REGION X

January 1, 2021

Advanced Life Support
Standard Operating Procedures

Version 1.7 – 06022022

BLS Procedures/Interventions

ALS Procedures/Interventions

Region X Standard Operating Procedures
Log of Changes

Date of Change	Protocol Name	Page #	Change
10/28/2020	Pediatric Croup/Epiglottitis	57	Removed Ipratropium from Croup, Stable
10/28/2020	Intraosseous Infusion EZ-IO	84	Changed description of Pink and Blue needles
10/28/2020	Region X Drug Information List: Verapamil	118	Updated VERAPAMIL administration to 5 minutes
1/13/2021	Adult Asthma/COPD with Wheezing	18	Removed first dose of ALBUTEROL and ATROVENT (DUONEB) below Adult Routine Medical Care Maximum (DUONEB) dose 2 treatments
1/13/2021	Adult Allergic Reaction Anaphylactic Shock	20	DIPHENHYDRAMINE IM- BLS skill- un-highlighted
1/13/2021	Altered Mental Status/Syncope/Presyncope	22	NALOXONE IM BLS skill un-highlighted
1/13/2021	Adult Diabetic Emergency	24	GLUCAGON IM/IN BLS skill un-highlighted
1/13/2021	Musculoskeletal Trauma Extremity Trauma	33	ALBUTEROL 2.5mg/3mL NEB BLS skill un-highlighted
1/13/2021	Adult Pain Management	35	NALOXONE IM BLS skill- un-highlighted NALOXONE IO ALS skill- highlighted
1/13/2021	Adult Nausea Management	35	ONDANSETRON ORAL BLS skill- un-highlighted ONDANSETRON 4mg ORAL- BLS skill-un-highlighted
1/13/2021	Adult Poisoning/Overdose	40	NALOXONE IN/IM BLS skill- un-highlighted
1/13/2021	Pediatric Asthma	56	EPINEPHRINE 1mg/1mL IM BLS skill un-highlighted
1/13/2021	Pediatric Hypothermia/Cold Emergencies	68	NALOXONE IVP/IO ALS skill- highlighted
1/13/2021	Pediatric Nausea Management	64	ONDANSETRON 4mg ORAL- BLS skill-un-highlighted
1/13/2021	Pediatric Weight-Based Medication- Medical Ketamine	105	KETAMINE change how supplied to 500mg/10mL 50mg/mL Medication table doses updated Max 500 mg Max 5mL single injection (split site)
1/13/2021	Adult Weight-Based Medication- Medical Ketamine	107	KETAMINE change how supplied to 500mg/10mL 50mg/mL Medication table doses updated Max 500 mg Max 5mL single injection (split site)
1/13/2021	Region X Approved Drug Information List Ketamine	115	KETAMINE change how supplied to 500mg/10mL Max dose 500mg per 10mL Max 5mL single injection (split site)
1/17/2021	Adult Supraventricular Tachycardia (Narrow Complex Tachycardia)	13	**NOTE:** Manage pain appropriately **NOTE:** Energy at Manufactures recommendation
1/17/2021	Adult Rapid Atrial Flutter/Fibrillation (Narrow Complex Tachycardia)	14	**NOTE:** Manage pain appropriately **NOTE:** Energy at Manufactures recommendation

Date of Change	Protocol Name	Page #	Change
1/17/2021	Adult Ventricular Tachycardia or Wide Complex Tachycardia (Patient with a Pulse)	16	**NOTE:** Manage pain appropriately **NOTE:** Energy at Manufactures recommendation (page 83)
1/17/2021	Pediatric Tachycardia with Poor Perfusion	52	**NOTE:** Manage pain appropriately **NOTE:** Energy at Manufactures recommendation
1/17/2021	Pediatric Tachycardia with Adequate Perfusion	53	**NOTE:** Manage pain appropriately **NOTE:** Energy at Manufactures recommendation
1/17/2021	Electrical Therapy	83	**NOTE:** See Manufacture recommendations
1/17/2021	Adult Hemorrhage Management- TRANEXAMIC ACID (TXA)	29	TRANEXAMIC ACID (TXA) - ALS skill highlighted
1/17/2021	Bites and Envenomation	41	Allergic Reaction Anaphylaxis - un-highlighted
1/17/2021	Pediatric Ventricular Fibrillation Pulseless Ventricular Tachycardia	51	Second dose AMIODARONE (max dose 150mg)
1/17/2021	Pediatric Sepsis	55	SBP < 70 + 2 (age)
1/17/2021	Pediatric Croup/Epiglottitis	57	Unstable -May repeat- added not to exceed 5 mg or 5mL
1/17/2021	Pediatric Heat Emergencies	67	Initiate Rapid Cooling un-highlighted
1/17/2021	Behavioral Emergencies	72	Changed ZOFRAN to ONDANSETRON
1/20/2021	Adult Allergic Reaction Anaphylactic Shock	20	Added second DUONEB to Anaphylactic Shock
1/21/2021	Adult Acute Heart Failure/Pulmonary Edema	17	If SBP < 160 mmHg, begin CPAP @ 5 cm PEEP PRN increase PEEP to max 10 cm If SBP >160 mmHg initial dose 1.2 mg (3 tabs) NITROGLYCERIN 0.4 mg SL, then may repeat NITROGLYCERIN 0.4mg SL every 5 minutes (no max dose) and begin CPAP @ 5 cm PEEP PRN increase PEEP to max 10 cm
1/21/2021	Withdrawing Resuscitative Efforts	9	Patient experienced an unwitnessed arrest by EMS provider Patient remains in non-shockable rhythm **Note: Contact MEDICAL CONTROL** for request to transport in any other situation

Date of Change	Protocol Name	Page #	Change
1/21/2021	Universal Adult Emergency Cardiac Care	5	**Note: Contact MEDICAL CONTROL** for request to transport in any other situation
1/26/2021	Pediatric Allergic Reaction	59	DIPHENHYDRAMINE IM -BLS skill un-highlighted
4/15/2021	Adult Bradycardia and AV Blocks	10	ATROPINE changed from .5mg to 1mg
06/22/2021	2020 AHA CPR Guidelines	89	Neonate Compression Rate 100-120/min Minimize Compression Interruption to include Neonate, Infant, Children -Inadequate breathing with pulse 20-30/minute (1 every 2-3 seconds) Adults &Adolescents- Inadequate breathing with pulse 10-12/minute (1 every 6 sec)
06/22/2021	Behavioral Emergencies	72	Adult Routine Medical Care added for >65 years MIDAZOLAM 5mg IM (new route) or MIDAZOLAM 2mg IVP/IO/IN titrate every 2 minutes up to 10mg
11/15/2021	Pediatric Airway Management	48	Ventilate: 1 breath every 2-3 seconds
11/15/2021	Pediatric Asthma	56	Ventilate: 1 breath every 2-3 seconds
11/15/2021	Pediatric Respiratory Failure	58	Ventilate: 1 breath every 2-3 seconds
11/15/2021	Pediatric Head/Spinal/Facial Injuries	65	Ventilate: 1 breath every 2-3 seconds
11/15/2021	Pediatric Drowning	66	Ventilate: 1 breath every 2-3 seconds
01/21/2022	Behavioral Emergencies	72	New Protocol - Separate Restraint Protocol
01/21/2022	Patient Restraint	104-105	Separate protocol added to references area
01/21/2022	Spinal Motion Restriction	31	Format changed for clarity
01/21/2022	Region X Field Trauma Triage and Transport Criteria	28	Special Consideration Updated
06/01/2022	Adult Heart Failure/Pulmonary Edema	17	Added a second unstable pathway
06/01/2022	Adult Asthma	18	Changed format / layout
06/01/2022	Withdrawing Resuscitative Efforts	9	Protocol updated
06/01/2022	Traumatic Arrest	28	New Region X SOP Added
06/01/2022	Stroke/TIA	23	LVO assessment added. CSC transport guidelines added
06/01/2022	Withholding Resuscitative Efforts	92	Witness to consent - if IDPH DNR POLST form removed. Out of state and national POLST form added

2020 Region X Standard Operating Procedures

These protocols have been developed and approved through a collaborative process involving the five Emergency Medical Service (EMS) Systems located in the EMS/Trauma Region X of the Illinois Department of Public Health (IDPH).

- Condell Medical Center EMS System, Libertyville, IL
- NorthShore Highland Park Hospital EMS System, Highland Park, IL
- Northwestern Medicine North Region EMS System, Lake Forest, IL
- Saint Francis Hospital EMS System, Evanston, IL
- Vista Health/North Lake County EMS System, Waukegan, IL

These protocols shall be used:

- as written practice guidelines and pre-hospital standing medical orders approved by the EMS Medical Directors and to be initiated by the System EMS personnel for off-line medical control,
- as the standing medical orders to be used by Emergency Communication Radio Nurses (ECRNs) when providing on-line medical control,
- in disaster situations, given that the usual and customary forms of communication are contraindicated as specified in the Region X Multiple Patient Management Plan (MPMP)

The signatures of the EMS System Medical Directors listed below officially authorize the provision of emergency medical care by Region X EMS personnel and hospital-based Emergency Communication Registered Nurses. These protocols have been approved by the Illinois Department of Public Health.

Jarrod Barker, MD
North Lake County EMSS
Vista Health System

Michael Peters, MD, FAEMS
Northwestern Medicine North Region EMSS
Northwestern Lake Forest Hospital

Scott French, MD, FACEP
Condell Medical Center EMSS
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Jeremy Lott, DO
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Ben Feinzimer, DO, FACEP
NorthShore Highland Park Hospital EMSS
NorthShore University HealthSystem

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INTRODUCTION TO THE USE OF STANDARD OPERATING PROCEDURES

The following Standard Operating Procedures (SOPs) are to be employed for all patients requiring pre-hospital medical treatment within the IDPH designated EMS/Trauma Region X.

Important points:

- Care is to be initiated consistent with these SOP's upon arrival of EMS or at the earliest possible time after EMS determines the scene is considered safe.
- EMS System providers are authorized to carry out these protocols to the extent indicated by the patient's condition.
- ECRN's may give only orders outlined in these protocols. *Any deviations from SOP's are to be made in collaboration with the Emergency Department (ED) Physician.*
- An alternate order of listed interventions may be appropriate based upon patient assessment.
- If a patient's situation is not covered by the SOP's, providers should initiate routine medical/trauma care and **Contact MEDICAL CONTROL** at the appropriate hospital for further direction from an ED physician. In all circumstances, ED physicians have the latitude to deviate from these protocols if it is in the best interest of the patient.
- Under no circumstances shall emergency pre-hospital care be delayed while attempting to establish contact with **MEDICAL CONTROL**.
- EMS personnel may withhold or withdraw resuscitative efforts in accordance with *Withdrawing/Withholding Resuscitative Efforts* protocol.
- Unless otherwise specified, the pediatric patient is considered to be under the age of 16.
- Pediatric medication dosages should not exceed adult dosages unless specifically indicated.
- It is understood that during multiple patient incidents altered standards of care may be necessary in order to provide the greatest good to the greatest number of patients.
- **Procedures/Interventions are dictated by individual System permissions.**

SEQUENCE FOR TRANSMISSION OF PATIENT INFORMATION

1. Identify provider name and vehicle number
2. Alert: Cardiac/STEMI, Sepsis, Stroke, Trauma I/II
3. Age, gender, approximate weight if pertinent
4. History/Subjective
    - Chief complaint - degree of distress/pain
    - History of present illness or injury (HPI), Mechanism of injury (MOI), Onset time
    - Past medical history, Medications, Allergies
5. Exam/Objective – Assessment Findings
    - Level of consciousness
        a. Vital Signs. Pain scale, temperature, and blood glucose if indicated
    - Skin: color, temperature, moisture
    - If indicated:
        - Resp: Lung sounds, Pulse Oximetry, Capnography
        - CV: ECG/12 Lead
        - CNS: Glasgow Coma Scale, Stroke screen, Pupils
        - Blood Glucose level
6. Treatment and response
7. ETA and destination

ABBREVIATED REPORT

An abbreviated report may be provided to, or requested by **MEDICAL CONTROL** in situations where resources are limited and/or patient's condition is critical

1. Identify provider name and vehicle number
2. Declare "This is an abbreviated radio report"
3. Situation (e.g., Alert: Cardiac, Sepsis, Stroke, Trauma I/II, Cardiac/Traumatic Arrest)
4. Age and gender
5. History: Chief complaint, brief HPI/MOI
6. Exam: VS, Glasgow Coma Scale
7. Treatment and response: Airway, Vascular access, Interventions completed or attempted
8. ETA and destination

Be prepared to provide detailed information upon arrival at the hospital.

AEROMEDICAL TRANSPORTATION

Circumstances that may warrant Aeromedical Transportation include, but are not limited to, high acuity patients (e.g., Level-1 trauma, hyperbaric center) when:

1. Time is critical for patient survival and/or distances are long, i.e., need for prompt transport when helicopter response time to scene, and flight time to appropriate hospital, is faster than ground transport.
2. Extrication/rescue is prolonged and significantly greater than helicopter estimated time of arrival (ETA) at scene.
3. Patients or hospitals are inaccessible or transport times are significantly delayed due to weather, traffic, or disaster/mass-casualty situation.
4. Ground transport to a Level-1 trauma center will be significantly greater than 25 minutes.
5. Special skills or equipment needed at the scene.

Patient Care/Scene Responsibilities

1. Consider aeromedical transportation, after completing an appropriate patient assessment.
2. EMS personnel at the scene may contact a helicopter service directly.
3. Continue ongoing assessment, treatment, and patient packaging until transfer of patient care to aeromedical transportation medical team.

Contact MEDICAL CONTROL, with information that aeromedical transport service has been requested, with a patient report and hospital destination.

ADULT ROUTINE MEDICAL CARE

ALL patient care begins with assessing scene safety and use of standard precautions.

2. **Initial/Primary Assessment**
    a. Airway
    b. Breathing
    c. Circulation
    d. AVPU and Glasgow Coma Scale determination
    e. Expose and examine as indicated

3. **Identify Priority Patients and Make Transport Decision.**

4. **Additional Assessment (SAMPLE and Focused History, Physical Exam)**

    a. Vital Signs. Pain scale, temperature, and blood glucose if indicated

    b. Determine weight as indicated

    c. Apply pulse oximeter, capnography/EtCO2 and record reading before and during OXYGEN administration.
        - Administer OXYGEN, if SpO2 is less than 94% or respiratory distress.
            - Nasal Cannula @ 2-6 liters/minute
            - Non-Rebreather Mask @ 12-15 liters/minute
            - Bag Valve Mask @ 15 liters/minute

    d. Evaluate ECG rhythm, obtain 12 Lead, (as indicated), transmit and report interpretation

    e. Establish NORMAL SALINE per IV/IO and adjust flow rate as indicated by patient condition. (May use NS lock cap on IV catheter for stable patients.)
        - If signs/symptoms of shock/hypoperfusion, administer IV/IO FLUID CHALLENGE in 500 mL increments. Titrate to desired response.

    f. Reassess condition, VS, pain scale, pulse oximetry, capnography/EtCO2 as frequently as condition indicates and after each intervention

5. **Contact MEDICAL CONTROL**

6. **Transport to Closest Appropriate Facility**

    Closest appropriate facility means the comprehensive ED of patient choice within the department's transport area or nearest hospital in cases of life threatening emergencies.

UNIVERSAL ADULT EMERGENCY CARDIAC CARE

Assess responsiveness
Assess pulse

RESPONSIVE
⇓

Adult Routine Medical Care

UNRESPONSIVE
⇓

If no breathing or only gasping,
and no pulse felt within 10 seconds
begin compressions until monitor/defibrillator is ready to view rhythm
Treat dysrhythmias per protocols
⇓
After 30 compressions, deliver 2 breaths
Continue 30:2 compressions to ventilation cycle for 2 minutes
⇓
Assess cardiac rhythm and pulse every 2 minutes during CPR
⇓
Vascular access IV/IO
⇓
Consider advanced airway
(Insertion of an ET tube or supraglottic airway)
Confirm device placement and ventilation
With advanced airway in place, deliver 1 breath every 6 seconds
Monitor status with capnography/EtCO2
⇓
If return of spontaneous circulation (ROSC),
(see pg. 90)

NOTE: Patient movement during cardiac arrest resuscitation should occur only under the following circumstances: ROSC, or environmental/provider safety concerns, or extenuating circumstances (e.g. pediatric patient).

NOTE: Contact MEDICAL CONTROL for request to transport in any other situation

ADULT DRUG ASSISTED INTUBATION

Considerations:

- Inability to maintain airway, oxygenate/ventilate adequately
- Imminent risk of loss of airway
- Respiratory failure (anaphylaxis, asthma/COPD, CHF/pulmonary edema, with RR <10 or >40, shallow/labored effort, or $SpO_2 \leq 92\%$ despite100% oxygen)

Routine Medical/Trauma Care

⇓

Pre-oxygenate 100% OXYGEN for 3 minutes

Assist ventilations 1 breath every 5-6 seconds (10-12 breaths per minute)

⇓

ETOMIDATE 0.3 mg/kg IVP/IO

(maximum 40 mg)

⇓

Attempt to Intubate

⇓

Verify tube placement with capnography/EtCO2

⇓

Secure tube and apply cervical collar to help maintain tube position

⇓

As needed for post-intubation sedation MIDAZOLAM 2mg IVP/IO

May repeat every 2 minutes, titrate to desired effect (maximum 20 mg)

⇓

If unable to intubate, consider alternative airway devices

⇓

Monitor with continuous capnography/EtCO2

TRANSITION OF CARE FROM AED TRAINED PERSONNEL TO ALS

PROCEDURE

1. On arrival of ALS trained personnel:
    a. Obtain report from the AED personnel
    b. Allow the AED to finish the cycle, continue CPR (disregard verbal prompts that delay or interrupt compressions)
    c. For suspected opioid emergency (if not previously given): Administer NALOXONE 2 mg IN/IM/IVP/IO, may repeat in 3 minutes to a maximum of 10 mg.
    d. Attach a monitor/defibrillator to the patient before disconnecting the AED
    e. Perform a rapid assessment and rhythm interpretation
    f. If a shockable rhythm, defibrillate at maximum joules or biphasic equivalent
    g. Consider the shocks delivered by the AED as part of the ALS protocol

2. ALS personnel should proceed to IV/IO access, medication administration and advanced airway maintenance.

3. Subsequent defibrillation should be at maximum joules.

4. If return of spontaneous circulation (ROSC), (see pg. 90)

NOTE: For children 1 through 8 years of age, a standard AED may be used if pediatric dose-attenuator system is not available. For infants less than 1 year of age, manual selection defibrillation is preferred; however, an AED with pediatric dose-attenuator is acceptable. If neither is available, a standard AED may be used.

ADULT ASYSTOLE/PULSELESS ELECTRICAL ACTIVITY

POSSIBLE CAUSES	
Hypovolemia	Toxins
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, coronary (ACS)
Hypothermia	Thrombosis, pulmonary (embolism)

Universal Adult Emergency Cardiac Care

⇓

Consider and treat possible causes

⇓

EPINEPHRINE 1mg/10mL 1 mg IVP/IO
May repeat every 3-5 minutes

⇓

Administer IV/IO FLUID CHALLENGE 500 mL, if breath sounds are clear
Repeat FLUID CHALLENGE as needed

NOTE: Dialysis Patient Only*, SODIUM BICARBONATE 50 mEq IV/IO

If return of spontaneous circulation (ROSC), (see pg. 90)

WITHDRAWING RESUSCITATIVE EFFORTS

Contact MEDICAL CONTROL
while continuing patient care

⇓

Report events of the call including estimated duration of cardiac arrest and treatments rendered.

⇓

Reaffirm all of the following:

- Non-traumatic arrest
- Patient is at least 18 years of age
- Patient experienced an unwitnessed arrest by EMS provider
  - No pulse
  - No respirations
  - No evidence of meaningful cardiac activity (e.g., asystole or wide complex PEA less than 60 BPM, no heart sounds)

⇓

Resuscitation may be terminated in asystole and slow wide complex PEA if there is:

⇓

1. No return of spontaneous circulation after 20 minutes in the absence of hypothermia

AND

2. The EtCO2 is less than 20 mmHg
3. No evidence of neurological function (non-reactive pupils, no response to pain, no spontaneous movement)
4. All EMS clinicians involved in the patient's care agree that discontinuation of the resuscitation is appropriate

If the Physician orders termination of efforts;

Note the time of withdrawal of efforts Note the physician's name on the run report

Notify Coroner or Medical Examiner

⇓

Contact MEDICAL CONTROL for request to transport in any other situation

NOTE: Only a physician may make the determination to withdraw resuscitative efforts. Local law enforcement may assist with Coroner/Medical Examiner notification. Local department policy may affect transportation consideration

ADULT BRADYCARDIA AND AV BLOCKS

Adult Routine Medical Care

STABLE
Patient alert
Skin warm and dry
SBP ≥90 mmHg

UNSTABLE
Altered mental status
SBP <90 mmHg

⇓

ATROPINE 1 mg rapid IVP/IO
(while preparing pacing)
⇓
Repeat in 3 minutes
to a maximum total dose of 3 mg
If remains unstable
⇓
Begin Transcutaneous Pacing
⇓
MIDAZOLAM 2 mg IVP/IO
May repeat every 2 minutes titrate to desired effect up
to a maximum of 10 mg
⇓
Manage pain appropriately
FENTANYL 1mcg/kg IVP/IN/IO/IM
(100 mcg max/dose) May repeat in 10 minutes
⇓
FENTANYL 1mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)
⇓
Contact MEDICAL CONTROL
PUSH DOSE EPINEPHRINE (10 mcg/1mL) 50 mcg (5mL) IVP
Repeat in 5 minutes, titrate to MAP 65

NOTE: Do not administer ATROPINE if Third Degree Heart Block go directly to Transcutaneous Pacing

ADULT ACUTE CORONARY SYNDROME

Adult Routine Medical Care
12 lead ECG and **Contact MEDICAL CONTROL for STEMI alert if ST elevation noted**

CAUTION: If ST elevation in II, III and AVF, **Contact MEDICAL CONTROL** as Nitroglycerin may be contraindicated.

⇓

STABLE	UNSTABLE
Patient alert *Skin warm and dry* *SBP ≥90 mmHg*	*Altered mental status* *SBP < 90 mmHg*
⇓	⇓
ASPIRIN 81 mg x 4 (324 mg) PO chewed and swallowed	ASPIRIN 81 mg x 4 (324 mg) PO chewed and swallowed if patient can tolerate
	⇓
	IV/IO FLUID CHALLENGE in 500 mL increments Titrate to desired patient response
⇓	
NITROGLYCERIN 0.4 mg SL May repeat every 5 minutes to a maximum of 3 doses	
⇓	
Manage pain appropriately:	
⇓	
Manage pain appropriately FENTANYL 1mcg/kg IVP/IN/IO/IM (100 mcg max/dose) May repeat in 10 minutes	
⇓	
FENTANYL 1mcg/kg IVP/IN/IO/IM (maximum total 200 mcg)	

NOTE: Computer assisted ECG interpretation may be used along with provider interpretation.

NOTE: If Right Sided ECG (V4R) obtained, label as "Right Sided ECG" but do not transmit.

ADULT CARDIOGENIC SHOCK

Adult Routine Medical Care

⇓

NOTE: If lung sounds are clear, administer:
IV/IO FLUID CHALLENGE in 500 mL increments
Titrate to desired patient response

⇓

Contact MEDICAL CONTROL
PUSH DOSE EPINEPHRINE 10 mcg/1 mL
50 mcg (5 mL) IVP, repeat in 5 minutes
Titrate to MAP 65
PUSH DOSE EPINEPHRINE Mixing Instructions (see pg. 79)

ADULT SUPRAVENTRICULAR TACHYCARDIA
(NARROW COMPLEX TACHYCARDIA)

CONSIDER AND TREAT POSSIBLE UNDERLYING CAUSES
Heart failure
Hypovolemia
Side effects of other drugs
Hypoxia
Hypoglycemia

Adult Routine Medical Care

⇓

STABLE
Patient alert
Skin warm and dry
SBP ≥90 mmHg

⇓

Instruct the patient to perform VALSALVA MANEUVER

⇓

ADENOSINE 6 mg rapid IVP followed by rapid flush of 20 mL NS

⇓

If no response in 2 minutes:
ADENOSINE 12 mg rapid IVP followed by rapid flush of 20 mL NS

⇓

If no response in 2 minutes:
ADENOSINE 12 mg rapid IVP followed by rapid flush of 20 mL NS

⇓

If no response in 2 minutes:

⇓

VERAPAMIL 5 mg IVP slowly over 5 minutes

⇓

If no response in 15 minutes and SBP ≥ 90, may repeat VERAPAMIL 5 mg IVP slowly over 5 minutes

UNSTABLE
Altered mental status
SBP < 90 mmHg

⇓

The conscious patient may receive MIDAZOLAM 2 mg IVP/IO every 2 minutes titrate to desired effect to a maximum of 10 mg
NOTE: Do not delay cardioversion for sedation

⇓

SYNCHRONIZED CARDIOVERSION at 100 joules

⇓

SYNCHRONIZED CARDIOVERSION at 200 joules

⇓

SYNCHRONIZED CARDIOVERSION at 300 joules

⇓

SYNCHRONIZED CARDIOVERSION at 360 joules

NOTE: Manage pain appropriately
NOTE: Energy at Manufactures recommendation (page 83)

ADULT RAPID ATRIAL FLUTTER/FIBRILLATION
(NARROW COMPLEX TACHYCARDIA)

Adult Routine Medical Care
⇓

STABLE
Patient alert
Skin warm and dry
SBP ≥90 mmHg

⇓

Instruct the patient to perform
VALSALVA MANEUVER
⇓

VERAPAMIL 5 mg IVP slowly over 5 minutes
⇓
If no response in 15 minutes
and SBP ≥ 90
may repeat VERAPAMIL 5 mg IVP slowly over 5 minutes

UNSTABLE
Altered mental status
SBP < 90 mmHg

⇓

The conscious patient may receive
MIDAZOLAM 2 mg IVP/IO every 2 minutes
titrate to desired effect to a maximum of 10 mg
NOTE: Do not delay cardioversion for sedation
⇓

SYNCHRONIZED CARDIOVERSION at 100 joules
⇓
SYNCHRONIZED CARDIOVERSION at 200 joules
⇓
SYNCHRONIZED CARDIOVERSION at 300 joules
⇓
SYNCHRONIZED CARDIOVERSION at 360 joules

NOTE: Manage pain appropriately

NOTE: Energy at Manufactures recommendation (page 83)

ADULT VENTRICULAR FIBRILLATION
OR PULSELESS VENTRICULAR TACHYCARDIA

POSSIBLE CAUSES	
Hypovolemia	Toxins
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, Coronary (ACS)
Hypothermia	Thrombosis, Pulmonary (embolism)
Hypoglycemia	

Universal Adult Emergency Cardiac Care

⇓

DEFIBRILLATE at 120-200j depending upon device
Resume CPR for 2 minutes

⇓

RETURN OF RHYTHM

⇓

Adult Routine Medical Care

If return of spontaneous circulation, (ROSC) (see pg. 90)

PERSISTENT OR RECURRENT V-FIB/PULSELESS V-TACH

⇓

Check Rhythm, if V-fib or Pulseless V-tach remains:
DEFIBRILLATE at 150-300j depending upon device

⇓

EPINEPHRINE 1mg/10mL 1 mg IVP/IO
Repeat every 3-5 minutes if no response

⇓

Check Rhythm, if V-fib or Pulseless V-tach remains:
DEFIBRILLATE at 200-360j depending upon device

⇓

Resume CPR for 2 minutes and administer
AMIODARONE 300 mg IVP/IO

⇓

NOTE: Dialysis Patient Only*
SODIUM BICARBONATE 50 mEq IV/IO

⇓

Check Rhythm and DEFIBRILLATE at 200-360j depending upon device

⇓

Resume CPR for 2 minutes

⇓

AMIODARONE 150 mg IVP/IO
If return of spontaneous circulation (ROSC), (see pg. 90)

NOTE: If rhythm appears to be Torsades de Pointes (polymorphic ventricular tachycardia): **Contact MEDICAL CONTROL** to consider MAGNESIUM SULFATE IVPB 2 gm/100 mL D5W over 5 minutes MAGNESIUM SULFATE should not be administered to patient with renal failure or on dialysis.

