

# SAN JOAQUIN COUNTY EMERGENCY MEDICAL SERVICES

## Pediatric Advanced Life Support Policies

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**San Joaquin County  
Emergency Medical Services Agency**

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**Pediatric Routine Medical Care**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Pediatrics – Patients that are fourteen (14) years of age or younger, and fall within the limits of the Broselow Pediatric Emergency Tape shall be treated per the San Joaquin County ALS Pediatric Protocols. The Broselow Pediatric Emergency Tape is considered an accurate source of medical information and is in line with San Joaquin County ALS Pediatric Policies. If in doubt concerning whether to treat patient as an adult or pediatric (i.e., obese child or smaller adult) contact the base hospital.
  - A. Neonate/newborn: Birth to one month of age.
  - B. Infant: One month to one year of age.
  - C. Child: One year to twelve years of age.
  
- II. If at any time during the primary survey further intervention is required, refer to the appropriate treatment policies.
  
- III. A pediatric length-based resuscitation tape will 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 also includes information about abnormal vital signs.
  - A. All patients will have a complete physical assessment completed including:
  - B. Complete a primary survey.
    1. Airway: Assessment of airway patency and protective reflexes.
    2. Breathing: Assessment of ventilatory status including signs and symptoms of respiratory distress/failure. This assessment shall include a respiratory rate and pulse oximetry.
    3. Circulation: Assessment of perfusion and circulatory status to include: heart rate, mental status, skin signs, quality of pulse, capillary refill, and blood pressure.
    4. Disability: Evaluation of level of consciousness using the AVPU mnemonic (alert, verbal, pain, unresponsive).

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- C. Perform a secondary survey.
  - 1. Perform a head to toe assessment: A complete physical assessment shall be completed with supporting documentation.
  - 2. Obtain patient history.
  - 3. Assess environment and provide psychosocial support to patient and family.

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## **Pediatric Pulseless Arrest Asystole/PEA**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care while confirming pulselessness and appropriate (non shockable) rhythm on the cardiac monitor.
  
- II. Treatment:
  - A. Perform immediate, effective CPR.
  - B. Continue CPR, maintain patent airway with 100% oxygen via BVM.
  - C. Provide appropriate airway management with simplest most effective airway adjunct.
  - D. Establish IV/IO of normal saline TKO. **Do not delay transport.** If unable to obtain vascular access, begin transport and continue efforts while en route.
  - E. Consider reversible causes and treat as indicated.
  - F. Administer Epinephrine 0.01 mg/kg (1:10,000) IVP/IO, max of 1 mg. Repeat every 3-5 minutes.
  - G. Continue CPR for 5 cycles/2 minutes and recheck pulse/rhythm.
  - H. An order to terminate resuscitation efforts may be given by the Base Hospital Physician for patients in Asystole or PEA < 30 that are unresponsive to treatment (See EMS Policy No. 5103, Determination of Death).

Note: CPR should be administered for complete sequences of 5 cycles/2 minutes. During 5 cycles/2 minutes, establish IV/IO and administer medications during CPR to minimize interruptions in chest compressions.

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## **Pediatric Pulseless Arrest Ventricular Fibrillation/Ventricular Tachycardia**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care while confirming pulselessness and appropriate (shockable) rhythm on the cardiac monitor.
  
- II. Treatment:
  - A. If unwitnessed arrest, perform and complete initial CPR sequence (5 cycles/2 minutes) while preparing equipment.
  - B. Defibrillate patient one (1) time at 2J/kg and then resume CPR immediately for 5 cycles/2 minutes (do not check rhythm or pulse after shock).
  - C. Continue CPR and maintain patent airway with 100% oxygen via BVM.
  - D. Provide appropriate airway management.
  - E. Check rhythm/pulse. If shockable rhythm, defibrillate 1 x @ 4J/kg and resume CPR immediately after the shock.
  - F. Continue CPR for 5 cycles/2 minutes while performing appropriate airway management.
  - G. Establish IV/IO of normal saline TKO.
  - H. After 2 minutes of CPR, check pulse and rhythm. If no pulse, resume CPR and administer Epinephrine 0.01 mg/kg IVP/IO. Repeat every 3-5 minutes.
  - I. After 2 minutes of CPR, check rhythm and if appropriate defibrillate at 4J/kg.
  - J. Resume and continue CPR for 5 cycles/2 minutes.
  - K. Administer Lidocaine 1mg/kg IVP/IO (may repeat x 1 in 3-5 minutes).
  - L. After 2 minutes of CPR, check rhythm and if appropriate defibrillate at 4J/kg. If non shockable rhythm present, treat according to appropriate policy.

