



DEPARTMENT OF HEALTH AND HUMAN SERVICES

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Date: May 16, 2003

To: Holders of Policy and Procedure Manuals

From: Troy Peterson
EMS Program Administrator

Subject: Update to Policy Manual, Change Notice #19

I have enclosed the nineteenth update to the EMS Policy and Procedure Manual, Change Notice #19. Please add the new signature page and replace the Table of Contents. Log the Change Notice on the appropriate page.

If any change was made in the policy, the complete policy is included in the packet. This is to decrease the potential for error that might be caused by replacing single pages.

Items contained in the Patient Care Manual are indicated with a (*), should you choose to update those manuals.

The packet includes the following policies:

***8301a, *8302, *8303, *8304, *8305, *8402, *8412,**

If you have not received training on these changes, please contact your CQI Liaison or Training Officer. Please assure that the changes are made in your manual. Thank you.

COUNTY OF MARIN

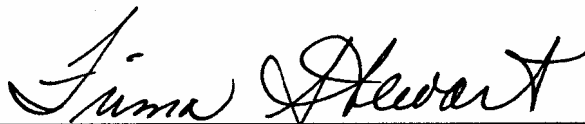
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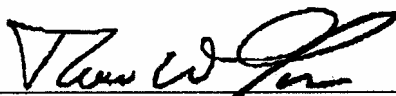
Emergency Medical Services Program

Policy and Procedure Manual

July, 2003



Frima Stewart, Director of Health Services



Thomas Gross, MD, EMS Program Medical Director



Troy Peterson, EMS Program Administrator

MARIN COUNTY
EMS Program Policies and Procedures

DISTRIBUTION LIST

July, 2003

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Redwood Empire Life Support (RELS), Stan Cantor, President	one
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Southern Marin Fire Protection District, Chief Michael Stone	one
Tiburon Fire Protection District, Chief Richard Pearce	one
Bolinas Fire Protection District, Chief Kevin Hicks	one
National Park Service, Chief Ranger	one
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EMS Program Policy & Procedure Manual

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ALS ASSESSMENT

Definition: Indicated for patients that could benefit from ALS assessment that do not fall under any other appropriate treatment guideline.

Reminder: All other treatment guidelines should be considered before utilizing this policy.

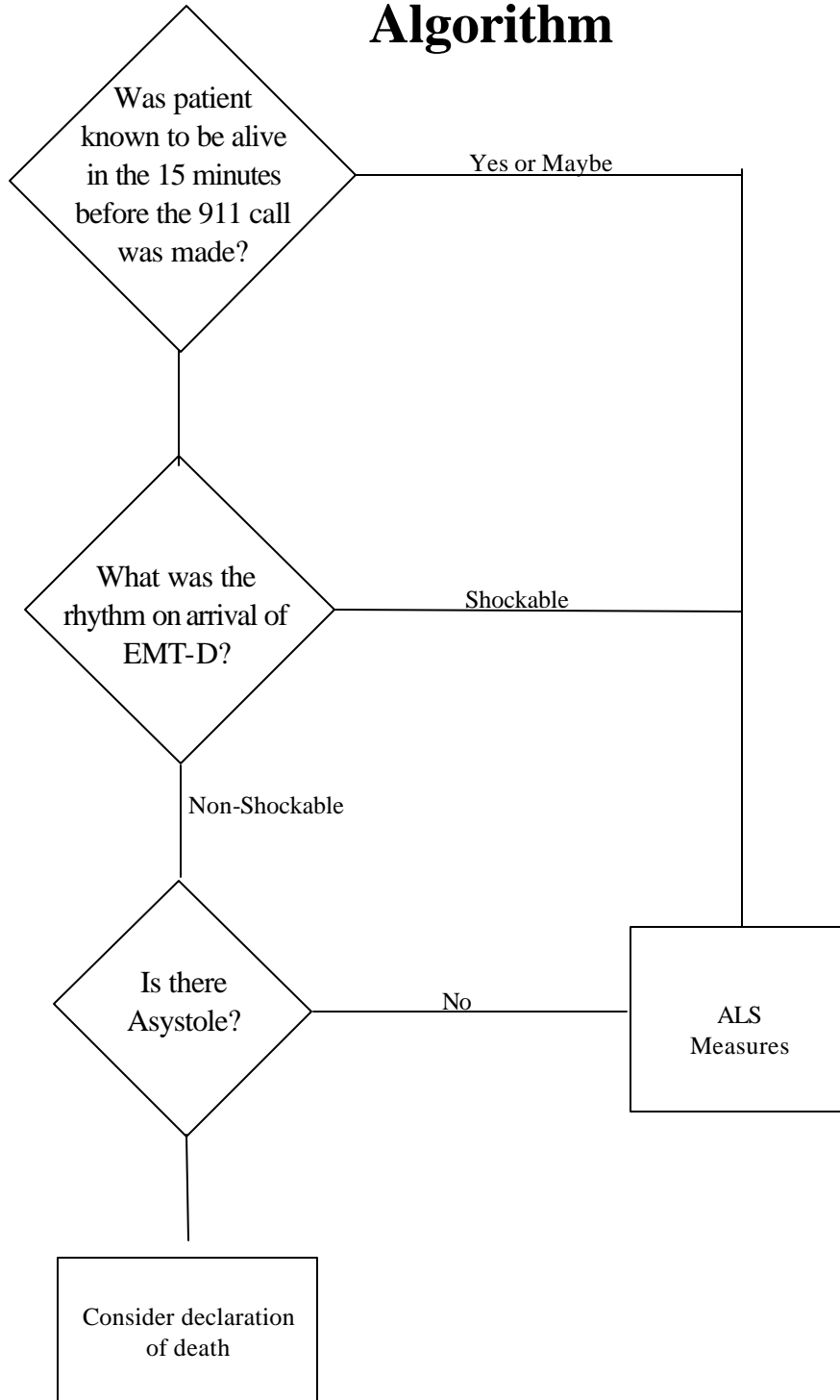
1. Evaluation of ABCs
2. Assure that BLS skills have been done or are being done.
3. Oxygen therapy as recommended in BLS Treatment Guidelines, Oxygen Therapy Guidelines, #8203
4. Cardiac monitor
5. Pulse oximeter
6. Consider IV NS TKO
7. Consider blood glucose reading

