

**DIVISION OF PUBLIC HEALTH
EMERGENCY MEDICAL SERVICES**

Date: June 29, 2012
To: Holders of EMS Policy and Procedure Manuals
From: Bill Teufel, MD
EMS Agency Medical Director
Subject: Update to Policy Manual, Change Notice #31

Enclosed please find Update #31 to the EMS Policy and Procedure Manual. These new and revised policies and procedures are effective **July 1, 2012**. Please update the Record of Change page and replace the Table of Contents and Signature page.

Revised Policies and Procedures include:

- 4613 Trauma Triage & Destination Guideline
- ALS PR 1 Expanded Scope
- ALS PR 2 Adult Intraosseous Procedure
- ALS PR 3 Adult Oral Intubation
- ALS PR 7 Procedure for Intranasal Medications
- ALS PR 11 External Cardiac Pacing Procedure
- ALS PR 14 King Airway Procedure
- ATG 1 Routine Medical Care
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- C 1 Ventricular Fibrillation / Pulseless Ventricular Tachycardia
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- C 3 Asystole
- C 8 Chest Pain / Acute Coronary Syndrome
- C 9 STEMI
- GPC 13 Spinal Immobilization
- M 6 Sepsis
- N 4 Cerebrovascular Accident
- P 03 Pediatric Respiratory Distress
- P 8 Pediatric Allergic Reaction
- R 2 Airway Obstruction

Deleted Policies include:

- ALS PR 5 Cricothyroidotomy Procedure

SPECIAL NOTIFICATION:

The addition of the following items into EPCIS will not occur until mid-July and will need to be documented in the narrative until that time: M6 Sepsis, temperature, and Lidocaine 2%

The following policies were revised only to reflect the deletions of the Impedance Threshold Device and Cricothyroidomy Procedure: ALS PR 1, ALS PR 14, P 03, and R 2

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

COUNTY OF MARIN

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Division of Public Health Services

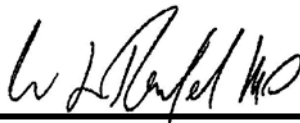
Emergency Medical Services Agency

Policy and Procedure Manual

July 1, 2012



Miles Julihn, EMS Administrator, EMS Agency



William L. Teufel, MD, Medical Director, EMS Agency

EMS Policy & Procedures Manual

Errata Report

If any errors, (i.e.; typographical, grammatical, calculations or omissions) are noted in this manual, please inform this office immediately. To insure that the appropriate policy is changed, please make a copy of this form, fill in the required information and send it to us. Thank you.

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EMS Program Policy & Procedure Manual

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TRAUMA TRIAGE and DESTINATION GUIDELINE POLICY

I. PURPOSE

To provide additional explanation and guidance for the Marin County Trauma Triage Criteria Tool to help identify trauma patients in the field and, based upon their injuries, direct their transport to an appropriate level of trauma care facility.

II. RELATED POLICIES

- A. Service Area for Hospitals, #4603
- B. EMS Aircraft, #5100
- C. Ambulance Diversion Policy, #5400
- D. Destination Guidelines, GPC 4
- E. Determination of Death, ATG 6
- F. Multi-Casualty Incident, GPC 12

III. DEFINITIONS

- A. *Designated trauma center* refers to an acute care facility holding designation as a Level I, Level II, Level III, or EDAT. In Marin County, Marin General Hospital is the designated “Level III trauma center” and Kaiser is the designated “EDAT.”
- B. “*Provide Trauma Notification*” means that field personnel will advise the trauma center as soon as possible of their impending arrival by providing a Trauma Notification (see Trauma Triage Tool).
- C. *Time closest facility* is that facility which can be reached in the shortest amount of time.

IV. GENERAL POLICY

- A. It is the overall goal of the Marin County Trauma System to provide treatment of injured patients at Marin County hospitals.
- B. Whenever physician consultation is indicated within this policy, contact shall be made with Marin General Hospital Level III trauma center.
- C. The following policy statements pertain to use of the Trauma Triage Tool attached as Appendix A:
 - 1. Patients shall be determined to meet criteria for transport to a designated trauma center if they meet the criteria listed in the Trauma Triage Tool (see Appendix A).

2. Physician consultation is **REQUIRED** in the following circumstances:
 - a. The paramedic is unable to transport the patient to the indicated facility in an expedient manner;
 - b. The paramedic assesses the patient and scene conditions and believes transport to a different level of care is indicated;
 - c. Patient requests a facility not indicated by the Trauma Triage Criteria Tool;
 - d. Field and/or flight crew assesses the patient, scene conditions and heliport availability and believes an emergency transport to a Marin County facility via helicopter is indicated.
 3. Physician consultation is **RECOMMENDED** whenever assistance in resolving treatment decisions or transport destinations is desired.
 4. Unmanageable airway: Patients with airway compromise unmanageable by BLS or ALS adjuncts will be transported to the closest receiving facility.
 5. Traumatic Arrest in the Field Prior to Paramedic Arrival: Patients found in cardiopulmonary arrest due to blunt or penetrating trauma may be determined dead at the scene and not transported. Determination of death must include the application of a monitor and verification of asystole or non-perfusing wide ventricular complex. In MCI incidents, triage principles (START triage) may preclude initiation of CPR (refer to policy – ATG 6). Exceptions to field pronouncement may be made at paramedic discretion in socially appropriate cases, i.e., personnel safety at the scene, high public visibility, or pediatric patients.
 6. Traumatic Arrest in the Presence of Paramedics
 - a. Traumatic arrest with paramedics on scene – patient will be transported to the closest basic emergency department.
 - b. Traumatic arrest while enroute to trauma center – continue to trauma center unless travel time to an alternate facility is ten minutes less than travel time to the trauma center.
- D. Adult patients who meet Physiologic or Anatomic Criteria:
1. Determine the estimated ground transport time to the Level III trauma center, considering traffic conditions, weather, and other relevant factors. Estimated ground transport time is evaluated from the time the patient is packaged and ready for transport.
 2. Determine the estimated air transport time to the Level II: air transport time includes: minutes until arrival (if helicopter is not already on the ground); scene and load time of flight crew (typically 10”); flight time to trauma center; and off-load time (typically 7-10 minutes). If helicopter is on the ground at the time the patient is ready for transport, then air transport time is evaluated as time to load, flight time to trauma center and time to off-load to the ED.
 3. Choose the method of transport that will deliver the patient to definitive

care in the shortest time (air transport to Level II versus ground transport to the Level III trauma center).