NOTE: Patients with Automatic Implantable Cardiac Defibrillators (AICD) should be defibrillated at maximum joules per device (200 – 360 joules).

ADULT VENTRICULAR TACHYCARDIA
OR WIDE COMPLEX TACHYCARDIA
(PATIENT WITH A PULSE)

Adult Routine Medical Care
Obtain 12 Lead to verify ventricular rhythm
⇓

STABLE
Monomorphic or Polymorphic Wide Complex
Patient alert
Skin warm and dry
SBP ≥90 mmHg
⇓

AMIODARONE 150 mg diluted in 100 mL D5W IVPB over 10 minutes
⇓

May repeat

UNSTABLE

Altered mental status
SBP < 90 mmHg

⇓

The conscious patient may receive
MIDAZOLAM 2 mg IVP/IO every 2 minutes titrate to desired effect to a maximum of 10 mg
NOTE: Do not delay cardioversion for sedation
⇓

SYNCHRONIZED CARDIOVERSION
at 100j
⇓

If Unsuccessful:
AMIODARONE 150 mg diluted in 100 mL D5W IVPB over 10 minutes and
SYNCHRONIZED CARDIOVERSION
at 200j
⇓
SYNCHRONIZED CARDIOVERSION
at 300j
⇓
SYNCHRONIZED CARDIOVERSION
at 360j
⇓
If return of spontaneous circulation (ROSC),
(see pg. 90)
If VT recurs,
SYNCHRONIZED CARDIOVERSION
at energy level that was previously successful

NOTE: If rhythm appears to be Torsades de Pointes (polymorphic ventricular tachycardia with a pulse) DEFIBRILLATE at 360j

NOTE: Manage pain appropriately

NOTE: Energy at Manufactures recommendation (page 83)

ADULT ACUTE HEART FAILURE / PULMONARY EDEMA

Adult Routine Medical Care

STABLE	UNSTABLE	
Alert, Skin warm and dry *SBP 100 mmHg – 160 mmHg* ⇓	⇓	⇓
Begin CPAP @ 5 cm PEEP PRN increase PEEP to max 10 cm	If SBP >160 mmHg ⇓ initial dose 1.2 mg (3 tabs) NITROGLYCERIN 0.4 mg SL ⇓ May repeat NITROGLYCERIN 0.4mg SL every 5 minutes (no max dose) ⇓ Begin CPAP @ 5 cm PEEP PRN increase PEEP to max 10 cm	Altered mental status SBP < 100 mmHg ⇓ Treat dysrhythmias per protocol Consider Cardiogenic Shock (see pg. 12)

NOTE: If during CPAP patient deteriorates, remove CPAP and consider advanced airway placement.

Do not administer NITROGLYCERIN if the patient has taken medication within the past 48 hours for erectile dysfunction or pulmonary hypertension. Examples: sildenafil (Viagra®, Revatio®), vardenafil (Levitra®, Staxyn®), tadalafil (Cialis®, Adcirca®).

ADULT ASTHMA/COPD WITH WHEEZING

Adult Routine Medical Care

⇓

Mild to Moderate Distress

⇓

ALBUTEROL 2.5 mg mixed with
IPRATROPIUM (Atrovent) 0.5 mg (Duoneb)
May repeat x 1

⇓

Severe Distress/Impending Failure

⇓

ALBUTEROL 2.5 mg mixed with
IPRATROPIUM (Atrovent) 0.5 mg (Duoneb)
(May repeat x 1)

AND

(Do Not Delay Administration)

MAGNESIUM SULFATE IVPB 2 gm/100 mL
D5W over 15 minutes **(Contact MEDICAL CONTROL if ≥ 65 years old to consider decreased dose of 1 gm)**

⇓

If no improvement, administer
ALBUTEROL 2.5 mg/3mL NEB treatment, may repeat every 5 minutes
to a maximum of 10 mg (4 doses)

⇓

Contact MEDICAL CONTROL to consider
EPINEPHRINE 1 mg/mL 0.3 mg IM
in anterolateral thigh

And/or

CPAP begin @ 5cm PEEP May increase to maximum of 10 cm PEEP

NOTE:

- Do not delay transport while waiting for response
- ALBUTEROL and IPRATROPIUM (Atrovent) may be administered in-line CPAP or intubation
- MAGNESIUM SULFATE should not be administered to patient with renal failure or on dialysis

CARBON MONOXIDE/SMOKE INHALATION

Adult/Pediatric Routine Medical Care
Exposure History
Remove from hazardous environment
⇓
Airway Management / OXYGEN at 100%

Vomiting precautions
⇓
NON-INVASIVE CARBON MONOXIDE MEASUREMENTS:

Measurement	Signs and Symptoms
Less than 5%	None (Normal for non-smoker)
5 – 9	Minor headache (May be normal for smoker)
10 - 19	Headache, shortness of breath
20 – 29	Headache, nausea, dizziness, fatigue
30 – 39	Severe headache, vomiting, vertigo, altered LOC
40 – 49	Confusion, syncope, tachycardia
50 – 59	Seizures, shock, apnea
> 59%	Coma, death, cardiac dysrhythmias

NOTE:

- Pulse oximetry readings are unreliable to detect hypoxia.
- If indicated, consider Adult or Pediatric Drug Assisted Intubation (p. 45).
- Consider cyanide poisoning in presence of smoke/fire situations.

ADULT ALLERGIC REACTION
ANAPHYLACTIC SHOCK

Adult Routine Medical Care

ALLERGIC REACTION
STABLE
Hives, itching, and rash
Patient alert, GI distress
Skin warm and dry
SBP ≥90 mmHg
⇓
Apply ice/cold pack to site
⇓
DIPHENHYDRAMINE 25 mg IVP slowly over 2 minutes or IM

ALLERGIC REACTION
STABLE
WITH AIRWAY INVOLVEMENT
Patient alert
Skin warm and dry
SBP ≥90 mmHg
⇓
EPINEPHRINE 1 mg/mL
0.3mg IM in anterolateral thigh
may repeat every 5 minutes
⇓
DIPHENHYDRAMINE 50 mg IVP slowly over 2 minutes or IM
⇓
If wheezing, ALBUTEROL 2.5 mg/3 mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB Tx
⇓
If no improvement, ALBUTEROL 2.5 mg/3 mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB Tx
⇓
If no improvement, administer ALBUTEROL 2.5 mg/3 mL NEB Tx every 5 minutes

ANAPHYLACTIC SHOCK
UNSTABLE
Altered mental status
SBP < 90 mmHg
⇓
Secure Airway
⇓
EPINEPHRINE (1 mg/mL)
0.3mg IM in anterolateral thigh
may repeat every 5 minutes
⇓
DIPHENHYDRAMINE 50 mg IVP/IO slowly over 2 minutes or IM
⇓
IV/IO FLUID CHALLENGE in 500 mL increments
Titrate to desired patient response
⇓
ALBUTEROL 2.5 mg/3 mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL(DUONEB) NEB Tx
⇓
If no improvement ALBUTEROL 2.5 mg/3 mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB Tx
⇓
If still no improvement, administer ALBUTEROL 2.5 mg/3 mL NEB Tx every 5 minutes
⇓
If worsening condition,
Contact MEDICAL CONTROL
PUSH DOSE EPINEPHRINE
(10 mcg/1mL) 50 mcg (5mL) IVP
Repeat in 5 minutes, titrate to MAP 65 (see pg. 79)

NOTE: ALBUTEROL/IPRATROPIUM BROMIDE (DUONEB) & ALBUTEROL NEB treatment may be administered in-line for those patients requiring intubation.

ADULT SEPSIS

Adult Routine Medical Care
Contact MEDICAL CONTROL to notify of Sepsis Alert
If patient meets Sepsis criteria:
⇓

Suspected or documented infection, and
Two or more of the following vital signs:

- SBP <100
- Mean Arterial Pressure (MAP) <65
- Temperature > 38° C (100.4° F) OR < 36° C (96.8° F)
- Respiratory Rate > 20 breaths/min
- Heart Rate > 90 beats/min
- EtCO2 ≤ 25 mmHg
- Altered Mental Status

Administer IV/IO FLUID CHALLENGE in 500mL increments
NOTE: Total amount of IV FLUID CHALLENGE should target a minimum of 30mL/kg
⇓
If SBP remains < 90 mmHg after reaching target minimum of 30mL/kg IV fluid
⇓
PUSH DOSE EPINEPHRINE (10 mcg/1mL) 50 mcg (5mL) IVP, repeat in 5 minutes
Titrate to MAP 65 (see pg. 79)

NOTE: Bedside report to hospital to include total amount of IVF infused

ADULT ALTERED MENTAL STATUS/SYNCOPE/PRE-SYNCOPE

CONSIDER ETIOLOGY	
Alcohol related	Hyperthermia
Altitude Illness	Poisoning
Diabetes	Sepsis
Drug Overdose	Shock
Dysrhythmia	Stroke/TIA

Adult Routine Medical Care
Immobilize C-spine as indicated
⇓
Obtain blood glucose level and record.
If blood glucose is < 60:
If patient is able to tolerate oral preparation,
has gag reflex and able to protect own airway ORAL GLUCOSE GEL 15 G
or
Administer DEXTROSE 10% (25gm/250mL) IV
or
If no IV/IO GLUCAGON 1 mg IM/IN
⇓
Perform BEFAST Prehospital Stroke Scale (see pg. 23)

If patient is not alert, respirations are decreased or a narcotic overdose is suspected:
NALOXONE 2 mg IN/IM/IVP may repeat in 3 minutes
to a maximum of 10 mg

NOTE: Attempt to identify substance(s) involved.
Any containers found at the scene with medications and/or substances should be brought to the emergency department providing that the transport of the item(s) do not pose a safety risk.
Consider the use of restraints prior to the administration of NALOXONE.

STROKE/TIA

Adult Routine Medical Care
Contact MEDICAL CONTROL for Stroke Alert.
Communicate BEFAST and LAST KNOWN WELL TIME
ON-SCENE time < 15 MINS

Glucose < 60

↓

DEXTROSE 10%
(25 mg/250 mL) IV
Or
GLUCAGON 1 mg
IM/IN (if no IV access)

↓

See Hypoglycemia SOP

PERFORM BEFAST PREHOSPITAL STROKE SCALE

↓

POSITIVE

↓

LARGE VESSEL OCCLUSION (LVO) suspected, ANY ONE of the following:

1. Dense/profound deficit*
2. Fixed eye gaze deviation
3. Hemineglect (ignoring one side of body)

↓

SYMPTOM ONSET < 24 hours

YES

↓

Can you reach a Comprehensive Stroke Center (CSC) in < 30 mins

YES

↓

Transport to **COMPREHENSIVE STROKE CENTER (CSC)**
if < 30 mins and within the agency's normal transport destination

NO

↓

Transport to **PRIMARY STROKE CENTER (PSC)**

NO

↓

Transport to **PRIMARY STROKE CENTER (PSC)**

↓

NEGATIVE

↓

See Appropriate Alternate SOP

* Dense/profound deficit
- sudden significant AMS
- sudden significant gait disturbance
- significant extremity weakness

		ASSESS	ABNORMAL (ACUTE)
B	BALANCE	If able have patient walk and perform finger-to-nose	**Trouble walking** or Loss of balance, dizziness
E	EYES	Assess gaze and eye motion	**Fixed gaze deviation** or blurred, loss, or double vision
F	FACE	Assess smile symmetry	**Weakness** or numbness
A	ARM	Palms up, arms out, assess ability to hold position	**Weakness** or numbness on one side of he body
S	SPEECH	Have patient repeat a phrase and name common items	Difficulty speaking or comprehension
T	TIME	Establish last known well time	**< 24 hours** since symptom onset

ADULT DIABETIC EMERGENCIES

Adult Routine Medical Care

⇓

Obtain history of time of patient's last medication dosage
and whether or not the patient has eaten

⇓

HYPOGLYCEMIA

Altered mental status
Blood glucose < 60
or
Unable to determine blood glucose level and
cool, clammy skin

⇓

If patient is able to tolerate oral preparation,
has gag reflex and able to protect own airway
ORAL GLUCOSE GEL 15 G

⇓

If unable to tolerate oral preparation
Administer DEXTROSE 10% (25gm/250mL) IV

⇓

If no response repeat
DEXTROSE 10% (25gm/250mL) IV
or
if no IV/IO
GLUCAGON 1 mg IM/IN

HYPERGLYCEMIA/KETOACIDOSIS

Blood glucose > 250
with symptoms of dehydration, vomiting,
abdominal pain, or altered level of consciousness
or
Unable to determine blood glucose level, and warm,
flushed skin and deep, rapid respirations

⇓

IV FLUID CHALLENGE in 500 mL increments
Titrate to desired patient response

ADULT SEIZURES
STATUS EPILEPTICUS

Adult Routine Medical Care

⇓

Protect patient from injury
Vomiting/aspiration precautions
Do NOT place anything in mouth if actively seizing

⇓

MIDAZOLAM 10 mg IM
or
MIDAZOLAM 2 mg IVP/IO/IN titrate every 2 minutes up to 10 mg

⇓

Monitor patient with continuous capnography/EtCO2

⇓

If seizure activity continues or recurs,
Contact MEDICAL CONTROL to repeat

Obtain blood glucose level
If blood glucose < 60, administer:

DEXTROSE 10% (25gm/250mL) IV
or
If no IV/IO GLUCAGON 1 mg IM/IN

Assess for any injury sustained during seizure and/or any incontinence

SEVERE FEBRILE RESPIRATORY ILLNESS

SYMPTOMS

- Fever > 100.4 F
- Cough, shortness of breath or hypoxia
- Close contact with person confirmed or suspected of illness in the last 10 days
- Employment in an occupation associated with risk
- Atypical pneumonia without an alternative diagnosis
- Travel history to high-risk area

Take measures to decrease risk of transmission by droplet/airborne/contact

⇓

PATIENT

- Patient to don surgical mask
- Hand hygiene with waterless soap
- Instruct on tissue use

⇓

PROVIDER

- Limit number of personnel exposed
- Provider to don N95 mask, gloves, gown, and eye protection
- Avoid touching outside of N95 mask

⇓

Adult Routine Medical Care
Limit interventions to essential procedures

⇓

Notify receiving facility of precautions
Consider initial facility evaluation of patient in back of ambulance to determine isolation needs

⇓

Leave equipment in patient room until appropriately cleaned
Refer to agency policy on decontamination of ambulance and equipment
Document exposure to possible communicable disease

ADULT ROUTINE TRAUMA CARE

1. SCENE SIZE-UP

a. Standard Precautions
b. Scene Hazards
c. Mechanism of Injury
d. Number of Patients
e. Need for Additional Resources

2. INITIAL ASSESSMENT/PRIMARY SURVEY

a. Airway/Spinal Precaution
b. Breathing
c. Circulation/Hemorrhage Management
d. AVPU and Glasgow Coma Scale
e. Management of immediate life threats/airway management
   i. If traumatic arrest associated with chest trauma, perform bilateral needle decompression
   ii. If tension pneumothorax, needle decompression to affected side
   iii. If open pneumothorax, apply occlusive dressing and tape on three sides
   iv. Control Bleeding

3. IDENTIFY PRIORITY OF TRANSPORT

Single System Trauma	Complex Multisystem Trauma
⇓	⇓
Focused Exam	Rapid Trauma Assessment
Examine areas where trauma is expected • As per mechanism of injury • As per patient complaint History Vital signs**,** Pain scale**,** Neuro exam, Blood glucose	Continue management of life threats Examine head, neck, chest, abdomen, pelvis, extremities, back History Vital signs**,** pulse oximeter & capnography/EtCO2, Pain scale, Neuro exam, Blood glucose
⇓	⇓
Injury management • Airway • Consider need for IV Manage pain appropriately Package patient Transport	Package patient Transport • IV/IO FLUID CHALLENGE in 500 mL increments. Maximum 1 Liter Other serious injury management
⇓	⇓
Perform Detailed Exam/Secondary Survey as time permits enroute	Perform Detailed Exam/Secondary Survey as time permits enroute
⇓	⇓
Ongoing assessment as patient condition indicates	Ongoing assessment every 5 minutes

4. Contact MEDICAL CONTROL enroute; Abbreviated Radio Report may be appropriate for Rapid Transport patients.

TRAUMATIC ARREST

Withhold resuscitation after traumatic arrest for asystole or an injury incompatible with life e.g. decapitation, thoracic transection, or incineration (90% surface area burn). Call OLMC

Initiate resuscitation if any electrical activity is present, drowning, hypothermia, visible pregnancy, pediatrics, witnessed loss of pulse for penetrating trauma, or if the mechanism of injury does not fit a traumatic cause for the arrest

Treat reversible causes of PEA: Refer to ADULT ROUTINE TRAUMA CARE p.27

Minimize scene time and initiate rapid transport to closest Trauma Center

NOTE: Do not use Epinephrine for traumatic arrest

REGION X FIELD TRAUMA TRIAGE AND TRANSPORT CRITERIA

NOTE: Traumatic Arrest – Transport to closest Trauma Center
No Airway – Transport to closest Comprehensive Emergency Department

Systolic Blood Pressure Adult ≤ 90 (2 consecutive measurements) Peds ≤ 80 (2 consecutive measurements)	⇒ Yes	Transport to **highest level** Trauma Center within 25 minutes transport time
No⇓		
Category I Unstable Vital Signs •Glasgow Coma Scale ≤ 13 with associated head trauma •Respiratory Rate <10 or > 29 (<20 infant<1 year) or need for ventilatory support Anatomic Criteria •Penetrating injuries to head, neck, torso and extremities proximal to elbow or knee •Two or more proximal long bone fractures •Unstable pelvis •Chest wall instability or deformity (e.g. flail chest) •Crushed, degloved, mangled or pulseless extremity •Open or depressed skull fractures •Amputation proximal to wrist or ankle •Paralysis	⇒ Yes	Transport to **highest level** Trauma Center within 25 minutes transport time
No⇓		
Category II Mechanism of Injury High Risk Auto Crash •Ejection from Automobile (partial or complete) •Death in same passenger compartment •Intrusion, including roof; >12 inches occupant site or >18 inches any site •Vehicle telemetry data consistent with a high risk for injury •Motorcycle crash > 20 mph •Rollover (Unrestrained) Falls •Adult Falls ≥ 20 feet (1 story = 10 feet) •Peds falls ≥ 10 feet or 2X height of the child Other •Auto vs. Pedestrian thrown or run over or with > 20 mph impact •Auto vs. Bicyclist thrown, run over or with > 20 mph impact	⇒ Yes	Transport to **closest** Trauma Center
No⇓		
Special Considerations Age: Adults >55 years; risk of injury and death increases SBP <110; might be shock if age >65 years Low impact mechanisms/standing falls may lead to severe injury Children should be preferentially transported to a pediatric-capable trauma center Anticoagulation and bleeding disorders: Patient with head injury is at high risk for rapid deterioration Burns: MOI with or without trauma: transfer to the closest trauma center Pregnancy >20 weeks should be preferentially transported to a facility with emergency obstetrics capabilities EMS Provider judgment	⇒ Yes	Transport to **closest** most appropriate facility. If non-trauma center contact **MEDICAL CONTROL**
No⇓		
Transport to closest appropriate comprehensive emergency department		

ADULT HEMORRHAGE MANAGEMENT - Tranexamic Acid (TXA)

Adult Routine Trauma Care or Adult Routine Medical Care

⇓

Consider Etiology
Deformity
Vascular status of extremity
(pallor, pulse, cap refill, degree of blood loss)
If severe life threatening hemorrhage

Indications:

- Category 1 Trauma expected transport to Level 1 Trauma Center
- Time of injury of < 3 hours from time of injury
- Must meet one or more of the following criteria:
  -SBP< 90mmHg <65 years of age
  -SBP < 110mmHg ≥65 years of age
  -Tachycardia >120 beats per minute with signs of hypoperfusion (Capillary refill > 2 seconds, confused, altered mental status, cool extremities)

Contraindications:

- Injuries ≥ 3 hours from time of injury
- Receiving facility not prepared to continue course of treatment
- Current DVT or PE, clotting disorders
- Renal disease
- Isolated head injury
- Taking birth control containing estrogen and progestin

⇓

Contact MEDICAL CONTROL to consider

TRANEXAMIC ACID (TXA) 1 gm/10ml mixed in 100 ml D5W IVPB over 10 minutes			
Tubing Drip Factor	Drops/Minute	Drops 15 seconds	Drops 5 seconds
60 gtts/mL	600	150	50

ADULT HEAD/SPINAL/FACIAL INJURIES

Adult Routine Trauma Care

⇓

STABLE	UNSTABLE
Patient alert	*Altered mental status*
Skin warm and dry	*SBP < 90 mmHg*
SBP ≥90 mmHg	⇓
⇓	Rapid Trauma Assessment/Airway Management
Focused Exam	

⇓

Obtain Blood Glucose level

If results are < 60 Administer DEXTROSE 10% (25gm/250mL) IV
or
If no IV/IO, GLUCAGON 1 mg IM/IN

⇓

⇓ ⇓

IV FLUID CHALLENGE in 500 mL increments
Titrate to desired patient response
SBP ≥ 110 and/or MAP ≥65

⇓

If rapid neurologic deterioration (unequal pupils, extensor posturing, lateralizing signs) ventilate with BVM at the following rates:
Adult 1 breath every 5-6 seconds,
Ventilate patient guided by capnography to aim for EtCO2 of 35-40 when there is a perfusing rhythm

Consider Adult Drug Assisted Intubation (see pg. 6)

⇓

For seizure activity
MIDAZOLAM 10 mg IM
or
MIDAZOLAM 2 mg IVP/IO titrate every 2 minutes up to 10 mg
Monitor patient with continuous capnography/EtCO2

⇓

If seizure activity continues or recurs,
Contact MEDICAL CONTROL
to repeat MIDAZOLAM

SPINAL MOTION RESTRICTION

Collect HPI, PMH, and perform a physical exam. C-Spine precautions may be needed until completed.

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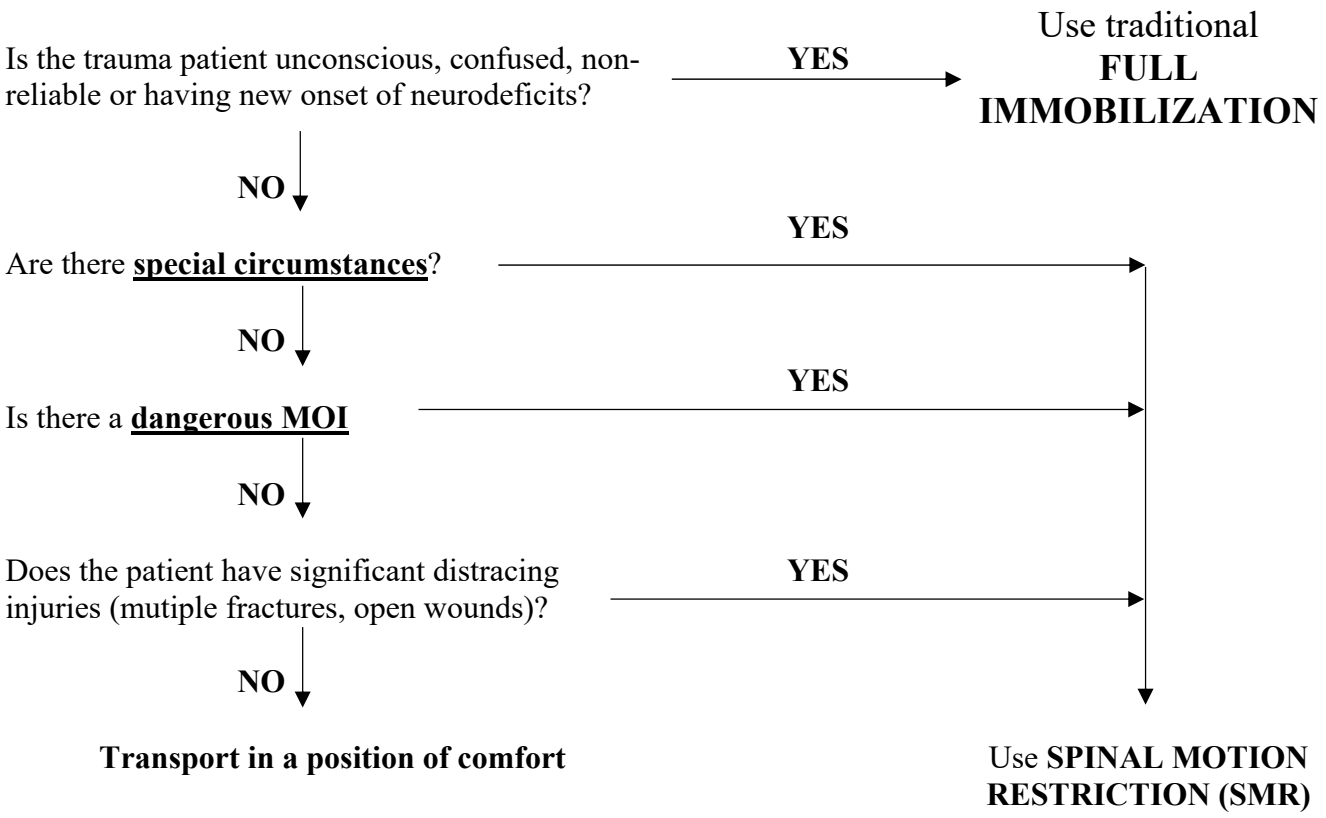


Special Circumstances: known spinal disease, previous c-spine injury, language barrier, intoxication that impairs assessment, GCS < 14.