When this treatment guideline is utilized, the PCRs will be reviewed for appropriateness by the CQI coordinator of each agency.

CARDIAC EMERGENCIES

CARDIOPULMONARY ARREST C1

Algorithm



Ventricular Fibrillation/Pulseless Ventricular Tachycardia

1. If onset of arrest is witnessed by paramedic, precordial thump
 2. Defibrillate
 - a) 200 joules
 - b) 200-300 joules
 - c) 360 joules
- * If First Response/EMT personnel have done #2, begin with #3
3. Continue CPR
 4. Intubate and establish IV NS wide-open rate. Begin transport if both are not accomplished, continue treatment while transporting.
 5. Epinephrine 1.0 mg IVP or 2.0 mg ETT
 - a) Circulate for 1 minute and defibrillate 360 joules
 - b) If no results, continue CPR
 - c) Repeat above steps every 3-5 minutes
 6. Lidocaine
 - a) 1.0-1.5 mg/kg IVP or 3.0 mg/kg ETT
 - b) Circulate for 1 minute and defibrillate 360 joules
 - c) Repeat above every 3-5 minutes to maximum of 3.0 mg/kg (IV or equivalent ETT dose)
 7. Begin transport.

Pulseless Electrical Activity

Definition: Includes rhythms previously known as electromechanical dissociation, idioventricular, ventricular escape and bradysystole

Consider: hypovolemia, hypoxemia, tension pneumothorax, acidosis, cardiac tamponade, pulmonary embolism, anaphylaxis

1. Continue CPR
2. Intubate and establish IV NS wide-open rate. Begin transport if both are not accomplished, continue treatment while transporting
3. Epinephrine 1.0 mg IVP or 2 mg ETT
 - a. Continue CPR and evaluate in 1 minute
 - b. If no response, repeat epinephrine every 3-5 minutes
4. Atropine 1.0 mg IV or 2.0 mg ETT if rate < 60, MR every 3-5 min to max of 0.04 mg/kg
5. Sodium bicarbonate 1.0 mEq/kg IVP if known hyperkalemia, or suspected cyclic antidepressant overdose.
6. Begin transport.

Asystole

Consider: If arrest was unwitnessed and asystole has been confirmed, criteria for field determination of death have been met according to Policy #8110

If first responders or paramedics detect a pulse that proceeds to asystole, external pacing should be instituted and treatment provided according to the asystole treatment guideline.