Note: CPR should be administered for complete sequences of 5 cycles/2 minutes, between each shock. During 5 cycles/2 minutes, establish IV/IO and administer medications during CPR (before or after shock) to minimize interruptions in chest compressions.

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## **Pediatric Bradycardia**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care, and EMS Policy No. 5800, Pediatric Routine Medical Care.
  
- II. Treatment:
  - A. Assure adequate oxygenation and ventilation. Most bradycardia in children is due to hypoxia.
  - B. Check blood glucose.
  - C. Check temperature and begin warming if hypothermic.
  - D. Normal Perfusion:
    1. Establish IV of normal saline TKO.
  - E. Decreased Perfusion and/or Respiratory Distress:
    1. Establish IV of normal saline and administer a fluid bolus of 20ml/kg.
    2. Recheck vital signs.
    3. If patient remains bradycardic despite adequate oxygenation and ventilation, administer Epinephrine 0.01mg/kg IVP/IO to a maximum dose of 1mg. May repeat epinephrine dose every 3-5 minutes as indicated.
    4. If increased vagal tone or AV block present, administer Atropine 0.02mg/kg IVP/IO, minimum dose 0.1mg and maximum dose 1mg. May repeat once.
    5. If bradycardia remains, consult with Base Hospital Physician.

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## Pediatric Tachycardia with Pulses

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**DEFINITIONS:**

- A. "**Sinus Tachycardia**" indicates a rapid heart rate with a narrow QRS (less than or equal to 0.08 sec.) that is less than 220/min. in an infant or less than 180/min. in a child.
- B. "**Supraventricular Tachycardia**" indicates a rapid heart rate with a narrow QRS (less than or equal to 0.08 sec.) that is greater than 220/min. in an infant or greater than 180/min. in a child.
- C. "**Ventricular Tachycardia**" indicates a rapid heart rate with a wide QRS (greater than 0.08 sec.).

**POLICY:**

- I) Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II) Treatment:
  - A. Consider pediatric normal values for heart rate. Infants may have heart rates as high as 220/minute and children may have heart rates as high as 180/minute in the presence of fever, anxiety, and/or pain.
  - B. Manage airway and ventilations as indicated.
  - C. Establish IV of normal saline TKO.
  - D. Treat according to rhythm:
    - 1. **Sinus Tachycardia**:
      - a. Consider and treat underlying cause (fever, pain, trauma, hypovolemia).
      - b. Consider fluid bolus of normal saline 20 ml/kg IVP/IO. May repeat as indicated.
      - c. Recheck vital signs after each bolus.
      - d. If suspected trauma, refer to EMS Policy No. 5833, Pediatric Trauma.
    - 2. **Supraventricular Tachycardia**:
      - a. Conscious:
        - 1. Attempt vagal maneuver.

