REGION I EMERGENCY MEDICAL SERVICES

Standing Medical Orders

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Peds	3 kg	4 kg	5 kg	6-7 kg		8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
Adult	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg	130 kg	140 kg	150 + kg
Standard Dosing	ILS/ ALS	BLS	EMR	NorEpi/ Epi Drip		Mag Sulfate	Mag Sulfate (Peds)	Fentanyl IN	Midazolam IN	DSI Meds	Alt Meds	Formulary

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Fluid Bolus:

- Adult – standard dosing – 250 ml; reassess patient; repeat if indicated.
- Pediatrics – standard dosing – 20 ml/kg.
- Sepsis patients – standard dosing as above.
- Burns:
  - Advanced Burn Life Support initial fluid rates for patients with visibly large burns are based on patient age:
    - 5 years old and younger – 125 ml per hour
    - 6-13 years old – 250 ml per hour
    - 14 years and older – 500 ml per hour
- Please note exceptions to fluid bolus in the Burns SMO.

IV Pumps:

- At this time IV Pumps are not required.
- Due to increased number of IV drip medications IV pumps should be considered for increase safety of medication administration.
- All agencies utilizing IV Pumps need approval from their Region 1 Resource Hospital.
- If the agency is approved to utilize an IV Pump appropriate training must be completed by each provider and documentation of the training provided to the agency's Region 1 Resource Hospital.

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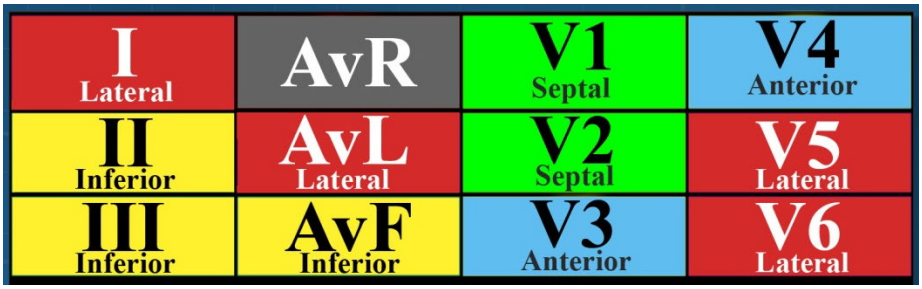
Key Considerations: EMT (BLS) services will be allowed to acquire and transmit 12-Lead ECGs. EMT will not be expected to interpret the ECG findings but will be expected to report the computerized interpretation to Medical Direction.

Procedure:

A. The acquisition of a 12-Lead strip is targeted to be achieved within 10 minutes of the initial patient contact. Although there may be situations where this may not be possible, the 10-minute acquisition is optimal.
B. Prepare the patient's skin for ECG electrode attachment. This may include the shaving of excess hair, cleaning oily skin and/or drying diaphoresis at the electrode attachment sites.
C. Attach the ECG patient cable leads to the patches on the patient's skin. The diagram at the end of this SMO provides direction for lead placements.
D. Encourage the patient to remain as still as possible. You may need to support the patient's arms during acquisition.
E. Acquire the 12-Lead ECG as directed by the manufacturer of the monitor.
F. If the monitor detects signal "noise" possibly caused by patient movement, poor electrode contact, or a disconnected electrode, take appropriate corrective actions to eliminate the "noise."
G. Establish contact with Medical Direction. Give a brief patient assessment, condition, and treatment report. If transmission is feasible alert Medical Direction receiving hospital that you will be transmitting the patient's 12-Lead ECG. EMT (BLS) services will be expected to report the 12-Lead computerized interpretation. Advanced EMT/Intermediate and Paramedic (ALS) services will be expected to interpret and report as to whether they feel that the ECG represents a STEMI or non-STEMI.
H. Verify that Medical Direction has received the 12-Lead transmission. It is important to remember that this 12-Lead strip can be electronically sent to Medical Direction while the transporting vehicle is moving.
I. If 12-Lead ECG shows an inferior MI (elevation in II, III, and AVF) consider right-sided leads if time permits.
J. Attach a copy of the 12-Lead printed strip to the EMS Patient Care Report and leave the report with the receiving hospital RN or MD.
K. If patient condition changes consider repeating ECG.

Localizing ECG Changes



Key Considerations: Consider level of discomfort, associated symptoms, GI symptoms, urination, gynecological symptoms, and medical history.

Treatment:

A. Routine Medical Care.
B. Nothing by mouth (NPO).
C. Consider ILS/ALS intercept.
D. Isopropyl alcohol wipes or Ondansetron for nausea and vomiting.
E. 12-lead ECG, cardiac monitor, transmit to the receiving hospital.
F. Intermediate/Paramedics are expected to interpret the 12-lead prior to transmission.
G. IV access.
H. If hypotensive (SBP<90 mmHG and signs of poor perfusion): fluid bolus, reassess and repeat if indicated.
I. Pain Management per SMO.

Pediatric Patients

A. Routine Pediatric Care.
B. Pediatric dosing for medications listed above.

Key Considerations:

A. Bruises/welts/lacerations.
B. Injuries that are unexplained/poorly explained/incompatible with the explanation.
C. Burns shape and size often reflect object used to burn.
D. Repeated injuries.
E. Frequent hospitalization.
F. Repeated use of Emergency Department services for injury.
G. Discrepancies between history and presenting illness.
H. Time delay between injury and coming to hospital (1-2 days).
I. Reluctance to discuss circumstances surrounding injury.
J. Unexplained injuries.
K. Alleged third party inflicted injuries.

Treatment:

A. Scene safety, notify law enforcement if needed.
B. Routine Medical Care, Routine Pediatric Care, and/or Routine Trauma Care.
C. Treat injuries see appropriate SMO, such as Pain Management SMO.
D. If a parent or caregiver refuses to allow transport of the patient notify the police and stay on scene until they arrive.
E. All suspected abuse must be reported to the appropriate agency.
F. Follow steps as a "Mandated Reporter" under Illinois law to report all appropriate cases of abuse.

Resources:

- **Adult Protective Services -** To report financial exploitation or neglect of an older person or a person with disabilities, ages call Adult Protective Services hotline number **1-866-800-1409**.
- **Department of Children and Family Services – 1-800-25ABUSE (1-800-252-2873).** Reports can also be made online at https://childabuse.illinois.gov for non-emergency situations.
- **Domestic Abuse -** Information about shelter and alternatives is available 24 hours per day by calling the **Domestic Violence Hotline (1-877-863-6338).**
- **Elder Abuse (All persons 60 years of age or older) -** Adult Protective Services, **1-866-800-1409**.
- **Nursing Home Abuse -** Suspected victims of nursing home abuse or neglect are to be reported to the proper authority as mandated by Illinois State Law PA 82-120, "The Abused and Neglected Long Term Care Facility Residents Reporting Act". This authority is the Division of Enforcement, Illinois Department of Public Health: call **1-800-252-4343** or the Ombudsman Program at **800-369-0895 or 779-210-8700.** More information can be found on the Illinois Department on Aging website.
- **Supportive Living Facilities -** For residents who live in Supportive Living Facilities call the Illinois Department of Healthcare and Family Services Complaint Hotline at **1-800-226-0768**.

Mandated Reporter Adult

1. Under the Illinois Adult Protective Services Act, all EMS personnel are considered "mandated reporters" and are therefore required to report cases of suspected abuse or neglect of adults age 60 or older or people with disabilities age 18-59, if they believe that the adult is not capable of reporting the abuse or neglect themselves. State law protects the confidentiality of reporters and any mandated reporter acting in good faith shall be granted immunity from civil liability. However, any mandated reporter who fails to report the suspected abuse or neglect may be subject to legal penalties.
2. Reporting of suspected abuse or neglect:
   a. To report suspected abuse, neglect, or financial exploitation of an adult age 60 or older or a person with disabilities age 18-59 call the statewide, 24-hour Adult Protective Services Hotline: 1-866-800-1409.
   b. For residents who live in nursing facilities, call the Illinois Department of Public Health's Nursing Home Complaint Hotline: 1-800-252-4343.
   c. For residents who live in Supportive Living Facilities (SLFs), call the Illinois Department of Healthcare and Family Services' SLF Complaint Hotline: 1-800- 226-0768.

3. If there is reason to believe that an adult patient has been abused or neglected, EMS personnel shall make every reasonable effort to transport the patient. If transport is refused, request police assistance if indicated.

Suspected Domestic Violence or Abuse

1. EMS personnel and other mandated reporters are not required by law to report suspected cases of domestic violence or abuse to adult patients. However, under the Illinois Domestic Violence Act all EMS personnel are required by law to provide immediate and adequate information regarding services available to victims of suspected domestic violence or abuse.
   a. National Domestic Violence Hotline: 1-800-799-SAFE (https://www.thehotline.org/)
   b. Illinois Domestic Violence Hotline: 1-877-863-6338 (https://thenetwork.org/knowledge-center/#availableResources)
   c. Chicagoland Domestic Violence Hotline: 1-877-863-6338
2. If there is a reason to believe a patient is a victim of domestic violence and/or abuse, the Paramedic/EMT shall make every reasonable effort to transport the patient. If transport is refused, request police assistance if indicated.

Human Trafficking

1. Recognize the key indicators of human trafficking which include:
   a. Does the person appear disconnected from family, friends, community organizations, or houses of worship? Has a child stopped attending school?
   b. Has the person had a sudden or dramatic change in behavior?
   c. Is a juvenile engaged in commercial sex acts?
   d. Is the person disoriented or confused, or showing signs of mental or physical abuse?
   e. Does the person have bruises in various stages of healing?
   f. Is the person fearful, timid, or submissive?
   g. Does the person show signs of having been denied food, water, sleep, or medical care?
   h. Is the person often in the company of someone to whom he or she defers? Or someone who seems to be in control of the situation, e.g., where they go or who they talk to?
   i. Does the person appear to be coached on what to say?
   j. Is the person living in unsuitable conditions?
   k. Does the person lack personal possessions and appear not to have a stable living situation?
   l. Does the person have freedom of movement? Can the person freely leave where they live? Are there unreasonable security measures?

2. Not all indicators listed above are present in every human trafficking situation, and the presence or absence of any of the indicators is not necessarily proof of human trafficking.
3. Reporting suspected human trafficking
   a. Do not attempt to confront a suspected trafficker directly or alert a victim to your suspicions. Your safety, as well as the victim's safety, is paramount.
   b. Contact local law enforcement directly or call the confidential tip line at:1-866-DHS-2- ICE (1-866-347-2423) to report suspicious criminal activity to the U.S. Immigration and Customs Enforcement (ICE) Homeland Security Investigations (HSI) Tip Line 24 hours a day, 7 days a week, every day of the year.
   c. The National Human Trafficking Hotline (NHTH) number is 1-888-373-7888 or can be accessed by texting HELP or INFO to BeFree (233733). The NHTH can help connect victims with service providers in the area and provides training, technical assistance, and other resources. The NHTH is a national, toll-free hotline available to answer calls from anywhere in the country, 24 hours a day, 7 days a week, every day of the year. The NHTH is not a law enforcement or immigration authority and is operated by a nongovernmental organization funded by the Federal government.

Documentation

1. EMS personnel shall report suspicions of abuse or neglect to the Emergency Department physician and/or charge nurse and/or police and document on the patient care report.
2. Clearly document history and physical findings, environmental surroundings, patient interaction with others on scene, and discrepancies in the history.

Mandated Reporter Child Abuse

Suspected Child Abuse or Neglect

1. Under the Illinois Abused and Neglected Child Reporting Act, all EMS personnel are considered "mandated reporters" and are therefore required to report cases of suspected child abuse or neglect to the Illinois Department of Children and Family Services (DCFS). State law protects the confidentiality of reporters and any mandated reporter acting in good faith shall be granted immunity from civil liability. However, any mandated reporter who fails to report suspected child abuse or neglect may be subject to legal penalties.
2. Reporting of cases of suspected child abuse or neglect should be done as soon as possible through the DCFS Child Abuse and Neglect Hotline at 1-800-25-ABUSE.
3. Guidelines for identifying suspected child abuse and neglect:
   a. Discrepancy between history of injury and physical exam.
   b. Prolonged interval between injury and the seeking of medical help.
   c. History/suspicion of repeated trauma.
   d. Parents or guardians respond inappropriately or do not comply with or refuse evaluation, treatment or transport of child.
   e. A child who does not seek comfort from parents or guardians. f. Poor nutritional status. g. Environment that puts the child in potential risk

Illinois Mandatory Reporter Training:
https://mr.dcfstraining.org/UserAuth/Login!loginPage.action;jsessionid=89F3D55040EF8D0F8915C6C9EE5C6D3B

Key Considerations: Mental status (AVPU), airway patency (head-tilt chin lift OR modified jaw thrust for unconscious patient or if c-spine trauma is a possibility), oxygenation and circulatory status (pulse oximetry, vital signs)

TREATMENT:

A. Assess airway patency utilizing adjuncts as indicated.
B. Oxygen as indicated for patient condition. Maintain SpO2 levels in the 94% to 99% if possible.
   - Nasal cannula (2-6 L/min) for awake, oriented, stable patients without evidence of hypoperfusion
   - High flow via non-rebreather mask (10-15 L/min).
   - CPAP as indicated.
   - Assist ventilations with BVM and 100% oxygen if indicated.
   - $EtCO_2$ is in place, attempt to maintain a reading between 35-45.
C. Manage Foreign Body Airway Obstruction per American Heart Association standards.
D. Consider NG tube for gastric decompression.
E. Assess airway patency utilizing adjuncts as indicated:
   - OPA
   - NPA
   - Supraglottic airway per EMS System approval according to manufacturer's guidelines
     - Kings Airway sizing
     - I-GEL Airway sizing
   - Endotracheal intubation
   - Sedation for Airway Management
   - Needle Cricothyrotomy
   - Surgical Cricothyrotomy
   - Commercial cricothyrotomy device with prior Medical Director approval (prior to Medical Directors' approval training must be submitted to IDPH with plans to assure ongoing competency).
F. Confirm advanced airways and document with a minimum of three of the following:
   - $EtCO_2$ is the most reliable method of confirmation for advanced airway placement and should be documented, if available. *This method of confirmation will become mandatory with the 2026 update*.
   - Colorimetric device
   - Visualization
   - Auscultation
   - Absence of gastric sounds
   - Misting in the tube
   - Bougie confirmation
   - Esophageal detector
   - Bi-lateral chest rise

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Pediatric Patients

Key Considerations: Pediatric intubation for patients < 30 kg has been devalued based on evidence studies showing aggressive airway management without intubation results in improved outcomes. In extreme or rare circumstances (tracheostomy patient, excessive bleeding in airway) when other measures have failed, intubation may be considered.

TREATMENT:

A. Pediatric Routine Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above –

Kings Airway Chart

Size	Patient Criteria	Color	Inflation Volume	NG Max Size
0	< 5 kg (12.5 lbs)	Clear	10 ml	10 F
1	5-12 kg (12.5-26.4 lbs)	White	20 ml	10 F
2	12-25 kg (26.4-55 lbs)	Green	35 ml	16 F
2.5	25-35 kg (55-77 lbs)	Orange	40-45 ml	16 F
3	4-5 ft	Yellow	45-60 ml	18 F
4	5-6 ft	Red	60-80 ml	18 F
5	> 6 ft	Purple	70-90 ml	18 F

I-GEL Airway Chart

Size	Patient Criteria	Color
1.0	Neonate – 2-5 kg	Pink
1.5	Infant - 5-12 kg	Blue
2.0	Small Pediatric – 10-25 kg	Grey
2.5	Large Pediatric – 25-35 kg	White
3	Small Adult – 30-60 kg	Yellow
4	Medium Adult – 50-90 kg	Green
5	Large Adult – 90+ kg	Orange

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Key Considerations: Amount of alcohol/drugs ingested, possibility of other drugs involved, medical history (trauma, tranquilizers, anticonvulsants, diabetes), altered mental status (AVPU), conditions that mimic intoxication (hypoglycemia, hypoxia, head injury, behavioral emergency).

TREATMENT:

A. Routine Medical Care including $EtCO_2$ if available.
B. Protect airway. Anticipate the possibility of respiratory arrest, seizures and/or vomiting.
C. O_2 and airway management as indicated.
D. Consider advanced Airway Management if GCS </= to 8.
E. Obtain IV access.
F. Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.
G. Obtain glucose check for adult:
   - If <80 mg/dl, **and/or** the patient is symptomatic, and if gag reflex is intact, consider Oral Glucose.
   - If <80 mg/dl, **and/or** the patient is symptomatic, and if the gag reflex is not intact, give Dextrose IV; **see** Medication Administration Weight-Based Chart.
   - If <80 mg/dl, **and/or** the patient is symptomatic, and no IV give Glucagon IM.
H. Follow appropriate SMOs for:
   - Seizures:
     Seizures/Status Epilepticus
   - Respiratory/ cardiac arrest:
     Asystole/PEA
     V-Fib/V-Tach
     Neonatal Resuscitation
     Pediatric Respiratory Distress/Failure/Obstruction/Arrest
   - Hypoglycemia
     Diabetic Emergencies
   - Refusal of Transport
     Refusal of Medical Care or Transport

Pediatric Patients

A. Routine Pediatric Care.
B. Obtain glucose check:
   - If <60 mg/dl, **and/or** the patient is symptomatic, and if gag reflex is intact, consider Oral Glucose.
   - If <60 mg/dl, **and/or** the patient is symptomatic, and the gag reflex is not intact, give Dextrose IV; **see** Medication Administration Weight-Based Chart.
   - If <60 mg/dl **and/or** the patient is symptomatic, and no IV give Glucagon IM.
C. Follow pediatric dosing and age-appropriate treatment for medications listed above –
   Glucagon IM Naloxone

Key Considerations: Always assess for treatable etiologies (hypoglycemia, opiate overdose, dysrhythmias, etc.) of the altered mental status before performing advanced airway procedures.

Treatment:

A. Routine Medical Care.
B. Collect and document all medications that the patient is prescribed for administration at home.
C. Oral Glucose for conscious patient with gag reflex intact and BS < 80 mg/dl **and/or** symptomatic. If you are unable to measure blood glucose level, assume hypoglycemia.
D. IV access.
I. Obtain glucose check for adult:
   - If <80 mg/dl, **and/or** the patient is symptomatic, and if gag reflex is intact, consider Oral Glucose.
   - If <80 mg/dl, **and/or** the patient is symptomatic, and if the gag reflex is not intact, give Dextrose IV; **see** Medication Administration Weight-Based Chart.
   - If <80 mg/dl, **and/or** the patient is symptomatic, and no IV give Glucagon IM.
E. Advanced airway management as indicated.
F. Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.
G. Administer fluid bolus for hypotension.

Pediatric Patients

A. Routine Pediatric Care.
B. Obtain glucose check:
   - If <60 mg/dl, **and/or** the patient is symptomatic, and if gag reflex is intact, consider Oral Glucose.
   - If <60 mg/dl, **and/or** the patient is symptomatic, and the gag reflex is not intact, give Dextrose IV; **see** Medication Administration Weight-Based Chart.
   - If <60 mg/dl **and/or** the patient is symptomatic, and no IV give Glucagon IM.
C. Establish IV/IO of Normal Saline at TKO rate.
D. Airway management as indicated – see Airway Management SMO.
E. Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.
F. Administer Fluid Bolus for hypotension. Reassess and repeat to desired systolic B/P: 80-90 mmHG +2 (age in years).

Key Considerations: While uncommon in Illinois, Altitude Illness is defined in terms of Acute Mountain Sickness (typically greater than 5,000 ft), High Altitude Pulmonary Edema (HAPE), and High-Altitude Cerebral Edema (HACE) (both typically greater than 8,000 feet). The highest elevation in Illinois is 1,235 feet in Scales Mound, Illinois in JoDaviess County. If Altitude Illness is suspected assessment should also consider alternate causes of the symptoms.

TREATMENT:

A. Stop ascent.
B. Airway Management, as symptoms dictate.
C. Descend as soon as scene conditions permit.
D. Consider treatment for:
- Pulmonary Edema
- CPAP
- Hypoglycemia
- Hypo/Hyperthermia
- Carbon Monoxide Poisoning (for patients who may have been cooking within an enclosed space)
- Altered Mental Status
- Pain Management
- Dehydration
- Exhaustion

E. If needed, administer oxygen to saturations ≥ 90%.
F. If needed, establish IV and perform fluid bolus to maintain systolic BP > 90 mmHg.

Pediatric Patients:

A. Routine Pediatric Care.
B. Pediatric dosing for fluid bolus, if needed, as above.

TREATMENT:

Mild Reaction – Adult

Key Considerations – Hives, rash.

A. Routine Medical Care.
B. Remove etiologic agent if possible or relocate patient.
C. Oxygen as indicated.
D. For extensive hives, administer Diphenhydramine OTC, IM, or IV – OTC Diphenhydramine may be utilized by BLS services. Services must supply their own OTC products and utilize per manufacturers recommendations. OTC is not recommended for ALS units.
E. Immediate transport.

Moderate Reaction – Adult

Key Considerations – Hives, rash, mild bronchospasm, normotensive.

A. Routine Medical Care.
B. Remove etiologic agent if possible or relocate patient.
C. Oxygen as indicated.
D. DuoNeb (Albuterol/Ipratropium Bromide) /Albuterol
   - First medication dose of DuoNeb (Albuterol/Ipratropium Bromide) or Albuterol via nebulizer. Repeat with Albuterol only prn until relief of symptoms.

E. IV access.
F. Diphenhydramine OTC, IV (or IM if cannot establish IV access).
G. Methylprednisolone IM/IV/IO.
H. If no response and patient bronchospasm persists or worsens, Consult Medical Direction for use of Epinephrine (concentration 1 mg/1 ml) IM or Epi Injector IM . Consult Medical Direction to repeat in five minutes one time.
I. Immediate transport.

Severe Reaction – Adult

Key Considerations – Altered mental status, hypotension (SBP < 90 mmHG and evidence of hypoperfusion), bronchospasm and/or angioedema.

A. Routine Medical Care.
B. Remove etiologic agent if possible or relocate patient.
C. IV access.
D. If no IV access, Epinephrine (concentration 1 mg/1 ml) IM *OR* Epi Injector IM.
E. Diphenhydramine OTC, IV (or IM if cannot establish IV access).
F. Consider administration of the following medications based on patient assessment:
   - Methylprednisolone IM/IV/IO.
   - DuoNeb (Albuterol/Ipratropium Bromide) or Albuterol:
     - ADULTS - First medication dose of DuoNeb Albuterol/Ipratropium Bromide or Albuterol and via nebulizer, repeat with Albuterol only prn until relief of symptoms
   - Fluid bolus, reassess and repeat if indicated.

G. Advanced Airway Management as indicated.
H. Immediate transport.

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Pediatric Patients

Treatment: *Mild* Reaction

Key Considerations – Hives, rash.

A. Routine Pediatric Care.
B. Remove etiologic agent if possible or relocate patient.
C. For extensive hives, administer Diphenhydramine OTC, IM, or IV – OTC Diphenhydramine may be utilized by BLS services. Services must supply their own OTC products and utilize per manufacturers recommendations. OTC is not recommended for ALS units.
D. Immediate transport.

Moderate Reaction – Pediatric

Key Considerations – Hives, rash, mild bronchospasm, normotensive for age, tachycardic, SaO2 > 95%.

A. Routine Pediatric Care.
B. Remove etiologic agent if possible or relocate patient.
C. Albuterol in nebulizer.
D. Diphenhydramine OTC, IV (or IM if cannot establish IV access).
E. Methylprednisolone IM, IV, IO
F. **Consult Medical Direction for use of Epinephrine**.
G. BLS:
   - Epi Injector - JR for children weighing 33 pounds (15 kg) to 66 pounds (30kg)
   - Epi Injector for children greater than 66 pounds (30kg)
   - Consult Medical Direction to repeat Epinephrine in 15 minutes (one time dose)
   - Call Medical Direction for children less than 33 pounds

   ILS/ALS:
   - Epi Injector or Epinephrine (concentration 1 mg/1 ml). May repeat in 15 minutes one time.

H. Fluid bolus, reassess and repeat prn to 60 ml/kg.
I. Immediate transport.

Severe Reaction – Pediatric

See next page

Severe Reaction – Pediatric

Key Considerations – Angioedema, abnormal appearance (agitation, restlessness, somnolence), diminished perfusion, respiratory failure, stridor, bradycardia, SaO2 < 95%.

A. Routine Pediatric Care.

B. Remove etiologic agent if possible or relocate patient.

C. IV access.

D. Epinephrine:

BLS:

- Epi Injector - JR for children weighing 33 pounds (15 kg) to 66 pounds (30kg)
- Epi Injector for children greater than 66 pounds (30kg)
- Consult Medical Direction to repeat Epinephrine in 15 minutes (one time dose)
- Call Medical Direction for children less than 33 pounds

ILS/ALS: – may use Epi Injector or

- IM: Epinephrine (concentration 1 mg/1 ml), repeat in 15 minutes one time prn, maximum single dose 0.3 mg

E. Administer the following medications based on patient assessment:

- Diphenhydramine OTC, IV (or IM if cannot establish IV access)
- Methylprednisolone IM, IV, IO
- Albuterol in nebulizer.
- Fluid bolus, reassess and repeat prn to 60 ml/kg.

I. Advanced Airway Management as indicated.

J. Immediate transport.

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Asystole/Pulseless Electrical Activity (PEA) –1.009

Key Considerations: Pulseless, apneic, organized electrical activity on the monitor (not VT or V-Fib), asystole or PEA as confirmed by the monitor, heart rate < 60 with poor perfusion despite oxygenation and ventilation, identification of treatable causes (H's and T's).

TREATMENT:

A. Begin BLS care- All care is organized around 2-minute cycles of CPR in C-A-B priority unless arrest is caused by hypoxic event.
B. Determine unresponsiveness; open airway (manually); assess for breathing/gasping; suction as needed; simultaneously assess pulse; if not definitively felt in <10 seconds begin quality CPR with compressions.
C. Apply defib pads with chest compressions in progress as soon as AED (BLS)/ monitor (ALS) is available.
D. Airway/Ventilation-
   - Check patency if choking suspected.
   - Ventilating with BVM and oral airway increases aspiration risk. Supraglottic airway or ETT should be placed when possible without interrupting chest compressions; see Airway Management SMO.
E. Establish vascular access IV or IO, initiate Normal Saline.
F. Epinephrine 1 mg/10 ml IV or IO, repeat every 3 to 5 minutes as long as CPR continues.
G. Consider causes:
   - Administer fluid bolus if suspected hypovolemia.
   - Dextrose for blood glucose < 80mg/dL Medication Administration Weight-Based Chart.
H. Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.
I. Calcium Gluconate IV or IO for suspected hyperkalemia (history of renal failure, dialysis, or potassium ingestion).
J. Sodium Bicarbonate for diabetic patient with possibility of DKA, or tricyclic or phenobarbital overdose; see Toxic Exposure SMO.
K. If ROSC (return of spontaneous circulation) occurs analyze pulse, blood pressure, and respiratory status. Acquire blood glucose level and administer Dextrose if indicated. Use caution as the blood glucose level may not be accurate in arrest or poor circulatory state.
L. If ROSC occurs, acquire 12-lead ECG. If acute MI suspected, call STEMI alert.

Pediatric Patients

Treatment:

A. Start or continue high quality CPR per AHA guidelines.
B. Attach AED or monitor/defibrillator and analyze.
C. Administer oxygen via bag-valve-mask device or airway adjuncts as indicated; see Airway Management SMO.
D. Reassess patient every two minutes to assure adequacy of compressions and ventilations.
E. Epinephrine: see current Medication Administration Chart or Broselow for pre-calculated dosing; IV/IO (1mg/10 ml) – repeat every 3-5 minutes.
F. IV Fluid Bolus of 20 ml/kg for suspected hypovolemia; repeat as needed.
G. If shockable rhythm continues/returns administer shocks according to AHA guidelines and revert to appropriate rhythm specific algorithm.
H. Treat as appropriate any reversible causes that are identified (H's and T's).
I. Calcium Gluconate IV or IO for suspected hyperkalemia (history of renal failure, dialysis, or potassium ingestion.
J. If ROSC (return of spontaneous circulation) occurs analyze pulse, blood pressure, and respiratory status.
K. If patient is in respiratory failure or arrest only ventilate once every 3-5 seconds.

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Consider	Definition	Potential Causes	Treatment
Hydrogen Ions	Improper PH level caused by too much acid (lactic acidosis)	• Respiratory • Metabolic	Respiratory - ventilate Metabolic – Sodium Bicarb
Hyperkalemia	Too much potassium in the body	• Kidney disease/failure • Diuretics • DKA	Calcium Gluconate 1 Gram – may repeat every 5 min up to 3 Grams Sodium Bicarb 1 mEq/kg; may repeat half dose in 10 minutes
Hypokalemia	Too little potassium in the body	• Kidney disease/failure • Diuretics • DKA	
Hypothermia	When the body loses the ability to keep itself warm (body temperature below 95° F)	Extreme/prolonged exposure to cold weather and/or water	Apply active and passive warming measures
Hypovolemia	Sudden and significant decrease in the volume of blood and fluids in the body	• Blood loss (internal and external) • Inadequate intake of fluids • Excessive vomiting or diarrhea	IV/IO fluid bolus Rapid Transport; possible surgical intervention
Hypoxia	When the body is deprived of a sufficient supply of oxygen	• Lack of oxygen • Lung disease • Chemical or gas poisoning	• Increase O_2 intake • Ventilate • Advanced airway
Tamponade (pericardial tamponade)	Build-up of blood or fluid in the pericardial space	• Chest Trauma • Myocardial rupture • Pericarditis	• IV/IO fluids • Rapid Transport
Tension Pneumothorax			Pleural decompression
Thrombosis – (acute coronary syndrome)	Blockage of the heart's coronary artery/arteries	• Blood clot(s) • Myocardial infarction	Rapid transport; consider Cath Lab capable hospital
Thrombosis (pulmonary embolus)	Blockage of the lung's main artery	• Blood clot(s) • Pulmonary embolism	
Toxins	Overdose, either intentional or accidental	• Street drugs • Prescription or OTC drugs • Chemical exposure	Opiate – Naloxone Beta Blocker OD – Glucagon TCA – Sodium Bicarb Organophosphate OD - Atropine

Key Considerations: Personnel in contact with the patient at the time of AICD firing will receive a shock of approximately 3 joules. This energy level constitutes NO DANGER to pre-hospital personnel (may feel a slight tingling).

Procedures:

Patient with ICD:

A. Routine Medical Care.
B. Cardiac monitor.
C. Treat dysrhythmias per standing SMO:
   - Bradycardia
   - Tachycardia
D. Avoid direct placement of defib pads over the ICD unit as this could damage the unit.
E. Any patient who has been shocked by his/her AICD should be strongly encouraged to seek medical attention regardless of the patient's current condition.
F. Notify receiving hospital early in order to enable them to get magnet ready to deactivate AICD.
G. If the AICD is malfunctioning and patient is hemodynamically stable and in pain from repeated shocks; see Pain Management SMO.

Patient with LifeVest:

A. Routine Medical Care.
B. When a patient is wearing a LifeVest be aware of the following:
   - The LifeVest has an alert sequence that is initiated upon recognition of a treatable shock.
   - Listen to the voice prompts before making physical contact with the patient.
   - The EMS Provider can be shocked if contact with the patient during treatment sequence of the LifeVest.
   - If the LifeVest has blue stains the device has delivered a shock.
C. In the event an EMS Provider needs to apply the defibrillator - the LifeVest can be disabled by removing the battery located in the monitor unit. The EMS provider may then place their own monitor/defibrillator on the patient.
D. Cardiac monitor.
E. Treat dysrhythmias per standing SMO:
   - Bradycardia
   - Tachycardia
F. Any patient who has been shocked by his/her LifeVest should be strongly encouraged to seek medical attention regardless of the patient's current condition.

Patient with Pacemaker:

A. Routine Medical Care.
B. Cardiac monitor – Note when the pacemaker "fires" a pacer spike may or may not be visible on the monitor.
C. Treat dysrhythmias per standing SMO:
    - Bradycardia
    - Tachycardia
D. Avoid direct placement of defib pads over the pacemaker unit as this could damage the unit.

Patient with VAD

A. Routine Medical Care.
B. Contact Implant Coordinator:
    - Patient should have information sheet with number; they may be the best resource.
C. There are multiple devices in use; internal and external.
D. Blood flow may be continuous:
    - Patient may not have a palpable pulse.
    - Look at other indication such as: LOC, shortness of breath, lightheadedness, skin.
    - Non-invasive BP may or may not work.
    - Pulse ox will not be accurate.
E. No chest compressions unless approved by Implant Coordinator.
F. Defibrillation - standard method, do not put PADS over hardware.
G. VAD generally have two alarms:
    - Yellow – advisory
    - Red – critical
H. If patient hypotensive fluids may be useful to increase preload but be cautious to not overload.
I. Nitrates may be detrimental due to the reduction in preload.
J. Patients are typically on anticoagulant / antiplatelet medication.
K. Patient could be in VF and awake if the pump is working.

I. Purpose: The purpose of this document is to provide guidelines when a patient a patient is having a behavioral or mental health emergency. These guidelines are considered complementary to Consent/Refusal of Medical Care and should be referenced when referring to these guidelines.

II. Definitions:

A. **Mental Illness**: a mental or emotional disorder that substantially impairs a person's thought, perception of reality, emotional process, judgment, behavior, or ability to cope with the ordinary demands of life, but does not include a developmental disability, dementia, or Alzheimer's disease absent psychosis, a substance use disorder, or abnormally manifested by repeated criminal or otherwise antisocial conduct. (405 ILCS 5/1-129).

B. **Petition for Involuntary/Judicial Admission ("Form 5)**: A document used to request that a patient be involuntarily admitted as an inpatient for mental health treatment because, **due to their mental illness or developmental disability**, they meet the criteria for involuntary admission set forth in Section III below. The form number for the Petition is IL 462-2005 and it can be found online at:
https://www.dhs.state.il.us/onenetlibrary/12/documents/Forms/IL462-2005.pdf

A Spanish-language version of the petition can be found online at:
https://www.dhs.state.il.us/onenetlibrary/12/documents/Forms/IL462-2005s.pdf

III: Assertation Criteria for Initiation of the State of Illinois Department of Human Services – Division of Mental Health Petition for Involuntary/Judicial Admission ("Form 5")

(405 ILCS 5/1-119)

A. Note: Mental illness alone is insufficient to involuntarily detain a person. In order to involuntarily admit a person for mental health treatment they must meet the criteria for involuntary admission as set forth below.

B. A person meets the criteria for involuntary admission when:
   1. A person with a mental illness who because of his or her illness is reasonably expected, **unless treated on an inpatient basis**, to engage in conduct placing such person or another in physical harm or in reasonably expectation of being physically harmed;
   2. A person with mental illness who: because of his or her illness is unable to provide for his or her basic physical needs so as to guard himself or herself from serious harm without the assistance of family or others, unless treated on an inpatient basis; or
   3. A person with mental illness who:
      a) refuses treatment or is not adhering adequately to prescribed treatment;
      b) because of the nature of his or her illness is unable to understand his or her need for treatment; and
      c) **if not treated on an inpatient basis**, is reasonably expected based on his or her behavioral history, to suffer mental or emotional deterioration and is reasonably expect, after such deterioration, to meet the criteria of either (1) or (2) above.
   4. An individual who: is developmentally disabled and **unless treated on an inpatient basis** is reasonably expected to inflict serious physical harm upon himself or herself or others in the near future.

IV. Guideline Statement and Process: EMS Providers should act in the patient's best interest and consider the mental health needs of a patient who appears emotionally and or mentally incapacitated. In these situations, prehospital providers should employ the following guidelines:

A. If the patient poses an immediate threat to the safety of themselves or others, law enforcement shall be notified for assistance

B. Attempt to determine whether the patient's Decisional Capacity is impaired due to a medical condition (See Consent/Refusal of Medical Care)
   1. Assess Decision Making (Consent/Refusal of Medical Care) and potential for danger to self or others by observation, direct exam and reports from family, bystanders, law enforcement, or verified mental health personnel.

C. Identify yourself and always first attempt to treat and transport the patient with the patient's cooperation
   1. Any treatments/interventions which may ordinarily be suggested by the protocols can be waived if their attempted performance could responsibly be expected to compromise the cooperation of a patient who is otherwise agreeable to being transported or may reasonably be expected to cause an escalation of a patient such that patient and/or crew safety becomes endangered.
   2. The EMS Provider should describe their consideration of any withheld treatment/intervention which would have otherwise been indicated, as well as their rationale for withholding the treatment/intervention, in the Prehospital Care Report.

D. If the patient persists in refusing treatment/transport, or if the patient becomes combative, law enforcement involvement and evaluation should be obtained.
   1. EMS Providers should be constantly mindful of their safety and should avoid unnecessary danger at all times.
   2. Law Enforcement may take a person into custody and transport them for treatment when the law enforcement officer has reasonable grounds to believe, based on the Assertation Criteria in Section III above, that the person is subject to involuntary admission on an inpatient basis and in need of immediate hospitalization to protect such person or others from physical harm.
      a) EMS should provide information to law enforcement which would support such a belief whenever they are requesting that law enforcement transport someone involuntarily to a mental health provider.
   3. If, in the opinion of the pre-hospital provider, the decision of law enforcement or other responder, including a Mobile Crisis response team or similar personnel, not to assist EMS accessing, treating, or transporting a patient presents an issue that will or could result in patient harm, immediate request for on-scene EMS and law enforcement supervisory personnel should be made. In these situations, Medical Direction must be contacted.
   4. At no time should EMS Providers place themself in an unsafe situation per their assessment. IF EMS is unable to obtain law enforcement assistance to safely facilitate transport of a patient this should be documented and relayed to Medical Direction from the scene.
      a) If the EMS Provider cannot safely gain access to a patient, after exhausting all efforts at the persuasion and the EMS Provider believes that attempting to transport such a patient would constitute a threat to their safety, and law enforcement is unwilling or unavailable to provide assistance, the EMS provider may declare that the scene is "not safe" providing as much detail as possible (armed, barricaded, etc.) to Medical Direction.
      b) Medical Direction may not necessarily grant a refusal, rather medical direction shall acknowledge the crew's inability to treat/transport the patient due to safety reasons.
      c) If the scene is secured, EMS should return if needed.

5. The application of physical restraints and/or pharmacologic management/sedation when providing EMS care is required to prevent non-decisional patients from causing harm to themselves or others, to facilitate emergency assessment, or to allow for treatment of life-threatening injury or illness and should only be considered when all less-restrictive preventative measures have either been exhausted or may reasonably be expected to be ineffective.
   a) Physical restraints are to be utilized SOLELY for the purpose of preventing the patient from harming themselves or others, and only during circumstances in which the threat of harm posed by the patient is clear and immediate.
   b) Physical restraints should NEVER be applied to patients with decisional capacity, and should NEVER be used for any reason other than the prevention of harm, or in a manner that restricts breathing, circulation, or access for monitoring the patient.
6. If it is necessary to transport a patient against their will based upon a reasonable belief that the patient is mentally ill or developmentally disabled and inpatient treatment is the only way to prevent the patient from harming themselves or others as result of their mental illness or developmental disability, a Petition for Involuntary/Judicial Admission (Form 5) should be completed.
7. When completing a patient care report, document the assessment that led to the determination that the patient lacks Decision-Making Capacity (as applicable) as well as the clinical signs and symptoms on which the need for transport/treatment was based.

V. Initiation of State of Illinois Department of Human Services – Division of Mental Health Petition for Involuntary/Judicial Admission ("Form 5)

A. A "Form 5" is the first step in a legal process that protects the patient's rights and is necessary before a physician can determine if an involuntary admission is necessary.
B. A "Form 5" may be completed when EMS personnel or other adults have first-hand knowledge and reasonably believe that the patient is mentally ill or developmentally disabled and inpatient treatment is the only way to prevent the patient from harming themselves or others as a result of their mental illness or developmental disability. (See Assertation Criteria in Section III above).
C. Instructions for EMS Personnel completing the "Form 5", Note the most updated version should be utilized
   1. P. 1 Statutory reason for initiation of petition: Leave first page blank except for the patient's name. Enlist Hospital Personnel for assistance with furth completion.
   2. Assertions (p. 2): The EMS responder must insert the patient's name and check the assertion that applies; they believe the patient is (1) (2) (3) (4)
   3. P. 2 in the first open text box, write a detailed description of any acts or significant threats supporting the assertion and the time and place of their occurrence. Quote any statements made by the patient that substantiate the determination of risk.
   4. P. 2 In the second open text box complete the witness section to the best of your ability.
   5. P. 2 In the second open text box, list a spouse, parents, close relative, or guardians, or if none, any known friend of the patient who witnessed the behavior supporting the assertion of risk. List their addresses and phone numbers in the designated area. If unable to locate any, indicate that were unable to do so. Do not leave this section blank.

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6. Prehospital provider should indicate on the EMS Patient Care Report that involuntary transport has been ordered per Medical Direction and/or if law enforcement is unable or unwilling to complete the "Form 5".
7. The "Form 5" should be attached to the EMS Patient Care Report left at the hospital and shall become a part of the patient's permanent medical record in the ED. If this form is completed appropriately by EMS personnel and a physician determines that an involuntary hospital admission is indicated the "Form 5" may be added to the physician's certificate and admission orders as part of the statutorily required documents.
8. EMS Provider should inform the patient that under no circumstances does transport of the patient, whether voluntarily or against his/her will, commit the patient to a hospital admission. It simply enables the EMS providers to transport a person suspected to be in need of inpatient mental health treatment for examination by a healthcare provider who can make the determination of whether inpatient mental health treatment is necessary.

Key Considerations: Abnormal emotional behavior could be the result of injuries or disease. Initiate treatment as required. Consider at attempt to evaluate for possible causes of behavioral problems. Behaviors may range from hostility and anxiety to withdrawn. Consider altered mental status and injuries if patient has self-destructive behaviors. Search for a medical alert bracelet or card.

TREATMENT:

E. Scene safety—STAY ALERT – at all times avoid placing yourself in danger.
F. Contact Medical Direction, police, and/or Fire Department back-up as appropriate. Do not put yourself at risk if police will not intervene. Violent/Unsafe Scene or Patient SMO.
G. Routine Medical Care or Routine Trauma Care.
H. Identify yourself clearly.
I. Approach patient in a calm and professional manner. Talk to patient alone—request bystanders to wait in another area. Show concern for family members as well. Allow patient to verbalize his problem in his own words. Reassure patient that help is available.
J. Get patient's permission to do your assessment before touching patient.
K. Transport female with another non-threatening female bystander or relative, if possible.
L. In the case of suicide attempt, be prepared to:
    - Treat any injuries.
    - If drug or poison was ingested, transport agent with patient to hospital if the agent can be safely transported. A photo of the agent / label may also be helpful.
    - Place on cardiac monitor.
    - Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.

RESTRAINTS:

Key Considerations: Physical and/or chemical restraints are a last resort in caring for the emotionally disturbed patients. Never apply physical restraints for punitive reasons, or in a manner that restricts breathing and circulation, or in places that restrict access for monitoring the patient.

- At no point should the paramedics place themselves in danger. Additional manpower should be requested as needed.
- In emergency situations, initiate application of restraints in the absence of an order from Medical Direction.
- Explain the procedure to the patient (and the family) if possible. The team leader should be the one communicating with the patient.
- If attempts at verbally calming the patient have failed and the decision is made to use restraints, do not waste time bargaining with the patient.
- Remember to remove any equipment from your person which can be used as a weapon against you (i.e., trauma shears).
- Approach the patient, keeping the team leader near the head to continue communications and at least one person on each side.
- Always keep the patient informed of why the restraints are being used.
- Soft, disposable restraints are preferred for EMS use.
- No hog-tying or hobble restraints allowed. No "sandwiching" with long boards or scoop stretchers.
- Do not attempt IV access until patient becomes cooperative.

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RESTRAINTS PROCEDURE:

A. Scene size-up:
   - Assess the patient and surroundings for potential weapons.
   - When dealing with an agitated and combative patient consider law enforcement to help gain control of the situation. Do not put yourself at risk if police will not intervene.
   - If scene is unsafe, back out and call law enforcement.

