General Pediatric Care

FIELD TREATMENT GUIDELINE P-01

INDICATION

- Treatment of pediatric (<15 years old) patients presenting with a medically related chief complaint.

BLS

- Ensure scene safety for crews and bystanders.
- Exercise body substance isolation measures and use appropriate personal protective equipment (PPE).
- Evaluate any environmental hazards.
- Determine number of patients.
- Determine need for additional resources.
- Determine nature of illness.
- Determine patient's level of consciousness, ABCs / (CAB in cardiac arrest), vital signs, and chief complaint/symptoms.
- Maintain an open airway with **Airway/Respiratory Management BP-01.**
- At a minimum, monitor and document vital signs every 15 minutes on stable patients and every 5 minutes for patients with critical conditions.
- If indicated, determine if a valid POLST order or DNR verification form is in place, and act accordingly.

  *****If patient is in cardiac arrest, begin CPR and treat according to specific FTG*****
- If indicated, administer supplemental oxygen using the appropriate delivery device.
  - Oxygen should be administered in the presence of hypoxemia, dyspnea, shock, or SpO_2 <94%.
  - Avoid hyperoxygenation.
- Obtain:
  - History and Physical Exam of current event.
  - Past medical history.
  - Medications.
  - Allergies.
  - Perform full secondary assessment.
  - Blood Glucose (If indicated)
  - Temperature (If indicated)
- Consider use of pulse oximetry.
- Perform necessary BLS interventions, e.g., ventilation, bleeding control, etc.
- Ensure ALS response as appropriate.

ALS

If indicated:

- Perform necessary ALS Interventions:
  - Initiate intravenous therapy and/or **Intraosseous Infusion AP-08** and **Fluid Challenge AP-09** according to hemodynamic stability.
  - **Pain Management AP-13**.
  - **Sedation AP-14**.
  - Administer medications in accordance with the specified Field Treatment Guideline and Pediatric Medication Reference Cards.
- Obtain additional field diagnostic testing:
  - Carbon monoxide level and stroke scale.
  - Apply the cardiac monitor and obtain a **12-Lead ECG BP-03**.
  - Perform **Waveform Capnography AP-12**.
- Transport to the nearest appropriate treatment facility as defined in Napa County EMS Agency **Administrative Policy 501, Patient Destination**.
  - Decisions to use lights and sirens should be based on the immediate clinical needs of the patient.
  - Notification to the receiving facility should occur as early as possible.

KEY CONCEPTS

- If indicated, activate EMS aircraft early.
- Contact the base hospital for on-line medical control for all treatment outside of standing orders.
- EMS crews should not administer interventions that require on-going medical assessment if a patient is not being transported to a receiving facility.
- All pediatric patients shall be measured with the PediaTape and corresponding color shall be documented in ePCR. Pediatric Medication Reference Cards shall be used for all medication dosing.
- The medication reference list includes all those medications that are utilized in the Napa County Field Treatment Guidelines; follow the guidance provided.
- Brief Resolved Unexplained Event (BRUE)
  - An infant ≤ 1 year who experienced an episode frightening to the observer, which is characterized by:
    - Cyanosis or pallor
    - Absent, decreased, or irregular breathing
    - Choking or gagging
    - Change in muscle tone
    - Altered level of consciousness
  - EMS personnel should assume the history given is accurate and treat the patient for identifiable injuries / illnesses.
  - EMS personnel should transport all infants presenting with BRUE. If parent or guardian is refusing transportation, personnel should make consult with the base hospital physician.

NAPA COUNTY EMS AGENCY

Pediatric Asystole/Pulseless Electrical Activity

FIELD TREATMENT GUIDELINE P-02

INDICATION	• Heart rhythm that should be producing a pulse, but is not (Pulseless Electrical Activity) or a total lack of heart activity as observed on ECG (Asystole).
BLS	• Follow **General Pediatric Care P-01**.

ALS	• **Epinephrine (1:10,000):** *Pediatric*: IV/IO; repeat every 3-5 minutes. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**.
	• EMS personnel should attempt to identify possibly reversible cause of asystole/PEA:
	  • Hypovolemia
	  • Hypoxia or ventilation problem
	  • Hydrogen Ion (acidosis)
	  • Hypo/Hyperkalemia
	  • Hypothermia
	  • Toxins
	  • Tamponade (cardiac)
	  • Tension pneumothorax
	  • Thrombosis (coronary / pulmonary)
	  • Trauma (hypovolemia or elevated ICP)

KEY CONCEPTS	• Establishment of IV/IO and medication administration should not interrupt chest compressions. • Upon ROSC, maintain SpO_2 > 94% but < 100%. • Capture first breath capnography and maintain throughout arrest. • EMS personnel should initiate rapid transport and continue resuscitation on pediatric arrest patients.