- E. Pediatric patients who meet Physiologic or Anatomic Criteria:
1. Transport directly to Children's Hospital Oakland (see Trauma Triage Tool).
 2. If ETA (transport time) is anticipated to be >30 minutes, physician consultation should be obtained with the Level III trauma center to determine destination.
- F. Incidents involving three or more patients meeting Physiologic or Anatomic Criteria will be handled in the following manner:
1. Prehospital providers should obtain a physician consultation from the Level III trauma center, regarding destinations anytime three or more patients meet Physiologic or Anatomic Criteria. If an incident is deemed to be an MCI, prehospital providers will utilize the multicasualty plan for destination guidelines.
 2. Helicopter dispatch should be initiated for all incidents in which three or more patients meet A&P criteria.
 3. Patients meeting physiologic and anatomic triage criteria that the Level III trauma center cannot accept should be transported to an out-of-county Level I or II trauma center in the most appropriate and expedient manner.
- G. The EDAT will be used for patients meeting mechanism of injury trauma triage criteria that Level III trauma center is unable to accept.

EXPANDED/ OPTIONAL SCOPE OF PRACTICE PROCEDURES FOR EMT-P

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Expanded scope of practice for the EMT- P in the County of Marin

TREATMENT

- All activities listed in the basic scope of practice for EMT-I and EMT-P in the State of California including the following procedures approved by the County EMS Agency:
 - Pediatric Intubation
 - Intraosseous Infusion
 - External Cardiac Pacing
 - Amiodarone
 - Atrovent

RELATED POLICIES/ PROCEDURES

- Medical Personnel on Scene GPC 6
- Authorized Procedures for EMT-I BLS PR 1
- Interfacility Transfer Policy GPC 5

ADULT INTRAOSSEOUS PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATIONS

- Patient in extremis, cardiac arrest, profound hypovolemia, or septic and in need of immediate delivery of medications / fluids and immediate IV access is not possible

CONTRAINDICATIONS

- Absolute contraindications:
 - Recent fracture of involved bone (less than 6 weeks)
 - Vascular disruption proximal to insertion site
 - Inability to locate landmarks
- Relative contraindications:
 - Infection or burn overlying the site
 - Congenital deformities of the bone
 - Metabolic bone disease

EQUIPMENT

- Intraosseous infusion needle and/ or mechanical device
- Antiseptic swab
- Sterile gauze pads
- 10-12 ml syringe filled with 10 ml saline
- IV NS solution and tubing with 3 way stopcock
- Supplies to secure infusion
- Pressure bag
- **Lidocaine 2%** (Preservative Free)

PROCEDURE

- Aseptic technique must be followed at all times
- Position and stabilize leg
- Locate primary site, 1-2 cm medial to tibial tuberosity
- Locate secondary site according to manufacturer's specification
- Prepare insertion site using aseptic technique
- Air or gauze dry
- Insert IO needle according to manufacturer's directions
- Confirm placement
- Attach syringe with 10 ml of saline to needle
- Rapid bolus with 10 ml saline
 - * If patient awake and/or responsive to pain, infuse 2% **Lidocaine** 20-40 mg over 30-60 seconds prior to 10 ml rapid saline bolus. Wait 30-60 seconds before fluid infusion. MR Lidocaine in 15 minutes if needed.
- If resistance is met, remove needle, apply pressure to site
- Disconnect syringe
- Attach pre-flooded IV tubing
- Stabilize as recommended by manufacturer
- Fluid administration may require pressure
- Monitor insertion site and patient condition

ADULT ORAL INTUBATION PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Severe ventilatory compromise where the airway cannot be adequately maintained by BLS techniques

CONTRAINDICATION

- Absolute
 - Epiglottitis
- Relative
 - Spontaneous respirations are present
 - Responsive patient with intact gag reflex
 - Suspected opiate overdose
 - Profound hypoglycemia

EQUIPMENT

- Battery powered laryngoscope handle, extra batteries and bulbs or equivalent devices
- Laryngoscope blades
- McGill forceps
- Cuffed endotracheal tubes
- ETTI
- Lubricating jelly
- Disposable stylets
- Suction
- Pulse oximetry
- End Tidal CO2 detector
- Esophageal Detector Device (EDD)
- Capnometer or capnograph when available

PROCEDURE

- Open airway and pre-oxygenate with BVM for 1-3 minutes with 100% O2. Avoid hyperventilation in cardiac arrest.
- Select proper ETT
- Insert stylet
- Select proper sized blade and visualize the larynx
- Suction as needed
- If possible, provide continuous high flow oxygen during procedure
- Under direct visualization insert ETT 2-3 cm past the cords. Each attempt should not exceed 30 seconds, hyperventilating between attempts.
- Remove stylet
- Inflate cuff
- Verify placement using all of the following:
 - Rise and fall of chest
 - Absence of epigastric sounds
 - Bilateral breath sounds
 - Capnometry/capnography or EDD *and* Colormetric Device
- Secure the tube. Consider spinal immobilization to prevent extubation. Do NOT use C-collar.

- Reassess tube placement after each patient movement. If any doubt about placement, confirm by capnography or direct visualization.

