TRAUMA TRIAGE AND DESTINATION

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.

RELATED POLICIES
Service Area for Hospitals, #4603; Trauma Re-Triage, Adult and Pediatric, 4606A and 4606B; EMS Aircraft, #5100; Ambulance Diversion Policy, #5400; Destination Guidelines, GPC 4; Determination of Death, ATG 6; Multi-Casualty Incident, GPC 12

DEFINITIONS
A. **Designated Trauma Center** refers to an acute care facility holding designation as a Level I, Level II, Level III, or EDAT (Emergency Department Approved for Trauma). In Marin County, MarinHealth Medical Center is the designated Level III Trauma Center and Kaiser Permanente San Rafael Medical Center 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.

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 MarinHealth Medical Center Level III Trauma Center.

C. The following policy statements pertain to use of the Trauma Triage Tool (see 4613a):

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.

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.

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: Determination of death can be made prior to, or immediately after, initiating resuscitation if:
   a. a patient has sustained blunt, penetrating or profound multi-system trauma with asystole or PEA, OR
   b. In an MCI incident where (START) triage principles preclude initiation of CPR
D. Destination for Adult patients who meet Physiologic or Anatomic Criteria:
   1. Transport to time closest trauma center.
   2. If the estimated ground transport time to the closest trauma center exceeds 30 minutes, consider use of air ambulance.
      a. Estimated ground transport time is evaluated from the time the patient is packaged and ready for transport. Consider traffic conditions, weather, and other relevant factors.
      b. Estimated air transport time includes: minutes until arrival (if helicopter is not already on the ground); scene and load time of flight crew (typically 10 minutes); 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.

E. For adult patients meeting mechanism of injury or additional factors criteria, transport to MarinHealth Medical Center.

F. Destination for 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.

G. Incidents involving three or more patients meeting Physiologic or Anatomic Criteria will be handled in the following manner:
   1. Use of air ambulance should be considered.
   2. Prehospital providers shall consult with the Level III trauma center regarding destinations.
   3. Patients 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.
   4. If an incident is a Multi-Casualty Incident (MCI), prehospital providers will utilize the Multiple Patient Management Plan for destination guidelines. The term “Immediate Trauma Patient” will be used to describe an MCI patient that may need the services of a trauma center. The coordinating hospital should consider the capacity at the local and regional trauma centers when making destination decisions.

H. The EDAT will be used for patients meeting mechanism of injury or additional factors trauma criteria that Level III trauma center is unable to accept.
MARIN COUNTY TRAUMA TRIAGE TOOL  
Adult Patients (age 14 and older)  

**Uncontrolled Airway**  
Transport to closest Emergency Department  

**Assess for – Major Physiologic Factors**  

1. Glasgow Coma Scale ≤13 (attributed to traumatic head injury)  
2. Systolic blood pressure (mmHg) <90 mm Hg  
3. Respiratory rate <10 or >29 breaths per minute  

**Provide Trauma Notification & Transport to Time Closest Trauma Center:** MarinHealth Medical Center General Hospital by ground, or Level II by air.  

**Assess Anatomic Factors**  

1. Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee  
2. Flail chest  
3. Two or more proximal long-bone fractures  
4. Crushed, degloved, mangled or amputated extremity proximal to wrist or ankle  
5. Pelvic fractures  
6. Open or depressed skull fracture  
7. Paralysis (partial or complete)  
8. Burns with anatomic factors  

**Provide Trauma Notification & Transport to Time Closest Trauma Center:** MarinHealth Medical Center by ground, or Level II by air.  

**Assess Mechanism of Injury Factors**  

1. Falls  
   - Adults >20 feet (one story is equal to 10 feet)  
   - Children >10 feet or three times the height of the child  
2. High-risk auto crash and  
   - Passenger space intrusion >18” (>12” occupant site)  
   - Ejection (partial or complete) from automobile  
   - Death in same passenger compartment  
3. Auto vs. pedestrian or auto vs. bicyclist: thrown, run over, or with >20 mph impact  
4. Motorcycle or bicycle crash: thrown and > 20 mph impact  
5. Burns with MOI factors  

**Provide Trauma Notification & transport to MarinHealth Medical Center Level III Trauma Center**  

**Assess Additional Factors**  

Does assessment of additional factors (e.g. age > 65, anticoagulant use, antiplatelet use, bleeding disorders with head/torso injury, pregnancy >20 weeks, etc.) or other complaints or exam findings cause paramedic to be concerned about the patient?  

**Provide Trauma Notification & Transport to MarinHealth Medical Center Level III Trauma Center**  

**Transport to closest ED or ED of patient’s choice**
Marin County Trauma Triage Tool

Pediatric Patients (age < 14 yrs)

Uncontrolled Airway
Transport to closest Emergency Department

Assess for – Major Physiologic Factors

1. Glasgow Coma Scale ≤ 13 (attributed to traumatic head injury)
2. Systolic BP < 80 mm Hg – age 7-14
3. Systolic BP < 70 mm Hg – age < 7
4. RR < 20 in infants age less than one year, or requiring ventilatory support

Assess for – Major Anatomic Factors

1. Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee
2. Flail chest
3. Two or more proximal long-bone fractures
4. Crushed, degloved, mangled or amputated extremity proximal to wrist or ankle
5. Pelvic fractures
6. Open or depressed skull fracture
7. Paralysis (partial or complete)
8. Burns with anatomic factors

If positive A/P findings, Transport to Oakland Children's Hospital if ETA 30 min. or less, otherwise transport to MarinHealth Medical Center Level III Trauma Center and provide Trauma Notification

YES
If positive A/P findings, Transport to Oakland Children's Hospital if ETA 30 min. or less, otherwise transport to MarinHealth Medical Center Level III Trauma Center and provide Trauma Notification

NO
Follow assessment for MOI and Additional Factors on page 1 for Adult Trauma Patients

SPECIAL CONSIDERATIONS

1. The clinical findings, including past medical history, are critical to identifying the trauma patient, especially when assessing Mechanism of Injury (MOI) and Additional factors (AF).
2. A thorough clinical assessment is especially important in:
   - Patients with persistent & unexplained respiratory difficulty, tachycardia, or peripheral vaso-constriction;
   - Any patient < 5 yrs of age who has suffered major trauma but for whom it is not possible to fully determine physiologic status;
   - Inability to communicate (e.g., language barrier, substance or psychiatric impairment)
3. There are mechanisms of injury not identified in the Trauma Triage Tool that may be associated with trauma. Any fall or impact with significant velocity is likely to produce a candidate for trauma activation.

TRAUMA NOTIFICATION

Field personnel will advise the trauma center a minimum of 10 minutes prior to arrival (or as soon as possible if transport is < 10 minutes) by providing a Trauma Notification. This information will be used to activate the trauma team. Communication with the hospital via MERA is preferred. The notification must include at a minimum the following information:

1. Medic Unit and Transport Code
2. Trauma Notification
3. Age / Gender
4. M - Mechanism of Injury (e.g., MVA, fall, stab wound, gunshot wound)
5. I - Injury and/or complaints; significant injuries and findings
6. V - Vital Signs; blood pressure, pulse, respiratory rate, GCS
7. T – Treatment / interventions
8. ETA

Trauma Center consultation is recommended for questions about destinations for injured patients.

Reviewed: Jan 2020
## AIRWAY EQUIPMENT

### Airways:
- Oropharyngeal (Sizes 0 – 6) | 2 each | 1 each | 1 each | 2 each
- Nasopharyngeal, soft rubber (sizes 14Fr., 18Fr., 22Fr., 28Fr., 30Fr., 32Fr., 34Fr., 36Fr.) | 2 each | 1 each | 1 each | 2 each

### Atomizer for Intranasal Medication Administration (MAD device)
- 2 | 2 | 2 | 3

### King Airway
- Size 3 | 0 | 0 | 1 | 2
- Size 4 | 0 | 1 | 1 | 2
- Size 5 | 0 | 0 | 1 | 2

### Continuous Positive Airway Pressure Device
- 0 | 0 | (optional) | 1

### Intubation Equipment
- Laryngoscope handle (battery powered) | 0 | 1 | 1 | 1
- Additional batteries | 0 | 0 | 2 | 2
- Blades (curved 1 - 4) | 0 | 1 x #4 | 1 each | 1 each
- Blades (straight 0 – 4) | 0 | 1 x #4 | 1 each | 1 each
- Bulbs (extra or disposable) | 0 | 0 | 1 | 1
- Magill forceps (adult and pediatric) | 0 | 0 | 1 | 1 each
- Endotracheal tubes
  - sizes 6.0-8.0 mm: cuffed | 0 | Size 7.5 = 1 | 1 each | 2 each
- Disposable stylets (adult) | 0 | 1 | 1 | 2
- End-Tidal CO2 Detectors
  - Adult – Colormetric | 0 | 1 | 1 | 2
    - OR
    - Capnograph or digital (optional) | 0 | 0 | 1 | 1
- Esophageal Detector Device (optional if Capnometer is utilized) | 0 | 1 | 1 | 1
- Endotracheal Tube Introducer (ETTI) | 0 | 1 | 1 | 2
- ET Tube Holder (adult) | 0 | 0 | 1 | 2
- Videolaryngoscopy (adult) | 0 | 0 | optional | optional

### Nebulizer
- Hand-held OR Patient activated | 1 | 0 | 1 | 2
- In-line nebulizer equipment with T-piece | 0 | 0 | 1 | 2
### Oxygen Equipment and Supplies
- Fixed tank in vehicle with regulator; M-tank or H-tank: 1
- Regulator: 1
- Portable tank (minimum D tank): 0
- Adult face masks: transparent, non-rebreathing; Child/infant: simple or non-rebreathing: 4 each
- Nasal cannulas (adult, child, infant): 4 each
- Portable Pulse Oximetry: Optional

### Pleural Decompression Kit:
- Needle (≥14g, ≥3 inches long): 0
- Heimlich valve: 1
- Occlusive dressing: 1
- 10 ml syringe: 1

### Resuscitation Bag-valve-mask (BVM)
- Adult, pediatric, infant: 1 each

### Suction Equipment and Supplies
- Suction apparatus – Portable / battery powered: 1
- Suction apparatus – Wall Mount: 1
- Pharyngeal tonsil tip (rigid): 2
- Suction catheters: 6 Fr, 8 Fr, 10 Fr, 14 Fr, 16 Fr, 18 Fr: 2 each
- Suction canister (spares): 2
- Suction tubing: 2

### Dressing Materials
#### Bandages
- Bulk non-sterile: 1 box/pkg
- 4 x 4” sterile gauze pads: 12
- 10 x 30” universal dressings: 2
- ABD Pads: 6
- 40” triangular bandage with safety pins: 4
- Elastic bandage 3” (Ace): 2
- Occlusive dressing: 4
- Hemostatic dressings: optional
- Roller bandages (2”, 3”, 4”, or 6”): 6

#### Band-Aids (Assorted)
- 1 box

#### Burn Sheets (sterile) or commercial burn kit
- 2

#### Cold Packs / Hot Packs
- 4 ea

#### Cryothermic Ice Packs
- optional

#### Tape (1” and 2”)
- 2 each

#### Trauma Shears
- 1
<table>
<thead>
<tr>
<th>Item</th>
<th>BLS Transport</th>
<th>ALS Fireline/Tactical</th>
<th>ALS First Responder</th>
<th>ALS Transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol swabs</td>
<td>12</td>
<td>6</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Bedpan OR Fracture Pan/Covered Urinal</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Betadine swabs or solution</td>
<td>0</td>
<td>4</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Blanket - disposable</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Blood Pressure Cuffs (adult, large arm, thigh, pediatric, infant)</td>
<td>1 each</td>
<td>1 adult</td>
<td>1 x adult, thigh,</td>
<td>1 each</td>
</tr>
<tr>
<td>Bulb Syringe</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Drinking Water (one gallon)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Emesis basin/ disposable bag/ Covered waste container</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>EMS Field Manual Patient Care (8000) Series</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Glucometer</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Irrigation Equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Saline (sterile) 1000 ml</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Length based color-coded resuscitation tape (most current)</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Lubricant, water soluable</td>
<td>4</td>
<td>0</td>
<td>4 packs</td>
<td>4 packs</td>
</tr>
<tr>
<td>Mechanical CPR device</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Monitor/defibrillator equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>· Cardiac monitor – (portable) must have strip recorder, defibrillator/transcutaneous pacing ability for child / adult. May be biphasic or monophasic (biphasic preferred)</td>
<td>0</td>
<td>0</td>
<td>12-lead optional (pacing optional)</td>
<td>1</td>
</tr>
<tr>
<td>· ECG electrodes</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 box</td>
</tr>
<tr>
<td>· 12-lead ECG capability</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1 set</td>
</tr>
<tr>
<td>· A.E.D.</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>OB Delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separate and sterile kit includes: Towels, 4&quot; x 4&quot; dressing, umbilical tape or clamp, sterile scissors or other cutting utensil, bulb suction, sterile gloves, and blanket</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>· Thermal absorbent blanket and head cover, aluminum foil roll, or appropriate heat-reflective material (enough to cover newborn)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>· Appropriate heat source for ambulance compartment</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Pen Light</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Sharps container</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Sheet, pillow case, blanket, towel</td>
<td>4 each</td>
<td>0</td>
<td>0</td>
<td>4 each</td>
</tr>
<tr>
<td>Pillow</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2 or equivalent</td>
</tr>
<tr>
<td>Stethoscope</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Thermometer (with core temp capability)</td>
<td>Optional</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Tourniquet (CAT) and/or SWAT</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Triage tags</td>
<td>20</td>
<td>6</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Biohazard bags (large and small)</td>
<td>4 each</td>
<td>2 small</td>
<td>2 each</td>
<td>4 each</td>
</tr>
<tr>
<td>PPE kit (gloves, gown, booties, face shield, cap)</td>
<td>2 per person</td>
<td>0</td>
<td>1 per person</td>
<td>2 per person</td>
</tr>
<tr>
<td>Item</td>
<td>BLS Transport</td>
<td>ALS Fireline/ Tactical</td>
<td>ALS First Responder</td>
<td>ALS Transport</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------------</td>
<td>------------------------</td>
<td>---------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Disposable gloves S/M/L</td>
<td>Box</td>
<td>6 pair</td>
<td>Box</td>
<td>Box</td>
</tr>
<tr>
<td>Face protection mask – N95 or P100</td>
<td>2 pp</td>
<td>0</td>
<td>1 pp</td>
<td>2 pp</td>
</tr>
<tr>
<td>Stair chair or equivalent</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Scoop stretcher or breakaway flat</td>
<td>Optional</td>
<td>0</td>
<td>0</td>
<td>Optional</td>
</tr>
<tr>
<td>Road Flares or Equivalent (30 min)</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Flashlight</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Marin County Map</td>
<td>1</td>
<td>0</td>
<td>Optional</td>
<td>1</td>
</tr>
<tr>
<td>Vehicle Emergency Lights</td>
<td>Set</td>
<td>0</td>
<td>Optional</td>
<td>Set</td>
</tr>
<tr>
<td>MERA Radio</td>
<td>1</td>
<td>Optional</td>
<td>Optional</td>
<td>1</td>
</tr>
<tr>
<td>Company Radio</td>
<td>1</td>
<td>Optional</td>
<td>Optional</td>
<td>1</td>
</tr>
<tr>
<td>Spare Tire</td>
<td>1</td>
<td>0</td>
<td>Optional</td>
<td>1</td>
</tr>
<tr>
<td>Fire Extinguisher</td>
<td>1</td>
<td>0</td>
<td>Optional</td>
<td>1</td>
</tr>
<tr>
<td><strong>IMMOBILIZATION and RESTRAINT DEVICES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervical collars – adjustable Sizes to fit all patients over 1 yr old (adult/pedi)</td>
<td>4, 2</td>
<td>1</td>
<td>2, 1</td>
<td>4, 2</td>
</tr>
<tr>
<td>Head immobilization device</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Pediatric Ambulance Transportation Device</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Spinal immobilization (radiolucent) backboard</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>- Strap system, adult</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>- K.E.D. or equivalent</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Splints (vacuum/cardboard/equivalent)</td>
<td>2 each</td>
<td>1 moldable</td>
<td>1 each</td>
<td>2 each</td>
</tr>
<tr>
<td>- Short, medium, long</td>
<td>1 each</td>
<td>0</td>
<td>0</td>
<td>1 each</td>
</tr>
<tr>
<td>Traction splint, adult / pediatric</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Quick release synthetic soft restraints (or padded leather)</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>IV EQUIPMENT / SYRINGES / NEEDLES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arm board (Short)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Catheters – 1&quot; long</td>
<td>0</td>
<td>2 each</td>
<td>2 each</td>
<td>4 each</td>
</tr>
<tr>
<td>- 14g, 16g, 18g, 20g, 22g, 24g</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous Equipment – adult and pedi</td>
<td>0</td>
<td>0</td>
<td>optional</td>
<td>1</td>
</tr>
<tr>
<td>- IO needles and/or mechanical device</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Extra batteries if needed by model</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Intravenous Solutions - 0.9% NL Saline</td>
<td>0</td>
<td>1000 cc total</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>- 100 cc bag</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Glucose Paste, 15 gm/ tube</td>
<td>2 tubes</td>
<td>2 tubes</td>
<td>2 tubes</td>
<td>2 tubes</td>
</tr>
<tr>
<td>Pressure Infusion Bags</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>Saline Lock</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Extension set (saline lock)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>
### Syringes
- 1 cc TB with removable needle
- 3 cc with 25 g x 5/8" needle
- 10 cc without needle
- filter needle
- 30 cc without needle

### Constriction band

### Three way stop cock

### Tubing – with adjustable flow
- macro drip (10gtt/cc – 15gtt/cc adjustable)
- micro drip (60 micro gtts/cc)
- - vented (for Acetaminophen IV admin)

### MEDICATIONS AND SOLUTIONS

#### Acetaminophen (Tylenol/Ofirmev), 1000mg / 100ml

#### Adenosine, 6 mg in 2 ml NS

#### Amiodarone, 150 mg in 3 cc NS

#### ASA (chewable), 81 mg

#### Atropine, 1 mg in 10 ml

#### Atropine 8mg/20 ml (multi-dose)

#### Calcium Chloride 10%, 1 gm in 10 ml

#### Check and Inject Kit (EMS Agency approved providers only)

#### CYANOKIT (or hydroxocobalamin equivalent)

#### Dextrose 10%

#### Diphenhydramine, 50 mg/1ml

#### Duo-Dote (Nerve Gas Auto-injector)

#### Epinephrine 1 mg/1 ml (5 mg min)

#### Epinephrine 1 mg/10 ml

#### Glucagon, 1 mg

#### Ipratroprium (Atrovent), Unit Dose

#### Lidocaine 2% (20mg/ml)

#### Midazolam, 2 mg/2 ml

#### Midazolam, 5 mg/1 ml

#### Morphine Sulfate, 10 mg/1 ml

#### Naloxone (Narcan), 2 mg/ 5 ml

#### Narcan Nasal Spray

#### Nitroglycerine, 0.4mg /tablet or spray

#### Normal Saline, 3 ml (for HHN)

#### Ondansetron (Zofran) 4mg PO tablet

#### Ondansetron (Zofran) 4mg/2ml
<table>
<thead>
<tr>
<th>Sodium Bicarbonate, 50 mEq/ 50 ml</th>
<th>BLS Transport</th>
<th>ALS Fireline/ Tactical</th>
<th>ALS First Responder</th>
<th>ALS Transport</th>
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<tr>
<th>Sublimaze (Fentanyl), 100mcg/2 ml (*Fireline may substitute Fentanyl for Morphine)</th>
<th>BLS Transport</th>
<th>ALS Fireline/ Tactical</th>
<th>ALS First Responder</th>
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AMBULANCE DIVERSION POLICY

PURPOSE

To define the circumstances under which ambulance traffic may be diverted from the intended receiving facility.