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2. If unsuccessful, administer Adenosine 0.1mg/kg rapid IVP/IO push to a maximum dose of 6 mg followed by rapid 20ml flush of normal saline.
  3. If unsuccessful, administer Adenosine 0.2mg/kg rapid IVP/IO push (to a maximum dose of 12 m) followed by rapid 20ml flush of normal saline.
- b. Unconscious:
1. Transport without delay.
  2. Administer Adenosine 0.1mg/kg rapid IVP/IO push, to a maximum dose of 6mg followed by rapid 20ml flush of normal saline while setting up to perform cardioversion.
  3. Consult Base Hospital Physician for orders:
    - a) Perform synchronized cardioversion at 1 J/kg.
    - b) If no response at 1 J/kg, perform synchronized cardioversion at 2 J/kg.
3. **Ventricular Tachycardia:**
- a. If no pulse refer to EMS Policy No. 5811, Pulseless Arrest: VFIB/VTACH.
  - b. Conscious :
    1. Administer Lidocaine 1mg/kg IVP/IO. May repeat once in 3-5 minutes.
  - c. Unconscious:
    1. Transport without delay.
    2. Administer Lidocaine 1 mg/kg IV/IO while setting up to perform cardioversion.
    3. Consult Base Hospital Physician for orders:
      - a) Perform synchronized cardioversion at 1 J/kg.
      - b) If no response at 1 J/kg, perform synchronized cardioversion at 2 J/kg.
      - c) If no response, perform synchronized cardioversion at 4 J/kg.
  - d. If cardioversion is successful, consult with Base Hospital Physician for post cardioversion medication orders.

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## **Pediatric Apparent Life Threatening Event**

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**AUTHORITY:**Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**DEFINITIONS:**

- A. **“Apparent Life Threatening Event (ALTE)”** indicates an episode that is **frightening to the observer** (may think the infant has died) and involves some combination of:
- Apnea (central or obstructive)
  - Color change (cyanosis, pallor, erythema, plethora)
  - Marked change in muscle tone (limpness)
  - Choking or gagging

**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. These events usually occur in infants < 12 months old, however, any child less than 2 years old who exhibits the symptoms listed above may be considered an ALTE.
- III. Treatment:
- A. Assume the history given is accurate.
  - B. Determine the severity, nature and duration of the episode.
  - C. Obtain a medical history.
  - D. Perform a complete physical exam that includes the general appearance of the child, skin color, extent of interaction with environment, and evidence of trauma.
  - E. If hypoglycemia suspected or ALOC, obtain glucose level.
  - F. Consider and treat any identifiable causes.
  - G. Transport patient to the hospital.

Note: Most patients will have a normal physical exam when assessed by responding field personnel. **Contact the base physician for consultation** if the parent/guardian is refusing medical care and/or transport, prior to completing a Refusal of Care form.

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## **Pediatric Airway Obstruction by Foreign Body**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
  
- II. Treatment:
  - A. Attempt to clear the airway using BLS maneuvers.
    - 1. For infants administer back blows and chest thrusts.
    - 2. For children > 1 year of age, administer abdominal thrusts.
  - B. If unable to clear foreign body, visualize the larynx and remove the foreign body with Magill forceps.
  - C. Assist ventilation with BVM and 100% oxygen.
  - D. If unsuccessful, attempt endotracheal intubation.
  - E. If patient has a complete airway obstruction and you are unable to clear foreign body using BLS maneuvers and direct visualization, consider Cricothyrotomy.

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## **Pediatric Respiratory Distress: Stridor**

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. For suspected airway obstruction refer to EMS Policy No. 5817, Pediatric Airway Obstruction.
- III. For suspected allergic reaction refer to EMS Policy No. 5826, Pediatric Allergic Reaction.
- IV. Treatment:
  - A. Place patient in position of comfort.
  - B. If suspected croup, consider saline nebulizer treatment.
  - C. If suspected epiglottitis, do not attempt to visual airway.
  - D. Administer oxygen, allow parent to administer if appropriate. If patient deteriorates, or becomes completely obstructed, attempt to ventilate via BVM.
  - E. Perform endotracheal intubation only if BVM ventilation is unsuccessful or impossible.

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## Pediatric Respiratory Distress: Bronchospasm

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**DEFINITIONS:**

- A. “**Mild Respiratory Distress**” indicates mild wheezing, shortness of breath and/or cough, and ability to speak full sentences.
- B. “**Moderate Respiratory Distress**” indicates spontaneous breathing and adequate tidal volume with significant wheezing/SOB accompanied by any of the following signs: accessory muscle use, nasal flaring, grunting, and/or inability to speak full sentences.
- C. “**Severe Respiratory Distress**” indicates ineffective ventilations and/or inadequate tidal volume, which may be accompanied by any of the following signs: accessory muscle use, cyanosis, inability to speak, gasping respirations, and/or decreased level of consciousness.

