

Authorized Medications – Adult

MEDICATIONS	STANDARD DOSE
Activated charcoal	1 gm/kg (max 50 gm) with or without Sorbitol
Adenosine	6 mg 1 st dose; 12 mg 2 nd and 3 rd doses (rapid IV push)
Albuterol	2.5 – 5 mg
Aspirin	324 mg PO (chewable – not enteric coated)
Atropine sulfate	Cardiac arrest: 1 mg IVP or IO repeat q 5 min.– (max dose 3 mg IVP or IO) Bradycardia: 0.5 mg IVP, IO repeat in 5 min (max. dose 1 mg.)
Calcium Chloride 10%	20-30 mg/kg IVP given over several minutes
Dextrose 50%	25 gm IVP
Diphenhydramine (Benadryl)	50 mg IVP/IM
Dopamine	5-20 mcg/kg/min titrated by 5 mcg/kg/min increments to effect
Duodote Autoinjector Atropine/Pralidoxime	Organophosphate/WMD Nerve Agent Exposure: Use injector, use anterior lateral thigh injection site. Avoid deltoid or buttocks
Epinephrine 1:1000 1mg/1ml	Allergic Reaction/Anaphylaxis: 0.3 mg IM only Severe Bronchospasm: 0.3 mg IM only
Furosemide	Suspected Acute Pulmonary Edema: 40 mg SIVP only if patient is currently prescribed Furosemide or Bumex.
Glucagon	Hypoglycemia: 1 mg IM Calcium channel blocker overdose: 1 mg IM Beta blocker overdose: 1 mg IM
Glucose paste	1-tube (approx. 25 gm) PO, 2 tubes max
Lidocaine	V-Fib or V-Tac: 1-1.5 mg/kg IVP or IO, repeat at 0.5-0.75 mg/kg q 5-10 minutes to a max of 3 mg/kg PVC's: 1-1.5mg/kg Slow IVP or IO, max of 3 mg/kg
Midazolam (Versed)	Sedation for Cardioversion: 1-2 mg slow IVP, titrate to effect (max dose 5 mgs) Seizure: 1-2 mg IVP (to a max of 5 mg) 0.1 mg/kg IM (max dose 5 mg) 2.5 mg each nostril IN TCP: 1-2 mg slow IVP in conjunction with Morphine
Morphine sulfate	2-5 mg IVP q 3-5 minutes, to 15 mg max. 5-10 mg IM q 20 minutes to 15 mg max.
Naloxone (Narcan)	1-4 mg IVP/IM/IN/IO
Nitroglycerin	0.4 mg metered spray or 0.4 mg. tab, SL
Normal Saline Bolus	250 ml IV
Sodium bicarbonate	1 mEq/kg IVP
Sodium Thiosulfate	25% solution, 12.5g/50mL IV over 10 minutes. Can be given in an infusion using the table in procedure M13

Allergic Reaction/Anaphylaxis (A12)

BLS Treatment

- Routine Medical Care – Adult (see S04)
 - Treat for signs and symptoms of shock, if necessary (see Shock A10)

ALS Treatment

- Routine Medical Care – Adult (see S04)
- Rash and/or itching
 - **Diphenhydramine** 50 mg IVP/IM
- Dyspnea
 - **Albuterol** 2.5 – 5 mg via HHN or other FDA approved medication delivery device q 15 min or continuously prn
 - If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET
 - Discontinue if HR > 160 bpm, chest pain, dysrhythmias, or acute onset of new symptoms
- Shock
 - Consider 250 ml **Normal Saline** bolus IV. May repeat one time.
 - **Epinephrine (1:1000) 1 mg/1ml: 0.3 mls IM only**

Base Hospital Physician Order

- Stridor, severe shock and impending respiratory arrest
- **Epinephrine (1:10,000) 0.1mg** very slow IVP/IO, only after direct order from the base hospital physician. Draw up the medication from the preload Epinephrine syringe.
- Using a 3 ml syringe, withdraw 1 mls of Epinephrine 1:10,000 from the preload Epinephrine Syringe.
- Additional doses may be required. Contact the base hospital.

Cardiac Arrest (A07)

BLS Treatment

- Routine Medical Care – Adult (see S04)
- Confirm DNR status
- CPR per current AHA guidelines. (Minimize delays and interruptions of compressions during resuscitation. Push hard and fast but allow complete chest recoil. If BLS airway management (BVM/OPA) is working, establish IV/IO prior to inserting an advanced ALS airway. Avoid hyperventilation. Administer one breath every 5-6 seconds do not exceed 8-10 breaths per minute.
- Apply AED, if available and qualified. Follow AHA guidelines.
- Permit family/friends to witness resuscitation efforts if they request to do so. Provide explanations and support whenever possible throughout the duration of the efforts.
- Identify and treat for possible causes: Hypovolemia, Hypoxemia, Hydrogen Ion (Acidosis), Hyper/Hypokalemia, Hypothermia, Tablets (Drug OD), Tamponade (Cardiac), Tension Pneumothorax, Thrombosis (Coronary ACS thrombosis, pulmonary embolism)