RELATED POLICIES

A. Trauma Triage and Destination, #4613
B. Destination Guidelines, GPC 04

AUTHORITY

"In the absence of decisive factors to the contrary, ambulance drivers shall transport emergency patients to the most accessible emergency medical facility equipped, staffed, and prepared to administer care appropriate to the needs of the patient." California Administrative Code, Title 13, Section 1105 (c).

DEFINITIONS

A. Full diversion means a rerouting of all ambulance traffic.
B. Condition specific diversion may occur when a normally available service, procedure or piece of equipment is temporarily unavailable and results in the rerouting of specific patients, dependent on the reason for diversion. Condition specific diversion may include the following:

1. CT Scanner Inoperable
2. Neurosurgeon Not Available
3. Trauma Center Diversion
4. Emergency Department (ED) Saturation
5. Cath Lab Diversion

POLICY

A. Each receiving hospital shall establish an internal hospital plan, approved by and on file with the EMS Agency. The plan shall include, but not be limited to the following:

1. Definitions and standards for activation which are consistent with this policy/procedure.
2. Identification of the internal approval process, including persons or positions that must be involved in the decision-making process.
3. Mechanisms for notification, on-going monitoring, removal from diversion status; identification and activation of backup ED and ICU physical space per state licensing guidelines; call-in mechanism for additional staff; identification of patients who can be safely transferred within the facility; internal review of the diversion and reporting to the EMS Agency.

B. Full diversion may occur only if the receiving emergency department is incapacitated by a physical plant breakdown (i.e., fire, bomb threat, power outage, etc.) which renders patient care unsafe. In the event of a full diversion, **all patients will be rerouted to other facilities** as appropriate.

C. The need to institute a Condition Specific Diversion is determined per each facility's plan, consistent with the following:

1. The following patients may not be rerouted:
   a. Obstetrical patients in active labor
   b. Patients with respiratory distress and unmanageable airway
   c. Patients with uncontrolled external hemorrhage
   d. Patients requiring ALS, but having no paramedic in attendance
   e. Patients with CPR in progress (unless transporting to the nearest STEMI Receiving Center for patients in refractory VF)
   f. Stable patients who insist on transport to a specific hospital. Ambulance personnel will inform the patient of the diversion status and document that the patient refused transport to an alternate facility.
   g. Destinations of all other patients will be determined in accordance with the type of diversion.

2. CT Scanner Inoperable:
   a. Patients who meet Physiologic and/or Anatomic Trauma Triage Criteria with signs and symptoms of head, neck or spinal cord injury will be transported to Level II Trauma Center; if conditions preclude air transport consult with MarinHealth Medical Center Level III Trauma Center.
   b. Patients who meet Mechanism of Injury and/or Additional Factors will be transported to Kaiser Permanente San Rafael EDAT.
   c. Patients with the following get transported to closest facility with functioning CT scanner:
      1. Signs or symptoms of a new CVA
      2. Head injury patients not meeting trauma criteria with anticoagulant use and/or bleeding disorders

3. Neurosurgeon Not Available:
   a. Patients with signs and symptoms of head, neck or spinal cord trauma: transport to Level II Trauma Center; if conditions preclude air transport consult Level III Trauma Center (MarinHealth Medical Center).
   b. Patients with signs and symptoms of CVA and/or medical conditions that may require neurosurgical intervention: transport to the closest appropriate facility in Marin County with a functioning CT scanner for initial evaluation and stabilization. Transfer, if indicated, is the responsibility of the hospital, including the maintenance of formal transfer agreements with other facilities.
4. Trauma Center Diversion:
   a. Trauma patients will be diverted from the trauma center when the trauma surgeon and back-up trauma surgeon are encumbered with the care of trauma patients either in the operating room or emergency department.
   b. Patients who meet Physiologic and/or Anatomic Trauma Triage Criteria shall be transported to the time-closest Level I or Level II Trauma Center by air or ground.
   c. Patients who meet “Mechanism of Injury” and/or “Additional Factors” Trauma Triage Criteria shall be transported to the EDAT.
   d. The following conditions DO NOT constitute acceptable grounds for Trauma Center Diversion:
      1) A lack of clinical specialty backup, inpatient bed space, monitored beds, or inpatient nursing staff.
      2) ED Saturation Diversion
      3) Inoperable CT Scanner (see section C.2.)

5. ED Saturation Diversion:
   a. Ambulance traffic may be diverted due to emergency department saturation when emergency department resources are fully committed and unable to accept incoming ambulance traffic.
   b. Trauma, STEMI, suspected CVA and OB patients > 20 weeks (with a pregnancy related complaint) or those OB patients 0-6 weeks post-partem patients will NOT be rerouted.
   c. Under this policy, ED Saturation Diversion can occur up to four hours a day, two hours maximum at a time, and separated by a minimum of four hours.
   d. At the beginning and end of any diversion period, a hospital must update ReddiNet.
   e. Under no circumstance is lack of in-patient hospital beds, other than in the emergency department, grounds for diversion. Hospitals are expected to accept ALL ambulance patients and to provide emergency stabilization and appropriate transfer if necessary.
   f. In all cases of diversion, senior management or designee must be notified and must approve activation of the diversion status.

6. Cath Lab Diversion
   a. STEMI ambulance traffic will be diverted when a STEMI Receiving Center cath lab is unavailable because of physical plant or mechanical problems.
   b. Cath lab diversion will not be declared when the cath lab is encumbered by routine medical care.

D. If more than two receiving hospitals within Marin County meet their internal plan criteria and wish to activate diversion status at the same time, diversion status for all will be discontinued upon direction of the EMS Agency.
E. Initiating and terminating diversion status

1. Initiating diversion

   a. The facility shall implement the internal surge plan prior to initiating diversion status. The request to initiate status must be approved by senior management.
   
b. The facility shall update ReddiNet immediately to indicate their status as being on diversion.
   
c. Dispatch centers (public and private) shall monitor ReddiNet to inform providers of the hospital diversion status.

2. Termination of diversion

   a. Diversion status will be terminated as soon as possible or within two hours of initiation, whichever comes first.
   
b. Diversion status is terminated when the hospital updates their status in ReddiNet to indicate that they are no longer on diversion or two hours from initiation has passed.
   
c. Dispatch centers (public and private) shall monitor ReddiNet to inform providers of the hospital diversion status.

3. The Communications Center shall notify the EMS Agency of changes in diversion status.

4. EMS Agency staff is available to assist with solving system-related problems and can be reached by contacting the Communications Center.

5. The EMS Agency will track the frequency and duration of diversion, making periodic reports to system participants.

6. Any problems associated with patient care, such as delays in transfer of care or patient safety, shall be submitted to the EMS agency by either prehospital service provider or receiving facility, as applicable, per the Event Reporting Policy #2010.
HOSPITAL REPORT/CONSULT

PURPOSE
To provide guidelines for contact between prehospital care personnel and receiving facilities.

RELATED POLICIES
Trauma Triage and Destination Guidelines, #4613; Communication Failure, #7002; EMS Communication System, #7004; BLS Treatment Guidelines; Multiple Patient Management Plan (MPMP); STEMI C9; CVA/Stroke N4; Sepsis M6

DEFINITIONS
A. Report Only - a notification to the receiving facility that a patient is enroute.
B. Notification – a communication meant to alert hospital staff that a specialty care patient is enroute. Notifications include:
   1. Trauma Notification
   2. Stroke Notification
   3. STEMI Notification
   4. Sepsis Notification
C. Physician Consult - a consultative discussion between field personnel and an ED physician.

POLICY
A. Report Only
   1. Shall occur anytime a prehospital unit transports a patient.
   2. May be performed by any prehospital personnel.
   3. Reports shall include the following:
      a. Transport unit identification
      b. Level of care being provided (ALS or BLS)
      c. Estimated time of arrival to receiving facility
      d. Level of transport (code 2 or 3)
      e. General category of patient (type of illness or injury) or treatment guideline being used for an ALS patient.
      f. Condition of patient (stable, improving or worsening)
B. Notification (Trauma/Stroke/STEMI/Sepsis)
   1. Field personnel will advise the receiving center a minimum of ten minutes prior to arrival (or as soon as possible if transport is less than ten minutes).
   2. Is required when patient meets notification criteria.
   3. Notifications shall include the following:
      a. Unit and transport code
      b. Notification type (e.g., Trauma, Stroke, STEMI, Sepsis)
      c. Age/Gender
d. Pertinent findings for the specific notification (see related protocol)
e. ETA

C. Physician Consult
   1. Shall occur when specified in an ALS or BLS Treatment Protocols.
   2. Trauma Center consultation is recommended for questions about the destinations for injured patients. Consult shall be made with MarinHealth Medical Center Level III Trauma Center.
   3. Physician Consult communication shall include the following:
      a. The need for physician consultation.
      b. Patient assessment information as appropriate.
      c. Policy or procedure being followed which mandates physician consult or order.

D. If attempts to contact for any of the reasons above and unable to contact the intended receiving facility, personnel may contact another in-county hospital. If no facility can be contacted, the following should occur:
   1. Treatment should be administered according to the appropriate ALS or BLS treatment protocol.
   2. Medications or treatments listed as “physician consult required” may not be administered or performed.
   3. Documentation of the communications failure should be completed as detailed in policy #7002, Communication Failure.

E. In the event of a declared multiple patient incident, paramedics may operate according to the MPMP omitting contact or hospital consultation.
RADIO COMMUNICATION POLICY

PURPOSE
To provide guidance for the use of the MERA radio system

RELATED POLICIES
Communications Failure, #7002; Marin Emergency Radio Authority (MERA) Mutual Aid and Communications Policy

POLICY
A. Available Communications Resources
   1. MERA Policy: Users should refer to the MERA Communications Policy for general directions for the use of the MERA system.
   2. Templates: Users should refer to their Agency Templates or Fleetmap for the locations of specific talkgroups on their console, back-up control stations, mobile and portable radios. The Templates also contain the correct name (alias) for that talkgroup.
   3. Permissions: Users shall only use talkgroups that have been assigned for their use. Users may use talkgroups that are assigned for temporary use by a Marin communications center or incident commander “I.C.”. Before users can use any talkgroup (other than those stated above) provided by another agency they must have a written agreement with that agency.
   4. MERA Radio System: Field units can communicate directly to the hospital using the designated talkgroups on their mobile or portable MERA radio. On all EMS/ Fire radios, Zone A contains the EMS talkgroups; “mode” channels contain the following aliases or talkgroup names:
      a. EMS is to communicate with the County EMS Dispatcher
      b. HOSP is the MERA “All Hospital” talkgroup for large-scale incidents
      c. MGH 1 is for MarinHealth Medical Center “MARIN REPORT”
      d. MGH 2 is for MarinHealth Medical Center “MARIN CONSULT”
      e. KSR 1 is for Kaiser San Rafael Hospital “KAISER REPORT”
      f. KSR 2 is for Kaiser San Rafael Hospital “KAISER CONSULT”
      g. NCH 1 is for Novato Community Hospital “NOVATO REPORT”
      h. NCH 2 is for Novato Community Hospital “NOVATO CONSULT”
      i. EMS 10 is for EMS tactical operations and shall be assigned by the IC or Comm. Center
      j. LG CLL is for hailing a local government agency or units. Once contact is made, then go to LG TLK
      k. LG TLK is for conversations with local government agencies
      l. PD CLL is for hailing law enforcement units. Once contact is made go to PD TLK
      m. PD TLK is for conversations with law enforcement
      n. 911 is for emergency communications with a communications center
6. **Paging**: The field units will be responsible to set the Page function on their radio for initial contact with the hospitals. Other units may be using the channel at the same time, please listen for broadcast traffic before beginning your transmission. A page may not be needed if the receiving hospital radio is staffed due to other broadcast traffic.

7. **Initiating Communications**: When making initial contact with a communications center, unit or hospital you should state the name of the entity you are calling first, then your identifier followed by the “alias” of the talkgroup you are on, i.e. “Marin Comm., Medic-1 on EMS Dispatch” or “MarinHealth Medical Center, Medic-1 on Consult.”

8. **Consult**: “Consult” talkgroups shall be used for physician consults and policy required consultations.

9. **Report**: “Report” talkgroups shall be used for routine hospital reports.

10. **Hosp**: The “All Hospital” talkgroup shall be used for hospital communications during large scale incidents or other urgent communications that may require multiple hospitals to share information simultaneously and during failures of normal communications systems.

11. **Emergency Button Activations**: Emergency Button Activations are authorized when an EMS Field Unit needs urgent or emergency assistance. It is not to be used for routine assistance requests. Field Units should expect an emergency response from other public safety units following an Emergency Button Activation. Please see the MERA Communications Policy for further information. Due to the system configuration the Emergency Buttons are not active for private EMS providers or hospitals.

12. **Hospital Systems**: Marin County hospitals are equipped with three radios. Console set 1 is for hospital reports and is labeled with the initials of the hospital -1, i.e. MGH 1. Console set 2 is for hospital consults and is labeled with the initials of the hospital -2, i.e. MGH 2. Console set 3 is for the all hospital talkgroup and is labeled HOSP this consol should be left on this talkgroup at all times. Console 3 is also able to receive and transmit on other talkgroups; hospitals should review their Templates and Trouble Shooting Guide for use of other talkgroups if urgent communications are required, i.e. using the 911 channel to request law enforcement during an emergency and no other forms of communication are available.

13. **ALS / BLS Use**: ALS and BLS users should both use the system in the same manner for hospital consultations, reports and multiple casualty incident activities.

14. **Cellular telephone service**: Field units can use the cellular telephone to communicate directly with the hospital emergency department. Cell phones should be a second choice during MCI operations due to the loss of information to other units involved in the incident.

15. **Contact an alternative hospital**: If contact cannot be made with the receiving hospital field units may contact an alternative hospital via the listed methods and request the information be relayed to the appropriate hospital by telephone.

16. **If contact cannot be established**: If contact cannot be established with any hospital emergency department, the Paramedic shall rely on the EMS Policy “Communication Failure #7002”.

17. Any major system failure should be reported to the Marin Communications Center and the Marin County Radio Shop. Hospitals should consult their Trouble Shooting Guide before calling for outside assistance; requests for repairs should be made by an authorized employee of the hospital or agency.
PATIENT CARE RECORD (PCR)

I. PURPOSE
To establish requirements for completion, reporting, and submission of Marin County approved Patient Care Records.

II. RELATED POLICIES
ALS to BLS Transfer of Care, ATG 4
Against Medical Advise (AMA), GPC 2
Release at Scene (RAS), GPC 3
Trauma Re-Triage, 4606 A & B

III. DEFINITIONS
A. Patient – someone who meets any one of the following criteria:
   1. Has a chief complaint or has made a request for medical assistance
   2. Has obvious symptoms or signs of injury or illness
   3. Has been involved in an event when mechanism of injury would cause the responder to reasonably believe that an injury may be present
   4. Appears to be disoriented or to have impaired psychiatric function
   5. Has evidence of suicidal intent
   6. Is dead
B. Emergency Medical (EM) Number – a number assigned by the Marin County Communication Center to identify each 9-1-1 call dispatched for medical assistance.
C. Incident Number – The “F” number assigned to an incident.
D. Electronic Patient Care Record (ePCR) - the permanent record of prehospital patient evaluation, care, and treatment.
E. Field Transfer Form (FTF) – a temporary, paper record of patient care used only when ePCR is unavailable
F. Quicksheet – A single section within Elite Field that streamlines data entry.
G. Short Form – A printed report, typically received via fax at the ED containing a minimum set of data elements from the ePCR.
H. Posting – the process of uploading the ePCR from Elite Field to the ImageTrend server. The first time a record is posted, a fax will be sent to the ED. Each post to an out of county facility will result in a fax.
I. Completed PCR – the PCR is considered complete when it has been posted and locked.
J. Triage Tag – a paper record for multi-casualty incidents involving 6 or more patients

IV. POLICY
A. An ePCR shall be completed for every call for which an EM is issued.
B. For all transported patients:
   1. To ensure an informed continuum of care for all patients transported to the hospital, field personnel will post the ePCR no later than 10 minutes prior to ED arrival. If short ETAs preclude posting before arrival, the ePCR must be posted as soon as possible upon arrival. Immediate patient care needs shall take precedence over posting.
   2. Once posted, hospital personnel can retrieve ePCR information from the ImageTrend Elite Viewer or secure the short form that is automatically faxed to
their facility. If this patient information is not available, hospital personnel will notify field personnel. In no event shall field personnel leave the ED if the short form or posted patient information or similar document (e.g. FTF or locally printed short form) is not available. The transfer of care will include a verbal report to hospital clinical staff.

3. When available, posted information shall contain at a minimum:
   • patient name
   • patient address
   • patient telephone number
   • date of birth
   • chief complaint
   • contact information of the best medical historian
   • medical decision maker (when not the patient)
   • pertinent findings on physical exam
   • last known well (if applicable)
   • vital signs
   • medications
   • allergies
   • presence of advanced directive/DNR
   • medications administered
   • procedures performed
   • Kaiser / insurance number

4. A paper FTF shall only be used as a backup during system downtime, equipment failures, loss of internet connectivity, while on a fire line assignment, or any incident/situation where personnel do not have the ability to capture and post data via ImageTrend.

5. If the ePCR system precludes the transfer of information to the hospital and a compatible printer is available, the ePCR should be printed locally.

6. Data gathering and documentation responsibilities should never take precedence over hands-on rescue and patient care and therefore may not always be possible to compete during an incident. Nevertheless,prehospital information, particularly for critical patients, is essential for the emergency department and hospital course of care and every effort to obtain the information should be made.

7. A completed ePCR must be available to the receiving facility within 20 minutes of transferring care. If this is not possible (e.g. unit must leave for another call), then a complete and legible short form or posted ePCR must be available to hospital staff prior to leaving the ED. When this occurs, an ePCR must be completed and available to the facility as soon as possible and no later than 3 hours after the transfer of care.