1. Continue CPR. If rhythm is unclear and possibly ventricular fibrillation, defibrillate as for ventricular fibrillation
2. Intubate and start IV NS wide-open rate. Begin transport if both not accomplished, continue treatment while transporting.
3. Epinephrine 1.0 mg IVP or 2 mg ETT
 - a. Continue CPR and evaluate in 1 minute
 - b. If no response, repeat epinephrine every 3-5 minutes.
4. Atropine 1.0 mg IVP or 2.0 mg ETT every 3-5 minutes to maximum of 0.04 mg/kg.
5. Death may be declared if patient has remained in asystole, without capture if on pacing, pulseless and apneic for 15 minutes of above interventions.

DYSRHYTHMIAS C2
Bradycardia

Definition: Heart rate below 50/minute that is symptomatic (decreasing perfusion, chest pain, shortness of breath, decreased level of consciousness, pulmonary congestion, congestive heart failure)

SBP > 90

1. Cardiac monitor
2. IV NS TKO or saline lock
3. Transport

SBP <90

1. High flow oxygen
2. Cardiac monitor
3. IV NS TKO
4. Atropine 0.5 mg IV, MR every 3-5 minutes to max of 0.04mg/kg
 - a. Begin transport after first dose given
5. If hypovolemia is suspected, give fluid challenge 250 to 500 cc
6. If no improvement following initial dose of atropine, institute external pacing at rate of 80 and notify hospital
 - a. If patient conscious, administer diazepam(Valium) 0.1 mg/kg to maximum of 5 mg IV
 - b. Consider Morphine, up to 4 mg for pain control. Use with caution.
7. If unable to start IV or IV access is delayed, institute external pacing at rate of 80
8. Dopamine 5mcg/kg/min, increase to 10 mcg/kg/min if SBP remains < 90.

Ventricular Ectopy

Reminder: Considerations for acute suppressive therapy include: PVCs in presence of ischemic chest pain, multifocal, couplets or runs of ventricular tachycardia; restoration of organized rhythm following conversion from VT or defibrillation

1. High flow oxygen
2. Cardiac monitor
3. IV NS TKO
4. Lidocaine
 - a. 1.0-1.5 mg/kg IVP
 - b. If ectopy continues, 0.5 mg/kg every 5-10 minutes to max of 3.0 mg/kg

Sustained Ventricular Tachycardia Pulse Present

Stable (awake, perfusing)

1. High flow oxygen
2. Cardiac monitor
3. IV NS TKO
4. Lidocaine 1.0-1.5 mg/kg IVP
 - a. If VT resolves, repeat Lidocaine at 1/2 initial dose every 10 min to total of 3.0 mg/kg
 - b. If VT persists, repeat Lidocaine at 1/2 initial dose every 5 min to total of 3.0 mg/kg
5. Begin transport after initial lidocaine dose
6. Consider synchronized cardioversion (see UNSTABLE, below)

Unstable (low blood pressure, shortness of breath, chest pain, altered consciousness or CHF/pulmonary edema)

1. High flow oxygen, hyperventilate with 100% oxygen and support airway
2. Cardiac monitor
3. IV NS TKO
4. Consider sedation with Valium 0.1mg/kg IV slowly, MR as needed to max of 10 mg
5. If HR > 150, synchronized cardioversion (If synchronized cardioversion not possible due to shape of QRS, perform unsynchronized cardioversion.)
 - a. 100 joules; if unsuccessful,
 - b. 200 joules; if unsuccessful,
 - c. 300 joules; if unsuccessful,
 - d. 360 joules
6. Lidocaine 1.5 mg/kg IVP or 3.0 mg/kg ETT
 - a. If VT resolves, repeat Lidocaine 1/2 initial dose every 10 min to total of 3.0 mg/kg
 - b. If VT persists, repeat Lidocaine at 1/2 initial dose every 5 min to total of 3.0 mg/kg
 - c. After full loading dose is achieved, lidocaine 0.5 mg/kg every 10 minutes to maintain blood level
7. Transport

Supra Ventricular Tachycardia

Definition: Verify QRS duration of < 0.12 by documenting rhythm in two leads. If > 0.12 , go to Ventricular Tachycardia protocol; rate of $> 150/\text{min}$, regular rhythm

Stable (awake, perfusing)

