

TCP should not be delayed for placement of an IV.

A fluid bolus should be considered with all symptomatic bradycardia patients if indicated.



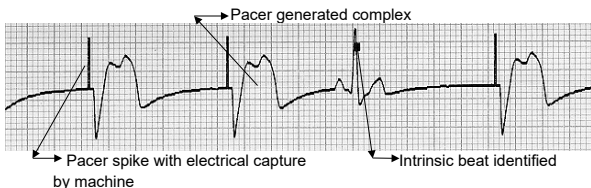
*NOTE: Refer to page 73 for Dopamine Dosing Chart.*



*NOTE: Refer to page 132 for Procedural Sedation Medical Directive*

## Transcutaneous Pacing

- ▶ Refer to the Symptomatic Bradycardia Medical Directive for indications, conditions and contraindications for transcutaneous pacing.
- ▶ Ensure the limb leads are applied for cardiac monitoring
- ▶ Place the defibrillation pads on patient as per manufacturer's recommendation. Generally "anterior/posterior" or sternum/apex placements are acceptable.
- ▶ Set the pacing rate to 80 beats per minute.
- ▶ Increase the output or milliamps slowly until electrical capture is confirmed by the presence of pacer spikes followed by a wide QRS complex (see below).



- ▶ Once electrical capture is confirmed, the presence of mechanical capture must be confirmed and consistently monitored.
- ▶ Mechanical capture should be confirmed through palpation of a mechanical pulse that matches the pre-set rate on the pacer.
- ▶ Upon confirmation of mechanical capture, the Paramedic should increase the output or milliamps by 5-10% to ensure mechanical capture is maintained.
- ▶ If pacing does not achieve mechanical capture despite maximal output and good connection between the pads and skin, then this should be discontinued.

### CONSIDERATIONS

- ▶ Generally electrical capture will be achieved between 70 and 120 mA, but higher energy settings will occasionally be required.
- ▶ Many conscious patients who are receiving TCP therapy will require sedation. Consider applying the Procedural Sedation Medical Directive.
- ▶ Ensure continuous monitoring of mechanical capture as it can be lost over time.

## Tachydysrhythmia Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Symptomatic Tachydysrhythmia.

### CONDITIONS

<b>Valsalva Maneuver</b>	<b>Adenosine</b>	<b>Amiodarone</b>
AGE: $\geq 18$ years	AGE: $\geq 18$ years	AGE: $\geq 18$ years
LOA: Unaltered	LOA: Unaltered	LOA: Unaltered
HR: $\geq 150$ bpm	HR: $\geq 150$ bpm	HR: $\geq 120$ bpm
RR: N/A	RR: N/A	RR: N/A
SBP: Normotension	SBP: Normotension	SBP: Normotension
Other: Narrow complex and regular rhythm	Other: Narrow complex and regular rhythm	Other: Wide complex and regular rhythm
<b>Lidocaine</b>	<b>Synchronized Cardioversion</b>	
AGE: $\geq 18$ years	AGE: $\geq 18$ years	
LOA: Unaltered	LOA: N/A	
HR: $\geq 120$ bpm	HR: $\geq 120$ bpm (wide) <b>OR</b> $\geq 150$ bpm (narrow)	
RR: N/A	RR: N/A	
SBP: Normotension	SBP: Hypotension	
Other: Wide complex and regular rhythm	Other: Altered mental status, ongoing chest pain, other signs of shock	

## CONTRAINDICATIONS

### Valsalva Maneuver

Sinus tachycardia or atrial fibrillation or atrial flutter

### Adenosine

Allergy or sensitivity to adenosine  
Sinus tachycardia or atrial fibrillation or atrial flutter  
Patient taking dipyridamole or carbamazepine  
Bronchoconstriction on exam

### Amiodarone

Allergy or sensitivity to amiodarone

### Lidocaine

Allergy or sensitivity to lidocaine

### Synchronized Cardioversion

N/A

## TREATMENT



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

Consider **Rhythm determination** (confirm regularity)

Consider **12-lead ECG acquisition and interpretation to confirm QRS width** (if this won't delay therapy)

Consider **modified valsalva maneuver**

Perform a maximum of 2 attempts lasting 10 to 20 seconds duration each.

Intro

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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Destinat.  
Guide.Consider **adenosine**

	Route
	IV
<i>Initial dose</i>	6 mg
<i>Subsequent dose</i>	12 mg
<i>Dosing interval</i>	2 min
<i>Max. # of doses</i>	2

 **Mandatory Provincial Patch Point** 

Patch to BHP for authorization to proceed with amiodarone or lidocaine or if monomorphic wide complex regular rhythm for adenosine.

Consider **amiodarone OR lidocaine** (if not using amiodarone)

	Medication Amiodarone	Medication Lidocaine
	Route IV*	Route IV
<i>Initial dose</i>	150 mg	1.5 mg/kg
<i>Subsequent dose</i>	150 mg	0.75 mg/kg
<i>Max. single dose</i>	150 mg	150 mg
<i>Dosing interval</i>	10 min	10 min
<i>Max. # of doses</i>	2	3

**\*Amiodarone should be administered by IV infusion over 10 min.**

 **Mandatory Provincial Patch Point** 

Patch to BHP for authorization to proceed with synchronized cardioversion.



Consider **synchronized cardioversion**

Administer up to 3 synchronized shocks in accordance with BHP direction and energy settings. (In the setting of a patch failure, the energy settings to be used are 100 J, 200 J and the maximum manufacturer setting.)

---

### CLINICAL CONSIDERATIONS

N/A

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### CONSIDERATIONS FOR TREAT AND DISCHARGE (IF AUTHORIZED)

The patient must meet all of the following criteria:

- the patient is  $\geq 18$  AND  $< 65$  years old;
- patient must have a prior history of SVT;
- the patient presented with narrow complex and regular rhythm Supraventricular Tachycardia (SVT);
- the patient must have only had a single SVT episode in the past 24 hours
- the patient has returned to normal sinus rhythm (NSR) either spontaneously, with a valsalva maneuver or with adenosine treatment by paramedics and is now asymptomatic;
- the patient has returned to their normal level of consciousness;
- a complete set of vital signs are within expected normal ranges with a HR  $< 100$  bpm and the patient remains in NSR for at least 15 minutes post conversion;

#### AND

- the patient was not treated with electrical cardioversion by paramedics;
- the patient is not pregnant;
- the SVT must not be related to alcohol or substance abuse or withdrawal, and;
- the patient has no fever or preceding illness.

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.



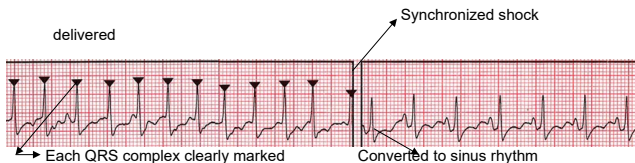
*NOTE: Refer to page 132 for **Procedural Sedation Medical Directive***



*NOTE: Refer to page 172 for **12 Lead ECG Placement Reference***

## Synchronized Cardioversion

- ▶ Refer to the Tachydysrhythmia Medical Directive for the specific indications, conditions and contraindications.
- ▶ Patch to the BHP is required in accordance with the Medical Directive. In the setting of a patch failure, and the patient otherwise meets the medical directive, the energy settings to be used are 100J, 200J and the maximum manufacturer setting.
- ▶ Ensure the limb leads are applied for cardiac monitoring
- ▶ Place the defibrillation pads on patient as per manufacturer's recommendation. Generally "anterior/posterior" or sternum/apex placements are acceptable.
- ▶ Activate **synchronize** mode on the monitor if necessary.
- ▶ Press the synchronize button and be sure the machine has "marked" each QRS complex. See image below.



- ▶ Once it has been identified that each QRS is appropriately marked, set the energy in accordance with the BHP order, or in the event of a patch failure, in accordance with the Medical Directive.
- ▶ Press the charge button.
- ▶ Once the defibrillator is charged, clear the patient and press and **hold** the shock button until the energy has been delivered.
- ▶ Reassess patient.
- ▶ Generally, the initial joule setting will be 100J. If a successful cardioversion is not achieved at the initial setting, subsequent synchronized cardioversions may be delivered at increased joule settings in accordance with the BHP orders or the Medical Directive. Ensure that the defibrillator is **synched** before any subsequent cardioversions are delivered.

Intro

Airway /  
Breath.

Cardiac/  
Circula.

LOC

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- ▶ Anomalies in the ECG morphology may cause the machine to mistakenly mark non-QRS portions of the ECG. For example peaked T waves may be marked in the setting of hyperkalemia, or the P and T waves could be marked in low amplitude states. The paramedic must be sure the machine is properly identifying QRS complexes. This is achieved by cycling through all leads looking for the tallest R waves.
- ▶ The defibrillator must be **resynchronized** before every cardioversion attempt.
- ▶ If synchronization is not possible, consult with the BHP during the patch.

## Hyperkalemia Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Suspected hyperkalemia in patients at high risk, including:

Currently on dialysis; **OR**

History of end-stage renal disease; **OR**

Relevant incident history (i.e. prolonged crush injury)

### AND

One of the following clinical situations:

Cardiac Arrest; **OR**

Pearrest with 12-lead ECG changes associated with Hyperkalemia.

### CONDITIONS

#### Calcium Gluconate 10%

AGE:  $\geq 18$  years

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

#### Salbutamol

AGE:  $\geq 18$  years

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

**CONTRAINDICATIONS****Calcium gluconate**

Allergy of sensitivity to calcium gluconate

**Salbutamol**

Allergy or sensitivity to salbutamol

**TREATMENT**Consider **12-lead ECG acquisition and interpretation**Consider **calcium gluconate 10%**

	Route IV/IO/CVAD
<i>Dose</i>	1 g (10 mL) over 2-3 minutes
<i>Max. single dose</i>	1g (10 mL)
<i>Dosing interval</i>	5 minutes
<i>Max. # of doses</i>	2 *

**\*Note: an additional 3rd dose may be administered after 30 minutes if the patient improved initially and symptoms meeting the indications recur.**

Consider **salbutamol**

	Route	
	MDI*	NEB
<i>Dose</i>	1,600 mcg (16 puffs)	10 mg
<i>Max. single dose</i>	1,600 mcg	10 mg
<i>Dosing interval</i>	Immediate	Immediate
<i>Max. # of doses</i>	2	2

**\*1 puff=100mcg**

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

## CLINICAL CONSIDERATIONS

In the Indications, the pre-arrest patient would present with one or more of the following:

- o hypotension;
- o altered levels of awareness; or
- o symptomatic bradycardia.

12-lead changes suggestive of hyperkalemia are:

- o wide and bizarre QRS complexes [ $\geq 120$  ms];
- o peaked T waves;
- o loss of P waves; and/or
- o a QRS complex with a “sine wave” appearance.

(12-lead acquisition is intended for the patient not in cardiac arrest to establish the QRS duration before and after treatment.)

Whenever possible, both calcium gluconate and salbutamol should be administered as the 2 medications have different modes of action.

The action of calcium gluconate is often visible through the normalization of observed ECG changes of hyperkalemia. If ECG changes do not improve, or if they worsen, additional doses may be required. The duration of action is 20-60 minutes: consider repeat dosing if ECG changes recur during extended transport times.

Caution that calcium gluconate should only be administered in an IV/IO/CVAD that is running well.

Calcium gluconate and sodium bicarbonate should not be mixed or administered in the same IV without flushing well.

Airway /  
Breath.Cardiac/  
Circula.

LOC

Pain/  
Sed./  
Nausea

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## Intravenous and Fluid Therapy Medical Directive

An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

### INDICATIONS

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

### CONDITIONS

#### IV Cannulation

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

#### 0.9% NaCl Fluid Bolus

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

### CONTRAINDICATIONS

#### IV Cannulation

Suspected fracture proximal to the access site

#### 0.9% NaCl Fluid Bolus

Fluid overload

### TREATMENT

Consider **IV cannulation**

Consider **0.9% NaCl** maintenance infusion

	Age	Age
	<12 years	≥12 years
	Route	Route
	IV / IO / CVAD	IV / IO / CVAD
<i>Infusion</i>	15 mL/hr	30-60 mL/hr
<i>Infusion interval</i>	N/A	N/A
<i>Reassess every</i>	N/A	N/A
<i>Max. volume</i>	N/A	N/A



## ⚠️ Mandatory Provincial Patch Point ⚠️

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

Consider **0.9% NaCl fluid bolus**

	Age <12 years	Age ≥12 years
	Route IV / IO / CVAD	Route IV / IO / CVAD
<i>Infusion</i>	20 mL/kg	20 mL/kg
<i>Infusion interval</i>	Immediate	Immediate
<i>Reassess every</i>	100 mL	250 mL
<i>Max. volume*</i>	2,000 mL	2,000 mL

**\*The maximum volume of 0.9% NaCl is lower for patients in cardiogenic shock and return of spontaneous circulation.**

## CLINICAL CONSIDERATIONS

Adult IO and CVAD procedures are auxiliary Medical Directives described elsewhere. Fluid administration via the IO or CVAD routes only apply to paramedics authorized to perform these procedures.