Dangerous MOI: fall from elevation, axial loading to the head (dive into shallow water), high-speed MVC, rollover or ejection, motorized recreational vehicles, vehicle versus pedestrian/bicycle.

Full Immobilization - Backboard: Apply C-Collar, secure the chest, pelvis, and legs with straps. Secure the patient's head by using a commercial immobilization device or rolled towels.

Spinal Motion Restriction (SMR): C-Collar, patient supine on padded stretcher.

Immobilization should not interfere with patient care (e.g. airway management, treating neck wounds, etc.) and should not increase patient discomfort)

A **backboard** may be used as a method of transport to remove a patient from the environment, in appropriate circumstances, and may be used to transfer the patient to the transport stretcher.

BLAST INJURIES

Ensure Scene Safety

Remove patient from the scene as soon as is practical and safe

⇓

Airway management

⇓

Hemorrhage Management

⇓

Adult Routine Trauma Care

⇓

Evaluate for:
Blunt / Penetrating trauma
Crush Injury
Thermal/Chemical/ Electrical injury (burns)
Pressure-related injuries (barotrauma)
Toxic chemical contamination
Radiation injury

⇓

IV/IO FLUID CHALLENGE in 500 mL increments
Titrate to desired response of
SBP $\geq$ 90 and/or MAP $\geq$65

⇓

Consider Pain Management

MUSCULOSKELETAL TRAUMA/EXTREMITY TRAUMA

Adult Routine Trauma Care

⇓

Evaluate for deformity, shortening, rotation or instability

⇓

Evaluate neurologic status of extremity (Sensation and movement)

⇓

Evaluate vascular status of extremity (pallor, pulse, capillary refill)

⇓

Manage bleeding
Apply direct pressure to site

⇓

⇓

If ineffective or impractical, apply Tourniquet (see pg. 87)

⇓

If the site is not amenable to Tourniquet placement, pack wound tightly and apply direct pressure

If severe life threatening hemorrhage
Contact MEDICAL CONTROL to consider
TRANEXAMIC ACID
(see pg. 29)

⇓

Amputation or near-amputation (see pg. 86)

⇓

Stabilize suspected fractures/dislocations

⇓

Crush Injury/Compartment Syndrome Management
If significant injuries or prolonged entrapment of an extremity, and ECG suggestive of hyperkalemia

⇓

Contact MEDICAL CONTROL to consider
SODIUM BICARBONATE 50 mEq IV/IO
And/or

⇓

ALBUTEROL 2.5mg/3mL NEB treatment repeat once

⇓

Consider Pain Management (see pg. 35)

ADULT BURNS

Adult Routine Trauma Care
Assess for airway compromise
May be indicated by presence of wheezing, hoarseness, stridor, carbonaceous sputum or singed nasal hair
Consider Airway Management (see pg. 78)

⇓

Manage pain appropriately
FENTANYL 1mcg/kg IVP/IN/IO/IM
(100 mcg max/dose) May repeat in 10 minutes

⇓

FENTANYL 1mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)

FURTHER CARE DEPENDENT ON MECHANISM OF BURN:

Evaluate depth of burn and estimate extent using Rule of Nines (see pg. 89)

IV/IO FLUID CHALLENGE in 500 mL increments as indicated by patient condition
SBP ≥ 90 and/or MAP ≥65
Titrate to patient response

⇓ ⇓ ⇓

THERMAL

•Superficial (1st degree)
Cool burned area with water or saline
<20% body surface involved, apply sterile SALINE SOAKED dressings
DO NOT OVER COOL major burns or apply ice directly to burned areas

•Partial or Full thickness (2nd or 3rd degree)
Cover burn wound with DRY sterile dressings

ELECTRICAL/LIGHTNING

Assess for dysrhythmia
Identify and document any entrance and exit wounds
Assess neurovascular status of affected part
Immobilize affected part
Cover wounds with DRY, sterile dressings

CHEMICAL

Refer to Haz/Mat protocol
If powdered chemical, brush away excess
Remove clothing if necessary
Flush burn area with sterile water or saline

•IF EYE INVOLVEMENT
Assist patient with removal of contact lens and irrigate with saline or sterile water continuously. DO NOT CONTAMINATE THE UNINJURED EYE WITH EYE IRRIGATION

ADULT PAIN MANAGEMENT

Adult Routine Trauma Care or Adult Routine Medical Care

⇓

Determine pain intensity by utilizing Pain Scale

⇓

FENTANYL 1 mcg/kg IVP/IN/IO/IM
(100 mcg max/dose) May repeat in 10 minutes

⇓

FENTANYL 1mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)

⇓

If respiratory depression occurs
NALOXONE 2 mg IVP/IN/IM/IO, may repeat in 3 minutes to a maximum of 10 mg

ADULT NAUSEA MANAGEMENT

Adult Routine Medical Care or Adult Routine Trauma Care

⇓

If nausea or vomiting
ONDANSETRON 4 mg IVP over 30 seconds
Or
ONDANSETRON 4 mg ORAL
May repeat in 10 minutes to a maximum total of 8 mg

NOTE: Do not administer to patients who are pregnant

ADULT DROWNING/SUBMERSION/SCUBA INJURY

Adult Routine Medical Care or Adult Routine Trauma Care

⇓

History to include circumstances leading to the submersion, details of mechanism of injury, time under water, depth achieved, and water temperature (if available).

⇓

If mechanism, injury, or history suggests cervical spine injury spinal precautions applied

⇓

Administer 100% OXYGEN

⇓

Drowning	Scuba
Drowning may include immersion and submersion.	Scuba injuries include drowning, MI, pulmonary barotrauma e.g. pneumothorax, arterial gas embolus and decompression sickness. Consider within 24 hours of scuba diving or air travel after diving.
⇓	Monitor cardiac rhythm Maintain supine position ⇓
Consider Hypothermia (see pg. 38)	IV/IO FLUID CHALLENGE in 500 mL increments SBP ≥ 90 and/or MAP ≥65
	Consider needle decompression if tension pneumothorax is suspected (see pg. 85) ⇓
	Keep warm but not hyperthermic Consider Hypothermia (see pg. 38)

NOTE: Contact MEDICAL CONTROL to consider CPAP

NOTE: Diver's Alert Network (DAN) 24-hour emergency hotline (919) 684-9111

ADULT HEAT EMERGENCIES

Adult Routine Medical Care

Move the patient to a cool environment
Remove as much clothing as necessary to facilitate cooling

CRAMPS

Normal level of consciousness
Muscle cramps or spasms

EXHAUSTION

May have altered mental status
Perspiring, weakness, fatigue, frontal headache, nausea, vomiting, dizziness, syncope, temperature may be elevated

⇓

IV/IO FLUID CHALLENGE
in 500 mL increments
Titrate to desired patient response

STROKE

Altered mental status
Flushing
Hot skin (dry or moist) or temperature ≥ 104°F (40°C)

⇓

Establish IV/IO only if patient is hypotensive

⇓

INITIATE RAPID COOLING:
Douse towels or sheets with cool water, place on patient, and fan body
Cold packs to neck, axilla, and groin.

⇓

Stop cooling if shivering occurs

IF ACTIVELY SEIZING
Refer to
Adult Seizure protocol
(see pg. 25)

ADULT HYPOTHERMIA/COLD EMERGENCIES

Adult Routine Medical Care

FROSTBITE

⇓

Move patient to a warm environment

⇓

Rapidly re-warm frozen areas with warm water (if available)
Hot packs wrapped in a towel

⇓

HANDLE SKIN LIKE A BURN

Protect affected area with light, dry, sterile dressings
Elevate and immobilize
Do not let affected skin surfaces rub together

⇓

To control pain:
FENTANYL 1 mcg/kg IVP/IN/IO/IM
(100 mcg max/dose) May repeat in 10 minutes

⇓

FENTANYL 1mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)

SYSTEMIC HYPOTHERMIA

⇓

Avoid rough handling and excess activity
Apply heat packs (as available) to axilla, groin, neck and thorax

⇓

Assess pulse

Present

⇓

Continue assessment

Absent

⇓

Universal Adult Emergency Cardiac Care

Can extremities be flexed?

Yes

⇓

Follow appropriate cardiac protocol, but extend time between medications – repeat defibrillation as core temp rises

No

⇓

Follow appropriate cardiac protocol, but limit shocks to 1 and withhold IV medications

NOTE: Withdrawal of Resuscitative Effort policy does not apply to these patients.

ADULT POISONING/OVERDOSE - BETA BLOCKER/CALCIUM CHANNEL BLOCKER

Adult Routine Medical Care

⇓

Consider Etiology

Obtain an accurate ingestion history to include time, route, quantity

Bring container of drug or substance providing that the transport of the item does not pose a safety risk

If altered mental status, HR <60, conduction delays, SBP <90, slurred speech, nausea/vomiting:

⇓

Beta Blockers

NORMAL SALINE 500mL may repeat x1

⇓

If no response to fluids

⇓

ATROPINE 1mg IVP/IO

Repeat every 5 minutes to a maximum of 3mg

⇓

If no response

⇓

GLUCAGON 1mg IVP/IO

If no response after 5 minutes,

may repeat x1

⇓

If widened QRS, Consider SODIUM BICARBONATE 50 mEq IV/IO

⇓

If no response

Consider Transcutaneous Pacing

⇓

Calcium Channel Blockers

NORMAL SALINE 500mL may repeat x1

⇓

If no response to fluids

⇓

ATROPINE 1mg IVP/IO

Repeat every 5 minutes to a maximum of 3mg

⇓

If no response

Consider Transcutaneous Pacing

NOTE: Do not give patient anything to eat or drink by mouth. Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocols.
Do not induce vomiting, especially in cases where caustic substance ingestion is suspected.
Illinois Poison Center (800) 222-1222

ADULT POISONING/OVERDOSE – STIMULANTS/CNS DEPRESSANTS

Adult Routine Medical Care

⇓

Consider Etiology

Obtain an accurate ingestion history to include time, route, quantity

Bring container of drug or substance providing that the transport of the item does not pose a safety risk

If NALOXONE was administered prior to the arrival of EMS, obtain dose/route information for reporting and documentation.

⇓

Stimulant/Hallucinogens

Dilated pupils, tachycardia, hypertension
hyperthermia, diaphoresis, delusions

Restrain if necessary and document reasons for the use of restraints, type of restraint, time of restraint, and patient's response

If signs of hyperthermia,
INITIATE RAPID COOLING

For severe agitation or seizure activity,
MIDAZOLAM 10 mg IM
or
MIDAZOLAM 2 mg IVP/IO/IN
titrate every 2 minutes up to 10 mg

Monitor patient with continuous capnography/EtCO2

Treat dysrhythmia per protocol

Quiet environment

⇓

Opiates/Depressants

Altered mental status, respiratory depression

⇓

Treat Respiratory Depression

⇓

Consider restraints before administering

⇓

NALOXONE 2mg IN/IM/IV/IO
May repeat in 3 minutes
up to a maximum of 10mg

Monitor patient with continuous capnography/EtCO2

Treat dysrhythmia per protocol

Quiet environment

NOTE: Do not give patient anything to eat or drink by mouth. Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocols.
Do not induce vomiting, especially in cases where caustic substance ingestion is suspected.
Illinois Poison Center (800) 222-1222

BITES AND ENVENOMATION

Assess Scene Safety

⇓

Adult Routine Medical Care/Routine Pediatric Care

⇓

Consider Allergic Reaction/Anaphylaxis (Adult see pg. 20, Pediatric see pg. 59)

Keep the patient supine with minimal movement, and keep the bitten extremity at the level of the heart

Locate the puncture wounds

Remove all constricting jewelry, rings, watches, bracelets from affected extremity

⇓

Mark the border of any swelling and/or ecchymosis and note time

Do not remove clothing unless causing constriction (minimal movement of patient)

Do not apply a tourniquet, compression wrap, or ice pack

Do not place IV in the same extremity as the bite

⇓

Consider Pain Management (see pg. 35)

NOTE: If snakebite, include the bite time and species (if known) in verbal and written report. Transfer any personal anti-venom supply with the patient

EMERGENCY CHILDBIRTH

LABOR:

1. Obtain history. Initiate Adult Routine Medical Care.

Gravida (# of pregnancies)	Length of previous labors
Para (# of live births)	Bag of waters (amniotic sac) Intact? Broken?
Due date	Duration and frequency of contractions
High risk concerns	

2. Position patient and evaluate for:

SIGNS OF IMMINENT DELIVERY	**SIGNS OF COMPLICATIONS**
Crowning	Prolapsed Cord
Bulging Perineum	Profuse Bleeding
Involuntary Pushing	Meconium Staining

3. If delivery is not imminent, transport patient on her left side.

DELIVERY:

1. If contractions are 2 minutes apart, or signs of imminent delivery are present, open OB pack and don sterile gloves as well as standard precautions. Drape mother's abdomen and perineum. Prepare to assist the delivery.

2. Initiate Adult Routine Medical Care.

3. Protect perineum with gentle hand pressure while supporting the newborn's head as it emerges from the vagina. Tear amniotic membrane if it is still intact at this point.

4. Check for nuchal cord (cord wrapped around the neck), refer to Delivery Complications SOP.

5. To facilitate delivery of the upper shoulder, gently guide the head downwards. Support and lift the head and neck slightly to deliver the lower shoulder. The rest of the newborn should deliver with minimal assistance. Get a firm grasp on newborn. Note time of delivery and record on newborn's PCR.

NEWBORN and POST PARTUM CARE:

1. Spontaneous respirations should begin within 15 seconds after stimulating newborn by drying, rubbing back or flicking the soles of the feet. Do not shake newborn. Rapid assessment should include the following characteristics: term gestation, crying or breathing and good muscle tone.

2. Suctioning with the bulb syringe should be reserved for a newborn with obvious obstruction to spontaneous breathing.

    a. If still no respirations, begin ventilating at 40-60 breaths/minute. After 30 seconds of ventilation and if pulse < 60 begin chest compressions at a ratio of 3 compressions to 1 ventilation. Refer to Resuscitation of the Newborn/Neonate protocol.

3. Obtain 1 minute APGAR SCORE (see pg. 96).

4. Keep newborn level with the vagina until the cord is double-clamped. Delay cord clamping at least 1-3 minutes or when cord stops pulsating. The cord should be clamped 8 inches from the newborn's navel with 2 clamps placed 2 inches apart. Cut the cord between the two clamps.

5. Continue to dry the newborn and wrap in a dry blanket to provide and maintain body warmth. Wrap the newborn in silver swaddler or blanket, ensuring the head is covered. If the newborn is cyanotic, but breathing spontaneously, place infant NRB mask next to newborn's face and run OXYGEN at 15 liters/minute.

6. Obtain 5 minute APGAR score and at 5-minute intervals thereafter until 20 minutes for infants with a score less than 7.

7. Allow placenta to deliver spontaneously. Do not delay transport while waiting for placenta to deliver. Do not pull on cord to facilitate placental delivery. When delivered, collect placenta in plastic bag, bring to hospital and document time of placental delivery.

8. Check perineum for tears. If torn and bleeding, apply direct pressure with sanitary pads, and have patient bring legs together.

9. Observe for excessive vaginal bleeding (more than 500 mL).

    a. IV FLUID CHALLENGE in 500 mL increments. Titrate to desired patient response.
    b. Following delivery of the placenta, massage fundus of uterus until firm. Check every five (5) minutes for firmness and massage as necessary.
    c. **Contact MEDICAL CONTROL** to consider TRANEXAMIC ACID for post-partum hemorrhage > 500mL or hypotension.

10. Utilize identification tags for mother and newborn, must include mothers name, gender of newborn, time of delivery.

11. Transport infant in a secured seat/device unless resuscitation is needed.

INFANT PATIENT CARE REPORT must include:

1. Time of delivery, gender and mother's name.

2. If nuchal cord was present.

3. If meconium flecks were noted in amniotic fluid.

4. APGAR scores at 1 minute and 5 minutes.

5. Any infant resuscitation initiated and response.

DELIVERY COMPLICATIONS

Adult Routine Medical Care
Administer high-flow oxygen to mother

BREECH BIRTH:
Delivery Procedure:

1. Prepare to transport with care enroute if only the buttocks or lower extremities are delivered. It is acceptable to stay on the scene while in contact with **MEDICAL CONTROL** and delivery is in progress.
2. As soon as the legs are delivered, support the baby's body wrapped in a towel/chux. If the cord is accessible, palpate frequently for pulsations. Attempt to loosen the cord to create slack for delivery of the head.
3. After the torso and shoulders are delivered, gently sweep down the arms.
   a. If face down, gently elevate the legs and trunk to facilitate the delivery of the head.
   b. **Do not hyperextend the neck.**
   c. Apply firm pressure over the mother's fundus to facilitate the delivery of the head.
   d. **NEVER ATTEMPT TO PULL THE INFANT BY THE LEGS OR TRUNK.**
   e. Allow the entire body to be delivered with contractions while supporting the newborn's body.
4. **The head should deliver in 30 seconds**
   a. If not, reach 2 gloved fingers in the shape of a "V" into the vagina with the palm facing the newborn's face to locate the newborn's mouth and nose.
   b. Push vaginal wall away from the newborn's face to maintain an airway.
   c. Keep your fingers in place and transport, alerting the receiving hospital. Keep the delivered portion of the body warm and dry.
5. If the head delivers, anticipate neonatal distress.
6. Anticipate maternal hemorrhage after the birth of the infant.

NOTE: Do not attempt delivery or delay transport of any single limb or other abnormal presentation.

PROLAPSED CORD:
If the umbilical cord is visualized prior to delivery:

1. Elevate mother's hips. Instruct patient to pant during contractions.
2. Place gloved hand into vagina between pubic bone and presenting part with cord between two fingers to monitor cord pulsations and exert counter-pressure on presenting part to keep pressure off the cord.
3. Cover exposed cord with moist dressing and keep warm.
4. Transport with hand pressure in place.

NUCHAL CORD: (Cord wrapped around neck)

1. Slip two fingers around the cord and lift over newborn's head, proceed with delivery.
2. If unsuccessful, attempt to slide cord over shoulders.
3. If unsuccessful, double-clamp cord, cut cord between clamps with sterile scissors to allow for release of cord from neck.
4. Proceed with delivery.

SHOULDER DYSTOCIA:

1. Hyperflex the mother's hips to severe supine knee-chest position. (McRobert's position).
2. Apply firm suprapubic pressure to attempt to dislodge shoulder.

RESUSCITATION OF THE NEWBORN/NEONATE

Assess the Airway
Assess the pulse

⇓

Dry the baby and keep the baby warm
Stimulate
Place the baby on back with neck in neutral position

⇓

If there is obvious obstruction to spontaneous breathing or significant respiratory distress suction mouth and then nose with bulb syringe
(Suctioning should continue for no longer than 3-5 seconds per attempt)

⇓

Stimulate if the above methods fail: gently slap/flick the soles of the feet or rub the trunk

⇓

Apnea or the heart rate < 100, positive pressure ventilation via BVM/ETT at 40-60/minute
On room air

After 30 seconds of ventilation, assess the pulse

⇓ ⇓

If pulse 60 – 100
Continue positive pressure ventilation
40-60 breaths per minute

If pulse < 60
Begin chest compressions
At a ratio of 3 compressions to 1 ventilation

⇓

Contact MEDICAL CONTROL for further consideration

⇓

Re-evaluate newborn every 30 seconds
If no improvement, and heart rate remains <60,
Ventilate with 100% OXYGEN via BVM/ETT at 40-60/minute

NOTE: APGAR score (p. 96) must be obtained at one (1) and five (5) minutes after birth (and at 5-minute intervals thereafter until 20 minutes for infants with a score less than 7).

OBSTETRICAL COMPLICATIONS

Adult Routine Medical Care

BLEEDING IN PREGNANCY: (Placenta Previa, Placenta Abruptio, Threatened Miscarriage, Ectopic)

Position mother on her left side if possible.

⇓

Administer FLUID CHALLENGE in 500 mL increments. Titrate to patient response.

Contact MEDICAL CONTROL to consider TRANEXAMIC ACID if hemorrhage > 500mL or hypotension (see pg. 29)

NOTE: Type, color and amount of bleeding and/or discharge. If tissue passes, collect and transport to hospital with the patient.

HYPERTENSIVE DISORDERS OF PREGNANCY (includes Pre-Eclampsia and Eclampsia):

Pregnancy greater than 20 weeks or Postpartum 4 weeks

GENTLE handling. Minimal CNS stimulation.
Position patient on her left side if possible.
Seizure precautions and secure airway.

⇓

If SBP >160 or DBP >110
and associated pre-eclampsia symptoms e.g. headache, altered mental status, vision changes, pulmonary edema
MAGNESIUM SULFATE 4 gm in 100mL D5W IVPB over 15 minutes

⇓

If hypertension persists,
HYDRALAZINE 5 mg IVP over 1 minute
If hypertension persists with associated pre-eclampsia symptoms after 10 minutes
HYDRALAZINE 10 mg IVP over 1 minute

⇓

If seizure occurs,
MIDAZOLAM 2 mg IVP/IO/IN every 2 minutes titrate to desired effect up to a maximum of 10 mg

⇓

If seizure activity continues or recurs;
Contact MEDICAL CONTROL
To repeat MIDAZOLAM 2 mg IVP/IO/IN every 2 minutes titrate to desired effect up to a total maximum of an additional 10 mg

MATERNAL RESUSCITATION MODIFICATIONS

Perform left uterine displacement while the patient is in the supine position.
Chest compressions should be performed slightly higher on the sternum than normal.
Defibrillation should be performed following standard guidelines.

ROUTINE PEDIATRIC MEDICAL/TRAUMA CARE

A patient under the age of 16 is considered to be a pediatric patient.
All patient care begins with assessing scene safety and the use of standard precautions.

1. GENERAL ASSESSMENT USING THE PEDIATRIC ASSESSMENT TRIANGLE (PAT)
(To establish a level of severity, determine urgency for life support and identify key physiologic problems)

a. Appearance
b. Work of Breathing
c. Circulation to Skin

2. INITIAL ASSESSMENT
(A prioritized sequence of life support interventions to reverse critical physiologic abnormalities and determine transport priority)

a. Airway / determine need for Airway/Ventilatory Management and Spinal Motion Restriction
b. Breathing
c. Circulation
d. AVPU and Pediatric Glasgow Coma Scale determination
e. Expose and examine as indicated

3. IDENTIFY PRIORITY PATIENTS AND MAKE TRANSPORT DECISION.

4. ADDITIONAL ASSESSMENT (To include Focused History, Physical Exam and SAMPLE History)

a. Vital Signs. Pain scale, temperature, and blood glucose if indicated.
b. Determine weight and age.
   - Medication dosage should be age/weight-based and contained within Region X Standard Operating Procedures.
   - Utilize length-based tape to measure body length and to determine approximate weight (if actual weight is not available).
   - If less than 5 kg, **Contact MEDICAL CONTROL** for medication guidance.
c. Apply pulse oximeter or capnography/EtCO2 and record reading before and during OXYGEN administration. Administer OXYGEN if SpO2 is less than 94% or if patient shows signs of respiratory distress.
d. Evaluate cardiac rhythm and perform 12 Lead ECG if appropriate.
e. Establish NORMAL SALINE per IV/IO as indicated by patient condition and adjust flow rate based upon condition and weight.
f. Determine blood glucose level if appropriate.
g. Reassess vital signs, pain scale, pulse oximetry/capnography and patient condition as frequently as the patient's condition indicates and after each intervention.

5. DETAILED PHYSICAL EXAM
(To build on the findings of the Initial Assessment and Focused Exam, use the toe-to-head sequence for infants, toddlers and preschoolers)

6. CONTACT MEDICAL CONTROL

7. TRANSPORT TO CLOSEST APPROPRIATE FACILITY

PEDIATRIC AIRWAY MANAGEMENT

INDICATIONS:

- Inability to ventilate/oxygenate adequately, or
- Failure to maintain an adequate airway or aspiration risk or
- Actual or pending respiratory failure, shallow or labored effort, or $SpO_2 \leq 92\%$ while on 100% oxygen, or
- Anticipated patient deterioration due to airway in imminent risk of closure, or
- Glottic or supraglottic swelling (inhalation burn or anaphylaxis)

Routine Pediatric Medical/Trauma Care

⇓

BVM Ventilation with adjuncts

⇓

If BVM not effective and gag reflex present

⇓

ETOMIDATE 0.3 mg/kg IVP/IO
(Adult maximum 40 mg)

⇓

I-GEL

In the case of Burn, Inhalation injury, or Anaphylaxis

⇓

Pre-Oxygenate 100% OXYGEN for 3 minutes
Assist ventilation with 1 breath every 2-3 seconds

⇓

ETOMIDATE 0.3 mg/kg IVP/IO
(Adult maximum 40 mg)

⇓

Intubate

⇓

For continued sedation MIDAZOLAM 0.2 mg/kg IVP/IO titrate to desired effect
(Adult maximum 20 mg)

⇓

If additional sedation required, **Contact MEDICAL CONTROL**
If airway secured with endotracheal tube, verify tube placement with capnography/EtCO2
Apply cervical collar to maintain tube position
Monitor patient with continuous capnography/EtCO2

PEDIATRIC ASYSTOLE, PEA, PULSELESS IDIOVENTRICULAR RHYTHMS

POSSIBLE CAUSES	
Hypovolemia	Toxins/Overdose
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, Coronary (ACS)
Hypothermia	Thrombosis, Pulmonary (embolism)
Hypoglycemia	Trauma

Routine Pediatric Care
Consider and treat possible causes
⇓
Begin compressions
5 cycles/2 minutes
Assess cardiac rhythm every 2 minutes during CPR
⇓
Secure airway with 100% OXYGEN with minimal interruption of compressions
Once airway is secured with an advanced airway device, ventilate with 1 unsynchronized breath every 6 seconds
⇓
Monitor patient with continuous capnography/EtCO2
⇓
Establish IV/IO
Administer IV FLUID CHALLENGE 20 mL/kg
Repeat FLUID CHALLENGE as needed
⇓
EPINEPHRINE 1mg/10 mL 0.01 mg/kg IVP/IO
Repeat every 3-5 minutes
⇓
Transport
With further interventions en route
⇓
If organized rhythm present, perform a pulse check for a maximum of 10 seconds

If return of spontaneous circulation (ROSC), (see pg. 90)

PEDIATRIC BRADYARRHYTHMIAS

POSSIBLE CAUSES	
Hypovolemia	Toxins/Overdose
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, Coronary (ACS)
Hypothermia	Thrombosis, Pulmonary (embolism)
Hypoglycemia	Trauma

Routine Pediatric Care

⇓

Secure airway
Assist ventilations with BVM at 100% OXYGEN

⇓

If heart rate <60/min and poor perfusion despite oxygenation and ventilation
(Weak or absent pulses, hypotension, pallor/cyanosis, altered mental status)

⇓

NO

⇓

Observe

YES

⇓

Begin CPR with compressions
Reassess cardiac rhythm after 2 minutes
If bradycardia persists

⇓

Monitor patient with continuous capnography/EtCO2
Establish IV/IO

⇓

EPINEPHRINE 1mg/10mL 0.01 mg/kg IVP/IO
May repeat every 3-5 minutes if no response

⇓

For persistent bradycardia with hypotension
IV FLUID CHALLENGE 20 mL/kg, then TKO

⇓

Contact MEDICAL CONTROL to consider:
ATROPINE 0.02 mg/kg IVP/IO
(Pediatric maximum single dose 0.5 mg)

ATROPINE may be repeated once if no response
Maximum total dose is 1 mg

⇓

Contact MEDICAL CONTROL to consider
transcutaneous pacing

PEDIATRIC VENTRICULAR FIBRILLATION
PULSELESS VENTRICULAR TACHYCARDIA

POSSIBLE CAUSES	
Hypovolemia	Toxins/Overdose
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, Coronary (ACS)
Hypothermia	Thrombosis, Pulmonary (embolism)
Hypoglycemia	Trauma

Routine Pediatric Care
Consider and treat possible causes
Begin compressions while preparing to defibrillate
Secure airway with 100% OXYGEN/Monitor patient with continuous capnography/EtCO2

⇓

DEFIBRILLATE at 2j/kg or equivalent biphasic

⇓

Resume compressions for 5 cycles (2 minutes)
Establish IV/IO
Assess cardiac rhythm and if necessary:
DEFIBRILLATE at 4j/kg
Resume CPR

⇓

EPINEPHRINE 1mg/10mL 0.01 mg/kg IVP/IO, Repeat every 3-5 minutes

⇓

Assess cardiac rhythm and if necessary:
DEFIBRILLATE 6j/kg
Resume CPR

⇓

AMIODARONE 5 mg/kg IVP/IO
(Adult maximum 300 mg)

⇓

Assess cardiac rhythm and if necessary:
DEFIBRILLATE 8j/kg

⇓

If no response, repeat AMIODARONE 5 mg/kg IVP/IO once in 3-5 minutes
(Adult maximum 150 mg)

⇓

Assess cardiac rhythm and if necessary:
DEFIBRILLATE 10j/kg
(Maximum 10j/kg or Adult maximum of 360j

If return of spontaneous circulation (ROSC), (see pg. 90)
For Torsades de Pointe: **Contact MEDICAL CONTROL** to consider MAGNESIUM SULFATE 25 mg/kg in 100 mL D5W (Maximum 2 gm) IVPB over 5 minutes.

