PROFESSIONAL RESPONDER CHEAT SHEET

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Assessment Model

Scene Assessment

Hazards – BSI/PPE	Environment	Mechanism	# Patients	Additional Resources
• Are there any hazards? • Are you wearing Body Substance Isolation PPE?	• What are your surroundings? • Is it safe to stay?	• What is going on? • How did it happen? • Likely Injuries?	• How many people require assistance? • Bystanders?	• Are more people or equipment needed?

Primary Assessment

General Impression	What appears to be going on? What is bothering the patient the most right now?
Precautionary SMR?	Are Spinal Motion Restriction measures needed as you conduct your assessment? (based on Mechanism)

LOR	A	B	C	RBS	Critical Interventions
Level of Responsiveness	**Airway**	**Breathing**	**Circulation**	**Rapid Body Survey**	
A (fully alert) **V** (responds to verbal) **P** (responds to pain) **U** (unresponsive)	• Airway clear? • OPA/NPA if Unresponsive	• Adequate? • O2 needed? • Assisted Vents?	• Radial Pulse present? • (Carotid if Unresponsive) • Cap Refill & SpO2	• Skin condition • Major Bleeding • Obvious Injuries	• Manage life-threatening problems • Treat for shock

Decision Point

Chief Complaint	What is the patient's main concern? What are your most urgent considerations?
Initial Transport Decision	Urgent/Rapid Transport Category (RTC) or Delayed (Non-Urgent) Transport? Continue/Discontinue SMR?
Pre-Hospital Report	Update receiving medical center. Call Medical Oversight as needed. Check ABCs after any movement.

Secondary Assessment

Interview

S	A	M	P	L	E
Signs & Symptoms	**Allergies**	**Medications**	**Past Medical Hx**	**Last Oral Intake**	**Events Leading Up**
• Chief Complaint • Pain/Discomfort	• Allergic to anything? • Recent exposures?	• Take medication? • Wrong dose? • New med/dose?	• Relevant medical incidents or conditions • Ie…Diabetes	What and when did you last eat/drink?	What were you doing when this started?

O	P	Q	R	S	T
Onset	**Provoke/Palliate**	**Quality**	**Region/Radiate**	**Severity**	**Timing**
Did this happen suddenly or gradually?	What makes the pain better or worse?	Type of pain? (ie…squeezing, dull, sharp, throbbing)	Does the pain radiate from one region to another?	Scale of 1-10	When did it start? Is it constant or does it come and go?

Vital Signs (every 5 minutes if Urgent or 15 minutes if Non-Urgent)

Responsiveness	Blood Pressure	Respiration	Pulse	SpO2	Pupils	CapBgl
Glasgow Coma Scale	Palpation or Auscultation	Rate/Rhythm/Character Auscultate Chest (6 points)	Rate Rhythm Character	Pulse Oximeter	Pupils equal and reactive to light? (PEARL)	Glucometer if relevant

Head to Toe Examination

Skin	Palpate	Distal Extremities
Color/Moisture/Temp Core Temperature if relevant	Thoroughly and methodically feel for injuries	Bilateral radial & pedal pulses Motor/Sensory deficits?

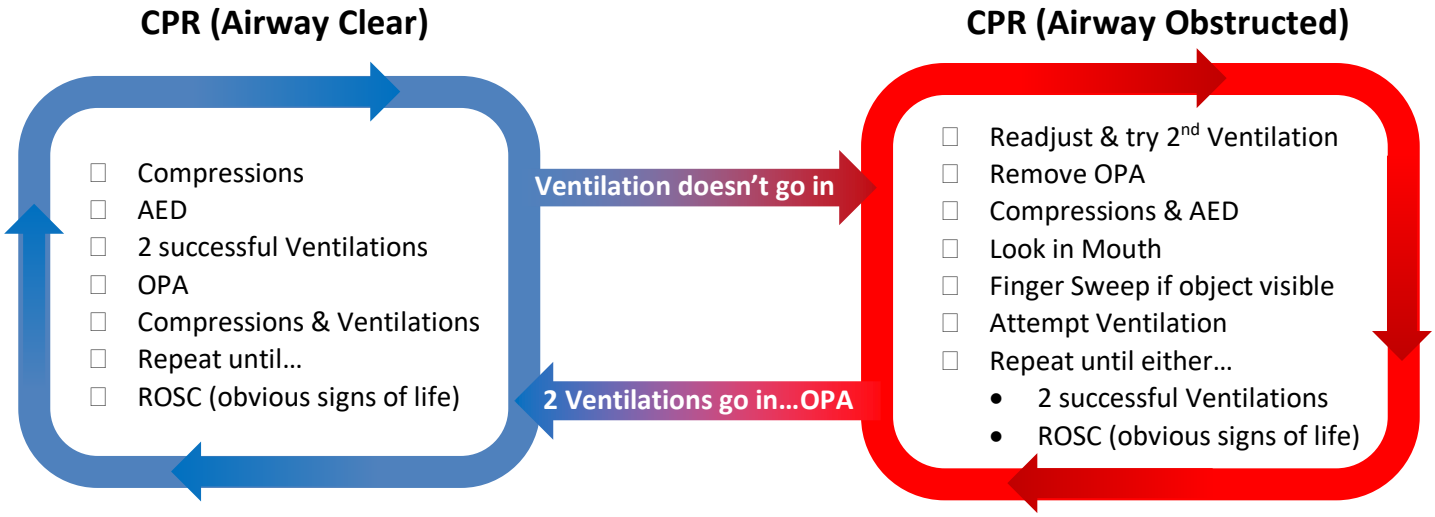
Ongoing Assessment

Treatment & Reassessment	Documentation
• Provide medications and interventions as appropriate • Continuously monitor and re-evaluate patient, decisions and circumstances	• Ensure patient care report is complete and accurate • Notify receiving medical center of significant updates • Concise and accurate verbal report upon hand-over

CPR Compression to Ventilation Ratios

	Adult (over 9)	Child (1-8)	Infant (1mo -1 yr)	Neonate (under 28 days)
One Rescuer	30:2	30:2	30:2	3:1 • No AED • CPR if below 60 bpm
Two Rescuer		15:2	15:2	
• If patient is Hypothermic: Check pulse 45-60 seconds before starting CPR, and 3 AED cycles max				
• Once compressions have been started, continue CPR until Return of Spontaneous Circulation (ROSC)				

