TABLE OF CONTENTS

Universal Care Protocol - 9914075

OB/GYN Emergencies

Cephalic Presentation - 9914155
Breech Presentation - 9914161
Prolapsed Cord/Limb Presentation - 9914161
Eclamptic Seizures - 9914157
Vaginal Bleeding - 9914159

Trauma Emergencies

General Management -
Amptation - 9914077
Burns - 9914085
CNS - 9914107
Sexual Assault -

Pediatric General Medical Emergencies

Abdominal Pain
Allergic Reaction
Hyperthermia
Near Drowning
Poisoning/Overdose
Sepsis

Pediatric Cardiac Emergencies

General Management of Cardiac Arrest or Pre-Cardiac Arrest
Asystole/PEA
Bradycardia
Narrow Complex Tachycardia
Ventricular Fibrillation/Pulseless Ventricular Tachycardia
Wide Complex Tachycardia (Ventricular Tachycardica with Pulse)
Newborn Resuscitation

Pediatric Neurological Emergencies

Altered Level of Consciousness
Seizures

Pediatric Respiratory Emergencies

Respiratory Distress

Pediatric Trauma Emergencies

General Management
Amputation
Burns
CNS Injuries

Reference Section

Pediatric Information
Capnography Waveform
Glascow Coma Score
APGAR Score
Rule of 9's

Medication Information

Drug Formulary

- Adenosine
- Albuterol
- Amiodarone
- Amiodarone Drip
- Aspirin
- Atropine
- Calcium Chloride 10%
- Dextrose 50%
- Diphenhydramine HCL
- Dopamine Drip
- Dopamine HCL
- Epinephrine
- Epinephrine 10,000
- Epinephrine Drip
- Fentanyl
- Glucagon
- Haloperidol
- Ipratropium bromide
- Magnesium
- Methylprednesolone
- Metoprolol
- Midazolam
- Morphine
- Naloxone
- Nitroglycerin
- Ondasetron
- Pediatric Drug Dose Chart
- Sodium Bicarbonate
- Vasopressin

UNIVERSAL PATIENT CARE PROTOCOL

UNIVERSAL PATIENT CARE PROTOCOL

History	Physical	Differential Diagnoses

PEARL:

Complete vital signs should be taken every 5 minutes for critical patients and 15 minutes for non-critical patients.

Complete vitals include a minimum of Heart Rate, Respiratory Rate and Blood Pressure.

In most cases on scene times should be limited to 10 minutes.

Do not delay oxygen therapy to obtain pulse oximetry reading.

All patients that refuse transport must have documented vital signs and the refusal must be signed.

UNIVERSAL PATIENT CARE PROTOCOL

Scene safety/Personal protective equipment.
Initial Survey with initial interventions as needed.
Supplemental O2 as needed.
Obtain and document: Vital signs SAMPLE history Pain assessment OPQRST (medical) DCAP BTLS (trauma) Consider glucometry if indicated
Cardiac monitor/12 Lead ECG as indicated.
Appropriate protocol/consider differential diagnoses. If no protocol applies or condition is unknown consult medical command.
Transport per guidelines

GENERAL MEDICAL EMERGENCIES

ABDOMINAL PAIN-9914109

History	Physical	Differential Diagnoses
Age	Pain	Trauma
Past medical/Surgical history	Tenderness	Pregnancy
Medications	Nausea/Vomiting	Pneumonia
Onset	Dysuria/Hematuria	Pulmonary embolism
Provocation/Palliation	Vaginal bleeding/Discharge	Liver disease
Quality	Pregnancy	Peptic ulcer disease
Radiation	Fever	Gastritis
Severity	Headache	Gallbladder
Time	Malaise	Myocardial infarction
Fever	Location of pain	Pancreatitis
Last oral intake		Kidney stone
Last bowel movement/emesis		Abdominal aneurysm
Menstrual history		Appendicitis
Diarrhea		Bladder/Prostate
Constipation		Pelvic inflammatory
		Ovarian cyst
		Spleen enlargement
		Diverticulitis
		Bowel obstruction
		Gastroenteritis

PEARL:

Acute, undiagnosed abdominal pain should not receive analgesics in the field without medical command.

Requirements for pain medication or frequency of administration that exceed the guidelines require consultation with on-line medical control.

ABDOMINAL PAIN-9914109

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Nausea and vomiting, consider ondansetron 4 mg IV. May repeat in 10 minutes.	**EN/A**
MC	Fentanyl 1 mcg/kg, up to 100 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. **Reduce dose of Fentanyl for elderly and severly ill patients.** Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**MC**

ACUTE PSYCHOLOGICAL AGITATION-9914053

History	Physical	Differential Diagnoses
Situational crisis	Anxiety, agitation, confusion	Hypoxia
Psychiatric illness/medication	Change in affect	Alcohol intoxication
Injury to self	Hallucinations	Medication or illicit drug effect
Threat to others	Delusional thoughts	Withdrawal syndromes
Medic alert	Bizarre behavior	Depression
Substance abuse/overdose	Combative/Violent	Bipolar disorder
Diabetes	Expression of suicidal or homicidal though	Schizophrenia
Disease process		Anxiety disorders
		Brain cancer
		Diabetic Emergency

PEARL:

Substance-induced disorders, diabetic emergencies and hypoxia must be ruled out.

Suicidal patients are not permitted to sign a refusal.

Consultation with law enforcement, mental health professionals, and medical command should guide patient disposition.

Verbally deescalating the patient is preferable to medication therapy.

Watch for extrapyramidal symptoms and treat with diphenhydramine if needed.

ACUTE PSYCHOLOGICAL AGITATION-9914053

EMT	Universal Care Protocol	EMT
I/P	Haloperidol 5 mg IM for adults to control acute agitation when patient is at risk to themselves or others. May repeat 10-20 minutes. Reduce for patients over 65, Haloperidol 2.5 mg IM. If substance abuse suspected use Versed 5 mg IM. May repeat 10-20 minutes.	**I/P**
MC	If patient refuses transport consider Emergency Custody Order.	**MC**

ALCOHOL RELATED EMERGENCIES

History	Physical	Differential Diagnoses
Last alcoholic drink Daily amount of alcohol intake	Tremors Anxiety Unsteady gait Spider angiomas Distended abdomen	Hypoglycemia Traumatic injury Drug intoxication Sepsis in elderly

PEARL:

ALCOHOL RELATED EMERGENCIES

EMT	Monitor for respiratory depression.	**EMT**
EMT	If seizures occur refer to the Seizure Protocol.	**EMT**
EMT	Treat suspected hypoglycemia.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	For agitation, tachycardia, or hallucinations secondary to alcohol withdrawals, consider Haloperidol 5 mg IM. May repeat in 10 minutes, or midazolam 5 mg IM if blood pressure is >120 systolic or evidence of tremors/seizure activity.	**I/P**

ALLERGIC REACTION-9914111

History	Physical	Differential Diagnoses
Onset and location	Itching or hives	Rash only
Insect bite or sting	Coughing or wheezing	Anaphylaxis
Food allergy/exposure	Chest or throat constriction	Shock
New clothing, soap detergent	Difficulty swallowing	Angioedema
Past history of reactions	Hypotension or shock	Aspiration/Airway obstruction
Past medical history	Edema	Vasovagal event
Medication history	Vomiting	Asthma or COPD
		CHF

PEARL:

Ipatroprium is not indicated for allergic reaction.

ALLERGIC REACTION-9914111

EMT	Assist with prescribed auto injector for severe hives, respiratory distress, and/or shock if > 8 years or > 30 kg.	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Diphenhydramine 25 mg IM or IV for mild to moderate reactions, 50 mg IM or IV for severe reactions. May repeat once in 10 minutes to max of 50 mg. Albuterol 2.5 mg nebulized for wheezing/bronchospasm. Methylprednisolone 125 mg IV over 1 minute for severe hives or difficulty breathing.	**EN/A**
EN/A	For severe cases of suspected anaphylaxis: Epinephrine 0.3 mg IM.	**EN/A**
MC	Epinephrine 2-10 mcg/min to maintain BP > 90 mmHg.	**MC**

ENVENOMATION-9914079

History	Physical	Differential Diagnoses
Type of sting/bite	Rash, skin break, wound	Animal bite
Description of animal involved	Pain, soft tissue swelling, redness	Human bite
Time, location, size of bite/sting	Blood oozing from wound	Snake bite
Previous reaction	Evidence of infection	Spider bite
Domestic vs. wild	Shortness of breath, wheezing	Insect sting
Tetanus and rabies risk	Allergic reation	Anaphylaxis
Infection risk	Hypotension	
Immunocompromised patient		

PEARL:

Signs of pit viper envenomation are swelling that begins at the bite mark and spread proximally within minutes, ecchymosis, hemorrhagic blisters and severe pain.

Avoid using constricting bands or tourniquets, cold application, incision, suction, and extractor devices in pit viper envenomations.

Black widow spider envenomations may present with painful muscle spasms.

ENVENOMATION-9914079

EMT	Refer to Allergic Reaction Protocol if needed.	**EMT**
EMT	Minimize activity, remove tight clothing or jewelry, immobilize extremity at level of heart.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Fentanyl 1 mcg/kg, up to 100 mcg IV/IO/IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. **Reduce dose of Fentanyl for elderly andseverly ill patients.** Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**I/P**

HYPERTHERMIA(HEAT EXHAUSTION/HEAT STROKE)-9914027/9914029

History	Physical	Differential Diagnoses
Age Exposure to increased temperature or humidity Past medical history/medications Extreme exertion Time and length of exposure Poor oral intake Fatigue Muscle cramping	Altered mental status Hot, dry or sweaty Hypotension Seizures Nausea	Fever Dehydration Medications Hyperthyroidism Delirium tremens Heat cramps Heat exhaustion Heat stroke CNS lesions or tumors

PEARL:

Tricyclic antidepressants, phenothiazines, anticholinergics, and alcohol predispose patients to hypert

Cocaine, amphetamines and salicylates may elevate body temperature.

The major difference between heat exhaustion and heat stroke is CNS impairment.

Avoid dramatic decreases in temperature which can cause shivering and increase temperature.

Vigorous fluid administration may result in pulmonary edema, particularly in the elderly.

HYPERTHERMIA (HEAT EXHAUSTION/HEAT STROKE)- 9914027/9914029

EMT	Move to cooler environment, remove excess clothing, protect from further heat gains.	**EMT**
EMT	For heat exhaustion, PO water if patient can tolerate. Cool with wet towels or fans.	**EMT**
EMT	For heat stroke, use aggressive evaportation (fine mist water spray, ice packs to groin and axillae).	**EMT**
EN/A	IV Procedure	**EN/A**

HYPOTENSION-9914127

History	Physical	Differential Diagnoses
Blood loss	Restlessness, confusion	Shock
Fluid loss	Weakness, dizziness	Ectopic pregnancy
Infection	Weak, rapid pulse	Dysrhythmias
Cardiac ischemia	Pale, cool, clammy skin	Pulmonary embolism
Medications	Delayed capillary refill	Tension pneumothorax
Allergic reaction	Coffee-ground emesis	Medication effect
Pregnancy	Tarry stools	Vasovagal
History of poor oral intake		Physiological (pregnancy)

PEARL:

Hypovolemia must be corrected prior to dopamine infusion.

Identify and manage underlying cause.

Consider drug side effects or overdose.

HYPOTENSION-9914127

EMT	If anaphylaxis, refer to Allergic Reaction Protocol.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	If no response to IV therapy or if CHF is present; Dopamine 5-20 mcg/kg/min to maintain BP > 90 mmHg.	**I/P**

HYPOTHERMIA-9914031

History	Physical	Differential Diagnoses
Past medical history Medications Exposure to environment, even in normal temperatures Extremes of age Drug use Infections/Sepsis Length of exposure/wetness	Cold, clammy Shivering Altered mental status Extremity pain or sensory abnormality Bradycardia	Sepsis Environmental exposure Hypoglycemia CNS dysfunction (Stroke, Head injury, Spinal cord injury)

PEARL:

If patient is <u>centrally</u> cold to touch, consider severely hypothermic.

Avoid rough handling.

***W*arm fluids as close to 109 degrees as possible by placing on heater or hot packs. Do not microwave**

Avoid intubation if possible in the severely hypothermic patient.

Consider "urban hypothermia" with high association of poverty or drug/alcohol abuse.

HYPOTHERMIA-9914031

EMT	Refer to Special Resuscitation: Hypothermic Arrest Protocol if needed.	**EMT**
EMT	Remove wet garments.	**EMT**
EMT	Protect from further heat loss. Increase ambient temperature.	**EMT**
EMT	Apply heat packs if patient is responsive.	**EMT**
EMT	If moderate to severely hypothermia, wrap head and core with blankets.	**EMT**
EN/A	Airway management	**EN/A**
EN/A	IV Procedure	**EN/A**

NEAR DROWNING-9914093

History	Physical	Differential Diagnoses
Submersion in water Associated trauma Duration of immersion Temperature of water Fresh vs. Salt water Contamination of water	Unresponsive Altered mental status Decreased vital signs Vomiting Cough Aspiration	Trauma Pre-existing medical problem Pressure injury (barotrauma, decompression sickness)

PEARL:

Most near drowning victims will be hypothermic to some extent.
Assess type of incident (surface impacted, object strike, propeller trauma).
Assess water conditions (depth of submersion, length of time).
Monitor airway status closely.

NEAR DROWNING-9914093

EMT	Remove from water if trained and safe.	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Prevent heat loss, refer to Hypothermia Protocol if indicated.	**EMT**
EMT	For difficulty breathing consider CPAP.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Refer to specific cardiac arrhythmias protocol as needed.	**I/P**

POISONING/OVERDOSE-9914135

History	Physical	Differential Diagnoses
Ingestion of toxic substance	Altered mental status	Tricyclic antidepressants
Route and quantity of ingestion	Hypotension	Acetaminophen
Time of ingestion	Decrease respiratory rate	Depressants
Reason (suicide or accidental)	Tachycardia	Stimulants
Available medications near patient	Dysrhythmias	Anticholinergics
Past medical history	Seizures	Cardiac medications
Medications		Solvents, cleaning agents
Illicit drug abuse		Insecticides (organophosphates)

PEARL:

Intubated patients should not receive naloxone unless hemodynamically unstable.

Tachycardia is not a contraindication to atropine administration.

If questions about the drug or poison involved consider Poison control consultation 1-800-222-1222.

DO NOT DELAY TRANSPORT!!!!!!

Air medical resources will not transport contaminated patients.

