2018

CONFIDENTIAL

MEDICAL DIRECTIVES

SUPERIOR EMS

INTRODUCTION

CREDITS

Editor and Project Manager
Mitchell Roberts - Paramedic Student

ACKNOWLEDGEMENTS

Superior EMS would like to acknowledge the employees, and medical staff who took the time to provide us with their feedback and suggestions to enhance patient care through an evidence based approach. Your contributions were integral in the development of this protocol manual.

Superior EMS would also like to acknowledge the Ministry of Health and Long-Term Care for the publication of the ALS standards in which these directives have been based upon.

LEVELS OF CERTIFICATION

At Superior EMS there are three levels of occupational paramedics that we employ including: Emergency Medical Responders (EMR), Primary Care Paramedics (PCP), and Advanced Life Support / Advanced Care Paramedics (ALS/ACP). Based on the level of certification, there are a number of controlled acts that are delegated within these medical directives.

A Superior EMS employee may be authorized by the medical director of the company to perform controlled acts within their level of training, prescribed scope of practice, and within the medical directives authorized.

PURPOSE OF THE DIRECTIVES

The purpose of these medical directives is to guide the specific expectations of patient care within the scope of practice of our staff. This will ensure that our staff deliver a standard of care within the prescribed delegation.

These directives:

- Reflect current practices for emergency medical services within the province
- communicate the standards of practice for Superior EMS
- communicates the standards of practice of Superior EMS to allied agencies
- delineates the professional responsibilities and accountabilities
- provides the scope of practice for delighted medical acts

USE OF DIRECTIVES

These medical directives apply to Superior EMS staff who provide patient care under the authority and licensing of the medical directors. Delegation of controlled acts or medical directives to staff fall under the exclusive oversight of Superior EMS medical directors.

The medical directives are designed for use by staff in the provision of timely and appropriate patient care in a pre-hospital setting in accordance with their training and skill set.

SUPERIOR EMS COMPLIANCE

As a licensed physician within the Province of Ontario, the Superior EMS Medical Director must comply with the policies of the College of Physicians and Surgeons of Ontario (CPSO). CPSO policy #4-03, as may be amended from time to time, provides direction to Ontario physicians on the delegation of controlled acts, regardless of practice setting or type. Additionally as a licensed nurse practitioner in the Province of Ontario,the Superior EMS Medical Director must comply with the policies of the College of Nurses of Ontario (CNO). CNO practice standard "nurse practitioner", and "medications" as may be amended from time to time, provides direction to Ontario nurse practitioners on the delegation of controlled acts, regardless of practice setting or type. Superior EMS will also follow parallel processes of delegation of other advanced procedures included in these directives.

GENERAL STRUCTURE OF A MEDICAL DIRECTIVE

All medical directives follow the same format and are comprised of the following sections:

Indication: The general medical complaint or problem to which the directive applies

Conditions: Clinical parameters that must be present for a procedure to be performed or a drug administered

Contraindications: Clinical parameters that if present, preclude the performance of a procedure or drug administration

Treatment: Description of the drug or procedures to be performed

Clinical Considerations: Key clinical points to provide general guidance to the proper performance of a procedure or drug administration

CONSENT TO TREATMENT & CAPACITY ASSESSMENT

Except in emergency circumstances described below, Superior EMS Staff must obtain the patient's consent prior to initiating treatment. Consent may be informed or implied. Informed consent may be either verbal or written. Implied consent may be assumed where a person provides a physical indication that they consent to the treatment. For example, a patient who cannot speak but extends his hand to a staff member after the staff member indicates she is going to perform a simple procedure, such as a blood glucose determination may be giving implied consent to the procedure.

The elements required for consent to treatment are:

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

Consent to treatment is informed if, before it is given to the person, he or she has:
received the following information that a reasonable person in the same circumstances would require in order to make a decision about the treatment:

- the nature of the treatment,
- the expected benefits of the treatment,
- the material risks of the treatment,
- the material side effects of the treatment,
- alternative courses of action,
- the likely consequences of not having the treatment; and
- received responses to his or her requests for additional information about those matters.

The Superior EMS employee who proposes a treatment to a person shall ensure that consent is obtained. 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. However, a capacity assessment may be required 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 Superior EMS employee is aware or is made aware that the person has a prior capable wish with respect to treatment, they must respect that wish (for example, if the person does not wish to be resuscitated).

If a person is incapable with respect to a treatment, consent may be given or refused on his or her behalf by a person who is authorized to do so under section 20 of the Health Care Consent Act, 1996.

In some instances, a person may present in an emergency situation where the person for whom the treatment is proposed is apparently experiencing severe suffering or is at risk, if the treatment is not administered promptly, of sustaining serious bodily harm.

A Superior EMS employee may administer treatment to a person without consent in an emergency situation, if there is no other authorized person available to give or refuse consent and, in the opinion of the Superior EMS Employee:

- the person is not capable of giving a consent or refusal to treatment; and
- the delay required to obtain a consent or refusal on the person's behalf will prolong the suffering that the person is apparently experiencing or will put the person at risk of sustaining serious bodily harm.

REFUSAL OF TREATMENT

If the patient refuses care, either in whole or in part, the Superior EMS employee must comply with the applicable directions contained in the general policies of patient care for Superior EMS regarding refusal oft treatment.

PATCHING

A Superior EMS employee should make communication with the medical director:

- When a medical directive contains a mandatory patch point;
- For situations that fall outside the medical directives where the employee believes the patient would benefit from online medical direction that falls within the staff members scope of practice.
- When there is uncertainty about the appropriateness of the medical directive, either in whole or in part.

In the Event you require a patch for performing a specific procedure, please follow the directive below:

Cell: 705-253-3301 option 4

PROCEDURE:

1. Attempt by cell phone to a maximum of 2 times
2. If unable to contact by cell phone, attempt by pager 1 time
3. If unable to reach medical director, refer to directives

SELF REPORT:

If a procedure is completed out of protocol, without BHP order, or if you are unable to achieve a successful patch, please complete a self-report. It equates to professionalism by taking responsibility for one's own practice and is a form of education through self-remediation.

Include:

1. Name and ID
2. Date and time
3. Vehicle number
4. Location
5. A brief description of the occurrence
6. Interventions performed and rationale.
7. Contact information.