High Performance "Pit Crew" CPR



CPR in transport - Treatable CPR

Condition	Causes	Action
Hypoxia	Asthma, COPD, CHF, Anaphylaxis or Tension Pneumothorax	Consult Medical Oversight (CliniCall)
Hypovolemia	Caused by Trauma, GI bleed, ruptured abdominal aortic arch	
Known Acidosis	Sepsis, Diabetic Ketoacidosis, Post Workout	
Hyperkalemia	Kidney failure, Pressure Sores, Crush Injury, Burns	
Hypothermia	Submersion, Cold Weather, Found on floor	
Toxins	Ingestion, Injection, Inhalation	
Tamponade (Cardiac)	Post Cardiac Surgery, Infectious, IV Drug User, Trauma	
Tension Pneumothorax	Trauma, COPD, Asthma, Marfan's	
Thrombosis (Pulmonary)	Sudden Death, IVDU, Pregnancy, Fractures, Flights, Bed Rest, Cancer	
Thrombosis (Coronary)	Sudden Death, Coronary Artery Disease	

Oxygen Cylinder Calculations

Duration of Flow = $\frac{\text{(gauge pressure -200 psi) x C}}{\text{Flow Rate (lpm)}}$		
C = Cylinder Constant		
D-Cylinder: C = 0.16 L/psi (most commonly used on scene)	E-Cylinder: C = 0.28 L/psi	M-Cylinder: C = 1.56 L/psi

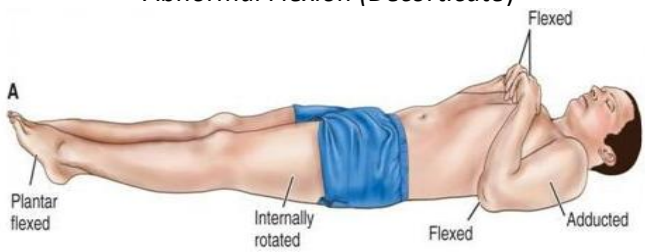
Oxygen Flow Rates

Device	**BC EMALB**	Canadian Red Cross Emergency Care Manual	O2 %
Standard (Simple) Mask	**6 – 15 lpm**	6-10 lpm	40-60 %
Non-Rebreather Mask	**8 – 15 lpm**	10+ lpm	90+ %
Bag Valve Mask	**15 lpm**	10+ lpm	90+ %
Nasal Canula	**2 – 4 lpm**	1 – 4 lpm	24-36 %
Resuscitation Mask (Pocket Mask)	**N/A**	6+ lpm	35-55 %
Normal Room Air			20.7 – 21 %
Exhaled Air			16%

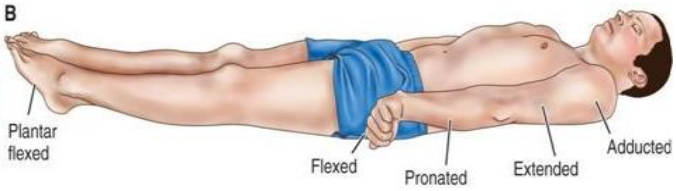
Glasgow Coma Scale

Eye Opening		**Best Verbal Response**		**Best Motor Response**	
				6	Obeys commands
		5	Oriented	5	Localizes to pain
4	Spontaneously	4	Confused	4	Withdraws to pain
3	To voice	3	Inappropriate words	3	Flex to pain (Decorticate)
2	To pain	2	Incomprehensible sounds	2	Extend to pain (Decerebrate)
1	No response	1	No response	1	No response
Eye + Verbal + Motor = GCS (3-15) GCS 13 or less is Rapid Transport					

Abnormal Flexion (Decorticate)



Abnormal Extension (Decerebrate)



APGAR

	0	1	2
Activity	Limp	Some extremity flexion	Active Movement
Pulse	Absent	Below 100 bpm	100 bpm or higher
Grimace	No response	Grimace	Cough, sneeze, cry
Appearance	Body/Extremities Blue/Pale	Body Pink – Extremities Blue	Completely pink
Respiration	Absent	Slow and Irregular	Strong, crying
7-10 is “Normal … 4-6 is “Fairly Low” … 0-3 is “Critically Low”			

Administration of Medications vs Assisting with Medications

BC EMALB Licensed Responders Administer the following medications adhering to specific Administration Protocols	
1. Entonox (EMR only)	7. Naloxone/Narcan
2. Oxygen	8. Salbutamol/Ventolin (EMR only)
3. Nitroglycerin (EMR only)	9. Epinephrine by Auto-Injector
4. Acetylsalicylic Acid/ASA	10. Epinephrine by IM Injection (EMR only)
5. Glucagon	11. Acetaminophen
6. Glucogel	12. Ibuprofen
If patient requires any other medications, responder may **Assist** the patient while adhering to the 6 Rights	

6-Rights of Medication

Follow the 6-Rights when "Assisting" with medications		
1	Person	Does this person have a prescription
2	Medication	Have they had it before…no Contraindications…is this their Medication
3	Time	When was the last dose taken…is it needed now
4	Dose	How much should they take
5	Route	How should they take/use it
6	Documentation	Record the time and effects of each dose

RTC Critical Interventions Requiring History and/or Vital Signs

Some patients may be RTC, but need critical interventions that require "Secondary" information before transport	
Intervention	**Information Required**
ASA for Cardiac Chest Pains	• Indications/Contraindications (SAMPLE-OPQRST)
Naloxone by Intramuscular Injection for Opioid Overdose	• Indications/Contraindications (SAMPLE-OPQRST) • full set of Vital Signs
Glucagon by Intramuscular Injection to correct Hypoglycemia	• Indications/Contraindications (SAMPLE-OPQRST) • full set of Vital Signs
Glucagon by Intranasal Injection to correct Hypoglycemia	• Indications/Contraindications (SAMPLE-OPQRST) • Patient Age • full set of Vital Signs
Epinephrine by Auto-Injector for Anaphylaxis	• Indications/Contraindications (SAMPLE-OPQRST) • Patient Age/Estimated weight • full set of Vital Signs including Chest Auscultation
Epinephrine by weight-based intramuscular injection for Anaphylaxis • EMR only	• Indications/Contraindications (SAMPLE-OPQRST) • Estimated patient weight • full set of Vital Signs including Chest Auscultation
Salbutamol for Bronchospasm • EMR only	• Indications/Contraindications (SAMPLE-OPQRST) • Estimated patient weight • full set of Vital Signs including Chest Auscultation
Nitroglycerin for Cardiac Chest Pains • EMR only	• Indications/Contraindications (SAMPLE-OPQRST) • full set of Vital Signs including Chest Auscultation

Common Units of Measurement

Unit	Abbreviation	Used for measuring…
Millimeters of Mercury	mmHg	Blood Pressure
Millimoles per Litre	mmol/L	Blood glucose levels
Milligrams	mg	Medications such as ASA and Nitro
Litres per minute	lpm	Oxygen flow rates
Drips per millilitre	gtts/ml	How many droplets it takes to make 1 ml (Dripset Size)
Drips per minute	gtts/minute	How many droplets go through the dripset in one minute

Assisted Ventilations

Problem	Ventilation Rate		
	Adult	Child / Infant	
Respirations Absent but Pulse Present	1 breath every 5-6 seconds	1 breath every 3-5 seconds	Timed between or with patient's own breaths OPA/NPA after first 2 successful Ventilations
Breathing too Fast • greater than 30 breaths per minute			
Breathing too Slow • less than 10 breaths per minute			
Signs of Hypoxia or Respiratory Distress			

Weight Estimation for Pediatric Patients

Estimated age-based weight for patients up to 10 years old

- **2x (age in years) + 8 = est. weight in kg**

Parent or caregiver estimations are generally more accurate that age-based calculations.

