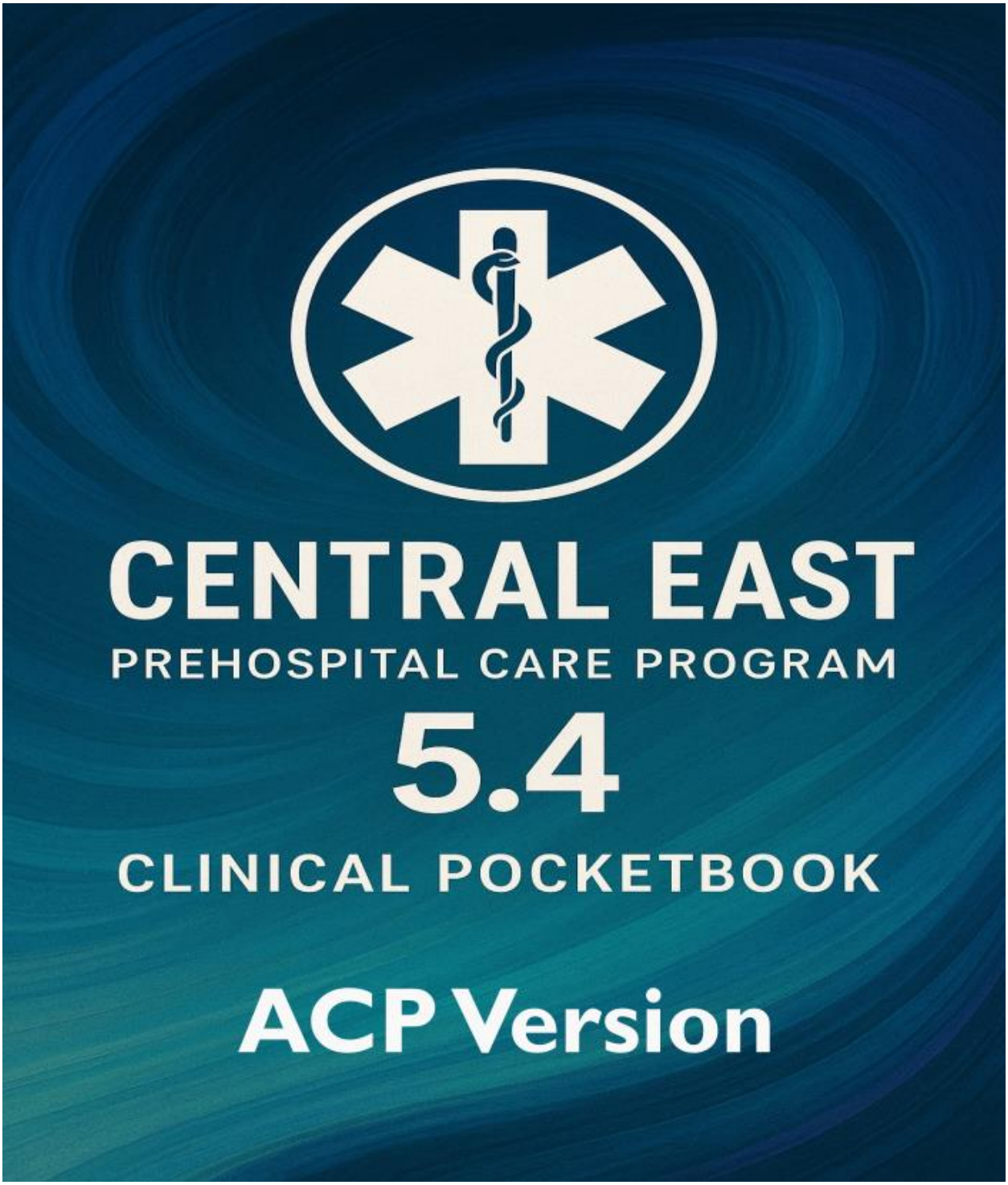
CENTRAL EAST
PREHOSPITAL CARE PROGRAM
5.4
CLINICAL POCKETBOOK
ACP Version

ACP Version


Durham
Haliburton
Kawartha Lakes
Northumberland
Peterborough
York
CEPCP

As always, this guide is intended to support the ALS PCS and is for reference only. Refer to the current Medical Directives for all treatment decisions. If there are inconsistencies between this reference guide and the current directives always refer to the Medical Directives.

For questions, comments, or suggestions for improvements, please contact us at:
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How to Use This Pocketbook (Digital Edition)

Welcome to the **Advanced Care Paramedic Pocketbook (2025 Edition)**. This resource was designed with input from active paramedics, and instructional designers to help you make fast, safe, and confident clinical decisions in the field. This guide is optimized for rapid access and clarity.

Purpose

This digital reference supports **clinical decision-making, dosing accuracy, and provincial compliance** with the ALS PCS and local CEPCP directives. It is not a substitute for medical judgment or the original medical directives.

Human Factors-Informed Design

This pocketbook follows best practices from **human factors engineering**, **cognitive ergonomics**, and **clinical usability**, including:

- Alphabetical ordering for fast search
- Hyperlinked table of contents and internal anchors for one-click access
- Chunked information to align with working memory limits (5–7 items per section)
- Critical information presented first (e.g., Indications → Clinical Parameters → Contraindications → Doses)

How to Use This Pocketbook

This pocketbook is designed for rapid, intuitive use in dynamic clinical environments. To enhance findability and reduce cognitive load, content is organized into **clearly labeled sections based on clinical presentation**

or treatment need. The following **categories are listed in alphabetical order**:

- **Adrenal**
- **Airway and Allergy**
- **Analgesia**
- **Cardiac Arrest and ROSC**
- **Cardiogenic**
- **Childbirth**
- **Combative**
- **CVAD (Central Venous Access Device), Intravenous (IV), Intraosseous (IO)**
- **Hyperkalemia**
- **Hypoglycemia, Opioid, Seizure**
- **Nausea and Vomiting**
- **CBRNE**
- **Special Events**

Within each category, M**edical Directives are also listed alphabetically**, ensuring you can quickly locate the relevant directives, medications, and procedures. This layout supports both novice and experienced providers by simplifying access to critical information during high-stress situations.

Whether you're referencing the digital version or a printed copy, this structure helps streamline decision-making and reduce delays in care.

Online Use Tips

This pocketbook is best used in **a PDF reader with clickable links**. You can:

- Use **Ctrl+F or Command+F** to find any directive by keyword (e.g., “hypoglycemia”)
- Use bookmarks or collapsible headings to navigate long sections
- View on a **tablet in portrait mode** for optimal one-hand use

Quick Reference Layout

Each directive follows a standardized structure:

1. Indications
2. Clinical Parameters
3. Contraindications
4. Medication / Procedure
5. Dosing (Adult and Pediatric)
6. Patch Requirements
7. Clinical Notes or Decision Tips

Safety Enhancements

- High-risk medications clearly labeled (e.g., Ketamine, Dopamine)
- Treat-and-Discharge directives include decision checklists
- Patch Failure protocols and documentation reminders included
- Pediatric dosing tables are weight-based and include simplified charts
- We've separated directives using **bookmarks**, **dividers**, and by ensuring most **tables fit on a single page**. At times, this is not always feasible, but efforts were made to prioritize readability and navigation

Feedback & Versioning

We welcome suggestions or improvements. Please contact:

Email: cepcp@cepcp.ca
Website: www.cepcp.ca/contact

This version is **5.4 – Updated for 2025**. Always refer to the most current version posted online or distributed by CEPCP

Click Here For The Clinical Notes

Adrenal Issues

Suspected Adrenal Crisis

Indications

Patient with primary adrenal failure who has signs of an adrenal crisis

Clinical Parameters

Paramedics are presented with a vial of Hydrocortisone for the identified patient **AND** no allergy or sensitivity to Hydrocortisone **AND** any of the following:

- Age-related hypoglycemia, or
- GI symptoms (vomiting, diarrhea, abdominal pain), or
- Syncope, or
- Temperature ≥ 38C or suspected / hx of fever, or
- Altered LOA, or
- Age related hypotension, or
- Age related tachycardia

All Doses

Medication	Initial Dose	Q	Repeat	Max doses
Hydrocortisone IM / IV / IO / CVAD	2 mg/kg Max 100 mg	N/A	N/A	1 dose

Notes:

To use the ACT-O-VIAL®:

1. Press down on plastic top to force diluent into the lower compartment
2. Gently agitate to effect solution
3. Remove plastic tab covering center of stopper
4. Sterilize top of stopper with alcohol
5. Insert needle through center of stopper and withdraw the appropriate dose / volume

Spot for your notes

Airway and Allergy

Bronchoconstriction

Indications

Respiratory distress **AND** Suspected bronchoconstriction

Clinical Parameters

No allergy or sensitivity to any medication considered

Dexamethasone

- Not currently on PO or parenteral steroids
- Patient has history of asthma **OR** COPD **OR** 20 pack-year history of smoking

EPINEPHrine (High-Risk Medication)

- BVM ventilation is required
- Must have a history of asthma

Salbutamol

- N/A

All doses

Medication	Weight	Initial Dose	Q	Repeat	Max doses
Salbutamol MDI	< 25 kg	600 mcg	5-15 mins	600 mcg	3 doses
Salbutamol NEB	< 25 kg	2.5 mg	5-15 mins	2.5 mg	3 doses
Salbutamol MDI	≥ 25 kg	800 mcg	5-15 mins	800 mcg	3 doses
Salbutamol NEB	≥ 25 kg	5 mg	5-15 mins	5 mg	3 doses

All doses					
Medication	**Initial Dose**	**Maximum Single Dose**	**Q**	**Repeat**	**Max doses**
EPINEPHrine 1:1000 IM	0.01 mg/kg	0.5 mg	N/A	N/A	1 dose

*EPINEPHrine may be rounded to the nearest 0.05 mg

All doses					
Medication	**Initial Dose**	**Maximum Single Dose**	**Q**	**Repeat**	**Max doses**
Dexamethasone PO / IM / IV **PO is the preferred route IM/IV routes should be reserved for patients that cannot tolerate PO.**	0.5 mg/kg	8 mg	N/A	N/A	1 dose

Dexamethasone Dosing Chart

Dose 0.5mg/kg - Max 8mg – Max # of Doses 1

Route PO/IM/IV

Patients ≥16kg receive the Max Dose

KG	Dose	Concentration 10mg/ml Volume	Concentration 100mg/10ml Volume
1	0.5mg	0.5ml	0.05ml
2	1.0mg	1.0ml	0.1ml
3	1.5mg	1.5ml	0.15ml
4	2.0mg	2.0ml	0.2ml
5	2.5mg	2.5ml	0.25ml
6	3.0mg	3.0ml	0.3ml
7	3.5mg	3.5ml	0.35ml
8	4.0mg	4.0ml	0.4ml
9	4.5mg	4.5ml	0.45ml
10	5.0mg	5.0ml	0.5ml
11	5.5mg	5.5ml	0.55ml
12	6.0mg	6.0ml	0.6ml
13	6.5mg	6.5ml	0.65ml
14	7.0mg	7.0ml	0.7ml
15	7.5mg	7.5ml	0.75ml
≥16	8.0mg	8.0ml	0.8ml

NOTES: Proper assembly of the BVM and the MDI aerochamber. The MDI must be in an upright position to be administered correctly.

Spot for your notes

Cricothyrotomy Medical Directive Auxiliary (Only TAC and the CPLPs in York are trained on this currently)

Indications
Need for advanced airway management AND Intubation AND supraglottic airway insertion unsuccessful or contraindicated And Unable to ventilate

Clinical Parameters
≥ 12 years old LOA: Altered **Contraindications** Suspected fractured larynx Inability to landmark

Confirmation Methods	Primary	Secondary
Confirm advanced airway placement	$ETCO_2$ (waveform capnography) **must** be used if available.	• $ETCO_2$ (non-waveform capnography) • Visualization (Oral) • Auscultation • Chest rise Esophageal Detection Device

Continuous Positive Airway Pressure (CPAP)-Auxiliary

Indications

Severe respiratory distress **AND**

Signs and/or symptoms of acute pulmonary edema (of any origin) **OR** COPD exacerbation

Clinical Parameters

- Able to sit upright and cooperate
- Respiratory rate ≥ 28 breaths/minutes
- SpO_2 < 90% OR accessory muscle use
- SBP ≥ 100
- Not asthma exacerbation
- Stable or protected airway
- Not suspected pneumothorax
- No major trauma or burns to the head or torso
- No tracheostomy

Adult Doses (≥ 18 years of age)			
Initial setting	**Titration increment**	**Titration interval**	**Max setting**
5 cm H_2O	2.5 cm H_2O	5 min	15 cm H_2O
If the device has adjustable FiO_2, start at the lower setting and only increase if SpO_2 remains < 92% despite treatment and / or CPAP pressure of 10 cmH_2O • 8l/min=5 cmH_2O • 10l/min=8 cmH_2O (accepted titration for the CPAP model) • 12l/min=10 cmH_2O • 15lmin= 15 cmH_2O			

A Spot for your Notes:

Croup

Indications

Current history of upper respiratory tract infection **AND**

Barking cough or recent history of barking cough

Clinical Parameters

≥ 6 months to < 8 years old

No allergy or sensitivity to medications being considered

EPINEPHrine (High-Risk Medication)

- Patient must have stridor at rest
- No allergy or sensitivity to EPINEPHrine
- Heart rate less than 200 beats per minute

Dexamethasone

- Unaltered LOA
- Can be administered for mild, moderate, and severe croup
- No steroids received within the last 48 hours
- Able to tolerate oral medications

Pediatric doses

Medication	Weight	Initial Dose	Max Single Dose	Repeat	Max
EPINEPHrine [1 mg/ml] NEB	< 10 kg	2.5 mg (2.5 ml)	2.5 mg	N/A	1 dose
EPINEPHrine [1 mg/ml] NEB	≥ 10 kg	5 mg (5 ml)	5 mg	N/A	1 dose
Dexamethasone PO	N/A	0.5 mg/kg	8 mg	N/A	1 dose

