Inland Counties Emergency Medical Agency

Serving San Bernardino, Inyo, and Mono Counties

Virginia Hastings, Executive Director
Reza Vaezazizi, M.D., Medical Director

DATE: **July 20, 2009**

TO: All Advanced Life Support Providers
Base Hospitals
Training Institutions

FROM: **Reza Vaezazizi, MD**
Medical Director

SUBJECT: **EPINEPHRINE DOSE CHANGE IN PROTOCOL REFERENCE # 7011 PEDIATRIC ALLERGIC REACTIONS**

As a result of the June 22, 2009, Medical Advisory Committee meeting, the dosage of Epinephrine in the Pediatric Allergic Reactions Protocol Reference #7011, #7 is revised to reflect a maximum administered dose. The protocol currently reads, "For anaphylactic shock (e.g. no palpable radial pulse and a depressed level of consciousness), administer epinephrine dose 0.01 mg/kg (1:10,000) IV/IO up to 0.05 mg/kg." For consistency in other pediatric protocols, the dose will be changed to **Epinephrine 0.01 mg/kg (1:10,000) IV/IO, no more than 0.1mg per dose. May repeat to a maximum 0.5 mg.**

To ensure consistency the following protocols have also been reviewed:

- Pediatric Cardiac Arrest Protocol Reference #7001; will change to reference epinephrine (1:10,000) dose.
- Pediatric Respiratory Emergencies Protocol Reference #7008; has no changes.
- Adult Respiratory Emergencies Protocol Reference #5001; will change to reference epinephrine (1:1,000) dose.

If you have any questions or concerns, please contact Iris Pena, R.N., EMS Nurse Specialist, at 909-388-5813 or ipena@cao.sbcounty.gov

Thank you

RV/ip

cc: Virginia Hastings, Executive Director
Medical Advisory Committee
EMCC

515 North Arrowhead Avenue ▪ San Bernardino, CA. 92415-0060
(909) 388-5823 office ▪ (909) 388-5825 fax ▪ www.icema.net

PEDIATRIC ALLERGIC REACTIONS
(Birth to 14 Years of Age)

FIELD ASSESSMENT/TREATMENT INDICATORS

Signs and Symptoms of an Acute Allergic Reaction.

History of Exposure to Possible Allergen.

BLS INTERVENTIONS

1. Recognize s/s of respiratory distress for age.

2. Reduce anxiety, assist patient to assume POC.

3. Oxygen administration as clinically indicated, (humidified oxygen preferred).

4. Assist patient with self-administration of prescribed Epinephrine device.

5. Assist patient with self-administration of prescribed Diphenhydramine.

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible

2. Nebulized Albuterol 2.5 mg with Atrovent may repeat times two (2).

   a. 1 Day to 12 months – Atrovent 0.25mg

   b. 1 year to 14 years – Atrovent 0.5mg

3. If no response to Albuterol and Atrovent, consider Epinephrine (1:1,000) 0.01mg/kg SC not to exceed adult dosage of 0.3mg.

4. For symptomatic hypotension with poor perfusion, consider fluid bolus of 20ml/kg of NS not to exceed 300ml NS and repeat as indicated.

5. Diphenhydramine 1mg/kg slow IV or 2 mg/kg IM, not to exceed adult dose of 25mg IV/IO or 50mg IM.

6. Establish additional IV access if indicated.

7. For anaphylactic shock (e.g., no palpable radial pulse and a depressed level of consciousness), administer epinephrine dose 0.01mg/kg (1:10,000) IV/IO, no more than 0.1mg per dose. May repeat to a maximum of 0.5 mg.

8. Base Hospital may order additional medication dosages and additional fluid boluses.

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PEDIATRIC CARDIAC ARREST
1 Day to 14 Years of Age

FIELD ASSESSMENT/TREATMENT INDICATORS

Cardiac arrest in a non-traumatic setting. Consider the potential causes of arrest for age.

BLS INTERVENTIONS

1. Assess patient, maintain appropriate airway, begin CPR according to current AHA Guidelines.

   a. Ventilate at rate of 12 to 20 per minute. Ventilatory rate will decrease as patient age increases. Ventilatory volumes shall be the minimum necessary to cause chest rise.

   b. Compression rate shall be 100 per minute.

2. If patient 1 year of age or older, utilize AED per Protocol Reference #6301 AED.

ALS INTERVENTIONS

1. Initiate CPR for 2 minutes if no CPR was performed prior to arrival and down time is greater than 5 minutes.

2. Establish advanced airway when resources are available, with minimal interruption to CPR. After advanced airway established, compressions would then be continued at 100 per minute without pauses during ventilations. Give 8 to 10 breaths per minute.