**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care, and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. Treatment:
  - A. Place patient in position of comfort.
  - B. Administer oxygen, allow parent to administer if appropriate.
  - C. Treat according to severity:
    - 1. **Mild Distress:**
      - a. Monitor heart rate, respiratory rate, and pulse oximetry.
      - b. Administer Albuterol 2.5mg in 3 ml NS via nebulizer. May repeat as indicated.
    - 2. **Moderate Distress:**
      - a. Monitor heart rate, respiratory rate, and pulse oximetry.
      - b. Administer Albuterol 2.5mg in 3 ml NS by nebulizer with Atrovent 0.5mg in 2.5 ml NS
      - c. May repeat Albuterol as indicated.
      - d. Consider epinephrine 0.01 mg/kg Sub-Q (Maximum dose is 0.3 mg).

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3. **Severe Distress:**

- a. Assist ventilations with BVM and 100% oxygen.
- b. If unable to adequately oxygenate and ventilate patient, perform endotracheal intubation.
- c. Administer Albuterol 2.5mg in 3 ml NS and Atrovent 0.5mg in 2.5 ml NS by nebulizer/BVM/ETT. May repeat Albuterol as indicated (not to exceed 20mg per hour).
- d. Consider epinephrine 0.01 mg/kg Sub-Q (Maximum dose is 0.5mg).

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## **Pediatric Shock**

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**AUTHORITY:**

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. For suspected or known trauma refer to EMS Policy No. 5833, Pediatric Trauma.
- III. For suspected allergic reaction refer to EMS Policy No. 5826, Pediatric Allergic Reaction.
- IV. Treatment:
  - A. Assure adequate oxygenation and ventilation.
  - B. Establish IV/IO of normal saline TKO.
  - C. Administer rapid fluid bolus of normal saline 20 ml/kg. May repeat as indicated.
  - D. If suspected Cardiogenic Shock, consult with Base Hospital Physician for Dopamine orders.

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**Pediatric Allergic Reaction**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.

**Treatment:**

- A. Remove allergen if possible.
- B. **Mild reaction** (urticaria only):
  - 1. Consider diphenhydramine 1 mg/kg IM (maximum of 50 mg).
- C. **Moderate to severe reaction** (Urticaria with one or more of the following: swelling of mucous membranes, dyspnea, wheezing, chest or throat tightness, abdominal cramps).
  - 1. Epinephrine 1:1000, 0.01mg/kg SQ (maximum dose 0.3mg).
  - 2. Administer diphenhydramine 1 mg/kg IM (maximum of 50 mg).
  - 3. If wheezing, initiate hand-held nebulizer dose of Albuterol 2.5mg in 3 ml NS. May repeat as needed.
  - 4. Consider IV normal saline TKO or saline lock.
- D. **Anaphylaxis** (Urticaria and signs of shock with any or all of the following: swelling of mucous membranes, dyspnea, wheezing, chest or throat tightness, abdominal cramps).
  - 1. Epinephrine 1:1000, 0.01mg/kg SQ (maximum dose 0.3mg).
  - 2. Establish IV/IO access and administer normal saline fluid bolus of 20 ml/kg. May repeat as indicated.
  - 3. If wheezing, administer Albuterol 2.5mg in 3 ml normal saline. May repeat as needed.
  - 4. If patient is unresponsive with no palpable pulses, administer epinephrine (1:10,000) 0.01mg/kg to max dose of 0.5mg IVP/IO and diphenhydramine 1mg/kg to maximum dose of 50mg IM or IVP/IO.
  - 5. Consider intubation.
  - 6. Consult Base Hospital Physician for further orders.

