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

YES / **NO**

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

Assess Anatomic Factors

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

YES / **NO**

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

Assess Mechanism of Injury Factors

Assess for – 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

YES / **NO**

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

Assess Additional Factors

Assess for – 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?

YES / **NO**

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 ventalatory 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

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** - Mechansim 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.

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
AIRWAY EQUIPMENT				
Airways:				
· Oropharyngeal (Sizes 0 – 6)	2 each	1 each	1 each	2 each
· Nasopharyngeal, soft rubber (sizes 14Fr., 18Fr., 22Fr., 26Fr., 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

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Oxygen Equipment and Supplies				
· Fixed tank in vehicle with regulator; M-tank or H-tank	1	0	0	1
· Regulator	1	0	1	1
· Portable tank (minimum D tank)	2	0	1	2
· Adult face masks: transparent, non-rebreathing; Child/infant: simple or non-rebreathing	4 each 2, 2	0	1 each	4 each 2,2
· Nasal cannulas (adult, child, infant)	4 each 2, 2	0	1 each	4 each 2,2
· Portable Pulse Oximetry	Optional	optional	Optional	1
Pleural Decompression kit: ≥14g needle, ≥3 inches long; Heimlich valve; occlusive dressing;10 ml syringe	0	1	1	1
Resuscitation bag-valve-mask (BVM) Adult, pediatric, infant	1 each	1 adult	1 each	2,1,1
Suction Equipment and Supplies				
· Suction apparatus – Portable / battery powered	1	1 portable self contained unit	1 portable self contained unit	1
· Suction apparatus – Wall Mount	1	0	0	1
· Pharyngeal tonsil tip (rigid)	2	equivalent	equivalent	2
· Suction catheters: 6 Fr, 8 Fr, 10 Fr, 14 Fr, 16 Fr, 18 Fr	2 each	0	0	2 each
· Suction canister (spares)	2	0	0	2
· Suction tubing	2	0	0	2
DRESSING MATERIALS				
Bandages				
· Bulk non-sterile	1 box / pkg	0	0	1 box
· 4 x 4” sterile gauze pads	12	6	12	12
· 10 x 30” universal dressings	2	0	2	2
· ABD Pads	6	0	0	6
· 40” triangular bandage with safety pins	4	2	2	4
· Elastic bandage 3” (Ace)	2	2	2	2
· Occlusive dressing	4	2	2	4
* Hemostatic dressings (must be CA EMSA approved)	optional	optional	optional	optional
· Roller bandages (2”, 3”, 4”, or 6”)	6	2	3	6
Band-Aids (Assorted)	1 box	0	1 box	1 box
Burn Sheets (sterile) or commercial burn kit	2	2	2	2
Cold Packs / Hot Packs	4ea / 4ea	2 each	2 each	4ea / 4ea
Cryothermic Ice Packs	optional	optional	optional	optional
Tape (1” and 2”)	2 each	1” = 2 rolls	1 each	2 each
Trauma shears	1	1	1	1

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
EQUIPMENT AND SUPPLIES				
Alcohol swabs	12	6	12	12
Bedpan OR Fracture Pan/Covered Urinal	1	0	0	1
Betadine swabs or solution	0	4	4	8
Blanket - disposable	2	2	1	2
Blood Pressure Cuffs (adult, large arm, thigh, pediatric, infant)	1 each	1 adult	1 x adult, thigh, pedi	1 each
Bulb Syringe	1	0	1	1
Drinking Water (one gallon)	1	0	0	1
Emesis basin/ disposable bag/ Covered waste container	2	0	1	2
EMS Field Manual Patient Care (8000) Series	1		1	1
Glucometer	1	1	1	1
Irrigation Equipment				
· Saline (sterile) 1000 ml	2	0	1	2
Length based color-coded resuscitation tape (most current)	0	0	1	1
Lubricant, water soluable	4	0	4 packs	4 packs
Mechanical CPR device	0	0	0	1
Monitor/defibrillator equipment				
· Cardiac monitor – (portable) must have strip recorder, defibrillator/transcutaneous pacing ability for child / adult. May be biphasic or monophasic (biphasic preferred)	0	0	12-lead optional (pacing optional)	1
· ECG electrodes	0	0	0	1 box
· 12-lead ECG capability	0	0	0	1 set
· A.E.D.	1	1	1	0
OB Delivery				
Separate and sterile kit includes: Towels, 4” x 4” dressing, umbilical tape or clamp, sterile scissors or other cutting utensil, bulb suction, sterile gloves, and blanket	1	0	1	1
· Thermal absorbent blanket and head cover, aluminum foil roll, or appropriate heat-reflective material (enough to cover newborn)	1	0	1	1
· Appropriate heat source for ambulance compartment	1	0	0	1
Pen Light	1	1	1	1
Sharps container	1	1	1	2
Sheet, pillow case, blanket, towel	4 each	0	0	4 each
Pillow	2	0	0	2 or equivalent
Stethoscope	1	1	1	1
Thermometer (with core temp capability)	Optional	0	0	1
Tourniquet (CAT) and/or SWAT	2	2	2	2
Triage tags	20	6	20	20
Biohazard bags (large and small)	4 each	2 small	2 each	4 each
PPE kit (gloves, gown, booties, face shield, cap)	2 per person	0	1per person	2 per person

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Disposable gloves S/M/L	Box	6 pair	Box	Box
Face protection mask – N95 or P100	2 pp	0	1 pp	2 pp
Stair chair or equivalent	1	0	0	1
Scoop stretcher or breakaway flat	Optional	0	0	Optional
Road Flares or Equivalent (30 min)	6	0	0	6
Flashlight	1	0	0	1
Marin County Map	1	0	Optional	1
Vehicle Emergency Lights	Set	0	Optional	Set
MERA Radio	1	Optional	Optional	1
Company Radio	1	Optional	Optional	1
Spare Tire	1	0	Optional	1
Fire Extinguisher	1	0	Optional	1
IMMOBILIZATION and RESTRAINT DEVICES				
Cervical collars – adjustable Sizes to fit all patients over 1 yr old (adult/pedi)	4, 2	1	2, 1	4, 2
Head immobilization device	4	0	2	4
Pediatric Ambulance Transportation Device	1	0	0	1
Spinal immobilization (radiolucent) backboard	2	0	1	2
· Strap system, adult	2	0	1	2
· K.E.D. or equivalent	1	0	0	1
Splints (vacuum/cardboard/equivalent)				
· Short, medium, long	2 each	1 moldable	1 each	2 each
Traction splint, adult / pediatric	1 each	0	0	1 each
Quick release synthetic soft restraints (or padded leather)	1	0	0	1
IV EQUIPMENT / SYRINGES / NEEDLES				
Arm board (Short)	0	0	1	2
Catheters – 1" long 14g, 16g, 18g, 20g, 22g, 24g	0	2 each	2 each	4 each
Intraosseous Equipment – adult and pedi				
· IO needles and/or mechanical device	0	0	optional	1
· Extra batteries if needed by model	0	0	0	1
Intravenous Solutions - 0.9% NL Saline				
· 100 cc bag	0	1000 cc total	1	2
· 1000 cc bag	0	0	2	6
Glucose Paste, 15 gm/ tube	2 tubes	2 tubes	2 tubes	2 tubes
Pressure Infusion Bags	0	0	0	1
Saline Lock	0	0	2	4
Extension set (saline lock)	0	0	2	4

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Syringes				
· 1 cc TB with removable needle	0	2	2	4
· 3 cc with 25 g x 5/8/" needle	0	0	0	4
· 10 cc without needle	0	2	1	2
· filter needle	0	2	2	2
· 30 cc without needle	0	0	0	2
Constriction band	0	2	2	2
Three way stop cock	0	0	1	2
Tubing – with adjustable flow				
· macro drip (10gtt/cc – 15gtt/cc- adjustable)	0	2	2 each	4 each
· micro drip (60 micro gtts/cc)	0	0	1	2
- vented (for Acetaminophen IV admin)	0	optional	Optional	1
MEDICATIONS AND SOLUTIONS				
Acetaminophen (Tylenol/Ofirmev), 1000mg / 100ml	0	Optional	Optional	1
Adenosine, 6 mg in 2 ml NS	0	0	18 mg	36 mg
Albuterol Unit Dose	0	1 MDI w/ Spacer	3	9
Amiodarone, 150 mg in 3 cc NS	0	3	3	6
ASA (chewable), 81 mg	1 bottle	1 bottle	1 bottle	1 bottle
Atropine, 1 mg in 10 ml	0	2	3	10
Atropine 8mg/20 ml (multi-dose)	0	0	1	1
Calcium Chloride 10%, 1 gm in 10 ml	0	0	1	2
Check and Inject Kit (EMS Agency approved providers only)	2	0	0	0
CYANOKIT (or hydroxocobalamin equivalent)	0	0	0	1
Dextrose 10%	0	0	1	2
Diphenhydramine, 50 mg/1ml	0	4	2	4
Duo-Dote (Nerve Gas Auto-injector)	See County policy			
Epinephrine 1 mg/1 ml (5 mg min)	0	4	1	2
Epinephrine 1 mg/10 ml	0	4	3	9
Glucagon, 1 mg	0	1 mg	1 mg	2 mg
Ipratroprium (Atrovent), Unit Dose	0	0	1	4
Lidocaine 2% (20mg/ml)	0	0	0	2
Midazolam, 2 mg/2 ml	0	10	optional	4
Midazolam, 5 mg/1 ml	0	0	optional	optional
Morphine Sulfate, 10 mg/1 ml	0	6	optional	3
Naloxone (Narcan), 2 mg/ 5 ml	0	2	3	6
Narcan Nasal Spray	1 kit	0	0	0
Nitroglycerine, 0.4mg /tablet or spray	0	1 container	1 container	1 container
Normal Saline, 3 ml (for HHN)	2	optional	optional	optional
Ondansetron (Zofran) 4mg PO tablet	0	6	4	8
Ondansetron (Zofran) 4mg/2ml	0	0	1	4

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Transport
Sodium Bicarbonate, 50 mEq/ 50 ml	0	0	2	2
Sublimaze (Fentanyl), 100mcg/2 ml (*Fireline may substitute Fentanyl for Morphine	0	optional	optional	optional

	BLS Transport	ALS Fireline/ Tactical	ALS First Responder	ALS Non-transport	ALS Transport
AIRWAY EQUIPMENT					
Airways:					
· Oropharyngeal (Sizes 0 – 6)	2 each	1 each	1 each	1 each	2 each
· Nasopharyngeal (soft rubber) 14 Fr., 18 Fr., 22 Fr., 26 Fr., 28 Fr. 30 Fr., 32 Fr., 34Fr., 36Fr.	2 each	1 each	1 each	1 each	2 each
Atomizer for intranasal medication administration (MAD device)	0	0	1	1	3
Bite Stick	2	0	1	1	2
King Airway					
· Size 3	0		1	1	2
· Size 4	0	1	1	1	2
· Size 5	0		1	1	2
Continuous Positive Airway Pressure Device	0	0	(optional)	(optional)	1
Intubation Equipment					
· Laryngoscope handle (battery powered)		1	1	1	1
· Additional batteries		0	2	2	2
· Blades (curved 1 - 4)		1 x #4	1 each	1 each	1 each
· Blades (straight 0 – 4)		1 x #4	1 each	1 each	1 each
· Bulbs (extra or disposable)			1	1	1
· Magill forceps (adult and pediatric)			1	1 each	1 each
· Endotracheal tubes					
sizes 2.5-6.0 mm: cuffed and/or uncuffed		Size 6 = 1	1 each	1 each	2 each
sizes 6.0-8.0 mm: cuffed		Size 7.5 = 1	1 each	1 each	2 each
· Disposable stylets (adult and pediatric)		1	1	1 each	2 each
· End-Tidal CO2 Detectors					
Adult – Colormetric		Adult = 1	1	1	2
Pediatric – Colormetric OR			1	1	2
Capnograph or digital (optional)			1	1	1
· Esophageal Detector Device (optional if Capnometer is utilized)		1	1	1	1
· Endotracheal Tube Introducer (ETTI)		1	1	1	2
· ET Tube Holder (adult and pediatric)			1	1 each	2 each
· Meconium Aspirator			1	1	1
Nebulizer					
· Hand-held OR Patient activated			1	1	2
· In-line nebulizer equipment with T-piece			1	1	2
Oxygen Equipment and Supplies					
· Fixed tank in vehicle with regulator; M-tank or H-tank	1		0	0	1
· Regulator	1		1	1	1
· Portable tank (minimum D tank)	1		1	1	2
· Adult face masks: transparent, non-rebreathing; Child/infant: simple or non-rebreathing	2 each		1 each	1 each	4 each 2,2
· Nasal cannulas (adult, child, infant)	4 each		1 each	1 each	4 each 2,2
· Portable Pulse Oximetry	Optional	optional	Optional	1	1
Pleural Decompression kit: ≥14g needle, ≥2 ¼ inches long; Heimlich valve; occlusive dressing;10 ml syringe		1	1	1	1
Resuscitation bag-valve-mask (BVM) Adult, pediatric, infant	1 each	1 adult	1 each	1 each	2,1,1
Suction Equipment and Supplies					

· Suction apparatus – battery powered	1	1 portable self contained unit	1 portable self contained unit	1 portable self contained unit	1
· Suction apparatus – portable	1				1 x 1 fixed
· Pharyngeal tonsil tip (rigid)	2				2
· Suction catheters: 6 Fr, 8 Fr, 10 Fr, 14 Fr, 16 Fr, 18 Fr	2 each				2 each
· Suction canister (spares)	2				2
· Suction tubing	2				2
DRESSING MATERIALS					
Bandages					
· Bulk non-sterile	1 box / pkg	0	0	0	1 box
· 4 x 4" sterile gauze pads	12	6	12	12	12
· 10 x 30" universal dressings	2	0	2	2	2
· ABD Pads	6	0	0	0	6
· 40" triangular bandage with safety pins	4	2	2	4	4
· Elastic bandage 3" (Ace)	2	2	2	2	2
· Occlusive dressing	4	2	2	4	4
· Roller bandages (2", 3", 4", or 6")	6	2	3	6	6
Band-Aids (Assorted)	1 box	0	1 box	1 box	1 box
Burn Sheets (sterile) or commercial burn kit	2	2	2	2	2
Cold Packs / Hot Packs	2 each	2 each	2 each	2 each	8 cold/4 hot
Tape (1" and 2")	2 each	1" = 2 rolls	1 each	1 each	2 each
Trauma shears	1	1	1	1	1
EQUIPMENT AND SUPPLIES					
Alcohol swabs	12	6	12	12	12
Bedpan OR Fracture Pan/Covered Urinal	2	0	0	0	1
Betadine swabs or solution	0	4	4	4	8
Blanket - disposable	2	2	1	1	2
Blood Pressure Cuffs (adult, large arm, thigh, pediatric, infant)	1 each	1 adult	1 x adult, thigh, pedi	1 x adult, thigh, pedi	1 each
Bulb Syringe	1	0	1	1	1
Drinking Water (one gallon)	1				1
Emesis basin/ disposable bag/ Covered waste container	2	0	1	1	2
EMS Field Manual Patient Care (8000) Series	1		1	1	1
Glucometer	0	1	1	1	1
Irrigation Equipment					
· Saline (sterile) 1000 ml	2	0	1	1	2
· Tubing for irrigation	2	0	1	1	2
Length based color-coded resuscitation tape (most current)	0	0	1	1	1
Lubricant, water soluable	4	0	4 packs	4 packs	4 packs
Monitor/defibrillator equipment					
· Cardiac monitor – (portable) must have strip recorder, defibrillator/transcutaneous pacing ability for child / adult. May be biphasic or monophasic (biphasic preferred)	0	0	12-lead optional (pacing optional)	1	1
· ECG electrodes	0	0		1 box	1 box
· 12-lead ECG capability	0	0		1 set	1 set
· A.E.D.	1	1	1	0	0
OB Delivery					
· Separate and sterile kit includes: Towels, 4" x 4" dressing, umbilical tape or clamp, sterile scissors or other cutting utensil, bulb suction, sterile gloves, and blanket	1		1	1	1

· Thermal absorbent blanket and head cover, aluminum foil roll, or appropriate heat-reflective material (enough to cover newborn)	1		1	1	1
· Appropriate heat source for ambulance compartment	1		0	0	1
Pen Light	1	1	1	1	1
Sharps container	1	1	1	1	2
Sheet, pillow case, blanket, towel	4 each	0	0	0	4 each
Pillow	2	0	0	0	2 or equivalent
Stethoscope	1	1	1	1	1
Thermometer	Optional	0	0	0	1
Triage tags	20	6	20	20	20
Biohazard bags (large and small)	4 each	2 small	2 each	2 each	4 each
PPE kit (gloves, gown, booties, face shield, cap)	2 per person	0	1per person	1 per person	2 per person
Disposable gloves S/M/L	Box	6 pair	Box	Box	Box
Face protection mask – N95 or P100	2 pp	0	1 pp	1 pp	2 pp
Stair chair or equivalent	1	0	0	0	optional
Scoop stretcher or breakaway flat	Optional	0	0	0	Optional
Road Flares or Equivalent (30 min)	6	0	0	0	6
Flashlight	1	0	0	0	1
Marin County Map	1	0	Optional	Optional	1
Vehicle Emergency Lights	Set	0	Optional	Optional	Set
MERA Radio	1	Optional	Optional	Optional	1
Company Radio	1	Optional	Optional	Optional	0
Spare Tire	1	0	Optional	Optional	1
Fire Extinguisher	1	0	Optional	Optional	1
IMMOBILIZATION and RESTRAINT DEVICES					
Cervical collars – adjustable					
Sizes to fit all patients over 1 yr old (adult/pedi)	4, 2	1	2, 1	2, 1	4, 2
Head immobilization device	4	0	2	2	4
Spinal immobilization (radiolucent) backboard	2	0	1	1	2
· Strap system, adult	2		1	1	2
· K.E.D. or equivalent	1		0	0	1
Splints (vacuum/cardboard/equivalent)					
· Short, medium, long	2 each	1 moldable	1 each	1 each	2 each
Traction splint, adult / pediatric	1 each	0	0	0	1 each
Quick release synthetic soft restraints (or padded leather)	1	0	0	0	1
IV EQUIPMENT / SYRINGES / NEEDLES					
Arm board (Short)			1	1	2
Catheters – 1" long 14g, 16g, 18g, 20g, 22g, 24g		2 each	2 each	2 each	4 each
Intraosseous Equipment – adult and pedi					
· IO needles and/or mechanical device		0	optional	optional	1
· Extra batteries if needed by model					1
Intravenous Solutions - 0.9% NL Saline					
· 100 cc bag		1000 cc total	1	1	2
· 1000 cc bag			2	2	6
Glucose Paste, 15 gm/ tube	1	1 tube	1 tube	1 tube	2 tubes
Pressure Infusion Bags		0	0	0	1
Saline Lock		0	2	2	4
Syringes					
· 1 cc TB with removable needle		2	2	2	4