3. Determine cardiac rhythm, proceed to appropriate intervention:

Ventricular Fibrillation/Pulseless Ventricular Tachycardia

1. Initial defibrillation at 2j/kg do not exceed 200joules for monophasic or biphasic equivalent per manufacture.

2. Perform CPR for 2 minutes after each defibrillation.

3. Administer Epinephrine (1:10,000) during 2-minute cycle of CPR after each defibrillation.

a. 1 day to 8 years: 0.01mg/kg IO/IV, (do not exceed adult dosage).

b. 9 to 14 years: 1.0mg IV/IO.

4. Reassess rhythm, after each 2-minute cycle of CPR. If VF/VT persists for 2nd and subsequent shocks defibrillate at 4j/kg, do not exceed 360 joules (or biphasic equivalent).

5. After two cycles of CPR administer Lidocaine;

a. 1 day to 8 years: 1mg/kg IO/IV.

b. 9 to 14 years: 1mg/kg IV/IO.

6. May repeat Lidocaine at 0.5mg/kg after 5 minutes up to total of 3mg/kg.

7. If patient remains in pulseless VF/VT after five cycles of CPR, consult base hospital.

Pulseless Electrical Activity/Asystole

1. Assess for reversible causes and initiate treatment.

2. Continue CPR with evaluation of rhythm every 2 minutes.

3. Administer initial fluid bolus of 20ml/kg for all ages, may repeat at;

a. 1 day to 8 years: 20ml/kg.

b. 9 to 14 years: 300ml.

4. Administer Epinephrine (1:10,000) during 2-minute cycle of CPR after each rhythm evaluation.

a. 1 day to 8 years: 0.01mg/kg IO/IV.

b. 9 to 14 years: 1.0mg IV/IO.

5. For patients 9 to 14 years Atropine 1.0mg may be given every 5 minutes, to maximum of 3mg.

6. Consider termination of efforts if patient remains in asystole or PEA after successful intubation and initial medications without a reversible cause identified.

Utilize the following treatment modalities while managing the pediatric cardiac arrest patient

1. Vascular access

   a. 1 day to 8 years: IO preferred per Protocol Reference #4026 Intraosseous Infusion.

   b. 9 to 14 years: IV/IO.

May initiate second IV/IO if indicated.

2. Administer fluid bolus, may repeat twice for continued signs of inadequate tissue perfusion.

   a. 1 day to 8 years: 20ml/kg NS evaluate after each bolus.

   b. 9 to 14 years: Initial bolus at 20ml/kg NS subsequent boluses at 300ml NS evaluate after each bolus.

In RCF may give 2 additional fluid boluses if indicated.

3. Obtain blood glucose, if indicated administer Dextrose according to Protocol Reference #7007 Pediatric Altered Level of Consciousness.

4. Insert Naso/Orogastric tube per Protocol Reference #4021 Insertion of Nasogastric/Orogastric Tube.

5. Naloxone for suspected opiate overdose, may repeat once as clinically indicated.

   a. 1 day to 8 years: 0.1 mg/kg IO/IV. Do not exceed adult dosage.

   b. 9 to 14 years: 2mg IV/IO.

NOTE

1. For continued signs of inadequate tissue perfusion **after** successful resuscitation;

   a. 1 day to 8 years: Epinephrine (1:10,000) 0.005mg/kg IO/IV every ten minutes.

   b. 9 to 14 years: Dopamine 400mg in 250ml of NS to infuse at 5-20 mcg/kg/min IV titrated to maintain signs of adequate tissue perfusion.

2. Base hospital physician may order additional medications or interventions as indicated by patient condition.

3. Base hospital contact is required to terminate resuscitative measures. A copy of the EKG should be attached to the PCR for documentation purposes.

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PEDIATRIC RESPIRATORY EMERGENCIES
Birth to 14 Years of Age

FIELD ASSESSMENT/TREATMENT INDICATORS

Asthma

Toxic Inhalation

Difficult Breathing

BLS INTERVENTIONS

1. Assess environment and determine possible causes.

2. Remove patient from suspected source and decontaminate as indicated.

3. Recognize s/s of respiratory distress for age.

4. Reduce anxiety, assist patient to assume POC.

5. Oxygen administration as clinically indicated, (humidified oxygen preferred).

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain oxygen saturation on room air if possible.

2. Nebulized Albuterol 2.5 mg with Atrovent may repeat times two (2).

    a. 1 Day to 12 months – Atrovent 0.25mg

    b. 1 year to 14 years – Atrovent 0.5mg

3. If no response to Albuterol and Atrovent, consider Epinephrine (1:1,000) 0.01mg/kg SC not to exceed adult dosage of 0.3mg.

4. Obtain vascular access at a TKO rate.

5. Consider Protocol Reference #7011 Pediatric Allergic Reaction if allergic reaction suspected.

6. Base hospital physician may order additional medications or interventions as indicated by patient condition.

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ADULT RESPIRATORY EMERGENCIES

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

FIELD ASSESSMENT/TREATMENT INDICATORS

Chronic symptoms of pulmonary disease, wheezing, cough, pursed lip breathing, decreased breath sounds. Accessory muscle use, anxiety, ALOC or cyanosis.