A-T-M-I-S-T A-M-B-O

ATMIST		Details (what to say during verbal handover)
A	Age	Age, Name, and Date of Birth
T	Time	Time of Onset of Symptoms/Injury
M	Mechanism	Mechanism of Injury/Medical Complaint
I	Injuries	Injuries/Exam Findings
S	Signs	Vitals, GCS
T	Treatment	Treatment(s) given
AMBO		**Details (what to say during verbal handover)**
A	Allergies	Provide any allergies the patient may have
M	Medication	Verbalize or provide list of medications pertinent to patient care
B	Background	May include social history, family, or notable information
O	Other Information	Any other information relevant to ongoing patient care

BC EMALB Examination Guidelines compared to PAC National Occupational Skill Competency Profiles

Guideline	BC EMALB Examination Guidelines (What we follow in BC)	PAC NOCP (Red Cross Emergency Care Manual)
Minimum Systolic B.P. to give Nitro	**110 mmHg and HR between 50-150**	100 mmHg
Nitro Dose Frequency	**Every 3 minutes (q3)**	Every 5 minutes (q5)
Nitro without Prescription	**Clini-Call permission**	Prescription Mandatory
Realigning Gross Deformity	**If circulation compromised**	Only if more than 30 minutes to care
Open Chest Wound Treatment	**Vented-Occlusive Dressing**	Non-Occlusive Dressings Only
Glucogel for Unresponsive Patient	**Contraindicated if Unresponsive**	Administer if local protocols allow
Burn Cooling	**15-20 minutes (on-scene/enroute)**	At least 10 minutes
Hypothermic Pulse Check	**Check Pulse for up to 45 seconds**	Check pulse for 60 seconds
Hypothermic CPR-AED	**No Analyze or Shock after 3 Shocks**	Follow AED prompts
Stroke Mnemonics	**F-A-S-T V-A-N**	F-A-S-T (T has different connotation)

Critical Findings

Finding	Implication/Condition	Intervention
GCS 13 or less	Decreased LOC	OPA / NPA and RTC
Breathing over 30 times/minute	Tachypnea	Assist Ventilations
Breathing less than 10 times/minute	Dyspnea/Bradypnea	Assist Ventilations
Adult Blood Pressure less than 80 mmHg Systolic	Hypotension	Position Supine
Blood Glucose less than 4 mmol/L	Hypoglycemia	Glucagon / Glucose
Oxygen Saturation (SpO2) less than 95%	Hypoxia / Hypoxemia	Increase O2 intake
Neonatal pulse less than 60 bpm	Equivalent to Absent	Begin CPR
Body core temperature below 35 - 36 C	Mild Hypothermia	Rewarm slowly
Body core temperature below 30 - 34 C	Moderate Hypothermia	Rewarm slowly
Body core temperature below <30 C	Severe Hypothermia	Rewarm slowly
Body core temperature above 37 C	Hyperthermia	Cool rapidly
APGAR below 4	Unresponsive	RTC
Pulseless limb (Limb-Threatening Injury)	Limb Threatening RTC	One attempt to realign/restore
Adult Pulse Rate over 160 bpm	Urgent Tachycardia	RTC
Adult Pulse Rate below 60 bpm	Bradycardia	Consider underlying causes
Adult Pulse Rate slower than normal but > 60 bpm	Brachycardia	Consider underlying causes

Head to Toe Assessment Mnemonics

Why might a patient have an altered level of consciousness?

A	Alcohol
E	Epilepsy
I	Insulin (Diabetic)
O	Overdose
U	Uremia

T	Trauma
I	Infection
P	Psychiatric
P	Poison
S	Stroke

During a Head to Toe assessment…watch for:

B	Burns
O	Open Wounds
L	Lacerations
D	Deformity

C	Contusions
A	Abrasions
P	Penetrations

S	Swelling
C	Crepitus
R	Rigidity
I	Instability
P	Punctures
T	Tenderness
S	Subcutaneous Emphysema

Relevant S-A-M-P-L-E and Mechanism of Injury Information

MVA

Location of patient	Which vehicle patient was in	How many vehicles involved
Impact speed	Exterior damage	Interior damage
Type of restraints	Initial position of patient	Condition of patient
Loss of consciousness	Condition of other patients	Wearing a seat belt?

Fall

Where from	Height	Free fall or hit other objects
Landing surface	Position of patient at impact	What hit first
Position Found	Loss of consciousness	Cause of fall

Pedestrian Struck

What hit them	Size and weight of object	Velocity of vehicle
Vehicle part that hit patient	Damage to vehicle	Distance patient thrown
Loss of consciousness	Condition of patient	Condition of Vehicle Occupants

Shooting

Type of firearm	Range and Angle	Loss of consciousness
Type of bullet	Entrance and exit wounds	Initial position and condition of patient

Stabbing

Type and size of weapon	Loss of consciousness	Type of wound
Number of wounds	Other injuries	Initial position and condition