ALS Treatment

<i>Asystole</i>	<i>Pulseless Electrical Activity (PEA)</i>	<i>Ventricular Fibrillation or Pulseless Ventricular Tachycardia</i>
<ul style="list-style-type: none"> • Epinephrine <ul style="list-style-type: none"> ○ (1:10,000) 1 mg IVP <u>or</u> IO ○ Repeat q 3-5 minutes for duration of arrest. • Atropine <ul style="list-style-type: none"> ○ 1 mg IVP / IO q 3-5 minutes to max total dose of 3 mg • Consider Normal Saline 250 ml fluid challenge. May repeat as indicated, • Consider termination of resuscitative efforts if Asystole fails to respond to two (2) rounds of medications after at least 10 minutes of resuscitation by prehospital personnel. 	<ul style="list-style-type: none"> • Epinephrine <ul style="list-style-type: none"> ○ (1:10,000) 1 mg IVP or IO ○ Repeat q 3-5 minutes for duration of arrest • Atropine for electrical HR < 60 bpm <ul style="list-style-type: none"> ○ 1 mg IVP /IO q 3-5 minutes to max total dose of 3 mg • Normal Saline 250 ml fluid challenge. Repeat as indicated, • If electrical HR < 40 bpm due to Blunt Trauma, consider determination of death 	<ul style="list-style-type: none"> • Witnessed arrest: defibrillate immediately. • Unwitnessed arrest: CPR (bystander or EMS) for 5 cycles (2 min) prior to defibrillation. • Defibrillate one time <ul style="list-style-type: none"> ○ Manual biphasic equivalent 120J-200J (follow manufacturer's specs.) If unknown use 200J ○ Monophasic : 360J • Epinephrine <ul style="list-style-type: none"> ○ (1:10,000) 1 mg IVP/IO ○ Repeat q 3-5 min • Defibrillate at max. joules as above after 5 cycles of CPR • Defibrillate after each medication throughout the arrest • Lidocaine <ul style="list-style-type: none"> 1-1.5 mg/kg IVP/IO; can repeat at 0.5-0.75mg/kg q 5-10 minutes to maximum of 3 mg/kg. ▪ If return to supraventricular rhythm, consider: <ul style="list-style-type: none"> ○ Normal Saline 250 ml bolus ○ Lidocaine Drip 2-4 mg/min.

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Poisoning and Overdose (A15)

Ingestions	
Agent	Treatment
General Ingestion	<p>Activated Charcoal slush 1g/kg PO if time of ingestion is less than 1 hour. Maximum dose is 50 gm.</p> <p>Charcoal is contraindicated if patient lacks gag reflex cannot self-administer or has ingested substance not bound by charcoal (caustics, lithium, metals, ethylene glycol, Iron, Methanol, other Alcohols, and Hydrocarbons.</p>
Narcotics/Opioids	Naloxone 1-4 mg IVP/IM/IN. May repeat twice every 2-3 minutes (max dose 10 mg). (For IN use Procedure M14 IN Administration)
Suspected Ecstasy, Rohypnol, GHB	Ensure airway protection and monitor for signs of aspiration, Monitor body temperature. Use cooling measures as indicated.
Tri-Cyclic Antidepressants	<p>Sodium Bicarbonate 1mEq/kg IVP (max dose 100 mEq) for:</p> <ul style="list-style-type: none"> • Hypotension • Seizure • QRS widening >0.10 s
Organophosphates/Cholinergics/Pesticides	<p>Atropine 2 mg IVP (may repeat every 5 minutes until asymptomatic</p> <p>Normal Saline bolus as necessary for Hypovolemia.</p>
Major Tranquilizers/Neuroleptics	Diphenhydramine 50 mg IVP/IM for dystonic reactions
Cyanide	Sodium Thiosulfate 25% solution, 12.5 g (50 ml) IV slowly over 10 minutes. Can be administered via infusion over 10 minutes (M13)

Base Hospital Order	
Agent	Treatment
Organo-phosphates Cholinergics Pesticides	<ul style="list-style-type: none"> • Duodote – Autoinjector- IM Lateral thigh only Continuation of Atropine administration at 2 mg IVP. Provide base with a total amount (mg) available on-hand when making base contact. Multi-dose vial should be used, if available.
Tricyclic Anti-Depressants	<ul style="list-style-type: none"> • Additional Sodium Bicarbonate
Calcium Channel Blockers	<ul style="list-style-type: none"> • Glucagon 1 mg IM. • Calcium Chloride 10% 20-30 mg/kg IVP given over several minutes <div style="border: 1px solid black; padding: 5px; margin-top: 10px;">  <p>Calcium Chloride contraindicated if patient takes digoxin.</p> </div>

	<ul style="list-style-type: none">• Manage Symptomatic Bradycardia as necessary
Beta Blockers	<ul style="list-style-type: none">• Glucagon 1 mg IM.• Manage Symptomatic Bradycardia as necessary

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Respiratory Distress (A11)

BLS Treatment

- Routine Medical Care – Adult (see S04)
- Position of comfort
 - Determine Code status

ALS Treatment

- Routine Medical Care – Adult (see S04)