8. Notification patients (e.g. sepsis, stroke, STEMI, trauma) or critical patients (e.g. cardiac arrest and/or airway emergency) require a completed ePCR before field personnel leave the hospital with the exception being for a rapid re-triage patient that utilizes the same transport unit.

9. For all patients transported, the ePCR will be completed by the personnel assigned to the transport unit.
C. For non-transported patients (e.g. AMA, RAS, Dead on Scene), the ePCR will be completed as soon as possible and no later than three hours by the paramedic or EMT most involved in patient care and responsible for the patient’s disposition.

D. For calls where there is no medical merit, the unit that completes the ePCR will be determined according to provider agency policy.

E. The ePCR is the permanent PCR and will be filled out in a complete manner and will include all care provided in the prehospital setting. When possible, it shall include all 12 lead ECGs and any ECG other than normal sinus rhythm. When possible, pertinent photographs from the scene should be attached to the ePCR (e.g. vehicle damage).

F. The completed PCR includes all care rendered by the transporting providers as well as any care given prior to arrival of the transporting unit by bystanders and/or first responders. Documentation of care provided by first responders (of a different agency than the transport unit) may be required by their department policy.

G. For air ambulance transportations, a FTF will be given to the receiving provider.

H. Personnel assigned outside of the county to provide medical mutual aid (e.g. fire-line EMT/Paramedic, cover engine assignment), shall complete a FTF for each patient contact. The FTF will be created on site and retained by the provider agency.

I. Willful omission, misuse, tampering, or falsification of documentation of patient care records is a violation under Section 1978.200 of the California Health and Safety Code.

V. GENERAL INSTRUCTIONS
A. The patient care record is part of the patient’s permanent medical record and is used for, but not limited to, the following purposes:
   1. Transfer of information to other healthcare providers
   2. Medical legal documentation
   3. Billing for services
   4. Development of aggregate data reports for Continuous Quality Improvement (CQI), including specific quality indicators and identification of educational needs
   5. EMS Agency case investigation

B. Reference to a Marin County EMS Event Form or similar record should not be included on the patient care record.

C. If ALS to BLS transfer of care is determined to be appropriate, documentation of assessments and all care rendered must be completed by both the ALS and the BLS units according to policy ATG 4.

D. Provider agencies are responsible for training their employees in the initiation, completion, distribution of patient care records, HIPAA and any accompanying forms based on the EMS Agency’s currently approved training curriculum.

VI. DOCUMENTATION REQUIREMENTS
A. When reasonably possible, complete demographic information should be included in the PCR.

B. A clear history of the present illness with chief complaint, onset time, associated complaints, pertinent negatives, mechanism of injury, etc. The information should accurately reflect the patient’s chief complaint as stated by the patient and should be sufficient to refresh the clinical situation after it has faded from memory.

C. An appropriate physical assessment that includes all relevant portions of a head-to-toe physical exam.

D. Check and document at least two complete set of vital signs (VS) for every patient including pulse, respirations, blood pressure and pulse oximetry. Repeat and document
VS every five minutes for emergent patients and every 15 minutes for non-emergent patients (e.g. BLS patients). When required by policy, a temperature should also be documented at least once in the VS section. For children ≤ three (3) years of age, blood pressure does not need to be documented unless the child is critically ill in whom blood pressure measurement may guide treatment decisions.

E. A pain scale shall be documented for all patients ≥ six (6) months who have a GCS of > 14.

F. All pediatric patients being treated and transported by ALS will be measured with a color-coded resuscitation tape. The corresponding colored wrist band will be applied, and the patient will be treated according to the Pediatric Dosing Guide (P18A).

G. Only approved medical abbreviations may be used – see 7006b.

H. All pertinent medications taken by the patient prior and/or administered by a first responder (e.g. erectile dysfunction medications, aspirin, medications used for OD, Narcan, etc.) should be documented if known.

I. The CAD to PCR interface should be used to populate all PCR data fields it supplies. Imported data may be manually corrected as needed.

J. When the cardiac monitor is applied, data will be transferred to the PCR from the device. If transferred automated VS do not correlate with manually obtained values, or are not consistent with the patient’s clinical condition, providers should manually check VS and record manual results.

K. All 12-lead ECGs must be imported. Any significant rhythm changes should be documented. For cardiac arrests the initial strip, ending strip, pre and post defibrillation, and pacing attempts, should be attached.

L. For drug administrations, the drug dosage, route, administration time and response shall be documented.

M. Treatments should be documented in chronological order. Response to treatment shall also be documented.

N. For patients with extremity injury, neurovascular status must be noted before and after immobilization.

O. For patient with spinal motion restriction, document motor function before and after motions restriction.

P. For IV administration, document catheter placement, catheter size, number of attempts, and flow rate if applicable.

Q. Any Physician Consult request and response will be documented.

R. All personnel information, including signatures, will be documented.

S. All crew members are responsible for accuracy of the content of the PCR.
PELVIC BINDER APPLICATION PROCEDURE
ALWAYS USE STANDARD PRECAUTIONS

INDICATION
- High risk mechanism of injury (e.g. falls, crush, MVA/MVC, auto vs ped) AND one of the following:
  - Pelvic instability noted on physical assessment
  - Lower back, hip, or groin pain
- The intention of application is to reduce potential life-threatening bleeding and provide stability for a suspected pelvic fracture.

CONTRAINDICATION
- Pediatric patients

EQUIPMENT
- Commercial pelvic binder (e.g. SAM Pelvic Sling II)

PROCEDURE
- Commercial pelvic binder: slide under the supine patient and apply according to manufacturer’s recommendations

DOCUMENTATION- ESSENTIAL ELEMENTS
- Date and time pelvic binder application applied
- Assessment findings including vital signs
NEEDLE THORACOSTOMY/ PLEURAL DECOMPRESSION PROCEDURE
ALWAYS USE STANDARD PRECAUTIONS

INDICATION
- To relieve tension pneumothorax as indicated by a combination of the following:
  - Severe dyspnea and/or difficulty with ventilation, especially with an intubated patient
  - ALOC and/or agitation
  - Absent or unequal breath sounds on affected side
  - Signs of shock
  - Neck vein distention
  - Paradoxical movement of the chest
  - Hyper resonance to percussion on the affected side
  - Tracheal shift away from the affected side

EQUIPMENT
- 14 gauge or larger needle ≥ 3 inches
- Heimlich or other one-way valve
- 10 ml syringe

PROCEDURE
- Choose appropriate site on the affected side:
  - If patient head is elevated, locate the second intercostal space, mid-clavicular line
  - If patient is flat, locate the 4th or 5th intercostal space, midaxillary line
- Prepare site with Betadine
- Attach the large gauge IV needle to a large syringe.
- With patient exhaling, introduce the needle at a 90-degree angle, just over the rib at the selected site.
- Advancing slightly superior to the rib, continue until lack of resistance or a “pop” is felt as the needle enters the pleural space.
- If the air and/or blood returns under pressure or is easily aspirated, continue to advance the catheter superiorly and remove the needle.
- When no further air escapes, attach a one-way valve.
- Secure the catheter with the valve in a dependent position.
- Reassess patient
DESTINATION GUIDELINES
ALWAYS USE STANDARD PRECAUTIONS

INDICATION
- To identify destination choices and appropriate facilities for patients in Marin County

PAYPHICIAN CONSULT
- Patient requests transport to a facility not capable of providing specific care for their needs

CRITICAL INFORMATION
- Destination choices:
  - The destination for patients shall be based upon several factors including, but not limited to the clinical capabilities of the receiving hospital, the patient’s condition, and paramedic discretion.
  - When the patient’s condition is unstable or life threatening, the patient should be transported to the time closest receiving facility:
    - Patients with unmanageable airway
    - Uncontrolled external hemorrhage
    - CPR in progress (unless transporting to SRC for rVF)
    - Patients requiring ALS but having no paramedic in attendance
  - The following factors will be considered in determining patient destination:
    - Patient condition
    - Clinical capabilities of the receiving hospital
    - Paramedic discretion
    - Patient/family request
    - Patient’s physician request or preference
  - Patients with return of spontaneous circulation post cardiac arrest will be transported to the nearest STEMI Receiving Center.
  - Burn patients, without other trauma mechanism, shall be transported by ground ambulance to the time closest emergency department.
  - Patients with psychiatric complaints will be transported to their preferred facility or the closest emergency department, unless specialty care (trauma, STEMI, stroke, pregnancy) is warranted
  - Ventricular Assist Device patients: If patient is stable and complaint not related to VAD, transport per above guidelines. If VAD related: The patient may need to bypass local facilities and go to VAD center. If concerned about patient stability, refer to guidelines and request physician consult.
  - Prior to arrival, prehospital personnel must notify the receiving facility of any patient with a known history of violence, or behavior which may pose a risk to staff (disruptive, uncooperative, aggressive, unpredictable).

Marin County receiving facilities/LEMSA Designations:
- **MarinHealth Medical Center** - Level III Trauma Center- Greenbrae
  - Neurological Emergencies- sudden, witnessed onset of coma or rapidly deteriorating GCS with high likelihood of intracranial bleed
  - Pregnant patients - 20 weeks or > with a complaint related to pregnancy
  - STEMI Receiving Center (SRC)
  - Primary Stroke Center
  - Advanced Pediatric Receiving Center (PedRC)
- **Kaiser Permanente Medical Center San Rafael** - Emergency Department Approved for Trauma (EDAT) - Terra Linda
  - STEMI Receiving Center (SRC)
  - Primary Stroke Center
  - General Pediatric Receiving Center (PedRC)
- **Novato Community Hospital** - Basic level receiving facility – Novato
  - Primary Stroke Center
RELATED POLICIES/PROCEDURES

- Trauma Triage & Destination Guidelines Policy 4613
- STEMI Policy C 9
- Ambulance Diversion Policy 5400
- Adult and Pediatric Sexual Assault GPC 10 and P M5
- Cerebrovascular Accident (Stroke) N 4
- Burns  E4 and P E1
- Ventricular Assist Device ATG 8
INTERFACILITY TRANSFER PROCEDURE

INDICATION

Interfacility transfer of patients from Marin County healthcare facilities

PROCEDURE

Transporting personnel will operate under the medical direction of the transferring physician in compliance with the County of Marin, State, and Federal laws, through direct contact or standing orders, in a safe and timely manner and as permitted by their scope of practice.

The transferring facility will have confirmed acceptance by receiving facility prior to the transferring unit transferring the patient. The transferring unit must receive an appropriate patient status report from the transferring physician and/or RN. If transferring personnel do not agree with or are unable to provide the level of care requested, they will confer with the transferring physician to assure the appropriate level of care during transfer.

The transferring physician will provide the following information:

- Patient name
- Diagnosis/ level of acuity
- Isolation precautions
- Destination
- Transfer date and time
- Accepting unit
- Accepting physician
- Special equipment with patient
- Orders for specific treatments to be conducted in transport and contact information for the transferring physician
- Additional personnel attending patient or required for transport
- Pertinent medical records
- Insurance information, if available
- Contact information for family/designated decision maker

The following communication is required by each transporting unit:

For patients being transported to receiving hospital emergency departments:

- Ringdown report and early notifications as required based on patient condition.

For patients transported to other hospital departments or facilities:

- Patient remains stable without change in status - no communication necessary
- Patient unstable or change in status - contact transferring or another specified physician; if unavailable, request another physician in that facility or contact Marin County online medical control.

In addition to the procedures described elsewhere in Marin County EMS protocols, upon completion of proper training and with provider agency medical director approval, specified personnel may perform the following procedures on interfacility transports under the direction of the transferring physician:

**EMT:**
1) Monitor intravenous lines delivering glucose solutions or isotonic balanced salt solutions including Ringer's Lactate. Monitor, maintain, and adjust if necessary, in order to maintain, a preset rate of flow and turn off the flow of intravenous fluid
2) Transfer patients who have nasogastric (NG) tubes, gastrostomy tubes, heparin locks, foley catheters, tracheostomy tubes with or without simple oxygen masks and humidification, wound-vac devices, Jackson-Pratt drains, clamped PleurX drains, and/or indwelling vascular access lines, excluding arterial lines
3) Transfer patients with completely patient-controlled devices including CPAP/BiPAP, medication pumps, etc. requiring no monitoring or adjustment

**Paramedic:**
1) Monitor and adjust intravenous fluids containing potassium ≤40 mEq/L
2) Monitor thoracostomy tubes
3) Perform suctioning of patients not on mechanical ventilators with stomal intubation
4) Monitor patients with nitroglycerine paste initiated prior to transportation

Additional clarification on level of service in **Appendix A**

**SPECIAL CONSIDERATION**

- Medical emergencies which are immediately life-threatening events (cardiac arrest, new stroke symptoms, uncontrolled hemorrhage, etc.) should utilize zone provider/911 resources
- In the event ALS interventions are required beyond the orders of the sending physician, paramedic caregivers shall follow patient care protocols and request an EM number from Sheriff's County Communications and a Marin County Patient Care Record as specified in 7006 must be completed.
For emergent transfers with CCT service requirements, when no provider is able to fulfill transfer request within the required ETA and further delay would cause significant risk of increased morbidity or mortality, under the direction of the transferring physician a facility caregiver (RN, NP, PA, or physician; RT if continuous respiratory assistance is required) may attend to patient during transport utilizing the highest level ambulance available as a last resort.

- All transporting team members shall provide care within their own scope of practice with ultimate responsibility for patient care in transport held by the orders of the transferring physician.
- All advanced monitoring equipment or medications anticipated to be required during transport which are not already present in the ambulance inventory must be brought with the caregiver.
- An EMS Event Form must be completed following any such transport.

DOCUMENTATION - ESSENTIAL ELEMENTS

- Patient Care Records as specified in 7006 must be completed by ambulance personnel.
- Interfacility transfers with hospital contact will be reviewed by hospitals receiving the calls.
- Statistics on total numbers of ALS level transfer calls per month will be maintained by each provider and submitted to the EMS Agency on request (transfers with Paramedic, RN and/or MD).
- Training records for procedures authorized in this policy shall be maintained by participating agencies.
- An EMS Event Form must be completed for any transport utilizing non-permitted ambulances, non-certified EMS providers or utilizing sending facility personnel as caregivers.
Appendix A
Guideline for determining level of service

<table>
<thead>
<tr>
<th>Condition</th>
<th>BLS</th>
<th>ALS</th>
<th>CCT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen by mask or cannula</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV fluids running (Normal Saline, Lactated Ringers, Dextrose)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confused/disoriented but stable LOC</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Patient-controlled devices (medication pump, CPAP/BiPAP)</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracheostomy not requiring suctioning</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central IV line, clamped</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical devices including nasogastric (NG) tubes, gastrostomy tubes,</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>heparin locks, Foley catheters, tracheostomy tubes with or without simple</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>oxygen masks and humidification, wound-vac devices, Jackson-Pratt drains,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>clamped PleurX drains, and/or indwelling vascular access lines, excluding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>arterial lines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tracheostomy requiring suctioning</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Pre-established IV containing potassium or nitroglycerin paste</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Cardiac/pulse oximetry/capnography monitoring</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Monitoring thoracostomy tubes</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Medications in paramedic scope</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Paramedic level interventions</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Continuous respiratory assistance/mechanically vented</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Medications outside paramedic scope or mechanical IV pump</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Invasive monitoring including IABP, ICP, CVP, or PA lines</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Arterial line in place</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Blood or blood products</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Medical devices not managed by patient outside paramedic scope</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
HOSPITAL DIVERSION QUICK REFERENCE

FULL DIVERSION
Closed to ALL ambulance traffic

CONDITION-SPECIFIC DIVERSIONS
Regarding the condition-specific diversions below, the following patients may not be diverted:

- Hemodynamic instability
- Active labor
- Respiratory distress and unmanageable airway
- Uncontrolled external bleeding
- BLS unit with patient requiring ALS treatment
- CPR in progress (rVF: transport to nearest available SRC)
- Patients who request transport to a specific hospital after being fully informed of its diversion status

CONDITION-SPECIFIC DIVERSIONS
ED Saturation
Divert all except these patients:
- STEMI Notification
- Stroke Notification
- Trauma Notification
- Cardiac Arrest with ROSC or rVF
- Pregnant patients > 20 weeks with a pregnancy related complaint or patients 0-6 weeks post-partem (MarinHealth Med Center only)

CT
Divert these patients:
- Those presenting with acute stoke symptoms
- Those with a head injury and on anticoagulants or with known bleeding disorders
- Trauma Notification patients if they have head, neck or spinal trauma:
  - A and P patients go to time-closest Level I or Level II by air or ground (if air not available, consult MarinHealth Med Center)
  - MOI and Additional Factors patients go to Kaiser

Cath Lab
Divert STEMI Notification patients
  Note: Transport by air or ground to the closest facility with an open cath lab

Trauma
Divert Trauma Notification patients
  Note: - A and P patients go to time-closest Level I or Level II by air or ground
  - MOI and Additional Factors patients go to Kaiser

Neuro
Divert these patients:
- Signs and symptoms of severe head, neck or spinal cord trauma
  Note: Transport to Level II (if air not available, consult MarinHealth Med Center)
- Signs and symptoms of hemorrhagic CVA or other conditions that may require a neurosurgeon (e.g., interventricular shunt malfunction)
  Note: Transport by air or ground to closest facility with an open CT scanner

IF YOU HAVE ANY QUESTIONS, PLEASE CONSULT HOSPITAL!
FOR FULL VERSION, REFER TO AMBULANCE DIVERSION POLICY # 5400

Jan 2020
<table>
<thead>
<tr>
<th>BTG 1</th>
<th>BLS Routine Medical Care</th>
<th>BLS PR1</th>
<th>Authorized Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTG 2</td>
<td>BLS Determination of Death</td>
<td>BLS PR2</td>
<td>Oxygen Therapy BLS Procedure</td>
</tr>
<tr>
<td>BTG 3</td>
<td>Early Transport Decisions BLS</td>
<td>BLS PR3</td>
<td>Administration of Oral Glucose BLS Procedure</td>
</tr>
<tr>
<td>BLS C1</td>
<td>Cardiac Arrest BLS</td>
<td>BLS PR4</td>
<td>Administration of Epi-Pen BLS Procedure</td>
</tr>
<tr>
<td>BLS C2</td>
<td>Chest Pain/Acute Coronary Syndrome BLS</td>
<td>BLS PR4a</td>
<td>Check and Inject BLS Procedure</td>
</tr>
<tr>
<td>BLS E1</td>
<td>Environmental Emergencies</td>
<td>BLS PR9</td>
<td>Administration of Nerve Gas Auto-injector BLS Procedure</td>
</tr>
<tr>
<td>BLS E2</td>
<td>Burns</td>
<td>BLS PR10</td>
<td>Blood Glucose Monitoring BLS Procedure</td>
</tr>
<tr>
<td>BLS M1</td>
<td>Allergic Reaction/Anaphylaxis BLS</td>
<td>BLS PR11</td>
<td>Administration of Narcan Nasal Spray BLS Procedure</td>
</tr>
<tr>
<td>BLS M2</td>
<td>Abdominal pain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS N1</td>
<td>Neurological Emergencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS N2</td>
<td>Seizure</td>
<td>***</td>
<td>Note new policy #s</td>
</tr>
<tr>
<td>BLS O1</td>
<td>Obstetrical Emergencies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS R1</td>
<td>Shortness of Breath BLS</td>
<td></td>
<td></td>
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<tr>
<td>BLS T1</td>
<td>Traumatic Emergencies- Head, Eye, and Spine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS T2</td>
<td>Traumatic Emergencies- Chest and Abdomen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS T3</td>
<td>Traumatic Emergencies- Extremities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLS T4</td>
<td>Traumatic Emergencies Impaled Objects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Indications**