SPECIAL CONSIDERATION

- Defibrillation should precede intubation in cardiac arrest VF / VT situations
- Limit intubation attempts (an attempt is defined as passing the device beyond the patient's teeth):
 - Cardiac arrest – one attempt with ETT; if unsuccessful, insert King Airway. Do not interrupt CPR for longer than 30 seconds.
 - Respiratory arrest – two attempts with ETT, hyperventilating between attempts. If unsuccessful, insert King Airway.
 - Head Trauma – one attempt with ETT; if unsuccessful, insert King Airway.
- Consider use of ETTI if difficult intubation.
- If unable to intubate, manage airway with other airway adjunct

RELATED POLICIES/ PROCEDURES

- Endotracheal Tube Introducer (ETTI) Procedure ALS PR 4
- King Airway Procedure ALS PR 14
- Head Trauma T 2

PROCEDURE FOR INTRANASAL MEDICATIONS MIDAZOLAM (VERSED) & NARCAN

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- No IV access with the following symptoms:
 - Status epilepticus
 - Suspected narcotic intoxication with respiratory rate < 8

CONTRAINDICATION

- Epistaxis
- Complete mucosal blockage of both nostrils
- Nasal trauma
- Any recognizable septal abnormalities
- Retropharyngeal lacerations/ dissections

EQUIPMENT

- MAD adapter
- Syringe
- Suction

PROCEDURE

- With medication in syringe, attach atomizer (do not lubricate tip).
- Stabilizing the head, place applicator in nares and briskly compress the syringe plunger.

SPECIAL CONSIDERATION

- Be attentive to excessive oral secretions, vomiting, and inadequate tidal volume.
- Intranasal administration of Midazolam is an optional medication delivery system

RELATED POLICIES/ PROCEDURES

- Seizure ALS N 2
- Coma/ ALOC N 1
- Respiratory Arrest R 1
- Pediatric Seizure P 9

EXTERNAL CARDIAC PACING PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Symptomatic bradycardia which may include: HR < 50 with decreasing perfusion, chest pain, shortness of breath, decreased LOC, pulmonary congestion or congestive heart failure

CRITICAL INFORMATION

- If patient is unstable, do not delay pacing for IV access

EQUIPMENT

- Cardiac monitor/ defibrillator/ external pacemaker
- Pacing capable electrode pads

PROCEDURE

- ALS RMC
- Administer **NS** 250 ml bolus IV/IO
- If patient is conscious, administer **Midazolam** 1 mg slow IV/IO. Titrate to desired degree of sedation 1-2 mg every 3 minutes, to a maximum dose of 0.1 mg/kg.
- **Morphine Sulfate** IV/IO/IM for pain management as needed; maximum dose of 5 mg.
- If tolerated, position patient supine, applying pacing electrodes to bare chest according to manufacturers recommendations (anterior/ posterior or sternal/ apex).
- Confirm and record ECG.
- Set pacing rate at 80, turn on pacing module, and confirm pacer activity on monitor.
- Increase output control until capture occurs or maximum output is reached.
- Once capture is confirmed, increase output by 10%
- Confirm pulses with paced rhythm.
- Monitor vital signs and need for further sedatives or pain control.

DOCUMENTATION

- MiliAmps needed for capture
- Time pacing started/ discontinued

RELATED POLICIES/ PROCEDURES

- Bradydysrhythmia C 4
- Adult Pain Management ATG 2

KING AIRWAY PROCEDURE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- When ventilation cannot be adequately maintained by BVM or other BLS techniques and intubation is anticipated to be difficult or intubation is unsuccessful after no more than one attempt (cardiac arrest patients) or two attempts (respiratory arrest patients)

CONTRAINDICATION

- Responsive patient with an intact gag reflex
- Patient with known esophageal disease
- Patients who have ingested caustic substances
- Tracheal stoma

EQUIPMENT

- King Airway
- Syringe
- Water soluble lubricant
- Portable suction device
- Capnometry/capnography or Colormetric Device
- Stethoscope

Size	Patient Criteria	Color	Inflation Volume
3	4 – 5 ft.	Yellow	45 - 60 ml.
4	5 – 6 ft.	Red	60 - 80 ml.
5	> 6 ft.	Purple	70 - 90 ml.

PROCEDURE

- Open airway and pre-oxygenate with BVM for 1-3 min. with 100% O₂. Avoid hyperventilation in cardiac arrest.
- Test cuff according to manufacturer's instructions
- Apply water soluble lubricant to the distal end of the tube.
- Position the head into the "sniffing" position or neutral position if trauma is suspected
- Remove dentures before placing tube to prevent laceration of the cuffs
- Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums
- Inflate cuffs based on size of tube
- Attach bag-valve to King Airway
- While gently bagging the patient to assess ventilation, withdraw the airway until ventilation is easy and free flowing
- Verify placement using all of the following:
 - Rise and fall of chest
 - Bilateral breath sounds
 - Absence of epigastric sounds
 - Capnometry/capnography or Colormetric Device
- Secure the tube with tape or commercial tube holder, noting depth marking on tube

SPECIAL CONSIDERATION

- If there is any doubt about the proper placement of the King Airway, deflate the cuffs and remove device; ventilate the patient with BVM for 30 seconds and repeat sequence of steps
- If unsuccessful on second attempt, resume BLS airway management

ROUTINE MEDICAL CARE (RMC) ALS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- To define procedures indicated by ALS RMC per treatment guidelines or
- Patient condition warrants ALS care/assessment, but does not meet the indication of any other treatment policy

TREATMENT

- As indicated:
 - Vascular access
 - Blood glucose monitoring as indicated by ALOC or patient history
 - Cardiac monitor
 - Advanced airway management
 - Pulse oximetry
 - Temperature
 - ETCO₂
 - 12 lead ECG
 - For pediatric patients, use length based color-coded resuscitation tape and apply corresponding wrist band

ADULT PAIN MANAGEMENT

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient exhibits or is determined to have measurable or anticipated pain or discomfort


PHYSICIAN CONSULT

- Patients with SBP < 100
- Patients with head trauma; multi-system trauma that includes abdominal/thoracic trauma; decreased respirations; ALOC (GCS < 15); or women in labor
- > 20 mg **Morphine Sulfate** is needed for pain management

CRITICAL INFORMATION

- Origin of pain (examples: isolated extremity trauma, chronic medical condition, burns, abdominal pain, multi-system trauma)
- Mechanism of injury
- Approximate time of onset
- Complaints or obvious signs of discomfort
- Use Visual Analog Scale (0-10) or Wong/Baker Faces Pain Rating Scale if non-English speaking adult. Express results as a fraction (i.e. 2/10 or 7/10)
- Vital signs
- Presence of special infusion apparatus for narcotic or oncology agents may help to determine dosing