Advanced Airway and Tracheostomy Suctioning and Reinsertion

Indications

Patient with an endotracheal, SGA (with gastric suction port) or tracheostomy tube

AND The airway is obstructed or increased secretions are present

Clinical Parameters

Emergency Tracheostomy Reinsertion

- Patient with an existing tracheostomy where the inner and/or outer cannula(s) have been removed from the airway **AND**
- Respiratory distress **AND**
- Inability to adequately ventilate **AND**
- Paramedics are presented with a tracheostomy cannula for the identified patient
- Must be able to properly landmark or visualize

Suctioning through SGA Gastric Port (if available)

- Known or suspected gastric secretions or emesis following placement of SGA
- Persistent difficult ventilation despite other efforts to improve ventilation

Consider Suctioning (ETT/Tracheostomy)					
Patient	**Initial Suction pressure**	**Max single dose**	**Q**	**Repeat**	**Max doses**
Infant < 1 year	60 – 100 mmHg	10 seconds	1 min	Same as initial	N/A
Child ≥ 1 year to < 12 years	100 – 120 mmHg	10 seconds	1 min	Same as initial	N/A
Adult ≥ 12 years	100 – 150 mmHg	10 seconds	1 min	Same as initial	N/A

Suctioning through SGA Gastric Port					
Patient	**Initial Suction pressure**	**Max single dose**	**Q**	**Repeat**	**Max doses**
Infant < 1 year	60 – 100 mmHg	Until fluid disappears or after 15 seconds of no fluid return	N/A	Same as initial	N/A
Child ≥ 1 year to < 12 years	100 – 120 mmHg	Until fluid disappears or after 15 seconds of no fluid return	N/A	Same as initial	N/A
Adult ≥ 12 years	100 – 150 mmHg	Until fluid disappears or after 15 seconds of no fluid return	N/A	Same as initial	N/A

I-Gel size	Suction Catheter Size
1	N/A
1.5	10
2	12
2.5	12
3	12
4	12
5	14

Endotracheal and Tracheostomy Suctioning

Indications

Patient with an ETT or trach tube **AND**
The airway is obstructed, or increased secretions are present

Clinical Parameters

Emergency Tracheostomy Reinsertion

- Patient with an existing tracheostomy where the inner and/or outer cannula(s) have been removed from the airway **AND**
- Respiratory distress **AND**
- Inability to adequately ventilate **AND**
- Paramedics are presented with a tracheostomy cannula for the identified patient.
- Paramedics must have the ability to landmark or visualize

Endotracheal Intubation (Oral and Nasal)

Indications

Need for ventilatory assistance or control **AND**
Other airway management is ineffective

Clinical Parameters

- No allergy or sensitivity to the medication considered
- If < 50 years old **AND** experiencing asthma exacerbation, **must be in or near cardiac arrest.**

Nasal ETT:

- ≥ 8 years old
- Not apneic
- No suspected basal skull or mid-face fracture
- No uncontrolled epistaxis
- Not on anticoagulant therapy (ASA excluded)
- No bleeding disorders

Lidocaine TOP • For nasal/oral ETT • Not used if patient is unresponsive	**Xylometazoline** TOP • Use for nasal ETT only

Adult Doses

Medication	Initial Dose	Q	Repeat	Max
Lidocaine TOP	10 mg/spray	N/A	N/A	5 mg/kg up to 20 sprays
Xylometazoline TOP	2 sprays / nare	N/A	N/A	1 dose

Confirmation Methods	Primary	Secondary
Confirm advanced airway placement	$ETCO_2$ (waveform capnography) **must** be used if available.	• $ETCO_2$ (non-waveform capnography) • Visualization (Oral) • Auscultation • Chest rise • Esophageal Detection Device

Notes: The formula for **cuffed** pediatric tubes is: **(Age / 4) + 3.5**

A Spot for your Notes:

Moderate to Severe Allergic Reaction

Indications

Exposure to a probable allergen **AND**

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

Clinical Parameters

No allergy or sensitivity to any medication

Consider EPINEPHrine use for anaphylaxis

DiphenhydrAMINE

- Weight must be ≥ 25 kg

Adult Doses

Medication	Initial Dose	Q	Repeat	Max doses
EPINEPHrine [1 mg/ml] **IM ONLY*** **	0.01 mg/kg Max 0.5 mg (0.5ml)	Min 5 min	same as initial	2 doses
DiphenhydrAMINE IV / IM	50 mg if ≥ 50 kg 25 mg if 25-49 kg	N/A	N/A	1 dose

Pediatric Doses

Medication	Initial Dose	Q	Repeat	Max doses
EPINEPHrine [1 mg/ml] IM ONLY ***	0.01 mg/kg Max 0.5 mg	Min 5 min	same as initial	2 doses
DiphenhydrAMINE IV / IM	25 mg if 25-49 kg	N/A	N/A	1 dose

A Spot for your Notes:

EPINEPHrine Dosing Chart-IM only****

Weight (kg)	Dose (mg)	Volume (mL) to Administer that is rounded
4	0.04	0.05
6	0.06	0.05
8	0.08	0.10
10	0.10	0.10
12	0.12	0.10
14	0.14	0.15
16	0.16	0.15
18	0.18	0.20
20	0.20	0.20
22	0.22	0.20
24	0.24	0.25
26	0.26	0.25
28	0.28	0.30
30	0.30	0.30
32	0.32	0.30
34	0.34	0.35
36	0.36	0.35
38	0.38	0.40
40	0.40	0.40
42	0.42	0.40
44	0.44	0.45
46	0.46	0.45
48	0.48	0.50
50	0.50	0.50

Supraglottic Airway

Indications

Need for ventilatory assistance **OR** airway control **AND**

Other airway management is ineffective

Clinical Parameters

- Absent gag reflex
- No airway obstruction by foreign object
- No known esophageal disease (i.e., varices)
- No trauma to the oropharynx
- No caustic ingestion

Confirmation Methods	Primary	Secondary
Confirm advanced airway placement	$ETCO_2$ (waveform capnography) **must** be used if available.	• $ETCO_2$ (non-waveform capnography) • Auscultation • Chest rise

Maximum 2 attempts

King LT Reference			
Size	**Colour**	**Patient**	**Amount of air in Cuff**
0	Clear	< 5 kg	10 ml
1	White	5 – 12 kg	20 ml
2	Green	12 – 25 kg	25 – 35 ml
2.5	Orange	25 – 35 kg	30 – 40 ml
3	Yellow	4 – 5 ft tall	45 – 60 ml
4	Red	5 – 6 ft tall	60 – 80 ml
5	Purple	≥ 6 ft tall	70 – 90 ml

iGel Reference		
Size	**Colour**	**Patient**
1	Pink	< 5 kg
1.5	Blue	5 – 12 kg
2	Grey	12 – 25 kg
2.5	White	25 – 35 kg
3	Yellow	30 – 60 kg
4	Green	60 – 90 kg
5	Orange	90 + kg

Analgesia

Analgesia

Indications
Pain

Medication	Clinical Parameters	Contraindications
Acetaminophen	• ≥ 12 years old • Unaltered	• Acetaminophen use within previous 4 hours • Allergy or sensitivity to acetaminophen • Active vomiting • Hx of liver disease • Suspected ischemic chest pain • Unable to tolerate oral medication
Ibuprofen	• ≥ 12 years old • Unaltered	• NSAID use within previous 6 hours • Allergy or sensitivity to ASA or NSAIDs • Current active bleeding • Patient on anticoagulation therapy (not anti-platelet therapy) • Hx of peptic ulcer disease or GI bleed • If asthmatic, no prior use of ASA or other NSAIDs • Active vomiting • Known renal impairment • CVA or TBI in the previous 24 hours

		• Unable to tolerate oral medication • Suspected Ischemic chest pain • Pregnant
Ketorolac	• ≥ 12 years old • Unaltered	• NSAID use within previous 6 hours • Current active bleeding • Allergy or sensitivity to ASA or NSAIDs • Patient on anticoagulation therapy (not anti-platelet therapy) • If asthmatic, no prior use of ASA or • other NSAIDs • Hx of peptic ulcer disease or GI bleed • Known renal impairment • Suspected ischemic chest pain • Pregnant • CVA or TBI in the previous 24 hours
Morphine	• ≥ 1 years old • Unaltered Normotension	• 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	• ≥ 1 years old • Unaltered	• Allergy or sensitivity to fentaNYL • Treatment of headache • Active labour • Treatment of chronic pain • Cannot be used for suspected ischemic chest pain

Adult Doses

Medication	Age	Initial Dose	Max Single Dose	Q	Max Cumulative Dose	Max Doses
Acetaminophen PO	≥ 18	960-1000 mg	1000 mg	N/A	N/A	1
Ibuprofen PO	≥ 12	400 mg	400 mg	N/A	N/A	1
Ketorolac IM / IV	≥ 12	10-15 mg	15 mg	N/A	N/A	1
Morphine IV / SC	≥ 18	2-10 mg	10 mg	15 min	20 mg	N/A
FentaNYL IV / IN	≥ 18	25-75 mcg	75 mcg	5 min	200 mcg	N/A

Mandatory PATCH: Contact the Base Hospital Physician (BHP) for **authorization and dose verification** before administering **morphine or FentaNYL to any patient under 12 years of age**.

Pediatric Analgesia Dosing Guidelines

Medication	Age	Initial Dose	Max Single Dose	Q	Max Cumulative Dose	Max Doses
Acetaminophen PO	**≥ 12 to < 18**	500-650 mg	650 mg	N/A	N/A	1
Morphine (High-Risk Medication) IV / SC	**≥ 1 to < 18**	0.05-0.1 mg/kg	5 mg	15 min	10 mg	N/A
FentaNYL (High-Risk Medication) IV / IN	**≥ 1 to < 18**	up to 1 mcg/kg	75 mcg	5 min	200 mcg	N/A

Pediatric Morphine Dosing Chart

Mandatory patch point ages	

Table 1: Morphine Dosing Chart – 0.1 mg/kg (IV/SC Route)

(Using 10 mg/mL concentration)

Age (Years)	Estimated Weight (kg)	Morphine Dose (mg)	Volume to Administer (mL)
1	12	1.2	0.12
2	14	1.4	0.14
3	16	1.6	0.16
4	18	1.8	0.18
5	20	2.0	0.20
6	22	2.2	0.22
7	24	2.4	0.24
8	26	2.6	0.26
9	28	2.8	0.28
10	30	3.0	0.30
11	32	3.2	0.32
12	34	3.4	0.34
13	36	3.6	0.36
14	38	3.8	0.38
15	40	4.0	0.40
16	42	4.2	0.42
17	44	4.4	0.44

Table 2: Morphine Dosing Chart (0.05 mg/kg)

Age (Years)	Estimated Weight (kg)	Morphine Dose (mg)	Volume to Administer (mL)
1	12	0.6	0.06
2	14	0.7	0.07
3	16	0.8	0.08
4	18	0.9	0.09
5	20	1.0	0.10
6	22	1.1	0.11
7	24	1.2	0.12
8	26	1.3	0.13
9	28	1.4	0.14
10	30	1.5	0.15
11	32	1.6	0.16
12	34	1.7	0.17
13	36	1.8	0.18
14	38	1.9	0.19
15	40	2.0	0.20
16	42	2.1	0.21
17	44	2.2	0.22

Fentanyl Dosing Chart (50mcg/ml)

Age (Years)	Estimated Weight (kg)	IV Dose (1 mcg/kg)	IV Volume (mL)	IN Dose (1 mcg/kg)	IN Volume (mL)
1	12	12 mcg	0.24 mL	12 mcg	0.24 mL
2	14	14 mcg	0.28 mL	14 mcg	0.28 mL
3	16	16 mcg	0.32 mL	16 mcg	0.32 mL
4	18	18 mcg	0.36 mL	18 mcg	0.36 mL
5	20	20 mcg	0.40 mL	20 mcg	0.40 mL
6	22	22 mcg	0.44 mL	22 mcg	0.44 mL
7	24	24 mcg	0.48 mL	24 mcg	0.48 mL
8	26	26 mcg	0.52 mL	26 mcg	0.52 mL
9	28	28 mcg	0.56 mL	28 mcg	0.56 mL
10	30	30 mcg	0.60 mL	30 mcg	0.60 mL
11	32	32 mcg	0.64 mL	32 mcg	0.64 mL
12	34	34 mcg	0.68 mL	34 mcg	0.68 mL
13	36	36 mcg	0.72 mL	36 mcg	0.72 mL
14	38	38 mcg	0.76 mL	38 mcg	0.76 mL
15	40	40 mcg	0.80 mL	40 mcg	0.80 mL
16	42	42 mcg	0.84 mL	42 mcg	0.84 mL
17	44	44 mcg	0.88 mL	44 mcg	0.88 mL

Fentanyl Dosing Chart for 0.5 mcg/kg

Age (Years)	Estimated Weight (kg)	IV Dose (0.5 mcg/kg)	IV Volume (50 mcg/mL)	IN Dose (0.5 mcg/kg)	IN Volume (50 mcg/mL)
1	**12**	**6 mcg**	**0.12 mL**	**6 mcg**	**0.12 mL**
2	**14**	**7 mcg**	**0.14 mL**	**7 mcg**	**0.14 mL**
3	**16**	**8 mcg**	**0.16 mL**	**8 mcg**	**0.16 mL**
4	**18**	**9 mcg**	**0.18 mL**	**9 mcg**	**0.18 mL**
5	**20**	**10 mcg**	**0.20 mL**	**10 mcg**	**0.20 mL**
6	**22**	**11 mcg**	**0.22 mL**	**11 mcg**	**0.22 mL**
7	**24**	**12 mcg**	**0.24 mL**	**12 mcg**	**0.24 mL**
8	**26**	**13 mcg**	**0.26 mL**	**13 mcg**	**0.26 mL**
9	**28**	**14 mcg**	**0.28 mL**	**14 mcg**	**0.28 mL**
10	**30**	**15 mcg**	**0.30 mL**	**15 mcg**	**0.30 mL**
11	**32**	**16 mcg**	**0.32 mL**	**16 mcg**	**0.32 mL**
12	34	17 mcg	0.34 mL	17 mcg	0.34 mL
13	36	18 mcg	0.36 mL	18 mcg	0.36 mL
14	38	19 mcg	0.38 mL	19 mcg	0.38 mL
15	40	20 mcg	0.40 mL	20 mcg	0.40 mL
16	42	21 mcg	0.42 mL	21 mcg	0.42 mL
17	44	22 mcg	0.44 mL	22 mcg	0.44 mL

Adult Ketamine Medical Directive – High-Risk Medication

This directive outlines the **safe administration of ketamine for analgesia** in adults. Due to its classification as a **high-risk medication**, strict adherence to dosing, route, and monitoring is required.