PEDIATRIC TACHYCARDIA WITH POOR PERFUSION

POSSIBLE CAUSES	
Hypovolemia	Toxins/Overdose
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, coronary (ACS)
Hypothermia	Thrombosis, pulmonary (embolism)
Hypoglycemia	Trauma

Routine Pediatric Care
Consider and treat possible causes

⇓

Probable Sinus Tachycardia

History compatible
P wave present/normal
HR varies with activity
Variable RR with constant PR
Infants: usually <220 beats/min
Child: usually <180 beats/min

⇓

Treat possible causes

⇓

Probable Supraventricular Tachycardia

Compatible history (vague, nonspecific)
P waves absent/abnormal
HR not variable with activity
Abrupt rate changes
Infants: usually ≥220 beats/minute
Child: usually ≥180 beats/minute

⇓

Vagal maneuvers

⇓

ADENOSINE 0.1 mg/kg rapid IVP followed by rapid flush of NORMAL SALINE 5 mL
(Adult maximum 6 mg)

⇓

If no response, ADENOSINE 0.2 mg/kg rapid IVP followed by rapid flush of NORMAL SALINE 5 mL
(Adult maximum 12 mg)

NOTE: Do not delay cardioversion for sedation

⇓

CARDIOVERSION 1 j/kg

⇓

If no response,

⇓

CARDIOVERSION 2 j/kg

⇓

Possible Ventricular Tachycardia

Cardiopulmonary compromise:
Hypotension
Altered mental status
Signs of shock

⇓

MIDAZOLAM 0.2 mg/kg IVP/IO titrate for desired effect
(Adult maximum 10 mg)
Monitor patient with continuous capnography/EtCO2

⇓

NOTE: Do not delay cardioversion for sedation

CARDIOVERSION 1 j/kg

⇓

If no response,
CARDIOVERSION 2 j/kg

⇓

Contact MEDICAL CONTROL to consider AMIODARONE

NOTE: Manage pain appropriately

NOTE: Energy at Manufactures recommendation (page 83)

PEDIATRIC TACHYCARDIA WITH ADEQUATE PERFUSION

POSSIBLE CAUSES	
Hypovolemia	Toxins/Overdose
Hypoxia	Tamponade, Cardiac
Hydrogen ion – acidosis	Tension Pneumothorax
Hyper/Hypokalemia	Thrombosis, coronary (ACS)
Hypothermia	Thrombosis, pulmonary (embolism)
Hypoglycemia	Trauma

Routine Pediatric Care
Consider and treat possible causes

⇓ ⇓ ⇓

Probable Sinus Tachycardia

History compatible
P wave present/normal
HR varies with activity
Variable RR with constant PR
Infants: usually <220 beats/min
Child: usually <180 beats/min

NOTE: If receiving sedation: Monitor patient with continuous capnography/EtCO2

Probable Supraventricular Tachycardia

History compatible
P waves absent/abnormal
HR not variable with activity
Abrupt rate changes
Infants: usually ≥220 beats/min
Child: usually ≥180 beats/min

⇓

Vagal maneuvers

⇓

ADENOSINE 0.1 mg/kg rapid IVP followed by rapid flush of NORMAL SALINE 5 mL
(Adult maximum 6 mg)

⇓

If no response, ADENOSINE 0.2 mg/kg rapid IVP followed by rapid flush of NORMAL SALINE 5 mL
(Adult maximum 12 mg)

⇓

If no response, MIDAZOLAM 0.2 mg/kg IVP titrate for desired effect
(Adult maximum 10 mg)
NOTE: Do not delay cardioversion for sedation

⇓

CARDIOVERSION 1 j/kg
If no response,

⇓

CARDIOVERSION 2 j/kg

Probable Ventricular Tachycardia

ADENOSINE 0.1 mg/kg IVP if wide monomorphic VT
(Adult maximum 6 mg)

⇓

AMIODARONE 5 mg/kg IVPB
(Adult maximum 150 mg)
(diluted in 100 mL D5W)
over 10 minutes

⇓

If no response,
MIDAZOLAM 0.2 mg/kg IVP/IO titrate for desired effect
(Adult maximum 10 mg)
NOTE: Do not delay cardioversion for sedation

⇓

CARDIOVERSION 1 j/kg

⇓

If no response,
CARDIOVERSION 2 j/kg

NOTE: Manage pain appropriately

NOTE: Energy at Manufactures recommendation (page 83)

PEDIATRIC SHOCK

Routine Pediatric Care
⇓
Determine Etiology of Shock
⇓
Contact MEDICAL CONTROL
⇓

Hypovolemic Hemorrhagic/Volume Loss/Suspected dehydration	**Cardiogenic** Hx of congenital heart disease/cardiac surgery/rhythm disturbance/post-cardiac arrest	**Distributive** Sepsis/Anaphylactic
⇓	⇓	⇓
Establish vascular access IV/IO NORMAL SALINE	Establish vascular access IV/IO NORMAL SALINE	Establish vascular access IV/IO NORMAL SALINE
Administer IV FLUID CHALLENGE 20 mL/kg Titrate to desired patient response	Administer IV FLUID CHALLENGE **10 mL/kg** **then 20mL/hr** Titrate to desired patient response	Administer IV FLUID CHALLENGE 20 mL/kg Titrate to desired patient response
If no response to initial bolus, repeat at 20mL/kg to maximum of 60 mL/kg	**Contact MEDICAL CONTROL** to consider additional IV FLUID CHALLENGES And/or PUSH DOSE EPINEPHRINE (10 mcg/1mL) 1mcg/kg IVP (Adult max 50 mcg), repeat in 5 minutes (Adult max 100 mcg), titrate to SBP (see pg. 97, pg. 79)	If no response to initial FLUID CHALLENGE and Hx of fever/infection, repeat IV FLUID CHALLENGE of 20 mL/kg to maximum of 60 mL/kg
	Identify any rhythm disturbance and refer to appropriate dysrhythmia protocol	If suspected allergic reaction refer to Allergic Reaction/Anaphylaxis Protocol (see pg. 59) If suspected Sepsis (see pg. 55)

PEDIATRIC SEPSIS

Routine Pediatric Medical Care

⇓

Determine if patient meets Sepsis criteria:
Contact MEDICAL CONTROL to notify of Sepsis Alert

Pediatric Sepsis Rule-In Criteria by Age						
Suspected or known infection plus three criteria						
	Less than 28 days	1-12 months	1 year but less than 2 years	2-4 years	5-12 years	13-15 years
Heart Rate	>205 bpm	>205 bpm	> 190 bpm	> 140 bpm	>140 bpm	>100 bpm
Respiratory Rate	>60	>60	>40	>40	>34	> 25
Temp	>than 38C or > than 100.4 F					
Cap Refill/Skin	Delayed > than 3 seconds, mottled					
SBP	< 60	< 70	< 70 + 2 (age)	< 70 + 2 (age)	< 70 + 2 (age)	< 90
Mental Status	Unresponsive, confused, inappropriate, lethargic					
High Risk Condition	Cancer, Asplenia, Sickle Cell disease, bone marrow or solid organ transplant, central indwelling catheters, immunodeficiency or immunosuppression					

Meeting any of these criteria indicates initiation of FLUID CHALLENGE

⇓

Administer FLUID CHALLENGE of NORMAL SALINE 20 mL/kg

NOTE: Volume sensitive children (neonates, congenital heart diseases, chronic lung disease, chronic renal failure) initial FLUID CHALLENGE of 10mL/kg (Max of 250mL)

Monitor closely for signs of respiratory distress, rales or delayed capillary refill

If no improvement in patient's vital signs, administer additional FLUID CHALLENGE of 20mL/kg (Up to a max of 60 mL/kg total)

⇓

If no improvement,
Contact MEDICAL CONTROL to consider
PUSH DOSE EPINEPHRINE (10 mcg/1mL) 1mcg/kg IVP (Adult maximum 50 mcg), repeat in 5 minutes (Adult maximum 100 mcg), titrate to SBP (see pg. 97, pg. 79)

NOTE: Bedside report to hospital to include total amount of IVF infused

PEDIATRIC ASTHMA

Routine Pediatric Care
Obtain history of patient's current asthma medications and time of last dosage and current weight
⇓

Mild to Moderate Distress
(Increased work of breathing with wheezing or coughing)

⇓
Supplemental OXYGEN

⇓
Position of comfort
ALBUTEROL 2.5 mg/3mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB treatment
with OXYGEN flow of 6 liters/minute
⇓
If no improvement, administer
ALBUTEROL 2.5 mg/3mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB treatment
with OXYGEN flow of 6 liters/minute
⇓
If no improvement, administer
ALBUTEROL 2.5 mg/3mL NEB treatment with OXYGEN flow of 6 liters/minute

May repeat ALBUTEROL every 5 minutes

Severe Distress
(Inadequate oxygenation, ventilation or both, breath sounds decreased or absent, hypoxia, exhausted)
⇓
Consider Airway Management
Ventilate with 100% OXYGEN via BVM
1 breath every 2-3 seconds
Monitor patient with continuous capnography/EtCO2
⇓
ALBUTEROL 2.5 mg/3mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB)
NEB treatment
with OXYGEN flow of 6 liters/minute
In-line nebulizer if needed
⇓
EPINEPHRINE 1mg/1mL
0.01 mg/kg IM
(Adult maximum 0.3 mg)

⇓
MAGNESIUM SULFATE 25 mg/kg
mixed with 100mL D5W IVPB over 15 minutes
(Adult maximum 2 gm)
⇓
If no response and continued deterioration,
Contact MEDICAL CONTROL to consider
to repeat EPINEPHRINE 1mg/1mL
0.01 mg/kg IM
(Adult maximum 0.3 mg)
If no improvement, administer
⇓
ALBUTEROL 2.5 mg/3mL mixed with IPRATROPIUM BROMIDE 0.5 mg/2.5 mL (DUONEB) NEB treatment with OXYGEN flow of 6 liters/minute
May repeat ALBUTEROL every 5 minutes

PEDIATRIC CROUP/EPIGLOTTITIS

Routine Pediatric Care
Keep patient calm – **DO NOT AGITATE**
Provide emotional support and allow position of comfort

⇓

CROUP

Infant/toddler, low grade fever, barking cough

⇓

STABLE
(No cyanosis, good air exchange)

⇓

Administer humidified OXYGEN by placing NORMAL SALINE 6 mL in nebulizer, deliver by mask or aim mist near the child's face

⇓

If no improvement, **Contact Medical Control**

UNSTABLE
(Resting stridor, respiratory distress)

⇓

Attempt ventilation via BVM with supplemental OXYGEN

⇓

Consider Pediatric Airway Management (see pg. 48)

⇓

NEBULIZED EPINEPHRINE 1mg/1mL 0.5 mg/kg NEB

⇓

May repeat
Not to exceed 5 mg or 5 mL

⇓

EPIGLOTTITIS

Toddler, high fever, drooling, no cough, stridor

⇓

Administer humidified OXYGEN by placing NORMAL SALINE 6 mL in nebulizer, deliver by mask or aim mist near the child's face

⇓

NEBULIZED EPINEPHRINE 1mg/1mL 0.5 mg/kg NEB
Not to exceed 5 mg or 5 mL

⇓

If patient condition deteriorates, attempt ventilation via BVM with supplemental OXYGEN 1 breath every 3-5 second
Consider Pediatric Airway Management (see pg. 48)

NEBULIZED EPINEPHRINE 1mg/1mL DILUTION TABLE				
Lb/Kg	≤11Lb/5kg	13Lb/6kg	18Lb/8kg	≥22Lb/10kg
EPINEPHRINE	**Contact MEDICAL CONTROL**	3mg (3mL)	4mg (4mL)	5mg (5mL)
NS		2mL	1mL	0

PEDIATRIC RESPIRATORY FAILURE

Routine Pediatric Care
Consider and treat possible causes

RESPIRATORY DISTRESS
(Increased work of breathing, increased respiratory rate, use of accessory muscles, nasal flaring, effectively compensating)

⇓

Supplemental OXYGEN

⇓

Support head in neutral position

⇓

Keep child calm, allow caregiver access to child

RESPIRATORY FAILURE
(Exhausted energy reserves, cannot maintain adequate oxygenation and ventilation, low respiratory rate, decreased effort, usually with bradycardia, agitation or lethargy and cyanosis)

⇓

Open the airway, ventilate with 100% OXYGEN via BVM 1 breath every 2-3 seconds

⇓

If unable to adequately ventilate, secure airway
Consider Pediatric Airway Management
(see pg. 48)

⇓

IV/IO vascular access

⇓

Assess cardiac rhythm

⇓

Treat dysrhythmias per protocols

NOTE: Monitor patient with continuous capnography/EtCO2

PEDIATRIC ALLERGIC REACTION/ANAPHYLAXIS

Routine Pediatric Care
⇓

ALLERGIC REACTION

STABLE
Hives, itching, and rash
GI distress, Patient alert
Skin warm and dry
⇓

Apply ice/cold pack to site

DIPHENHYDRAMINE 1 mg/kg IVP slowly over 2 minutes or IM
(Adult maximum 25 mg)

ALLERGIC REACTION

STABLE
WITH AIRWAY INVOLVEMENT
Patient alert
Skin warm and dry
⇓

EPINEPHRINE 1mg/1mL
0.01mg/kg IM
Maximum 0.3 mg (0.3mL) per single dose
May repeat every 5 minutes
or
EpiPen
<15kg (33lbs) **Contact MEDICAL CONTROL**
15-29kg (33-65lbs) 0.15mg
≥30kg (>66lbs) 0.3mg
⇓

DIPHENHYDRAMINE 1 mg/kg IVP slowly over 2 minutes or IM
(Adult maximum 50 mg)
⇓

If wheezing,
ALBUTEROL 2.5 mg/3 mL
mixed with
IPRATROPIUM BROMIDE 0.5 mg/2.5 mL
(DUONEB) NEB treatment
⇓

If no improvement,
ALBUTEROL 2.5 mg/3 mL
mixed with
IPRATROPIUM BROMIDE 0.5 mg/2.5 mL
(DUONEB) NEB treatment
⇓

If no improvement may repeat ALBUTEROL 2.5 mg/3 mL NEB every 5 minutes

ANAPHYLACTIC SHOCK

UNSTABLE
Altered mental status
⇓

Secure airway

EPINEPHRINE 1mg/1mL
0.01mg/kg IM
Maximum 0.3 mg (0.3 mL) per single dose
May repeat every 5 minutes
or
EpiPen
<15kg (33lbs) **Contact MEDICAL CONTROL**
15-29kg (33-65lbs) 0.15mg
≥30kg (>66lbs) 0.3mg
⇓

DIPHENHYDRAMINE 1 mg/kg IVP/IO slowly over 2 minutes or IM
(Adult maximum 50 mg)
⇓

IV FLUID CHALLENGE 20 mL/kg
Titrate to desired patient response
Maximum 60 mL/kg
⇓

ALBUTEROL 2.5 mg/3 mL
mixed with
IPRATROPIUM BROMIDE 0.5 mg/2.5 mL
(DUONEB) NEB treatment
⇓

If no improvement administer ALBUTEROL 2.5 mg/3 mL NEB every 5 minutes
⇓

If no response and continued deterioration, **Contact MEDICAL CONTROL** to consider
PUSH DOSE EPINEPHRINE
(10 mcg/1mL) 1mcg/kg IVP (Adult max 50 mcg), repeat in 5 minutes
(Adult max 100 mcg), titrate to SBP
(see pg. 97, pg. 79)

PEDIATRIC ALTERED MENTAL STATUS / PRE-SYNCOPE / SYNCOPE

CONSIDER ETIOLOGY			
Alcohol Respiratory / Cardiac Epilepsy	Abuse / Neglect Trauma/Temperature Infection / Sepsis	Altitude Psychogenic Insulin	Poisoning / Overdose Shock/Seizure/Stroke/Shunt Uremia

Routine Pediatric Care

If age 2 years or less **and** signs/symptoms spontaneously resolve, refer to BRUE/ALTE protocol

⇓

Obtain blood glucose level

⇓

Establish IV/IO vascular access if indicated

Administer IV FLUID CHALLENGE 20 mL/kg if indicated

⇓

If blood glucose < 60, administer:

If patient >2 y/o and is able to tolerate oral preparation,
has gag reflex and able to protect own airway ORAL GLUCOSE GEL 15 G

or

DEXTROSE 10% (25gm/250mL) 5mL/kg IV/IO

Or

If no IV/IO

GLUCAGON 0.5mg IM/IN if < 20kg (or < 5 years old)

GLUCAGON 1mg IM/IN if ≥ 20kg (or ≥ 5 years)

⇓

If patient is not alert, respirations are decreased or a narcotic overdose is suspected:

NALOXONE 0.1 mg/kg IV/IM/IN (maximum 2 mg)

If no response **Contact MEDICAL CONTROL** to consider additional NALOXONE

PEDIATRIC BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)
PEDIATRIC APPARENT LIFE THREATENING EVENT (ALTE)

Routine Pediatric Care
May be a resolved event in an infant <1 year including one or more of the following:

Absent, decreased, or irregular breathing
Color change (Central cyanosis or pallor)
Marked change in muscle tone (Hypertonia or Hypotonia)
Altered level of responsiveness

Low Risk	High Risk
Age ≥ 60 days If premature, was born at gestational age≥ 32 weeks and current postconceptional age is ≥45 weeks Occurrence of only one BRUE (No prior BRUE, and BRUE did not occur in clusters) Duration of BRUE < than 1 minute	Age < 60 days History of prematurity (≤ 32 weeks gestation or corrected gestational age ≤ 45 weeks) More than 1 BRUE Family history of sudden cardiac death

Transport for medical evaluation, even the well-appearing child
If transport is refused, **Contact MEDICAL CONTROL**

PEDIATRIC SEIZURES

Routine Pediatric Care

⇓

Protect airway and protect from injury
Vomiting/aspiration precautions
DO NOT place anything in mouth if seizing

⇓

MIDAZOLAM 0.2 mg/kg IM (max 10 mg)
or
MIDAZOLAM 0.2 mg/kg IVP/IO/IN, titrate (max 10 mg)

⇓

Monitor patient with continuous capnography/EtCO2

⇓

If seizure activity continues or recurs
Contact MEDICAL CONTROL
to repeat MIDAZOLAM 0.2 mg/kg IM/IN/IV/IO (max 10 mg)

⇓

Obtain blood glucose level
If result is < 60, administer:
DEXTROSE 10% (25gm/250mL) 5mL/kg IV/IO
Or, if no IV/IO

GLUCAGON 0.5mg IM/IN if < 20kg (or < 5 years old)
GLUCAGON 1mg IM/IN if ≥ 20kg (or ≥ 5 years)

⇓

Observe patient's sensorium and maintain airway
Note any injury sustained during seizure and/or any incontinence

FEBRILE SEIZURES

Routine Pediatric Care

⇓

Cool patient by removing clothing
Consider placing towels moistened in tepid (room temperature) water over patient and fan patient
DO NOT induce shivering
DO NOT rub down with alcohol or place in ice-water bath

⇓

Allow nothing by mouth

PEDIATRIC BURNS

Routine Pediatric Care

⇓ ⇓

No Respiratory Compromise *(no increased work of breathing)*	Respiratory Compromise (*wheezing, retractions, stridor, decreased respirations, apnea, tachypnea, grunting, decreasing consciousness)*

⇓

Consider Airway Management (see pg.48)

To control pain:
FENTANYL 1 mcg/kg IVP/IN/IO/IM
(100 mcg max/dose)
⇓
May repeat in 10 minutes
FENTANYL 1 mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)
⇓
FURTHER CARE DEPENDENT ON MECHANISM OF BURN:
Evaluate depth of burn and estimate extent using Rule of Nines (p. 95)
IV/IO FLUID CHALLENGE for Thermal and Electrical burns as indicated by patient age
≤5 y/o @ 125 mL/hr
6-13 y/o @ 250 mL/hr
≥14 y/o @ 500 mL/hr

⇓ ⇓ ⇓

THERMAL
•Superficial (1st degree)
Cool burned area with water or saline
<20% body surface involved, apply sterile saline soaked dressings
DO NOT OVER COOL major burns or apply ice directly to burned areas
•Partial or Full thickness (2nd or 3rd degree)
Cover burn wound with DRY sterile dressings
Place patient on clean sheet on stretcher, cover patient with dry clean sheets and blanket
Refer to Pediatric Shock protocol as indicated
(see pg. 54)

ELECTRICAL/LIGHTNING
Assess for dysrhythmia
Identify and document any entrance and exit wounds
Assess neurovascular status of affected part
Immobilize affected part
Cover wounds with DRY sterile dressings

CHEMICAL
Refer to HazMat protocol (see pg. 100)
If powdered chemical, brush away excess
Remove clothing if possible
Flush burn area with sterile water or saline

•IF EYE INVOLVEMENT
Assist with removal of contact lens and irrigate with saline or sterile water continuously. DO NOT CONTAMINATE THE UNINJURED EYE WITH EYE IRRIGATION

PEDIATRIC PAIN MANAGEMENT

Routine Pediatric Care
Determine pain by utilizing pain scale
Contact MEDICAL CONTROL for patients <2 years of age
⇓
Monitor patient with continuous capnography/EtCO2
Assure SBP remains age appropriate
⇓
FENTANYL 1 mcg/kg IVP/IN/IO/IM
(100 mcg max/dose)
⇓
May repeat in 10 minutes
FENTANYL 1 mcg/kg IVP/IN/IO/IM
(maximum total 200 mcg)
⇓
If respiratory depression occurs,

NALOXONE 0.1 mg/kg IN/IM/IVP/IO (maximum 2 mg)
Contact MEDICAL CONTROL to consider additional NALOXONE

PEDIATRIC NAUSEA MANAGEMENT

Routine Pediatric Care
⇓
If nausea or vomiting
ONDANSETRON 0.1 mg/kg IVP over 30 seconds if <40 kg
ONDANSETRON 4 mg IVP if ≥ 40kg
Or

ONDANSETRON 4 mg ORAL if ≥ 40 kg
May repeat once after 10 minutes

NOTE: Do not administer to patients who are pregnant

PEDIATRIC HEAD/SPINAL/FACIAL INJURIES

Pediatric Routine Trauma Care

⇓

STABLE
Patient alert
Skin warm and dry
PGCS: Mild

⇓

UNSTABLE
Altered mental status
PGCS: Moderate-Severe

⇓

Support ventilation, administer 100% O2 as indicated
*If rapid neurologic deterioration (unequal pupils, extensor posturing, lateralizing signs) ventilate with BVM at the following rates:
1 breath every 2-3 seconds,
Ventilate patient guided by capnography to aim for EtCO2 of 35 when there is a perfusing rhythm

Obtain Blood Glucose level
If results are < 60 administer:

DEXTROSE 10% (25gm/250mL) 5mL/kg IV/IO

Or if no vascular access

⇓

GLUCAGON 0.5mg IM/IN if < 20kg (or < 5 years old)
GLUCAGON 1mg IM/IN if ≥ 20kg (or ≥ 5 years)

⇓

IV FLUID CHALLENGE 20ml/kg if indicated

⇓

If evidence of shock, repeat FLUID CHALLENGE 20mL/kg up to a maximum of 60mL/kg

⇓

Consider Pediatric Airway Management (see pg. 48)

⇓

If actively seizing, refer to Pediatric Seizure (see pg. 62)

PGCS 13-15 (Mild)	PGCS 9-12 (Moderate)	PGCS ≤ 8 (Severe)
▪ Administer 100% 02 as indicated ▪ Control hemorrhage ▪ Reassess PGCS ▪ Observe	▪ Administer 100% 0_2 ▪ *Support ventilation with bag mask as indicated ▪ Control hemorrhage ▪ Reassess PGCS ▪ Observe	▪ Administer 100% 0_2 ▪ Support ventilation with bag mask ▪ *Provide hyperventilation only for impending herniation (non-reactive/ unequal pupils or posturing) ▪ Intubate orally as indicated ▪ Control hemorrhage ▪ Reassess PGCS ▪ Observe

PEDIATRIC DROWNING

Routine Pediatric Care
⇓
Spinal Motion Restriction as indicated
⇓
OXYGEN 100%
⇓

STABLE
Awake, alert, normal respirations

UNSTABLE
Abnormal respirations
Altered mental status
⇓
Evaluate for gag reflex

Negative
⇓
Pediatric Airway Management (see pg. 48)
⇓
Assess for hypothermia
⇓
Normothermic
⇓
Treat dysrhythmias per protocols

Positive
⇓
Assist ventilations via BVM 1 breath every 2-3 seconds
⇓
Assess for hypothermia
⇓
Hypothermic
⇓
Refer to Hypothermia protocol (see pg. 68)

NOTE: **Contact MEDICAL CONTROL** to consider CPAP in awake patients in respiratory distress.