- To define Routine Medical Care (RMC) in the pre-hospital setting

**Assess Airway, Breathing, and Circulation (ABC)**

- **Apenic and/or Pulseless**
  - Begin CPR in accordance with the standards established by the American Heart Association, including early defibrillation

- **Breathing with pulse present**
  - Administer oxygen per Oxygen Therapy Procedure, BLS PR 2
  - Use appropriate airway adjuncts indicated for signs and symptoms

- **Significant external bleeding**
  - Control significant external bleeding using direct pressure
  - If bleeding remains uncontrolled, apply gauze or hemostatic dressing and/or tourniquet
  - Limb with the tourniquet must remain exposed
  - Hemostatic dressing must be approved by California EMS Authority

**Check vital signs- repeat q5 min for emergent patients and q15 min for non-emergent patients**

**ALOC**

- Assess blood glucose and treat per protocol

- Obtain:
  - Chief complaint and history of current event
  - Past medical history
  - Allergies and medications
  - Code status/Designated decision maker

**Perform full secondary patient exam**

- Apply spinal motion restriction if indicated
- Place in position of comfort or in other positions as needed to maintain adequate airway, breathing, and/or circulation
When patient meets criteria for declaration of death in the field:

- Notify the appropriate law enforcement agency if applicable
- Remain on the scene until law enforcement or coroner arrive if applicable
- Complete a Field Determination of Death Form at scene and leave one copy for coroner if applicable
Indications

• Emergent patient with life or limb threatening conditions including:
  • Severe respiratory distress or respiratory arrest
  • Airway compromise or obstruction
  • Significant neurological decline from baseline evaluation
  • Anticipated or current shock
  • Uncontrolled bleeding
  • Open chest or abdomen
  • Tension pneumothorax
  • Pericardial tamponade
  • Prolapsed cord, impending breech delivery, abnormal presenting part
  • Multi-system trauma
  • Severe burns- second or third degree burns (contact with caustic material, electricity or fire) involving 20% or more of body surface area (BSA) for adults, or 10% BSA for pediatric patients, or if associated with respiratory involvement
  • Isolated head injury with unconsciousness/posturing

BLS RMC

Verify estimated time or arrival of ALS unit, or consider helicopter transport

Update responding ALS unit of need for early transport to the closest, appropriate facility

If ALS arrival time is longer than time to transport to the closest facility
  • Begin transport and consider rendezvous with ALS unit enroute if appropriate

If transport time to the closest facility is >10 minutes and ALS transport or rendezvous is not immediately available
  • Begin transport and consider helicopter rendezvous if helicopter transport would result in reduced transport time to an emergency facility

SPECIAL CONSIDERATION

• If patient is in extremis and transport unit is not available, transport in available vehicle
Indications

- Unresponsive; no breathing or has agonal respirations; no pulse

START CPR
- Give O2
- Attach AED/defibrillator
- BLS RMC

Shockable Rhythm?

CPR 2 min
- Rhythm check every 2 min
- Resume cycle until ALS providers arrive or ROSC is detected

CRITICAL INFORMATION

- Witnessed vs Unwitnessed
- Consider pre-cordial thump witnessed and defibrillator not immediately available
- Compress at 110bpm
- Use metronome or similar device
- Mechanical CPR is mandatory during transportation
- Change compressors every 2 minutes
- Minimize interruptions
- If hypothermic <95F, initiate warming measures, start CPR, and immediately transport
- Defibrillate per manufacturer’s recommendations
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

Airway Management

- BLS airway preferred during first 5 minutes
- Use two-person BLS airway management whenever possible
- Avoid excessive ventilation
- 30:2 compression/ventilation ratio or continuous compressions with ventilations on the 10th upstroke of compressions
**CHEST PAIN/ACUTE CORONARY SYNDROME BLS**

**Indications**
- Chest discomfort or pain, suggestive of cardiac origin
- Other symptoms of Acute Coronary Syndrome (ACS) may include weakness, nausea, vomiting, diaphoresis, dyspnea, dizziness, palpitations, indigestion

**BLS RMC**

Limit patient’s physical activity

ASA 324mg (chewable), even if patient has taken daily ASA dose

Allow patient to self-administer own Nitroglycerine (NTG) as directed by their own physician only if SBP >100

**SPECIAL CONSIDERATIONS**
- Discomfort or pain: OPQRST, previous episodes, 0-10 scale
- Suspicion of ACS is based upon patient history. Be alert to patients likely to present with atypical symptoms or “silent MIs” (women, elderly and diabetics)
- If patient is having an MI, NTG may cause significant hypotension
- If the patient has taken erectile dysfunction medication within the last 24 hrs (Viagra/Levitra) or 36 hrs (Cialis) instruct patient not to take NTG
Indications

- For the following environmental emergencies: animal bites, snake bites, insect bites/stings, near drowning, heat injuries, cold injuries, localized cold injuries

**Animal Bites**
- Apply appropriate dressing
- Re-evaluate size of swelling every 5-10 minutes

**Near Drowning**
- Consider SMR
- Keep patient warm
- Prepare to log-roll if vomiting occurs
- Frequent evaluation of lung sounds

**Localized Cold Injuries**
- Gently remove clothing from injured area
- Cover area with sterile dressing
- Avoid direct contact with affected area

**Insect Bites/Stings**
- Restrict patient physical activity
- Immobilize extremity
- Apply cold pack to site
- Advise patient to self-administer EpiPen® (or equivalent) or provider to administer epinephrine per EMS Agency approved policy

**If allergic reaction**
- Go to Allergic Reaction/Anaphylaxis policy, BLS M1

**Snake Bites**
- Identify or provide description of snake if seen
- Do not use ice or apply constricting bands
- Remove rings, bracelets, or other constricting items from all extremities
- Limit patient’s movement as much as possible
- Mark extent of affected area, noting time on skin
- Immobilize extremity in a position of comfort and monitor distal pulses

**Heat Injuries**
- Move to a cool environment and remove clothing
- Rapid cooling measures:
  - Apply wet towels and promote cooling by fanning
  - Apply cold packs or cryothermic packs (if available) to axilla and groin
- BLS RMC; treat hypoglycemia per policy
- Replenish electrolytes by mouth if able to swallow
- Recheck vital signs frequently
- Transport all patients rapidly, even if in cardiac arrest

**Cold Injuries**
- Remove wet clothing and patient from cold environment
- Apply warming measures with blankets, heaters, etc.
- If patient no longer shivering be less aggressive with re-warming efforts and minimize stimulation of patient
**Indications**

- Damage to the skin caused by contact with caustic material, electricity, or fire. Any burn associated with respiratory involvement

**BLS RMC**

- Spinal immobilization if indicated

- Control bleeding
- Prevent further injuries

Prepare for early and rapid transport to the appropriate facility

**Thermal/Electric**

- Eliminate source
- Remove jewelry, but do not remove stuck clothing
- Exposed affected areas
- Evaluate depth/surface area
- Apply dry dressing on any burn involving >10% of body surface area
- Keep patient warm to avoid hypothermia

**Inhalation**

- Reevaluate airway frequently

**Chemical**

- Eliminate source
- Remove jewelry and clothing
- Exposed affected areas
- Evaluate depth/surface area
- Apply dry dressing on any burn involving >10% of body surface area
- Keep patient warm to avoid hypothermia
- Identify chemical if possible
- Unless contraindicated, brush dry chemicals off and flush areas with copious amounts of water
ALLERGIC REACTION/ANAPHYLAXIS BLS

**Indications**
- Patients experiencing anaphylactic reaction and/or severe asthma. The following symptoms may be present:
  - Stridor
  - Severe abdominal pain
  - Tachycardia
  - Shock (SBP <100)
  - Bronchospasm/wheezing/diminished breath sounds
  - Edema of the tongue, lips, face
  - Generalized urticaria/hives
  - Respiratory distress (nasal flaring or grunting in pediatric patients)

**SPECIAL CONSIDERATION**
- Elderly patients with signs of anaphylaxis and history of hypertension or heart disease should still be given epinephrine with caution. If concerned, **PHYSICIAN CONSULT**

- BLS RMC
- Remove allergens
- Verify need for EpiPen® or Check & Inject Epinephrine
- See BLS PR 4A for Check & Inject Epinephrine procedure

- Advise patient to self-administer EpiPen® (or equivalent) or administer appropriate EpiPen®
  - **Adult Auto-Injector** 0.3mg/0.3ml IM (weight >30 kg/66 lbs)
  - **Pediatric Auto-Injector** 0.15mg/0.15ml IM (weight <30 kg/66 lbs)
- Record time of injection and reassess in 2 minutes

- Monitor airway and be prepared to assist with ventilations if necessary

- If patient’s condition does not improve in 5 minutes
  - **PHYSICIAN CONSULT** for second EpiPen® injection

- Monitor for response/side effects
- Document assessment, VS every 5 min, and medication dosage
- Transfer care to ALS personnel as soon as possible
Indications

- Patient with a complaint of pain in the abdomen

- Nothing by mouth
- Prepare for vomiting

Check bilateral BP, pedal pulses

Transfer care to ALS personnel as soon as possible
NEUROLOGICAL EMERGENCIES

Indications

• Patient with a change in mentation

Syncope/near syncope/fainting
• Evaluate for need of spinal motion restriction if significant mechanism of injury

ALOC/Unconscious/Unresponsive
• Place in recovery position if altered

Assess blood glucose (BG)

If BG <60 or immeasurable and patient can swallow
• Give sweetened drink or administer Glucose paste according to BLS PR 3

If opioid overdose is suspected
• Provide rescue breaths and administer Narcan Nasal Spray
• Record time of administration and place patient in recovery position
• MR q2-3 min until patient responds
• Multiple doses may be needed
• If no pulse, follow Cardiac Arrest algorithm

Transfer care to ALS personnel as soon as possible
Indications

• Patient with reported or continuing seizure activity

SPECIAL CONSIDERATIONS

• Consider treatable etiologies: hypoglycemia, hypoxia, narcotic overdose, unusual odor of alcohol, signs of trauma, medic alert tag
• Be attentive to excessive oral secretions, vomiting, and ineffective breathing
• Treatment should be based on the severity and length of the seizure activity
OBSTETRICAL EMERGENCIES

Indications
- Patient reports or demonstrates vaginal bleeding and/or imminent delivery (need to bear down, pushing, have urge for bowel movement)

Vaginal bleeding
- Supine or shock position, if pregnant place in left lateral position
- Observe for development of shock
- If immediately post-partum, consider fundal massage

Imminent delivery
- Prepare sterile/clean area for delivery
- Assist with delivery
- Keep baby and mother warm
- Prepare for possible multiple births
- Prepare for possible childbirth related complications
- Assess for possible neonatal resuscitation

APGAR SCORE

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>≥100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate</td>
<td>Absent</td>
<td>Slow (&lt;100)</td>
<td>≥100</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex Irritability</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
</tr>
<tr>
<td>Color</td>
<td>Blue or pale</td>
<td>Pink body with blue extremities</td>
<td>Completely pink</td>
</tr>
</tbody>
</table>
SHORTNESS OF BREATH BLS

**Indications**

- Acute or progressive shortness of breath, chest discomfort, wheezing, cyanosis

---

**Mild to Moderate**

- Pt alert
- May be unable to speak full sentences
- Minimal accessory muscle use

- For upper airway obstruction/Stridor: **NS 3ml HHN**

- Assist patient with own medication if available

---

**Severe**

- Altered mental status
- Minimal air movement
- Inability to speak
- Cyanosis

- **PHYSICIAN CONSULT** for Epi-Pen® (or equivalent)
- If no improvement MR in 5 min with physician consult

---

**Position of comfort**

- Transfer care to ALS personnel as soon as possible

---

**SPECIAL CONSIDERATION**

- Suspect carbon monoxide in cases of exposure to fire; do not rely on pulse oximetry alone in this setting
TRAUMATIC EMERGENCIES-
HEAD, EYE, AND SPINE

Indications

- Patient with a traumatic injury to the head, eye and/or spine

BLS RMC

- Control bleeding
- Prevent further injuries

Spinal immobilization if indicated

Prepare for early and rapid transport to the appropriate facility

Head Trauma
- Suction as needed
- Frequent evaluation of LOC
- Support airway if emesis occurs
- Calm/reassure patient

Eye Trauma
- Cover both eyes

Traumatic Paralysis
- Frequent evaluation of CSM, neuro checks

SPECIAL CONSIDERATION

- Patients meeting anatomic, physiologic, high energy transfer, and other mechanism of injury on the Marin County Trauma Triage Tool should be transported with ALS level of care
TRAUMATIC EMERGENCIES - CHEST AND ABDOMEN

Indications

- Patient with a traumatic injury to the chest and/or abdomen

BLS RMC

- Control bleeding
- Prevent further injuries

Spinal immobilization if indicated

Prepare for early and rapid transport to the appropriate facility

Tension Pneumothorax
- Fowlers position unless contraindicated
- Remove occlusive dressing if present

Flail or Crushed Chest
- Splint chest wall with bulky dressing or towel if flail chest
- Assist with positive pressure ventilations

Evisceration of Abdomen
- Cover abdominal wound with moist, bulky dressing
- Keep patient warm

Pelvic Instability
- Immobilize

Open/Sucking Chest Wound
- Fowlers position unless contraindicated
- Occlusive dressing if sucking wound
- Monitor for tension pneumothorax

SPECIAL CONSIDERATION

- Patients meeting anatomic, physiologic, high energy transfer, and other mechanism of injury on the Marin County Trauma Triage Tool should be transported with ALS level of care
### Indications
- Patient with a traumatic injury to the extremities

### BLS RMC
- Control bleeding
- Prevent further injuries

### Spinal immobilization if indicated

### Prepare for early and rapid transport to the appropriate facility

### Extremity Trauma
- Expose extremity
- Check/recheck CSM
- Dress wound if needed
- Immobilize extremity
- Elevate and apply cold pack

### Amputations
- If complete amputation—cover amputated part with dry gauze and place in plastic bag. Place bag on cold pack or ice
- If incomplete amputation—treat as open extremity injury

### SPECIAL CONSIDERATION
- Patients meeting anatomic, physiologic, high energy transfer, and other mechanism of injury on the Marin County Trauma Triage Tool should be transported with ALS level of care
TRAIUMATIC EMERGENCIES- IMPALED OBJECTS

Indications

- Patient with a traumatic impalement

BLS RMC

Spinal immobilization if indicated

- Control bleeding
- Prevent further injuries

Prepare for early and rapid transport to the appropriate facility

Supine or shock position

- Immobilize impaled object so internal end does not move when patient is moved
- Dress wound without dislodging object

- Prioritize and treat life threatening injuries
- Anticipate rapid deterioration

SPECIAL CONSIDERATION

- Patients meeting anatomic, physiologic, high energy transfer, and other mechanism of injury on the Marin County Trauma Triage Tool should be transported with ALS level of care
**OXYGEN THERAPY BLS PROCEDURE**

**Indications**
- Signs or symptoms of hypoxia, e.g., SpO2 <94%, respiratory distress, ALOC
- Significant trauma or blood loss

**Equipment**
- Airway adjuncts
- Pulse Oximetry
- Nasal cannula
- Non-Rebreather mask
- Bag Valve Mask (BVM)
- Suction

Apply appropriate oxygen delivery device

If pulse oximetry available
- Titrate SpO2 between 94-99%

Consider the need for assisted ventilation for inadequate breathing
ADMINISTRATION OF ORAL GLUCOSE BLS PROCEDURE

Indications

- Patients with blood glucose measurement of <60

Equipment

- Oral glucose and/or juices that contain sugar (no diet drinks)
- Glucose Paste

Responsive patient with a gag reflex

- Give sweetened fluids (orange/fruit juice) to drink
- Do not use “diet” preparations as they do not contain sugar
- If sweetened fluids unavailable, administer Glucose paste 30gm PO

Lethargic patient unable to drink fluids

- Place patient in left or right lateral position
- Place Glucose paste 30gm PO between the dependent cheek and gum
- Monitor airway, being prepared to suction if necessary

Transfer care to ALS personnel as soon as possible
ADMINISTRATION OF EPI-PEN
BLS PROCEDURE

**Indications**

- Patients experiencing anaphylactic reaction and/or severe asthma. The following symptoms may be present:
  - Stridor
  - Severe abdominal pain
  - Tachycardia
  - Shock (SBP <100)
  - Bronchospasm/wheezing/diminished breath sounds
  - Edema of the tongue, lips, face
  - Generalized urticaria/hives
  - Respiratory distress (nasal flaring or grunting in pediatric patients)

**Equipment**

- Auto injector EpiPen®
- Auto injector EpiPen Jr.®

**If patient's condition does not improve in 5 minutes**

- ☎ PHYSICIAN CONSULT for second EpiPen® injection

**Special Considerations**

- Elderly patients with signs of anaphylaxis and history of hypertension or heart disease should still be given EpiPen®. If concerned, ☎ PHYSICIAN CONSULT

- Training shall include the manufacturer's instructions, as well as demonstration of skills competency every two years after initial training according to Title 22, Div 9, Chapter 2
**CHECK & INJECT EPINEPHRINE**

**BLS PROCEDURE**

**Indications**
- Patients experiencing anaphylactic reaction and/or severe asthma. The following symptoms may be present:
  - Stridor
  - Severe abdominal pain
  - Tachycardia
  - Shock (SBP <100)
  - Bronchospasm/wheeze/diminished breath sounds
  - Edema of the tongue, lips, face
  - Generalized urticaria/hives
  - Respiratory distress (nasal flaring or grunting in pediatric patients)

**Equipment**
- **Epinephrine** (1mg/ml) Check & Inject safety kit (syringe, needle, alcohol prep, and bandage)
- BLS RMC
- Remove allergens
- Verify need for **Epinephrine**