Adult Ketamine Intravenous Doses (High-Risk Medication)						
Medication	**Age**	**Initial Dose**	**Max Single Dose**	**Q**	**Max Cumulative Dose**	**Max Doses**
Ketamine	≥ 18	**0.25mg/kg** **Administered over 2-3 minutes and ensure it is properly diluted**	**20mg**	15 mins	N/A	2

Intranasal Ketamine (High-Risk Medication)						
Medication	**Age**	**Initial Dose**	**Max Single Dose**	**Q**	**Max Cumulative Dose**	**Max Doses**
Ketamine	≥ 18	**1mg/kg**	**75mg**	15 mins	N/A	2

PEDIATRIC KETAMINE DOSING (1–17 yrs) – Patch Required

Ketamine is classified as a **high-risk medication** in pediatric patients.
Mandatory PATCH is required for all patients **under 18 years of age** to:

1. **Confirm the appropriate dose**
2. **Confirm that ketamine is clinically indicated**

Pediatric Intravenous Ketamine (High-Risk Medication)						
Medication	**Age**	**Initial Dose**	**Max Single Dose**	**Q**	**Max Cumulative Dose**	**Max Doses**
Ketamine	≥ 1 to < 18 years old	**0.25mg/kg** **Administered over 2-3 minutes and ensure it is properly diluted**	**10mg**	15 mins	N/A	2

Pediatric Intranasal Ketamine (High-Risk Medication)						
Medication	**Age**	**Initial Dose**	**Max Single Dose**	**Q**	**Max Cumulative Dose**	**Max Doses**
Ketamine	**≥ 1 to < 18 years old**	**1mg/kg**	**30mg**	15 mins	N/A	2

Ketamine IV Dosing Chart (High-Risk Medication)

Concentration: 500 mg/10 mL (i.e., 50 mg/mL)

Dose: 0.25 mg/kg (IV route only)

This chart is only applicable to the **50 mg/mL concentration** of ketamine. Use this chart to determine the appropriate **IV ketamine dose based on weight**.

Always dilute and administer slowly over 2–3 minutes.

Pediatric Dosing	
Maximum dose as per the Medical Directive without a patch	

Tip: Paramedics may round the ketamine volume to the nearest **0.05 mL** to simplify preparation and improve dosing accuracy.

Weight (Kg)	Dose (mg)	Volume (ml)
12	3	0.06
14	3.5	0.07
16	4	0.08
18	4.5	0.09
20	5	0.1
22	5.5	0.11
24	6	0.12
26	6.5	0.13
28	7	0.14
30	7.5	0.15
32	8	0.16
34	8.5	0.17
36	9	0.18
38	9.5	0.19
40	10 (maximum dose for a patient >=1 years to <18 years old.	0.2
42	10.5	0.21
44	11	0.22
46	11.5	0.23
48	12	0.24
50	12.5	0.25
52	13	0.26
54	13.5	0.27
56	14	0.28
58	14.5	0.29
60	15	0.3
62	15.5	0.31
64	16	0.32
66	16.5	0.33
68	17	0.34
70	17.5	0.35
72	18	0.36
74	18.5	0.37
76	19	0.38
78	19.5	0.39
80 (80kg and up receives the full dose)	20	0.4

For patients **≥ 40 kg**, volume continues to increase by 0.01 mL per 2 kg, up to a **maximum of 20 mg (0.4 mL)** for adults.

Intranasal dosing chart (50mg/ml concentration): Dose 1mg/kg

Weight (kg)	Dose (mg)	Volume (ml)
		500mg/10ml
12	12	0.24
14	14	0.28
16	16	0.32
18	18	0.36
20	20	0.4
22	22	0.44
24	24	0.48
26	26	0.52
28	28	0.56
30	30 (maximum dose for a patient >=1 years old to <18)	0.6
32	32	0.64
34	34	0.68
36	36	0.72
38	38	0.76
40	40	0.8
42	42	0.84
44	44	0.88
46	46	0.92
48	48	0.96
50	50	1
52	52	1.04
54	54	1.08
56	56	1.12

58	**58**	**1.16**
60	**60**	**1.2**
62	**62**	**1.24**
64	**64**	**1.28**
66	**66**	**1.32**
68	**68**	**1.36**
70	**70**	**1.4**
72	**72**	**1.44**
74	**74**	**1.48**
75 (75kg and over should receive the maximum dose)	**75**	**1.5**

Ketamine Dosing Charts (10mglml Concentration)

IV Ketamine for Adults ≥18 Years (0.25 mg/kg, Max 20 mg)

Weight (kg)	Dose (mg)	Volume (mL @ 10 mg/mL)
40	10	1.0
50	12.5	1.25
60	15	1.5
70	17.5	1.75
80+	20	2.0
90	20	2.0
100	20	2.0
120	20	2.0

IN Route Warning for Adults

The intranasal (IN) route is NOT recommended in adults when using Ketamine 10 mg/mL, as the required volume exceeds the safe limit of 1 mL per nostril. Consider 50mg/ml concentration for adults requiring IN administration.

Pediatric IV Ketamine Dosing (0.25 mg/kg)-Patch Point Required

Age (yrs)	Weight (kg)	Dose (mg)	Volume (mL @ 10 mg/mL)
1	12	3.0	0.3
2	14	3.5	0.35
3	16	4.0	0.4
4	18	4.5	0.45
5	20	5.0	0.5
6	22	5.5	0.55
7	24	6.0	0.6
8	26	6.5	0.65
9	28	7.0	0.7
10	30	7.5	0.75

Pediatric IN Ketamine Dosing (1 mg/kg) Patch Point Required

Age (yrs)	Weight (kg)	Dose (mg)	Volume (mL @ 10 mg/mL)
1	12	12.0	1.2
2	14	14.0	1.4
3	16	16.0	1.6
4	18	18.0	1.8
5	20	20.0	2.0
6	22	22.0	2.2
7	24	24.0	2.4
8	26	26.0	2.6
9	28	28.0	2.8
10	30	30.0	3.0

Cardiogenic

Acute Cardiogenic Pulmonary Edema

Indications
Moderate to severe respiratory distress **AND** Suspected acute cardiogenic pulmonary edema

Clinical Parameters	Vital Sign Parameters
• No allergy or sensitivity • No *phosphodiesterase inhibitors in the past 48 hours • If SBP < 140 mmHg patient must have prior Nitroglycerin use or an IV established	• HR 60 – 159 bpm • SBP ≥ 100 mmHg • SBP drops no more than 1/3 of the initial reading

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max
Nitroglycerin SL SBP 100 – 139 mmHg WITH an IV or History of use	0.4 mg	5 min	0.4 mg	6 doses
Nitroglycerin SL SBP ≥ 140 mmHg and **NO** History or IV	0.4 mg	5 min	0.4 mg	6 doses
Nitroglycerin SL SBP ≥ 140 mmHg **WITH** History or IV	0.8 mg	5 min	0.8 mg	6 doses

Cardiac Ischemia

Indications

Suspected cardiac ischemia

Clinical Parameters

Nitroglycerin:

- Prior Nitroglycerin use and/or IV established
- HR 60 – 159 beats per minute
- SBP ≥ 100 mmHg; Discontinue if SBP drops more than 1/3 of the initial reading
- No *phosphodiesterase inhibitor use in past 48 hours
- No right ventricular MI (no ST elevation in V4R in the setting of ST elevation in II, III and aVF).

ASA Indications:

- Unaltered LOA
- Age ≥ 18 years old
- Able to chew and Swallow

ASA Contraindications:

- No prior use of ASA if asthmatic
- No allergy to ASA or NSAIDs
- No current, active bleeding
- No CVA or TBI in past 24 hrs

Morphine: (after 3rd Nitroglycerin or if Nitroglycerin is contraindicated)

- Severe pain
- SBP ≥ 100 mmHg
- Discontinue if SBP drops more than 1/3 the initial reading

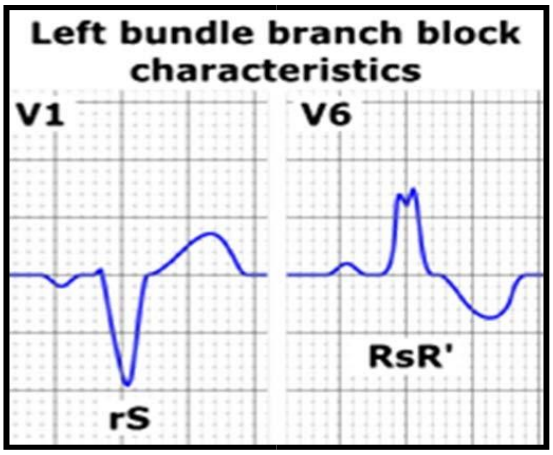
Adult Doses (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max dose**
Nitroglycerin SL **(Non-STEMI)**	0.4 mg	5 min	0.4 mg	6 doses
Nitroglycerin SL **(STEMI)**	0.4 mg	5 min	0.4 mg	3 doses
ASA PO	160 - 162 mg	N/A	N/A	160 - 162 mg
Morphine IV	2 mg	5 min	2 mg	5 doses

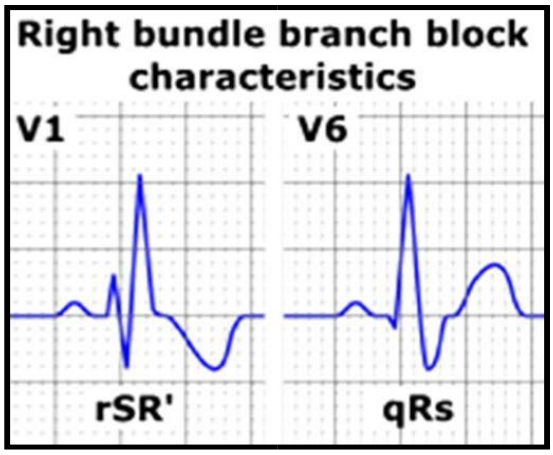
Common Imitators of AMI

Interpreting ST segment elevation is not possible in the following rhythms (not a complete list – other imitators exist)

LBBB

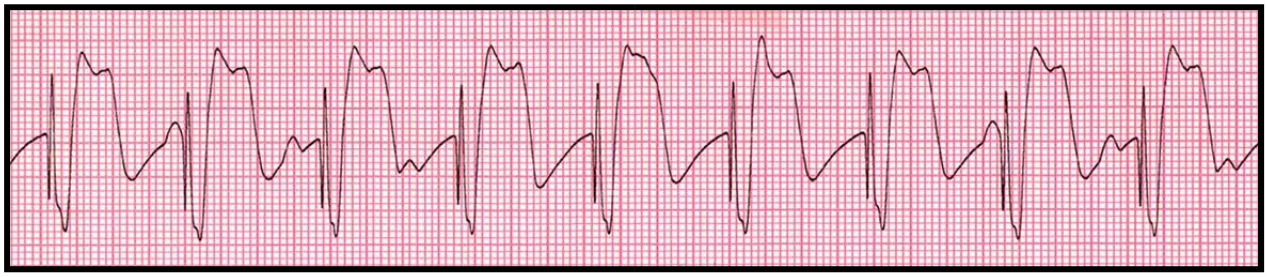
- Characterized by a supraventricular rhythm (identified by the presence of P waves and a 1:1 occurrence with QRS waves) & a wide (> 120 ms) QRS complex.
- A LBBB will have a -ve terminal deflection in V1 and typically a secondary R wave in V6 (seen as a notched complex seen as RsR' below). A STEMI cannot be determined in the field in the presence of a LBBB.
- A RBBB will have a +ve terminal deflection in V1 typically with a notched complex & a slurred or prolonged S wave in V6. A RBBB does not preclude the ability to interpret a STEMI in the field.

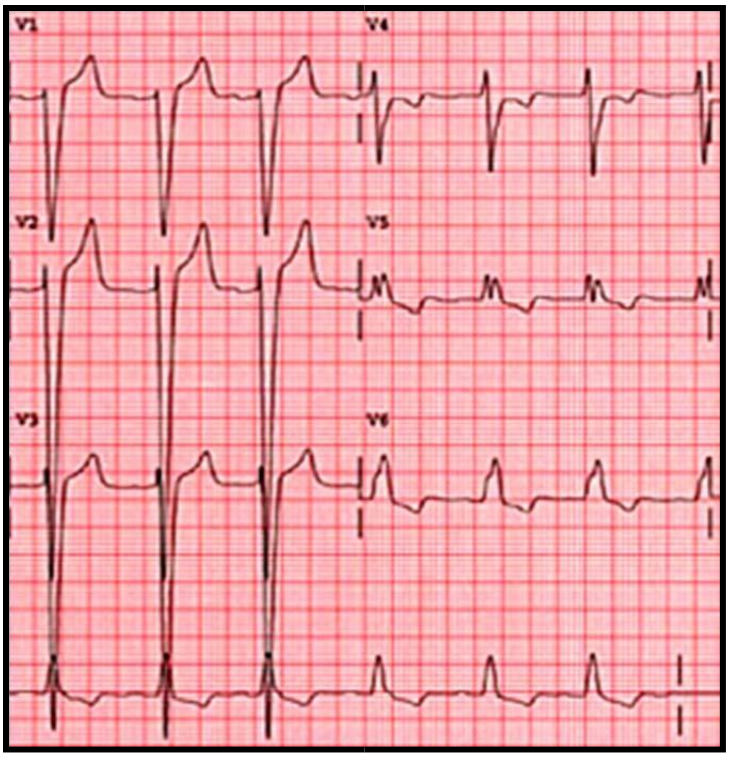




Ventricular Paced Rhythm

- A pacer spike is typically seen immediately preceding the QRS complex which will be wide.
- Pacer detect may need to be activated on the cardiac monitor
- Electrical capture is the presence of a QRS following the pacer spike.
- Mechanical capture is the presence of a pulse matching the electrical rate of the paced rhythm.