PEDIATRIC HEAT EMERGENCIES

Routine Pediatric Care
Move to a cool environment
Remove as much clothing as necessary to facilitate cooling

HEAT CRAMPS

Normal level of consciousness, muscle cramps or spasm

HEAT EXHAUSTION

May have altered mental status, perspiring, weakness, fatigue, frontal headache, nausea, vomiting, dizziness, syncope, temperature may be elevated

⇓

IV FLUID CHALLENGE 20 mL/kg
May repeat to a maximum of 60 mL/kg
Titrate to desired patient response

HEAT STROKE

Hot, dry or moist skin, weak thready pulse, altered level of consciousness

⇓

INITIATE RAPID COOLING:
Douse towels or sheets with cool water, place on patient, and fan body
Cold packs to axilla, carotid, groin

⇓

Stop cooling if shivering occurs

⇓

IF ACTIVELY SEIZING
Refer to
Pediatric Seizure (see pg. 62)

PEDIATRIC HYPOTHERMIA/COLD EMERGENCIES

Pediatric Routine Medical Care

FROSTBITE

⇓

Move patient to a warm environment

⇓

Rapidly re-warm frozen areas with warm water (if available) or hot packs wrapped in a towel

⇓

HANDLE SKIN LIKE A BURN

Protect affected area with light, dry, sterile dressings

Elevate and immobilize

Do not let affected skin surfaces rub together

FENTANYL 1 mcg/kg IVP/IN/IO/IM
(100 mcg max/dose)

⇓

May repeat in 10 minutes

FENTANYL 1 mcg/kg IVP/IN/IO/IM
(Adult maximum total 200 mcg)

⇓

If respiratory depression occurs,

NALOXONE 0.1 mg/kg IN/IM/IVP/IO (maximum 2 mg)

SYSTEMIC HYPOTHERMIA

Avoid rough handling and excess activity

Apply heat packs (as available) to axilla, groin, neck and thorax

⇓

Assess pulse

Present

⇓

Continue assessment

Absent

⇓

Can extremities be flexed?

Yes	No
⇓	⇓
Follow appropriate cardiac protocol, but extend time between medications – repeat defibrillation as core temp rises	Follow appropriate cardiac protocol, but limit shocks to 1 and withhold IV medications

NOTE*:* Withdrawal Of Resuscitative Effort policy does not apply to these patients.

PEDIATRIC TOXIC EXPOSURES/INGESTIONS

Assess Scene Safety

⇓

Pediatric Routine Medical Care

⇓

Contact MEDICAL CONTROL

For interventions as indicated for identified exposure

⇓

Bring container(s) of drug or substance to the emergency department
Providing that the transport of the item(s) do not pose a safety risk

NOTE: Illinois Poison Center (800) 222-1222

Do not give patient anything to eat or drink by mouth.

Anticipate vomiting, respiratory arrest, seizure, dysrhythmias and refer to indicated protocols.

Do not induce vomiting, especially in cases where caustic substance ingestion is suspected.

SUSPECTED CHILD ABUSE/NEGLECT

Routine Pediatric Care

⇓

Note environment, child's interaction with parents, discrepancies in the history obtained from child and caregivers, and any signs of obvious injury

⇓

Treat obvious injuries

⇓

If parent/guardian refuses to let you transport the child, remain at the scene

Contact police and request the child be placed in protective custody

⇓

Transport

⇓

Report your suspicions to the Emergency Department Physician and/or Nurse

⇓

Carefully document history and physical exam findings as well as environmental/circumstantial data on the report

⇓

Department of Children and Family Services must be notified at (800)-25-ABUSE (*24-hour phone line*)
When contacting DCFS, identify self as a State Mandated Reporter to expedite the process
Written confirmation of the verbal report must be filed with DCFS within 48 hours

ELECTRICAL DEVICE WEAPON EXPOSURE

Adult Routine Trauma Care
Routine Pediatric Medical/Trauma Care

⇓

Evaluate depth of skin penetration
Do not remove darts if patient is not under control
Identify location of probes on the patient's body

⇓ ⇓

If darts are found to be superficially embedded in other than critical locations, they may be removed as follows:

1. Remove Taser cartridge from gun or cut wires before removing darts.
2. Place one hand on the patient where the dart is embedded to stabilize the skin surrounding the puncture site.
3. Firmly grasp the probe with your other hand.
4. Remove by gently pulling the dart straight out along the same plane it entered the body.
5. Assure that the dart is intact.
6. Repeat procedure with second dart, if embedded.
7. Return the darts to law enforcement officials, utilizing standard precautions.
8. Cleanse the wound area with saline.
9. Cover with a dry dressing.
10. When dart removed, document the removal location.
11. Assess for Behavioral Emergencies (see pg. 72)

If darts are embedded in any of the following critical areas, stabilize in place and transport patient:

- lid/globe of the eye
- face or neck
- genitalia
- bony prominence
- spinal column

BEHAVIORAL EMERGENCIES

Ensure Scene and Personnel Safety

1. Contact Law Enforcement when appropriate
2. Protect patient from harm to self and/or others if EMS safety ensured
3. Attempt **Verbal Deescalation**
4. Do not participate in patient's delusions/hallucinations
5. Warn acutely psychotic/unpredictable patient before making physical contact (e.g., VS measurement)
6. Document all pertinent behavior (e.g., tearful, flat affect, verbally combative, physically threatening posture, obvious internal stimuli like auditory hallucinations)

Consider **medical etiology** for abnormal behavior and cognition

- Hypoxia
- Metabolic Disorder (e.g., hypoglycemia)
- Stimulant Overdose (e.g., amphetamines) or Depressant Withdrawal (e.g., alcohol or benzodiazepines)
- Neurologic Disease (e.g., Stroke or Seizure, Delirium, Dementia)
- Trauma (e.g., head injury or blood loss)

Can confirm medical etiology

YES

NO

Safe to approach and make contact with patient

YES

NO

Refer to and Treat per appropriate SOP

Refer to **RESTRAINT** SOP (p.104)

SEXUAL ASSAULT

Approach the victim calmly and professionally

⇓

EMS should limit questioning concerning the incident to the minimum necessary to provide appropriate patient care

⇓

Respect the victim's modesty

Explain all procedures before beginning the procedures

⇓

Avoid touching the patient other than taking vital signs or examining physical injuries

(Do not examine the genitalia unless there is a life threatening hemorrhage)

⇓

Attempt to preserve physical evidence

⇓

Provide emotional support with a non-judgmental attitude

NOTE: Physical trauma, such as bruising, lacerations and fractures are often associated with sexual assault and may be life-threatening.

DOMESTIC VIOLENCE

Adult Routine Medical Care or Adult Routine Trauma Care as appropriate by patient condition

Definition: Domestic Violence is the **MOST** common form of violence and the least reported. Domestic Violence is the act of attacking, threatening, harassing or interfering with the personal liberty of any family or household member by any other family or household member, excluding any reasonable discipline of a minor child by a parent or guardian of such minor child.

- BE NON JUDGMENTAL AND NON THREATENING
- Respect and take the patient seriously.
- Maintain privacy. The patient should be interviewed and examined alone.
- Questions should be asked when household members are not within hearing distance.
- The patient must be asked directly if their injuries are a result of physical attack.
- Have a high index of suspicion; battered patients rarely admit the source of their injury.
- Aside from the typical injuries (trauma to head, neck, face, arms or back) look for:
    - Suicide attempts
    - Depression
    - Substance abuse
    - Hysterics
    - Multiple vague somatic complaints
    - Anxiety
    - Miscarriage
- Maintain a helping approach and be as non-threatening as possible.
- Respect and take the patient seriously.

NOTE: If the victim signs a refusal, inform the patient that EMS personnel are mandated by the State to report all cases of domestic violence to the local police. Document this conversation on the PCR. Also, offer immediate and adequate information regarding services available to victims of abuse, for any person suspected to be a victim of domestic abuse.

SUSPECTED ELDER ABUSE

Adult Routine Medical Care or Adult Routine Trauma Care as appropriate by patient condition

Adult Abuse: refers to mistreatment to any resident age 18-59 living with a disability and any adult 60 years of age or older who live in a domestic setting.

Abuse: means physical, sexual or emotional maltreatment or willful confinement.

Neglect: the failure of a caregiver to provide an adult with the necessities of life, including, but not limited to food, clothing, shelter or medical care. Neglect may be either passive (non-malicious) or willful.

Abuse and/or neglect of elderly patients may occur in the non-institutional or nursing home setting.

It is mandated by the State of Illinois to report suspected abuse cases to the Abuse Hot Line:

Elder Abuse 24-hour Hotline (866) 800-1409

NOTE: The prehospital provider must accurately and completely document any physical findings on the PCR and relay such findings to the Emergency Department Staff upon transfer to the hospital.

ACETYLCHOLINESTERASE INHIBITOR EXPOSURE
(Nerve Agent, Carbamate, Organophosphate, Insecticide [Tabun, Sarin, Soman, VX])

Mild	Mild - Moderate	Severe
• Pupil constriction (primary sign in vapor exposure, may not be present is all exposures) • Severe rhinorrhea	• Shortness of Breath • Weakness • Muscle fasciculations • Localized swelling • Nausea and vomiting	• Unconscious • Convulsions • Apnea or severe respiratory distress requiring assisted ventilation • Flaccid paralysis

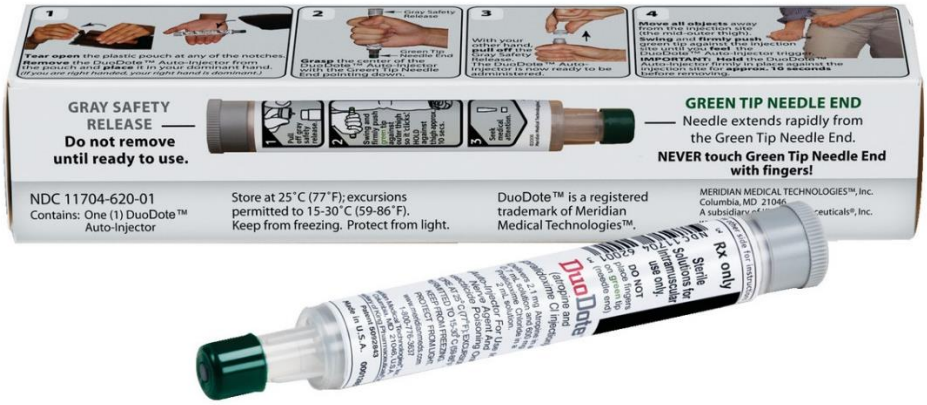
Treatment and Interventions

- Clinical improvement based on drying of secretions and respiratory effort.
- Atropine is primary antidote; administer repeated doses liberally to patients who exhibit signs/symptoms until excessive secretions resolve.
- Treat seizures with benzodiazepines per SOP.
- Can give meds IV/IO; however, IM recommended eliminating delay establishing IV/IO.

MILD	**Atropine IM / Auto-injector**	
0-2 years old	0.05 mg/kg IM or auto-injector (*0.25 and/or 0.5 mg auto-injector(s)*)	
3-7 yo (13-25 kg)	1 mg IM or auto-injector (*one 1 mg or two 0.5 mg auto-injectors)*	
8-14 yo (26-50 kg)	2 mg IM or auto-injector (*one 2 mg or two 1 mg auto-injectors)*	
Adolescent/ Adult	2 mg IM or auto-injector	
Pregnant	2 mg IM or auto-injector	
Geriatric/ Frail	1 mg IM or auto-injector	
MILD to MODERATE	**Atropine IM / Auto-injector**	**2-PAM IM or 600 mg Auto-injector**
0-2 years old	0.05 mg/kg IM or auto-injector (*0.25 mg and/or 0.5 mg auto-injector*)	15 mg/kg IM
3-7 yo (13-25 kg)	1 mg IM or auto-injector (*one 1 mg auto-injector or two 0.5 mg auto-injectors*)	15 mg/kg IM **OR** One auto-injector (600 mg)
8-14 yo (26-50 kg)	2 mg IM or auto-injector (*one 2 mg auto-injector or two 1 mg auto-injectors)*	15 mg/kg IM **OR** One auto-injector (600 mg)
Adolescent/ Adult	2-4 mg IM or auto-injector	600 mg IM **OR** One auto-injector (600 mg)
Pregnant	2-4 mg IM or auto-injector	600 mg IM **OR** One auto-injector (600 mg)
Geriatric/ Frail	2 mg IM or auto-injector	10 mg/kg IM **OR** One auto-injector (600 mg)
SEVERE		
0-2 years old	0.1 mg/kg IM or auto-injector (*0.25 mg and/or 0.5 mg auto-injector*)	45 mg/kg IM
3-7 yo (13-25 kg)	0.1 mg/kg IM **OR** 2 mg auto-injector (*one 2 mg auto-injector or four 0.5 mg auto-injectors*)	45 mg/kg IM **OR** One auto-injector (600mg)
8-14 yo (26-50 kg)	4 mg IM or auto-injector (*two 2 mg auto-injectors or four 1 mg auto-injectors*)	45 mg/kg IM **OR** Two auto-injectors (1200 mg)
Adolescent: ≥14 yo	6 mg IM or auto-injector (*three 2 mg auto-injectors*)	Three auto-injectors (1800 mg)
Adult	6 mg IM or auto-injector (*three 2 mg auto-injectors*)	Three auto-injectors (1800 mg)
Pregnant	6 mg IM or auto-injector (*three 2 mg auto-injectors*)	Three auto-injectors (1800 mg)
Geriatric/ Frail	2-4 mg IM or auto-injector (*one to two 2 mg auto-injectors*)	25 mg/kg IM **OR** two to three auto-injectors

Atropine 2.1 mg & Pralidoxime (2-PAM) 600 mg Injection DUODOTE AUTO-INJECTOR

1. Tear open plastic pouch at any of the notches to remove auto-injector.
2. Firmly grasp auto-injector in dominant hand, with green tip pointing downward.
3. Never touch green tip. Keep fingers clear of both ends of auto-injector.
4. With other hand, pull off the gray safety release
5. Select injection site - mid-outer thigh area.
   - May inject through clothing but make sure pockets are empty.
6. Swing and firmly push green tip straight down (at 90-degree angle) against mid-outer thigh, continuing to push firmly until feel auto-injector trigger.
7. Hold auto-injector firmly in place, against the injection site, for 10 seconds before removing.
8. After injecting, remove the DuoDote Auto-Injector from thigh and inspect green tip:
   - If needle visible, injection was successful.
   - If needle not visible, make sure gray safety release is removed and repeat injection steps.
9. Keep used auto-injector(s) plastic pouch with patient so other personnel know number of injections administered.
10. Move away from contaminated area, decontaminate skin and clothing, and seek definitive medical treatment.



AIRWAY/VENTILATORY MANAGEMENT

PURPOSE:
Provide effective oxygenation and ventilation, recognize and alleviate respiratory distress.

INDICATIONS:
- Adult/pediatric patient with severe respiratory distress/respiratory failure
- Evidence of hypoxemia or hypoventilation
- Potential for loss of airway due to swelling, trauma, burns, obstruction, altered mental status

PATIENT ASSESSMENT:
1. Shortness of breath
2. Abnormal respiratory rate (too high or too low)
3. Use of accessory muscles
4. Depth/equality of breath sounds
5. Wheezing, rhonchi, rales, stridor, cough
6. Cyanosis or pallor
7. Abnormal mental status
8. Signs of a difficult airway
9. Pulse oximetry
10. EtCO2

TREATMENT AND INTERVENTIONS:
1. Non-invasive ventilation techniques
    a. Administer oxygen
    b. Positioning (chin lift- jaw thrust)
    c. Use of BVM with OPA/NPA and EtCO2
2. If BVM is not effective, evaluate for foreign body with direct view using laryngoscope and attempt removal using Magill forceps.
3. Supraglottic airway
4. Consider CPAP
5. Endotracheal intubation
    a. When less invasive are not effective for oxygenation/ventilation
    b. If airway obstruction, burns, trauma, anaphylaxis, or other loss of normal protective reflexes
6. Post-intubation
    a. Confirm placement
    b. Monitor placement with waveform capnography
    c. Secure tube
    d. Cervical collar may reduce neck movement and risk of tube displacement
7. Consider cricothyrotomy if unable to oxygenate/ventilate by previous interventions
8. Ongoing assessment is critical

PUSH DOSE EPINEPHRINE MIXING INSTRUCTIONS

Mixing instructions

1. Take a 10 mL syringe
2. Draw up 1 mL of EPINEPHRINE from the cardiac EPINEPHRINE preload syringe (1mg/10mL).
3. Now draw up NORMAL SALINE into the same syringe as the EPINEPHRINE until you have a total of 10 mL.
4. Mix.
5. Now you have 10 mL of EPINEPHRINE **10 mcg/ 1 mL**.
6. Label the syringe.

Adult Dose: PUSH DOSE EPINEPHRINE 50 mcg (5 mL) IVP, repeat in 5 minutes to a total of 100mcg (10mL) titrate to MAP 65.
Contact MEDICAL CONTROL to consider additional doses.

Pediatric Dose: PUSH DOSE EPINEPHRINE 1 mcg/kg IVP (Adult maximum 50 mcg), may repeat in 5 minutes, (Adult Maximum 100 mcg), titrate to SBP per age, refer to Pediatric Normal Vital Signs (see pg. 97). **Contact MEDICAL CONTROL** to consider additional doses.

*__NOTE__: Titrate = Administer slowly to desired effect

I-GEL AIRWAY

INDICATIONS: Adult or pediatric patient, unresponsive medical or trauma without a gag reflex. BVM ventilation ineffective.

CONTRAINDICATIONS: Intact gag reflex. Known esophageal disease, caustic substance ingestion.

PROCEDURE:

1. Pre-oxygenate patient with BVM with 100% oxygen and appropriate airway adjunct (OPA or NPA).
2. Suction airway as needed.
3. Choose the correct size based on patient weight:

I-gel	Patient size	Patient weight (kg)
1.5	Infant	5-12
2	Small pediatric	10-25
2.5	Large pediatric	25-35
3	Small adult	30-60
4	Medium adult	50-90
5	Large adult	90+

4. Assemble and check equipment. Apply water-soluble lubricant to back, sides, and front of the cuff.
    a. **NOTE**: Be sure that there is only a thin layer of lubricant on the end of the i-gel to avoid blowing it into the lungs.
5. Place patient in "sniffing" position or "jaw thrust" if cervical injury suspected. The chin should be pressed down before proceeding to insert the i-gel.
6. Grasp the lubricated i-gel firmly along the bite block. Position the device so the i-gel cuff outlet is facing toward the chin of the patient.
7. Introduce the leading soft tip into the mouth in a direction toward the hard palate. Glide the device downwards and backwards along the hard palate with a continuous, but gentle push until a definitive resistance is felt.
8. Teeth (incisors) should be resting on the integral bite block.
9. Confirm placement by auscultating breath sounds, check for chest rise and confirm placement with EtCO2 monitoring and SpO2 monitoring.
10. Secure the tube with head strap or (tape from maxilla to maxilla.
11. If required, a lubricated NG or suction catheter may be passed down gastric channel. Apply suction to decompress the stomach.
12. Continue to monitor, sedate per protocol as necessary.

CRICOTHYROTOMY, QUICKTRACH

Indications: Patients requiring airway when unable to BVM ventilate with oral/nasal airway or insert advanced airway.

Contraindications: When other less invasive maneuver allow oxygenation/ventilation of patient.

1. Attempt to oxygenate patient with 100% oxygen via BVM.
2. Assemble and check Quicktrach equipment for sizing.

Patient	Adult	Pediatric	Infant
Weight	Greater than 77 lbs (> 35 kg)	22-77 lbs (10-35 kg)	Less than 22 lbs (10 kg)
Device	4 mm ID	2 mm ID	Use needle procedure

3. Position patient supine with neck hyperextended (e.g., towel roll under neck), unless contraindicated.
4. Locate cricothyroid membrane (between thyroid and cricothyroid cartilage) and prep area.
5. Secure larynx and overlying skin laterally between thumb and forefinger.
6. Firmly hold Quicktrach and puncture cricothyroid membrane at a 90-degree angle.
7. Aspirate air through syringe to confirm entry of needle into trachea.
8. Change angle of insertion to 60 degrees with tip pointed toward feet.
9. Advance device forward to level of red stopper. The red stopper will be snug against skin.
10. Remove red stopper. Do not advance any further.
11. Hold needle/syringe firmly, and slide only plastic cannula forward into trachea until flange is snug against neck.
12. Carefully remove needle and syringe.
13. Attach Quicktrach flexible connecting tube to cannula.
14. Attach bag-valve device to Quicktrach connecting tube and begin ventilating with 100% oxygen.
15. Confirm correct placement by EtCO2, auscultation, and observation of chest rise.
16. Use pre-attached blue strap to secure Quicktrach, ensuring hub of catheter is snug against neck.

CRICOTHYROTOMY, NEEDLE

Indications: Patients requiring an airway when unable to BVM ventilate or insert an advanced airway.

Pediatric: less than 22 lbs. (10 kg)

Adult/Pediatric 22-77kg: when Quicktrach cannot be used.

Contraindications: When other less invasive maneuvers allow oxygenation/ventilation

1. Assemble and check equipment.
2. Position patient supine with neck hyperextended (e.g., towel roll under neck), unless contraindicated.
3. Locate cricothyroid membrane (between thyroid and cricothyroid cartilage) and prep area.
4. Secure larynx and overlying skin laterally between thumb and forefinger.
5. Insert 10-14-gauge IV catheter (with syringe attached) through cricothyroid membrane into the trachea (midline 45-degree angle).
6. Aspirate with syringe to confirm penetration into trachea; air should return easily.
7. While holding needle style in place, advance catheter over needle stylet. Remove needle stylet when catheter fully advanced and catheter hub at skin.
8. Attach catheter hub to bag-valve device using either:
    a. 3 mm ET tube adapter
    b. 7.5 ET tube adapter placed in barrel of 3mL leurlock syringe (with plunger removed)
9. Connect BVM to ET tube adapter.
10. Confirm correct placement by EtCO2, auscultation, and observation of chest rise.
11. Secure catheter hub to neck.

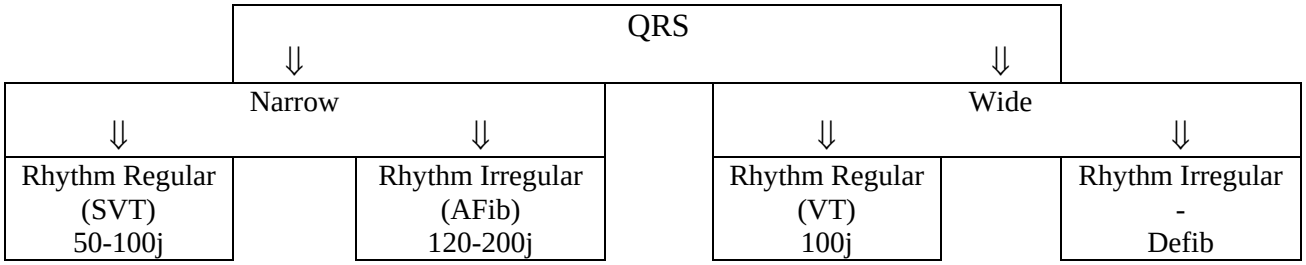
ELECTRICAL THERAPY

Transcutaneous Pacing

Indications: Hemodynamically unstable/symptomatic bradycardia unresponsive to atropine.
Contraindications: Bradycardia with normal/elevated BP.

1. Continue ALS treatment already in progress
2. Apply limb leads (need in addition to combo pacing pads).
3. Select lead I/II/III with tallest R wave. Device will not pace if "paddles" lead is selected.
4. Apply combo pacer electrode pads in AP positon:
    a. Anterior (-) apical area (V4 position)
    b. Posterior (+) just under (L) scapula, between spine and (L) scapula
5. Set pacemaker as follows:
    a. RATE: 80/minute
    b. MODE/SENSITIVITY: Demand
6. Increase mA until mechanical capture.
    a. Determine mechanical capture by presence of femoral, (R) brachial/radial pulse corresponding to paced beats.
    b. Electrical capture (pacing spike followed by wide QRS) will occur before mechanical capture, and does not indicate mechanical capture is present.
    c. Do not assess carotid or (L) brachial/radial pulses to determine mechanical capture due to interference of muscle contraction.
7. Document settings on patient care report.

Cardioversion



NOTE: See Manufacture recommendations

Defibrillation

Manufacturer	Adult Joules
LifePak 12 & 15	200 - 300 - 360
Philips HeartStart MRx	150 - 170 - 200
Zoll All series	120 - 150 - 200

INTRAOSSEOUS INFUSION EZ-IO®

Indications:

- Shock, arrest, or impending arrest; Unresponsive or conscious critical patient
- 2 unsuccessful IV attempts or 90 second duration or no visible sites

Contraindications:

- Fracture in same extremity or infection at insertion site
- Previous orthopedic procedures (knee replacement, previous IO within 48 hours)
- Pre-existing medical condition (tumor near site, peripheral vascular disease)
- Inability to locate landmarks (significant edema)

1. Locate and prep insertion site (proximal medial tibia or proximal humerus).
2. Prime EZ-connect tubing, leaving 9 mL of fluid in syringe.
3. Prepare EZ-IO driver and select appropriate needle set.

Patient	3-39 kg	40 kg	Humeral & Bariatric
Needle	15mm Pink	25mm Blue	45mm Yellow

4. Insert EZ-IO needle at 90 degrees through skin until needle stops at bone. (The line on the needle *closest to the hub* must remain visible. If the line is not visible, remove needle from skin and place band-aid over site. EZIO may not be utilized if the line is not visible.)
5. Activate driver by depressing trigger.
6. Once decreased resistance, or needle flange at skin (whichever first), release trigger.
7. While stabilizing needle hub, remove driver from needle set.
8. Remove stylet from needle by rotating counterclockwise.
9. Connect primed EZ-connect tubing.
10. Using syringe, aspirate then flush with remaining 9 mL of NS to confirm placement.
11. If conscious patient, inject LIDOCAINE 1mg/kg (max. 50 mg) slow IO. Wait 60 seconds before beginning IVF infusion. May repeat lidocaine x1 for pain control.
12. Remove the syringe, attach IV tubing, and begin infusion.
13. Apply pressure bag to IVF to facilitate infusion.
14. Secure tubing to extremity with tape.
15. If utilizing Proximal Humerus site, immobilize arm to limit movement.
16. Frequently reassess IV bag pressure, amount of fluid infused, site, and patient.