<p><i>Suspected Acute Cardiogenic Pulmonary Edema</i></p> <ul style="list-style-type: none"> • Apply CPAP (see Procedure M12) • Nitroglycerin 0.4 mg SL or TM q 5 minutes x 6 doses <ul style="list-style-type: none"> ○ Discontinue if SBP < 100 mmHg ○ Avoid NTG if patient takes erectile dysfunction medication (see Suspected Cardiac Ischemia A08) • Morphine Sulfate 2 mg SIVP if SBP > 100 mmHg <ul style="list-style-type: none"> ○ q 3-5 minutes to a maximum of 15 mg if no signs of hypotension or respiratory compromise <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"> Avoid morphine when sepsis, pneumonia or dehydration is suspected. These medications will worsen the patient's condition</p> </div> <ul style="list-style-type: none"> • Furosemide 40 mgs. SIVP only if patient is already prescribed Furosemide or Bumex • Dopamine 5-20 mcg/kg/min IV drip. Titrate in 5 mcg/kg/min increments every 5 minutes to an SBP between 90-100 mmHg and a pulse of 80-100 bpm. 	<p><i>Bronchospasm (Diffuse Wheezing)</i></p> <ul style="list-style-type: none"> • Albuterol 2.5 – 5 mg via HHN or other FDA approved device dosage per manufacturer's information, q 15 minutes or continuously prn <ul style="list-style-type: none"> ○ If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET ○ Discontinue if HR > 160 bpm, chest pain, dysrhythmias, or acute onset of new symptoms • Consider Epinephrine IM. See <u>Allergic Reaction/Anaphylaxis (A12)</u>
	<p>Base Hospital Order</p> <div style="border: 1px solid black; padding: 10px; margin: 5px auto; width: 80%;"> <p>For severe distress, see <u>Allergic reaction/Anaphylaxis (A12)</u> Epinephrine IV by Base Hospital Physician order only.</p> </div>
<p><i>Allergic Reaction/Anaphylaxis</i></p> <p><u>See Allergic reaction/Anaphylaxis (A12)</u></p>	<p><i>Smoke Inhalation</i></p> <p><u>See Smoke Inhalation Protocol (A19)</u></p>
<p><i>Suspected Pulmonary Embolus (PE)</i></p> <ul style="list-style-type: none"> • Place in position of comfort • Ensure high flow oxygen 	<p><i>Decompression Illness</i></p> <ul style="list-style-type: none"> • Left Lateral Trendelenburg (on left side, body tilted with head lower than torso) • Transport to ED for stabilization. Do not transport directly to hyperbaric chamber.

Special Considerations

- Both severe fluid overload and severe bronchospasm may present with diminished lung sounds. Differentiating between conditions will be based on history.
- **Epinephrine** should be reserved for those patients who are unable to generate adequate tidal volume to deliver aerosolized drug to the bronchial tree.
- Do not use **epinephrine** excessively, it tends to thicken secretions, deplete glycogen stores, and increase apprehension. Use lower dosage of **Albuterol** for mild to moderate distress and higher dosage for severe distress.

Standard Protocols

Santa Clara County Standard Protocols

Policy #	Protocol	Page
S02	Vascular Access	2.3
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S04	Routine Medical Care – Adult	2.5
S05	Routine Medical Care – Pediatric	2.7

Vascular Access (S02)

General

- Over-the-needle catheters may be inserted into peripheral veins of the limbs and the external jugular vein.
- External jugular veins should be used only after peripheral attempts or confirmation of no obvious peripheral vascular access is present.
- IVs may be established for fluid therapy, or when IV medications may be required.
- When large volumes of fluid may be required, large bore catheters (18-14 G) should be used, and placed in proximal veins when available (AC, EJ). This includes, but is not limited to, patients requiring **Adenosine**, STEMI and Stroke Alert candidates, and those in cardiac arrest.
- Establish two (2) IVs in patients who have, or are at risk for decompensation. For example, shock.
- Avoid more than three (3) attempts at vascular access *per patient* unless necessary for emergent treatment.
- Saline locks are optional and may be used when fluid boluses or numerous medication administrations are not expected to be necessary.
- A “fluid bolus” or “fluid challenge” in the adult patient consists of 250 milliliters of crystalloid solution delivered as rapidly as possible, with reassessment of hemodynamic parameters, respiratory status and lungs sounds before and after treatment.
- “TKO” or “to keep open” indicates a rate of 25-30 cc per hour (25-30 micro drops per minute, or 5 macro drops per minute). TKO shall be the default rate unless otherwise specified in a treatment guideline.
- “Wide open” indicates that the drip regulator is left in the open position. Use with extreme caution in the elderly, children or patients with pre-existing cardiovascular disease. Reassess lung sounds frequently in these patients.
- Document gauge, site, number of attempts, success or non-success, fluid, rate of infusion, paramedic performing procedure, and total amount infused in the pre-hospital setting upon transfer of care or arrival at facility.
- Paramedics may initiate only 0.9% **Sodium Chloride** solution (Normal Saline), but may monitor any crystalloid solution per Title 22 Paramedic Basic Scope of Practice.

Intraosseous

- Any ALS patient for whom immediate fluid or medication treatment is indicated. In addition, patients must have at least one of the following:
 - An altered mental status
 - Respiratory compromise
 - Hemodynamic instability
- **IO lines are never indicated for prophylactic vascular access, or for the mildly distressed patient who can safely wait until arrival at the hospital for vascular access.**
- For children eight (8) years old and younger, an INTRAOSSEUS line may be established in the tibia. (See M08)
- For any ALS patient aged nine (9) years or older an INTRAOSSEUS line may be established using the same tibial insertion site:

- For patients who are between ages nine to 18, special care should be taken to avoid the growth plate areas. The growth plates exist in children and adolescents on the long bones. Each long bone has at least two growth plates: one at each end.
- The limb with an IO line established should be immobilized as if fractured.
- In the child or infant, a “fluid bolus” or “fluid challenge” consists of 20 ml/kg body weight of Normal Saline solution.
- In the newborn, less than 28 days old, a “fluid bolus” or “fluid challenge” consists of 10 ml/kg body weight of crystalloid solution.