· 3 cc with 25 g x 5/8/" needle		0			4
· 10 cc without needle		2	1	1	2
· filter needle		2	2	2	2
· 30 cc without needle		0	0	0	2
Extension set (saline lock)		0	2	2	4
Constriction band	0	2	2	2	2
Three way stop cock	0	0	1	1	2
Tubing – with adjustable flow					
· macro drip (10gtt/cc – 15gtt/cc- adjustable)		2	2 each	2 each	4 each
· micro drip (60 micro gtts/cc)		0	1	1	2

Inspected by: _____ **DATE**: _____

MEDICATIONS AND SOLUTIONS					
Activated Charcoal, 25 gms		0	1 bottle	1 bottle	2 bottles
Adenosine, 6 mg in 2 ml NS		0	18 mg	18 mg	36 mg
Albuterol Unit Dose		1 MDI w/Spacer	3	3	9
Amiodarone, 150 mg in 3 cc NS		3	3	3	6
ASA (chewable), 81 mg		1	1 bottle	1 bottle	1 bottle
Atropine, 1 mg in 10 ml		2	3	3	10
Calcium Chloride 10%, 1 gm in 10 ml		0	1	1	2
Dextrose 10%		0	1	1	2
Dextrose 25%		0	1	1	2
Dextrose 50%, 25 gms/50 ml		1	1	1	2
Diphenhydramine, 50 mg/1ml		4	2	2	4
Dopamine (pre-mix), 400 mg/ 250 ml		0	1	1	1
Duo-Dote (Nerve Gas Auto-injector)	See County policy				
Epinephrine 1:1000, 1 mg/1 ml (multidose)		4	1	1	2
Epinephrine 1:10,000, 1 mg/10 ml		4	3	3	9
Glucagon, 1 mg		1 mg	1 mg	1 mg	2 mg
Ipratroprium (Atrovent), Unit Dose		0	1	1	4
Lidocaine 2% (20mg/ml)		0	0	0	2
Midazolam, 2 mg/2 ml		3	optional	3	5
Midazolam, 5 mg/1 ml		0	optional	optional	optional
Morphine Sulfate, 10 mg/1 ml		6	optional	2	4
Naloxone (Narcan), 2 mg/ 5 ml		2	3	3	6
Nitroglycerine, 0.4mg /tablet or spray		1 container	1 container	1 container	1 container
Ondansetron (Zofran) 4mg PO tablet		6	4	4	8
Ondansetron (Zofran) 4mg/2ml		0	1	1	4
Sodium Bicarbonate, 50 mEq/ 50 ml		0	1	1	2

Inspected by: _____ **DATE**: _____

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 facilties

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) with:
  - Pelvic instability noted on physical assessment
  - Lower back, hip, or groin pain.
  - Lower extremity numbness or tingling.
- 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
- Sheet: Fold sheet in half lengthwise and slide under the supine patient, centering over the greater trochanters. Wrap and twist the running ends of the sheet around the patient's pelvis. Once tightened, tie or clamp to maintain tension.

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 4^{th} or 5^{th} 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

☎ PHYSICIAN 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

Condition	BLS	ALS	CCT
Oxygen by mask or cannula	✓		
IV fluids running (Normal Saline, Lactated Ringers, Dextrose)	✓		
Confused/disoriented but stable LOC	✓		
Patient-controlled devices (medication pump, CPAP/BiPAP)	✓		
Tracheostomy not requiring suctioning	✓		
Central IV line, clamped	✓		
Medical devices including 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	✓		
Tracheostomy requiring suctioning		✓	
Pre-established IV containing potassium or nitroglycerin paste		✓	
Cardiac/pulse oximetry/capnography monitoring		✓	
Monitoring thoracostomy tubes		✓	
Medications in paramedic scope		✓	
Paramedic level interventions		✓	
Continuous respiratory assistance/mechanically vented			✓
Medications outside paramedic scope or mechanical IV pump			✓
Invasive monitoring including IABP, ICP, CVP, or PA lines			✓
Arterial line in place			✓
Blood or blood products			✓
Medical devices not managed by patient outside paramedic scope			✓

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 closet facility with an open CT scanner

2019/2020 P&P Updates BLS Table of Contents

BLS ROUTINE MEDICAL CARE

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 external 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

For 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

BLS DETERMINATION OF DEATH

Indications

- Patient in cardiac arrest where resuscitation may not be indicated

- Confirm pulseless and apneic
- CPR may be withheld and death declared if ANY of the following criteria below are met:

MCI Incident

- Death is determined according to S.T.A.R.T. triage

Submersion ≥1 hour

- Physical examination of body with accurate and reliable history of submersion time

Valid, Signed, and Dated Advance Directive or POLST

- Form indicates that resuscitation is not desired

Obvious Clinical Signs of Irreversible Death

- Rigor Mortis
- Dependent Lividity
- Decapitation
- Transection
- Decomposition
- Incineration

Golden Gate Bridge/ Richmond-San Rafael Bridge jumper

- If pulseless and no signs of life and resuscitative measures not initiated by first responders, do not initiate cardiac arrest care

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

EARLY TRANSPORT DECISIONS BLS

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

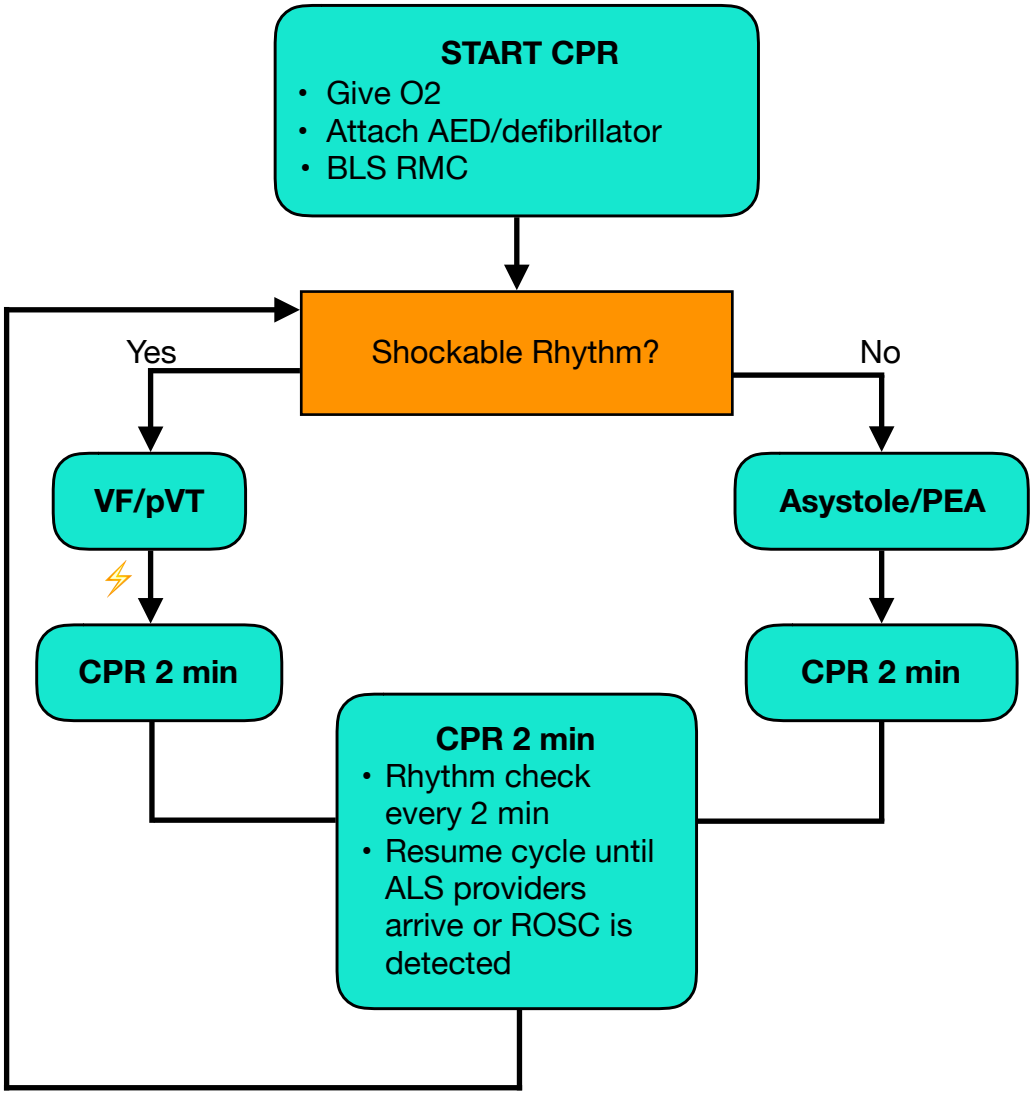
SPECIAL CONSIDERATION

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

CARDIAC ARREST BLS

Indications

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



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, delay compressions for 3 minutes; focus on ventilations and active rewarming
- Defibrillate per manufacturer's recommendations
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

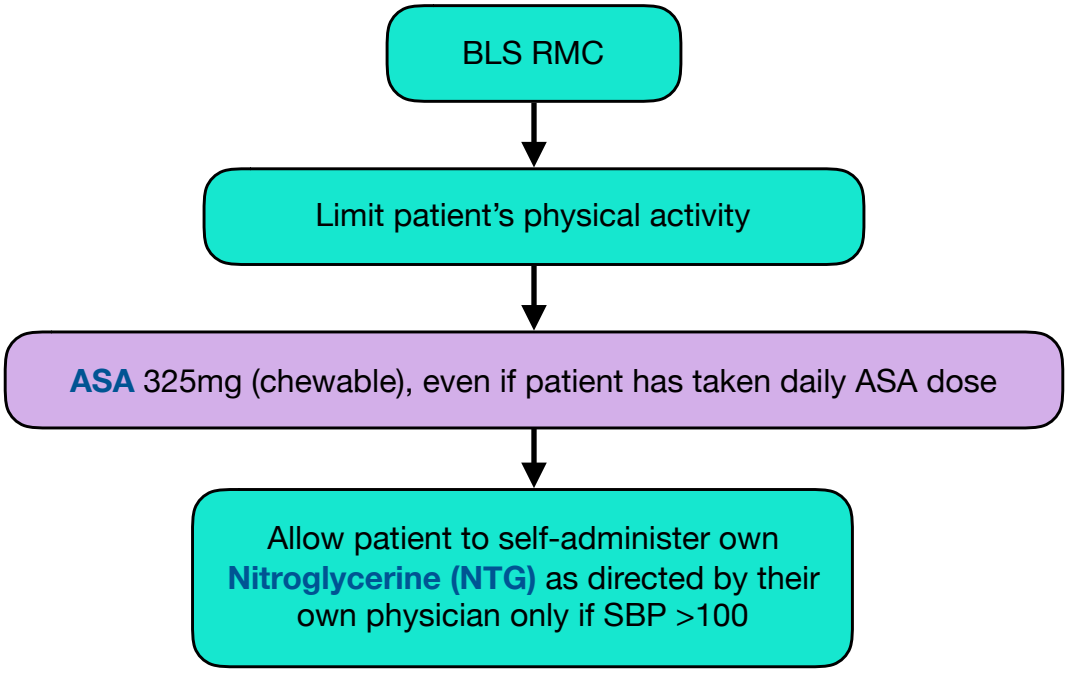
Airway Management

- 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 Acute Coronary Syndrome (ACS) may include weakness, nausea, vomiting, diaphoresis, dyspnea, dizziness, palpitations, indigestion



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**

ENVIRONMENTAL EMERGENCIES

Indications

- For the following environmental emergencies: Animal bites, Snake bites, Insect bites/stings, Near drowning, Heat injuries, Cold injuries, Localized cold injuries

BLS RMC

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

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

Localized Cold Injuries

- Gently remove clothing from injured area
- Cover area with sterile dressing
- Avoid direct contact with affected area

Heat Injuries

- Move to a cool environment and remove clothing
- Rapid cooling measures:
  - Apply wet towels and promote cooling by fanning
  - Apply cold packs 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

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
- Observe for allergic reactions and refer to Allergic Reaction/ Anaphylaxis policy, BLS M1

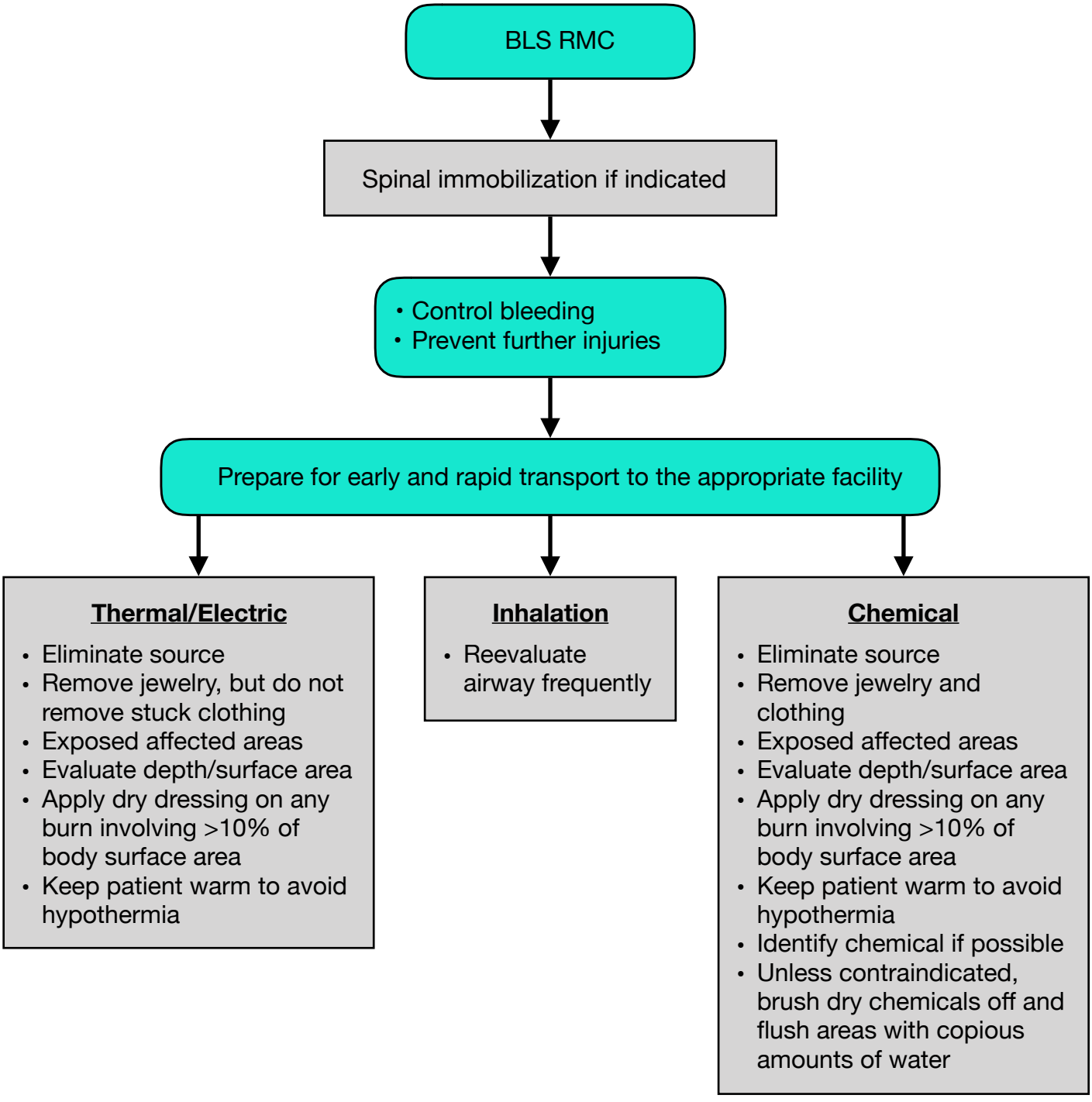
Cold Injuries

- 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

BURNS

Indications

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



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)

