| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| ACETAMINOPHEN | MILD pain (score 1 - 3)<br>or<br>MODERATE pain (score 4 - 6)<br>or<br>SEVERE pain (score 7 - 10)<br>or<br>Refusal / contraindication to ketamine | S-141, S-173 | Maximum total daily dose: 4000 mg in 24 hours.<br><br>Give over 15 minutes.<br><br>May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine). | Severe hepatic impairment or active liver disease.<br><br>Known hypersensitivity or allergic reaction history.<br><br>If known or suspected total dose exceeding 4000 mg in a 24-hour period.<br><br>Acetaminophen IV < 2 years of age.<br><br>Pediatric administration requires signs of adequate perfusion. |
| ADENOSINE | Stable (symptomatic) SVT | S-127, S-163 | Patients with history of bronchospasm or COPD may suffer bronchospasm following administration. | Second or third-degree AV block.<br><br>Sick Sinus Syndrome (without pacemaker). |
| ALBUTEROL | Anaphylaxis with respiratory involvement<br><br>Burns with respiratory distress with bronchospasm<br><br>Respiratory distress of suspected non-cardiac origin (Adult)<br><br>Respiratory distress with bronchospasm (Pediatric)<br><br>Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves | S-122, S-124<br><br>S-131, S-136<br><br>S-162, S-167<br><br>S-170 | Continuous administration via $O_2$ powered nebulizer or MDI.<br><br>If concerned about aerosolized infectious exposure, substitute with albuterol MDI, if available. | Avoid in croup. |
| AMIODARONE | Persistent pulseless VF/VT after 3 defibrillation attempts<br><br>Pulse ≥60 status post-defibrillation (defibrillation/AED)<br><br>Reported/witnessed ≥2 AICD firing and pulse ≥60<br><br>Stable VT | S-127<br><br>S-163 | Cardioversion first if unstable with severe symptoms. | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| ASPIRIN | Pain/discomfort of cardiac origin | S-126 | Aspirin 324 mg chewable PO should be given regardless of prior daily dose(s). | |
| ATROPINE SULFATE | Unstable bradycardia<br><br>Symptomatic organophosphate poisoning | S-127, S-163<br><br>S-134, S-165 | In organophosphate poisoning, titrate atropine to SLUDGEM symptoms, not to tachycardia. | |
| CALCIUM CHLORIDE ($CaCl_2$) | Crush injury with compression of extremity or torso ≥2 hours (Adult)<br><br>Suspected calcium channel blocker OD with SBP <90 mmHg (Adult)<br><br>Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves (Adult)<br><br>Suspected hyperkalemia in PEA/asystole | S-127, S-163<br><br>S-131<br><br>S-134<br><br>S-139 | Hemodialysis patients with suspected hyperkalemia and widened QRS complex should immediately receive $CaCl_2$.<br><br>Give IV over 30 seconds.<br><br>Avoid use in small veins (feet/hands) as extravasation of $CaCl_2$ can cause necrosis. | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| CHARCOAL<br>(no Sorbitol) | Ingestion | S-134, S-165 | Assure patient has gag reflex and is cooperative.<br><br>If not vomiting and ingestion within 60 min, activated charcoal SO with any of the following:<br>1. Acetaminophen<br>2. Colchicine<br>3. Beta blockers<br>4. Calcium channel blockers<br>5. Salicylates<br>6. Sodium valproate<br>7. Oral anticoagulants (including rodenticides)<br>8. Paraquat<br>9. Amanita mushrooms<br><br>For pediatric ingestions, if ingestion within 60 minutes and recommended by Poison Center SO. | Isolated alcohol, heavy metal, caustic agents, hydrocarbons, or iron ingestion. |
| DEXTROSE 50% ($D_{50}$) (Adult)<br><br>**OR**<br><br>DEXTROSE 10% ($D_{10}$) (Pediatric) | Symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents with BS <60 mg/dL (Neonate <45 mg/dL) | S-123, S-161 | Repeat BS not indicated en route if patient improving.<br><br>Repeat BS must be done if patient left on scene and initial was abnormal (AMA/Release). | |