POISONING/OVERDOSE-9914135

EMT	Universal Care Protocol	**EMT**
EMT	Indentify substance and assure decontamination. Flush skin/membrane with appropriate solution if indicated.	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Naloxone 0.4 - 2 mg IV/IM titrated to effect for narcotic overdose with respiratory depression.	**EN/A**
EN/A	Diphenhydramine 1 mg/kg slow IV or IM for dystonic reaction. Max dose of 50 mg.	**EN/A**
I/P	**For Symptomatic Tricyclic Antidepressant Overdose:** (if QRS > 0.12 secs, hypotension, or dysrhythmia) Sodium bicarbonate 1 mEq/kg slow IVP over 2 minutes	**I/P**
I/P	**For Symptomatic Calcium Channel Blocker Overdose:** (bradycardic, QRS > 0.12 secs, heart block, hypotension, lethargy, slurred speech, n/v) Calcium Chloride 20 mg/kg slow IVP over 10 minutes Sodium bicarbonate 1 mEq/kg slow IVP over 2 minutes	**I/P**
I/P	**For Symptomatic Organophosphate Poisoning:** (secretions, bronchospasm, seizures, bradycardia) Atropine 0.05 mg/kg IV doubled every 5-10 minutes until decreased secretions.	**I/P**

SEPSIS

History	Physical	Differential Diagnoses
Recent invasive test	Ashen, pallor or cyanosis	Pulmonary embolism
Recent treatments	Lethargic	Diabetic ketoacidosis
Recent surgery	Febrile	Hyperthyroidism
Recent trauma	Normothermic or hypothermic	Acute renal failure
Recent illnesses	Tachycardia	Adrenal crisis
Immune deficiency	Tachypnea	Anaphylaxis
	Temperature > 100.4F or < 96.8F	Aspirin Toxicity
	Respiratory rate > 20 minute	Heat Stroke
	PaO2 < 94%	Overdose

PEARL:

Late septic shock is usually impossible to differentiate from other types of shock

To manage septic shock, you must aggressively administer IV fluids

SEPSIS

EMT	High flow oxygenation consider invasive airway management	**EMT**
EMT	Consider Hypoglycemia	**EMT**
EN/A	Capnograpy monitoring	**EN/A**
EN/A	IV Procedure 2 large bore Ivs	**EN/A**
I/P	Fluid bolus 1-2L	**I/P**
I/P	Consider after 2L of fluid, with continious fluid bolus, Dopamine 5-20 mcg/kg/min	**I/P**

CARDIAC EMERGENCIES

CARDIAC WALL AND ECG LEAD ASSOCIATIONS

I **Lateral**	**aVR**	**V1** **Septal**	**V4** **Anterior**
II **Inferior**	**aVL** **Lateral**	**V2** **Septal**	**V5** **Lateral**
III **Inferior**	**aVF** **Inferior**	**V3** **Anterior**	**V6** **Lateral**

Location (Cardiac Wall)	***ECG Leads (Primary Change)***
Anterior	V1, V2, V3, V4
Lateral	I, aVL, V5, V6
Anterolateral	I, aVL, V3, V4, V5, V6
Inferior	II, III, aVF
Posterior	V8, V9 (direct); V1, V2, V3, V4 (indirect)

For STEMI diagnosis:
2 or more leads with ST elevation must be in at least 1 cardiac wall.

CARDIAC ARREST: GENERAL MANAGEMENT-9914087

History	Physical	Differential Diagnoses
Events leading to arrest Estimated down time Past medical history Medications Terminal illness Signs of rigor/lividity DNR	Unresponsive Apneic Pulseless	Medical vs. trauma V-fib/pulseless V-tach Asystole PEA

PEARL:

Change compressors every 2 minutes

Allow full chest recoil

Check femoral/carotid pulse to verify effective CPR

CARDIAC ARREST: GENERAL MANAGEMENT-9914087

EMT	Universal Care Protocol	**EMT**
EMT	Refer to Criteria for Withholding Resuscitation	**EMT**
EMT	CPR Interrupt compressions only as per AED prompt or every 2 minutes (5 cycles of CPR)	**EMT**
EMT	Apply AED. Chest compressions and defibrillation should not be delayed.	**EMT**
EMT	Advanced Airway Management, first attempt with CPR in progress, Ventilate no more than 10/minute (1 breath every 6-8 seconds)	**EMT**
EN/A	IV or IO Procedure	**EN/A**
I/P	Assess Rhythm (do not use AED mode), refer to appropriate protocol/algorithm	**I/P**
I/P	Capnography Procedure if advanced airway is in place	**I/P**

ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY-9914011

History	Physical	Differential Diagnoses
Past medical history Medications Events leading to arrest End stage renal disease Estimated down time Suspected hypothermia Suspected overdose DNR	Pulseless Apneic	Device error Hypoxia Hypothermia Hydorgen ion (acidosis) Hypo-/Hyperkalemia Hypovolemia Tension pneumothorax Thombosis coronary/pulmonary Toxins Tamponade

PEARL:

Vasopressin should be administered only one (1) time in place of either the first or second epinephrine dose.

ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY-9914011

EMT	General Cardiac Arrest Protocol	EMT
I/P	Confirm asystole in more than one (1) lead.	**I/P**
I/P	Administer vasopressin 40 units (one time dose); begin epinephrine after 3-5 minutes.	**I/P**
I/P	Consider and treat for reversible causes as listed in differential diagnoses.	**I/P**
I/P	1 mg epinephrine (1:10,000) IV/IO every 3-5 minutes up to 3 doses before considering termination of arrest.	**I/P**
I/P	In sudden, witnessed asystole, consider immediate TCP.	**I/P**
MC	Contact Medical Command for special resuscitation situations	**MC**
MC	Termination of Care Policy	**MC**

ATRIAL FIBRILLATION/FLUTTER-9914147

History	Physical	Differential Diagnoses
Medications: Aminophylline, diet pills, thyroid supplements, decongestants, Drugs, nicotine, caffeine Past medical history History of palpitations Syncope/Near syncope Use and compliance of anticoagulants	HR > 150/minute QRS < 0.12 seconds Rhythm in irregularly irregular Dizziness Chest pain Shortness of Breath	Heart Disease (WPW) Sick Sinus Syndrome Myocardial Infarction Electrolyte imbalance Exertion, pain, stress Fever Hypoxia Hypovolemia or anemia Drug effects Hyperthyroidism Pulmonary embolus

PEARL:

Energy settings for cardioversion should be per manufacturer recommendation.

Pharmacological rate control is preferred over cardioversion unless the patient is <u>unstable.</u>

<u>Unstable</u> is defined as BP less than 90 mmHg, altered mental status, pulmonary edema or signs of decreased perfusion.

Instability due to a rapid rate in the absence of a medical event (dehydration, sepsis or other) does not require cardioversion

Adenosine is not effective in converting atrial fibrillation or flutter.

Document all rhythm changes with monitor strips.

Determine onset of symptoms (chronic vs. onset < 48 hours).

Atrial fibrillation/flutter generally does not need to be treated for HR < 150.

ATRIAL FIBRILLATION/FLUTTER-9914147

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure with fluid bolus	**EN/A**
I/P	For a stable patient who is symptomatic with a ventricular rate ≥ 150, consider metoprolol (Lopressor) 5 mg IV. May repeat every 10 minutes to a maximum of 15 mg to achieve ventricular rate of ≤ 120.	**I/P**
I/P	*For an unstable patient, consider synchornized cardioversion (total of 2 attempts)*	**I/P**
MC	For patients who do not respond to cardioversion or who have recurrent tachycardia, metoprolol (Lopressor) 5 mg IV prior to repeated cardioversion.	**MC**
MC	Amiodarone 150 mg in 100 mL of D5W IV piggyback over 10 minutes.	**MC**
MC	Midazolam 2-5 mg IV if needed prior to synchronized cardioversion.	**MC**

BRADYCARDIA-9914115

History	Physical	Differential Diagnoses
Past medical history Medications: Beta blocker, Calcium channel blockers, Clonidine, Digitalis, Pacemaker	Heart rate < 60 Chest pain Respiratory distress Hypotension Altered mental status Syncope	Acute myocardial infarction Hypoxia Hypothermia Athletes Head injury (ICP) Stroke Spinal cord lesion Sick sinus syndrome AV blocks Overdose

PEARL:

Unstable is defined as BP less than 90 mmHg, altered mental status, or signs of decreased TCP is the preferred treatment in 2nd degree, Type II and 3rd degree blocks.

Transplanted hearts will not respond to atropine.

Fluid therapy should be initiated as an adjuncy to rate therapies. Administer fluid cautiously to patients with symptomatic bradycardia.

BRADYCARDIA-9914115

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	For a symptomatic patient, consider atropine 1 mg repeated every 3 minutes as needed to a maximum of 3 mg.	**I/P**
I/P	Consider TCP for unstable patient	**I/P**
I/P	For patients who have not responded to TCP and atropine, consider dopamine (Intropin) 5 to 20 mcg/kg/min to maintain BP of 90 mmHg or Epi drip 2-10 mcg/min.	**I/P**
MC	Consider Midazolam (Versed) 2-5 mg IV if needed during TCP when BP > 90 mmHg.	**MC**

CHEST PAIN/ACUTE CORONARY SYNDROME-9914117

History	Physical	Differential Diagnoses
Age	Chest pain (pain, pressure, aching, tightne	Trauma vs. medical
Use of Viagra, Cialis, Levitra, or herbal equivalents	Location (substernal, epigastric, arm, jaw, neck, shoulder)	Angina vs. STEMI
Past medical history	Pale, diaphoretic	Pericarditis
Recent physical exertion	Dyspnea	Pulmonary embolism
Onset	Nausea, vomiting	Asthma/COPD
Palliation/Provocation	Anxiety	Pneumothorax
Quality		Aortic dissection or aneurysm
Radiation		Reflux or hiatal hernia
Severity		Esophageal spasm
Time		Pleuritic pain
		Cocaine overdose

PEARL:

If use of Viagra or Levitra use within the past 24 hours or Cialis within 72 hours, contact medical command.

Inferior STEMI's preload dependent and may not tolerate NTG or morphine well, use IV fluids as needed.

Use of nitropaste may be preferable to SL NTG if hypotension is likely to occur.

Diabetics, females and geriatric patients often present with atypical chest pain or generalized complaints.

For medication administration all patients should have cardiac monitoring.

CHEST PAIN/ACUTE CORONARY SYNDROME-9914117

EMT	Universal Care Protocol	**EMT**
EMT	Perform and transmit 12 lead ECG, Consult Medical Command.	**EMT**
EMT	Transport to cath lab facility for known or suspected MI.	**EMT**
EMT	Aspirin 324 mg (4 baby aspirin) chewed.	**EMT**
EMT	Assist patient with Nitroglycerin 0.4 mg every 5 minutes as needed. No maximum, keep BP > 100 mmHg Apply 1 inch 2% Nitropaste (15mg) topically if indicated.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	For vomiting, consider ondansetron 4 mg IV/IM/SL repeated in 10 minutes if needed	**I/P**
I/P	Consider morphine sulfate 2 mg slow IV. May be repeated every 5-10 minutes to a max of 6 mg keeping BP > 100 mmHg Fentanyl 1 mcg/kg, up to 100 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). **Reduce dose of Fentanyl for elderly and severly ill patients.**	**I/P**
I/P	Refer to hypotension and dysrhythmia protocols as indicated	**I/P**

NARROW COMPLEX TACHYCARDIA-PAROXYSMAL SVT-9914147

History	Physical	Differential Diagnoses
Medications: Aminophylline, Diet pills, Thyroid supplements, Decongestants, Drugs: nicotine, cocaine, MSG toxicity Past medical history History of palpitations Syncope/Near syncope	HR > 150 QRS < 0.12 secs Dizziness Chest pain Dyspnea Poor perfusion/peripheral pulses	Heart Disease Sick sinus syndrome Myocardial infarction Electrolyte imbalance Exertion, pain, stress Fever Hypoxia Hypovolemia or anemia Drug effect or overdose Hyperthyroidism Pulmonary embolism

PEARL:

Stable is defined as a patient who is symptomatic with normal perfusion, normal vitals, and no alteration in mental status.

Adenosine should be administed in a proximal injection port followed by a 20 mL flush.

Metoprolol should be avoided if cocaine, methamphetamine or other sympathomimetic use is known or suspected.

Use manufacturer recommendations for escalating energy settings.

Document all rhythm changes with monitor strips.

NARROW COMPLEX TACHYCARDIA-PAROXYSMAL SVT-9914147

EMT	Universal Care Protocol	EMT
EN/A	IV Procedure	**EN/A**
I/P	If patient is stable, attempt vagal maneuvers.	**I/P**
I/P	If symptomatic, adenosine 6 mg rapid IVP, if no response, adenosine 12 mg rapid IVP.	**I/P**
I/P	If patient is unstable and IV access, consider adenosine 12 mg rapid IVP or synchronized cardioversion. If no IV access and unstable, consider sychronized cardioversion. May repeat cardioversion for a total of 2 attempts.	**I/P**
I/P	If no response to cardioversion or recurrent or refractory arrhythmias, metoprolol 5 mg slow IVP.	**I/P**
MC	If no response to metoprolol, amiodarone 150 mg IV piggyback over 10 minutes.	**MC**
MC	For 3rd cardioversion attempt after metoprolol or amiodarone has been infused.	**MC**
MC	Midazolam 2-5 mg IV if needed prior to synchronized cardioversion.	**MC**

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA-9914017

History	Physical	Differential Diagnoses
Estimated down time Past medical history Medications Events leading to the arrest DNR	Unresponsive Pulseless Ventricular fibrillation or ventricular tachycardia on ECG Torsades	Asystole Artifact/device failure Endocrine/Metabolic Drugs

PEARL:

Interruption of CPR should be minimal and occur only in 2 minute intervals.

Follow manufacturers recommendations for energy settings for defibrillation.

Treatment priorities are uninterrupted compressions, defibrillation, IV/IO access, airway control.

Medic level providers should utilize AED's only when manual defibrillation is not possible.

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA-9914017

I/P	Defibrillate immediately.	**I/P**
I/P	Vasopressin 40 units IV/IO for 1 dose (Use epinephrine after 3-5 minutes).	**I/P**
I/P	Epinephrine (1:10,000) 1 mg IV/IO every 3-5 minutes.	**I/P**
I/P	After 3rd shock, amiodarone 300 mg IVP, may repeat once at 150 mg.	**I/P**
I/P	Consider magnesium sulfate, 1-2 grams IVP for torsades.	**I/P**
I/P	Search for and treat reversible causes.	**I/P**
MC	Termination of Care Policy	**MC**

WIDE COMPLEX TACHYCARDIA (VENTRICULAR TACHYCARDIA with PULSE)-9914151

History	Physical	Differential Diagnoses
History of Wolffe-Parkinson-White (WPW) Onset Medications Palpitations	Diaphoresis Pallor Altered mental status Labored respirations	Pulseless Ventricular Tachycardia Polymorhphic ventricular tachycardia (torsades) Reentry tachycardia Bundle branch blocks

PEARL:

Stable is defined as a patient who is symptomatic with normal perfusion, normal vitals, and no alteration in mental status.

Unstable is defined as BP less than 90 mmHg, altered mental status, or signs of decreased perfusion.

Follow manufacturer's recommendations for escalating energy settings.

When drawing up amiodarone, use a large bore needle, draw slowly and do not draw in air to avoid bubbling.

WIDE COMPLEX TACHYCARDIA (VENTRICULAR TACHYCARDIA with PULSE)-9914151

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	If patient is stable, amiodarone 150 mg in 100 mL D5W IV piggyback over 10 minutes. May repeat in 10 minutes if no response.	**I/P**
I/P	If patient is unstable, synchronized cardioversion at 100j and repeat with escalating energy.	**I/P**
MC	Midazolam 2-5 mg IV if needed prior to synchronized cardioversion.	**MC**

SPECIAL RESUSCITATION: HYPOTHERMIC ARREST-9914013

History	Physical	Differential Diagnoses

PEARL:

If patient is centrally cold to touch, consider severly hypothermic.