Microdrips and/or volume control administration sets should be considered when IV/CVAD 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 other reversible causes.

## Adult Intraosseous Medical Directive –AUXILIARY

*An Advanced Care Paramedic may provide the treatment prescribed in this auxiliary Medical Directive if authorized.*

### INDICATIONS

Actual or potential need for intravenous medication **OR** fluid therapy;  
**AND**  
 IV access is unobtainable;  
**AND**  
 Cardiac arrest or pre-arrest state.

### CONDITIONS

#### IO

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

### CONTRAINDICATION

#### IO

Fracture or crush injuries proximal to the access site.  
 Suspected or known replacement / prostheses immediately proximal to the access site

### TREATMENT

Consider **IO access**

### CLINICAL CONSIDERATIONS

N/A



**NOTE:** Refer to page 100 to 102 for **Intraosseous Site Guidelines**

## Pediatric Intraosseous Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

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

**AND**

Intravenous access is unobtainable;

**AND**

Cardiac arrest or pre-arrest state.

### CONDITIONS

**IO**

AGE: <12 years

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

### CONTRAINDICATION

**IO**

Fracture or crush injuries proximal to the access site

Suspected or known replacement / prosthesis proximal to the access site.

Intro

Airway /  
Breath.

Cardiac /  
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LOC

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## TREATMENT

Consider **IO access**

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## CLINICAL CONSIDERATIONS

N/A

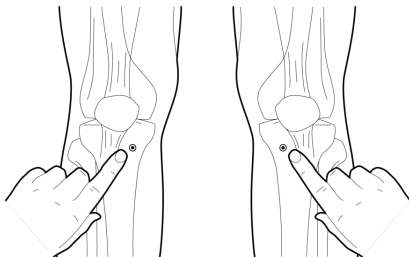


*NOTE: Refer to page 100 to 102 for Intraosseous Site Guidelines*

## INTRASOSEOUS SITE GUIDELINES

### PROXIMAL TIBIAL SITE (ADULT AND PEDIATRIC)

- ▶ Refer to the Adult and Pediatric Intraosseous Medical Directives for indications, conditions and contraindications.
- ▶ To landmark this site, rotate the leg externally, then find the medial and lateral condyles of the proximal tibia. Between the condyles, on the top of the anterior tibial crest is the tibial tuberosity. The insertion site is one to two fingerbreadths below and medial to the tibial tuberosity. The needle should be aimed slightly distally away from the growth plate.



- ▶ Cleanse the needle insertion site with aseptic technique.
- ▶ Select the appropriate size IO needle as per the age of the patient and/or the manufacturer's recommendation.
- ▶ Insert the IO needle as per the manufacturer's recommendations. For a manual device, place the needle at 90 degrees to the landmark and applying a firm pressure with a screwing-type motion. A distinct tactile "popping" should be felt as needle passes through the bone into the medullary cavity.
- ▶ Once the IO needle has been placed into the medullary cavity of the bone, place the introducer needle into the biohazard container.
- ▶ Confirm proper placement by confirming patency of the IO site, and ensure there are no signs of infiltration. Generally, the posterior aspect of the limb will best show the most prominent signs of infiltration.

Intro

Airway /  
Breath.

- ▶ Attach a primed infusion set to the IO device and set the appropriate infusion rate.
- ▶ Appropriately pad and secure the IO site to maintain stability during patient movement

Cardiac /  
Circula.

### CONSIDERATIONS

- ▶ The solution set attached to an IO may require additional pressure to initiate and maintain flow. The paramedic may choose to use a pressure bag, or infuse a predetermined amount of fluid via syringe. When a pressure bag is selected, the flow rate must be constantly monitored as the rate can tend to increase as the compartment becomes more accepting to fluid, and slow as the pressure in the bag decreases.
- ▶ If the first IO attempt is unsuccessful, consider an attempt at the proximal tibial site on the other leg.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. Proj

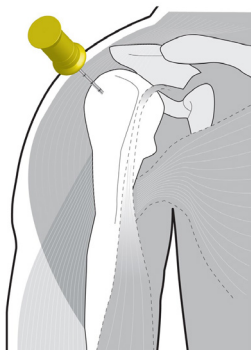
Medical  
Refer.

Medic.  
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## PROXIMAL HUMERUS SITE IDENTIFICATION – ADULT



- ▶ Select and insert the appropriate size IO needle as per the patient and/or the manufacturers recommendation.

## PROXIMAL HUMERUS NEEDLE SELECTION

- ▶ Palpate and identify which site you want to use. Use the proximal tibia site for pediatrics, and either the proximal tibia or humeral site for adults.
- ▶ Although weight of the patient is one of the criteria for needle selection, the correct needle set is based primarily on the site selected and tissue depth overlying the bone
- ▶ The 45mm needle is recommended for humeral site insertion
- ▶ Due to the anterolateral location of the proximal humerus – use a 45° angle for the insertion
- ▶ Needle Insertion
- ▶ Stabilize the bone and surrounding tissue (two person technique is best)
- ▶ Penetrate the skin through to the bone **WITHOUT** running the driver
- ▶ Assure the 5mm mark is visible when the needle tip has come in contact with the bone
- ▶ If the 5mm mark is not visible **DO NOT** proceed, the needle is **NOT** long enough!
- ▶ Run the driver constantly with mild pressure for adult patients, no pressure with pediatric patients
- ▶ Stop the driver when you feel the “pop” into the intrasosseous space

Intro

Airway /  
Breath.

Cardiac/  
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LOC

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Proced.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
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Guide.

**POST-NEEDLE INSERTION**

- ▶ Unscrew the needle (counter clockwise) from the hub and remove it using two hands
- ▶ Connect using the EZ connect adapter ensuring the tubing as been primed with normal saline. DO NOT attach directly to a syringe.
- ▶ Aspirate a small amount of blood (not always possible, does not rule out proper placement) and assess stability of needle in bone to confirm placement
- ▶ Flush with 3-10mL normal saline. In neonates will only need 3mL. In adults use 5-10mL.
- ▶ A second flush may be needed on larger patients
- ▶ Check for any leakage or extravasation or fluid gathering in extremity compartments
- ▶ Put the arm band on the patient's wrist

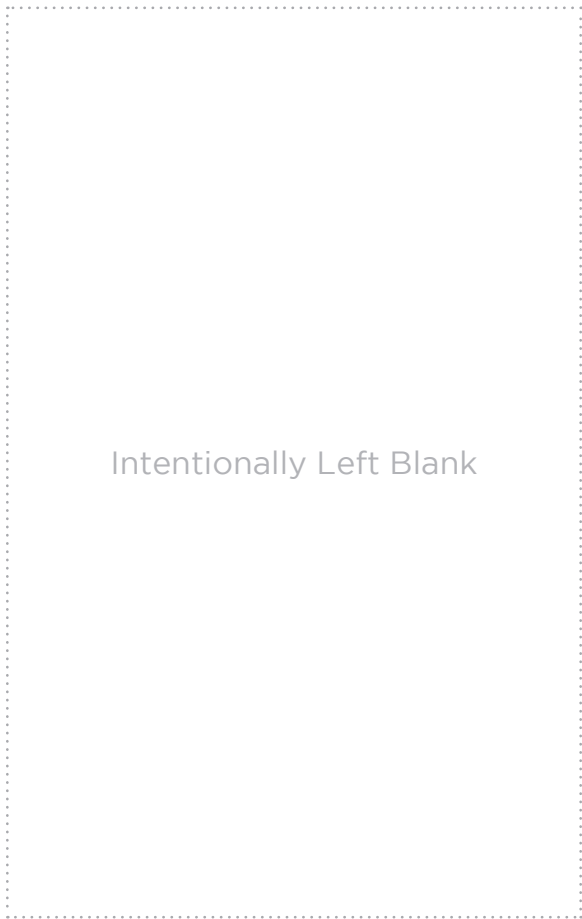
**NOTE ON FLUSH:**

- **NO FLUSH = NO FLOW.**  
*Failure to properly flush the IO catheter may result in limited or no flow*

**NOTE ON PRESSURE INFUSER:**

- *Pressure in the IV bag must be higher than the pressure inside the bone to achieve flow*
- *Therefore, fluids or medications must be delivered under pressure to obtain maximum flow rates*





Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain /  
Sed. /  
Nausea

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# Level of Consciousness

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Hypoglycemia Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Suspected hypoglycemia

### CONDITIONS

#### Dextrose

AGE: N/A

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.

Airway /  
Breath.Consider **glucometry**Cardiac /  
Circula.Consider **dextrose** (D50W diluted as required if not using D10W)

	Age < 2 years	Age ≥ 2 years	
	Concentration 10% dextrose	Concentration 10% dextrose	Concentration 50% dextrose
	Route IV	Route IV	Route IV
<i>Dose</i>	0.2 g/kg (2 ml/kg)	0.2 g/kg (2ml/kg)	0.5 g/kg (1 ml/kg)
<i>Max. single dose</i>	5 g (50 ml)	25 g (250 ml)	25 g (50 ml)
<i>Dosing interval</i>	10 min	10 min	10 min
<i>Max. # of doses</i>	2	2	2

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

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp.ProjMedical  
Refer.Medic.  
Info.

Contact

Intro

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. ProjMedical  
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	Consider <b>glucagon</b> (if not using dextrose)		intranasal powder (if authorized and available)
	Age N/A	Age N/A	Age ≥ 4 years
	Weight < 25 kg	Weight ≥ 25 kg	Weight N/A
	Route IM	Route IM	Route IN
<i>Dose</i>	0.5 mg	1 mg	3 mg
<i>Max. single dose</i>	0.5 mg	1 mg	3 mg
<i>Dosing interval</i>	20 min	20 min	20 min
<i>Max. # of doses</i>	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.

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 (no intraosseous was used) as per the Medical Directive and/or 1mg of Glucagon 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  $\geq 4.0$ mmol/L after treatment;
- the patient has returned 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 maker's 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	<b>D10W</b> Waste 40 mLs replace w/ sterile water	0.2	2	4
		3				2	6
		4				2	8
		5				2	10
	≥30 days to < 2 years	3	< 3.0	<b>D25W</b> Waste 25 mLs replace w/ sterile water	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	<b>D50W</b>	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					

Patient • Drug • Dose • Route • Time.



## Seizure Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

Airway /  
Breath.

### INDICATIONS

Active generalized motor seizure.

Cardiac /  
Circula.

### CONDITIONS

#### Midazolam

AGE: N/A

LOA: Unresponsive

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

LOC

Pain/  
Sed./  
Nausea

Proced.

### CONTRAINDICATIONS

#### Midazolam

Allergy or sensitivity to midazolam

Research /  
Sp.ProjMedical  
Refer.Medic.  
Info.

Contact

## TREATMENT



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

Consider **midazolam**

	Route	
	IV / IO	IM / IN / Buccal
<i>Dose</i>	0.1 mg/kg	0.2 mg/kg
<i>Max. single dose</i>	5 mg	10 mg
<i>Dosing interval</i>	5 min	5 min
<i>Max. # of doses</i>	2	2

## CLINICAL CONSIDERATIONS

Conditions such as cardiac arrest and hypoglycemia often present as seizure and should be considered by a paramedic.

Do not delay midazolam administration for blood glucometry in cases where hypoglycemia is not thought to be the causative agent.

Blood glucose should be routinely checked in patients who do not respond to midazolam or have not returned to their baseline LOA after a seizure.

## CONSIDERATIONS FOR TREAT AND DISCHARGE (IF AUTHORIZED)

All of the following criteria must be met:

- the patient is  $\geq 18$  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 and is asymptomatic;
- 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.

Airway /  
Breath.Cardiac /  
Circula.

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.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. Proj

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### CLINICAL CONSIDERATIONS (TREAT AND DISCHARGE)

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

Medical  
Refer.Medic.  
Info.

Contact

# Seizure Medical Directive Dosing Guide

## Midazolam Dosing Guide

Age	Weight	Route: IM/IN/Buccal			Route: IV/IO			
		Dose	Calculated Volume	Volume to Administer (rounded)	Dose	Actual Volume	Volume to Administer (rounded)	
		Dose: 0.2 mg/kg Supplied: 10 mg/2 mL Use 1 mL syringe Undiluted			Dose: 0.1 mg/kg Supplied: 10 mg/2 mL Use 10 mL syringe diluted to 1 mg/mL			
LOC	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
Pain/ Sed./ Nausea	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
Medical Refer.	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
Medic. Info.	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 to 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**

# Opioid Toxicity and Withdrawal Medical Directive

An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.