NAPA COUNTY EMS AGENCY

Pediatric Ventricular Fibrillation/ Pulseless Ventricular Tachycardia

FIELD TREATMENT GUIDELINE P-03

INDICATION	• Cardiac arrest patient presenting in ventricular fibrillation or pulseless ventricular tachycardia.
BLS	• Follow **General Pediatric Care P-01**. • Initiate use of an Automated External Defibrillator (AED) or cardiac monitor. Provide defibrillation per AED or paramedic interpretation of heart rhythm and appropriate Treatment Guideline(s).

ALS	• Defibrillate:
	  • 1st Shock: 2 J/kg
	  • 2nd Shock: 4 J/kg
	  • Remaining Shocks: 6 J/kg
	  • Defibrillation should not be delayed for any patient presenting in ventricular fibrillation/pulseless ventricular tachycardia.
	• **Epinephrine (1:10,000)**: *Pediatric*: IV/IO; repeat every 3-5 minutes. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**.
	• **Amiodarone**: *Pediatric*: IV/IO; Given after third defibrillation. No repeat dose of amiodarone. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**.
	• Treat reversible causes.

KEY CONCEPTS	• Establishment of IV/IO and medication administration should not interrupt chest compressions. • Upon ROSC, maintain SpO_2 > 94% but < 100%. • Capture first breath capnography and maintain throughout arrest. • EMS personnel should initiate rapid transport and continue resuscitation on pediatric arrest patients.

Neonatal Resuscitation

FIELD TREATMENT GUIDELINE P-04

INDICATION

- Newly born patients with an APGAR Score ≤ 6 or a score of 0 in any one category in the APGAR Score.

BLS

- Follow **General Pediatric Care P-01**.
- If heart rate is between 60 – 100 with signs of poor perfusion:
  - Provide supplemental oxygen and/or positive pressure ventilations to maintain the below targets:

Targeted Preductal SpO_2 After Birth		
1	Minute	60% -65%
2	Minutes	65% - 70%
3	Minutes	70% - 75%
4	Minutes	75% - 80%
5	Minutes	80% - 85%
10	Minutes	85% - 95%

- If heartrate is < 60 with signs of poor perfusion, begin CPR.

ALS

- If heartrate is < 60 and no positive response to BLS Treatment:
- **Epinephrine (1:10,000)**: *Pediatric*: IV/IO; repeat every 3-5 minutes. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**.
- Treat reversible causes.
- If heartrate persistently under 60:
  - Consider Hypovolemia - **Fluid Challenge AP-09.**
  - Consider Pneumothorax.

KEY CONCEPTS

- Establishment of IV/IO and medication administration should not interrupt chest compressions.
- Upon ROSC, maintain SpO_2 > 94% but < 100%.
- Capture first breath capnography and maintain throughout arrest.
- EMS personnel should initiate rapid transport and continue resuscitation on pediatric arrest patients.

Newborn Care

FIELD TREATMENT GUIDELINE P-05

INDICATION

- Treatment for a newly born patient < 24 hours old. In most cases, immediately following birth.

BLS

- Follow **General Pediatric Care P-01**.
- Check APGAR score at 1 minute, 5 minutes, and every 5 minutes thereafter.
  - For an APGAR Score > 6, continue to routine newborn care.
  - For an APGAR Score ≤ 6 or significant deficiencies (a score of 0) in any category, refer to **Newborn Resuscitation P-04**.
- Routine newborn care:
  - Consider additional suctioning, if needed to facilitate ventilation.
  - Dry the baby.
  - If indicated, consider stimulation by rubbing the newborn's back or feet, do not "spank" the newborn.
  - Cover the head of the baby to maintain body heat.
  - Allow mother to hold and breastfeed the baby if she wishes.
  - O2 delivery (even in blow-by form) is not clinically indicated and should be avoided.

ALS

- All specific ALS treatment is identified in **General Medical Care M-01**.

KEY CONCEPTS

- The vast majority of deliveries are uncomplicated and require minimal assistance. The major life threats are of neonatal asphyxia and maternal hemorrhage.