SPECIAL RESUSCITATION: HYPOTHERMIC ARREST-9914013

EMT	Universal Care Protocol	**EMT**
EMT	Confirm pulselessness for 30 seconds. Refer to CPR and AED Protocol if needed (if advised allow only a single shock).	**EMT**
EMT	Remove wet garments. Protect from further heat loss.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Cardiac Monitoring	**I/P**
I/P	Modify ACLS algorithms for cardiac arrest. Administer one (1) round of IV medications. Attempt one (1) defibrillation. Repeat medications and defibrillation as temperature rises.	**I/P**
MC	Consider termination of efforts if no response to initial therapy and prolonged time to definitive care.	**MC**

POST CARDIAC ARREST: INDUCED HYPOTHERMIA-9914019

History	Physical	Differential Diagnoses

PEARL:

POST CARDIAC ARREST: INDUCED HYPOTHERMIA-9914019

EMT	Confirm patient is a candidate: Return of spontaneous circulation after cardiac arrest, unresponsive and not pregnant.	**EMT**
EMT	Choose and apply the most clinically appropriate method depending upon the patient scenario (ice packs, cooling blankets, chilled IV fluid therapy).	**EMT**
EN/A	To expedite the cooling process, 2 liters of cold normal saline are administered rapidly. Place ice packs to the armpits, neck, torso, groin, and limbs.	**EN/A**
EN/A	Withdraw cooling protocol if patient develops hemodynamic or cardiac electrical instability.	**EN/A**
MC	Contact medical command for continuation if patient regains consciousness.	**MC**

NEUROLOGICAL EMERGENCIES

ALTERED LEVEL of CONSCIOUSNESS-9914113

History	Physical	Differential Diagnoses
Known diabetic Drugs Past medical history Medications History of trauma	Change in baseline mental status Bizzare behavior Cool, diaphoretic skin (hypoglycemia) Warm, dry skin, signs of dehydration Fruity breath odor Kussmaul respirations	Head trauma Stroke Seizure Tumor Infection/Sepsis Cardiac dysrhythmia Thyroid Shock Diabetes Toxins Intoxication Exposure Hypoxia Electrolyte abnormality Psychiatric disorders

PEARL:

Medications are a common cause of altered mental status.
Glucometers may be helpful but use cautiously, particularly if values are borderline.
Intubated patients should not receive naloxone unless hemodynamically unstable.
Goal of reversal therapy is to reverse respiratory and circulatory collapse. Repeated administration of small doses is desirable.
Naloxone must be split into two doses. Max of 2 mL per injection site.

ALTERED LEVEL of CONSCIOUSNESS-9914113

EMT	Universal Care Protocol	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Prevent heat loss, refer to Hypothermia Protocol if indicated.	**EMT**
EN/A	IV procedure	**EN/A**
EN/A	Dextrose 50% 25 grams slow IVP.	**EN/A**
EN/A	Glucagon 1 mg IM if no IV access.	**EN/A**
EN/A	Naloxone 0.8 mg IV or IM titrated to respirations. May repeat up to 4 mg.	**EN/A**
EN/A	For hyperglycemia (BS>400 mg/dl), infuse 1 liter NS over 30-60 minutes, followed by NS at 250 ml/hr.	**EN/A**

SEIZURES-9914141

History	Physical	Differential Diagnoses
Reported/Witnessed seizure activity	Altered mental status	Head trauma
Previous seizure history	Sleepiness	Tumor
Medic alert information	Incontinence	Metabolic, hepatic, or renal failure
Seizure medications	Observed seizure activity	Hypoxia
History of trauma	Evidence of trauma	Electrolyte imbalance
History of diabetes	Unconsciousness	Medication non-compliance
History of pregnancy		Infection/Fever
		Alcohol withdrawal
		Eclampsia
		Stroke
		Hyperthermia
		Hypoglycemia

PEARL:

Care during the post-ictal phase should be supportive only.

Status epilepticus is defined as a prolonged seizure without recovery interval; TRUE EMERGENCY.

Generalized seizures: loss of consciousness, incontinence and tongue trauma.

Focal seizures: come from one area in the brain and often affect only one part of the body, usually not associated with loss of consciousness.

Complex partial seizures: altered but no loss of consciousness.

For actively seizing patients, initial medications should be administered IM to avoid any delay in care.

SEIZURES-9914141

EMT	Universal Care Protocol	**EMT**
EMT	Protect patient. Do not attempt to restrain.	**EMT**
EMT	If patient is pregnant and no history of seizure, refer to OB/GYN Eclamptic Seizure protocol.	**EMT**
EN/A	IV procedure	**EN/A**
EN/A	Dextrose 50% 25 grams slow IVP for suspected hypoglycemia.	**EN/A**
EN/A	Glucagon 1 mg IM if no IV access.	**EN/A**
I/P	Midazolam 10 mg IM (in thigh) if actively seizing. May repeat once in 10 minutes if seizures continue.	**I/P**
I/P	Midazolam 5 mg IV for continued seizures with IV access. May repeat once in 10 minutes if seizures continue.	**I/P**

STROKE-9914145

History	Physical	Differential Diagnoses
Previous CVA or TIA	Altered mental status	TIA
Previous cardiac or vasular surgery	Weakness/Paralysis	Seizure
Diabetes	Blindness or other sensory loss	Hypoglycemia
Hypertension	Aphasia	Thrombotic or embolic stroke
Coronary artery disease	Syncope	Hemorrhagic stroke
Atrial fibrillation	Vertigo/Dizziness	Tumor
Medications (blood thinners)	Vomiting	Trauma
History of trauma	Headache	Migraine
	Seizures	

PEARL:

Obtain and document onset of symptoms (time), medications, and contact information for medical decision maker.

Determine and report if the patient is taking warfarin (Coumadin), heparin, Lovenox (enoxaparin), Xarelto (Rivaroxban),Fragmin (dalteparin),Pradaxa (Dabigatran), and Apixaban (Eliquis).

STROKE-9914145

EMT	Universal Protocol	**EMT**
EMT	Identify witness to last time patient was seen normal. Transport with patient if possible or obtain contact information for immediate contact by ED physician upon arrival.	**EMT**
EMT	Focused neurological exam. Cincinnati Prehospital Stroke Scale. Repeat every 15 minutes.	**EMT**
EMT	Instant glucose 15 grams for suspected hypoglycemia and able to maintain airway.	**EMT**
EN/A	IV procedure	**EN/A**
EN/A	Dexrose 50% 25 grams IV for suspected hypoglycemia.	**EN/A**
EN/A	Glucagon 1 mg IM (in thigh) if no IV access.	**EN/A**
MC	For onset of symptoms < 8 hours, contact medical command immediately for possible stroke alert and expedite transport.	**MC**

RESPIRATORY EMERGENCIES

CHF/PULMONARY EDEMA-9914137

History	Physical	Differential Diagnoses
CHF	JVD	Myocardial infarction
Cardiac history	Peripheral edema	Asthma
Digoxin, Lanoxin, Nitrates	Rales, wheezes, or rhonchi	Anaphylaxis
Diuretics (furosemide, Bumex)	Pink frothy sputum	Aspiration
Orthopnea	Diaphoresis	COPD
Gradual or sudden onset	Anxiety	Pneumonia
Weight gain	Air hunger	Pulmonary embolism
	Chest pain	Toxic exposure
	Hypotension	Anxiety
	Altered LOC	

PEARL:

All wheezing is not asthma
Allow position of comfort
Use of nitropaste may be preferable to SL NTG if hypotension is likely to occur
Avoid NTG with use of Viagra, Cialis, or Levitra or herbal equivalents within past 24 hours
Use of IV fluids to treat hypotension may be harmful. Auscultate breath sounds prior to administration of IV fluids

CHF/PULMONARY EDEMA-9914137

EMT	Universal Care Protocol	**EMT**
EMT	Oxygen, Pulse Ox, ETCO2 monitor	**EMT**
EMT	Consider CPAP Protocol	**EMT**
EMT	12 Lead EKG, proceed to Chest Pain Protocol if acute coronary syndrome is suspected	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	NTG 0.4 mg SL every 3-5 minutes if BP > 100 mmHg. Repeat as needed until BP < 140 mmHg	**EN/A**
EN/A	1 inch nitropaste if BP > 100 mmHg	**EN/A**
I/P	Morphine 2-4 mg slow IVP if BP > 100 mmHg	**I/P**
I/P	Consider dopamine 2 to 20 mcg/kg/min for BP < 90 mmHg	**I/P**

COPD/BRONCHOSPASM-9914139

History	Physical	Differential Diagnoses
Tobacco use	Air hunger	Asthma
Smoked or inhaled drugs	Diaphoresis	Anaphylaxis
COPD/Emphysema/Chronic bronchitis	Retractions	Aspiration
Asthma	Accessory muscle use	COPD
Sudden weather change	Tripoding	Pneumonia
Home oxygen	Cyanosis	Pulmonary embolism
Prescribed MDI	Clubbed fingernails	Pneumothorax
Prescribed steroids	Barrel chest	Cardiac (MI or CHF)
Prescribed bronchodilators	JVD	Hyperventilation
	Wheezes	Inhaled toxin
	Silent chest	Anxiety
		Pulmonary edema

PEARL:

Silent chest is a sign of impending respiratory arrest

Increased PEEP with CPAP may increase risk of barotrauma to COPD patients

COPD/BRONCHOSPASM-9914139

EMT	Universal Care Protocol, Refer to Allergic Reaction Protocol if needed	**EMT**
EMT	Oxygen, Pulse Ox, ETCO2 monitor	**EMT**
EMT	Assist with prescribed MDI, may repeat in 5 minutes	**EMT**
EMT	Consider CPAP Procedure	**EMT**
EN/A	Albuterol 2.5 mg/ipratropium 0.5 mg nebulized. May repeat treatments of albuterol if needed	**EN/A**
EN/A	IV Procedure	**EN/A**
EN/A	Consider methylprednesolone 125 mg slow IVP if not relieved after first albuterol treatment	**EN/A**

PNEUMONIA

History	Physical	Differential Diagnoses
Decreased oral intake	Fever	Asthma
Chills	Productive cough	Aspiration
Exertional dyspnea	Chest pain	Cardiac (CHF, MI)
General illness	Nausea/Vomiting	COPD
Altered mental status	Tachycardia	Septic shock
Prescribed or OTC medications	Rales or decreased breath sounds	Pulmonary effusion
	Hypotension (sepsis, dehydration)	
	Poor skin turgor	

PEARL:

PNEUMONIA

EMT	Universal Care Protocol	**EMT**
EMT	Oxygen, Pulse Ox, ETCO2 monitor	**EMT**
EMT	Consider CPAP	**EMT**
EN/A	Albuterol 2.5 mg/ipratroprium 0.5 mg nebulized if wheezing	**EN/A**
EN/A	IV Procedure	**EN/A**

OB/GYN EMERGENCIES

CEPHALIC PRESENTATION-9914155

History	Physical	Differential Diagnoses
Due date	Spasmodic pain	Abnormal presentation
Time contractions started, interval	Vaginal discharge or bleeding	Prolapsed cord
Rupture of membranes	Crowning	Placenta previa
Vaginal bleeding	Urge to push	Abruptio placenta
Sensation of bowel movement	Meconium	
Past medical and delivery history		
Medications		
Drug use		
Gravida/Para status		
High risk pregnancy		

PEARL:

A pregnant patient in cardiac arrest should be managed per ACLS guidelines with rapid transport. Do not delay transport for delivery of the placenta.

Manual vaginal exams should not be performed in the field.

If birth is imminent, stay and deliver the baby. If high risk, attempt delivery enroute to hospital.

Seizures during pregnancy represent a medical emergency, contact medical command promptly.

If amniotic sac has not ruptured, it should be ruptured manually.

CEPHALIC PRESENTATION-9914155

EMT	Universal Care Protocol	**EMT**
EMT	Visualize perineum for crowning and imminent delivery.	**EMT**
EMT	Transport 3rd trimester patients in left lateral recumbent position. If immobilized, tilt spine board to left.	**EMT**
EMT	Assess for amniotic sac rupture. If not ruptured and delivery is in progress, tear membrane. Support infant's head over perineum. Once head appears, suction mouth then nostrils with bulb syringe. Check for cord around the neck. Apply gentle traction downward on head until anterior shoulder appears. Guide infant upward to deliver posterior shoulder. Keep infant at same level of placenta. Clamp cord at 8 inches and 10 inches from the infant. Cut cord between the clamps. Keep infant warm, particularly the head. Record time of birth.	**EMT**
EMT	Assess and record APGAR at 1 and 5 minutes.	**EMT**
EN/A	IV Procedure	**EN/A**

BREECH PRESENTATION-9914161

History	Physical	Differential Diagnoses

PEARL:

Always contact medical command for guidance with any complicated delivery.
Seizures during pregnancy represent a medical emergency, contact medical command promptly.

BREECH PRESENTATION-9914161

EMT	Universal Care Protocol	**EMT**
EMT	Visualize perineum for crowning and imminent delivery.	**EMT**
EMT	Support the baby's extremities or buttocks until the upper back appears. Grasp the baby's hips and apply gently downward traction. Do not apply traction to baby's legs or back. Swing the infant's body in the direction of least resistance. By alternate swinging, both shoulders will deliver posteriorly. Splint the humerus and apply gentle traction so the arms can be delivered. Gentle abdominal compression of the uterus to engage baby's head. Apply downward traction until the baby's head is visible. Grasp iliac crests to swing legs upward until the body is in vertical position which delivers head. Suction mouth then nostrils using bulb syringe. Clamp and cut cord at 8 inches and 10 inches from baby. Record time of birth.	**EMT**
EMT	Assess and record APGAR at 1 and 5 minutes.	**EMT**
EN/A	IV Procedure	**EN/A**

PROLAPSED CORD/LIMB PRESENTATION-9914161

History	Physical	Differential Diagnoses

PEARL:

Always contact medical command for guidance with any complicated delivery.
Seizures during pregnancy represent a medical emergency, contact medical command promptly.

PROLAPSED CORD/LIMB PRESENTATION-9914161

EMT	Universal Care Protocol	**EMT**
EMT	Visualize perineum for crowning and imminent delivery.	**EMT**
EMT	Do not attempt to push the cord or limb back in. Insert 2 fingers of gloved hand into vagina to raise presenting part off cord. Check cord for pulsations in vagina. Push baby's head away to keep pressure off cord and maintain. Place mother in knee-chest position. If unable, use Trendelenburg instead. Continue to hold pressure off cord. Keep cord moist with sterile saline. Transport immediately with early notification.	**EMT**
EN/A	IV Procedure	**EN/A**

ECLAMPTIC SEIZURES-9914157

History	Physical	Differential Diagnoses
Past medical history Hypertension medication Prenatal care Gravida/Para	Seizures Hypertension Severe headache Visual changes Edema of hands and face Right upper quadrant pain	Pre-eclampsia Eclampsia

PEARL:

Hypertension in the pregnant patient is defined as 140/90 mmHG or an increase of 30 mmHg systolic or 20 mmHg diastolic from patient's normal BP.

Seizures during pregnancy represent a medical emergency, contact medical command promptly.

Side effects of magnesium include muscle weakness and respiratory depression. Treat with IV calcium as a reversal agent.