1. Cardiac monitor
2. IV NS TKO, use antecubital or more proximal site
3. Consider valsalva maneuver
4. Adenosine (Adenocard)
 - a. 6 mg rapid IVP followed by saline flush
 - b. If no response after 2 min: 12 mg rapid IVP followed by saline flush
 - a. If no response after 2 min: 12 mg rapid IVP followed by saline flush
5. Transport

Unstable (presence of significant chest pain, significant dyspnea, low BP, indications of low perfusion, altered level of consciousness)

1. High flow oxygen, support airway
2. Cardiac monitor
3. IV NS TKO
4. Consider sedation with diazepam (Valium) 0.1 mg/kg SIVP, MR as needed to max of 10 mg
5. Synchronized cardioversion
 - a. 100 joules
 - b. 200 joules
 - c. 300 joules
 - d. 360 joules
6. Transport

* If unstable atrial fibrillation perform steps 1-3 (unstable), then contact receiving facility physician and anticipate cardioversion.

**CHEST PAIN
SUSPICIOUS OF CARDIAC ORIGIN C3**

Definition: Substernal pain, discomfort or tightness radiating to jaw, left shoulder or arm, nausea, diaphoresis, dyspnea, anxiety

1. Cardiac monitor
2. Position of comfort
3. Nitroglycerin
 - a. 0.4 mg SL if systolic BP > 100, MR in 5 min. to total of 3 doses
 - b. IV access before nitroglycerin if systolic BP < 120
 - c. **Do not give nitroglycerin if patient has taken Viagra within the previous 24 hours**
4. Aspirin 162 mg chewable, by mouth; must be chewed. Do not give if allergic to aspirin.
5. IV NS TKO or saline lock
6. Morphine 2 mg slowly IV to relieve chest pain, MR q 2-3 min. to total of 10 mg,
7. Notify hospital

**CHEST PAIN
UNLIKELY TO BE OF CARDIAC ORIGIN C4**

Definition: Chest pain that is, by history, location and character deemed to not be related to cardiac ischemia.

1. Consider BLS care
2. If not BLS:
 - a. Low flow oxygen
 - b. Cardiac monitor
 - c. Saline lock

MEDICAL EMERGENCIES

NON-TRAUMATIC SHOCK M1

Definition: Signs and symptoms of shock with dry lungs, flat neck veins; may have poor skin turgor, vomiting, diarrhea, possible sepsis.

Reminder: Refer to the following specific protocols if applicable: GI bleeding, anaphylaxis, tension pneumothorax, trauma, vaginal hemorrhage, pulmonary edema.

1. Ensure patent airway
2. High flow oxygen; prepare to support ventilations with appropriate airway adjuncts
3. Shock position if tolerated, keep patient warm
4. Cardiac monitor; treat dysrhythmias per specific treatment guideline
5. IV NS, large bore, started en route, 250-500 cc challenge, recheck vital signs. If no response after initial fluid challenge, start 2nd large bore IV.
6. If hypotension persists give second fluid challenge.
7. If hypotension persists consider physician order for Dopamine.

ABDOMINAL PAIN M2

Definition: Moderately severe to severe pain, restless, unable to find position of comfort or signs of shock

Reminder: Consider ectopic pregnancy, aneurysm

1. Ensure patent airway
2. High flow oxygen; prepare to support ventilations with appropriate airway adjuncts
3. Shock position if tolerated, keep patient warm
4. Cardiac monitor; treat dysrhythmias per specific treatment guideline
5. Consider early rapid transport
6. If SBP > 100, IV NS TKO
7. If SBP < 100, two large bore IVs NS, started en route; fluid challenge, recheck vital signs every 250 cc

GASTROINTESTINAL BLEEDING M3

Definition: History of dark, tarry stools or vomiting blood; may or may not have abdominal pain

1. Ensure patent airway
2. Large bore IV NS TKO; fluid challenge if abnormal vital signs, recheck vital signs every 250 cc
3. If in shock
 - a. High flow oxygen; prepare to support ventilations with appropriate airway adjuncts
 - b. Shock position if tolerated, keep patient warm
 - c. Cardiac monitor; treat dysrhythmias per specific treatment guideline
 - d. Consider early rapid transport
 - e. Start second large bore IV en route; fluid challenge, recheck vital signs every 250 cc

ALLERGIC REACTIONS M4

Mild Allergic Reaction

Definition: Itchy, raised welts

1. Ensure patent airway
2. Cardiac monitor
3. Benadryl 50 mg IM

Moderate/Severe Allergic Reaction

Definition: Urticaria and one or more of the following: swelling mucous membranes, dyspnea, wheezing, chest or throat tightness, abdominal cramps