B. Utilize verbal de-escalation methods whenever possible - consider physical/chemical restraints a last resort when verbal control is ineffective.

C. To safely restrain a patient use a minimum of four (4) people, if possible.

D. Consider chemical restraint enroute when physical restraints have not been effective - prepare and have medication ready to administer - Ketamine or Midazolam (light dose).

E. Once restrained, place patient in semi-fowlers or recovery position to maximize breathing.

F. Apply Capnography and pulse-ox.

G. Assess and address any medical conditions after the patient is safely restrained.

H. If law enforcement restrains a patient with handcuffs, an officer with a key must accompany the patient during transport (it is preferred that the officer accompanies in the ambulance, but in certain circumstances, possibly based on location in Region 1, the law enforcement may follow in their vehicle).

Resources/Precautions:

- Ketamine is contraindicated in pregnant patients. Use caution in patients with any history of cardiac and/or thyroid disorder. Ketamine may cause hypotension and increased ocular pressure.
- If the patient is judged to be either suicidal or lacking decision making capacity and dangerous to self or others, the treatment and transport should be carried out in the interest of the patient's welfare.
- If the patient resists police involvement is necessary. If it is necessary to transport a patient against their will, a Petition for Involuntary/Judicial Admission (Form 5) needs to be completed by the person who heard the patient state they are a danger to themselves or others.
- It may be necessary to get contact information from a family member for forms to be completed by EMS/Police/Hospital staff.

Pediatric Patients

Key Considerations: Instruct the patient's legal guardian that in this situation, they are acting on behalf of the patient and they understand the above information regarding refusal of treatment or transport and accept responsibility for the patient. The State of Illinois permits Emancipated Minors to be treated as adults.

PROCEDURE:

A. All reasonable attempts should be made to release a minor to a legal guardian. If a legal guardian cannot be located document attempts made to contact.
   - Minor may be turned over to local police or juvenile authority, or
   - Minor may be released if legal guardian is contacted by phone and consent for release is given. Document phone call, name of guardian, and witness.

B. If the need for emergency care exists or if the behavior of the patient suggests a lack of capacity to make a refusal in a valid manner continue to render care, up to and including transport.

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Behavioral/Restraints – 1.011 Page 1 of 2 Return to Table of Contents

Key Considerations: Consider localized reactions such as puncture marks, lacerations, avulsions, rash, hives, localized erythema, edema, and/or decreased pain or touch sensation. Consider systemic reactions such as respiratory distress, wheezing, stridor, diaphoresis, hypotension, tachycardia and/or tachypnea.

TREATMENT:

A. Routine Medical Care.
B. See Allergic Reaction and Anaphylaxis SMO, if needed.
C. If patient is hypotensive, treat for shock:
   - Consider IV fluid bolus.
   - Consider Epinephrine Drip after adequate fluid resuscitation.
D. Scrape off any remaining stinger or tentacles.
E. Clean the affected area with saline and cover with sterile dressing.
F. Do not perform any of the following:
   - Tourniquets or constricting bands above or below the site.
   - Incision and / or suction.
   - Application of cold for snake or spider bites.
G. Pain Management SMO.

Pediatric Patients

A. Routine Pediatric Care.
B. Pediatric dosing for IV fluid bolus.
C. Contact Medical Direction for approval of Epinephrine Drip.

Key Considerations: Symptomatic bradycardia is a patient with a pulse rate <60 bpm and any one or more of the following serious signs or symptoms: SBP <90 mmHG and/or signs of hypoperfusion; altered mental status, syncope or near syncope, due to a decrease in cerebral perfusion; signs/symptoms of CHF (dyspnea, crackles, pitting edema), and/or ischemic chest pain. See definition for pediatric bradycardia below.

Treatment:

A. Routine Medical Care.
B. Attach monitor, 12-lead ECG if available (do not delay therapy).
C. IV/ IO of Normal Saline.
D. Consider fluid bolus.
E. Perform 12-lead:
   - If STEMI or LBBB, use caution when considering Atropine administration.
   - If non-STEMI then may proceed to administer Atropine. May repeat every 3-5 minutes.
   - Use caution before administering Atropine for patients with STEMI or cardiac ischemia present on 12-lead as resultant tachycardia could worsen ischemia.
F. Transcutaneous pacing (TCP).
G. Use Midazolam (light dose) IV for sedation prior to TCP if patient conscious and Systolic BP >100 mmHG.
H. If patient remains symptomatic, but hypotension persists:
   - Repeat Fluid Bolus.
   - Consider Norepinephrine Drip after adequate fluid resuscitation.
I. Consider Pain Management SMO as appropriate.

Pediatric Patients:

Key Considerations: In children bradycardia almost always means hypoxia. Treat for hypoxia first. Clinical signs of respiratory distress or failure/hypoxemia including apnea, slowed or absent capillary refill (< 3 seconds), hypotension, retractions (flaring or grunting) and/or signs of decreased perfusion including altered mental status, abnormal appearance, inequality of central and distal pulses, and/or loss of distal pulses.

TREATMENT:

A. Routine Pediatric Care.
B. ABC's – oxygenation and ventilation, oxygen high flow by NRB mask, if no response assist ventilations using BVM and 100% oxygen.
C. Heart rate < 60/minute with poor perfusion despite oxygenation and ventilation begin high quality CPR per AHA guidelines.
D. Cardiac monitor.
E. Advanced airway if ventilations are inadequate; see Airway Management SMO.
F. IV or IO access.
G. Epinephrine: See current Medication Administration Chart or Broselow for calculated dosing: IV/IO (1mg/10 ml); repeat every 3-5 minutes.
H. Consider Atropine IV or IO for increased vagal tone or primary AV Block may repeat once.
   - Atropine is rarely effective in treating pediatric bradycardia. Be sure the patient is adequately oxygenated and ventilated.

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Key Considerations: Consider mental status, skin signs, perfusion, respiratory rate, rhythm, pattern and work of breathing, lung sounds, blood pressure, heart rate, rhythm, oxygen saturation, rash, urticaria, evidence of trauma. Consider asthma exacerbation, chronic obstructive pulmonary disease (COPD) exacerbation, wheezing from suspected pulmonary infection (pneumonia, bronchitis).

TREATMENT:

A. Routine Medical Care.
B. First medication dose of DuoNeb (Albuterol/ Ipratropium Bromide) via nebulizer, repeat with Albuterol only.
C. CPAP.
D. Administer the following medications based on patient assessment:
   - For patients with severe refractory bronchospasm, increased effort of breathing and/or a history of coronary artery disease or hypertension:
     - Methylprednisolone IM, IV, IO (anticipated onset of effect approximately one hour).
     - Magnesium Sulfate – see Magnesium Sulfate Administration Chart.
     - Consult Medical Direction for permission for use of Epinephrine.
       - Epi Injector OR
       - Epinephrine (concentration 1 mg/1 ml)
E. Rapid transport.

Pediatric Patients

Key Considerations: Pediatric dosing for Magnesium Sulfate not recommended without a pump. Contact Medical Direction for orders. See Magnesium Sulfate Pediatric Dosing if approved.

TREATMENT:

A. Routine Pediatric Care.
B. Albuterol.
C. Contact Medical Direction for administration of one or more of the following:
   - Methylprednisolone IM, IV, IO (anticipated onset of effect approximately one hour).

   For patient with severe refractory bronchospasm and a history of coronary artery disease or hypertension:
   - Epi Injector JR for children weighing 33 pounds (15 kg) to 66 pounds (30 kg).
   - Epi Injector for children weighing greater than 66 pounds (30 kg).

Key Considerations: Evidence of inhalation injury or tox exposure (e.g., carbonaceous sputum, hoarseness, singed nasal hairs), extent of burns (depth – full or partial thickness and Total Body Surface Area (TBSA) affected. Entrance and/or exit wounds if electrical or lightning strike. Associated trauma from explosion, electrical shock, or fall. Type of chemical for surface chemical burn including length of exposure and what was done to clean victim off prior to arrival.

TREATMENT:

A. Prepare for rapid transport.
B. Routine Trauma Care.
C. Frequent evaluation and re-dosing of pain medications for burn victims; see Pain Management SMO.
D. IV access, fluid bolus to support blood pressure.
E. Transport as soon as possible.
F. Consider ALS Intercept as appropriate.

Thermal

A. Stop the burning process if needed. Flush with cool water but do not immerse in ice.
B. Remove jewelry and non-adhered clothing, do not break blisters.
C. Cover affected body surface with dry dressing.
D. Prevent hypothermia.
E. Control airway. Use appropriate oxygen and airway adjuncts as needed. Early intubation for patients with evidence of inhalation injury should strongly be considered.
F. Cover other open wounds with sterile, dry dressings.
G. Reassess airway frequently.
H. Monitor lung sounds.
I. If symptoms of Shock are present consider other traumatic causes.

Chemical

A. Decontamination and HazMat procedures, refer to MSDS.
B. Stop the burning process. Remove jewelry, contact lens, and clothing.
C. Brush off powder, if present.
D. If appropriate, irrigate with copious amounts of water for at least 20 minutes continuing irrigation enroute.
E. Prevent hypothermia.
F. Cover other open wounds with sterile dressings.

Electrical

A. Make sure electricity is off. Make sure fire is out. Stop the burning process.
B. Immediately check respiratory and circulatory status. Follow AHA guidelines for patients in cardio-pulmonary arrest.
C. Remove jewelry and non-adhered clothing. Do not break blisters.
D. Dressing on any exposed, injured areas.
E. Prevent hypothermia.
F. Cover other open wounds with sterile dressings.
G. Consider C-spine and spinal precautions.
H. Prepare to use defibrillator as needed.
I. Reassess airway and respiratory status frequently.
J. Monitor lung sounds.

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Lightning Strike

A. Immediately check respiratory and circulatory status. If patient is in cardio-pulmonary arrest, follow AHA guidelines for resuscitation including high quality CPR. Lightning injuries may cause prolonged respiratory arrest.
B. Manage the airway using manual methods and mechanical devices.
C. Apply spinal motion restriction for victims of musculoskeletal trauma associated with the electrocution.
D. Initiate IV or IO access.
E. Consider reverse triage. If patient has any signs of life they are likely to recover. They can be treated secondary. Those pulseless/non-breathing should be attended to first, as practical.

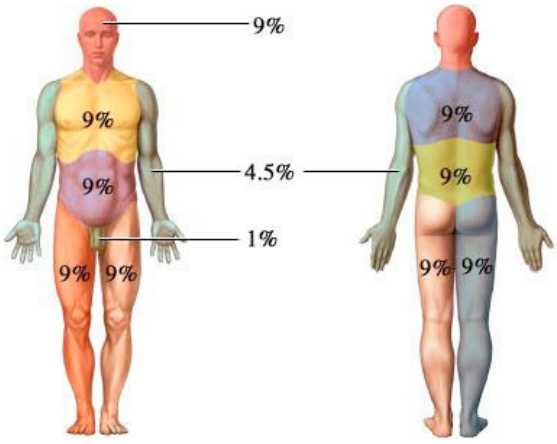
Radiation

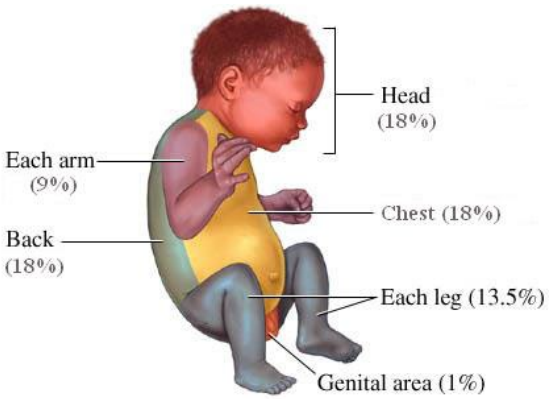
- Use extreme care in preparing to work with a patient with potential exposure. Wear all appropriate PPE.
- If the patient is contaminated with radioactive material, they will need decontamination by a HAZ-MAT team specifically trained to scan and decontaminate radioactive material.
- Non-contaminated patients will present with injuries similar to thermal burns and should be treated according to THERMAL BURN procedures.
- Exposed victims do not present a hazard to responders unless they have radioactive contamination present.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above.

Rule of Nines





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Key Considerations: In order for $EtCO_2$ to be present metabolism, perfusion, and ventilation must be taking place. $EtCO_2$ value, respiratory rate, and waveform equals airway status. If $EtCO_2$ is low and not related to airway status consider perfusion.

PROCEDURE:

A. Attach the appropriate capnography sensor for a patient with an advanced airway or a spontaneously breathing patient.
B. Note the $EtCO_2$ level, respiratory rate, and waveform.
C. $EtCO_2$ levels:
    - Normal 35 – 45.
    - If $EtCO_2$ is low and not related to airway status think perfusion (shock).
    - In cardiac arrest $EtCO_2$ may be low due to poor perfusion and /or metabolism. In arrest if $EtCO_2$ is below 10 ensure high quality CPR is being performed.
    - In an arrest a sudden increase on $EtCO_2$ may indicate ROSC.
    - In patients with possible increased intracranial pressure attempt to maintain an $EtCO_2$ of approximately 35.
D. When $EtCO_2$ is **NOT** detected three factors must be quickly assessed:
    - Loss of airway - apnea? Esophageal endotracheal tube placement/migration? Obstruction?
    - Circulatory collapse - cardiac arrest? Massive pulmonary embolism? Exsanguination?
    - Equipment failure - disconnected or malfunctioning bag-valve or ventilator?
E. A waveform with a “shark fin” pattern may indicate bronchospasm.
F. $EtCO_2$ should be monitored as any other vital sign when assessing a patient.

Key Considerations: Signs include headache, irritability, vomiting, chest pain, loss of coordination, loss of consciousness, cherry red skin color (late sign). Pulse oximeter gives false elevated readings in CO poisoning. Do not assume levels of CO are always consistent with the patient's smoking or occupational history.

TREATMENT:

A. Remove patient from source to fresh air.
B. Assess patient's CO level (if available).
C. Routine Medical Care.
D. Administer 100% oxygen regardless of patients' O_2 saturation.
E. Keep patient quiet as possible to decrease oxygen requirements.
F. Treat per appropriate SMO for:
   - Cardiac Arrest:
     - Asystole/PEA
     - V-Fib/V-Tach
     - Neonatal Resuscitation
   - Cardiac Dysrhythmia
     - Bradycardia
     - Tachycardia
   - Pulmonary Edema
     - Pulmonary Edema SMO

% COHb	Typical Manifestations	Treatment/Transport Decisions
5	Mild headache	100% O_2
10	Mild headache, shortness of breath with vigorous exertion	100% O_2
10-20	Mild headache, shortness of breath with moderate exertion	100% O_2
20-30	Worsening headache, nausea, dizziness, fatigue	* Hyperbaric O_2
30-40	Severe headache, vomiting, vertigo, altered judgement	* Hyperbaric O_2
40-50	Confusion, syncope, tachycardia	* Hyperbaric O_2
50-60	Seizures, shock, apnea, coma	* Hyperbaric O_2
60-70	Seizures, coma, cardiac arrhythmias, death	* Hyperbaric O_2
> 70	Death within minutes	* Hyperbaric O_2

* Hyperbaric treatment for CO poisoning is not available in Region 1. Transport to the closest hospital unless arrangements are made with Medical Direction to transport via ground or air to the closet hyperbaric treatment center.

Pediatric Patients

A. Routine Pediatric Care.
B. Pediatric dosing for medications listed above.

CPR GUIDELINES			
Component	Adults and Adolescents	Child (1 year to puberty)	Infant (under 1 year of age, excluding neonates)
Airway	Head tilt-chin lift. Jaw thrust if suspected cervical trauma		
Breathing: Without CPR	One breath every 6 seconds	One breath every 2-3 seconds (20-30 breaths /minute)	
Breathing: CPR with advanced airway	One breath every 6 seconds (10 breaths/min) About one second/breath. Visible chest rise.	One breath every 2-3 seconds (20-30 breaths/min) About one second/breath. Visible chest rise.	
Foreign Body: Conscious patient	Abdominal thrusts (*use chest thrusts in pregnant and obese patients)* or chest thrusts if abdominal thrusts are not effective		Five back slaps and five chest thrusts
Foreign Body: Unconscious patient	Lower victim to the floor. Begin CPR, starting with chest compressions. Do not check for a pulse. Before you deliver breaths, look into the mouth. If you see a foreign body that can easily be removed, remove it. Continue CPR.		
Compression landmarks **	Lower half of sternum between nipples		Just below nipple line (*lower half of sternum*)
Hand placement **	Heel of one hand, other hand on top	As for adults (*may use both hands or the heel of one hand depending on the size of the child*)	Two thumbs – encircling hands preferred for two rescuers
Compression depth **	At least 2 inches	Approximately one-third anterior/posterior depth of chest (*Approximately 2 inches in child/1 ½ inches in infant*)	
Compression rate **	100-120 per minute		
Compression – ventilation ratio without advanced airway	30:2 10:1 with continuous compressions	30:2 (single rescuer) 15:2 (two rescuers)	
AED GUIDELINES			
AED Defibrillation	Use adult pads	Use pediatric dose-attenuator system for children and infants if available. Use pediatric pads. If unavailable, use adult pads.	
NEONATAL GUIDELINES (*Less than 30 days old*)			
Assisted ventilation should be delivered at a rate of 40-60 breaths/minute to achieve or maintain a heart rate > 100 bpm. The ratio of compressions to ventilations should be 3:1 with 90 compressions and 30 breaths to achieve approximately 120 events per minute.			

** Apply a mechanical compression device (LUCAS, AutoPulse) per manufacturers' instructions if available.

Medication Administration Chart
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Key Considerations: Interventions for treatable causes of cardiac arrest. Consider emotional needs of family present.

TREATMENT: Cardiac Arrest

	Priority of patient care:	Notes:
	▪ High quality compressions	
	▪ AED/cardiac monitor/defibrillation	
	▪ Ventilation	
	Provide high quality continuous chest compressions with:	
	▪ Full recoil.	
	▪ At a rate of 100-120 per minute (consider metronome).	
	▪ At a depth of at least two inches.	
	▪ Minimizing any pauses to < 10 seconds.	
	▪ Switching providers (if available) every two minutes.	
	Apply AED/cardiac monitor as soon as possible.	
	Ventilate the patient:	
	▪ Without advanced airway at a rate of 30:2.	
	▪ Consider supraglottic airway or ETT when possible without interruption of chest compressions.	
	○ Ventilate at a rate of every six (6) seconds/10 per minute. Stop with chest rise.	
	○ Confirm advanced airway with multiple methods.	
	Attach appropriate capnography sensor:	
	▪ Monitor $EtCO_2$ level, respiratory rate, and waveform. If waveform capnography is not available use colormetric with advanced airway.	
	▪ If $EtCO_2$ is below 10 ensure high quality CPR is being performed.	
	▪ Continuously monitor $EtCO_2$ throughout arrest. A sudden increase may indicate ROSC.	
	Apply mechanical compression device if available and indicated:	
	▪ AutoPulse Device:	
	○ 18 years and older (may consider use in a large, younger patient)	
	○ Not for use in patients who do not fit in device	
	○ Not for use in patients with traumatic arrest	
	▪ LUCAS Device:	
	○ 12 years and older (may consider use in a large, younger patient)	
	○ Not for use in patients who do not fit in device	
	For Ventricular Fibrillation/Ventricular Tachycardia:	
	▪ Defibrillate at dose listed below or 360 j for monophasic.	
	▪ **Region 1 EMS Medical Directors recommend starting and continuing at maximum energy, if possible. Below are the recommended manufacturer settings:**	

Defibrillation Settings*	**1st**	**2nd**	**3rd**	**4th +**
Zoll Biphasic	120	150	200	200
Phillips MRX	150	170	200	200
Lifepak/Medtronic	200	300	360	360
Tempus	150	170	200	200

	▪ *If other manufacturer refer to their specific settings*	
	▪ Obtain IV/IO access without pausing compressions:	

	▪ Medications as listed below. Medication Administration Chart:	
	○ Epinephrine 1 mg (1mg/10ml) – repeat every 3-5 minutes as long as CPR continues.	
	○ If Polymorphic VT – Magnesium Sulfate – 2 Grams over 5-10 minutes	
	○ Amiodarone OR Lidocaine **(Select one medication – do not use both)**	
	• Amiodarone V-Fib/Pulseless VT 300 mg /repeat at 150 mg	
	• Lidocaine (refer to weight-based dosing)	
	○ Consider H's or T's (see below)	
	Resource: H's and T's: - Hypoxia (ventilate/O2) - Tamponade, cardiac (IV boluses) - Hypothermia (core warm) - Tension Pneumothorax (plural decompression) - Hypovolemia (IV boluses) - Thrombosis – coronary/pulmonary - Hypokalemia - * Toxins (opiate-Naloxone/TCA-Sodium Bicarb/Beta Blocker overdose – Glucagon/ Organophosphate overdose - Atropine) - * Hydrogen ion (acidosis) * (ventilate for respiratory/Sodium Bicarbonate for metabolic) - * Hyperkalemia - Calcium Gluconate 1 Gram – may repeat every 5 minutes up to 3 Grams/ * Sodium Bicarbonate 1 mEq/kg; may repeat at half dose in 10 minutes	
	For Asystole/PEA:	
	▪ Obtain IV/IO access without pausing compressions:	
	▪ Medications as listed below:	
	○ Epinephrine 1 mg (1mg/10 ml) – repeat every 3-5 minutes as long as CPR continues	
	○ Consider H's or T's (see above)	

TREATMENT: Cardiac Arrest – POST RESUSCITATION

	Obtain 12 Lead as soon as possible. Evaluate/transmit for potential STEMI.	
	Titrate oxygen to the lowest level required to achieve Spo2 ≥ 94-99%.	
	Monitor EtCo2.	
	▪ Do not hyperventilate	
	▪ Optimal EtCo2 is 35-45 (may need to adjust ventilation rate)	
	If hypotensive (systolic <90 mmHG) consider Cardiogenic Shock:	
	▪ Treat underlying dysrhythmias	
	▪ Fluid bolus of 250 ml for patients with clear lungs	
	Consider anti-dysrhythmic given if not given in resuscitation noted above and patient was in V-Fib/V-Tach:	
	▪ Amiodarone (150 mg over 10 minutes)	
	▪ Lidocaine (refer to weight-based dosing)	
	Provide sedation or Pain Management as indicated:	
	▪ Fentanyl – weight-based dosing	
	▪ Morphine – weight-based dosing	
	▪ Midazolam (light dose) – dosing chart	
	Check blood glucose level. Use caution as glucose level may be inaccurate. Administer Dextrose if indicated. Medication Administration Weight-Based Chart.	

PROCEDURE: In-Field Termination

	AHA Guidelines recommends resuscitation for a minimum of 20 minutes.	
	At 20 minutes consider transporting the patient, continuing treatment, or discontinuing treatment.	
	When termination or transport is being considered:	
	▪ Availability of local resources (e.g., time for coroner to arrive if care is terminated vs time of transport)	
	▪ Trauma codes	
	▪ Scene is unsafe	
	▪ Family members present	
	▪ Age/condition of patient	
	▪ $EtCO_2$	
	▪ Obvious death at a crime scene	
	Contact Medical Direction for termination.	
	Any/all equipment that was used to treat the patient such as ET tubes, airway adjuncts, IVs, IOs etc should not be removed from the patient and be left in position that they were in at the time the patient was pronounced.	
	If termination is approved contact Coroner in the county of patient death. The Coroner should be contacted for all out of hospital deaths:	
	▪ Note time of death and confirm signs. Remain on scene until coroner, law enforcement, or other appropriate professional arrives.	
	▪ Do not transport patient who is dead at the scene unless other directed by the coroner.	
	▪ If termination occurs during transport do not cross county lines without approval of the coroner.	

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Key Considerations: Interventions for treatable causes of cardiac arrest. Consider emotional needs of family present.

TREATMENT: Cardiac Arrest

	Priority of patient care:	Notes:
	▪ High quality compressions	
	▪ AED/cardiac monitor/defibrillation	
	▪ Ventilations	
	Provide high quality continuous chest compressions with:	
	▪ Full recoil	
	▪ At a rate of 100-120 per minute (consider metronome).	
	▪ Compression depth at approximately one-third anterior/posterior depth of chest	
	○ Approximately two inches in child/1 ½ inches for infant	
	▪ Minimizing any pauses to < 10 seconds.	
	▪ Switching providers (if available) every two minutes.	
	Apply AED/cardiac monitor as soon as possible.	
	▪ Use pediatric dose-attenuator system for children and infants if available. Use pediatric pads. If unavailable, use adult pads.	
	▪ For manual defibrillation use appropriate weight-based energy as appropriate	
	Ventilate the patient:	
	▪ Without advanced airway at a rate of 30:2 for single rescuer/15:2 for two rescuers	
	▪ Consider supraglottic airway when possible without interruption of chest compressions or ETT when other measures are ineffective. Ventilate at a rate of once every 2-3 seconds until chest rise.	
	Attach appropriate capnography sensor:	
	▪ Monitor $EtCO_2$ level, respiratory rate, and waveform. If waveform capnography is not available use colormetric with advanced airway. If patient is under 15 kg use pediatric colormetric.	
	▪ If $EtCO_2$ is below 10 ensure high quality CPR is being performed.	
	▪ Continuously monitor $EtCO_2$ throughout arrest. A sudden increase may indicate ROSC.	
	Apply mechanical compression device if available and indicated:	
	▪ AutoPulse Device:	
	○ 18 years and older (may consider use in a large, younger patient)	
	○ Not for use in patients who do not fit in device	
	○ Not for use in patients with traumatic arrest	
	▪ LUCAS Device:	
	○ 12 years and older (may consider use in a large, younger patient)	
	○ Not for use in patients who do not fit in device	
	For Ventricular Fibrillation/Ventricular Tachycardia:	
	▪ Defibrillate at 2 J/kg. Repeat at 4 J/kg if ineffective. Subsequent doses greater than or equal to 4 J/kg to a max of 10 J/kg or adult dose.	
	▪ Obtain IV/IO access without pausing compressions:	

	▪ Medications as listed below. It is recommended that the Broselow tape or Medication Administration Chart is utilized for dosing pediatric patients.	
	○ Epinephrine– Weight-based dosing. Repeat every 3-5 minutes as long as CPR continues.	
	○ Amiodarone OR Lidocaine **(Select one medication – do not use both)**	
	• Amiodarone V-Fib/Pulseless VT 5 mg/kg - repeat at 5 mg/kg to a max of 15 mg/kg	
	• Lidocaine 1 mg/kg	
	○ Magnesium Sulfate is not recommended for pediatric patients without the use of a pump. Contact Medical Direction for potential orders.	
	○ Consider H's or T's (see below)	
	Resource: H's and T's: - Hypoxia (ventilate/O2) - Tamponade, cardiac (20 ml/kg) - Hypothermia (core warm) - Tension Pneumothorax (plural decompression) - Hypovolemia (20 ml/kg) - Thrombosis – coronary/pulmonary - Hypokalemia - * Toxins (opiate-Naloxone/TCA-Sodium Bicarb/Beta-Blocker overdose – Glucagon/ Organophosphate overdose - Atropine) - * Hydrogen ion (acidosis) * (ventilate for respiratory/Sodium Bicarbonate for metabolic) - * Hyperkalemia - Calcium Gluconate 60 mg/kg weight-based dosing ○ * Sodium Bicarbonate 1 mEq/kg weight-based dosing	
	For Asystole/PEA:	
	Obtain IV/IO access without pausing compressions:	
	▪ Medications as listed below:	
	▪ Epinephrine Weight-based dosing. Repeat every 3-5 minutes as long as CPR continues.	
	○ Consider H's or T's (see above)	

TREATMENT: Cardiac Arrest – POST RESUSCITATION

	Obtain 12 Lead as soon as possible. Evaluate/transmit for potential STEMI.	
	Titrate oxygen to the lowest level required to achieve Spo2 ≥ 94-99%.	
	Monitor $EtCo_2$.	
	▪ Do not hyperventilate	
	▪ Optimal $EtCo_2$ is 35-45	
	If hypotensive consider Cardiogenic Shock:	
	▪ Treat underlying dysrhythmias	
	▪ Fluid bolus of 10 ml/kg for patients with clear lungs	
	Consider anti-dysrhythmic given if not given in resuscitation noted above and patient was in V-Fib/V-Tach:	
	▪ Amiodarone V-Fib/Pulseless VT 5 mg/kg – may repeat at 5 mg/kg to a max of 15 mg/kg	
	▪ Lidocaine (refer to weight-based dosing)	
	Provide sedation or Pain Management as indicated:	
	▪ Fentanyl – weight-based dosing	
	▪ Morphine – weight-based dosing	
	▪ Midazolam (light dose) – dosing chart	
	Check blood glucose level. Administer Dextrose if indicated. Use caution as glucose level may be inaccurate. Medication Administration Weight-Based Dosing Chart.	

PROCEDURE: In-Field Termination

	AHA Guidelines recommends resuscitation for a minimum of 20 minutes.	
	At 20 minutes consider transporting the patient, continuing treatment, or discontinuing treatment.	
	When termination or transport is being consider:	
	▪ Availability of local resources (e.g., time for coroner to arrive if care is terminated vs time of transport)	
	▪ Trauma codes	
	▪ Scene is unsafe	
	▪ Family members present	
	▪ Age/condition of patient	
	▪ $EtCO_2$	
	▪ Obvious death at a crime scene	
	Contact Medical Direction for termination.	
	Any/all equipment that was used to treat the patient such as ET tubes, airway adjuncts, IVs, IOs etc should not be removed from the patient and be left in position that they were in at the time the patient was pronounced.	
	If termination is approved contact Coroner in the county of patient death. The Coroner should be contacted for all out of hospital deaths:	
	▪ Note time of death and confirm signs. Remain on scene until coroner, law enforcement, or other appropriate professional arrives.	
	▪ Do not transport patient who is dead at the scene unless other directed by the coroner.	
	▪ If termination occurs during transport do not cross county lines without approval of the coroner.	

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Key Considerations: If patient has Return of Spontaneous Circulation (ROSC) consider that hyperventilation reduces venous return and may cause hypotension. Additional causes of post-resuscitation hypotension include hypovolemia and pneumothorax, especially in the presence of positive pressure ventilation.

TREATMENT:

A. Perform 12-lead ECG as soon as possible. Evaluate/transmit the ECG for potential STEMI.
B. If ROSC occurs analyze pulse, blood pressure, and respiratory status. Acquire blood glucose level and administer Dextrose if indicated. Use caution as the blood glucose level may not be accurate.
C. Optimize ventilation and oxygenation:
   - Advanced Airway Management as indicated.
   - Titrate oxygen to the lowest level required to achieve $SpO_2 \geq$ 94-99%.
   - Monitor $EtCO_2$. Do not hyperventilate.
   - Optimal $EtCO_2$ is 35-45 (may need to adjust ventilation rate).
D. If hypotensive (systolic BP < 90 mmHG or MAP < 65) consider Cardiogenic Shock SMO. Maintain a systolic BP of >90 mmHG or MAP > 65.
   - Treat underlying dysrhythmias.
     - Bradycardia
     - Tachycardia
   - Fluid bolus for patients with clear lungs. May repeat one time.
   - Norepinephrine Drip.
E. If VF/pulseless VT was present consider administration of an anti-dysrhythmia medication:
   - If no anti-dysrhythmic given prior to ROSC administer Lidocaine or Amiodarone.
F. Provide sedation or Pain Management as indicated:
   - Fentanyl
   - Morphine
   - Midazolam (light dose)

Pediatric Patients

C. Fluid bolus for patients with clear lungs.
D. Contact Medical Direction for Norepinephrine Drip.
C. Follow pediatric dosing and age-appropriate treatment for medications listed above –
Dextrose Lidocaine Amiodarone Fentanyl Morphine Midazolam (light dose) Fluid Bolus

Cardiogenic Shock

Key Considerations: profound hypotension (systolic BP usually < 80 mmHg), pulmonary congestion (crackles), hypoxemia, acidosis, altered level of consciousness, sinus tachycardia or other dysrhythmias, cool, clammy, cyanotic, ashen skin, tachypnea.

TREATMENT:

A. Routine Medical Care.
B. Oxygen as indicated.
C. Cardiac monitor.
D. IV of Normal Saline.
E. Treat underlying dysrhythmias per appropriate SMO.
F. Fluid bolus may be considered in patients with clear lungs. Reassess patient lung sounds after administering 250 ml. May continue fluid bolus if lung sounds remain clear and systolic blood pressure < 90 mmHG.
G. Norepinephrine Drip.
H. Rapid transport.

Heart Failure/Pulmonary Edema

Key Considerations: Mental status, skin signs, perfusion status, respiratory rate (rhythm, pattern, and work of breathing), lung sounds, heart rate (rhythm and blood pressure trends), pedal edema, and JVD.

TREATMENT:

A. Routine Medical Care.
B. Position of comfort, usually upright.
C. Oxygen as indicated.
D. If patient is wheezing see Bronchospasm SMO.
E. Cardiac Monitor.
F. IV Access.
G. NTG for systolic >110 mmHG and heart rate less than 100 and greater than 60.
   - Avoid NTG for patient who has used a phosphodiesterase inhibitor (Viagra, Cialis as examples) in the last 48 hours.
   - For patients with **pulmonary edema** with MAP of 120 or systolic greater than or equal to 160 mmHG **double** the initial dose of NTG. If pressure continues to increase administer an additional **double** dose. Administer up to three (3) **double** doses. Contact Medical Direction for additional dosing.
   - For patients with **coronary artery disease** and a prescription of NTG may administer initial dose from EMS supply (offline Medical Direction). Contact Medical Direction for further dosing.
   - Reassess blood pressure. NTG (for patients who have not been prescribed NTG) may administer with an order from Medical Direction.
H. NTG (IV not required prior to 1st dose of NTG administration but IV should be started before subsequent doses of NTG if possible).
I. CPAP (Per CPAP Procedure Nitroglycerin tablets must be fully dissolved before resuming CPAP).
J. Consider Nitropaste for patients on CPAP after initial sublingual dose and/or prolonged transport.
K. If systolic BP < 90 mmHG, see Cardiogenic Shock above.

Pediatric Patients

Key Considerations: Cardiogenic shock is not typical in pediatric patients and is generally a result of congenital issues.

Treatment:

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above – Nitroglycerin is NOT recommended for pediatric patients.
C. For Cardiogenic Shock, contact Medical Direction for Epinephrine Drip.

Key Considerations: Evidence of hemodynamic instability in the presence of specific dysrhythmia:

- Hypotension with SBP
- Evidence of congestive heart failure: crackles, JVD, peripheral edema
- Chest pain suggestive of myocardial ischemia
- Evidence of neurologic dysfunction suggest of neurologic ischemia

PROCEDURE:

A. If patient is conscious and time permits sedate patient with Midazolam IV (light dose).
B. Turn on defibrillator.
C. Apply limb leads.
D. Place defibrillation pads on the chest and make sure leads to defibrillator are connected properly.
E. If paddles are used apply firm pressure.
F. Select appropriate energy level for clinical situation (use the following OR manufacturers' recommendation):
   - For irregular wide-complex tachycardia consistent with unstable polymorphic V-Tach treat with unsynchronized defibrillation dose.
G. Press synchronizer switch/button.
H. Assure machine is sensing R-wave.
I. Charge defibrillator.
J. CLEAR patient.
K. Press discharge button and hold button until delivery of shock occurs.
L. Reassess patient and proceed as indicated by patient condition.
M. If repeat shock is indicated increase to next energy level and ensure sync mode is activated.

Manufacturers' Recommendations:

Cardioversion Settings	1st	2nd	3rd	4th
Zoll Biphasic	100	150	200	200
Phillips MRX	100	150	200	200
Lifepak/Medtronic	100	200	300	360
Tempus	100	150	200	200

Defibrillation Settings	1st	2nd	3rd	4th
Zoll Biphasic	120	150	200	200
Phillips MRX	150	170	200	200
Lifepak/Medtronic	200	300	360	360
Tempus	150	170	200	200

*Or per other specific monitor manufacturer settings

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Key Considerations: Access only for patient who is critically ill or has an immediate need for fluids. Patient's type of central line/implanted port and compatibility of needle. Use a sterile kit. If central line or port does not flush easily do not force fluid through the port.

Equipment:

- Sterile kit (must have the sterile kit with specialized needle for Port-A-Cath – no substitutions may be made)

PROCEDURE:

Implanted Port Access (Port-a-Cath, etc.)

A. Open the dressing change tray package in a sterile manner.
B. Prepare the portal site for sterile needle insertion. Cleanse three times from the insertion site outward in a circular motion. Allow to air dry.
C. Remove the needle guard and flush the port-a-cath gripper needle set with Normal Saline.
D. Leave the syringe attached to the set with 10 ml of Normal Saline remaining in the syringe.
E. Stabilize the implanted port between two gloved fingers.
F. Grasp the gripper tab and insert the needle into the center of the port. Remove the gripper tab.
G. Pull back on the attached syringe and obtain a blood return from the port.
H. Insert the 10 ml of Normal Saline from the syringe.
I. Place a transparent dressing over the gripper base ensuring that a minimum 4 cm area surrounding the base is covered.
J. Remove the syringe (making sure the tube is clamped) and attach IV fluid. Open clamp. Infuse IV fluid as needed.

Central Line Access

A. Cleanse the central line catheter three times.
B. Attach 10 ml syringe filled with Normal Saline to an 18 G lumen on the center catheter line.
C. Pull back on the attached syringe to obtain blood return.
D. Flush with the 10 ml of Normal Saline.
E. Carefully remove the syringe from the central line (assure the central line is clamped).
F. Screw IV tubing into the central line.
G. Open clamp and infuse IV fluid as needed.

Key Considerations: Level of distress, skin color, diaphoresis, signs of CHF (peripheral edema, respiratory distress, distended neck veins), lung sounds, interpretation of ECG rhythm, assessment of pain, and vital signs.

Treatment:

A. Routine Medical Care.
B. Reassure patient and place in position of comfort, or supine if patient's systolic BP is < 90 mmHG.
C. Cardiac Monitor, 12-lead ECG, if available, as soon as possible.
D. If STEMI is identified notify the receiving hospital as soon as possible.
E. Medication Administration Chart.
F. Aspirin (even if the patient has taken their daily dose).
G. NTG for systolic >110 mmHG and heart rate less than 100 and greater than 60.
   - For EMTs first NTG is offline if patient has been prescribed NTG. If no previous prescription NTG is given after contacting Medical Direction.
   - NTG (IV not required prior to 1st dose of NTG administration but IV should be started before subsequent doses of NTG if possible).
   - Avoid NTG for patient has used a phosphodiesterase inhibitor (Viagra, Cialis, Levitra, Stendra, as examples) in the last 48 hours.
   - Reassess blood pressure between each dose of NTG.
H. IV Normal Saline at TKO rate – consider fluid bolus if hypotensive.
I. If discomfort persists pain may be treated per Pain Management SMO.
J. If hypotension develops consider fluid bolus - see Cardiogenic Shock SMO.

Pediatric Patients

Treatment:

A. Routine Pediatric Care.
B. Nitroglycerin is NOT recommended for pediatric patients.
C. Follow pediatric dosing and age-appropriate treatment for medications listed above – Aspirin Fluid Bolus

Key Considerations: Inspect the perineal area for fluid, bleeding, crowning (check during contractions), abnormal presentation (breech, extremity, cord). Spontaneous abortion of fetus (> 20 weeks) should be considered a Neonatal Resuscitation.

TREATMENT:

A. Routine Medical Care.
B. If birth is not imminent, place patient in left lateral position.
C. IV access (two lines).

Normal Delivery

A. Assist with delivery.
B. Sterile technique.
C. Control and guide delivery of baby's head. After the head delivers, use bulb syringe to suction the infant's mouth first, then nares, if needed. This is critical if meconium is present because aspiration causes significant lung injury.
D. Check for nuchal cord – slide over baby's head if possible. If tight, clamp and cut, unwind, and deliver baby quickly.
E. Proceed to control and guide delivery of the body.
F. Suction mouth first, then nares, if needed.
G. Clamp and cut cord – clamps should be placed at approximately 6 inches and 9 inches from baby, then cut between clamps.
H. Dry and wrap infant for warmth (especially the head); if possible, place with mother for shared body heat.
I. Note time of delivery.
J. Assess infant's status using APGAR score at 1 and 5 minutes post-delivery.
K. Evaluate mother post-delivery for evidence of shock due to excessive bleeding. (See Gynecological Emergency: Hemorrhage SMO).
L. Do not hasten delivery of placenta. Do not pull on cord. May deliver spontaneously enroute if necessary.

Pre-Partum Hemorrhage – near term

A. Assume placenta previa (painless bleeding) or abruption placenta (sharp pain).
B. Check for crowning but DO NOT attempt vaginal exam.
C. Treat for shock; see Obstetric Emergency: Hemorrhage SMO.
D. Do not pack the vagina with any material to stop bleeding. An externally placed dressing or pad should be used to absorb flow.

Post-Partum Hemorrhage

A. Fundal massage.
B. Immediate transport to nearest hospital.
C. Do not pack the vagina with any material to stop bleeding. An externally placed dressing or pad should be used to absorb flow.
D. For significant bleeding, tachycardia, and/or hypotension consider Tranexamic Acid (TXA).

TREATMENT (continued):

Breech Delivery

A. Contact Medical Direction for breech delivery.
B. Provide airway with gloved hand for baby if needed.
C. If unable to deliver, left lateral Trendelenburg position and rapid transport.

Prolapsed Cord

A. Left lateral Trendelenburg position, elevate hips, if possible or knee-chest position.
B. If cord is present, manually displace presenting part off cord and maintain displacement.
C. Rapid transport. Baby should not be delivered in the field.

APGAR SCORE:

Appearance (skin color)	0=Body and extremities blue, pale	1=Body pink, extremities blue	2=Completely pink
Pulse	0=Absent	1=Less than 100/min	2=100/min and above
Grimace (Irritability)	0=No response	1=Grimace	2=Cough, sneeze, cry
Activity (Muscle tone)	0=Limp	1=Some flexion of the extremities	2=Active motion
Respirations	0=Absent	1=Slow and irregular	2=Strong cry

Cardiac Arrest

A. Manage rhythm per appropriate cardiac arrest algorithm.
B. CPR with continuous manual left lateral uterine displacement using the two-handed method.
C. Ensure BVM ventilations are with high flow oxygen utilizing a two-person (if available) technique to prevent gastric inflation.
D. The gravid uterus must remain displaced during transport.

Medication Administration Chart

Key Considerations: Indications include congestive heart failure, pulmonary edema, COPD, asthma, pneumonia, near drowning, other causes of respiratory distress. **If a sublingual medication such as Nitroglycerin has been administered assure the tablet is fully dissolved prior to applying/resuming CPAP**.

Respiratory distress includes two or more of the following:

- Retraction or use of accessory muscles.
- Respiratory rate great than 25.
- Pulse oximeter less than 92%.

PROCEDURE:

A. Routine Medical Care with continuous pulse ox monitoring.
B. Refer to Pulmonary Edema SMO and Bronchospasm SMO as necessary.
C. 100% O_2 by non-rebreather mask while preparing for CPAP.
D. Apply CPAP per device recommendations. Patient should be conscious and able to maintain their own airway and if not, consider BVM.
E. Coach patient to place mask over their mouth and nose, then firmly attach mask.
F. For patients experiencing anxiety consider Midazolam (anxiety dose).
G. If wheezing perform in-line DuoNeb (Albuterol/ Ipratropium Bromide) via nebulizer, repeat with Albuterol only.
H. If patient deteriorates remove CPAP, ventilate with BVM, and consider airway insertion.

Key Considerations: time the patient has been immobilized and/or trapped, estimated time for extrication, trauma assessment, and pertinent medical history.