ECLAMPTIC SEIZURES-9914157

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure	**EN/A**
MC	Intermediate and Paramedic: Magnesium Sulfate 10% 4 grams IVP at no greater than 1 gram per minute until seizure stops or 4 grams have been given. (to obtain 10% solution, dilute with 8 mL NS).	**MC**

VAGINAL BLEEDING-9914159

History	Physical	Differential Diagnoses
Gestational history	Vaginal bleeding	Placenta previa
Time of onset	Rigid abdomen	Abruptio placenta
Amount of bleeding	Presence of contractions	Spontaneous abortion
Presence of clots or products of conception	Signs of shock	Abnormal menses
		Trauma related
Recent sexual intercourse		Hematuria
Abdominal pain		Endometriosis
Diagnosis of placental complications		Ectopic pregnancy
History of current pregnancy		Other non-obstetric causes
Prenatal care		
Last exam? By whom?		
Start of last menstrual cycle		
Prior non-menstrual bleeding		
Ovarian cysts		
History of ectopic pregnancies		
Endometriosis		

PEARL:

Determine last menstrual cycle.
Always consider pregnancy and complications in women of child bearing age.
3rd trimester bleeding may constitute a medical emergency, contact medical command promptly.

VAGINAL BLEEDING-9914159

EMT	Universal Care Protocol	**EMT**
EMT	Collect any tissue or fetal parts. Place in paper bag then into plastic bag for physician examination.	**EMT**
EMT	If hypotensive, refer to hypotensive protocol.	**EMT**
EN/A	IV Procedure	**EN/A**

TRAUMA EMERGENCIES

GENERAL MANAGEMENT

History	Physical	Differential Diagnoses
Time and mechanism of injury	Deformity	Chest: Tension pneumothorax, Flail chest, Peicardial tamponade, Open chest wound, Hemothorax
Damage to structure or vehicle	Contusion	
Location in structure or vehicle	Abrasions	
Others injured or dead	Punctures, penetrations	Intra-abdominal bleeding
Speed and details of MVC	Burns	Pelvis/Femur fracture
Restraints/Protective devices	Lacerations	Spinal fracture/Cord injury
Past medical history	Tenderness	Head injury
Medications	Swelling	Extremity trauma
	Altered mental status	HEENT trauma
	Hypotension	Hypothermia
	Arrest	Distracting injury

PEARL:

GCS should be assessed and documented

Never use Versed in a trauma patient unless authorized by OMD to RSI

GENERAL MANAGEMENT

EMT	Universal Care Protocol with a emphasis on maintaining patient warmth	**EMT**
EMT	Spinal immobilization if indicated	**EMT**
EMT	Notify MedCom if possible trauma alert (red or yellow category): Advise mechanism of injury, age and sex of patient, sites of injury, vitals if available and ETA	**EMT**
EMT	For evisceration, cover with moist sterile dressing then with plastic, taping on all four sides. Do not push organs back into abdominal cavity	**EMT**
EMT	For open chest wound, cover immediately with occlusive dressing taping only three sides	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Needle Chest Decompression Procedure if absent breath sounds and symptoms of shock	**I/P**
I/P	FOR ISOLATED EXTREMITY INJURY ONLY: Fentanyl 1 mcg/kg, up to 100 mcg IV/IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. **Reduce dose of Fentanyl for elderly and severly ill patients.** Morphine 0.05-0.1 mg/kg, up to 10 mg IV/IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**I/P**
MC	Consider cessation of efforts for traumatic cardiac arrest if transport is greater than 15 mins	**MC**

AMPUTATION-9914077

History	Physical	Differential Diagnoses
Mechanism of injury Time of injury Wound contamination Medical history Medications	Deformity Diminished pulse, capillary refill	Complete amputation Incomplete amputation

PEARL:

Tourniquets should be used with the smallest amount of pressure over the widest area
Never freeze the part by placing directly on ice

AMPUTATION-9914077

EMT	Universal Care Protocol	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Apply direct pressure to control hemorrhage and consider tourniquet for life threatening bleeding.	**EMT**
EMT	If incomplete amputation, splint entire digit or limb in physiological position.	**EMT**
EMT	Place part in damp gauze, place in plastic bag, wrap in trauma dressing, place on ice/water mix.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Fentanyl 1 mcg/kg, up to 100 mcg IV/IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. **Reduce dose of Fentanyl for elderly and severly ill patients.** Morphine 0.05-0.1mg/kg, up to 10 mg IV/IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**I/P**

BURNS-9914085

History	Physical	Differential Diagnoses
Type of exposure	Burns, pain, swelling	Superficial
Inhalation injury	Dizziness	Partial thickness
Time of injury	Loss of consciousness	Full thickness
Past medical history	Hypotension	Chemical
Medications	Airway compromise	Thermal
Other trauma	Singed facial or nasal hair	Electrical
Loss of consciousness	Hoarseness/Wheezing	Radiation

PEARL:

In electrical burns, search for additional traumatic injury

In thermal burns, assess for carbon monoxide exposure

Remove jewelry and non-adherent clothing

Avoid establishing IV distal to extremity burn

Severe burns should not receive succinylcholine

Early intubation should be considered if airway edema is present or likely to develop

Morphine is the perfered pain medication for burn patients

BURNS-9914085

EMT	Universal Care Protocol	**EMT**
EMT	Apply dry clean dressings	**EMT**
EMT	Spinal immobilization if indicated	**EMT**
EMT	Irrigate chemical burn with water if appropriate for chemical. If powder chemical brush off.	**EMT**
EN/A	Advanced airway management	**EN/A**
EN/A	IV Procedure	**EN/A**
I/P	Morphine 0.05-0.1mg/kg, up to 10mg IV/IO/IM. May repeat once at same dose in 10 mins. Fentanyl 1 mcg/kg, up to 100 mcg IV/IO/IM (For IN 1.5 mcg/kg up to 100 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV or IM or SL tablet when administering narcotics for pain control. **Reduce dose of Fentanyl for elderly and severly ill patients.**	**I/P**

CENTRAL NERVOUS SYSTEM INJURIES-9914107

History	Physical	Differential Diagnoses
Time of injury	Pain, swelling, bleeding	Skull fracture
Mechanism of injury	Altered mental status	Brain injury
Loss of consciousness	Unconsciousness	Epidural hematoma
Bleeding	Respiratory distress/failure	Subdural hematoma
Medical history	Vomiting	Subarachnoid hemorrhage
Medications	Significant mechanism of injury	Spinal injury
Evidence of multitrauma		Abuse
Helmet use or damage		

PEARL:

GCS should be assessed and documented

Intracranial pressure may cause hypertension, bradycardia, and altered respiratory rate

Haloperidol should not be administered to these patients

Avoid advanced airway procedures if there is any indication of an intact gag reflex

Maintain a capnography reading of 30-35 mmHg

CENTRAL NERVOUS SYSTEM INJURIES-9914107

EMT	Universal Care Protocol	**EMT**
EMT	Spinal immobilization if indicated	**EMT**
EMT	Elevate patient's head if not hypotensive. Elevate head of spine board if immobilized.	**EMT**
EMT	Maintain Patient warmth	**EMT**
EN/A	Advanced airway management with Capnography	**EN/A**
EN/A	IV Procedure	**EN/A**

SEXUAL ASSAULT

History	Physical	Differential Diagnoses
Witness or alleged sexual assault	Vaginal bleeding Emotionally upset Signs of trauma Abdominal cramping	Non-traumatic vaginal bleeding Criminal abortion

PEARL:

Obtain only pertinent facts related to the trauma.

Do not question about prior events or information not directly related to care (assailant description,etc)

Ensure law enforcement has been informed.

Transport with provider of same gender if possible.

SEXUAL ASSAULT

EMT	Universal Care Protocol	**EMT**
EMT	Confirm scene safety.	**EMT**
EMT	Do not examine genitalia unless a hemorrhage requires bleeding control.	**EMT**
EMT	Save any clothing and place in paper bag.	**EMT**
EMT	Advise patient not to urinate, defecate, douche, or wash before Emergency Department evaluation.	**EMT**
EMT	Transport to facility with sexual assault examiner capabilities.	**EMT**
EN/A	IV Procedure	**EN/A**

PEDIATRIC

GENERAL MEDICAL EMERGENCIES

ABDOMINAL PAIN

History	Physical	Differential Diagnoses
Age	Pain	Trauma
Past medical/Surgical history	Tenderness	Pregnancy
Medications	Nausea/Vomiting	Pneumonia
Onset	Dysuria/Hematuria	Pulmonary embolism
Provocation/Palliation	Vaginal bleeding/Discharge	Liver disease
Radiation	Fever	Peptic ulcer disease
Serverity	Headache	Gastritis
Time	Malaise	Gallbladder
Fever	Location of pain	Myocardial infarction
Last oral intake		Pancreatitis
Last bowel movement/Emesis		Kidney stone
Menstrual history		Abdominal aneurysm
Diarrhea		Appendicitis
Constipation		Bladder/Prostate
		Pelvic inflammatory
		Ovarian cyst
		Spleen enlargement
		Diverticulitis
		Bowel obstruction
		Gastroenteritis

PEARL:

KEEP NPO (NOTHING BY MOUTH).

ABDOMINAL PAIN

EMT	Universal Care Protocol	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Nausea/Vomiting, consider ondansetron 4 mg IV, may repeat in 10 minutes.	**EN/A**
I/P	Fentanyl 1 mcg/kg, up to 50 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 50 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. **Reduce dose of Fentanyl for severly ill patients.** Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV or IM when administering narcotics for pain control.	**I/P**

ALLERGIC REACTION

History	Physical	Differential Diagnoses
Onset and location Insect bite or sting Food allergy/exposure New clothing, soap, or detergent Past history of reactions Past medical history Medication history Medication allergy/exposure Is this a reaction that your physician advised you to use the epi-pen?	Itching or hives Coughing or wheezing Chest or throat constriction Difficulty swallowing Hypotension/Shock Edema Vomiting	Rash only Anaphylaxis Shock Angioedema Aspiration/Airway obstruction Asthma

PEARL:

Any patient receiving epinephrine must be transported.
IM injection is preferred in the anterior lateral thigh.

ALLERGIC REACTION

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Remove from source of exposure if safe.	**EMT**
EMT	Administer or Assist Patient with their own Epi -Pen Jr. (Epi Pen if greater than 30 kg) for severe hives, inadequate perfusion, or respiratory distress.	**EMT**
EN/A	1. Albuterol 2.5 mg nebulized for wheezing/bronchospasm. 2. IV Procedure 3. Diphenhydramine 1 mg/kg/IM (in thigh) or IV (Max 50 mg). 4. Methylprednisolone 1 mg/kg IV over 1 minute for severe hives or difficulty breathing. 5. Epinephrine (1:1000) 0.01 mg/kg IM (in thigh) (Max 0.3 mg). May repeat in 10 minutes.	**EN/A**
MC	Consider additional doses of epinephrine.	**MC**

HYPERTHERMIA

History	Physical	Differential Diagnoses
Age Exposure to increased temperature or humidity Past medical history/medications Extreme exertion Time and length of exposure Poor oral intake Fatigue Muscle cramping History of fever/chills/illness Environmental condition	Altered mental status Hot, dry or sweaty Hypotension Seizures Nausea	Fever Dehydration Medications Hyperthyroidism Delirium tremens Heat cramps Heat exhaustion Heat stroke CNS lesions or turmors Illicit drug use

PEARL:

Tricyclic antidepressants, phenothiazines, anticholinergics, and alcohol predispose patients to hyperthermia.

Cocaine, ampehtamines, and salicylates may elevate body temperature.

The major difference between heat exhaustion and heat stroke is CNS impairment.

Avoid dramatic increases in temperature which can cause shivering and increase temperature.

Vigorous fluid administration may result in pulmonary edema.

HYPERTHERMIA

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Move to cooler environment, remove excess clothing, protect from further heat gains.	**EMT**
EMT	For heat exhaustion, oral water if patient can tolerate. Cool with wet towels or fans.	**EMT**
EMT	For heat stroke, use aggressive evaporation (fine mist water spray, ice packs to groin and axillae).	**EMT**
EN/A	IV Procedure	**EN/A**

NEAR DROWNING

History	Physical	Differential Diagnoses
Submersion in water Associated trauma Duration of immersion Temperature of water Fresh vs. salt water Contamination of water Time patient was removed from water	Unresponsive Altered mental status Decreased vital signs Vomiting Cough Aspiration	Trauma Pre-existing medical problem Pressure injury (Barotrauma, Decompression sickness)

PEARL:

Most near drowning victims will be hypothermic to some extent.
Assess type of incident (surface impacted, object strike, propeller trauma).
Assess water conditions (depth of submersion, length of time).
Complications can appear up to 24 hours later. Transport should be highly encouraged.

NEAR DROWNING

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Remove from water if trained and safe.	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Prevent heat loss, refer to Hypothermia Protocol if indicated.	**EMT**
EN/A	IV procedure	**EN/A**
I/P	Refer to specific Cardiac Arrhythmias Protocol as needed.	**I/P**

POISONING OVERDOSE

History	Physical	Differential Diagnoses
Ingestion of toxic substance	Mental status change	Tricyclic antidepressants
Route and quantity of ingestion	Hypotension/Hypertension	Acetaminophen
Time of ingestion	Decrease respiratory rate	Depressants
Reason (suicide, accident)	Tachycardia	Stimulants
Available medications near patient	Dysrhythmias	Anticholinergic
Past medical history	Seizures	Cardiac medications
	Behavioral changes	Solvents, cleaning agents
		Insecticides (organophosphates)
		Aspirin
		Smoke inhalation

PEARL:

Intubated patients should not receive naloxone unless hemodynamically unstable.

Tachycardia is not a contraindication to atropine administration.

Air medical resources will not transport contaminated patients.

If questions about the drug or poison involved consider Poison control consultation1-800-222-1222.

DO NOT DELAY TRANSPORT!!!!!!