1. Ensure patent airway
2. Cardiac Monitor
3. Epinephrine 1:1000, 0.01 mg/kg SQ to max. of 0.5 mg (if over 50 years old give ½ dose, max .25mg)
4. If wheezing, give Albuterol as per asthma/bronchospasm guideline (R5).
4. IV NS TKO
5. Benadryl 1 mg/kg IV to max. of 50 mg

Anaphylaxis

Definition: Presence of urticaria and signs of shock; may include any other symptoms listed in Moderate/Severe Allergic Reaction

Reminder: The more rapid the onset, the more severe the reaction

1. Ensure patent airway
2. High flow oxygen. Prepare to assist ventilations with appropriate airway adjuncts
3. Epinephrine 1:1000 0.01 mg/kg to max. of 0.5 mg SQ
4. Cardiac monitor-treat dysrhythmias per specific treatment guidelines
5. Large bore IV NS, 250cc challenge, MR while monitoring vitals
6. If unresponsive and no palpable BP; epinephrine 1:10,000 0.01 mg/kg to max. of 0.5 mg IV
7. Benadryl 1 mg/kg IV to max. of 50 mg
8. If hypotension persists after two fluid challenges, Dopamine infusion, begin 10 mcg/kg/min,

POISONS/DRUGS M5

Toxic ingestions and exposures

Basic Therapy

1. Ensure patent airway, prepare to support ventilations with appropriate airway adjuncts
2. Obtain history, including substance, amount and time of ingestion, bring sample to hospital if possible
3. Cardiac monitor
4. IV NS TKO if indicated
5. Transport as soon as possible

Hydrocarbons or Petroleum Distillates

Definition: kerosene, gasoline, lighter fluid, turpentine, furniture polish, etc.

1. Basic therapy
2. DO NOT INDUCE VOMITING
3. Transport immediately

Caustics/Corrosives

Definition: Ingestion of substances causing intra-oral burns, painful swallowing or inability to handle secretions

1. Basic therapy
2. DO NOT INDUCE VOMITING
3. Consider dilution with no more than 1-2 glasses of water or milk if no respiratory compromise or change in mental status

Insecticides

Definition: organophosphates, carbonates; cause cholinergic crises characterized by bradycardia, increased salivation, lacrimation and sweating, muscle fasciculations, abdominal cramping, pinpoint pupils, incoherence or coma.

1. If skin exposure, decontaminate patient--remove clothes, wash skin; avoid contamination of pre-hospital personnel
2. Basic Therapy
3. Atropine 2.0 mg IV slowly. Repeat every 2-5 minutes until drying of secretions, reversal of bronchospasm and reversal of bradycardia. Maximum is 10 mg
4. If seizures, Valium 5 mg IV slowly
5. If seizures continues and BP >100, may repeat x 2 q 5 min. (max. total 15 mg)

Cyclic Antidepressants

Definition: Specific medications frequently associated with respiratory depression, almost always tachycardic. Widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions

1. Basic therapy
2. Anticipate rapid deterioration of condition
3. Activated charcoal by mouth, 1 Gm/Kg, not to exceed 50 GMs.,
4. In the presence of life-threatening dysrhythmias (hemodynamically significant supraventricular rhythms, ventricular dysrhythmias or QRS > 0.10)
 - a. Hyperventilate if assisting ventilations or if intubated
 - b. Sodium bicarbonate 1 mEq/kg IVP
5. For seizures, Valium 5 mg IV slowly
6. If seizures continue and BP >100, may repeat x 2 q 5 min. (max. total 15 mg)

Phenothiazine Reactions

Definition: Restlessness, muscle spasms of the neck, jaw, and back; oculogyric crisis; history of ingestion of phenothiazine (or unknown medication)

1. Basic therapy
2. Reassurance
3. Benadryl 1 mg/kg slow IVP to max of 50 mg

Other Non-Caustic Drugs Patient awake and alert

1. Basic therapy
2. Activated charcoal 1 Gm/kg po, not to exceed 50 Gm.
3. If level of consciousness diminishes, protect airway, suggest lateral position with head down

AIRWAY OBSTRUCTION R1

Definition: Mechanical upper airway obstruction with history of food aspiration (especially if elderly), alcohol abuse, child playing with small toys