INCIDENT REPORTING

Superior EMS employees shall follow incident reporting policies per the operational policies of the company, and shall adhere to policies related to reporting errors and incidents to the medical directors.

CONTROLLED SUBSTANCES

Where applicable, Superior EMS and its staff shall comply with the Canada Controlled Drug and Substances Act, SC 1996, c 19 and its Regulations, in accordance with company policy. This shall include that controlled substances (opiates and benzodiazepines) are stored in different carrying cases than other medications.

AGES AND VITAL SIGNS

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

ADULTS

Normotensive - SBP >= 100mmHg
Hypotensive - SBP <90mmHg
Bradycardia - <50 BPM
Tachycardia - >= 100 BPM
Tachypnea - RR > 28 breath/

Hypoglycemia - Age 2 >= - 4.00mmoL
- Age 2 < - 3.00mmoL

PAEDIATRICS

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 years	20 - 30	75 - 130
6 years	16 - 24	70 - 110
10 years	14 - 20	60 - 90

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

Level of Awareness (LOA/LOC): The word 'altered' refers to a GCS that is less than normal for the patient
The word 'unaltered' refers to a GCS normal to the patient (this may be <15)

SCOPE OF PRACTICE

Medication	EMR	PCP	ALS/ACP
Adenosine	✗	✗	✓
ASA	✓	✓	✓
Atropine	✗	✗	✓
Dextrose (D50W)	✗	✓	✓
Dimenhydrinate (Gravol)	Oral	✓	✓
Diphenydramine (Benadryl)	Oral	✓	✓
Epinephrine 1:1000	✓	✓	✓
Epinephrine 1:10,000	✗	✗	✓
Ketorolac	✗	✓	✓
Naloxone	✓	✓	✓
Salbutamol	MDI ONLY ✓	✓	✓
Sodium Bicarbonate	✗	✗	✓
Acetaminophen / Ibuprofen	✓	✓	✓
Morphine	✗	✓	✓
Nitroglycerine	Pts. Own	✓	✓
Vasopressin	✗	✗	✓
Triple Antibiotic Ointment	✓	✓	✓

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AUTHORITY

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Medical Directive Approval

Date of Approval: 1 Jan 2018
Date of Expiry: 31 Dec 2021

Directive Approvals:

- Medical Cardiac Arrest
- Return of Spontaneous Circulation
- Cardiac Ischemia
- Congestive Heart Failure
- Hypoglycemia
- Bronchoconstriction
- Severe Bronchoconstriction
- Croup
- Mild/Moderate Anaphylaxis
- Moderate to Severe Allergic Reaction
- Nausea/Vomiting
- Intravenous
- Pain Management
- Analgesia for Trauma
- ACLS Cardiac Arrest Management
- Interosseous Access
- Supraglottic Airway
- Opioid Toxicity

The undersigned health care provider agrees:

- With the content of the directive and that it is an intervention that can be implemented safely and effectively given the criteria in the field as understood by the healthcare provider.
- That all employees must complete the required symptom relief course, testing and evaluation related to the directives prior to safely following the directives.
- That all employees must satisfactorily pass the symptom relief examination and complete ongoing continuing education to meet the requirements of the directives.
- All employees will document or communicate when a directive has been implemented.
- Approve the medical directives above.

PETTENUZZO, Allison		1 Jan 2018
MANCUSO, Tyler		1 Jan 2018

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TABLE OF DIRECTIVES

CORE MEDICAL DIRECTIVES

ADVANCED MEDICAL DIRECTIVES

CARDIAC ARREST

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Indications

Non–traumatic cardiac arrest.

Conditions

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

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

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

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

Medical TOR
AGE: ≥18 years
LOA: Altered
HR: N/A
RR: N/A
SBP: N/A
Other: Arrest not witnessed by EMS or firefighter, **AND** no ROSC **AND** No shocks delivered.

Contraindications

CPR
Obviously dead as per BLS standards
Meet conditions of DNR

AED Defibrillation
Non-shockable rhythm

Manual Defibrillation
Rhythms other than VF or pulseless VT

Epinephrine
Allergy or sensitivity to epinephrine.

Medical TOR
Arrest thought to be of non-cardiac origin.

Treatment

1. Asses vital signs, respond accordingly
   2. Activate EMS
   3. If VSA, establish airway, begin CPR immediately
      a. Continue with a 30:2 ratio for 2 minutes while ventilating at a rate of 12 bpm.
      b. Attach AED/SAED use, analyze rhythm, and follows instructions, **Stand Clear.**
      c. If shock advised, deliver shock and resume CPR. If trained, utilize advanced airway after first shock.
      d. If no shock advised, resume and continue CPR until next rhythm interpret.
      e. Cycle steps a - d and e accordingly

Consider AED Defibrillation			
	Age ≥30 days to <8 years		Age ≥8years
	With Ped. attenuator	With Ped. attenuator	
Dose	1 Shock	1 Shock	1 shock
Max. Single dose	As per BH / manufacturer	As per BH / manufacturer	As per BH / manufacturer
Dosing Interval	2 min.	2 min.	2 min.
Max# of doses	4	4	4

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

Consider Epinephrine (only if anaphylaxis suspected as causative event):	
Dose may be rounded to the nearest 0.05 mg	Weight: N/A
	Route: IM
	Concentration: 1:1000
Dose	0.01 mg/kg
Max. Single dose	0.5 mg
Dosing interval	N/A
Max # of doses	1

RETURN OF SPONTANEOUS CIRCULATION

✗ - EMR
✓ - PCP
✓ - ALS/ACP

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

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

Conditions

0.9% NaCl Fluid Bolus	Therapeutic Hypothermia
AGE: N/A	AGE: Males ≥18 years Females ≥ 50 years
LOA: N/A	LOA: Altered
HR: N/A	HR: N/A
RR: N/A	RR: N/A
SBP: Hypotension	SBP: ≥90 mmHg (spontaneous or following bolus administration)
Other: Chest auscultation is clear	Other: N/A

Contraindications

0.9% NaCl Fluid Bolus	Therapeutic Hypothermia
Fluid overload SBP ≥90 mmHg	Traumatic cardiac arrest (blunt, penetrating or burn). Sepsis or serious infection suspected to cause of arrest. Hypothermic arrest. Known coagulopathy.