POISONING OVERDOSE

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Indentify substance and assure decontamination. Flush skin/membrane with appropriate solution if indicated.	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Naloxone 0.1 mg/kg IV or IM for suspected narcotic overdose. Max 2 mg.	**EN/A**
EN/A	Diphenhydramine 1 mg/kg slow IV or IM for dystonic reaction. Max dose of 50 mg.	**EN/A**
I/P	**For Symptomatic Tricyclic Antidepressant Overdose:** (if QRS > 0.12 secs, hypotension, or dysrhythmia). Sodium bicarbonate 1 mEq/kg slow IVP over 2 minutes.	**I/P**
I/P	**For Symptomatic Calcium Channel Blocker Overdose:** (if bradycardic, QRS > 0.12 secs, heart block, hypotension, lethargy, slurred speech, n/v). Calcium Chloride 10 mg/kg slow IVP over 10 minutes. Sodium bicarbonate 1 mEq/kg slow IVP over 2 minutes.	**I/P**
I/P	**For Symptomatic Organophosphate Poisoning:** (secretions, bronchospasm, seizures, bradycardia). Atropine 0.05 mg/kg IV doubled every 5-10 minutes until decreased secretions.	**I/P**

SEPSIS

History	Physical	Differential Diagnoses
Recent invasive test	Ashen, pallor or cyanosis	Pulmonary embolism
Recent treatments	Lethargic	Diabetic ketoacidosis
Recent surgery	Temperature > 100.4F or < 96.8F	Hyperthyroidism
Recent trauma	Normothermic or hypothermic	Acute renal failure
Recent illnesses	Tachycardia	Adrenal crisis
Immune deficiency	Tachypnea	Anaphylaxis
	Respiratory rate > 20 minute	Aspirin Toxicity
	PaO2 < 94%	Heat Stroke
	Hypotension	Overdose

PEARL:

Late septic shock is usually impossible to differentiate from other types of shock
To manage septic shock, you must aggressively administer IV fluids

SEPSIS

EMT	High flow oxygenation consider invasive airway management	**EMT**
EMT	Consider Hypoglycemia	**EMT**
EN/A	Capnograpy monitoring	**EN/A**
EN/A	IV Procedure	**EN/A**
EN/A	Fluid bolus 20mL/kg warm NS. If hemodynamically unstable consider additional fluid bolus	**MC**

PEDIATRIC

CARDIAC EMERGENCIES

PEDIATRIC: GENERAL MANAGEMENT of CARDIAC ARREST or PRE-ARREST

History	Physical	Differential Diagnoses
Time of arrest Medication history Medications Possibility of foreign body Suspected abuse	Pulseless Apneic	Respiratory failure: Foreign body, secretions, infection Hypovolemia Congenital heart disease Trauma Tension pneumothorax Toxin or medication Hypoglycemia Acidosis SIDS

PEARL:

If pediatric pads are not available, use of adult pads is acceptable. Ensure they do not touch.
IV medications should be followed by a 10 mL bolus NS.
ETT placement should be confirmed every time the patient is moved or for change of status.
Continuous ETCO2 is mandatory in intubated patient.
Consider orogastric tube for abdominal distention.
Use length-based resuscitation tape.

PEDIATRIC: GENERAL MANAGEMENT of CARDIAC ARREST or PRE-ARREST

EMT	Universal Care Protocol, with emphasis on adequate oxygenation.	**EMT**
EMT	Check adequacy of CPR. Perform chest compressions if HR persistently < 60 in child/infant or < 80 in newborn.	**EMT**
EMT	AED protocol using pediatric pads. Use adult pads when using multifunction device in AED mode, if no pediatric pads available. Ensure pads do not touch put anterior and posterior.	**EMT**
EMT	Ensure patient warmth.	**EMT**
EMT	Transport immediately with BLS measures while requesting ALS.	**EMT**
EN/A	IV or IO Procedure	**EN/A**
I/P	Airway management	**I/P**
I/P	Evaluate cardiac rhythm. Go to appropriate protocol for further management.	**I/P**

PEDIATRIC: ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY

History	Physical	Differential Diagnoses
Past medical history Trauma Medications Evaluate history of respiratory illness Evaluate history consistent with possible shock	Pulseless Apneic	Congenital heart disease Device error Hypoxia Hypothermia Hydrogen ion (acidosis) Hypo-/Hyperkalemia Hypovolemia Tension pneumothorax Thombosis coronary/pulmonary Trauma Toxins Tamponade

PEARL:

IV medications should be followed by a 10 mL bolus NS.

ETT placement should be confirmed every time the patient is moved or for change of status.

Continuous ETCO2 is mandatory in intubated patient.

Consider orogastric tube for abdominal distention.

Use length-based resuscitation tape.

PEDIATRIC: ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Pediatric General Management of Cardiac Arrest Protocol	**EMT**
I/P	Epinephrine IV/IO (1:10,000) 0.01 mg/kg max 1 mg repeat every 3-5 minutes.	**I/P**
I/P	Identify and treat reversible causes.	**I/P**

BRADYCARDIA

History	Physical	Differential Diagnoses
Past medical history Foreign body Respiratory distress Apnea Toxic or poison exposure Congenital disease Medication (maternal or infant)	Cyanosis Mottled, cool skin Hypotension Altered mental status Decrease capillary refill	Respiratory distress Respiratory obstruction (Foreign body, Secretions, Croup/Epiglottis) Hypovolemia Hypothermia Infection/Sepsis Medication or toxin Hypoglycemia Trauma

PEARL:

Bradycardia is commonly a manifestation of hypoxia.

IV medications should be followed by a 10 mL bolus NS.

ETT placement should be reconfirmed every time the patient is moved or for change of status.

Continuous ETCO2 is mandatory in intubated patient.

Consider orogastric tube for abdominal distention.

Use length-based resuscitation tape.

BRADYCARDIA

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	If heart rate is persistently < 60 for child/infant or < 80 for neonates, begin CPR. Refer to General Management of Cardiac Arrest or Pre-arrest protocol.	**EMT**
EN/A	IV or IO Procedure	**EN/A**
I/P	Epinephrine IV or IO (1:10,000) 0.01 mg/kg max 1 mg. Repeat every 3-5 minutes.	**I/P**
I/P	Atropine sulfate 0.02 mg/kg IV or IO repeat every 5 minutes. Max single dose for child 0.5 mg with a total max of 1 mg.	**I/P**
I/P	Identify and treat reversible causes.	**I/P**
MC	Consider transcutaneous pacing.	**MC**

NARROW COMPLEX TACHYCARDIA

History	Physical	Differential Diagnoses
Past medical history	Heart rate	Congential heart disease
Medications or ingestion	Pale or cyanotic	Hypoxemia or anemia
Congenital heart	Diaphoresis	Hypovolemia
Respiratory distress	Tachypnea	Electrolyte imbalance
Syncope/Near syncope	Vomiting	Tamponade
	Hypotension	Tension pneumothorax
	Altered level of consciousness	Anxiety, pain, stress
	Pulmonary congestion	Fever, infection sepsis
	Syncope	Hypoxia
		Hypoglycemia
		Medication, toxins, drugs
		Trauma

PEARL:

Treatment of sinus tachycardia should be aimed at searching for and treating reversible causes.

NARROW COMPLEX TACHYCARDIA

EMT	Universal Care Protocol with adequate oxygenation	**EMT**
EN/A	IV or IO Procedure	**EN/A**
I/P	**Probable Sinus Tachycardia:** (P waves present and normal, variable R-R with constant P-R child rate < 180, infant rate < 220) Search for and treat potential causes as listed above in differential diagnoses.	**I/P**
I/P	**Probable Supraventricular Tachycardia:** (QRS < 0.08 secs, P waves absent, abrupt change to or from normal, child rate > 180, infant rate > 220). Consider vagal maneuvers if stable.	**I/P**
MC	Adenosine 0.1 mg/kg rapid IV max initial dose 6 mg, may repeat one time at twice the first dose to a max of 12 mg.	**MC**
MC	Sychronized cardioversion 0.5 to 1 j/kg may increase up to 2 j/kg if ineffective.	**MC**
MC	Consider midazolam 0.1 mg/kg IV max single dose 2 mg. Do not delay cardioversion.	**MC**

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

History	Physical	Differential Diagnoses
Estimated down time Past medical history Medications Events leading to the arrest	Apneic Pulseless	Asystole Artifact/device failure Congenital heart disease

PEARL:

Sodium bicarbonate should not be used during brief resuscitation attempts.

If pediatric pads are not available, use of adult pads is acceptable. Ensure they do not touch.

IV medications should be followed by a 10 mL bolus NS.

ETT placement should be confirmed every time the patient is moved or for change of status.

Continuous ETCO2 is mandatory in intubated patient.

Consider orogastric tube for abdominal distention.

Use length-based resuscitation tape.

VENTRICULAR FIBRILLATION/PULSELESS VENTRICULAR TACHYCARDIA

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	General Management of Cardiac Arrest Protocol	**EMT**
EMT	AED Protocol using pediatric pads if stand alone defibrillator. Use adult pads when using multifunction device in AED mode, if no pediatric pads available. Ensure pads do not touch.	**EMT**
I/P	Attempt defibrillation at 2 j/kg.	**I/P**
I/P	Epinephrine IV or IO (1:10,000) 0.01 mg/kg max 1 mg. Repeat every 3-5 minutes.	**I/P**
I/P	Attempt defibrillation at 4 j/kg after 2 minutes of CPR. Continue every 2 minutes.	**I/P**
MC	Consider amiodarone 5 mg/kg IV or IO.	**MC**

WIDE COMPLEX TACHYCARDIA
(VENTRICULAR TACHYCARDIA with PULSE)

History	Physical	Differential Diagnoses
Medical history Time of onset Medications Congenital heart disease Prolonged QT syndrome Renal disease	Diaphoresis Pallor Hypotension Delayed capillary refill	Pulseless Ventricular Tachycardia Medication effects

PEARL:

VT is uncommon in the pediatric patient.

The ventricular rate may vary from near normal to near 400 beats per minute.

Slow rates may be well tolerated.

IV medications should be followed by a 10 mL bolus NS.

The majority of children who develop VT have underlying structural heart disease or prolonged QT sy

WIDE COMPLEX TACHYCARDIA
(VENTRICULAR TACHYCARDIA with PULSE)

EMT	Universal Care Protocol, with emphasis on adequate oxygenation	**EMT**
EN/A	IV or IO Procedure	**EN/A**
I/P	Confirm QRS > 0.08 sec	**I/P**
I/P	If patient is unstable, synchronized cardioversion at 0.5j/kg to 1j/kg, may increase to 2j/kg.	**I/P**
MC	Consider amiodarone 5 mg/kg IV/IO over 10 to 20 minutes.	**MC**
MC	Consider midazolam 0.1 mg/kg IV/IO. Do not delay cardioversion.	**MC**

NEWBORN RESUSCITATION

History	Physical	Differential Diagnoses
Due date and gestational age	Apneic	Airway failure (secretions/respiratory drive)
Multiple gestation	Central cyanosis	Infection
Meconium	Unresponsive	Maternal medication effect
Delivery difficulties	Bradycardic	Hypovolemia
Congenital disease	Pulseless	Hypoglycemia
Maternal medications		Congenital heart process
Maternal risk factor (substance abuse)		Hypothermia

PEARL:

IV fluids should be administered over less than 20 minutes.

IO access should be attempted if no peripheral access in 2 attempts or 90 seconds.

NEWBORN RESUSCITATION

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Assess ABC's using base of umbilical cord, brachial or femoral artery, or auscultation of heart sounds.	**EMT**
EMT	Place newborn on back with neck in neutral position.	**EMT**
EMT	Suction mouth prior to nose. Note any meconium presence.	**EMT**
EMT	After delivery, use mild stimulation (dry, warm, suction). If effective respirations are not present after 5-10 seconds of stimulation, BVM at 40-60 breaths/minute.	**EMT**
EMT	If heart rate is < 60 bpm with no improvement after BVM for 30 seconds, begin CPR.	**EMT**
EMT	Dry the newborn, wrap in blanket, head cap to maintain warmth, place baby against your skin. Do not allow newborn to become hypothermic.	**EMT**
EMT	Record APGAR's at 1 and 5 minutes.	**EMT**
EN/A	Evaluate or treat for hypoglycemia. Dextrose 12.5% 2 mL/kg IV or IO.	**EN/A**
I/P	IO if required for medication or fluid (10mL/kg bolus may repeat) administration.	**I/P**
I/P	Follow specific algorithms for bradycardia, tachycardia or cardiac arrest.	**I/P**

PEDIATRIC
NEUROLOGICAL EMERGENCIES

ALTERED LEVEL of CONSCIOUSNESS

History	Physical	Differential Diagnoses
Reported/Witnessed seizure activity Previous seizure history Medic alert information Seizure medications History of trauma History of diabetes History of pregnancy	Altered mental status Sleepiness Incontinence Observed seizure activity Evidence of trauma Unconsciousness	Head trauma Tumor Metabolic, hepatic, or renal failure Hypoxia Electrolyte imbalance Medication non-compliance Infection/Fever Alcohol withdrawal Eclampsia Stroke Hyperthermia Hypoglycemia

PEARL:

Poison control cannot act as medical command, contact for advise only.
Do not use patient's glucometer.

ALTERED LEVEL of CONSCIOUSNESS

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EN/A	IV or IO Procedure	**EN/A**
EN/A	Administer glucose: **Children > 8 years of age:** Dextrose 50% 1 mL/kg IV or IO. **Children 2 years to 8 years of age:** Dextrose 25% 2 mL/kg IV or IO. **Children 1 month to 2 years:** Dextrose 12.5% 4 ml/kg IV or IO. **Newborn:** Dextrose 12.5% 2 mL/kg IV or IO.	**EN/A**
EN/A	Glucagon 1 mg IM	**EN/A**
EN/A	Naloxone 0.1 mg/kg IV, IO or IM for suspected narcotic overdose with respiratory depression. Max 2 mg.	**EN/A**

SEIZURES

History	Physical	Differential Diagnoses
Fever Prior history of seizure Seizure medications Head trauma Congenital abnormality	Observed seizure activity Altered mental status Hot, dry skin Elevated body temperature	Fever Infection Head trauma Medication or toxin Hypoxia Hypoglycemia Metabolic abnormality Tumor

PEARL:

For actively seizing patients, initial medications should be administered IM to avoid any delay in care.

SEIZURES

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EN/A	IV Procedure	**EN/A**
EN/A	Administer glucose: **Children > 8 years of age:** Dextrose 50% 1 mL/kg IV or IO. **Children 2 years to 8 years of age:** Dextrose 25% 2 mL/kg IV or IO. **Children 1 month to 2 years:** Dextrose 12.5% 4 ml/kg IV or IO. **Newborn:** Dextrose 12.5% 2 mL/kg IV or IO.	**EN/A**
EN/A	Glucagon 1 mg IM	**EN/A**
I/P	For patient weight of 13 kg or greater: Midazolam 5 mg IM if actively seizing. May repeat in 10 minutes for continued seizures.	**I/P**
I/P	Midazolam 0.1 mg/kg IV max single dose 5 mg. May repeat once in 10 minutes for continued seizure.	**I/P**
MC	Contact medical command if seizure persists after two (2) doses of benzodiazepine.	**MC**

PEDIATRIC

RESPIRATORY EMERGENCIES

RESPIRATORY DISTRESS

History	Physical	Differential Diagnoses
Time of onset	Wheezing or stridor	Asthma
Possibility of foreign body	Retractions	Aspiration
Medical history	Increased heart rate	Infection (pneumonia, croup)
Medications	Altered LOC	Congenital heart disease
Fever or respiratory infection	Anxious appearance	Medication or toxin
Sick siblings	Nasal flaring	Trauma
History or trauma	Delayed capillary refill	Airway obstruction
	Excessive drooling	

PEARL:

"Severely symptomatic" is defined as inability to speak normally, servere wheezing, absent or diminished breath sounds, and/or poor perfusion.

In upper airway disorders, invasive airway maneuvers should be avoided if possible.

Consider air medical request for prolonged transports.