**PROCEDURE**
- Confirm correct medication and check expiration date
- Clean injection site with alcohol prep
- Insert needle into medication vial, draw up desired dose and remove air bubbles from syringe
- Triple check dose amount
- Insert needle into patient’s anterior mid-thigh at a 90 degree angle
- Inject **Epinephrine**
  - Adult: 0.3mg (0.3ml) IM (weight >30kg/66 lbs)
  - Child: 0.15mg (0.15ml) IM (weight <30kg/66 lbs)
- Remove needle, engage safety device and place in sharps container
- Massage site for 15 seconds and place bandage

**If patient’s condition does not improve in 5 minutes**
- **PHYSICIAN CONSULT** for second **Epinephrine** injection

**Monitor for response/side effects**
- Document assessment, VS every 5 min, and medication dosage
- Transfer care to ALS personnel as soon as possible

**SPECIAL CONSIDERATIONS**
- Elderly patients with signs of anaphylaxis and history of hypertension or heart disease should still be given **Epinephrine**. If concerned, **PHYSICIAN CONSULT**
- Training shall include the manufacturer’s instructions, as well as demonstration of skills competency every two years after initial training according to Title 22, Div 9, Chapter 2
- Training in this procedure is the responsibility of the provider agency who desires to utilize this procedure. A two hour training program approved by the EMS Agency as stated in the regulations including copies of the proposed lesson plan, tests and skills test checklist shall be submitted to the EMS Agency for review.
ADMINISTRATION OF NERVE GAS AUTO-INJECTOR BLS PROCEDURE

Indications

- Exposure to nerve/chemical agents (Sarin, Suman, Tabun, Vx) exhibiting signs and symptoms that may include the following:
  - S.L.U.D.G.E.M.- Salivation, Lacrimation, Urination, Defecation, Gastrointestinal pain and gas, Emesis, Miosis

Contraindication

- Not to be administered as a prophylactic to nerve agents

Equipment

- DuoDote® or Mark I kit

Mild symptoms of exposure

- Blurred vision, miosis
- Excessive, unexplained teary eyes
- Excessive, unexplained runny nose
- Increased salivation, drooling
- Chest tightness/difficulty breathing
- Tremors/muscular twitching
- Nausea, vomiting
- Unexplained wheezing/cough
- Acute onset of stomach cramps
- Tachycardia or bradycardia

- Administer one injection into the mid-lateral thigh if patient experiences two or more MILD symptoms of exposure. Wait 10-15 minutes for medication to take effect

If after 10-15 min. no severe symptoms develop

- No additional injections are recommended

If after 10-15 min. any severe symptoms develop

- Give 2 additional injections in rapid succession

Severe symptoms of exposure

- Strange or confused behavior
- Severe difficulty breathing or copious airway secretions
- Severe muscular twitching and general weakness
- Involuntary urination and defecation
- Convulsions
- Unconsciousness

- Immediately administer three injections into the mid-lateral thigh in rapid succession

Transport
**BLOOD GLUCOSE MONITORING**

**BLS PROCEDURE**

**Indications**

- Patients with ALOC and/or suspected hypoglycemia as indicated by the following symptoms:
  - Diabetic history
  - Abnormal or combative behavior
  - Pale, moist skin

**Equipment**

- Glucometer
- Lancet
- Test strip
- Alcohol pad
- Gauze pad/bandage

- Turn glucometer on and insert test strip
- Clean fingertip with alcohol pad. Gently squeeze fingertip to promote blood flow

- Pierce fingertip with lancet
- Apply blood sample to test strip
- Record results

**If blood glucose <60 or immeasurable**

- Treat patient according to Administration of Oral Glucose BLS Procedure, BLS PR 3
ADMINISTRATION OF NARCAN NASAL SPRAY BLS PROCEDURE

Indications

- Patients with ALOC and suspicion of overdose as indicated by the following symptoms:
  - Overdose history or drug paraphernalia at scene
  - Pale, moist skin
  - Unable to respond
  - Respirations and/or pulse is slow, erratic, or absent
  - Pinpoint pupils

Equipment

- Narcan Nasal Spray
- BVM

- Establish unresponsiveness; if pulseless and apneic, start CPR
- Place in supine position and tilt head back

- Administer Narcan Nasal Spray
  - Insert tip of nozzle into one nostril until fingers are flush with skin/nose
  - Press firmly to fully depress the plunger
  - May repeat every 2-3 min (alternate nostrils) if patient remains unresponsive
  - Record time of administration

- Place patient in recovery position
- Monitor airway, suction as needed
- Document type of overdose, if known

If no response to Narcan

- Begin CPR

Transfer care to ALS personnel as soon as possible
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>FCode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GPC 13A</td>
<td>Spinal Injury Assessment</td>
<td>R1</td>
<td>Respiratory Arrest</td>
</tr>
<tr>
<td>ATG 2</td>
<td>Adult Pain Management</td>
<td>R2</td>
<td>Respiratory Obstruction</td>
</tr>
<tr>
<td>ATG 3</td>
<td>Adult Sedation</td>
<td>R3</td>
<td>Acute Respiratory Distress</td>
</tr>
<tr>
<td>ATG 6</td>
<td>Determination of Death ALS</td>
<td>R4</td>
<td>Bronchospasm/Asthma/COPD</td>
</tr>
<tr>
<td>ATG 7</td>
<td>Adult Medication List</td>
<td>R5</td>
<td>Acute Pulmonary Edema</td>
</tr>
<tr>
<td>C1</td>
<td>V-Fib/Pulseless V-Tach</td>
<td>R6</td>
<td>Pneumothorax</td>
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<tr>
<td>C2</td>
<td>Asystole/PEA</td>
<td>R7</td>
<td>Toxic Inhalation</td>
</tr>
<tr>
<td>C4</td>
<td>Bradydysrhythmia</td>
<td>T1</td>
<td>Traumatic Injury</td>
</tr>
<tr>
<td>C6</td>
<td>Wide Complex Tachycardia</td>
<td>T3</td>
<td>Crush Syndrome</td>
</tr>
<tr>
<td>C7</td>
<td>Narrow Complex Tachycardia</td>
<td>T4</td>
<td>Less-than-lethal interventions</td>
</tr>
<tr>
<td>C8</td>
<td>Chest Pain</td>
<td>P C1</td>
<td>Pediatric Pulseless Arrest</td>
</tr>
<tr>
<td>C9</td>
<td>STEMI</td>
<td>P C2</td>
<td>Neonatal Resuscitation</td>
</tr>
<tr>
<td>C10</td>
<td>ROSC</td>
<td>P C3</td>
<td>Pediatric Bradycardia</td>
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<tr>
<td>E1</td>
<td>Heat Illness</td>
<td>P C4</td>
<td>Pediatric Tachycardia Poor Perfusion</td>
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<tr>
<td>E2</td>
<td>Cold Induced Injury</td>
<td>P E1</td>
<td>Pediatric Burns</td>
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<tr>
<td>E3</td>
<td>Envenomation</td>
<td>P M1</td>
<td>Pediatric Shock</td>
</tr>
<tr>
<td>E4</td>
<td>Burns</td>
<td>P M2</td>
<td>Pediatric Allergic Reaction</td>
</tr>
<tr>
<td>E5</td>
<td>Drowning/Near Drowning</td>
<td>P M3</td>
<td>Pediatric Toxic Exposure</td>
</tr>
<tr>
<td>M1</td>
<td>Non-traumatic Shock</td>
<td>P M4</td>
<td>BRUE</td>
</tr>
<tr>
<td>M3</td>
<td>Allergic reaction/ Anaphylaxis</td>
<td>P M5</td>
<td>Pediatric Sexual Assault</td>
</tr>
<tr>
<td>M4</td>
<td>Poisons/Drugs</td>
<td>P N1</td>
<td>Pediatric Seizure</td>
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<tr>
<td>M5</td>
<td>Severe Nausea/Vomiting</td>
<td>P N2</td>
<td>Pediatric ALOC</td>
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<tr>
<td>M6</td>
<td>Sepsis</td>
<td>P R1</td>
<td>Pediatric Respiratory Distress</td>
</tr>
<tr>
<td>N1</td>
<td>Coma/ALOC</td>
<td>PT1</td>
<td>Pediatric Trauma</td>
</tr>
<tr>
<td>N2</td>
<td>Seizure</td>
<td>PTG 1</td>
<td>Pediatric Pain Management</td>
</tr>
<tr>
<td>N3</td>
<td>Syncope</td>
<td>PTG 2</td>
<td>Pediatric Medications List</td>
</tr>
<tr>
<td>N4</td>
<td>CVA</td>
<td>PTG 2A</td>
<td>Pediatric Dosing Chart (not included in this document)</td>
</tr>
<tr>
<td>O1</td>
<td>Vaginal hemmorhage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>O2</td>
<td>Imminent Delivery- Normal</td>
<td>***</td>
<td>Note new pediatric policy #s</td>
</tr>
<tr>
<td>O3</td>
<td>Imminent Delivery- Complications</td>
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<td></td>
</tr>
<tr>
<td>O4</td>
<td>Severe Pre-Eclampsia/Eclampsia</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SPINAL INJURY ASSESSMENT

Potential for unstable spinal injury?
- Yes → Omit SMR
- No → Reliable patient?
  - Yes
    - Omit SMR
  - No
    - No
      - No
        - Normal c-spine exam?
          - Yes
            - Normal motor/sensor exam?
              - Yes
                - Full SMR
              - No
                - No
                  - No
                    - No
                      - Yes
                        - High-risk factor?
                          - Yes
                            - Consider Modified SMR
                          - No
                            - No
                              - No
ADULT PAIN MANAGEMENT

**Indications**
- Patient with apparent or reported pain

**Pt is >50kg**
- Acetaminophen (Tylenol/Ofirmev) 1000mg IV infused over 15-20 min

**ALS RMC**

**Pain >6?**
- Yes
  - Consider Acetaminophen 1000mg IV infused over 15-20 min
  - **Morphine**
    - IV/IO: 5mg slowly
    - MR q5 min
    - Max dose: 20mg
    - IM: 5-10mg
    - MR in 20 min
    - Max dose: 20mg
    - OR
  - **Fentanyl**
    - IV/IO/IN: 50mcg
    - MR q5 min
    - Max dose: 200mcg
    - For IN: administer 1/2 dose in each nostril
    - IM: 50mcg
    - MR in 30 min

- No
  - **Physician Consult for Opioids**
    - Patients with SBP <100
    - Patients with ALOC (GCS <15); acute onset of severe headache; multi-system trauma that includes abdominal/thoracic trauma; decreased respirations; or women in active labor
    - >20mg Morphine or >200mcg Fentanyl is needed for pain management
    - Concomitant administration of Opioids and Midazolam

**If Morphine/Fentanyl unavailable or patient unable to tolerate**
- **Midazolam**
  - IV/IO: 1mg slowly
  - MR q3 min
  - Max dose 0.05mg/kg
  - IM: 2-4mg if no IV
  - IN: 5mg (2.5mg in each nostril)

**If nausea/vomiting**
- Consider Zofran 4mg ODT/IM or slow IV/IO over 30 seconds
- MR x1 in 10 min
ADULT SEDATION

Indications

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

CRITICAL INFORMATION

- Relative contraindications:
  - Nausea/vomiting
  - ALOC
  - Hypotension (SBP<100)
  - Suspected drug/alcohol intoxication

Special Considerations

- Sedation for airway management does not mandate intubation but may require airway/ventilation support
- Patients receiving Midazolam may experience hypotension
- Prior to arrival, prehospital personnel must notify the receiving facility of any patient with known history of violence, or behavior which may pose a risk to staff (disruptive, uncooperative, aggressive, unpredictable)

Midazolam Weight Based Chart - MAXIMUM DOSING for IV/IO only

<table>
<thead>
<tr>
<th>Kg</th>
<th>Lb</th>
<th>Dose (0.05mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-50</td>
<td>88-110</td>
<td>2-2.5mg</td>
</tr>
<tr>
<td>51-60</td>
<td>111-132</td>
<td>2.5-3mg</td>
</tr>
<tr>
<td>61-70</td>
<td>133-154</td>
<td>3-3.5mg</td>
</tr>
<tr>
<td>71-80</td>
<td>155-176</td>
<td>3.5-4mg</td>
</tr>
<tr>
<td>81-90</td>
<td>177-198</td>
<td>4-4.5mg</td>
</tr>
<tr>
<td>91-100</td>
<td>199-220</td>
<td>4.5-5mg</td>
</tr>
<tr>
<td>&gt;100</td>
<td>&gt;220</td>
<td>5mg</td>
</tr>
</tbody>
</table>

- Midazolam
  - IV/IO: 1mg slowly
  - MR q3 min to desired degree of sedation
  - Max dose: 0.05mg/kg
  - IM: 2-4mg if no IV
  - IN: 5mg (2.5mg in each nostril)

PHYSICIAN CONSULT

- For Opioids for pain management as needed per Adult Pain Management, ATG 2

Airway Management

- Patients receiving sedation for airway management who have long transport times may receive sedation maintenance doses of Midazolam 1mg IV/IO
- MR q15 min

PHYSICIAN CONSULT

- Head injury (airway is stable)
- Multiple system trauma (airway is stable)
- Concomitant administration of Opioids and Midazolam
### ALS DETERMINATION OF DEATH

#### Indications
- Patient in cardiac arrest who does not meet criteria for BLS determination of death and does not have a valid DNR order.

#### Determination of death can be made prior to, or immediately after initiating resuscitation when:

<table>
<thead>
<tr>
<th>Medical- <strong>ALL</strong> must be present</th>
<th>Trauma- <strong>EITHER</strong> may be present</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presenting rhythm is asystole</td>
<td>• MCI incident where triage principles preclude initiation of CPR</td>
</tr>
<tr>
<td>• Event was un witnessed</td>
<td>• Blunt, penetrating or profound multi-system trauma with asystole or PEA</td>
</tr>
<tr>
<td>• Effective bystander CPR was not initiated</td>
<td></td>
</tr>
<tr>
<td>• <strong>No evidence of potentially reversible cause of arrest</strong></td>
<td></td>
</tr>
<tr>
<td>• No AED or manual shock delivered</td>
<td></td>
</tr>
</tbody>
</table>

#### If determination of death cannot be made
- Perform ALS resuscitation for 20 minutes on scene
  - If patient is in refractory VFib after 3 unsuccessful shocks, immediately transport to nearest available STEMI Receiving Center
  - If above procedures have been completed without ROSC, resuscitation may be discontinued, and determination of death made when **ANY** of the following are present:
    - A valid DNR or POLST form becomes available which precludes continuation of resuscitation efforts
    - ETCO2 ≤ 10mm/Hg and the rhythm is asystole or PEA

#### If determination of death still cannot be made for medical arrests
- Continue resuscitation for ten additional minutes (30 minutes total) at which point resuscitation may be discontinued and determination of death made if ROSC has not occurred

#### PHYSICIAN CONSULT
- Evidence exists that resuscitative efforts are not desired or appropriate and above criteria is not met
- ETCO2 >10mm/Hg after 30 minutes of resuscitation efforts

#### When patient meets criteria for declaration of death in the field:
- Notify the appropriate law enforcement agency if applicable and remain on the scene until law enforcement or coroner arrive if applicable
- Complete a Field Determination of Death Form at scene and leave one copy for coroner if the patient will be transferred to the coroner
<table>
<thead>
<tr>
<th><strong>DRUG</strong></th>
<th><strong>CONCENTRATION</strong></th>
<th><strong>STANDARD DOSE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen (Tylenol/Ofirmev)</td>
<td>1000mg/100ml</td>
<td>IV/IO 1000mg over 15-20 min</td>
</tr>
<tr>
<td>Adenosine</td>
<td>6mg/2ml</td>
<td>IV/IO 6mg rapid push followed by 20ml NS flush</td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5mg/3ml NS</td>
<td>Nebulized 5mg/6ml NS</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>150mg/3ml</td>
<td>VF/Pulseless VTach: 300mg push Repeat: 150mg push in 3-5min Perfusing/Recurrent VTach: 150mg over 10 min (15mg/min) Repeat: q10 min PRN</td>
</tr>
<tr>
<td>Aspirin</td>
<td>Variable</td>
<td>PO 324mg</td>
</tr>
<tr>
<td>Atropine</td>
<td>1mg/10ml</td>
<td>IV/IO Bradycardia: 0.5mg Repeat: q3-5 min Max total: 3mg Organophosphate Poisoning: 2mg slowly Repeat: q2-5 min until drying</td>
</tr>
<tr>
<td>Calcium chloride 10%</td>
<td>1gm/10ml</td>
<td>IV/IO 1gm slowly over 5 min for suspected Hyperkalemia. Flush with NS before and after</td>
</tr>
<tr>
<td>Cyanokit</td>
<td>5gm/vial</td>
<td>IV/IO 5 grams over 15min Repeat: x1 if severe signs</td>
</tr>
<tr>
<td>Dextrose 10%</td>
<td>25gm/250ml</td>
<td>IV/IO 125ml bolus over 10 min; recheck BG Repeat: as needed</td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>50mg/ml</td>
<td>IV/IO/IM 50mg</td>
</tr>
<tr>
<td>Epinephrine 1mg/ml EpiPen ® 0.3mg</td>
<td></td>
<td>IM Allergic reaction/Anaphylaxis: 0.3mg or EpiPen ® Repeat: x1 in 5 min</td>
</tr>
<tr>
<td>Epinephrine 0.1mg/ml</td>
<td></td>
<td>IV/IO 1mg (10ml) followed by 20ml NS flush Repeat: q3-5min</td>
</tr>
<tr>
<td>Epinephrine (Push-Dose)</td>
<td></td>
<td>☎ SBP &lt;80: Mix 1ml Epinephrine (0.1mg/ml) with 9ml NS in a 10ml syringe Initial: 1ml Repeat: q3-5 min, titrate to maintain SBP &gt;80</td>
</tr>
<tr>
<td>Fentanyl (Sublimaze)</td>
<td>100mcg/2ml</td>
<td>IV/IO 50mcg slowly Repeat: q5 min Max dose: 200mcg</td>
</tr>
<tr>
<td>Fentanyl IM</td>
<td>50mcg</td>
<td>Repeat: in 30 min</td>
</tr>
<tr>
<td>Fentanyl (Nebulized)</td>
<td>5mg/ml</td>
<td>Adults (Adult) 2.5mg/ml NS Inhalation</td>
</tr>
<tr>
<td>Drug</td>
<td>Concentration</td>
<td>Standard Dose</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Naloxone (Narcan)</td>
<td>2mg/2ml</td>
<td>IV/IO, IM</td>
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<tr>
<td>Max dose: 2mg</td>
<td>Repeat: q2-3 min until patient responds</td>
<td>5-10mg</td>
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<tr>
<td>IN</td>
<td>2mg (0.7ml)</td>
<td>10mg/ml</td>
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<tr>
<td>Nerve Gas Auto-</td>
<td>2mg (1mg in each nostril)</td>
<td>1mg/ml</td>
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<tr>
<td>Injector</td>
<td>0.4mg/tablet or spray</td>
<td>1mg/ml</td>
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<tr>
<td>Nitroglycerine</td>
<td>0.4mg/tablet or spray</td>
<td>1mg/ml</td>
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<tr>
<td>Medications</td>
<td>1 tablet or spray</td>
<td>1mg/ml</td>
</tr>
<tr>
<td>Glucagon</td>
<td>1mg/ml</td>
<td>20mg/ml</td>
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<tr>
<td>Ipratropium</td>
<td>500mcg/2.5ml Unit dose</td>
<td>20mg/ml</td>
</tr>
<tr>
<td>Lidocaine 2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>5mg/ml or 5mg/ml (IV/IO/IM)</td>
<td>20mg/ml</td>
</tr>
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<td>Pain management:</td>
<td>See specific policy, ATG 2</td>
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<tr>
<td>Sedation:</td>
<td>See specific policy, ATG 3</td>
<td>20mg/ml</td>
</tr>
<tr>
<td>Seizure:</td>
<td>See specific policy, N 2</td>
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<tr>
<td>Morphine Sulfate</td>
<td>10mg/ml</td>
<td>10mg/ml</td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>50mEq/50ml</td>
<td>50mEq</td>
</tr>
<tr>
<td>Glucose Paste</td>
<td>30 grams</td>
<td>15 grams/tube</td>
</tr>
<tr>
<td>Ondansetron (Zofran)</td>
<td>4mg</td>
<td>4mg slowly over 30 seconds, Repeat: x1 in 10 min</td>
</tr>
<tr>
<td>Nitroglycerine</td>
<td>0.4mg/tablet or spray</td>
<td>1mg/ml</td>
</tr>
</tbody>
</table>
### V-FIB/PULSELESS V-TACH