APGAR SCORING

	0	1	2
Appearance	Blue or Pale	Body pink / limbs blue	Completely pink
Pulse	Absent	< 100 BPM	> 100 BPM
Grimace	No response	Grimace / weak cry	Cough, cry, sneeze
Activity	Flaccid	Some flexion	Active movement
Respiratory effort	Absent	Slow or irregular	Vigorous crying

Pediatric Symptomatic Bradycardia

FIELD TREATMENT GUIDELINE P-06

INDICATION	• Symptomatic Bradycardia with cardiopulmonary compromise:
	  • Hypotension.
	  • Acutely altered mental status.
	  • Signs of shock.

BLS	• Follow **General Pediatric Care P-01**. • Identify and treat underlying causes. • **12-Lead ECG BP-03**. • If heartrate is < 60/min with signs of poor perfusion, begin CPR.
ALS	• If symptomatic bradycardia persists: • **Epinephrine (1:10,000)**: *Pediatric*: IV/IO; repeat every 3-5 minutes. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**. • If signs of increased vagal tone or primary AV block consider: • **Atropine:** *Pediatric*: IV/IO; repeat once. Administer according to PediaTape weight calculation and **Pediatric Cardiac Arrest Reference Cards**. • **BASE HOSPITAL ORDERS** • Cardiac pacing is reserved for patients with profound symptomatic bradycardia refractory to drugs. Consult base physician prior to use.
KEY CONCEPTS	• The primary cause of bradycardia in pediatric patients is hypoxia. Ensure adequate oxygenation/ventilation prior to medication. • EMS personnel should initiate rapid transport. • Sedation prior to starting pacing is not required. Patients with urgent need should be paced first. • The objective of sedation in pacing is to decrease discomfort, not to decrease level of consciousness.

Pediatric Symptomatic Tachycardia

FIELD TREATMENT GUIDELINE P-07

INDICATION

- Symptomatic Tachycardia with cardiopulmonary compromise:
  - Hypotension.
  - Acutely altered mental status.
  - Signs of shock.

BLS

- Follow **General Pediatric Care P-01**.
- **12-Lead ECG BP-03**.

ALS

PROBABLE SINUS TACHYCARDIA:

- Identification:
  - Compatible history consistent with known cause, P waves present/normal, variable R-R intervals, and constant PR intervals.
  - Children: heartrate usually < 180/min,
  - Infants: heartrate usually < 220/min
- Treatment: Search for and treat causes, e.g., fever, dehydration, shock.

PROBABLE SUPRAVENTRICULAR TACHYCARDIA:

- Identification:
  - Compatible history (vague, nonspecific); history of abrupt rate changes, P waves absent/abnormal, and heartrate not variable.
  - Children: heartrate usually ≥ 180/min
  - Infants: heartrate usually ≥ 220/min
- Treatment:
  - Initiate vagal maneuver
  - **Adenosine:** 1st Dose: *Pediatric*: IV/IO;
    Administer according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.

    2nd Dose: *Pediatric*: IV/IO;
    Administer after 3 minutes according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.
  - If no IV/IO access or if Adenosine is ineffective:
  - **Synchronized Cardioversion:** *Pediatric*: Administer according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.

ALS CONT.

PROBABLE VENTRICULAR TACHYCARDIA:

- Identification: Wide QRS duration (>0.09 sec)
- Treatment: Signs of poor perfusion, no base hospital contact required:
  - **Synchronized Cardioversion:** *Pediatric*: Administer according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.
  - With signs of good perfusion, contact base hospital for consideration of:
  - **Adenosine:** 1st Dose: *Pediatric*: IV/IO;
    Administer according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.

    2nd Dose: *Pediatric*: IV/IO;
    Administer after 3 minutes according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.
- **BASE HOSPITAL ORDERS**
  - **Amiodarone:** *Pediatric*: IV/IO; Administer according to PediaTape weight calculation and **Pediatric Medication Reference Cards**.

KEY CONCEPTS

- EMS personnel should initiate rapid transport.
- Rhythm analysis should be based on review of printed ECG strip, not monitor screen or computerized readout of 12-lead ECG.
- Caution with administration of amiodarone. Rapid infusion may cause hypotension,
- Amiodarone should not be used in unstable patients. This includes hypotensive patients.
- Amiodarone should not be administered to patients experiencing ventricular ectopy. Use of amiodarone should be restricted to ventricular tachycardia.