TREATMENT

- **Morphine Sulfate** IV/IO: 5 mg slowly; MR q 5 minutes, max. dose 20 mg.
 - If unable to establish IV/IO, administer Morphine Sulfate IM 5-10 mg; MR in 20 minutes, max. dose 20 mg
- If significant pain persists after Morphine Sulfate 10 mg IV/IO, consider **Midazolam** 2 mg IV/IO; MR in 3 minutes to a max of 0.05 mg/kg. Monitor patient's ETCO₂.
- If patient unable to take Morphine Sulfate, consider Midazolam
 - IV/IO: 2 mg slowly; MR in 3 minutes to maximum dose 0.1 mg/kg.
 - IN: 5 mg (2.5 mg in each nostril)
 - IM: 0.1 mg/kg
-  Patients with SBP<100, head trauma, multi-system trauma with abdominal/thoracic trauma, decreased respirations, ALOC (GCS < 15), or women in labor

DOCUMENTATION- ESSENTIAL ELEMENTS

- Initial and post treatment pain score, expressed in a measurable form (i.e. 7/10)
- Interventions used for pain management (i.e. ice pack, splint, Morphine Sulfate, Midazolam)
- Reassessment after interventions
- Initial and post treatment vital signs (including GCS in patients with ALOC)
- Physician consult if required
- ETCO₂

ADULT SEDATION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Agitation / combativeness interfering with critical ALS interventions and airway control or that endangers patient or caregiver
- Cardioversion / Cardiac Pacing

CRITICAL INFORMATION

- Relative contraindications:
 - Nausea / vomiting
 - ALOC
 - Hypotension (SBP < 100)
 - Suspected drug / alcohol intoxication
 - Concomitant narcotic administration in the agitated/ combative patient

TREATMENT

- ALS RMC
- Cardioversion / cardiac pacing- Midazolam 1 mg slow IV/IO push loading dose; may repeat 1-2 mg in 3 minutes to achieve desired degree of sedation up to a maximum dose of 0.1mg/kg
- Agitation / combativeness- Midazolam
 - IV/IO: 2 mg slowly; MR in 3 minutes to maximum dose 0.1mg/kg.
 - IN: 5 mg (2.5 mg in each nostril)
 - IM: 0.1 mg/kg
- Patients receiving sedation for airway management who have long transport times may receive sedation maintenance doses of **Midazolam** 1 mg IV/IO every 15 minutes

Midazolam for Sedation Weight Based Chart - MAXIMUM DOSE

Kg	Lb	Dose (0.1 mg/kg)
40	88	4 mg
45	99	4.5 mg
50	110	5 mg
55	121	5.5 mg
60	132	6 mg
65	143	6.5 mg
70	154	7 mg
75	165	7.5 mg
80	176	8 mg
85	187	8.5 mg
90	198	9 mg
95	209	9.5 mg
>100	>220	10 mg

SPECIAL CONSIDERATION

- Sedation for airway management does not mandate intubation, but may require airway/ventilation support
- Patients receiving Midazolam may experience hypotension

RELATED POLICIES

- Head Trauma T2
- Patient Restraint GPC11
- Continuous Positive Airway Pressure (CPAP) Procedure ALS PR 13

ADULT INTRAOSSEOUS INFUSION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient in extremis, cardiac arrest, profound hypovolemia, or septic and in need of immediate delivery of medications / fluids and immediate IV access is not possible

CRITICAL INFORMATION

- All approved ALS IV medications may be administered IO
- No more than 2 attempts for IO access at scene
- Absolute contraindications:
 - Recent fracture of involved bone (less than 6 weeks)
 - Vascular disruption proximal to insertion site
 - Inability to locate landmarks
- Relative contraindications:
 - Infection or burn overlying the site
 - Congenital deformities of the bone
 - Metabolic bone disease

SPECIAL CONSIDERATION

- Pressure bags for optimal flow of IO infusions
- Administer **Lidocaine** 2% prior to saline bolus if patient responsive to painful stimuli

DOCUMENTATION- ESSENTIAL ELEMENTS

- Insertion site

RELATED POLICIES/ PROCEDURES

- Adult Intraosseous Procedure ALS PR 2

DETERMINATION OF DEATH - ALS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

Patient in cardiac arrest where resuscitation may be limited or not indicated and who does not meet criteria for BLS Determination of Death

PROCEDURE

- Confirm pulseless and apneic. Apply leads and document rhythm in two monitoring leads for one minute or in one lead if an AED is the only available monitor.
- Determination of death can be made prior to initiating resuscitation when:
 - Medical (**ALL** must be present)
 - The presenting rhythm is asystole or a non-perfusing wide ventricular complex
 - Event was unwitnessed
 - Effective bystander CPR, based on CPR guidelines and paramedic judgment, was not initiated
 - No AED or manual shock delivered
 - Trauma (Either may be present)
 - MCI incident where triage principles preclude initiation of CPR
 - Blunt, penetrating or profound multi-system trauma with asystole or a non-perfusing wide ventricular complex
- If determination of death cannot be made, perform ALS resuscitation for 20 minutes or until three rounds of medication appropriate for presenting rhythm have been administered.
 - If the above procedures have been completed without ROSC, resuscitation may be discontinued and determination of death made when any of the following are present:
 - Information becomes available precluding initiation of resuscitation efforts
 - ETCO₂ is less than or equal to 10mm/Hg
 - The rhythm is asystole or a non-perfusing wide ventricular complex
- When applicable, notify the appropriate law enforcement agency and remain on the scene until law enforcement or coroner arrives
- Complete the Determination of Death form and leave a copy at the scene if the patient will be transferred to the coroner.

PHYSICIAN CONSULT

- Indications are present that resuscitative efforts are not wanted or appropriate (terminal illness, family request, etc.), and above criteria is not present

DOCUMENTATION- ESSENTIAL ELEMENTS

- Criteria for discretionary determination of death (i.e., DNR or valid POLST form)
- Name and phone number of physician authorizing termination of resuscitation
- When possible, attach copy of DNR to PCR or include type of DNR and physician information.