LVH (Left Ventricular Hypertrophy)

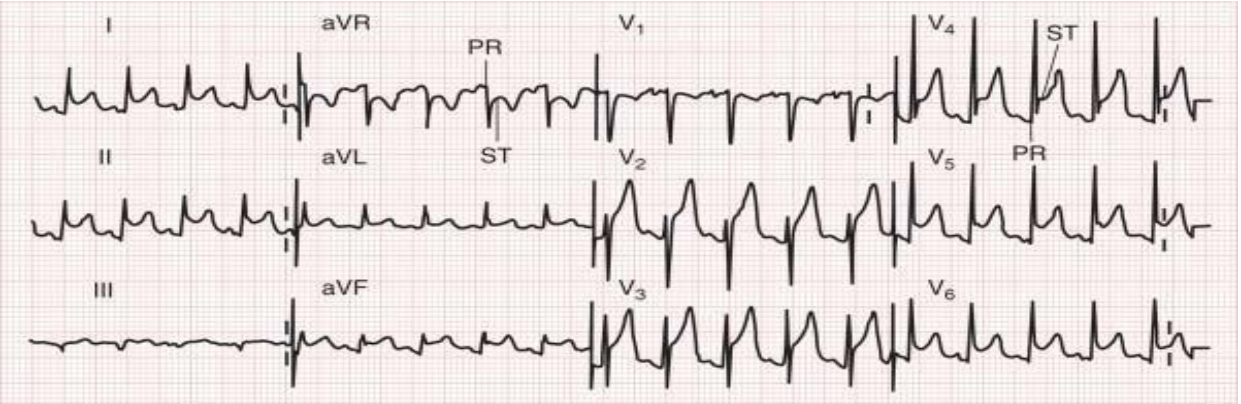
Look at the RS complex in either V1 or V2 and count the small boxes of the -ve deflection
Then do the same with either V5 or V6, counting the small boxes of the +ve deflection

Add the two numbers together, if they equal 35 mm's or greater, it is likely LVH.

A STEMI cannot be
determined in the field in the presence of LVH

Pericarditis

- A condition in which inflammation of the pericardial sac produces electrical abnormalities in the 12 lead ECG
- Men aged 20 – 50 years of age are most susceptible
- Often produces "global" ST elevation, or elevation in leads that are not anatomically contiguous and that is not consistent with the patient's clinical presentation
- A STEMI cannot be determined in the field in the presence of pericarditis



Space for Notes:

Cardiogenic Shock

Indications

STEMI positive 12-lead **AND**
Cardiogenic Shock

Clinical Parameters

SBP < 90 mmHg

Bolus:

- No fluid overload-acute cardiogenic pulmonary edema

DOPamine (High-Risk Medication)

- No allergy or sensitivity
- No tachydysrhythmias (excluding sinus tachycardia)
- No mechanical shock (i.e. Tension Pneumothorax, Pulmonary Embolism, Pericardial Tamponade)
- No pheochromocytoma
- No hypovolemia

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max
Bolus IV / IO / CVAD	10 ml/kg	Reassess every 250 ml	N/A	1,000 ml
DOPamine IV High risk medication	5 mcg/kg/min	5 min	5 mcg/kg/min	20 mcg/kg/min

Symptomatic Bradycardia

Indications

Bradycardia **AND**

Hemodynamic Instability

Clinical Parameters

SBP < 90 mmHg **AND** HR < 50 bpm with hemodynamic instability

Atropine:

- No hypothermia
- No heart transplant
- No allergy or sensitivity to any medication considered

TCP:

- No hypothermia

DOPamine:

- No pheochromocytoma
- No mechanical shock
- Allergy of sensitivity to DOPamine

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max
Atropine IV	1 mg	5 min	1 mg	2 doses
DOPamine IV	5 mcg/kg/min	5 min	Increase by 5 mcg/kg/min	20 mcg/kg/min

Transcutaneous pacing: Set rate at 80 and then increase mAmps to get electrical and mechanical capture

Notes:

Transcutaneous Pacing

- **Attach** limb leads
- **Attach** defibrillation pads
- Activate pacing function
- Increase CURRENT (mA) until electrical capture is evident (pacer spike followed by a QRS complex)
- Check for mechanical capture (assess for a pulse equivalent to the pacing rate) Assess BP
- Consider reducing the RATE to 60 bpm **if BP is adequate**
- Continuously reassess BP

Consider FentNYL and Midazolam (as per the Procedural Sedation Medical Directive) administration for this patient to relieve discomfort post TCP.

Tachydysrhythmia

Indications

Symptomatic tachydysrhythmia

Clinical Parameters

No allergy or sensitivity to any medication considered

Valsalva

- SBP ≥ 100 mmHg
- Unaltered LOA
- Use for regular narrow complex tachycardia ≥ 150 bpm
- Not for sinus tachycardia, A-fib, or A-flutter

Adenosine:

- SBP ≥ 100 mmHg
- Unaltered LOA
- Use for regular narrow complex tachycardia ≥ 150 bpm
- Not on Dipyridamole (Persantine, Aggrenox) or Carbamazepine (Tegretol)
- No bronchoconstriction on exam
- Not for sinus tachycardia, A-fib, or A-flutter
- **PATCH** only if suspected SVT with aberrancy (regular wide complex)

Lidocaine - PATCH:

- SBP ≥ 100 mmHg
- Unaltered LOA
- Use for regular wide complex tachycardia ≥ 120 bpm

Cardioversion - PATCH:

- **For unstable patients: SBP < 90 mmHg, altered LOA, ongoing chest pain, other signs of shock**
- Tachycardia ≥ 120 bpm (wide complex) OR ≥ 150 bpm (narrow complex)

Adult Doses (≥ 18 years of age)				
Procedure	**Initial Dose**	**Duration**		**Max dose**
Valsalva (REVERT)	1 attempt	60 Seconds		2 attempts
Medication	**Initial Dose**	**Q**	**Repeat**	**Max dose**
Adenosine IV **PATCH** only if suspected SVT with aberrancy (wide complex)	6 mg	2 min	12 mg	2 doses
Lidocaine IV **PATCH**	1.5 mg/kg to maximum 150 mg	10 min	0.75 mg/kg to maximum 75 mg	3 doses
Cardioversion* **PATCH**	100 J	PRN	*200 J and then max energy	3 attempts

Notes:

*Administer synchronized cardioversion in accordance with **PATCH** orders.

The energy settings noted above are a guideline and would apply in the event of a **PATCH** failure.

Cardioversion

Synchronized Cardioversion – Safety Checklist for Paramedics

1. Prepare the Environment

Confirm resuscitation equipment is immediately available:

- Airway kit and suction
- Resuscitation drugs (as ordered)
- Manual resuscitator (BVM)
- Backup defibrillator pads (if available)

2. Activate SYNC Mode (Critical Safety Step)

 Press **SYNC** on the defibrillator.

 VISUALLY CONFIRM sync markers are aligned with each **R wave** on the ECG.

Monitor must display: **"SYNCHRONIZED CARDIOVERSION"** – if not, **STOP and reassess**.

3. Set Up for Cardioversion

Select the **ordered energy level** (Base Hospital Physician or medical directive).

Initiate ECG print.

Run strips before and after the procedure to capture rhythm and changes.

4. Safety Pause – Before Delivering Shock

Call a **CLEAR** verbal confirmation from all team members.

Visually scan to ensure **no one is touching** the patient or stretcher.

Press and **hold** the SHOCK button until the energy is delivered.

5. Post-Shock Awareness ***

SYNC MODE RESETS AUTOMATICALLY after each shock.

If another cardioversion is required, you must **reactivate SYNC** before proceeding.

6. Reassess

Reassess patient's rhythm and clinical status.

Consider underlying causes, monitor for deterioration, and prepare to repeat procedure if ordered.

Tachydysrhythmia Treat and Discharge – IF AUTHORIZED

Indications

An ACP may **treat and discharge** a patient experiencing a tachydysrhythmia under these criteria

AND

if authorized to use this Medical Directive

Considerations for Treat and Discharge

The patient must meet all of the following criteria:

- The patient is ≥ 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……(continued on next page)

Considerations for Treat and Discharge

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,
- 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,
- Patient or substitute decision maker consents to the discharge.

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

Cardiac Arrest and ROSC

Medical Cardiac Arrest

Indications

Non-traumatic cardiac arrest.

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

1) pregnancy presumed to be ≥ 20 weeks gestation (fundus at or above umbilicus, ensure manual displacement of uterus to left);
2) known reversible cause of the arrest unable to be addressed.

For patients in refractory VF or pulseless VT, consider:

Double sequential external defibrillation (DSED) if authorized, **OR** Vector change defibrillation (VCD) if DSED is unavailable or not authorized,

AND Transport following three (3) doses of DSED or VCD **AND** three (3) rounds of epinephrine if they remain in VF or pulseless VT (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.

Clinical Parameters

CPR

- Altered LOA
- Performed in two-minute intervals
- Not obviously dead
- Does not meet the conditions of the DNR Standard

Manual Defibrillation

- ≥ 24 hours old **AND** Altered LOA

- VF OR pulseless VT

DSED or Vector Change

- ≥ 18 years old
- Altered LOA
- Non-traumatic VF/pulseless VT of presumed cardiac origin
- Three consecutive standard shocks

If anaphylaxis suspected as the causative event:

EPINEPHrine [1mg/ml] IM (High-Risk Medication)

- ≥ 24 hours old **AND** Altered LOA
- No allergy or sensitivity to Epinephrine

Lidocaine (High-Risk Medication)

- ≥ 24 hours **AND** Altered LOA
- Refractory or recurrent VF **OR** pulseless VT
- No allergy or sensitivity to Lidocaine
- Paramedics may count public access defibrillations and/or the fire departments defibrillations
- The patient must be in a shockable rhythm at least twice at any time to receive lidocaine and it is based on the last interpretation.

0.9% NaCl Fluid Bolus

- ≥ 24 hours **AND** Altered LOA
- PEA **OR** any other rhythm where hypovolemia is suspected
- Once starting the fluid bolus, it is recommended to complete the fluid bolus based on the 20ml/kg dose, regardless of if there is a rhythm change, unless the patient meets signs of fluid overload.

Medical TOR

- Mandatory Patch to the BHP for authorization to apply the Medical TOR if applicable
- ≥ 16 years old **AND** Altered LOA

- Arrest not witnessed by paramedic **AND** no ROSC after 20 minutes of resuscitation **AND** no defibrillation delivered

TOR is contraindicated if:

- Pregnancy presumed to be ≥ 20 weeks gestation
- Suspected hypothermia
- Airway obstruction
- Non-opioid drug overdose/toxicology

Pediatric Doses (greater than and equal to 24 hours to less than 12 years of age)				
Medication	**Initial Dose**	**Q**	**Min**	**Max dose**
EPINEPHrine 1:10,000 [0.1mg/mL] IV/ IO / CVAD	0.01 mg/kg (0.1 mL/kg) **The EPINEPHrine dose may be rounded to the nearest 0.05mg**	4 min	0.05 mg (0.5ml)	N/A
EPINEPHrine 1:1,000 [1mg/mL] - ETT	0.1 mg/kg (0.1 mL/kg)	4 min	0.5 mg (0.5ml)	2 mg (2 ml)
EPINEPHrine 1:1,000 IM (for suspected anaphylaxis)	0.01 mg/kg max 0.5 mg	N/A	N/A	0.5 mg (0.5ml) **1 dose**
Lidocaine IV / IO / CVAD for refractory/recurrent VF/pVT	1.0 mg/kg	4 min	N/A	2 doses
Lidocaine ETT for refractory/recurrent VF/pVT	2 mg/kg	4 min	N/A	2 doses
Bolus IV / IO / CVAD	20 ml/kg	Re-assess every 100 ml	N/A	2,000 ml

Adult Dosing (≥8 years of age)

- Interpret, print and code mark/snapshot the rhythm every 2 minute.
- For Zoll and LP15 provide energy as per RBHP/manufacturer.

CPR	As per current HSF of Canada Guidelines			
Treatment	**Dose**	**Repeats**	**Q**	**Max doses**
Manual defib	LP15 360J Zoll X 200J	LP15 360J Zoll X 200J	2 min	N/A
DSED or VC **MUST BE ≥ 18**	LP15 360J Zoll X 200J	LP15 360J Zoll X 200J	2 min	N/A

Adult doses (greater than or equal to 12 years old)

Medication	Initial Dose	Q	Min	Max Dose
EPINEPHrine 1:10,000 (0.1 mg/ml) IV / IO/ CVAD	1mg (10ml)	4 min	1 mg	N/A
EPINEPHrine ETT	2.0 mg All 1:10,000 or mixed 1:10,000 and 1:1,000	4 min	2 mg	N/A
EPINEPHrine 1:1,000 (0.1mg/ml) – IM (for suspected anaphylaxis)	0.01 mg/kg max 0.5 mg (0.5ml)	N/A	N/A	1 dose

Medication	Initial Dose	Q	Min	Max Dose
Lidocaine IV / IO / CVAD for refractory/recurrent VF/pVT	1.5 mg/kg (1st dose) **0.75 mg/kg (2nd dose)**	4 min	N/A	2 doses
Lidocaine ETT for refractory/recurrent VF/pVT	3 mg/kg (1st dose) 1.5 mg/kg (2nd dose)	4 min	N/A	2 doses
Bolus IV / IO / CVAD PEA or any other rhythm where hypovolemia is suspected Once initiated a fluid bolus, it is recommended to complete the fluid bolus, regardless of the rhythm change, unless there is a contraindication.	20 ml/kg	Re-assess every 250 ml	N/A	2,000 ml

Medical TOR: (≥ 16 years of age)
Mandatory Provincial Patch Point: Patch early to consider TOR if there are extenuating circumstances or where the paramedic considers ongoing resuscitation to be futile. If the patch fails, and/or, no ROSC after 20 minutes of resuscitation, initiate transport.