RESPIRATORY DISTRESS

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Allow child to assume position of comfort.	**EMT**
EMT	Assist patient with prescribed Metered Dose Inhaler.	**EMT**
EN/A	Albuterol 2.5 mg and Ipratroprium 0.5 mg nebulizer for bronchospasm. May repeat albuterol as long as patient is sympotmatic.	**EN/A**
EN/A	NS 2-3 mL nebulized for suspected croup or epiglottitis.	**EN/A**
EN/A	IV Procedure	**EN/A**
EN/A	Methylprednisolone 1 mg/kg IV for severe asthma or croup.	**EN/A**
I/P	Epinephrine (1:1,000) 2 mg plus 1 mL NS (total volume of 3 mL) nebulized for moderate to severe patients with suspected croup or epiglottitis.	**I/P**
I/P	Epinephrine (1:1,000) 0.01 mg/kg IM, single max dose 0.3 mg for severely sympotmatic patient. May repeat every 20 minutes for a max of 3 doses if still symptomatic.	**I/P**

PEDIATRIC

TRAUMA EMERGENCIES

GENERAL MANAGEMENT

History	Physical	Differential Diagnoses
Time and mechanism of injury	Deformity	Chest: Tension pneumothorax, Flail
Damage to structure or vehicle	Contusion	chest, Peicardial tamponade, Open chest
Location in structure or vehicle	Abrasions	wound, Hemothorax
Others injured or dead	Punctures, penetrations	Intra-abdominal bleeding
Speed and details of MVC	Burns	Pelvis/Femur fracture
Restraints/Protective devices	Lacerations	Spinal fracture/Cord injury
Past medical history	Tenderness	Head injury
Medications	Swelling	Extremity trauma
	Altered mental status	HEENT trauma
	Hypotension	Hypothermia
	Arrest	Distracting injury

PEARL:

GCS should be assessed and documented.

GENERAL MANAGEMENT

EMT	Universal Care Protocol with a emphasis on adequate oxygenation.	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Notify MedCom if possible trauma alert (red or yellow category): Advise mechanism of injury, age and sex of patient, sites of injury, vitals if available and ETA.	**EMT**
EMT	For evisceration, cover with moist sterile dressing then with plastic, taping on all four sides. Do not push organs back into abdominal cavity.	**EMT**
EMT	Maintain patient warmth.	**EMT**
EN/A	IV Procedure	**EN/A**
I/P	Needle Chest Decompression Procedure if absent breath sounds and symptoms of shock.	**I/P**
I/P	FOR ISOLATED EXTREMITY INJURY ONLY:Fentanyl 1 mcg/kg, up to 50 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 50 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**I/P**
MC	Consider cessation of efforts for traumatic cardiac arrest if transport is greater than 15 mins.	**MC**

AMPUTATION

History	Physical	Differential Diagnoses
Mechanism of injury Time of injury Wound contamination Medical history Medications	Deformity Diminished pulse, capillary refill	Complete amputation Incomplete amputation

PEARL:

Tourniquets should be used with the smallest amount of pressure over the widest area.
Never freeze the part by placing directly on ice.

AMPUTATION

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Apply direct pressure to control hemorrhage. Elevate and consider tourniquet procedure.	**EMT**
EMT	If incomplete amputation, splint entire digit or limb in physiological position.	**EMT**
EMT	Place part in damp gauze, place in plastic bag, wrap in trauma dressing, place on ice/water mix.	**EMT**
EN/A	IV Procedure.	**EN/A**
I/P	Fentanyl 1 mcg/kg, up to 50 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 50 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins. Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control.	**I/P**

BURNS

History	Physical	Differential Diagnoses
Type of exposure	Burns, pain, swelling	Superficial
Inhalation injury	Dizziness	Partial thickness
Time of injury	Loss of consciousness	Full thickness
Past medical history	Hypotension	Chemical
Medications	Airway compromise	Thermal
Other trauma	Singed facial or nasal hair	Electrical
Loss of consciousness	Hoarseness/Wheezing	Radiation

PEARL:

In electrical burns, search for additional traumatic injury.

In thermal burns, assess for carbon monoxide exposure.

Remove jewelry and non-adherent clothing.

Avoid establishing IV distal to extremity burn.

Severe burns should not receive succinylcholine.

Early intubation should be considered if airway edema is present or likely to develop.

BURNS

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Apply dry clean dressings.	**EMT**
EMT	Irrigate chemical burn with water if appropriate for chemical. If powder chemical brush off.	**EMT**
EN/A	Airway management	**EN/A**
EN/A	IV Procedure	**EN/A**
I/P	Morphine 0.05-0.1 mg/kg, up to 10 mg IV, IO or IM. May repeat once at same dose in 10 mins. Consider ondansetron 4 mg IV/IM or SL tablet when administering narcotics for pain control. Fentanyl 1 mcg/kg, up to 50 mcg IV, IO or IM (For IN 1.5 mcg/kg up to 50 mcg, 1/2 dose in each nostril using atomizer on syringe). May repeat once at same dose in 10 mins.	**I/P**

CENTRAL NERVOUS SYSTEM INJURIES

History	Physical	Differential Diagnoses
Time of injury	Pain, swelling, bleeding	Skull fracture
Mechanism of injury	Altered mental status	Brain injury
Loss of consciousness	Unconsciousness	Epidural hematoma
Bleeding	Respiratory distress/failure	Subdural hematoma
Medical history	Vomiting	Subarachnoid hemorrhage
Medications	Significant mechanism of injury	Spinal injury
Evidence of multitrauma		Abuse
Helmet use or damage		

PEARL:

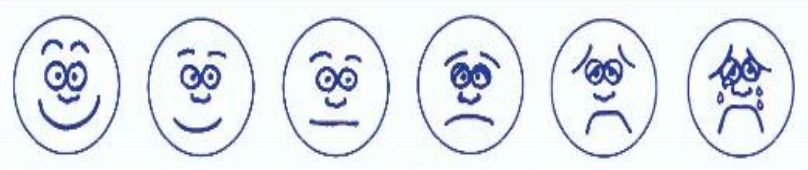
GCS should be assessed and documented.

CENTRAL NERVOUS SYSTEM INJURIES

EMT	Universal Care Protocol with emphasis on adequate oxygenation.	**EMT**
EMT	Spinal immobilization if indicated.	**EMT**
EMT	Maintain Patient warmth.	**EMT**
EN/A	Airway management with Capnography	**EN/A**
EN/A	IV Procedure	**EN/A**

Reference Section

Wong-Baker FACES Pain Rating Scale



Explain to the person that each face is for a person who feels happy because he has no pain (hurt) or sad because he has some or a lot of pain. Face 0 is very happy because he doesn't hurt at all. Face 1 hurts just a little bit. Face 2 hurts a little more. Face 3 hurts even more. Face 4 hurts a whole lot. Face 5 hurts as much as you can image, although you don't have to be crying to feel this bad. Ask the person to choose the face that best describes how he is feeling.

Rating scale is recommended for persons age 3 years and older.

Brief word instructions: Point to each face using the words to describe the pain intensity. Ask the child to choose face that best describes own pain and record the appropriate number.

From Wong DL, Hockenberry-Eaton M, Wilson D, Winkelstein ML, Schwartz P: **Wong's Essentials of Pediatric Nursing,** 6/e, St. Louis, 2001, P. 1301. Copyrighted by Mosby, Inc. Reprinted by permission.

PEDIATRIC BLOOD PRESSURE

Minimal systolic BP = 70 + (2 x age)
Normal systolic BP = 90 + (2 x age)

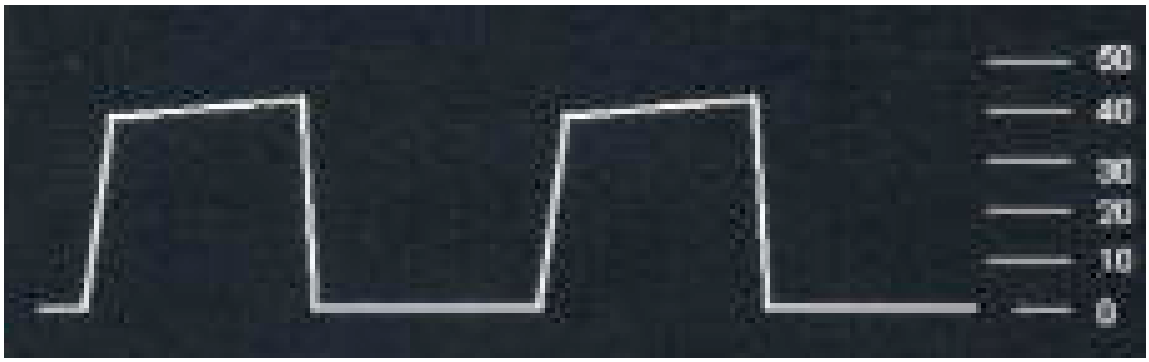
PEDIATRIC ENDOTRACHEAL TUBE SIZE

ETT Size + 4 + (age/4)

ESTIMATION of PEDIATRIC WEIGHT

(2 x age) + 8 = weight in kg

CAPNOGRAPHY WAVEFORM



A-B is the flat respiratory baseline when no CO2 is present. It represents late inspiration and early expiration.

B-C is the expiratory upstroke showing arrival of CO2 at the sampler. This should be a sharp and quick rise unless there is a delay getting CO2 exhaled.

C-D is the plateau when the flow of CO2 molecules should be constant.

D marks the point when maximum CO2 is exhaled and is the recorded value. It begins the inspiratory phase.

D-E is the inspiratory phase when the presence of CO2 returns to 0.

Normal Value is 35 - 45 mmHg

GLASCOW COMA SCORE

Motor Response

6 - Obeys commands fully
5 - Localizes to noxious stimuli
4 - Withdraws from noxious stimuli
3 - Abnormal flexion, i.e. decorticate posturing
2 - Extensor response, i.e. decerebrate posturing
1 - No response

Verbal Response

5 - Alert and oriented
4 - Confused, yet coherent, speech
3 - Inappropriate words and jumbled phrases
2 - Incomprehensible sounds
1 - No sounds

Eye Opening

4 - Spontaneous eye opening
3 - Eyes open to speech
2 - Eyes open to pain
1 - No eye opening

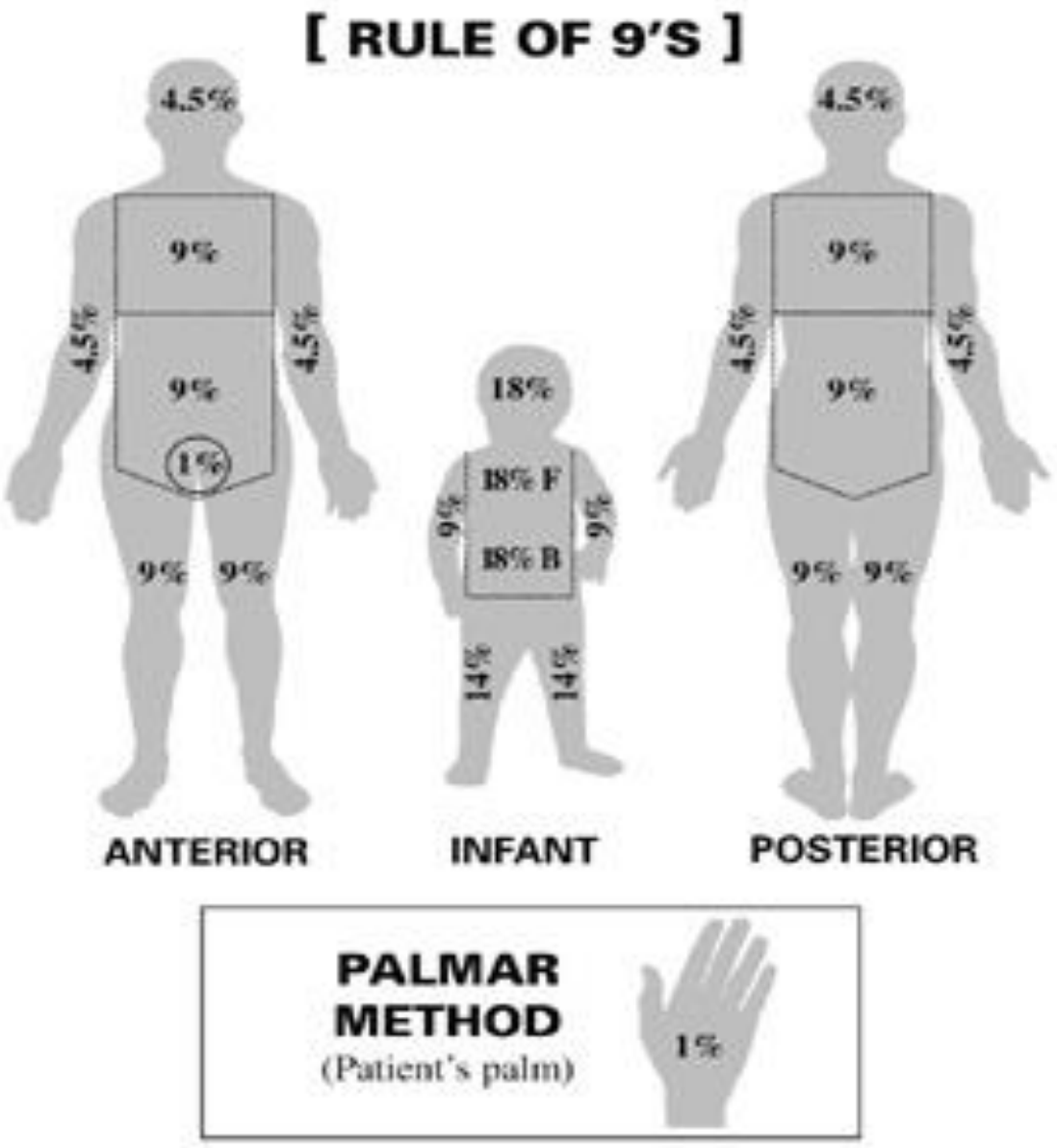
APGAR SCORE

Heart Rate	> 100/min	2
	< 100/min	1
	Absent	0
Respirations	Good, crying	2
	Slow, irregular	1
	Absent	0
Muscle Tone	Active motion	2
	Some flexion	1
	Limp	0
Reflex Irritability	Cough or sneeze	2
	Grimace	1
	No response	0
Color	Completely pink	2
	Pink with blue ext.	1
	Blue or pale	0

1 minute APGAR:	7 - 10	No intervention needed
	4 - 6	Stimulate, suction, O2
	0 - 3	Ventilations and compressions

Obtain APGAR at 1 and 5 minutes

RULE OF 9'S


[RULE OF 9'S]
4.5%
9%
4.5%
9%
1%
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ANTERIOR
18%
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9%
9%
14%
14%
INFANT
4.5%
9%
4.5%
9%
4.5%
9%
9%
POSTERIOR
PALMAR METHOD
(Patient's palm)
1%

ADENOSINE (ADENOCARD)

Classification: Antiarrhythmic

Action: Slows the conduction of electrical impulses at the AV node.

Indications: SVT. Does not convert AF, atrial flutter or VT. Narrow QRS < 0.12 seconds, SVT with aberrancy.

Contraindications: Sick sinus syndrome, second- or third-degree heart block, or poison-/drug induced or reflex tachycardia secondary to shock or dehydration. Ventricular arrhythmias.

Dosage:

Note: Adenosine should be delivered only by rapid IV bolus with a peripheral IV or directly into a vein, in a location as close to the heart as possible, preferably in the antecubital fossa. Administration of adenosine must be immediately followed by a saline flush, and then the extremity should be elevated.

Adult: 6 mg IV rapidly over 1–2 seconds. If no effect after 2 minutes, give 12 mg IV rapidly over 1–2 seconds.