RELATED POLICIES/ PROCEDURES

- BLS Determination of Death BLS 5
- DNR GPC 7
- Asystole C3; PEA C2
- Patient Care Record (PCR) 7006
- Trauma Triage and Destination Guideline Policy 4613

ADULT MEDICATIONS AUTHORIZED/ STANDARD DOSE

DRUG	CONCENTRATION	STANDARD DOSE
Activated Charcoal	25 GM/ bottle or 50 GM/ bottle	1 GM/ kg PO (not to exceed 50 GM)
Adenosine (Adenocard)	6 mg/ 2 ml	6 mg 1 st dose, 12 mg 2 nd & 3 rd dose (rapid IV/IO push) followed by 20 ml saline flush after each dose
Albuterol	2.5 mg/ 3ml NS	5 mg/ 6 ml NS; MR
Amiodarone	150 mg/ 3ml	<i>VFib or Pulseless VTach:</i> 300 mg IV/ IO push followed by one 150MG push in 3-5 min. <i>Perfusing/Recurrent VTach:-</i> 150 mg IV/ IO over 10 min. (15 mg/ min); MR q 10 min. as needed
Aspirin (chewable)	Variable	162-325 mg PO
Atropine	1 mg/ 10 ml	<i>Bradycardia:</i> 0.5 mg IV/ IO, MR q 3-5 min. to max of 3 mg. <i>Organophosphate Poisoning:</i> 2.0 mg slowly IV/ IO; MR 2-5 min. until drying of secretions
Calcium chloride 10%	1 GM/ 10 ml	<i>Crush syndrome:</i> 1gm IV/ IO slowly over 5 min. for suspected hyperkalemia (flush line with NS before & after administration)
Dextrose 50%	25 GM/ 50 ml	25 GM IV/ IO
Diphenhydramine (Benadryl)	50 mg/ 1ml	<i>Allergic reaction:</i> 50 mg IV/ IO/ IM; max 50 mg <i>Phenothiazine reaction:</i> 1 mg/ kg slowly IV/ IO; max 50 mg.
Dopamine	400 mg/ 250 ml Pre-mix	See specific policy dosing chart
Epinephrine 1: 10,000	1 mg/ 10 ml	<i>Anaphylaxis:</i> If unresponsive, no palpable BP, no palpable pulse - give 0.01 mg/kg to max of 0.5 mg/ 0.5 ml IV/ IO <i>Cardiac Arrest:</i> 1mg (10 ml) IV/ IO followed by 20 ml NS flush q 3-5 min. during resuscitation

Epinephrine 1:1000	1 mg/ 1ml EpiPen® (0.3mg) auto-injector	<i>Allergic Reaction/ Anaphylaxis:</i> 0.01 mg/kg IM to max 0.5 mg or EpiPen®; MR x 1 in 5 minutes) <i>Bronchospasm/ Asthma/ COPD:</i> 0.01 mg/kg IM; max. dose 0.5 mg. MR once in 5 minutes or EpiPen®
Furosemide (Lasix)	Variable	0.5 mg/kg IV/ IO given over 1-2 min. Physician Consult required
Glucagon		1 mg IM
Glucose Paste	15 GM / tube	30 GM PO
Ipratropium (Atrovent)	500 mcg per unit dose (2.5 ml)	500 mcg
Lidocaine 2% (preservative free)	20 mg/ 1 ml	IO insertion: infuse 20-40 mg IO over 30-60 seconds
Midazolam (Versed)	2 mg/2 ml (IV/IO/IM) 5 mg/1 ml (IN/IM)	<i>Cardioversion/ Pacing:</i> 1 mg slow IV/ IO; MR 1-2 mg q 3 min. to max dose 0.1 mg/kg <i>Seizure:</i> 2 mg IV slowly; MR in 3 min. to maximum dose 0.1mg/kg. For IN: 5 mg (2.5 mg in each nostril). For IM: 0.1 mg/kg <i>Adult Pain Management/Sedation:</i> see specific policy
Morphine Sulfate	10 mg/ 1ml (IV/IO/IM)	<i>Chest Pain:</i> 2-5 mg slow IV/IO; MR q 2-3 min. to max of 10 mg <i>Pain Management/ Trauma Patient:</i> 5 mg slow IV/IO/IM, MR q 5 min if SBP >100; max dose 20 mg <i>Pulmonary Edema:</i> 2-5 mg slow IV/ IO. Physician Consult required
Naloxone (Narcan)	2 mg/ 2 ml	0.4- 2.0mg IV/IO/IM/SL/IN; MR in 5 min
Nerve gas Auto-Injector Kit contains: Atropine Pralidoxime Chloride (2 PAM)	2 mg (0.7 ml) 600 mg (2 ml)	<i>Small Exposure to vapors/ liquids:</i> 1 dose of both medications (Atropine & 2-PAM), MR X1 in 10 minutes. <i>Larger exposure to liquids/ vapors:</i> 3 doses initially (both medications)
Nitroglycerine	0.4 mg/ tablet or spray	1 SL; MR q 5 min. if SBP > 100
Ondansetron (Zofran)	4 mg	4 mg ODT/IM or slow IV over 30 sec
Sodium Bicarbonate	50 mEq/ 50 ml	1 mEq/ kg IV/ IO

NOTE: If the above concentrations become unavailable, providers may use alternate available concentrations or packaging.

VENTRICULAR FIBRILLATION / PULSELESS VENTRICULAR TACHYCARDIA

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Pulseless, apneic with cardiac rhythm of ventricular fibrillation or wide complex tachycardia

CRITICAL INFORMATION

- Witnessed or unwitnessed
- Effective Bystander CPR

TREATMENT

- Witnessed arrest: CPR until defibrillator available
- Unwitnessed arrest: CPR for 2 minutes prior to defibrillation
- ALL arrests: CPR for 2 minutes between shocks. Do not check rhythm immediately after shock.
- If available, use mechanical CPR (contraindicated in pediatrics and traumatic arrests)
- Defibrillate as per manufacturer's recommendations. Repeat 30-60 seconds after drug administrations
- ALS RMC
- If VF/VT converts to another rhythm post defibrillation, refer to appropriate protocol for further treatment
- If VF/VT continues: **Epinephrine** 1:10,000 1.0 mg IV/IO; repeat q 3-5 minutes;
- If VF/VT persists after three defibrillations or recurs:
 - Consider **Amiodarone** 300 mg IV/IO push (diluted in, or followed by, 20 to 30 ml **NS**). Initial dose can be followed by ONE 150 mg IV/IO push in 3 to 5 minutes
- If rhythm converts with return of pulses, refer to ROSC policy.
- If rhythm converts with return of pulses after **Amiodarone**, monitor and consider infusion of **Amiodarone** drip (150mg in 100 ml NS, 1 mg/minute= 40 gtts/min. with 60 drops ml/ tubing)