TREATMENT:

A. Routine Trauma Care.
B. Consider Spinal Restriction; see Spinal Restriction SMO.
C. ***For Suspension Trauma*** - Do not lay patient flat or allow patient to stand up, keep patient in a sitting position during transport for a minimum of at least 30 minutes.
D. ***For Crush Trauma*** – consider placing tourniquets in a ready position before lifting the weight from patient in the event of excessive bleeding.
E. Cardiac monitor as soon as possible.
F. Pain Management as needed see: Pain Management SMO.
G. IV Normal Saline.
H. Albuterol.
I. If hyperkalemia suspected due to abnormal ECG rhythm, peaked t-waves, or widened QRS Calcium Gluconate bolus.
J. If acidosis is suspected consider Sodium Bicarbonate.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above –
Albuterol Calcium Gluconate Sodium Bicarbonate Fluid Bolus

Sedation for Airway Management/Delayed Sequence Airway Management/Intubation –1.029

Key Considerations: *DSI may only be used by approved EMS providers. The EMSMD may give approval to agencies for sedation or sedation and paralytics. Approved providers or EMS agencies are determined by the EMSMD of their EMS System.*

Observe the patient's respiratory rate, depth of respirations, and skin color. Auscultate lung, fields, and assess LOC and GCS. Intubation/airway management may be indicated if assessment reveals on or more of the following:

- Respiratory rate < 10 or > 30.
- GCS of 8 or less (depressed sensorium or head injury).
- Burns that involve face or neck or suspected inhalation injury with airway damage and swelling/compromise.
- Acute or impending airway loss or inability to protect the airway (facial trauma with bleeding).
- Assess patient combativeness and spinal cord stability.

Ketamine is contraindicated in pregnant patients. Use caution in patients with any history of cardiac and/or thyroid disorder. Ketamine may cause hypotension and increased ocular pressure.

PROCEDURE:

Step 1: PREOXYGENATE

- Position the patient and pre-oxygenate with high flow oxygen by mask for 2-5 minutes; consider CPAP per SMO.
- Use BVM to provide respiratory support, if needed.

Step 2: PREPARE

- Prepare equipment:
  - Suction, ET tube (at least two sizes), stylet, Bougie, functioning laryngoscope
  - Have Surgical Cricothyroid equipment readily available
  - IV Normal Saline
  - Cardiac monitor
  - Oxygen saturations
  - Capnography

Step 3: PRE-MEDICATION (DSI Weight Based Dosing Chart)

- Lidocaine for the patient with suspected hyperkalemia or increased cranial pressure.
- Atropine for persistent bradycardia.

Step 4: SEDATION/INDUCTION (DSI Weight Based Dosing Chart)

- Sedation: Etomidate or Midazolam (heavy dose).
- (**DSI approved agencies ONLY** may use Ketamine. Use Ketamine IV according to DSI Dosing)
- Continue pre-oxygenation

If provider/EMS agency is not approved for paralytics, skip to Step 6

If provider/EMS agency is not approved for paralytics, skip to Step 6

STEP 5: PARALYSIS (for approved EMS Agencies only), then INTUBATION (DSI Weight Based Dosing Chart)

- Succinylcholine (alternatives: Rocuronium or Vecuronium)
- If fasciculation occurs wait for them to stop then assess for apnea, jaw relaxation, and decreased resistance to bag / mask ventilations indicating that the patient is sufficiently relaxed to proceed with intubation.
- Intubate, check tube placement, secure tube, and continue to assist respirations.
- Patient with protected airway may receive additional dosing.
- If an extended transport time is probable additional doses of sedation may be required.

STEP 6: INTUBATION, then airway management

- Insert laryngoscope and visualize glottic opening.
- Suction, if necessary.
- Pass ET tube then inflate cuff.
- Remove stylet, ventilate with 100% oxygen.
- Confirm tube placement; see Airway Management SMO.

STEP 7: POST-INTUBATION

- Pain Management as indicated.

Key Considerations: Altered level of consciousness, combativeness, cold/clammy skin, seizure, dizziness, weakness, odor of breath, blood glucose level.

TREATMENT:

A. Routine Medical Care.
B. Determine blood glucose level.
C. If the patient is hypoglycemic and has an insulin pump work with the patient or available caregivers to turn the pump off.
D. If adult patient with glucose <80 mg/dl **and/or** symptomatic:
   - Oral Glucose if patient is alert with intact gag reflex.
   - Establish IV of Normal Saline at TKO rate.
   - If patient unresponsive or without gag reflex give Dextrose. Medication Administration Weight-Based Dosing Chart.
   - Glucagon if patient has altered mental status cannot follow directions and limited or no gag reflex. If unable to establish IV give Glucagon IM.
E. For suspected ketoacidosis run fluid bolus. Repeat as indicated.
F. Reassess patient after medication is given. If no change in condition contact Medical Direction for further orders.

Pediatric Patients

A. Routine Pediatric Care.
B. If infant/child patient (greater than one month old) with glucose <60 mg/dl **and/or** symptomatic follow pediatric dosing for medications listed above.
C. If infant (less than one month old) with glucose of <45 mg/dl **and/or** symptomatic follow neonate dosing for medications listed above.
D. Dextrose should be used in patients under two years of age. If D-50 must be used as an alternative it must be diluted prior to administration.
E. Follow pediatric dosing and age-appropriate treatment for medications listed above –
Glucagon Oral Glucose Fluid Bolus

Key Considerations: Assessment of LOC and ABC's, significant mechanisms of injury/nature of illness, evidence of head or neck trauma and other associated injuries (consider Spinal Restriction), neurologic status, respiratory crackles or signs of pulmonary edema/respiratory distress, mental status (AVPU), airway patency, ventilatory status (rate and depth of respirations, work of breathing), oxygenation, and circulatory status.

TREATMENT:

A. Routine Medical Care.
B. If pulseless, start high quality CPR per AHA guidelines.
C. AED or Cardiac Monitor - treat per appropriate SMO.
D. If hypothermic, see Hypothermia SMO.
E. Evaluation for possibility of neck injury, see Spinal Restriction SMO.
F. If other trauma is suspected refer to appropriate trauma SMO or Routine Trauma Care.
G. BLS/ALS maneuvers to remove Foreign Body Airway Obstruction, if indicated.
H. Reassess BLS/ALS methods to maintain airway patency and good ventilation.
I. IV access.

SCUBA Injury

Key Considerations: Any incident while using SCUBA equipment, or breathing in a pressurized environment or altitude chamber, may result in sudden depressurization. Consider: fatigue, vertigo, focal weakness, visual disturbances, speech difficulty, marbled rash, numbness, tingling, confusion, seizure, and/or cardiac arrest.

TREATMENT:

A. Remove SCUBA equipment.
B. Follow treatment above for drowning/near-drowning, as appropriate.
C. Routine Medical Care.
D. Routine Trauma Care, as appropriate.
E. Airway Management as appropriate. Ensure oxygen saturation between 94-99%.
F. Cardiac Monitor.
G. IV access.
H. Consider ALS Intercept.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric /age-appropriate treatment for medications listed above.

Extremely Agitated Patient/Hyperactive Delerium (formerly Excited Delerium) –1.032

Key Considerations: This is not a routine restraint procedure. Pay close attention to the symptoms listed below. Ketamine is contraindicated in pregnant patients. Use caution in patients with any history of cardiac and/or thyroid disorder. Ketamine may cause hypotension and increased ocular pressure. In situations where the scene/patient is determined to be unsafe please refer to the Violent /Unsafe Patient or Scene SMO.

Physical signs include unusual agitation or excitement, profuse sweating, high body temperature, skin discoloration, foaming at the mouth, uncontrollable shaking and/or respiratory distress.
Behavioral signs include intense paranoia, extreme agitation, hallucinating, delusional screaming for no apparent reason, aggression toward inanimate objects (such as glass), naked or partially disrobed, resists violently during detainment, and diminished sense of pain.

N – Patient is **naked** and sweating from hyperthermia
O – Patient exhibiting violence against **object**, especially glass
T – Patient is **tough** and unstoppable, with superhuman strength and insensitivity to pain
A – Onset is **acute** (e.g., witness says the patient "just snapped")
C – Patient is **confused** regarding time, place, purpose, and perception
R - Patient is **resistant** and will not follow commands to desist
I – Patient's speech is **incoherent**, often with load shouting and bizarre content
M – Patient exhibits **mental** health conditions or makes you feel uncomfortable
E – EMS should request early backup and rapid transport to the ED

TREATMENT:

A. Have enough provider/police on the scene to handle the situation.
B. Routine Medical Care.
C. Involve police to restrain patient when needed.
D. Use restraints if the patient is a threat to himself or others; see Restraints Procedure.
E. Although it may be difficult to assess the patient the attempt to assess should be made prior to sedation and thoroughly documented. Violent/Unsafe Scene or Patient SMO.
F. Sedate the patient by administering Ketamine **OR** Midazolam (heavy dose).
G. Attempt to obtain vital signs, pulse oximetry, Capnography, and body temperature and repeat per Routine Medical Care SMO.
H. If hyperthermia signs are present, cool patient by applying cooling packs to neck, axilla, and groin.
I. Once patient is calm establish IV access with fluid rate at TKO.
J. Apply cardiac monitor to assess rhythm and rate.
K. Obtain 12 lead ECG. Address and treat signs of hyperkalemia:
   - Albuterol Nebulizer (*not* Duo-Neb)
   - Sodium Bicarbonate
   - Calcium Gluconate IV/IO
   - Fluid bolus to hasten the reversal of metabolic acidosis and prevent potentially life-threatening levels of potassium.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above –
Midazolam Albuterol Sodium Bicarbonate Calcium Gluconate Fluid Bolus

Medication Administration Chart
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Key Considerations: Attempt to estimate vaginal blood loss (number of pads, towels, or other absorbent items used, or area of pooled blood). Visualize the perineal area if necessary to confirm bleeding. Do not perform a digital inspection. Consider pre-eclampsia or eclampsia if patient has blurred vision, spots before the eyes, headache, seizures, or hypertension. Check for hyper-reflex and/or fluid collection in the lower extremities (edema).

TREATMENT:

A. Routine Medical Care.
B. Suspected trauma, consider Spinal Restrictions.
C. Care for other Trauma as indicated in appropriate trauma SMO.
D. Place patient in position of comfort.
E. IV access with Normal Saline and consider a fluid bolus if SBP <100 mmHG and patient is symptomatic (dyspneic, tachycardic, altered mental status).
F. Apply cardiac monitor.
G. Control bleeding with pad or bulky dressing applied externally.
H. For significant bleeding consider Shock.
I. For significant bleeding, tachycardia, and/or hypotension consider Tranexamic Acid (TXA).
J. Transport as soon as possible.

Key Considerations: Patient activity, medications (tranquilizers, alcohol, diuretics, antidepressants, amphetamines, cocaine, and other illicit drugs), chest pain, cramps, headache, orthostatic symptoms, nausea, and weakness.

Heat Cramps/Heat Exhaustion

Key Considerations:

- Temperature – usually normal to slightly elevated.
- Mental Status – alert to slightly confused.
- Skin – may be warm or cool to touch (for heat exhaustion – usually hot to touch).
- Ability to perspire – present or absent?
- Neuro exam – normal except for muscle cramps (usually legs) or weakness.

TREATMENT:

A. Routine Medical Care.
B. Note patient's temperature if possible.
C. Remove excess clothing. Apply cold packs at neck, axilla, and groin, if needed.
D. Move patient to cool area—protect patient from shivering by providing a light covering. Consider less aggressive cooling measures if patient begins shivering. Consider Midazolam (light dose) for excessive shivering.
E. Give cool/cold liquids PO as tolerated.
F. Cardiac monitor.
G. IV Normal Saline.
H. Consider glucose check; if hypoglycemic, see Diabetic Emergencies SMO.
I. Stretch cramped muscles to reduce pain.
J. Oxygen as indicated.

Heat Stroke

Key Considerations:

- Temperature – Core temperature usually 104 degrees Fahrenheit or greater.
- Mental Status – Altered.
- Skin signs – Usually flushed, hot; may or may not be moist if exercise induced.
- Ability to perspire—present or absent?
- Neuro exam - May have active persistent Seizures.

TREATMENT:

A. Routine Medical Care.
B. Note patient's temperature if possible.
C. Remove excess clothing. Apply cold packs at neck, axilla, and groin.
D. Move patient to cool area—protect patient from shivering by providing a light covering. Consider less aggressive cooling measures if patient begins shivering. Consider Midazolam (light dose) for excessive shivering.
E. Spray or sprinkle tepid water and use fan to cool.
F. Cardiac monitor.
G. IV access with large bore IV Normal Saline.
H. If hypotensive (SBP <90 mmHG or signs of poor perfusion): fluid bolus (reassess and repeat if indicated).
I. Continue COOLING measures during transport.
J. Consider glucose check; if hypoglycemic, see Diabetic Emergencies SMO.
K. Transport to closest facility.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above –

Midazolam (light dose) Fluid Bolus Medication Administration Chart

Key Considerations: Classified as Mild (CBT of 96.8º F to a CBT of 93.2º F [36-34º C]), Moderate (CBT of 93.1º to 86º F [30ºC]), and Severe (CBT of < 86.0º F [<30ºC]).

Mild/Moderate Hypothermia

Key Considerations: With mild symptoms patient may exhibit impaired judgment, possible slurred speech, shivering and or evidence of local injury; blanching, blistering, erythema of extremities, ears, nose.

Moderate hypothermia may include mild symptoms and respiratory depression, myocardial irritability, bradycardia, and/or atrial fibrillation.

TREATMENT:

A. Routine Medical Care.
B. Note patient's temperature if possible.
C. Remove all clothing: dry patient, cover with blankets to prevent further heat loss.
D. Maintain warm environment.
E. IV access.
F. Encourage transport for evaluation of injuries/ hypothermia.

Severe Hypothermia

Key Considerations: Cold skin, skin color changes, altered mental status, no shivering, fixed and dilated pupils, weak, thready pulse, possible cardiac arrest and/or spontaneous ventricular fibrillation.

TREATMENT:

A. Assess breathing and pulse for full 30-45 seconds. Consider obtaining an ECG (a minute in length) to assist in determining if patient is pulseless. If organized electrical activity is noted thoroughly search for a pulse.
B. If not breathing and/ or pulseless, start CPR.
C. Apply AED or cardiac monitor: If the patient is in V-fib or pulseless V-Tach, defibrillate up to a maximum of three shocks.
D. Ensure adequacy of CPR.
E. Obtain IV access—administer Normal Saline.
F. Follow appropriate ACLS SMOs with one administration of each medication. Do not repeat until patient is warmed. Medications are usually not effective with temperature < 89º F. For temperatures > 89º F medications should be given at standard doses but longer intervals between doses. This prevents toxic accumulation of the drug. Contact Medical Direction for further assistance in medication administration in these patients.
G. Apply warm packs to central pulse areas (carotid, axilla, femoral). Avoid peripheral warming.
H. Rapid transport.

*** TRIPLE ZERO/INFIELD PRONOUNCEMENT CAN BE DIFFICULT TO CONFIRM IN THE FIELD. CONTACT MEDICAL DIRECTION FOR THESE PATIENTS ***

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above – Fluid Bolus

Intranasal Medication – Mucosal Atomization Device (MAD) – 1.038

Key Considerations:

- The *ideal* volume for intranasal administration is 0.2-0.3 ml and the maximum recommended volume per nostril is 1 ml. If dose is greater than 0.5 ml, apply it in two separate doses allowing 5-10 minutes apart for each dose. The spacing allows the former dose to absorb.
- The MAD® atomizer has a dead space of 0.1ml, so particularly for doses less than 0.9 ml be sure to take the dead space into account by adding 0.1 ml to the final volume (i.e., volume of dose + 0.1 ml).

Contraindications:

A. Epistaxis (nosebleed)
B. Nasal Trauma
C. Nasal septal abnormalities
D. Nasal congestion / discharge

Medication that may be used via MAD device and dosing:

Naloxone – Adults use 2 mg. Pediatric, use IV dose.
Midazolam – See weight-based chart for IN.
Fentanyl * - See weight-based chart for IN.
Fentanyl is the preferred analgesic agent for intranasal delivery due to absorption and bioavailability

PROCEDURE:

A. Attach MAD tip to syringe:
   - Intranasal doses are listed in the Medication Administration Chart.
   - Do not exceed 0.5 – 1.0 ml per nostril.
B. Remove air from syringe.
C. Place MAD tip into nostril.
D. Timing with respirations, depress the plunger rapidly when patient fully exhales and before inhalation.
E. Evaluate the effectiveness of the medication, if desired effect has not been achieved, consider repeating and/or changing route of administration.

Pediatric Patients

Follow pediatric dosing and age-appropriate treatment for medications listed above –
Midazolam (light dose) Fentanyl Naloxone

Key Considerations:

Indications

Peripheral IV is unavailable and patient exhibits one or more of the following:

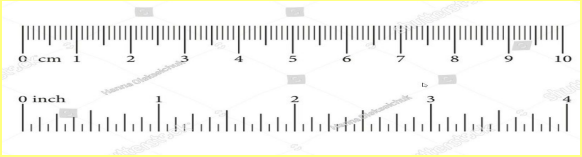
- Cardiac arrest
- Hemodynamic instability
- Patient is in immediate need of medication and/or fluids

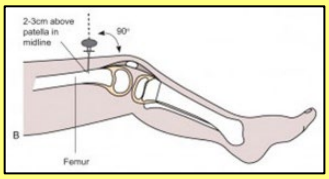
Locating Appropriate Insertion Sites

Proximal Tibia – Insertion site is approximately 2 cm below the patella and approximately 2 cm medial to the tibial tuberosity (depending on patient anatomy).

Proximal Humerus - Insertion site is located directly on the most prominent aspect of the greater tubercle. Ensure that the patient's hand is resting on the abdomen and the elbow is adducted (close to the body). Slide thumb up the anterior shaft of the humerus until you feel the greater tubercle – this is the surgical neck. Approximately 1 cm (depending on patient anatomy) above the surgical neck is the insertion site. Proximal humerus should not be used in pediatric patients unless the landmarks can be clearly identified.

Distal Femur - Insertion site approximately 4 cm proximal to the patella, midline and perpendicular. Inserting the IO may require additional time depending on bone density.





Pain Management

A. IO infusion for conscious patients has been noted to cause severe discomfort.
B. Ensure patient has no contraindication for Lidocaine (e.g., third degree heart block).
C. Lidocaine 2% may be administered to conscious patient for pain control before continuous IO infusion.
Adult patients - slowly administer 20-40 mg Lidocaine 2%.

PROCEDURE:

A. BSI/Universal Precautions.
B. Prepare equipment to be used.
C. Identify land for venipuncture (see above), preferably the anteromedial aspect of the proximal tibia and approximately 1 to 3 cm below the tibial tuberosity.
D. Cleanse the puncture site.
E. Insert IO needle per manufacturer's recommendations.
F. Remove the stylet.
G. Flush the intraosseous needle and observe for infiltration.
H. Attach the IV and adjust the flow rate. Note IO may not run by gravity. Pressure/pressure bag may be needed.
I. Secure the IO needle.
J. Following the administration of a medication, 10 ml of saline should be administered to expedite absorption.
K. Monitor the site and attempt alternative IV access as soon as the patient's condition allows.

Pediatric Patients

A. See notes above regarding insertion sites.
B. For pain management slowly administer 0.5 mg/kg Lidocaine 2% (not to exceed 20 mg).

Medication Administration Chart
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Key Considerations: Patient is unconscious and cannot be ventilated despite attempts to relieve the obstruction. Patient's skin color may be pale, cyanotic, and/or ashen. There may be possible facial trauma restricting normal intubation as an option. This method of ventilation can be used for 20-30 minutes. If patient's transport time will exceed this time frame or if the patient shows signs of hypoxia consider Surgical Cricothyroidotomy.

PROCEDURE:

A. Unless contraindicated by trauma place a small roll under patient's shoulder to slightly extend the neck.
B. Locate cricothyroid membrane by tilting patient's head back and palpating for the V-notch of the thyroid cartilage (Adam's Apple).
C. Prepare the skin with antiseptic solution and maintain aseptic technique.
D. Stabilize the thyroid cartilage between the thumb and middle finger of one hand.
E. Press index finger of same hand between the thyroid and cricoid cartilage to identify cricothyroid membrane.
F. Using index finger as a guide, rest middle or ring finger of hand holding needle/cannula on the skin to stabilize and prevent needle from penetrating membrane too deeply.
G. Make a puncture in the midline with a smooth motion.
H. Insert cannula at a 45-60° angle with tip toward patients' foot.
I. After entry into trachea, begin removing needle and advancing cannula into place.
J. Advance cannula into trachea at a 45° angle with tip toward patient's feet; care must be taken not to kink the catheter when removing the needle and syringe.
K. Draw back on the syringe to aspirate an air bubble to confirm placement in the trachea.
L. Tape cannula securely in place and hold the hub of the catheter to prevent accidental dislodgement while providing ventilation.
M. Attach 3.0 mm ETT adaptor to the end of the catheter.
N. Ventilate with 100% oxygen using the pediatric BVM via the ETT adaptor; allow for exhalation after each ventilation. The ratio of inhalation to exhalation should be 1:4 (a second needle can be inserted into the membrane to aid in exhalation).
O. Add Capnography.
P. Confirm placement.
Q. Further check airway placement by ventilating and watching chest rise as well as listening for air exchange at site and observing patient for improved color and respiratory condition.
R. Continue to assess for adequate air exchange.

Pediatric Patients

A. Assess airway patency and need for needle cricothyrotomy as necessary.
B. If transport time will exceed 20-30 minutes consider Surgical Cricothyrotomy.

Key Considerations: Signs and symptoms of a patient suffering a tension pneumothorax or hemothorax may include: restlessness and agitation; severe respiratory distress; increased airway resistance on ventilating patient; JVD, abdominal rigidity; tracheal deviation; subcutaneous emphysema; unequal breath sounds and/or absent on the affected side; hyper-resonance to percussion on the affected side; hypotension; cyanosis; and, traumatic cardiac and/or respiratory arrest.

Equipment:

A. Adult – 14 or larger gauge 3.25" angiocath
B. 12-20 ml syringe
C. Antiseptic solution

PROCEDURE:

A. Identify probable pneumothorax or hemothorax. Observe Universal Precautions. Use sterile gloves if possible.
B. Locate the 2nd intercostal space in the midclavicular line or the 5th intercostal space in the mid-axillary on the side of the pneumothorax.
C. Cleanse the site with antiseptic solution and maintain as much of a sterile field as possible.
D. Attach a 12-20 ml syringe to the appropriate angiocath or system approved decompression needle.
E. Puncture the skin perpendicularly, just superior to the appropriate rib, into the thoracic cavity. A "pop" should be felt as well as a "rush of air" along with the plunger of the syringe moving outward.
F. Advance the catheter.
G. Remove the needle and syringe.
H. Secure the catheter in the chest wall with a dressing and tape.
I. If tension reoccurs repeat procedure. Leave all needle catheters in place even if the attempt did not result in clinical improvement.
J. If a decompression needle becomes dislodged replace it only if the patient condition warrants it.
K. Monitor the patient closely, continue to reassess, and continue trauma care. Rapid transport.

Pediatric Patients

Key Considerations:

Equipment:

- Pediatric – 18 gauge 1.88" angiocath

Key Considerations:

A. If just born 30 second cardiopulmonary assessment:
   - Airway, breathing (respiratory rate, quality, work of breathing, presence of cry)
   - Circulation (skin color, temperature, pulses, capillary refill, mental status)
   - APGAR Score
B. If infant less than 30 days same arrest intervention as just born.
C. Airway interventions and keep baby warm.

TREATMENT:

Meconium Staining Noted:

If thick meconium or secretion present and signs of respiratory distress thoroughly suction mouth, then nose.

No Meconium Staining Noted (or Meconium Staining addressed as stated above):

A. Assess patient, dry immediately if wet and stimulate.
B. Assess airway patency. Secure the airway.
C. Suction mouth then nose only if respiratory depression.
D. Cover head with stocking cap or equivalent.
E. Clamp and cut the cord if necessary.
F. Evaluate respirations. Assist with BVM ventilation with 40-60 breaths / min with 100% oxygen for severe respiratory depression. Use a mask with 100% oxygen for mild distress.
G. Check heart rate at base of umbilical cord or auscultate precordium as indicated. Further treatment depends on heart rate.
H. If heart rate less than 60 bpm, continue assisted ventilations and begin chest compressions at 120 min.
I. If heart rate is 60-80 bpm then continue ventilations. If poor perfusion and no improvement after 30 seconds of ventilations with 100% oxygen, consider compressions at 120 min.
J. If hearts rate 80-100 bpm. Give 100% oxygen by BVM. Reassess heart rate after 15-30 seconds.
K. If heart rate greater than 100 bpm, check skin color. If peripheral cyanosis give oxygen by mask.
L. If unable to ventilate effectively with BVM consider supraglottic device.
M. Confirm proper airway device placement and ventilate 30 times a minute with continued chest compressions.
N. Airway adjuncts per Airway Management SMO.
O. Establish an IV or IO and give Epinephrine (concentration 1 mg/10 ml) if heart rate below 60; reassess heart rate and respirations; may repeat in 3-5 minutes if indicated.
P. If hypovolemia suspected, Normal Saline 10 ml/kg over 5 to 15 minutes.
Q. Continue to reassess respiratory rate and heart rate while enroute.
R. Assess blood glucose level. If indicated, treat per Diabetic Emergencies SMO.

Key Considerations: General appearance of patient, age, mental status (AVPU), skin condition, perfusion status, respiratory rate, breathing rhythm and pattern (patient positioning, such as tripoding), and blood pressure. Ketamine is contraindicated in pregnant patients. Use caution in patients with any history of cardiac and/or thyroid disorder. Ketamine may cause hypotension and increased ocular pressure. The signature and license number of the provider administering medication is required. A second signature is required from a second crew member of ED RN for witnessing discarded or unused medication.

Pain Assessment (**O-P-Q-R-S-T**):

- **Onset –** when did the pain start?
- **Provokes** - what brings on the pain?
- **Quality** - what does it feel like?
- **Region / Radiation** where is it? Where does it go?
- **Severity** - how bad is it? (Rated on a consistently used scale) (1-10 grading scale)
- **Timing** - when did it start/end? How long does it last? How long have you had it?

TREATMENT:

A. Perform patient assessment and record vital signs, level of consciousness and oxygen saturation.
B. Reassure and comfort patient.
C. Provide care based on other SMOs related to the patient's presenting complaint.
D. Place the patient in position of comfort. If risk of spine injury, institute spinal restrictions.
E. Coach the patients breathing – calm, deep inhalations and slow relaxed exhalations.
F. Distract patient or encourage them to focus on something other than their injury or pain.
G. IV with Normal Saline at TKO.
H. Consider isopropyl alcohol wipes or Ondansetron prior to narcotic administration (EMTs – Ondansetron for adults only).
I. **Administer for mild to moderate pain**:
   - Consider Tylenol.
   - Consider contraindications for Ketorolac which includes patients with bleeding disorders, active peptic ulcers, or patients with allergies to aspirin or NSAIDS.
   - Consider Ketorolac for mild to moderate pain or in patients with a known history of narcotic abuse and/or treatment program for narcotic abuse.
   - Consider Ketorolac for pain from gallstones or kidney stones.
   - Repeat assessment, including vital signs, level of consciousness, oxygen saturation, and effect after each dose.
J. **For moderate to severe pain** administer Morphine, Fentanyl or Ketorolac if patient's systolic BP ≥ 100 mmHg and respirations ≥ 12 per minute. Titrate to effect per Medication Administration Chart. Contact Medical Direction if higher dose is required.
   - Ketamine IV/IO/IM for severe pain such as pelvic fracture, significant burns, multiple long bone fractures, and entrapped patients.
   - Repeat assessment, including vital signs, level of consciousness, oxygen saturation, and effect after each dose.
   - Naloxone IN, IV or IM for suspected opiate overdose with respiratory depression consisting of respirations < 12, very shallow respirations, signs of shock, and/or patient is unable to protect airway (titrate IV Naloxone to overcome respiratory depression and repeat as needed).
K. Paramedics may consider the following as an alternative to the medications listed above:
   - Midazolam (light dose) for musculoskeletal type pain.

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Pediatric Patients

Key Considerations: Consider use of the FLACC Scale for patients 0-7 years of age.

TREATMENT:

A. Perform patient assessment and record vital signs, level of consciousness and oxygen saturation.
B. Reassure and comfort patient.
C. Provide care based on other SMOs related to the patient's presenting complaint.
D. Place the patient in position of comfort. If risk of spine injury, institute spinal restrictions.
E. Coach the patients breathing – calm, deep inhalations and slow relaxed exhalations.
F. Distract patient or encourage them to focus on something other than their injury or pain.
G. IV with Normal Saline at TKO.
H. Consider isopropyl alcohol wipes or Ondansetron prior to narcotic administration (EMTs – Ondansetron for adults only).
I. Administer for mild to moderate pain:
- Consider Tylenol.
- Consider contraindications for Ketorolac which include patients with bleeding disorders, active peptic ulcers, or patients with allergies to aspirin or NSAIDS. Ketorolac is not recommended for pediatric patients less than one year old.
- Consider Ketorolac for mild to moderate pain or in patients with a known history of narcotic abuse and/or treatment program for narcotic abuse.
- Consider Ketorolac for pain from gallstones or kidney stones.
- Repeat assessment, including vital signs, level of consciousness, oxygen saturation, and effect after each dose.

J. For moderate to severe pain administer Morphine, Fentanyl or Ketorolac if patient's systolic BP > 100 mmHg and respirations > 12 per minute. Titrate to effect per Medication Administration Chart. Contact Medical Direction if higher dose is required.
- Repeat assessment, including vital signs, level of consciousness, oxygen saturation, and effect after each dose.
- If signs of narcotic over dosage develop (i.e., respiratory depression, significantly diminished mental status) administer Naloxone.

K. Paramedics may consider the following as an alternative to the medications listed above:
- Midazolam (light dose) for musculoskeletal type pain.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose.

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

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Pediatric ALTE/BRUE Event – 1.044

Definition: A Brief Resolved Unexplained Event (BRUE) or Apparent Life-Threatening Event (ALTE) is an event in an infant < 2 years old lasting less than one minute. Underlying causes can include pneumonia, bronchiolitis, seizure, sepsis, intracranial hemorrhage, and/or meningitis and characterized by one or more of the following:

A. Cyanosis or pallor.
B. Absent, decreased, or irregular breathing.
C. Marked change in muscle tone (hypertonia or hypotonia).
D. Altered level of consciousness.
E. Choking or gagging not associated with feeding or a witnessed foreign body aspiration.
F. Seizure-like activity.
G. Assess for signs of hypoglycemia - patient with glucose <60 mg/dl (neonates <45) **and/or** exhibiting signs of hypoglycemia.

Key Considerations: ALTE/BRUE is a group of symptoms but not a specific disease. Consider overdose, hypoglycemia, trauma (accidental and non-accidental) and/or seizure.

TREATMENT:

A. Routine Pediatric Care.
B. Follow Airway Management SMO, as indicated.
C. Obtain and document any complications of pregnancy, birthdate and gestational age at birth, fever or recent infection, prior ALTE/BRUE episodes, and underlying medical conditions.
D. Place on cardiac monitor. Follow appropriate SMO:
    - Bradycardia
    - Tachycardia
E. Assess blood glucose; see Diabetic Emergencies SMO.

Pediatric Respiratory Distress/Failure/Obstruction/Arrest – 1.045

Key Considerations: Rapid airway assessment and intervention is imperative in the prehospital setting. Several conditions manifest as respiratory distress in children. These include upper and lower foreign body airway obstruction, upper airway disease (croup, epiglottitis), and lower airway disease (asthma, bronchiolitis, and pneumonia). Respiratory failure may be a sign of toxic ingestion or anaphylaxis.

- Abdominal breathing
- Absent breath sounds
- Apnea or bradypnea/ tachypnea
- Choking
- Cyanosis- central
- Deteriorating level of consciousness
- Drooling with history of fever, sore throat
- Grunting
- Intercostal, subcostal, supraclavicular retractions
- Nasal flaring
- Pulse oximetry
- Stridor
- Tachycardia/bradycardia
- Tripod position

TREATMENT:

A. Routine Pediatric Care
B. For special needs, including patients with tracheostomies and ventilators refer to Special Needs Patients.

Foreign Body Airway Obstruction

A. Relieve obstruction per AHA guidelines.
B. If BLS measures fails, proceed to Magill Forceps and Direct Laryngoscopy for purposes of removing foreign body.

Upper Airway – (*Stridor, Respiratory Distress, Inadequate/Ineffective Breathing*) – Racemic Epinephrine.

Lower Airway - Bronchospasm *(Wheezing)* - Refer to Bronchospasm/Asthma SMO.

Adequate or Inadequate Respiratory Effort:

A. Airway Management.
B. Consider potential cause and refer to appropriate SMO:
   Anaphylaxis
   Toxin/Poisoning
C. Cardiac Monitor.
D. IV Access.
E. Consider Shock, if appropriate.
F. Medication Administration Chart.
G. Contact Medical Direction for Epinephrine (concentration 1 mg/1 ml) and/or Naloxone administration, if appropriate.

Inadequate Chest Rise or Respiratory Arrest:

A. Airway Management.
B. Begin CPR if no pulse or heart rate <60 with poor perfusion.

Cardiopulmonary Arrest:

A. Asystole/PEA if appropriate.
B. Bradycardia for heart rate <60.
C. Tachycardia, if appropriate.
D. V-Fib/V-Tach, if appropriate.
D. ROSC, if appropriate.

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Key Considerations: More than two-thirds of postpartum deaths after discharge are either moderately or substantially preventable. Identifying a postpartum patient early is crucial for proper diagnosis and treatment. Multiple Region 1 hospitals have implemented the "Orange Bracelet" Post Birth Alert System to draw attention to postpartum patients who may develop complications following discharge from the hospital.

PROCEDURE:

A. Each postpartum patient will receive an orange band at discharge. Patients are encouraged to wear it for six weeks.

B. If EMS providers respond to an emergency call and the patient is wearing an orange band, consider the following targeted assessments related to postpartum complications:
   1. Preeclampsia/Eclampsia
   2. Sepsis
   3. Perinatal Depression
   4. Substance Use Disorders
   5. Cardiomyopathy or Venous Thromboembolism

C. Provide appropriate treatment per the appropriate SMO. Consider transport upgrade if appropriate.

D. Provide an early alert to the receiving hospital stating the patient is wearing an "Orange Bracelet" and provide information regarding how many days/weeks since the patient delivered the baby.

E. Document the alert on the Patient Care Report.

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Key Considerations: Abnormal weight gain, edema of legs, arms, and face, visual disturbances, seizures/coma, blood pressure > 140/90 mmHG, presence/absence of fetal heart tones (if possible), and/or fetal movement as reported by the mother.

Pre-eclampsia/Eclampsia may occur both pre and post-partum. Most cases of post-partum pre-eclampsia occur within 48 hours following childbirth but may develop up to six weeks after childbirth.

TREATMENT:

A. Prepare for rapid transport.
B. Routine Medical Care.
C. Oxygen as indicated.
D. Seizure precautions:
   - GENTLE HANDLING. Minimal CNS stimulation. Do NOT check pupillary reflexes.
   - Minimize external stimulation - avoid sirens, bright lights, and loud music if possible.
E. Position patient on left side or raise right side of backboard and transport as soon as possible.
F. IV access.
G. If seizure occurs, protect patient from harming self; if possible, place nasopharyngeal airway as needed. See Seizure/Status Epilepticus.
H. If seizure occurs, administer Midazolam (heavy dose).
I. Magnesium Sulfate (see Magnesium Sulfate Administration Chart) after initial dose of Midazolam (heavy dose) for seizure.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above – Midazolam (light dose)
C. Pediatric dosing for Magnesium Sulfate not recommended without a pump. Contact Medical Direction for orders. See Magnesium Sulfate Pediatric Dosing if approved.

Key Considerations: After managing all threats to life proceed with care by providing emotional support to the victim. The victims may behave in a variety of ways: calm and seemingly in control of their emotions; agitated; apprehensive; distraught; and/or tearful. Do not leave the victim alone. When possible, and EMT of the same gender should be present for any required medical care.

TREATMENT:

A. Routine Trauma Care where indicated or Routine Medical Care.
B. Victims of sexual assault should not be questioned in detail about the incident.
C. Limit the history to elements necessary to provide emergency medical care.
D. Consider Shock, if appropriate.
E. Take steps to preserve any evidence:
    - Do not allow the patient to urinate or defecate (if possible), douche, or bathe.
    - Do not remove evidence from any part of the body that was subjected to sexual contact.
    - Notify law enforcement personnel as soon as possible.
    - Be aware there will be a "chain of evidence" with specific requirements of proof.
F. For suspected internal bleeding, tachycardia, and/or hypotension consider Tranexamic Acid (TXA).
G. If possible, transport to the closest Sexual Assault Nurse Examiner (SANE) hospital.

Pediatric Patients

A. Refer to Abuse/Neglect: Child SMO
B. Routine Pediatric Care.
C. Administration of TXA for children 12 and older.

I. Purpose: The purpose of this document is to provide guidelines for patient consent and refusal of evaluation, treatment, and/or transport.

II. Definitions:

A. **Decision-Making Capacity (or Decisional Capacity)**: The ability to understand and appreciate the nature and consequences of a decision regarding medical treatment and the ability to reach and communicate an informed decision.

1. **Tests of Decisional Capacity**: Whether a patient understands and appreciates their condition, the nature of the medical advice given, and the consequences of refusing to consent. This generally can be determined a combination of the following assessments:
   a) **Alertness and orientation:** Person, place, time, and situation?
   b) **Affect:** Is the patient's behavior consistent with the environmental stimuli?
   c) **Behavior:** Is the patient acting in a controlled manner? Body language, agitation, hyperactive, inattentive, repetitive movements?
   d) **Cognitive/judgment**: Does the person understand and appreciate the relative information?
   e) **Communication**: Patients should be able to communicate a clear choice. This should remain stable over time. Inability to communicate a choice or inability to express the choice consistently may demonstrate lace of Decisional Capacity.
      (1) Is the patient speaking in full sentences with clear speech and normal speech tempo?
   f) **Decision Insight**: Can the patient appreciate the implications of the situation and the consequences of their decision?
      (1) Is the patient able to recognize obvious danger of their situation (if applicable)?
2. For patient situations in which the patient's decisional capacity, consent or threat to self or others is uncertain and, by extension, their right to refuse treatment/transport is unclear, the EMS Provider should contact Medical Direction

B. **Intoxicated Person**: a person whose mental or physical functioning is substantially impaired due to the current effects of alcohol and/or other drugs/mind-altering substances within the body. Patients who are intoxicated typically lack Decision-Making capacity.

1. Note that the presence of alcohol or drugs in a person's system does not automatically dictate a conclusion that the person lacks Decisional Capacity.
2. The patient should be assessed for clinical capacity as above.

C. **Abandonment**. Occurs when the provider-patient relationship, once it has been established, is intentionally and inappropriately ended by the EMS Provider. As it pertains to EMS Providers, the acceptable manners in which a provider-patient relationship may end include:

1. The patient with decisional capacity ends the relationship,
2. The patient's care is transferred to another qualified medical professional (See Advance Level Provider Response for information on downgrading,
3. The continuation of the provider-patient relationship constitutes a danger to the provider's safety
   a) Whenever a perceived conflict exists between the EMS Providers safety and their obligation to render aid, the safety and well-being of the EMS Provider must always take precedence.
   b) The EMS provider does not have a legal duty to act if doing so could put them in harms' way.

D. **Consent**: A decisional adult's agreement to be treated. Consent may be via verbal agreement to the treatment, gestures indicating their desire for treatment or via implied consent.
   1. Consent or refusal for treatment/transport should be **"informed"** by providing the information and explanation of treatment described in D(2) and (3) below.
   2. EMS personnel should clearly explain the proposed treatment(s) and/or recommendations for transport to the patient and, when appropriate, the family or guardian.
   3. The explanation shall include a disclosure of **risk**.
      a) Nature of potential illness/injury
      b) Nature, purpose, and need for the recommended examination/care
      c) Potential **benefits** and possible risks and complications of recommended treatment; plus, possible results of non-treatment
      d) Any pertinent **alternative** options if they refuse recommended treatment.

E. **Implied Consent**: Consent that is assumed by the reasonable belief that if the patient was able to provide consent, they would do so freely. Patients who are **incapacitated**, cannot provide informed consent to treatment, and do not exhibit the ability to make sound judgments, will be treated under the doctrine of implied consent.

F. **Adult**: A person who is eighteen (18) years of age or older or an emancipated minor

G. **Minor**: Any person under the age of eighteen (18) is a minor, but is legally recognized as an adult if the person:
   1. Has obtained a court order of emancipation
   2. Is married
   3. Is a parent – Note: Minors who are parents may also consent to the performance of healthcare services for this child
   4. Is pregnant

Note: Parental or guardian consent is not required for patients over the age of twelve (12) seeking treatment for mental health, sexually transmitted disease, sexual abuse/assault, alcohol, or drug abuse.

III. Refusal Procedure: Patient with Decision-Making Capacity

A. All patients should be offered treatment up to and including transport to the closest appropriate hospital, as applicable, after an attempt to obtain a history of present illness and physical exam has been made and permitted by the patient.

B. Determine Decision-Making Capacity of the patient and the reason for refusing care. Document your assessment and the reason for refusal of care if a reason is given.
   1. Inform the patient of the **risks** associated with refusal including the possibility of deterioration of medical condition up to and including death (if applicable), **benefits of treatment/transport** and **alternative** of decisions as well as the patient's understanding.
   2. Inform the patient that EMS evaluation and/or treatment is not a substitute for medical evaluation and treatment by a physician.
   3. If the patient's condition was discussed with Medical Direction, inform them that this also does not substitute for medical evaluation.

C. Complete and review the approved Refusal Form in its entirety with the patient in the presence of a witness.
   1. Patients should have vital signs obtained, unless refused.
      a) Patients should be informed when vital signs are abnormal.
      b) Refusal of vital signs should be documented.
   2. Obtain patient signature and have the patient date the form.
   3. If the patient refuses to sign the refusal form, document this on the patient care report.

D. Advise the patient to call 911, their primary care provider or present to the nearest Emergency Department if symptoms persist, change, or if the patient changes their mind regarding refusal of care.

E. Obtain a witness signature. This should preferably from someone who witnessed your explanation of risks, benefits, and alternatives of transport/treatment. Witnesses should sign in the following order of preference.
   a) Police Officer
   b) Family Member
   c) Crew Member

F. NEVER ADVISE AGAINST SEEKING MEDICAL ATTENTION!

G. Consider discussion with Medical Direction for high-risk conditions including:
   1. Suspected/Questioned impaired Decision-Making Capacity or ability to Consent.
   2. Suspected high-risk medical condition such as:
      a) Extremes of age (infants/elderly),
      b) Minor who is refusing care.
      c) Serious chief complaint (including be not limited to: chest pain/dysrhythmia, shortness of breath, BRUE, stroke-like symptoms, syncope, first time seizures, poison/overdose, suspected sepsis, suspected cervical spinal injury).
      d) Significant Mechanism of Injury (MOI) or suspicion of injury.
      e) You believe a patient requires evaluation.
      f) Conflict on scene regarding refusal of care.
      g) Suspected abuse situation involving a minor, elderly, or a person with a disability.
      h) Any altered mental status (individual or parent/guardian for a minor).
      i) Abnormal vital signs.
      j) Patient assessment dictates the patient should be transported by EMS to a different hospital than their original choice.

H. With any medical need, make all reasonable efforts to ensure that the patient receives medical care. Enlist family, friends, or law enforcement to help convince patient.

I. Complete a patient care report.

IV. Patients without Decision-Making Capacity: A patient without decision-making capacity lacks the ability to consent to or refuse treatment.

A. Determine Decision Making Capacity of the patient as above.

B. If the patient is seemed non-decisional and/or is deemed to be a danger to self or others, prehospital providers should carry out treatment and transport in the interest of the patient's welfare, and be treated under the doctrine of implied consent.
   1. Patients lacking Decision-Making Capacity are unable to complete a refusal form.