## INDICATIONS

Suspected opioid toxicity.

## CONDITIONS

### Naloxone

AGE:  $\geq 24$  hours

LOA: Altered

HR: N/A

RR:  $<10$  breaths/min

SBP: N/A

Other: Inability to adequately ventilate **OR** persistent need to assist ventilations

### buprenorphine/naloxone

AGE:  $\geq 16$

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  $\geq 8$

## CONTRAINDICATIONS

### Naloxone

Allergy or sensitivity to naloxone

### buprenorphine/naloxone

Allergy or sensitivity to buprenorphine

Taken methadone in the past 72 hours

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

Research /  
Sp. Proj

Medical  
Refer.

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## TREATMENT

### Consider **naloxone**

	Route IV / IO	Route IM	Route IN	Route SC
<i>Dose</i>	Up to 0.4 mg*	0.4 mg	2-4 mg	0.8 mg
<i>Max. single dose</i>	0.4 mg	0.4 mg	2-4 mg	0.8 mg
<i>Dosing interval</i>	5 mins	5 min	5 min	5 min
<i>Max. # of doses</i>	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
<i>Initial dose</i>	16 mg
<i>Subsequent dose(s) dose</i>	8 mg
<i>Dosing interval</i>	10 minutes
<i>Max. cumulative dose</i>	24 mgs

## CLINICAL CONSIDERATIONS

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  $\geq 10$ , 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  $\geq 8$  is an indication for buprenorphine/naloxone administration

<b>Resting Pulse Rate</b> _____ beats/minute <i>Measured after patient is sitting or lying for one minute</i> 0 pulse rate 80 or below 1 pulse rate 81–100 2 pulse rate 101–120 4 pulse rate greater than 120	<b>GI Upset over last ½ hour</b> 0 no GI symptoms 1 stomach cramps 2 nausea or loose stool 3 vomiting or diarrhea 5 multiple episodes of diarrhea or vomiting
<b>Sweating over past ½ hour not accounted for by room temperature or patient activity</b> 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	<b>Tremor observation of outstretched hands</b> 0 no tremor 1 tremor can be felt, but not observed 2 slight tremor observable 4 gross tremor or muscle twitching
<b>Restlessness observation during assessment</b> 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	<b>Yawning observation during assessment</b> 0 no yawning 1 yawning once or twice during assessment 2 yawning three or more times during assessment 4 yawning several times/minute
<b>Pupil Size</b> 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	<b>Anxiety or Irritability</b> 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
<b>Bone or Joint Aches</b> <i>If patient was having pain previously, only the additional component attributed to opiates withdrawal is scored</i> 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	<b>Gooseflesh Skin</b> 0 skin is smooth 3 piloerection of skin can be felt or hairs standing up on arms 5 prominent piloerection
<b>Runny Nose or Tearing</b> <i>Not accounted for by cold symptoms or allergies</i> 0 not present 1 nasal stuffiness or unusually moist eyes 2 nose running or tearing 4 nose constantly running or tears streaming down cheeks	<p style="text-align: right;"><b>Total Score</b> _____</p> <p style="text-align: center;"><i>The total score is the sum of all 11 items.</i></p> <p>Initials of person completing assessment: _____</p>

## Suspected Adrenal Crisis Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

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

### CONDITIONS

#### Hydrocortisone

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: Paramedics are presented with a vial of hydrocortisone for the identified patient **AND**

Age-related hypoglycemia **OR**

GI symptoms (vomiting, diarrhea, abdominal pain) **OR**

Syncope **OR**

Temperature  $\geq 38^{\circ}\text{C}$  or suspected/history of fever **OR**

Altered level of awareness **OR**

Age-related tachycardia **OR**

Age related hypotension

### CONTRAINDICATIONS

#### Hydrocortisone

Allergy or sensitivity to hydrocortisone



## TREATMENT



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

Consider **hydrocortisone**

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

\*Dose should be rounded to the nearest 10 mg

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

## CLINICAL CONSIDERATIONS

N/A

Research /  
Sp.Proj

Medical  
Refer.

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# Pain/Sedation/Nausea

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Analgesia Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Pain

### CONDITIONS

#### Acetaminophen

AGE:  $\geq 12$  years

LOA: Unaltered

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

#### Ibuprofen

AGE:  $\geq 12$  years

LOA: Unaltered

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

#### Ketorolac

AGE:  $\geq 12$  years

LOA: Unaltered

HR: N/A

RR: N/A

SBP: Normotension

Other: N/A

#### Morphine

AGE:  $\geq 1$  year

LOA: Unaltered

HR: N/A

RR: N/A

SBP: Normotension

Other: N/A

<b>FentaNYL</b>
AGE: ≥1 year
LOA: Unaltered
HR: N/A
RR: N/A
SBP: Normotension
Other: N/A

## CONTRAINDICATIONS

<b>Acetaminophen</b>
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

<b>Ibuprofen</b>
NSAID use within previous 6 hours
Allergy or sensitivity to 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

Intro

Airway /  
Breath.

Cardiac /  
Circula.

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### Ketorolac

NSAID use within previous 6 hours  
 Allergy or sensitivity to 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

### Morphine

Allergy or sensitivity to morphine  
 Treatment of headache  
 Treatment of chronic pain  
 SBP drops by one-third or more of its initial value after morphine is administered  
 Suspected ischemic chest pain (refer to Cardiac Ischemia Medical Directive for suspected cardiac ischemia)  
 Active Labour

### FentaNYL

Allergy or sensitivity to fentanyl  
 Treatment of headache  
 Treatment of chronic pain  
 SBP drops by one-third or more of its initial value after fentanyl is administered  
 Suspected ischemic chest pain  
 Active labour

## TREATMENT

Consider **acetaminophen**

Route	Age	Age
	≥12 years to <18 years	≥18 years
	PO	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 <b>ibuprofen</b>	
	Age
	≥12 years
Route	PO
Dose	400 mg
Max. single dose	400 mg
Dosing interval	N/A
Max. # doses	1

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



### Mandatory Provincial Patch Point



Patch to BHP for authorization and dosage verification before administering morphine or fentanyl for children < 12 years old

Consider <b>fentaNYL (if available and authorized)</b>		
	Age	Age
	≥1 year to <18 years	≥18 years
Route	IV/IN	IV/IN
Dose	Up to 1 mcg/kg	25 – 75 mcg
Max. single dose	75 mcg	75 mcg
Dosing interval	5 min	5 mins
Max. # of doses	N/A	N/A
Max. cumulative dose	200 mcg	200 mcg

Consider <b>morphine</b>		
	Age	Age
	≥1 year to <18 years	≥18 years
Route	IV/SC	IV/SC
Dose	0.05-0.1 mg/kg	2 - 10 mg
Max. single dose	5 mg	10 mg
Dosing interval	15 min	15 min
Max. # of doses	N/A	N/A
Max. cumulative dose	10 mg	20 mg

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## 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 **and** morphine or fentaNYL.

Exercise caution when using narcotics in opioid naïve patients and patients  $\geq 65$  years older as they may be more sensitive to dosages.

When higher doses of morphine (5-10 mg) or fentaNYL (50-75 mcg) are given intravenously, consider administering medication in small aliquots q 3 minutes until desired effect or max. single dose is reached to avoid nausea and vomiting.


FentaNYL should not be used in combination with morphine unless authorized by BHP.

The maximum volume of fentaNYL that may be administered IN is 1mL per nare.





# Analgesia Medical Directive - Adult & Pediatric

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)
 <b>Mandatory Provincial Patch Point</b> <span style="float: right;">For patients &lt; 12 years</span>							
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		
	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: **15 minutes** Pediatric Max # of Doses: **4**

# Analgesia Medical Directive - Adult & Pediatric

Dosing Interval: **15 minutes** Pediatric **Max # of Doses: 4**

		Supplied: 10 mg/mL Use 1 mL Syringe Undiluted		Supplied: 10 mg/mL Use 10 mL Syringe Diluted to 1 mg/mL	
<b>Adult</b>	<b>N/A</b>	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: **15 minutes** Adult **Max # of Doses: 4**

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Naus

Proced.

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Refer.

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## Analgesia Medical Directive - Adult & Pediatric FentaNYL Dosing Guide

Route: Intravenous or Intranasal

Supplied: 100 mcg in 2 mL

\*Intranasal Max Fluid : 1 mL per nare

Use 1 mL Syringe, undiluted

Maximum Pediatric Dosage: up to 1 mcg/kg (administer in divided doses)

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

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

## Procedural Sedation Medical Directive – *AUXILIARY*

*An Advanced Care Paramedic may provide the treatment prescribed in this AUXILIARY Medical Directive if authorized.*

### INDICATIONS

Post-intubation; **OR**  
Transcutaneous pacing.

### CONDITIONS

FentaNYL	Midazolam
AGE: ≥18 years	AGE: ≥18 years
LOA: N/A	LOA: N/A
HR: N/A	HR: N/A
RR: ≥10/min*	RR: ≥10/min*
SBP: Normotension	SBP: Normotension
Other: N/A	Other: N/A

**\*Non-intubated patients only**

### CONTRAINDICATIONS

FentaNYL	Midazolam
Allergy or sensitivity to FentaNYL	Allergy or sensitivity to midazolam

## TREATMENT

**Patient • Drug • Dose • Route • Time.**Consider **fentaNYL**

	Route
	IV/IO/CVAD/IN
<i>Dose</i>	25-75 mcg
<i>Max. single dose</i>	75 mcg
<i>Dosing interval</i>	5 min
<i>Max. total dose</i>	150 mcg

Consider **midazolam**

	Route
	IV/IO/CVAD/IN
<i>Dose</i>	Up to 0.1 mg/kg
<i>Max. single dose</i>	5 mg
<i>Dosing interval</i>	5 min
<i>Max. total dose</i>	10 mg

## CLINICAL CONSIDERATIONS

Consider lower dose of medication in elderly and lighter weight individuals.

Consider quantitative EtCO<sub>2</sub> monitoring once the patient has been sedated.

## Combative Patient Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

Airway /  
Breath.

### INDICATIONS

Combative **OR** violent or agitated behavior that requires sedation for patient safety.

Cardiac /  
Circula.

### CONDITIONS

#### Midazolam

AGE: ≥18 years

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

#### Ketamine

AGE: ≥18 years

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: Suspected excited delirium /  
severe violent psychosis

LOC

Pain/  
Sed./  
Naus

Proced.

### CONTRAINDICATIONS

#### Midazolam

Allergy or sensitivity to midazolam

#### Ketamine

Allergy or sensitivity to ketamine

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## TREATMENT



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

Consider **midazolam**

Route	Age
	≥18 years
	IV/ IM / IN
Dose	Up to 0.1 mg/kg
Max. single dose	5 mg
Dosing interval	5 min
Max. total dose	10 mg
Max. # doses	N/A

Consider **ketamine**

Route	Age	Age
	≥18 years to <65 years	≥65 years
	IM	IM
Dose	5 mg/kg	3 mg/kg
Max. single dose	500 mg	300 mg
Dosing interval	N/A	N/A
Max. # doses	1	1



---

## CLINICAL CONSIDERATIONS

Reversible causes of combative, violent or agitated behaviours (e.g. hypoglycemia, hypoxia, hypovolemia) should be considered and treated (if possible) prior to treating with midazolam or ketamine.

Paramedics can administer a lower weight base dose (e.g. 0.05 mg/kg) of midazolam based on clinical judgment taking into consideration such as but not limited to, patient age, and degree of combativeness, and the level of suspicion of hypotension or hypoxia when unable to obtain vital signs.

Do not co-administer midazolam and ketamine unless direction received from BHP.

Consider quantitative EtCO<sub>2</sub> monitoring once the patient has been sedated.

If ketamine emergence reaction develops, a BHP patch is required if further sedation orders are required

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Airway /  
Breath.

Cardiac /  
Circula.

LOC

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## Nausea / Vomiting Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

Nausea or vomiting.