Conscious patient-able to speak

1. Leave the patient alone; offer reassurance
2. Encourage coughing
3. Offer oxygen via cannula
4. Cardiac monitor
5. Frequent suctioning if needed to control secretions
6. Begin transport; avoid agitating patient

Conscious patient-unable to cough or speak

1. Ask the patient if he/she is choking
2. Administer abdominal thrusts until the foreign body is expelled or the patient becomes unconscious
3. After obstruction is relieved, reassess airway, lung sounds, skin color and vital signs
4. Oxygen therapy as indicated by clinical condition
5. Cardiac monitor

CROUP/EPIGLOTTITIS R2

Definition: Presence of upper respiratory infection or croupy cough, sore throat, fever, stridor or drooling

1. High flow oxygen, allow parent to administer if appropriate
2. Transport
3. If patient deteriorates or becomes completely obstructed, attempt positive pressure ventilation via bag-mask. Endotracheal intubation should be performed if bag-mask ventilation is inadequate

RESPIRATORY ARREST R3

Definition: Absence of spontaneous ventilations without cardiac arrest. Consider narcotic overdose.

1. Ventilate with 100% oxygen. Be prepared to support ventilations with appropriate airway adjuncts
2. Cardiac Monitor
3. Narcan 2.0 mg IVP (may be given direct IV or sublingual if no IV access) if narcotic overdose is suspected.
4. If no response to narcan, intubate orally
5. IV NS TKO if possible
6. Transport

CHRONIC OBSTRUCTIVE PULMONARY DISEASE R4

Definition: chronic symptoms of pulmonary disease, wheezing, cough, decreased breath sounds, may have barrel chest

1. Begin oxygen at 2 LPM and increase as indicated. Be prepared to support ventilations with appropriate airway adjuncts
2. Cardiac Monitor
3. Albuterol 2.5 mg in 3cc NS via nebulizer, MR x 3 if needed and HR < 150/min
4. IV NS TKO or saline lock
5. Add Atrovent 0.5 mg in 2.5 cc NS to 3rd and 4th nebulized treatment

ASTHMA/BRONCHOSPASM R5

Definition: acute onset of respiratory difficulty usually with a history of prior attacks, wheezes, coughing

Mild to Moderate

1. Begin oxygen at 4-6 LPM
2. Cardiac monitor
3. Albuterol 2.5 mg in 3cc NS via nebulizer, MR x 3 if needed and HR < 150/min

Severe

1. Increase oxygen, consider assisting ventilations with 100% oxygen
2. Cardiac monitor
3. Albuterol 2.5 mg in 3cc NS via nebulizer. MR x 3 if needed and HR < 150/min
4. May add atrovent 0.5 mg in 2.5 cc NS to 3rd and 4th nebulized treatment unless continuous albuterol needed.
 - a. IV NS TKO or saline lock
5. If patient worsening and <35 years old with no history of coronary artery disease or hypertension, give Epinephrine 0.01 mg/kg (max. 0.5 mg) of 1:1000 SQ
6. If patient continues failing, attempt intubation if no response to above.
7. Albuterol 5 mg/ET tube or nebulizer/bag-valve-mask
8. If still severe, give continuous Albuterol via nebulizer.

ACUTE PULMONARY EDEMA R6

Definition: Acute onset of respiratory difficulty, may have history of cardiac disease, rales, occasional wheezes

1. 100% oxygen/nonrebreather mask; consider ventilatory assist with appropriate airway adjuncts
2. Position of comfort, suggest sitting
3. Cardiac monitor
4. IV NS TKO
5. **If SBP < 100**
 - a) Begin Transport
 - b) Physician contact
 - c) Dopamine 400mcg/250 NS (or premix), begin infusion at 5 mcg/kg/min, and increase to 10 mcg/kg/min, if BP <100. Monitor BP q 3-5 min
6. **If SBP > 100**
 - a) Nitroglycerin 0.4 mg SL, MR every 5 min if needed. **Do not give nitroglycerin if patient has taken Viagra within the previous 24 hours.**
 - b) Lasix 0.5 mg/kg IV; 1.0 mg/kg IV if patient normally takes lasix.
 - c) Consider early transport
 - d) If no response, consider physician contact for morphine 2-5 mg IV

ACUTE RESPIRATORY DISTRESS-OTHER R7

Definition: Increased respiratory rate, sensation of difficulty breathing not clearly due to the clinical entities specified in other guidelines. May be due to pneumonia, inhalation of toxic substances, pulmonary embolus.