| DIPHENHYDRAMINE | Allergic reaction<br><br>Anaphylaxis<br><br>Extrapyramidal reactions | S-122, S-162<br><br>S-134, S-165 | Administer slow IV. | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| EPINEPHRINE (PUSH-DOSE) | Anaphylaxis with hypotension for age (Pediatric)<br><br>Anaphylaxis with SBP <90 mmHg (Adult)<br><br>Discomfort/Pain of cardiac origin with associated shock<br><br>Neurogenic shock (Adult)<br><br>Neurogenic/cardiogenic/ anaphylactic shock (Pediatric)<br><br>Newborn deliveries with sustained HR<60<br><br>Non-traumatic, hypovolemic shock (Adult)<br><br>ROSC with hypotension for age (Pediatric)<br><br>ROSC with SBP <90mmHg (Adult)<br><br>Sepsis<br><br>Unstable bradycardia (after atropine or TCP) | S-122, S-162<br><br>S-126<br><br>S-127, S-163<br><br>S-133, S-166<br><br>S-138, S-168<br><br>S-143, S-177 | Titrate to maintain systolic SBP ≥90 (Adult) or adequate perfusion (Pediatric).<br><br>Administer slowly and stop administration when clinical effect is achieved.<br><br>Check BP and monitor perfusion status after each 1 mL dose (or per drug chart for pediatric).<br><br>Continue close monitoring to identify need for repeat dosing. | Mixing instructions:<br><br>1. Remove 1 mL normal saline (NS) from the 10 mL NS syringe<br>2. Add 1 mL of epinephrine 1:10,000 (0.1 mg/mL) to 9 mL NS syringe<br><br>The mixture now has 10 mL of epinephrine at 0.01 mg/mL (10 mcg/mL) concentration. |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| EPINEPHRINE | Anaphylaxis<br><br>Cardiac arrest (VF/VT/PEA/Asystole)<br><br>Cardiac arrest with hypothermia<br><br>No improvement after epinephrine via nebulizer x2 or impending respiratory/airway compromise<br><br>Respiratory distress with stridor<br><br>Severe respiratory distress/failure or inadequate response to albuterol/ipratropium bromide<br><br>Unstable bradycardia (Pediatric) | S-122, S-162<br><br>S-127, S-163<br><br>S-136, S-167<br><br>S-168<br><br>S-170<br><br>S-176 | Cardiac arrest with hypothermia: Limit epinephrine to 1 dose and withhold antiarrhythmic medications until temperature ≥86 °F / ≥30 °C.<br><br>Epinephrine IM: Use caution if known cardiac history, history of hypertension, SBP >150 mmHg, or age >40. | |
| FENTANYL CITRATE | MODERATE pain (score 4 - 6)<br>or<br>SEVERE pain (score 7 - 10)<br>or<br>Refusal/contraindication to acetaminophen or ketamine | S-141, S-173 | Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN).<br><br>May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine).<br><br>Changing analgesic requires **BHO** (e.g., fentanyl to ketamine).<br><br>Treatment with opioids if SBP <100 mmHg requires **BHO.**<br><br>**BHPO** required for:<br>• Isolated head injury<br>• Acute onset severe headache<br>• Drug/ETOH intoxication<br>• Major trauma with GCS <15<br>• Suspected active labor | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| GLUCAGON | Suspected beta blocker OD with cardiac effects (e.g., bradycardia with hypotension)<br><br>Unable to start IV in patient with symptomatic hypoglycemia with altered LOC or unresponsive to oral glucose agents if BS <60 mg/dL (Neonate <45 mg/dL) | S-123, S-161<br><br>S-134<br><br>S-144 | High doses of glucagon may cause nausea/vomiting. | |
| IPRATROPIUM BROMIDE | Anaphylaxis with respiratory involvement<br><br>Respiratory distress with bronchospasm (Pediatric)<br><br>Respiratory distress of non-cardiac origin (Adult) | S-122, S-162<br><br>S-136, S-167 | Added to first dose of albuterol via continuous $O_2$ powered nebulizer.<br><br>If concerned about aerosolized infectious exposure, use patient's ipratropium bromide MDI, if available, or withhold ipratropium bromide. | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| KETAMINE | For moderate to severe pain (score ≥5) with trauma, burns, or envenomation injuries | S-141 | Must meet all requirements:<br>• ≥15 years old<br>• GCS of 15<br>• Not pregnant<br>• No known or suspected alcohol or drug intoxication<br><br>May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine).<br><br>Administer very slowly IV (over 1-2 min).<br><br>Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN).<br><br>Changing analgesic requires **BHO** (e.g., fentanyl to ketamine).<br><br>**BHPO** required for:<br>• Isolated head injury<br>• Acute onset severe headache<br>• Drug/ETOH intoxication<br>• Major trauma with GCS <15<br>• Suspected active labor | Pediatric patients (14 years of age or younger). |
| LIDOCAINE | Persistent pulseless VF/VT after 3 defibrillation attempts<br><br>Prior to IO fluid infusion in the conscious patient<br><br>Pulse ≥60 status post-defibrillation (defibrillation/AED)<br><br>Reported/witnessed ≥2 AICD firing and pulse ≥60<br><br>Stable VT | S-104<br><br>S-127, S-163 | Adult doses should be given in increments rounded to the nearest 20mg amount.<br><br>In the presence of shock, CHF, or liver disease, the repeat bolus is recommended at 10 min intervals. | Second and third-degree heart block and idioventricular rhythms. |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| LIDOCAINE JELLY (2%) | Intubation or nasopharyngeal airway placement | S-104 | Apply to ET tube or nasal airway PRN | |