### CONDITIONS

#### Ondansetron

AGE: N/A  
Weight:  $\geq 25$  kg  
LOA: Unaltered  
HR: N/A  
RR: N/A  
SBP: N/A  
Other: N/A

#### DimenHYDRINATE

AGE: < 65 years  
Weight:  $\geq 25$  kg  
LOA: Unaltered  
HR: N/A  
RR: N/A  
SBP: N/A  
Other: N/A

### CONTRAINDICATIONS

#### Ondansetron

Allergy to ondansetron  
Prolonged QT syndrome (known to patient)  
Apomorphine use

#### DimenHYDRINATE

Allergy or sensitivity to dimenHYDRINATE or other antihistamines  
Overdose on antihistamines or anticholinergics or tricyclic antidepressants  
Co-administration of diphenhydramINE

## TREATMENT



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

Consider **ondansetron**

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

Consider **dimenHYDRINATE**

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

## CLINICAL CONSIDERATIONS

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 visa versa).

dimenhydrINATE can be used in patients ≥ 65 years old if ondansetron is not

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
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# Procedural

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



Intro

## Home Dialysis Emergency Disconnect Medical Directive

Airway /  
Breath.

Cardiac /  
Circula.

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

### INDICATIONS

LOC

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 ;

Pain/  
Sed./  
Nausea

#### AND

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

### CONDITIONS

Proced.

#### Home Dialysis Emergency Disconnect

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

Research /  
Sp. Proj

Medical  
Refer.

### CONTRAINDICATIONS

Medic.  
Info.

#### Home Dialysis Emergency Disconnect

N/A

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Guide.

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## TREATMENT

Consider **Home Dialysis Emergency Disconnect**

---

## CLINICAL CONSIDERATIONS

Generally, an emergency disconnect kit with materials and instructions can be found hanging from the 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.

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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## Emergency Dialysis Disconnect Prompt Card

### Hemodialysis

- ▶ 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

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

Airway /  
Breath.

### INDICATIONS

Pregnant patient experiencing labour; **OR**

Post-partum patient immediately following delivery and/or placenta.

Cardiac /  
Circula.

### 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

LOC

Pain/  
Sed./  
Nausea

Proced.

#### 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

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**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 &amp; 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**

	<b>Route</b>
	IM
<i>Dose</i>	10 units
<i>Max. single dose</i>	10 units
<i>Dosing interval</i>	N/A
<i>Max. # doses</i>	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.

# Central Venous Access Device Access Medical Directive

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized.*

## INDICATIONS

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

### AND

IV access is unobtainable;

### AND

Cardiac arrest or pre-arrest state.

## CONDITIONS

### CVAD Access

AGE: N/A

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: Patient has a CVAD with an accessible external lumen

## CONTRAINDICATIONS

### CVAD Access

Inability to confirm patency of CVAD line

Inability to flush or aspirate

Injury or suspected fracture proximal to the access site

Swelling of the involved limb

Bleeding at the insertion site

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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Intro

Airway /  
Breath.

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## TREATMENT

Consider **CVAD access**

Cardiac /  
Circula.

---

## CLINICAL CONSIDERATIONS

N/A

LOC

Pain/  
Sed./  
Nausea

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# Research / Special Projects

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Special Project Palliative Care Medical Directive

*An Advanced Care Paramedic may provide the treatment and/or patient disposition prescribed in this Medical Directive if authorized.*

### **Patch**

*If a paramedic determines that the patient would benefit from any other management that is not included in this special project medical directive, a patch to a BHP is necessary.*

### **Registered Patient**

*A registered patient is under the care of a palliative care team through Home and Community Care, or a physician or nurse practitioner providing palliative care services in the community. The paramedic is required to confirm the patient registration according to their local process.*

### **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 paramedics, for this defined patient population, 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, however, paramedics should consider usual care (vitals and monitoring) per the ALS and BLS PCS in conjunction with the patient's goals of care; they may also consider symptom treatments below if indicated.*

### **Medical Directive**

*This Medical Directive is written in five sections or equivalent to five directives combined including four symptom-based sections (Dyspnea, Hallucinations/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 palliative care team to ensure follow up of their presenting complaint.*

*When in doubt, please consult/patch to a Base Hospital Physician (BHP) in consultation with palliative physician or nurse if available.*

## **PAIN AND DYSPNEA**

---

### **INDICATIONS**

Registered Palliative Care Patient

And

Uncontrolled pain or dyspnea

or

Uncontrolled dyspnea with suspected bronchoconstriction

---

### **CLINICAL CONSIDERATIONS**

- ▶ If orders are available for the patient, either morphine or hydromorphone may be administered within the range specified above per the emergency orders. Any doses outside the range specified must be confirmed with by a Base Hospital Physician prior to administration.
- ▶ If there are no orders available or patients are opioid naïve the lower range of doses should be used.
- ▶ If the patient is already on a regular opiate, the same opiate should be used. If the patient is on a regular opiate regimen that does not include either morphine or hydromorphone and does not have emergency orders available, paramedics should confirm with a Base Hospital Physician prior to administering morphine or hydromorphone.
- ▶ Salbutamol should only be used in patients whose dyspnea is accompanied by wheezing or a history of response to bronchodilators.

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

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**CONDITIONS**

<b>Morphine</b>	<b>Hydromorphone</b>	<b>Salbutamol</b>
AGE: ≥18	AGE: ≥18	AGE: ≥18
LOA: N/A	LOA: N/A	LOA: N/A
HR: N/A	HR: N/A	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: N/A	Other: N/A	Other: For Dyspnea with suspected bronchoconstriction only

**CONTRAINDICATIONS**

<b>Morphine</b>	<b>Hydromorphone</b>	<b>Salbutamol</b>
Allergy to morphine	Allergy to hydromorphone	Allergy to salbutamol

## TREATMENT



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

Consider **Morphine**

	Route SC/ IV/CVAD
<i>Dose</i>	2-10 mg
<i>Max. single dose</i>	10 mg
<i>Dosing interval</i>	15 min
<i>Max. # of doses</i>	4

OR

Consider **Hydromorphone**

	Route SC/ IV/CVAD
<i>Dose</i>	0.5-2 mg
<i>Max. single dose</i>	2 mg
<i>Dosing interval</i>	15 min
<i>Max. # of doses</i>	4

Consider **Salbutamol**

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

\*1 puff – 100 mcg

## HALLUCINATIONS OR AGITATION

### INDICATIONS

Registered Palliative Care Patient

And

Increasing agitation or suspected new or increased hallucinations

### CLINICAL CONSIDERATIONS

- ▶ Haloperidol should be used as the first line agent for the treatment of agitation and hallucinations. Midazolam can be used in patients with contraindications to Haloperidol.

### CONDITIONS

Haloperidol	Midazolam
AGE: $\geq 18$	AGE: $\geq 18$
LOA: N/A	LOA: N/A
HR: N/A	HR: N/A
RR: N/A	RR: N/A
SBP: N/A	SBP: N/A
Other: N/A	Other: N/A

## CONTRAINDICATIONS

<b>Haloperidol</b>	<b>Midazolam</b>
Allergy to haloperidol Known Parkinson's or Lewy Body Dementia Neuroleptic Malignant Syndrome	Allergy to Midazolam

Airway /  
Breath.Cardiac /  
Circula.

## TREATMENT

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

LOC

Pain/  
Sed./  
Nausea

Consider **Haloperidol**

	<b>Route</b> <i>SC/IV/CVAD</i>
<i>Dose</i>	0.5-1 mg
<i>Max. single dose</i>	1 mg
<i>Dosing interval</i>	30 min
<i>Max. # of doses</i>	2

Proced. sed.

Research /  
Sp. Proj

Consider **Midazolam**

	<b>Route</b> <i>SC/ IV/CVAD</i>
<i>Dose</i>	0.5-2 mg
<i>Max. single dose</i>	2 mg
<i>Dosing interval</i>	30 min
<i>Max. # of doses</i>	2

Medical  
Refer.Medic.  
Info.

Contact

## NAUSEA OR VOMITING

### INDICATIONS

Registered Palliative Care Patient

And

Nausea and/or 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

<b>Haloperidol</b>	<b>Ondansetron</b>	<b>Dimenhydrinate</b>
AGE: $\geq 18$	AGE: $\geq 18$	AGE: $\geq 18$
LOA: N/A	LOA: N/A	LOA: N/A
HR: N/A	HR: N/A	HR: N/A
RR: N/A	RR: N/A	RR: N/A
SBP: N/A	SBP: N/A	SBP: N/A
Other: N/A	Other: Contraindication to Haloperidol	Other: Contraindication to Haloperidol

### CONTRAINDICATIONS

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

## TREATMENT



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

Airway /  
Breath.

Consider **Haloperidol**

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

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Consider **Ondansetron**

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

Proced. sed.

Research /  
Sp. Proj

Consider **Dimenhydrinate**

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

Medical  
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## TERMINAL CONGESTED BREATHING

### INDICATIONS

Registered Palliative Care Patient

And

Congested/loud/rattling breathing in patients near the end 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 or Atropine

AGE:  $\geq 18$

LOA: N/A

HR: N/A

RR: N/A

SBP: N/A

Other: N/A

### CONTRAINDICATIONS

#### Glycopyrrolate

Allergy to glycopyrrolate

#### Atropine

Allergy to atropine



## TREATMENT



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

Consider **Glycopyrrolate or Atropine**

	Route
	<i>SC/ IV/CVAD</i>
<i>Dose</i>	0.4 mg
<i>Max. single dose</i>	0.4 mg
<i>Dosing interval</i>	N/A
<i>Max. # of doses</i>	1

## TREAT AND REFER

---

### INDICATIONS

Registered Palliative Care Patient

And

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

And

After informed discussion patient/SDM preference to remain at home

---

### 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 patients do not meet the treat and refer conditions, paramedics should consider consulting BHP, follow the patient refusal standard and document appropriately.
- 

### CONDITIONS

Age  $\geq$  18

DNR and/or previous goals of care discussion

Registered Palliative Care Patient

---

## CONTRAINDICATIONS

Concerns of patient abuse or neglect

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

Uncontrolled or new seizures

Airway /  
Breath.

Cardiac /  
Circula.

---

## TREATMENT

Paramedics may assess and/or treat patients 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 patient's palliative care team for all patients who remain at home to ensure follow up for their presenting complaint.

LOC

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. Proj

Medical  
Refer.

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Contact

## Research Medical Directive for Palliative Care (EC3P)

*An Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if specifically authorized.*

### INDICATIONS

A patient, or their surrogate, who self identifies as receiving palliative care and who is experiencing the following uncontrolled symptoms:

Pain

Nausea

Dyspnea

Delirium or agitation

Noisy breathing or excessive secretions

### CONDITIONS

#### Haloperidol

AGE:  $\geq 18$  years

LOA: n/a

HR: n/a

SBP: n/a

Other: Delirium, agitation or nausea

#### Glycopyrrolate

AGE:  $\geq 18$  years

LOA: n/a

HR: n/a

SBP: n/a

Other: Excessive secretions or noisy breathing

#### Hydromorphone

AGE:  $\geq 18$  years

LOA: n/a

HR: n/a

RR: n/a

SBP: n/a

Other: Emergency pain relief or treatment of dyspnea

## CONTRAINDICATIONS

### Haloperidol

Allergy or sensitivity to haloperidol  
History of Parkinsons Disease, Lewy Body Dementia, or extrapyramidal symptoms from medications

### Glycopyrrolate

Allergy or sensitivity to glycopyrrolate

### Hydromorphone

Allergy or sensitivity to hydromorphone

Airway /  
Breath.Cardiac /  
Circula.

LOC

## TREATMENT



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

### Consider haloperidol

#### Indication

Nausea,  
delirium, or  
agitation

#### Route

SC/IV

<i>Dose</i>	0.5 mg – 1 mg
-------------	---------------

<i>Max. single dose</i>	1 mg
-------------------------	------

<i>Dosing interval</i>	30 mins
------------------------	---------

<i>Max. # of doses</i>	2
------------------------	---

### Consider glycopyrrolate

#### Indication

Secretions or  
noisy  
breathing

#### Route

SC

<i>Dose</i>	0.4 mg
-------------	--------

<i>Max. single dose</i>	0.4 mg
-------------------------	--------

<i>Dosing interval</i>	n/a
------------------------	-----

<i>Max. # of doses</i>	1
------------------------	---

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

Consider **hydromorphone****Indication**

Dyspnea

**Route**

SC/IV

<i>Dose</i>	0.5 mg
-------------	--------

<i>Max. single dose</i>	0.5 mg
-------------------------	--------

<i>Dosing interval</i>	30 mins
------------------------	---------

<i>Max. # of doses</i>	2
------------------------	---

 **Mandatory Local Patch Point** 

Patch to the BHP for discussion of management of breakthrough pain for appropriate doses of opioid medications. BHP will need to know current symptoms, home medication regimen (including 24-hour morphine equivalents), treatments administered by paramedics and caregivers, and patient response.