Treatment

Consider ventilation and oxygenation:
Titrate oxygenation ≥94%
Avoid hyperventilation and target ETCO2 of 34-40 mmHg with continuous waveform capnography (if available).

Consider **0.9% NaCl fluid bolus** (if certified and authorized)		
Consider **12 lead**	**Age**: < 12 years	**Age**: ≥ 12 years
	Route: IV	Route: IV
Interval	10 ml/kg	10 ml/kg
Infusion interval	Immediate	Immediate
Reassess every	100 ml	250 ml
Max. Volume	1000ml	1000 ml

CARDIAC ISCHEMIA

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Suspected Cardiac Ischemia

Conditions

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

Nitroglycerine	
AGE:	≥18 years
LOA:	unaltered
HR:	60 – 159 bpm
RR:	N/A
SBP:	normotensive
Other:	Prior history of nitro use **OR** IV access obtained

Morphine	
AGE:	≥18 years
LOA:	Unaltered
HR:	N/A
RR:	RR
SBP:	Normotension
Other:	N/A

Contraindications

ASA

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

Nitroglycerine

- Allergy or sensitivity to nitrates.
- Phospodiesterase inhibitor use in previous 48 hours.
- - SBP drops by one-third or more of its initial value after administration of nitro.
- - 12-lead ECG compatible with right ventricular infarct.
- Use of ED medications within last 48 hrs.

Morphine

- Allergy or sensitivity to morphine
- Injury to the head, chest, abdomen, or pelvis
- SPB drops by more than one-third of its initial value after administration.

Treatment

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

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1.Ensure a patent airway; administer 100% Oxygen and document vital signs Initiate
2. Pulse Oximetry, cardiac monitoring and record a 10 second strip.
3. Administer ASA 80 mg (2) tablets PO. Instruct patient to chew and swallow.

Consider Nitroglycerine:		
	No STEMI	STEMI
	SBP: ≥100 mmHg	SBP: ≥100 mmHg
	Route: SL	Route: SL
Dose	0.3 or 0.4 mg	0.3 or 0.4 mg
Max single dose	0.4 mg	0.4 mg
Dosing interval	5 min	5 min
Max # of doses	6	3

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

4. Administer NTG 0.4 mg SL every 5 minutes as required for "chest pain" to a maximum of 6 doses.
   - **EMR** may administer "patients own" medication only without paramedic direction
5. Establish IV in right or left anticubital fossa to monitor BP accordingly PRN.

Notes:
- Caution when administering ASA or Nitro to Pregnant patients
- If chest pain ends and then reoccurs, staff may reinitiate the directive for NTG

CONGESTIVE HEART FAILURE

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Moderate to severe respiratory distress AND suspected acute cardiogenic pulmonary edema

Conditions

Nitroglycerine	
AGE:	≥18 years
LOA:	unaltered
HR:	60 – 159 bpm
RR:	N/A
SBP:	normotensive
Other:	Prior history of nitro use **OR** IV access obtained

Contraindications

Nitroglycerine

- Allergy or sensitivity to nitrates.
- Phospodiesterase inhibitor use in previous 48 hours.
- - SBP drops by one-third or more of its initial value after administration of nitro.
- - 12-lead ECG compatible with right ventricular infarct.
- Use of ED medications within last 48 hrs.

Treatment

1. Scene safety
2. Ensure a patent airway, administer 100% Oxygen and document vital signs.
3. Initiate Pulse oximetry, cardiac monitoring and record a 10 second strip.
4. Administer Nitroglycerine 0.4 mg SL every 5 minutes as required for "difficulty breating" to a maximum of 6 doses.
5. Establish IV in right or left anticubital fossa and monitor/ manage BP accordingly.

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

HYPOGLYCEMIA

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Agitation OR altered LOA OR symptoms of a stroke.

Conditions

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

Contraindications

Dextrose
- Allergy or sensitivity to dextrose

Treatment

If pt. responds to dextrose or glucose, he/ she may receive oral glucose or other simple carbs.	Medication: Dextrose
	Age: ≥2 years
	Weight: N/A
	Concentration: D50W
	Route: IV
Dose	0.5 g/kg (1 ml/kg)
Max single dose	25 g (50 ml)
Dosing interval	10 min.
Max # of doses	2

Oral Glucose:

1. Administer 100% oxygen PRN and document vital signs.
2. Attain blood glucometry
3. If only minimal signs and symptoms exhibited,
   a. Suggest patient consumes simple Carbs or drink a glass of orange juice.
   b. Provide Pt. with tube of oral glucose, instruct Pt. how to use and witness the Pt. using at least 1/3 of product.

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Dextrose:

1. Administer 100% Oxygen PRN and document vital signs.
2. Attain blood glucometry
3. Initiate IV
4. Administer Dextrose ate dose of 0.5 g/kg (1mL/kg) to a max of 50 mL
5. May repeat a second dose at 10 min intervals to a maximum of 2 doses if needed.

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Notes:

- Only glucose should be used for patients under the age of 2 years for hypoglycemia.
- Norm blood sugar range is 3.6 – 6.3. Treat fewer than 4.0 with S&S. and altered LOA.

BRONCHOCONSTRICTION

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Respiratory distress And suspected bronchoconstriction.

Conditions

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

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

Epinephrine Autoinjector
AGE: N/A
Weight: ≥10 kg
LOA: N/A
HR: N/A
RR: BVM ventilations required
SBP: N/A
Other: Hx of asthma

Contraindications

Salbutamol
Allergy or sensitivity to salbutamol

Epinephrine
Allergy or sensitivity to Epinephrine.

Epinephrine Autoinjector
Allergy or sensitivity to epinephrine.