Medication Administration (S03)

General

- Unless otherwise specified, pharmacological intervention indicates a need for transport to a hospital and further evaluation by a physician.
- Prior to administering any medication, ensure the right drug, right dose, right patient, and right route.
- Assess medication for expiration date, clarity, color, and intact seal PRIOR to administering the drug.
- Multi-dose vials of injectable medications are intended for multiple use on a single patient, not for use on multiple patients. They are multi-DOSE, not multi-PATIENT vials.
- Documentation shall include, at a minimum, medication name, dose, route, time of administration, and patient response (including vital signs).

Special Considerations

CONTROLLED SUBSTANCES

- Monitor for respiratory depression when administering opiates (**Morphine**) or benzodiazepines (**Midazolam**).
- Always have **Naloxone** readily available when administering opiates.
- Refer to Pain Management protocols A17 and P07 as appropriate.

ADENOSINE

- **Adenosine** is administered very rapidly followed by an immediate 20 ml **Normal Saline bolus** through a proximal IV site (i.e. antecubital fossa). **Adenosine can be given through an IO line if necessary however it may not be as effective**
- **Adenosine** has a rapid onset. If no effect is seen within one minute, escalate to the next intervention.

CARDIAC ARREST

- Bolus intravenous medications are administered rapid IV **or IO** push, followed by a 10-20 ml **Normal Saline bolus** to facilitate circulation of the drug to the heart.
- Allow 60 seconds of circulation of drug between alternating interventions. For example, between “drug-shock-drug-shock”.

DEXTROSE

- Administer **D₅₀** and **D₂₅** with care. Extravasation may result in tissue necrosis. Test patency of IV by holding bag lower than cannulation site and confirming blood return into the IV or by aspiration of the IV. Stop administration if cannulation site swells, becomes reddened or resistance to flow increases.

CALCIUM CHLORIDE (CaCl₂) & SODIUM BICARBONATE (Na HCO₃)

- Flush the IV tubing well between injections when administering **CaCl₂** and **NaHCO₃** in sequence. When these drugs are mixed, a milky precipitate (calcium carbonate) may result.

- **Routine Medical Care – Adult (S04)**

General

- *Baseline vital signs:* pulse rate, blood pressure, respiratory rate, pulse oximetry
- *SAMPLE History:* Signs & symptoms, Allergies, Medications, Pertinent past history, Last oral intake, Events leading to the injury/illness

BLS Treatment

- **Scene Size-Up**
 - Use appropriate Personal Protective Equipment (PPE)
 - Scene safety
 - Determine mechanism of injury/nature of illness
 - Determine number of patients
 - Request additional assistance
 - Consider spinal immobilization
- **Initial Assessment**
 - Form general impression of the patient
 - Assess mental status
 - Assess the airway
 - Assess breathing
 - Assess circulation
 - Baseline vital signs
 - Identify priority patients
- **Treatment**
 - Airway (see Advanced Airway Management M01)
 - Open airway – Head tilt/Chin lift or modified jaw-thrust
 - Oropharyngeal/Nasopharyngeal airway as needed
 - Suction as needed
 - Breathing
 - Administer oxygen appropriate to patient condition
 - If the patient presents with signs and symptoms of pulmonary edema or severe respiratory distress, oxygen should be initiated at 15 Lpm by non-rebreather mask
 - Assist ventilations as necessary
 - Circulation
 - Initiate CPR as needed
 - Control external hemorrhage
 - Dress wounds
 - Splint orthopedic injuries whenever possible, but do not delay transport for a Major Trauma Victim
 - Provide psychosocial support

Routine Medical Care – Adult (S04)

- **Patient Position**
 - *Conscious, no trauma, good gag reflex*: Position of comfort
 - *Depressed level of consciousness, no trauma, decreased gag reflex*: Left lateral position
 - *Trauma*: Spinal immobilization as needed. Ensure that the patient can be rolled to the side in the event of vomiting
 - *Pregnancy*: Do not lay the patient flat if more than 20 weeks pregnant. Transport either in semi-fowlers or left-lateral decubitus position. If the patient requires spinal immobilization, secure the backboard first, and then tilt the board 20-30 degrees to the left.
 - *Respiratory Distress*: Fowler's position or position of comfort
- **Patient Medications**
 - Field personnel should make a list of the patient's medication(s), including the drug name, dose, and frequency, and/or bring the medication bottle(s) with the patient to the hospital.
 - BLS personnel may allow the patient to take his/her own medication; *however*, the patient must be alert enough to self-administer the medication. In most cases, these medications should only include: **Nitroglycerin** (if SBP \geq 90 mmHg), **Aspirin**, anaphylaxis kit drugs, and metered dose inhalers.
- **Ongoing Assessment**
 - Reassess vital signs
 - Repeat focused assessment
 - Check interventions

ALS Treatment

- **Trauma Patients – Focused History and Physical Exam**

Significant Mechanism of Injury	No Significant Mechanism of Injury
✓ Rapid trauma assessment	✓ Focused assessment based on chief complaint
✓ Baseline vital signs	✓ Baseline vital signs
✓ SAMPLE history	✓ SAMPLE history
✓ Transport	✓ Transport
✓ Detailed physical exam	✓ Detailed physical exam

