

Marin County Emergency Medical Services



PREHOSPITAL CARE MANUAL

April 2023

"Excellent Care – Every Patient, Every Time"

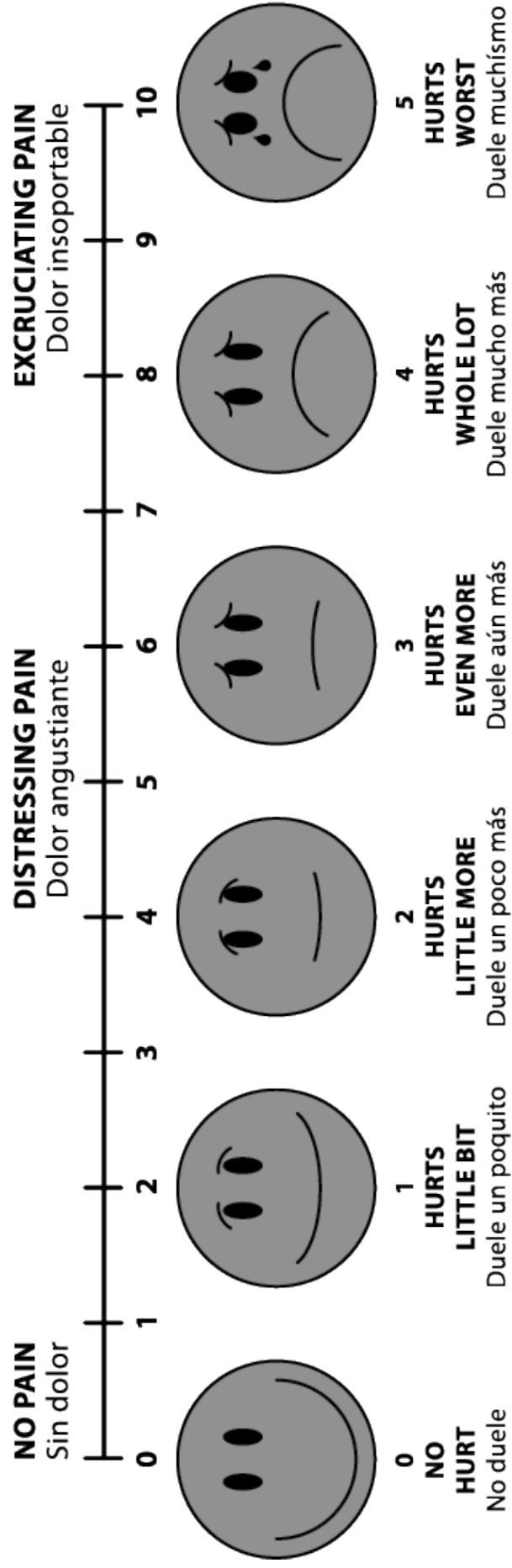


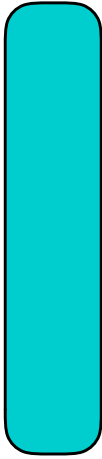
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Flowchart Legend



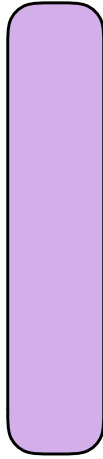
Teal curved box = done on every patient



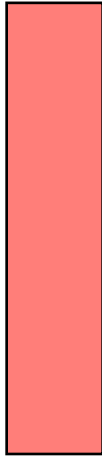
Gray rectangle = decision point



Orange rectangle = critical decision point



Purple curved box = treatment/medication



Red rectangle = physician consult



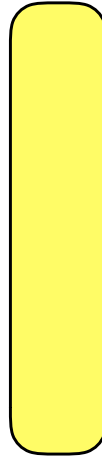
Green curved box = go to a different policy



Green rectangle = decision point whether to go to a different policy



Yellow rectangle = critical information



Yellow curved box = special considerations

Medication names are all in **bold** and **blue**

If a medication can be repeated it will be in **green**

The maximum dose is in **red**

PATIENT TRANSFER AND TRANSPORTATION

Purpose

- To provide guidance regarding the movement of injured patients from non-trauma facilities to trauma facilities, from one level of trauma facility to a different level of trauma facility, and to review the availability of transportation for those purposes

Related Policies

- Interfacility Transfer, GPC 5
- EMS Aircraft, 5100
- Trauma Re-Triage, Adult, 4606A
- Trauma Re-Triage, Pediatric, 4606B

Definitions

- **Non-trauma facilities** are acute care facilities not holding a trauma center designation
- **Trauma facilities** are acute care facilities holding a trauma center designation of Level I, Level II, Level III, or EDAT