| MIDAZOLAM | Consider prior to cardioversion<br><br>Consider prior to external pacemaker<br><br>Eclampsia (seizures)<br><br>Partial seizure lasting >5 min (includes seizure time prior to arrival of prehospital provider)<br><br>Severely agitated and/or combative patient requiring restraint for patient or provider safety<br><br>Status epilepticus seizure | S-123, S-161<br><br>S-127, S-163<br><br>S-133, S-166<br><br>S-142, S-175 | Pre-cardioversion sedation is recommended whenever possible.<br><br>Consider lower dose of midazolam for pre-cardioversion with attention to age and hydration status.<br><br>For severely agitated or combative patients, IN or IM midazolam is the preferred route to decrease risk of injury to the patient and personnel.<br><br>**Alert:** Co-administration of midazolam in patients with alcohol intoxication can cause respiratory depression. Consider avoiding or reducing midazolam dose.<br><br>Severely agitated and/or combative patient requiring restraint for patient or provider safety midazolam SO ≥8 years, **BHO** < 8 years. | |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| MORPHINE SULPHATE | MODERATE pain (score 4 - 6)<br>or<br>SEVERE pain (score 7 - 10)<br>or<br>Refusal /contraindication to acetaminophen or ketamine | S-141, S-173 | Changing route of administration requires **BHO** (e.g., IV to IM or IM to IN).<br><br>Changing analgesic requires **BHO** (e.g., fentanyl to ketamine).<br><br>May be co-administered with other analgesics with appropriately adjusted doses (i.e., a lower dose of ketamine/fentanyl/morphine).<br><br>Treatment with opioids if SBP <100 mmHg requires **BHO.**<br><br>**BHPO** required for:<br>• Isolated head injury<br>• Acute onset severe headache<br>• Drug/ETOH intoxication<br>• Major trauma with GCS <15<br>• Suspected active labor | |
| NALOXONE | Symptomatic suspected opioid OD with respiratory depression (RR<12], SpO2<96%, or EtCO2 ≥40 mmHg). Titrate slowly in opioid-dependent patients. (Adult)<br><br>Symptomatic suspected opioid OD with respiratory depression (RR low for age, SpO2<96%, or EtCO2 ≥40 mmHg). Titrate slowly in opioid-dependent patients. (Pediatric) | S-123, S-161<br><br>S-134, S-165 | If patient refuses transport, give additional naloxone IM SO.<br><br>If patient refuses transport, consider dispensing Leave Behind Naloxone 4 mg nasal spray preloaded device with education for patient and household members SO. | |
| NITROGLYCERIN (NTG) | Discomfort/pain of suspected cardiac origin with SBP ≥100mmHg<br><br>Fluid overload with rales in hemodialysis patient<br><br>Respiratory distress with suspected CHF/cardiac origin | S-126<br><br>S-131<br><br>S-136 | | Suspected intracranial bleed.<br><br>NTG is contraindicated in patients who have taken:<br>• erectile dysfunction medications such as sildenafil (Viagra®), tadalafil (Cialis®), and vardenafil (Levitra®) within 48 hours; and<br>• pulmonary hypertension medications such as sildenafil (Revatio®) and epoprostenol sodium (Flolan® and Veletri®). |

| MEDICATION | INDICATIONS | PROTOCOL | COMMENTS | CONTRAINDICATIONS |
|---|---|---|---|---|
| NORMAL SALINE | Definitive therapy | All | Definitive therapy defined as immediate or anticipated immediate need for administration of a fluid bolus or medications. | Rales is a relative contraindication for fluid bolus.<br><br>Fluid bolus may be administered regardless of lung sounds in adult sepsis (S-143), and one time only in pediatric sepsis (S-177). |
| ONDANSETRON | Nausea and/or vomiting | S-120<br><br>S-174 | **BHPO** in the pediatric patient with suspected head injury. | |
| SODIUM BICARBONATE ($NaHCO_3$) | Crush injury with compression of extremity or torso ≥2 hours<br><br>Suspected hyperkalemia in hemodialysis patient in presence of widened QRS complex or peaked T waves<br><br>Suspected hyperkalemia in PEA/asystole<br><br>Suspected tricyclic antidepressant OD with cardiac effects (e.g., hypotension, heart block, or widened QRS) | S-127, S-163<br><br>S-134, S-165<br><br>S-131<br><br>S-139, S-169 | Flush IV tubing between medication administration. | |