C. Attempt to determine whether the patient's Decisional Capacity is impaired due to a medical condition such as hypoglycemia, hypoxia, hypoglycemia, delirium, dementia, mental illness, trauma, stroke, or the presence of alcohol or other mind-altering substances. (see Altered Mental Status). If the patient's lack of Decisional Capacity is determined to be the result mental illness, see Behavioral Emergencies, Involuntary Petition.
   1. EMS Providers should be constantly mindful of their safety, and should avoid unnecessary danger at all times.
   2. Treat medical condition per appropriate medical guidelines.
      a) Any treatments/interventions which may ordinarily be suggested by the SMGs can be waived if their attempted performance could reasonably be expected to compromise the cooperation of a patient who is otherwise agreeable to being transported, or may reasonably be expected to cause an escalation of a patient such that patient and/or crew safety becomes endangered.
      b) The EMS Provider should describe their consideration of any withheld treatment/intervention which would have otherwise been indicated, as well as their rationale for withholding the treatment/intervention, in the Prehospital Care Report (PCR).
   3. Those medical conditions listed above, on their own, do not dictate a conclusion that the patient lacks decisional capacity. The patient must be assessed to determine whether he or she has the clinical capacity to make decisions.

D. Examples of patients generally lacking Decision-Making Capacity:
   1. The patient has altered thought processes or judgement from illness, injury, or medical condition.
   2. Alcohol, drugs, or other mind-altering substances(s) are substantially impairing the patient's judgement as above. This may be noted with slurred speech, ataxia, etc.
   3. Any minor (see below).

E. The EMS Provider should make every reasonable effort to gain the patient's consent to be transported, and should only initiate measures to treat/transport the patient against their will after all reasonable efforts to gain the patient's consent have been exhausted.

F. If the patient persists in refusing treatment/transport, or if the patient becomes combative, law enforcement involvement and evaluation should be obtained.

G. If, in the opinion of the pre-hospital provider, the decision of law enforcement or other responder, including a Mobile Crisis response team personnel, not to assist EMS with accessing, treating, or transporting a patient presents an issue that will or could result in patient harm, an immediate request for on-scene EMS and law enforcement supervisory personnel should be made. In these situations, Medical Direction must be contacted.

H. At no time should EMS Providers place themself in an unsafe situation per their assessment. If EMS is unable to obtain law enforcement assistance to safely facilitate transport of a patient this should be documented and relayed to Medical Direction from the scene.
   a) If the EMS Provider cannot safely gain access to a patient, after exhausting all efforts at persuasion and the EMS Provider believes that attempting to transport such a patient would constitute a threat to their safety, and law enforcement is unwilling or unavailable to provide assistance, the EMS provider may declare that the scene is "not safe" providing as much detail as possible (armed, barricaded, etc) to Medical Direction.
   b) Medical Direction may not necessarily grant a refusal, rather medical direction shall acknowledge the crew's inability to treat/transport the patient due to safety reasons
   c) If the scene is secured, EMS should return if needed

I. The application of physical restraints and/or pharmacologic management/sedation when providing EMS care may be required to prevent non-decisional patients from causing harm to themselves or others, to facilitate emergency assessment, or to allow for treatment of life-threatening injury or illness and should only be considered when all less-restrictive preventative measures have either been exhausted or may reasonably be expected to be ineffective.
   1. Physical restraints are to be utilized SOLELY for the purpose of preventing the patient from harming themselves or others, and only during circumstances in which the threat of harm posed by the patient is clear and immediate. Physical restraints should NEVER be applied to patients with decisional capacity, and should NEVER be used for any reason other than the prevention of harm, or in a manner that restricts breathing, circulation, or access for monitoring the patient.
   2. See Behavioral Emergencies/Restraints.

J. When completing patient care report, document the assessment that led to the determination that the patient lacks Decision-Making Capacity as well as the clinical signs and symptoms on which need for transport/treatment was based.

K. Patients who lack Decisional Capacity should not automatically be assumed to have a mental illness that requires involuntary admission for psychiatric treatment.

I. Minors

A. The consent of a parent or guardian is generally required for refusal or treatment for minors.

B. Minors cannot typically independently refuse care
   1. If indicated, a parent or guardian should complete the approved refusal form.
   2. All reasonable attempts should be made to release a minor to a legal guardian. If a legal guardian cannot be located, document your attempts.

C. If a parent or guardian is not immediately available to consent and, without treatment the minor's health would be adversely affected, EMS personnel should provide appropriate emergency treatment and transport.

D. If a parent or guardian refused to consent for treatment without which the minor's health is concerned to be in imminent danger contact Medical Direction. If parent or guardian refuses to let you treat and/or transport the child, remain at the scene. Contact Medical Direction and request police assistance. Request that the officer place the child in protective custody and assist with transport.

E. Complete the patient care report.

II. Patients in Law Enforcement Custody

A. Patients in law enforcement custody who have been assessed and have been determined to have Decision Making Capacity do not automatically lose the right to make decisions regarding their medical treatment. Law enforcement agents cannot compel EMS personnel to act in disregard of the rights of any person, regardless of whether such person is in police custody. If a law enforcement officer denies medical treatment to someone in their custody when treatment appears necessary, EMS personnel should provide the law enforcement office with full disclosure of risks of potential harm to the patient and attempt to gain their cooperation. If any disagreements occur with Law Enforcement, contact Medical Direction, and document the conversation with Law Enforcement.

B. Follow above procedure for refusals in patients with Decision-Making Capacity.
C. If a patient in law enforcement custody lacks Decision-Making Capacity, they should be treated per implied consent. Follow appropriate guidelines for those patients not having Decision-Making Capacity. Patients being treated under the doctrine of implied consent due to lack of Decisional Capacity should not automatically be assumed to have a mental illness that requires involuntary admission for psychiatric treatment; therefore, a Petition for involuntary admission (Form 5) may not be necessary.
D. If law enforcement has determined via breathalyzer that a person has blood alcohol level above a legal limit, and requests evaluation by EMS, a clinical assessment should occur.
    1. Legal intoxication alone does not necessarily correlate with a lack of Decisional Capacity. If disagreement with Law Enforcement occurs, contact Medical Direction.

III. Multiple Patients/Highway Response

A. In highway responses, Mass Casualty Incidents, or similar, a reasonable/common sense approach should be used. Responder and patient safety must be considered.
B. Potentially dangerous response should be conducted and coordinated with law enforcement to provide maximum safety to EMS responders, patients, victims, and bystanders.
C. Criteria for use of the Region One Multiple Victim Release Form.
    1. Large numbers of patients are present, generally >6, such that the demands of the scene outweigh the local resources, and/or
    2. Scene circumstances prohibit EMS personnel from completing the usual documentation (i.e. highway response)

    AND EITHER OR BOTH OF THE FOLLOWING TWO CRITERIA (#3 AND #4) APPLY

    3. **Adult** victims with Decision Making Capacity who:
        a) Claim no injuries/illness
        b) Who are not obviously injured/ill
        c) Have minimal mechanism for injury/illness
        d) Refuse transport

    OR

    4. **Pediatric** Patient involved in School Bus incidents in which medical direction has approved its use.
        a) For School Bus incidents, refer to School Bus Incidents Guidelines
    5. Other situations as authorized by Medical Direction
D. When utilizing the Region One Multiple Victim Release Form one EMS Run Report may be completed, and a copy of the approved Multiple Victim Release form should be attached to the Run Report.

Region One Multiple Patient Prehospital Refusal Form

Date: ___/___/___ Location of Call: _____

Time: Dispatched: _____ Enroute: _____ Arrived: _____ Completed: _____

Agency: _____Unit #:_____Call #:_____

Type of Incident: _____

_____

Medical Direction Contacted? **Y** **N** M.D. / ECRN Name: _____

RELEASE FROM RISKS OF MEDICAL RESPONSIBILITY

I, ***listed below,*** hereby release the Hospital, EMS System and its physicians, nurses, and employees and the EMS agency and its' Personal of any responsibility and liability for the worsening of medical condition of multiple victims involved in this incident. I acknowledge that I have been informed of the risks and I voluntarily assume all responsibility. I acknowledge that all refusals carry the inherent risks of deterioration of medical condition up to and including death.

Print Name	Signature	DOB
Address		

Print Name	Signature	DOB
Address		

Print Name	Signature	DOB
Address		

Print Name	Signature	DOB
Address		

Print Name	Signature	DOB
Address		

Print Name	Signature	DOB
Address		

_____ _____

Signature of EMS crew #1 **Signature of EMS crew #2**

If School Bus Accident, signature of authorized school designee: _____

Key Considerations: Status of airway, breathing, and circulation. Patients' chief complaint, allergies, and medications with special attention to patient prescription for blood thinners.

TREATMENT:

A. Appropriate blood and body secretions precautions should be used at all times by all personnel.
B. Perform patient assessment and determine chief complaint.
C. Assess patient home medications, paying particular attention to beta-blockers (Metoprolol, Labetalol, etc) and blood thinners (Eliquis, Pradaxa, Coumadin, aspirin).
D. If load and go situation is found, transport immediately. Depending on time of transport consider ILS/ALS intercept.
E. Place patient in position of comfort unless contraindicated per Spinal Restriction SMO:
   - Unconscious patients should be placed on their side, to prevent aspiration.
   - If immobilized, tilt backboard if there is risk of aspiration.
F. When indicated administer oxygen:
   - For most patients maintain O_2 sats 94% to 99%.
     - If history of COPD sats 90% to 92% are preferred to avoid respiratory depression.
     - Do not withhold high flow O2 from cyanotic, confused, or distressed patient because of a history of COPD.
   - O_2 2-6 liters by nasal cannula.
   - O_2 10-15 liters by non-rebreather mask.
   - CPAP as indicated.
   - O_2 100% by BVM and move to Airway Management SMO .
G. $EtCO_2$ (if available).
H. Assess blood glucose for all suspected medical conditions including, but not limited to altered mental status, diabetic emergencies, hypothermia, and multi-system trauma.
I. Evaluate cardiac rhythm/12-lead ECG for typical or atypical cardiac symptoms, electrical injuries, syncope, all patients who appear critical, and otherwise as indicated. Transmit 12-lead to the receiving hospital. If STEMI is noted call Medical Direction ASAP to initiate STEMI Alert.
J. For patients with Altered Mental Status or neurological deficits perform GFAST exam. Ask patient or available caregiver about the time the patient was "last known well". Follow Stroke SMO if the exam is positive.
K. Establish INT/IV/IO as indicated.
L. Fluid Bolus if indicated.
M. Two lines of Normal Saline are preferred for:
   - GI Bleed
   - Stroke
   - STEMI
   - Unstable vital signs
   - Sepsis
   - Significant trauma
N. IVs are indicated for patients who require immediate or potential fluid/volume replacement and/or medication administration prior to hospital arrival. Attempts to establish IVs should not delay transport. One attempt should be made at scene or enroute. If unsuccessful, one additional attempt may be made enroute. Maximum number of attempts should be limited to no more than 2 attempts per Provider with a maximum of 4 attempts per patient.
O. If patient conditions warrants or IV access unsuccessful, establish IO access.
P. If significant nausea / vomiting consider isopropyl alcohol wipe or administer Ondansetron.

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(continued)

Q. For fever, administer Tylenol.
R. Pain Management, as appropriate.
S. All patients receive a set of vital signs at the beginning of patient care. A second vital signs will be taken, preferably just prior to transfer of care. Repeat vital signs every 10 minutes for ALS patients, after administration of medications, and more frequently as needed.
T. Assess response to interventions and medication (to include repeat vital signs).
U. Contact receiving hospital as soon as possible with patient assessment and treatment.
V. DO NOT delay transport. Treatment SMOs are guidelines and are not intended to be completed while on the scene, but continued enroute. All possible effort should be made to minimize scene time.

Key Considerations: Patient age, weight, scene assessment, nature of illness/mechanism of injury. Assessments and interventions must be tailored to each child in terms of age, size, and development. Providers must be familiar with assessment algorithms for medical emergencies, assessment mnemonics such as DCAP-BTLS for trauma emergencies and use the current edition of the Broselow tape for determining appropriate equipment sizes, IV fluid rates, and medication dosing. All patients must be properly restrained in an age-appropriate securing device during transport.

Consider the following when performing a pediatric patient assessment:

- Smile if appropriate to the situation.
- Keep voice at an even quiet tone.
- Speak slowly using simple, age-appropriate terms.
- Use toys or penlight as distracters.
- Keep small children with their caregiver(s), allowing the caregiver to hold the child and assist with the assessment if necessary. Child must be properly restrained during transport.
- Kneel down to the level of the child if possible.
- Make as many of the following observations as possible prior to touching the child as physical contact may upset the child:
  - Level of consciousness.
  - General appearance, age-appropriate behavior, malnourished or well-nourished appearance, purposeful eye movement, general mood, playing, using a pacifier or bottle.
  - Obvious respiratory distress or extreme pain.
  - Position of the child: upright, tripod, recumbent, semi-fowlers.
  - Muscle tone: good vs. flaccid.
  - Movement: spontaneous, purposeful, symmetrical.
  - Skin color.
  - Life-threatening injuries.
- It may be necessary to interview an adolescent without a caregiver present to obtain accurate information about drug use, alcohol use, LMP, sexual activity, or abuse.

TREATMENT:

AIRWAY

A. Self-maintained.
B. Maintainable with positioning or assistance: held tilt/chin lift, jaw thrust, tripod, high fowlers.
C. Maintainable with adjuncts: Use Broselow tape or pediatric chart for correct size.
D. Maintainable with suction.
E. Most pediatric patients can be successfully ventilated using BVM.
F. BVM, supraglottic are preferred airways for pediatric patients.

BREATHING

A. Rate - compare to normal for age. Rate greater than 60/min is critical in all ages.
B. Rhythm: regular; irregular; patterned, Cheyne-stokes, agonal, biots, Kussmaul.
C. Quality: work of breath; use of accessory muscles, head bobbing, see-saw breathing, retractions, nasal flaring.
D. Auscultate respiratory sounds for absence, presence, snoring, stridor, crackles, gurgling, wheezing, grunting.
E. Pulse oximetry and capnography.
F. Administer oxygen of 02 sat <94 and/or other signs of respiratory compromise:
   - Blow by
   - Nasal cannula
   - Non-rebreather
   - BVM

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CIRCULATION

A. Heart rate – compare to normal for age.
B. Central/truncal pulses (apical, femoral, carotid) – strong, weak, absent.
C. Peripheral pulses – present/absent, strong, weak, thready.
D. Skin/mucous membrane color.
E. Skin temperature – hot, warm, or cool.
F. Blood pressure – use appropriately sized cuff: Use Broselow tape for correct size.
G. Use the Broselow Pediatric Trauma Score for B/P determination if appropriate cuff is unavailable or capillary refill time (children under age 3).
H. Hydration status – infant anterior fontanel status, mucous membranes, skin turgor, tears, urine output history.
I. Cardiac Monitor, as indicated.
J. IV/IO access as indicated.
K. Fluid bolus as indicated; may repeat as indicated to a total of 60 ml/kg.

DISABILITY

A. Use AVPU to assess responsiveness.
B. Assess pupil response.
C. Assess distal neurologic status – numbness or tingling.
D. Assess blood glucose.
   - If infant/child patient (greater than one month old) with glucose <60 mg/dl **and/or** symptomatic follow pediatric dosing for medications listed above.
   - If infant (less than one month old) with glucose of <45 mg/dl **and/or** symptomatic follow neonate dosing for medications listed above.
   - Dextrose should be used in patients under two years of age. If D-50 must be used as an alternative it must be diluted prior to administration.
E. If nausea / vomiting consider isopropyl alcohol wipe or administer Ondansetron (EMTs – Ondansetron for adults only).
F. For fever equal to or greater than 105° consider Tylenol.
G. Pain Management, as appropriate.

EXPOSURE

A. Assess for hypo/hyperthermia. See: Hyperthermia SMO or Hypothermia SMO.
B. Check for significant bleeding.
C. Check for petechiae or purpura (purple discolorations that do not blanch with skin pressure).
D. If signs of abuse are present or suspected, report to authorities. See Abuse SMO.

Considerations for Children with Special Healthcare Needs (CSHN)

A. Refer to child's emergency care plan formulated by their medical providers, if available.
B. Understanding the child's baseline will assist in determining the significance of altered physical findings. Parents/caregivers are the best source of information on: medications, baseline vitals, functional/normal mentation, likely medical complications, equipment operation and troubleshooting, emergency procedures. If a parent/caregiver requests assistance with administration of a prescriptive, life-saving medication, contact Medical Direction for guidance.
C. It may be helpful to use the DOPE mnemonic to assess problems with ventilation equipment or long-term catheters for feeding tubes. DOPE stands for:
   - D – Dislodged tube
   - O – Obstructed tube
   - P – Pneumothorax
   - E – Equipment failure

D. Assess in a systematic and thorough manner, regardless of underlying conditions. Use parents/caregivers as medical resources.
E. Be prepared for differences in airway anatomy, physical development, cognitive development, surgical alterations, or mechanical adjuncts. Common home therapies include respiratory support, nutritional therapy, intravenous therapy, urinary catheterization, dialysis, biotelemetry, ostomy care, orthotic devices, communication or mobility devices, or hospice care.
F. Communicate with the child in an age-appropriate manner. Maintain communication with and remain sensitive to the parents/caregivers and child.
G. The most common emergency encountered with the pediatric patient is respiratory related and so familiarity with respiratory emergency interventions/adjuncts/treatment is appropriate.

NORMAL VITAL SIGNS

Respiratory Rates

Age	Breaths/min
Infant (< 1 year)	30 – 60
Toddler (1-3 years)	24 – 40
Preschool (4-5 years)	22 – 34
School age (6-12 years)	18 – 30
Adolescent (13-18 years)	12 – 16

Heart rates

Age	Awake Pulse/min	Mean	Sleeping Pulse/min
Newborn-3 months	85-205	140	80-160
3 months-2 years	100-190	130	75-160
2-10 years	60-140	80	60-90
> 10 years	60-100	75	50-90

Blood pressure

Age	Systolic		Diastolic	
	Female	Male	Female	Male
1 day	60-76	60-74	31-45	30-44
4 days	67-83	68-84	37-53	35-53
1 month	73-91	74-94	36-56	37-55
3 months	78-100	81-103	44-64	45-65
6 months	82-102	87-105	46-66	48-68
1 year	68-104	67-103	22-60	20-58
2 years	71-105	70-106	27-65	25-63
7 years	79-113	79-115	39-77	38-78
Adolescent (15 years)	93-127	95-131	47-85	45-85

DEGREE OF DEHYDRATION ASSESSMENT

Clinical Parameters	Mild	Moderate	Severe
Body weight loss			
Infant	5% (50 ml/kg)	10% (100 ml/kg)	15% (150 ml/kg
Child	3% (30 ml/kg)	6% (60 ml/kg)	9% (90 ml/kg)
Fontanelle	Flat or depressed	Depressed	Significant depression
Mucous Membranes	Dry	Very dry	Parched
Skin Perfusion	Warm / normal color	Cool extremities / pale	Cold extremities
Heart Rate	Mild tachycardia	Moderate tachycardia	Extreme tachycardia
Peripheral Pulse	Normal	Diminished	Absent
Blood Pressure	Normal	Normal	< 70 + 2x age in years
Sensorium	Normal-irritable	Irritable-lethargic	Unresponsive

Key Considerations: A trauma assessment needs to be completed on all trauma patients to identify and immediately correct life- threatening problems in accordance with PHTLS and ITLS guidelines. Scene times should be kept to a minimum and the patient should be promptly transported to the trauma center.

TREATMENT:

A. Scene Assessment:
- Assess scene safety and situation.
- Apply Personal Protection Equipment.
- Identify mechanism of injury and any special extrication needs.
- Call for additional resources.
- Minimal disturbance of crime scene should be considered.

B. Patient Treatment:
- Assess airway patency utilizing adjuncts as indicated (OPA, NPA). Secure the airway with C- spine precautions.
- Spinal Restriction as indicated.
- Assess breathing, apply oxygen as indicated:
  - Oxygen via nasal cannula (1-6 L/min) for awake, oriented, stable patients without evidence of hypoperfusion or mental status changes.
  - High flow via non-rebreather mask (10-15 L/min) if indicated. Assist ventilations with BVM and 100% oxygen if indicated.
  - Prepare to suction or maintain Spinal Restriction while log rolling patient for vomiting.
  - Airway Management as indicated.
- $EtCO_2$ (if available).
- Immediately control external bleeding. Refer to Hemorrhage Control SMO.
- If load and go situation is found, transport immediately and activate the Trauma System per Field Triage Criteria.
- If significant nausea / vomiting consider isopropyl alcohol wipe or administer Ondansetron.
- Pain Management as appropriate
- IV access with Normal Saline as needed.
- See Shock Treatment SMO if SBP < 90 mmHg for patient management.
- Assess disability: AVPU, pupils and Glasgow Coma Scale.
- If altered mental status, check blood glucose.
- Remove clothing to expose injuries. Cover patient with a blanket to avoid hypothermia.
- Obtain SAMPLE history.
- Reassess airway patency and maintain good ventilation.
- Reassess ABC's including patient's color.
- Perform serial vital signs. Repeat vital signs every 10 minutes for ALS patients, after administration of medications, and more frequently as needed.
- Perform Secondary Assessment.
- Assess for pelvic instability, concern for major hemorrhage or shock. If present, apply pelvic binder, commercial or improvised.
- Splint fractures and bandage wounds, control bleeding. Re-check PMS.
- Reassessment of critical patients frequently.

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C. Injury Specific Treatment:

- Abdominal/Pelvic Trauma (Blunt, Penetrating/Perforating Injuries)
  - Evisceration – use moist, bulky dressings.
  - Impaled Object – stabilize, do not remove object unless it blocks airway or CPR.
  - Pelvic Fracture – do not log roll. Stabilize with pelvic splint or improvised method (such as sheets).
  - Consider a pelvic binder on patients with blunt trauma suffering from traumatic arrest or severe shock. (Does not need to be a commercial product).
- Amputated Parts:
  - Recover all amputated or avulsed parts as possible.
  - Place amputated part in dry, sterile dressings, place in a sealed plastic bag, and place on top of ice or on cold packs.
- Blast Injuries:
  - Consider tissue damage, dismemberment, Pulmonary Edema, GI bleed, penetrating trauma, Crush Injuries, Burns, inhalation injuries, deployment of Toxic Agents, and Shock.
  - Consider a pelvic binder on patients with blast injuries suffering from traumatic arrest or severe shock. (Does not need to be a commercial product).
- Burns
- Chest/Thoracic Trauma:
  - For sucking chest wounds utilize a commercial chest seal or occlusive dressing sealed on four-sides. If patient deteriorates consider releasing one side (burp) and re-seal as needed.
  - For flail chest ventilate if necessary.
  - Needle Decompression if tension pneumothorax or hemothorax suspected.
- Conducted Electrical Weapon (TASER):
  - If barbs are deployed to the eye/eyelid, ear, nose, female breast, or genitalia transport the patient for removal. Refer to local police protocols for all other barb removal. If the police are unable to remove the barb transport the patient for removal.
  - Consider Restraints as needed.
  - Consider symptoms and treat for Extremely Agitated/Violent Patient, if indicated.
  - Consider cardiac monitor for patients with cardiac history and/or abnormal vital signs.
- Facial/Dental Trauma:
  - See Airway Management, as appropriate.
  - See Ophthalmic Trauma, as appropriate.
  - Dental – placed avulsed tooth in saline. Avoid touching the root.
  - Unstable mandible – transport patient sitting up with emesis basin/suction available (if no suspected spinal injury).
  - Nose/ear avulsion – place recovered tissue in dry, sterile gauze in a plastic bag, on ice, if available. Cover severe ear and nose lacerations with a protective, moist, sterile dressing.
  - Epistaxis – squeeze nose (or have patient do so) for 10-15 minutes continuously.
- Head Trauma:
  - Elevate head approximately 15-30 degree unless the patient is hypotensive.
  - Monitor level of consciousness.
  - Monitor for Seizures.

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Routine Trauma Care – 1.051 Return to Table of Contents

- Hemorrhage Management/Wound Packing
- Musculoskeletal Trauma:
  - Assess pulse, motor, and sensation distal to injury.
  - Joints should be splinted in position found.
- Ophthalmic Trauma:

  General: Transport patient in a seated position unless contraindicated.

  Chemical Splash/Burn -
  - Thoroughly and continuously irrigate affected eye(s) using copious amounts of saline instilled through IV tubing. Start irrigation as soon as possible and continue throughout transport.

  Penetrating Injury/Ruptured Globe –
  - Do not removed impaled object; do not irrigate eye.
  - Avoid all pressure on injured eye. Cover with cup or metal/plastic protective patch and cover the uninjured eye.

  Corneal Abrasions/Foreign Body –
  - Do not wipe eye. Consider irrigation.
  - Shade patients' eyes from light.

PEDIATRIC PATIENTS

A. Routine Pediatric Care.
B. Refer to the Pediatric Section of the Spinal Restriction SMO for consideration of safe transportation.
C. Consider Abuse/Neglect: Child for injuries that are presented with an inconsistent history or discrepancy between the history of the injury and the physical exam.
D. Pediatric Head Trauma:
   - Consider oxygen/ventilation as needed.
   - Pulse ox as available.
   - Pediatric Glasgow Coma Scale
   - PGCS 13-15 – Mild
     - Control Hemorrhage
   - PGCS 9-12 - Moderate
     - Airway Management
   - PGCS ≤ 8 – Severe
     - Seizure SMO, as appropriate

In-Field Trauma Triage Criteria

Overview: The following patients are those who in the opinion of the American College of Surgeons Committee on Trauma are to have an increased mortality/ morbidity if not treated at a trauma center and should therefore be classified as trauma patients. These patients require transport to the nearest trauma center. The decision to triage to the nearest trauma center or directly to the Level I trauma center remains with Medical Direction, as does aeromedical evacuation.

GUIDELINES

I. Physiologic Factors
- A. Adult Trauma Score of 10 or less or Pediatric Score of 8 or less
- B. Airway difficulties requiring intubation or other interventions at the scene
- C. Trauma with altered respiratory rate > 35/ minute or < 12/ minute
- D. Any multiple trauma patient with signs of hypoperfusion

II. Anatomic Factors
- A. Head, face and eye
  1. HEAD INJURY WITH PERSISTENT UNCONSCIOUSNESS OR FOCAL SIGNS (i.e. SEIZURES, POSTURING, UNABLE TO RESPOND TO SIMPLE COMMANDS)
  2. Head injury with LOC or an altered Glasgow Coma Score
  3. Traumatic and chemical eye injuries
  4. Maxillofacial trauma
  5. Penetrating injury to the neck
- B. Chest
  1. TRANSMEDIASTINAL GUNSHOT WOUNDS
  2. Penetrating injury to the chest
  3. Blunt chest trauma (significant pain and/or obvious external signs)
- C. Abdomen
  1. Penetrating injury to the abdomen or groin
  2. Blunt abdominal trauma (significant pain and/or obvious external signs)
- D. Spinal Cord
  1. SPINAL CORD INJURY WITH PARALYSIS
  2. Any suspected spinal cord injury in the absence of neurological deficit
- E. Extremity
  1. Multiple orthopedic injuries (>1 long bone fracture)
  2. Major extremity injury with vascular compromise (blunt and penetrating)
  3. Traumatic amputation proximal to the wrist or ankle

III. Deceleration Injury
- A. High energy dissipation—rapid acceleration with blunt chest or abdominal injury
- B. Falls of 20 feet or greater with the adult patient
- C. Falls of 3 times the height of the pediatric patient

Medication Administration Chart

IV. Motor Vehicle Incidents

A. Extrication time of 20 minutes or more
B. Passenger space invaded by 12 or more inches
C. Ejection
D. Fatality at the scene within the same motor vehicle
E. Rollover
F. Child under 12 years struck by car
G. Child 5 years old or younger involved in any MVA without age appropriate restraint (under age 4 or less than 40 pounds require a car seat)
H. Motorcycle crash greater than 20 mph and separation of rider from bike

V. Major Burns

A. 20% total body surface of 2nd and 3rd degree burns
B. Any burn patient with obvious head, neck, or airway involvement

VI. Pediatric Trauma with one or more of the following:

A. HEAD TRAUMA WITH PERSISTENT ALTERED LEVEL OF CONSCIOUSNESS OBVIOUS CHEST OR ABDOMINAL TRAUMA, EITHER PENETRATING OR BLUNT
B. Pediatric Trauma Score of 8 or less
C. Child under 12 struck by car
D. Child 5 years old or younger involved in any MVA without age appropriate restraint (under age 4 or less than 40 pounds require a car seat)

VII. Maternal Trauma Patients with significant mechanism and/or obvious signs of Trauma

A. THE PREGNANT PATIENT 20 – 32 WEEKS
B. The pregnant patient 32 – 40 weeks
C. Maternal patient who meets any other trauma criteria

VIII. Blunt and Penetrating Traumatic Arrests are at the discretion of Medical Direction

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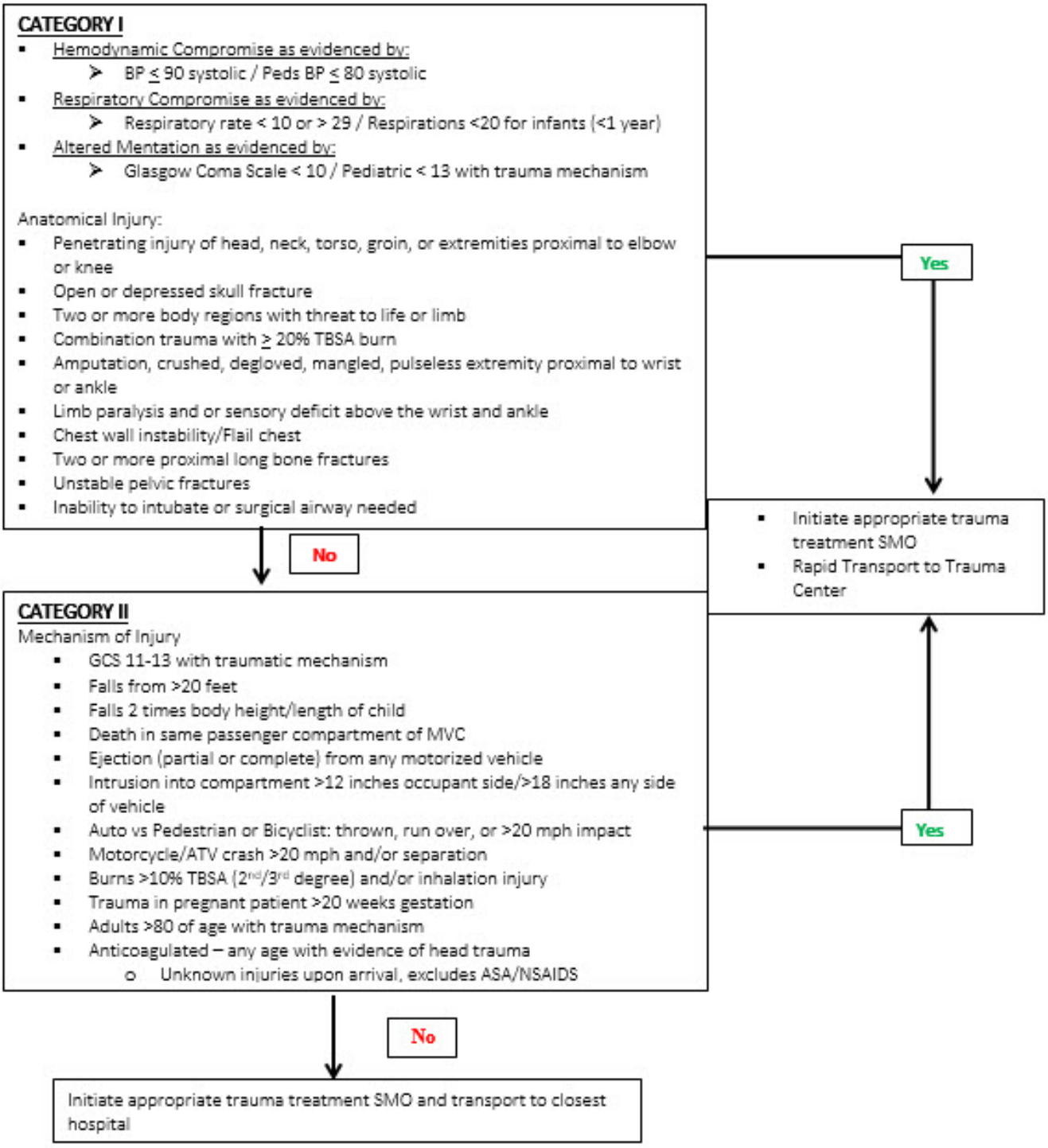

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ADULT GLASGOW COMA SCORE

EYE OPENING	Eyes open ***Spontaneously***	4
	Eyes open in response to ***Voice***	3
	Eyes open in response to ***Pain***	2
	No eye-opening response	1
VERBAL RESPONSE	***Oriented*** (e.g., to person, place, time)	5
	Confused, speaks but is disoriented	4
	Inappropriate but comprehensible words	3
	Incomprehensible sounds but no words are spoken	2
	None	1
MOTOR RESPONSE	***Obeys Commands*** to move	6
	Localized Painful stimuli	5
	Withdraws from painful stimulus	4
	Flexion, abnormal *decorticate* posturing	3
	Extension, abnormal *decerebrate* posturing	2
	No movement or posturing	1
TOTAL POSSIBLE SCORE		3 - 15
	Severe Head Injury	≤ 8
	Moderate Head Injury	9 – 12
	Minor Head Injury	13 - 15

ADULT TRAUMA SCORE

The Trauma Score is a numerical grading system for estimating the severity of injury. The score is composed of the Glasgow Coma Scale (reduced to approximately one-third value) and measurements of cardiopulmonary function. Each parameter is given a number (high for normal and low for impaired function). Severity of injury is estimated by summing the numbers. The lowest score is 0, and the highest score is 12.

RESPIRATORY RATE (spontaneous patient-initiated inspirations/ minute)	10 - 29 / minute	4
	greater than 29	3
	6 - 9 minutes	2
	1 - 5 / minute	1
	None	0
SYSTOLIC BLOOD PRESSURE	Greater than 89	4
	76 - 89 mm Hg	3
	50 - 75 mm Hg	2
	1 - 49 mm Hg	1
	No pulse	0
GLASGOW COMA SCALE (see above)	13 – 15	4
	9 – 12	3
	6 – 8	2
	4 – 5	1
	3	0
TOTAL POSSIBLE SCORE		0 – 12

PEDIATRIC GLASGOW COMA SCORE

AREAS OF RESPONSE	>1 year	< 1 year	GCS
EYE OPENING	Spontaneously To ***Verbal Command*** To ***Pain*** No eye-opening response	Spontaneously To ***Shout*** To ***Pain*** No eye-opening response	4 3 2 1
MOTOR RESPONSE	***Obeys Commands*** to move ***Localized Painful*** stimuli ***Withdraws*** from painful stimulus ***Flexion,*** abnormal *decorticate* posturing ***Extension***, abnormal *decerebrate* posturing No movement or posturing	***Obeys Commands*** to move ***Localized Painful*** stimuli ***Flexion—normal*** ***Flexion,*** abnormal *decorticate* posturing ***Extension***, abnormal *decerebrate* posturing No movement or posturing	6 5 4 3 2 1

VERBAL RESPONSE	> 5 years	< 2 – 5 years	0 - 23 months	
	Oriented and converses	Appropriate words & phrases for age	Smiles, coos, cries appropriately	5
	Disoriented but converses ***Inappropriate*** words	Inappropriate words Cries and/or screams	Cries Inappropriate crying and/or screaming	4 3
	Incomprehensible	Grunts	Grunts	2
	No response	No response	No response	1
			TOTAL POSSIBLE SCORE	**3 - 15**

PEDIATRIC TRAUMA SCORE

	VALUES		
COMPONENT	+2	+1	-1
Size	≥ 20 kg	10 – 20 kg	≤ 10 kg
Airway	Normal	Maintainable	Unable to maintain
CNS	Awake	Obtunded	Coma
Systolic BP	≥ 90 mmHg	50 – 90 mmHg	≤ 50 mmHg
Open wound	None	Minor	Major
Skeletal Injuries	None	Closed fracture	Open or multiple fractures

Revised Trauma Score

Glasgow Coma Scale (GCS)	Systolic Blood Pressure (SBP)	Respiratory Rate (RR)	Coded Value
13-15	>89	10-29	**4**
9-12	76-89	>29	**3**
6-8	50-75	6-9	**2**
4-5	1-49	1-5	**1**
3	0	0	**0**

Key Considerations: Surroundings (syringes, medications, blood glucose monitoring supplies, insulin), LOC and neuro assessment, bowel/bladder incontinence, oral trauma (biting of tongue), signs of trauma, witnessed onset, pupil size and reactivity, needle tracks, medical information tags (bracelets or medallions), and/or blood glucose level. Consider treatable etiologies (hypoglycemia, hypoxia).

TREATMENT:

A. Routine Medical Care.
B. Seizure precautions.
   - GENTLE HANDLING. Minimal CNS stimulation. Do NOT check pupillary reflexes.
   - Minimize external stimulation - avoid sirens, bright lights, and loud music if possible.
C. Assure patency of airway and be prepared with suction.
D. Oxygen if indicated, assist ventilations with BVM as needed.
E. C-spine restriction if any suspicion of head/ spinal trauma.
F. Protect patient from injury; do not restrain during tonic/clonic movements.
G. Obtain blood glucose level. If adult glucose level < 80 mg/dl and/or symptomatic, administer Oral Glucose if patient is conscious or Glucagon IM if the patient is unresponsive or has a questionable gag reflex. See Diabetic Emergencies SMO.
H. Obtain IV or IO access and administer Dextrose IV, if glucose remains decreased.
I. Transport in left lateral recumbent position if no C-spine injury is suspected.
J. Midazolam (heavy dose) for actively seizing patients.
K. If it is determined to be a febrile seizure Tylenol may be administered as long as the patient is awake and able to swallow.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for medications listed above –
   Midazolam Oral Glucose Glucagon Dextrose Fluid Bolus
C. If infant/child patient (greater than one month old) with glucose <60 mg/dl **and/or** symptomatic follow pediatric dosing for medications listed above.
D. If infant (less than one month old) with glucose of <45 mg/dl **and/or** symptomatic follow neonate dosing for medications listed above.
E. Dextrose should be used in patients under two years of age. If D-50 must be used as an alternative it must be diluted prior to administration.
F. If it is determined to be a febrile seizure Tylenol may be administered as long as the patient is awake and able to swallow.

Key Considerations:

A. All patients will be evaluated for sepsis if they exhibit any of the following infections:
- Pneumonia (cough/thick sputum)
- Urinary tract infection (painful urination, hematuria, change in urination)
- Altered mental status
- Blood stream/catheter related
- Abdominal pain, distention and/or diarrhea
- Wound infection, cellulitis
- Skin/soft tissue infection
- Device related infection

B. Any patient exhibiting signs of infection will be assessed for the following:
- Temperature > 100.4˚ F
- Temperature < 96.8˚ F
- Tachypnea > 20/min., PaCO2<32 mmHg; SpO2 ≤ 92%
- Tachycardia > 90 bpm
- Systolic BP < 90 mmHg
- MAP < 65

TREATMENT:

A. See Adult Sepsis Screening Tool.
B. Routine Medical Care.
C. If patient meets sepsis criteria initiate IV fluid bolus. May repeat as clinically indicated up to two liters.
D. Consider Norepinephrine Drip.

Pediatric Patients

A. See Pediatric Sepsis Screening Tool.
B. Routine Pediatric Care.
C. If patient meets sepsis criteria initiate IV fluid bolus to 20 ml/kg.
D. Contact Medical Direction for approval and dosing of Norepinephrine Drip.

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ADULT SEPSIS SCREENING TOOL

Is the patient's presentation suggestive of any of the following infections?			
	Pneumonia (cough/thick sputum)		Abdominal pain, distension and/or diarrhea
	Urinary tract infection		Wound infection, cellulitis
	Altered mental status		Skin/soft tissue infection
	Blood stream/catheter related		Device-related infection
Are any two of the following:			
	Temperature > 100.4◦F		
	Temperature < 96.8º F		
	Tachypnea > 20/m, PaCO2< 32 mmHg; SpO2 ≤ 92%		
	Adult Tachycardia > 90 bpm Pediatric Tachycardia (add chart) 0d – 3m >180		
	Systolic BP < 90 mmHg Pediatric Systolic BP 0d-3m - <50		
If presentation suggestive of infection and more than 2 the vital signs changes are positive, call a SEPSIS ALERT and follow SMO			

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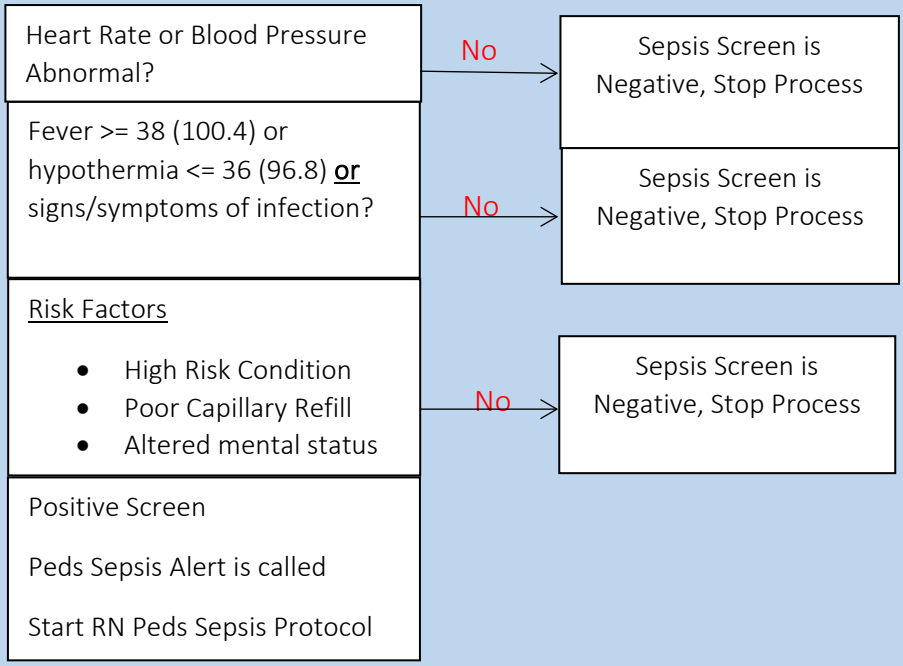
Pediatric Sepsis Screening Tool



Did the patient screen positive for Sepsis? (circle one): YES NO

Was a Pediatric Sepsis Alert called? (circle one): YES NO

Vital Sign Limits		
Age	Heart Rate	Systolic BP
0d-3m	>180	<50
3m-1Y	>170	<70
1Y-4Y	>150	<75
4Y-12Y	>130	<80
>=12Y	>120	<85

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Key Considerations: Identify the type of shock:

	Hypovolemic Shock		Non-hemorrhagic Shock	
	Compensated Shock	De-compensated Shock	Neurogenic Shock	Obstructive (Cardiogenic) Shock
Skin temperature/quality	White, cool, moist	White, cold, waxy	Warm, dry	Cool, clammy
Skin color	Normal to Pale	Pale, cyanotic	Pink	Pale, cyanotic
Blood Pressure	Normal	Decreased	Decreased	Decreased
Pulse	Tachycardia	Tachycardia, that can progress to bradycardia	Bradycardia	Tachycardia
Level of consciousness	Unaltered or slightly anxious	Altered-anxiety, confusion, or unresponsive	Unaltered, can be altered in head injury	Altered
Capillary Refill Time	Normal	Delayed	Normal	Delayed
Pulse Pressure	Normal or narrowed	Decreased	Decreased	Decreased

TREATMENT:

A. Control airway. See Airway Management SMO.
B. Control external bleeding with direct pressure, apply tourniquet, or place patient in pelvic binder as needed:
   - Direct pressure is the primary method of controlling most external bleeding and should be used as soon as possible.
   - Tourniquets
     Consider tourniquets when direct pressure does not control bleeding.
     - Tourniquets may not be practical on proximal extremity locations.
     - Cut away clothing. Apply tourniquets three fingers (2-3 inches) above the injury.
     - Tighten per manufacturers' instructions until hemorrhage stops.
     - Secure tourniquets per manufacturers' recommendations.
     - Note time of tourniquets application (time and date on tourniquet, patients' forehead, or patient's cheek) and provide this information to receiving care provider. Do not remove any tourniquet without authorization from Medical Direction.
     - If one tourniquet is not sufficient to control bleeding consider a second tourniquet proximal to the first.
   - Wound Packing
     - Consider wound packing for life threatening bleed from a penetrating injury to the buttock, pelvis (pelvic girdle), axilla (armpit), or neck. Also, consider for penetrating injuries to extremity with significant bleeding that cannot be controlled with direct pressure or tourniquets.
     - Wound packing is contraindicated for the chest, back, head, abdomen, and dialysis graft bleeding.
   - Wound packing procedure:
     - Attempt to control bleeding with direct pressure.