SPECIAL CONSIDERATIONS

- Establishment of IV/IO, airway and medication administration should occur during CPR and should not interrupt the CPR cycles
 - If rhythm converts without administration of **Amiodarone**, monitor and transport
 - Consider pre-cordial thump if witnessed and no defibrillator immediately available
 - Consider and treat possible contributing factors:

<ul style="list-style-type: none"> ▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia 	<ul style="list-style-type: none"> ▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Trauma
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DOCUMENTATION – ESSENTIAL ELEMENTS

- Bystander CPR
- Witnessed or unwitnessed

RELATED POLICIES / PROCEDURES

Return of Spontaneous Circulation C10

PULSELESS ELECTRICAL ACTIVITY

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Pulseless, apneic with rhythm that includes electromechanical dissociation (EMD), pseudo-electromechanical dissociation (pseudo-EMD), idioventricular rhythms, ventricular escape rhythms and bradycardia

CRITICAL INFORMATION

- Witnessed or unwitnessed
- Effective Bystander CPR

TREATMENT

- CPR. if available, use mechanical CPR (contraindicated in pediatrics and traumatic arrests)
- ALS RMC
- Establish IV/ IO **NS** 250-500 ml fluid challenge then TKO
- Administer **Epinephrine** 1mg (1:10,000) IV/ IO. Repeat q 3-5 min.
- If hyperkalemia is suspected in renal dialysis patients, administer 500 mg of **10% Calcium Chloride** and 1 mEq/kg of **Sodium Bicarbonate** IV/ IO
- If rhythm converts with return of pulses, refer to ROSC Policy
- If the above procedures have been completed without ROSC, consider field determination of death

SPECIAL CONSIDERATIONS

- Establishment of IV/IO, airway and medication administration should occur during CPR and should not interrupt the CPR cycles
- Consider and treat possible contributing factors:

<ul style="list-style-type: none"> ▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia 	<ul style="list-style-type: none"> ▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Trauma
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DOCUMENTATION- ESSENTIAL ELEMENTS

- Witnessed or unwitnessed
- Bystander CPR

RELATED POLICIES/ PROCEDURES

- Determination of Death ALS ATG 6
- Return of Spontaneous Circulation (ROSC) C 10
- Trauma Triage and Destination Guidelines 4613

ASYSTOLE

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Pulseless, apneic with no electrical activity on cardiac monitor

CRITICAL INFORMATION

- Determination of death can be made immediately if all of the following are present:
 - Event was unwitnessed
 - Effective bystander CPR was not initiated
 - No AED used or manual shock applied
 - Asystole has been documented in two monitoring leads for one minute or in one lead if an AED is the only available monitor
- If all of the above criteria not met, begin treatment

TREATMENT

- CPR. If available, use mechanical CPR (contraindicated in pediatrics and traumatic arrests)
- ALS RMC
- IV/IO NS, 250-500 ml then TKO
- **Epinephrine** 1 mg (1:10,000) IV/IO; circulate for 2 min., check rhythm & pulse. MR q 3 -5 min
- Establishment of IV/IO, airway and medication administration should occur during CPR and should not interrupt the CPR cycles.
- If hyperkalemia is suspected in renal dialysis patients, administer 500 mg of 10% **Calcium Chloride** and 1 mEq/kg of **Sodium Bicarbonate** IV/IO.
- If rhythm converts with return of pulses, refer to ROSC Policy
- Consider field determination of death if patient remains in asystole and meets Determination of Death ALS criteria

SPECIAL CONSIDERATION

- Consider and treat possible contributing factors:

<ul style="list-style-type: none"> ▪ Hypovolemia ▪ Hypoxemia ▪ Hydrogen ion (acidosis) ▪ Hypo/Hyperkalemia ▪ Hypoglycemia ▪ Hypothermia 	<ul style="list-style-type: none"> ▪ Toxins (overdoses) ▪ Tamponade, cardiac ▪ Tension pneumothorax ▪ Thrombosis (coronary / pulmonary) ▪ Trauma
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DOCUMENTATION- ESSENTIAL ELEMENTS

- Time death was determined

RELATED POLICIES/ PROCEDURES

- Determination of Death ALS Policy ATG 6
- Return of Spontaneous Circulation C10

CHEST PAIN/ ACUTE CORONARY SYNDROME ALS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Chest discomfort or pain, suggestive of cardiac origin.
- Other symptoms of Acute Coronary Syndrome (ACS) which may include weakness, nausea, vomiting, diaphoresis, dyspnea, dizziness, palpitations, "indigestion"
- Atypical symptoms or "silent MIs" (women, elderly, and diabetics)

PHYSICIAN CONSULT

- Additional treatment for ongoing pain when BP<100

TREATMENT

- ALS RMC
- **ASA** 162-325 mg (chewable), even if patient has taken daily ASA dose
- 12-lead ECG; if elevation in leads II, III, and AVF, suspect RVI and perform right-sided ECG.
- For chest discomfort or pain, **NTG** 0.4 mg SL/ spray, MR q 5 min. if systolic BP > 100
 - Withhold the NTG if the patient has RVI or has taken erectile dysfunction (ED) medication within the last 24 hrs (Viagra/Levitra) or 36 hrs (Cialis).
- If pain persists give **Morphine Sulfate** 2-5 mg slowly IV; MR q 2-3 minutes to a total of 10 mg.
- Consider NS 250cc IV fluid bolus if BP < 100.
- For recurrent episodes of ventricular tachycardia with persistent chest pain, administer **Amiodarone** 150 mg in 100 ml NS, IV/IO; infuse over 10 minutes. May repeat q 10 minutes as needed.