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## **Pediatric Seizure**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. Midazolam should **not** be given unless the patient is actively seizing (two (2) or more seizures without regaining consciousness or a seizure that is witnessed by the paramedic to last for longer than two (2) minutes).
- III. Treatment:
  - A. Protect from injury, do not restrain.
  - B. Initiate cooling measures if febrile.
  - C. If two (2) or more generalized seizures occur without regaining consciousness or the paramedic observes seizure activity that lasts for two (2) or more minutes:
    1. Establish IV/IO normal saline TKO.
      - a. Evaluate blood glucose level. If blood glucose level is less than 60 mg/dl refer to EMS Policy No. 5829, Pediatric Altered Level of Consciousness.
    2. If continued seizure activity, administer Midazolam 0.1mg/kg IVP/IO/IM to a maximum dose is 5 mg).
    3. For continued seizure activity not controlled by the initial dose of Midazolam, consult Base Hospital Physician for consideration of further Midazolam orders.

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## **Pediatric Altered Level of Consciousness**

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care, and EMS Policy No. 5800, Pediatric Routine Medical Care.
  
- II. Treatment:
  - A. Initiate appropriate airway management.
  - B. Establish IV/IO of normal saline.
  - C. Evaluate blood glucose level. If blood glucose level is less than 60 mg/dl, administer dextrose:
    1. Child older than two years of age – Dextrose 50% 1 ml/kg IV/IO.
    2. Child less than two years of age – Dextrose 50% 0.5 ml/kg IV/IO.
    3. Neonate – Dextrose 10% 3 ml/kg IV/IO (Base Hospital Physician order).
  - D. If mental status and respiratory effort are depressed, administer Naloxone 0.4 mg - 2 mg IV/IO. Titrate in small increments to maintain adequate ventilation and airway control to a total initial dose of 2 mg.
  - E. If positive response to initial dose of Naloxone and strong suspicion of opiate overdose, may repeat Naloxone dose one (1) time only in five minutes.

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**Pediatric Glasgow Coma Scale:**

<b>Pediatric Glasgow Coma Scale</b>			
	<b>&lt;1 year</b>	<b>1 – 4 years</b>	<b>&gt;4 years</b>
<b>EYE Opening</b>			
4	Open	Open	Open
3	To voice	To voice	To voice
2	To pain	To pain	To pain
1	No response	No response	No response
<b>Verbal response</b>			
5	Coos & babbles	Oriented, speaks, interacts socially	Alert & oriented
4	Irritable cry	Confused speech, disoriented, consolable	Disoriented
3	Cries to pain	Inappropriate words, inconsolable	Inappropriate words
2	Moans to pain	Incomprehensible agitated	Incomprehensible sounds
1	No response	No response	No response
<b>Best Motor Response</b>			
6	Normal, spontaneous movement	Obeys commands	Obeys Commands
5	Withdraws to touch	Localizes stimuli	Localizes stimuli
4	Withdraws from pain	Withdraws from pain	Withdraws from pain
3	Abnormal flexion	Abnormal flexion	Abnormal Flexion
2	Abnormal Extension	Abnormal Extension	Abnormal Extension
1	No response	No response	No response
<b>Note:</b> Always document and report GCS as a breakdown of scores (i.e. GCS = Eye 3, Verbal 3, Motor 4 for a total score of 10).			

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**Pediatric Poisoning/Overdose**

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**AUTHORITY:** Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. Identify substance. Bring any containers, labels or a sample (if safe) into the hospital with the patient. Determine type, amount and time of the exposure.
- III. Treatment:
  - A. Establish IV normal saline TKO or saline lock if indicated.
  - B. Initiate early transport and receiving hospital notification.
- IV. Substance Specific Treatment:
  - A. **Opiates**:
    1. Manage airway and ensure adequate oxygenation and ventilation.
    2. If mental status and respiratory effort are depressed administer Naloxone 0.4 mg - 2 mg IVP/IO. Titrate in small increments to maintain adequate ventilation and airway control to a total initial dose of 2 mg. May administer IM, SL or SQ if unable to start IV.
  - B. **Insecticides** (organophosphates, carbonates):
    1. Decontaminate patient as soon as possible (remove clothes, wash skin).
    2. Avoid contamination of prehospital personnel.
    3. Assess for SLUDGE (salivation, lacrimation, urination, diaphoresis/diarrhea, gastric hypermotility, and emesis/eye [small pupils and/or blurry vision]).
    4. If indicated, administer Atropine 0.05 mg/kg IVP/IO slowly. May give second dose of Atropine 0.05 mg/kg in 5 minutes if indicated to a maximum dose of 4 mg.
    5. If further doses of Atropine are required, consult the base hospital physician.
  - C. **Cyclic Antidepressants**:
    1. Anticipate rapid deterioration of condition.
    2. Consider activated charcoal 1gm/kg PO, not to exceed 50 gms given orally if within the first 60 minutes of ingestion.
    3. In the presence of life-threatening dysrhythmias or rapid deterioration:

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- a. Hyperventilate if assisting ventilation or if intubated.
- b. Administer Sodium Bicarbonate 1 mEq/kg IVP.
- 4. For seizures, see EMS Policy, No. 5828, Pediatric Seizures.
- D. **Beta Blockers:**
  - 1. Consider activated charcoal 1 gm/kg PO, not to exceed 50 gms given orally if within the first 60 minutes of ingestion.
  - 2. Obtain blood glucose level.
- E. **Calcium Channel Blockers:**
  - 1. Consider activated charcoal 1gm/kg PO, not to exceed 50gms given orally (if within the first 60 minutes of ingestion).
  - 2. Calcium Chloride 10% 20 – 30 mg/kg IVP over 3 – 5 minutes.
  - 3. If bradycardic and/or hypotensive, consult base hospital physician.
- F. **Phenothiazine Reactions:**
  - 1. Administer Diphenhydramine 1 mg/kg slow IVP to a maximum of 50 mg. If unable to establish IV access, administer IM.
- G. **Other Non-Caustic Drugs:**
  - 1. If patient is awake and alert consider activated charcoal orally—1 gm/kg PO, not to exceed 50gms if within the first 60 minutes of ingestion.
  - 2. Consider contacting Poison Control Center.
- H. **Hydrocarbons** (kerosene, gasoline, lighter fluid, turpentine, etc):
  - 1. Do not induce vomiting.
  - 2. Transport without delay.
- I. **Caustic Substances** (acids/alkalis):
  - 1. Do not induce vomiting.
  - 2. Consider diluting by having the patient drink 1-2 glasses of milk or water.

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## Pediatric Trauma

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**AUTHORITY:**

Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. Do not delay transport to an appropriate receiving facility.
- III. For major trauma, consider direct transport to an approved pediatric trauma center. Refer to EMS Policy No. 5122, Pediatric Trauma Triage Criteria.
- IV. Transport pediatric traumatic arrest patients to the nearest receiving facility.
- V. Major Trauma Treatment:
  - A. Secure airway using the simplest, effective method, while maintaining C-Spine immobilization, if indicated.
  - B. Ensure adequate oxygenation and ventilation.
  - C. Control external bleeding.
  - D. Establish 1-2 large bore IV(s) of normal saline on blood Y tubing.
    1. If patient has signs of shock, administer a fluid bolus of NS 20ml/kg. May repeat as indicated.
    2. Reassess the patient after each bolus.
  - E. For pain management, in the absence of contraindications, administer Morphine Sulfate per EMS Policy No. 5839, Pediatric Pain Management.
  - F. Head, Neck, and Facial Trauma Considerations:
    1. Elevate the head of brain injured patient, if no signs of shock are present.
    2. Maintain patent airway.
  - G. Chest Trauma Considerations:
    1. Impaled object – Immobilize and leave in place, unless it interferes with CPR.
    2. Flail chest – Stabilize chest, observe for tension pneumothorax.
    3. Open chest wound – Cover wound with loose dressing (do not seal).