Medication Administration Chart
Shock/Traumatic Hemorrhage/Wound Packing – 1.054 Page 1 of 2 Return to Table of Contents

- Cut away clothing at wound site.
- Have wound packing supplies on hand – use a roll of plain gauze.
- Carefully remove any obvious foreign object from the wound (splintered wood, etc.)
- Apply direct pressure just proximal to the wound to reduce bleeding. With one finger of the other hand push the end of the gauze as deeply into the wound as possible. Continue to feed the gauze deep into the wound in small increments. Do not attempt to feed a large amount of gauze all at once.
- Continue to pack gauze deeply and tightly in order to apply direct pressure over the source of the bleed. When the packing reaches the level of the skin apply any remaining gauze over the wound to help apply pressure.
- Hold direct pressure over the wound for at least ten minutes. Do not release this pressure to "check" for bleeding.
- If possible, wrap with gauze to maintain pressure.
- Note: this is a very painful procedure, provide Pain Management per SMO.

C. While not required, hemostatic agents and/or IT clamps may be utilized per manufacturer's instructions per EMS System approval (prior to Medical Directors' approval training must be submitted to IDPH with plans to assure ongoing competency).
D. Spinal Restriction, if indicated.
E. Apply cardiac monitor.
F. Medication Administration Chart.
G. IV/IO access (see fluid treatment below):

	Controlled Hemorrhage	Uncontrolled Hemorrhage	Neurogenic
Fluid	250ml/kg **Normal Saline**	Titrate to maintain goal SBP 80-90 mmHg or MAP of >65 mmHg	Titrate to maintain goal SBP 90 mmHg or MAP between 65 to 90 mmHg
Blood Pressure Goal	SBP 80-90 mmHg	SBP 80-90 mmHg	SBP ≥90 mmHg
Medication Management		Consider **TXA** on patients with signs of hemorrhagic shock, tachycardia > 110 mmHG and hypotension SBP <100 mmHG and time less than 3 hour from injury.	Consider **Norepinephrine Drip**

H. Patients with neurogenic shock can also have underlying hemorrhage. For patients with isolated head trauma target SBP greater than 110 mmHG. Hypotension should be avoided maintain perfusion to the brain.
I. Suspect obstructive shock (tension pneumothorax), perform Needle Decompression if present.
J. Cover open wounds with sterile dressings.
K. Reassess airway, breathing and circulation frequently.
L. Transport as soon as possible.

Pediatric Patients

A. Fluid bolus.
B. TXA for patients 12 years of age or older.
C. Contact Medical Direction for approval and dosing of Norepinephrine.

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Key Considerations:

A. Communication Barriers:
   - Language Barriers
     - Expressive and/or receptive aphasia
     - Nonverbal
     - Fluency in a different language than the EMS provider
   - Sensory Barriers
     - Visual Impairment
     - Auditory Impairment

B. Assistance Adjuncts:
   - Device examples include, but are not limited to:
     - Extremity prostheses
     - Hearing aids
     - Tracheostomy
     - Central Intravenous Catheters
     - CSF Shunt
     - Gastrostomy Tube (G-Tube or J-Tube)
     - Colostomy or Ileostomy
     - Ureterostomy or Nephrostomy Tube (or Foley Catheter)
   - Service Animals

C. Identify the functional need from the patient, the patient's family, bystanders, medic alert bracelets or documents, or the patient's adjunct assistance devices. Attempt to identify the normal baseline vital signs.

D. The performance of a physical examination should not intentionally be diminished during the assessment although the manner that the exam is performed may need to accommodate the specific needs of the patient.

E. When possible, for patients with communication barriers, it may be desirable to obtain secondary confirmation of pertinent data (e.g., allergies) from the patient's family, interpreters, or available written information.

F. Presence of technology assisted devices, such as ventilators or central intravenous catheter and feeding tube pumps.
   - Consider utilizing patient's medical equipment/supplies for optimal results and appropriate sizing.

G. Use parents/caregivers/home health nurse as a medical resource at home and enroute.

TREATMENT:

TRACHEOSTOMY/Ventilator Dependent Patients

A. Assessment for displaced or obstructed tubes.
B. Assessment for pneumothorax, pneumonia, reactive airway, and/or aspiration.
C. Assessment for equipment issues such as ventilator malfunction, oxygen depletion, kinked tubing.
D. Assessment for infection.
E. If patient is on a ventilator, disconnect and attempt to oxygenate with bag using tracheostomy adaptor (if present) or mask over trach opening or stoma.
F. If patient is not on a ventilator administer oxygen with bag or mask over trach as needed.
G. Suction as needed, no more than 10 seconds. Insert no more than ¾ length of neck. If unable to suction because of thick secretions instill 2-3 ml NS, then suction.
H. If inner cannula present request that the caregiver remove and clean with saline.
I. If unable to ventilate cover opening and ventilate with bag and mask over mouth and nose (consider using a small pediatric mask even on adult patients).
J. If above does not work, remove tube and either reinsert new tube or use endotracheal tube of same approximate size.

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K. If unable to find the opening, thread suction catheter through new tracheostomy tube or endotracheal tube and use catheter tip to probe opening, sliding tube over catheter into opening and then removing catheter. Attempt to ventilate and check breath sounds.

CENTRAL INTRAVENOUS CATHETER

A. Assessment for displaced or obstructed tubing.
B. Assessment for pericardial tamponade.
C. Assessment for pneumothorax, and/or pulmonary embolism.
D. Assessment for infection.
E. Assessment for equipment issues such as kinked or cracked tubing and infusion pump failure.
F. For bleeding at site apply direct pressure.
G. Clamp or tie the tubing if it is leaking.
H. Refer to Central Line/Port-A-Cath Access SMO to access the central line.
I. Administer IV/IO fluids for signs of Shock.

CSF SHUNT

A. Assessment for infection.
B. Assessment for signs of increased intracranial pressure.
C. Ventilate patient if signs of brain herniation (unresponsiveness with equal pupils, fixed, dilated, or unresponsive pupils, or increased blood pressure and decreased heart rate). Ventilation rate should be the higher end of normal or to an $EtCO_2$ of 35.

COLOSTOMY OR ILEOSTOMY

A. Assessment for infection, irritation/trauma, or peritonitis.
B. Direct pressure if bleeding at site.
C. Saline moistened sterile dressing covered by dry dressing if stoma is exposed.
D. Administer IV/IO fluids if signs of dehydration or shock.

GASTROSTOMY (FEEDING) TUBE

A. Assessment for displaced or obstructed tube.
B. Assessment for peritonitis or perforation of the stomach/bowel.
C. Assessment for equipment issues, such as kinked or cracked tubing or infusion pump failure.
D. Direct pressure if there is bleeding at the site.
E. Dry, sterile dressing over the area if tube is dislodged, or tape partially dislodged tube in place.
F. If tube is blocked (as noted by abdominal distension or vomiting) stop the feeding. Attach the connector to the tube and leave tube open and draining into a cup.
G. Bring tubing with patient to the hospital for sizing purposed and reinsertion/replacement of the tube.
H. Administer IV/IO fluids if there are signs of dehydration or shock.
I. Transport patient on their right side or sitting up to avoid potential aspiration.

URETEROSTOMY OR NEPHROSTOMY TUBE (OR FOLEY CATHETER)

A. Assessment for infection, irritation/trauma, peritonitis, blocked urinary drainage.
B. Direct pressure if bleeding at site.
C. Saline moistened sterile dressing covered by dry dressing if stoma is exposed.
D. Administer IV/IO fluids if signs if dehydration/shock.

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FISTULA, SHUNT, OR ARTERIOVENOUS GRAFT (AV SHUNT)

A. Blood pressure should not be taken in an arm with an AV Shunt.
B. IV should not be started in an arm with an AV Shunt.
C. Direct pressure to control bleeding at site.

OTHER SPECIAL NEEDS SITUATIONS

- If possible, consider transporting an individual who is fluent in the patient's language with the patient. If this is not possible, consider the use of the following:
  - Medical translation cards
  - Online translation services
  - Any other translation service utilized by the individual agency.
- Any written communication between the patient and the EMS provider becomes part of the medical record, even if it is written on a scrap of paper and should be retained with the storage and confidentiality policies and procedures that are applicable to the written or electronic patient report.
- Patients with Downs Syndrome, especially children, may have upper cervical instability and may be more prone to spinal cord injury. Consider spinal restriction in any mechanism of injury where there has been significant movement of the neck.
- If a caregiver is present, ask if there is a "best way" to move the patient.
- Service animals are not classified as a pet and should, by law, always be permitted to accompany the patient with the following exceptions:
  - The animal is out of control and the animal's handler does not or cannot take effective action to control it.
  - The animal is not housebroken.
- Service animals are not required to wear a vest or a leash and it is illegal to make a request for special identification or documentation from the animal's partner. EMS providers may only ask the patient if the service animal is required because of a disability and the form of assistance the animal has been trained to perform.
- EMS Providers are not responsible for the care of the service animal. If the patient is incapacitated and cannot personally care for the service animal a decision can be made whether or not to transport the animal with the patient.
- According to legislation in Illinois, any "EMR, EMT, EMT-I, A-EMT, or Paramedic may transport a police/arson dog injured in the line of duty to a veterinary clinic or similar facility if there are no persons requiring medical attention or transport at that time."
- Should a service animal be transported by ambulance insure proper cleaning and decontamination of unit per Body Substance Isolation SMO.

Key Considerations: Indication for spinal restriction includes any patient that experiences a mechanism of injury that creates the potential for spinal injury. Consider the patients' mental status and neuro assessment (LOC, pupils, and ability to move and feel extremities.

PROCEDURE:

Selective Spinal Restriction

A. If any of the following is present or a spine injury is suspected then perform spinal restriction:
   - Any focal deficits noted in the neuro exam.
   - Patient age 65 or greater or less than 5 with a mechanism of injury.
   - Alteration in mental status.
   - Evidence of intoxication:
     - Evidence of intoxication may include: GCS less than 15, slurred speech, dilated pupils, flushed skin, unsteady gate, irregular behavior or presence of paraphernalia.
   - Inability of patient to communicate.
   - Distraction injury: any painful injury that may distract the patient from the pain of a spinal injury:
     - Examples of distracting injuries: long bone fractures, rib fractures, pelvic fractures, abdominal pain, large contusion, avulsion to the face or scalp, partial thickness burns greater than 10% TBSA or full thickness burns or any significantly painful injury.
   - Tenderness, swelling, or deformity noted when the spine is palpated.
   - Pain to Range of Motion (ROM):
     - ROM should not be assessed if any one of the above is present.
     - To assess ROM have patient touch chin to chest, look up, and turn head from side to side. If any pain is noted stop this assessment.

B. If none of the above is present, spinal restriction is not required.

Spinal Restriction Techniques

A. **Assessment**
   - Assess motor and sensory function before and after spinal restriction and regularly during transport.
   - Consider the use of S_PO_2 and $EtCO_2$ to monitor respiratory function.

B. **Ambulatory patients**
   - Alert cooperative patients may be allowed to self-limit movement but a cervical collar is and should be recommended.
   - Apply appropriate sized cervical collar. If the cervical collar does not fit then, use alternate mode of stabilization.
   - Instruct patient to sit on the cot. Secure the patient in position of comfort. Limit the movement of the neck during this process.

C. **Non- ambulatory patients**
   - Extricate patient as needed by the safest method available while limiting flexion, extension, rotation, and distraction of the spine.
   - Tools such as pull sheets, scoop stretchers, KED, vacuum splints and backboards may be used.
   - Place the patient in the best position suited to protect the airway while applying appropriate spinal restriction.
   - If patient is transported on a hard device apply adequate padding.
   - If backboard is utilized for extrication/moving patient transporting agency can decide on leaving backboard in place or removing and continuing restriction on cot.

D. **Penetration trauma**
   - Patients without spinal pain or neuro deficits do not need spinal restriction.

Medication Administration Chart
Spinal Restriction 1.056 - Page 1 of 2 Return to Table of Contents

Pediatric Patients

- Routine Pediatric Care.
- Pediatric patients may not understand why they are being separated from their parent / guardian and are being placed in spinal restriction. Fighting with the pediatric patient may cause more harm to their spine. Consider leaving the child in their uncompromised car seat with added padding. If parent or guardian are available include them in the child's care. This may alleviate the need to force the patient into spinal restriction.
- If child has been removed from the vehicle / car seat consider the use of pediatric restriction devices (or adult restriction with additional padding). If this causes increased agitation, movement and potential harm to the child consider placing the child in a car seat and pad to restrict movement.
- During transport every effort should be made to safely restrain the pediatric patient.

Acceptable methods / tools to achieve spinal restriction. This list is arranged from the least invasive to the most invasive:

1. Fowler's, semi-fowlers, or supine positioning on cot with correctly sized cervical collar.
2. Supine position with vacuum splint from head to toe.
3. For pediatric patients, uncompromised child car seat with appropriate padding.
4. Supine position on scoop stretcher, secured with straps and appropriate padding including head blocks.
5. KED (vest type extrication device).
6. Supine position on long backboard, secured with straps and appropriate padding including head blocks.

Helmet Removal Considerations:

1. The decision to remove a helmet should be determined by risk versus benefit. When in doubt, consult with Medical Direction.
2. Some helmets are easily removed. The removal of a full-face helmet may be more difficult.
3. Patients who are wearing full helmets with facial coverings or those which limit assessment should have early consideration for removal. The helmet may need be removed if there is an airway or potential airway issue.
4. If the helmet is loose fitting and would interfere with spinal restriction it should be removed.
5. If removing the helmet other safety equipment, such as shoulder pads, may also need to be removed.
6. If the patient has an intact airway, complaint of neck/spinal pain and/or tenderness, or neurological deficits consider leaving the helmet in place.
7. Helmet removal may require a special tool. Request assistance from coaches, athletic trainers, etc., if possible.

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Key Considerations: Numbness or paralysis on one side of the body, aphasia or slurred speech, confusion or coma, convulsions, incontinence, diplopia (double vision), headache, dizziness or vertigo, ataxia.

TREATMENT:

A. Routine Medical Care.
B. Protect airway, suction as necessary; refer to Airway Management SMO.
C. Seizure and vomiting precautions; refer to Seizure SMO.
D. Apply cardiac monitor; treat dysrhythmias according to appropriate SMO:
   - Bradycardia SMO
   - Tachycardia SMO
E. Maintain head and neck in neutral alignment - do **NOT** flex the neck.
F. If BP > 90 mmHg, elevate head of bed 15° - 30°.
G. Initiate IV Normal Saline at TKO rate for normotensive patient.
H. If altered sensorium, seizure, or focal neurological deficit, obtain and record blood sugar level.
I. If blood glucose is < 80 mg/dl **and/or** patient is symptomatic administer Glucagon or Dextrose IV and note response. Diabetic Emergencies SMO.
J. Ask patient or caregivers present if the patient takes blood thinners and document.
K. Ask and document Last Known Well in date and time.
L. If active Seizure, administer Midazolam (heavy dose) (contact Medical Direction for subsequent doses).
M. Monitor and record neurological status and any changes.
N. Protect paralyzed limbs from injury.
O. RAPID transport per algorithm.

PEDIATRIC PATIENTS

Key Considerations: Although rare in children, strokes can occur at any age.

TREATMENT:

A. Routine Pediatric Care.
B. If infant/child patient (greater than one month old) with glucose <60 mg/dl **and/or** symptomatic follow pediatric dosing for medications listed above.
C. If infant (less than one month old) with glucose of <45 mg/dl **and/or** symptomatic follow neonate dosing for medications listed above.
D. Dextrose should be used in patients under two years of age. If D-50 must be used as an alternative it must be diluted prior to administration.
E. Follow pediatric dosing and age-appropriate treatment for medications listed above –
   Midazolam Fluid Bolus Glucagon Dextrose

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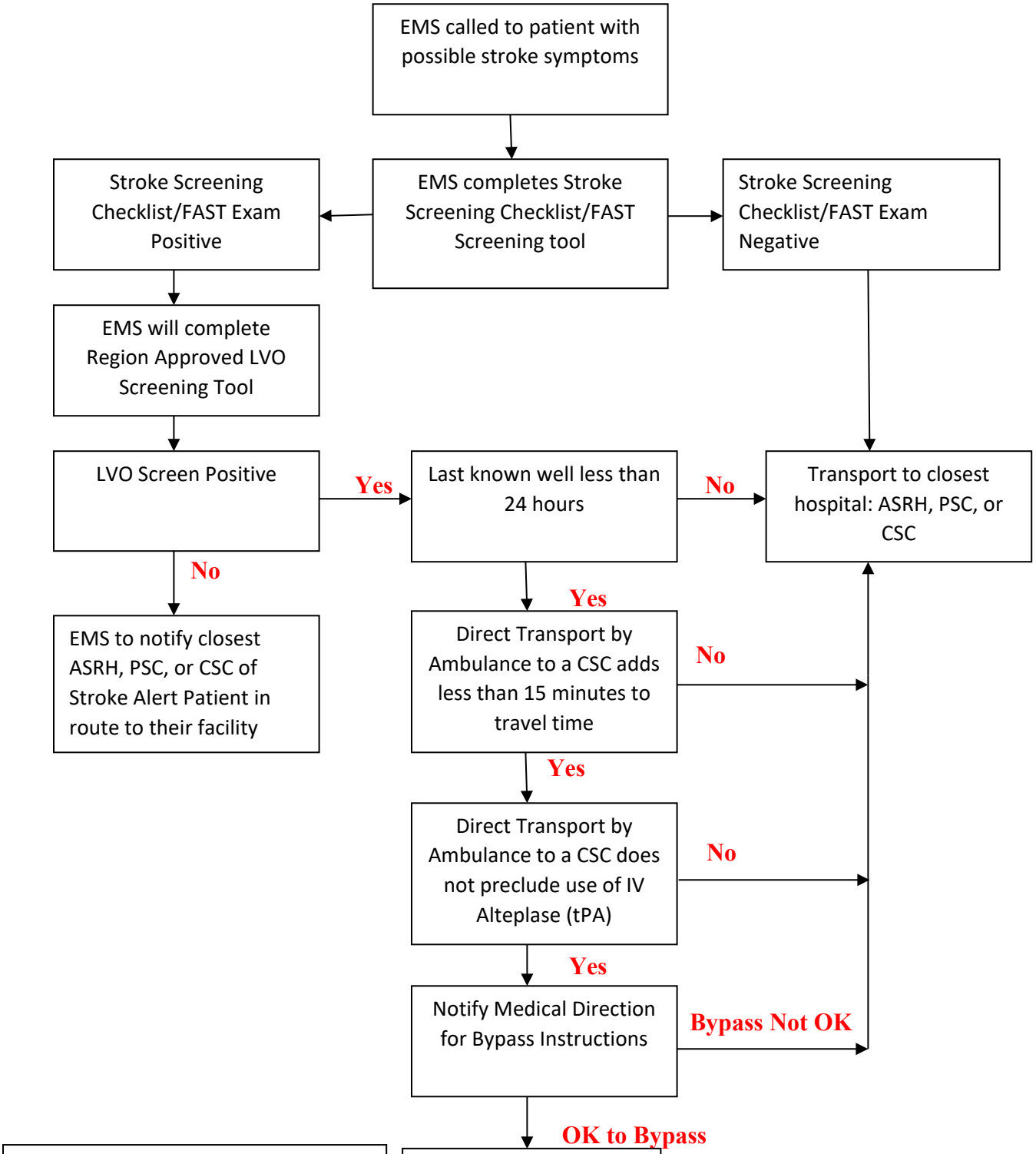
EMS Region 1 Suspected Stroke Patient Transport Algorithm



**If patient is hemodynamically unstable or EMS notices deterioration of patient, notify Medical Direction for possible transport to closest hospital, REGARDLESS of hospital capabilities

ASRH: Acute Stroke Ready Hospital-a hospital that has been designated by IDPH or certified through a certifying body as meeting the criteria for providing emergency stroke care

PSC: Primary Stroke Center-a hospital that has been certified as a Primary Stroke Center by a Department-approved nationally recognized certifying body and designated by IDPH

CSC: Comprehensive Stroke Center- a hospital that has been certified as a Comprehensive Stroke Center by a Department-approved nationally recognized certifying body and designated by IDPH

LVO-Large Vessel Occlusion

tPA- Tissue Plasminogen Activator, also known as Activase, is a possible treatment for acute ischemic (clot) strokes

Goal at ASRH, PSC, CSC:

tPA within 60 minutes of arrival

1. Door to MD ≤10 minutes
2. Door to Stroke Team ≤ 15 minutes
3. Door to CT time ≤ 20 minutes
4. Door to CT results ≤ 40 minutes
5. Door to Lab results ≤ 45 minutes
6. Check for contraindications for tPA
7. Administer tPA if no contraindications
8. Transfer to higher level of care if indicated (ASRH or PSC not capable of treating post tPA patient, patient need for neuro intervention, etc.)

G-FAST Screen:

GAZE DEVIATION: Does the person stare to one side and cannot move their eyes back to center.
_____Normal: Patient able to move eyes from side to side and back to midline.
_____ABNORMAL: Patient stares to one side and cannot move eyes back to midline or to look elsewhere.

FACIAL DROOP: Ask the person to smile and/or show their teeth.
_____Normal: Both sides of the face are equal, there is no droop noted to one side.
_____ABNORMAL: One side the mouth or face is drooping, drooling or does not look the same.

ARM DRIFT: Ask the person to hold both arms out in front of them for the count of 10.
_____Normal: Both arms move equally.
_____ABNORMAL: One arm drifts down or does not move at all, the other is normal.

SPEECH: Have the person say a sentence (example: You can't teach an old dog new tricks).
_____Normal: Sentence sounds normal, no slurring words and person uses correct words.
_____ABNORMAL: Patient unable to speak (mute), words are slurred, incorrect words used.

TIME: If the time of **Last Known Well** is GREATER than 24 hours, then a stroke alert is NOT paged because the patient is outside of acute treatment window.

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Key Considerations: Unconscious patient with unsuccessful attempts to relieve an obstruction. Also consider patient with facial trauma that restricts normal intubation. Skin color may be pale, cyanotic, and/or ashen. See Facial Trauma SMO.

PROCEDURE:

A. Unless contraindicated by trauma, place a small roll under patient's shoulders to slightly extend neck. In patients suspected of having a spinal injury, inline stabilization should be maintained throughout the procedure.
B. Locate cricothyroid membrane by tilting patient's head back (if not contraindicated by possible spinal injury) and palpating for the V-Notch of the thyroid cartilage (Adams Apple).
C. Prepare the skin with antiseptic solution and maintain aseptic technique.
D. Stabilize the thyroid cartilage between thumb and middle finger of one hand.
E. Press index finger of same hand between the thyroid and cricoid cartilage to identify cricothyroid membrane.
F. Using a short scalpel, make a 2 cm ***vertical*** incision through the skin, to visualize the cricothyroid membrane.
G. After identifying the cricothyroid membrane, make a ***horizontal*** incision using the short scalpel blade. An adequate incision eases the introduction of the trach tube.
H. Maintain opening in cricothyroid membrane with finger/Bougie/ handle of scalpel.
I. Carefully insert the tracheostomy tube supplied in the surgical cricothyrotomy kit or ET tube (generally a size 6.0 for adults). Inflate the cuff.
J. Provide ventilation by a bag-valve device with 100% oxygen.
K. Determine adequacy of ventilation through bilateral auscultation, epigastrium auscultation, and observation of rise and fall of the chest and adjust the tube if necessary.
L. Securely fix the trach tube or ET tube in place, including manually guarding if necessary.
M. Provide update of patient's status to hospital and transport immediately.

Pediatric Patients

A. Use needle cricothyrotomy (transtracheal ventilation) for children under 10 years of age; see Needle Cricothyrotomy.

Key Considerations: Duration of the syncopal episode, symptoms before episode (palpitation, seizure, incontinence, aura), previous episodes of syncope, circumstances of occurrence (patient position, severe pain, emotional stress), vital signs (especially pulse rate, quality, regularity).

TREATMENT:

CONSCIOUS, ALERT, ORIENTED WITH HISTORY OF SYNCOPAL EPISODE

A. Routine Medical Care.
B. Cardiac monitoring.
C. Obtain and record blood sugar level.
D. Consider possible causes of syncope and/or altered sensorium:

T	-	Trauma/Temperature
I	-	Infection
P	-	Psychiatric
S	-	Stroke, Subarachnoid, Shock
A	-	Alcohol and other Toxins
E	-	Endocrine
I	-	Insulin
O	-	Oxygen/Opiates
U	-	Uremia

ALTERED SENSORIUM, UNCONSCIOUS, OR SIGNS OF HYPOPERFUSION AND/OR SYSTOLIC BP < 90 mmHG

A. Routine Medical Care.
B. Cardiac monitoring, 12-lead ECG if capable.
C. IV access.
D. If adult blood glucose < 80 mg/dl **and/or** patient is symptomatic, administer:
   - Oral Glucose for conscious patient with gag reflex intact.
   - Dextrose IV; if blood glucose <80 mg/dl Medication Administration Weight-Based Chart.
   - If unable to establish an IV to administer Dextrose, and patient is without gag reflex, Glucagon IM.
E. Naloxone IN, IV, IO or IM for suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.
F. Fluid bolus in 250 ml increments with signs of hypotension.
G. Consider Spinal Restriction.

Pediatric Patients

A. Routine Pediatric Care.
B. If infant/child patient (greater than one month old) with glucose <60 mg/dl **and/or** symptomatic follow pediatric dosing for medications listed above.
C. If infant (less than one month old) with glucose of <45 mg/dl **and/or** symptomatic follow neonate dosing for medications listed above.
D. Dextrose should be used in patients under two years of age. If D-50 must be used as an alternative it must be diluted prior to administration.
E. Fluid bolus for signs of hypotension.
F. Naloxone as indicated above.

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Tachycardia - Narrow Complex Regular/Stable and Unstable – 1.061

Key Considerations: Mental status, blood pressure, evidence of CHF, and heart rate. Use caution with Adenosine administration for a patient with a known history of Wolff-Parkinson-White (WPW) syndrome. Adenosine is indicated for regular narrow complex tachycardia and is unlikely to convert when underlying atrial fibrillation/flutter is present.

Treatment/Stable: Stable is defined as normal mental status and/or signs of normal or mildly decreased perfusion.

A. Routine Medical Care.
B. Pulse oximetry.
C. Shock position.
D. Regular assessment of vital signs and signs of perfusion.
E. If the rhythm is sinus tachycardia treat the underlying causes. Do not attempt to terminate the rhythm.
F. Obtain 12-Lead ECG and print rhythm strips for receiving hospital.
G. Consider vagal maneuvers (valsalva, cough, or breath holding).
H. IV access – large bore proximal location
I. Adenosine flushed with 20 ml Normal Saline or dilute to a volume of 20 ml with Normal Saline, then push.
J. If dysrhythmia persists 1-2 minutes after initial dose repeat Adenosine (increased dose) flushed with 20 ml Normal Saline.
K. If dysrhythmia persists 1-2 minutes after repeat dose contact Medical Direction.

Treatment/Unstable: Un-stable includes signs of poor perfusion including' decreased level of consciousness, SBP <90 mmHG (with signs /symptoms of hypo-perfusion), CHF (rales), and moderate to severe chest pain.

A. Routine Medical Care.
B. Regular reassessment of vital signs and signs of perfusion.
C. Midazolam IV (light dose) for sedation prior to cardioversion if patient SBP ≥ 100 mmHg. May repeat dose up to max of 10 mg.
D. Synchronized cardioversion:
   - Narrow Regular –Use **Cardioversion** Settings below
   - Narrow Irregular – Use **Cardioversion** Settings below
   - Wide Regular – Use **Cardioversion** Settings below
   - Wide Polymorphic, unsynchronized defibrillation dose – Use **Defibrillation Settings** below

E. Fentanyl or Morphine Sulfate IV for pain control if needed if patient SBP ≥ 100 mmHg; see Pain Management SMO.
F. If cardioversion unsuccessful increase joules in a stepwise fashion.
G. Obtain 12-lead ECG and print rhythm strips for receiving hospital.

Cardioversion Settings	1st	2nd	3rd	4th
Zoll Biphasic	100	150	200	200
Phillips MRX	100	150	200	200
Lifepak/Medtronic	100	200	300	360
Tempus	100	150	200	200

Defibrillation Settings	1st	2nd	3rd	4th
Zoll Biphasic	120	150	200	200
Phillips MRX	150	170	200	200
Lifepak/Medtronic	200	300	360	360
Tempus	150	170	200	200

Medication Administration Chart

Stable Wide Complex Tachycardia

Key Considerations: Mental status will be normal and there will be no signs of poor perfusion.

TREATMENT:

A. Routine Medical Care.
B. For regular monomorphic Wide Complex Tachycardia ***consider*** Adenosine.
C. For Polymorphic VT (Torsade's de Points) Magnesium Sulfate (see Magnesium Sulfate Administration Chart); if refractory to Magnesium Sulfate does not convert, give Amiodarone or Lidocaine.
D. For monomorphic Wide Complex Tachycardia administer Amiodarone OR Lidocaine.
E. If at any time the patient becomes unstable proceed to unstable SMO and cardioversion.

Unstable Wide Complex Tachycardia with a Pulse

Key Considerations: Altered mental status and signs of poor perfusion (chest pain, dyspnea, rales, hypotension – BP <90 mmHG related to the tachycardia.

TREATMENT:

A. Routine Medical Care.
B. Synchronized cardioversion per **Cardioversion Settings** below. If unsuccessful increase in a stepwise fashion. Consider Midazolam (light dose) IV/IO/IM for sedation is patient is awake.
C. If polymorphic, use **Defibrillation Settings** below.
D. If not polymorphic administer Amiodarone or Lidocaine.
E. Upon successful cardioversion or, if cardioversion fails, use one of the following:
   - Magnesium Sulfate; see Magnesium Sulfate Administration Chart for Polymorphic VT (Torsade's de Points)
   - Amiodarone or Lidocaine

Cardioversion Settings	1st	2nd	3rd	4th
Zoll Biphasic	100	150	200	200
Phillips MRX	100	150	200	200
Lifepak/Medtronic	100	200	300	360
Tempus	100	150	200	200

Defibrillation Settings	1st	2nd	3rd	4th
Zoll Biphasic	120	150	200	200
Phillips MRX	150	170	200	200
Lifepak/Medtronic	200	300	360	360
Tempus	150	170	200	200

* Or per other specific monitor manufacturer settings.

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Key Considerations:

Signs of decreased perfusion, CHF, and or tachyarrhythmia

Sinus Tachycardia:
- Onset
- Progression
- Fluid loss
- Trauma
- Rate: infant usually <220 bpm, child usually < 180 bpm

SVT
- Onset; sudden
- Rate: infant usually >220bpm child usually > 180bpm

Ventricular Tachycardia
- Onset, sudden
- Rate: >120 bpm

Signs of Unstable Patient

Clinical signs of resp. distress or failure/hypoxemia
- Apnea
- Retractions, flaring or grunting

Signs of decreased perfusion
- AMS/Abnormal appearance
- Inequality of central and distal pulses
- Slowed or absent capillary refill<3 sec
- Hypotension and loss of distal pulses

TREATMENT:

A. Routine Pediatric Care, Rapid Transport.
B. IV/IO access as needed.
C. Identify and treat underlying cause.
D. Fluid bolus, repeat times 3 as indicated.
E. Pediatric dosing for Magnesium Sulfate not recommended without a pump. Contact Medical Direction for orders. See Magnesium Sulfate Pediatric Dosing if approved.
F. Reassess, if signs of hypovolemic shock, refer to Pediatric Shock SMO.

Stable SVT

A. Attempt vagal maneuvers.
B. Diminished perfusion, but patient is responsive, Adenosine.

Unstable SVT

A. Synchronized cardioversion, 0.5 - 1.0 joule/kg. Reassess and repeat if not effective, increased to 2 joule/kg.
B. Consider fluid bolus.

Stable Ventricular Tachycardia

A. Consider Adenosine if rhythm regular and QRS monomorphic.
B. Contact Medical Direction for administration of Lidocaine or Amiodarone.

Unstable Ventricular Tachycardia

A. Synchronized cardioversion, 0.5 - 1.0 joule/kg. Reassess and repeat if not effective, increased to 2 joule/kg.
B. If ventricular tachycardia persists, per Medical Direction, Lidocaine or Amiodarone.
C. Consider fluid bolus.

Medication Administration Chart
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Key Considerations: Breath odor, needle tracks, medic alert tags/bracelets/medallions, cardiac rhythm, blood glucose, pulse oximetry, vital signs, pupil size, skin appearance (color and/or temperature), lung sounds, airway secretions, dry or moist mucous membranes, respiratory depression or arrest due to overdose. **Consider contacting Poison Control at 1-800-222-1222 for substance information**. For patients exposed to potential chemical/biological weapons, such as anthrax, sarin, cyanide, etc, ensure each patient has been adequately decontaminated prior to initiating patient care.

TREATMENT:

A. Exercise EXTREME personal scene safety with patients potentially exposed to toxic substances.
B. Routine Medical Care.
C. Cardiac monitor.
D. IV/IO access as indicated.
E. If hypotensive, administer fluid bolus. Reassess and repeat as indicated.
F. Airway Management. Advanced airway, if indicated.
G. Collect information regarding substance.
H. See Toxidrome Table below for specifically identified toxic substances.

UNKNOWN SUBSTANCE

A. If blood glucose < 80mg/dl or if **adult** patient is symptomatic:
   - Oral glucose administration if patient is able to maintain their airway and follow commands.
   - Glucagon IV or IM if patient is unable to maintain their airway and follow commands.
B. Naloxone IN, IV, IO or IM for altered mental status, suspected opiate overdose with respiratory depression consisting of shallow respirations, signs of shock, and/or a patient unable to protect their airway. Titrate IV Naloxone to overcome respiratory depression.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing for medications listed above – Glucagon Naloxone Fluid Bolus
C. If patient with glucose <60 mg/dl **and/or** patient is symptomatic follow pediatric dosing for medications listed for UNKNOWN SUBSTANCE.

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Toxidrome Table			
Toxidrome	**Examples**	**Symptoms**	**Antidotes/Treatment**
ACE Inhibitors	Captopril Enalapril Lisinopril Quinapril	Hypotension	Supportive treatment IV fluids
Anticholinergic	Atropine Jimson Weed Scopolamine Diphenhydramine	Delirium Hyperthermia Tachycardia Warm, dry skin	Supportive treatment
Anti-Psychotic	**Typical:** Chlorpromazine (Thorazine) Haloperidol (Haldol) Trifluoperazine (Stelazine) **Atypical:** Aripiprazole (Abilify) Clozapine (Clozaril) Quetiapine (Seroquel) Risperidone (Risperdal) Ziprasidone (Geodon)	Hypotension Tachycardia QRS prolongation Arrhythmias Flushed skin Altered mental status	Supportive treatment Midazolam (heavy dose)
Blister Agents	Lewisite Nitrogen Mustard Sulfur Mustard Phosgene Oxime	Upper airway irritation Laryngospasm Hypovolemic shock Nausea/Vomiting Erythema with burning	Supportive Treatment Pulmonary Edema Seizure Airway Management Shock
Biological Agents	**Category A** Anthrax Botulism Plague **Category B** Ricin Cholera T2 Mycotoxin **Category C** Viruses that cause: Encephalitis Hantavirus Influenza	Respiratory distress Hypotension Hypoxemia Chest pain Tachycardia Confusion Vomiting Seizures GI bleed Shock Sepsis Diaphoresis	Supportive Treatment Seizure Airway Management CPAP Shock Sepsis

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Toxidrome Table			
Toxidrome	**Examples**	**Symptoms**	**Antidotes/Treatment**
Cardiotoxic Drugs	**Beta-blockers:** Metoprolol (Lopressor) Nadolol (Corgard) Propranolol (Inderal) **Calcium channel blockers:** Amiodipine (Norvasc) Verapamil (Verelan) Nifedipine (Procardia) Cardizem (diltiazem)	Bradycardia Conduction issues Hypotension	Supportive Treatment For bradycardia and/or hypotension high dose Glucagon. Atropine Calcium Gluconate IV or IO for symptomatic calcium channel blocker overdose
Cholinergic (Anti-cholinesterase)	**Pesticides:** Carbamates Organophosphates **Nerve Agents:** Sarin Soman Tabun VX	**Muscarinic *** **Nicotinic **** **Central *****	Supportive Treatment Atropine – repeat every 2-5 minutes until airway symptoms subside Pralidoxime (2-PAM) Chem-Pak
Cyanide Agents *Consider: combustible materials from house fires (plastics/furniture)*	**Hydrogen Cyanide (AC):** Formonitrile **Cyanogen Chloride (CK):** Chlorine cyanide	Respiratory arrest Hypotension Nausea/vomiting Chemical conjunctivitis	Supportive treatment Early notification to hospital for cyanide kit
Hallucinogens	PCP LSD Mescaline	Hyperthermia Tachycardia Hypertension	Supportive Treatment Midazolam (heavy dose)
Hydrofluoric Acid	Found in batteries of electric cars	Dermal/Skin Exposure Eye Inhalation Injury	**Calcium Gluconate Gel?**
Opioid	Fentanyl Heroin Hydromorphone Methadone Oxycodone	Depressed mental status Hypoventilation Constricted pupils	Supportive Treatment Naloxone (IN, IM, IV)

***Muscarinic**	****Nicotinic**	*****Central**
Diarrhea, Urination, Miosis, Bradycardia, Bronchospasm, Bronchorrhea, Emesis, Lacrimation, Salivation, Sweating	Mydriasis, Tachycardia, Weakness, Hypertension, Hyperglycemia, Fasciculations	Confusion, Convulsions, Coma

Toxidrome Table			
Toxidrome	**Example**	**Symptoms**	**Antidotes/Treatment**
Pulmonary Agents	Phosgene Diphosgene Chlorine Anhydrous Ammonia	Pharyngitis Hypovolemia Shock Chemical Burns	Supportive Treatment CPAP Shock Pulmonary Edema
Riot Control	Tear gas Mace Pepper Spray	Increased heart rate Increased blood pressure	Supportive Treatment Irrigate as appropriate Airway Management CPAP Shock
Sedative – Hypnotic	Amobarbital Barbiturates Benzodiazepines GHB Pentobarbital Rohypnol	Depressed mental status Hypotension Hypothermia	Supportive Treatment
Sodium Channel Blockade	Tricyclic antidepressants ▪ Type 1A – quinidine, procainamide Type 1C – felcainide, propafenone	Altered mental status Hypotension Seizures Wide-Complex Tachycardia	Support Treatment Sodium Bicarbonate for hypotension, seizure, and/or QRS widening > 0.10 seconds. Midazolam (heavy dose) for Seizures
Sympathomimetic	Adderall Cocaine Methamphetamine	Agitation Diaphoresis Hypertension Hyperthermia Dilated pupils Tachycardia	Supportive Treatment Midazolam (heavy dose)

Key Considerations: Good skin contact is needed; shave chest hair as needed.

PROCEDURE:

A. Explain procedure to patient.
B. IV / IO access.
C. Consider sedation.
D. Apply external pacer pads.
E. Turn on pacer.
F. Set the rate for pacing, start at 70 BPM, this may be adjusted for patient's condition.
G. Slowly turn up the mA up until evidence of electrical capture occurs (pacer spike followed by a wide QRS on the monitor). Note: this is usually 50 - 150 mA. Use the lowest mA required for capture.
H. Check for signs of mechanical capture – improvement in pulse, blood pressure, skin and increased $EtCO_2$. If not present, increase mA until mechanical capture (palpable pulse) is evident.
I. If procedure is unsuccessful follow the appropriate SMO as indicated by the presenting cardiac rhythm.
J. If procedure is successful, secure IV, O_2 and assist ventilations as indicated.
K. Continuously monitor patient enroute.
L. If patient deteriorates at any time proceed to appropriate SMO.

Pediatric Patients

Key Considerations: The need for pacing in a pediatric patient is likely related to a congenital condition.

TREATMENT:

A. Airway Management.
B. Treatment for Shock as appropriate.

Ventricular Fibrillation/Pulseless Ventricular Tachycardia – 1.064

Key Considerations: Confirm apnea, pulselessness, V-Fib or V-Tach on monitor. Search and treat possible contributing factors (H's and T's).

TREATMENT:

A. Assess ABC's.
B. CPR/AED per AHA guidelines.
C. Defibrillate at 360J for monophasic; OR equivalent biphasic. Refer to chart below.
D. Resume CPR immediately, CPR and defibrillation is the primary treatment, the following should be added as soon possible however **prevent and minimize CPR interruptions**.
E. IV or IO placement.
F. Epinephrine.
G. If Polymorphic VT (Torsade's de Pointes) Magnesium Sulfate – Magnesium Sulfate Administration Chart
H. Amiodarone OR Lidocaine.
I. Advanced Airway Management; see Airway Management SMO.
J. If available, attach waveform capnography to ET tube for confirmation of ET tube placement and verification of high-quality CPR. $EtCO_2$ reading ≥ 10 is optimal.
K. Calcium Gluconate for suspected hyperkalemia (renal failure, dialysis, potassium ingestion), or tricyclic or phenobarbital overdose.
L. If patient is restored to a perfusing rhythm and an antiarrhythmic has not been given administer Amiodarone or Lidocaine to reduce the likelihood of ventricular fibrillation recurring.
M. If patient is hypotensive (SBP < 90 mmHG) consider fluid bolus and refer to Cardiogenic Shock SMO.
N. If waveform capnography is in place, $EtCO_2$ readings of 35-45 are optimal.
O. Perform 12-lead ECG if available.
P. If ROSC (return of spontaneous circulation) occurs analyze pulse, blood pressure, and respiratory status. Acquire blood glucose level and administer Dextrose if indicated. Use caution as the blood glucose level may not be accurate in arrest or poor circulatory state.
Q. **Region 1 EMS Medical Directors recommend starting and continuing at maximum energy, if possible**. Below are the recommended manufacturer settings.

Defibrillation Settings	1st	2nd	3rd	4th
Zoll Biphasic	120	150	200	200
Phillips MRX	150	170	200	200
Lifepak/Medtronic	200	300	360	360
Tempus	150	170	200	200

* **Or per other specific monitor manufacturer settings**.

Pediatric Patients

A. Routine Pediatric Care.
B. Follow pediatric dosing and age-appropriate treatment for as listed above.
C. Defibrillate at 2 J/kg. Repeat at 4 j/kg if ineffective. Subsequent doses greater than or equal to 4 J/kg to a max of 10 J/kg or adult dose.
D. Pediatric dosing for Magnesium Sulfate not recommended without a pump. Contact Medical Direction for orders. See Magnesium Sulfate Pediatric Dosing if approved.

Resources: H's and T's

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Violent/Unsafe Scene or Patient with Inability to Safely Remain on Scene and/or Safely Restrain the Patient – 1.065

Key Considerations: If the patient is violent, the scene is unsafe, and/or law enforcement, EMS providers, or others are unwilling or unable to safely restrain the patient the following procedure should be followed:

PROCEDURE:

1. If there is an immediate threat at any point after response to a scene EMS providers should retreat to a place of safety.