SPECIAL CONSIDERATION

- IV access before NTG if any one of the following applies:
 - SBP <120
 - Patient does not routinely take NTG
- Consider other potential causes of chest pain: pulmonary embolus, pneumonia, aortic aneurysm and pneumothorax.
- Infarctions may be present with normal 12-leads.

DOCUMENTATION- ESSENTIAL ELEMENTS

- OPQRST information
- Vital signs before/after **NTG** administration
- Cardiac rhythm documentation
- ECG findings
- Erectile dysfunction medications taken
- Level of pain

RELATED POLICIES/ PROCEDURES

- 12-lead Electrocardiogram ALS PR 12
- Destination Guidelines GPC 4
- STEMI C 9

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patients with acute or suspected ST Elevation Myocardial Infarction (STEMI) as identified by 12-lead ECG

📞 PHYSICIAN CONSULT

- If ST elevation is present, but findings are inconclusive or not in agreement with the computer interpretation, transmit ECG, if possible, and consult the STEMI Receiving Center (SRC) receiving physician.

TREATMENT/ PROCEDURE

- ALS RMC
- Treat patient under appropriate protocol
- If elevation in leads II, III, and AVF, suspect RVI and perform right-sided ECG.
- Determine if patient is stable or unstable:

Stable	Unstable
<ul style="list-style-type: none"> ▪ Stable VS and no indication of shock 	<ul style="list-style-type: none"> ▪ SBP < 90 (prior to NTG and Morphine Sulfate administration) ▪ Signs of acute pulmonary edema ▪ Ventricular tachyarrhythmia requiring defibrillation or antiarrhythmic therapy ▪ Patient's condition, based on paramedic judgment, requires immediate hospital intervention

- Stable patient:
 - May go to preferred SRC if the estimated transport time is not more than 15 minutes further than the nearest SRC
 - Preferred SRC defined:
 - Patient preference
 - SRC used by treating cardiologist.
- Unstable patient:
 - Transport to the closest SRC
 - Transport to the closest SRC if patient has no preference / cardiologist
- Early notification to SRC

SPECIAL CONSIDERATION

- Early notification report to include: age, gender, symptoms (including presence or absence of chest pain), 12-lead findings.
- Transmit all STEMI ECGs to SRC if possible

DOCUMENTATION- ESSENTIAL ELEMENTS

- 12-lead findings
- How preferred SRC is determined

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- 12-lead ECG Procedure ALS PR 12
- Chest Pain / ACS C8

SPINAL IMMOBILIZATION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient with actual or potential axial spine trauma as determined during assessment using State of Maine guidelines. Any patient with a mechanism of injury, excluding isolated extremity injuries, should be evaluated for application of spinal immobilization.

EQUIPMENT

- Rigid back board or other rigid immobilization device
- Cervical collar
- Lateral cervical immobilization devices
- Back board straps
- Tape

PROCEDURE

- Maintain spinal axial alignment throughout application
- Evaluate sensation and motor function of all extremities before and after application
- Apply appropriate size of rigid cervical collar (see Special Considerations)
- Place patient on spinal immobilization device with as little movement as possible
- Apply head immobilization (towel rolls, foam head blocks, or equipment) to prevent movement of head
- Immobilize chest, hips and knees in a manner to prevent movement
- Secure head to board at the forehead and chin
- Pregnant patients should be positioned on the left side, supporting fetus
- Recheck sensory and motor function of all extremities
- **In order to omit the application of spinal immobilization the following must apply:**
 - Significant mechanism of injury does not exist
 - Normal neurological examination:
 - Alert and cooperative patient
 - Fully oriented to person, place, time and situation
 - Demonstrating normal sensory and motor function in extremities; without complaints or history of tingling, numbness or paresthesias
 - No mid-line vertebral pain by patient report
 - No evidence of intoxication or impairment from medication, alcohol or other drugs
 - No distracting injuries or emotional conditions
 - No spinal tenderness elicited on palpation (see Special Consideration)
 - No cervical spine pain with *active* movement (i.e., patient should be instructed to gently move head and neck and should have no complaint of pain. Neck should not be moved by provider).

DOCUMENTATION- ESSENTIAL ELEMENTS

- Sensation and motor function of all extremities prior and subsequent to application of immobilization
- Neurological, motor, sensory, other examination findings & situational circumstances which qualifies patient for omission of spinal immobilization

SPECIAL CONSIDERATION

- Spinal tenderness is determined by a stairstep manual exam over the spinous processes from top to bottom of the spine
- Motor exam
 - Upper extremities
 - Test abduction/adduction of the 4th and 2nd fingers together
 - Test finger/hand extension by pushing down on the extended wrist
 - Lower extremities
 - Test plantar flexion by pressing against the soles of the feet (with patient resistance)
 - Test dorsiflexion by pressing against the top of the feet (with patient resistance)
- Sensory exam – upper and lower extremities
 - Assess patient's ability to distinguish sharp and dull sensation in several locations.
- Cervical collar may be omitted for patients with isolated lumbar and/or lower thoracic spine tenderness.
- Modified immobilization techniques should be considered for safer transportation of uncooperative or combative patients
- In the absence of a focal neurologic deficit, routine spinal immobilization is not indicated for patients presenting with:
 - Penetrating trauma to the neck or torso
 - Isolated penetrating trauma to the cranium

SEPSIS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Documented or suspected source of infection AND at least TWO of the following:
 - HR > 90
 - RR > 20
 - SBP < 90
 - Temperature >100.4 or <96

CRITICAL INFORMATION

- If rales present, see Acute Pulmonary Edema R 5 and continue to treat as below.

TREATMENT

- ALS RMC
- Two large bore IVs or IOs (only one may be in antecubital fossa)
- Initiate 20cc/kg fluid bolus. May give up to two liters fluid.
- Early Sepsis Notification
- If SBP < 90 consider:
 - IV / IO infusion of **Dopamine** 400 mg/250 ml D5W (pre-mixed). Begin at 10ug/kg/min.
 - Monitor blood pressure every five minutes. Aim for SBP \geq 100.