Pediatric Dosing (Courtesy of Mitch Lohnert)

DOSING: ≥ 24 HOURS LESS THAN 12 YEARS OF AGE							
Weight	Age	Joules 2J/kg / 4J/kg	Epi 0.1mg(1ml) **IV/IO/CVAD** 0.01 mg/kg 0.1 mls/kg	Epi 1mg/1ml **ETT** 0.1mg/kg	Lidocaine **IV/IO/CVAD** 1mg/kg	Approx ETT Size	EZ IO
4 kg/9 lb	< 1 year	8 J / 16 J	0.05 mg = 0.5 ml	0.5mg = 0.5ml	4 mg = 0.2 ml	3.0 mm	Pink
6 kg/13lb	< 1 year	12J /24 J	0.06 mg = 0.6 ml	0.6mg = 0.6ml	6 mg = 0.3 ml	3.0 mm	Pink
8 kg/18lb	< 1 year	16 J / 32 J	0.08 mg = 0.8 ml	0.8mg = 0.8ml	8 mg = 0.4 ml	3.0–3.5 mm	Pink
10kg/22lb	< 1 year	20 J / 40 J	0.10 mg = 1.0 ml	1.0mg = 1.0ml	10 mg = 0.5 ml	3.5 mm	Pink
12kg/26lb	1	24 J / 48 J	0.12 mg = 1.2 ml	1.2mg = 1.2ml	12 mg = 0.6 ml	4.0 mm	Pink
14kg/31lb	2	28 J / 56 J	0.14 mg = 1.4 ml	1.4mg = 1.4ml	14 mg = 0.7 ml	4.0 mm	Pink
16kg/35lb	3	32 J / 64 J	0.16 mg = 1.6 ml	1.6mg = 1.6ml	16 mg = 0.8 ml	4.5 mm	Pink
18kg/40lb	4	36 J / 72J	0.18 mg = 1.8 ml	1.8mg = 1.8ml	18 mg = 0.9 ml	4.5 mm	Pink
20kg/44lb	5	40 J / 80 J	0.20 mg = 2.0 ml	2.0mg = 2.0ml	20 mg = 1.0 ml	5.0 mm	Pink
22kg/48lb	6	44 J / 88J	0.22 mg = 2.2 ml	2.0mg = 2.0ml	22 mg = 1.1 ml	5.0 mm	Pink
24kg/53lb	7	48 J /96J	0.24 mg = 2.4 ml	2.0mg = 2.0ml	24 mg = 1.2 ml	5.5 mm	Pink
26kg/57lb	8	200J Zoll 360 LP15	0.26 mg = 2.6 ml	2.0mg = 2.0ml	26 mg = 1.3 ml	5.5 mm	Pink
28kg/62lb	9	200J Zoll 360 LP15	0.28 mg = 2.8 ml	2.0mg = 2.0ml	28 mg = 1.4 ml	5.5 mm	Pink
30kg/66lb	10	200J Zoll 360 LP15	0.30 mg = 3.0 ml	2.0mg = 2.0ml	30 mg = 1.5 ml	6.0 mm	Pink
35kg/77lb	11		0.35 mg = 3.5 ml	2.0mg = 2.0ml	35 mg = 1.75 ml	6.0 mm	Pink

Newborn Resuscitation (< 24 hours)

Indications

Newborn patient (< 24 hours)

Clinical Parameters

Do not attempt resuscitate if patient is obviously dead as per BLS PCS
Do not attempt resuscitate if presumed age is less than 20 weeks (consider calling the BHP for guidance)
< 24 hours of age

Positive Pressure Ventilation

- HR < 100

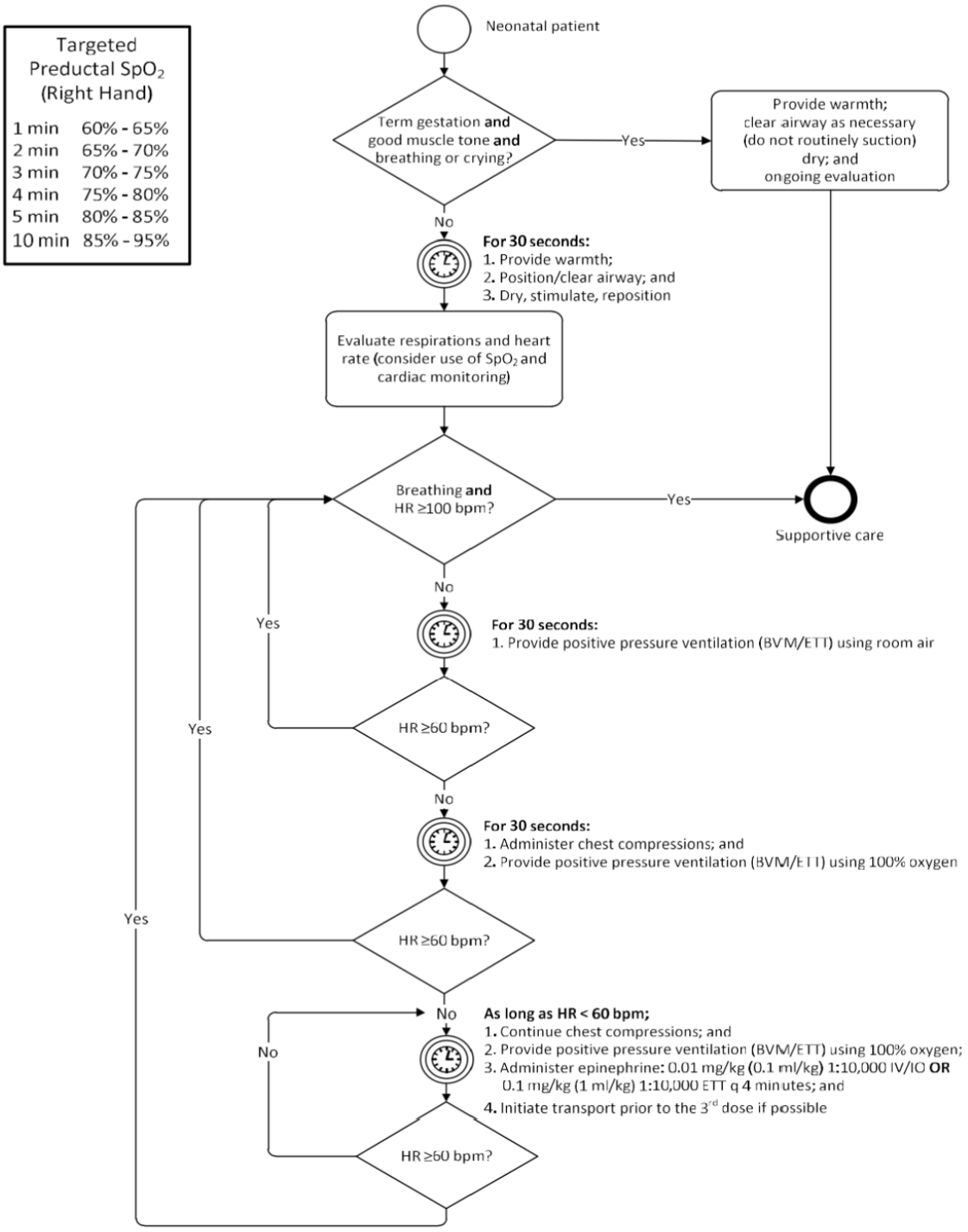
CPR

- HR < 60
- After 30 seconds of PPV with room air

EPINEPHrine

- After 30 seconds of CPR and PPV with oxygen
- No allergy or sensitivity

A Spot for your Notes:


Targeted Preductal SpO_2 (Right Hand)
1 min 60% - 65%
2 min 65% - 70%
3 min 70% - 75%
4 min 75% - 80%
5 min 80% - 85%
10 min 85% - 95%
Neonatal patient
Term gestation and good muscle tone and breathing or crying?
Yes
Provide warmth; clear airway as necessary (do not routinely suction) dry; and ongoing evaluation
No
For 30 seconds:
1. Provide warmth;
2. Position/clear airway; and
3. Dry, stimulate, reposition
Evaluate respirations and heart rate (consider use of SpO_2 and cardiac monitoring)
Breathing and HR ≥100 bpm?
Yes
Supportive care
No
Yes
For 30 seconds:
1. Provide positive pressure ventilation (BVM/ETT) using room air
HR ≥60 bpm?
Yes
No
For 30 seconds:
1. Administer chest compressions; and
2. Provide positive pressure ventilation (BVM/ETT) using 100% oxygen
HR ≥60 bpm?
Yes
No
As long as HR < 60 bpm;
1. Continue chest compressions; and
2. Provide positive pressure ventilation (BVM/ETT) using 100% oxygen;
3. Administer epinephrine: 0.01 mg/kg (0.1 ml/kg) 1:10,000 IV/IO OR 0.1 mg/kg (1 ml/kg) 1:10,000 ETT q 4 minutes; and
4. Initiate transport prior to the 3rd dose if possible
No
HR ≥60 bpm?

Newborn Reference				
Gestational Age (wks)	**Weight (kg)**	**Tube Size (cuffed)**	**IV/IO EPINEPHrine [0.1 mg/ml] (Using a 1ml syringe is recommended)**	**ETT EPINEPHrine [0.1 mg/ml] (Using a 1ml syringe is recommended until volume exceeds 1ml)**
23-24	**≈ 0.5**	**2.5 mm**	**0.05 mg (0.5 ml)**	**0.05 mg (0.5 ml)**
25-26	**≈ 0.8**	**2.5 mm**	**0.05 mg (0.5 ml)**	**0.08 mg (0.8 ml)**
27-29	**≈ 1.0**	**2.5 mm**	**0.05 mg (0.5 ml)**	**0.10 mg (1.0 ml)**
30-32	**≈ 1.2**	**3.0 mm**	**0.05 mg (0.5 ml)**	**0.12 mg (1.2 ml)**
33-34	**≈ 1.6**	**3.0 mm**	**0.05 mg (0.5 ml)**	**0.16 mg (1.6 ml)**
35-37	**≈ 2.2**	**3.5 mm**	**0.05 mg (0.5 ml)**	**0.22 mg (2.2 ml)**
38-40	**≈ 2.8**	**3.5 mm**	**0.05 mg (0.5 ml)**	**0.28 mg (2.8 ml)**
41-43	**≈ 3.7**	**4.0 mm**	**0.05 mg (0.5 ml)**	**0.3 mg (3.0 ml)**

The formula for **cuffed** pediatric tubes is: **(Age / 4) + 3.5**

Category	Pre-term (<37 weeks)	Term (37-42 weeks)
Skin	Thin, translucent, veins visible	Opaque, some vernix present
Feet	Smooth soles, few creases	Full creases covering the soles
Ears	Pliable, slow recoil	Firm, immediate recoil
Muscle Tone	Floppy, extended posture	Flexed limbs, active movements

Weeks	Skin	Feet	Muscle Tone	Appearance	Weight
14 weeks	Extremely thin, translucent, veins prominent	No creases, feet very small	Minimal tone, limbs floppy	Eyes fused, limbs very thin, delicate structure, abdomen flat and undeveloped	Approximately 100 grams
20 weeks	**Thin, translucent, veins visible**	**No creases on soles**	**Minimal tone, floppy limbs**	**Eyes fused, limbs thin and elongated, visible veins, abdomen slightly rounded**	**Approximately 300 grams**
24 weeks	Veins visible, skin becoming slightly thicker	Few creases on soles	Some tone, intermittent movements	Eyes partially open, thin limbs, some subcutaneous fat, abdomen more rounded	Approximately 600 grams
28 weeks	Thicker skin, translucency reducing	Creases covering part of sole	Increased tone, occasional flexion	Eyes open, more rounded limbs, subcutaneous fat increasing, abdomen fuller	Approximately 1 kg
32 weeks	Mostly opaque, less visible veins	Moderate creases over sole	Flexed limbs, more frequent movements	Well-defined limbs, eyes fully open, plumper appearance, abdomen prominent and rounded	Approximately 1.8 kg
36 weeks	Opaque, some vernix present	Full creases across the sole	Good tone, active movements	Rounded limbs, less wrinkled skin, vernix and lanugo, abdomen firm and rounded	Approximately 2.5 kg
40 weeks (Term)	Fully opaque, possible peeling or vernix	Full creases, well-defined	Strong tone, active and flexed	Well-developed, rounded limbs, little or no lanugo, abdomen firm and well-defined	Approximately 3-4 kg

iGel Reference		
Size	**Colour**	**Patient**
1	Pink	< 5 kg
King LT Reference		
Size	**Colour**	**Patient**
0	Clear	< 5 kg
Inflate cuff with a maximum of 10 ml air.		