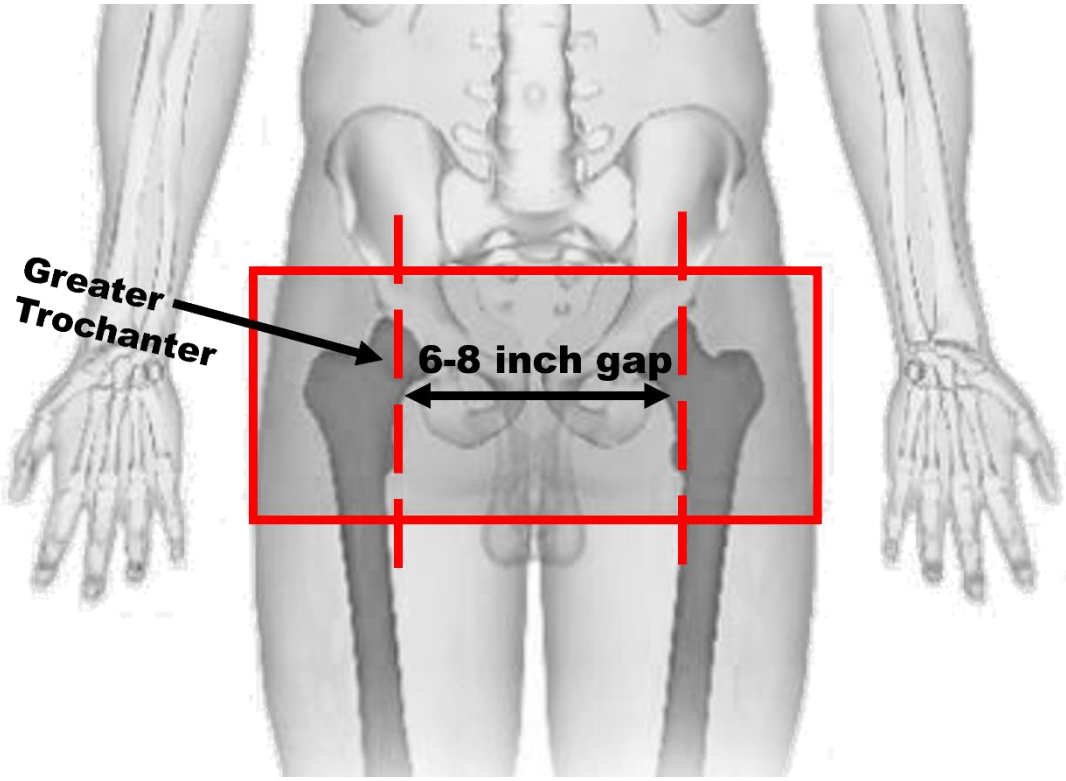
Average Vital Signs

Age	Weight	Resting Heart Rate	Resting Respiratory Rate	Systolic Blood Pressure
	Kilograms (kg)	Beats/minute (bpm)	Respirations/minute	mmHg
Neonate (<28 days)	<3	100-160	40-60	Difficult to measure
3 Months	2-3	100-180	30-45	65-100
6 Months	3-4	100-180	25-35	70-110
12 Months	10	100-180	20-30	70-110
2 Years	12	80-160	18-30	70-110
3-4 Years	14-16	70-130	18-24	75-110
5-6 Years	18-20	70-110	18-22	80-110
7-8 Years	22-24	70-110	18-22	80-110
9-10 Years	26-28	70-110	18-22	80-110
11-12 Years	30-32	70-110	16-20	90-120
13 Years & older	>32	60-100	12-20	120+

Hypotension (Low Blood Pressure)

Age Range	**Systolic Blood Pressure considered clinically Low/Hypotensive**
1 month – 1 year	Below 70 mmHg
1 – 10 years	Below 70 + (2 x age-in-years) mmHg
11 years - Adult	Below 90 mmHg
Anaphylaxis generally causes Systolic blood pressure to drop 30% or more	

T-POD/Pelvic Binder Application

Indications	• MOI suggestive of possible Pelvic Fracture accompanied by **any** of the following… ☐ HR above 100bpm or Systolic BP below 90 mmhg (Hemodynamic Instability) ☐ Pelvic Pain during examination ☐ Pelvic Instability ☐ Decreased LOC ☐ Significant injury which distracts from Pelvic Exam
Contraindications	• Suspected Hip Dislocation or Neck-of-Femur Fracture • Simple Falls such as those from a standing height
Procedure	☐ Ensure T-POD makes direct contact with the skin (Cut & Expose) if possible ☐ Slide T-POD belt under the supine patient and into position under the pelvis ☐ Align centre of T-POD belt with the greater trochanter (top of hips). ☐ Trim T-POD belt so there is a 15-20 cm (6-8 inch) gap centred over the pubic symphysis  ☐ Apply the Velcro tension straps ☐ Slowly draw tension creating simultaneous, circumferential compression **until gap is closed** ☐ Compression should be snug enough to provide stability, but loose enough to allow insertion of two fingers between belt and waist ☐ Secure the belts to ensure constant pressure without accidental release ☐ Document the application of the T-POD, including date and time of application
Release of T-POD	☐ If release is required, or occurs accidentally, the time of this event should also be noted