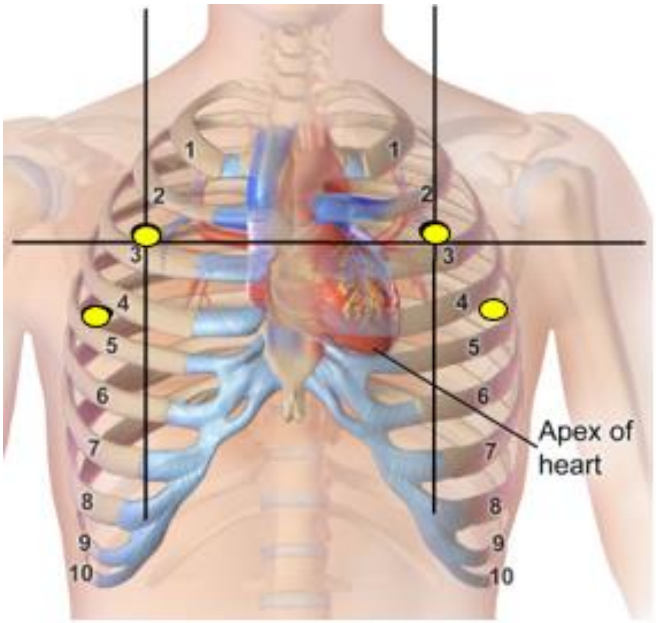
Amended 10/28/2020

NEEDLE DECOMPRESSION, CHEST

Indications
- Tension pneumothorax (hypotension with absent breath sounds during ventilation)
- Traumatic arrest with chest trauma

Contraindication
- Pneumothorax without hypotension

1. Locate and palpate site at 2nd intercostal space (above 3rd rib), mid-clavicular line.
2. Prep site appropriately.
3. Insert 10-14 gauge (2.5-3.25 inch) IV catheter @ 90º angle to chest wall, until air is released.
4. While holding needle steady, advance catheter over needle, until catheter hub at skin
5. Leave catheter in place and remove needle.
6. Assess for improvement in clinical status (e.g., increased BP).
7. Frequently reassess patient (esp. BP, lung sounds) and catheter patency; may need to repeat procedure if clinical deterioration or catheter occlusion occurs.
8. IF FAILED attempt OR PATIENT IS MARKEDLY OBESE, use 4th intercostal space lateral to inferior mammary fold mid axillary.



AMPUTATED AND AVULSED PARTS

1. Adult/Pediatric Routine Trauma Care

2. If gross contamination, gently rinse stump and amputated part with NORMAL SALINE.

3. Control bleeding with direct pressure. Utilize hemostatic gauze if available. If needed, apply a tourniquet.

4. Cover stump with sterile NS moistened dressing, additional sterile dressing, and wrap with elastic bandage (ACE wrap) providing uniform pressure over entire stump.

5. Amputated part:

    A. In case of incomplete amputation, splint in physiologic position.

    B. Wrap part in NS moistened gauze and place in a plastic bag/container.

    C. Place bag/container in in a larger bag or container with cold packs or ice and water.

    D. Do not allow parts to come in direct contact with ice/cold packs or submerge in NS.

TOURNIQUET USE

INDICATIONS:
- Severe/life-threatening extremity hemorrhage that continues after direct pressure and/or pressure dressing.
- May be used first line for extremity amputation.

1. Place as far distally on extremity as possible, 2-3 inches proximal to wound.
2. Place on bare skin if possible.
3. Tighten windlass rod until bleeding stops and pulse is no longer palpable.
4. Monitor for further bleeding, tighten tourniquet only if necessary.
   - If bleeding not controlled, consider additional tourniquet applied proximal to first tourniquet.
5. Record placement time and notify MEDICAL CONTROL of tourniquet use.
6. Consider pain management.

Tourniquet Removal: If placed prior to EMS arrival and determined to be unnecessary,

Contact MEDICAL CONTROL to consider Tourniquet removal.

NOTE:
- Do not place tourniquet over a joint.
- Do not cover the tourniquet with a dressing or splint.
- Do not cover wound, impaled foreign body, or open fracture.
- Lower leg injuries may require thigh placement for adequate compression.

CYANOKIT

INDICATIONS: Adult with cyanide exposure (inhalation, ingestion, dermal) with symptoms of:

CNS: Headache, Dilated pupils, AMS, Confusion, Sensorium change, Seizures

Resp: Dyspnea, Tachypnea/early, Bradypnea/late

CV: Chest tightness, Hypertension/early, Hypotension/late, Shock

GI: Nausea, Vomiting

1. Adult Routine Medical Care. **NOTE**: pulse oximetry may be inaccurate.
2. Cyanokit is not compatible with many other medications; 2 IV lines required. Do not administer other drugs in the same intravenous line as Cyanokit.
3. Decontamination should be concurrent with initial resuscitation.
4. Cyanokit contains 1 vial of HYDROXOCOBALAMIN 5 gm, place in upright position.
5. Reconstitute: Using transfer spike add 200 mL of NORMAL SALINE to vial.
6. Mix: Invert or rock vials for at least 60 seconds to mix contents, do not shake.
7. Administer vial IV over 15 minutes, approximately 15 mL per minute.
8. Do not delay transport.
9. Notify ED as early as possible.

2020 AHA CPR GUIDELINES

Component		Neonate (0-28 days)	Infant (Under 1 yr)	Children (1 yr to Puberty)	Adults & Adolescents
Recognition		Check for absent/abnormal breathing, while checking responsiveness. Treat occasional gasps, as not breathing. Pulse check: No more than 10 seconds; if not definitely felt, begin compressions.			
Compression: Ventilation Ratio	Without advanced airway	3:1	One Rescuer 30:2 ≥ 2 rescuers 15:2		30:2
	With advanced airway		Continuous Compressions 1 breath every 6 seconds (10/min)		
Compression Rate		100-120/min	100-120/min		
Compression Depth		At least 1/3 AP chest diameter			
			~ 1.5″	~ 2″	2 - 2.4″
Hand Placement		Lower 1/3 sternum, using 2 thumbs, hands encircling chest	Center of chest, just below nipple line. ≥ 2 rescuers: using 2 thumbs, hands encircling chest	1-2 hands on lower half of sternum	Heel one hand on center/middle of chest (lower half sternum), w/ heel of other hand on top, so hands overlap & parallel
Allow Full Chest recoil		Thumbs should not leave chest	Do not lean on chest between compression		
Minimize Compression Interruption		Limit interruptions (ECG ✓or defib) to <10 seconds			
Inadequate breathing with pulse		20-30/minute (1 every 2-3 sec)			10-12/minute (1 every 6 sec)
AED without pediatric attenuator		If manual defib and pediatric attenuator not available			Recommended

AIRWAY OBSTRUCTION GUIDELINES

Component	Infant (Under 1 year)	Child (1 yr to Puberty)	Adults & Adolescents
Conscious, cannot speak or cough	Cycles of 5 back blows/slaps, and 5 chest compressions.	Abdominal thrusts, in rapid sequence until relieved. Obese/Late Preg/Abd thrust ineffective: chest thrusts.	
Unresponsive	If become unresponsive, begin CPR starting with chest compressions (no pulse check). Each time airway opened, check mouth; attempt removal only if visualized. If unrelieved by manual maneuvers, suction, magill forceps, and unable to ventilate, consider cricothyrotomy (Quicktrach or needle).		

RETURN OF SPONTANEOUS CIRCULATION (ROSC)

Adult Routine Medical Care / Adult Routine Trauma Care
Pediatric Routine Medical Care / Pediatric Routine Trauma Care

⇓

Confirm ROSC:
Palpable carotid pulse
Recordable blood pressure
ETCO2 ≥35

⇓

Consider etiology of arrest

Monitor closely for recurring arrest

⇓

Reassess need for intubation if airway not yet secured

Administer oxygen as appropriate with a target of achieving 94 – 98% saturation

Do not hyperoxygenate

If apneic, ventilate to achieve EtCO2 30 – 40 mmHg

Do not hyperventilate

⇓

Treat hypoglycemia (blood glucose < 60)

Neuro assessment, vital signs, 12 lead ECG

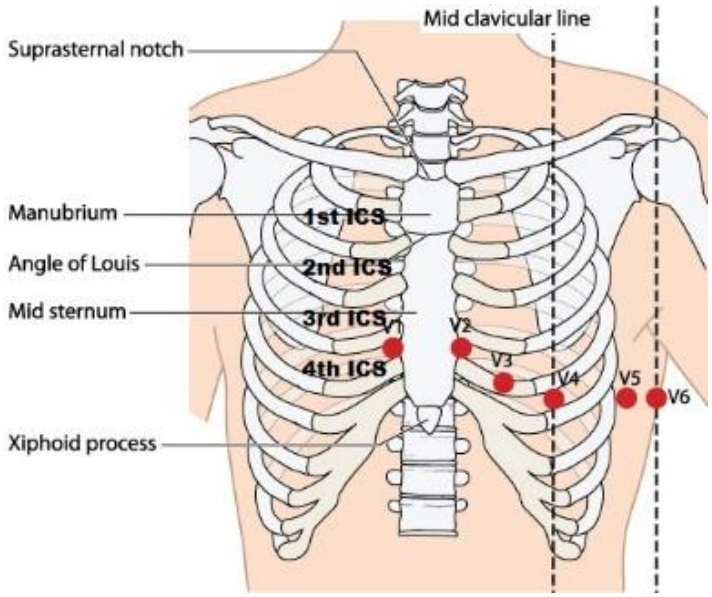
For Adult hypotension, SBP <90 or MAP <65	For Pediatric patient, refer to Pediatric Normal Vital Signs for age specific SBP (see pg. 97)
Contact MEDICAL CONTROL PUSH DOSE EPINEPHRINE (10 mcg/1mL) 50 mcg (5mL) IVP/IO Repeat in 5 minutes, titrate to MAP 65	**Contact MEDICAL CONTROL** PUSH DOSE EPINEPHRINE (10 mcg/1mL) 1mcg/kg IVP/IO (Adult maximum 50 mcg) Repeat in 5 minutes (Adult maximum 100 mcg), titrate to SBP (MAP)

WITHHOLDING RESUSCITATIVE EFFORTS

EMS personnel may withhold or cease resuscitative efforts in the following circumstances:

1. There is a risk to health and safety of EMS personnel.
2. Resources are inadequate to treat all patients (i.e. multiple patient incidents/disaster).
3. Patient body shows signs of irreversible death:
    A. Rigor mortis without profound hypothermia
    B. Profound dependent lividity
    C. Decapitation
    D. Transection
    E. Incineration
    F. Decomposition
    G. Obvious mortal trauma
    H. Mummification and/or putrefaction
4. Death has been declared by a physician, medical examiner, or coroner.
5. A valid "IDPH Uniform Practitioner Order For Life-Sustaining Treatment (POLST) Form" or state approved Do Not Resuscitate (DNR) order has been secured that includes:
    A. Name of patient,
    B. The words "Do Not Resuscitate" or "Do Not Attempt Resuscitation/DNR"
    C. Signatures of:
        i. Patient or legal representative
    D. Authorized Practitioner (physician, resident $\geq 2^{nd}$ year, PA, APRN) with date
6. EMS providers SHOULD HONOR a completed POLST form that is formally authorized by a state territory within the United States, as well as the National POLST form.
    A. In some states, forms are called POST, MOLST, MOST or something else
7. **NOTE**: A living will by itself cannot be recognized by pre-hospital providers.

12 LEAD ECG



V1 – 4th Intercostal space, right of sternum
V2 – 4th Intercostal space, left of sternum
V3 – Midway between V2 and V4
V4 – 5th Intercostal space, midclavicular line
V5 – Midway between V4 and V6
V6 – Midaxillary line, level with V4

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

Considerations/Indications

1. Discomfort:
   Chest, Jaw, Neck, Shoulder, Arm, Back, Epigastric
2. Anginal Equivalents/Atypical Presentations:
   SOB, Diaphoresis, Dizzy/fatigue/syncope/weak, GI c/o (N/V), Palpitations
3. PMH & Risk Factors:
   Age, DM, HF, HLD, HTN, MI, Smoking

Ischemia: ST depression, T wave inversion, Hyperacute T waves
Injury: ST elevation (STE) >1 mm in 2 or more contiguous leads
Infarction: Q waves wide/deep

GLASGOW COMA SCALE

	Adult	> 2 years	< 2 years	
EYE Opening	Spontaneous	Spontaneous	Spontaneous	**4**
	To Voice	To Voice	To Voice	**3**
	To Pain	To Pain	To Pain	**2**
	None	None	None	**1**
VERBAL Response	Oriented	Oriented, Appropriate words	Coos, Babbles, Appropriate words	**5**
	Confused	Confused	Irritable, Cries but consolable	**4**
	Inappropriate	Inappropriate words, Persistent cry	Cries to pain, Inconsolable	**3**
	Incomprehensible	Incomprehensible sounds	Moans to pain	**2**
	None	None	None	**1**
MOTOR Response	Obeys Commands	Obeys Commands	Normal Spontaneous Movements	**6**
	Localizes pain	Localizes pain	Withdraws from Touch	**5**
	Withdraws from pain	Withdraws from pain	Withdraws from Pain	**4**
	Flexion to pain	Abnormal Flexion	Abnormal Flexion	**3**
	Extension to pain	Abnormal Extension	Abnormal Extension	**2**
	None	None	None	**1**

MEAN ARTERIAL PRESSURE (MAP)

Mean Arterial Pressure (MAP): Average arterial pressure throughout one cardiac cycle (systole and diastole). MAP is influenced by cardiac output and systemic vascular resistance and is considered to be the perfusion pressure necessary by tissue/organs in the body. It is measured in mm Hg.

The formula includes diastolic blood pressure times 2 plus systolic pressure and then divide by 3. The cardiac system spends two thirds of its time in diastole.

$$MAP = \frac{(2(DBP) + SBP)}{3}$$

TEMPERATURE CONVERSION

	Fahrenheit	Celsius
Profound Hypothermia	75	23.9
	79	26.1
	83	28.3
Moderate Hypothermia	87	30.6
	92	33.3
	96	35.6
Normothermic	98	36.7
	100	37.8
Hyperthermia	102	38.9
	105	40.6

BODY SURFACE BURN PERCENTAGE CALCULATION

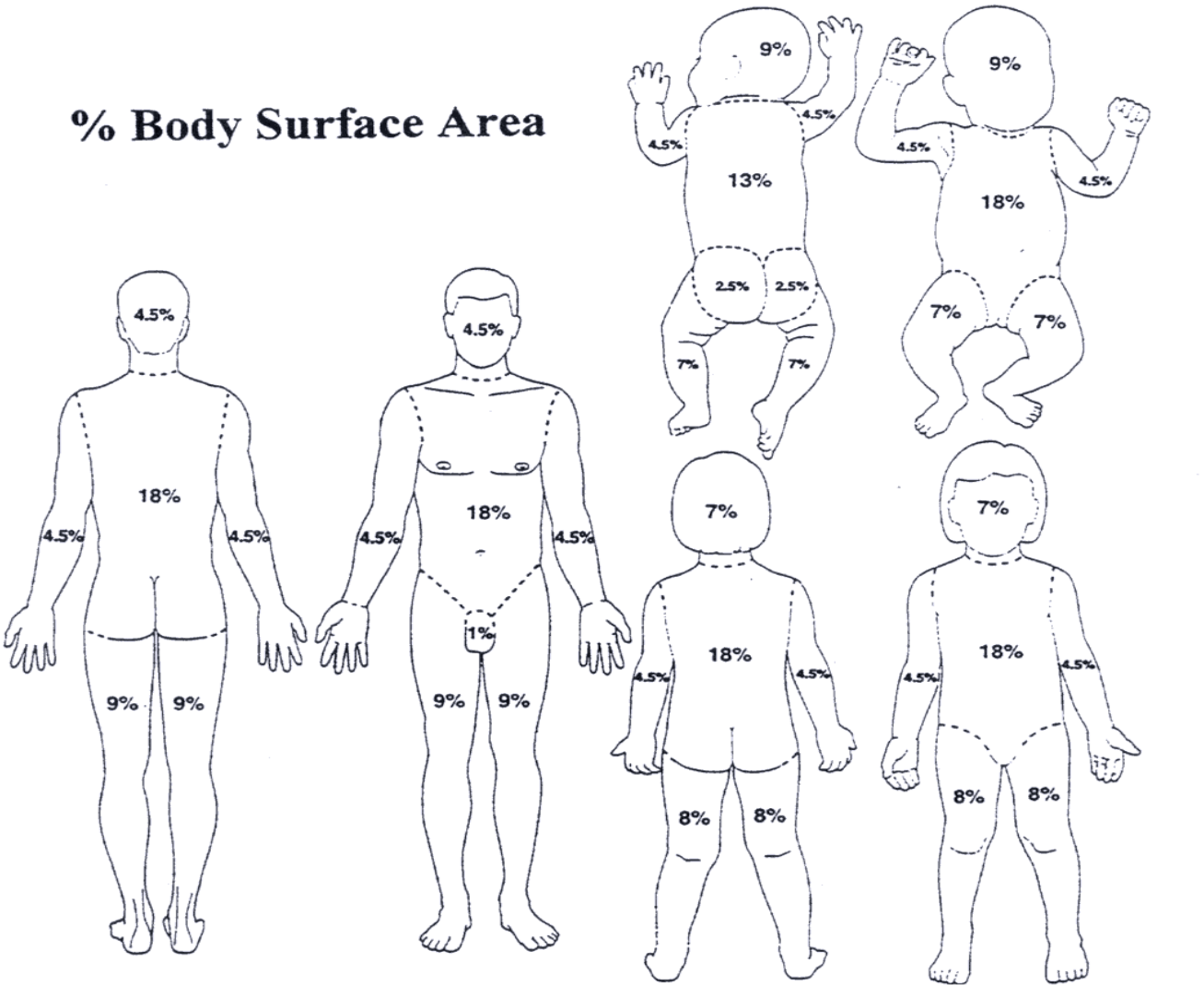
Adult

- full head & neck 9%
- upper back 9%
- lower back 9%
- anterior chest 9%
- anterior abdomen 9%
- full upper extremity 9%
- full lower extremity 18%
- genitalia 1%

Infant

- full head and neck 18%
- upper back 9%
- lower back 9%
- anterior chest 9%
- anterior abdomen 9%
- full upper extremity 9%
- full lower extremity 13.5%
- genitalia 1%

Palm of hand (including fingers) of infant or child = 1% of the total body surface



APGAR SCORING

	0	1	2
Appearance (skin color)	Blue; Pale	Blue hands or feet	Completely pink
Pulse	Absent	< 100/min	> 100/min
Grimace (reflex irritability)	Absent	Grimace	Cry or Active Withdrawal
Activity (muscle tone)	Limp	Some extremity flexion	Active motion
Respirations	Absent	Weak cry; Hypoventilation	Good, Strong Cry

Reference: American Academy Pediatrics, https://pediatrics.aappublications.org/content/136/4/819

The Apgar score is reported at 1 minutes and 5 minutes after birth for all infants, and at 5-minute intervals thereafter until 20 minutes for infants with a score less than 7.

PEDIATRIC NORMAL VITAL SIGNS			
AGE	**SYSTOLIC BP**	**HEART RATE**	**RESPIRATORY RATE**
Newborn	>60	100 – 180	30 – 60
3 months	>70	100 – 160	30 – 60
6 months	>70	110 – 160	30 – 60
9 months	>70	110 – 160	30 – 60
12 months	>70	110 – 160	30 – 60
2 years	>70	90 – 150	24 – 40
4 years	>75	90 – 150	22 – 34
6 years	>80	70 – 120	18 – 30
8 years	>80	70 – 120	18 – 30
10 years	>80	70 – 120	18 – 30
12 years	>90	60 – 110	12 – 16
Reference: EMSC			

Estimation SBP in children: (age in years X 2) + 90 mmHg = median SBP (50^{th} percentile)

PALS defined hypotension:

- Term neonates (0-28 days of age), SBP <60
- Infant 1 - 12 months, SBP <70
- Child 1 - 10 years, SBP (Age in years X 2) + 70 mmHg
- Over 10 years, SBP <90

https://www.ahajournals.org/doi/10.1161/circ.102.suppl_1.I-291

PEDIATRIC ENDOTRACHEAL TUBES & SUCTION CATHETERS

Weight kg	UNCUFFED ET Tube mm internal diameter (i.d.)	CUFFED ET Tube mm i.d.	DEPTH OF INSERTION	SUCTION CATHETER Fr
3-5 kg	3.5	3	9-10.5 cm	6 - 8
6-7 kg	3.5	3	10-10.5 cm	6 - 8
8-9 kg	3.5	3	10.5-11 cm	6 - 8
10-11 kg	4	3.5	11-12 cm	8
12-14 kg	4.5	4	12.5-13.5 cm	8 - 10
15-18 kg	5	4.5	14-15 cm	10
19-22 kg	5.5	5	15.5-16.5 cm	10
24-28 kg		6	17-18 cm	10 - 12
30-36 kg		6.5	18.5-19.5 cm	10 - 12

References: Broselow 2017, PALS 2018

NOTE:

- Tube sizes and insertion depth are estimates.
- During intubation preparation, providers should have tubes ready that are 0.5 mm smaller and 0.5 mm larger than estimated sizes above.
- Confirm placement with both clinical assessment (e.g., breath sounds, chest expansion) and continuous capnography/EtCO2.

PAIN SCALES

Wong-Baker FACES™ Pain Rating Scale

Wong-Baker: age 3 and older

FLACC PAIN SCALE

	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort

1-3=mild, 4-6=moderate, 7-10=severe

FLACC: age 2 months to 7 years & older with cognitive impairments

PATIENT CONTAMINATED WITH A HAZARDOUS MATERIAL

Use proper PPE and containment procedures during entire contact with the patient(s), equipment and environment. Avoid self-injury.

Contact MEDICAL CONTROL early to allow receiving hospital(s) time to prepare for the contaminated patient(s). The hospital staff treatment of the patient(s) may be performed separate from the main Emergency Department area, possibly in the ambulance.

All attempts are to be made to decontaminate the patient prior to moving into ambulance.

1. If warranted, contact the Department/Regional HazMat Response Team/Illinois Poison Center for assistance.
2. Remove as much of the outermost layer of clothing as possible.
3. The usual decontamination solution is soap and water.
    a. Refer to reference material for any variation to this solution i.e.: alkali.
4. If powdered/dry agent, brush excess before irrigating.
5. If possible, bring copy of the MSDS with the patient to the hospital.

CHEMICAL WEAPONS (vapor or liquid):

NERVE AGENTS Symptoms: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal Distress, Emesis, Breathing Difficulty with Bronchospasm and Copious Secretions, Arrhythmias and Myosis (constricted pupils) (SLUDGE BAM)	BLISTER AGENTS Symptoms: Reddened skin, blistering, tearing, itching, CNS effect and respiratory failure
⇓	
Duodote Auto-Injector Refer to Nerve Agent Exposure (see pg. 76)	
Follow hazmat response protocols as above. Treat these materials as extremely toxic substances.	

BIOLOGICAL AGENTS (Anthrax/Botulism/Plague/Smallpox) Symptoms may include: Fever, chills, diarrhea, sore throat, swollen lymph nodes, malaise, cough, respiratory insufficiency or distress, and jaundice.

1. For all possible exposures wear appropriate PPE
2. If the patient is coughing, all rescuers to wear N95 mask and surgical mask on patient.
3. Cover any lesions with dressings to avoid spread of contaminant.

CYANIDE POISONING Symptoms may include hypotension, apnea and seizures.

1. **Contact MEDICAL CONTROL** as soon as possible.
2. Administer Cyanide antidote if available.

NOTE: Illinois Poison Center (800) 222-1222

RADIATION EMERGENCIES

Always practice scene safety.

If **radiation exposure suspected**:

1. Contact Department/Regional HazMat Response Team/Illinois Poison Center, as indicated.
2. Use proper PPE capable of preventing skin exposure to liquids and solids (gown & gloves), mucous membrane exposure to liquids and particles (face mask & eye protection), and inhalational exposure to particles (N95 face mask or respirator).
3. Use Time, Distance and Shielding rule.
4. Use caution to avoid dispersing contaminated materials.
5. Use available survey meters and dosimeters to measure radiation levels.

Patient Management:

1. If injured victims in radiation zone, assess and treat life-threatening injuries.
2. Move patient to proper area for further treatment and monitoring.
3. Treat all patients as contaminated until proven otherwise.
4. Treating life-threatening injury/illness takes precedence over decontamination.
5. If nausea/vomiting, treat per SOP, note time of symptom onset.
6. If seizure consider medical cause or chemical exposure, unless indicator of large radiation dose (greater than 20Gy), such as rapid onset vomiting; treat per seizure SOP.

If **contamination suspected**, **Contact MEDICAL CONTROL** with the following:

1. Location of incident and number of victims
2. Medical status of victims
3. Radiation source, fixed facility, transportation, Weapons of Mass Destruction (WMD) device
4. Amount and types of radiation
5. Type of contamination, external vs. internal
6. Need for decontamination at hospital

If **thorough surveying and decontamination cannot be completed** at the scene:

1. Transfer patient onto clean sheet to receive and cover.
2. Prevent contamination of ambulance and equipment.
3. Rescuers, ambulance, and equipment will need to be surveyed/decontaminated at hospital.

If assistance needed, 24-hour hot line:

- Radiation Emergency Assistance Center/Training Site (REACT/TS), Oak Ridge, TN (865) 576-1005
- Illinois Emergency Management Agency, Division of Nuclear Safety (217) 785-0600
- Illinois Poison Center (800) 222-1222

FUNCTIONAL NEEDS
CARE OF PATIENTS WITH FUNCTIONAL NEEDS

Patients with special health care (functional) needs may require reasonable modification to policies, practices, and procedures. Patients may be dependent on durable medical equipment, supplies, and assistance services. They may have physical, sensory, mental health, cognitive and/or intellectual disabilities affecting their ability to function independently; others that may benefit include women in late stages of pregnancy, geriatric patients, and those needing bariatric equipment. Communicate with caregiver/parent for information, and to assist with care. Confirm patient's baseline assessment with the caregiver.

Tracheostomy:

- Evaluate for displacement, obstruction, pulmonary problem, equipment issue.
- May ventilate/oxygenate via a BVM with a tracheostomy adapter or mask over stoma.
- If unable to ventilate, cover opening and ventilate with BVM over nose and mouth.
- Suction as needed.

Stoma:

Consider infant/child mask over stoma for ventilation; seal mouth and nose if air escaping.

Left Ventricular Assist Device (LVAD): Battery operated, mechanical pump surgically implanted next to the heart. Tube pulls blood from LV into pump to send blood directly into aorta.