Consider **hydromorphone****Indication**

Pain

**Route**

SC/IV

<i>Dose</i>	Per BHP Order
-------------	---------------

<i>Max. single dose</i>	n/a
-------------------------	-----

<i>Dosing interval</i>	n/a
------------------------	-----

<i>Max. # of doses</i>	n/a
------------------------	-----

 **Mandatory Local Patch Point** 

1. Patch to the BHP if patient symptoms not controlled with medical directives.
2. Patch to the BHP if patient goals of care are unclear.
3. Patch to the BHP for all non-transport situations.

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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Airway /  
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## Study Medical Directive for Palliative Care Symptom Relief– Subcutaneous Line Placement

### Medical Directive

*A Primary Care or Advanced Care Paramedic may provide the treatment prescribed in this Medical Directive if authorized. This directive is to be used only in conjunction with Study Medical Directive for Palliative Care Symptom Relief (EC3P).*

#### INSERTION OF SUBCUTANEOUS LINE

##### INDICATIONS

A patient, or their surrogate, who self identifies as palliative and is being treated under the Study Medical Directive for Palliative Care Symptom Relief by Paramedics

And

Parenteral administration of palliative care symptom relief medications is clinically indicated (such as Morphine, Hydromorphone, Haloperidol, Midazolam)

And

It is expected more than one medication administration will be required and thus the patient will benefit from placement of a subcutaneous line

And

A follow up plan is in place to ensure ongoing management of the subcutaneous line (such as follow up by MRP or community paramedic)

##### CONTRAINDICATIONS

N/A

##### TREATMENT

**SRs**

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



## Consider **Subcutaneous Line Placement**

---

### 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.
- 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).

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

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# The PRIME Trial Medical Directive

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

## Indications

Pediatric non-traumatic cardiac arrest

## Conditions

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

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

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

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

Allergy or sensitivity to epinephrine

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

## Treatment

Consider CPR as described in the BLS PCS

Proced. ed.

Consider manual defibrillation (if available and authorized)

Research /  
Sp. Proj

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

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Intro

Airway /  
Breath.

Consider AED defibrillation (if not using manual defibrillation)

Cardiac /  
Circula.

	Age		Age
	≥ 24 hours to < 8 years		≥ 8 years to 17 years
	With Pediatric Attenuator Cable	Without Pediatric Attenuator Cable	N/A
<b>Dose</b>	1 defibrillation	1 defibrillation	1 defibrillation
<b>Max. single dose</b>	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
<b>Dosing interval</b>	2 min	2 min	2 min
<b>Max. # of doses</b>	N/A	N/A	N/A

LOC

Pain/  
Sed./  
Nausea

Consider EPINEPHrine Preload (if available)

Proc.  
Proced. ed

	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
<b>Dose</b>	0.3 mg	0.5 mg	1 mg	2 mg	3 mg
<b>Total # of injections</b>	1	1	1	1	1
<b>Dosing interval</b>	N/A	N/A	N/A	N/A	N/A
<b>Max. # of doses</b>	1	1	1	1	1

Research /  
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Consider EPINEPHrine Autoinjector (if available)

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

Airway /  
Breath.Cardiac /  
Circula.

LOC

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Nausea

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## Clinical Considerations

IM epinephrine should be administered as soon as possible once cardiac arrest identified and CPR initiated.

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

IV/IO epinephrine can be administered as soon as feasible after the initial IM epinephrine dose as per the Medical Cardiac Arrest Directive.

Intro

Airway /  
Breath.

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LOC

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Proc.  
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Refer.

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# Medical References

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES

## ETCO<sub>2</sub> Waveforms

### Sudden loss waveform

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



### Decreasing EtCO<sub>2</sub>

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



### CPR Assessment

- Attempt to maintain minimum of 10 mmHg



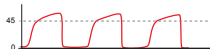
### Sudden increase in EtCO<sub>2</sub>

- Return of spontaneous circulation (ROSC)



### Bronchospasm ("Shark-fin" appearance)

- Asthma
- COPD



### Hypoventilation



### Hyperventilation



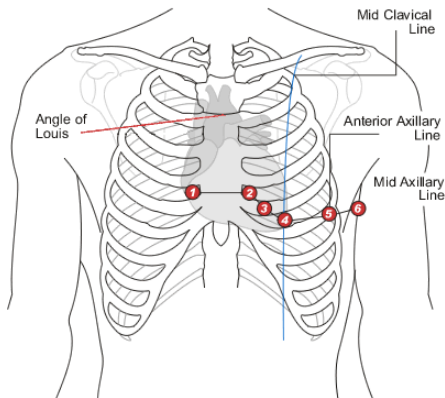
### Decreased EtCO<sub>2</sub>

- Apnea
- Sedation





## 12 Lead ECG Placement

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. ProjMedical  
Refer.Medic.  
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### PRECORDIAL LEADS:

- V1** - 4<sup>th</sup> intercostal space to the right of the sternum
- V2** - 4<sup>th</sup> intercostal space to the left of the sternum
- V3** - directly between leads V2 and V4
- V4** - 5<sup>th</sup> 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

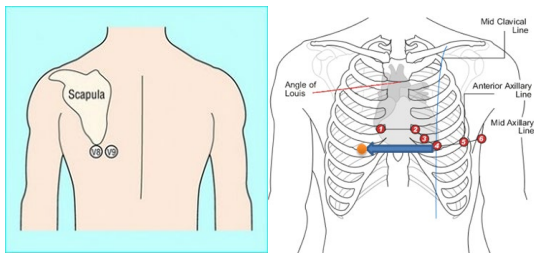
### NOTE:

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  $\geq 1$  mm in V4R and inferior ST-elevation, suggests a Right Ventricular involvement.
- ST elevation of  $\geq 1$  mm or greater in V8 and V9 suggests Posterior MI.

## CPR Guidelines

Component	Recommendations		
	★ Adults	★ Children	★ Infants
<b>Recognition</b>	★★★ 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		
<b>CPR sequence</b>	★★★ C-A-B		
<b>Compression rate</b>	★★★ 100-120/min		
<b>Compression depth</b>	★ 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)
<b>Chest wall recoil</b>	★★★ Allow complete recoil between compressions Rotate compressors every 2 minutes		
<b>Compression interruptions</b>	★★★ Minimize interruptions in chest compressions Attempt to limit interruptions to < 10 seconds		
<b>Airway</b>	★★★ Head tilt-chin lift or where trauma is suspected, jaw thrust		
<b>Compression-to-ventilation ratio</b> (until advanced airway placed)	★ 30:2 1 or 2 rescuers	★★ 30:2 Single rescuer ★★ 15:2 2 HCP rescuers  Neonates: 3:1	
<b>Ventilations with advanced airway (HCP)</b>	★★★ 1 breath every 6-8 seconds (8-10 breaths/min) Asynchronous with chest compressions About 1 second per breath without too much force Visible chest rise		
<b>Defibrillation</b>	★★★ Attach and use AED as soon as available. Minimize interruptions in CPR pre & post rhythm interpretation/defibrillation to < 10 seconds		

### CPR NOTES:

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

**ADULTS:**

Non-intubated: ratio 30:2 as above.

Intubated: 10 ventilations per minute without interrupting chest compressions.

SGA inserted: 10 ventilations per minute without interrupting chest compressions

**PEDIATRICS (30 DAYS TO AGE 12):**

Non-intubated: ratio 15:2 as above.

Intubated: 8-10 ventilations per minute without interrupting chest compressions.

Ventilations for resp. arrest only, non-intubated: 12-20/min.

**NEONATE:**

Both non-intubated **AND** intubated 3:1 ratio as above.

**ETCO<sub>2</sub> 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)

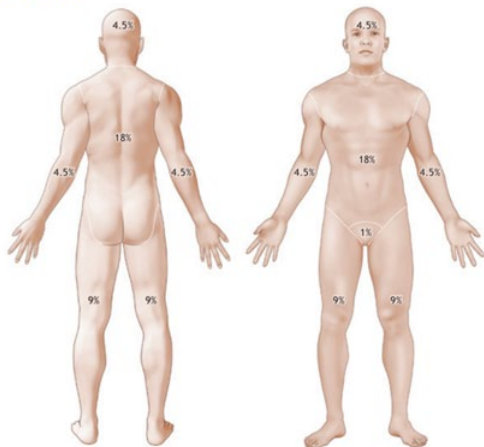
▶ An ETCO<sub>2</sub> < 10 mmHg in VSA patients after 20 minutes of ACLS have a very poor prognosis; and can be used with clinical factors for the BHP to determine if TOR is appropriate.

## Rule of Nines, Burn Percentage Chart

### PEDIATRIC



### ADULT



## 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

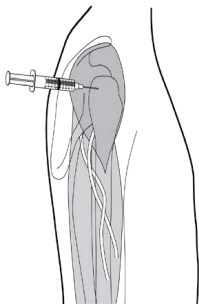


Figure 1 - Deltoid

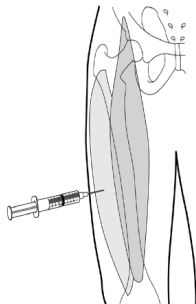


Figure 2 – Vastus Lateralis

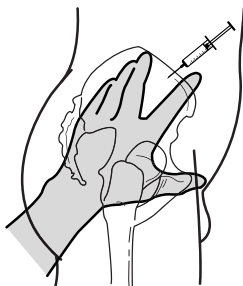


Figure 3 – Ventrogluteal

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced.

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Medical  
Refer.

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Info.

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## 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:

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

### MEDICATION INFUSION RATE:

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

**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:

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

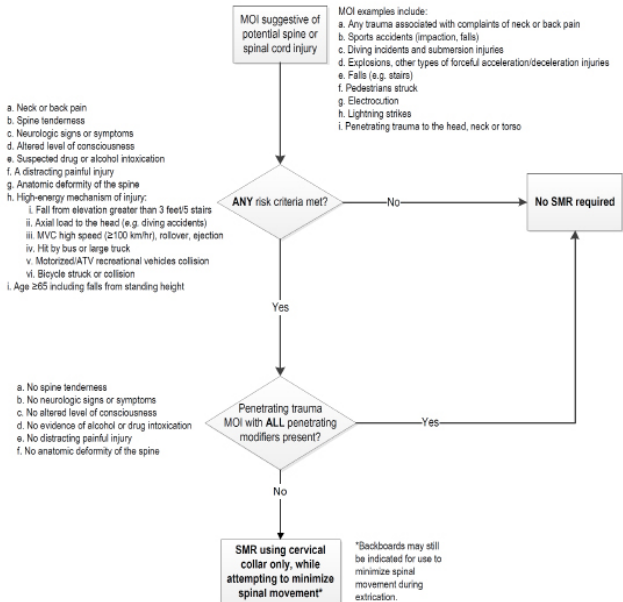
Cylinder Factor: D-tank = 0.16; M-tank = 1.56



# 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.



## “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

## 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

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## 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)
 <b>Mandatory Provincial Patch Point</b> <span style="float: right;">For patients &lt; 12 years</span>							
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
	1	12 kg	0.6 mg	0.06 mL	0.05 mL	0.6 mg	0.6 mL
	2	14 kg	0.7 mg	0.07 mL	0.05 mL	0.7 mg	0.7 mL
	3	16 kg	0.8 mg	0.08 mL	0.10 mL	0.8 mg	0.8 mL
	4	18 kg	0.9 mg	0.09 mL	0.10 mL	0.9 mg	0.9 mL
	5	20 kg	1.0 mg	0.10 mL	0.10 mL	1.0 mg	1.0 mL
	6	22 kg	1.1 mg	0.11 mL	0.10 mL	1.1 mg	1.1 mL
	7	24 kg	1.2 mg	0.12 mL	0.1 mL	1.2 mg	1.2 mL
	8	26 kg	1.3 mg	0.13 mL	0.1 mL	1.3 mg	1.3 mL
	9	28 kg	1.4 mg	0.14 mL	0.1 mL	1.4 mg	1.4 mL
10	30 kg	1.5 mg	0.15 mL	0.2 mL	1.5 mg	1.5 mL	
11	32 kg	1.6 mg	0.16 mL	0.2 mL	1.6 mg	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: **15 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	
<b>Adult</b>	<b>N/A</b>	2 - 10mg	0.2 - 1.0 mL	2 - 10 mg	2 - 10 mL
<b>Adult Maximum Single Dose</b>		10 mg	1.0 mL	10 mg	10 mL

Dosing Interval: **15 minutes**    Adult **Max # of Doses: 4**

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# Analgesia Medical Directive - Adult & Pediatric

## FentaNYL Dosing Guide

Route: Intravenous or Intranasal

Supplied: 100 mcg in 2 mL

\*Intranasal Max Fluid : 1 mL per nare

Use 1 mL Syringe, undiluted

Maximum Pediatric Dosage: up to 1 mcg/kg (administer in divided doses)

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

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

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

# Seizure Medical Directive Dosing Guide

## Midazolam Dosing Guide

Age	Weight	Route: IM/IN/Buccal			Route: IV/IO		
		Dose: 0.2 mg/kg Supplied: 10 mg/2 mL Use 1 mL syringe Undiluted			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 to 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

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# Medication Information

ADVANCED CARE PARAMEDIC MEDICAL DIRECTIVES



## Medication Information

### ACETAMINOPHEN

<b>CLASS</b>	Antipyretic and analgesic. Mild anti-inflammatory effects.
<b>ACTION</b>	Exact mechanism is not known. Rapidly absorbed through GI tract. Believed to raise the pain threshold.
<b>ONSET</b>	15 minutes and lasts up to 3 hours.
<b>METABOLISM</b>	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

<b>CLASS</b>	Antiarrhythmic
<b>ACTION</b>	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.
<b>ONSET</b>	Rapid
<b>HALF-LIFE</b>	< 10 seconds
<b>METABOLISM</b>	Blood and tissue.