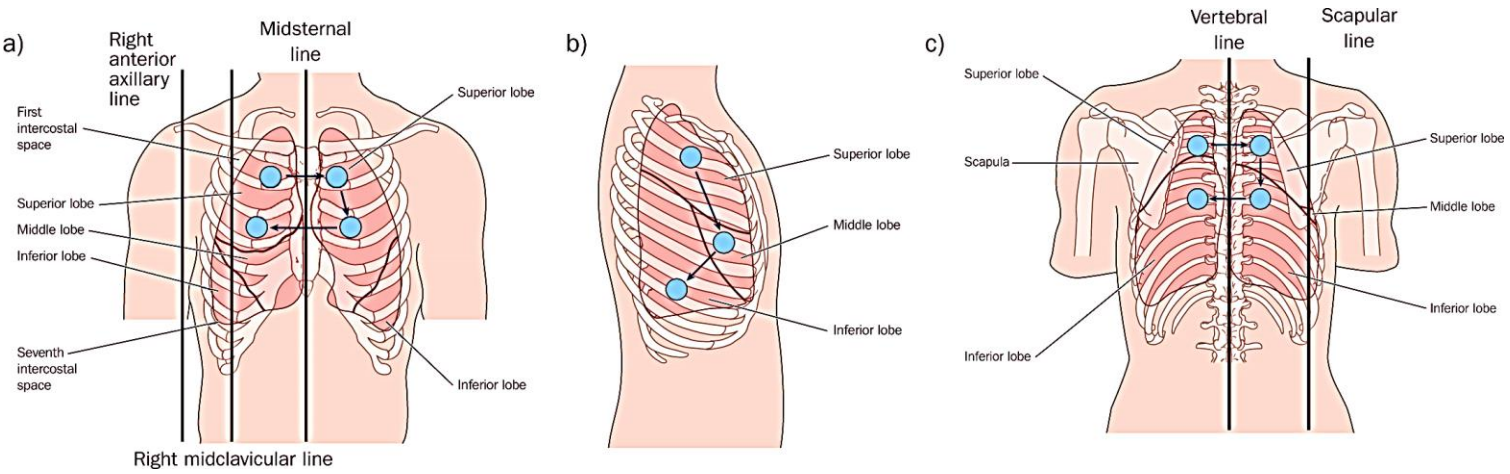
Naloxone (Narcan) Administration

Indications	Suspected Opioid Overdose/Poisoning (Surroundings/Hx/S&S/Vital Signs)			
Toxidrome	Decreased level of responsiveness	Inadequate/Absent Respirations	Pinpoint Pupils	
Contraindications	Confirmed medical allergy to Naloxone			
Adult Dosage	1st - 0.4 mg	2nd – 0.4 mg	3rd – 0.8 mg	4th - 2.0 mg
Pediatric Dosage (EMR ONLY)	Under 11 yrs old is Pediatric			
	0.1 mg/Kg of body weight (to a maximum of 2.0 mg per dose)			
	Maximum of 4 doses			
	Pediatric doses are larger as withdrawal is unlikely			
Prior to First Dose	First dose administered on-scene			
	Priority given to other immediately life saving measures such as Assisted Ventilations/CPR			
	SAMPLE information to determine probable opioid overdose			
	Full set of Vital Signs			
Preparation	Clean injection site (shoulder or thigh) with alcohol swab. Allow to dry before injection			
	Check ampoule for clarity, expiration date, dose, and type of medication			
	Break ampule open at neck. Gauze may be used to protect hands from sharp edges.			
	Draw entire contents of ampoule into syringe.			
	Hold syringe with needle turned upwards and slowly push all air out of the chamber.			
Injection	Use one hand to spread skin at injection site to stretch the meaty tissues.			
	Use other hand to insert the needle at 90 degrees into the muscle.			
	Depress plunger to inject all medication into the muscle.			
Disposal	Retract/cover needle with appropriate cover.			
	Dispose of syringe and ampoule into sharps container.			
Q3	Every 3 minutes as needed to reverse respiratory depression.			
	Initiate transport after first dose as appropriate.			
	Patient may become combative as consciousness improves			
	4 doses maximum			

Terminology

Term/Phrase	Meaning
Abruptio Placentae	Premature separation of the placenta from the uterus. Signs/Symptoms include uterine contraction, bleeding, fetal distress
Aspiration	The inhalation of solids/liquids (such as food, vomit or blood) into the lungs
Boiling Point	The temperature at which liquid changes into a vapor/gas
BSI	Body Substance Isolation equipment such as gloves and safety glasses. Also commonly referred to as Personal Protective Equipment (PPE)
CHEMTREC	Provider of emergency Hazardous Materials (HazMat) support
Flashpoint	The lowest temperature at which vapors ignite **when** exposed to an ignition source
HazMat - Cold Zone	Also known as the Outer Perimeter. An area far enough from the hazardous material that risk of contamination is eliminated.
HazMat – Hot Zone	Also known as the Contaminated Area. The area immediately contaminated by a hazardous material.
HazMat - Warm Zone	Also known as the Inner Perimeter. An area outside the hot zone, which carries a reduced risk of contamination. Typically where responder decontamination procedures occur.
Ignition Temperature	Lowest temperature at which a substance spontaneously ignites **without** an ignition source.
MSDS	Material Safety Data Sheet which contains information about the potential hazards of a chemical product used in the workplace. Also referred to as Safety Data Sheet (SDS)
Palliate	Ease or lessen discomfort
Placenta Previa	Occurs when the baby's placenta partially or completely covers the mother's cervix, which is the outlet for the uterus. Signs/Symptoms include severe bleeding
Priapism	Sustained erection caused by spinal cord injury
Status Asthmaticus	Acute asthma that remains unresponsive to treatment with bronchodilators
Tidal Volume	The volume of air moved into and out of the lungs during each ventilation cycle. Approximately 500ml per inspiration in a normal healthy adult.
Vehicle Placard	A diamond shaped sign that identifies the class of dangerous goods/hazardous materials on large containers and vehicles.

Chest Auscultation Points



Auscultate at least 6 points during each assessment. Allow two full breaths to go in and out at each point.

EMALB NEXUS SMR Decision Matrix for Injuries with Spinal Mechanism

1. Multiple Trauma

Patient has two or more significant traumatic injuries?

Yes

No

2. NEXUS Criteria

- Midline Tenderness?
- Altered LOC?
- New Focal Neurological Deficits?
- Intoxicated?
- Major Distracting Injury?

Yes to any

3. High Risk Group

- Age over 65 or under 16?
- Osteoporosis?
- Pre-existing Spinal Condition?

No

SMR not required

Any confusion or uncertainty

Full SMR

- Collar applied
- Lifting device & straps
- Head secured if transport uneven or bumpy
- Head of cot raised 30°

Simple SMR

- Collar applied
- Supine on mattress/cot
- No clamshell/ spineboard
- Head not taped
- Head of cot raised 30°

Thoracolumbar Injuries

If thoracolumbar injuries exist, do not sit patient upright or raise head of stretcher, even if SMR is not required.

- Dangerous Mechanism of Injury
- Fall from height above 3 meters
- Axial load to head/base of spine
- MVA 100 km/hr or faster
- Rollover MVA
- Pre-existing Spinal Pathology
- New back deformity or bruising
- Bony midline tenderness

ASA & Nitro (Cardiac Chest Pain)

ASA

Indications
(must be yes ☑ to all to administer)

Chest Pain (suspected to be Cardiac in nature)	
ASA Indications Met?	

Contraindications
(must be no ☒ to all to Administer)

Cannot safely chew/swallow tablets	
Already taken full dose for this event	
Allergy/Hypersensitivity to ASA/NSAIDS	
ASA/NSAIDS previously triggered Asthma	
Pediatric patient	
ASA Contraindications Ruled Out?	

*Cautions	• Recent internal bleeding • Known bleeding diseases • Taking Anticoagulant Agents • Recent Surgery • Possibility of Pregnancy

*Cautions do not always preclude administration, but extra measures/permission, may be required.

Administer ASA? (Yes/No)	
When	• Before Transport • Before Vital Signs
How Much	• 162 mg chewed • (two 81 mg tablets)
How Often	• One dose only

Entonox (EMR ONLY)

- Consider Entonox for chest pain relief if Nitro is contraindicated
- If you have given Nitro and are now using Entonox, and hospital arrival is not imminent 20 min following your last Nitro, discontinue Entonox, resume high flow O2 and administer additional Nitro as per protocol.

Nitro (EMR ONLY)

Indications
(must be yes ☑ to all to administer)

Chest Pain (suspected to be Cardiac in nature)	
Nitro Indications Met?	

Contraindications
(must be no ☒ to all to Administer)

Systolic BP below 110 mmHg	
HR below 50 bpm or above 150 bpm	
Cialis within the past 48 hours	
Viagra/Levitra within the past 24 hours	
Hypersensitivity/allergy to Nitrates	
Nitro Contraindications Ruled Out?	

*Cautions	• Hypotension may occur • Ensure patient will not fall

*Cautions do not always preclude administration, but extra measures/permission, may be required.

Administer Nitro? (Yes/No)	
Oversight permission if no Prescription	
When	• After Vital Signs • Gather information while transport is prepared • First dose on-scene unless this will unduly delay transport
How Much	• 0.4 mg (one spray) • Sublingual (under the tongue)
How Often	• Q3-5 to a maximum of 3 doses in a 30-minute period. • Irrespective of any Nitro taken by the patient prior to arrival or the presence of a Nitro Patch. • If pain completely relieved more than 5 min, then returns, this starts a new 30-minute period.