- **Medical Patients – Focused History and Physical Exam**

Responsive	Unresponsive
✓ History of illness	✓ Rapid medical assessment
✓ SAMPLE history	✓ Baseline vital signs
✓ Focused physical exam based on chief complaint	✓ SAMPLE history
✓ Baseline vital signs, temperature optional	✓ Re-evaluate transport decision
✓ Re-evaluate transport decision	✓ Detailed physical exam
✓ Detailed physical exam	

- **Treatment**

- *If BLS measures are working and patient does not need further interventions, do not institute ALS measures*
- Airway (see Advanced Airway Management M01)
 - Open airway – Head tilt/Chin lift
 - Oropharyngeal/Nasopharyngeal airway as needed
 - Suction as needed

Routine Medical Care – Adult (S04)

- Breathing
 - Administer oxygen appropriate to patient condition (see Pulse Oximetry M04)
 - Oxygen administration is not to be excluded based on a saturation value obtained by pulse oximetry. Patients with conditions including, but not limited to, ischemic chest pain, trauma, respiratory conditions, congestive heart failure, carbon monoxide poisoning, and complications of third trimester pregnancies, etc. should receive appropriate concentrations of oxygen regardless of saturations. Like other physiologic parameters, pulse oximetry is used only as a guide in providing overall care to the patient.
 - If there is a history of COPD, observe for respiratory depression and support respirations as needed. **DO NOT** withhold oxygen from a patient in distress solely because of a history of COPD.
 - If the patient presents with signs and symptoms of pulmonary edema or severe respiratory distress, oxygen should be initiated at 15 Lpm by non-rebreather mask
 - Assist ventilations as necessary
 - Endotracheal intubation or Laryngeal Airway Device (LAD) as necessary. The LAD **can** be used as a primary airway device based on paramedic assessment of the patient's airway. This assessment should focus on the anticipated difficulty of performing endotracheal intubation and the need for a rapid airway so other resuscitative measures can progress, such as during cardiac arrest
- Circulation
 - Initiate CPR as needed
- Cardiac monitoring and 12-lead ECG when medic suspects patient may have cardiac ischemia or any dysrhythmias
- Any patient being treated per A08 shall have a 12-Lead EKG performed and the EKG shall be delivered to the receiving facility.
- Fluid Administration
 - Start an intravenous line as needed
 - Optionally, insert a saline lock if appropriate


Routine Medical Care – Pediatric (S05)

General

- The defined age of a pediatric patient is **under 15 years old**, and unless specified otherwise, pediatric protocols should be used to treat these patients. If at any time during the primary survey further intervention is required, refer to the appropriate treatment policies.
 - A neonate is considered as 0-4 weeks of age
 - An infant is considered to be 1 month to 1 year old
 - A child is considered to be \geq 1 year old
- A pediatric length-based resuscitation tape should be used to determine drug doses, fluid volumes, defibrillation settings, and equipment sizes. The tape is designed to estimate a child's weight based on length (head to heel). The tape may also include information about abnormal vital signs.

PRIMARY SURVEY	SPECIAL CONSIDERATIONS
Establish level of consciousness	<ul style="list-style-type: none"> • AVPU – <u>A</u>lert, <u>V</u>erbal, <u>P</u>ainful, <u>U</u>nresponsive • Glasgow Coma Scale
Evaluate airway and protective airway reflexes	<ul style="list-style-type: none"> • Identify signs of airway obstruction and respiratory distress, including: <ul style="list-style-type: none"> ➤ Cyanosis ➤ Stridor ➤ Drooling ➤ Nasal flaring ➤ Choking ➤ Intercostal retractions ➤ Absent breath sounds ➤ Apnea or bradypnea ➤ Tachypnea ➤ Grunting
Secure airway. <i>Intubation contraindicated if BLS airway is sufficient.</i> (see <u>Advanced Airway Management M01</u>) Consider spinal immobilization.	<ul style="list-style-type: none"> • Open airway using jaw-thrust and chin-lift (and/or head tilt if no suspected spinal trauma). • Suction as needed • Consider placement of an OPA or ETT if the patient is unconscious
Assess need for ventilatory assistance	<ul style="list-style-type: none"> • Use chest rise as an indicator of ventilation • Use pulse oximetry and capnography
Evaluate and support circulation. Stop hemorrhage.	<ul style="list-style-type: none"> • Assess perfusion using the following indicators: <ul style="list-style-type: none"> ➤ Heart rate ➤ Skin signs ➤ Capillary refill ➤ Mental status ➤ Quality of pulse ➤ Blood pressure • Cardiac monitor & IV access as necessary
Continue with secondary survey	<ul style="list-style-type: none"> • Perform head-to-toe assessment, temperature optional • Obtain patient history • Do an environmental assessment, including consideration of intentional injury

Routine Medical Care – Pediatric (S05)

Determine appropriate treatment protocols	<ul style="list-style-type: none">• Provide family psychosocial support• Use a length-based resuscitation tape (LBRT) to determine weight, drug doses, fluid volumes, defibrillation settings, and equipment sizes
	 Do not use the drug doses listed on the section of the LBRT that refers to drugs used for intubation.
	<ul style="list-style-type: none">○ For drugs not listed on the tape, or for patients exceeding the tape length, determine appropriate dose by using the dosages listed in the treatment protocols.• Pediatric patients are subject to rapid changes in body temperature. Steps should be taken to prevent loss of or increase in body temperature.• Compared to the adult patient, a small amount of fluid lost from, or administered to, a pediatric patient can result in shock or pulmonary edema.• Scene time for treatment of pediatric patients should be kept at a minimum. Most treatment should be done en route.