Treatment

Consider Salbutamol:				
	Weight: <25 kg		Weight ≥25 kg	
	Route: MDI*	Route: NEB	Route: MDI*	Route: NEB
Dose	Up to 600 mcg (6 puffs)	2.5 mg	Up to 800 mcg (8 puffs)	5 mg
Max single dose	600 mcg	2.5 mg	800 mcg	5 mg
Dosing interval	5 – 15 min. PRN	5 – 15 min. PRN	5 – 15 min. PRN	5 – 15 min. PRN
Max # of doses	3	3	3	3
1puff = 100 mcg				

Consider Epinephrine:			
	Weight: N/A	Weight: ≥10 kg to <25 kg	Weight: ≥25 kg
	Route: IM	Route: Pediatric Autoinjector	Route: Adult Autoinjector
	Concentration: 1:1000	Concentration: 1:1000	Concentration: 1:1000
Dose	0.01 mg/kg**	1 injection (0.15 mg)	1 injection (0.3 mg)
Max single dose	0.5 mg	1 injection	1 injection
Dosing interval	N/A	N/A	N/A
Max # of doses	1	1	1

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1. Scene safety
2. Ensure a patent airway; administer 100% Oxygen and document vital signs.
3. Administer salbutamol (Ventolin)
   a. Administer via MDI and spacer (1 puff = 100 mcg). Up to a total of 8 puffs, each puff followed by 4 full breaths or;
   b. Administer salbutamol via NEB with oxygen at 6-8 lpm (5 mg).
4. If symptoms do not resolve, notify EMS.
5. Should symptoms remain after initial dose, immediately repeat dose to a maximum of 3 doses and give 100% oxygen until EMS arrive.

SEVERE BRONCHOCONSTRICTION

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Patients who present with a complaint of SOB and exhibits severe respiratory distress AND requires ventilator support with BVM.

Conditions

Epinephrine	
AGE:	N/A
Weight:	N/A
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	only for use of anaphylaxis

Epinephrine Autoinjector	
AGE:	N/A
Weight:	≥10 kg
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	For anaphylaxis only

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

Contraindications

Epinephrine
Allergy or sensitivity to epinephrine

Epinephrine Autoinjector
Allergy or sensitivity to epinephrine

Diphenhydramine
Allergy or sensitivity to diphenhydramine.

Treatment

Consider **Diphenhydramine** (if certified and authorized).				
	Weight: ≥25 kg to <50 kg		Weight 50 kg >	
	Route: IV	**Route:** IM	**Route:** IV	**Route:** IM
Dose	25 mg	25 mg	50 mg	50 mg
Max. Single dose	25 mg	25 mg	50 mg	50 mg
Dosing interval	N/A	N/A	N/A	N/A
Max # of doses	1	1	1	1

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1. Scene safety
2. Ensure the airway is patent, administer 100% Oxygen via BVM, initiate cardiac monitoring and SPO2.
3. Administering epinephrine (1:1000) IM 0.01 mg/kg to a maximum of 0.5 mg

Notes:

- A PCP/ALS/ACP may administer a maximum of 2 doses of epinephrine, and those doses are independent of any administered prior to arrival.
- Salbutamol is to be used as per the Bronchoconstriction Medical Directive in conjunction with epinephrine for treatment of severe asthma.

CROUP

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Severe respiratory distress AND stridor at rest AND current history of URTI AND barking cough
OR recent history of a barking cough.

Conditions

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

Contraindications

Epinephrine
Allergy or sensitivity to Epinephrine

Treatment

1. Scene Safety.
2. Ensure a patent airway; administer 100% Oxygen and document vital signs.
3. Administer Epinephrine (1:1000) via nebulizer with oxygen at 6-8 lpm to a maximum of 1dose:
   a. For patients less than one year old and less than 5 kg, nebulize 0.5 mg
   b. For patients less than one year old and greater than 5 kg, nebulize 1 mg
   c. For patients from one to eight years old, nebulize 5 mg
4. Notify EMS and provide 100% oxygen until arrival.

Consider Epinephrine	Age: <1 year		Age: ≥1 year to 8 years
	Weight: <5 kg	Weight: ≥5 kg	Weight: N/A
	Route: NEB	Route: NEB	Route: NEB
	Concentration: 1:1000	Concentration: 1:1000	Concentration: 1:1000
Dose	0.5 mg	2.5 mg	5 mg
Max single dose	0.5 mg	2.5 mg	5 mg
Dosing interval	N/A	N/A	N/A
Max # of doses	1	1	1

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

MILD/MODERATE ALLERGIC REACTION

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Exposure to a probable allergen AND signs and symptoms of a mild to moderate anaphylactic reaction.

Conditions

Diphenhydramine

AGE: N/A
Weight: ≥25kg
LOA: N/A
HR: N/A
RR: N/A
SBP: N/A
Other: N/A

Contraindications

Diphenhydramine

Allergy or sensitivity to diphenhydramine.

Treatment

Consider **Diphenhydramine** (if certified and authorized)						
	Weight: ≥25 kg to <50 kg			**Weight:** ≥50		
	Route: IV	**Route:** IM	**Route:** PO	**Route:** IV	**Route:** IM	**Route:** PO
Dose	25 mg	25 mg	25 mg	50 mg	50 mg	50 mg
Max single dose	25 mg	25 mg	25 mg	50 mg	50 mg	50 mg
Dosing interval	N/A	N/A	N/A	N/A	N/A	N/A
Max # of doses	1	1	1	1	1	1

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1. Scene safety
2. Ensure patent airway, administer 100% oxygen, and document vital signs.
3. Monitor for relief and arrange for transport to hospital. In the event symptoms increase, consider treatment for severe anaphylactic reaction.
4. Consider Diphenhydramine as above
   - **EMR** may only administer oral route without paramedic supervision.

MODERATE/SEVERE ALLERGIC REACTION

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Exposure to a probable allergen AND S&S of moderate to severe allergic reaction (including anaphylaxis). Must have history of asthma.