**START CPR**
- Give O2
- Attach monitor/defibrillator
- ALS RMC

**CRITICAL INFORMATION**
- Mechanical CPR for transport

**Airway Management**
- BLS airway preferred during first 5 minutes
- Do not interrupt CPR for >10 seconds for intubation
- Use continuous ETCO2

**Drug Therapy**
- **Epinephrine** 1mg (0.1mg/ml) IV/IO. Repeat every 3-5 min
- **Amiodarone** first dose: 300mg IV/IO; second dose 150mg in 3-5 min.
  - If ROSC after **Amiodarone**, consider **Amiodarone drip** 150mg in 100ml NS, 1mg/min = 40gtts/min with 60gtt/ml tubing

**Reversible Causes**
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma

**Epinephrine**
- Repeat every 3-5 min

**Amiodarone**
- For refractory Vfib (3 unsuccessful shocks), transport to nearest available STEMI Receiving Center
- **PHYSICIAN CONSULT** for transport of patients with rVF and any of the following: >80 yrs, hospice, advanced dementia, irreversible neurological injury, active malignancy
CRITICAL INFORMATION

- **Medical patients**: Determination of death can be made immediately if all are present:
  - Presenting rhythm is asystole
  - Event was unwitnessed
  - Effective bystander CPR was not initiated
  - No evidence of potentially reversible cause of arrest
  - No AED or manual shock delivered

- **Trauma patients**: Determination of death can be made immediately if either are present.
  - MCI incident where triage principles preclude initiation of CPR
  - Blunt, penetrating or profound multi-system trauma with asystole or PEA

- If hyperkalemia is suspected in renal dialysis patients, administer 1 gram of 10% **Calcium Chloride** IV/IO and 50mEq of **Sodium Bicarbonate** IV/IO
BRADYDYSRHYTHMIAS

Indications
- HR <50 with adequate or inadequate perfusion

Unstable?
- Signs of poor perfusion:
  - Decreased LOC
  - SBP <100
  - Chest pain

ALS RMC

Yes

Unstable?
- Atropine 0.5mg IV/IO
  - Repeat q3-5 min to total of 3mg
  - Atropine should not delay pacing for patients with inadequate perfusion

ALS RMC

No

ALS RMC

If NS bolus ineffective
- Transcutaneous pacing

If SBP <80 mmHg
- PHYSICIAN CONSULT for Push-dose Epinephrine
  - Mix 1ml Epinephrine (0.1mg/ml concentration) with 9ml NS in a 10ml syringe
  - Administer Push-dose Epinephrine 1ml IV/IO
  - Repeat every 3-5 min
  - Titrate to maintain SBP >80mmHg
  - Monitor BP every 5 minutes

SPECIAL CONSIDERATION

Reversible Causes
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma
**Indications**

- Regular, wide ventricular complexes greater than 150 bpm, with pulses present

**Unstable?**

- Signs of poor perfusion:
  - Decreased LOC
  - SBP <100
  - CHF, CP, SOB

---

**ALS RMC**

**12-lead EKG**

- **Amiodarone** 150mg in 100ml NS IV/IO over 10 min
  - **MR q10 min** as needed

---

**Synchronized cardioversion at 100J, 200J, 300J, 360J**

**If patient is conscious**

- Go to Adult Sedation, ATG 3

**If patient is critical**

- If any delay in synchronized cardioversion, defibrillate the patient

**If no response to cardioversion**

- **Amiodarone** 150mg in 100ml NS IV/IO over 10 min
  - **MR q10 min** as needed

---

**SPECIAL CONSIDERATION**

**Reversible Causes**

- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma
NARROW COMPLEX TACHYCARDIA

Indications
- QRS <0.12 sec. documented rhythm in 2 leads
- Includes Atrial Fibrillation, Atrial Flutter, and SVT (regular HR >150 bpm)

Unstable?
- Signs of poor perfusion:
  - Decreased LOC
  - SBP <100
  - CHF, CP, SOB

Yes

ALS RMC
- Proximal vein is preferred IV site

Unstable SVT/A-Fib/A-flutter
- If patient is conscious, consider sedation with Midazolam 1mg IV/IO slowly (use with caution if patient is hypotensive)
- Synchronized cardioversion at 100J, 200J, 300J, 360J
- If any delay in synchronized cardioversion and the patient is critical, defibrillate the patient

No

Stable Atrial Fibrillation and Atrial Flutter
- Obtain 12-lead EKG

Stable SVT
- Obtain 12-lead EKG
- Consider valsalva maneuver
- If no response to valsalva:
  - Adenosine 6mg RAPID IVP followed by 20ml NS flush
  - If no response after 1-2 min:
    - Adenosine 12mg RAPID IVP followed by 20ml NS flush
    - Elevate the extremity after each bolus

ALS RMC
- Proximal vein is preferred IV site

SPECIAL CONSIDERATION
Reversible Causes
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma
**CHEST PAIN/ACUTE CORONARY SYNDROME**

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

ALS RMC

ASA 324mg (chewable), even if patient has taken daily ASA dose

- 12-lead EKG
- If elevation in leads II, III, and AVF, suspect RVI and perform right-sided EKG

NTG 0.4 mg SL/spray
- MR q5 min if SBP >100
- Withhold NTG if patient has RVI or has taken erectile dysfunction medication within last 24 hrs (Viagra/Levitra) or 36 hrs (Cialis)

If pain persists, treat per Adult Pain Management policy
- Consider NS 250ml IV/IO bolus if SBP <100
- For recurrent episodes of VT with persistent CP, administer Amiodarone 150mg in 100ml NS, IV/IO; infuse over 10 min
  - MR q10 min as needed

**SPECIAL CONSIDERATIONS**
- IV access before NTG if SBP <120 or if patient doesn’t routinely take NTG
- Routine O2 administration unnecessary if SpO2 >93%
- Infarctions may be present with normal 12-leads
- Consider other potential causes of chest pain: pulmonary embolus, pneumonia, aortic aneurysm, and pneumothorax
Indications

- Patients with acute ST Elevation Myocardial Infarction (STEMI) as identified by machine read

**Unstable?**

- SBP <90 prior to NTG & opioid administration
- S/Sx of acute pulmonary edema
- Ventricular tachyarrhythmia requiring defibrillation or anti-arrhythmic therapy
- Patient's condition based on paramedic judgement requires immediate hospital intervention

Transport to closest SRC

- Provide Early STEMI notification and identifying patient information
- If elevation in leads II, III, and AVF, suspect RVI and perform right-sided EKG
- Transmit all STEMI EKGs to SRC if possible

May go to preferred SRC if the estimated transport time is not more than 15 min longer than nearest SRC

- Preferred SRC defined:
  - Patient preference
  - SRC used by treating cardiologist

- Provide Early STEMI notification and identifying patient information
- If elevation in leads II, III, and AVF, suspect RVI and perform right-sided EKG
- Transmit all STEMI EKGs to SRC if possible

**PHYSICIAN CONSULT**

- If patient is symptomatic for STEMI, but monitor interpretation is not in agreement, transmit EKG and consult the SRC receiving physician
- If above findings occur, but transmission is not available, activate SRC with early STEMI notification
RETURN OF SPONTANEOUS CIRCULATION (ROSC)

**Indications**
- The presence of a palpable pulse and/or blood pressure for at least 30 seconds after cardiac arrest

**SPECIAL CONSIDERATION**
**Reversible Causes**
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma

**If SBP <80 mmHg**
- **NS** 1-2L bolus IV/IO
- If no improvement: **PHYSICIAN CONSULT** for **Push-dose Epinephrine**
  - Mix 1ml Epinephrine (0.1mg/ml concentration) with 9ml NS in a 10ml syringe
  - Administer **Push-dose Epinephrine** 1ml IV/IO
  - Repeat every 3-5 min
  - Titrate to maintain SBP >80mmHg
  - Monitor BP every 5 minutes
HEAT ILLNESS

Indications

- Exposure to unusually high temperatures, humidity, or vigorous exercise resulting in heat cramps, heat exhaustion, or heat stroke

Move to a cool environment and remove clothing

- Rapid cooling measures
  - Apply wet towels and promote cooling by fanning
  - Apply cold packs or cryothermic packs (if available) to axilla and groin

ALS RMC

Replenish electrolytes by mouth or **NS** 1 liter bolus IV/IO

- Transport all patients rapidly, even if in cardiac arrest
- Treat ALOC, seizures or shock per appropriate policy

CRITICAL INFORMATION

- The following categories of heat illness should be seen as a continuum rather than three distinct categories. Treat heat illness aggressively, particularly in at-risk populations: elderly, pediatric, and patients taking certain medications such as vasoconstrictors, ADHD (i.e: Adderall or Ritalin), beta blockers, diuretics, antidepressants or antipsychotics.

- **Heat Cramps:** Severe painful cramping of fatigued muscles in the setting of heat stress, often following fluid replacement with hypotonic fluids.

- **Heat Exhaustion:** Systemic symptoms often vague and nonspecific, precipitated by significant hypovolemia under conditions of heat stress, and characterized by any of the following: weakness, fatigue, nausea, vomiting, headache, impaired judgment, vertigo, syncope, tachycardia, hypotension and dizziness, often orthostatic. Mental status is normal.

- **Heat stroke:** Catastrophic life-threatening failure of homeostatic thermoregulatory mechanism, manifested by extreme elevation of body temperature and severe CNS dysfunction, which may present as disorientation, delirium, seizure or coma.
COLD INDUCED INJURY

Indications

- Exposure to cold or wet environment

**Signs of life**
- Start warming measures; handle gently

**No signs of life**

- If submersion ≤1 hour
  - Obtain rectal temp
  - If rectal temp <95°F *
    - Initiate warming measures
    - Follow Adult Cardiac Arrest GPC
    - Immediately transport
  - If rectal temp >95°F
    - Follow Adult Cardiac Arrest GPC

- If submersion ≥1 hour
  - Determination of death

**Warming measures**
- Remove all wet clothing
- Cover entire body with warm blankets
- Apply hot packs
- Warm IV fluids

**Symptoms**
- Mild: shivering, increased RR & HR
- Moderate/Severe: ALOC, slurred speech, unsteady gait, slow HR & RR, low BP, ventricular dysrhythmias

**Special Consideration**
- Subtler presentations exist in elderly, newborns, chronically ill, and alcoholics

* Withhold ACLS meds if temp <86°F
**Indications**

- Unidentified and/or identified poisonous snake bite (physical evidence: puncture wound or symptoms of envenomation, local pain, swelling or numbness)

**SPECIAL CONSIDERATIONS**

- Contact hospital early to allow preparation for treatment
- Do not apply tourniquets, incise skin, apply ice, or suction
**BURNS**

**Indications**
- Damage to the skin caused by contact with caustic material, electricity, or fire. Any burn associated with respiratory involvement

- Move patient to safe area and stop the burning process
- Remove contact with the agent, unless adhered to the skin
- Brush away dry chemicals
- Flush with cool water to stop the burning process or to decontaminate
- Expose affected area and apply clean dry sheet
- Remove all clothing/jewelry
- Keep patient warm to avoid hypothermia

- **ALS RMC**

  - High-flow oxygen via NRB for burns involving the chest and for patients with evidence/suspicion of inhalation injury
  - Re-evaluate airway frequently

- **If wheezing is present**
  - Consider **Albuterol** 5mg in 6ml NS HHN

  - **NS TKO IV/IO**
  - Pain management as soon as possible

- Transport according to Destination Guidelines

---

**CRITICAL INFORMATION**
- Consider early intubation for severe facial burns
- Perform frequent airway assessments and consider early intubation for inhalation injury (ie: facial or chest burns, singed nares, soot/blisters in oropharynx)
- Burns with trauma mechanism need to be transported per the Marin County Trauma Triage Tool

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**December 2019**

**County of Marin EMS**

**E 4**
**DROWNING/NEAR DROWNING**

**Indications**

- Drowning: loss of consciousness in water, now in full arrest
- Non-drowning: loss of consciousness in water, not in full arrest

**ALS RMC**

- Ensure patent airway
- Protect cervical spine if neck injury suspected

- High flow oxygen
- Prepare to support ventilations with appropriate airway adjuncts
- CPAP if available

**Anticipate vomiting:** take precautions against aspiration and be prepared to suction

- Remove wet clothing
- Keep patient warm and dry

**SPECIAL CONSIDERATIONS**

- If patient presents in full arrest and is normothermic, treat as cardiac arrest
- If patient is hypothermic (<95°F), refer to Cold Induced Injury policy
NON-TRAUMATIC SHOCK

Indications
- SBP <90 and signs of shock: ALOC, severe vomiting, diarrhea, dark tarry stools, or vaginal bleeding

ALS RMC

Initiate 2 large bore IVs

• NS 250ml bolus IV/IO
  • Repeat as needed up to 2 liters

If SBP <80
- ☎ PHYSICIAN CONSULT for Push-dose Epinephrine
  • Mix 1ml Epinephrine (0.1mg/ml concentration) with 9ml NS in a 10ml syringe
  • Administer Push-dose Epinephrine 1ml IV/IO
    • Repeat every 3-5 min
    • Titrate to maintain SBP >80mmHg

Monitor BP every 5 min

CRITICAL INFORMATION
- If rales present, see Acute Pulmonary Edema Policy, R 5
ALLERGIC REACTION & ANAPHYLAXIS

Indications

- Urticaria, wheezing, or signs of shock after exposure to common allergens (stings, drugs, nuts, seafood, medications)

SPECIAL CONSIDERATIONS

- **Epinephrine** may cause anxiety, tremors, tachycardia, and headache in the elderly (>50 yrs), and may precipitate AMI, hypertensive crisis and dysrhythmias
- Edema of any of the soft tissue structures of the upper airway may be lethal. Frequently assess and prepare for early intubation

### Mild:

- **hives, rash**
  - **Benadryl** 50mg IV/IO/IM

### Moderate:

- **hives, rash, mild bronchospasm/wheezes, normotensive**
  - **Benadryl** 50mg IV/IO/IM
  - **Epinephrine** 0.3mg IM (1mg/ml concentration)
    - **MR** x1 in 5 min
  - **Albuterol** 5mg in 6ml NS via HHN, if indicated for respiratory symptoms

### Severe: Anaphylaxis

- Treat dysrhythmias per appropriate protocol
- High flow O2; advanced airway as needed
- **Epinephrine** 0.3mg IM (1mg/ml concentration)
  - **MR** x1 in 5 min
- Large bore IV and **NS** fluid bolus 250-500ml IV/IO
  - **MR** as needed
  - **Benadryl** 50mg IV/IO/IM
  - **Albuterol** 5mg in 6ml NS via HHN
  - Repeat if indicated

If SBP <80 mmHg

- **PHYSICIAN CONSULT** for **Push-dose Epinephrine**
  - Mix 1ml Epinephrine (0.1mg/ml concentration) with 9ml NS in a 10ml syringe
  - Administer **Push-dose Epinephrine** 1ml IV/IO
    - Repeat every 3-5 min
    - Titrate to maintain SBP >80mmHg

Monitor BP every 5 min
POISONS/DRUGS

Indications
- Exposure to one or more toxic substances (ingestion, inhalation, or skin contact)

ALS RMC

- Consider contacting Poison Control Center at 1(800) 404-4646 for additional information. If information from Poison Control is outside of scope of practice, contact intended receiving facility for consult
- If LOC diminishes, protect airway
- If skin or eye exposure, decontaminate patient, remove clothing, wash skin, continuous irrigation of eyes

Caustics/Corrosives
Ingestion of substances causing intra-oral burns, painful swallowing or inability to handle secretions
- Do not induce vomiting

Hydrocarbons or Petroleum distillates
Kerosene, gasoline, lighter fluid, furniture polish
- Do not induce vomiting
- Transport immediately

Phenothiazine reactions
Restlessness, muscle spasms of the neck, jaw, and back; oculogyric crisis, history of ingestion of phenothiazine, or unknown medication
- **Benadryl** 50mg IV/IO

Insecticides
Organophosphates, carbonates; can cause cholinergic crisis characterized by bradycardia, increased salivation, lacrimation, sweating, muscle fasciculation, abnormal cramping, pinpoint pupils, incoherence or coma
- **Atropine** 2mg IV/IO slowly
  - Repeat every 2-5 min until drying of secretions, reversal of bronchospasm and reversal of bradycardia.
  - Max dose: 10mg

Cyclic Antidepressants
Frequently associated with respiratory depression, almost always tachycardic, widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions
- In the presence of life-threatening dysrhythmias
  - Hyperventilate if assisting ventilations or intubating
- **Sodium Bicarbonate** 50mEq IV/IO

If seizure
- Go to Seizure Policy, N2

If seizure
- Go to Seizure Policy, N2
SEVERE NAUSEA/VOMITING

Indications

- Severe nausea
- Intractable vomiting
- Patients ≥ 4 years of age
- Motion sickness

**ALS RMC**

- **Zofran** 4mg ODT/IM or slow IV/IO over 30 seconds
  - MR x1 in 10 min

**If nausea due to motion sickness**

- Consider **Benadryl** 50mg IV/IO/IM

CRITICAL INFORMATION

- **Zofran** contraindicated in patients with known sensitivity to **Zofran** or other 5-HT3 antagonists:
  - Granistron (Kytril)
  - Dolasetron (Anzemet)
  - Palonosetron (Aloxi)
**SEPSIS**