### AMIODARONE

<b>CLASS:</b>	Antiarrhythmic (Class I, II, III, and IV)
<b>ACTION:</b>	Blocks sodium channels; lengthens cardiac potential. Slows cardiac conduction through the AV node. Antisymphathetic 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)
<b>ONSET</b>	15 minutes
<b>TIME TO PEAK</b>	1 to 4 hours
<b>DURATION</b>	3 to 6 hours
<b>HALF-LIFE</b>	9-36 hours
<b>METABOLISM</b>	Hepatic

**ASPIRIN (ASA)**

<b>CLASS:</b>	Platelet aggregation inhibitor, analgesic, antipyretic and anti-inflammatory
<b>ACTION:</b>	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.
<b>ABSORPTION</b>	Rapid
<b>TIME TO PEAK</b>	1-2 hours
<b>METABOLISM</b>	Hydrolyzed to salicylate (active) in GI mucosa, RBC, synovial fluid and blood. Metabolism of salicylate primarily by the liver.

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Circula.**ATROPINE**

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

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Nausea**CALCIUM GLUCONATE 10%**

<b>CLASS</b>	Minerals and electrolytes
<b>ACTION</b>	Calcium protects the myocardium from the deleterious effects of hyperkalemia. It stabilizes the cardiac cell membrane.
<b>ADVERSE REACTION</b>	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.
<b>ADMIN</b>	Slow IV push over 2-3 minutes Incompatible with Sodium Bicarbonate in same IV line.
<b>ONSET</b>	Rapid
<b>DURATION</b>	30 minutes - 2hours
<b>SIDE EFFECTS</b>	Chalky taste, N&V, Dry mouth

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**DEXAMETHASONE**

<b>CLASS</b>	Adrenocortical steroid
<b>ACTION</b>	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.
<b>ONSET</b>	5-15 min(IV); 30 min (PO)60 minutes
<b>DURATION</b>	3 days
<b>HALF-LIFE</b>	4 hours

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Guide.**DEXTROSE (D50) IN WATER**

<b>CLASS</b>	Carbohydrate
<b>ACTION</b>	Replenishes blood glucose levels, reversing hypoglycemia.
<b>METABOLISM</b>	Metabolized to carbon dioxide and water.

**DIMENHYDRINATE (GRAVOL)**

<b>CLASS</b>	Antiemetic, Antihistamine
<b>ACTION</b>	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.
<b>ONSET</b>	1-5 minutes (IV). 15-30 minutes (oral)
<b>PEAK EFFECTS</b>	1-2 hours
<b>DURATION</b>	3-6 hours

**DIPENHYDRAMINE (BENADRYL)**

<b>CLASS</b>	Antihistamine
<b>ACTION</b>	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.
<b>ONSET</b>	1-5 minutes (IV). 1-3 hours (oral)
<b>PEAK EFFECTS</b>	1-2 hours (IV). 2-4 hours (oral)
<b>HALF-LIFE</b>	2-10 hours
<b>DURATION</b>	4-8 hours

DOPAMINE	
<b>CLASS</b>	Sympathomimetic agent
<b>ACTION</b>	Stimulates both adrenergic and dopaminergic receptors, lower doses are mainly dopaminergic stimulating and produce renal and mesenteric vasodilation. Higher doses have both dopaminergic and $\beta_1$ -adrenergic stimulating and produce cardiac stimulation and renal vasodilation. Large doses stimulate $\alpha$ -adrenergic receptors.
<b>ONSET</b>	5 minutes
<b>HALF-LIFE</b>	2 minutes
<b>METABOLISM</b>	Renal, hepatic and plasma (25% gets converted to norepinephrine).

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EPINEPHERINE	
<b>CLASS</b>	Sympathomimetic agent
<b>ACTION</b>	Stimulate $\beta_1$ , $\alpha_1$ and $\beta_2$ -adrenergic receptors resulting in relaxation of smooth muscle of the bronchial tree, cardiac stimulation (increasing myocardial O <sub>2</sub> consumption) and dilation of skeletal muscle vasculature. Small doses can cause vasodilation via $\beta_2$ -vascular receptors; large doses may produce constriction of skeletal and vascular smooth muscle.
<b>ONSET</b>	5-10 minutes (bronchodilation).
<b>METABOLISM</b>	Hepatic

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FENTANYL	
<b>CLASS</b>	Analgesic, opioid
<b>ACTION</b>	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.
<b>ONSET</b>	IV: almost immediately  IN: 5-15 minutes
<b>PEAK EFFECT</b>	IV: 6 minutes  IN: 12 minutes
<b>METABOLISM</b>	Hepatic

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### GLUCAGON

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

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### GLYCOPYRROLATE

<b>CLASS</b>	anticholinergic
<b>ACTION</b>	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
<b>ONSET</b>	Rapid
<b>DURATION</b>	2-4 hours
<b>HALF-LIFE</b>	1.25 hours

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### HALOPERIDOL

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

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**HYDROCORTISONE**

<b>CLASS</b>	Adrenal glucocorticoid, corticosteroid
<b>ACTION</b>	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
<b>ONSET</b>	1-2 hours
<b>PEAK EFFECT</b>	1.5 – 2 hours
<b>DURATION</b>	6-12 hours
<b>METABOLISM</b>	Hepatic

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**HYDROMORPHONE**

<b>CLASS</b>	Opioid analgesic
<b>ACTION</b>	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
<b>ONSET</b>	5 minutes
<b>DURATION</b>	3-4 hours
<b>HALF-LIFE</b>	2-3 hours

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**IBUPROFEN**

<b>CLASS</b>	Antipyretic, analgesia and non-steroid anti-inflammatory
<b>ACTION</b>	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.
<b>PEAK EFFECT</b>	120 minutes
<b>ONSET</b>	15 minutes
<b>DURATION</b>	4-6 hours
<b>ADVERSE EFFECTS</b>	HTN, MI, GI bleeding, increased the risk of gastric ulcers and damage and renal failure.
<b>METABOLISM</b>	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.

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### KETOROLAC (TORADOL)

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

### LIDOCAINE (XYLOCAINE)

<b>CLASS</b>	Class 1b antiarrhythmic
<b>ACTION</b>	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.
<b>ONSET</b>	45-90 seconds
<b>DURATION</b>	10-20 minutes
<b>METABOLISM</b>	90% hepatic

### MIDAZOLAM (VERSED)

<b>CLASS</b>	Benzodiazepine, CNS depressant, Sedative and Amnesic
<b>ACTION</b>	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.
<b>ONSET</b>	45-90 seconds
<b>DURATION</b>	10-20 minutes
<b>METABOLISM</b>	90% hepatic



**MORPHINE**

<b>CLASS</b>	Opioid analgesia
<b>ACTION</b>	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.
<b>ONSET</b>	2-5 minutes (IV)
<b>PEAK EFFECT</b>	20 minutes (IV)
<b>METABOLISM</b>	Hepatic

Airway /  
Breath.Cardiac /  
Circula.**NALOXONE (NARCAN)**

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

LOC

Pain/  
Sed./  
Nausea

Proced. sed.

**NITROGLYCERIN**

<b>CLASS</b>	Coronary vasodilator, smooth muscle relaxant and anti-anginal
<b>ACTION</b>	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.
<b>ONSET</b>	1-3 minutes (SL). 15-30 minutes (topical). 30 minutes (transdermal)
<b>HALF-LIFE</b>	1-4 minutes
<b>DURATION</b>	25 minutes (SL), 7 hours (topical), 10-12 hours (transdermal)
<b>METABOLISM</b>	Extensive first-pass effect; hepatic, RBC and vascular walls

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**ONDANSETRON**

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

Cardiac /  
Circula.

LOC

**OXYTOCIN**

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

Pain/  
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Proced. ed.**SALBUTAMOL (VENTOLIN)**

<b>CLASS</b>	Sympathomimetic, $\beta_2$ agonist
<b>ACTION</b>	Relaxes bronchial smooth muscle by action on $\beta_2$ -receptors with little effect on heart rate
<b>ONSET</b>	10 minutes (Neb/Inhalation)
<b>HALF-LIFE</b>	3-8 hours (inhaled)
<b>DURATION</b>	3-4 hours (Neb/Inhalation)
<b>METABOLISM</b>	Hepatic to an inactive sulfate

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<b>XYLOMETAZOLINE (OTRIVIN)</b>	
<b>CLASS</b>	Sympathomimetic Adrenergic Alpha-agonist, decongestant
<b>ACTION</b>	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.
<b>ONSET</b>	5-10 minutes

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# Contact

ADVANCED 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**



<b>i</b> IDENTIFICATION	Identify BHP & Introduce yourself (QASIS, Service, ACP / PCP)
<b>S</b> SITUATION	ORDERS SOUGHT age, sex, weight problem / concern ETA to hospital
<b>B</b> BACKGROUND	Pertinent +/- HPI (OPQRST) PMHx (SAMPLE)
<b>A</b> ASSESSMENT	Pertinent +/- Physical Exam Vitals Signs, ECG
<b>R</b> 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  
UNIVERSITY OF WATLINS  
SCHOOL OF HEALTH, REHABILITATION AND STROKE



Centre for Prehospital Care  
Health Sciences North

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## 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:
<b>Tim Dodd</b>	<b>Regional Program Manager/ Director</b>		905-515-4818	tdodd@cper.ca
<b>Dr. Paul Miller</b>	<b>Regional Medical Director</b>			millerpa@hpsc.ca
<b>Dr. Rupinder Sahsi</b>	<b>Assistant Medical Director</b>			rupinder@sahsi.net
<b>Dr. Erich Hanel</b>	<b>Assistant Medical Director</b>			erich.hanel@medportal.ca
<b>Dr. Gisa Agarwal</b>	<b>Senior Medical Advisor</b>			agarw@gmcmonaster.ca
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<b>Audrey Collie</b>	<b>Administration Assistant (To the Programs)</b>	71229		acollie@cper.ca
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<b>Carrie Schneider</b>	<b>Quality Specialist</b>		518-503-0632	cschneider@cper.ca
<b>Kathy Winter</b>	<b>Quality Specialist</b>		418-438-5428	winterkat@hpsc.ca
<b>Stephanie Coletta</b>	<b>Lead Paramedic Educator</b>		905-515-0659	scoletta@cper.ca
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<b>Jana Radostav</b>	<b>Paramedic Educator</b>		288-260-3288	jradoslav@cper.ca
<b>Blarven Kapadia</b>	<b>Paramedic Educator</b>			kapadia@hpsc.ca
<b>Peggy D'Earth</b>	<b>Outreach Specialist</b>		365-324-8389	pdearth@cper.ca



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## 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

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## 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.