Symptomatic Bradycardia (A05)

BLS Treatment

- Routine Medical Care – Adult (see S04)
- Signs and symptoms of shock, place patient in Shock Position
- If pulseless, see Cardiac Arrest A07

ALS Treatment

- Symptomatic Bradycardia: HR < 60 bpm with serious signs or symptoms

<i>Serious signs or symptoms</i>		
Chest pain	Decreased LOC	Shock
SBP < 90 mmHg	Pulmonary congestion	SOB
Acute MI	CHF	

- Routine Medical Care – Adult (see S04)
 - If rhythm changes during treatment, see appropriate protocol.
 - Consider 250 ml NS bolus IV, if hypotensive
- 12-lead ECG.
- Suspected Cardiac Ischemia (see Cardiac Ischemia A08)
- Shock, treat per Shock Protocol (A10)



Do not delay Transcutaneous Pacing (TCP) for Atropine administration in patients presenting with:

- Cardiac transplant history
- Type II 2nd degree heart block
- 3rd degree heart block with widened QRS complex
- Patients in-extremis

- **Atropine Sulfate**
 - 0.5 mg IVP or IO. If no response, repeat x 1 q 5 min.
- Perform Transcutaneous Pacing (TCP) if no response to 2 doses of Atropine. Otherwise, consider NS bolus and Dopamine. (see below)



Avoid TCP for patients with severe hypothermia.
(See Environmental Emergencies A09)

- Prior to TCP, consider sedation:
 - **Midazolam** 1-2 mg slow IVP one time **and**
 - **Morphine Sulfate** 2 mg slow IVP one time
- See Transcutaneous Pacing (M10) for TCP procedure
- If serious signs or symptoms don't resolve *with or without* TCP:
 - If lungs are clear, administer a 250 ml NS bolus. May repeat once to a maximum total of 500 ml.
 - If 2 doses of Atropine have already been given then:

Dopamine 5-20 mcg/kg/min IV Infusion. Titrate in 5 mcg/kg/min increments to a SBP between 90 and 100 mmHg, and a pulse of 80-100 bpm.

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Tachycardia with Pulses (A14)

BLS Treatment

- Routine Medical Care – Adult (see S04)
- Treat for signs & symptoms of shock, as appropriate (see Shock A10)
 - CPR as appropriate

ALS Treatment

- Routine Medical Care – Adult (see S04)

Tachycardia (HR > 150)	
<i>Narrow Complex: Supraventricular</i>	<i>Wide Complex: Ventricular</i>
<p align="center">Stable</p> <ul style="list-style-type: none"> • Valsalva maneuver • Adenosine 6 mg IVP with 20 ml rapid flush. <ul style="list-style-type: none"> ○ May repeat twice with 12 mg IVP each <p align="center">Unstable</p> <ul style="list-style-type: none"> • Consider Adenosine 6 mg IVP • Synchronized Cardioversion <ul style="list-style-type: none"> ○ Consider sedation with Midazolam 2 mg IVP q 2 min. to a max. dose of 5 mg. ○ Synchronized Counter Shocks: 100 J > 200 J > 300 J > 360 J <ul style="list-style-type: none"> ➤ Automated or biphasic defibrillators should be set to the manufacturer’s clinical equivalent. ○ If unable to gain capture, turn off synchronization and defibrillate. <p align="center">Critical (Unconscious and no peripheral pulses)</p> <ul style="list-style-type: none"> • Synchronized Cardioversion <ul style="list-style-type: none"> ○ Synchronized Counter Shocks ○ If unable to gain capture, turn off synchronization and defibrillate. 	<p align="center">Stable</p> <ul style="list-style-type: none"> • Consider Lidocaine 1-1.5 mg/kg IVP can repeat at 0.5-0.75 mg/kg to a max. total dose of 3 mg/kg IVP. • If aberrancy resolves, consider Lidocaine Drip at 2-4 mg/min • If unresponsive, consider possibility of SVT with aberrancy. <p align="center">Unstable</p> <ul style="list-style-type: none"> • Consider sedation with Midazolam 1-2 mg IVP q 2 min. to a max. dose of 5 mg. <ul style="list-style-type: none"> ○ Avoid in unconscious patients and patients with hypotension (SBP < 90) • Synchronized Cardioversion <ul style="list-style-type: none"> ○ Critical patients: Defibrillate if any delay in synchronized cardioversion ○ Synchronized Counter Shocks: 100 J > 200 J > 300 J > 360 J <ul style="list-style-type: none"> ➤ Automated or biphasic defibrillators should be set to the manufacturer’s clinical equivalent. ○ If unable to gain capture turn off synchronization and defibrillate. • Lidocaine 1-1.5 mg/kg IVP can repeat at 0.5-0.75 mg/kg to a max. of 3 mg/kg total or