Conditions

Epinephrine	Epinephrine Autoinjector	Diphenhydramine
AGE: N/A	AGE: N/A	AGE: N/A
Weight: N/A	Weight: ≥10 kg	Weight: ≥25kg
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: only for use of anaphylaxis	Other: For anaphylaxis only	Other: N/A

Contraindications

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

Treatment

Consider **Epinephrine**:			
	Weight: N/A	**Weight:** ≥10 kg to <25 kg	**Weight:** ≥25 kg
	Route: IM	**Route:** Pediatric Autoinjector	**Route:** Adult Autoinjector
	Concentration: 1:1000	**Concentration:** 1:1000	**Concentration:** 1:1000
Dose	0.01 mg/kg**	1 injection (0.15 mg)	1 injection (0.3 mg)
Max single dose	0.5 mg	1 injection	1 injection
Dosing interval	N/A	N/A	N/A
Max # of doses	1	1	1

Consider **Diphenhydramine** (if certified and authorized)						
	Weight: ≥25 kg to <50 kg			**Weight:** ≥50		
	Route: IV	**Route:** IM	**Route:** PO	**Route:** IV	**Route:** IM	**Route:** PO
Dose	25 mg	25 mg	25 mg	50 mg	50 mg	50 mg
Max single dose	25 mg	25 mg	25 mg	50 mg	50 mg	50 mg
Dosing interval	N/A	N/A	N/A	N/A	N/A	N/A
Max # of doses	1	1	1	1	1	1

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1. Scene safety
2. Activate EMS immediately.
3. Ensure the airway is patent; administer 100% Oxygen, and document vital signs.
4. Administer Epinephrine (1:1000) IM 0.01 mg/kg to a maximum of 0.5 mg
5. If the first dose does not indicate a significant improvement 10 minutes after administration, PCP/ALS/ACP can repeat the dosage of Epinephrine IM once to a max of 2 doses.

NAUSEA AND/OR VOMITING

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Nausea OR vomiting OR exposure to a probable allergin.

Conditions

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

Contraindications

Dimenhydrinate

- Allergy or sensitivity to Dimenhydrinate or other antihistamines.
- Overdose on antihistamines or anticholinergics or tricyclic antidepressants.

Treatment

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

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

1. Scene safety.
2. Administer 100% oxygen PRN and document vital signs.
3. Initiate cardiac monitoring and SPO2.
4. Initiate IV NS TKVO.
5. Dilute Dimenhydrinate 10:1 with NS prior to IV administration. If given IM do not dilute.
6. Advise patient that medication might sting.
7. If the patient is between 25 kg and 50 kg, give25 mg IV or IM. For Patients greater than 50 kg, administer 50 mg IV, IM, or PO. Route depends on speed required for symptom relief.
   - **EMR** may only administer oral route without paramedic supervision

INTRAVENOUS

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Actual or potential need for intravenous medication OR fluid therapy.

Conditions

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

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

Contraindications

IV
- Suspected fracture proximal to the access site

0.9% NaCl Fluid Bolus
- Signs of fluid overload

Treatment

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Consider 0.9% NaCl maintenance infusion:		
	Age: ≥2 years to <12 years	Age: ≥12 years
	Route: IV	Route: IV
Infusion	15 ml/hr	30-60 ml/hr
Infusion interval	N/A	N/A
Reassess every	N/A	N/A
Max volume*	N/A	N/A

- Mandatory BHP patch for authorization to administer IV bolus to a patient ≥2 years to <12 years with DKA**

Consider 0.9% NaCl fluid bolus:		
	Age: ≥2 years to <12 years	Age: ≥12 years
	Route: IV	Route: IV
Infusion	20 ml/kg	20 ml/kg
Infusion interval	Immediate	Immediate
Reassess every	100 ml	250 ml
Max volume*	20 ml/kg up to 2000 ml	2000 ml

Dehydration:

1. Initiate IV access utilizing an IV cannula in either left or right wrist or anticubital fossa.
2. Administer 1000 ml bolus of NaCl 0.9% or Ringers Lactate.
3. Arrange for transportation to the emergency department or contact medical director for further orders if symptoms subside.

Hypotension:

1. Initiate IV access utilizing an IV cannula in either left or right wrist or anticubital fossa.
2. Administer 2000 mL bolus of Normal Saline solution.
3. Arrange for transportation to the emergency department or contact medical director for further orders if symptoms subside.

Note:

- EMR's who are IV Certified may initiate IV TKVO, and may administer fluids under the direction of a BLS or ALS provider.

PAIN MANGEMENT

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

The patient must be suffering from musculoskeletal pain OR headache with no indication of head injury. (No Mechanism of Injury).

Conditions

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

Ibuprofen	
AGE:	≥18 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	for trauma: restricted to those with isolated pelvis or lower extremity injury.

Contraindications

Acetaminophen

- No acetaminophen within the last 4 hours.
- Allergy or sensitivity to acetaminophen or NSAIDS
- S&S of intoxication.
- Peptic ulcer disease.
- Acute or chronic bleeding risk.
- Head, chest, abdominal or pelvic injuries.

Ibuprofen

- NSAID or Ibuprofen use within 6 hours.
- Allergy or sensitivity.
- Pt. on anticoagulant therapy.
- Current active bleeding.
- Hx. of peptic ulcer or GI bleed.
- Pregnant.
- If Asthmatic, no prior use to of ASA or other NSAIDS
- CVA or TBA in last 24 hours.
- Renal impairment.

Treatment

Consider **Acetaminophen:**	
	Route: PO
Dose	500-1000 mg
Max single dose	1000 mg
Dosing interval	N/A
Max # of doses	1

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Consider **Ibuprofen:**	
	Route: PO
Dose	400 mg
Max single dose	400 mg
Dosing interval	N/A
Max # of doses.	1

MINOR ABRASIONS

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Minor Abrasions

Conditions

Topical Antibiotic

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

Contraindications

Topical Antibiotic

Allergy or sensitivity to any of the components of the topical antibiotic

Treatment

Consider Topical Antibiotic
Consider release from care.

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

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

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ANALGESIA FOR TRAUMA

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Pain due to traumatic injury.

Conditions

Ketorolac	
AGE:	≥18 years
LOA:	Unaltered
HR:	N/A
RR:	N/A
SBP:	Normotensive
Other:	For isolated hip or extremity trauma: restricted to those who are unable to tolerate oral medications.

Contraindications

- Allergies or sensitivity to the medications
- Hypersensitivity to ASA or NSAIDS.
- Head, chest, abdominal or pelvic injuries.
- Peptic ulcer disease
- Acute chronic bleeding risk.

Treatment

1. Establish IV access if possible.
2. Administer Ketorolac 60 mg IM, or 30 mg IV, one dose. (*If administering Ketorolac IV with NaCl).
3. Administer 10cc Flush of Saline post IV administration

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

Consider **Ketorolac:**		
	Route: IM	**Route:** IV
Dose	60 mg	20 mg
Max single dose	60 mg	30 mg
Dosing interval	N/A	N/A
Max # of doses.	1	1

Intentionally Left Blank

INTEROSSEOUS

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Actual or potential need for intravenous medication or fluid therapy AND IV access is unattainable AND cardiac arrest or near cardiac arrest state.