- 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

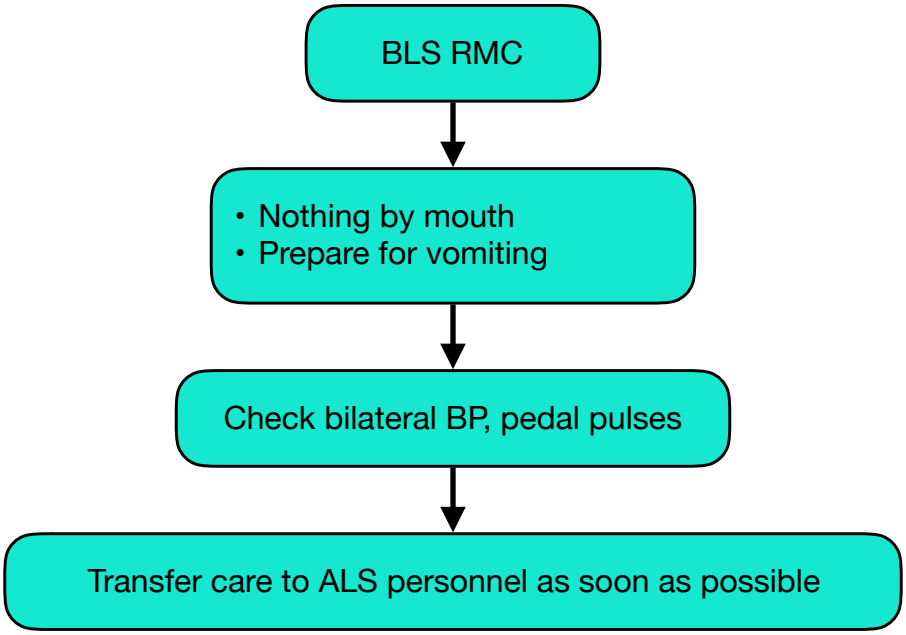
SPECIAL CONSIDERATION

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

ABDOMINAL PAIN

Indications

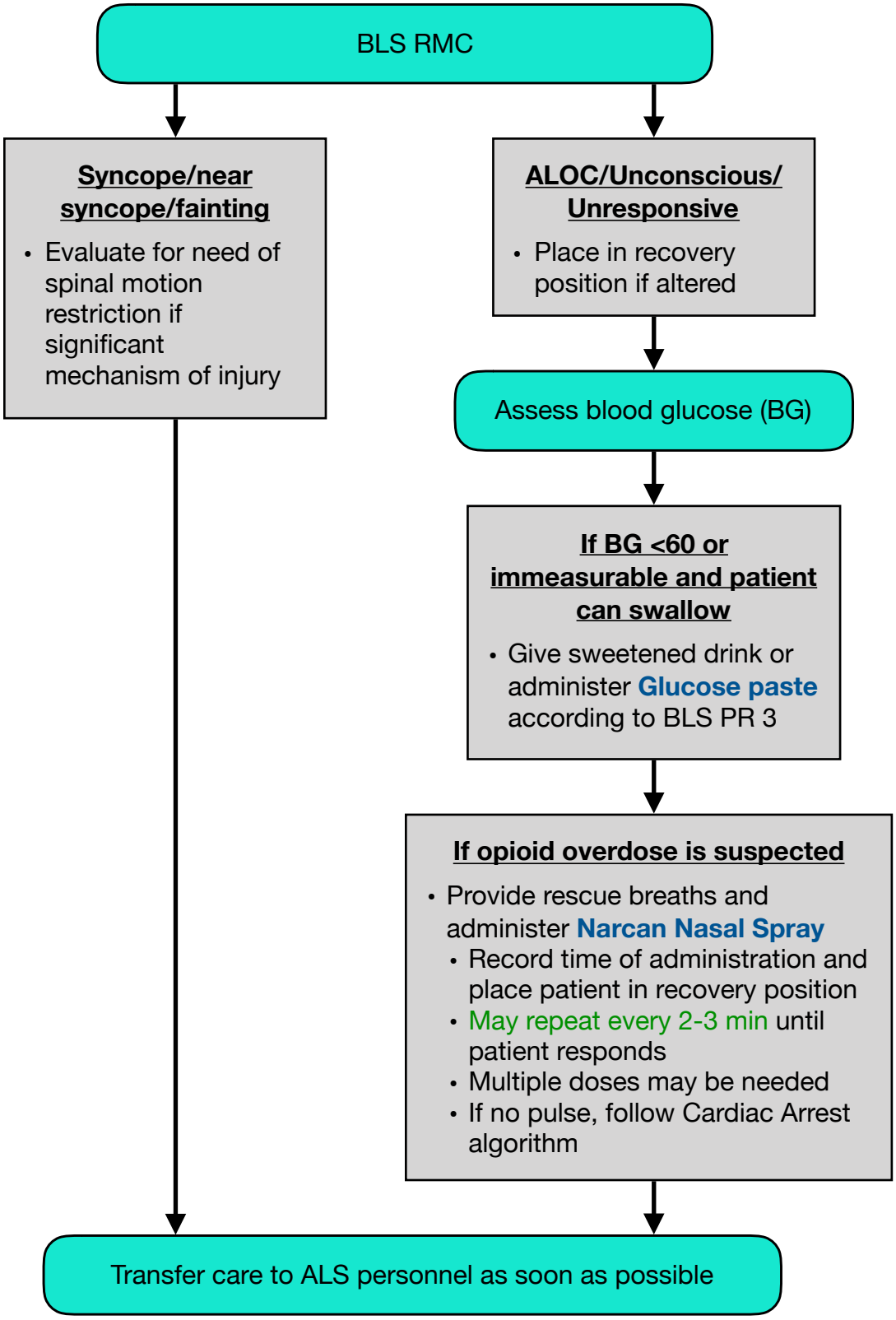
- Patient with a complaint of pain in the abdomen



NEUROLOGICAL EMERGENCIES

Indications

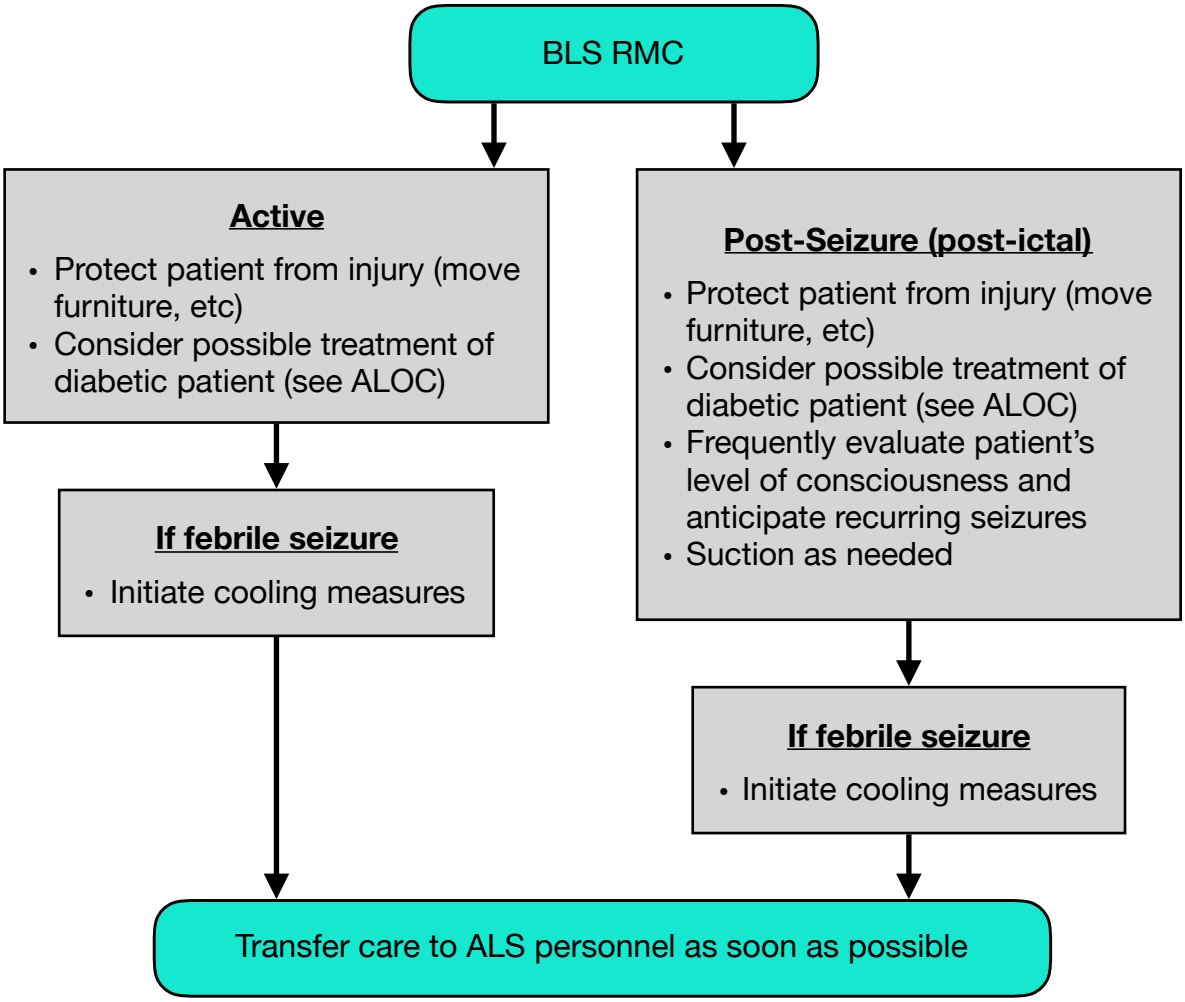
- Patient with a change in mentation



SEIZURES

Indications

- Patient with reported or continuing seizure activity



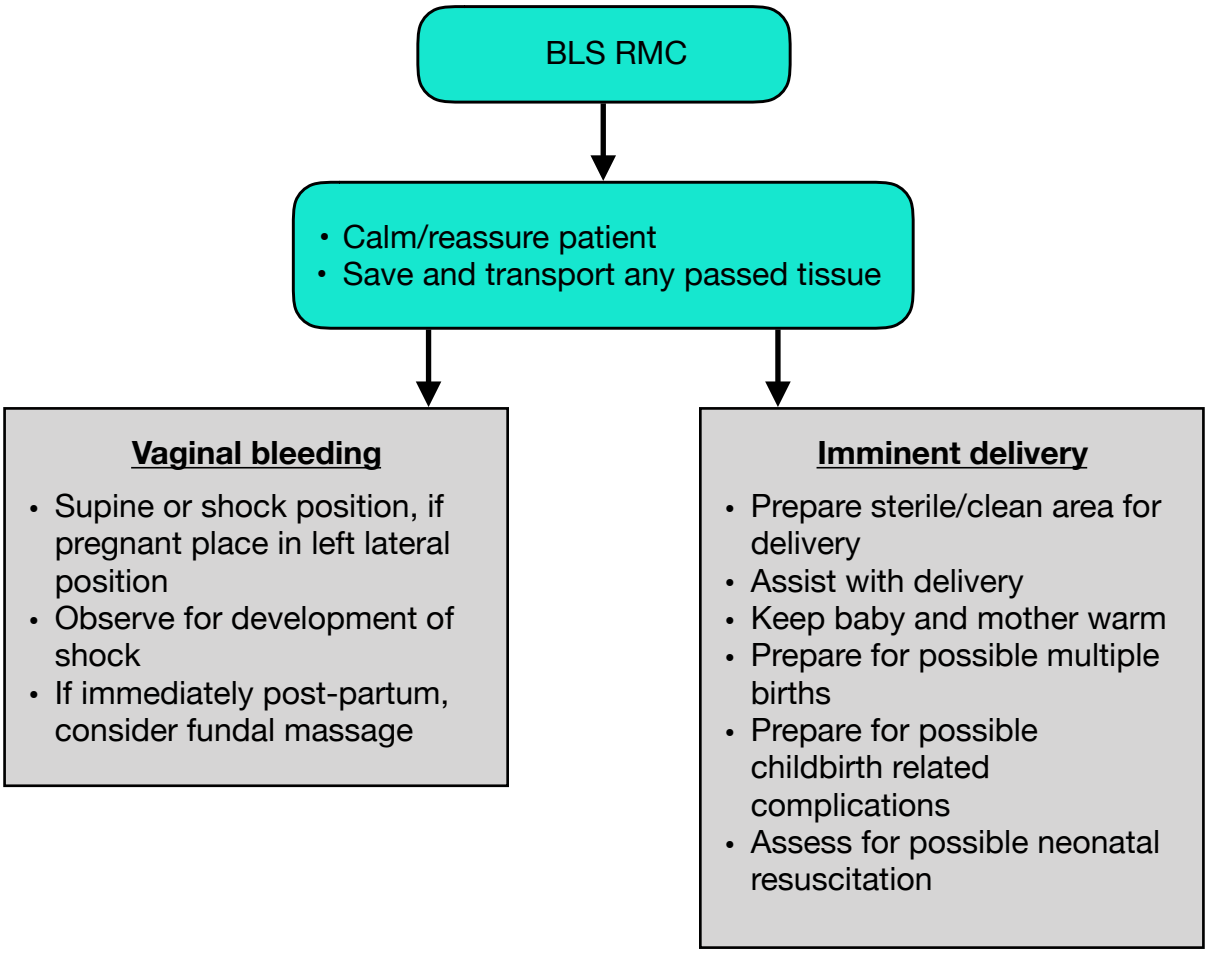
SPECIAL CONSIDERATIONS

- 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)



APGAR SCORE

Sign	0	1	2
Heart Rate	Absent	Slow (<100)	≥100
Respirations	Absent	Slow, irregular	Good, crying
Muscle Tone	Limp	Some flexion	Active motion
Reflex Irritability	No response	Grimace	Cough, sneeze, cry
Color	Blue or pale	Pink body with blue extremities	Completely pink