EPINEPHrine

	Age	
	< 24 hours	
	Route	
	IV/ IO	**ETT***
Solution	0.1 mg/mL = 1:10,000 (0.1mg/1ml)	0.1 mg/mL = 1:10,000 (0.1mg/1ml)
Dose	0.01 mg/kg (0.1 ml/kg)	0.1 mg/kg (1.0 ml/kg)
Minimum Single Dose	0.05 mg (0.5 ml)	N/A
Maximum Single Dose	N/A	0.3 mg (3.0 ml)
Dosing Interval	4 min	N/A
Max # of Doses	N/A	**1**

*Administer EPINEPHrine IV/IO after a **single ETT dose.** **A 3cc flush should be administered after epinephrine administration for the IV/IO routes**

Gestational Age (weeks)	Estimated Weight (kg)
20	1.4
21	1.5
22	1.6
23	1.7
24	1.8
25	1.9
26	2.0
27	2.1
28	2.2
29	2.3
30	2.4
31	2.5
32	2.6
33	2.7
34	2.8
35	2.9
36	3.0
37	3.1
38	3.2
39	3.3
40	3.4

10% Dextrose Dosing for Neonates (20-40 Weeks Gestation)

Gestational Age (weeks)	Estimated Weight (kg)	Dextrose Dose (g)	Dextrose Volume (mL)
20	1.4	0.28	2.8
21	1.5	0.3	3.0
22	1.6	0.32	3.2

23	1.7	0.34	3.4
24	1.8	0.36	3.6
25	1.9	0.38	3.8
26	2.0	0.4	4.0
27	2.1	0.42	4.2
28	2.2	0.44	4.4
29	2.3	0.46	4.6
30	2.4	0.48	4.8
31	2.5	0.5	5.0
32	2.6	0.52	5.2
33	2.7	0.54	5.4
34	2.8	0.56	5.6
35	2.9	0.58	5.8
36	3.0	0.6	6.0
37	3.1	0.62	6.2
38	3.2	0.64	6.4
39	3.3	0.66	6.6
40	3.4	0.68	6.8

Notes:

For **secondary management of a neonate** when **hypovolemia is suspected**, paramedics can **patch to the Base Hospital Physician (BHP)** to request authorization for a fluid bolus. According to the **Neonatal Resuscitation Program (NRP) 8th edition**, the recommended fluid bolus dose is **10 mL/kg** of **normal saline (0.9% NaCl)**.

Return of Spontaneous Circulation (ROSC)

Indications

ROSC after resuscitation was initiated

Clinical Parameters

- Adult hypotensive
- Pediatric SBP < 70 mmHg + (2 x age in years)

Bolus:

- No fluid overload-cardiogenic pulmonary edema
- Fluid administration during the cardiac arrest does not count towards fluid administered in the ROSC setting.

DOPamine (High-Risk Medication):

- No allergy/sensitivity to Dopamine
- No pheochromocytoma
- No tachydysrhythmias (excluding sinus tachycardia)
- No mechanical shock states (i.e.: tension pneumothorax, pulmonary embolism, pericardial tamponade)

Adult Doses

Medication	Initial Dose	Q	Titration	Max dose
Bolus IV / IO / CVAD Macodrip set)	10 ml/kg	Reassess every 250 ml	N/A	1,000 ml
DOPamine IV only **≥ 8 years old**	5 mcg/kg/min	5 min	5 mcg/kg/min	20 mcg/kg/min

Pediatric Doses (less than 12 years old)				
Medication	**Initial Dose**	**Q**	**Titration**	**Max dose**
Bolus IV / IO / CVAD (Microdrip set)	10 ml/kg	Reassess every 100 ml	N/A	1,000 ml
DOPamine IV only **and age ≥ 8 yrs**	5 mcg/kg/min	5 min	5 mcg/kg/min	20 mcg/kg/min

DOPamine Single Strength 800 mcg/ml				
Weight	**5mcg/kg/min**	**10mcg/kg/min**	**15mcg/kg/min**	**20mcg/kg/min**
5 kg	2	4	6	8
10	4	8	11	15
15	6	11	17	23
20	8	15	23	30
25	9	19	28	38
30	11	23	34	45
35	13	26	39	53
40	15	30	45	60
45	17	34	51	68
50	19	38	56	75
55	21	41	62	83
60	23	45	68	90
65	24	49	73	98
70	26	53	79	105
75	28	56	84	113
80	30	60	90	120
85	32	64	96	128
90	34	68	101	135
95	36	71	107	143
100	38	75	113	150
105	39	79	118	158
110	41	83	124	165
115	43	86	129	173
120	45	90	135	180

Patient Weight (kg)	Fluid Bolus Volume (mL)
12	120
13	130
14	140
15	150
16	160
17	170
18	180
19	190
20	200
21	210
22	220
23	230
24	240
25	250
26	260
27	270
28	280
29	290
30	300
31	310
32	320
40	400
50	500
60	600
70	700
80	800
90	900
100	1000

Trauma Cardiac Arrest

Indications

Cardiac arrest secondary to severe blunt or penetrating trauma

Clinical Parameters

CPR

- Altered LOA
- Performed in two-minute intervals
- Not obviously dead
- Does not meet the conditions of the DNR Standard

Manual Defibrillation

- ≥ 24 hours old **AND** Altered LOA
- VF **OR** pulseless VT

Trauma TOR

- **Mandatory PATCH Point to the BHP for authorization to apply the Trauma TOR** if applicable. If the BHP patch fails, or the Trauma TOR does not apply, transport to the closest appropriate receiving facility following the 1st analysis/defibrillation.
- ≥ 16 years old
- No palpable pulses **AND** no defibrillations delivered **AND** rhythm is Asystole **AND** no signs of life at any time since fully extricated **OR** signs of life when fully extricated with the closest ED **≥** 30 min transport time away **OR** rhythm PEA with the closest ED **≥** 30 min transport time away

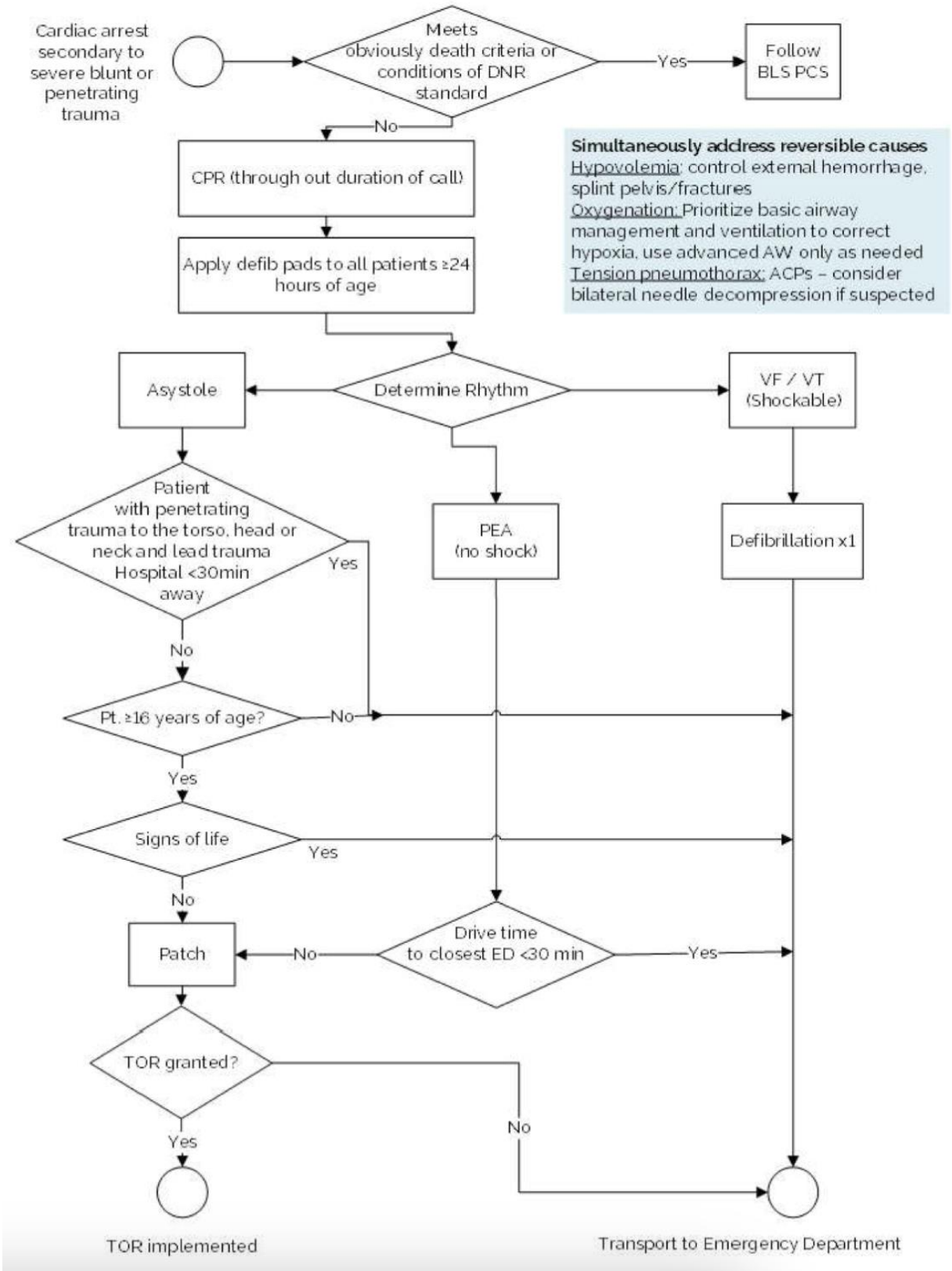
- **NO TOR** if patients with penetrating trauma to the torso or head/neck and Lead Trauma Hospital < 30 min transport time away

Adult Doses (≥ 8 years of age)

Treatment	Dose	Q	Repeat	Max dose
Manual defibrillation	Max energy	N/A	N/A	1 dose
Bolus IV / IO / CVAD	20 ml/kg	Reassess every 250 ml	N/A	2,000 ml
Needle Thoracostomy				

Pediatric Doses (≥ 24 hours to < 8 years of age)

Treatment	Dose	Q	Repeat	Max dose
Manual defibrillation	2 J/kg	N/A	N/A	1 dose
Bolus IV / IO / CVAD	20 ml/kg	Reassess every 100 ml	N/A	2,000 ml
Needle Thoracostomy				


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

NOTES: Pediatric Joule Settings

Weight	Age	Joules 2J/kg
4 kg/9 lb	≥24 hr	8 J
6 kg/13lb	≥24 hr	15 J
8 kg/18lb	≥24 hr	20 J
10kg/22lb	< 1 year	20 J
12kg/26lb	1 year	30 J
14kg/31lb	2 years	30 J
16kg/35lb	3 years	50 J
18kg/40lb	4 years	50 J
20kg/44lb	5 years	50 J
22kg/48lb	6 years	50 J
24kg/53lb	7 years	50 J
26kg/57lb	8 years	Max joules settings Zoll 200J LP15 360 J
28kg/62lb	9 years	Max joules settings Zoll 200J LP15 360 J
30kg/66lb	10 years	Max joules settings Zoll 200J LP15 360 J
35kg/77lb	11 years	Max joules settings Zoll 200J LP15 360 J

Childbirth

Emergency Childbirth

Indications

Pregnant patient experiencing labour **OR** immediately following delivery

Clinical Parameters

For all considerations, patient must be of childbearing years.

Delivery

- Second stage labour and/or imminent birth AND/OR:
  - Shoulder dystocia
  - Breech delivery
  - Prolapsed cord

Umbilical Cord Management

- Cord complications OR if newborn or maternal resuscitation is required OR due to transport considerations

Oxytocin

- Postpartum delivery (the placenta can be in or out)
- No allergy or sensitivity to oxytocin
- All fetuses have been delivered
- SBP < 160 mmHg
- No suspected or known preeclampsia with current pregnancy
- No eclamptic seizures with current pregnancy
- ≤ 4 hours post placenta delivery

External Uterine Massage

- Post-placental delivery

Bimanual Compression

- The placenta does not have to be delivered

Adult doses

Medication	Initial Dose	Q	Repeat	Max
Oxytocin IM	10 units	N/A	N/A	1 dose

Interventions

Shoulder Dystocia

- Perform ALARM twice on scene. If successful, delivery the neonate. If unsuccessful, transport to closest appropriate facility

Breech Delivery

- Hands off the breech. Allow neonate to deliver to the umbilicus
- Consider carefully releasing the legs & arms as they are delivered, if needed
- Once hairline is visible **AND/OR** 3 minutes has passed since umbilicus was visualized, attempt Mauriceau Smellie-Veit maneuver
- If successful, delivery the neonate. If unsuccessful, transport to closest appropriate facility

Prolapsed Cord

- Elevate fetal part to relieve pressure on the cord
- Assist patient to the knee-chest or exaggerated Sims position
- Insert gloved fingers/hand into the vagina and apply gentle manual digital pressure to the presenting part; this is maintained until transfer of care

Postpartum Hemorrhage - Pre-Placental Delivery

- If the placenta **has not** yet been delivered, consider:
    - Gentle cord traction while guarding the uterus
    - Bimanual compression if bleeding continues

Postpartum Hemorrhage - Post-Placental Delivery

- If the placenta **has been delivered**, consider:
  - External uterine massage while guarding the uterus
  - Encouraging patient to void bladder
  - Bimanual compression if bleeding continues

Combative Patient

Combative Patient

Indications

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

Clinical Parameters

Midazolam Conditions (high risk medication)

- ≥ 18 years of age
- Allergy or sensitivity to Midazolam

Ketamine Conditions (high risk medication)

- For Ketamine, a patient suffering from suspected excited delirium or severe violent psychosis

Contraindications

- Allergy or sensitivity to Ketamine

Midazolam

Medication	Dose	Max Single Dose	Q	Max. cumulative dose	Max doses
Midazolam IV / IM / IN	Up to 0.1 mg/kg	5 mg	5 minutes	10 mg	N/A

Ketamine					
Medication	**Age**	**Dose**	**Max Single Dose**	**Q**	**Max doses**
Ketamine IM	≥ 18 years to < 65 years	5 mg/kg	500 mg	N/A	1 dose
Ketamine IM	≥ 65 years	3 mg/kg	300 mg	N/A	1 dose

IV, CVAD, IO

Central Venous Access Device (CVAD)

Indications
Actual or potential need for intravenous medication **OR** fluid therapy **AND** Intravenous access is unobtainable **AND** Patient is in cardiac arrest or pre-arrest state

Clinical Parameters	Contraindications
CVAD: Patient has a pre-existing, externally accessible central venous catheter in place	• Inability to confirm patency of CVAD • Inability to flush or aspirate • Injury or suspected fracture proximal to the access site • Swelling of the involved limb • Bleeding at the insertion site

Intravenous and Fluid Therapy

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

Clinical Parameters

Cannulation:

- No fracture proximal to the access site

Bolus:

- For adults SBP <90 mmHg - for pediatric patients (< 70 mmHg + (2 x age in years)
- Chest clear
- No signs of fluid overload-acute cardiogenic pulmonary edema

Note: Administer a fluid bolus until the patient is normotensive.