**Indications**
- Documented or suspected infection with at least TWO of the following:
  - HR > 90
  - RR > 20
  - SBP < 90
  - Temperature >100.4 or <96
  - **AND** ETCO2 ≤25 mmHg

**If patient meets criteria, provide Sepsis Notification**
- Two large bore IVs or IOs
- **NS** bolus 20ml/kg IV/IO. May give up to two liters of fluid

**If SBP <80 mmHg**
- ** PHYSICIAN CONSULT** for **Push-dose Epinephrine**
  - Mix 1ml Epinephrine (0.1mg/ml concentration) with 9ml NS in a 10ml syringe
  - Administer **Push-dose Epinephrine** 1ml IV/IO
  - Repeat every 3-5 min
  - Titrate to maintain SBP >80mmHg
  - Monitor BP every 5 minutes

**CRITICAL INFORMATION**
- If rales present, see Acute Pulmonary Edema Policy, R 5
COMA/ALOC

Indications

• GCS <15, etiology unclear (consider AEIOU TIPS); sudden onset of weakness, paralysis, confusion, speech disturbances, headache

ALS RMC

Position patient with head elevated 30 degrees or left lateral recumbent if vomiting

BG <60 or immeasurable

• Dextrose 10% 25GM/250ml
  • 125ml bolus IV/IO over 10 min
  • Recheck BG and repeat as needed

BG <60 or immeasurable and unable to start IV

• Glucagon 1mg IM

Opiate Overdose

• Narcan
  • IV/IO/IM: 0.4-4mg
  • Repeat q2-3 min until patient responds
  • IN: 2mg (1mg per nostril)
  • Repeat q2-3 min until patient responds

SPECIAL CONSIDERATIONS

• Indication for c-spine precautions
• Diabetic complications
• If CVA suspected, see CVA/Stroke Policy, N 4
SEIZURE

Indications

• Recurring or continuous generalized seizures with ALOC
• Status epilepticus (two or more successive seizures without a period of consciousness, or one seizure lasting longer than five minutes)

SPECIAL CONSIDERATIONS

• Consider treatable etiologies (hypoglycemia, hypoxia, narcotic overdose, unusual odor of alcohol, signs of trauma, medic alert tag) prior to administering anti-seizure medications
• Expect and manage excessive oral secretions, vomiting, and inadequate tidal volume
• Treatment should be based on the severity and length of the seizure activity
• Focal seizures without mental status changes may not require pre-hospital pharmacological intervention
• Never administer Midazolam rapid IV/IO since cardiac and/or respiratory arrest may occur

Midazolam Weight Based Chart-
MAXIMUM DOSING for IV/IO only

<table>
<thead>
<tr>
<th>Kg</th>
<th>Lb</th>
<th>Dose (0.05mg/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-50</td>
<td>88-110</td>
<td>2-2.5mg</td>
</tr>
<tr>
<td>51-60</td>
<td>111-132</td>
<td>2.5-3mg</td>
</tr>
<tr>
<td>61-70</td>
<td>133-154</td>
<td>3-3.5mg</td>
</tr>
<tr>
<td>71-80</td>
<td>155-176</td>
<td>3.5-4mg</td>
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<tr>
<td>81-90</td>
<td>177-198</td>
<td>4-4.5mg</td>
</tr>
<tr>
<td>91-100</td>
<td>199-220</td>
<td>4.5-5mg</td>
</tr>
<tr>
<td>&gt;100</td>
<td>&gt;220</td>
<td>5mg</td>
</tr>
</tbody>
</table>

If seizing upon EMS arrival (suspect status epilepticus):
• **Midazolam** IM/IN: 5mg (2.5mg in each nostril if IN)
  • MR x1 in 2 min if still seizing
  • Do not delay **Midazolam** administration for IV or IO insertion

If seizure starts after EMS arrival:
• **Midazolam**
  • IV/IO: 1 mg slowly
  • MR q3 min until seizure stops or
  • Max dose: 0.05mg/kg
  • IM: 5mg
  • MR x1 in 2 min if still seizing
  • IN: 5mg (2.5mg in each nostril)
SYNCOPE

**Indications**

- Episode of brief loss of consciousness, dizziness, often postural

**CRITICAL INFORMATION**

- If abnormal vital signs or loss of consciousness, do not do postural vital signs
**CVA**

**Indications**
- Sudden onset of weakness/paralysis, speech or gait disturbance

**ALS RMC**
- IV access (AC preferred) if patient meets Early Stroke Notification criteria
- Elevate head of bed 20-30° or place in left lateral recumbent

**If last known well <4.5 hours and BG >60**
- Provide Early Stroke Notification if any are true:
  - Abnormal Cincinnati Pre-hospital Stroke Scale (CPSS) score
  - Abnormal Visual Fields Assessment
  - Abnormal Cerebellar Assessment
  - Symptoms are most likely due to stroke and not a stroke mimic

**If the patient meets criteria for early notification**
- During radio report, provide patient identifying information- medical record number if known and/or last name and DOB of patient
- Rapidly transport to patient’s preferred Primary Stroke Center (PSC), as long as the estimated transport time is not 15 min longer than the closest PSC
  - Preferred PSC: patient’s preference or PSC with patient’s medical records
  - No preferred PSC: transport to the closest PSC
- Notify family members/medical decision maker that their immediate presence at the hospital is critical for optimal care
- Bring names and best phone numbers for the patient’s medical decision maker and who last saw the patient normal whenever possible

**If high suspicion of rapidly progressive intracranial bleed**
(sudden, witnessed onset of coma or rapidly deteriorating GCS especially in the setting of severe headache)
- Transport to MarinHealth Medical Center
**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 drift 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 another sentence)
  - Normal: The patient says the correct words with no slurring or words
  - Abnormal: The patient slurs words, says the wrong words, or is unable to speak

**Visual Fields/Cerebellar Assessment**

- Visual Fields Assessment
  - Normal: Patient able to count fingers in all four visual field quadrants
  - Abnormal: Patient unable to correctly count fingers in one or more visual field quadrants

- Cerebellar Assessment (finger-to-nose)
  - Normal: Patient able to move their index finger from their nose to the examiner’s finger
  - Abnormal: Patient exhibits clumsy/unsteady movements or “overshoots”
VAGINAL HEMORRHAGE

Indications

- Profuse or abnormal vaginal bleeding, any bleeding in pregnancy, including signs of shock

**Non-pregnant**
- Trendelenberg position

**Pregnant >20 weeks**
- Position on left side and support abdomen, including patients immobilized on backboard

**3rd trimester or post-partum with blood loss >500ml**
- 2nd large-bore IV

**Post-partum and placenta delivered**
- Fundal massage and put infant to breast, if appropriate

- **NS 250ml IV/IO**
  - MR as needed to maintain SBP ≥ 100
IMMINENT DELIVERY (NORMAL)

**Indications**

- Anticipated delivery as indicated by regular contractions, bloody show, low back pain, feels like bearing down, crowning of infant head

**ALS RMC**

- Provide reassurance and instructions during delivery
- Contact hospital
- If infant is < 36 weeks gestation, prepare for neonatal resuscitation and early transport

**Start IV; NS TKO if time allows prior to delivery**

**During Delivery**

- As head is delivered, gently suction baby’s mouth and nose keeping head dependent
- If the cord is around neck and can’t be slipped over the head: Double clamp and cut between clamps

**After Delivery**

- Allow delivery, dry baby and keep warm
- Place baby on mother’s abdomen or breast
- Delay cord clamping until 30-60 seconds after birth, then clamp and cut 6-8 inches from baby
- Apgar score at 1 and 5 minutes
- Allow delivery of placenta, save and bring to hospital

**APGAR SCORE**

<table>
<thead>
<tr>
<th>Sign</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart Rate</td>
<td>Absent</td>
<td>Slow (&lt;100)</td>
<td>≥100</td>
</tr>
<tr>
<td>Respiration</td>
<td>Absent</td>
<td>Slow, irregular</td>
<td>Good, crying</td>
</tr>
<tr>
<td>Muscle Tone</td>
<td>Limp</td>
<td>Some flexion</td>
<td>Active motion</td>
</tr>
<tr>
<td>Reflex Irritability</td>
<td>No response</td>
<td>Grimace</td>
<td>Cough, sneeze, cry</td>
</tr>
<tr>
<td>Color</td>
<td>Blue or pale</td>
<td>Pink body with blue extremities</td>
<td>Completely pink</td>
</tr>
</tbody>
</table>
**IMMINENT DELIVERY (COMPLICATED)**

**Indications**
- Presentation of buttocks, extremity or umbilical cord prior to delivery of infant head
- Prolapsed cord: cord presents first and is compressed during delivery compromising infant circulation

**Breech Presentation (buttocks or feet)**
- Begin transport with early receiving hospital contact
- BLS/ALS RMC
- Allow delivery to proceed until baby’s waist appears
- Rotate baby to face down position (do not pull)
- **If head does not deliver in 3 minutes**
  - Insert gloved hand into vagina to create an air passage for infant

**Limb Presentation**
- Position mother on gurney in left lateral with hips elevated

**Prolapsed Cord**
- Insert gloved hand into vagina and gently push presenting part off cord
- **Do not** attempt to reposition cord
- Cover cord with saline soaked gauze
- Placed mother in knee-chest position
- **NS IV TKO** only if not delaying transport
SEVERE PRE-ECLAMPSIA/ECLAMPSIA

**Indications**

- Third trimester pregnancy with the following signs and symptoms:
  - Hypertension (SBP >160, DBP >110)
  - Mental status changes
  - Persistent headache
  - Visual disturbances
  - Peripheral edema (pre-eclampsia)
  - Seizures and/or coma (eclampsia)

**Diagram**

1. Position on left side
2. ALS RMC
3. Transport quickly with a quiet environment (no siren)
4. NS IV TKO started enroute
5. If seizure: Go to Seizure Policy, N2
6. If DBP>110:
   - PHYSICIAN CONSULT for NTG
   - NTG 0.4mg spray/SL
   - MR in 10 min
RESPIRATORY ARREST

Indications

• Absence of spontaneous respirations; pulse present

ALS RMC

Assist breathing with BVM

If suspected opiate overdose

• Do not insert advanced airway before Narcan
• Narcan
  • IV/IO/IM: 0.4-4mg
    • Repeat q2-3 min until patient responds
  • IN: 2mg (1mg per nostril)
    • Repeat q2-3 min until patient responds
**AIRWAY OBSTRUCTION**

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

---

**Able to Speak**
- Suction as needed to control secretions
- Transport in position of comfort
- Avoid agitating patient

**Unable to Cough or Speak**
- Ask patient if they’re choking
- Administer abdominal thrusts/Heimlich maneuver until foreign body is expelled or patient becomes unconscious
- After obstruction is relieved reassess:
  - Airway
  - Lung sounds
  - Skin color
  - Vital signs

**Unconscious**
- Perform tongue-jaw lift followed by finger sweep to remove object
- Begin CPR
- Prepare to use Magill forceps to retrieve foreign body

**Suspected Epiglottitis**
- Transport in upright position
- If patient deteriorates or the airway becomes obstructed, attempt positive pressure ventilation via BVM.
- PHYSICIAN CONSULT for endotracheal intubation only if BVM is inadequate

---

**ALS RMC**

Visualize airway
Indications

- Increased respiratory rate or sensation of difficulty breathing that is not clearly due to the clinical entities specified in other guidelines. Symptoms may be due to pneumonia, inhalation of toxic substances, pulmonary embolus

If absent or diminished breath sounds due to severe bronchospasm
- Go to Bronchospasm/Asthma/COPD, R 4

Consider CPAP with decreased oxygen saturation
Indications

- Acute or progressive shortness of breath, chest discomfort, wheezing, cyanosis

ALS RMC

Mild to Moderate

- Pt may be unable to speak full sentences
- Minimal accessory muscle use

- **Albuterol** 5mg in 6ml NS HHN
- MR if necessary
- **Atrovent** 500mcg (2.5ml) HHN

Severe

- Altered mental status
- Minimal air movement
- Inability to speak
- Significant oxygen desaturation <90%
- Cyanosis

- Consider CPAP
- **Albuterol** 5mg in 6ml NS HHN
  - MR if necessary
- **Atrovent** 500mcg (2.5ml) HHN
- If **Albuterol** and **Atrovent** not effective:
  - **Epinephrine** 0.3mg IM (1mg/ml concentration)
  - MR once in 5 min

Special Considerations

- Do not repeat **Albuterol/Atrovent** if significant tachycardia or chest pain
- **Epinephrine** may cause anxiety, tremor, palpitations, tachycardia, HTN, headache, and may precipitate AMI, hypertensive crisis and intracranial hemorrhage
- Consider use of patient actuated nebulizer with prolonged scene times and/or transport times over 10 minutes.
- Suspected carbon monoxide in cases of exposure to fire or smoke in confined areas; pulse oximetry in these settings is not accurate measure of respiratory status
ACUTE PULMONARY EDEMA

Indications

- Acute onset of respiratory difficulty; associated with the following signs or symptoms:
  - Rales
  - Hypertension
  - Tachypnea
  - Diaphoresis
  - Chest discomfort
  - History of cardiac disease
  - Occasional wheezes
  - Near drowning

ALS RMC

If tolerated, position patient in a sitting position with legs dependent

12-lead EKG if available

SBP >100
- Apply CPAP
- Nitroglycerin 0.4mg SL
- MR q5 min if SBP >100

SBP <100
- Consider NS 250-500ml IV/IO fluid challenge

SBP <80
- PHYSICIAN CONSULT for Push-dose Epinephrine
  - Mix 1ml Epinephrine (0.1mg/ml) with 9ml Normal Saline in a 10ml syringe
  - Administer Push-dose Epinephrine 1ml IV/IO
    - Repeat every 3-5 min
    - Titrate to maintain a SBP >80mmHg

Monitor B/P q5 min

SPECIAL CONSIDERATION

- Do not give Nitroglycerine if patient has taken erectile dysfunction medication within the previous 24 hours for Levitra/Viagra or 36 hours for Cialis
PNEUMOTHORAX/TENSION PNEUMOTHORAX

**Indications**

- Acute onset of respiratory distress with decreased unilateral or bilateral breath sounds. Signs and symptoms may include the following:
  - Extreme dyspnea
  - Neck vein distention
  - Agitation
  - Hypotension
  - Cyanosis
  - Hyperresonance to percussion on affected side
  - Tracheal shift away from the affected side

**SPECIAL CONSIDERATION**

- Condition may be precipitated by the following:
  - Trauma
  - Pre-existing lung disease
  - Cancer related treatment
  - Marfan’s syndrome

ALS RMC → Needle thoracostomy on affected side with signs of tension pneumothorax → Rapid transport
TOXIC INHALATION

Indications

- Respiratory distress caused by inhalation of toxic gases
- Symptoms may include headache, malaise, dizziness, nausea/vomiting, seizures, hypotension, coma; may be associated with cherry-red color of mucous membranes (late sign)
- Consider carbon monoxide (CO) poisoning or cyanide poisoning with any patient exposed to products of combustion toxic gases in an enclosed area

Rapid removal of patient from toxic environment

High flow oxygen; give oxygen despite normal SpO2

ALS RMC

If wheezing
- **Albuterol** 5mg in 6ml NS via HHN
- Repeat as indicated

CO monitoring, if available

**High Suspicion of CO poisoning**
- Any patient (non-smoker) with CO >9%
- Any patient (smoker) with CO >12%

**At Risk for CO poisoning**
(at risk= pregnant, children <6y, elderly, patients with hx of respiratory problems)
- Any “at risk” patient (non-smoker) with CO >4%
- Any “at risk” patient (smoker) with CO >8%
- Any patient with CO sx and confirmed source of CO

If patient exhibits serious signs and symptoms of smoke inhalation (ie: unconscious/unresponsive, hypotension, and/or severely ALOC)

- Treat with **CYANOKIT** (hydroxocobalamin)
  - Adult: 5g IV/IO infusion over 15 min. MR x1 if severe signs of poisoning and lack of clinical response to first dose
  - **Max total dose**: 10g
  - Pediatric: not approved
Indications

- Suspected or apparent injuries which meet conditions listed on the Marin County Trauma Triage Tool

ALS RMC

Trauma center notification

Control of bleeding

Pain management as appropriate

If SBP <100

- Consider 2 large bore IV/IOs
- **NS** fluid challenge 250-500ml IV/IO

Prepare for early and rapid transport to the appropriate trauma center

For head injury patients, consider **Zofran** to prevent vomiting which could increase ICP

SPECIAL CONSIDERATION

- If injury may have resulted from abuse, neglect, assault, attempted suicide/homicide and/or other crimes, refer to Suspected Abuse/Neglect/Human Trafficking Policy for reporting
CRUSH SYNDROME

**Indications**

- Extended extremity or torso entrapment (usually >2 hours)

**Pre-extrication**

- **Albuterol** 5mg in 6ml NS HHN. Consider use of patient actuated nebulizer with prolonged scene times and/or transport times >10 min
- **Sodium Bicarbonate** 50mEq IV/IO (flush line with NS before and after administration)
- **NS** 20ml/kg IV/IO bolus, prior to release of compression, in addition to standard trauma fluid resuscitation
- Pain management as appropriate

**Post-extrication**

- **Albuterol** 5mg in 6ml NS HHN if wheezing or evidence of hyperkalemia. Consider use of patient actuated nebulizer with prolonged scene times and/or transport times >10 min
- If suspected hyperkalemia (absent P waves, peaked T waves, prolonged QRS and/or evidenced by hypotension), **Calcium Chloride** 1gm IV/IO slowly over 5 min (flush line with NS before and after administration)

**SPECIAL CONSIDERATION**

- Do not run **Sodium Bicarbonate** and **Calcium Chloride** concurrently; either flush line well or use two lines
**Indications**

- Injuries incurred from police interventions such as taser, bean bags, or chemical agents

**BLS/ALS RMC**
- Irrigate eyes with NS as needed

**If Pepper Spray or Tear Gas**
- Remove clothing

**Pain management as appropriate**

**If Taser Injury**
- Remove embedded probes and dispose of in sharps container. If probes cannot be removed due to pt’s agitation/location of probe/or safety hazard, cover the probe with gauze.
- Do NOT remove probes if located in the following areas: face, neck, groin, spinal column or any area deemed to be problematic.
- Must be transported to a hospital.

**Treat according to Adult Sedation Protocol** if agitation/combativeness interferes with critical ALS interventions and airway control or that endangers patient or caregiver.