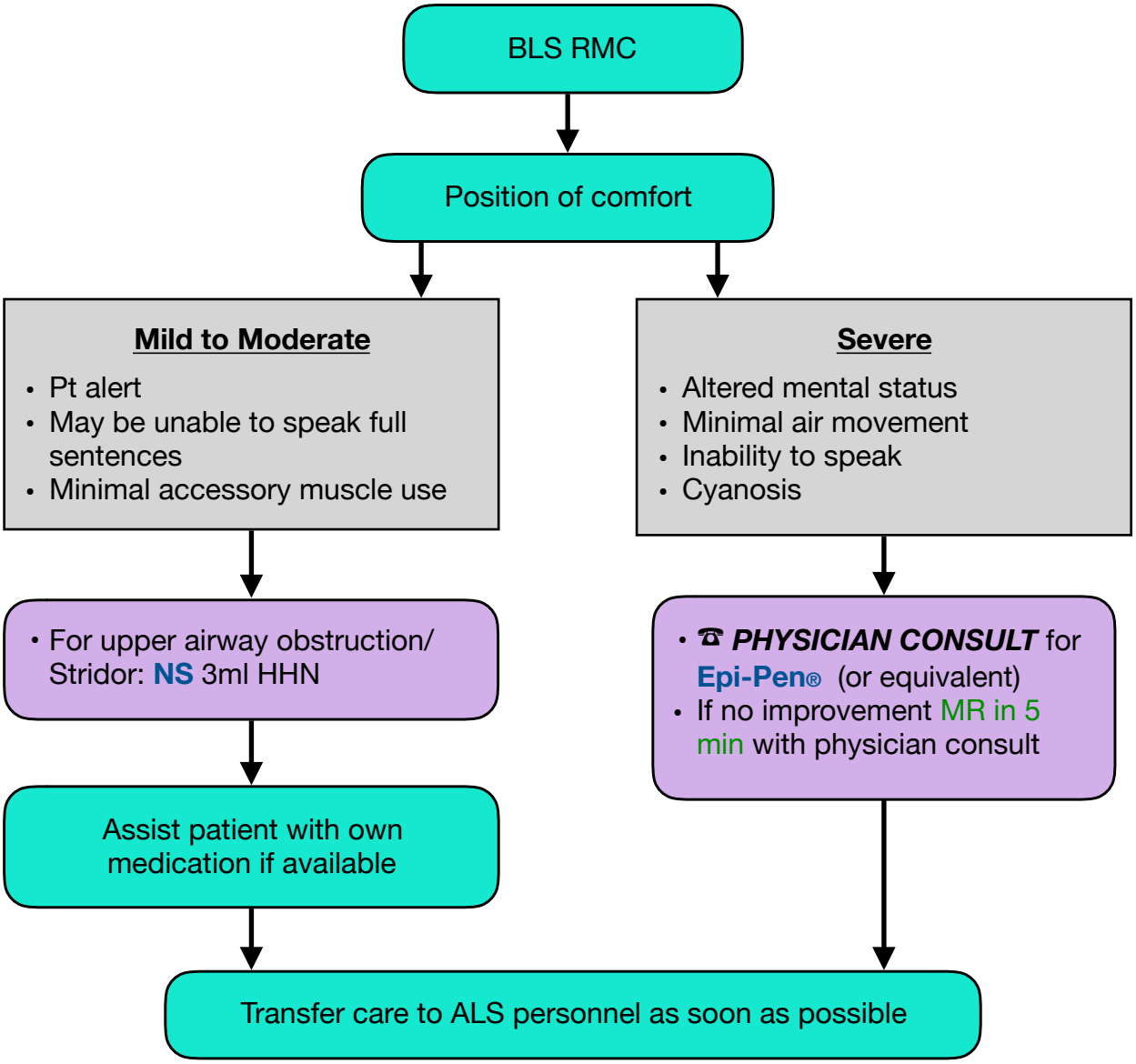
SPECIAL CONSIDERATION

- Prepare for rapid transport in both situations

SHORTNESS OF BREATH BLS

Indications

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



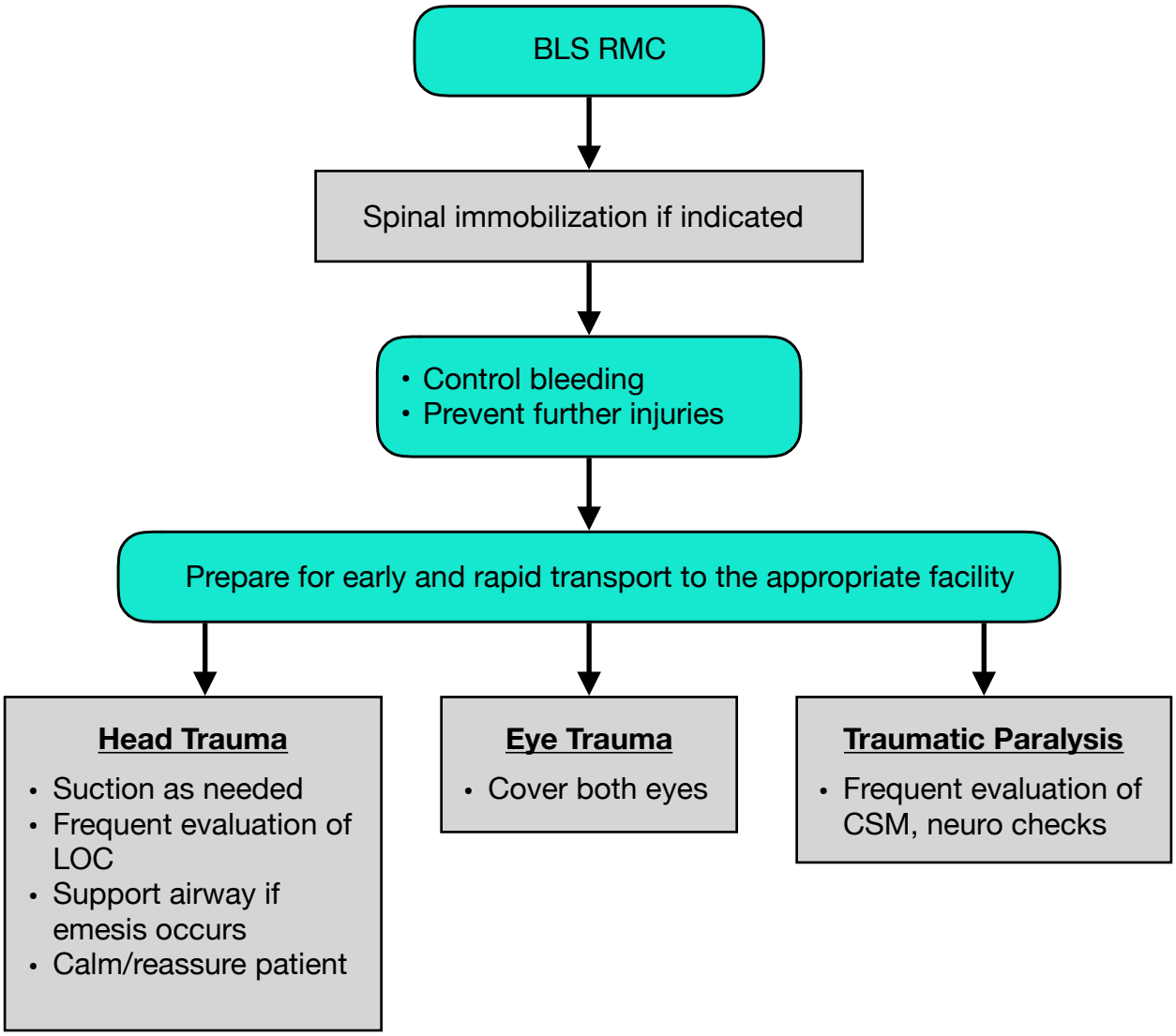
SPECIAL CONSIDERATION

- 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



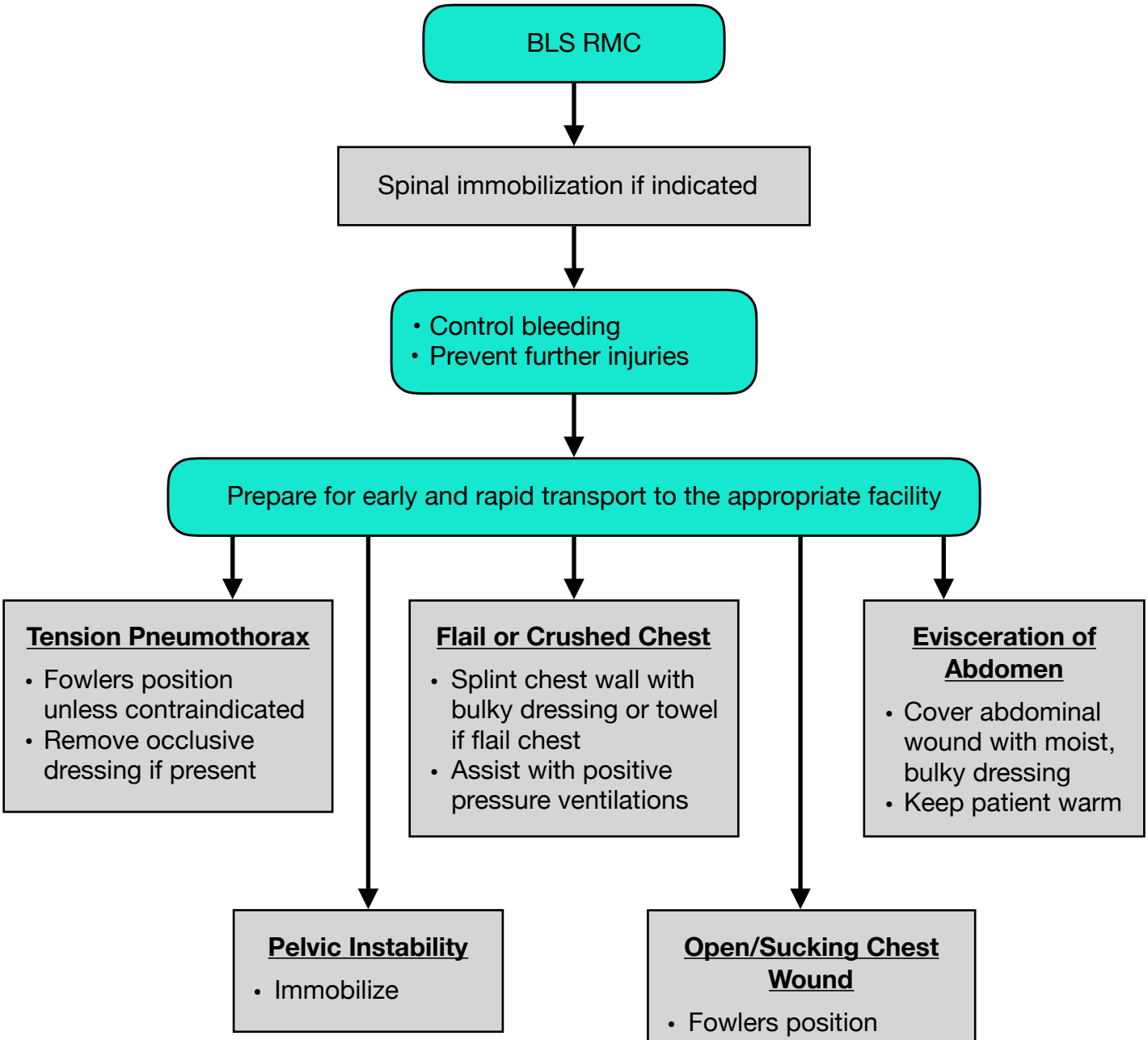
SPECIAL CONSIDERATION

- 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



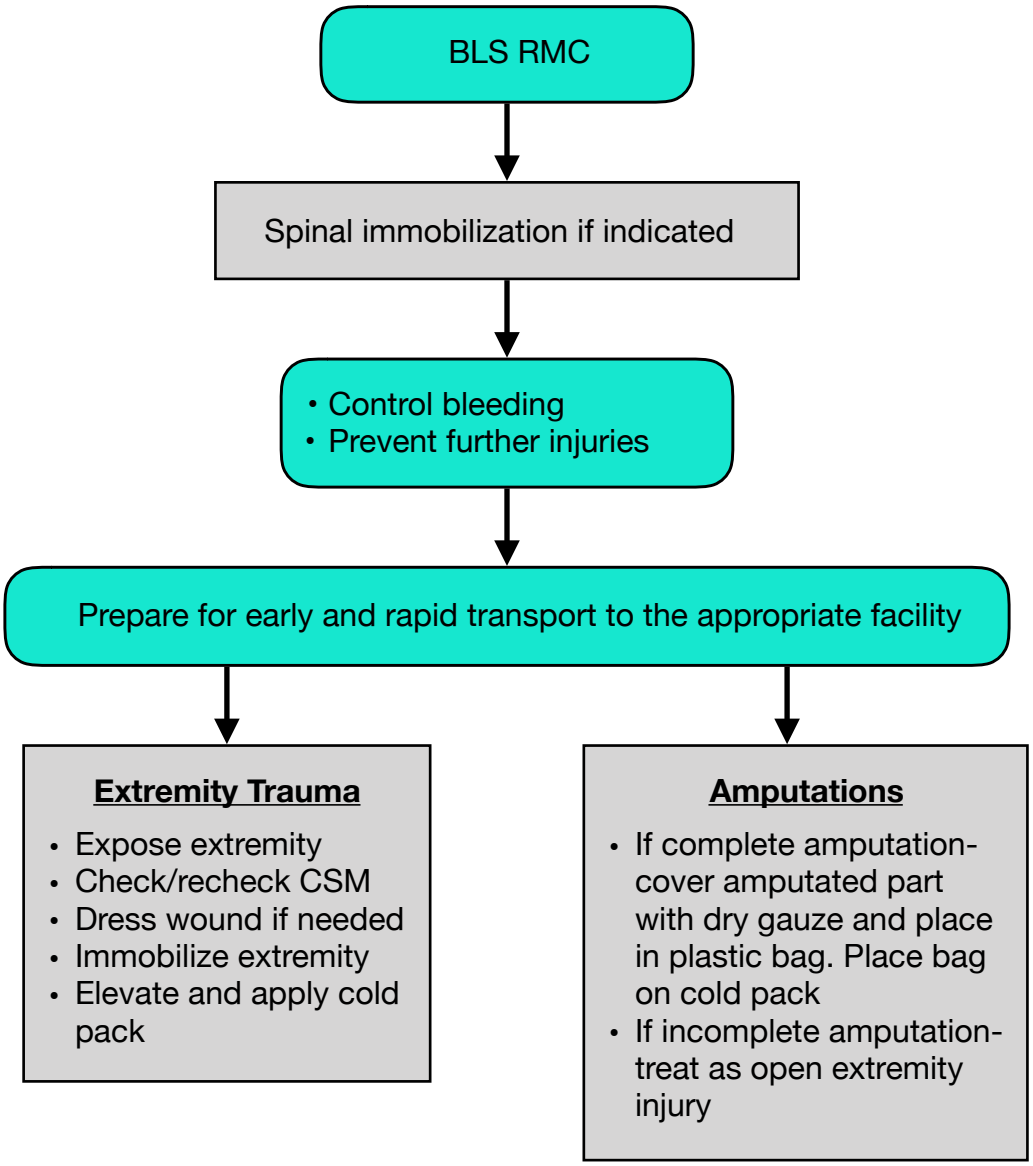
SPECIAL CONSIDERATION

- 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- EXTREMITIES

Indications

- Patient with a traumatic injury to the extremities



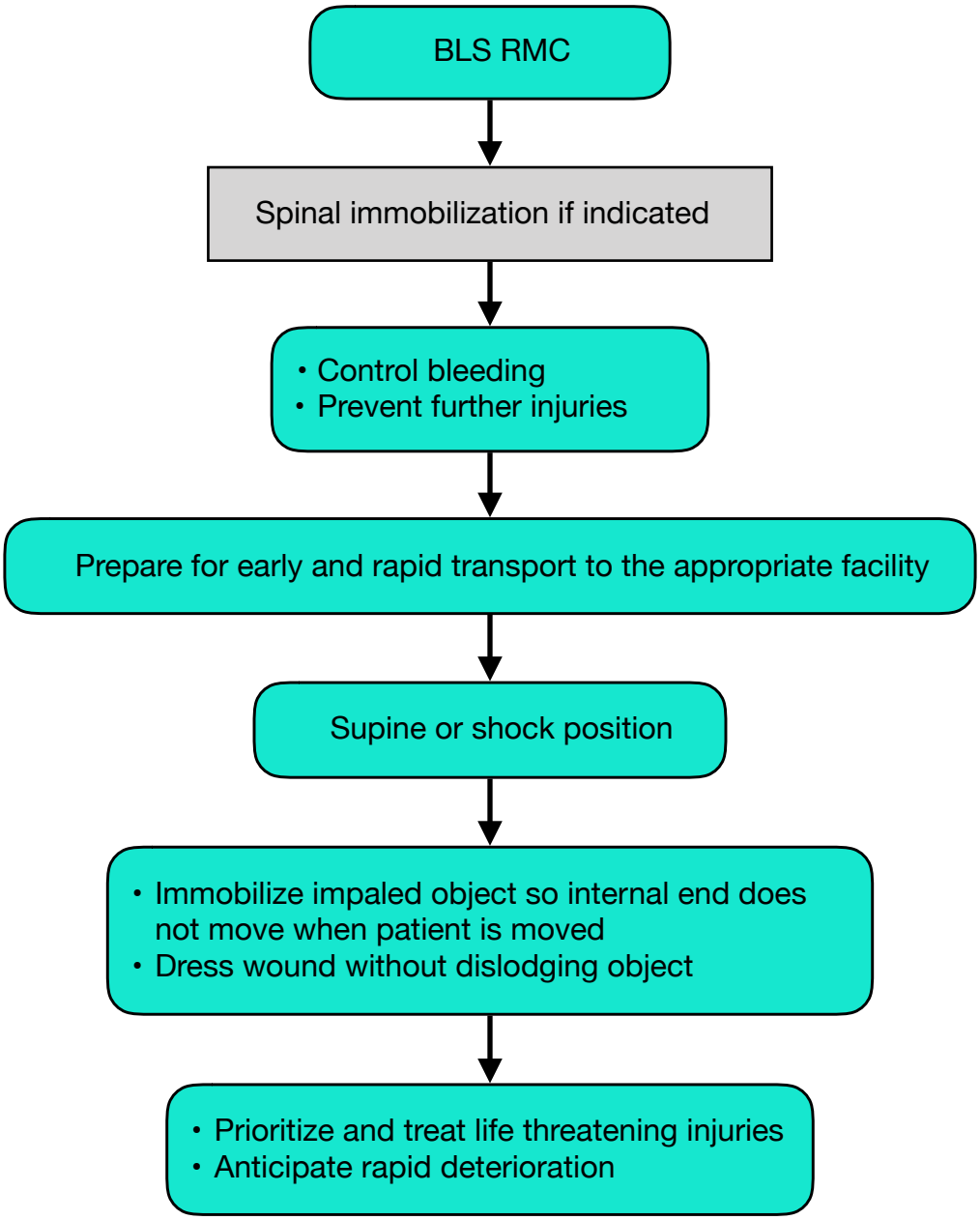
SPECIAL CONSIDERATION

- 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- IMPALED OBJECTS

Indications

- Patient with a traumatic impalement



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)

- BLS RMC
- Remove allergens
- Verify need for **EpiPen®**

- 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

Equipment

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

☎ PHYSICIAN CONSULT

- Treatment indication is severe asthma
- Necessity of second dose

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/wheezing/diminished breath sounds
  - Edema of the tongue, lips, face
  - Generalized urticaria/hives
  - Respiratory distress (nasal flaring or grunting in pediatric patients)

- BLS RMC
- Remove allergens
- Verify need for **Epinephrine**

↓

- 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

Equipment

- **Epinephrine** (1mg/ml) Check & Inject safety kit (syringe, needle, alcohol prep, and bandage)

☎ *PHYSICIAN CONSULT*

- Treatment indication is severe asthma
- Necessity of second dose

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

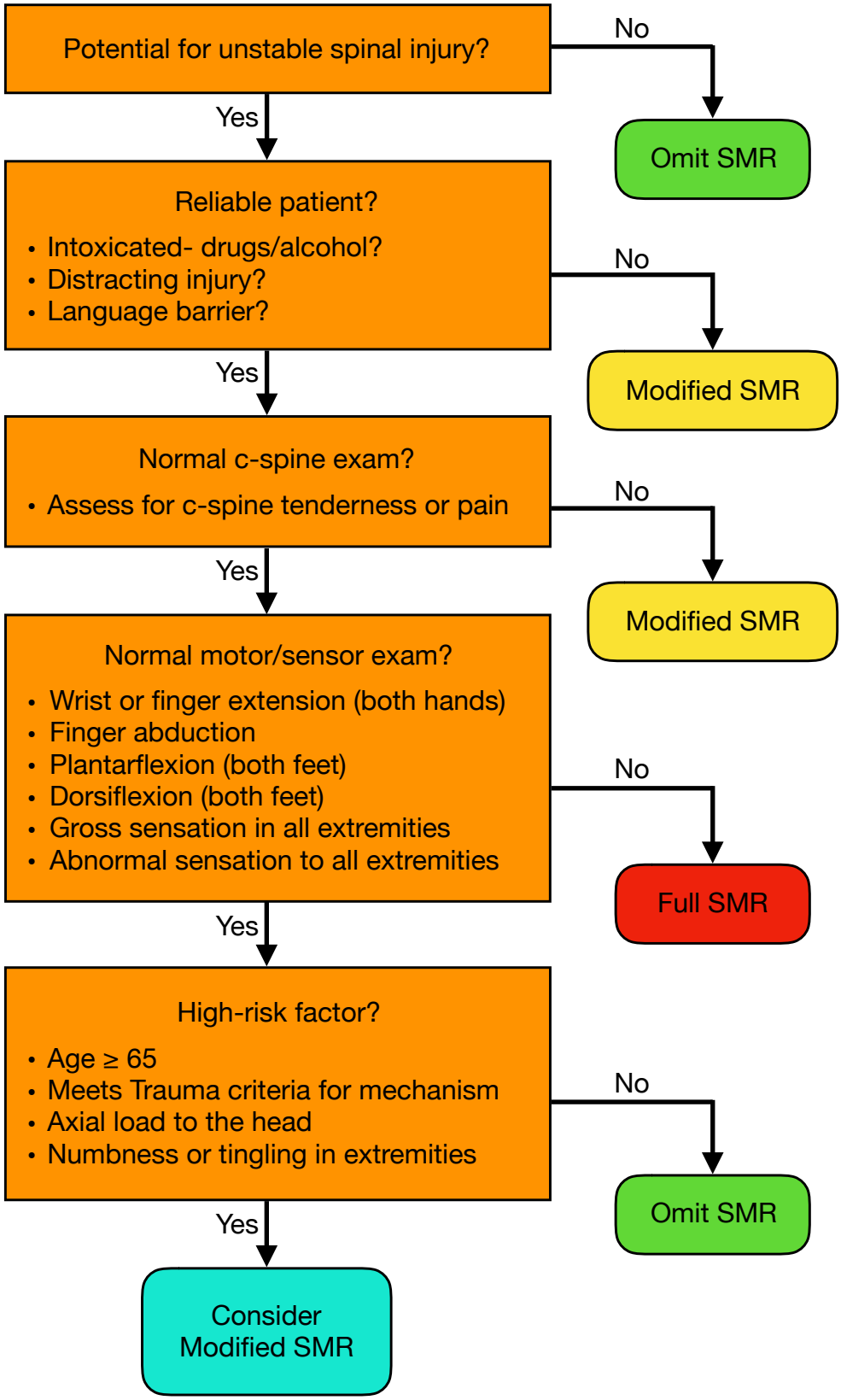
If no response to Narcan

- Begin CPR

Transfer care to ALS personnel as soon as possible

2019/2020 P&P Updates ALS Table of Contents

SPINAL INJURY ASSESSMENT



ADULT PAIN MANAGEMENT

Indications

- Patient with apparent or reported pain

ALS RMC

Pain >6?

No

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

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

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

☎ 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**

ADULT SEDATION

Indications

- Cardioversion/Cardiac pacing
- Agitation/combativeness interfering with critical ALS interventions and airway control or that endangers patient or caregiver
- Patients unable to tolerate opioids (ie: Morphine, or Fentanyl) for pain management

- ALS RMC
- Monitor ETCO2

Cardioversion/Cardiac Pacing

- If patient is conscious, administer **Midazolam** 1mg IV/IO slowly.
  - MR q3 min to desired degree of sedation
  - Max dose: 0.05mg/kg
- ☎ ***PHYSICIAN CONSULT*** for Opioids for pain management as needed per Adult Pain Management, ATG 2

Agitation/combativeness or for patients unable to tolerate Morphine or Fentanyl

- **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)

- 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**

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

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

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.