Dosing (≥ 12 years)

Medication	Dose	Q	Repeat	Max doses
NaCl TKVO IV	30 – 60 ml/hr	N/A	N/A	N/A
NaCl Fluid Bolus IV	20 ml/kg	Reassess every 250 ml	N/A	2,000 ml

Pediatric Doses (**≥24** hours to <12 years)

Medication	Initial Dose	Q	Repeat	Max doses
NaCl TKVO	15 ml/hr	N/A	N/A	N/A
NaCl Fluid Bolus IV	20 ml/kg	Reassess every 100 ml	N/A	2,000 ml

A spot for your notes

Pediatric / Adult Intraosseous

Indications
Actual or potential need for intravenous medication **OR** fluid therapy **AND** Intravenous access is unobtainable **AND** Patient is in cardiac arrest or near-arrest state

Clinical Parameters	Vital Sign Parameters
IO Initiation: No fracture or crush injuries or known replacement / prosthesis proximal to the access site	N/A

Hyperkalemia

Indications
Suspected hyperkalemia in high risk patient (dialysis; end-stage renal disease; other reason e.g. Crush injury) **AND** Cardiac arrest **OR** pre-arrest with 12 lead ECG changes suggestive of hyperkalemia

Clinical Parameters	Contraindications
N/A	Allergy or sensitivity to considered medication.

Consider 12 lead acquisition and interpretation

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
Calcium Gluconate IV / IO / CVAD	1 g (10 ml) over 2-3 minutes	5 min	Same as initial	2 doses*
Salbutamol MDI / NEB	1600 mcg 16 puffs OR 10 mg NEB	Immediate	Same as initial	2 doses

* **A 3rd dose of Calcium Gluconate** may be administered after 30 minutes if the patient improved initially and then the symptoms meeting the indications recur or if ECG changes do not improve, or if they worsen.

Home Dialysis Emergency Disconnect

Indications

Patient connected to home dialysis **AND**

Requires transport to a receiving facility

Clinical Parameters

Patient must be unable to disconnect themselves **AND** no caregiver who is knowledgeable in how to disconnect is present.

Interventions

Disconnect

Notes:

In general, the instructions will be found with the machine.

Sequence:

- Ensure the **patient side** is clamped first, and
- then the machine side, and
- then the tubing can be disconnected **between** the clamps.

Hypoglycemia, Seizures and Opioids

Hypoglycemia

Indications
Suspected hypoglycemia

Clinical Parameters	Vital Sign Parameters
Altered LOA Hypoglycemia **IN Glucagon:** >=4 years old **Dextrose:** • Allergy or sensitivity to Dextrose **Glucagon:** • No Pheochromocytoma • No allergy or sensitivity to glucagon	**Hypoglycemia:** • ≥ 2 yrs < 4.0 mmol/L • < 2 yrs < 3.0 mmol/L

In all cases Dextrose should be titrated to a level of awareness where the patient can safely consume complex carbohydrates.

All doses

Medication		Max Single Dose	Q	Repeat	Max doses
D10W IV	0.2 g/kg (2 ml/kg)	25 g (250 ml)	10 min	0.2 g/kg (2 ml/kg)	2 doses
D50W IV	0.5 g/kg (1 ml/kg)	25 g (50 ml)	10 min	0.5 g/kg (1 ml/kg)	2 doses

Pediatric doses (Age < 2 years old)					
Medication		**Max Single Dose**	**Q**	**Repeat**	**Max doses**
D10W IV	0.2 g/kg (2 ml/kg)	5 g (50 ml)	10 min	0.2 g/kg (2 ml/kg)	2 doses

All doses				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Glucagon IM	< 25 kg (55lbs) 0.5 mg	20 min	0.5 mg	2 doses
Glucagon IM	≥ 25 kg 1 mg	20 min	1 mg	2 doses

IN Glucagon				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Glucagon IN	3mg IN	20 min	3mg IN	2 doses

A Spot for your Notes:

Hypoglycemia Treat and Discharge – IF AUTHORIZED

Indications

Patient has been treated appropriately under the Hypoglycemia Medical Directive

AND

An ACP, when authorized, **may discharge** a post hypoglycemic patient, according to the following:

Considerations for Treat and Discharge:

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 is explained by insulin administration with inadequate oral intake,
- ☐ The hypoglycemia promptly responded to a single administration of Dextrose as per the Medical Directive and/or 1mg of Glucagon AND/OR 3MG IN glucagon and/or consumed oral glucose or other complex carbohydrates,
- ☐ This is a single isolated episode of symptomatic hypoglycemia in the past 24 hrs,
- ☐ The blood glucose is ≥ 4.0 mmol/L after treatment,
- ☐ The patient has a return to their normal level of consciousness and is asymptomatic,
- ☐ A complete set of vital signs are within expected normal ranges,

AND…. (continued on next page)

Considerations for Treat and Discharge:

- Not an intentional overdose,
- The hypoglycemia must not be related to alcohol / 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,
- The patient is not pregnant,

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

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

- Patient or substitute decision maker consents to the discharge.

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

Note: Patients can receive multiple forms of treatment for hypoglycemia (i.e., dextrose and glucagon before consuming carbohydrates). If the patient receives two doses of glucagon or two doses of dextrose, they should be transported to the hospital.

Opioid Toxicity

Indications

Altered LOC **AND**
Respiratory depression **AND**
Inability to adequately ventilate **OR** persistent need to ventilate **AND**
Suspected opioid overdose

Clinical Parameters

- Respiratory rate < 10 breaths/min
- No allergy or sensitivity
- Age greater than or equal to 24 hours
- Patient must have an altered LOA

≥ 24 hours old

Medication	Initial Dose	Q	Repeat	Max Doses
Naloxone IV	Up to 0.4 mg	5 min	Up to 0.4 mg	3 doses
Naloxone IM	0.4 mg	5 min	0.4 mg	3 doses
Naloxone SC	0.8 mg	5 min	0.8 mg	3 doses
Naloxone IN	2-4 mg	5 min	2-4 mg	3 doses

Midazolam

Indications

Active generalized motor seizure

Clinical Parameters

- Unresponsive
- No allergy or sensitivity

Adult Doses

Medication	Initial Dose	Q	Repeat	Max doses
Midazolam IV / IO	0.1 mg/kg Max 5 mg	5 min	0.1 mg/kg Max 5 mg	2 doses
Midazolam IM / IN / Buccal	0.2 mg/kg Max 10 mg	5 min	0.2 mg/kg Max 10 mg	2 doses

Pediatric Doses

Medication	Initial Dose	Q	Repeat	Max
Midazolam IV / IO	0.1 mg/kg Max 5 mg	5 min	0.1 mg/kg Max 5 mg	2 doses
Midazolam IM / IN / Buccal	0.2 mg/kg Max 10 mg	5 min	0.2 mg/kg Max 10 mg	2 doses

Seizure Treat and Discharge - IF AUTHORIZED

Indications

An ACP, when authorized, **may discharge** a post seizure patient, according to the following:

Considerations for Treat and Discharge

All of the following criteria must be met:

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

AND….

Considerations for Treat and Discharge

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,
- The patient is not pregnant,

In addition to the above criteria, if all of the following requirements have

been met, the patient can be discharged by Paramedics:

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

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

Procedural Sedation

Indications

Post-intubation **OR**

Transcutaneous pacing.

Clinical Parameters

- No allergies or sensitivity to any considered medication
- SBP ≥ 100 mmHg
- Respiratory rate ≥ 10 breaths/min (unless intubated)

Adult Doses (≥ 18 years of age)

Medication	Dose	Max Single Dose	Q	Max Cumulative Dose
FentaNYL IV / IO / CVAD / IN	25-75 mcg	75 mcg	5 min	150 mcg
Midazolam IV / IO / CVAD / IN	up to 0.1 mg/kg	5 mg	5 min	10 mg

Nausea and Vomiting

Indications

Nausea and/or Vomiting

Clinical Parameters

Ondansetron

- No allergy or sensitivity to ondansetron
- No prolonged QT syndrome known to the patient
- No Apomorphine (Apokyn) use
- Unaltered

DimenhyDRINATE

- No allergy of sensitivity to DimenhyDRINATE or other antihistamines
- No overdose on antihistamines, anticholinergics, or tricyclic antidepressants
- Cannot be co-administered with DiphenhydrAMINE
- Unaltered

****If ondansetron is unavailable, assess the risks and benefits to pts. ≥ 65 years old for dimenhyDRINATE administration. This may include an initial reduced dose of 25 mg**

All doses				
Medication	**Weight**	**Dose**	**Q**	**Max doses**
DimenhyDRINATE IV/IM	≥ 50 kg	25 or50 mg	N/A	2 doses
DimenhyDRINATE IV/IM	25 to 49 kg	25 mg	N/A	1 dose
Ondansetron PO/IV/IM	≥ 25 kg	4 mg	N/A	1 dose

Trauma

Lateral Patellar Dislocation Medical Directive-Auxiliary

Indications

Indications

Patient with **suspected lateral patellar dislocation**.

Clinical Parameters

Conditions

- **Age:** ≥10 years to ≤50 years
- **LOA:** Unaltered
- **HR:** N/A
- **RR:** N/A
- **SBP:** N/A
- **Other:** N/A

Contraindications

- **High-velocity trauma**
- **Direct knee trauma**

A Spot for your Notes:

Tension Pneumothorax

Indications
Pre-arrest or VSA **AND** Absent or severely diminished breath sounds on the affected side(s)

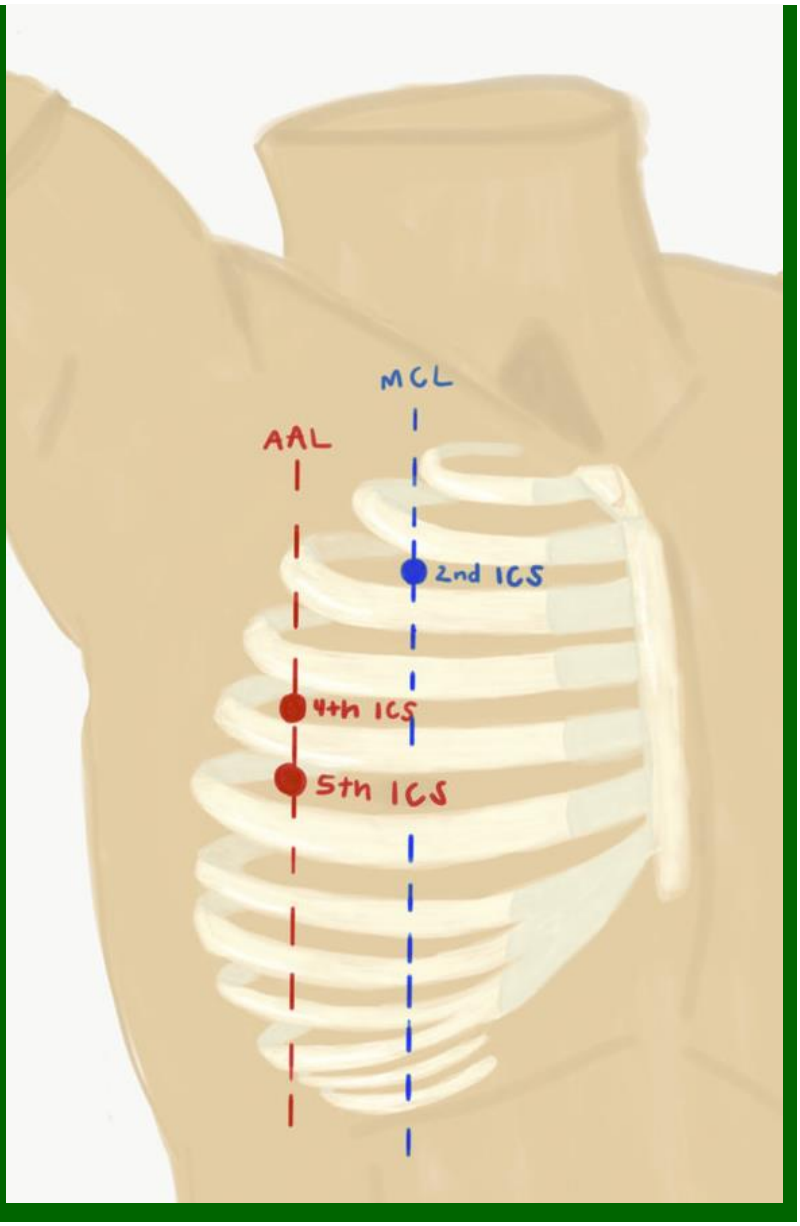
Clinical Parameters	Vital Sign Parameters
N/A	Hypotensive **OR** VSA

Notes:

Equipment Selection by Age and Size

Patient Group	Recommended Needle Size
Typical adult (≥13 years)	12 or 14 gauge, **minimum 2.5 inch** (6.4 cm)
Child (<13 years)	14 or 16 gauge, **1.5 inch** (3.8 cm) needle

Neonate: Second intercostal space mid-clavicular line and/or 4th intercostal anterior axillary site can be used with a 18g or 20g



Traumatic Hemorrhage Medical Directive-Auxiliary

Indications

Suspected hemorrhage (external or internal) due to trauma

AND

Hemodynamic instability

Clinical Parameters

TXA Indications:

- AGE ≥ 16 years
- LOA N/A
- HR N/A
- RR N/A
- SBP N/A
- Other HR ≥ 110 BPM **or** Hypotensive

TXA Contraindications:

- Known hypersensitivity to TXA
- Greater than 3 hours from the time of injury to drug administration **OR unknown time of injury**
- Isolated head injury

Adult Doses (≥ 16 years)			
Initial Dose	**Max. Single Dose**	**Repeat**	**Max # of dose**
IV/IM **1000mg**	1000mg **IV route should be administered over 5 minutes to mitigate transient hypotension**	N/A	1 dose

Space for Notes:

CBRNE Medical Directives

Adult Nerve Agent- AUXILIARY CHEMICAL EXPOSURE

Indications

Exposure to a known or suspected nerve agent;
AND
Signs and symptoms of a cholinergic crisis.