1. Position of comfort
2. Be prepared to support ventilations with appropriate airway adjuncts
3. Cardiac monitor
4. IV NS TKO

PNEUMOTHORAX R8

Simple pneumothorax

Definition: Normotensive, absent or diminished breath sounds on one side with no tracheal deviation or distended neck veins

1. High flow oxygen. Be prepared to support ventilations with appropriate airway adjuncts
2. Cardiac Monitor
3. Begin transport
4. IV NS TKO or saline lock
5. Continue to monitor for signs of tension pneumothorax

Tension pneumothorax

Definition: Absent or diminished breath sounds on one side with some combination of falling blood pressure, cyanosis, distended neck veins, hyperresonance on side without breath sounds with tracheal deviation to the other side

1. High flow oxygen. Be prepared to support ventilations with appropriate airway adjuncts
2. Needle thoracostomy on affected side
3. Cardiac monitor
4. IV NS TKO
5. Begin transport

TOXIC GAS INHALATION R9

Definition: Respiratory distress caused by inhalation of toxic gases by history. Suspect carbon monoxide with history of fire in an enclosed space, symptoms of headache, dizziness which may be associated with cherry-red color of mucous membranes (late sign)

1. Remove patient from toxic environment with attention to safety of rescue personnel
2. High flow oxygen. 100% oxygen via nonrebreathing mask or demand valve mask in demand mode
3. Cardiac monitor
4. IV NS TKO
5. If wheezing, consider bronchodilator therapy Albuterol 2.5 mg in 3 cc NS via nebulizer, MR x 3 if needed and HR < 150/min.

NEUROLOGICAL EMERGENCIES

COMA/ALTERED LEVEL OF CONSCIOUSNESS N1

Definition: Glasgow Coma Scale less than 15, etiology unclear (consider AEIOU TIPS); sudden onset of weakness, paralysis, confusion, speech disturbances, may be associated with headache

Reminders: Consider indication for C-spine precautions; consider diabetes-related complications. Consider Stroke protocol (N5)

1. Position patient with head elevated 30° or left lateral recumbent if vomiting.
2. High flow oxygen. Be prepared to support ventilations with appropriate airway adjuncts
3. Cardiac Monitor
4. IV NS TKO
 - a. If signs of shock, fluid challenge, repeat vital signs every 250 cc
5. Blood glucose reading
 - a. If BS < 70 or unmeasurable, Dextrose 50% 50 cc IVP
 - b. If BS < 70 or unmeasurable and unable to start IV, Glucagon 1 mg IM or SQ
6. Narcan 2.0 mg IVP if narcotic overdose suspected. If unable to start IV, administer narcan IM, SQ.

SEIZURES N2

Definition: Two generalized seizures without regaining consciousness or paramedic observed activity for two minutes; usually history of prior seizures on medication, alcohol withdrawal

1. High flow oxygen; prepare to support ventilations with airway adjuncts, especially if valium is administered
2. Protect from injury, do not restrain; cooling measures if febrile
3. Cardiac Monitor
4. IV NS TKO
5. Evaluate blood glucose
 - a. If glucose < 70 or unmeasurable, Dextrose 50% 50 cc IVP
6. Valium 5 mg IV slowly. May repeat two times q 5 min. to maximum of 15 mg total if seizures persist and BP > 100.

SYNCOPE/NEAR SYNCOPE N3

Definition: Episode of brief loss of consciousness, dizziness; often postural

Reminders: Evaluate cardiac rhythm, precipitating factors, associated symptoms, medical history/medications; if abnormal vital signs or loss of consciousness, do not do postural vital signs.

1. Ensure patent airway
2. Cardiac monitor--treat dysrhythmias per specific treatment guideline
3. Supine position
4. IV NS TKO or saline lock; 250 cc fluid challenge if hypotensive or tachycardic, repeat vital signs