- Confirm pulseless and apneic
- Apply leads and document rhythm in two monitoring leads for one minute or in one lead if an AED is the only available monitor

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

Medical- **ALL** must be 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- **EITHER** may be present

- MCI incident where triage principles preclude initiation of CPR
- Blunt, penetrating or profound multi-system trauma with asystole or PEA

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

ADULT MEDICATION STANDARD DOSAGES

DRUG	CONCENTRATION	STANDARD DOSE
Acetaminophen (Tylenol/Ofirmev)	1000mg/100ml	**IV/IO** 1000mg over 15-20 min
Adenosine	6mg/2ml	**IV/IO** 6mg rapid push followed by 20ml NS flush *Repeat:* 12mg
Albuterol	2.5mg/3ml NS	**Nebulized** 5mg/6ml NS
Amiodarone	150mg/3ml	**IV/IO** VF/Pulseless VTach: 300mg push *Repeat:* 150mg push in 3-5min Perfusing/Recurrent VTach: 150mg over 10 min (15mg/min) *Repeat:* q10 min PRN
Aspirin (Chewable)	Variable	***PO*** 325mg
Atropine	1mg/10ml	**IV/IO** Bradycardia: 0.5mg *Repeat:* q3-5 min *Max total:* 3mg Organophosphate Poisoning: 2mg slowly *Repeat:* q2-5 min until drying of secretions
Calcium chloride 10%	1gm/10ml	**IV/IO** 1gm slowly over 5 min for suspected Hyperkalemia. Flush with NS before and after
Cyanokit	5gm/vial	**IV/IO** 5 grams over 15min *Repeat:* x1 if severe signs *Max total dose:* 10 grams

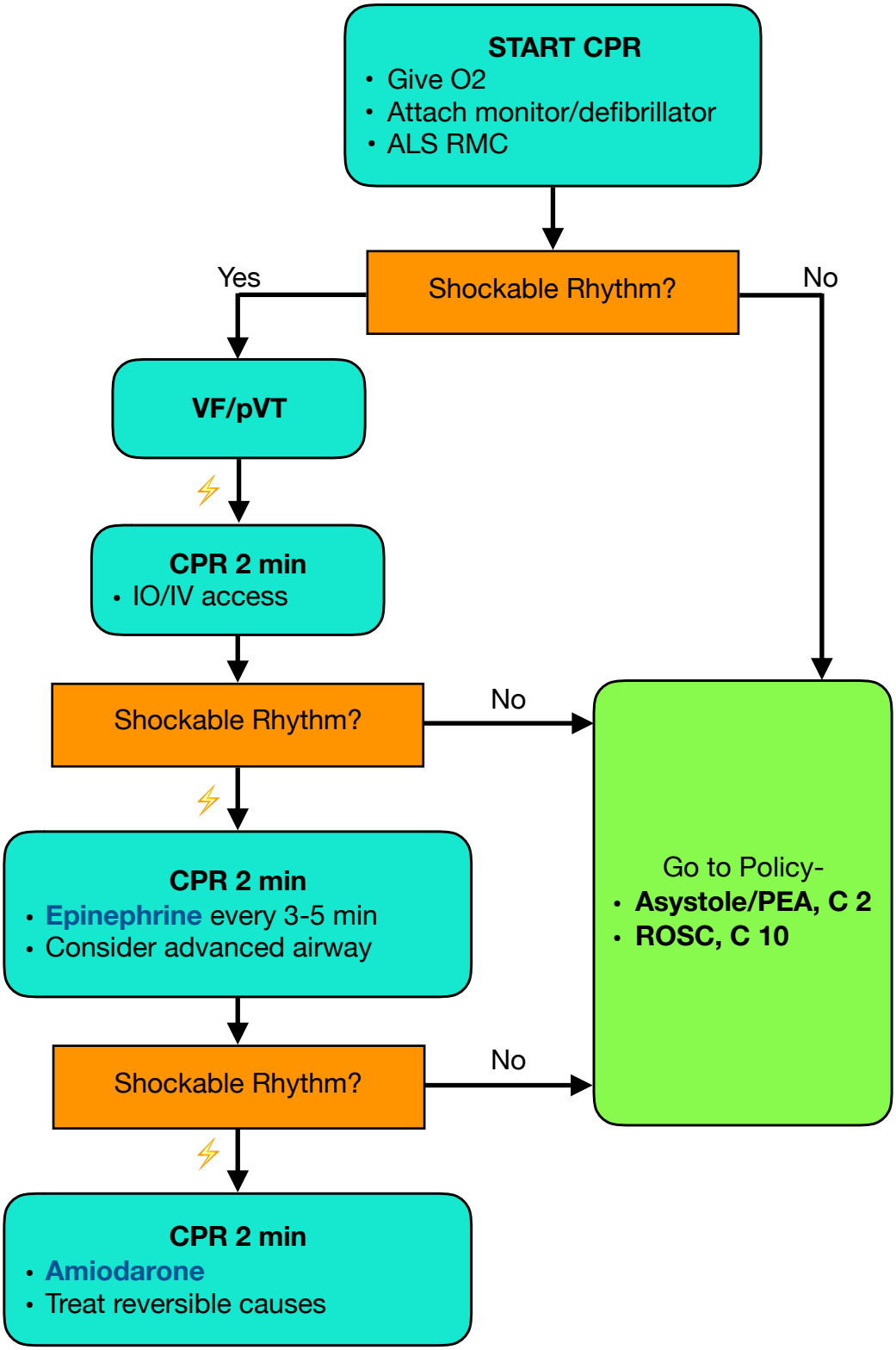
DRUG	CONCENTRATION	STANDARD DOSE
Dextrose 10%	25gm/250ml	**IV/IO** 125ml bolus over 10 min; recheck BG *Repeat:* as needed
Diphenhydramine (Benadryl)	50mg/ml	**IV/IO/IM** 50mg
Epinephrine	1mg/ml EpiPen ® 0.3mg	**IM** Allergic reaction/Anaphylaxis: 0.3mg or EpiPen ® *Repeat:* x1 in 5 min
Epinephrine	0.1mg/ml	**IV/IO** 1mg (10ml) followed by 20ml NS flush *Repeat:* q3-5min
Epinephrine (Push-Dose)	0.1mg/ml	**IV/IO** ☎ SBP <80: Mix 1ml Epinephrine (0.1mg/ml) with 9ml NS in a 10ml syringe *Initial:* 1ml *Repeat:* q3-5 min, titrate to maintain SBP >80
Fentanyl (Sublimaze)	100mcg/2ml	**IV/IO** 50mcg slowly *Repeat:* q5 min *Max dose:* 200mcg **IM** 50mcg *Repeat:* in 30 min **IN** 50mcg; administer 1/2 dose in each nostril *Repeat:* q5 min *Max dose:* 200mcg

ADULT MEDICATION STANDARD DOSAGES

DRUG	CONCENTRATION	STANDARD DOSE
Glucose Paste	15 grams/tube	**PO** 30 grams
Glucagon	1mg/ml	**IM** 1mg
Ipratropium (Atrovent)	500mcg/2.5ml Unit dose	**Nebulized** 500mcg
Lidocaine 2%	20mg/ml	**IO** 20-40mg over 30-60 seconds *Repeat:* q15 min
Midazolam (Versed)	2mg/2ml (IV/IO/IM) 5mg/1ml (IN)	**IV/IO** Cardioversion/Pacing/Seizure (after EMS arrival): 1-2mg slowly *Repeat:* q3 min Sedation: See specific policy **IM** Seizure (after EMS arrival): 5mg *Repeat:* x1 in 2 min if still seizing Cardioversion/Pacing: 2-4mg Sedation: See specific policy **IN** Cardioversion/Pacing/Seizure (after EMS arrival): 5mg (2.5mg in each nostril) Sedation: See specific policy
Mophine Sulfate	10mg/1ml	**IV/IO** 5mg slowly *Repeat:* q5 min if SBP >100 *Max dose:* 20mg **IM** 5-10mg *Repeat:* q20 min *Max dose:* 20mg

DRUG	CONCENTRATION	STANDARD DOSE
Naloxone (Narcan)	2mg/2ml	**IV/IO, IM** 0.4-4mg *Repeat:* q2-3 min until patient responds **IN** 2mg (1mg in each nostril) *Repeat:* q2-3 min until patient responds
Nerve Gas Auto-Injector (Atropine, Pralidoxime Chloride [2-PAM])	2mg (0.7ml) 600mg (2ml)	**IM** Small Exposure to Vapors/ Liquids: 1 dose of both medications *Repeat:* x1 in 10 minutes Larger Exposure to Vapors/ Liquids: 3 doses initially of both medications
Nitroglycerine	0.4mg/tablet or spray	**SL** 1 tablet or spray *Repeat:* q5 min if SBP >100
Ondansetron (Zofran)	4mg	**IV/IO** 4mg slowly over 30 seconds *Repeat:* x1 in 10 min **ODT/IM** 4mg *Repeat:* x1 in 10 min
Sodium Bicarbonate	50mEq/50ml	**IV/IO** 50mEq

V-FIB/PULSELESS V-TACH



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

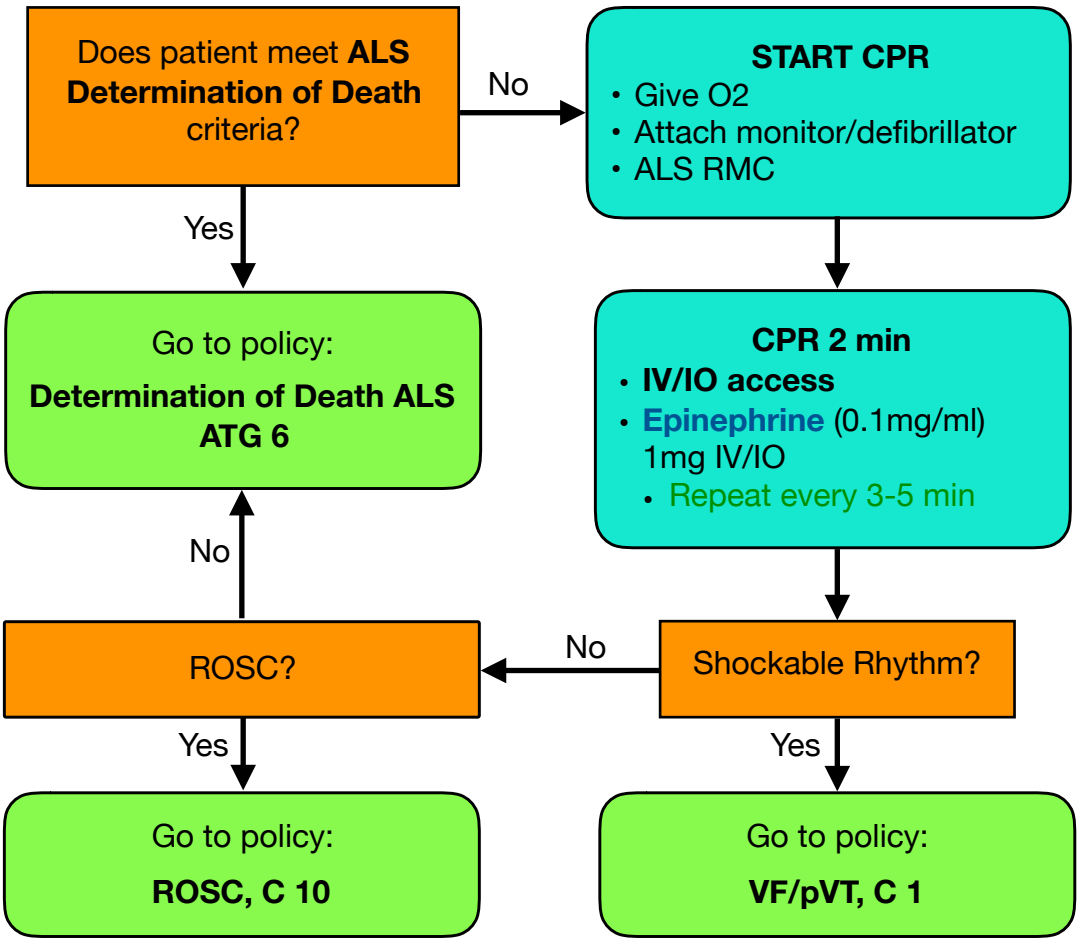
- **Epinephrine** 1mg (0.1mg/ml) IV/IO. Repeat every 3-5 min
- **Amiodarone** first dose: 300mg IV/IO; second dose 150mg in 3-5 min.
  - If ROSC after **Amiodarone**, consider **Amiodarone drip** 150mg in 100ml NS, 1mg/min = 40gtts/min with 60gtt/ml tubing

Reversible Causes

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

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

ASYSTOLE/PEA



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

BRADYDYSRYTHMIAS

Indications

- HR <50 with adequate or inadequate perfusion

Unstable?

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

No → ALS RMC

Yes → ALS RMC

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

- **NS** fluid bolus of 250-500ml IV/IO if hypotensive and lungs clear
  - Repeat as needed

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

WIDE COMPLEX TACHYCARDIA

Indications

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

Unstable?

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

No

- ALS RMC
- 12-lead EKG
- **Amiodarone** 150mg in 100ml NS IV/IO over 10 min
  - MR q10 min as needed

Yes

- ALS RMC
- Synchronized cardio version at 100J, 200J, 300J, 360J

If patient is conscious

- Consider sedation with **Midazolam** 1mg SLOW IV/IO push loading dose
  - MR in 3 min with 1-2mg to achieve desired degree of sedation
  - Use with caution if patient is hypotensive

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 10min
  - 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

No

Yes

ALS RMC
- Proximal vein is preferred IV site

ALS RMC
- Proximal vein is preferred IV site

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

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

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 325mg (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 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

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

Indications

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

ALS RMC

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

Yes

- 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

No

- 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

ALS RMC

- Maintain SpO2 94-99%
  - ETCO2 if available
  - Avoid excessive ventilation. Start at 10-12 breaths/min and titrate to target ETCO2 35-40mmHg

- 12-lead EKG
  - Early notification if STEMI

- Elevate head 30° if patient is conscious
- Transport to nearest available SRC

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

SPECIAL CONSIDERATION

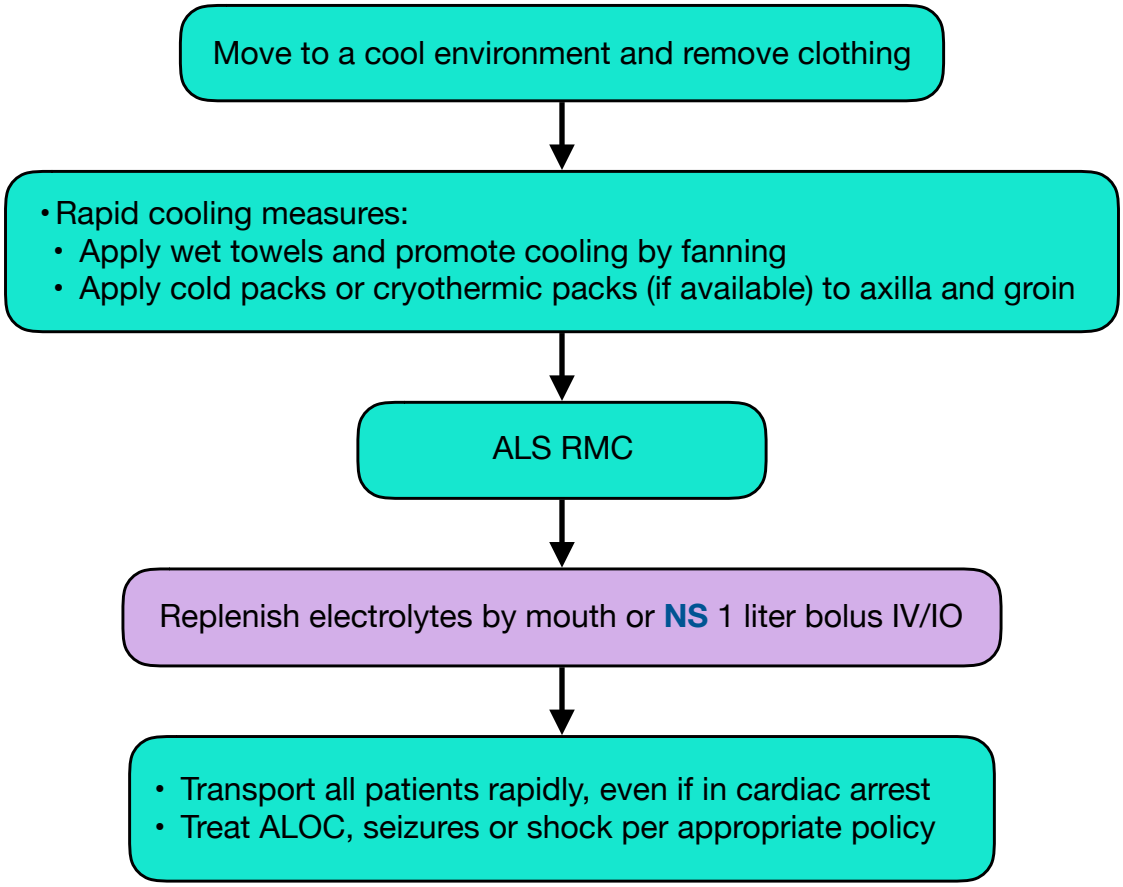
Reversible Causes

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

HEAT ILLNESS

Indications

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



CRITICAL INFORMATION

- The following categories of heat illness should be seen as a continuum rather than three distinct categories. Treat heat illness aggressively, particular 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

Move to a warm, protected area ASAP

Signs of life
- Start warming measures; handle gently

If ALOC
- Obtain rectal temp

Begin transport

No signs of life

If submersion ≤1 hour
- Obtain rectal temp

If submersion ≥1 hour
- Determination of death

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

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

ENVENOMATION

Indications

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

ALS RMC

↓

Remove rings, bracelets, or other constricting items from all extremities

↓

- Limit patient movement as much as possible
- Immobilize extremity in position of comfort and monitor distal pulses
- Mark extent of affected area, noting time on skin

↓

If exhibiting signs of an allergic reaction or shock

- Go to Allergic Reaction Policy, M 3

↓

- Consider pain management
- Expedite transport

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

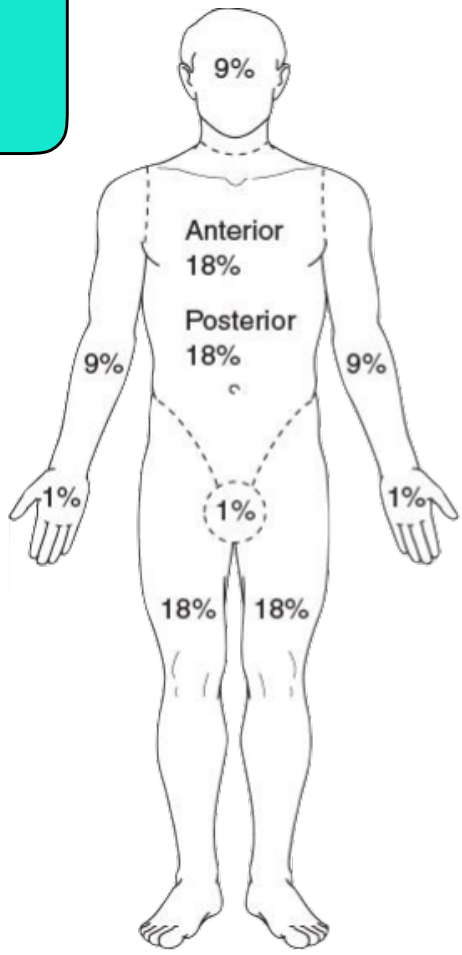
- Consider **Albuterol** 5mg in 6ml NS HHN