Pediatric: 0.1 mg/kg (max 6 mg) IV rapidly over 1-2 seconds. If no effect after 2 minutes, give 0.2 mg/kg (max 12 mg) IV/IO rapidly over 1-2 seconds.

10kg child = 0.33 mL

Special Considerations: Use with caution in patients with preexisting bronchospasm and those with a history of AF.

Elderly patients with no history of PSVT should be carefully evaluated for dehydration, shock and rapid sinus tachycardia.

Pregnancy class C.

Supplied: 6mg/2ml

ALBUTEROL (PROVENTIL, VENTOLIN)

Classification:	Bronchodilator, beta agonist
Action:	Binds and stimulates beta 2 receptors, resulting in relaxation of bronchial smooth muscle. Temporarily shifts potassium into the cells and out of the blood stream.
Indications:	Asthma, bronchitis with bronchospasm, COPD and known hyperkalemia .
Contraindications:	Angioedema, sensitivity to albuterol or levalbuterol. Use with caution in lactating patients, cardiovascular disorders, cardiac arrhythmias.
Adverse Effects:	Hyperglycemia, hypokalemia, palpitations, sinus tachycardia, anxiety, tremor, nausea/vomiting, throat irritation, dry mouth, hypertension, dyspepsia, insomnia, headache, epistaxis, paradoxical bronchospasm.
Dosage:	**Adult:** 2.5 mg/3mL through hand held nebulizer with oxygen flow at 4-6 liters may repeat if necessary. A modified nebulizer may be used with a BVM or a simple facemask. May repeat. **Pediatric:** 2.5 mg/3mL through hand held nebulizer with oxygen flow at 4-6 liters may repeat if necessary. A modified nebulizer may be used with a BVM or a simple facemask. May repeat.
Special Considerations:	Pregnancy class C

AMIODARONE (CORDARONE)

Classification: Antiarrhythmic, class III

Action: Acts directly on the myocardium to delay repolarization and increase the duration of the action potential.

Indications: Ventricular arrhythmias; second-line agent for atrial arrhythmias

Contraindications: Sick sinus syndrome, second- or third-degree heart block, cardiogenic shock, when episodes of bradycardia have caused syncope.

Adverse Effects: Burning at the IV site, hypotension, bradycardia.

Dosage:

Adult:

Cardiac Arrest Situations: 300 mg IV/IO push.

Unstable Arrhythmias: 150 mg IV/IO over 10 minutes mixed in 100 mL D5W, may be repeated once if needed for recurrent arrhythmia.

Pediatric: 5 mg/kg (max dose 300 mg) Medical Command Only!
10kg child = 1mL

Special Considerations: Pregnancy class D.

Supplied: 150mg/3ml vials

Amiodarone Drip (Patients with a Pulse)

Establish primary IV line with 15 gtt set TKO

Draw up Amiodarone 150 mg into 3 mL syringe

Open 100 mL bag D5W

Clean medication addition port and inject amiodarone

Label 100 mL bag with “medication added” label

Spike 100 mL bag with 60 gtt set and clear tubing of air

Clean medication port on primary line and connect 100 mL bag

Ensure primary line is running fast enough to carry Amiodarone to patient

Open the 100 mL bag to run wide open over 10 minutes

Observe drip chamber to ensure amiodarone is infusing

ASPIRIN

Classification:	Antiplatelet agent, nonnarcotic analgesic, antipyretic
Action:	Prevents the formation of a chemical known as thromboxane A2, which causes platelets to clump together, or aggregate, and form plugs that cause obstruction or constriction of small coronary arteries.
Indications:	Angina, acute MI, and patients complaining of pain, pressure, squeezing, or crushing in the chest that may be cardiac in origin.
Contraindications:	GI bleeding, trauma, active ulcer disease, hemorrhagic stroke, bleeding disorders, known sensitivity.
Adverse Effects:	Anaphylaxis, angioedema, bronchospasm, bleeding, stomach irritation, nausea/vomiting.
Dosage:	**Adult:** 4- 81 mg tablets chewed.
Special Considerations:	Pregnancy class C except the last 3 months of pregnancy, when aspirin is considered pregnancy class D.

ATROPINE SULFATE

Classification: Anticholinergic (antimuscarinic)

Action: Competes reversibly with acetylcholine at the site of the muscarinic receptor. Receptors affected, in order from the most sensitive to the least sensitive, include salivary, bronchial, sweat glands, eye, heart, and GI tract.

Indications: Symptomatic bradycardia, nerve agent exposure, organophosphate poisoning.

Contraindications: Acute MI; myasthenia gravis; GI obstruction; closed-angle glaucoma; known sensitivity to atropine; belladonna alkaloids, or sulfites. Will not be effective for infranodal (type II) AV block and new third-degree block with wide QRS complex.

Adverse Effects: Decreased secretions resulting in dry mouth and hot skin temperature, intense facial flushing, blurred vision or dilation of the pupils with subsequent photophobia, tachycardia, and restlessness. Atropine may cause paradoxical bradycardia if the dose administered is too low or if the drug is administered too slowly.

Dosage:

Adult:

Bradycardia: 1 mg IV/IO up to total of 3 mg.

Organophosphate poisoning: 2 mg IV/IO every 5-10 minutes.

Pediatrics:

Bradycardia: 0.02 mg/kg (minimum dose 0.1 mg, max dose of 0.5 mg)

10kg child = 2mL

Organophosphate poisoning: 0.05 mg/kg.

Special Considerations: Half-life 2.5 hours.
Pregnancy class C; possibly unsafe in lactating mothers.

Supplied: 1mg/10ml

CALCIUM CHLORIDE 10%

Classification: Electrolyte solution

Action: Counteracts the toxicity of hyperkalemia by stabilizing the membranes of the cardiac cells, reducing the likelihood of fibrillation.

Indications: Hyperkalemia, hypocalcemia, hypermagnesemia, beta blocker overdose, calcium channel blocker toxicity.

Contraindications: VF, digitalis toxicity, hypercalcemia

Adverse Effects: Soft tissue necrosis, hypotension, bradycardia (if administered to rapidly).

Dosage:

Adult:

20 mg/kg slow IV/IO

Pediatrics:

10 mg/kg slow IV/IO

10kg child = 1mL

Special Considerations: Do not administer by IM or SQ routes, which causes significant tissue necrosis.

Pregnancy class C

Supplied: 1gm/10ml

DEXTROSE 50%

Classification: Anti-hypoglycemic

Action: Increases blood glucose concentrations

Indications: Hypoglycemia, altered mental status.

Contraindications: Known Intracranial and intraspinal hemorrhage, delirium tremens, solution is not clear, seals are not intact

Adverse Effects: Hyperglycemia, warmth, burning from IV infusion. Concentrated solutions may cause pain and thrombosis of the peripheral veins.

Dosage:

Adult:

25 gm bolus in free flowing IV

Pediatrics:

0.5 gm/kg. See dilution on pediatric dosage chart.

10kg child = 20mL (D25%)

Special Considerations: Pregnancy class C

Supplied: 25gm/50ml

DIPHENHYDRAMINE HCL (BENADRYL)

Classification: Antihistamine

Action: Binds and blocks H1 histamine receptors

Indications: Anaphylactic reactions, dystonic reactions, allergic reactions

Contraindications: Acute asthma, which thickens secretions; Nursing mothers; patients with cardiac histories; known sensitivity.

Adverse Effects: Drowsiness, dizziness, headache, excitable state (children), wheezing, thickening of bronchial secretions, chest tightness, palpitations, hypotension, blurred vision, dry mouth, nausea/vomiting, diarrhea.

Dosage:

Adult:

25 to 50 mg IV or deep IM per specific guideline

Pediatrics:

1.0 mg/kg slow IV (over 2 minutes) max dose of 50 mg

10kg child = 0.2mL

Special Considerations: Pregnancy class B

Supplied: 50mg/ml

Dopamine Drip

Establish primary IV line with 15 gtt set TKO
Draw up dopamine 200 mg into 10 mL syringe
Open 250 mL bag D5W
Clean medication addition port and inject dopamine
Label 250 mL bag with “medication added” label
Spike 250 mL bag with 60 gtt set and clear tubing of air
Clean medication port on primary line and connect 250 mL bag
Ensure primary line is flowing fast enough to carry dopamine to patient
Observe drip chamber to ensure dopamine is infusing

Mix 200 mg in 250 mL of D5W (800 mcg/mL) as above:

Weight in kg

mcg/kg/min	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg
2 mcg/kg/min	6	8	9	10	12	14	15
5 mcg/kg/min	15	19	22	26	30	34	38
10 mcg/kg/min	30	38	45	52	60	68	75
15 mcg/kg/min	45	56	68	79	90	101	112
20 mcg/kg/min	60	75	90	105	120	135	150

mcg per minute (or mL per hour)

Drug Dose Calculations

2 X age + 8 = approximate weight in kg

weight in pounds / 2.2 = weight in kg

$$\frac{\text{Desired Dose (mg)}}{\text{amount in 1 mL}} = \text{mL to administer}$$

DOPAMINE HCL (INOTROPIN)

Classification: Adrenergic agonist, inotrope, vasopressor

Action: Stimulates alpha and beta adrenergic receptors. At moderate doses (2 – 10 mcg/kg/min), dopamine stimulates beta1 receptors in inotropy and increased cardiac output while maintaining dopaminergic-induced vasodilatory effects. At high doses (> 10 mcg/kg/min), alpha adrenergic agonism predominates, and increased peripheral vascular resistance and vasoconstriction result.

Indications: Hypotension and decreased cardiac output associated with cardiogenic shock and septic shock, hypotension after return of spontaneous circulation following cardiac arrest, symptomatic bradycardia unresponsive to atropine.

Contraindications: VF, VT, or other ventricular arrhythmias, Pheochromocytoma, known sensitivity (including sulfites). Correct any hypovolemia with volume fluid replacement before administering dopamine.

Adverse Effects: Tachycardia, arrhythmias, skin and soft tissue necrosis, severe hypertension from excessive vasoconstriction, angina, dyspnea, headache, nausea/vomiting.

Dosage:

Adult:

Drip only: 200 mg in 250 ml D5W IV/IO piggyback
2 to 20 mcg/kg/min titrated to BP of 90 mmHg systolic
Quick calculation: drops/min=kg x mcg/kg/min x 0.075

Special Considerations: Half-life 2 minutes

Pregnancy class C

Supplied: 200mg/5ml

EPINEPHRINE (ADRENALIN)
1:1000

Classification: Adrenergic agent, inotrope

Action: Binds strongly with both alpha and beta receptors, producing increased blood pressure, increased heart rate, bronchodilation.

Indications: Bronchospasm, allergic and anaphylactic reactions, cardiac arrest.

Contraindications: Arrhythmias other than pulseless VT/VF, asystole, PEA; cardiovascular disease; hypertension; cerebrovascular disease; shock secondary to causes other than anaphylactic shock; closed-angle glaucoma; diabetes; pregnant women in active labor; know sensitivity to epinephrine or sulfites. No contraindications if in anaphylaxis.

Adverse Effects: Anxiety, headache, cardiac arrhythmias, hypertension, nervousness, tremors, chest pain, nausea/vomiting.

Dosage:

Adult:

1:1000: 0.3 mg IM may repeat every 10-20 minutes

Pediatrics:

1:1000: 0.01 mg/kg IM

10kg child = 01.mL

Special Considerations: Half-life 1 minute

Pregnancy class C

Supplied: 1:1000 1mg/ml

EPINEPHRINE (ADRENALIN)
1:10,000

Classification: Adrenergic agent, inotrope

Action: Binds strongly with both alpha and beta receptors, producing increased blood pressure, increased heart rate, bronchodilation.

Indications: Bronchospasm, allergic and anaphylactic reactions, cardiac arrest.

Contraindications: Arrhythmias other than pulseless VT/VF, asystole, PEA; cardiovascular disease; hypertension; cerebrovascular disease; shock secondary to causes other than anaphylactic shock; closed-angle glaucoma; diabetes; pregnant women in active labor; know sensitivity to epinephrine or sulfites. No contraindications if in anaphylaxis.

Adverse Effects: Anxiety, headache, cardiac arrhythmias, hypertension, nervousness, tremors, chest pain, nausea/vomiting.

Dosage:

Adult:

1:10,000: Cardiac arrest – 1 mg IV/IO every 3-5 minutes

Pediatrics:

1:10,000: 0.01 mg/kg IV/IO, repeat every 3-5 minutes

10kg child = 1mL

Special Considerations: Half-life 1 minute

Pregnancy class C

Supplied: 1:10,000 1mg/10ml

Epinephrine Drip

Establish primary IV line with 15 gtt set TKO

Draw up epinephrine 1mg

Open 250 mL bag D5W

Clean medication addition port and inject epinephrine

Label 250 mL bag with “medication added” label

Spike 250 mL bag with 60 gtt set and clear tubing of air

Clean medication port on primary line and connect 250 mL bag

Ensure primary line is running fast enough to carry EPI to patient

Open to the desired flow rate

Observe drip chamber to ensure epinephrine is infusing

Mix 1 mg epinephrine in 250 mL of D5W as above:

1 mcg/min = 15 drops/min

2 mcg/min = 30 drops/min

3 mcg/min = 45 drops/min

4 mcg/min = 60 drops/min

FENTANYL CITRATE (SUBLIMAZE)

Classification: Narcotic analgesic; schedule C-II

Action: Binds to opiate receptors, producing analgesia and euphoria.

Indications: Pain of any origin.

Contraindications: Known sensitivity. Use with caution in traumatic brain injury, respiratory depression. Do not give in trauma patients except for isolated extremity fractures.

Adverse Effects: Respiratory depression, apnea, hypotension, nausea/vomiting, dizziness, sedation, euphoria, sinus bradycardia, sinus tachycardia, palpitations, hypertension, diaphoresis, syncope, pain at injection site.

Dosage:

Adult:

1 mcg/kg, max single dose 100 mcg**, IV/IO/IM** may repeat once at same dose in 10 minutes if needed for control of severe pain.

REDUCE DOSE FOR ELDERLY AND SEVERLY ILL PATIENTS.

1.5mcg/kg, max single dose 100 mcg, **IN** (1/2 dose in each nostril using atomizer on syringe) may repeat once at same dose in 10 minutes if needed for control of severe pain.

Pediatrics:

Age less than 12 years and greater than 2 years:

1 mcg/kg, max single dose 50 mcg**, IV/IO/IM** may repeat once at same dose in 10 minutes if needed for control of severe pain.

1.5mcg/kg, max single dose 50 mcg, **IN** (1/2 dose in each nostril using atomizer on syringe) may repeat once at same dose in 10 minutes if needed for control of severe pain.

Special Considerations: Pregnancy class B

Supplied: 100mcg/2ml

GLUCAGON

Classification: Hormone

Action: Converts glycogen to glucose.

Indications: Hypoglycemia.

Contraindications: Pheochromocytoma, insulinoma, known sensitivity.

Adverse Effects: Nausea/vomiting, rebound hyperglycemia, hypotension, sinus tachycardia

Dosage:

Adult:

1 unit (1 mL) IM

Pediatrics:

1 unit (1mL) IM if greater than 20 kg or 0.5 unit IM if less than 20 kg.