Epinephrine Administration – Auto-Injector (Epi-Pen)

Indications	• Anaphylaxis • Signs of Anaphylaxis, Hx of Allergic Response, Exposure to Allergen, Unstable (DLOC, or Systolic BP < 90 mmHg or Respiratory Distress)
Contraindications	• There are no absolute contraindications to Epinephrine use in life-threatening situations such as anaphylaxis. • Neither an Epi-Pen nor an Epi-Pen Jr. are appropriate for patients under 14 kg
Dose	>30 kg • Adult Epi-Pen (0.3 mg) • Q5 up to 3 doses total as needed 14- 30 kg • Epi-Pen Jr. (0.15 mg) • Q5 up to 3 doses total as needed
Instructions	Confirmation ☐ Ensure indications are met and contraindications are ruled out ☐ Document full set of Vital Signs ☐ Auscultate Chest (6 points minimum) Preparation ☐ Ensure Auto-Injector is not expired. ☐ Examine window in Auto-Injector to ensure fluid is clear. ☐ Explain procedure to patient. Administration ☐ Remove safety cap. ☐ Firmly push the tip of the epinephrine auto-injector against the middle third of the patient's outer thigh. ☐ A click will be heard when the dose is administered. ☐ Hold the auto-injector in place for up to 10 seconds to allow time for the medication to enter the patient. ☐ Remove the auto-injector. ☐ Rub the injection site for up to 30 seconds, to promote absorption. Documentation ☐ Document medication name, dose, time, route and effects
Notes	Transport • Patients in respiratory distress require urgent transport. • Transport may be deferred long enough to administer first dose of Epinephrine on scene as a critical intervention but significant delays in transport should be avoided.

Acetaminophen Administration

Indications	• Mild to Moderate Pain
Contraindications	• Hypersensitivity to acetaminophen or any component of the formulation • Severe alcoholic hepatitis or liver dysfunction with active alcohol consumption • Acute liver injury • Acetaminophen-induced liver disease
Dose	Adult (11 years or older) • 15 mg/kg PO (Parenteral) to a maximum of 1000 mg • Typically available in either 500 mg or 1000 mg tablets. • May repeat once after 4 hours. • 24 hour maximum of 3000 mg. ○ In patients with suspected or known liver dysfunction (e.g., advanced chronic liver disease or cirrhosis), the 24-hour maximum should be lowered to 1,000-2,000 mg. Pediatric (up to 10 years old) < 30 kg • 15 mg/kg PO (liquid preparation) 30 kg – 50 kg • 500 mg PO (liquid preparation or tablets depending on patient ability) > 50 kg • 500-1000 mg PO • May repeat once after 4 hours • 24 hours maximum 75 mg/kg or 1000 mg • Do not exceed 5 doses in 24 hours for patients under 12 years old
Instructions	Confirmation ☐ Ensure indications are met and contraindications are ruled out ☐ Document full set of Vital Signs Preparation ☐ Ensure Acetaminophen is not expired and confirm doseage. Administration ☐ Patient swallows tablets or liquid preparation ☐ A small sip of water may be appropriate ☐ Responders may need to provide extra assistance to pediatric patients Documentation ☐ Document medication name, dose, time, route and effects
Notes	• Mild to moderate pain is very subjective • The context for this type of oral analgesic is relief of pain such as a toothache, ankle sprain or simple headache. • May be used concurrently with ibuprofen for analgesia.

Ibuprofen Administration

Indications	• Mild to Moderate Pain
Contraindications	• Hypersensitivity to ibuprofen or other nonsteroidal anti-inflammatory drugs • Active GI hemorrhage or ulcers • Pregnancy (first, second, or third trimesters)
Dose	Adult (11 years or older) • 300-400 mg PO (Parenteral) • May repeat every 4-6 hours. • Maximum daily dose of 1200 mg. Pediatric (up to 10 years old) • 10 mg/kg PO • May repeat once after 6 hours • Maximum daily dose of 40 mg/kg/day
Instructions	Confirmation ☐ Ensure indications are met and contraindications are ruled out ☐ Document full set of Vital Signs Preparation ☐ Ensure Ibuprofen is not expired and confirm doseage. Administration ☐ Patient swallows tablet(s) ☐ A small sip of water may be appropriate ☐ Responders may need to provide extra assistance to pediatric patients Documentation ☐ Document medication name, dose, time, route and effects
Notes	• Mild to moderate pain is very subjective • The context for this type of oral analgesic is relief of pain such as a toothache, ankle sprain or simple headache. • May be used concurrently with acetaminophen for analgesia.

Glucagon Administration – Intramuscular (IM)

• Engage Glucagon protocol when there is suspected Hypoglycemia or Unresponsive NYD (not yet diagnosed) and the patient appears **incapable** of maintaining their own airway.	
Indications	• CapBgl < 4mmoL • **Incapable** of following instructions or maintaining own airway
Contraindications	• Known hypersensitivity to glucagon • Pheochromocytoma (tumor on adrenal gland)
Intramuscular (IM) Injection	
Dose	If < 25 kg: • 0.5 mg (one dose only) If ≥ 25 kg • 1.0 mg (one dose only)
Instructions	Confirmation ☐ Ensure indications met and contraindications ruled out. ☐ Document full set of Vital Signs including CapBgl. Preparation ☐ Expose injection site (deltoid or thigh) ☐ Clean area with alcohol swab and allow to air dry. ☐ Ensure glucagon is not expired or non-viable. ☐ Remove flip-off seal from glucagon bottle. ☐ Remove needle protector and inject entire contents of syringe into glucagon bottle. ☐ DO NOT remove plastic clip from syringe. ☐ Swirl bottle gently until glucagon dissolves completely. ☐ Ensure glucagon is clear and has a water-like consistency. ☐ Using syringe, hold bottle upside down and, making sure the needle tip remains in the solution, gently withdraw all the solution (1mL mark on the syringe) from bottle. ☐ Holding syringe upright, remove needle from bottle and remove bubbles from syringe. ☐ Flick/tap syringe until all bubbles move to top and expel air until only medication is left. Administration ☐ Stretch injection site skin using Z-track technique. ☐ Insert needle at 90° angle to the skin and inject medication into muscle. Documentation • Document medication name, dose, time, route and effects
Notes	Transport • Patients with a decreased level of responsiveness require urgent transport. • Transport may be deferred long enough to administer Glucagon on scene as a critical intervention but significant delays in transport should be avoided. Effects • Glucagon does not introduce sugar into the body. • Glucagon initiates the release of glycogen stored in the patient's liver into the bloodstream • It can take 8-10 minutes for effects of glucagon to become evident. • Effects may be minimal if patient does not have sufficient glycogen stores in their liver. • Do not delay transport to see if the patient responds positively.

Glucagon Administration – Intranasal (IN)

• Engage Glucagon protocol when there is suspected Hypoglycemia or Unresponsive NYD (not yet diagnosed) and the patient appears **incapable** of maintaining their own airway.	