2. EMS providers should contact Medical Direction with the following information:
   A. EMS will report that the individual/patient is violent, they are unable to deescalate the situation, and further engagement without law enforcement assistance is likely to degrade the situation.
   B. The EMS provider will inform Medical Direction that the scene is "not safe" providing as much detail as possible (armed, barricaded, etc.).
   C. If Medical Direction confirms the report from EMS and agrees that the scene/patient cannot be safely managed the ECRN/Physician will read the following statement to the EMS provider:

      "We understand that you are unable to safely access or assess the individual due to their behavior and law enforcement's unwillingness to assist. We are not granting a refusal, but due to the circumstances you have conveyed, we understand there is a significant safety risk to you and are authorizing you to return in service. If the scene is secured, return if requested."

3. A patient care report needs to be completed for patients who are not evaluated, explaining why the scene was unsafe, steps taken to secure the scene, and interaction with/direction from Medical Direction.

4. If EMS is called to return to the scene the patient and the scene need to re-evaluate as a separate call and needs to be documented as a separate call.

Review of Standing Medical Orders

Ongoing review of Region I EMS Standing Medical Orders is required to remain current with interventions known to be effective in prehospital care and should be the responsibility of each provider in Region I. It is expected that each provider maintain a functional knowledge of the Standing Medical Orders and apply them appropriately during all patient interactions.

The most current version and implementation date of the entire document is noted in the footer on each page. Distribution and education regarding any updates remain the purview of each Region I EMS Resource Hospital.

The Standing Medical Orders have been developed and approved through a collaborative process involving the Medical Directors listed below:

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IV Doses, volumes, and concentrations used in

PEDIATRIC RESUSCITATION

and

ADULT WEIGHT-BASED DOSING

Last updated May 2024
Doses adapted from
BROSELOW Pediatric Emergency Tape Version 2019
Edition A
The Harriet Lane Handbook Twenty-Second Edition
*For ET doses refer to Broselow Tape

Medication Administration Chart

Peds	3 kg	4 kg	5 kg	6-7 kg		8-9 kg	10-11 kg	12-14 kg	15-18 kg	19-23 kg	24-29 kg	30-36 kg
Adult	40 kg	50 kg	60 kg	70 kg	80 kg	90 kg	100 kg	110 kg	120 kg	130 kg	140 kg	150 + kg
Standard Dosing	ILS/ ALS	BLS	EMR	NorEpi/ Epi Drip		Mag Sulfate	Mag Sulfate (Peds)	Fentanyl IN	Midazolam IN	DSI Meds	Alt Meds	Formulary

For all pain and sedation medications marked with an asterisk (*) – start dose low – slowly increase – titrate to effect up to listed dose.

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Resuscitation – 3 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.03 mg	0.3 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.06 mg	0.6 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe**	1 mEq/kg	3 mEq	6 ml **Dilute with equal volume of NS prior to administration
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	180 mg	1.8 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	3 mg	0.15 ml
AMIODARONE (50mg/ml) vial	5 mg/kg	15 mg	0.3 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 0.3 mg 2nd - 0.6 mg	0.1 ml 0.2 ml

Synchronized Cardioversion

First Shock – 3 joules	Subsequent Shock – 6 joules

Defibrillation

First Shock	6 joules
Second Shock	12 joules
Subsequent	12-30 joules

Supraglottic Airway

Kings	0 – clear
i-gel	1 - pink

Cuffed ETT Size	Blade Size
3.0	1 - straight

Normal Saline Bolus

60 ml

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Anaphylaxis/Antidote/Hypoglycemia - 3 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	0.03 mg	0.03 ml
DEXTROSE 10%	0.5 GM/kg	1.5 GM	15 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	3 mg	0.06 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	6 mg	0.1 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.45 mg	0.18 ml
NALOXONE (1 mg/ml) pre-filled syringe	0.1 mg/kg	0.3 mg	0.3 ml
GLUCAGON (1 mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/ Bronchospasm/Croup - 3 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.45 mg	0.18 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	6 mg	0.1 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.03 mg	0.03 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	6.75 mg	0.25 ml

Seizures - 3 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	0.3 mg *	0.06 ml

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Antiemetic/Pain/Agitation - 3 kg

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	0.45 mg	0.225 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	3 mcg *	0.06 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	0.3 mg *	0.03 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	1.5 mg	0.1 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	0.6 mg	0.3 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.15 mg *	0.03 ml
TYLENOL Oral Suspension OTC	15 mg/kg	45 mg	1.25 ml

Delayed Sequence Intubation (DSI) - 3 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients <11 kg or <1 year of age	0.02mg/kg	0.06 mg	0.6 ml
ETOMIDATE 2 mg/ml Vial	0.3mg/kg	0.9 mg	0.45 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	3 mcg *	0.06 ml
MIDAZOLAM * 5 mg/ml Vial	0.3 mg/kg	0.9 mg *	0.18 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	6 mg	0.3 ml

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Resuscitation – 4 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.04 mg	0.4 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.08 mg	0.8 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe**	1 mEq/kg	4 mEq	8 ml **Dilute with equal volume of NS prior to administration
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	240 mg	2.4 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	4 mg	0.2 ml
AMIODARONE (50mg/ml) vial	5 mg/kg	20 mg	0.4 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.01 mg/kg 0.02 mg/kg	1st - 0.4 mg 2nd - 0.8 mg	0.13 ml 0.26 ml

Synchronized Cardioversion

First shock – 4 joules	Subsequent shock – 8 joules

Defibrillation

First shock	8 joules
Second shock	16 joules
Subsequent	16-40 joules

Supraglottic Airway

Kings Airway	0 – clear
i-gel	1 – pink

Cuffed ETT Size	Blade Size
3.0	1 - Straight

Normal Saline Bolus

80 ml

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Anaphylaxis/Antidote/Hypoglycemia – 4 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	IM 0.04 mg	0.04 ml
DEXTROSE 10%	0.5 GM/kg	2 GM	20 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	4 mg	0.08 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	8 mg	0.13 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.6 mg	0.24 ml
NALOXONE (1 mg/ml) pre-filled syringe	0.1 mg/kg	0.4 mg	0.4 ml
GLUCAGON (1 mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 4 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.6 mg	0.24 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	8 mg	0.13 ml
EPINEPHRINE (1mg/1ml) vial/amp Must use filter needle for amp	0.01 mg/kg	SUB Q 0.04 mg	0.04 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	6.75 mg	0.25 ml

Seizures – 4 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	0.4 mg *	0.08 ml

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Antiemetic/Pain/Agitation – 4 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	0.6 mg	0.3 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	4 mcg *	0.08 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	0.4 mg *	0.04 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	2 mg	0.14 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	0.8 mg	0.4 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.2 mg *	0.4 ml
TYLENOL Oral Suspension OTC	15 mg/kg	60 mg	1.25 ml

Delayed Sequence Intubation (DSI) – 4 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients <11 KG or < 1 year of age	0.02mg/kg	0.08 mg	0.8 ml
ETOMIDATE 2 mg/ml Vial	0.3mg/kg	1.2 mg	0.6 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	4 mcg *	0.08 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	1.2 mg *	1.2 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	8 mg	0.4 ml

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Resuscitation – 5 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.05 mg	0.5 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.1 mg	1 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe**	1 mEq/kg	5 mEq	10 ml **Dilute with equal volume of NS prior to administration
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	300 mg	3 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	5 mg	0.25 ml
AMIODARONE (50mg/ml) vial	5 mg/kg	25 mg	0.5 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 0.5 mg 2nd - 1 mg	0.16 ml 0.33 ml

Synchronized Cardioversion

First shock – 5 joules	Subsequent shock – 10 joules

Defibrillation

First shock	10 joules
Second Shock	20 joules
Subsequent	20-15 joules

Supraglottic Airway

Kings Airway	1 - white
i-gel	1 - pink

Cuffed ETT	Blade Size
3.0	1 - Straight

Normal Saline Bolus

100 ml

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Anaphylaxis/Antidote/Hypoglycemia – 5 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	0.05 mg	0.05 ml
DEXTROSE 10%	0.5 GM/kg	2.5 GM	25 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	5 mg	0.1 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	10 mg	0.16 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.75 mg	0.3 ml
NALOXONE (1 mg/ml) pre-filled syringe	0.1 mg/kg	0.5 mg	0.5 ml
GLUCAGON (1 mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 5 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.75 mg	0.3 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	10 mg	0.16 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.05 mg	0.05 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	6.75 mg	0.25 ml

Seizures – 5 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	0.5 mg *	0.1 ml

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Antiemetic/Pain/Agitation – 5 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	0.75 mg	0.375 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	5 mcg *	0.1 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	0.5 mg *	0.05 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	2.5 mg	0.16 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	1 mg	0.5 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.25 mg *	0.05 ml
TYLENOL Oral Suspension OTC	15 mg/kg	75 mg	1.25 ml

Delayed Sequence Intubation (DSI) – 5 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients < 11 KG or < 1 year of age	0.02 mg/kg	0.1 mg	1 ml
ETOMIDATE 2 mg/ml Vial	0.3mg/kg	1.5 mg	0.75 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	5 mcg *	0.1 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	1.5 mg *	1.5 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	10 mg	0.5 ml

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PINK

Resuscitation 6-7 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.065 mg	0.65 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.13 mg	1.3 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	6.5 mEq	13 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	390 mg	3.9 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	6.5mg	0.33 ml
AMIODARONE (50mg/ml) vial	5 mg/kg	32 mg	0.65 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 0.65mg 2nd - 1.3 mg	0.21 ml 0.43 ml

Synchronized Cardioversion

First Shock – 7 joules	Subsequent Shock – 13 joules

Defibrillation

First Shock	13 joules
Second Shock	26 joules
Subsequent	26-60 joules

Supraglottic Airway

Kings Airway	1 – white
i-gel	1.5 - blue

Cuffed ETT Size	Blade Size
3.0	1 - Straight

Normal Saline Bolus

130 ml

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PINK

Anaphylaxis/Antidote/Hypoglycemia – 6-7 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	0.07 mg	0.07 ml
DEXTROSE 10%	0.5 GM/kg	3.25 GM	32.5 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	7 mg	0.14 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	13 mg	0.21 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1 mg	0.4 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	0.7 mg	0.7 ml
GLUCAGON (1 mg/ml) Vial	Standard Dosing Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 6-7 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1 mg	0.4 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	13 mg	0.21 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.07 mg	0.07 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	6.75 mg	0.25 ml

Seizures – 6-7 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	0.7 mg *	0.14 ml

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PINK

Antiemetic/Pain/Agitation – 6-7 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	1 mg	0.5 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	6 mcg *	0.12 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	0.7 mg *	0.07 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	3.35 mg	0.23 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	1.3 mg	0.65 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.3 mg *	0.07 ml
TYLENOL Oral Suspension OTC	15 mg/kg	90 mg	2.5 ml

Delayed Sequence Intubation (DSI) – 6-7 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients < 11 KG or < 1 year of age	0.02 mg/kg	0.13 mg	1.3 ml
ETOMIDATE 2 mg/ml Vial	0.3mg/kg	2 mg	1 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	6 mcg *	0.12 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	2 mg *	2 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	13 mg	0.7 ml

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Resuscitation – 8-9 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.085 mg	0.85 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.17 mg	1.7 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	8.5 mEq	17 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	510 mg	5.1 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	8.5 mg	0.42 ml
AMIODARONE (50mg/ml) vial	5 mg/kg	42 mg	0.85 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 0.85mg 2nd - 1.7 mg	0.28 ml 0.56 ml

Synchronized Cardioversion

First Shock – 8 joules	Subsequent Shock – 17 joules

Defibrillation

First Shock	17 joules
Second Shock	33 joules
Subsequent	33-80 joules

Supraglottic Airway

Kings Airway	1 – white
i-gel	1.5 - blue

Cuffed ETT Size	Blade Size
3.0	1 – Straight

Normal Saline Bolus

170 ml

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Anaphylaxis/Antidote/Hypoglycemia 8-9 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	0.085 mg	0.085 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	8.5 mg	0.17 ml
DEXTROSE 10%	0.5 GM/kg	4.25 GM	42.5 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	17 mg	0.27 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.28 mg	0.5 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	0.9 mg	0.9 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup 8-9 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.28 mg	0.5 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	17 mg	0.27 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.085 mg	0.085 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures 8-9 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	0.9 mg *	0.18 ml

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Antiemetic/Pain/Agitation – 8-9 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	1.28 mg	0.64 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	8 mcg *	0.16 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	0.9 mg *	0.09 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	4.25 mg	0.28 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	1.7 mg	0.85 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.4 mg *	0.09 ml
TYLENOL Oral Suspension OTC	15 mg/kg	120 mg	3.75 ml

Delayed Sequence Intubation (DSI) – 8-9 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients < 11 KG or < 1 year of age	0.02 mg/kg	0.17 mg	1.7 ml
ETOMIDATE 2 mg/ml Vial	0.3mg/kg	2.5 mg	1.25 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	8 mg *	0.16 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	2.5 mg *	2.5 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	17 mg	0.85 ml

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Resuscitation - 10 - 11 kg

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.1 mg	1 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.21 mg	2.1 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	10 mEq	20 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	630 mg	6.3 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	10 mg	0.5 ml
AMIODARONE (50 mg/1 ml) Vial	5 mg/kg	50 mg	1 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 1 mg 2nd - 2.1 mg	0.35 ml 0.7 ml

Synchronized Cardioversion

First Shock – 10 joules	Subsequent shock – 20 joules

Defibrillation

First Shock	20 joules
Second Shock	40 joules
Subsequent	40-100 joules

Supraglottic Airway

Kings Airway	1 – white
i-gel	1.5 - blue

Cuffed ETT Size	Blade Size
3.5	1-1.5 - Straight

Normal Saline Bolus

210 ml

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Anaphylaxis/Antidote/Hypoglycemia – 10-11 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	IM 0.1 mg	0.1 ml
DEXTROSE 10%	0.5 GM/kg	5.25 GM	32.5 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	10 mg	0.2 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	20 mg	0.32 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.5 mg	0.6 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	1 mg	1 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 10-11 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.5 mg	0.6 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	20 mg	0.32 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.1 mg	0.1 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 10-11 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	1 mg *	0.2 ml

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Antiemetic/Pain/Agitation- 10-11 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	1.5 mg	0.75 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	10 mcg *	0.2 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	1 mg *	0.1 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	5 mg	0.33 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	2 mg	1 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.5 mg *	0.1 ml
TYLENOL Oral Suspension OTC	15 mg/kg	150 mg	3.75 ml

Delayed Sequence Intubation (DSI) - 10 - 11 kg

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe Not recommended for patients < 11 KG or < 1 year of age	0.02 mg/kg	0.21 mg	2.1 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	3.2 mg	1.6 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	10 mcg *	0.2 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	3.2 mg *	3.2 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	20 mg	1 ml

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YELLOW

Resuscitation – 12-14 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) Pre-filled syringe	0.01 mg/kg	0.13 mg	1.3 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.26 mg	2.6 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	13 mEq	26 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	780 mg	7.8 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	13 mg	0.65 ml
AMIODARONE (50 mg/1 ml) Vial	5 mg/kg	65 mg	1.3 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st – 1.3 mg 2nd – 2.6 mg	0.43 ml 0.86 ml

Synchronized Cardioversion

First Shock – 13 joules	Subsequent shock – 26 joules

Defibrillation

First Shock	26 joules
Second Shock	52 joules
Subsequent	52-130 joules

Supraglottic Airway

Kings Airway	2 – green
i-gel	2 - gray

Cuffed ETT Size	Blade Size
4.0	2 - Straight

Normal Saline Bolus

260 ml

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YELLOW

Anaphylaxis/Antidote/Hypoglycemia – 12-14 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	IM 0.13 mg	0.13 ml
DEXTROSE 10%	0.5 GM/kg	6.5 GM	62.5 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	13 mg	0.26 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	26 mg	0.42 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.95 mg	0.78 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	1.3 mg	1.3 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 12-14 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	1.95 mg	0.78 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	26 mg	0.42 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.13 mg	0.13 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 12-14 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	1.3 mg *	0.26 ml

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YELLOW

YELLOW

Antiemetic/Pain/Agitation – 12-14 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	1.95 mg	0.97 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	13 mcg *	0.26 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	1.3 mg *	0.26 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	6.5 mg	0.43 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	2.6 mg	1.3 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.65 mg *	0.13 ml
TYLENOL Oral Suspension OTC	15 mg/kg	180 mg	5 ml (1 tsp)

Delayed Sequence Intubation (DSI) – 12-14 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.26 mg	2.6 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	4 mg	2 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	13 mcg *	0.26 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	4 mg *	4 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	26 mg	1.3 ml

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YELLOW

Resuscitation – 15-18 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.17 mg	1.7 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.33 mg	3.3 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	16.5 mEq	33 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	990 mg	9.9 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	17 mg	0.85 ml
AMIODARONE (50 mg/1 ml) Vial	5 mg/kg	80 mg	1.6 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st – 1.7 mg 2nd - 3.3 mg	0.56 ml 1.1 ml

Synchronized Cardioversion

First shock – 17 joules	Subsequent shock – 33 joules

Defibrillation

First shock	33 joules
Second shock	66 joules
Subsequent	66-160 joules

Supraglottic Airway

Kings Airway	2 – green
i-gel	2 - gray

Cuffed ETT Size	Blade Size
4.5	2 - Straight

Normal Saline Bolus

325 ml

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Anaphylaxis/Antidote/Hypoglycemia – 15-18 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp (or Epi Jr)	0.01 mg/kg	IM 0.17 mg	0.17 ml
DEXTROSE 10%	0.5 GM/kg	8.25 G	82.5 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	17 mg	0.34 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	34 mg	0.5 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.55 mg	1 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	1.6 mg	1.6 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	0.5 mg	0.5 ml

Asthma/Bronchospasm/Croup – 15-18 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.55 mg	1 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	34 mg	0.5 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.17 mg	0.17 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 15-18 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	1.7 mg *	0.34 ml

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Antiemetic/Pain/Agitation – 15-18 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	2.55 mg	1.27 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	16 mcg *	0.32 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	1.7 mg *	0.17ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	8.5 mg	0.56 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	3.4 mg	1.7 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	0.8 mg *	0.16 ml
TYLENOL Oral Suspension OTC	15 mg/kg	225 mg	5 ml (1 tsp)

Delayed Sequence Intubation (DSI) – 15-18 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.33 mg	3.3 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	5 mg	2.5 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	16 mcg *	0.32 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	5 mg *	5 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	34 mg	1.7 ml

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Resuscitation – 19-23 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.21 mg	2.1 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.42 mg	4.2 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	21 mEq	42 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	1260 mg	12.6 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	20 mg	1 ml
AMIODARONE (50 mg/1 ml) Vial	5 mg/kg	105 mg	2.1 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st – 2.1 mg 2nd – 4.2 mg	0.7 ml 1.4 ml

Synchronized Cardioversion

First Shock – 20 joules	Subsequent Shock – 40 joules

Defibrillation

First Shock	40 joules
Second Shock	80 joules
Subsequent	80-200 joules

Supraglottic Airway

Kings Airway	2 – green
i-gel	2 - grey

Cuffed ETT Size	Blade Size
5.0	2 – Straight or Curved

Normal Saline Bolus

420 ml

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BLUE

Anaphylaxis/Antidote/Hypoglycemia – 19-23 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp (or Epi Jr)	0.01 mg/kg	IM 0.21 mg	0.21 ml
DEXTROSE 10%	0.5 GM/kg	10.5 GM	105 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	21 mg	0.42 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	42 mg	0.7 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.5 mg	1 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	2 mg	2 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	1 mg	1 ml

Asthma/Bronchospasm/Croup – 19-23 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.5 mg	1 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	42 mg	0.7 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.21 mg	0.21 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 19-23 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	2.1 mg *	0.42 ml

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Antiemetic/Pain/Agitation – 19-23 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	3.15 mg	1.6 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	21 mcg *	0.42 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	2.1 mg *	0.21 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	10.5 mg	0.7 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	4.2 mg	2.1 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	2.1 mg *	0. 2 ml
TYLENOL Oral Suspension OTC	15 mg/kg	285 mg	7.5 ml (1 ½ tsp)

Delayed Sequence Intubation (DSI) – 19-23 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.42 mg	4.2 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	6.3 mg	3.15 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	21 mcg *	0.42 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	6.3 mg *	6.3 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	40 mg	2 ml

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Resuscitation – 24-29 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.27 mg	2.7 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.5 mg	5 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	27 mEq	54 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	1590 mg	15.9 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	27 mg	1.35 ml
AMIODARONE (50 mg/1 ml) Vial	5 mg/kg	130 mg	2.6 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st - 2.7mg 2nd - 5.4 mg	0.9 ml 1.8 ml

Synchronized Cardioversion

First Shock – 27 joules	Subsequent Shock – 53 joules

Defibrillation

First Shock	53 joules
Second Shock	106 joules
Subsequent	106-260 joules

Supraglottic Airway

Kings Airway	2 – green to 2.5 orange
i-gel	2.5 - white

Cuffed ETT Size	Blade Size
6.0	2 – Straight or Curved

Normal Saline Bolus

530 ml

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Anaphylaxis/Antidote/Hypoglycemia – 24-29 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp (or Epi Jr)	0.01 mg/kg	IM 0.27 mg	0.27 ml
DEXTROSE 10%	0.5 GM/kg	13.3 GM	133 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	27 mg	0.54 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	54 mg	0.86 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.5 mg	1 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	2 mg	2 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	1 mg	1 ml

Asthma/Bronchospasm/Croup – 24-29 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.5 mg	1 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	54 mg	0.86 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.27 mg	0.27 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 24-29 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	2.7 mg *	0.54 ml

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Antiemetic/Pain/Agitation – 24-29 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	4 mg	2 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	26 mcg *	0.52 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	2.7 mg *	0.27 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	13.5 mg	0.9 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	5.4 mg	2.7 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	1.3 mg *	0.26 ml
TYLENOL Oral Suspension OTC	15 mg/kg	360 mg	10 ml (2 tsp)

Delayed Sequence Intubation (DSI) 24-29 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.5 mg	5 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	8 mg	4 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	26 mcg *	0.52 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	8 mg *	8 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	54 mg	2.7 ml

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Resuscitation – 30-36 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE 1 mg/10 ml (1:10 ml) pre-filled syringe	0.01 mg/kg	0.33 mg	3.3 ml
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.5 mg	5 ml
SODIUM BICARBONATE (5 mEq/10 ml) pre-filled syringe	1 mEq/kg	33 mEq	66 ml
CALCIUM GLUCONATE (1gm/10 ml) pre-filled syringe	60 mg/kg	1980 mg	19.8 ml
LIDOCAINE (100 mg/5 ml) pre-filled syringe	1 mg/kg	33 mg	1.7 ml
AMIODARONE (50 mg/1 ml) 50% Vial	5 mg/kg	165 mg	3.3 ml
ADENOSINE (6mg/2 ml) pre-filled syringe	0.1 mg/kg 0.2 mg/kg	1st – 3.3 mg 2nd – 6 mg	1.1 ml 2 ml

Synchronized Cardioversion

First Shock – 30 joules	Subsequent Shock – 66 joules

Defibrillation

First Shock	66 joules
Second Shock	130 joules
Subsequent	130-330 joules

Supraglottic Airway

Kings Airway	2.5 – orange
i-gel	3 - yellow

Cuffed ETT Size	Blade Size
6.5	3 – Straight or Curved

Normal Saline Bolus

660 ml

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Anaphylaxis/Antidote/Hypoglycemia 30-36 KG

	DOSE/KG	DOSE	VOLUME
EPINEPHRINE (1mg/1ml) vial/amp (or Epi Pen adult)	0.01 mg/kg	IM 0.33 mg	0.33 ml
DEXTROSE 10%	0.5 GM/kg	16.5 GM	165 ml
DIPHENHYDRAMINE (50 mg/1 ml) Vial	1 mg/kg	33 mg	0.66 ml
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	66 mg	1.1 ml
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	2.5 mg	1 ml
NALOXONE (1mg/ml) pre-filled syringe	0.1 mg/kg	2 mg	2 ml
GLUCAGON (1mg/ml) Vial	Standard Dose Not Weight-Based	1 mg	1 ml

Asthma/Bronchospasm/Croup – 30-36 KG

	DOSE/KG	DOSE	VOLUME
ALBUTEROL (2.5 mg/ml) Ampule	0.15 mg/kg	0.6 mg	0.24 ml
CONTINUOUS ALBUTEROL	Up to 2.5 mg. Contact Medical Direction for additional dosing.		
METHYLPREDNISOLONE (125 mg/2 ml) Vial	2 mg/kg	66 mg	1.1 ml
EPINEPHRINE (1mg/1ml) vial/amp	0.01 mg/kg	SUB Q 0.33 mg	0.33 ml
RACEMIC EPINEPHRINE 2.25% (0.05 ml/kg)	0.05 ml/kg (all rounded to 0.25 or 0.5)	13.5 mg	0.5 ml

Seizures – 30-36 KG

	DOSE/KG	DOSE	VOLUME
MIDAZOLAM * (5 mg/ml) Vial	0.1 mg/kg	3.3 mg *	0.66 ml

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Antiemetic/Pain/Agitation – 30-36 KG

	DOSE/KG	DOSE	VOLUME
ONDANSETRON (2 mg/ml) Vial	0.15 mg/kg	4 mg	2 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	33 mcg *	0.66 ml
MORPHINE * (10 mg/1 ml) pre-filled syringe	0.1 mg/kg	3.3 mg *	0.33 ml
KETOROLAC (15 mg/ml) pre-filled syringe	0.5 mg/kg	15 mg	1 ml
ETOMIDATE (2 mg/ml) Vial	0.2 mg/kg	6.6 mg	3.3 ml
MIDAZOLAM * (5 mg/ml) Vial	0.05 mg/kg	1.7 mg *	0.34 ml
TYLENOL Oral Suspension OTC	15 mg/kg	450 mg	12 ml (2 ½ tsp)

Delayed Sequence Intubation (DSI) 30-36 KG

FOR DSI APPROVED SERVICES ONLY

	DOSE/KG	DOSE	VOLUME
ATROPINE (1mg/10ml) pre-filled syringe	0.02 mg/kg	0.5 mg	5 ml
ETOMIDATE 2 mg/ml Vial	0.3 mg/kg	10 mg	5 ml
FENTANYL * (50mcg/ml) vial/amp Must use filter needle for amp	1 mcg/kg	33 mcg *	0.66 ml
MIDAZOLAM * 1 mg/ml Vial	0.3 mg/kg	10 mg *	10 ml
SUCCINYLCHOLINE 20 mg/ml Vial	2 mg/kg	66 mg	3.3 ml

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40 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	8 mg	4 mL	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	40 mcg *	0.8 mL	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	160 mg	1.6 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	10 mg *	0.1 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	40 mg	2 mL	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 mL) pre-filled syringe	0.05 mg/kg	2 mg *	0.2 mL	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	40 mEq	40 mL	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

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* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

50 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	10 mg	5 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	50 mcg*	1 ml	May repeat x1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	200 mg	2 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	12.5 mg*	0.125 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	50 mg	2.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	2. 5 mg*	0.25 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mE1/ml) syringe	1 mEq/KG	50 mEq	50 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

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* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

60 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	12 mg	6 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must user filter for amp	1 mcg/kg	60 mcg *	1.2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	240 mg	2.4 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	15 mg *	0.15 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	60 mg	3 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	3 mg *	0.3 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	60 mEq	60 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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70 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	14 mg	7 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	70 mcg *	1.4 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	280 mg	2.8 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	17.5 mg *	0.175 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	70 mg	3.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	3.5 mg *	0.35 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	70 mEq	70 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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80 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	16 mg	8 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	80 mcg *	1.6 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	320 mg	3.2 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	20 mg *	0.2 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	80 mg	4 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	4 mg *	0.4 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	80 mEq	80 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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90 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	18 mg	9 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	90 mcg *	1.8 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	360 mg	3.6 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	22.5 mg*	0.225 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	90 mg	4.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	4.5 mg *	0.45 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq	90 mEq	90 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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100 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	20 mg	10 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	400 mg	4 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	25 mg *	0.25 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	100 mg	5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	5 mg *	0.5 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	100 mEq	100 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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110 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	22 mg	11 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	440 mg	4.4 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	27.5 mg*	0.275 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	110 mg	5.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	5.5 mg *	0.55 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	110 mEq	110 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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120 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	24 mg	12 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	480 mg	4.8 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	30 mg *	0.3 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	120 mg	6 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	6 mg *	0.6 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	120 mEq	120 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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130 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	26 mg	13 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	500 mg	5 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	32.5 mg *	0.325 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	130 mg	6.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	6.5 mg *	0.65 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	130 mEq	130 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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140 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	28 mg	14 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	500 mg	5 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	35 mg *	0.35 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	140 mg	7 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	7 mg *	0.7 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	140 mEq	140 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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150 KG

DRUG	DOSE/KG	DOSE	VOLUME	Notes
Etomidate (2 mg/ml) vial	0.2 mg/kg	30 mg	15 ml	May repeat x 1 after 5 minutes
Fentanyl * (50 mcg/ml) vial/amp Must use filter for amp	1 mcg/kg	100 mcg*	2 ml	May repeat x 1 after 5 minutes
Ketamine IM Only Extreme Agitation (100 mg/ml) vial	4 mg/kg	500 mg	5 ml	Additional dose online only
Ketamine IM/IV * Pain Management Restraints (100 mg/ml) vial	0.25 mg/kg	37.5 mg*	0.375 ml	Use 1 ml syringe IM – no dilution IV – dilute with NS to 1 ml and push over 2 minutes
Lidocaine 2% (20 mg/ml) syringe	1 mg/kg	150 mg	7.5 ml	May repeat using half dose to a total of 3 mg/kg
Morphine * (10 mg/1 ml) pre-filled syringe	0.05 mg/kg	7.5 mg *	0.75 ml	May repeat x 1 after 5 minutes
Sodium Bicarbonate (1 mEq/ml) syringe	1 mEq/kg	150 mEq	150 ml	May follow with half dose every 10 minutes

See dosing for Dextrose 10% and Midazolam on the Pharmacology page.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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Delayed Sequence Intubation

For agencies approved for paralytics

40 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	40 mg	2 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	8 mg	4 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	60 mg	6 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	1 mg	0.2 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	60 mg	3 ml	Additional dose online only

50 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	50 mg	2.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	10 mg	5 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	75 mg	7.5 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	1.25 mg	0.25 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	75 mg	3.75 ml	Additional dose online only

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For agencies approved for paralytics

60 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	60 mg	3 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	12 mg	6 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	90 mg	9 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	1.5 mg	0.3 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	90 mg	4.5 ml	Additional dose online only

70 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	70 mg	3.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	14 mg	7 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	105 mg	10.5 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	1.75 mg	0.35 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	105 mg	5.25 ml	Additional dose online only

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Delayed Sequence Intubation

For agencies approved for paralytics

80 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	80 mg	4 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	16 mg	8 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	120 mg	12 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	2 mg	0.4 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	120 mg	6 ml	Additional dose online only

90 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	90 mg	4.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	18 mg	9 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	135 mg	13.5 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	2.25 mg	0.45 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	135 mg	6.75 ml	Additional dose online only

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Delayed Sequence Intubation

For agencies approved for paralytics

100 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	100 mg	5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	20 mg	10 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	150 mg	15 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	2.5 mg	0.5 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	150 mg	7.5 ml	Additional dose online only

110 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	110 mg	5.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	22 mg	11 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	165 mg	16.5 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	2.75 mg	0.55 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	165 mg	8.25 ml	Additional dose online only

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Delayed Sequence Intubation

For agencies approved for paralytics

120 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	120 mg	6 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	24 mg	12 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	180 mg	18 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	3 mg	0.6 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	180 mg	9 ml	Additional dose online only

130 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	130 mg	6.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	26 mg	13 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	195 mg	19.5 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	3.25 mg	0.65 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	195 mg	9.75 ml	Additional dose online only

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Delayed Sequence Intubation

For agencies approved for paralytics

140 KG

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	140 mg	7 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not Weight Based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	28 mg	14 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	200 mg	20 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	3.5 mg	0.7 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	210 mg	10.5 ml	Additional dose online only

150 KG or greater

DRUG	DOSE/KG	DOSE	VOLUME	NOTES
Lidocaine (20 mg/ml)	1 mg/kg	150 mg	7.5 ml	May repeat using half dose to a total of 3 mg/ml
Atropine	Not weight based			IV/IO 1 mg every 5 min to max of 3 mg
Etomidate (2 mg/ml) Vial	0.2 mg/kg	30 mg	15 ml	May repeat x1 after 5 minutes
Ketamine IV (10 mg/ml) Vial	1.5 mg/kg	200 mg	20 ml	Additional dose online only
Midazolam (5 mg/ml) Vial	0.025 mg/kg	3.75 mg	0.75 ml	May repeat x1 after 5 minutes
Succinylcholine (20 mg/ml) vial	1.5 mg/kg	225 mg	11.25 ml	Additional dose online only

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* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

Pharmacology BLS/ILS/ALS

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Adenosine (Adenocard)	SVT, Stable Monomorphic Wide Complex Tachycardia of UKN Origin, generally over the rate of 150	Bronchoconstriction or Bronchospasm (Asthma), 2nd or 3rd degree heart blocks, Sick sinus syndrome	Single syringe fast IV push of diluted Adenosine in 20 ml saline flush	6 mg may repeat 12 mg if needed Peds: Wt based dosing
Albuterol Sulfate	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction, Hyperkalemia	Caution in tachycardia (>150) patients with severe cardiac disease	Nebulizer with 8 lpm O2, inline CPAP May dilute with NS for pediatric dosing	2.5 mg May repeat as needed Peds: Up to 2.5 mg once. Call Medical Direction for additional dosing
Amiodarone (Cordarone)	V-Fib, Pulseless V-T	Bradycardia/heart blocks, Cardiogenic shock, Iodine allergies	IV / IO push	300 mg Repeat at 150 mg Max of 450 mg Peds: Wt based dosing
Amiodarone (Cordarone) Loading Dose	VT with a pulse (wide-complex tachycardia)	Bradycardia/heart blocks, Cardiogenic shock, Iodine allergies	IV / IO (if no IV pump available use 60 drop/mL tubing)	150 mg over 10 min May repeat one time for reoccurrence
Aspirin (chewable tablets)	Chest Pain suggestive of ACS	Allergy, Bleeding Disorders Use caution during CPAP and in patients with an increased bleed risk	PO Chewed	324 mg Peds: Not recommended
Atropine Sulfate	Symptomatic Bradycardia	Caution with acute MI	IV / IO / ETT (Fast)	1 mg max of 3 mg Peds: Wt based dosing
Atropine Sulfate for Organophosphate Poisoning	Organophosphate Poisoning, Nerve agent exposure	None	IV/IO	2 mg repeated every 5 minutes until symptom resolution. No max dose.

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	ROUTE	DOSE
Calcium Gluconate	Hyperkalemia, hypocalcemia, hypermagnesemia	Digitalis toxicity, hypercalcemia	IV / IO	1 gram May repeat every 5 minutes x 2 for total of 3 grams (12 lead EKG recommended prior to each administration for non-code) Peds: Wt based dosing
Dextrose 10%	Hypoglycemia		IV/IO	25 GM/250 ml Peds: Wt based dosing
Diphenhydramine (Benadryl)	Allergic Reaction	Acute Asthma, COPD, Glaucoma	IV / IM Oral (BLS only)	25-50 mg Peds: Wt based dosing
DuoNeb (Albuterol / Ipratropium)	Shortness of breath with bronchoconstriction / wheezing, Allergic Reaction	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O2, inline CPAP	Use DuoNeb for first dose* repeat with Albuterol if needed Peds: Not recommended – consider Albuterol

** DuoNeb: use one premade Albuterol & Ipratropium (2.5 mg/0.5 mg in 5 ml) or add one Albuterol (2.5 mg in 3 ml) and one Ipratropium (0.5 / 2.5 ml) to nebulizer*

Epi Injector (Adrenalin)	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease With system approval BLS units may utilize Epi 1 mg/1 mL vials	IM	Patients over 30 KG (66 pounds) 0.3 mg Patients 15-30 KG (33-66 pounds 0.15 mg
Epinephrine 1 mg/1 ml	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease	IM	0.3 mg. May repeat dose Contact Medical Direction Peds: Wt based dosing
Epinephrine 1 mg/10 ml	Cardiac arrest - Pulseless V-Tach, V-Fib, Asystole, PEA	If the 0.1 mg/mL concentration is unavailable the 1 mg/ML may be used, but must be diluted prior to administration.	IV / IO / ETT	1 mg (ACLS algorithm) Peds: Wt based dosing
Epinephrine Drip	Anaphylaxis, Cardiogenic Shock, Symptomatic Bradycardia, Post-Cardiac Arrest, Distributive shock	Hypovolemia	IV/IO drip	5 mcg/min See drip chart
Etomidate (Amidate)	Sedation, Induction of general anesthesia		IV / IO	Wt based Peds: Wt based dosing
Fentanyl (Fentanyl Citrate) *	Pain Control	Caution in patients with hypertension, hypotension or increased ICP	IV / IO / IM / MAD	Wt based Peds: Wt based dosing

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	ROUTE	DOSE
Glucagon	Hypoglycemia, Beta blocker OD		IM / IV	1 mg Peds: Wt based dosing
Ketamine (Ketalar) *	Pain unresponsive to narcotics	Increased intracranial pressure, severe hypertension	IM / IV	0.25 mg/kg Wt based dosing Peds: Not recommended
Ketamine (Ketalar)	Extreme Agitation restraints as part of behavioral management	Increased intracranial pressure, severe hypertension	IM	4 mg/kg Wt based dosing Peds: Not recommended
Ketamine (Ketalar)	Induction for DSI only for agencies approved for DSI	Increased intracranial pressure, severe hypertension	IV / IO (must be diluted 1:1 with NS) prior to administration	Wt based dosing Peds: Not recommended
Ketorolac (Toradol)	Moderate to severe pain	Patients with bleeding disorders, renal failure, active peptic ulcers, or patients with allergies to aspirin or NSAIDS	IV / IO / IM	15 mg May repeat x 1 if needed in patients <65 years old and ≥ 50 kg Peds: Not recommended for patients < 1 year old Wt based dosing
Lidocaine (Xylocaine)	V-Fib, Pulseless V-T, Stable VT (wide-complex tachycardia), Pain management post IO	Bradycardia with Ventricular Escape Rhythm	IV / IO / ETT	Wt based dosing Peds: Wt based dosing

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	ROUTE	DOSE
Magnesium Sulfate	Shortness of breath with bronchoconstriction / wheezing	AV Blocks	IV / IO	2 Grams over 20 minutes Call Medical Direction for further doses Pediatric dosing for Mag Sulfate not recommended without a pump
Magnesium Sulfate	Polymorphic V-T, Torsade's de Pointes with pulse	AV Blocks	IV/IO	2 Grams over 5-10 minutes Call Medical Direction for further doses Pediatric dosing for Mag Sulfate not recommended without a pump
Magnesium Sulfate	Torsade's de Pointes pulseless	AV Blocks	IV/IO	2 Grams over 1-2 minutes Call Medical Direction for further doses Pediatric dosing for Mag Sulfate not recommended without a pump
Magnesium Sulfate	Eclampsia	AV Blocks	IV/IO	2 Grams over 5-10 minutes Call Medical Direction for further doses Pediatric dosing for Mag Sulfate not recommended without a pump
Methylprednisolone (Solu-Medrol)	Shortness of Breath with bronchoconstriction /wheezing, Allergic Reaction, Anaphylaxis		IV / IO / IM	125 mg Peds: Wt based dosing

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* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	ROUTE	DOSE
Midazolam (Versed) * "Heavy"	- Seizure - Excited Delirium - Pre-Eclampsia/ Eclampsia (Seizure) -Sedation/ Induction for DSI - Stroke (Seizure) - Toxic Overdose of Anti-Psychotic, Hallucinogens, Sodium Channel Blockade or Sympathomimetic (Seizure)	Hypotension/Shock	IV / IO / MAD / IM *	5 mg May repeat one time Peds: Wt based dosing
Midazolam (Versed) * "Light"	Behavioral/Restraint Bradycardia Cardioversion ROSC Hyperthermia Pain Management Tachycardia	Hypotension/Shock	IV / IO / MAD / IM *	2.5 mg May repeat one time (if patient is intubated may repeat every 5 minutes to maintain sedation) Peds: Wt based dosing
Midazolam (Versed) * "Anxiety"	CPAP	Hypotension/Shock	IV / IO / MAD / IM *	0.5 mg May repeat one time
Morphine Sulfate *	Pain Control	SBP < 100, Hypovolemia	IV / IO / IM *	Wt based Peds: Wt based dosing
Naloxone (Narcan)	Opioid overdose with respiratory depression (typically 4 mg should reverse most opioids, however some synthetics may require additional doses). Narcan may take several minutes for patient to respond. Respirations need to be supported.	Recently, more evidence of potential negative effects with high doses of Naloxone. Attempt to determine if and how much Narcan was given prior to arrival. If going to high dose you should have strong suspicion of opioid overdose. Caution with narcotic-dependent patients who may experience withdrawal syndrome (**using higher doses may cause pulmonary edema**).	IV / IO/ MAD / IM If IO not established consider an alternative route.	0.4 - 2 mg (titrate to effect up to 2 mg) May repeat as needed 4 mg Nasal Spray may be used if available. Peds: Wt based dosing
Nitroglycerin tablets	Chest Pain suggestive of ACS, Pulmonary Edema – double dose if MAP >120, Systolic >/=160.	SBP < 110, pulse <60 or >100, erectile dysfunction meds within 48 hrs. **Use caution for patients on CPAP**	SL	Chest Pain: 0.4 mg Repeat every 5 min 3 doses Pulmonary Edema: 0.8 mg See SMO for repeat dosing Peds: Not recommended

* For pain and sedation doses:
Start dose low – slowly increase – Titrate to effect up to listed dose

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GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	ROUTE	DOSE
Nitroglycerin Paste	Chest Pain suggestive of ACS, Pulmonary Edema	BP < 110, pulse <60 or >100, Erectile dysfunction meds within 48 hrs.	Topical	0.5 – 2 inches Peds: Not recommended
Norepinephrine Drip	Cardiogenic Shock, Symptomatic Bradycardia, Post-Cardiac Arrest, Distributive shock	Hypovolemia	IV/IO drip	5 mcg/min See drip chart
Ondansetron (Zofran)	Nausea/Vomiting	Use with caution if QTC ≥ 500 ms	IV / IO (slow) IM ODT-oral	4 mg Peds: IV Wt based dosing No tablets for patients under 40 KG
Oral Glucose	Hypoglycemia	Patient who is not able to follow commands (no gag reflex)	PO	15 grams Peds: Up to 15 GM as tolerated
Racemic Epinephrine	Pediatric croup, Non-choking stridor (at rest – with or without respiratory distress	Tachyarrhythmias, headache, nausea, palpitations	Nebulizer with 8 lpm O2, inline CPAP	Peds 2.25% (0.5 ml) or 0.05 ml/kg Wt based dosing
Sodium Bicarbonate	Cardiac Arrest, Metabolic Acidosis, Hyperkalemia, Tricyclic Antidepressant Overdose, Crush injuries/suspension trauma	Alkalosis, hypocalcemia, hypochloremia	IV / IO	Wt based Peds: Wt based dosing
Succinylcholine (Anectine)	Paralytic for DSI	Hyperkalemia, increased intracranial pressure, intraocular (globe rupture) injuries	IV/IO	Wt based Peds: Wt based dosing
Tranexamic Acid (Cyklokapron)	Traumatic hemorrhagic shock w/ suspected need for massive blood transfusion Trauma patient ≥ 12 years old at high risk for ongoing internal hemorrhage and meeting one or more the following criteria: ○ SBP < 100 mmHg ○ Tachycardia > 110 bpm with signs of hypotension (AMS, cool extremities, etc.)	Injury greater than 3 hours old Patients < 12 years old	IV / IO Drip	2 grams in 100 ml over 10- 20 minutes For children ≥12 years old – same dosing
Tylenol Oral Suspension OTC	Mild to moderate pain Fever	Known hypersensitivity Environmental hyperthermia What other pain medications has patient been taking	Orally (measured syringe or cup)	Pain Score 1-3 – 500-650 mg Pain Score 4-6 – 975-1000 mg Weight based dosing