DOPAMINE			
400 mg in 250 ml D5W (pre-mixed)		60 drops/min = 60 ml/hr	
Weight (kg)	gtts/min to = 10 ug/kg/min	Weight (kg)	gtts/min to = 10 ug/kg/min
35-44	15 gtts/min	85-94	35 gtts/min
45-59	20 gtts/min	95-109	40 gtts/min
60-74	25 gtts/min	110 & up	45 gtts/min
75-84	30 gtts/min		

SPECIAL CONSIDERATION

- Consider other causes of shock and treat as per specific protocols

DOCUMENTATION- ESSENTIAL ELEMENTS

- Suspected source of infection
- History of progression of illness

RELATED POLICIES/ PROCEDURES

- Destination Guideline GPC 4
- Acute Pulmonary Edema R5

CEREBROVASCULAR ACCIDENT (STROKE)

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- ALOC and positive finding per the Cincinnati Pre-hospital Stroke Scale (CPSS)

CRITICAL INFORMATION

- Criteria for Early Stroke Notification:
 - Evidence of hemispheric stroke per the CPSS (see below)
 - Last known normal less than 4 hours
 - Blood glucose between 70 and 400 mg/dl
- If patient presents with sudden, witnessed onset of coma or rapidly deteriorating GCS with high likelihood of intracranial bleed, transport to Marin General Hospital

TREATMENT

- ALS RMC
- If patient meets criteria listed above:
 - Rapid transport to closest facility with operating CT scanner
 - Early Stroke Notification

DOCUMENTATION- ESSENTIAL ELEMENTS

- Criteria for Early Stroke Notification
- GCS
- History of intracranial hemorrhage
- Serious head injury within 2 months
- Seizure within 6 hours of last known normal
- Taking blood thinning medications (e.g. Warfarin/ Coumadin/Pradaxa/Plavix/Aggrenox)
- Improving neurological deficit

RELATED POLICIES/ PROCEDURES

- Destination Guidelines GPC 4
- Prehospital / Hospital Contact Policy 7001

Cincinnati Pre-Hospital Stroke Scale (CPSS)

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

PEDIATRIC RESPIRATORY DISTRESS

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Patient exhibits any of the following:
 - Wheezing
 - Stridor
 - Grunting
 - Nasal flaring
 - Apnea

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years; adolescent = >14 years

TREATMENT

- ALS RMC
- Position of comfort to maintain airway
- Allow parent to administer oxygen if possible
- Upper Airway/ Stridor:
 - If moderate to severe respiratory distress, **Epinephrine** 1:1,000 5 mg in 5 ml via nebulizer
- Lower Airway Obstruction/ Wheezing:
 - **Albuterol** 2.5 mg in 3 ml NS via HHN, mask, or bag-valve-mask; MR x 1
 - If response inadequate, **Epinephrine** 1:1,000 (0.01 mg/kg) IM, max. single dose 0.3 mg
- Foreign Body Obstruction:
 - Attempt to clear airway:
 - < 1 year: 5 back blows and 5 chest thrusts
 - > 1 year: 5 abdominal thrusts
 - Visualize larynx and remove foreign body with Magill forceps
- Respiratory failure/ apnea/ complete obstruction.
 - Attempt positive pressure ventilation via bag-valve-mask, if unable to ventilate, attempt intubation

SPECIAL CONSIDERATIONS

- Assess key history factors: recent hospitalizations, asthma, allergies, croup, and medication usage

PEDIATRIC ALLERGIC REACTION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Exposure to allergens causing airway, breathing and/or circulatory impairment

CRITICAL INFORMATION

- Treat according to length based color-coded resuscitation tape. Apply corresponding wrist band.
- Neonate = birth to four weeks; infant = four weeks to 1 year; child = 1-14 years; adolescent = >14 years
- Exposure to common allergens (stings, drugs, nuts, seafood, meds), prior allergic reactions
- Presence of respiratory symptoms (wheezing, stridor)

TREATMENT

- ALS RMC
- Mild (hives, rash)
 - **Benadryl** 1mg/kg IM (MR in 10 minutes; max. dose 50 mg)
- Moderate / Severe
 - **Epinephrine** IM (1:1000) 0.01mg/kg (MR in 15 minutes); max. dose 0.5 mg
 - **Benadryl** 1mg/kg IM/IV/IO (MR in 10 minutes; max. dose 50 mg)
 - **Albuterol** 2.5 mg/3 ml NS HHN if bronchospasms present; MR X1 if no improvement
 - If hypotensive, fluid challenge **NS** 20 ml/kg IV/IO, MR
 - If no palpable pulse or BP; **Epinephrine** IV/IO (1:10,000) 0.01mg/kg; MR q 3-5 minutes

SPECIAL CONSIDERATION

- **Glucagon** 0.03 mg/kg IM for patients on beta blockers to reverse blockage

DOCUMENTATION- ESSENTIAL ELEMENTS

- Allergen if known

AIRWAY OBSTRUCTION

ALWAYS USE BODY SUBSTANCE ISOLATION PRECAUTIONS

INDICATION

- Presence of upper respiratory infection, sore throat, fever, stridor or drooling
- Mechanical upper airway obstruction with history of food aspiration (especially if elderly)

CRITICAL INFORMATION

- Ability to speak
- Ability to manage secretions

TREATMENT

- ALS RMC
- Visualize airway
- Suspected mechanical upper airway obstruction; Conscious patient- able to speak:
 - Suctioning if needed to control secretions
 - Transport in position of comfort, avoid agitating patient
- Suspected mechanical upper airway obstruction; Conscious patient-unable to cough or speak:
 - Ask the patient if he/she is choking
 - Administer abdominal thrusts/Heimlich maneuver until the foreign body is expelled or the patient becomes unconscious
 - After obstruction is relieved, reassess airway, lung sounds, skin color and vital signs
- Unconscious patient:
 - Perform a tongue-jaw lift followed by finger sweep to remove object
 - Begin CPR
 - Prepare to use Magill forceps if BLS not effective
- Suspected epiglottitis
 - Transport in an upright sitting position
 - If patient deteriorates or the airway becomes completely obstructed, attempt positive pressure ventilation via BVM. Endotracheal intubation should be performed only if BVM is inadequate.

DOCUMENTATION- ESSENTIAL ELEMENTS

- Frequent pulse oximetry recordings