Indications	• CapBgl < 4mmoL
	  • **Over 4 years old**
	  • **Incapable** of following instructions or maintaining own airway

Contraindications	• Known hypersensitivity to glucagon • Pheochromocytoma (tumor on adrenal gland)
Intranasal (IN) Spray	
Dose	• 3 mg (one dose only) • Must be **over 4 years** old for Intranasal Spray
Instructions	Confirmation ☐ Ensure indications met and contraindications ruled out. ☐ Document full set of Vital Signs including CapBgl. Preparation • Check the glucagon package to ensure it is not compromised and is not expired. • Remove packaging from tube, open lid and remove the device. Administration ☐ Hold the device between fingers and thumb: place your 2nd and 3rd fingers on either side of the nozzle and place your thumb on the plunger. ☐ DO NOT depress the plunger at this time. ☐ Place the tip of the nozzle into the nostril, inserting the tip until your fingers on either side are resting against the outside of the nose (approx. ¾" into the nostril). ☐ Firmly depress the plunger with your thumb until the green line disappears. ☐ Remove the device from the patient's nose. Documentation ☐ Document medication name, dose, time, route and effects
Notes	Transport • Patients with a decreased level of responsiveness require urgent transport. • Transport may be deferred long enough to administer Glucagon on scene as a critical intervention but significant delays in transport should be avoided. • Responders must ensure indications are met, contraindications are ruled out, and a full set of Vital Signs including CapBgl are documented prior to first dose. Effects • Glucagon does not introduce sugar into the body. • Glucagon initiates the release of glycogen stored in the patient's liver into the bloodstream • It can take 8-10 minutes for effects of glucagon to become evident. • Effects may be minimal if patient does not have sufficient glycogen stores in their liver. • Do not delay transport to see if the patient responds positively

Glucogel Administration - Parenteral

• Engage Glucogel protocol when there is suspected Hypoglycemia with a decreased level of responsiveness and the patient appears **capable** of maintaining their own airway.	
Indications	CapBgl < 4mmoL ☐ Decreased Level of Responsiveness ☐ **Capable** of following instructions and maintaining own airway
Contraindications	☐ n/a
Dose	• 12-15 g glucogel (half of a 30 g tube) • Q5 (up to 4 doses) • Consult medical supervision before exceeding 4 doses
Instructions	Confirmation ☐ Ensure indications met and contraindications ruled out. ☐ Document full set of Vital Signs including CapBgl. Administration ☐ Patient self-administers 15 g Glucogel ☐ Other sugars/juice/oral carbohydrates may be appropriate Documentation ☐ Document medication name, dose, time, route and effects
Notes	Transport • Patients with a decreased level of responsiveness require urgent transport. • Transport may be deferred long enough to administer first dose of Glucogel on scene as a critical intervention but significant delays in transport should be avoided. Additional Doses • Remeasure capBgl every 5 minutes • Apply another 15 g of Glucogel if still below 4 mmol/L • Repeat for up to 4 doses (2 tubes) then consult Medical Supervision

EMR ONLY

Salbutamol (Ventolin) Administration – Nebulizing Mask

Indications	• Shortness of Breath associated with Bronchospasm eg. Asthma, Bronchitis, Emphysema, COPD
Contraindications	• Known hypersensitivity to salbutamol • Hemodynamically significant tachycardia
Dose	Age > 1 year old • 5 mg in 5 ml of solution • Repeat as appropriate Q 10 minutes/when each dose is finished Age < 1 year old • 2.5 mg in 2.5 ml of solution • Repeat as appropriate Q 10 minutes/when each dose is finished

Instructions	Confirmation
	  Ensure indications are met and contraindications are ruled out
	  Document full set of Vital Signs
	  Auscultate Chest
	Preparation
	  Ensure salbutamol ampules are not expired.
	  Twist off top of ampule and squirt appropriate amount into the well of the nebulizer
	  Attach oxygen tubing to bottom of nebulizer and turn up O2 flow meter until medication begins to mist out of mask (usually 6-10 lpm)
	Administration
	  Place nebulizer over patient's mouth and nose and instruct them to breathe as slowly and deeply as possible.
	  When salbutamol is finished or after 10 minutes, reassess patient and repeat dose as appropriate.
	Documentation
	  Document medication name, dose, time, route and effects

Notes	Transport • Patients in respiratory distress require urgent transport. • Transport may be deferred long enough to administer first dose of Salbutamol on scene as a critical intervention but significant delays in transport should be avoided.

EMR ONLY

Salbutamol (Ventolin) Administration – Metered Dose Inhaler (MDI)

Indications	• Shortness of Breath associated with Bronchospasm eg. Asthma, Bronchitis, Emphysema, COPD
Contraindications	• Known hypersensitivity to salbutamol. • Hemodynamically significant tachycardia. • Under 10 kg
Dose	**One MDI spray = 100 micrograms (mcg) which can also be expressed as 0.1 millgrams (mg)** Adult (11 years or older) • 4 x 100 mcg per course • Repeat as needed Pediatric (up to 10 years old) < 10 kg • n/a 10-20 kg • 5 x 100 mcg per course • Repeat up to 3 times as needed > 20 kg • 10 x 100 mcg per course • Repeat up to 3 times as needed

Instructions	Confirmation
	  Ensure indications are met and contraindications are ruled out
	  Document full set of Vital Signs & Auscultate Chest (6 points minimum)
	Preparation
	  Ensure Metered Dose Inhaler (MDI) is not expired.
	  Shake inhaler and remove cap from inhaler
	  Place mouthpiece of inhaler into spacer & remove cap from spacer
	Administration
	  MDI upright with mouthpiece at bottom, have the patient tilt their head back slightly and instruct them to breathe out slowly and completely.
	  Instruct the patient to place the mouthpiece of the spacer into their mouth.
	  Press down on the inhaler to spray one puff of medication into the spacer, and instruct the patient to start breathing in and out slowly.
	  Repeat process to the appropriate dose, removing the inhaler from the spacer after each spray to shake it, then re-inserting it to start the next spray/breath in the dose.
	Documentation
	  Document medication name, dose, time, route and effects

Notes	Transport • Patients in respiratory distress require urgent transport. • Transport may be deferred long enough to administer first dose of Salbutamol on scene as a critical intervention but significant delays in transport should be avoided.