* For pain and sedation doses:
Start dose low – slowly increase –
Titrate to effect up to listed dose

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Adult Patients

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Albuterol Sulfate	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction, Hyperkalemia	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O2, inline CPAP	2.5 mg (in 3 ml) may repeat if needed off-line
Aspirin chewable tablets	Chest Pain suggestive of ACS	Recent GI bleed, Allergy, Bleeding Disorders Use caution for patients on CPAP	PO Chewed	324 mg (4 - 81 mg) off-line
Epi Injector (Adrenalin) * *Epi 1:1 may be used with system approval*	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease	IM	0.3 mg off-line Anaphylaxis on-line allergic reaction
Diphenhydramine (Benadryl)	Allergic Reaction	Acute Asthma, COPD, Glaucoma	OTC	Formulations dosed per manufacturers recommendations
DuoNeb (Albuterol / Ipratropium)	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O2, inline CPAP	Use DuoNeb for first dose* repeat with Albuterol if needed
** DuoNeb: use one premade Albuterol & Ipratropium (2.5 mg/0.5 mg in 5 ml) or add one Albuterol (2.5 mg in 3 ml) and one Ipratropium (0.5 / 2.5 ml) to nebulizer*				
Glucagon	Hypoglycemia, Beta blocker OD		IM	1 mg off-line
Naloxone (Narcan)	Opioid overdose with respiratory depression (typically 4 mg should reverse most opioids, however some synthetics may require additional doses). Narcan may take several minutes for patient to respond. Respirations need to be supported.	Recently, more evidence of potential negative effects with high doses of Naloxone. Attempt to determine if and how much Narcan was given prior to arrival. If going to high dose you should have strong suspicion of opioid overdose. Caution with narcotic-dependent patients who may experience withdrawal syndrome (**using higher doses may cause pulmonary edema**)	MAD / IM	2 mg (in 2 ml) MAD is preferred route 1/2 in each nare may repeat X 1 dose off-line 4 mg Nasal Spray may be used if available.
Nitroglycerin tablets	Chest Pain suggestive of ACS, Pulmonary Edema	BP < 110, Inferior MI with possible RV infarction, severe bradycardia, severe tachycardia, Erectile dysfunction meds within 24 hrs. **Use caution for patients on CPAP**	SL	0.4 mg If patient prescribed nitro, repeat every 5 min x 3 doses total Off-line (use EMS supply) On-line for pt not prescribed nitro
Ondansetron	Nausea/Vomiting	Tablets are not able to be divided. For adults only.	ODT-oral	4 mg
Oral Glucose	Hypoglycemia	Patient who is not able to follow commands	PO	15 grams off-line
Tylenol Oral Suspension OTC	Mild to moderate pain Fever	Known hypersensitivity Environmental hyperthermia	Orally (measured syringe or cup)	Pain Score 1-3 – 500-650 mg Pain Score 4-6 – 975-1000mg

See next page for Pediatric Patients

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Pediatric Patients

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Albuterol Sulfate	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction, Hyperkalemia	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O2, inline CPAP	2.5 mg (in 3 ml) may repeat if needed off-line Full dose may not be appropriate / needed in smaller patients, monitor patient and discontinue if extreme tachycardia or patient improved and additional medication not required
Aspirin chewable tablets	**NA not used in pediatric patients**			**NA not used in pediatric patients**
Epi Injector (Adrenalin)	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease	IM	Epi Jr. 0.15 mg for patient 15 to less than 30 kg Epi 0.3 mg for patient greater than 30 kg (66 pounds) - under 15 kg (33 pounds) call Medical Direction off-line Anaphylaxis on-line allergic reaction
DuoNeb (Albuterol / Ipratropium)	NA not used in pediatric patients			NA not used in pediatric patients
** DuoNeb: use one premade Albuterol & Ipratropium (2.5 mg/0.5 mg in 5 ml) or add one Albuterol (2.5 mg in 3 ml) and one Ipratropium (0.5 / 2.5 ml) to nebulizer*				
Diphenhydramine (Benadryl)	Allergic Reaction	Acute Asthma, COPD, Glaucoma	OTC	Formulations dosed per manufacturers recommendations
Glucagon	Hypoglycemia, Beta blocker OD		IM	0.5 mg for patient less than 22 kg (48 pounds) 1.0 mg for patients over 22 kg (48 pounds) 1 mg off-line
Naloxone (Narcan)	Opioid overdose with respiratory depression (typically 4 mg should reverse most opioids, however some synthetics may require additional doses). Narcan may take several minutes for patient to respond. Respirations need to be supported.	Recently, more evidence of potential negative effects with high doses of Naloxone. Attempt to determine if and how much Narcan was given prior to arrival. If going to high dose you should have strong suspicion of opioid overdose. Caution with narcotic-dependent patients who may experience withdrawal syndrome (**using higher doses may cause pulmonary edema**)	MAD / IM	1 mg for patients 10-20 kg (22-44 pounds) 2 mg for patients over 20 kg (44 pounds) MAD is preferred route 1/2 in each nare May repeat X 1 dose off-line. 4 mg Nasal Spray may be used if available.
Nitroglycerin tablets	**NA not used in pediatric patients**			**NA not used in pediatric patients**
Oral Glucose	Hypoglycemia	Patient who is not able to follow commands (no gag reflex)	PO	15 grams off-line
Tylenol Oral Suspension OTC	Mild to moderate pain Fever	Known hypersensitivity. Environmental hyperthermia	Orally (measured syringe or cup)	Weight-Based Dosing

Adult Patients

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Albuterol Sulfate	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction, Hyperkalemia	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O2	2.5 mg (in 3 ml) may repeat if needed off-line
Aspirin chewable tablets	Chest Pain suggestive of ACS	Recent GI bleed, Allergy, Bleeding Disorders	PO Chewed	324 mg (4 - 81 mg) off-line
Epi Injector (Adrenalin)	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease	IM	0.3 mg off-line Anaphylaxis on-line allergic reaction
Naloxone (Narcan)	Opioid overdose with respiratory depression (typically 4 mg should reverse most opioids, however some synthetics may require additional doses). Narcan may take several minutes for patient to respond. Respirations need to be supported	Recently, more evidence of potential negative effects with high doses of Naloxone. Attempt to determine if and how much Narcan was given prior to arrival. If going to high dose you should have strong suspicion of opioid overdose. Caution with narcotic-dependent patients who may experience withdrawal syndrome (**using higher doses may cause pulmonary edema**)	MAD	2 mg (in 2 ml) MAD is preferred route 1/2 in each nare may repeat X 1 dose off-line 4 mg Nasal Spray may be used if available.
Oral Glucose	Hypoglycemia	Patient who is not able to follow commands	PO	15 grams off-line

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Pediatric Patients

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Albuterol Sulfate	Shortness of Breath with bronchoconstriction / wheezing, Allergic Reaction, Hyperkalemia	Caution in tachycardia patients with severe cardiac disease	Nebulizer with 8 lpm O_2	2.5 mg (in 3 ml) may repeat if needed off-line Full dose make not be appropriate / needed in smaller patients, monitor patient, and discontinue if extreme tachycardia or patient improved and additional medication not required
Aspirin chewable tablets	NA not used in pediatric patients			NA not used in pediatric patients
Epi Auto-Injector (Adrenalin)	Anaphylaxis / allergic reaction bronchoconstriction / wheezing refractory to neb	Caution in patients with severe cardiac disease	IM	Epi Jr. 0.15 for patient 15 to 30 Kg (33-66 pounds) Epi 0.3 for patient greater than 30 kg (66 pounds) under 15 kg (33 pounds) call Medical Direction off-line Anaphylaxis on-line allergic reaction
Naloxone (Narcan)	Opioid overdose with respiratory depression (typically 4 mg should reverse most opioids, however some synthetics may require additional doses). Narcan may take several minutes for patient to respond. Respirations need to be supported	Recently, more evidence of potential negative effects with high doses of Naloxone. Attempt to determine if and how much Narcan was given prior to arrival. If going to high dose you should have strong suspicion of opioid overdose. Caution with narcotic-dependent patients who may experience withdrawal syndrome (**using higher doses may cause pulmonary edema**)	MAD	1 mg for patients 10-20 kg (22-44 pounds)2 mg for patients over 20 kg (44 pounds) 1/2 in each nareMay repeat X 1 dose off-line. 4 mg Nasal Spray may be used if available.
Oral Glucose	Hypoglycemia	Patient who is not able to follow commands	PO	15 grams off-line

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Intranasal (IN) Dosing for Fentanyl

Fentanyl 50 mcg/ml IN Dosing Chart

Notes:	Patient Weight KG	Fentanyl dose mcg	Fentanyl Dose ml
* 2-3 mcg/kg * Administer 1/2 dose per nare	3-5 kg	10	0.3
* 1/4 to 1/2 ml is ideal	6-10 kg	20	0.5
* Volumes >2 ml may be titrated with 2nd dose 5-10 minutes later	11-15 kg	30	0.7
* Monitor for respiratory depression	16-20 kg	40	0.9
* May repeat ½ dose every 5-10 minutes until desired effect	21-25 kg	50	1.1
	26-30 kg	60	1.3
	31-35 kg	70	1.5
	36-40 kg	80	1.7
	41-45 kg	90	1.8
	46-50 kg	100	2.0
	51-55 kg	110	2.3
	56-60 kg	120	2.5
	61-70 kg	140	2.9
	71-80 kg	160	3.3
	81-90 kg	180	3.7
	91 kg or greater	200	4.0

Fentanyl is the preferred analgesic agent for intranasal delivery due to absorption and bioavailability concerns with Morphine.

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Midazolam IN Dosing Chart 5 mg/ml (10 mg/2 ml)		
Age	Weight KG	Volume ml
Neonate	3	0.3
<1	6	0.4
1	10	0.5
2	14	0.7
3	16	0.8
4	18	0.9
5	20	1
6	22	1
7	24	1.1
8	26	1.2
9	28	1.3
10	30	1.4
11	32	1.4
12	34	1.5
Small Teen	40	1.8
Adult	>50	2

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Dextrose Chart

Pediatric Dose = 0.5 Gm/kg/dose
Dextrose 10% and 25% recommended for children < 2 years old
Dextrose 10% ***ONLY*** for children 28 days and younger (if D10 is not available D50 must be diluted twice to a concentration of 12.5%)
D50% may be diluted 1:1 with NS (0.9%) prior to administration to give final concentration of D25%

May repeat dose x 1

Patient weight	Dose (Grams)	Dextrose 10% (0.1 Gm/mL)	Dextrose 25% (0.25 Gm/mL)	Dextrose 50% (0.5 Gm/mL)
3 kg	1.5 G	15 mL	6 mL	-
4 kg	2 G	20 mL	8 mL	-
5 kg	2.5 G	25 mL	10 mL	-
Pink (6 - 7 kg)	3.25 G	32 mL	13 mL	6.5 mL Dilute 1:1
Red (8 - 9 kg)	4.25 G	42.5 mL	17 mL	8.5 mL Dilute 1:1
Purple (10 - 11kg)	5.25 G	52.5 mL	21 mL	10.5 mL
Yellow (12 - 13 kg)	6.5 G	65 mL	26 mL	13 mL
White (15 - 18 kg)	8.25 G	82.5 mL	33 mL	16.5 mL
Blue (19 - 21 kg)	10.5 G	105 mL	42 mL	21 mL
Orange (24 - 29 kg)	13.3 G	133 mL	53.2 mL	26.6 mL
Green (33 - 36 kg)	16.5 G	165 mL	68 mL	33 mL
Adult	25 G	250 ml	100 ml	50 ml

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Norepinephrine Drip/Epinephrine Drip Administration Chart

4 mcg/250 ml

Drops per minute based on Microdrip tubing (60 drops/ml)

mcg/min	ml/min	drops/min
2.5	0.16	10
5	**0.31**	**19**
7.5	0.47	28
10	0.63	38
12.5	0.78	47
15	0.94	56
17.5	1.09	65
20	1.25	75
22.5	1.4	84
25	1.56	94
27.5	1.72	10.3
30	1.88	113

Start at 5 mcg/min.

Titrate by 2.5 mcg/min every five minutes as needed to maintain MAP of ≥ 65 or systolic of > 90 mmHG.

Pediatric Patients

Contact Medical Direction for approval and dosing.

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Magnesium Sulfate Administration Rate*

* Pediatric dosing for Mag Sulfate not recommended without a pump

Chart for 2 grams in 50 ml

Drops/ml setup	50 ml administered over __ minutes		
	5 minutes	10 minutes	20 minutes
10	100 drops/min	50 drops/min	25 drops/min
15	150 drops/min	75 drops/min	38 drops/min
20	200 drops/min	100 drops/min	50 drops/min

Indication	Dose
Shortness of breath with bronchoconstriction / wheezing	2 grams over 20 minutes
Polymorphic V-T, Torsade's de Pointes with a pulse	2 grams over 5-10 minutes
Torsade's de Pointes pulseless	2 grams over 1 - 2 minutes (may use 60 ml syringe and push over 1-2 minutes)
Eclampsia	2 grams over 5-10 minutes

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Magnesium Sulfate Pediatric Dosing Chart

* Pediatric dosing for Mag Sulfate not recommended without a pump

50 mg/kg single dose (max 2000 mg) over 20 minutes – must be diluted prior to administration.
Volume for 40 mg/ml concentration.

Patient weight	Dose	Volume (40 mg/mL)
3 kg	150 mg	3.75 mL
4 kg	200 mg	5 mL
5 kg	250 mg	6.25 mL
Pink (6 - 7 kg)	325 mg	8 mL
Red (8 - 9 kg)	425 mg	10 mL
Purple (10 - 11kg)	525 mg	13 mL
Yellow (12 - 13 kg)	650 mg	16 mL
White (15 - 18 kg)	825 mg	20 mL
Blue (19 - 21 kg)	1050 mg	26 mL
Orange (24 - 29 kg)	1325 mg	33 mL
Green (33 - 36 kg)	1650 mg	41 mL

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Dosing Chart for Alternative Medications

GENERIC NAME	INDICATIONS	CONTRAINDICATIONS	Route	Dose
Dexamethasone	Anaphylaxis Persistent Asthma Unresponsive bronchospasm	Hypersensitivity	IV/Oral	See Dosing Chart
Dextrose 25%, 50%	Hypoglycemia	None	IV / IO	See Alternative Dosing Chart See chart for dose May repeat dose x 1 Peds: Wt based dosing
Diazepam (Valium)	Seizures, Moderate Sedation	Drug abuse, coma, shock, or head injury induced CNS depression	IV/IO/IM (slowly)	Wt based Peds: Wt based dosing
Lorazepam * (back-up if Midazolam is not available)	Seizures, Moderate Sedation, Pre-treatment for DSI	Coma (unless seizing), altered mental status of unknown age, severe hypotension, shock, respiratory insufficiency	IM / IV / IO *	Wt based Peds: Wt based dosing
Rocuronium Bromide (back-up if Succinylcholine not available)	Paralytic for DSI	Hypersensitivity to neuromuscular blocking agents, known neuromuscular disease	IV / IO	Wt based Peds: Wt based dosing
Vecuronium (back-up if Succinylcholine not available)	Paralytic for DSI	Bradycardia, dysrhythmias, hypotension, muscular disease	IV / IO	Wt based Peds: Wt based dosing

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Dexamethasone

Wt	DOSE/KG	DOSE	VOLUME	Notes
3 KG	0.6 mg/kg	1.8 mg	0.45 ml	IV or orally
4 KG		2.4 mg	0.6 ml	
5 KG		3 mg	0.75 ml	
6-7 KG		3.9 mg	0.9 ml	
8-9 KG		1.7 mg	0.34 ml	
10-11 KG		2 mg	0.4 ml	
12-14 KG		2.6 mg	0.65 ml	
15-18 KG		3.4 mg	0.68 ml	
19-23 KG		4.2 mg	0.84 ml	
24-29 KG		5.4 mg	1.08 ml	
30-36 KG		6.6 mg	1.32 ml	
Adult		10 mg	1.6 ml	

Diazepam

Wt	DOSE/KG	DOSE	VOLUME	Notes
3 KG	0.2 mg/kg	0.6 mg	0.12 ml	Additional dose Online only
4 KG		0.8 mg	0.16 ml	
5 KG		1 mg	0.2 ml	
6-7 KG		1.3 mg	0.26 ml	
8-9 KG		1.7 mg	0.34 ml	
10-11 KG		2 mg	0.4 ml	
12-14 KG		2.6 mg	0.65 ml	
15-18 KG		3.4 mg	0.68 ml	
19-23 KG		4.2 mg	0.84 ml	
24-29 KG		5.4 mg	1.08 ml	
30-36 KG		6.6 mg	1.32 ml	
40 KG	0.2 mg/kg	8 mg	1.6 ml	
50 KG		10 mg	2 ml	
60 KG		12 mg	2.4 ml	
70 KG		14 mg	2.8 ml	
80 KG		16 mg	3.2 ml	
90 KG		18 mg	3.6 ml	
100 KG		20 mg	4 ml	
110 KG		22 mg	4.4 ml	
120 KG		24 mg	4.8 ml	
130 KG		26 mg	5.2 ml	
140 KG		28 mg	5.6 ml	
150 KG	0.2 mg/kg	30 mg	6 ml	Additional dose Online only

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Lorazepam

Wt	DOSE/KG	DOSE	VOLUME	Notes
3 KG	0.1 mg/kg	0.3 mg	0.15 ml	May repeat x1 after5 minutes
4 KG		0.4 mg	0.2 ml	
5 KG		0.5 mg	0.25 ml	
6-7 KG		0.7 mg	0.35 ml	
8-9 KG		0.9 mg	0.45 ml	
10-11 KG		1 mg	0.5 ml	
12-14 KG		1.3 mg	0.65 ml	
15-18 KG		1.7 mg	0.85 ml	
19-23 KG		2.1 mg	1 ml	
24-29 KG		2.7 mg	1.35 ml	
30-36 KG		3.3 mg	1.65 ml	
40 KG	0.1 mg/kg	4 mg	2 ml	May repeat x1 after5 minutes
50 KG		5 mg	2.5 ml	
60 KG		6 mg	3 ml	
70 KG		7 mg	3.5 ml	
80 KG		8 mg	4 ml	
90 KG		9 mg	4.5 ml	
100 KG		10 mg	5 ml	
110 KG		11 mg	5.5 ml	
120 KG		12 mg	6 ml	
130 KG		13 mg	6.5 ml	
140 KG		14 mg	7 ml	
150 KG	0.1 mg/kg	15 mg	7.5 ml	May repeat x1 after 5 minutes

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Rocuronium

Wt	DOSE/KG	DOSE	VOLUME	Notes
3 KG	1 mg/kg	3 mg	0.3 ml	May repeat x1 after5 minutes
4 KG		4 mg	0.4 ml	
5 KG		5 mg	0. 5 ml	
6-7 KG		7 mg	0.7 ml	
8-9 KG		9 mg	0.9 ml	
10-11 KG		10 mg	1 ml	
12-14 KG		13 mg	1.3 ml	
15-18 KG		17 mg	1.7 ml	
19-23 KG		21 mg	2.1 ml	
24-29 KG		27 mg	2.7 ml	
30-36 KG		33 mg	3.3 ml	
40 KG	1 mg/kg	40 mg	4 ml	May repeat x1 after5 minutes
50 KG		50 mg	5 ml	
60 KG		60 mg	6 ml	
70 KG		70 mg	7 ml	
80 KG		80 mg	8 ml	
90 KG		90 mg	9 ml	
100 KG		100 mg	10 ml	
110 KG		110 mg	11 ml	
120 KG		120 mg	12 ml	
130 KG		130 mg	13 ml	
140 KG		140 mg	14 ml	
150 KG	1 mg/kg	150 mg	15 ml	May repeat x1 after 5 minutes

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Vecuronium

Wt	DOSE/KG	DOSE	VOLUME	Notes
3 KG	0.2 mg/kg	0.6 mg	0.6 ml	Additional dose online only
4 KG		0.8 mg	0.8 ml	
5 KG		1 mg	1 ml	
6-7 KG		1.3 mg	1.3 ml	
8-9 KG		1.7 mg	1.7 ml	
10-11 KG		2.1 mg	2.1 ml	
12-14 KG		2.6 mg	2.6 ml	
15-18 KG		3.4 mg	3.4 ml	
19-23 KG		4.2 mg	4.2 ml	
24-29 KG		5.4 mg	5.4 ml	
30-36 KG		6.6 mg	6.6 ml	
40 KG	0.1 mg/kg	4 mg	4 ml	Additional dose online only
50 KG		5 mg	5 ml	
60 KG		6 mg	6 ml	
70 KG		7 mg	7 ml	
80 KG		8 mg	8 ml	
90 KG		9 mg	9 ml	
100 KG		10 mg	10 ml	
110 KG		10 mg	10 ml	
120 KG		10 mg	10 ml	
130 KG		10 mg	10 ml	
140 KG		10 mg	10 ml	
150 KG	0.1 mg/kg	10 mg	10 ml	Additional dose online only

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REGION I EMERGENCY MEDICAL SERVICES

Formulary

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EMT Medications

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Adenosine	(Adenocard)
Classification:	Antidysrhythmic Agent
Actions:	Slows conduction through the A-V node, can interrupt the re-entry pathways through the A-V node, and can restore normal sinus rhythm in patients with PSVT.
Indications:	Supraventricular tachycardia (stable) Monomorphic wide-complex tachycardia (stable)
Contraindications include but not limited to:	○ Bronchoconstriction or bronchospasm (asthma) ○ 2nd or 3rd degree heart block ○ Sick sinus syndrome ○ Hypersensitivity to Adenosine
Adverse effects include but not limited to:	➢ Transient asystole ➢ Facial flushing ➢ Headache ➢ Dizziness ➢ Dyspnea ➢ Nausea/vomiting ➢ Chest pressure ➢ Bronchoconstriction in some asthma patients
Adult Administration: **Packaging Information:** (6 mg/2 ml) pre-filled syringe	Single syringe IV administer fast IV push of 6 mg Adenosine with 20 ml Normal Saline preferably in the left AC. If dysrhythmia persists, follow with 12 mg Adenosine/20 ml NS flush. Call Medical Direction for additional dosing.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing; follow with 5-10 mL NS flush.
Onset:	Within 30 seconds
Duration:	10 seconds
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Tachycardia - Narrow & Wide Complex	Half-life is 10 seconds. Use caution with patients with Wolff-Parkinson-White (WPW). A brief period of asystole (up to 15 seconds) following conversion, followed by resumption of NSR is common after rapid administration. Draw up adenosine and saline flush in single syringe to allow for a more rapid bolus. Not indicated for patients with a known history of atrial fibrillation/atrial flutter but may be used to determine rhythm in irregular tachycardias. Once atrial fibrillation or atrial flutter is confirmed you should discontinue any further administration.

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Albuterol Sulfate	(Proventil, Ventolin)
Classification:	Bronchodilator
Actions:	Relaxes bronchial smooth muscle by stimulating beta$_2$ receptors resulting in bronchodilation.
Indications:	• Acute asthma/emphysema • Allergic reactions • COPD/bronchitis • Bronchospasm • Known or suspected patients with hyperkalemia
Contraindications include but not limited to:	○ Symptomatic tachycardia (>150 BPM) ○ Chest pressure ○ Prior hypersensitivity reaction to Albuterol
Adverse effects include but not limited to:	➢ Tachycardia ➢ Hypertension ➢ Palpitations ➢ Dizziness ➢ Dysrhythmias ➢ Restlessness ➢ Nausea
Adult Administration: **Packaging Information:** (2.5 mg/3 ml) Ampule/Nebulizer	Via nebulizer – 2.5 mg - repeat PRN until relief of symptoms
Pediatric Administration:	Via nebulizer – up to 2.5 mg Call Medical Direction for repeat dosing
Onset:	Within 5 minutes
Duration:	3-4 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Bronchospasm/Asthma/COPD Crush Syndrome and Suspension Trauma Hyperkalemia	Monitor blood pressure and heart rate closely. Use with caution in patients with: • Heart disease • Hypertension • Tachy-dysrhythmias • Patients being treated with MAO inhibitors and tricyclics may experience tachycardia and hypertension • Patients who are hypersensitive to sympathomimetics

Albuterol Sulfate Ipratropium Bromide	(DuoNeb)
Classification:	Albuterol is a bronchodilator. Ipratropium is an anticholinergic bronchodilator.
Actions:	Relaxes bronchial smooth muscle by stimulating beta$_2$ receptors resulting in bronchodilation.
Indications:	• Acute asthma attack • Bronchospasm associated with emphysema/bronchitis • COPD • Wheezing in croup or bronchiolitis
Contraindications include but not limited to:	○ Signs of an MI ○ Cardiac arrhythmias associated with tachycardia ○ Patients taking Spiriva/other bronchodilator ○ Known hypersensitivity to Albuterol/Ipratropium
Adverse effects include but not limited to:	➢ Tachycardia ➢ Hypertension ➢ Palpitations ➢ Dizziness ➢ Dysrhythmias ➢ Restlessness/Nervousness ➢ Nausea/Vomiting
Adult Administration: **Packaging Information:** Albuterol: (2.5 mg/ 3 ml) Ampule Ipratropium: (0.5 mg/2.5 ml) Ampule	One ampule containing Albuterol/Ipratropium in 3 ml NS. Can repeat one time following initial treatment (2 total doses). Use DuoNeb for first dose, repeat with Albuterol if needed.
Pediatric Administration:	Not recommended for pediatric patients. Consider Albuterol.
Onset:	Within 5 minutes
Duration:	3-4 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Bronchospasm CPAP Toxic Exposure	Monitor blood pressure and heart rate closely. Stop treatment if: • Pulse rate increases by 20 beats/minute • Frequent PVCs develop • Any tachydysrhythmias other than sinus tachycardia develops Use with caution in patients with: • Heart disease • Hypertension • Palpitations Patients being treated with MAO inhibitors and tricyclics may experience tachycardia and hypertension

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Amiodarone	(Cordarone, Pacerone)
Classification:	Antiarrhythmic agent
Actions:	• Delays repolarization • Prolongs action potential • Slows conduction • Delays impulses from SA and AV nodes • Slows conduction through accessory pathways • Vasodilation
Indications:	• Ventricular fibrillation • Wide-complex tachycardia
Contraindications include but not limited to:	○ Cardiogenic shock ○ Bradycardia/heart blocks ○ Iodine allergies
Adverse effects include but not limited to	➢ Hypotension ➢ Bradycardia ➢ AV block ➢ Asystole ➢ PEA ➢ Hepatoxicity
Adult Administration: **Packaging Information:** (150 mg/ 3 ml) Vial	VF/VT (pulseless) – 300 mg slow IV/IO push (over 1-2 minutes) followed in four (4) minutes by 150 mg IV/IO push VT (with pulse) – IV/IO – slowly infuse 150 mg over 10 minutes. Mix with 100 ml Normal Saline and infuse at a rate of 618 ml/hr. May repeat one time.
Pediatric Administration:	VF/VT (pulseless) – see Medication Administration Chart for weight-based dosing and administration rates VT (with pulse) – see Medication Administration Chart for weight-based dosing and administration rates
Onset:	2-3 minutes
Duration:	Days to weeks
Pregnancy Safety:	Category D
Precautions and Comments: Pharmacology Chart **Used in SMO:** Asystole/PEA Cardiac Arrest Post Resuscitation Tachycardia- Narrow and Wide Ventricular Fibrillation/Pulseless Ventricular Tachycardia	In patients with a pulse Amiodarone must be administered very slowly (Adults: over 10 minutes / Pediatrics: over 30 minutes). Use with beta blockers and calcium channel blockers may increase risk of hypotension and bradycardia. Use with Fentanyl may cause hypotension, bradycardia, and decreased cardiac output. Use with antihypertensives may increase hypotensive effect. Return to Formulary Table of Contents *Formulary Amiodarone Page 1 of 1*

Aspirin	(ASA)
Classification:	Antiplatelet, Analgesic, Antipyretic, Anti-inflammatory
Actions:	Inhibition of platelet aggregation and platelet synthesis. Reduction of risk of death in patients with a history of myocardial infarction or unstable angina.
Indications:	Chest pain with suspected myocardial ischemia
Contraindications include but not limited to:	○ Allergy to ASA/NSAID ○ Peptic ulcer disease ○ Hypersensitivity to salicylates
Adverse effects include but not limited to:	➢ Nausea, GI upset ➢ Hepatotoxicity ➢ Occult blood loss ➢ Anaphylaxis
Adult Administration: **Packaging Information:** (81 mg) Chewable Tablet	324 mg / 4 tablets
Pediatric Administration:	Not recommended
Onset:	30-60 minutes
Duration:	4-6 hours
Pregnancy Safety:	Category D in the third trimester: use ONLY if benefit to mother justifies the risk to the fetus.
Precautions and Comments: Pharmacology Chart **Used in SMO:** Chest Pain of Suspected Cardiac Origin	Patients who have already taken Aspirin today (such as 81 mg daily dose) can still be administered Aspirin. Consider Aspirin early in the appropriate intervention as it has been shown to improve mortality.

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Atropine Sulfate	
Classification:	Parasympathetic blocker (Anticholinergic), Antidysrhythmic agent
Actions:	• Inhibits parasympathetic stimulation by blocking acetylcholine receptors. • Decreases vagal tone resulting in increased heart rate and AV conduction. • Dilates bronchioles and decreases respiratory tract secretions. • Decreases gastrointestinal secretions and motility.
Indications:	• Symptomatic bradycardia • Organophosphate poisoning (OPP) • Pre-intubation for patients <20 kg or < 5 years old • Nerve agent exposure (see Mark 1 Nerve Agent)
Contraindications include but not limited to:	Neonates (bradycardia and asystole/PEA in neonates is usually caused by hypoventilation. Also, the vagus nerve in neonates is underdeveloped and atropine will usually have no effect).
Adverse effects include but not limited to:	➢ Dilated pupils ➢ Tachycardia ➢ Increased myocardial oxygen demand ➢ Headache ➢ Dizziness ➢ Palpitations ➢ Nausea/vomiting ➢ Flushed skin ➢ Increased intraocular pressure
Adult Administration: **Packaging Information:** (1 mg/10 ml) pre-filled syringe	Bradycardia: IV/IO 1 mg every 5 min to max of 3 mg Poisoning and Overdose: IV/IO 2 mg every 5 minutes until symptoms clear
Pediatric Administration:	See Medication Administration Chart for weight-based dosing and administration rates
Onset:	2-5 minutes
Duration:	20 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** **Adult & Pediatric:** Bradycardia Toxic Exposure **Adult Only:** Delayed Sequence Airway Management	• Bradycardia in pediatrics is usually due to hypoxia. • Atropine is not recommended in neonates. • Atropine is not recommended in asymptomatic bradycardia. The increase in myocardial oxygen demand may cause/ extend an AMI. • Atropine will not be effective for Type II AV Block and new 3rd degree block with wide QRS complex (the patients may cause paradoxical slowing – be prepared to pace). Return to Formulary Table of Contents *Formulary Atropine Page 1 of 1*

Calcium Chloride	
Classification:	Electrolyte
Actions:	Provides elemental calcium in the form of the cation. Is required for many physiological activities.
Indications:	• Hyperkalemia • Hypocalcemia • Hypermagnesemia • Calcium channel blocker toxicity
Contraindications include but not limited to:	○ Digitalis toxicity in patients taking Digitalis ○ Hypercalcemia
Adverse effects include but not limited to:	➢ Bradycardia ➢ May induce cardiac dysrhythmias (V-Fib) ➢ Syncope ➢ Nausea/vomiting/abdominal pain ➢ Cardiac arrest ➢ If calcium overdosing adverse effects may include: ❖ Dry mouth ❖ Headache ❖ Anxiety ❖ Thirst ❖ Metal taste ❖ Vomiting/diarrhea
Adult Administration: **Packaging Information:** (1 GM/10 ml) Vial	IV/IO – 1 Gram – may repeat every 5 minutes two times for a total of 3 Grams (12-lead EKG recommended prior to each administration for non-code). In a cardiac arrest situation give 3 Grams rapidly.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing and administration rates
Onset:	Immediate for push dose – 5-15 minutes if administered slowly
Duration:	Dose dependent
Pregnancy Safety:	Not assigned
Precautions and Comments: Pharmacology Chart **Used in SMO:** Asystole/PEA Crush Syndrome & Suspension Trauma Extremely Agitated Patient Toxic Exposure	The faster Calcium Gluconate is given the faster the body eliminates it. Administer slowly if not a cardiac arrest situation. For prolonged transports repeat doses may be needed. Flush before and after each dose.

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Calcium Gluconate	
Classification:	Calcium salts
Actions:	Soluble calcium ions bind with soluble fluoride ions to produce the insoluble and therefore inactive calcium fluoride salt.
Indications:	• Hyperkalemia • Hypocalcemia • Hypermagnesemia
Contraindications include but not limited to:	○ Digitalis toxicity ○ Hypercalcemia
Adverse effects include but not limited to:	➢ May induce cardiac dysrhythmias ➢ IM administration may cause severe tissue necrosis ➢ If calcium overdosing adverse effects may include: ❖ Dry mouth ❖ Headache ❖ Anxiety ❖ Thirst ❖ Metal taste ❖ Vomiting/diarrhea
Adult Administration: **Packaging Information:** (1 GM/10 ml) Vial	IV/IO – 1 Gram – may repeat every 5 minutes two times for a total of 3 Grams (12-lead EKG recommended prior to each administration for non-code). In a cardiac arrest situation give 3 Grams rapidly.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing and administration rates
Onset:	Immediate
Duration:	30 minutes to 2 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Asystole/PEA Crush Syndrome & Suspension Trauma Extremely Agitated Patient Toxic Exposure	The faster Calcium Gluconate is given the faster the body eliminates it. For prolonged transports repeat doses may be needed. Flush before and after each dose.

Dexamethasone	
Classification:	Glucocorticoid
Actions:	Suppresses acute and chronic inflammation, potentiates vascular smooth muscle relaxation, and may alter airway hyperactivity.
Indications:	• Anaphylaxis • Persistent asthma • Unresponsive bronchospasm
Contraindications include but not limited to:	○ Known hypersensitivity
Adverse effects include but not limited to:	➢ Headache ➢ Hypertension ➢ Sodium and water retention ➢ Hypokalemia ➢ Alkalosis
Adult Administration: **Packaging Information:** (125 mg/2 ml) Accu-o-vial	IV – 10 mg
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	1-2 hours
Duration:	8-24 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Bronchospasm	Rapid IV administration of high doses may cause a drop in blood pressure. Use with caution in pregnant patients and patients with GI bleeding. Use with caution in patients with diabetes mellitus as hypoglycemic responses to insulin and oral hypoglycemic agents may be blunted.

Dextrose	D10 *D50 - Alternate*
Classification:	Hyperglycemic agent, hypertonic solutions
Actions:	Provides immediate source of glucose, which is rapidly utilized for cellular metabolism
Indications:	Altered level of consciousness due to suspected hypoglycemia
Contraindications:	None
Adverse effects include but not limited to:	➢ CVA ➢ Intracranial hemorrhage ➢ Thrombophlebitis ➢ Rhabdomyolysis
Adult Administration: **Packaging Information:** D10 – (25 G/250 ml) Bag	See Dextrose Administration Chart
Pediatric Administration:	See Dextrose Administration Chart for weight-based dosing and administration rates
Onset:	30-60 seconds
Duration:	Dependent on level of hypoglycemia
Pregnancy Safety:	Category A
Precautions and Comments: Pharmacology Chart **Used in SMO:** Alcohol Related Emergencies Altered Mental Status Asystole/PEA Diabetic Emergencies Seizure Stroke Syncope	• Causes tissue necrosis if injected into interstitial space. • Use caution with patients with suspected intracranial hemorrhage. • Effects may be delayed in elderly patients with poor circulation. • May increase cerebral ischemia in CVA. • Hypoglycemia* is defined as: ○ Neonate (<1 month) – blood sugar <45 mg/dL ○ Infant/child (>1 month) – blood sugar <60 mg/dL ○ Adult – blood sugar = or <80 mg/dL * or any blood sugar with signs and symptoms of hypoglycemia

Diazepam	Valium (alternative to Midazolam)
Classification:	Benzodiazepine derivative
Actions:	Tranquilizer, anticonvulsant, skeletal muscle relaxant through effects on the central nervous system
Indications:	• Status seizures (any seizure lasting longer than five (5) minutes or two consecutive seizures without regaining responsiveness. • Drug-induced hyperadrenergic states manifested by tachycardia and hypertension (i.e., cocaine, amphetamine overdose). • Patients who are combative. • Severe musculoskeletal spasms. • Acute alcohol withdrawal.
Contraindications include but not limited to:	In known hypersensitivity, drug abuse, coma, shock, or head injury induced CNS depression.
Adverse effects include but not limited to:	➢ Hypotension ➢ Tachycardia ➢ Respiratory depression ➢ Confusion ➢ Nausea
Adult Administration: **Packaging Information:** (5 mg/ml) pre-filled syringe	See Alternative Medication Administration Chart IV/IO over 2 minutes every 10-15 minutes up to 30 mg
Pediatric Administration:	See Medication Administration Chart for dosing • 30 days to 5 years old – IV slowly (over 2 minutes) every 2-5 minutes up to 5 mg • >5 years old – IV slowly (over 2 minutes) every 2-5 minutes up to 10 mg
Onset:	1-5 minutes if IV 15-20 minutes if IM
Duration:	15 – 60 minutes
Pregnancy Safety:	Category D
Precautions and Comments: Pharmacology Chart **Used in SMO as alternative only:** Pain Management Seizure Sedation for Pacing/Cardioversion	• May result in significant CNS depression when administered with other CNS depressants. • Do not administer with other IV medications as it may form a precipitate. • Place patients receiving Diazepam on oxygen. • Monitor the patient closely as Diazepam can cause respiratory depression and/or hypotension (vital signs, cardiac monitor, pulse ox, $EtCO_2$)

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Diphenhydramine	Benadryl
Classification:	Antihistamine
Actions:	Competes with histamines at receptor sites. Reverses muscle spasms associated with dystonic reactions (phenothiazine).
Indications:	• Allergic reactions • Muscle spasms associated with dystonic reactions
Contraindications include but not limited to:	○ Glaucoma ○ Acute asthma ○ COPD
Adverse effects include but not limited to:	➢ Hypotension ➢ Drowsiness ➢ Tachycardia ➢ Bradycardia ➢ Dry mouth ➢ Urinary retention
Adult Administration: **Packaging Information:** (50 mg/1 ml) Vial Tablet - OTC	IM or IV 25-50 mg EMT's – OTC
Pediatric Administration:	See Medication Administration Chart for weight-based dosing and administration rates IM or IV
Onset:	1-5 minutes if given IV/IO push 15 minutes if given IM/PO
Duration:	3-4 hours
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Toxic Exposure	• May caused depressed level of consciousness in elderly patients. • May have additive effect with alcohol or depressants.

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Epinephrine 1:1 ml and 1:10 ml	Adrenalin
Classification:	Sympathomimetic agent (Catecholamine)
Actions:	Acts directly on Alpha and Beta receptors of the SNS. Effects include: • Increased heart rate (chronotropy) • Increased cardiac contractile force (inotropy) • Increased electrical activity within myocardium (dromotropy) • Increased systemic vascular resistance • Increased blood pressure • Increased automaticity • Increased bronchial smooth muscle dilation • Increases coronary perfusion during CPR by increasing aortic diastolic pressure
Indications:	• Cardiopulmonary arrest: - Ventricular Fibrillation/Pulseless Ventricular Tachycardia - Asystole/PEA • Allergic reaction/anaphylaxis • Asthma • Refractory pediatric bradycardia, unresponsive to O_2 and ventilation • Stridor (croup, airway burns, laryngeal edema)
Contraindications include but not limited to:	○ Hypertension ○ Undiluted 1:1 ml IVP
Adverse effects include but not limited to:	➢ Hypertension-tachycardia ➢ Increases myocardial oxygen demand and potentially increases myocardial ischemia
Adult Administration: **Packaging Information:** 1 mg/10 ml (1:10 ml) pre-filled syringe 1 mg/1 ml (1:1 ml) vial 30 ml	*Cardiopulmonary Arrest*: IV/IO: 1 mg of 1:10 ml. If rhythm persists repeat every 3-5 minutes ET: 2 mg of 1:1 ml diluted to 5-10 mL. Followed with 5 normal ventilations. If rhythm persists repeat every 3 to 5 minutes. *Bronchospasm:* IM: 0.3 mg of 1:1 ml, may repeat at 20-minute intervals *Anaphylaxis and Allergic Reaction:* Bronchospasm: IM: 0.3 mg of 1:1 ml, may repeat at 20-minute intervals for a total of 2 doses Hypotension/Airway Compromise: IM: 0.3-0.5 mg of 1:1 ml every 15 minutes if there is no improvement Impending Arrest: IV/IO: (0.1 mg/1 ml) of 1:10 ml slow over 5 minutes Stridor: Patient in cardiac arrest from anaphylaxis: IV or IO of 1:10 ml First dose: 1 mg Repeat doses 3-5 mg every 3 minutes if arrest persists If no IV/IO then ET 1:1 ml – 2.5 mg diluted in 5-10 mL NS followed by 5 ventilations every 3 minutes if arrest persists
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Pediatric Administration:	Please see Medication Administration Chart for weight-based dosing. *Cardiac Arrest:* IV/IO: Initial dose: 0.01 mg//kg (1:10 ml, 0.1 mL/kg) IV/IO: Repeat doses: 0.01 mg/kg (1:10 ml, 0.1mL/kg). If rhythm persists repeat every 3-5 minutes. *Bronchospasm:* IM: 0.01 mg/kg (max 0.3 mg) of 1:1 ml. May repeat in 10-20 minutes for a total of 2 doses. *Refractive Bradycardia:* IV/IO: 0.01 mg/kg (1:10 ml, 0.1 mL/kg Repeat dose is same as the initial dose, every 3-5 minutes *Anaphylaxis/Allergic Reaction:* Bronchospasm: IM: 0.01 mg/kg of 1:1 ml every 15 minutes if there is no clinical improvement. Hypotension/Airway Compromise: IM: 0.01 mg (max 0.3 mg) every 15 minutes if there is no clinical improvement Impending Arrest: IV/IO: 0.01 mg/kg, diluted with Normal Saline to 10 mL slow push over 5 minutes and then every 1-2 minutes if there is inadequate response to treatment.
Onset:	Immediate if given IVP. 5-10 minutes if given SQ/IM.
Duration:	3-5 minutes if given IVP/. 20 minutes if given SQ/IM.
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** **Adult and Pediatric:** Anaphylaxis and Allergic Reaction Asystole/PEA Bronchospasm/Asthma/COPD Ventricular Fibrillation/Pulseless Ventricular Tachycardia **Pediatric Only:** Bradycardia Neonatal Resuscitation Pediatric Respiratory Distress/Failure/ Obstruction/Arrest	Return to Formulary Table of Contents

Epinephrine Injector	Adrenalin, Epinephrine Hydrochloride
Classification:	Sympathomimetic agent (Catecholamine)
Actions:	Acts directly on Alpha and Beta receptors of the SNS. Beta effect is more profound than Alpha effects. Effects include: • Increased heart rate (chronotropy) • Increased cardiac contractile force (inotropy) • Increased electrical activity within myocardium (dromotropy) • Increased systemic vascular resistance • Increased blood pressure • Increased bronchial smooth muscle dilation
Indications:	• Allergic Reaction o Shortness of breath (wheezing, hoarseness, other abnormal breath sounds) o Itching/hives that are severe and rapidly progressing o Oral swelling/laryngospasm/difficulty swallowing o Hypotension/unresponsiveness o Patients with an exposure to known allergen with progressively worsening symptoms (i.e., hives) • Severe Asthma
Contraindications:	o None when indicated
Adverse effects include but not limited to:	➢ Hypertension-tachycardia ➢ Tremor, weakness ➢ Pallor, sweating, nausea, vomiting ➢ Nervousness, anxiety ➢ Increases myocardial oxygen demand and potentially increases myocardial ischemia
Adult Administration: Packaging Information: Epinephrine (0.3 mg/0.3 ml) injector Epinephrine (0.15 mg/0.3 ml) injector	Patients over 30 kg (66 pounds): Epinephrine Injector (Adult size) 0.3 mg (0.3 mL, 1:1,000) IM – lateral high thigh is preferred. May repeat if available in 10 minutes if patient condition warrants.
Pediatric Administration:	Patient 15-30 kg (33-66 pounds): Epinephrine Injector (Pediatric size) 0.15 mg (0.3 mL, 1:2,000) IM– lateral high thigh is preferred. May repeat if available in 10 minutes if patient condition warrants.