Conditions

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

IO: Ped.	
AGE:	<12 years
LOA:	N/A
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	N/A

Contraindications

Fracture of crush injury or suspected known replacement/prosthesis proximal to the access site.

Treatment

1. Prep site following aseptic technique.
2. Insert IO device following manufactures protocol.
   - EMR may only insert with supervision of a paramedic.

✓ *- EMR*
✓ *- PCP*
✓ *- ALS/ACP*

ADVANCED CARDIAC ARREST

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

PROTOCOLS

Providers will follow the current ACLS Algorithm's and be currently ACLS certified to administer the required medications.

Please see Superior EMS ACLS guidelines for specific algorithms.

OPIOID TOXICITY

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Altered LOC AND respiratory depression AND suspected opioid overdose for patients over 18.

Conditions

Naloxone	
AGE:	≥18 years
LOA:	Altered
HR:	N/A
RR:	<10
SBP:	N/A
Other:	N/A

Contraindications

Naloxone

- Allergy of sensitivity to naloxone
- Uncorrected hypoglycemia

Treatment

Consider Naloxone:				
	Route: SC	Route: IM	Route: IN	Route: IV
Dose	0.8 mg	0.8 mg	0.8 mg	Up to 0.4 mg
Max single dose	0.8 mg	0.8 mg	0.8 mg	0.4 mg
Dosing interval	10 min	10 min	10 min	Immediate
Max # of doses	3	3	3	3

✓ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

EMR may only administer SC, IM or IN without paramedic supervision

IV Route shoudl titrate the dose to ensure respiratory stability only.

SUPRAGLOTTIC AIRWAY

A provider may provide the treatment prescribed in this medical directive if certified and authorized.

Indications

Need for ventilatory assistance OR airway control AND Other airway management is inadequate OR ineffective OR unsuccessful.

Conditions

Supraglottic Airway	
AGE:	N/A
LOA:	GCS: 3
HR:	N/A
RR:	N/A
SBP:	N/A
Other:	Absent gag reflex.

Contraindications

Supraglottic Airway

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

Treatment

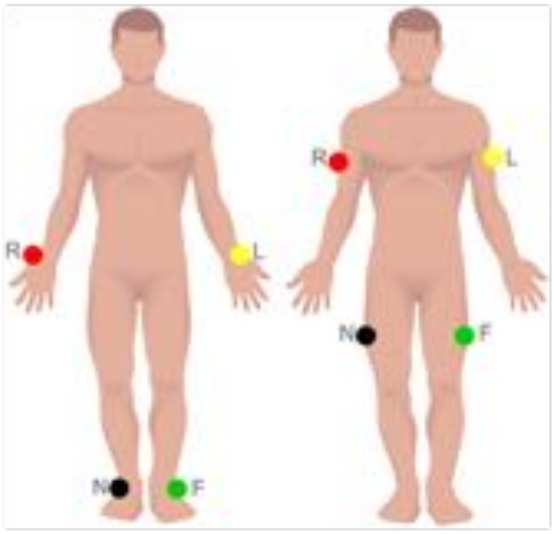
1. Attempt to insert supraglottic airway into the mouth as per manufacturers instruction.
2. Confirm placement through auscultation epigastric and chest rise and fall.
   Max attempts of placement = (2) times.

✗ - *EMR*
✓ - *PCP*
✓ - *ALS/ACP*

12 LEAD ECG PLACEMENT

Limb lead placement:

Whenever possible, avoid large muscle mass and Injured areas.



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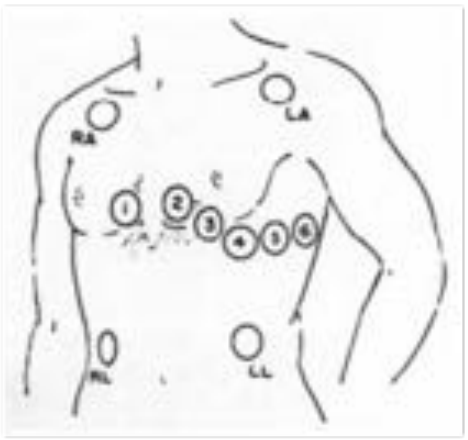


RA: Right forearm or wrist
RL: Right lower leg

LA: Left forearm or wrist
LL: Left lower leg

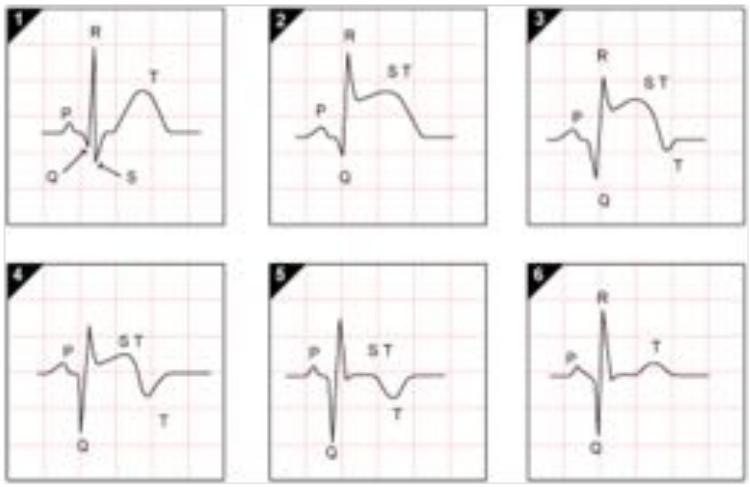
Precordial Leads: V1 - V6

In the setting of an inferior wall infarction:
Right side precordial leads **V4R** and **V5R** will be applied on usual spot, just opposite side of chest.

ECG SIGNS OF ACUTE MYOCARDIAL INFARCTION (AMI)

Note:

- 12 lead ECG changes should be interpreted in context with the patient's clinical presentation.
- The 12 lead should be acquired in the pre-hospital setting only when there are clinical grounds to do so.