EMR ONLY

Epinephrine Administration – Intramuscular Injection (IM)

Indications	• Anaphylaxis • Signs of Anaphylaxis, Hx of Allergic Response, Exposure to Allergen, Unstable (DLOC, or Systolic BP < 90 mmHg or Respiratory Distress)
Contraindications	• There are no absolute contraindications to Epinephrine use in life-threatening situations such as anaphylaxis
Dose	**1 ml of 1:1000 epinephrine hydrochloride solution contains 1 mg of Epinephrine** Adult (11 years or older) • 0.5 mg in 0.5 ml 1:1000 solution • Q5 up to 3 doses total as needed Pediatric (up to 10 years old) • 0.01 mg per kg of body weight in 1:1000 solution • Maximum 0.5 mg per dose • Q5 up to 3 doses total as needed
Instructions	Confirmation ☐ Ensure indications are met and contraindications are ruled out ☐ Document full set of Vital Signs ☐ Auscultate Chest (6 points minimum) Preparation ☐ Expose injection site (deltoid or thigh) ☐ Clean area with alcohol swab and allow to air dry. ☐ Ensure 1:1000 epinephrine hydrochloride is not expired. ☐ Calculate desired dose. ☐ Remove top/cover from ampule/bottle of epinephrine hydrochloride. ☐ Hold ampule/bottle upright, insert needle and draw solution into syringe. ☐ Holding syringe upright, remove needle from bottle & remove bubbles from syringe. ☐ Tap syringe until all bubbles move to top & expel air until only medication is left. Administration ☐ Stretch injection site skin using Z-track technique. ☐ Insert needle at 90° angle to the skin and inject medication into muscle. Documentation ☐ Document medication name, dose, time, route and effects
Notes	Transport • Patients with a decreased level of responsiveness require urgent transport. • Transport may be deferred long enough to administer first dose of Epinephrine on scene as a critical intervention but significant delays in transport should be avoided.

EMR ONLY

FAST VAN Stroke Mnemonic

F (Face)	Right-sided droop? Or Left-sided droop?
A (Arm)	Right-sided weakness? Or Left-sided weakness?
S (Speech)	Slurred speech?
T (Time)	Awoke with Signs/Symptoms? Or Signs/Symptoms started less than 6 hours ago?
• If "Yes" to T and any of the other F-A-S criteria, urgent transport to hospital and continue with VAN questions • If "No" to T, but yes to any of the other F-A-S criteria, urgent transport to hospital	
V (Vision)	Right gaze affected? Or Left gaze affected?
A (Aphasia)	Naming difficulties?
N (Neglect)	Ignoring one side of the body? (typically the left side)
• If "Yes" to any of the V-A-N criteria, notify receiving hospital of possible large vessel occlusion	

EMR ONLY
IV Drip Set Calculations

Drip Set Sizes	
Standard (Regular)	15 gtts / ml
Macro (Adult)	10 gtts / ml
Micro (Mini)	60 gtts / ml

- gtts = "drips"
- ml = "milliliters"
- gtts / ml = "how many drips add up to one milliliter"

$$\text{gtts / minute (drips per minute)} = \frac{\text{volume (expressed in milliliters) to be infused X gtts / ml}}{\text{Infusion time (expressed in minutes)}}$$

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Common IV Solutions

Solution	Commonly Used For…
Ringer's Lactate	Blood loss
D5W and D10W	Hypoglycaemia
Normal Saline	Dehydration
2/3 – 1/3	Dehydration

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Common IV Complications

Interstitial
Circulatory Overload
Thrombosis and Thrombophlebitis
Catheter Embolism
Infection of Catheter Site
Allergic Reaction
Air Embolism

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Entonox Mnemonics

Contraindications	
C	inability to **C**omply
D	**D**ecompression sickness
C	altered level of **C**onsciousness
P	**P**neumothorax
A	**A**ir embolism
I	**I**nhalation injury
N	**N**itroglycerin in the last 5 minutes
Cautions	
S	**S**hock
A	**A**bdominal distension
D	**D**epressant drugs
C	**C**OPD
F	**F**acial Injuries

- ☐ Ensure the area is adequately ventilated, including turning on the vent system in the back of the Ambulance
- ☐ Auscultate the Chest to rule out Pneumothorax
- ☐ Contraindications mean you cannot administer.
- ☐ Precautions mean you need to fix something first, or monitor closely to ensure the Entonox is not creating/exasperating any problems
- ☐ 2 Precautions = Contraindicated

EMR ONLY

Entonox Administration

Indications	• Significant Pain
Rule out Contraindications	• C-D-C-P-A-I-N
Note Precautions	• S-A-D-C-F • Nasal canula may be utilized to mitigate mild shock symptoms
Completed before administration	• SAMPLE, OPQRST and Vital Signs • Contraindications ruled out (requires Chest Auscultation) • Mix bottle if stored improperly • Adequate ventilation secured (vehicle ventilation system activated if available)
Proper Storage	☐ Not left unused over long periods ☐ Not stored below -6 Celsius ☐ Stored horizontally (not vertically, which can cause component separation)
Instructions to Patient	☐ Self-administered using mask/bite valve ☐ “Pull” Entonox out of the bottle by inhaling through bite valve ☐ Pain should be relieved ☐ May begin to feel light-headed, giddy, drowsy or nauseas ☐ Stop or start at any time ☐ Use until pain is relieved or adverse effects are felt
After Discontinuing Entonox	☐ Supplemental Oxygen with Non-Rebreather Mask at 15 lpm
Cardiac Chest Pain	☐ Consider Entonox to relieve chest pain if Nitro is contraindicated and has not been administered in the past 5 minutes

EMR ONLY

Sager Traction Splint

Utilized for suspected Femur Fractures not involving the hip or knee and with no RTC criteria. In the vast majority of circumstances the Traction Splint will be applied on-scene.

- Traction splint applied after complete secondary survey, including head to toe.

Assess injured leg	☐ Distal Pulse – check for presence or absence ☐ Motor-Sensory check ☐ Look and feel to determine exact location and extent of injury
Analgesia	☐ Administer Entonox as appropriate per Entonox protocols
Apply Traction	☐ Adjust saddle to ensure short side of saddle hinge is down ☐ Nestle saddle against injured leg (short hinge down) ☐ Have helper stabilize splint ☐ Apply small thigh strap ☐ Apply ankle harness **above** malleoli ☐ Apply traction of 10% body weight ○ 15 lbs maximum per limb ○ 5 lbs maximum for open fractures ○ 5 lbs maximum for Pediatric patients ☐ 30 lbs maximum for Bi-Lateral fractures (15 lbs per leg)
Secure Splint	☐ Ensure adequate padding ☐ 3 straps around splint…above and below injury ☐ Secure thigh strap…then the other two straps ☐ Secure Figure 8 Strap
Reassess Injury	☐ Reassess all splint straps and **Traction Gauge** ☐ Ensure Leg in line with body…same length as other leg ☐ Recheck presence or absence of **Distal Pulse** ☐ Ensure no movement / aggravation of injured limb

S	Saddle Hinge side down
T	Thigh strap

check distal circulation

A	Ankle Strap
P	Pull Traction

check distal circulation

L	Leg Straps

check distal circulation

E	Evaluate Traction
S	Stirrup Strap

check distal circulation