↓

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

↓

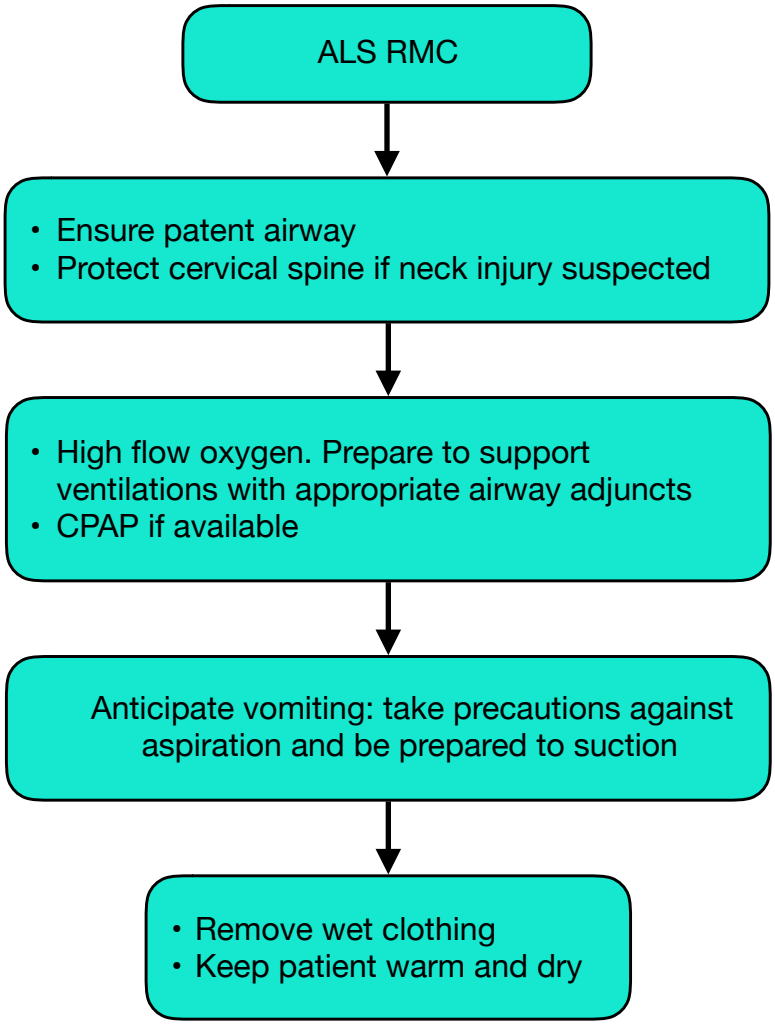
Transport according to Destination Guidelines



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

DROWNING/NEAR DROWNING



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)

ALS RMC

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

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

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
- If seizures, **Midazolam**
  - IV/IO: 1mg slowly
    - MR in 3 min
    - Max dose: 0.05mg/kg
  - IM: 2-4mg if no IV
  - IN: 5mg (2.5mg in each nostril)

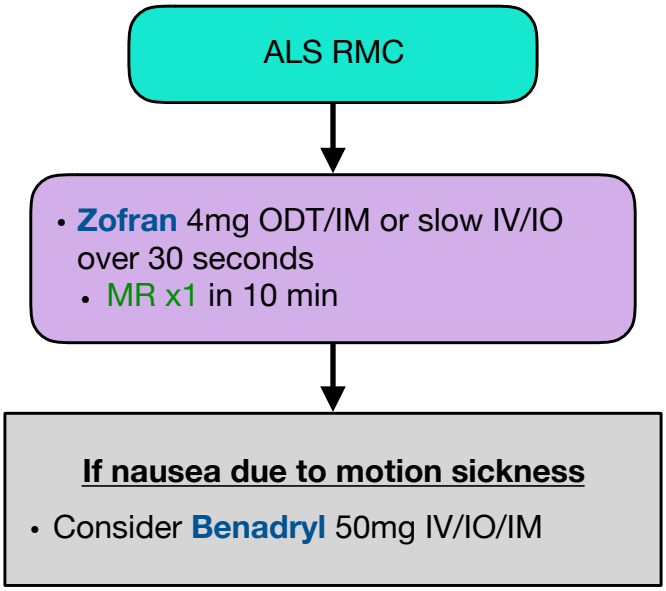
Cyclic Antidepressants
Frequently associated with respiratory depression, almost always tachycardic, widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions

- In the presence of life-threatening dysrhythmias
  - Hyperventilate if assisting ventilations or intubating
  - **Sodium Bicarbonate** 50mEq IV/IO
- If seizures, **Midazolam**
  - IV/IO: 1mg slowly
    - MR in 3 min
    - Max dose: 0.05mg/kg
  - IM: 2-4mg if no IV
  - IN: 5mg (2.5mg in each nostril)

SEVERE NAUSEA/VOMITING

Indications

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



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

ALS RMC

↓

ETCO2

↓

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

Narcotic 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

SEIZURES

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

ALS RMC

Treat hypoglycemia according to ALOC policy

If opiate overdose is suspected and patient is in respiratory failure or shock

- **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

If seizing upon EMS arrival (suspect status epilepticus):

- **Midazolam** IM/IN: 5mg (2.5mg in each nostril if IN)
  - Repeat x1 in 2 min if still seizing
- Do not delay **Midazolam** administration for IV or IO insertion

- **Midazolam**
  - IV/IO: 1mg slowly
    - MR q3 min until seizure stops or Max dose: 0.05mg/kg
  - IN: 5mg (2.5mg in each nostril)

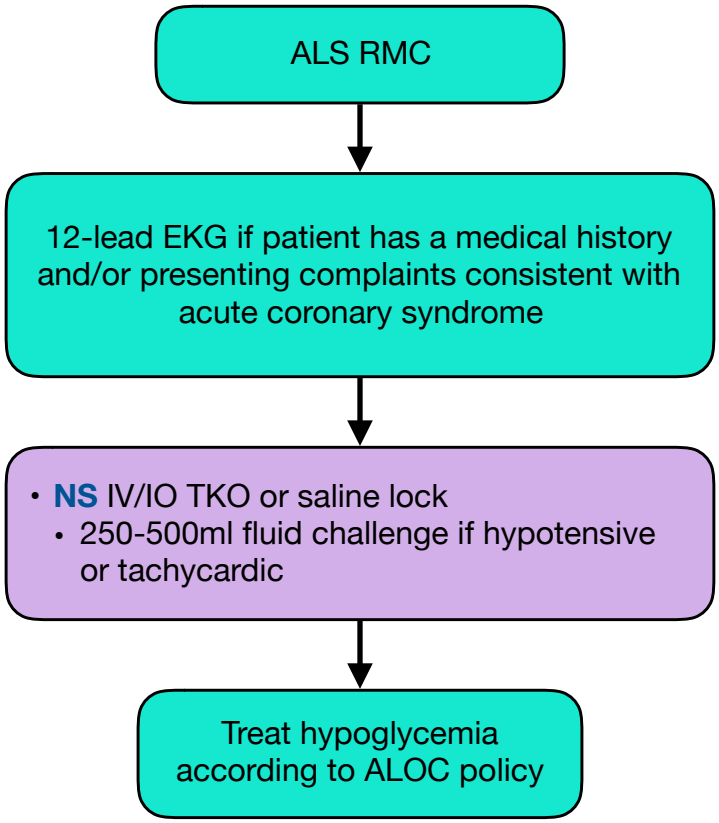
SPECIAL CONSIDERATIONS

- 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.

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 move at all
  - Abnormal: Right arm either does not move, or drifts down compared to the left
  - Abnormal: Left arm either does not move or drifts down compared to the right
- Speech (the patient repeats “The sky is blue in Cincinnati” or 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

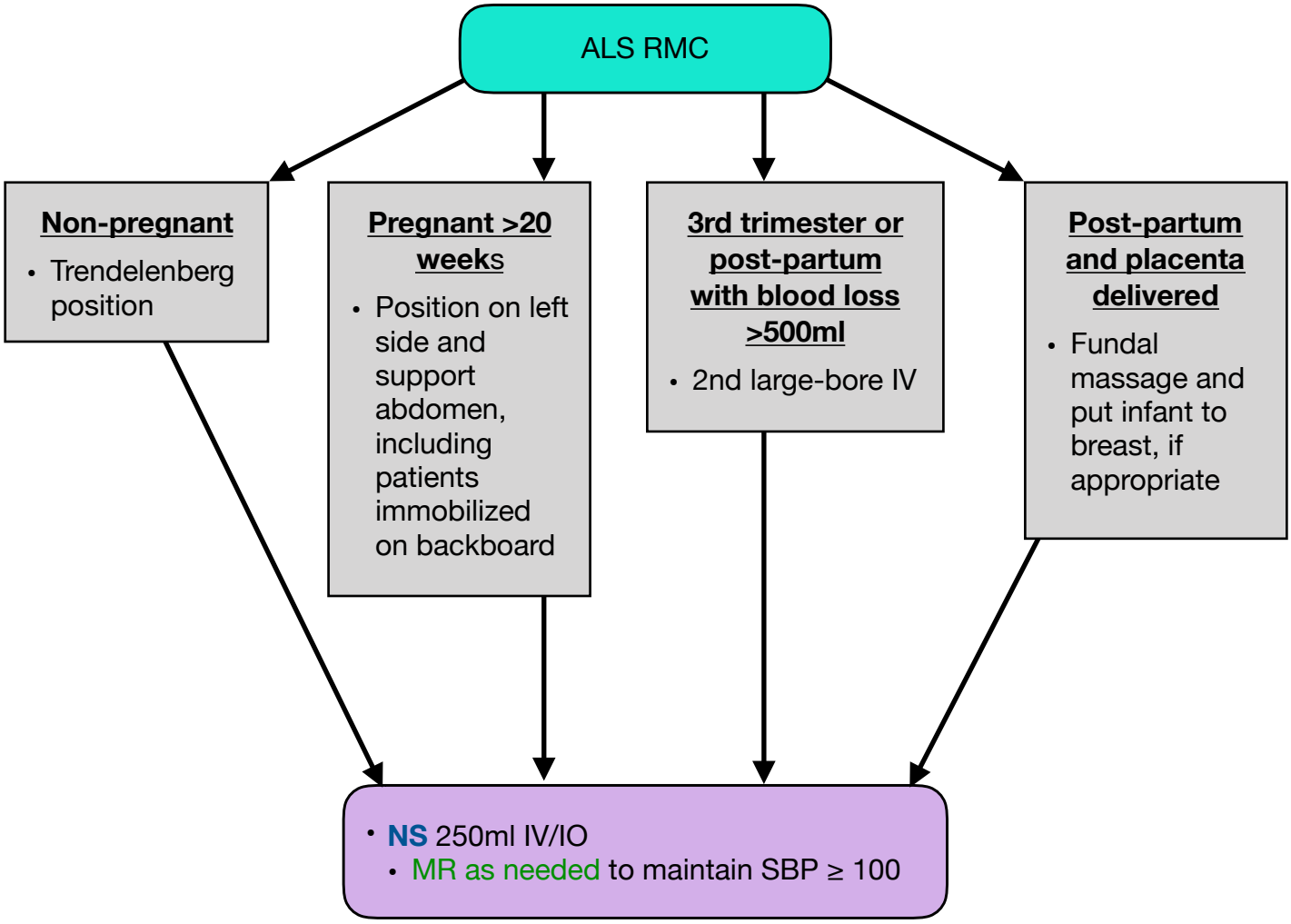
Visual Fields/Cerebellar Assessment

- 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



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

Sign	0	1	2
Heart Rate	Absent	Slow (<100)	≥100
Respirations	Absent	Slow, irregular	Good, crying
Muscle Tone	Limp	Some flexion	Active motion
Reflex Irritability	No response	Grimace	Cough, sneeze, cry
Color	Blue or pale	Pink body with blue extremities	Completely pink

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

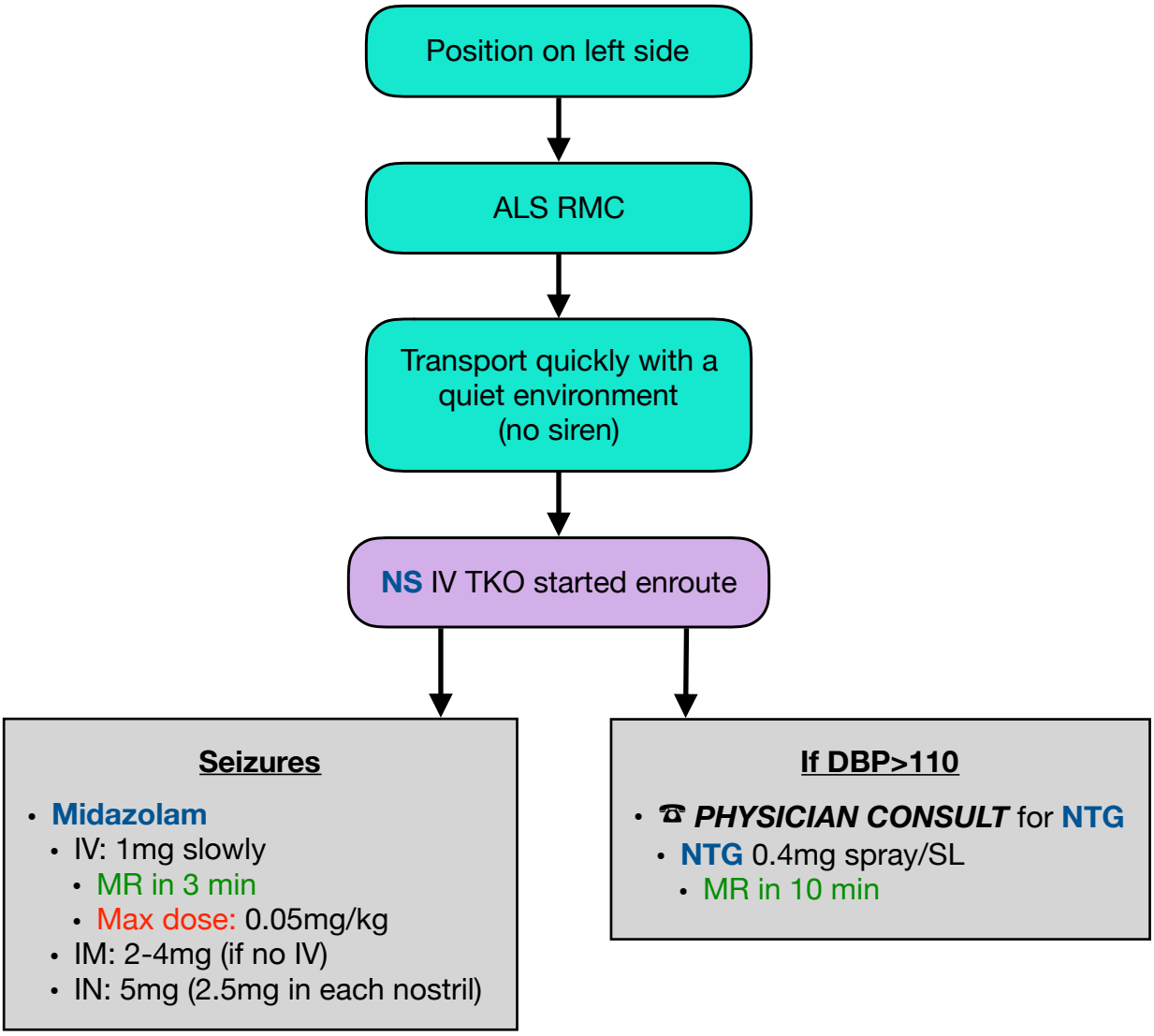
Placed mother in knee-chest position

NS IV TKO only if not delaying transport

SEVERE PRE-ECLAMPISA/ ECLAMPSIA

Indications

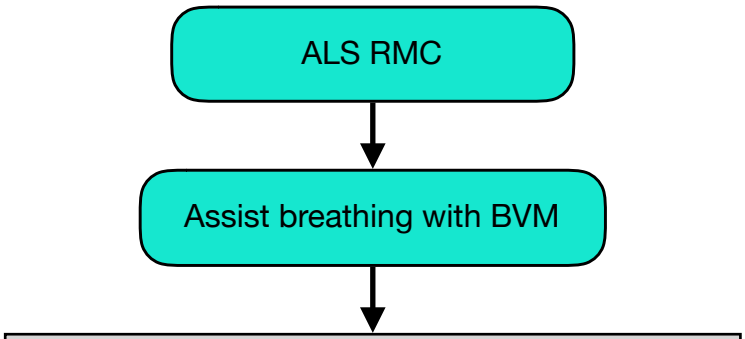
- Third trimester pregnancy with the following signs and symptoms:
  - Hypertension (SBP >160, DBP >110)
  - Mental status changes
  - Visual disturbances
  - Peripheral edema (pre-eclampsia)
  - Seizures and/or coma (eclampsia)



RESPIRATORY ARREST

Indications

- Absence of spontaneous ventilations; pulse present



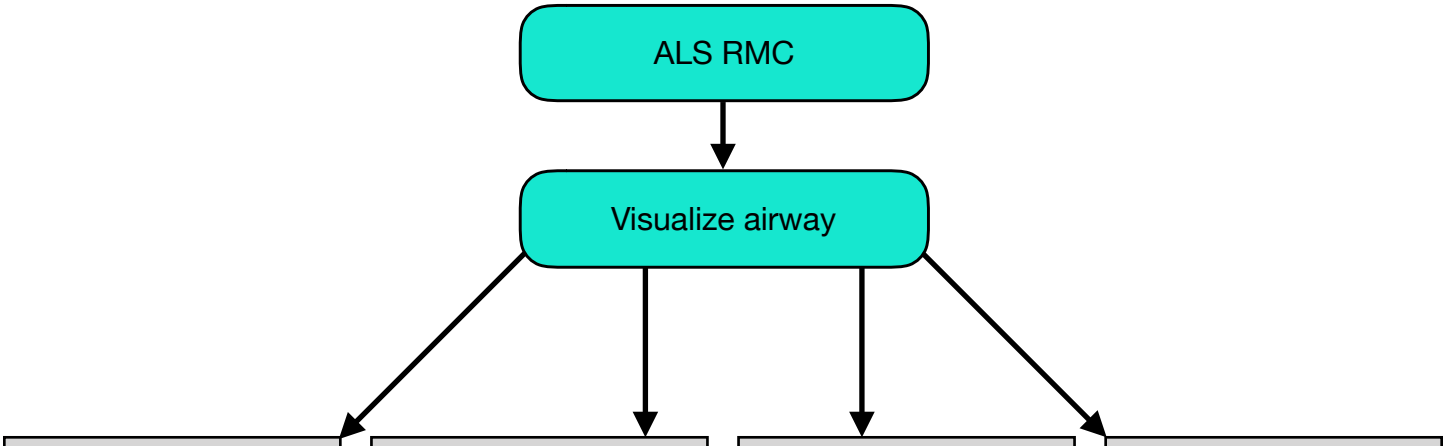
If suspected opiate overdose

- 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 sweet to remove object
- Begin CPR
- Prepare to use Magill forceps if BLS not effective