**SPECIAL CONSIDERATION**
- If injury may have resulted from abuse, neglect, assault, attempted suicide/homicide and/or other crimes, refer to Suspected Abuse/Neglect/Human Trafficking Policy for reporting.
**CPR Ratios**
- One rescuer: 30:2
- Two rescuer: 15:2

**Airway Management**
- BLS airway is preferred
- Avoid excessive ventilation
- Place younger child in sniffing position for neutral airway positioning
- Consider advanced airway only if ≥12 years or height > color coded resuscitation tape and unable to ventilate with BVM
- Laryngoscopy for ETT must occur with CPR in progress.
- Do not interrupt CPR for >10 seconds for tube placement
- Use ETCO2
- Maintain SpO2 94-99%
- 1 breath every 6 sec.

**Drug Therapy**
- **Epinephrine** 0.01mg/kg (0.1mg/ml) IV/IO
  - Repeat every 3-5 min
- **Amiodarone** 5mg/kg IV/IO followed by or diluted in 20-30ml NS

**Reversible Causes**
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma
NEONATAL RESUSCITATION

Birth

Crying and/or good muscle tone?

- Dry warm, stimulate
- Assess HR

HR <100?

Ventilate 15sec
- Monitor SpO2

HR <60?

CPR 30 sec

HR <60?

CPR 1 min
- Treat reversible causes

Epinephrine
- Repeat every 3-5min

Routine Care:
- Warm & maintain normal temperature
- Position airway
- Clear secretions if needed
- Dry
- O2 as needed
- Ongoing evaluation
- If mother stable, place on mother’s chest for skin to skin care

CRITICAL INFORMATION
- Measure with color-coded resuscitation tape
- Compress at rate of 90bpm
- Use metronome or similar device
- 3:1 compression/ventilation ratio with 2 person CPR
- Peripheral cyanosis is a normal finding
- Delay cord clamping until 30-60 seconds after birth, then double clamp 6-8” from baby and cut between clamps
- If cord is around neck and can’t be slipped over the head, double clamp and cut between clamps

Airway Management
- Suction mouth then nose
- Ventilate at a rate of 60 breaths/min
- Use 2 person BLS airway management whenever possible
- Avoid excessive ventilation
- If HR >100 but SpO2 not in target range or central cyanosis present, administer blow-by O2 at 10LPM

Drug Therapy
- Epinephrine 0.01mg/kg (0.1mg/ml concentration) IV/IO
- Repeat q3-5min
- NS fluid bolus 10ml/kg IV/IO

SpO2 Normal Values After Birth (in Min)

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>SpO2 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60-75%</td>
</tr>
<tr>
<td>2</td>
<td>65-70%</td>
</tr>
<tr>
<td>3</td>
<td>70-75%</td>
</tr>
<tr>
<td>4</td>
<td>75-80%</td>
</tr>
<tr>
<td>5</td>
<td>80-85%</td>
</tr>
<tr>
<td>10</td>
<td>85-95%</td>
</tr>
</tbody>
</table>
**PEDiATRIC BRADYCARDiA**

**Indications**
- HR <60 causing cardio-respiratory compromise

**ALS RMC**
- 12-lead EKG
- IV/IO Access

**Signs of shock present?**
- Monitor and transport
- Assist respirations with BVM as needed
- CPR if <8 yrs and HR <60 after effective ventilations
- **Epinephrine** 0.01mg/kg (0.1mg/ml) IV/IO
  - MR q 3-5 min

**If 1st° block or Mobitz type I**
- **Atropine** 0.02mg/kg IV/IO
  - Max single dose: 0.5mg
  - Minimum single dose: 0.1mg
  - MR x1

**Advanced airway placement approved for patients ≥12 years or height > than the length of the color-coded resuscitation tape and unable to ventilate with BVM**

**Reversible causes:**
- Hypovolemia
- Hypoxia
- Hydrogen Ion (Acidosis)
- Hypo/Hyperkalemia
- Hypothermia
- Tension Pneumothorax
- Tamponade (cardiac)
- Toxins
- Thrombus
- Trauma

**Special Consideration**
- Monitor and transport
Indications

• Rapid heart rate (infant HR >220 bpm; child HR >180 bpm) with pulse and poor perfusion

If normal QRS ≤ 0.09 sec
• Consider vagal maneuvers, but do not delay other treatments
• If vascular access readily available, Adenosine 0.01mg/kg IV/IO
  • Max first dose: 6mg
  • MR x1 (double the dose)
  • Max dose: 12mg
• Follow each with rapid 10ml NS flush
• Pre-medicate with Midazolam 0.05mg/kg IV/IO slowly
  • Max dose: 1mg
• Do not delay cardioversion if patient unstable
• Cardiovert: 0.5-1J/kg
  • If not effective, increase to 2J/kg
• ☎ PHYSICIAN CONSULT for Amiodarone if no response to cardioversion
  • 5mg/kg IV over 20-60 minutes

If wide QRS ≥0.09 sec
• Pre-medicate with Midazolam 0.05mg/kg IV/IO slowly
  • Max dose: 1mg
• Do not delay cardioversion if patient unstable
• Cardiovert: 0.5-1J/kg
  • If not effective, increase to 2J/kg
• PHYSICIAN CONSULT for Amiodarone if no response to cardioversion
  • 5mg/kg IV over 20-60 minutes

SPECIAL CONSIDERATION

Reversible causes:
• Hypovolemia
• Hypoxia
• Hydrogen Ion (Acidosis)
• Hypo/Hyperkalemia
• Hypothermia
• Tension Pneumothorax
• Tamponade (cardiac)
• Toxins
• Thrombus
• Trauma
**PEDIATRIC BURNS**

**Indications**

- Damage to the skin or an inhalation injury caused by contact with fire, heat, electricity, or caustic material

**CRITICAL INFORMATION**

- Perform frequent airway assessments and consider early intubation for inhalation injury (ie: facial or chest burns, singed nares, soot/blisters in oropharynx)
- Burns with trauma mechanism need to be transported per the Marin County Trauma Triage Tool

**If wheezing**

- Consider **Albuterol** 2.5mg in 3ml NS HHN
  - **MR x1**

**ALS RMC**

- High-flow oxygen via NRB for burns involving the chest and for patients with evidence/suspicion of inhalation injury

**NS TKO IV/IO, do not administer fluid bolus**

- Pain management as soon as possible
**Indications**

- Inadequate organ and tissue perfusion to meet metabolic demands

**If unable to establish vascular access**

- **Glucagon** 0.03 mg/kg IM
  - MR x 2 q 15 min
  - **Max dose:** 1mg

**If symptoms of anaphylaxis**

- Go to Allergic Reaction Policy, PM 2
PEDIATRIC ALLERGIC REACTION

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

**Mild**
(hives, rash)
- **Benadryl** 1mg/kg IM
  - MR in 10 min
  - Max dose: 50mg

**Moderate/Severe**
- **Epinephrine** (1mg/ml concentration) 0.01mg/kg IM
  - MR in 5 min
  - Max total dose: 0.6mg
- **Benadryl** 1mg/kg IM/IV/IO
  - MR in 10 min
  - Max dose: 50mg
- **Albuterol** 2.5mg in 3ml NS
  HHN if bronchospasm present
  - MR x1 if no improvement

**If Hypotensive**
- **NS** fluid bolus 20ml/kg IV/IO
  - MR as needed

**If unresponsive/no palpable BP or pulse**
- Go to Pediatric Cardiac Arrest Policy, PC 1
**Indications**

- Probable ingestion and/or exposure to one or more toxic substances, including alcohol and medications

---

**Caustics/Corrosives**
Ingestion of substances causing intra-oral burns, painful swallowing or inability to handle secretions
- Do not induce vomiting

**Hydrocarbons or Petroleum distillates**
Kerosene, gasoline, lighter fluid, furniture polish
- Do not induce vomiting
- Transport immediately

**Phenothiazine reactions**
Restlessness, muscle spasms of the neck, jaw, and back; oculogyric crisis, history of ingestion of phenothiazine, or unknown medication
- Benadryl 1mg/kg IV/IO/IM
- Max dose: 50mg

**Insecticides**
Organophosphates, carbonates; can cause cholinergic crisis characterized by bradycardia, increased salivation, lacrimation, sweating, muscle fasciculation, abnormal cramping, pinpoint pupils, incoherence or coma
- Atropine 0.05mg/kg IV/IO slowly
- Repeat every 5-10 min until symptoms resolve

**Calcium Channel Blockers/Cyclic Antidepressants/Beta Blockers**
Frequently associated with respiratory depression, almost always tachycardic, widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions
- Transport immediately
- PHYSICIAN CONSULT for additional treatments

---

**If seizure**
- Go to Pediatric Seizure Policy, PN 1
BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)

Indications
- A frightening episode to the observer characterized by some combination of:
  - Apnea
  - Color change (cyanosis, pallor, erythema)
  - Marked change in muscle tone
  - Unexplained choking or gagging

ALS RMC
- Check blood glucose and treat if <60 mg/dl (<40 mg/dl for neonate)
  - Neonate: D10W 2ml/kg IV/IO over 10 min
  - > Neonate: D10W 5ml/kg IV/IO over 10 min

If unable to establish vascular access
- Glucagon 0.03 mg/kg IM
  - MR x2 q15 min
  - Max dose: 1mg

 PHYSICIAN CONSULT
- Parent/Designated Decision Maker refuses medical care and/or transport

SPECIAL CONSIDERATIONS
- Most BRUE patients have normal physical exam
- Assume parental history is real, document parent’s account in detail
- Encourage transport no matter how well the patient might appear
PEDIATRIC SEXUAL ASSAULT

**Indications**

- Patients under 14 years of age with complaints consistent with sexual assault

**BLS/ALS RMC**

- Calm/reassure patient
- Assign responder of same sex as patient, if possible
- Treat medical conditions/traumatic injuries per protocol

If no medical conditions/traumatic injuries are apparent and assault occurred within 72 hours

- Law Enforcement will take victim to Children’s Hospital Oakland (CHO) for a medical evidentiary examination
- Call the Emergency Department at CHO (510) 428-3240 and ask for the ED social worker on call

If no medical conditions/traumatic injuries are apparent and assault occurred >72 hours

- Law Enforcement will make a decision of whether or not to proceed with the forensic medical examination

If patient/Designated Decision Maker (DDM) refuses transport

- Instruct patient/DDM not to shower and advise of alternative care/transport options per AMA or RAS policy

**CRITICAL INFORMATION**

- Notify police and dispatch of nature of call
- Preserve possible evidence and advise patient not to clean, bathe, or change clothes until after examination by hospital personnel
**PEDIATRIC SEIZURE**

**Indications**
- Recurring or continuous generalized seizures with ALOC

- **ALS RMC**

- **IV/IO access for prolonged seizures**
  - Check blood glucose and treat if <60mg/dl (<40 mg/dl for neonate)
  - Neonate: **D10W** 2ml/kg IV/IO over 10 min
  - > Neonate: **D10W** 5ml/kg IV/IO over 10 min

- **If unable to establish vascular access**
  - **Glucagon** 0.03 mg/kg IM
    - MR x2 q15 min
    - Max dose: 1mg

- **Midazolam**
  - IV/IO: 0.05mg/kg
    - Max per dose: 1mg
    - MR x2 q15 min
  - IM: 0.1mg/kg
    - MR x1 in 10 min if still seizing
  - IN: 0.2mg/kg
    - Split dose equally per nostril
    - Max dose: 5mg

**CRITICAL INFORMATION**
- Evaluate for and treat hypoglycemia, hypoxia, narcotic overdose, trauma, fever, etc. prior to administering anti-seizure medications
PEDIATRIC ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

Indications
• Abnormal neurologic state where child is less alert and interactive than is age appropriate

ALS RMC
• Check blood glucose and treat if <60mg/dl (<40 mg/dl for neonate)
• Neonate: D10W 2ml/kg IV/IO over 10 min
• > Neonate: D10W 5ml/kg IV/IO over 10 min

If unable to establish vascular access
• Glucagon 0.03 mg/kg IM
• MR x2 q15 min
• Max dose: 1mg

If suspected opiate overdose
• Narcan 0.1mg/kg IM/IV/IO/IN
• MR q5 min
• Max dose: 2mg if no improvement in ALOC and strong suspicion of opiate exposure

CRITICAL INFORMATION
• Narcan is contraindicated with neonatal resuscitation
**PEDIATRIC RESPIRATORY DISTRESS**

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

**Upper Airway/Stridor**
- Mild-moderate distress: **NS** 3ml HHN
- Moderate to severe distress: **Epinephrine** (1mg/1ml concentration) 5mg in 5ml NS HHN

**Lower Airway/Wheezeing**
- **Albuterol** 2.5mg in 3ml NS HHN, mask, or BVM
  - **MR x1**
  - **Atrovent** 500mcg in 2.5ml NS HHN, mask or BVM
  - If response inadequate, **Epinephrine** (1mg/1ml concentration) 0.01mg/kg IM
  - **MR in 5 min**
  - **Max total dose:** 0.6mg

**Foreign Body Obstruction**
- Attempt to clear airway
  - <1 year: 5 back blows and 5 chest thrusts
  - >1 year: 5 abdominal thrusts
  - For FBO refractory to above attempts, utilize laryngoscopy to visualize and remove foreign body with Magill forceps

**Respiratory failure/apnea/complete obstruction**
- Attempt positive pressure ventilation with BVM
- Advanced airway approved for patients ≥12 years or height > than the length of the color-coded resuscitation tape and unable to ventilate with BVM

**Position of comfort**
- Allow parent to administer O2 if possible

**SPECIAL CONSIDERATION**
- Assess key history factors: recent hospitalizations, asthma, allergies, croup, and medication usage
**PEDIATRIC TRAUMA**

**Indications**

- Suspected or apparent injuries which meet conditions listed on the Marin County Trauma Triage Tool

---

**ALS RMC**
- Trauma center notification

---

Secure airway, maintaining c-spine precautions per policy

---

- **NS** bolus 20ml/kg IV/IO
  - MR x1

---

Pain management as appropriate

---

**SPECIAL CONSIDERATION**

- If injury may have resulted from abuse, neglect, assault, attempted suicide/homicide and/or other crimes, refer to Suspected Abuse/Neglect/Human Trafficking Policy for reporting
**Indications**

- Patient with apparent or reported pain

**Morphine**
- IV/IO: 0.1mg/kg
  - MR x2 in 15 min following IV/IO administration
- IM: 0.1mg/kg
  - MR x2 in 30 min
- **PHYSICIAN CONSULT** for additional doses

**Fentanyl** 1mcg/kg slow IV/IO/IN
- MR q5 min
- Max dose: 3mcg/kg
- For IN, divide dose evenly between nostrils
- Have Narcan available

**If Nausea/Vomiting**
- Consider Zofran
  - Ages 2-3 yrs: 2mg ODT or slow IV/IO over 30 sec
  - Age ≥ 4yrs: 4mg ODT or slow IV/IO over 30 sec
  - MR x1 in 10 min

**PHYSICIAN CONSULT**
- Patient less than 6 months of age
- Patients with head, chest, or abdominal trauma; decreased respirations; ALOC (GCS <15)
- Additional doses of Opioid after initial dose administered
<table>
<thead>
<tr>
<th>Drug</th>
<th>Concentration</th>
<th>Standard Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenosine</td>
<td>6mg/2ml</td>
<td>0.1mg/kg rapid IV/IO push, followed by 5ml NS flush</td>
</tr>
<tr>
<td>Max dose: 6mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat: x1 (double the dose); Max dose: 12mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>2.5mg/3ml NS</td>
<td>2.5mg/3ml NS</td>
</tr>
<tr>
<td>Amiodarone</td>
<td>150mg/3ml</td>
<td>Pulseless Arrest: 5mg/kg IV/IO, followed by or diluted in 20-30ml NS</td>
</tr>
<tr>
<td>Max single dose: 300mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tachycardia with poor perfusion: 5mg/kg IV/IO over 20-60 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atropine</td>
<td>1mg/10ml</td>
<td>Bradycardia: 0.02mg/kg IV/IO</td>
</tr>
<tr>
<td>Relax: if still bradycardia: 0.05mg/kg IV/IO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 0.5mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat: x1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organophosphate Poisoning: 0.05mg/kg IV/IO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeat: q5-10 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 4mg or until relief of symptoms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dextrose 10%</td>
<td>D10%</td>
<td>ALOC (Neonate): 2ml/kg IV/IO</td>
</tr>
<tr>
<td>ALOC (&gt;Neonate): 5ml/kg IV/IO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphenhydramine (Benadryl)</td>
<td>50mg/ml or 50mg/10ml</td>
<td>1mg/kg IV/IO/IM</td>
</tr>
<tr>
<td>IV/IO max dose: 25mg/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM max dose: 50mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EpiPen Jr®</td>
<td>0.15mg</td>
<td>Allergic Reaction: 0.01mg/kg IM (0.01mg/kg)</td>
</tr>
<tr>
<td>Repeat: as needed in 5 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Airway/Stridor: 5mg in 5ml via nebulizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine</td>
<td>1mg/10ml</td>
<td>0.01mg/kg IV/IO (0.1ml/kg)</td>
</tr>
<tr>
<td>EpiPen Jr®: repeat as needed in 5 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 1mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhaled: 5mg in 5ml via nebulizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fentanyl</td>
<td>100mcg/2ml</td>
<td>1mcg/kg slow IV/IO/IN</td>
</tr>
<tr>
<td>Repeat: q5 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 3mcg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 1mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lidocaine</td>
<td>20mg/ml</td>
<td>0.5mg/kg slowly</td>
</tr>
<tr>
<td>Repeat: x1 1/2 of initial bolus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 40mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 5mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 5mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
<td></td>
<td></td>
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<tr>
<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 5mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morphine</td>
<td>10mg/ml</td>
<td>Pain Management: 0.1mg/kg (0.1ml/kg) slow IV/IO/IM</td>
</tr>
<tr>
<td>Repeat: x1 in 15 min if IV/IO, 30 min if IM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 1mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
<td>Cardioversion: 0.05mg/kg slow IV/IO</td>
</tr>
<tr>
<td>Seizure: IV/IO: 0.05mg/kg x2 q15 min</td>
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<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
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<td>Maximum dose: 5mg</td>
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<td>Midazolam (Versed)</td>
<td>2mg/ml IN: 5mg/ml</td>
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<td>IM: 0.1mg/kg x1 in 10 min if still seizing</td>
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<td>IN: 0.2mg/kg x1/2 or initial doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum dose: 5mg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naloxone (Narcan)</td>
<td>2mg/2ml</td>
<td>0.1mg/kg (0.25ml/kg) IV/IO</td>
</tr>
<tr>
<td>Repeat: as needed in 5 min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Airway/Stridor: 5mg in 5ml via nebulizer</td>
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<tr>
<td>Epinephrine</td>
<td>1mg/10ml</td>
<td>0.01mg/kg IV/IO (0.1ml/kg)</td>
</tr>
<tr>
<td>Repeat: as needed in 5 min</td>
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