ST segment elevation above the baseline = injury pattern

Deep symmetrically inverted T waves = ischemia

Pathologic Q Wave = Necrosis

Criteria:

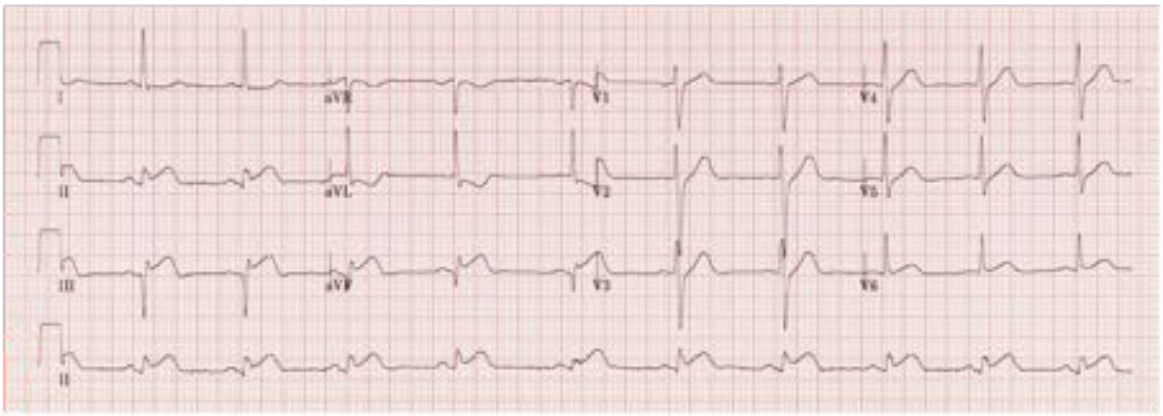
- Should be at least 1 mm wide
- Should be a min. 25% the height of the R wave.

Remember:

1. To confirm ischemia, injury and / or infarction, you must see the ECG changes in at least 2 contiguous leads – i.e. 2 leads that view the same portion of the heart (e.g. II, III, and aVF are contiguous leads as they all view the Inferior portion of the left ventricle).
2. You may not always see a pathological Q wave, ST elevation and T wave inversion in an acute MI. An AMI is an evolving process; therefore you may only see ST elevation early in an MI.

WHAT THE 12 LEAD ELECTRODES SEE CONTIGUOUS LEADS

E.g. of ST elevation in leads II, III, and aVF = Inferior MI



I (Lateral)	aVR (Not Assessed)	V1 (Septal)	V4 (Anterior)
II (Inferior)	aVL (Lateral)	V2 (Septal)	V5 (Lateral)
III (Inferior)	aVF (Inferior)	V3 (Anterior)	V6 (Lateral)

II, III, aVF: Inferior leads
V1, V2: Septal leads
V3, V4: Anterior leads
I, aVL, V5, V6: Lateral leads

Note:
Lead II and aVR are good leads for confirming proper lead placement. If properly placed, the p wave and QRS should be negatively deflected in aVR. However, aVR is of no diagnostic value with respect to infarctions.

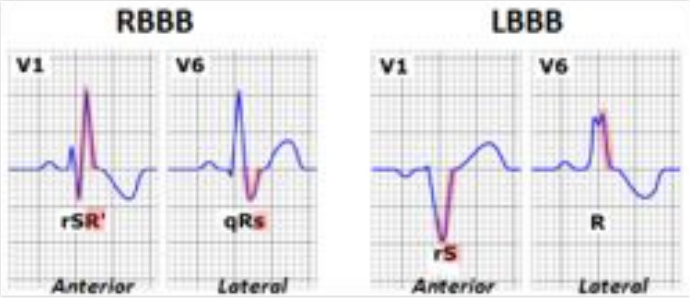
BUNDLE BRANCH BLOCKS

Right Bundle Branch (RBBB)

- The right bundle is longer and thinner,
- Left Anterior Descending Coronary Artery supplies right bundle only.
- RBBB's are more common than LBBB's
- V1 is used to diagnose RBB

ECG findings: **Right Bundle Branch Block**

- V1 will show an rSR' (R' = R prime) pattern.
- Will be positively deflected – not normal.
- QRS is WIDE >0.12 sec.



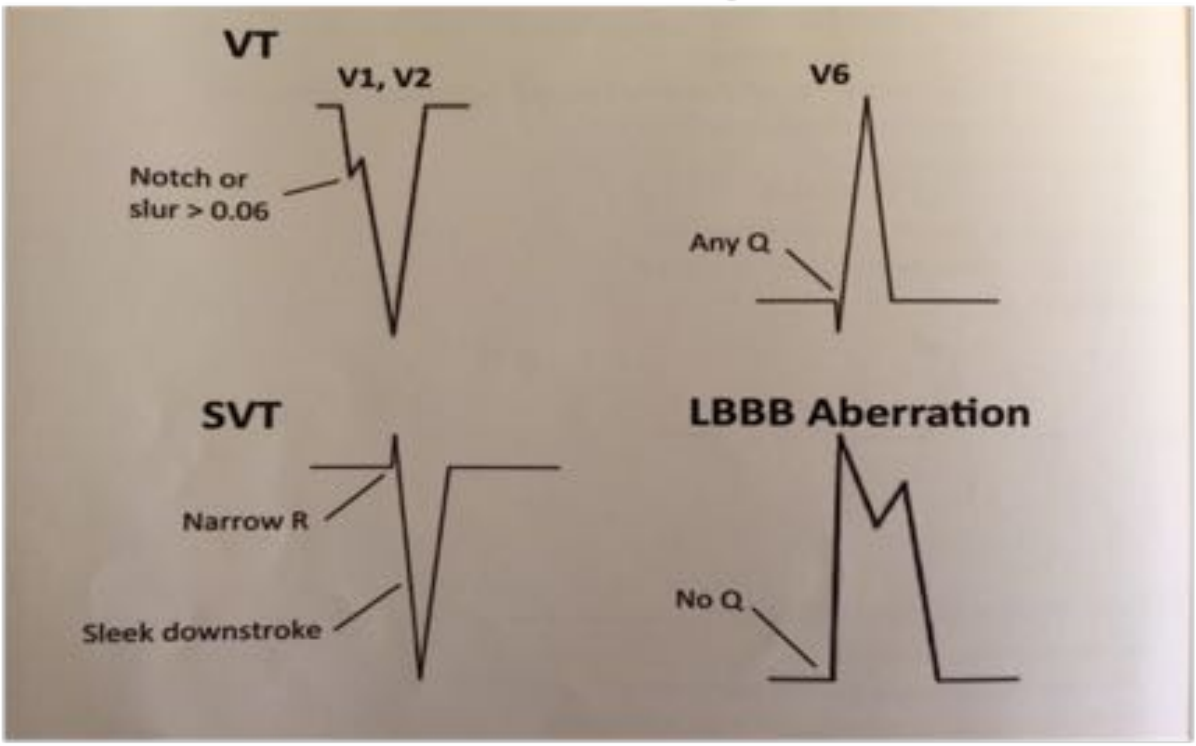
Left Bundle Branch Block (LBBB)