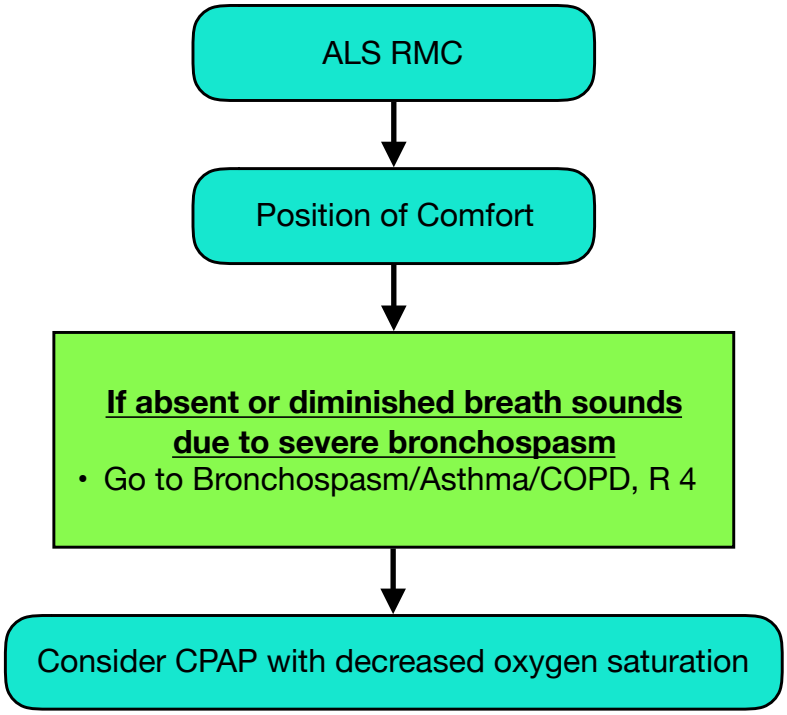
Suspected Epiglottitis

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

ACUTE RESPIRATORY DISTRESS

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



BRONCHOSPASM/ASTHMA/COPD

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
- Significan 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

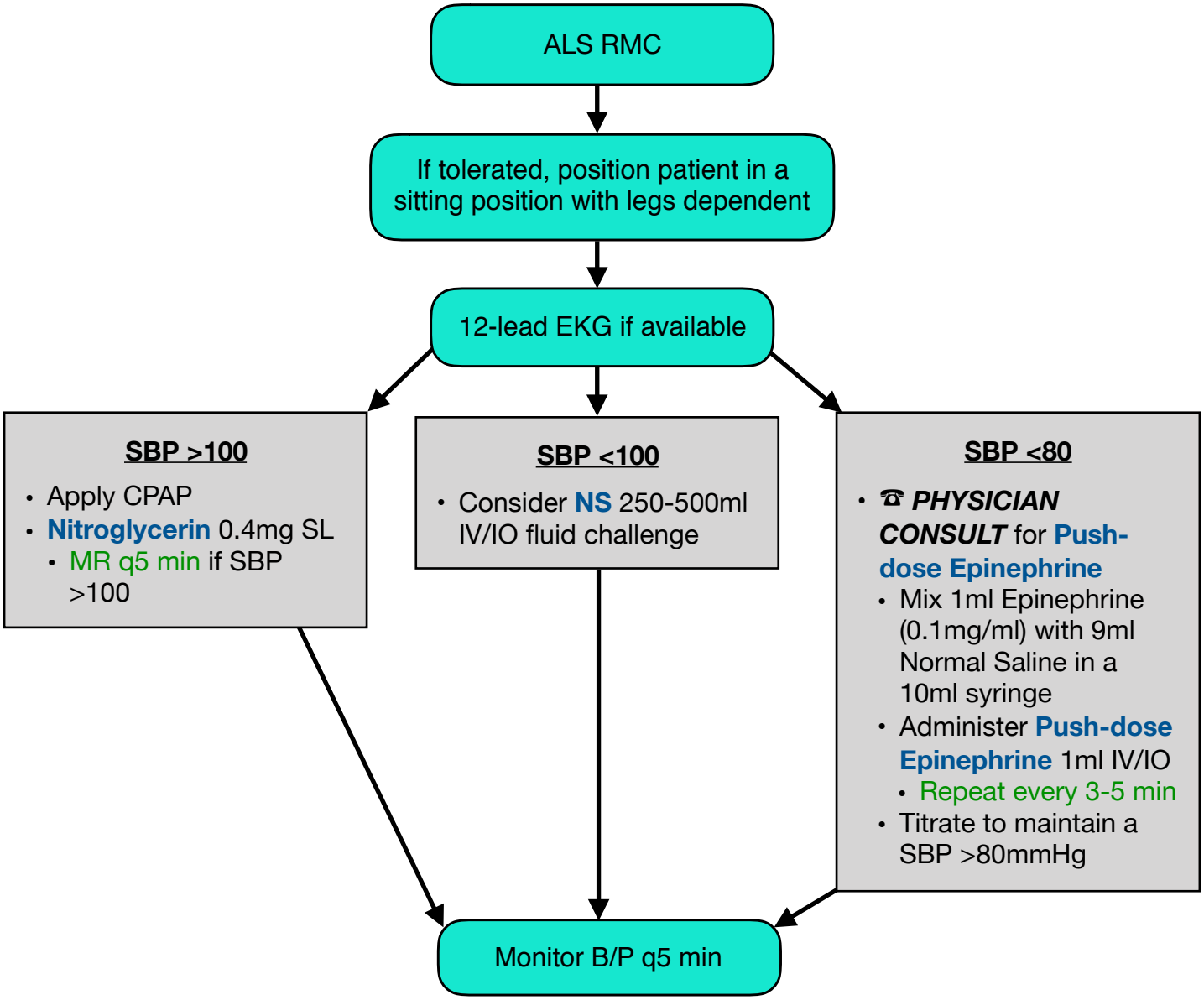
SPECIAL CONSIDERATIONS

- Do not repeat **Albuterol/Atrovent** if significant tachycardia or chest pain
- **Epinephrine** may cause anxiety, tremor palpitation, tachycardia, HTN and 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



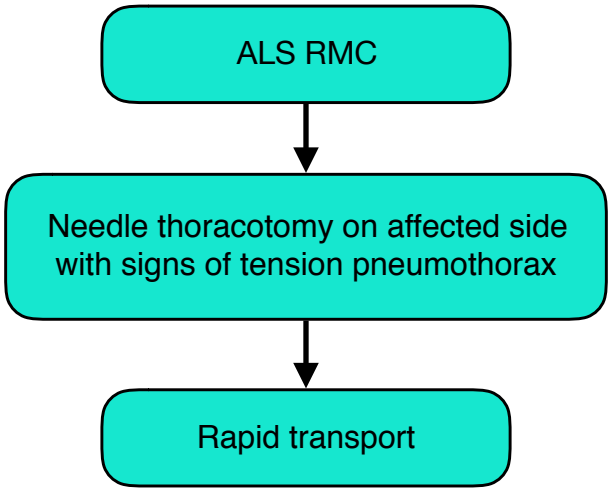
SPECIAL CONSIDERATION

- 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



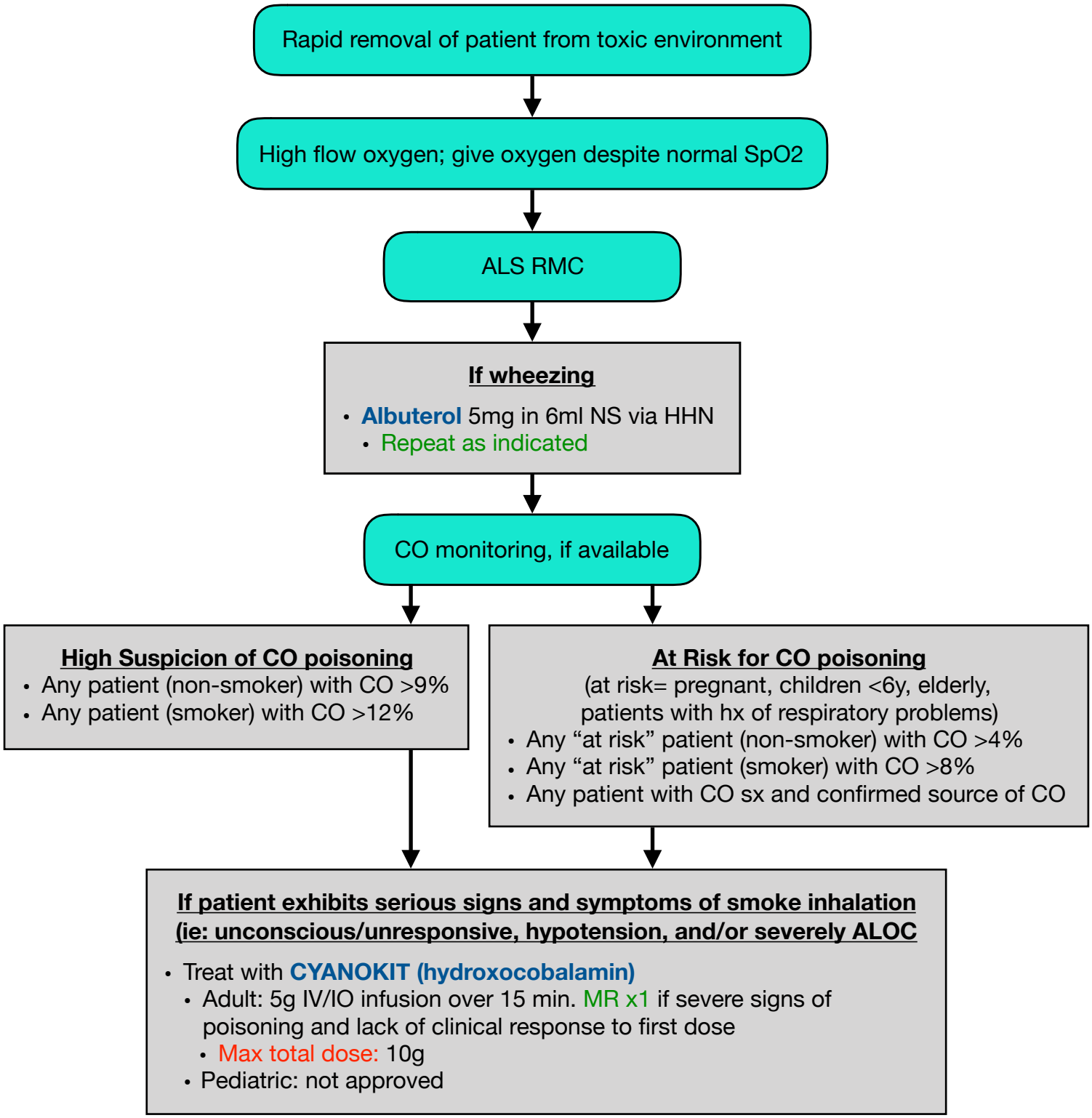
SPECIAL CONSIDERATION

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

TOXIC INHALATION

Indications

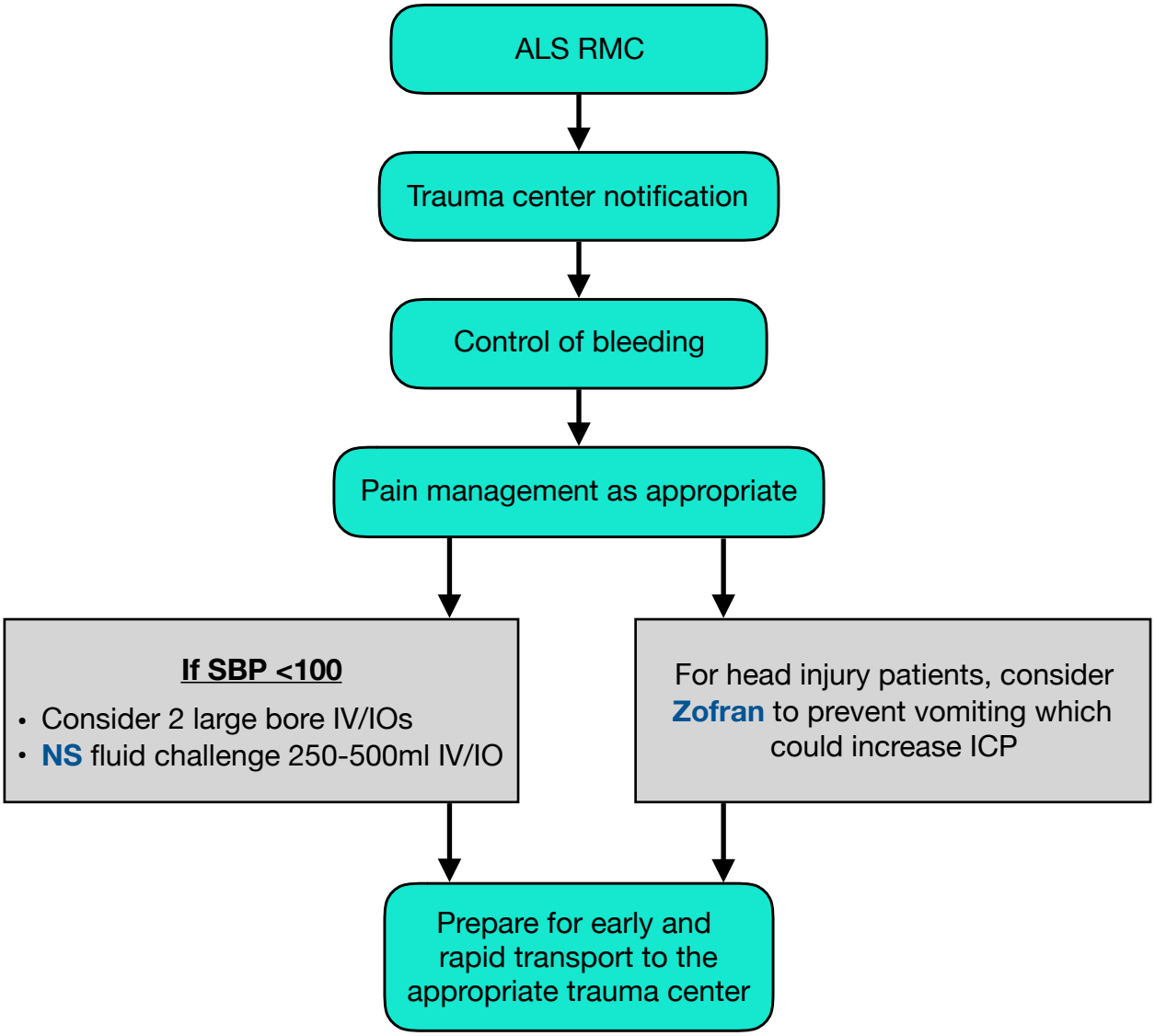
- Respiratory distress caused by inhalation of toxic gases
- Symptoms may include headache, malaise, dizziness, nausea/vomiting, seizures, hypotension, coma; may be associated with cherry-red color of mucous membranes (late sign)
- Consider carbon monoxide (CO) poisoning or cyanide poisoning with any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



TRAUMATIC INJURY

Indications

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



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)

ALS RMC

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

MANAGEMENT OF LESS-THAN-LETHAL INTERVENTIONS

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

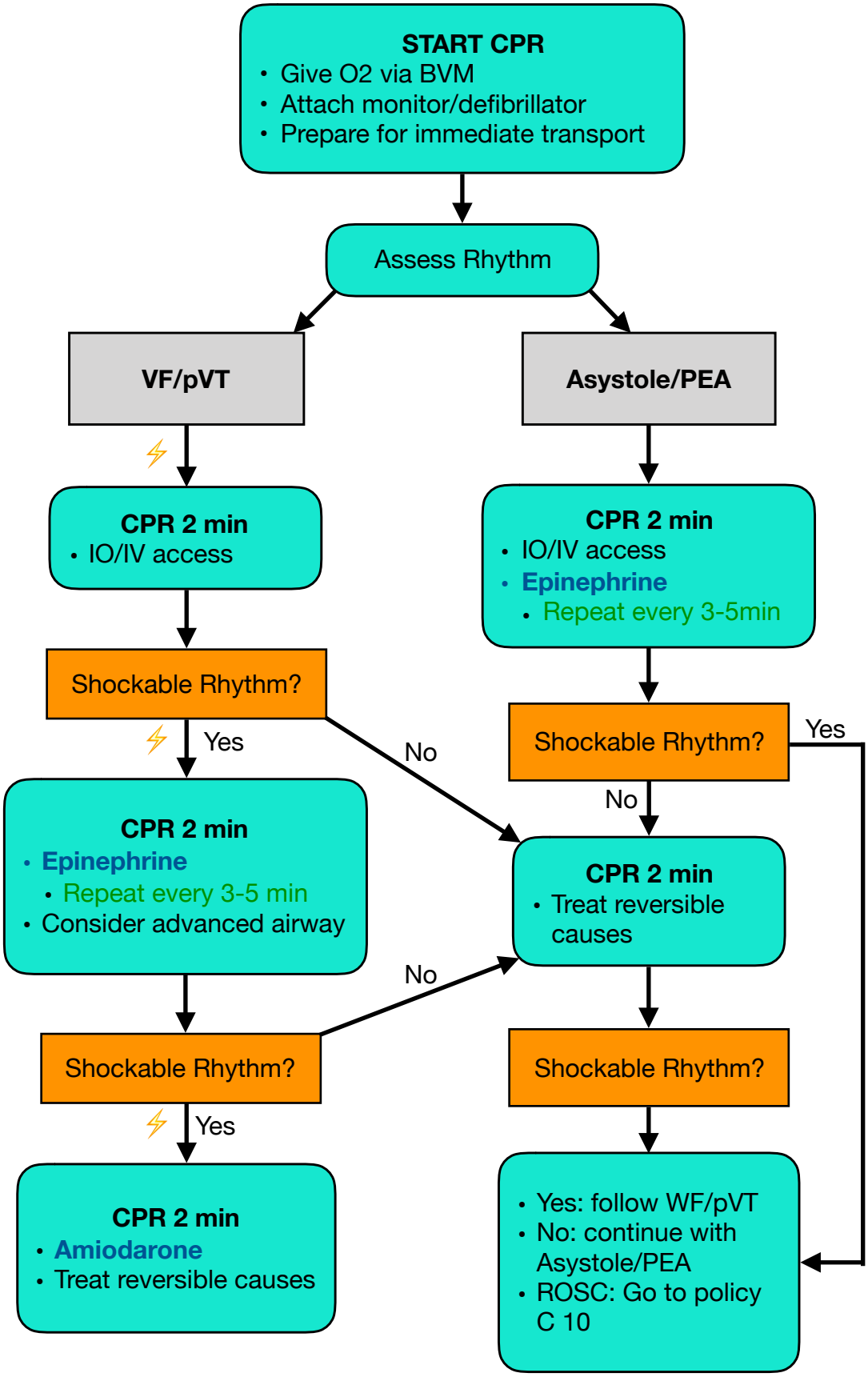
- Remove embedded probes and dispose of in sharps container. If probes cannot be removed due to pt's agitation/location of probe/ or safety hazard, cover the probe with gauze
- Do NOT remove probes of located in the following areas: face, neck, groin, spinal column or any area deemed to be problematic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

PEDIATRIC CARDIAC ARREST



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 patient 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.