Deleted all reference to ET dosing

Authorized Medications – Pediatric, age less than 15

MEDICATIONS	STANDARD DOSE
Activated charcoal	1 g/kg PO, or 25 g if > 1 year old (with or without Sorbitol)
Adenosine	0.1 mg/kg rapid IVP/IO. (max dose 6 mg)
Albuterol	2.5 mg in 3 cc NS via FDA approved drug nebulizer device
Atropine sulfate	0.02 mg/kg IVP/IO ET if IV IO unable 0.4-1mg/ml concentration for ET
Calcium Chloride 10%	20-30 mg/kg IVP/IO given over several minutes
Dextrose 10% (neonate)	3 ml/kg IVP/IO
Dextrose 25% (neonate or < 4 y/o)	2 ml/kg IVP/IO
Dextrose 50% (> 4 y/o)	1 ml/kg IVP/IO
Diphenhydramine (Benadryl)	1 mg/kg IM/IVP. Max dose = 50 mg.
Dopamine	5-20 mcg/kg/min titrated by 5 mcg/kg/min increments to effect
Epinephrine 1:1000 (1mg/ml ampules)	Allergic reaction/anaphylaxis: 0.01 mg/kg IM only (max initial dose 0.3 mg,
Epinephrine 1:10,000	0.01 mg/kg IVP/IO (max initial dose 1 mg)
Glucagon	Calcium channel/beta blocker overdose: Glucagon 0.05 mg/kg IM Hypoglycemia: 0.1 mg/kg IM (max dose 1 mg)
Glucose paste	1-tube (approx. 25 gm) PO, 2 tubes max
Lidocaine	1 mg/kg IVP/IO or 3 mg/kg ET if IO/IV unable
Midazolam (Versed)	Pre-cardioversion/TCP sedation 0.05 – 0.1 mg/kg IVP/ (max dose 2 mg) Seizure: 0.1 mg/kg slow IVP (max dose 4 mg) or 0.1 mg/kg IM (max dose 5 mg) or IN
Morphine sulfate	0.05 mg/kg IVP or 0.1 mg/kg IM
Naloxone (Narcan)	0.1 mg/kg IVP/IO/IM/IN
Normal Saline Bolus	Neonates: 10 ml/kg (max 60 ml/kg) Child > 1 year: 20 ml/kg (max 60 ml/kg)
Sodium bicarbonate	1 mEq/kg IVP/IO
Sodium thiosulfate	25% solution, 1.65 mL/kg to a max dose of 50mL (12.5 g) slowly IV over 10 minutes. Can be administered via NSS using the standardized drip rate schedule M13.

Neonatal Resuscitation (P01)

HEART RATE < 60 bpm	HEART RATE 60-80 bpm	HEART RATE > 80 bpm
<ul style="list-style-type: none"> • CPR using current AHA guidelines (push hard, push fast, release completely to allow chest recoil, minimize interruptions in chest compressions, • Epinephrine <ul style="list-style-type: none"> ○ (1:10,000) 0.01 mg/kg IVP/IO ○ Repeat q 3-5 minutes prn • Naloxone – consider if pulse persistently <80, <ul style="list-style-type: none"> ○ 0.1 mg/kg IVP/IN/IO 	<ul style="list-style-type: none"> • Continue assisted ventilation. • If heart rate does not increase with ventilations: <ul style="list-style-type: none"> • Epinephrine <ul style="list-style-type: none"> ○ (1:10,000) 0.01 mg/kg IVP/ IO ○ Repeat q 3-5 minutes prn. • Naloxone –consider if pulse persistently < 80 <ul style="list-style-type: none"> ○ 0.1 mg/kg IVP/IN/IO, 	<ul style="list-style-type: none"> • Check skin color. If peripheral cyanosis, give oxygen by mask or blow by. • Reassess heart rate, respirations, and skin color. Continue to provide warmth

Pediatric Respiratory Distress (P08)

BLS Treatment

- Routine Medical Care – Pediatric (see S05)
- Position of comfort
- If possible, identify and treat underlying cause.
 - If foreign body obstruction suspected, perform obstructed airway maneuvers per AHA standards

ALS Treatment

- Routine Medical Care – Pediatric (see S05)
- CPAP masks will not fit smaller pediatric faces

Upper Airway Obstruction (Stridor/Croup) Moderate to Severe Distress	Allergic Reaction and Anaphylaxis
<ul style="list-style-type: none"> • Cool mist therapy with nebulized Normal Saline • Do not try to visualize pharynx 	<ul style="list-style-type: none"> • See <u>Allergic Reaction / Anaphylaxis P16</u>
	Other Causes of Respiratory Insufficiency
	<ul style="list-style-type: none"> • Tracheostomy <ul style="list-style-type: none"> ○ See <u>Stoma and Tracheostomy Care M05</u>
Lower Airway (Wheezing)	Smoke Inhalation
<ul style="list-style-type: none"> • Albuterol 2.5 mg in 3 ml NS via nebulizer, q 15 min or continuously prn <u>and</u> HR < 200 bpm <ul style="list-style-type: none"> ○ If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET <p>For Severe Respiratory Distress</p> <ul style="list-style-type: none"> • Epinephrine 1:1000 <ul style="list-style-type: none"> ○ 0.01 mg/kg IM only, max initial dose 0.3 mg 	<ul style="list-style-type: none"> • Treat appropriate cardiac rhythm • Consider fluid bolus • Sodium Thiosulfate, 25% solution 0.4 g/kg (to a max. of 12.5 g) IV slowly over 10 minutes if patient has any of the following: <ul style="list-style-type: none"> ○ Unconscious, unresponsive ○ Hypotension ○ Soot in mouth or nose with severe ALOC ○ Thiosulfate can be administered as a solution using the standard drip rate schedule in M13