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- Continuously monitor patient for tension pneumothorax.
- 4. Tension pneumothorax – Perform Needle Thoracostomy or remove any occlusive dressing covering an open chest wound (EMS Policy No. 5924, Needle Thoracostomy).
- 5. Cardiac Tamponade – If signs of poor perfusion, treat as traumatic shock.
- 6. Cardiac Contusion – Monitor for dysrhythmias and treat accordingly.
- H. Abdominal Trauma Considerations:
  - 1. Impaled object – Immobilize and leave in place, unless it interferes with CPR.
  - 2. Evisceration of organs – Cover eviscerated organs with saline soaked gauze. Do not attempt to replace organs into the abdominal cavity.
  - 3. Genital injuries – Cover genitalia with saline soaked gauze. If necessary, apply direct pressure to control bleeding.
- I. Extremity Trauma Considerations:
  - 1. Apply dressings and splint injuries as appropriate.
  - 2. Monitor neurovascular status.
  - 3. Transport amputated limbs.

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## **Pediatric Burns**

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**AUTHORITY:**

Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. For major burns, consider direct air ambulance transport to an approved pediatric trauma center. Refer to EMS Policy No. 550.04, Pediatric Trauma Triage Criteria.
- III. Use caution in children to prevent hypothermia.
  - A. Stop the burning process.
    - 1. For burns that are less than 10% of the patient's total body surface area (TBSA) consider initial cooling of burn with moist dressings.
    - 2. For burns that cover more than 10% of the patient's TBSA, cover affected body surface with dry, sterile dressing or sheet. Do not use wet or cool dressings.
- IV. Treatment:
  - A. Assure adequate oxygenation and ventilation.
  - B. Administer high flow oxygen if inhalation injury is suspected.
  - C. Establish vascular access if indicated.
  - D. Monitor for dysrhythmias and treat as appropriate.
  - E. For major burns (greater than 10% TBSA), administer fluid bolus of NS 20 ml/kg. May repeat as necessary.
  - F. For severe pain, refer to EMS Policy No. 5839, Pediatric Pain Management.

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## **Pediatric Pain Management**

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**AUTHORITY:**

Division 2.5, Health and Safety Code, Sections 1797.220 & 1798 et seq.

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**DEFINITIONS:**

- A. **“Pain”** indicates a significantly unpleasant sensation, occurring in varying degrees of severity, which results because of injury, disease, or emotional disorder.

**POLICY:**

- I. The use of morphine to manage moderate to severe pain is an advanced life support procedure that is indicated for patients who are complaining of moderate to severe pain in the presence of adequate vital signs and level of consciousness.
- II. Morphine may be used to treat stable pediatric patients when extrication, movement, or transport is required and is anticipated to cause considerable pain to the patient when there are no known contraindications to administering analgesia.
- III. Morphine is a potent analgesic and should be used with caution.
- IV. Document pain scale before and after medication administration.
- A. For children under the age of 3, use the behavioral or the FACES scale.
- B. For children over the age of 3, use the FACES or the visual analog scale.
- V. Treatment:
- A. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5502, Routine BLS Care, EMS Policy No. 5701, Routine ALS Care and EMS Policy No. 5800, Pediatric Routine Medical Care.
- B. Monitor patient closely.
- C. Establish IV access (IV NS or NS lock as appropriate).
- D. Obtain full set of vital signs.
- E. Administer Morphine 0.05mg/kg slow IV. May repeat once in five minutes.
- F. If unable to secure IV access, administer Morphine 0.1mg/kg IM, may repeat one dose in 30 minutes.

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- G. Monitor patient and vital signs carefully; ensure patent airway. Do not administer morphine sulfate for pain if the patient has any absolute or relative contraindications without base hospital physician order.

VI. Base Physician Order Requirements:

- A. Do not administer morphine sulfate for pain if the patient has any contraindications without base hospital physician order.
- B. Contraindications:
  - 1. Allergy or sensitivity to the medication being administered.
  - 2. Nausea/Vomiting
  - 3. Altered level of consciousness
  - 4. Hypotension
  - 5. Suspected drug and/or alcohol intoxication
  - 6. Head injury
  - 7. Respiratory distress/failure
  - 8. Pregnancy
  - 9. Multiple systems trauma

VII. Pain Scales

**A. Behavioral Pain Scale**

Select the most appropriate description for each row and total the numbers.