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Onset:	5-10 minutes
Duration:	20 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Bronchospasm	Use with caution in elderly or pregnant patients, but do not withhold if patient has serious signs or symptoms (i.e., airway compromise, severe SOB, profound hypotension)

Formulary: Epinephrine Injector Page 2 of 2

Etomidate	Amidate
Classification:	General anesthetic and hypnotic without analgesic properties
Actions:	Depresses the activity of the brain stem reticular activating system
Indications:	Induction of general anesthesia and sedation of critically ill or injured patients and prior to cardioversion or intubation
Contraindications include but not limited to:	Known hypersensitivity
Adverse effects include but not limited to:	➢ Myoclonic skeletal muscle movements ➢ Nausea and vomiting post procedure ➢ Apnea ➢ Hypoventilation or hyperventilation ➢ Laryngospasm ➢ Hypertension or hypotension ➢ Tachycardia or bradycardia
Adult Administration: **Packaging Information:** (2 mg/ml) Vial	See Adult Medication Administration Chart for dosing IV/IO: over 30-60 seconds Limit to 1 dose
Pediatric Administration:	See Medication Administration Chart for weight-based dosing (>10 years old): IV/IO: 0.2-0.4 mg/kg for sedation infused over 30-60 seconds. Maximum dose: 20 mg
Onset:	Within 1 minute
Duration:	3 to 10 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Delayed Sequence Airway Management	The most common interaction of Etomidate is with prescription medications such as alpha blockers, beta blockers, and antipsychotics causing an increased risk of hypotension. Administration to patients taking Verapamil may also result in increased hypotension as well as AV delay. Be ready to support ventilations if the patient develops apnea.

Fentanyl	Fentanyl Citrate
Classification:	Narcotic analgesic
Actions:	Produces analgesia by inhibiting the ascending pain pathways. Depresses the central nervous system by interacting with receptors in the brain.
Indications:	Moderate to severe pain.
Contraindications include but not limited to:	○ Use with caution in patients with hypertension or hypotension ○ Use with caution in patients with increased ICP ○ Use with caution in elderly patients ○ Hypersensitivity to drug
Adverse effects include but not limited to:	➢ Severe respiratory difficulty as a result of thoracic rigidity (if given too fast IV or IO) ➢ Respiratory depression ➢ Hypotension/Bradycardia ➢ Altered mental status ➢ Nausea/vomiting
Adult Administration: **Packaging Information:** (50 mcg/ml) Vial Restocking requires a 222 form	See Adult Medication Administration Chart for dosing. IV/IO, IN*, IM. Titrate to relief of pain. May repeat every 5 minutes to maximum dose of 200 mcg (if blood pressure drops below 90 mmHg discontinue administration) * Intranasal dose – see Fentanyl IN Dosing Chart Consider lower dose (25 mcg) for smaller or elderly patients
Pediatric Administration:	See Medication Administration Chart for weight-based dosing Given over 2 minutes IV/IO, IN*, IM Titrate to relief of pain. May repeat every 5 minutes to a maximum dose of 200 mcg. * Intranasal dose = see Fentanyl IN Dosing Chart
Onset:	Immediate if given SLOW IV/IO – 7-8 minutes if given IM
Duration:	1-2 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Cardiac Arrest Post Resuscitation Intranasal Medications (MAD device) Narrow Complex Tachycardia Pain Management	Monitor vital signs closely before and after administration. May be used in multi-system trauma and abdominal pain when appropriate. Have Naloxone/Atropine and respiratory assistance readily available. Check for Fentanyl patch before administration. Fentanyl is 100 times more potent than Morphine (100 mcg of Fentanyl = 1 mg of Morphine).
	* For pain and sedation doses: Start dose low – slowly increase – Titrate to effect up to listed dose
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Glucagon	
Classification:	Hyperglycemic agent (pancreatic hormone)
Actions:	Elevates blood glucose by converting liver glycogen into glucose. Increases cardiac output by increasing inotropy and chronotropy. Stimulate the release of catecholamine. Relaxes smooth muscle of the gastrointestinal tract, bronchioles, and blood vessels.
Indications:	• Hypoglycemia • Beta blocker OD
Contraindications:	Not significant in the above indications.
Adverse effects include but not limited to:	➢ Nausea/vomiting ➢ Headache
Adult Administration: **Packaging Information:** (1 mg/ml) Vial	Hypoglycemia: 1 mg IM – may repeat in 7-10 minutes Beta Blocker OD: 2-4 mg IV/IO
Pediatric Administration:	See Medication Administration Chart for weight-based dosing Hypoglycemia: 0.1 mg/kg IM Beta Blocker OD: 0.1 mg/kg IV/IO
Onset:	1-3 minutes if given IVP 5-20 minutes if given IM
Duration:	15-20 minutes if given IVP 15-30 minutes if given IM
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart **Used in SMO:** Alcohol/Substance Abuse Emergencies Altered Mental Status Diabetic Emergencies Seizures Stroke Syncope Toxic Exposure	Use with caution in patients with cardiovascular and renal disease. Glucagon is an antagonist to insulin.

Ipratropium Bromide	Atrovent
Classification:	Anticholinergic (parasympatholytic) which causes bronchodilation
Actions:	Chemically related to Atropine, Ipratropium Bromide inhibits vagally medicated reflexes and increases in-cyclic GMP by antagonizing acetylcholine, which relaxes bronchial smooth muscle and drying respiratory tract secretions
Indications:	• Asthma and bronchospasm associated with COPD • Bronchospasm related to chronic bronchitis or emphysema
Contraindications include but not limited to:	○ Not the primary treatment for bronchospasm ○ Known hypersensitivity
Adverse effects include but not limited to:	➢ Palpitations ➢ Dizziness ➢ Anxiety ➢ Headache ➢ Eye pain ➢ Urinary retention ➢ Nervousness
Adult Administration: Packaging Information: (0.5 mg/2.5 ml) Ampule	Nebulize a total 3 ml (when used as part of DuoNeb). After DuoNeb administer Albuterol if additional doses needed.
Pediatric Administration:	Not recommended
Onset:	15-30 minutes with peak effect in 1-2 hours
Duration:	4-8 hours
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart	• Can cause paradoxical bronchospasm. • Use with caution in patients with coronary artery disease. • Use with caution in patients the hepatic and renal insufficiency. • Use with caution in patients with glaucoma, prostatic hypertrophy, and bladder obstruction

Ketamine	Ketalar
Classification:	Non-barbiturate anesthetic
Actions:	Acts on the limbic system and cortex to block afferent transmission of impulses associated with pain perception. It produces short-acting amnesia without muscular relaxation.
Indications:	Pain control
Contraindications include but not limited to:	○ Stroke ○ Increased intracranial pressure ○ Severe hypertension ○ Cardiac decompensation ○ Hypersensitivity
Adverse effects include but not limited to:	➢ Hypertension ➢ Myocardial oxygen demand ➢ Increased heart rate ➢ Hypersalivation ➢ Hallucinations, delusions, explicit dreams ➢ Less common side effects include hypotension, bradycardia, and respiratory depression
Adult Administration: **Packaging Information:** (100 mg/ml) 5 ml Vial (10 mg/mL)	See Adult Medication Administration Chart for dosing ▪ 100 mg/mL: May be used IM and if used IV it must be diluted 1:1 with NS prior to administration. ▪ 10 mg/mL: For IV use only. *Extremely Agitated Patient:* IM: 4 mg/kg *Delayed Sequence Intubation*: IV – 1.5 mg/kg IV/IO (If 100 mg/mL concentration is used it must be diluted prior to administration). *Pain Management*: IV/IM - 0.25 mg/kg Use 1 ml syringe
Pediatric Administration:	Not recommended
Onset:	Within 30 seconds
Duration:	5-10 minutes
Pregnancy Safety:	Contraindicated in pregnant patients
Precautions and Comments: Pharmacology Chart **Used in SMO:** Behavioral Management/Restraints Delayed Sequence Airway Management Extremely Agitated Patient Pain Management	When administering IM multiple injections may be required due to maximum volumes that can be administered. Maximum volume in deltoid muscle 1-2 ml. Maximum volume in larger muscles is 5 ml. Decrease volume with small muscle mass. May increase blood pressure, muscle tone, and heart rate. As with any anesthetic, the dosage needs to be assessed carefully and individualized.

Ketorolac Tromethamine	Toradol
Classification:	Nonsteroidal anti-inflammatory
Actions:	An anti-inflammatory that also exhibits peripherally acting nonnarcotic analgesic activity by inhibiting prostaglandin synthesis.
Indications:	Short term management of moderate to severe pain
Contraindications include but not limited to:	○ Bleeding disorders ○ Renal failure ○ Active peptic ulcer disease ○ Patients with allergies to aspirin or other nonsteroidal anti-inflammatory drugs ○ Hypersensitivity to the drug
Adverse effects include but not limited to:	➢ Anaphylaxis from hypersensitivity ➢ Edema ➢ Sedation ➢ Increased bleeding risks ➢ Rash ➢ Nausea ➢ Headache
Adult Administration: **Packaging Information:** (15 mg/ml) pre-filled syringe	IV/IO/IM: 1 dose of 15 mg; may repeat one time in patients <65 years old and ≥ 50 kg.
Pediatric Administration:	Weight-based dosing for children > 1 year old
Onset:	Within 10 minutes
Duration:	6-8 hours
Pregnancy Safety:	Contraindications in pregnant patients
Precautions and Comments: Pharmacology Chart **Used in SMO:** Pain Management	Not recommended for trauma/surgical patients due to increased bleed risk after administration. May increase bleeding time when administered to patients taking anticoagulants. Effects of lithium and methotrexate may be increased. Use with caution and reduce dose when administering to elderly patients.

Lidocaine 2%	Lidocaine
Classification:	Antidysrhythmic, anesthetic
Actions:	Suppressed ventricular dysrhythmias by decreasing ventricular irritability.
Indications:	• Cardiac arrest from ventricular tachycardia or ventricular fibrillation • Stable monomorphic VT with preserved ventricular function • Wide-complex tachycardia of unknown origin • Head injured patient • Pain management post intraosseous insertion • Post cardioversion or defibrillation of ventricular rhythms* *May be used if patient is allergic to amiodarone
Contraindications include but not limited to:	○ Second-degree heart block (Mobitz II) or third degree (complete) heart block in the absence of an artificial pacemaker ○ Junctional bradycardia ○ Ventricular ectopy associated with bradycardia ○ Idioventricular or escape rhythms ○ Hypersensitivity
Adverse effects include but not limited to:	➢ Lightheadedness ➢ Bradycardia ➢ Confusion ➢ Hypotension ➢ Seizures
Adult Administration: **Packaging Information:** (10 mg/ml) pre-filled syringe	See Adult Medication Administration Chart for weight-based dosing May repeat using half dose to a total of 3 mg/kg or up to 300 mg.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	45-90 seconds
Duration:	10-20 minutes
Pregnancy Safety:	Category B
Precautions and Comments: **Used in SMO:** Cardiac Arrest Post Resuscitation Delayed Sequence Airway Management Intraosseous Access Tachycardia Toxic Exposure Ventricular Fibrillation/Pulseless Ventricular Tachycardia Wide Complex Tachycardia	• If bradycardia occurs along with premature ventricular contractions, always treat the bradycardia first. • Discontinue if signs of toxicity occur. Pharmacology Chart *Formulary Lidocaine 2% Page 1 of 1* Return to Formulary Table of Contents

Lorazepam	Ativan
Classification:	Benzodiazepine
Actions:	A sedative, anticonvulsant, and amnestic (induces amnesia)
Indications:	• Status epilepticus • Sedation prior to transcutaneous pacing, synchronized cardioversion, and painful procedures in the conscious patient • Cocaine induced acute coronary syndromes • Agitated or combative patients
Contraindications include but not limited to:	○ Coma (unless seizing) ○ Altered mental status of unknown age ○ Severe hypotension ○ Shock ○ Respiratory insufficiency
Adverse effects include but not limited to:	➢ Respiratory depression ➢ Tachycardia/bradycardia ➢ Hypotension ➢ Sedation ➢ Ataxia ➢ Confusion ➢ Blurred vision
Adult Administration: **Packaging Information:** (2 mg/ml) pre-filled syringe	**Used as a back-up if Midazolam is not available – 30-day stability if unrefrigerated** See Adult Weight Based Medication Administration Chart May repeat x 1 after 5 minutes
Pediatric Administration:	See Medication Administration Chart for dosing
Onset:	5 minutes (IV)
Duration:	6-8 hours
Pregnancy Safety:	Category D
Precautions and Comments: Pharmacology Chart **Used in SMO:** Delayed Sequence Airway Management	• May cause respiratory depression, respiratory effort must be continuously monitored with Capnography • Should be used with caution with hypotensive patients and patients with altered mental status • Lorazepam potentiates alcohol or other CNS depressants

Magnesium Sulfate	($MgSO_4$)
Classification:	Antidysrhythmic, Electrolyte
Actions:	Controls ventricular response rate. Increases the movement of potassium into cells. Blocks the release of acetylcholine.
Indications:	• Ventricular fibrillation, pulseless ventricular tachycardia (VF/VT) • Ventricular tachycardia with a pulse • Post conversion of VF/VT • Torsade's de Pointes • Seizures related to eclampsia
Contraindications include but not limited to:	o Hypersensitivity o Sinus bradycardia o Hypermagnesemia
Adverse effects include but not limited to:	➢ Hypotension ➢ Hypertension ➢ Dysrhythmias ➢ Facial flushing ➢ Diaphoresis ➢ Depressed reflexes ➢ Bradycardia
Adult Administration: See Pharmacology Chart for specific dosing See Magnesium Sulfate Dosing Chart **Packaging Information:** (2 Grams/50 ml) Solution for injection	*Torsades De Pointe pulseless:* 2 GM over 1-2 minutes; call Medical Direction for further dosing *Torsades De Pointe with pulse:* 2 GM over 5-10 minutes; call Medical Direction for further dosing *Eclampsia:* 2 GM over 5 - 10 minutes; call Medical Direction for further dosing *Bronchoconstriction:* 2 GM over 20 minutes; call Medical Direction for further dosing
Pediatric Administration:	Pediatric dosing for Mag Sulfate not recommended without a pump. See Magnesium Sulfate Pediatric Dosing Chart if approved by Medical Direction.
Onset:	Immediate
Duration:	3-4 hours
Pregnancy Safety:	Category A
Precautions and Comments: **Used in SMO:** Bronchospasm Pre-Eclampsia/Eclampsia Tachycardia Ventricular Fibrillation/Pulseless Ventricular Tachycardia Return to Formulary Table of Contents	Magnesium must be used with caution in patients with renal failure because it is cleared by the kidneys and can reach toxic levels easily in those patients. There may be a rapid drop in blood pressure with rapid administration. Respiratory depression may occur with rapid IV administration. If administering to pediatric patient do not hang entire bag. Draw out and discard all but desired dose before hanging. *Formulary Magnesium Sulfate Page 1 of 1*

Mark I Nerve Agent Kit	Chem Pak
Classification:	Nerve agent antidote
Indications:	**Mild Exposures:** Rhinorrhea Chest tightness Dyspnea Bronchospasm **Moderate Exposures:** Salivation Lacrimation Urination GI Symptoms Emesis Miosis **Severe Exposures:** Jerking Twitching Staggering Headache Drowsiness Coma Seizures Apnea
Contraindications:	Do not use auto-injectors in patients under 30 kg
Adverse effects:	**Atropine:** ➢ Tachycardia ➢ Increased myocardial O_2 demand ➢ Headache ➢ Dizziness ➢ Palpitations ➢ Dries mucous membranes ➢ Nausea/vomiting ➢ Flushed skin ➢ Dilated pupils ➢ Increased intraocular pressure **Pralidoxime:** ➢ Hypertension ➢ Blurry vision ➢ Diplopia ➢ Tachycardia ➢ Nausea ➢ Increases atropine effects

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Mark I Nerve Agent Kit (continued)	Chem Pak
Onset:	Immediate – 15 minutes
Duration:	Half-life – 2-Pam 74-77 minutes; Atropine 10 minutes
Pregnancy Safety:	Category C

Precautions and Comments:
 	
See Resources for additional information on the Chem Pak
	• Kit contains:
	  - Atropine – 2 mg/0.7 mL auto-injector
	  - Pralidoxime – 600 mg/2 mL auto-injector
	• Nerve agents are the most toxic of the known chemical agents. They are hazards in their liquid and vapor states and can cause death within minutes after exposure. Nerve agents inhibit acetylcholinesterase in tissue, and their effects are caused by the resulting excess of acetylcholine. Nerve agents are considered to be major military and terrorist threats. Common names for nerve agents include Tabun, Sarin, and Soman. Nerve agents are liquids under normal temperature conditions. When dispersed, the most volatile ones constitute both a vapor and liquid hazard.
	• No more than three sets of antidote (total of six injections) should be used.
	• Attempt to decontaminate skin and clothing between injections.
	• Follow the Region I Disaster Preparedness/IDPH information for distribution of the ChemPak from the most appropriate Resource Hospital.

Methylprednisolone	Solu-Medrol
Classification:	Glucocorticoid
Actions:	Suppresses acute and chronic inflammation, potentiates vascular smooth muscle relaxation, and may alter airway hyperactivity.
Indications:	• Anaphylaxis • Persistent asthma • Unresponsive bronchospasm
Contraindications include but not limited to:	○ Known hypersensitivity
Adverse effects include but not limited to:	➢ Headache ➢ Hypertension ➢ Sodium and water retention ➢ Hypokalemia ➢ Alkalosis
Adult Administration: **Packaging Information:** (125 mg/2 ml) Accu-o-vial	When mixing shake gently until solution clears. Shaking faster will not speed up the process.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	1-2 hours
Duration:	8-24 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Anaphylaxis and Allergic Reaction Bronchospasm	Rapid IV administration of high doses may cause a drop in blood pressure. Use with caution in pregnant patients and patients with GI bleeding. Use with caution in patients with diabetes mellitus as hypoglycemic responses to insulin and oral hypoglycemic agents may be blunted.

Metoclopramide	Reglan
Classification:	Antiemetic
Actions:	Treatment for nausea and vomiting
Indications:	• Nausea and vomiting
Contraindications include but not limited to:	○ GI obstruction, bleeding, or perforation ○ Hypersensitivity ○ QTC ≥ 500 ms
Adverse effects include but not limited to:	➢ QTC prolongation ➢ Confusion ➢ Depression ➢ Drowsiness ➢ Cardiac conduction disturbances ➢ Fatigue ➢ Hypotension ➢ Hypertension
Adult Administration: **Packaging Information:** (10 mg/2 ml) Vial	IV/IO: 10 mg one time
Pediatric Administration:	Not recommended
Onset:	1-3 minutes (IV)
Duration:	1-2 hours
Pregnancy Safety:	Category B
Precautions and Comments: **Used in SMO:** Abdominal Pain Routine Medical Care	**Use as alternate to Ondansetron shortages only** Use caution in patients with renal disease, attributable to possible accumulation and toxicity. Not recommended for patients with Parkinson's disease. Concurrent use of ethanol can increase the CNS depressant effects of metoclopramide.

Midazolam	Versed
Classification:	Short acting benzodiazepine, CNS depressant
Actions:	Reduces anxiety, depresses CNS function, and induces amnesia
Indications:	• Seizures • Agitation in intubated patient • Induction for Delayed Sequence Intubation
Contraindications include but not limited to:	○ Hypotension ○ Hypotension/Shock ○ Coma ○ Alcohol intoxication ○ Depressed vital signs ○ Hypersensitivity
Adverse effects include but not limited to:	➢ Hypotension ➢ Respiratory depression or arrest ➢ Fluctuations in vital signs ➢ Hiccups/cough ➢ Headache ➢ Nausea/vomiting
Adult Administration: **Packaging Information:** (5 mg/ml) Vial	IV/IO/IM: See Adult Medication Administration Chart for dosing IN – See Midazolam IN Dosing Chart
Pediatric Administration:	See Medication Administration Chart for weight-based dosing IN: See Midazolam IN Dosing Chart
Onset:	IV/IO: 3-5 minutes, dose dependent
Duration:	2-6 hours, dose dependent
Pregnancy Safety:	Category D
Precautions and Comments: Pharmacology Chart **Used in SMO:** Behavioral Emergencies/Restraints Bradycardia Cardiac Arrest Post Resuscitation Cardioversion CPAP Extremely Agitated Patient Hyperthermia Intranasal Medications (MAD Device) Pain Management Pre-Eclampsia/Eclampsia Sedation for Airway Management Seizure Stroke Toxic Exposure Tachycardia	Patients receiving Midazolam require continuous monitoring of respiratory and cardiac function. Emergency airway adjuncts should be readily available. May cause apnea, especially in children and the elderly. Effects are intensified by ETOH or other CNS depressant medications. Be prepared to support respiration. Carefully monitor the patient's vital signs, pulse oximetry and $EtCO_2$, if available. Return to Formulary Table of Contents *Formulary: Midazolam Page 1 of 1*

Morphine Sulfate	
Classification:	Narcotic analgesic
Actions:	Produces analgesia by inhibiting the ascending pain pathways. Depresses the central nervous system by interacting with receptors in the brain. Causes venous pooling due to peripheral vasodilation resulting in decreased systemic vascular resistance and decreased venous return.
Indications:	• Moderate to severe pain • Pain associated with transcutaneous pacing • Chest pain
Contraindications include but not limited to:	○ Patients with altered level of consciousness ○ Pain of unknown etiology ○ Patients at risk of respiratory depression ○ Head injury ○ Hypovolemia ○ Blood pressure <100 ○ Multi-system trauma
Adverse effects include but not limited to:	➢ Respiratory depression ➢ Hypotension ➢ Seizures ➢ Bradycardia ➢ Altered mental status
Adult Administration: **Packaging Information:** (10 mg/1 ml) pre-filled syringe Restocking requires 222 form	See Adult Medication Administration Chart for dosing
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	Immediate if given IV; 5-30 minutes if given IM
Duration:	3-5 hours
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Cardiac Arrest Post Resuscitation Narrow Complex Tachycardia Pain Management Tachycardia – Narrow Complex	Do not administer through an intranasal (MAD) device. *Formulary: Morphine Page 1 of 1* Return to Formulary Table of Contents

Naloxone Hydrochloride	Narcan
Classification:	Opioid antagonist
Actions:	Reverses the effects of narcotics by competing for opiate receptor sites in the central nervous system.
Indications:	• Narcotic agonist - Morphine - Heroin - Hydromorphone - Methadone - Meperidine - Paregoric - Fentanyl - Oxycodone - Codeine • Narcotic agonist/antagonist - Butrophanol - Pentazocine - Nalbuphine • Decreased level of consciousness • Coma of unknown origin
Contraindications include but not limited to:	○ Use caution with narcotic-dependent patients who may experience withdrawal syndrome ○ Avoid use in meperidine-induced seizures
Adverse effects include but not limited to:	➢ Hypertension ➢ Tremors ➢ Nausea/vomiting ➢ Dysrhythmias ➢ Diaphoresis ➢ Withdrawal (opiates) ➢ Flash pulmonary edema
Adult Administration: Narcan Standard Dosing Chart **Packaging Information:** (2 mg/2 ml) pre-filled syringe 4 mg nasal spray (if available)	IV/IO: 0.4 mg in 1-minute increments slow IV push titrated to effect to maximum of 2 mg per dose. May repeat as needed for respiratory depression (resp rate, 10 bpm or EtCO2 ≥ 50. IN: 2 mg to maximum of 1 mL per nostril. May repeat as defined above. IM: 1-2 mg if unable to establish IV. May repeat as needed as defined above. Nasal spary: 4 mg pre-packaged (if available). May repeat as needed as defined above. ET: 1 mg diluted to 5-10 mL. May repeat in 5 minutes if no response (IN/IM routes are preferred if no IV).
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	Within 2 minutes
Duration:	20-30 minutes
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart **Used in SMO:** Alcohol/Substance Abuse Emergencies Altered Mental Status Asystole/PEA Intranasal Medication/MAD Device Pain Management Syncope Toxic Exposure	Check and remove any transdermal systemic opioid patch. The goal of Naloxone administration is to improve respiratory drive, not to return the patient to their full mental capacity. High dose/rapid reversal of narcotic effects may lead to combative behavior, possible severe withdrawal, and other adverse drug reactions. Consider other causes/ potency of opiate agonist when evaluating need for repeat dosing. Observe for: seizures, hypertension, chest pain, and/or severe headache.

Nitroglycerin	
Classification:	Vasodilator
Actions:	Decreases the workload of the heart and lowers myocardial oxygen demand.
Indications:	• Ischemic chest pain • Pulmonary edema • Congestive heart failure • AMI
Contraindications include but not limited to:	○ Volume depletion ○ BP < 110, pulse <60 or >100 ○ Head injury ○ Symptomatic bradycardia ○ Symptomatic tachycardia ○ Right ventricular infarction ○ Cerebral hemorrhage ○ Recent use of Cialis, Levitra, or Viagra ○ Aortic stenosis
Adverse effects include but not limited to:	➢ Transient headache ➢ Tachycardia ➢ Hypotension ➢ Nausea/vomiting ➢ Postural syncope ➢ Diaphoresis ➢ Flushing
Adult Administration: **Packaging Information:** (0.4 mg SL Tablet) Bottle Nitropaste package	SL: 0.4 mg (1 tab) – may repeat every 5 minutes to up to 3 doses. Contact Medical Direction for any additional doses. For patients with **pulmonary edema** with MAP of 120 or systolic greater than or equal to 160 mmHG **double** the initial dose of NTG. If pressure continues to increase administer an additional **double** dose. Administer up to three (3) **double** doses. Contact Medical Direction for additional dosing.
Pediatric Administration:	Not recommended
Onset:	1-3 minutes
Duration:	30-60 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Chest Pain of Suspected Cardiac Origin Pulmonary Edema	• Tablet must be fully dissolved before resuming CPAP. • Associated with increased susceptibility to hypotension in the elderly • Must be kept in airtight containers and decomposes when exposed to light or heat • If administered sublingually, the active ingredient may produce a stinging sensation • Erectile dysfunction meds within 48 hrs

Norepinephrine/Epinephrine Drip	
Classification:	Adrenergic receptor agonist
Actions:	Strong vasopressor and moderate inotrope in patients with shock
Indications:	Shock/hypotension
Contraindications include but not limited to:	• Known hypersensitivity • Sulfite allergy
Adverse effects include but not limited to:	○ Hypertension ○ Tachydysrhythmias ○ Reflex bradycardia ○ Mesenteric or peripheral ischemia at high doses ○ Possible limited effect in patients taking beta blocking or calcium channel blocking drugs
Adult Administration: Packaging Information:	5 mcg/min IV/IO. See Norepinephrine/Epinephrine Drip Chart. If ineffective or questions, contact Medical Direction.
Pediatric Administration:	Contact Medical Direction for approval.
Onset:	1-2 minutes
Duration:	5 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Norepinephrine Used in SMO: Bradycardia Cardiac Arrest Post Resuscitation (ROSC) Sepsis Shock/Traumatic Hemorrhage/ Wound Packing **Epinephrine Used in SMO:** Bites, Stings, and Envenomation Cardiogenic Shock	Vasoactive medications require close patient monitoring for appropriate titration. Medication should be infused in a large bore IV or IO – antecubital preferred, if available. Use with caution in patients with hypovolemia or in trauma patients. Consider volume replacement first. Consider obstructive shock (tension pneumothorax). Epinephrine drip is used in the Bites, Stings, and Envenomation SMO and Cardiogenic Shock SMO. An Epinephrine drip is also the alternative should there be a Norepinephrine shortage.

Ondansetron	Zofran
Classification:	Antiemetic
Actions:	Prevents nausea/vomiting
Indications:	Treatment of nausea/vomiting
Contraindications include but not limited to:	Known sensitivity to Ondansetron or other 5-HT3 antagonists: • Use caution QTC ≥ 500 ms • Granisetron (Kytril) • Dolasetron (Anzemet) • Palonosetron (Aloxi)
Adverse effects include but not limited to:	○ QTC prolongation ○ Tachycardia ○ Hypotension ○ Syncope (if administered too quickly)
Adult Administration: **Packaging Information:** (4 mg/ml) Vial (4 mg) ODT	4 mg IV/IO/IM/ODT – IV over 30 seconds or more. IV is the preferred route of administration. May repeat once 10 minutes after initial dose.
Pediatric Administration:	See Medication Administration Chart for weight-based dosing **Tablet dosing: 1 mg/10 kg up to 4 mg** **Patients 4 years old to adult (>34 kg):** 4 mg IV/IO/IM – IV over 30 seconds or more. May repeat once 10 minutes after initial dose. **Patients 1 year old to 4 years old**: 2 mg IV/IO/IM – IV over 30 seconds or more. May repeat once 10 minutes after initial dose. (For this age group use IV/IO/IM only) Contact Medical Direction for patients <1 year old.
Onset:	Up to 30 minutes with usual response in 5-10 minutes
Duration:	Half-life is four hours
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart **Used in SMO:** Abdominal Pain Pain Assessment and Management Routine Medical Care	Administer slowly (over at least 30 seconds) in order to avoid hypotension. Use with caution in patients with hepatic impairment. Tablets are not able to be divided. EMT's may administer to adults only

Oral Glucose/Glucose Tablets	
Classification:	Monosaccharide carbohydrate
Actions:	After absorption from GI tract, glucose is distributed in the tissues and provides a rapid increase in circulating blood sugar.
Indications:	Suspected or known hypoglycemia
Contraindications:	Patient who is not able to follow commands
Adverse effects include but not limited to:	• Nausea/vomiting • Aspiration • Hyperglycemia
Adult Administration:	See Adult Medication Administration Chart for dosing Alternative: Glucose tablets – 15-20 GM PO. Recheck blood sugar in 15 minutes. If BS still below 80 mg/dL and/or exhibiting signs/symptoms of hypoglycemia another 15-20 GM may be administered.
Pediatric Administration:	Up to 15 GM as tolerated Alternative: Glucose tablets – tablets are not recommended for patients who cannot protect their airway or of an appropriate age to swallow a tablet.
Onset:	5-10 minutes
Duration:	Variable
Pregnancy Safety:	Category A
Precautions and Comments: Pharmacology Chart **Used in SMO:** Alcohol/Substance Abuse Emergencies Altered Mental Status Diabetic Emergencies Seizure/Status Epilepticus Syncope Toxic Exposure	Not a substitute for IV dextrose in extreme cases of hypoglycemia (blood sugar <40) unless IV access is unobtainable.

Prochlorperazine	Compazine
Classification:	Phenothiazine antiemetic
Actions:	Antiemetic
Indications:	• Nausea and vomiting
Contraindications include but not limited to:	○ QTC ≥ 500 ms ○ CNS depression ○ Severe liver or cardiac disease ○ Patients who have received a large amount of depressants (including alcohol)
Adverse effects include but not limited to:	➢ QTC prolongation ➢ May impair mental and physical ability ➢ Drowsiness ➢ Blurred vision ➢ Hypotension ➢ Tachycardia
Adult Administration: Packaging Information: (5 mg/ml) pre-filled syringe	IV: 5 mg slow (5 mg per minute); may repeat one time IM: 5 mg
Pediatric Administration:	Online Medical Direction for dosing
Onset:	IV/IO – rapid IM – 10-20 minutes
Duration:	3-4 hours
Pregnancy Safety:	Category C
Precautions and Comments: Used in SMO: Abdominal Pain Routine Medical Care	**Use as alternative to Ondansetron shortages only** • Use caution in patients with respiratory disease, diabetes mellitus, and epilepsy

Asthmanefrin	Racemic Epi
Classification:	Sympathomimetic Agent
Actions:	Indicated for temporary relief of croup
Indications:	Croup with stridor (with or without respiratory distress)
Contraindications include but not limited to:	• Epiglottitis • Heart disease or high blood pressure • Do not take simultaneously with monoamine oxidase inhibitors (MAOIs)
Adverse effects include but not limited to:	○ Tachyarrhythmias ○ Headache ○ Nausea ○ Rebound airway swelling
Adult Administration: Packaging Information:	
Pediatric Administration:	2.25% (0.5 ml) or 0.05 mg/kg – See Weight Based Medication Administration
Onset:	10-30 minutes
Duration:	Three hours
Pregnancy Safety:	N/A
Precautions and Comments: Used in SMO: Pediatric Respiratory Distress	

Rocuronium Bromide	
Classification:	Non-depolarizing neuromuscular blocking agent
Actions:	Acts by competing for cholinergic receptors at the motor endplate
Indications:	Used as paralytic agent for Delayed Sequence Intubation
Contraindications include but not limited to:	○ Hypersensitivity to neuromuscular blocking agents ○ Known neuromuscular disease
Adverse effects:	➢ Transient hypotension or hypertension
Adult Administration: **Packaging Information:** (10 mg/ml) Vial	See Adult Medication Administration Chart for dosing
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	30 seconds to 2 minutes
Duration:	30 minutes
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Delayed Sequence Airway Management	Patient must be on monitoring devices when a paralytic is administered, including: • Continuous ECG • $EtCO_2$ • Blood pressure • SaO_2 Rocuronium should be stored at 36–46 degrees Fahrenheit. If stored unopened outside a refrigerator at a temperature up to 86 degrees the vial should be discarded at 12 weeks. Never put the vial back into the refrigerator once it has been kept outside. Rocuronium is used as a backup paralytic agent. Preferred paralytic is Succinylcholine.

Sodium Bicarbonate	$NaHCO_3$
Classification:	Alkalinizing agent
Actions:	Combines with hydrogen ions to form carbonic acid and increase blood pH
Indications:	• Cardiopulmonary arrest states when drug therapy and/or defibrillation have not been successful • Overdose of tricyclic antidepressants (cardiac toxicity) • Hyperkalemia • Crush injuries/suspension trauma
Contraindications include but not limited to:	Not significant in the above indications, however: o Not effective in hypercarbic acidosis (e.g., cardiac arrest and CPR without intubation) o Severe pulmonary edema
Adverse effects include but not limited to:	➢ Metabolic alkalosis ➢ Pulmonary Edema ➢ Hypoxia ➢ Electrolyte imbalance ➢ Seizure
Adult Administration: **Packaging Information:** (50 mEq/50 ml)	See Adult Medication Administration Chart for dosing
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	Immediate
Duration:	30-60 minutes
Pregnancy Safety:	Category C
Precautions and Comments: **Used in SMO:** Asystole/PEA Crush Syndrome Extremely Agitated Patient Toxic Exposure Ventricular Fibrillation/Pulseless Ventricular Tachycardia	Flush IV tubing before and after administration. Maintain adequate ventilation. Pharmacology Chart

Sodium Chloride 0.9%	Normal Saline
Classification:	Isotonic solution
Actions:	Replaces fluid and electrolytes lost from the intravascular and intracellular spaces
Indications:	• Initial fluid replacement in hypovolemia and dehydration • Intravenous access for drug administration
Contraindications:	Not significant in above indications
Adverse effects:	Circulatory fluid volume overload
Adult Administration:	• Flow rate dependent on patient condition • Titrate to response of vital signs • Fluid bolus = 250-500 mL
Pediatric Administration:	• Flow rate dependent on patient condition • Titrate to response of vital signs • Fluid bolus = 20 mL/kg • Less than 28 days fluid bolus = 10 mL/kg
Onset:	Immediate
Duration:	Remains in intravascular space less than one hour
Pregnancy Safety:	Category A
Precautions and Comments:	Monitor infusion rate closely and auscultate breath sounds prior to administration.
Used in SMO: Abdominal Pain Asystole/PEA Bradycardia Burns Cardiogenic Shock Central Line/Port-A-Cath Access Crush Syndrome Delayed Sequence Intubation Excited Delirium Gynecological Hemorrhage Hyperthermia Hypothermia Adult Intubation Narrow Complex Tachycardia Routine Medical Care Routine Pediatric Care	**Used in SMO (continued):** Sepsis Shock/Hemorrhagic Fluid Resuscitation Special Needs Patients Stroke Syncope Transcutaneous Pacing Traumatic Arrest

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Succinylcholine Chloride	Anectine
Classification:	Neuromuscular blocker (depolarizing)
Actions:	The quickest onset and briefest duration of all neuromuscular blocking agents.
Indications:	To facilitate intubation
Contraindications include but not limited to:	○ Increased ICP ○ Hyperkalemia ○ Hypersensitivity ○ Do not use for patients' inability to control airway and/or to support ventilations with oxygen and positive pressure unless intubating ○ Intraocular (globe rupture) injuries
Adverse effects include but not limited to:	➢ Hypotension ➢ Respiratory depression ➢ Bradycardia ➢ Initial muscle fasciculation ➢ Excessive salivation ➢ May exacerbate hyperkalemia in trauma patients
Adult Administration: **Packaging Information:** (20 mg/ml) Vial	See Adult Medication Administration Chart for dosing
Pediatric Administration:	See Medication Administration Chart for weight-based dosing
Onset:	Less than 1 minutes
Duration:	3-10 minutes after single IV dose
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Delayed Sequence Airway Management	Do not use for patients' inability to control airway and/or to support ventilations with oxygen and positive pressure unless intubating. Neuromuscular blocking agents will produce respiratory paralysis. Intubation and ventilatory support must be readily available. If the patient is conscious, explain the effects of the medication before administration. An induction agent should be used in any conscious patient before undergoing neuromuscular blockade. Pre-medicating with Lidocaine may blunt any increase in intracranial pressure associated with intubation.

Tranexamic Acid	Cyklokapron
Classification:	Synthetic amino acid (lysine)
Actions:	Blocks plasminogen from being converted to the enzyme plasmin. Plasmin works to break down already-formed blood clots by attacking and breaking down fibrin, which destroys clots, in a process known as fibrinolysis.
Indications:	Any trauma patient ≥ 12 years old at high risk for ongoing internal hemorrhage and meeting one or more of the following criteria: • Systolic blood pressure <100 mmHg • Tachycardia >110 beats per minute with signs of hypoperfusion (confusion, altered mental status, cool extremities, etc.)
Contraindications include but not limited to:	○ Injuries > 3 hours old ○ Evidence of Disseminated Intravascular Coagulation (DIC) ○ Patients < 12 years old ○ Hypersensitivity to the drug
Adverse effects include but not limited to:	For patients with DIC there may a variety of signs/ symptoms: ➢ Signs of stroke, such as speech and movement problems ➢ Swelling of legs and/or redness and warmth ➢ Shortness of breath ➢ Chest pain or MI ➢ Petechiae
Adult Administration: Packaging Information: (1000 mg/10 ml) Vial	Mix 2 Grams in 100 mL Normal Saline. Infuse over 10 – 20 minutes. • 10 gtts/mL tubing at drip rate of 1.6 gtts/second (100 gtts/minute) • If infusion pump available – 1,500 mL/hr
Pediatric Administration:	Same as adult for children ≥ 12 years old
Onset:	5-15 minutes
Duration:	3 hours
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart Used in SMO: Shock/Hemorrhagic Fluid Resuscitation Obstetrics: Childbirth Gynecological: Hemorrhagic Gynecological: Rape/Sexual Assault	• Hypotension has been observed when TXA is administered too fast • TXA should **NEVER** be administered "wide open" • Female patients taking birth control are at increased risk for blood clots and TXA significantly increases that risk

Tylenol	Acetaminophen
Classification:	Analgesic, antipyretic
Actions:	Acetaminophen elevates the pain threshold and readjusts the hypothalamic temperature regulatory center.
Indications:	• Mild to moderate pain • Fever
Contraindications include but not limited to:	○ Known hypersensitivity ○ Environmental hyperthermia
Adverse effects include but not limited to:	➢ Should be used in caution with patients with liver disease/failure. ➢ The maximum adult daily dose is 4,000 mg. ➢ Nausea/vomiting. ➢ Stevens-Johnson Syndrome (rare) ➢ Toxic epidermal necrolysis (rare)
Adult Administration: **Packaging Information:** OTC Oral Suspension	• See Medication Administration Chart for dosing
Pediatric Administration:	• See Pediatric Medication Dosing Chart
Onset:	
Duration:	Half-life: 7 hours for neonates; 3-4 hours for infants/children; 1-3 hours for adults.
Pregnancy Safety:	Category B
Precautions and Comments: Pharmacology Chart **Used in SMO:** Pain Management Routine Pediatric Care	

Dosing for Infants and Children

Infants' TYLENOL | Children's TYLENOL

From Your Healthcare Professional

DOSE: Every 4 hours as needed. DO NOT GIVE MORE THAN 5 DOSES IN 24 HOURS.

If possible, use weight to dose; otherwise use age.

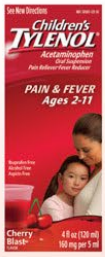
mL = milliliter
tsp = teaspoon

Infants' TYLENOL® Oral Suspension

Active Ingredient:
Acetaminophen 160 mg
(in each 5 mL)

Available in: Grape, Cherry

Use only as directed.



Children's TYLENOL® Oral Suspension

Active Ingredient:
Acetaminophen 160 mg
(in each 5 mL or 1 tsp)

Available in: Grape, Cherry

Use only as directed.

WEIGHT	AGE	Infants' TYLENOL® Oral Suspension	Children's TYLENOL® Oral Suspension
6-11 lbs	0-3 mos	**1.25 mL**	—
12-17 lbs	4-11 mos	**2.5 mL**	—
18-23 lbs	12-23 mos	**3.75 mL**	—
24-35 lbs	2-3 yrs	**5 mL**	**5 mL** (1 tsp)
36-47 lbs	4-5 yrs	—	**7.5 mL** (1½ tsp)
48-59 lbs	6-8 yrs	—	**10 mL** (2 tsp)
60-71 lbs	9-10 yrs	—	**12.5 mL** (2½ tsp)
72-95 lbs	11 yrs	—	**15 mL** (3 tsp)

IMPORTANT INSTRUCTIONS for Proper Use

Today's Date: _____

This dosing recommendation from your doctor will expire in 14 DAYS.

- Read and follow the label on all TYLENOL® products.
- Take every 4 hours as needed. Do NOT exceed more than 5 doses in 24 hours.
- Do NOT use with any other product containing acetaminophen.
- Use only the dosing device that comes with a specific product.
- **All Infants' TYLENOL® and Children's TYLENOL® Oral Suspension products have the same acetaminophen concentration (160 mg/5 mL).**

Vecuronium	Norcuron
Classification:	Non-depolarizing neuromuscular blocker
Actions:	An intermediate-acting, non-depolarizing, neuromuscular blocking agent that produces skeletal muscle paralysis by blockade at the myoneural junction. Neuromuscular blockade progresses in a predictable order, beginning with muscles associated with fine movements (eyes, face, and neck); followed by muscles of the limbs, chest, and abdomen; and, finally, the diaphragm.
Indications:	• Facilitate intubation
Contraindications include but not limited to:	○ Inability to control airway and/or support ventilations ○ Bradycardia ○ Dysrhythmias ○ Hypotension ○ Muscular disease
Adverse effects include but not limited to:	➢ Rare hypersensitivity reactions (bronchospasm, flushing, erythema, urticaria, hypotension, sinus tachycardia).
Adult Administration: **Packaging Information:** (10 mg Powder) Vial	See Adult Medication Administration Chart for dosing
Pediatric Administration:	See Medication Administration Chart for dosing
Onset:	Within one minute
Duration:	25-40 minutes (depending on dose)
Pregnancy Safety:	Category C
Precautions and Comments: Pharmacology Chart **Used in SMO:** Delayed Sequence Airway Management	Vecuronium is used as a backup paralytic agent. Preferred paralytic is Succinylcholine.