Clinical Parameters

Atropine, diazePAM, midazolam, and Pralidoxime

- AGE ≥ 18 years
- LOA N/A
- HR N/A
- RR N/A
- SBP N/A
- Other Suspected cholinergic crisis

Moderate Exposure

- Any one of the following: vomiting, diarrhea, bronchospasm or bronchial secretions, shortness of breath or any known liquid exposure

Severe Exposure

- Signs and Symptoms of a moderate exposure and any one of the following: decreased LOA, paralysis, seizure or apnea

Contraindications:

Atropine: Allergy or sensitivity to atropine
Pralidoxime: Allergy or sensitivity to Pralidoxime
DiazePAM: Allergy or sensitivity to DiazePAM:
Midazolam: Allergy or sensitivity to midazolam

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Atropine **IM Moderate Exposure**	2mg	N/A	5 min.	n/a

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Atropine **IM Severe Exposure**	6mg	N/A	5 min.	n/a

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Pralidoxime IM Moderate Exposure	600mg	3	15 min.	3

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Pralidoxime IM Severe Exposure	1800mg	2	60 min.	2

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
diazePAM **IM Moderate Exposure**	10mg	N/A	NO	1

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Midazolam **IM Moderate Exposure**	10mg	2	5 minutes	2

Pediatric Nerve Agent- AUXILIARY CHEMICAL EXPOSURE

Indications

Exposure to a known or suspected nerve agent;
AND
Signs and symptoms of a cholinergic crisis.

Clinical Parameters

Atropine, diazePAM, midazolam, and Pralidoxime

- AGE < 18 years
- LOA N/A
- HR N/A
- RR N/A
- SBP N/A
- Other Suspected cholinergic crisis

Moderate Exposure

- Any one of the following: vomiting, diarrhea, bronchospasm or bronchial secretions, shortness of breath or any known liquid exposure

Severe Exposure

- Signs and Symptoms of a moderate exposure and any one of the following: decreased LOA, paralysis, seizure or apnea

Contraindications:

Atropine: Allergy or sensitivity to atropine
Pralidoxime: Allergy or sensitivity to Pralidoxime
DiazePAM: Allergy or sensitivity to DiazePAM:
Midazolam: Allergy or sensitivity to midazolam

Adult Dose (≥ 18 years of age)				
Medication	**Initial Dose**	**Q**	**Repeat**	**Max doses**
Pralidoxime IM Severe Exposure	1800mg	2	60 min.	2

Atropine

Weight Category	Exposure Severity	Route	Initial Dose	Max. Single Dose	Repeat	Max # of Dose
< 10 kg	Moderate/ Severe	IM	0.5 mg	0.5 mg	q5 min	Not specified
10 kg to < 40 kg	Moderate/ Severe	IM	1 mg	1 mg	q5 min	Not specified
≥ 40 kg	Moderate	IM	2 mg	2 mg	q5 min	Not specified
≥ 40 kg	Severe	IM	6 mg	6 mg	q5 min	Not specified

Pralidoxime

Weight Category	Exposure Severity	Route	Dose	Max. Single Dose	Dosing Interval	Max. # of Doses
< 40 kg	Moderate	IM	15 mg/kg	600 mg	15 min.	3
< 40 kg	Severe	IM	45 mg/kg	600 mg	60 min.	2
≥ 40 kg	Moderate	IM	600 mg	600 mg	15 min.	3
≥ 40 kg	Severe	IM	1800 mg	1800 mg	60 min.	2

Medication	Weight Category	Route	Dose	Max. Single Dose	Dosing Interval	Max. # of Doses
diazePAM	< 50 kg	IM	0.2 mg/kg	10 mg	N/A	1
diazePAM	≥ 50 kg	IM	10 mg	10 mg	N/A	1
midazolam (if not using diazePAM)	< 50 kg	IM	0.2 mg/kg	10 mg	5 min.	2
midazolam (if not using diazePAM)	≥ 50 kg	IM	10 mg	10 mg	5 min.	2

Cyanide Exposure- AUXILIARY CHEMICAL EXPOSURE

Indications

Suspected exposure to cyanide with signs and symptoms of poisoning

AND

Cardiac arrest; or

Altered level of awareness; OR

Hypotension

Clinical Parameters

- Altered LOA
- No allergies or sensitivity to any medication considered

Adult Dose (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
Hydroxocobalamin IV/IO/CVAD	5g over 15 – 30 min	N/A	N/A	1 dose

Pediatric Doses

Medication	Initial Dose	Q	Repeat	Max doses
Hydroxocobalamin IV/IO/CVAD	70 mg/kg over 30 min Max single dose of 5 g	N/A	N/A	1 dose

Hydroxocobalamin Dosing Chart – Pediatric

Weight (kg)	Dose	Concentration	Volume
5	350mg/kg	25 mg/ml	14 ml
10	700mg	25 mg/ml	28 ml
15	1050mg	25 mg/ml	42 ml
20	1400mg	25 mg/ml	56 ml
25	1750mg	25 mg/ml	70 ml
30	2100mg	25 mg/ml	84 ml
35	2450mg	25 mg/ml	98 ml
40	2800	25 mg/ml	112 ml
≥41	5g	25 mg/ml	200ml

A Spot for your Notes:

Hydrofluoric (HF) Acid Exposure- AUXILIARY CHEMICAL EXPOSURE

Indications

Exposure to vapour and/or liquid Hydrofluoric acid (HF) **AND**

Exhibits signs and symptoms of HF poisoning

Clinical Parameters

- No allergy or sensitivity to any medication considered

All doses

Medication	Initial Dose	Q	Repeat	Max doses
Calcium Gluconate (10% solution) Inhalation exposure NEB	100 mg	N/A	N/A	1 dose
Calcium Gluconate (2.5% gel) Skin exposure TOP	N/A	N/A	PRN	N/A
Anaesthetic Eye Drops TOP	2 gtts/eye	10 min	2 gtts/eye	N/A

Symptomatic Riot Agent Exposure Medical Directive – AUXILIARY CHEMICAL EXPOSURE

Indications

Known or suspected exposure to a riot agent with signs and symptoms of a riot agent exposure

Clinical Parameters

Topical Anaesthetic eye drops

Contraindications:
Allergy or sensitivity to local anaesthetics

All doses

Medication	Initial Dose	Q	Repeat	Max doses
Anaesthetic Eye Drops TOP	2 gtts/eye	10 min	2 gtts/eye	N/A

A Spot for your Notes:

Special Event Medical Directives

Indications Headache (Special Events Only)

Uncomplicated headache conforming to the patient's usual pattern **AND** A mass gathering that could potentially strain the resources of the host community **AND** The special event directive has been authorized for use by the Medical Director for a specific mass gathering.

Clinical Parameters

- ≥ 18 years old
- Unaltered LOA
- No allergy or sensitivity to Acetaminophen
- No Acetaminophen in the last 4 hours
- No signs or symptoms of intoxication

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
Acetaminophen PO	325 – 650 mg	N/A	N/A	1 dose

Minor Abrasion (Special Events Only)

Indications

Minor abrasions **AND** A mass gathering that could potentially strain the resources of the host community **AND** The special event directive has been authorized for use by the Medical Director for a specific mass gathering.

Clinical Parameters

- ≥ 18 years old
- Unaltered LOA
- No allergy or sensitivity to topical antibiotics

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
Topical Antibiotic	N/A	N/A	N/A	1 dose

Minor Allergic Reaction (Special Events Only)

Indications

Signs consistent with minor allergic reaction **AND** A mass gathering that could potentially strain the resources of the host community **AND** The special event directive has been authorized for use by the Medical Director for a specific mass gathering.

Clinical Parameters

- ≥ 18 years old
- Unaltered LOA
- SBP ≥ 100 mmHg (and other vital signs within normal limits)
- No allergy or sensitivity to DiphenhydrAMINE
- No antihistamine or sedative use in the previous 4 hours
- No signs or symptoms of a moderate to severe allergic reaction
- No signs or symptoms of intoxication
- No wheezing

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
DiphenhydrAMINE PO	50 mg	N/A	N/A	1 dose

Musculoskeletal Pain (Special Events Only)

Indications

Signs consistent with minor allergic reaction **AND** A mass gathering that could potentially strain the resources of the host community **AND** The special event directive has been authorized for use by the Medical Director for a specific mass gathering.

Adult Doses (≥ 18 years of age)

Medication	Initial Dose	Q	Repeat	Max doses
Acetaminophen PO	325 – 650 mg	N/A	N/A	1 dose

Clinical Parameters

- ≥ 18 years old
- Unaltered LOA
- No allergy or sensitivity to Acetaminophen
- No Acetaminophen use in the previous 4 hours
- No signs or symptoms of intoxication

Notes:

The Special Event Medical Directives are in force when they have been preauthorized for use by the Medical Director.

Special Event: a preplanned gathering with potentially large numbers of people.

Consider release from care.

Advise patient that if the problem persists or worsens that they should seek further medical attention.

Palliative Care Medical Directives

Palliative Care - PAIN OR DYSPNEA

Indications

Patient registered in palliative care program, **AND**

Uncontrolled pain or dyspnea, **OR** Uncontrolled dyspnea with suspected bronchoconstriction

Clinical Parameters

Morphine:

- No Allergy
- ≥ 18 years old

Hydromorphone:

- No Allergy
- ≥ 18 years old

Salbutamol:

- No Allergy
- ≥ 18 years old
- Only for dyspnea with suspected bronchoconstriction

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max doses
Morphine SC / IV / CVAD	2-10 mg	10 mg	15 min	Same as initial	4 doses
Hydromorphone SC / IV / CVAD	0.5-2 mg	2 mg	15 min	Same as initial	4 doses
Salbutamol MDI	800 mcg (8 puffs)	800 mcg (8 puffs)	5-15 min	Same as initial	3 doses
Salbutamol NEB	5 mg	5 mg	5-15 min	Same as initial	3 doses

Notes:

If orders are available for the patient, either Morphine or Hydromorphone may be administered within the range specified above per the emergency orders. Any dose outside the range specified must be confirmed by a Base Hospital Physician prior to administration.

If there are no orders available or patients are opioid naive, the lower range 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 opioid 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 to bronchoconstriction.

Palliative Care - HALLUCINATIONS OR AGITATION

Indications

Patient registered in palliative care program
AND
Increasing agitation or suspected new or increased hallucinations

Clinical Parameters

Haloperidol:

- ≥ 18
- No allergy to haloperidol
- Does not have Parkinson's or Lewy Body Dementia
- Does not have Neuroleptic Malignant Syndrome

Midazolam

- ≥ 18
- No allergy to Midazolam

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max doses
Haloperidol SC / IV / CVAD	0.5-1 mg	1 mg	30 min	Same as initial	2 doses

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max doses
Midazolam SC / IV / CVAD	0.5-2 mg	2 mg	30 min	Same as initial	2 doses

Palliative Care - NAUSEA OR VOMITING

Indications

Patient registered in palliative care program
AND
Nausea and/or vomiting

Clinical Parameters

Haloperidol:
- ≥ 18 years old
- No allergy or sensitivity
- Does not have Parkinson's or Lewy Body Dementia
- Does not have Neuroleptic Malignant Syndrome

Ondansetron:
- ≥ 18 years old
- No allergy or sensitivity
- Haloperidol contraindicated

DimenhyDRINATE:
- ≥ 18 years old
- No allergy or sensitivity
- Haloperidol contraindicated
- No overdose on antihistamines, anticholinergics or tricyclic antidepressants

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max doses
Haloperidol SC / IV / CVAD	0.5-1 mg	1 mg	30 min	Same as initial	2 doses
Ondansetron PO / SC / IV / CVAD	4 mg	4 mg	N/A	N/A	1 dose
DimenhyDRINATE SC / IV / CVAD	25-50 mg	50 mg	N/A	N/A	1 dose

Palliative Care - TERMINAL CONGESTED BREATHING

Indications

Patient registered in palliative care program

AND

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

Clinical Parameters

Glycopyrrolate:

- ≥ 18 years old
- No allergy or sensitivity

Atropine

- ≥ 18 years old
- No allergy or sensitivity

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max
Glycopyrrolate SC / IV / CVAD	0.4 mg	0.4 mg	N/A	N/A	1 dose

Adult doses

Medication	Dose	Max single dose	Q	Repeat	Max
Atropine SC / IV / CVAD	0.4 mg	0.4 mg	N/A	N/A	1 dose

Palliative Care - TREAT AND REFER

Indications

Patient registered in palliative care program, **AND**
Symptoms improved to patients/SDM satisfaction, **AND**
After informed discussion patient/SDM preference to remain home

Clinical Parameters

- ≥ 18
- Valid DNR: registered in Paramedic Palliative Care Program
- No concerns of patient abuse or neglect
- Patient and SDM demonstrate decision making capacity based on the Aid to Capacity Evaluation Tool
- No uncontrolled or new seizures

Treat and Refer

Paramedics may 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 patients palliative care team. `

ADDITIONAL NOTES:

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