- Patient Assessment
  - Evaluate perfusion based on mental status, skin condition, EtCO2
  - May (or may not) have peripheral pulse/BP
  - ECG waveform may have artifact and or be flat
  - SpO2 may be unreliable
  - Usually taking anticoagulant medication
- Patient Treatment
  - Treat altered mental status, respiratory distress, and hypoperfusion per SOP.
  - If unconscious and non-breathing, CHEST COMPRESSIONS are ALLOWED
  - May be defibrillated without disconnecting pump; do not defibrillate over pump.
  - Defibrillate at nipple line or above. Anterior-posterior pad placement preferred
  - Often have pacemaker and/or Implantable Cardioverter Defibrillator (ICDs)
  - LVAD Coordinator may be contacted for further information
- Equipment
  - NEVER remove both sources of power/batteries at same time.
  - Avoid water submersion or contact with strong magnets or magnetic fields
  - Transport specialized equipment, extra battery pack, charger and cords with patient

Other technology-assisted special needs:

If possible, transport specialized equipment, emergency information, and medications to emergency department with patient.

CARE OF PATIENTS WITH GRAFTS OR FISTULAS

Arteriovenous (AV) Fistula. Most common type of access, created surgically by connecting an artery directly to a vein, bypassing the capillaries. Pressure from arterial flow causes enlargement of the veins and a bulging vessel often seen through the skin. This allows easy, dependable access for hemodialysis.

Arteriovenous (AV) Graft. A synthetic plastic tube is used to surgically connect an artery directly to a vein, bypassing the capillaries.

Central Venous Catheter (CVC). Usually a temporary device, a catheter often inserted in the internal jugular vein, that has two ports, one to remove blood and the other to return blood to the body, during hemodialysis. Catheter related infection is a common, serious complication.

AV Graft or fistula

1. Do not take a blood pressure or start an IV on the arm where a graft or fistula is present.
2. If a graft or fistula is bleeding, apply direct pressure and transport the patient.
3. In cardiac arrest, graft or fistula may be used for IV access. **Contact MEDICAL CONTROL** for further direction.

Peritoneal dialysis (also called continuous ambulatory peritoneal dialysis/CAPD)

Dialysis fluid is instilled into peritoneal (abdominal) cavity through a surgically implanted catheter. The fluid is kept in the abdominal cavity for a prescribed period of time, and is then drained out, carrying out waste products.

1. Do not disconnect the CAPD bags from catheter.
2. Do not infuse any fluids or medications directly into catheter.
3. Transport patient with CAPD intact, maintaining drainage bag lower than waist height.

PATIENT RESTRAINT

Ensure Law Enforcement Presence

↓

Law Enforcement Officer (LEO) Participation

YES ↓

Coordinated approach and restraint with LEOs
Secure all 4 extremities
NEVER leave patient prone after secured

↓

MONITOR patient continually throughout transport
1. PulseOx
2. Capnography
3. Cardiac Monitor

DOCUMENT THOROUGHLY p.105

↓ **NO**

NO forcible/involuntary restraint to be used

Obtain AMA/refusal signature (ONLY IF SAFE)

↓

DOCUMENT:
(1) EMS crew safety NOT ensured
(2) Police Dept declining assistance
(3) **MEDICAL CONTROL** discussion

↓

MEDICAL CONTROL:
"Police have determined this individual has NOT met involuntary detention criteria. EMS crew safety cannot be ensured. We cannot safely transport this patient against their will."
(Med Control MAY decline the refusal but you are STILL PERMITTED to leave the scene as a non-transport)

For patient exhibiting SEVERE agitated, aggression or violent behavior

Adult Routine Medical Care	Pediatric Routine Medical Care
⇓	⇓
≤65 years KETAMINE 4mg/kg IM May repeat 2mg/kg IM in 5 minutes (Total max 500 mg) or >65 years MIDAZOLAM 2mg IN/IV/IO (max 10mg) **NOTE**: Do Not Cover Face While Sedated, No Prone Positioning If emergence reaction, **Contact MEDICAL CONTROL** to consider MIDAZOLAM for agitation or intolerable hallucinations and/or ONDANSETRON for nausea and/or vomiting	KETAMINE 4mg/kg IM May repeat 2mg/kg IM in 5 minutes (Total max 500 mg) **NOTE**: Do Not Cover Face While Sedated, No Prone Positioning If emergence reaction, **Contact MEDICAL CONTROL** to consider MIDAZOLAM for agitation or intolerable hallucinations and/or ONDANSETRON for nausea and/or vomiting

NOTE: Ketamine should **NOT** be a first-line medication for NON-behavioral or drug-induced psychosis (e.g., post-ictal confusion). Instead **Midazolam** should be considered. Contact **MEDICAL CONTROL** for questions.

PATIENT RESTRAINT

Documentation

1. If restraining - include consideration of MEDICAL reason when appropriate (e.g., drug toxicity)
2. If not transporting AND police declined assistance - document the LEO Agency Name
3. If not transporting BUT police assistance not needed - Attempt signature for REFUSAL
4. ALL pertinent behavior must be included in Narrative (e.g., flat affect, poor eye contact, aggressive posture, agitated, responding to internal stimuli like hallucinations, etc)
5. Type of restraints (e.g., physical/chemical)
6. Time of restraints
7. Patient response

Documentation - Example

Ex 1. "40 y/o M, disheveled, found inside grocery store, yelling about the coming apocalypse. Sister reports patient is schizophrenic and has not taken his medications. Lengthy attempts at verbal de-escalation unsuccessful. Patient repeatedly displays unpredictable and dangerous behavior (e.g., pointing sharp objects at his neck). He is not redirectable and is clearly responding to internal stimuli. He poses an obvious safety threat to himself, bystanders, Ems, and low enforcement. All non-aggressive techniques have been exhausted. Decision made in conjunction with law enforcement to forcibly restrain the patient."

Ex 2. "22 y/o F reportedly made suicidal comments to her friends via text. Family states h/o depression and past suicide attempts. Law enforcement has repeatedly tried to convince patient to seek medical attention and come with EMS to the hospital. Pt declines, initially calmly but now more aggressively. She continues to deny suicidality and adamantly refuses to come with EMS or LEO to the hospital. She verbalizes understanding of the risks of foregoing hospital evaluation. She refuses to sign any paperwork. LEO from Police Department "X" confirms they will not participate in forcible restraint. EMS personnel do not feel safe forcibly bringing this patient in the ambulance to the hospital. ***MEDICAL CONTROL*** *contacted and conversation included the above description.* ***MEDICAL CONTROL*** *could not grant refusal but understands our safety concern. We have encouraged patient to contact 911 should she change her mind or need our help once we depart."*

Restraint - Guidelines

- ALWAYS use least restrictive restraint possible
- ALWAYS start with verbal de-escalation techniques
- ALWAYS use a quick release knot when using soft restraints.
- ALWAYS explain purpose of restraint to patient and/or family (when safe and appropriate)
- ALWAYS explain and reassure patient throughout the procedure
- ALWAYS assess neurovascular status immediately after placement and every 5 minutes thereafter
- NEVER leave patient prone once restrained
- NEVER restrict patient's airway or respiratory mechanics as a method of restraint
- NEVER apply restraints to *only* lower extremities
- You may release restraint to improve neurovascular status, to provide care, or to improve range of motion or comfort for the patient while maintaining patient and crew safety
- Handcuffs and zip strips can only be used by law enforcement; if hand cuffs are used, a law enforcement officer must accompany patient in ambulance
- If the patient is spitting, place soft mask or spit hood over their mouth and provided constant monitoring of airway and breathing status

PEDIATRIC WEIGHT-BASED MEDICATION-CARDIAC

Drug		Adenosine	Amiodarone	Amiodarone	Atropine	Epinephrine 1 mg/10 mL	NS IV Fluid Challenge (Cardiogenic Shock Only)
Supplied		3 mg/mL 6 mg/2mL	150 mg/3mL	150 mg/3mL	1 mg/10mL (0.1 mg/mL)	1 mg/10mL	
Dose		0.1 mg/kg 2nd Dose Doubled (0.2mg/kg)	5 mg/kg **Dilute in 100 mL D5W for SVT or VT w/ pulse**	5 mg/kg **IVP for VT/VF without a pulse**	0.02 mg/kg	0.01 mg/kg	10mL/kg
Routes		IVP/IO	IVPB	IVP/IO	IVP/IO	IVP/IO	IV/IO
Weight *Lbs.*	**Kgs.**		***Max 150 mg***	***Max dose 300 mg***	***Min 0.1 mg*** ***Max 0.5 mg***	***Max 1 mg***	
2	**1**	0.03 mL (0.1mg)	0.1 mL (5mg)	0.1 mL (5 mg)	1 mL (0.1 mg)	0.1 mL (0.01mg)	10 mL
4	**2**	0.07 mL (0.2mg)	0.2 mL (10mg)	0.2 mL (10 mg)	1 mL (0.1 mg)	0.2 mL (0.02mg)	20 mL
7	**3**	0.1 mL (0.mg)	0.3 mL (15mg)	0.3 mL (15 mg)	1 mL (0.1 mg)	0.3 mL (0.03mg)	30 mL
9	**4**	0.13 mL (0.4 mg)	0.4 mL (20mg)	0.4 mL (20 mg)	1 mL (0.1 mg)	0.4 mL (0.04mg)	40 mL
13	**6**	0.2 mL (0.6mg)	0.6 mL (30mg)	0.6 mL (30 mg)	1.2 mL (0.12mg)	0.6 mL (0.06mg)	60 mL
18	**8**	0.27 mL (0.8mg)	0.8 mL (40mg)	0.8 mL (40 mg)	1.6 mL (0.16mg)	0.8 mL (0.08mg)	80 mL
22	**10**	0.33 mL (1mg)	1 mL (50mg)	1 mL (50 mg)	2 mL (0.2 mg)	1 mL (0.1mg)	100 mL
26	**12**	0.4 mL (1.2mg)	1.2 mL (60mg)	1.2 mL (60 mg)	2.4 mL (0.24mg)	1.2 mL (0.12mg)	120 mL
31	**14**	0.47 mL (1.4mg)	1.4 mL (70mg)	1.4 mL (70 mg)	2.8 mL (0.28mg)	1.4 mL (0.14mg)	140 mL
35	**16**	0.53 mL (1.6mg)	1.6 mL (80mg)	1.6 mL (80 mg)	3.2 mL (0.32mg)	1.6 mL (0.16mg)	160 mL
40	**18**	0.6 mL (1.8mg)	1.8 mL (90mg)	1.8 mL (90 mg)	3.6 mL (0.36mg)	1.8 mL (0.18mg)	180 mL
44	**20**	0.67 mL (2mg)	2 mL (100mg)	2 mL (100 mg)	4 mL (0.4 mg)	2 mL (0.2mg)	200 mL
48	**22**	0.73 mL (2.2mg)	2.2 mL (110mg)	2.2 mL (110 mg)	4.4 mL (0.44mg)	2.2 mL (0.22mg)	220 mL
53	**24**	0.8 mL (2.4mg)	2.4 mL (120mg)	2.4 mL (120 mg)	4.8 mL (0.48mg)	2.4 mL (0.24mg)	240 mL
57	**26**	0.87 mL (2.6mg)	2.6 mL (130mg)	2.6 mL (130 mg)	5 mL (0.5 mg)	2.6 mL (0.26mg)	269 mL
62	**28**	0.93 mL (2.8mg)	2.8 mL (140mg)	2.8 mL (140 mg)	5 mL (0.5 mg)	2.8 mL (0.28mg)	280 mL
66	**30**	1 mL (3mg)	3 mL (150mg)	3 mL (150 mg)	5 mL (0.5 mg)	3 mL (0.3mg)	300 mL
70	**32**	1.07 mL (3.2mg)	3 mL (150mg)	3.2 mL (160 mg)	5 mL (0.5 mg)	3.2 mL (0.32mg)	320 mL
75	**34**	1.13 mL (3.4mg)	3 mL (150mg)	3.4 mL (170 mg)	5 mL (0.5 mg)	3.4 mL (0.34mg)	340 mL
79	**36**	1.2 mL (3.6mg)	3 mL (150mg)	3.6 mL (180 mg)	5 mL (0.5 mg)	3.6 mL (0.36mg)	360 mL
84	**38**	1.27 mL (3.8mg)	3 mL (150mg)	3.8 mL (190 mg)	5 mL (0.5 mg)	3.8 mL (0.38mg)	380 mL
88	**40**	1.33 mL (4mg)	3 mL (150mg)	4 mL (200 mg)	5 mL (0.5 mg)	4 mL (0.4mg)	400 mL
92	**42**	1.4 mL (4.2mg)	3 mL (150mg)	4.2 mL (210 mg)	5 mL (0.5 mg)	4.2 mL (0.42mg)	420 mL
98	**44**	1.47 mL (4.4mg)	3 mL (150mg)	4.4 mL (220 mg)	5 mL (0.5 mg)	4.4 mL (0.44mg)	440 mL

*__NOTE__: Titrate = Administer slowly to desired effect

PEDIATRIC WEIGHT-BASED MEDICATION-MEDICAL

Drug		**Push Dose Epinephrine**	**Dextrose 10%**	**Ketamine** Ketalar	**Naloxone** Narcan	**NS IV Fluid Challenge**	**Magnesium Sulfate**	**Epinephrine** (1mg/1mL) Non-Arrest/Stable
Supplied		When mixed, 10mcg/mL	25gm/250mL	500mg/10mL 50mg/mL	2mg/2mL (1mg/1mL)		1gm/2mL	1mg/1mL
Dose		1mcg/kg	5mL/kg 0.5gm/kg	4mg/kg	0.1mg/kg	20mL/kg	25mg/kg	0.01mg/kg
Routes		IVP/IO	IVP/IO	IM	IVP/IO/IN/IM	IV/IO	IVP/IO	IM Anterolateral thigh
Weight Lbs.	**Kgs**.	***Titrate Max 50 mcg***	2mL/kg for newborns	***Max dose 500mg Max 5mL single injection(split site)***	***Max 2mg***	***Assess after each bolus***	***Max 2gm***	***Max 0.3mg***
2	**1**	0.1mL (1mcg)	2mL (0.2gm)	0.08mL (4mg)	0.1mL (0.1mg)	20mL	0.05 mL(25mg)	0.01mL (0.01mg)
4	**2**	0.2mL(2mcg)	4mL (0.4gm)	0.16mL (8mg)	0.2mL (0.2mg)	40mL	0.1 mL (50mg)	0.02mL (0.02mg)
7	**3**	0.3mL(3mcg)	6mL (0.6gm)	0.24mL (12mg)	0.3mL (0.3mg)	60mL	0.15ml (75mg)	0.03mL (0.03mg)
9	**4**	0.4mL(4mcg)	8mL (0.8gm)	0.32mL (16mg)	0.4mL (0.4mg)	80mL	0.2mL (100mg)	0.04mL (0.04mg)
13	**6**	0.6mL(6mcg)	30mL (3gm)	0.48mL (24mg)	0.6mL (0.6mg)	120mL	0.3mL (150mg)	0.06mL (0.06mg)
18	**8**	0.8mL(8mcg)	40mL (4gm)	0.64mL (32mg)	0.8mL (0.8mg)	160mL	0.4mL (200mg)	0.08mL (0.08mg)
22	**10**	1mL(10mcg)	50mL (5gm)	0.8mL (40mg)	1mL (1mg)	200mL	0.5mL (250mg)	0.1mL (0.1mg)
26	**12**	1.2mL(12mcg)	60mL (6gm)	0.96mL (48mg)	1.2mL (1.2mg)	240mL	0.6mL (300mg)	0.12mL (0.12 mg)
31	**14**	1.4mL(14mcg)	70mL (7gm)	1.12mL (56mg)	1.4mL (1.4mg)	280mL	0.7mL (350mg)	0.14mL (0.14mg)
35	**16**	1.6mL(16mcg)	80mL (8gm)	1.28mL (64mg)	1.6mL (1.6mg)	320mL	0.8mL (400mg)	0.16mL (0.16mg)
40	**18**	1.8mL(18mcg)	90mL (9gm)	1.44mL (72mg)	1.8mL (1.8mg)	360mL	0.9mL (450mg)	0.18mL (0.18mg)
44	**20**	2mL(20mcg)	100mL (10gm)	1.6mL (80mg)	2mL (2mg)	400mL	1mL (500mg)	0.2mL (0.2mg)
48	**22**	2.2mL(22mcg)	110mL (11gm)	1.76mL (88mg)	2mL (2mg)	440mL	1.1mL (550mg)	0.22mL (0.22mg)
53	**24**	2.4mL(24mcg)	120mL (12gm)	1.92mL (96mg)	2mL (2mg)	480mL	1.2mL (600mg)	0.24mL (0.24mg)
57	**26**	2.6mL(26mcg)	130mL (13gm)	2.08mL (104mg)	2mL (2mg)	520mL	1.3mL (650mg)	0.26mL (0.26mg)
62	**28**	2.8mL(28mcg)	140mL (14gm)	2.24mL (112mg)	2mL (2mg)	560mL	1.4mL (700mg)	0.28mL (0.28mg)
66	**30**	3mL(30mcg)	150mL (15gm)	2.4mL (120mg)	2mL (2mg)	600mL	1.5mL (750mg)	0.3mL (0.3mg)
70	**32**	3.2mL(32mcg)	160mL (16gm)	2.56mL (128mg)	2mL (2mg)	640mL	1.6mL (800mg)	0.3mL (0.3mg)
75	**34**	3.4mL(34mcg)	170mL (17gm)	2.72mL (136mg)	2mL (2mg)	680mL	1.7mL (850mg)	0.3mL (0.3mg)
79	**36**	3.6mL(36mcg)	180mL (18gm)	2.88mL (144mg)	2mL (2mg)	720mL	1.8mL (900mg)	0.3mL (0.3mg)
84	**38**	3.8mL(38mcg)	190mL (19gm)	3.04mL (152mg)	2mL (2mg)	760mL	1.9mL (950mg)	0.3mL (0.3mg)
88	**40**	4mL(40mcg)	200mL (20gm)	3.2mL (160mg)	2mL (2mg)	800mL	2mL (1000mg)	0.3mL (0.3mg)
92	**42**	4.2mL(42mcg)	210mL (21gm)	3.36mL (168mg)	2mL (2mg)	840mL	2.1mL (1050mg)	0.3mL (0.3mg)
98	**44**	4.4mL(44mcg)	220mL (22gm)	3.52mL (176mg)	2mL (2mg)	880mL	2.2mL (1100mg)	0.3mL (0.3mg)

*__NOTE__: Titrate = Administer slowly to desired effect

PEDIATRIC WEIGHT-BASED MEDICATION – MEDICAL

Drug		**Etomidate** Amidate	**Fentanyl**	**Lidocaine** Xylocaine	**Ondansetron** Zofran	**Diphenhydramine** Benadryl	**Midazolam** Versed		
How Supplied		20mg/10mL or 40mg/20mL	100mcg/2mL	100mg/5mL	4mg/2mL	50 mg/1mL	1 mg/1mL **or** 5mg/1mL **NOTE**: CONCENTRATION		
Protocol Dosage		0.3 mg/kg	1mcg/kg	1 mg/kg	0.1 mg/kg <40 kg	1 mg/kg	0.2 mg/kg		
Routes		IVP/IO	IVP/IN/IO	IO	IVP/IO	IVP/IO/IM	IVP/IO/IN/IM		
Weight Lbs.	**Kgs**.	***Max 40 mg***	***Titrate****	***Max 50***			***Titrate**** ***1:1***		***5:1***
2	**1**	0.15mL (0.3mg)	0.02mL (1mcg)	0.05mL (1mg)	0.01mL (0.1mg)	0.02mL (1mg)	0.2mL	(0.2mg)	0.04mL
4	**2**	0.3mL (0.6mg)	0.04mL (2mcg)	0.1mL (2mg)	0.02 mL (0.2mg)	0.04mL (2mg)	0.4mL	(0.4mg)	0.08mL
7	**3**	0.45mL (0.9mg)	0.06mL (3mcg)	0.15mL (3mg)	0.03 mL (0.3mg)	0.06mL (3mg)	0.6mL	(0.6mg)	0.12mL
9	**4**	0.6mL (1.2mg)	0.08mL (4mcg)	0.2mL (4mg)	0.04 mL (0.4mg)	0.08mL (4 mg)	0.8mL	(0.8mg)	0.16mL
13	**6**	0.9mL (1.8mg)	0.12mL (6mcg)	0.3mL (6mg)	0.3mL (0.6 mg)	0.12mL (6mg)	1.2mL	(1.2mg)	0.24mL
18	**8**	1.2mL (2.4mg)	0.16mL (8mcg)	0.4mL (8mg)	0.4mL (0.8 mg)	0.16mL (8mg)	1.6mL	(1.6mg)	0.32mL
22	**10**	1.5mL (3mg)	0.2mL (10mcg)	0.5mL (10mg)	0.5mL (1 mg)	0.2mL (10mg)	2mL	(2mg)	0.4ml
26	**12**	1.8mL (3.6mg)	0.24mL (12mcg)	0.6mL (12mg)	0.6mL (1.2 mg)	0.24mL (12mg)	2.4mL	(2.4mg)	0.48mL
31	**14**	2.1mL (4.2mg)	0.28mL (14mcg)	0.7mL (14mg)	0.7mL (1.4mg)	0.28mL (14mg)	2.8mL	(2.8mg)	0.56mL
35	**16**	2.4mL (4.8mg)	0.32mL (16mcg)	0.8mL (16mg)	0.8mL (1.6mg)	0.32mL (16mg)	3.2mL	(3.2mg)	0.64mL
40	**18**	2.7mL (5.4mg)	0.36mL (18mcg)	0.9mL (18mg)	0.9mL (1.8mg)	0.36mL (18mg)	3.6mL	(3.6mg)	0.72mL
44	**20**	3mL (6mg)	0.4mL (20mcg)	1mL (20mg)	1mL (2 mg)	0.4mL (20mg)	4mL	(4mg)	0.8mL
48	**22**	3.3mL (6.6mg)	0.44mL (22mcg)	1.1mL (22mg)	1.1mL (2.2 mg)	0.44mL (22mg)	4.4mL	(4.4mg)	0.88mL
53	**24**	3.6mL (7.2mg)	0.48mL (24mcg)	1.2mL (24mg)	1.2mL (2.4 mg)	0.48mL (24mg)	4.8mL	(4.8mg)	0.96mL
57	**26**	3.9mL (7.8mg)	0.52mL (26mcg)	1.3mL (26mg)	1.3mL (2.6 mg)	0.52mL (26mg)	5.2mL	(5.2mg)	1.04mL
62	**28**	4.2mL (8.4mg)	0.56mL (28mcg)	1.4mL (28mg)	1.4mL (2.8 mg)	0.56mL (28mg)	5.6mL	(5.6mg)	1.12mL
66	**30**	4.5mL (9mg)	0.6mL (30mcg)	1.5mL (30mg)	1.5mL (3.0mg)	0.6mL (30mg)	6mL	(6mg)	1.2mL
70	**32**	4.8mL (9.6mg)	0.64mL (32mcg)	1.6mL (32mg)	1.6mL (3.2 mg)	0.64mL (32mg)	6.4mL	(6.4mg)	1.28mL
75	**34**	5.1mL (10.2mg)	0.68mL (34mcg)	1.7mL (34mg)	1.7mL (3.4 mg)	0.68mL (34mg)	6.8mL	(6.8mg)	1.36mL
79	**36**	5.4mL (10.8mg)	0.72mL (36mcg)	1.8mL (36mg)	1.8mL (3.6 mg)	0.72mL (36mg)	7.2mL	(7.2mg)	1.44mL
84	**38**	5.7mL (11.4mg)	0.76mL (38mcg)	1.9mL (38mg)	1.9mL (3.8 mg)	0.76mL (38mg)	7.6mL	(7.6mg)	1.52mL
88	**40**	6mL (12mg)	0.8mL (40mcg)	2mL (40mg)	2 mL (4 mg)	0.8mL (40mg)	8mL	(8mg)	1.6mL
92	**42**	6.3mL (12.6mg)	0.84mL (42mcg)	2.1mL (42mg)	2 mL (4 mg)	0.84mL (42mg)	8.4mL	(8.4mg)	1.68mL
98	**44**	6.6mL (13.2mg)	0.88mL (44mcg)	2.2mL (44mg)	2 mL (4 mg)	0.88mL (44mg)	8.8mL	(8.8mg)	1.76mL

*__NOTE__: Titrate = Administer slowly to desired effect

ADULT WEIGHT-BASED MEDICATION CHART

Drug		**Etomidate**	**Fentanyl**	**Lidocaine**	**Ketamine** Ketalar
How Supplied		20/10 mL or 40mg/20mL	100mcg/2mL	100 mg/5 mL	500mg/10mL 50mg/mL
Protocol Dosage		0.3 mg/kg	1mcg/kg	1 mg/kg	4mg/kg
Routes		IVP/IO	IVP/IN/IO/IM	IO	IM
Weight Lbs.	**Kgs**.	***Max 40 mg***	***Titrate****	***Max 50 mg***	***Max 500 mg*** ***Max 5mL single injection (split site)***
88	**40**	6mL (12mg)	0.8mL (40mcg)	2mL (40mg)	3.2mL (160 mg)
97	**44**	6.6mL (13.2mg)	0.88mL (44mcg)	2.2mL(44mg)	3.5mL (176mg)
106	**48**	7.2mL (14.4mg)	0.96mL (48mcg)	2.4mL (48mg)	3.8mL (192mg)
114	**52**	7.8mL (15.6mg)	1.04mL (52mcg)	2.5mL (50mg)	4.2mL (208mg)
123	**56**	8.4mL (16.8mg)	1.12mL (56mcg)	2.5mL (50mg)	4.5mL (224mg)
132	**60**	9mL (18mg)	1.2mL (60mcg)	2.5mL (50mg)	4.8mL (240mg)
141	**64**	9.6mL (19.2mg)	1.28mL (64mcg)	2.5mL (50mg)	5.1mL (256mg)
150	**68**	10.2mL (20.4mg)	1.36mL (68mcg)	2.5mL (50mg)	5.4mL (272mg)
158	**72**	10.8mL (21.6mg)	1.44mL (72mcg)	2.5mL (50mg)	5.8mL (288mg)
167	**76**	11.4mL (22.8mg)	1.52mL (76mcg)	2.5mL (50mg)	6mL (304mg)
176	**80**	12mL (24mg)	1.6mL (80mcg)	2.5mL (50mg)	6.4mL (320mg)
185	**84**	12.6mL (25.2mg)	1.68mL (84mcg)	2.5mL (50mg)	6.7mL (336mg)
194	**88**	13.2mL (26.4mg)	1.76mL (88mcg)	2.5mL (50mg)	7.0mL (352mg)
202	**92**	13.8mL (27.6mg)	1.84mL (92mcg)	2.5mL (50mg)	7.4mL (368mg)
211	**96**	14.4mL (28.8mg)	1.92mL (96mcg)	2.5mL (50mg)	7.7mL (384mg)
220	**100**	15mL (30mg)	2mL (100mcg)	2.5mL (50mg)	8.0mL (400mg)
229	**104**	15.6mL (31.2mg)	2mL (100mcg)	2.5mL (50mg)	8.3mL (416mg)
238	**108**	16.2mL (32.4mg)	2mL (100mcg)	2.5mL (50mg)	8.6mL (432mg)
246	**112**	16.8mL (33.6mg)	2mL (100mcg)	2.5mL (50mg)	9.0mL (448mg)
255	**116**	17.4mL (34.8mg)	2mL (100mcg)	2.5mL (50mg)	9.3mL (464mg)
264	**120**	18mL (36mg)	2mL (100mcg)	2.5mL (50mg)	9.6mL (480mg)
273	**124**	18.6mL (37.2mg)	2mL (100mcg)	2.5mL (50mg)	9.9mL (496mg)
282	**128**	19.2mL (38.4mg)	2mL (100mcg)	2.5mL (50mg)	10mL (500mg)
290	**132**	19.8mL (39.6mg)	2mL (100mcg)	2.5mL (50mg)	10mL (500mg)
300	**136**	20mL (40mg)	2mL (100mcg)	2.5mL (50mg)	10mL (500mg)