CEREBROVASCULAR ACCIDENT (STROKE) N4

Definition: ALOC/Positive findings per the stroke assessment tool*

1. High flow oxygen. Be prepared to support ventilations with appropriate airway adjuncts
2. Cardiac Monitor
3. Assess patient for the following:
 - a. Evidence of hemispheric stroke (per the CPSS stroke tool*)
 - b. Last known normal less than 2 hours
 - c. Blood glucose between 70 and 400
4. Assess patient for the absence of the following:
 - a. Severe obtundation
 - b. History of intercranial hemorrhage
 - c. Serious head injury within 2 months
 - d. Seizure within 6 hours of last known normal
 - e. Taking blood thinning medication (e.g. warafin/Coumadin)
 - f. Improving neurological deficit
5. If patient meets above criteria:
 - a. Rapid transport to closest facility with operating CT scanner
 - b. IV NS TKO enroute
 - c. Early stroke notification:
 - "Stroke Notification"
 - Unit ID and ETA
 - Patient name, age, DOB, PMD and medical record number if available
 - Time of last known normal

*Cincinnati Prehospital Stroke Scale

Facial Droop (The patient shows teeth or smiles.)

_____ Normal: Both sides of the face move equally.

_____ Abnormal: Right side of the face does not move as well as the left.

_____ Abnormal: Left side of the face does not move as well as the right.

Arm Drift (The patient closes their eyes and extends both arms straight out for 10 seconds.)

_____ Normal: Both arms move the same, or both arms do not move at all.

_____ Abnormal: Right arm either does not move, or drifts down compared to the left.

_____ Abnormal: Left arm either does not move, or drifts down compared to the right.

Speech (The patient repeats "The sky is blue in Cincinnati." or other sentence.)

_____ Normal: The patient says the correct words with no slurring of words.

_____ Abnormal: The patient slurs words, says the wrong words, or is unable to speak

INTRAOSSEOUS INFUSION POLICY

I. PURPOSE

To provide a mechanism to actively treat critically ill pediatric patients with fluid resuscitation and/or drug therapy when a peripheral intravenous line cannot be established and such care is necessary to maintain or improve the patient's condition and outcome.

II. DEFINITION

"Intraosseous infusion" refers to the placement of an intraosseous or intramedullary needle into the tibial marrow space, providing a "non-collapsible vein" for the purpose of fluid or drug administration.

III. OBJECTIVE

To provide an alternative means of vascular access in the critically unstable infant or child.

IV. POLICY

- A. This procedure is most appropriate for children under six (6) years of age requiring intravenous fluid or drug therapy. May be considered for older children with hospital approval.
- B. Intraosseous (IO) infusion may be performed only by paramedics who have successfully completed the training course approved by Marin County EMS agency.
 - 1. All paramedics must complete the training program to achieve and maintain local accreditation.
 - 2. This skill will be included in the Marin County "Skill Refresher Program".
 - 3. Provider Medical Director or designee will notify the Marin County EMS office when an EMT-P has completed the course.
- C. No more than two (2) attempts will be made to establish an IO infusion in the field.
 - 1. Documentation of attempts at establishing a peripheral line and inability to do so within ninety (90) seconds shall be made on PCR.
 - 2. Each use of or attempt to establish IO infusion will be subject to review.
 - 3. EMS will generate a monthly report listing occurrences of intraosseous infusion to be reviewed according to existing CQI plans
 - 4. Review shall include the following:

- a) Appropriateness of use
 - b) Time intervals involved
 - c) Response to therapy
 - d) Medical outcome.
 - e) Presence or absence of related complications
- D. IO infusion may be attempted prior to hospital contact when use of the procedure is indicated.

EXTERNAL CARDIAC PACING PROCEDURE

I. INDICATIONS

- A. Symptomatic bradycardia—Heart rate below 50/minute with associated decreasing perfusion, chest pain, shortness of breath, decreased level of consciousness, pulmonary congestion, or congestive heart failure.
- B. First responders or paramedics detect a pulse and witness the onset of asystole.

II. CONTRAINDICATIONS

Individual is less than eighteen (18) years of age.

III. EQUIPMENT

- A. Cardiac monitor/defibrillator/external pacemaker
- B. Pacing capable electrode pads

IV. PROCEDURE

- A. Determine need for use of procedure. Provide care according to appropriate guideline.
- B. Consider administration of sedation if patient conscious. Administer Valium 0.1 mg/kg to maximum of 5 mg. IV. Consider morphine up to 4 mg for pain control.
- C. Position patient supine if tolerated, bare chest completely and apply pacing electrodes in anterior/posterior or sternal/apex position according to manufacturer recommendations.
- D. Confirm and record ECG.
- E. Set pacing rate at 80, turn on pacing module, confirm pacer activity on monitor.
- F. Increase output control until capture occurs or maximum output is reached.
- G. Confirm pulses with paced rhythm, evaluate vital signs.