- Less common than RBBB
- The left bundle branch is thicker and shorter.
- The LBB has a dual blood supply – LAD and the AV nodal artery

ECG findings: **Left Bundle Branch Block**

- Lead V1 will be negatively deflected
- Lead V1 will show a QS wave
- QRS is WIDE.

DISTINGUISHING VT from SVT



Other Signs that Favor VT:

- Concordance: All QRS in V1 – V6 are deflected in the same direction.
- In approximately 50% of VT there will be AV dissociation – AV dissociation is a diagnostic of VT
- P waves that "march through" at a slower rate than the QRS's is indicative of AV dissociation.
- Fusion beats or sinus beats that occasionally surface through a wide complex tachyarrhythmia suggests AV dissociation and VT.
- In VT with AV dissociation, the atria will contract against closed AV valves resulting in irregular jugular venous pulsations, or *irregular cannon A waves.*
- If uncertain, treat as VT.

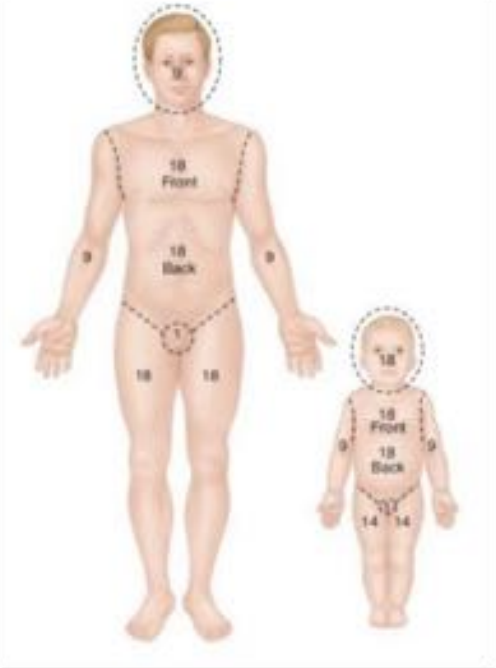
GLASCOW COMA SCALE (GCS)

Used in the pre-hospital setting to determine how critical the patients condition is and lets the nurses and doctors at the hospital know what to expect.

Infant	Eye Opening	Adult
Spontaneous	4	Spontaneous
To speech	3	To speech
To pain	2	To pain
No response	1	No response
	Best verbal response	
Coos, babbles	5	Oriented
Irritable cry	4	Confused
Cries to pain	3	Inappropriate words
Moans, grunts	2	Incomprehensible words
No response	1	No response
	Best Motor Response	
Spontaneous	6	Obeys commands
Localized pain	5	Localizes pain
Withdrawals from pain	4	Withdrawals from pain
Flexion (decorticate)	3	Flexion (decorticate)
Extension (decerebrate)	2	Extension (decerebrate)
No response	1	No response
Total:		

BSA BURN ESTMINATION

- Using the rule of 9's, you can estimate the body percentage burned on a patient.
- General rule is the patients palm represents 1%.
- Other numbers are circumferential meaning the burn expands across the surface anterior, lateral, posteriorly and medially.



To estimate how much fluid you will need:

Parkland Burn Formula is TBSA% X kg X cc's (usually 2 or 4 cc's).

LIST OF ABBREVIATIONS

The following abbreviations, in alphabetical order, appear in the ALS Patient Care Standards:

A

ACP	Advanced Care Paramedic
ALS	Advanced Life Support
ALS PCS	Advanced Life Support Patient Care Standards
ASA	Acetylsalicylic acid
AV	Atrioventicular

B

BH	Base hospital
BHP	Base Hospital Physician
BLS	Basic Life Support
BP	Blood pressure
BPM	Beats per minute
BVM	Bag-valve mask

C

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

D

DKA	Diabetic ketoacidosis

E

ECD	Electronic control device
ECG	Electrocardiogram
EDD	Esophageal detection device
ECTO2	End tidal carbon dioxide
ETT	Endotracheal tube

F

FiO2	Fraction of inspired oxygen
FRI	Febrile respiratory infection

G

g	Gram
GCS	Glascow Coma Scale

H

H2O	Water
HR	Heart rate
Hx	History

I

IM	Intramuscular
IN	Intranasal
IO	Intraosseous
IV	Intravenous

K

kg	Kilogram

L

LOA	Level of awareness
LOC	Level of consciousness / Loss of consciousness

M

MAC	Medical Advisory Committee
mcg	Microgram
MDI	Metered dose inhaler
mg	Milligram
min	Minute
ml/kg	Milliliter per kilogram
mmHg	Millimeters of mercury
MOHLTC	Ministry of Health and Long-Term Care

N

N/A	Not applicable
NaCl	Sodium chloride
Nare	Nostril

NEB	Nebulized
NPA	Nasopharyngeal airway
NSAID	Non-steroidal anti-inflammatory drug

O

OBHG	Ontario Base Hospital Group
OPA	Oropharyngeal airway

P

PCP	Primary Care Paramedic
PO	By mouth / oral
PRN	As needed

Q

q	Every

R

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

S

SC	Subcutaneous
SL	Sublingual
SBP	Systolic blood pressure
SPO2	Saturation of peripheral oxygen
STEMI	ST-segment elevation myocardial infarction

T

TBI	Traumatic brain injury
TCA	Tricyclic antidepressant
TCP	Transcutaneous pacing

U

URTI	Upper respiratory tract infection

V

VSA	Vital signs absent

W

WNL	Within normal limits

NOTES