Connecting you with care  
Votre lien avec les soins

**CCAC CASC**  
Community  
Care Access  
Centre      Centre d'accès  
aux soins  
communautaires

**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

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**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

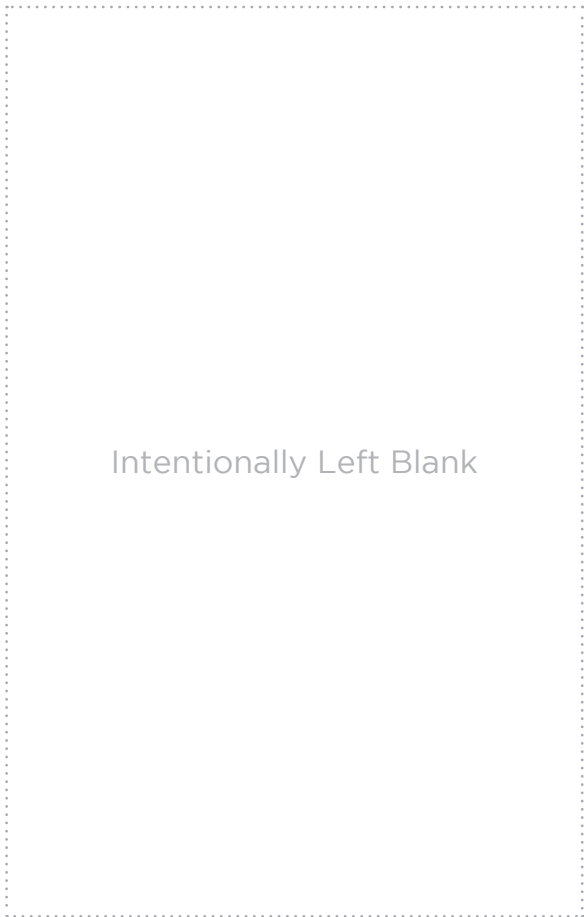
Paramedics have a duty to report under the Child and Family Services Act (CFSA) and this extends to any child they encounter in their professional duties and is not limited to the person (s) requesting 9-1-1 services<sup>1</sup>. This duty overrides any other provincial statute, including any provisions 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.<sup>2</sup>

### Children's Aid Societies in Ontario

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

<sup>1</sup> Training Bulletin 116 -Child in Need of Protection Standard March 2015 Version 1.0

<sup>2</sup> Basic Life Support Patient Care Standards –Version 2.2



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# Destination Guidelines

ADVANCED 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  $\geq 30$  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):



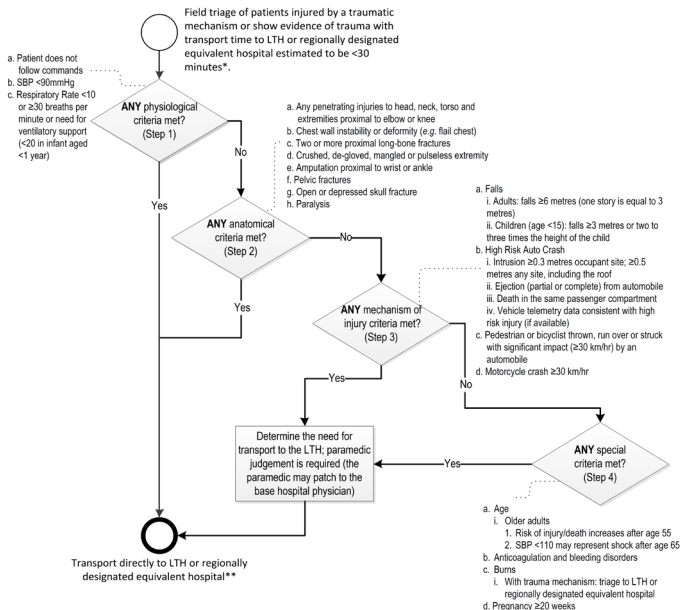
- a. Any penetrating injuries to head, neck, torso and extremities proximal to elbow or knee,
  - b. Chest wall instability or deformity (e.g. flail chest),
  - c. Two or more proximal long-bone fractures,
  - d. Crushed, de-gloved, mangled or pulseless extremity,
  - e. Amputation proximal to wrist 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  $\geq 6$  metres (one story is equal to 3 metres)
      - ii. Children (age <15): falls  $\geq 3$  metres or two to three times the height of the child
    - b. High Risk Auto Crash
      - i. Intrusion  $\geq 0.3$  metres occupant site;  $\geq 0.5$  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 ( $\geq 30$  km/hr) by an automobile
    - d. Motorcycle crash  $\geq 30$  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):
- Age
    - Risk of injury/death increases after age 55
    - SBP <110 may represent shock after age 65
  - Anticoagulation and bleeding disorders
  - Burns
    - With trauma mechanism: triage to LTH
  - Pregnancy  $\geq 20$  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.

# 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.

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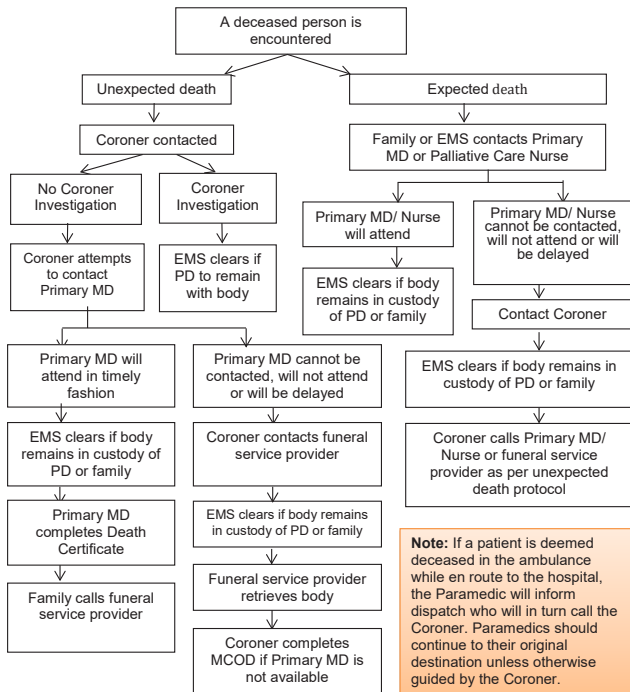
**Guideline**
**Air Ambulance Helicopter Landing Site Safety and Coordination**

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.
-

## Deceased Patient Standards



### Deceased patient means a patient who is:

- Obviously dead – code 5
- Subject to a MCOB presented to the paramedic
- VSA and subject to a valid DNR
- VSA and is subject to a Termination of Resuscitation Order
- 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.

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. and

Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

# 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:

- Present with a new onset of at least one of the following symptoms suggestive of the onset of an acute stroke:
  - Unilateral arm/leg weakness or drift.
  - Slurred speech or inappropriate words or mute.
  - Unilateral facial droop.
- 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.
- 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:

- CTAS Level 1 and/or uncorrected airway, breathing or circulatory problem.
- Symptoms of the stroke resolved prior to paramedic arrival or assessment\*\*.
- Blood sugar <3 mmol/L\*\*\*.
- Seizure at onset of symptoms or observed by paramedics.
- Glasgow Coma Scale <10.
- Terminally ill or palliative care patient.
- 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.

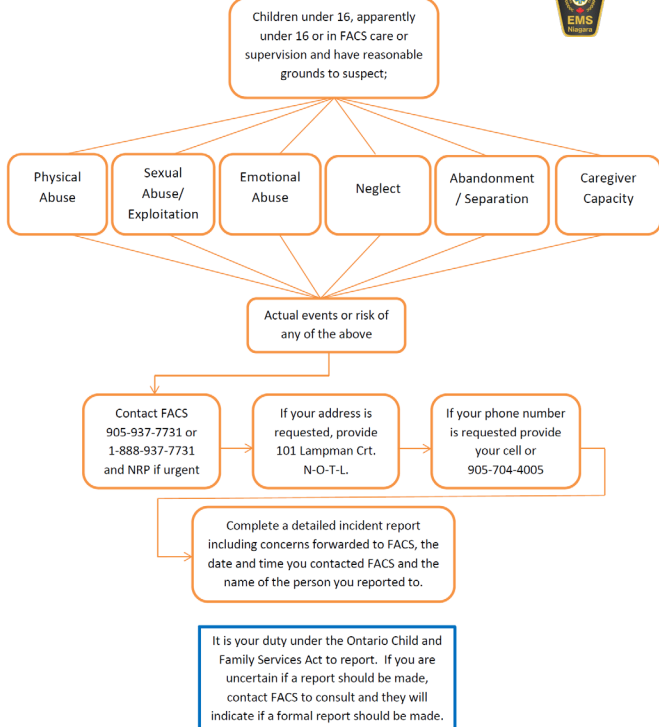
\*\*\* If symptoms persist after correction of blood glucose level, the patient is not contraindicated.

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





## Reporting to FACS Niagara



Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

## 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 :**  $\geq 18$

#### At Least 2 OR MORE:

**Temperature:**  $< 36^{\circ} \text{C}$  OR  $\geq 38^{\circ} \text{C}$

**Pulse:**  $\geq 90$  bpm

**Respiratory Rate:**  $\geq 20$  bpm

#### And at least ONE of the following

Signs of Hypoperfusion (O<sub>2</sub> Sat  $< 92\%$ )

Systolic BP  $< 90$  mmHg

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
<p><b><u>Suspected or Confirmed Signs and Symptoms of Infection?</u></b></p> <ul style="list-style-type: none"> <li>▶ <b>Skin:</b> Cellulitis, Wound, Burns</li> <li>▶ <b>Immunocompromised /Neuro:</b> LOA changes, Weakness, Indwelling Medical Device , Chemotherapy</li> <li>▶ <b>Chest:</b> Cough, SOB, Recent Surgery/Invasive Procedure</li> <li>▶ <b>Abdomen:</b> Pain, Vomiting, Diarrhea with a history of fever or rigors</li> <li>▶ <b>Urine:</b> Dysuria, Frequency (increased or decreased), Odour</li> </ul>		
<p><b>Age : ≥ 18</b></p>		
<p><b><u>At Least 2 OR MORE of the following:</u></b></p> <ul style="list-style-type: none"> <li>▶ <b>Temperature:</b> &lt; 36° C OR ≥ 38° C</li> <li>▶ <b>Pulse:</b> ≥ 90 bpm</li> <li>▶ <b>Respiratory Rate:</b> ≥ 20bpm</li> </ul>		
<p><b><u>And at least ONE of the following</u></b></p> <ul style="list-style-type: none"> <li>▶ Signs of Hypoperfusion (mottled extremities, poor cap refill, etc)</li> <li>▶ Systolic BP &lt;90mmHg</li> <li>▶ New altered LOA</li> </ul>		
<p>If you answer yes to all of the above then Notify ED of <b>*Sepsis Alert*</b></p>		
<p><b><u>Suggested Treatment</u></b></p> <ul style="list-style-type: none"> <li>▶ IV access</li> <li>▶ Intravenous &amp; Fluid Therapy Directive</li> <li>▶ If the patient clearly meets the Sepsis Alert <b>AND</b> they do not meet the Medical Directive for fluid therapy, consider contacting the BHP for IV fluid orders.</li> </ul>		

## 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
<b>TRAUMA</b>	<p><u>Paramedics/ Dispatchers will consider the Air Ambulance Utilization Standard for FTT</u></p> <p>_____</p> <p>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).</p> <p>*If transport time to Lead Trauma Centre will exceed 60 minutes, or survival to Lead Trauma Hospital is unlikely (see exception in Policy IV-</p>	<p><b>Trauma Center/ Closest Emergency Department *</b></p>

## Policy # IV 3.12a Hospital Destination Policy

May 1, 2022

	3.12h), patients meeting FTT criteria will be transported to the closest Emergency Department.	
<b>HEAD TRAUMA</b>  <i>Hospitals with CT: GNG, SCS, WH Sites and WLMH in Niagara HGH Site in Hamilton</i>	<p>All patients with head trauma &amp; an <b>altered LOC not meeting FTT Standard</b> will be taken to the closest hospital with a <b>functioning CT</b>.</p> <p>If they are in active resuscitation then the patient is to be transported to the closest ED.</p>	<b>Closest Emergency Department with a functioning CT (GNG, SCS, WH, WLMH and HGH)</b>
<b>STROKE EMERGENCIES</b>  <i>Stroke Centers: GNG Site and Hamilton General Hospital</i>  <i>Hospitals with CT: GNG, SCG, WH Sites and WLMH in Niagara HGH in Hamilton</i>	<p><b>Patients meeting the criteria of the Paramedic Prompt Card will be taken to the closest Stroke Centre for evaluation (attached)</b></p> <p>Those stroke patients who do <b>not</b> meet the Paramedic Prompt Card criteria will be taken to the closest hospital with a <b>functioning CT</b>.</p> <p>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.</p> <p>They will then be transported to the GNG Site for assessment by the Stroke Team (see attached Appendix A<sub>2</sub> - CT Downtime Contingency Plan for Stroke Thrombolysis (tPA).</p>	<b>Closest Stroke Center</b>
<b>SEXUAL ASSAULT</b>	<p>All victims of sexual assaults will go to the <b>closest</b> hospital for medical clearance.</p> <p>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.</p>	<b>Closest hospital for medical clearance – then may require transfer to SCS or HGH as appropriate</b>
<b>DIALYSIS EMERGENCIES</b>	<p>All hemo/ peritoneal dialysis with <b>related complaints</b> will be transported to SCS unless the patient is actively being resuscitated, patients will be transported to the closest hospital.</p> <p><b>Consideration will be given to St. Joseph's Health Care Hamilton for patients picked up West of RR24</b></p>	<b>St. Catharines Site or St. Joseph's Health Care</b>

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed

Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

**Policy # IV 3.12a Hospital Destination Policy**

May 1, 2022

Airway /  
Breath.**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.