Special Considerations

- In upper airway disorders (i.e. epiglottitis, croup, foreign body airway obstruction), invasive airway maneuvers should only be attempted if patient is in respiratory arrest, as aggravation of irritated tissues can cause further airway obstruction.
- Epinephrine should be reserved for those patients who are unable to generate adequate tidal volume to deliver aerosolized drug to the bronchial tree. Do not use Epinephrine excessively, it tends to thicken secretions, deplete glycogen stores, and increase apprehension.
- Base Hospital Contact for additional resources as necessary

Pediatric Trauma (P12)

BLS Treatment

- Routine Medical Care – Pediatric (see S05)
- Control external bleeding
- Treat for signs and symptoms of shock as necessary (see Shock P09)
- Immediately evaluate the need for rapid transport to a Pediatric Trauma Center (Santa Clara Valley Medical Center or Stanford University Hospital).
- Spinal precautions as appropriate
- Maintain body temperature

Injury	Treatment
Suspected Pelvic Fracture	<ul style="list-style-type: none"> • Stabilize with bulky dressings • Secure with a Pelvic Wrap (bed sheet or equivalent device) if patient condition and time allows
Impaled Object	<ul style="list-style-type: none"> • Do not remove impaled object unless it creates an airway obstruction or interferes with CPR or transport. • Stabilize object with bulky dressing and cover with a dry dressing.
Extremity Fracture or Dislocation	<ul style="list-style-type: none"> • Extremities include hand, arms, clavicle, legs, and feet • Splint, Elevate, and apply cold pack • If the extremity is pulseless or complicates transport, apply gentle traction along the long axis of the bone to attempt to restore circulation and/or splint.
Abdominal Evisceration	<ul style="list-style-type: none"> • Cover eviscerated contents with moist dressing
Chest Trauma	<ul style="list-style-type: none"> • Apply occlusive dressing on open chest wounds (ensure relief valve or flap) • Splint as necessary
Femoral Head Fracture/Dislocation (“Hip Fracture”)	<ul style="list-style-type: none"> • Stabilize with bulky dressings
Amputation	<ul style="list-style-type: none"> • Place amputated part in a dry, sterile dressing, and then place in a sealed plastic bag. Cool sealed bag with cold packs. Do not delay transport if severed part is not located when the patient is ready for transport. • Tourniquets <u>NOT</u> indicated. Maintain direct pressure.
Patients with Head Trauma and ALOC	<ul style="list-style-type: none"> • Reverse Trendelenburg position as appropriate • Ventilate patient 12 times per minute (every 5 seconds) with 100% oxygen. Avoid hyperventilation.

Pediatric Seizure (P15)

BLS Treatment

- Routine Medical Care – Pediatric (see S05)
- Recovery position with head elevated, if no suspected spinal injury or mechanism
- Consider cooling measures if febrile (loosen blankets and/or remove excessive clothing)
- Protect patient during active seizure

ALS Treatment

- Routine Medical Care – Pediatric (see S05)
- Check blood glucose level. If hypoglycemic, see Hypoglycemia P14
- Active seizure > 5 min or repeated seizing without lucid intervals
 - **Midazolam 0.1 mg/kg slow IVP/IN (max dose 5 mg)**
 - May repeat once in 15 minutes for persistent or recurrent seizure
 - If no IV access
 - **Midazolam 0.1 mg/kg IM (max dose 5 mg)**

Special Considerations

- Status epilepticus is a true medical emergency defined as either continuous seizures lasting at least 5 minutes or two or more discrete seizures between which there is incomplete recovery of consciousness.
- ALL first time seizures and seizures associated with a fever should be evaluated by a physician.
- Continuous ECG, pulse oximetry, and blood pressure monitoring (every 5 minutes) are mandatory, during, and after, administration of Midazolam.

Pediatric Allergic Reaction / Anaphylaxis (P16)

BLS Treatment

- Routine Medical Care – Pediatric (see S05)
- Position of comfort
- If possible, identify underlying cause

ALS Treatment

- Routine Medical Care – Pediatric (see S05)
- **Diphenhydramine** 1 mg/kg IM/IVP. Max dose = 50 mg.
- Albuterol 2.5 mg in 3 ml NS via nebulizer, q 15 minutes prn and HR < 200 bpm
 - If severe distress and tidal volume decreased, administer Albuterol via in-line BVM or ET
- If severe distress and signs of shock
 - **Epinephrine 1:1000, 0.01mg/kg IM only max initial dose of 0.3 mg.**

Base Hospital Physician Order

For Stridor, severe respiratory distress or shock

Epinephrine 0.01 mg/kg (1:10,000) IVP/IO (max dose 0.3 mg) per Base Hospital Physician Order only.

Special Considerations

- **Epinephrine** should be reserved for those patients who are unable to generate adequate tidal volume to deliver aerosolized drug to the bronchial tree. Do not use Epinephrine excessively, it tends to thicken secretions, deplete glycogen stores, and increase apprehension.
- Base Hospital Contact for additional resources as necessary
- Signs and symptoms of severe distress and signs of shock include:

✓ Cool, clammy, mottled skin	✓ SBP < 70 mmHg
✓ Pallor due to decreased skin perfusion	✓ Capillary refill > 2 sec
✓ Altered sensorium due to decreased perfusion to the brain	
- Signs and symptoms of moderate to severe respiratory distress include:

✓ Cyanosis	✓ Accessory muscle use
✓ Inability to speak > 2 syllable units	✓ Severe wheezing
✓ Shortness of breath	✓ Capillary refill > 2 seconds
✓ SBP < 70 mmHg	