10kg child = 0.5mL

Special Considerations: Pregnancy class B

Supplied: 1 unit (1mg/ml to be mixed)

HALOPERIDOL (HALDOL)

Classification:	Antipsychotic agent
Action:	Selectively blocks postsynaptic dopamine receptors.
Indications:	Psychotic disorders, severe agitation.
Contraindications:	Depressed mental status, Parkinson's disease, history of prolonged QT syndrome, children under 18, cardiac arrhythmias, and lactation.
Adverse Effects:	Extrapyramidal symptoms, drowsiness, tardive dyskinesia, hypotension, hypertension, VT, sinus tachycardia, QT prolongation, torsades de pointes.
Dosage:	**Adult:** 5 mg IM (2.5 mg IM for over 65) to control acute agitation.
Special Considerations:	Pregnancy class B
Supplied:	5mg/1ml vials

IPRATROPIUM BROMIDE (ATROVENT)

Classification: Bronchodilator, anticholinergic

Action: Antagonizes the acetylcholine receptor on bronchial smooth muscle, producing bronchodilation.

Indications: Asthma, bronchospasm associated with COPD.

Contraindications: Closed-angle glaucoma, bladder neck obstruction, prostatic hypertrophy, known allergy to peanuts or soybeans and atropine or atropine derivatives.

Adverse Effects: Paradoxical acute bronchospasm, cough, throat irritation, headache, dizziness, dry mouth, palpitations.

Dosage:

Adult:

0.5 mg/3mL through hand-held nebulizer with oxygen flow at 4-6 liters. Mixed with 1st dose of albuterol. A modified nebulizer maybe used with a BVM or a simple face mask.

Pediatric:

0.5 mg/3mL through hand-held nebulizer with oxygen flow at 4-6 liters. Mixed with 1st dose of albuterol. A modified nebulizer maybe used with a BVM or a simple face mask.

Special Considerations: Ipratropium bromide is not typically used as a sole medication in the treatment of acute exacerbation of asthma. Ipratropium bromide is commonly administered after or with a beta agonist.

Care should be taken to not allow the aerosol spray (especially in the MDI) to come into contact with the eyes. This can cause temporary blurring of vision that resolves without intervention within 4 hours.

Pregnancy class B

Supplied: 0.5mg/3ml

MAGNESIUM SULFATE

Classification: Electrolyte, tocolytic, mineral

Action: Required for normal physiologic functioning. Magnesium is a cofactor in neurochemical transmission and muscular excitability. Magnesium Sulfate controls seizures by blocking peripheral neuromuscular transmission. Magnesium is also a peripheral vasodilator and an inhibitor of platelet function.

Indications: Torsades de pointes, cardiac arrhythmias associated with hypomagnesemia, eclampsia and seizure prophylaxis in preeclampsia.

Contraindications: AV block, GI obstruction. Use with caution in renal impairment.

Adverse Effects: Magnesium toxicity (signs include flushing, diaphoresis, hypotension, muscle paralysis, weakness, hypothermia, and cardiac, CNS or respiratory depression).

Dosage:

Adult:

Refractory VF: 1-2 gm of 50% solution diluted in 10 mL of NS **slow** IV/IO push (Dilute each gram of Magnesium with 8cc of NS)

Eclampsia: (Medical Command only) 10% solution 2-4 gm IV/IO push at no greater than 1 gm per minute, until seizure stops or a max dose of 4 gm have been given.

Special Considerations: Pregnancy class A

Supplied: 1gm/2ml

METHYLPREDNISOLONE (SOLU-MEDROL)

Classification: Corticosteroid

Action: Reduces inflammation by multiple mechanisms.

Indications: Anaphylaxis, asthma, COPD.

Contraindications: Known sensitivity

Adverse Effects: Depression, euphoria, headache, restlessness, hypertension, bradycardia, nausea/vomiting, swelling, diarrhea, weakness, fluid retention, paresthesias.

Dosage:

Adult:

125 mg IV over 1 minute

Pediatric:

1 mg/kg IV

10kg child = 0.16mL

Special Considerations: May mask signs and symptoms of infection.

Use caution in cancer patients undergoing chemotherapy.

Pregnancy class C

Use with caution in active infections, renal disease, penetrating spinal cord injury, hypertension, seizures, CHF.

Cushing's syndrome, fungal infection, measles, varicella, known sensitivity (including sulfites).

Supplied: 125mg/2ml

METOPROLOL (LOPRESSOR)

Classification:	Beta adrenergic, antagonist, antianginal, antihypertensive, class II antiarrhythmic
Action:	Inhibits the strength of the heart's contractions as well as heart rate. This results in a decrease in cardiac oxygen consumption. Also saturates the beta receptors and inhibits dilation of bronchial smooth muscle (beta2 receptor).
Indications:	Hypertension, SVT, atrial flutter, A-fib, thyrotoxicosis.
Contraindications:	Cardiogenic shock, AV blocks, bradycardia, known sensitivity. Use with caution in hypotension, chronic lung disease (asthma and COPD).
Adverse Effects:	Tiredness, dizziness, diarrhea, heart block, bradycardia, bronchospasm, decrease in blood pressure.
Dosage:	**Adult:** 5 mg IV/IO over 2 minutes may repeat every 10 minutes to a max of 15 mg to achieve ventricular rate of 120 or less.
Special Considerations:	Blood pressure, heart rate and ECG should by monitored carefully Use with caution in patients with asthma. Pregnancy class C
Supplied:	5mg/5ml

MIDAZOLAM (VERSED)

Classification: Benzodiazepine, schedule C-IV

Action: Binds to the benzodiazepine receptor and enhances the effects of the brain chemical (neurotransmitter) GABA. Benzodiazepines act at the level of the limbic, thalamic, and hypothalamic regions of the CNS to produce short-acting CNS depression (including sedation, skeletal muscle relaxation, and anticonvulsant activity).

Indications: Sedation, anxiety, seizures, and skeletal muscle relaxation.

Contraindications: Acute-angle glaucoma, pregnancy, shock.

Adverse Effects: Respiratory depression, respiratory arrest, hypotension, nausea/vomiting, headache, hiccups, cardiac arrest. Pediatric patients may have a paradoxical affect.

Dosage:

Adult:

Sedation: 2-5 mg IV

Seizures: 10 mg IM if actively seizing may repeat once in 10 minutes if seizures continue. 5 mg IV for continued seizures with IV access may repeat once in 10 minutes if seizures continue.

Pediatric:

Sedation: 0.1 mg/kg IV max dose 2 mg
10kg child = 0.2mL

Seizures: For patient $\geq$ 13 kg: 5 mg IM if actively seizing may repeat once in 10 minutes if seizures continue. 0.1 mg/kg IV (max single dose of 5 mg) may repeat once in 10 minutes for continued seizure.

Special Considerations: Patients receiving midazolam require frequent monitoring of vital signs and pulse oximetry. Be prepared to support patient's airway and ventilation.

Use caution in elderly patients.

Pregnancy class D

MORPHINE SULFATE

Classification: Opiate agonist, schedule C-II

Action: Binds with opioid receptors. Morphine is capable of inducing hypotension by depression of the vasomotor centers of the brain, as well as release of the chemical histamine. In the management of angina, morphine reduces stimulation of the sympathic nervous system caused by pain and anxiety. Reduction of sympathetic stimulation reduces heart rate, cardiac work, and myocardial oxygen consumption.

Indications: Preferred in burn patients. Moderate to severe pain, including chest pain associated with Acute Coronary Syndrome, CHF, pulmonary edema.

Contraindications: Respiratory depression, shock.

Adverse Effects: Respiratory depression, hypotension, nausea/vomiting, dizziness, lightheadedness, sedation, diaphoresis, euphoria, dysphoria, worsening of bradycardia and heart block in some patients with acute inferior wall MI, seizures, cardiac arrest, anaphylactoid reactions.

Dosage:

Adult:

0.05 – 0.1 mg/kg, up to 10 mg IV/IO/IM. May repeat once at same dose in 10 minutes.

Pediatric:

0.1 mg/kg IV/IM; Max dose under 12 years of age = 5mg

10kg child = 0.1mL

Special Considerations: Monitor vital signs and pulse oximetry closely. Be prepared to support patient's airway and ventilations.

Overdose should be treated with naloxone.

Use with caution in hypotension, acute bronchial asthma, respiratory insufficiency, head trauma.

Pregnancy class D

Supplied: 10mg/ml

NALOXONE HCL (NARCAN)

Classification: Opiate antagonist

Action: Binds with opioid receptors and blocks the effect of narcotics.

Indications: Narcotic overdoses, reversal of narcotics and newborns with respiratory depression and narcotic using mothers.

Contraindications: Known sensitivity to naloxone, nalmefene, or naltrexone.
Do not use on intubated patients.

Adverse Effects: Nausea/vomiting, restlessness, diaphoresis, tachycardia, hypertension, tremulousness, seizures, cardiac arrest, narcotic withdrawal. Patients who have gone from a state of somnolence from a narcotic overdose to wide awake may become combative.

Dosage:

Adult:

Up to 0.8 mg slow IV/ IM titrated to respirations. Repeat dose 1.6 mg.

Pediatric:

0.1 mg/kg IV/ IM up to 2 mg.

10kg child = 2.5mL

Special Considerations: Pregnancy class C

Use with caution in patients with supraventricular arrhythmias or other cardiac disease, head trauma, brain tumor.

Supplied: 4mg/10ml

NITROGLYCERINE (TABLET, SPRAY AND PASTE)

Classification: Antianginal agent

Action: Relaxes vascular smooth muscle, thereby dilating peripheral arteries and veins. This causes pooling of venous blood and decreased venous return to the heart, which decreases preload. Nitroglycerin also reduces left ventricular systolic wall tension, which decreases afterload.

Indications: Angina, ongoing ischemic chest discomfort, hypertension, myocardial ischemia associated with cocaine intoxication, pulmonary edema.

Contraindications: Hypotension, severe bradycardia or tachycardia, increased ICP, intracranial bleeding, patients taking any medication for erectile dysfunction (such as sildenafil [Viagra], tadalafil [Cialis], or vardenafil [Levitra]), known sensitivity to nitrates.

Adverse Effects: Headache, hypotension, bradycardia, lightheadedness, flushing, cardiovascular collapse, methemoglobinema.

Dosage:

Adult:

Tablet: 1 tablet (0.4 mg) SL titrated to pain relief as long as B/P > 100 mmHg.
Paste: 1-2 inches topically
Spray: 1 spray to the underside of patients tongue.

Special Considerations: Administration of nitroglycerin to a patient with right ventricular MI or inferior MI can result in hypotension.

Use with caution in anemia, closed-angle glaucoma, hypotension, postural hypotension, uncorrected hypovolemia.

Pregnancy class C

Supplied: 0.4mg/tablet (1/150th grain)
0.4mg per spray

ONDANSETRON (ZOFRAN)

Classification: Antiemetic

Action: Selectively blocks serotonin receptor that produces nausea and vomiting.

Indications: Treatment and prevention of nausea and vomiting

Contraindications: Hypersensitivity and known prolonged QT interval

Dosage:

Adult:

4mg IM or slow IV over 2-5 minutes may repeat 4mg in 10 minutes.
4mg SL tablet may repeat 4mg in 10 minutes.

Pediatrics:

0.1 mg/kg up to 20 kg for greater than 20 kg give adult dose.
Older than 2 years of age 4mg SL tablet
10kg child = 0.5mL

Special Considerations: Pregnancy class C

Supplied: 4mg/2ml
4mg Tablet

PEDIATRIC DRUG DOSE CHART

Medication	Medication	Newborn	10 kg	20 kg	30 kg	40 kg	50 kg
Adenosine	0.1 mg/kg		0. 33 mL	0.66 mL	1 mL	1.3 mL	1.7 mL
Amiodarone	5 mg/kg		1 mL	2 mL	3 mL	3 mL	3 mL
Atropine	0.02 mg/kg		2 mL	4 mL	4 mL	4 mL	4 mL
Calcium chloride	10 mg/kg		1 mL	2 mL	3 mL	4 mL	5 mL
Dextrose	0.5 gm/kg EXCEPT NEWBORNS	2 mL/kg D12.5%	20 mL D25%	40 mL D25%	30 mL D50%	40 mL D50%	50 mL D50%
Diazepam	0.1 mg/kg		0.2 mL	0.4 mL	0.6 mL	0.8 mL	1 mL
Diphenhydramine	1 mg/kg		0.2 mL	0.4 mL	0.6 mL	0.8 mL	1 mL
Epi 1:1000	0.01 mg/kg		0.1 mL	0.2 mL	0.3 mL	0.3 mL	0.3 mL
Epi 1:10, 000	0.01 mg/kg	0.5 mL	1 mL	2 mL	3 mL	4 mL	5 mL
Fentanyl IV/IM	1mcg/kg			0.4 mL	0.6 mL	0.8 mL	1 mL
Fentanyl IntraNasal	1.5mcg/kg			0.6 mL	0.9 mL	1 mL	1 mL
Glucagon	1 unit	1 mL	1 mL	1 mL	1mL	1 mL	1 mL
Methyprednisolone	1 mg/kg		0.16 mL	0.32 mL	0.48 mL	0.64 mL	0.8 mL
Midazolam	0.1 mg/kg		0.2 mL	0.4 mL	0.6 mL	0.8 mL	1 mL
Morphine	0.1 mg/kg		0.1 mL	0.2 mL	0.3 mL	0.4mL	0.5 mL
Naloxone	0.1 mg/kg	1.25 mL	2.5 mL	5 mL	5 mL	5 mL	5 mL
Normal Saline	20 mL/kg	50 mL	200 mL	400 mL	600 mL	800 mL	1000 mL
Ondansetron	0.1 mg/kg		0.5 mL	2 mL	2 mL	2 mL	2 mL
Sodium bicarb	1 mEq/kg		10 mL + 10 mL NS	20 mL+ 20 mL NS	30 mL+ 30 mL NS	40 mL+ 40 mL NS	50 mL+ 50 mL NS

SODIUM BICARBONATE (8.4%)

Classification:	Electrolyte replacement
Action:	Counteracts existing acidosis
Indications:	Acidosis, drug intoxications (e.g. barbiturates, salicylates, methyl alcohol). Certain overdoses such as tricyclic antidepressants.
Contraindications:	Metabolic alkalosis
Adverse Effects:	Metabolic alkalosis, hypernatremia, injection site reaction, sodium and fluid retention, peripheral edema.
Dosage:	**Adult:** 1 mEq/kg IV followed by ½ the initial dose every 10 minutes. **Pediatric:** 1 mEq/kg. Dilute 1:1 with IV fluid 10kg child = 10mL + 10mL NS
Special Considerations:	Do not administer into an IV/IO line in which another medication has been given. Because of the high concentration of sodium within each ampule of sodium bicarbonate, use with caution in patients with CHF and renal disease. Pregnancy class C
Supplied:	50 mEq/50 ml

VASOPRESSIN (PITRESSIN)

Classification:	Nonadrenergic vasoconstrictor
Action:	Vasopressin causes vasoconstriction independent of adrenergic receptors or neural innervation.
Indications:	Adult shock-refractory VF or pulseless VT, asystole, PEA, vasodilatory shock.
Contraindications:	Responsive patients with cardiac disease
Adverse Effects:	Cardiac ischemia, angina
Dosage:	**Adult:** 40 units IV/IO
Special Considerations:	Pregnancy class C
Supplied:	20units/mL