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort.

2. Administer oxygen as clinically indicated, obtain O_2 saturation on room air, or on home O_2 if possible.

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, including advanced airway if indicated. Obtain O_2 saturation on room air or on home O_2 if possible.

2. Nebulized Albuterol 2.5mg, with Atrovent 0.5mg may repeat times two (2).

3. For agencies utilizing Continuous Positive Airway Pressure (CPAP).

    a. Obtain and document O_2 saturation levels every 5 minutes.

    b. Apply and begin CPAP @ “0”cms. Instruct patient to inhale through nose and exhale through mouth.

    c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against increasing pressure.

    d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.

    e. Document CPAP level, O_2 saturation, vitals, patient response and adverse reactions on appropriate form.

4. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation.

5. Base hospital physician may order additional medications or interventions as indicated by patient condition.

ACUTE ASTHMA/BRONCHOSPASM

FIELD ASSESSMENT/TREATMENT INDICATORS

History of prior attacks, associated with wheezing, diminished breath sounds, or cough. A history of possible toxic inhalation, associated with wheezing, diminished breath sounds, or cough. Suspected allergic reaction associated with wheezing, diminished breath sounds or cough.

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort.

2. Administer oxygen as clinically indicated, humidified oxygen preferred.

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, obtain O_2 saturation on room air if possible.

2. Nebulized Albuterol 2.5mg, with Atrovent 0.5mg may repeat times two (2).

3. For signs of inadequate tissue perfusion, initiate IV bolus of 300cc NS. If signs of inadequate tissue perfusion persist may repeat fluid bolus.

4. For agencies utilizing Continuous Positive Airway Pressure (CPAP).

    a. Obtain and document O_2 saturation levels every 5 minutes.

    b. Apply and begin CPAP @ “0”cms. Instruct patient to inhale through nose and exhale through mouth.

    c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against increasing pressure.

    d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.

e. Document CPAP level, O_2 saturation, vitals, patient response and adverse reactions on appropriate form

5. If no response to Albuterol, give Epinephrine 0.3mg (1:1,000) SC. Contact Base Hospital for patients with a history of coronary artery disease, history of hypertension or over 40 years of age prior to administration of Epinephrine.

6. May repeat Epinephrine 0.3mg (1:1,000) SQ after 15 minutes.

7. For suspected allergic reaction, consider Diphenhydramine 25mg IV, or 50mg IM.

8. For persistent severe anaphylactic shock, administer Epinephrine 0.1mg (1:10,000) IV slow push. May repeat as needed to total dosage of 0.5mg.

9. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation.

10. Base hospital physician may order additional medications or interventions as indicated by patient condition.

ACUTE PULMONARY EDEMA/CHF

FIELD ASSESSMENT/TREATMENT INDICATORS

History of cardiac disease, including CHF, and may present with rales, occasional wheezes, jugular venous distention and/or peripheral edema.

BLS INTERVENTIONS

1. Reduce anxiety, allow patient to assume position of comfort.

2. Administer oxygen as clinically indicated. For pulmonary edema with high altitude as a suspected etiology, descend to a lower altitude and administer high flow oxygen with a non re-breather mask.

3. Be prepared to support ventilations as clinically indicated.

ALS INTERVENTIONS

1. Maintain airway with appropriate adjuncts, Obtain O_2 saturation on room air if possible

2. Nitroglycerine 0.4mg sublingual/transmucosal with signs of adequate tissue perfusion. May be repeated as long as patient continues to have signs of adequate

tissue perfusion. **If a Right Ventricular Infarction is suspected, the use of nitrates is contraindicated.**

3. For agencies utilizing Continuous Positive Airway Pressure (CPAP).

   a. Obtain and document O_2 saturation levels every 5 minutes.

   b. Apply and begin CPAP @ "0"cms. Instruct patient to inhale through nose and exhale through mouth.

   c. Slowly titrate pressure in 3cm increments up to a maximum of 15cms according to patient tolerance while instructing patient to continue exhaling against the increasing pressure.

   d. CPAP should be continued until patient is placed on CPAP device at receiving hospital ED.

   e. Document CPAP level, O_2 saturation, vitals, patient response and adverse reactions on appropriate form.

4. Consider advanced airway per protocol Reference #4029 Nasotracheal Intubation.

5. Base hospital physician may order additional medications or interventions as indicated by patient condition.

6. In radio communication failure (RCF), the following medications may be utilized.

   a. Dopamine 400mg in 250cc NS titrated between 5 – 20mcg/min to maintain adequate tissue perfusion.

   b. Furosemide 40mg-100mg IV or 2 times the daily dose to maximum of 100mg IV.

   c. Nebulized Albuterol 2.5mg with Atrovent 0.5mg after patient condition has stabilized.

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