Face	<b>0</b> No expression or smile	<b>1</b> Occasional grimace, withdrawn, frown	<b>2</b> Frequent frown, clenched jaw, quivering chin
Legs	<b>0</b> Normal or relaxed position	<b>1</b> Uneasy, restless, tense	<b>2</b> Kicking or legs drawn up
Activity	<b>0</b> Lying quietly, normal position, moves easily	<b>1</b> Squirming, tense, shifting back and forth	<b>2</b> Arched, rigid, or jerking
Cry	<b>0</b> No cry (awake or asleep)	<b>1</b> Moans or whimpers, occasional complaint	<b>2</b> Cries steadily, screams, sobs, frequent complaints
Consolability	<b>0</b> Content, relaxed	<b>1</b> Reassured by voice, hugging. Distractible.	<b>2</b> Difficult to console or comfort

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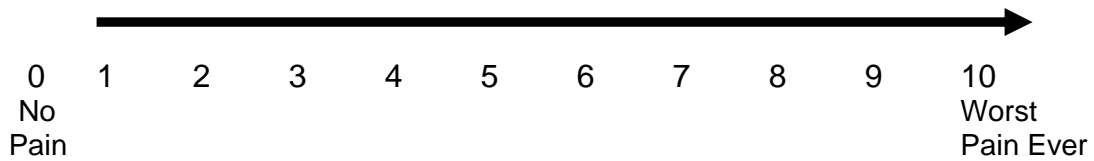
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**B. Wong-Baker FACES Scale**



**C. Visual Analog Scale**



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## Neonatal Resuscitation

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**AUTHORITY:**

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**POLICY:**

- I. Perform routine ALS/BLS medical care as directed in EMS Policy No. 5800, Pediatric Routine Medical Care.
- II. Resuscitation should be initiated on all premature infants who weigh 1 pound and are reported to be over 20 weeks gestation.
- III. Obtain pertinent history before delivery if possible (e.g. multiple births, preterm, medical treatment, drug use, and presence of meconium).
- IV. Treatment:
  - A. Position Airway.
  - B. Suction mouth and nasopharynx with bulb syringe.
  - C. Dry and keep warm with dry towel or blanket.
  - D. Stimulate by drying vigorously including head and back.
  - E. Clamp and cut cord.
  - F. Evaluate respirations:
    1. Mild distress - Administer blow by oxygen.
    2. Respiratory depression, failure, or gasping respirations – Assist ventilations with 100% oxygen at a rate of 40-60 breaths/min.
  - G. Check heart rate at cord:
    1. **HR less than 60/minute**
      - a. Continue assisted ventilations.
      - b. Begin chest compressions at a rate of 120/min.
      - c. If no improvement in 1 minute, establish vascular access and administer epinephrine 0.01 mg/kg (1:10,000) IV/IO.
      - d. If no improvement in 30 seconds, perform endotracheal intubation.
      - e. Reassess heart rate and respiratory rate while en route to the hospital. If heart rate is above 80/minute, stop chest compressions and continue assisting ventilations.

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2. **HR 60-80/minute**
    - a. Continue to assist ventilations with 100% oxygen.
    - b. If no improvement after 30 seconds of assisted ventilations, begin chest compressions.
    - c. Reassess heart rate and respiratory rate while en route to the hospital. If heart rate is above 80/minute, stop chest compressions and continue assisting ventilations.
  3. **HR 80-100/minute and rising**
    - a. Continue oxygen via mask or blow by.
    - b. Stimulate and reassess heart rate and respirations after 15-30 seconds.
    - c. If heart rate is less than 100/minute, begin assisted ventilations with 100% oxygen.
  4. **HR above 100/minute**
    - a. Check skin color. If peripheral cyanosis is noted, administer blow by oxygen.
    - b. Reassess heart rate and respiratory rate while en route to the hospital.
- H. If narcotic induced respiratory depression is suspected administer Naloxone 0.1mg/kg via IV/IO/ETT.

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