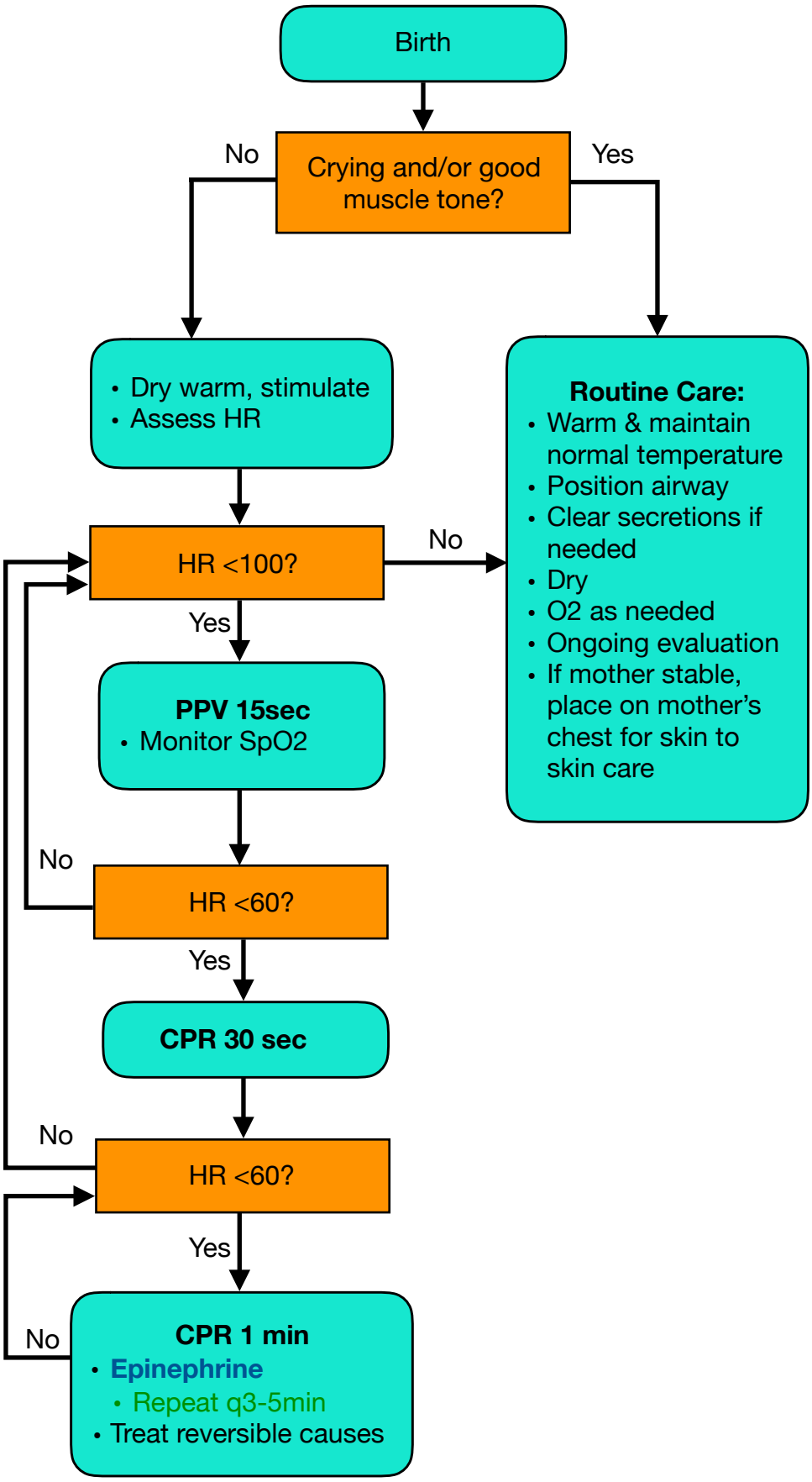
Drug Therapy

- **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

NEWBORN RESUSCITATION



CRITICAL INFORMATION

- Measure with color-coded resuscitation tape
- Compress at rate of 90bpm. Use metronome or similar device
- 3:1 compression/ventilation ration with 2 person CPR
- Peripheral cyanosis is a normal finding
- Delay cord clamping until 30-60 seconds after birth, then clamp 6-8" from baby
- 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) IV/IO
  - Repeat q3-5 min
- **NS** fluid bolus 10ml/kg IV/IO

SpO2 Normal Values After Birth (in Min)

1 min	60-75%
2 min	65-70%
3 min	70-75%
4 min	75-80%
5 min	80-85%
10 min	85-95%

PEDIATRIC BRADYCARDIA

Indications

- HR <60 causing cardio-respiratory compromise

ALS RMC

- 12-lead EKG
- IV/IO Access

Signs of shock present?

No

Monitor and transport

Yes

- 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 whose height > than the length of the color-coded resuscitation tape **and** unable to ventilate with BVM

Consider pacing if no response to above treatment

SPECIAL CONSIDERATION

Reversible causes:

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

PEDIATRIC TACHYCARDIA POOR PERFUSION

Indications

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

ALS RMC

12-lead EKG

If wide QRS ≥0.09 sec

- Pre-medicate with **Midazolam** 0.05mg/kg IV/IO
  - Max dose: 1mg
  - Max total dose: 5mg
- 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 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
  - Max dose: 1mg
  - Max total dose: 5mg
- Do not delay cardioversion if patient unstable
- Cardiovert: 0.5-1J/kg
  - If not effective, increase to 2J/kg

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

- Remove 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

↓

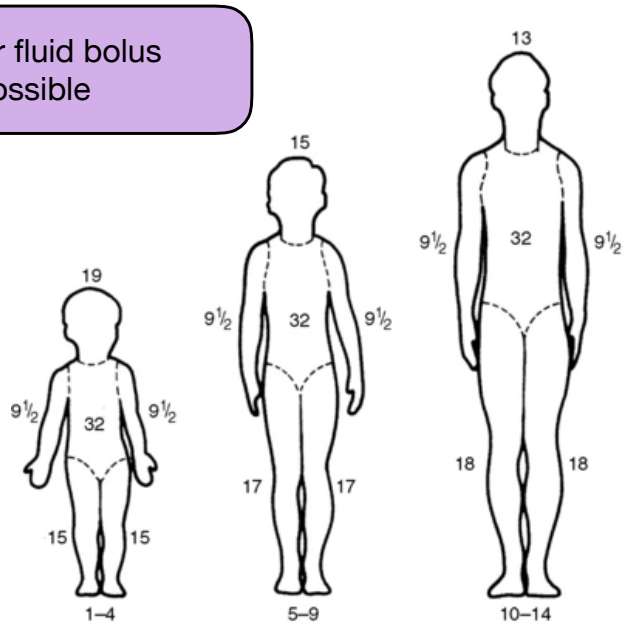
If wheezing
- Consider **Albuterol** 2.5mg in 3ml NS HHN
  - MR x1

↓

- **NS** TKO IV/IO, do not administer fluid bolus
- Pain management as soon as possible

CRITICAL INFORMATION

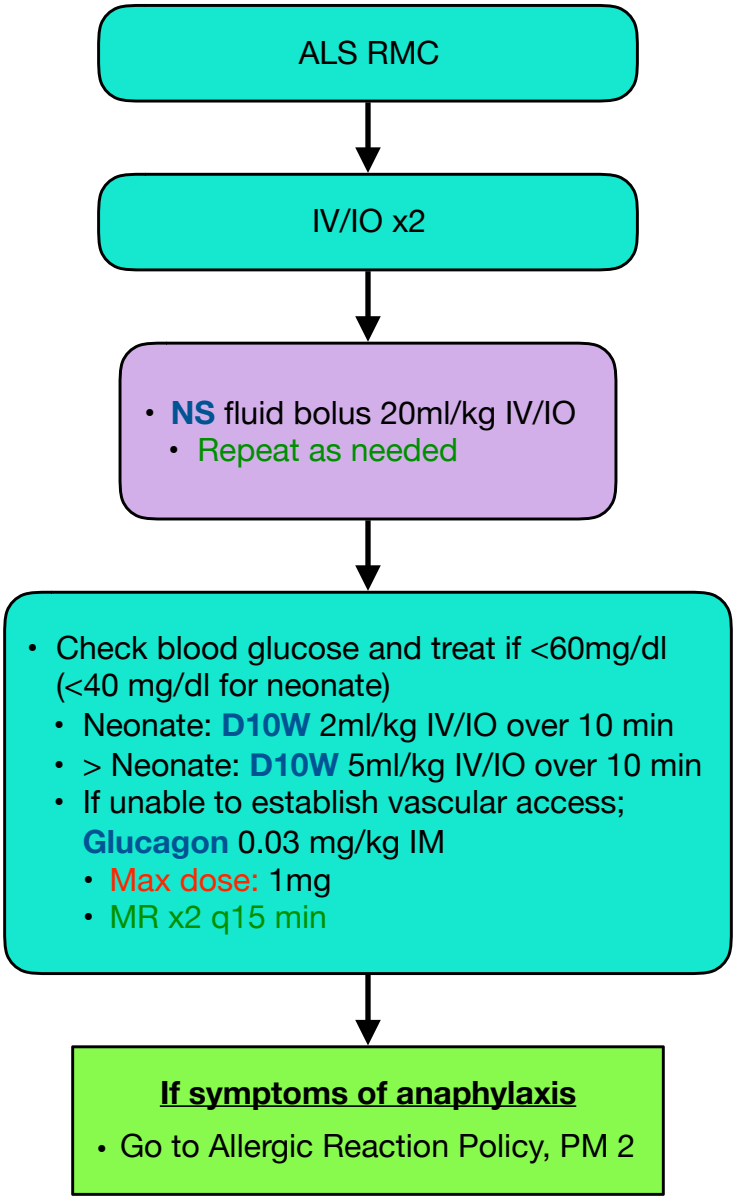
- Perform frequent airway assessments and consider early intubation for inhalation injury (ie: facial or chest burns, singed nares, soot/blisters in oropharynx)
- Burns with trauma mechanism need to be transported per the Marin County Trauma Triage Tool



PEDIATRIC SHOCK

Indications

- Inadequate organ and tissue perfusion to meet metabolic demands



PEDIATRIC ALLERGIC REACTION

Indications

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

ALS RMC

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

PEDIATRIC TOXIC EXPOSURES

Indications

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

ALS RMC

NS fluid bolus 20ml/kg IV/IO as indicated

If suspected opiate overdose
- For patient >4 weeks of age, **Narcan** 0.1mg/kg IV/IO/IM/IN

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
- If seizures, **Midazolam**
  - IV/IO: 0.05mg/kg (max 1mg/dose)
    - MR q3 min until seizure stops
    - Max total dose: 5mg
  - IM: 0.1mg/kg
    - MR x1 in 10 min
  - IN: 0.2mg/kg (split dose in half for each nostril)
    - Max dose: 5mg

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

BRIEF RESOLVED UNEXPLAINED EVENT (BRUE)

Indications

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

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

☎ 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 and should 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

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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
    - Max dose: 1mg
    - MR x2 q15 min

↓

- **Midazolam**
  - IV/IO: 0.05mg/kg IM
    - 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

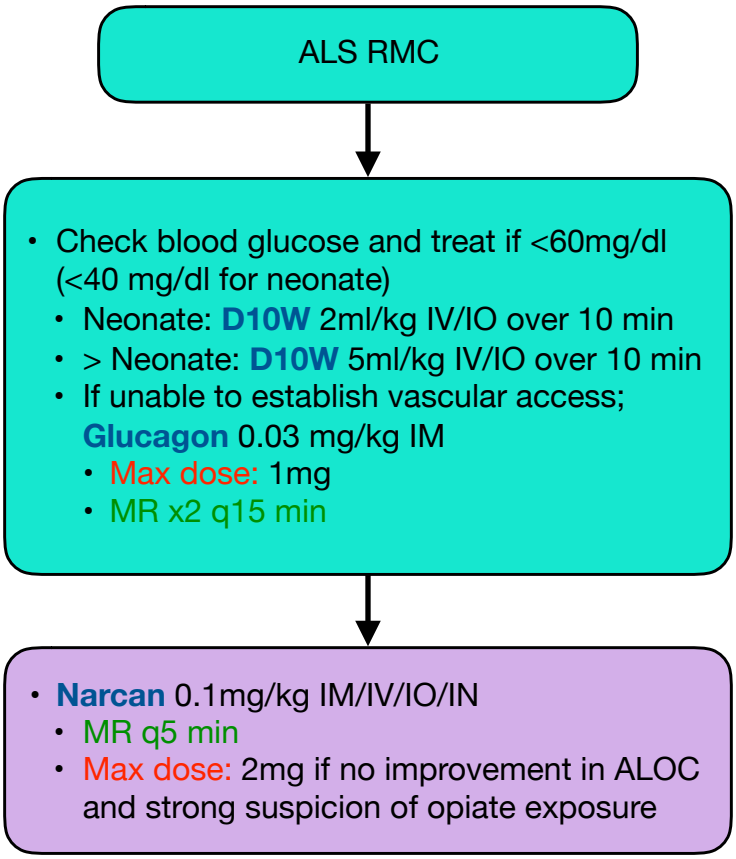
CRITICAL INFORMATION

- 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



CRITICAL INFORMATION

- **Narcan** is contraindicated with neonatal resuscitation

PEDIATRIC RESPIRATORY DISTRESS

Indications

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

ALS RMC

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

Upper Airway/ Stridor

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

Lower Airway/ Wheezing

- **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 whose height is greater than the length of the color-coded resuscitation tape **and** unable to ventilate with BVM

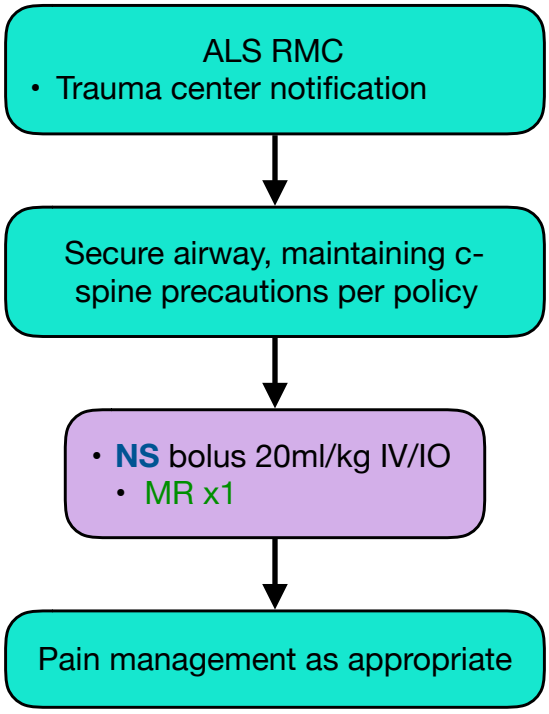
SPECIAL CONSIDERATION

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

PEDIATRIC TRAUMA

Indications

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



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

PEDIATRIC PAIN MANAGEMENT

Indications

- Patient with apparent or reported pain

ALS RMC

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

OR

- **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

PEDIATRIC MEDICATIONS

DRUG	CONCENTRATION	STANDARD DOSE
Adenosine	6mg/2ml	0.1mg/kg rapid IV/IO push, followed by 5ml NS flush *Max first dose:* 6mg *Repeat:* x1 (double the dose); *Max dose:* 12mg
Albuterol	2.5mg/3ml NS	2.5mg/3ml NS
Amiodarone	150mg/3ml	Pulseless Arrest: 5mg/kg IV/IO, followed by or diluted in 20-30ml NS *Max single dose:* 300mg ☎ Tachycardia with poor perfusion: 5mg/kg IV/IO over 20-60 min
Atropine	1mg/10ml	Bradycardia: 0.02mg/kg IV/IO Minimum dose 0.1mg, *Single max dose:* 0.5mg *Repeat:* x1 Organophosphate Poisoning: 0.05mg/kg IV/IO *Repeat:* q5-10 min *Max dose:* 4mg or until relief of symptoms
Dextrose 10%	D10%	ALOC (Neonate): 2ml/kg IV/IO *ALOC (>Neonate):* 5ml/kg IV/IO
Diphenhydramine (Benadryl)	50mg/ml or 50mg/10ml	1mg/kg IV/IO/IM *IV/IO max dose:* 25mg/min *IM max dose:* 50mg
Epinephrine	1mg/ml EpiPen Jr ® 0.15mg	Allergic Reaction: 0.01mg/kg IM (0.01mg/kg) *Max dose:* 0.6mg (0.6ml) EpiPen Jr ®: repeat as needed in 5 min Upper Airway/Stridor: 5mg in 5ml via nebulizer
Epinephrine	1mg/10ml or 0,1mg/ml	0.01mg/kg (0.1ml/kg) IV/IO
Fentanyl	100mcg/2ml	1mcg/kg slow IV/IO/IN *Repeat: q5 min* *Max dose:* 3mcg/kg For IN: divide dose evenly between nostrils
Glucagon	1mg/ml	0.03mg/kg IM *Max dose:* 1mg
Ipratropium (Atrovent)	500mcg/2.5ml Unit dose	500mcg/2.5ml Unit dose
Lidocaine 2%	20mg/ml	0.5mg/kg slowly *Max dose:* 40mg *Repeat:* x1 1/2 of initial bolus

DRUG	CONCENTRATION	STANDARD DOSE
Midazolam (Versed)	2mg/ml IN: 5mg/ml	Cardioversion: 0.05mg/kg slow IV/IO *Max dose:* 1mg Seizure: IV/IO: 0.05mg/kg *Repeat:* q3 min *Max dose:* 5mg IM: 0.1mg/kg *Repeat:* x1 in 10 min IN: 0.2mg/kg *Max dose:* 5mg
Morphine	10mg/10ml 10mg/ml	Pain Management: 0.1mg/kg (0.1ml/kg) slow IV/IO/IM Repeat: x1 in 15 min if IV/IO, 30 min if IM Burns: 0.1mg/kg IV/IO/IM in incremental doses up to *max dose:* 0.3mg/kg
Naloxone (Narcan)	2mg/2ml	0.1mg/kg (0.25ml/kg) IV/IO/IM
Ondansetron (Zofran)	4mg	Patients ≥4 years: 4mg ODT or slow IV over 30 seconds Patients 2-4 years: 2mg ODT or slow IV over 30 seconds
Sodium Bicarbonate	50mEq/50ml	1mEq/kg IV/IO