**St. Catharines Site or WLMH, whichever is closest, unless active resuscitation in progress OR presenting fetal part is visible.**

Cardiac /  
Circula.

If childbirth has occurred, and no active resuscitation is required, infant and mother should be transported to SCS or WLMH, whichever is closest.

LOC

**Note: WLMH should typically only be considered for patients greater than 36 weeks gestation.**

Pain/  
Sed./  
Nausea

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.

Proc.  
Proced., etc.

*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.*

Research /  
Sp. Proj**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.

**St. Catharines Site (consideration for Juravinski West of RR24)**

**Niagara's Regional Cancer Program is the SCS. (Consideration will be given to Juravinski in Hamilton for patients picked up West of RR24)**

Medical  
Refer.Medic.  
Info.

Contact

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

<p><b>PAEDIATRIC EMERGENCIES (less than 16 yrs. of age)</b></p>	<p>Paediatric patients triaged as <b>Level 1, or who require active resuscitation</b>, will go to the closest hospital for immediate assessment and stabilization.</p> <p>Non-complex Paediatric patients will be taken to the <b>closest</b> hospital or may be transported to a UCC in accordance with the Urgent Care Destination Criteria.</p> <p><b>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.</b></p> <p>All other patients will be transported to the closest appropriate hospital as outlined in this policy (for example, orthopedics or trauma).</p>	<p><b>If active resuscitation go to closest hospital.</b></p> <p>Complex patients go to St. Catharines Site or MUMC depending on location</p>
<p><b>MENTAL HEALTH EMERGENCIES</b></p>	<p>Patients of all ages where <b>mental illness is the primary problem</b> will be taken to a <b>schedule 1 facility: SCS in Niagara, or St. Joseph's Healthcare in Hamilton if closer</b>. Patients should be taken to the closest of the two sites.</p> <p>Consideration for previous treatment history with a facility may be considered in choosing an appropriate destination.</p> <p>Patients with a history of mental illness, but in whom the <b>primary problem</b> is medical (i.e. overdose etc.) or surgical emergency will go to the <b>closest</b> appropriate hospital as outlined elsewhere in this policy.</p>	<p><b>If primary problem is medical go to closest hospital.</b></p> <p><b>If Mental Illness is the primary problem then go to St. Catharines Site, or SJHH if closer.</b></p>
<p><b>ORTHOPEDIC EMERGENCIES</b></p>	<p>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. <b>This includes HGH to the West</b>. Patients under 16 should be transported to SCS (<b>MUMC if closer</b>)</p>	<p><b>Major: Closest hospital with Ortho (peds to SCS or MUMC)</b></p> <p><b>Minor: Closest hospital or UCC</b></p>

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

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Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

**Policy # IV 3.12a Hospital Destination Policy**

May 1, 2022

	<i>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.</i>	
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**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**.

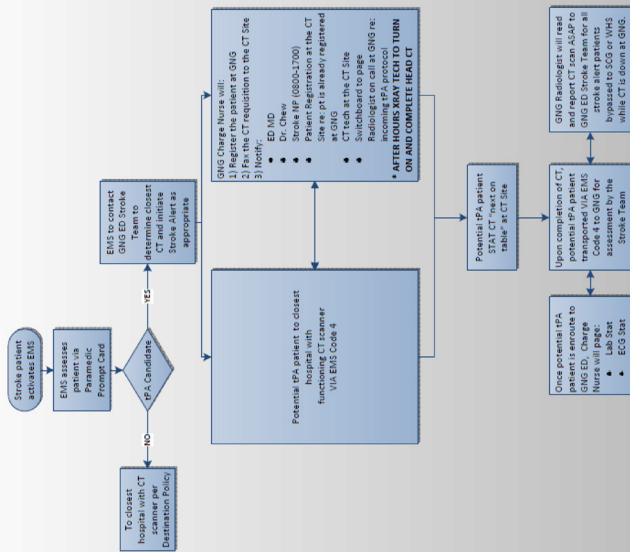
**The closest Stroke Centre is defined in the CAD.**

**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<sub>2</sub> – CT Downtime Contingency Plan for Stroke Thrombolysis (tPA)



August 9<sup>th</sup>, 2012 - LH

Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

## "The Canadian CSPINE Rule"



The Canadian C-spine Rule is to be utilized only as part of NEMS' "Research Medical Directive to Study the Safety of C-spine Clearance by Paramedics".

### 1. Any ONE High-Risk factor which mandates immobilization?

- Age  $\geq 65$  years
- Dangerous Mechanism\*
- Numbness or tingling in extremities

↓ No

### 2. Any ONE Low-Risk factor which allows safe assessment of range of motion?

- Rear-ended in Simple Rear-end MVC\*\*
- Ambulatory at any time at scene
- No neck pain at scene when asked (*answer "yes" if no pain*)
- No pain during midline c-spine palpation (*answer "yes" if no pain*)

↓ Yes

### 3. Patient voluntarily able to Actively Rotate neck 45° left and right when requested, regardless of pain?

↓ Yes

**NO C-SPINE IMMOBILIZATION**

#### Inclusion Criteria

Alert (GCS 15)  
Stable (SBP  $\geq 90$ , RR 10-24)  
Acute Blunt Injury (<48 hrs)

Yes

**USE C-SPINE  
IMMOBILIZATION**

No

No

#### Exclusion Criteria

Boarded & Collared for Other Reasons  
Age < 8  
Penetrating Trauma  
Acute Paralysis  
Known Vertebral Disease  
Referred from another Hospital

#### \*Dangerous Mechanism:

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

#### \*\*Simple Rearend MVC Excludes:

- pushed into oncoming traffic
- hit by bus/large truck
- rollover
- hit by high speed vehicle ( $\geq 100$ km/h)

# 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:

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

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

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

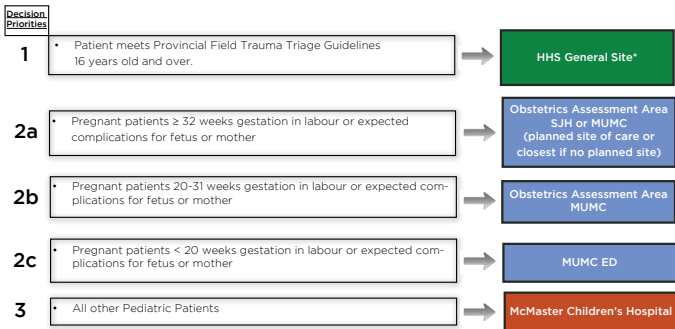
**CACC/ACS will authorize the transport once notified of the patient's need for bypass under the STEMI Hospital Bypass Protocol.**

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.



## 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.

Airway /  
Breath.Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed

Research /  
Sp. ProjMedical  
Refer.Medic.  
Info.

Contact

Decision Priorities		
1	<ul style="list-style-type: none"> <li>Patient meets Field Trauma Triage Guidelines, including pregnant patient meeting Field Trauma Triage Guidelines</li> <li>Possible ST Elevation MI (Provincial Paramedic Prompt Card)</li> <li>Acute Stroke (Provincial Paramedic Prompt Card)</li> <li>Major Burn &gt;25% Total Body Surface or airway problems</li> <li>Smoke Inhalation Injury with altered LOC</li> <li>Diving/Decompression Incidents</li> </ul>	HHS General Site*
2	<ul style="list-style-type: none"> <li>Dialysis patient</li> <li>Psychiatric emergency (as per Recognition Tool)</li> </ul>	St. Joseph's Healthcare*
3a	<ul style="list-style-type: none"> <li>Pregnant patients <math>\geq</math> 32 weeks gestation in labour or expected complications for fetus or mother</li> </ul>	Obstetrics Assessment Area SJH or MUMC (planned site of care or closest if no planned site)
3b	<ul style="list-style-type: none"> <li>Pregnant patients 20-31 weeks gestation in labour or expected complications for fetus or mother</li> </ul>	Obstetrics Assessment Area MUMC
3c	<ul style="list-style-type: none"> <li>Pregnant patients &lt; 20 weeks gestation in labour or expected complications for fetus or mother</li> <li>All other Pregnant patients regardless of gestational age with non-FTTG injury or other medical concern</li> </ul>	St. Joseph's Healthcare ED
4	<ul style="list-style-type: none"> <li>Known or suspected Sexual Assault</li> </ul>	HHS General Site or HHS Juravinski Site
5	<ul style="list-style-type: none"> <li>Possible GI Bleed (as per Recognition Tool)</li> <li>Possible Hip Fracture (as per Recognition Tool)</li> </ul>	St. Joseph's Healthcare* or HHS Juravinski Site*
6	<ul style="list-style-type: none"> <li>Patients with musculoskeletal injury possibly requiring surgery (as per Recognition Tool)</li> </ul>	St. Joseph's Healthcare* or HHS General Site*
7	<ul style="list-style-type: none"> <li>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.</li> </ul>	Any "arranged" ED or direct to any "arranged" unit (with immediate transfer of care).
8	<ul style="list-style-type: none"> <li>Patients with a recent history at a particular hospital for a related problem (defined as inpatient within 14 days)</li> </ul>	Facility with most recent history (as defined).
9	<ul style="list-style-type: none"> <li>Attending physician has made arrangements, as confirmed by Hamilton CACC with the receiving hospital and the "accepting" physician identified.</li> </ul>	Any "arranged" ED or direct to any "arranged" hospital unit.
10	<ul style="list-style-type: none"> <li>All other patients.</li> </ul>	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;  $\geq 18$  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)



Intro

Airway /  
Breath.

Cardiac /  
Circula.

LOC

Pain/  
Sed./  
Nausea

Proced. ed.

Research /  
Sp. Proj

Medical  
Refer.

Medic.  
Info.

Contact

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.

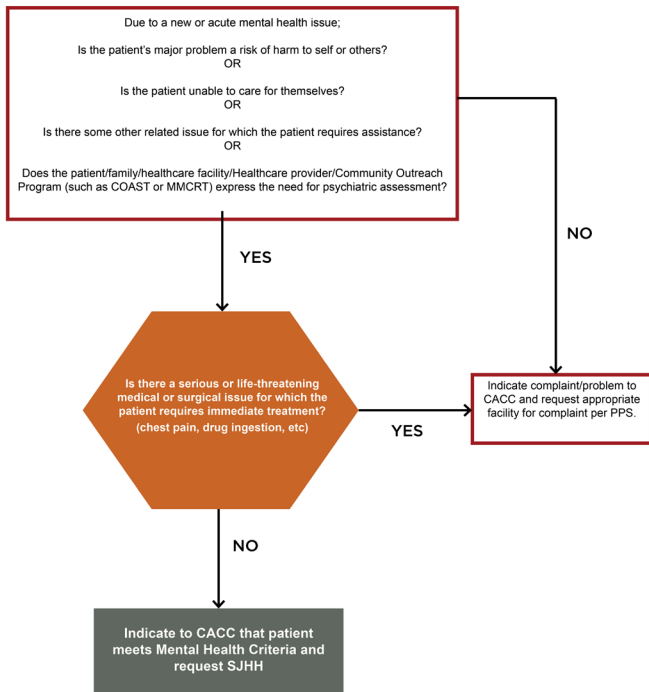
2. Mechanism:

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.

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# 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  $\geq 18$  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 ( $\geq 18$  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.



Channel Selector

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## 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  $\geq 5$ : notify receiving hospital of "Sepsis Pre-Alert" and Apply Capnography

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

[www.sepsis-prealert.ca](http://www.sepsis-prealert.ca)



Intro

# 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

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## 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

GHG	Brampton
<b>1-844-832-6830</b>	<b>1-416-747-3500,1</b>

St. Mary's	Southlake
<b>1-519-653-4074</b>	<b>1-905-952-2466</b>

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

## Prepare

### CAUTION

Caution with nitro and morphine

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

### “PADS ON”

Defibrillation pads are placed on all patients  
with suspected STEMI



### BE READY

Be familiar with the common complications  
that can occur:

- dysrhythmias
- pump failure
- cardiac arrest

Be ready to manage them



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## LIST OF MANDATORY PROVINCIAL PATCH POINTS

### Medical Cardiac Arrest

- TOR

### Trauma Cardiac Arrest

- Trauma TOR

### Tachydysrhythmia

- amiodarone/lidocaine administration
- adenosine administration if wide complex;
  - cardioversion

### IV & Fluid Therapy

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

### Analgesia

- morphine/fentanyl administration for patients <12 years of age

## LIST OF MANDATORY LOCAL PATCH POINTS

- Special Project Palliative Care Medical Directives
  - Research Project Palliative Care Medical Directives
- 
-





# 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