*__NOTE__: Titrate = Administer slowly to desired effect

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
ADENOSINE Adenocard® 6mg/2 mL vial	6 mg rapid IV/IO; 2nd dose 12 mg. Follow with rapid NS 20mL IVP flush.	Antiarrhythmic. Slows conduction through AV node. Can interrupt AV re-entry.	Symptomatic SVT. Undetermined etiology, stable, monomorphic and regular tachycardia	2nd/3rd degree AV block, Sick sinus syndrome, Bradycardia. Caution: 1º AVB, BBB. Not effective in atrial fib/flutter, or VT.	Facial flushing (44%), chest pain (40%), dyspnea (28%), brief transient dysrhythmias
ALBUTEROL Proventil® 2.5 mg/3 mL vial	2.5 mg via nebulizer (handheld, mask, inline)	Moderately selective beta2 agonist, relaxes bronchial smooth muscle, relieves bronchospasm.	Bronchospasm due to reversible obstructive airway disease (asthma, COPD, bronchitis, emphysema).	Caution w/ CVD, HTN, tachycardia, prolonged QT	Tremor (<38%), Nervousness (<15%), Bronchospasm (<15%), Nausea (<15%), Palpitations/Tachycardia (<10%)
Amidate See ETOMIDATE					
AMIODARONE Cordarone® 150 mg/3 mL	VF/pVT: 300 mg IV/IO; 2nd dose 150 mg VT: 150 mg IVPB in 100 mL NS or D5W over 10 min	Broad spectrum antiarrhythmic, delays repolarization, inhibits adrenergic stimulation (alpha- and beta-blocking), affects Na, K, Ca channels, prolongs action potential and	Ventricular fibrillation, Ventricular tachycardia	2nd/3rd degree AV block, Bradycardia, Cardiogenic shock, Iodine allergy	Hypotension (20%), Bradycardia (5%)

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
		refractory period; decreases AV conduction and sinus node function			
ASPIRIN (ASA) 81 or 324 mg tablet(s)	324mg, Oral chew, may follow w/ sip H2O to facilitate passage to stomach	Inhibits platelet aggregation.	Suspected ACS	Non-intact gag reflex, Actively GI bleeding, Age $\leq$18	GI distress, Nausea, Vomiting
ATROPINE 1 mg/10 mL OR 0.5mg/5 mL	1.0 mg rapid IVP/IO, repeat q 3-5 min, to max 3 mg (unless cholinergic poisoning) May be given ET	Parasympathetic blocker (indirectly increase heart rate), Anticholinergic	Symptomatic bradycardia, Nerve agent/ Organophosphate poisoning	HTN, tachycardia Caution: Atropine not likely to be effective in 2nd/3rd degree AV block or wide QRS	Tachycardia, Arrhythmia, Dilated pupils/blurred vision, Dry secretions, Flushed skin esp. face & torso
Atrovent See IPRATROPIUM BROMIDE					
Benadryl See DIPHENHYDRAMINE					

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
CYANOKIT® Hydroxocobalamin 5 gm vial	5 g mixed 200 mL NS, IV/IO over 15 minutes. May repeat one time.	Binds cyanide ion and forms cyanocobalamin which is excreted in urine	Known/suspected cyanide poisoning via inhalation, ingestion, dermal exposure	Caution in pregnancy	HTN, nausea, vomiting, headache, erythema (18%), rash
DEXTROSE 10% 25 gm/250 mL (0.1 gm/1mL)	25 gm slow IV/IO	Known as glucose, monosaccharide, simple sugar, carbohydrate provides energy to cells	Hypoglycemia	Normal blood glucose level. Caution: Insure IV catheter in vein lumen and extravasation does not occur	Hyperglycemia, hyperosmolar syndrome. Infusion pain, vein thrombosis. Tissue necrosis with infiltration.
DIPHENHYDRAMINE Benadryl® 50 mg/1 mL	25-50 mg IVP/IO over 2 minutes, or deep IM into large muscle (i.e., lateral thigh or upper, outer gluteus maximus).	Antihistamine. Binds and blocks H1 histamine receptors, decreases allergic response.	Allergic reaction, Anaphylaxis	Acute Asthma/COPD exacerbation	CNS depression, Sedation, Dizziness, Dry mouth, Seizure. Paradoxical CNS stimulation more common in children.
DUODOTE® Atropine 2.1 mg/ Pralidoxine Chloride (2-PAM) 600 mg/2 mL	1st dose: known or suspected poisoning, inject mid-lateral thigh if	Anticholinergic agent, antidote. Atropine blocks acetylcholine effect on smooth/cardiac muscle, CNS, and	Symptomatic nerve agent/organophosphate exposure. Decontamination critical	Not for prophylaxis. In life-threatening poisoning by organophosphorous nerve agents or	Atropine: dysrhythmias, dry mucous membranes, blurred vision, photophobia, confusion, headache, dizziness, tachycardia,

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
	≥2 MILD symptoms. Wait 10-15 min. If, pt does not develop any SEVERE symptoms, no additional injection recommended Additional Doses: If any time after 1st dose, pt develops any SEVERE symptoms, administer 2 additional injections in rapid succession.	secretory gland cells, reducing parasympathetic overstimulation. Decreases secretions, relieves airway constriction, attenuates bradycardia. 2-PAM reactivates acetylcholinesterase, which hydrolyzes excess acetylcholine to restore cholinergic neural function.		insecticides, there are no absolute contraindications. Caution: CVD, HTN	palpitations, flushing, abdominal pain, nausea, vomiting. 2-PAM: blurred vision, dizziness, headache, drowsiness, nausea, tachycardia, HTN, muscular weakness, dry mouth, emesis, rash, dry skin, hyperventilation.
DUONEB See ALBUTEROL and IPRATROPIUM BROMIDE	Albuterol 2.5 mg/3 mL and Atrovent 0.5 mg/2.5 mL				

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
EPINEPHRINE Adrenalin® 1 mg/mL (1:1,000) EpiPen® auto-injector	0.3 mL IM (anterolateral thigh recommended in allergic reaction/ anaphylaxis) EpiPen Jr. 0.15mg EpiPen 0.3mg	Beta effects: increases automaticity, conductivity, contractility, dilation of bronchial tree.	Anaphylaxis, Allergic reaction, Asthma, COPD, bronchitis, emphysema	Caution: elderly, CVD. Known sensitivity to epinephrine or sulfites. Pregnant women in active labor.	Tachyarrhythmia, tremors, restlessness, anxiety, nausea, headache
EPINEPHRINE 1 mg/10 mL 0.1 mg/mL (1:10,000)	1 mg IVP/IO during resuscitation. May repeat at 3-5 min. intervals	Alpha/Beta agonist. Alpha effects: vasoconstriction Beta effects: increases automaticity, conductivity, contractility, dilation of bronchial tree.	Cardiac arrest, Asystole, V-Fib, pulseless VT or idioventricular rhythm, PEA	No contraindication in cardiac arrest	Tachyarrhythmia, tremors, restlessness, anxiety, nausea, headache
PUSH DOSE EPINEPHRINE When mixed, 10mcg/mL			Anaphylaxis, Cardiogenic Shock, Sepsis		

*__NOTE__: Titrate = Administer slowly to desired effect

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
ETOMIDATE Amidate® 20 mg/10 mL OR 40 mg/20 mL (2 mg/mL)	0.3 mg/kg IVP/IO over 30 to 60 seconds, maximum of 40 mg.	Ultrashort- acting nonbarbiturate hypnotic which produces a rapid induction of anesthesia with minimal cardiovascular effects Decreases intracranial pressure with no effect on cerebral perfusion or heart rate	Drug assisted intubation (DAI)	Used cautiously in patients with renal failure and hepatic cirrhosis as the duration of effect may be prolonged. Use cautiously in patients with seizure disorder. Use in pregnancy only if potential benefit justifies the risk.	Pain at injection site, temporary involuntary muscle movements, nausea, vomiting, hiccups bradycardia, tachycardia, arrhythmias, hypertension, hypotension, apnea, laryngospasm, hypoventilation
FENTANYL 100 mcg/2 mL	1 mcg/kg IVP/IO/IN/IM for all doses, repeat dose 1 mcg/kg IVP/IO/IN/IM to a maximum total of 200 mcg. Titrate to desired effect.	Binds with and activates opioid receptors in the brain and spinal cord to produce analgesia and euphoria. Reduces anxiety, apprehension and perception to pain	Pain relief	Hypersensitivity or intolerance to Fentanyl or other opioid agonists Fentanyl crosses the placenta but has been used safely in labor	Skeletal muscle and chest wall rigidity, Impaired ventilation, Respiratory distress, apnea, bronchoconstriction, laryngospasm

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
GLUCAGON 1 mg	1mg = 1 unit IM/IN (dissolve in accompanying diluent)	Increases blood glucose by converting liver glycogen to glucose	Hypoglycemia when unable to establish IV	Chronic hypoglycemia, adrenal insufficiency, starvation, allergy to protein.	Nausea, vomiting, hypotension, allergic reaction due to protein substance.
GLUCOSE Glutose 15® 15 G	15 grams ORAL	Increases blood glucose	Hypoglycemia when known diabetic, able to tolerate oral preparation, intact gag	Unable to tolerate oral preparation, lacking gag reflex, unable to protect own airway	Nausea
HYDRALAZINE 20 mg/1 mL	5mg IVP	Antihypertensive, Vasodilator, lowers blood pressure by exerting a peripheral vasodilating effect through direct relaxation of vascular smooth muscle	For severe elevation in blood pressure in pre-eclampsia and eclampsia (Hypertensive crisis)	Hypersensitivity to Hydralazine, Coronary Artery Disease, Mitral valve heart disease, Renal damage	Headache, nausea, vomiting, diarrhea, palpitations, dyspnea, hypotension, rash
IPRATROPIUM Atrovent® 0.5 mg/2.5 mL	0.5 mg/2.5 mL or inline ET	Anticholinergic Bronchodilator	Bronchospasm which is associated with mod/severe allergic reaction, COPD/Asthma	Hypersensitivity to Atropine or ipratropium products, Glaucoma, prostate hypertrophy	mouth, nausea, bitter taste in mouth, blurred vision, dilated pupils

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
KETAMINE (Ketalar) 500mg/10mL 50 mg/mL	4mg/kg IM Max dose 500mg per 10mL Max 5mL single injection (split site)	Hypnotic analgesic and amnestic effects, sedative hypnotic	Sedation for violent behavior, excited delirium, sever agitation	Hypertensive crisis Acute MI, Angina Increased ICP Severe liver disease Psychosis Use cautiously with Schizophrenia, Psychosis, Bipolar Mania	Disorientation, auditory visual, hallucinations, delirium, Psychosis Rigidity, dystonic reaction, bronchodilation, increased oral secretions
LIDOCAINE Xylocaine® 100 mg/5 mL	1mg/kg up to maximum of 50mg IO.	Local anesthetic	Local anesthetic for IO infusion	Known hypersensitivity to amides, AV or intraventricular blocks, idioventricular or escape rhythms, brady dysrhythmias	Low SBP, nausea, coma, bradycardia that may lead to arrest, twitching, seizures, widened QRS complex, CNS depressions
MAGNESIUM SULFATE 50% 1gm/2mL	2 gm/100mL D5W IVPB over 5 minutes 2gm/100mL D5W IVPB over 15 minutes 4 gm/100mL D5W IVPB over 15	Inhibits smooth muscle contraction, decreases histamine release from MAST cells, inhibits acetylcholine release	VT/VF (Torsades) Asthma OB complications – hypertensive emergencies with seizures.	Heart blocks, pregnant women in active labor, Hypotension, Renal Failure, Dialysis	Hypotension, flushing, depression of reflexes, flaccid paralysis, drowsiness, respiratory paralysis, diaphoresis, hypothermia

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
	minutes				
MIDAZOLAM Versed® 1 mg/1 mL 5 mg/1 mL 5 mg/5 mL or 10 mg/2 mL **VERIFY CONCENTRATION PRIOR TO GIVING**	2 mg IVP/IO/IN every 2 minutes titrated for effect up to maximum of 10 mg (20 mg for post-intubation sedation and seizures)	Benzodiazepine CNS depressant Amnesic Sedative/hypnotic Fast onset/offset	Sedation prior to conscious intubation and/or Cardioversion Suppress seizure activity Severe anxiety	Glaucoma Shock Pregnancy unless seizing Head trauma Known hypersensitivity Dose generally ↓ with; age > 60; debilitated patients with chronic diseases; those on narcotics or CNS depressants	Drowsiness sedation confusion amnesia ataxia respiratory depression respiratory arrest hypotension, crosses placental barrier
NALOXONE Narcan ® 2 mg/mL	2 mg IV/IO/IN/IM	Narcotic antagonist	Known or suspected narcotic-induced respiratory depression.	Use cautiously in patients with cardiac irritability and narcotic addiction.	Nausea, vomiting, withdrawal symptoms, seizures
Narcan® See NALOXONE					
NITROGLYCERIN Nitrostat® 0.4mg tablet	1 tablet SL (0.4mg - 1/150 gr.) May be given every 5 minutes if BP	Vasodilator: decreases blood return to right heart, decreases preload and afterload and oxygen consumption.	Angina pectoris, chest pain. Pulmonary edema, Hypertensive crisis	Hypersensitivity to nitrates, head trauma, cerebral hemorrhage, and hypotension. Avoid use if Viagra drug taken within 24 hours or 48 hours with	Headache, dizziness, hypotension, nausea, vomiting, palpitations, sublingual burning.

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
	> 90.			Cialis	
ONDANSETRON Zofran® 4mg/2 mL Also 4mg tablet	4mg IVP/IO over 30 seconds may repeat in 10 minutes to a maximum of 8 mg Or 4mg ORAL	Blocks the action of serotonin, a natural substance that may cause nausea and vomiting	Nausea and vomiting	Hypersensitivity Pregnancy	Blurred vision after infusion, diarrhea in children
Proventil® See ALBUTEROL					
SODIUM BICARBONATE 8.4% 50mEq/50mL	50meq IVP/IO	Treatment of acidosis in severe renal disease	VT/VF in dialysis patients	Metabolic or respiratory alkalosis, patients with severe vomiting or continuous GI suctioning	Edema, hypocalcemia, tetany, gastric distension, metabolic alkalosis
TRANEXAMIC ACID (TXA)	1 gm in 100mL D5W IVPB (10 mL/min) over 10 min	Anti-fibrinolytic drug and a synthetic equivalent of the amino acid lysine. Helps to reduce mortality in the acutely hemorrhaging adult trauma and OB patient if given within three hours	-Age ≥ 16 years -Time of Injury less than 3 hours - Hemorrhagic shock SBP <90; HR >110 - Multi-system trauma, major pelvic fx, solid organ injury with evidence of active hemorrhage	Subarachnoid hemorrhage; known isolated head injury Active intravascular clotting (DIC) and/or known history of thromboembolism Known Hx renal failure	Anaphylaxis Thrombosis Nausea, vomiting, diarrhea Visual disturbances: blurred vision, changes in color Hypotension with rapid infusion rate >100 mg/min

REGION X APPROVED DRUG INFORMATION LIST
NOTE: See Pediatric Resuscitation Medication Chart for Pediatric Dose

DRUG	DOSE AND ROUTE	ACTION	INDICATION	CONTRAINDICATIONS	SIDE EFFECTS
		of injury or as soon as post-partum hemorrhage is apparent.	- Traumatic amputations - Post-partum hemorrhage	Concomitant use w/ prothrombin complex concentrate (PCC)	
VERAPAMIL 10 mg/4 mL (2.5mg/mL)	5 mg IVP/IO SLOWLY over 5 minutes, if no response in 15 minutes may repeat	Relaxes coronary smooth muscle, decreases SA and AV node conduction, dilates peripheral arteries	SVT and Atrial Fib/Flutter	2nd or 3rd degree heart block, hypotension, severe CHF, cardiogenic shock, Sick Sinus Syndrome, Wolff-Parkinson-White Syndrome	Headache, dizziness, bradycardia, palpitations, hypotension, AV block, nausea
Versed® See MIDAZOLAM					
Xylocaine® See LIDOCAINE					
Zofran® See ONDANSETRON					

Amended 10/28/2020

ABBREVIATIONS, ACRONYMS and SYMBOLS

AAA ..... abdominal aortic aneurysm
Abd ..... Abdomen
ACS ..... acute coronary syndrome
AED ..... automated external defibrillator
AHA ..... American Heart Association
AIDS ..... acquired immune deficiency syndrome
ALS ..... Advanced Life Support
ALTE ..... Apparent Life Threatening Event
AMA ..... against medical advice
Amb ..... ambulance
AMI ..... acute myocardial infarction
Amp ..... ampule
AMS ..... altered mental status
A&O ..... alert & oriented
APGAR .. appearance, pulse, grimace, activity, respirations
ASA ..... aspirin
ASAP ..... as soon as possible
AV ..... atrioventricular
AVPU ..... mental status: alert, verbal, pain, unresponsive
BB ..... backboard
BCP ..... birth control pills
BLS ..... Basic Life Support
bm ..... bowel movement
BOW ..... Bag of water
BP ..... blood pressure
BPM or bpm ..... beats per minute
BRUE ..... Brief Resolved Unexplained Event
bs ..... breath sounds
BSA ..... body surface area
BSI ..... body substance isolation
BVM ..... bag valve mask
C ..... Celsius or centrigrade
CA ..... cancer
c&a ..... conscious and alert
CABG ..... coronary artery bypass graft
CAD ..... coronary artery disease
CC ..... chief complaint
C-Collar ..... cervical collar
CHB ..... complete heart block
CHF ..... congestive heart failure
CID ..... cervical immobilization device
cm ..... centimeter
CMS ..... circulation, motor, sensation
CNS ..... central nervous system
c/o ..... complains of
CO ..... carbon monoxide
CO2 ..... carbon dioxide
COPD ..... chronic obstructive pulmonary disease
CP ..... chest pain
CPAP ..... continuous positive airway pressure
CPR ..... cardiopulmonary resuscitation
CPSS ..... Cincinnati Prehospital Stroke Scale
Cric ..... cricothyrotomy
C-Section ..... caesarian section
CSF ..... cerebral spinal fluid
C-spine ..... cervical spine
CV ..... cardiovascular
CVA ..... cerebral vascular accident
D&C ..... dilatation and curettage
D/C ..... discontinue
D5W ..... 5% dextrose in water
DBP ..... diastolic blood pressure
DCAP ..... deformity, contusion, abrasion, penetration
DCFS ..... Department of Children and Family Services
Dept ..... department
Dig ..... Digoxin
DKA ..... diabetic ketoacidosis
DM ..... diabetes mellitus
DNA ..... does not apply
DNR ..... do not resuscitate
DOA ..... dead on arrival
DOE ..... dyspnea on exertion
Drsg ..... dressing
DTs ..... delirium tremens
DVT ..... deep vein thrombosis
Dx ..... diagnosis
ECG or EKG ..... electrocardiogram
ECRN ..... Emergency Communications RN
ED ..... emergency department
EDC ..... estimated date of confinement
EDD ..... esophageal detector device
EMS ..... Emergency Medical Services
EMT ..... Emergency Medical Technician
ENT ..... ear, nose and throat
ET ..... endotracheal
EtCO2 ..... end tidal carbon dioxide
ETA ..... estimated time of arrival
ETOH ..... alcohol
Exam ..... examination
F ..... Fahrenheit
FB ..... foreign body
FBO ..... foreign body obstruction
Fib ..... fibrillation
FHT ..... fetal heart tones
FiO2 ..... fraction of inspired O2 (% O2 delivered)
Fr ..... french (suction catheter diameter)
Fx ..... fracture
GCS ..... Glasgow Coma Score
GERD ..... gastro-esophageal reflux disease
GI ..... gastrointestinal
gm ..... gram
gsw ..... gunshot wound
Gtt ..... drops
GU ..... genitourinary
Gyn ..... gynecological
h or hr ..... hour
H/A ..... headache
H2O ..... water

HCO3 ..... bicarbonate
HEPA .....high efficiency particulate airborne mask
HF .....heart failure
HHN .....hand held nebulizer
HIV ..... human immunodeficiency virus
HLD……..……hyperlipidemia
HPI .....history of present illness
HR .....heart rate
HTN ..... hypertension
Hx.....history
ICP .....intracranial pressure
ICU.....intensive care unit
i.d. .....internal diameter
ID .....infectious disease
IDPH .....Illinois Department of Public Health
IM.....intramuscular
IN ..... intranasal
INH .....inhalation
IO ..... intraosseous
IV ..... intravenous
IVF ..... intravenous fluids
IVP .....intravenous push
IVPB .....intravenous piggy back
IVR.....idioventricular rhythm
j ..... joules
JVD ..... jugular venous distension
K.....potassium
KED .....Kendrick extrication device
Kg..... kilogram
KVO .....keep vein open
L ..... liter
Lbp .....low back pain
Lbs..... pounds
LLE ..... left lower extremity
LLQ.....left lower quadrant
L/minute .....liters per minute
LMP .....last menstrual period
LOC..... level of consciousness
L or Lt .....left
LUE..... left upper extremity
LUQ .....left upper quadrant
LV .....left ventricle
LVAD ..... left ventricular assist device
mA.....milliamps (pacing)
MAD™ ..... Mucosal Atomization Device
MAEW ..... moves all extremities well
MAP .....mean arterial pressure
mcg..... microgram
mcgtts .....microdrops
MCI ..... mass casualty incident
MERCI .....Medical Emergency Radio Comm. of Illinois
mEq ..... milliequivalents
mg .....milligram(s)
min .....minute
MI.....myocardial infarction
mL .....milliliter(s)
mmHg ..... millimeters of mercury
MOI.....mechanism of injury
MPMP .....multiple patient management plan
m/s..... musculoskeletal
MS ..... morphine sulfate
MVC .....motor vehicle crash
n/a .....not applicable
NAD .....no apparent distress
NC.....nasal cannula
NEB ..... nebulizer
NKA .....no known allergies
NP/NPA .....nasopharyngeal airway
NPO .....nothing by mouth
NRBM ..... non-rebreather mask
NS .....normal saline
NSAID ..... nonsteroidal anti-inflammatory drug
NSR ..... normal sinus rhythm
NTG .....nitroglycerine
N/V .....nausea/vomiting
O2 .....oxygen
OB.....obstetric
OD .....overdose
OLMC.....On-Line Medical Control
OP/OPA .....oropharyngeal airway
Oriented X 1 .....oriented to person
Oriented X 2 ..... oriented to person, place
Oriented X 3 ..... oriented to person, place, time
Oriented X 4 .....oriented to person, place, time, event
P .....pulse
PAC ..... premature atrial contraction
PALS .....Pediatric Advanced Life Support
PCN ..... penicillin
pCO2 or PaCO2.....partial pressure of carbon dioxide
PCR.....patient care record
PEA..... pulseless electrical activity
PEEP..... positive end expiratory pressure
PERL ..... pupils equal and reactive to light
PID..... pelvic inflammatory disease
PJC..... premature junctional contraction
Pmh..... past medical history
PMS .....pulses, motor, sensory
PO .....per os (by mouth)
pO2 .....partial pressure of oxygen
POLST.... Practitioner Order for Life Sustaining Treatment
PPE ..... personal protective equipment
PPV..... positive pressure ventilation
PRI.....P-R interval
Prn..... pro re nata or as needed
Pt..... patient
PTA.....prior to arrival
PVC ..... premature ventricular contraction
Q ..... every
R .....respirations
RA.....room air
Resp .....respiratory
RLE.....right lower extremity
RLQ .....right lower quadrant
RN.....Registered Nurse
R/O .....rule out
ROM .....range of motion
ROSC.....return of spontaneous circulation
RR.....respiratory rate
RSV .....respiratory syncytial virus
R or Rt .....right

RTS ..... revised trauma score
RUE..... right upper extremity
RUQ ..... right upper quadrant
SA ..... sinoatrial node
SAMPLE..... symptoms, allergies, medications,
.... past history, last oral intake, events leading up to illness
SB..... sinus bradycardia
SBP ..... systolic blood pressure
SCI ..... spinal cord injury
SCUBA ..... self-contained underwater breathing apparatus
SIDS..... sudden infant death syndrome
SL ..... sublingual
SMV..... sensation, motor, vascular
SOB..... shortness of breath
SOP .....Standard Operating Procedure
SpO2 ..... pulse oximetry
SQ or SC ..... subcutaneous
S&S..... signs & symptoms
STAT..... immediately
STD..... sexually transmitted disease
SubQ or SQ..... subcutaneous
SVT..... supraventricular tachycardia
T ..... temperature
T1DM…… …. type 1 diabetes mellitus
T2DM…. ……. type 2 diabetes mellitus
Tab ..... tablet
TB .....tuberculosis
TBI ..... traumatic brain injury
TIA.....transient ischemic attack
TIC .....tenderness, instability, crepitus
TKO/KVO.....to keep open
Tx .....treatment
Unk..... unknown
URI..... upper respiratory infection
UTI..... urinary tract infection
V-fib or VF.....ventricular fibrillation
VS .....vital signs
VSD.....ventricular septal defect
V-tach or VT ..... ventricular tachycardia
w/.....with
w/d.....warm and dry
WPW..... Wolff-Parkinson White Syndrome
Wt..... weight
WNL ..... within normal limits
w/o.....without
WOB ..... work of breathing
y/o .....year old
@.....at
°..... degree
#.....number
↑ or ↓ .....increased or decreased
< ..... less than
> .....greater than
≥ .....equal to or greater than
≤ ..... equal to or less than
+ ..... positive or plus