General Policy

- A. All acute care facilities in Marin County, as part of an inclusive trauma system, will provide care to injured patients and participate in the Trauma System Plan
- B. Prehospital care personnel will evaluate trauma patients on initial contact and determine the appropriate destination based on the apparent severity of the injury, the location of the patient, the time to transport to definitive care and the availability of transport resources related to the location of the appropriate facility
- C. Patient transfer may be accomplished in one of the following ways:
 - Transfer from a non-trauma facility to a trauma facility. To facilitate this type of patient transfer, a rapid re-triage for adults and pediatric patients may be used (see 4604A and B)
 - Transfer from a trauma facility to a trauma facility which a higher level of designation. 4606A and B may be used to identify the types of patients which may benefit from the transfer
 - Transfer after stabilization and initial care (per EMTALA regulations) to a like facility of the patient's choosing
 - Transfer after definitive care (per EMTALA regulations) to a non-trauma facility for on-going care. The transfer of patients from one facility to another must be based upon medical treatment decisions and not in whole or in part on the patient's financial or social status or their ability to pay for care or services. Decisions to transfer the patient at their request or the request of their insurer must, at all times, be made in the manner consistent with good medical practice
- D. As the lead agency, the Marin County EMS Agency will initiate and maintain contracts with Level I, Level II, and specialty care facilities on behalf of the Marin County Trauma System Plan
 - All contracts arranging for care of patients injured in Marin County will include provisions for the establishment of transfer guidelines indicating the type of patients or injuries anticipated to be transferred under the terms of the agreement

- Marin County facilities are required to have transfer agreements and to specify the type of patient or injury to be transferred under the terms of the agreement
 - Additional transfer agreements must include provisions assuring that required trauma data is provided to the transferring facility to complete data collection and quality improvement processes
- E. In all instances of patient transfer, it is the responsibility of the transferring facility to assure the following:
- That the transfers occur in accordance with all state and federal laws and regulations
 - That all pertinent patient records are transferred with the patient
 - That the receiving facility and receiving physician have accepted the patient
 - That the method of transfer is appropriate to the needs of the patient at the time that the transfer occurs
 - Arranging appropriate transportation for the patient
- F. If expected patient care is within Paramedic Scope of Practice and timely transfer is needed, contact 9-1-1 to request *Emergency Interfacility Transfer*. If expected patient care exceeds Paramedic Scope of Practice, contact appropriate transport agencies (CCT Transport) or arrange for nursing staff and/or MD to accompany paramedic or EMT during transport to the receiving facility
- Patients being transferred should receive during the transport a level of care and attention equivalent to the level of care necessary before and following the transfer
 - Level of care refers to the type of equipment and supplies needed and to the level of expertise of caregivers

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/B
- EMS Aircraft #5100
- Ambulance Diversion policy #5400
- Determination of Death, ATG 6
- Destination Guidelines, GPC 4
- Multi-Casualty Incident, GPC 12

Definitions

- **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.
- **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)
- **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)
 - 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
 - Physician consultation is REQUIRED in the following circumstances:
 - I. The paramedic is unable to transport the patient to the indicated facility in an expedient manner
 - II. The paramedic assesses the patient and scene conditions and believes transport to a different level of care is indicated
 - III. Patient requests a facility not indicated by the Trauma Triage Criteria Tool
 - Physician consultation is RECOMMENDED whenever assistance in resolving treatment decisions or transport destinations is desired
 - Unmanageable airway: Patients with airway compromise unmanageable by BLS or ALS adjuncts will be transported to the closest receiving facility

- Traumatic Arrest: Determination of death can be made prior to, or immediately after, initiating resuscitation if:
 - I. In an MCI incident where START triage principles preclude initiation of CPR
 - Or if ALL of the following are present
 - II. A patient has sustained blunt, penetrating or profound multi-system trauma, or significant blood loss
 - III. Pulseless and/or apnea
 - IV. Absence of potentially reversible cause of arrest
- D. Destination for adult patients who meet Physiologic or Anatomic Criteria:
 - Transport to time closest trauma center
 - If the estimated ground transport time to the closest trauma center exceeds 30 minutes, consider use of air ambulance
 - I. 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.
 - II. 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 MarinHeath Medical Center
- F. Destination for pediatric patients who meet physiologic or anatomic criteria:
 - Transport directly to Children's Hospital Oakland (see Trauma Triage Tool)
 - 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:
 - Use of air ambulance should be considered
 - Prehospital providers shall consult with the Level III trauma center regarding destinations
 - 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
 - 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 the Level III trauma center is unable to accept.

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 <10min) 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:
 - Medic unit and transport code
 - Trauma Notification
 - Patient age and gender
 - **M**- Mechanism of injury
 - **I**- Injury and/or complaints; significant injuries and findings
 - **V**- Vital signs; blood pressure, pulse, respiratory rate, GCS
 - **T**- Treatment/interventions
 - ETA

SPECIAL CONSIDERATIONS

- The clinical findings, including past medical history, are critical to identifying the trauma patient, especially when assessing Mechanism of Injury (MOI) and additional factors
- A thorough clinical assessment is especially important in patients with:
 - Persistent and unexplained respiratory difficulty, tachycardia, or peripheral vasoconstriction
 - Age <5yrs 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 abuse or psychiatric impairment)
- There are MOI 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

☎ PHYSICIAN CONSULT

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

INTERFACILITY TRANSFERS

PURPOSE

To provide policy and direction for interfacility transfers originating or terminating in Marin County.

RELATED POLICIES

4604 Trauma Re-Triage, 5200 Medical Mutual Aid

AUTHORITY

Health & Safety Code 1797.200, 1797.218, 1797.222; Marin County Code of Ordinances, Chapter 7.60, "Ambulance Transportation Services"

DEFINITIONS

1. **Certificate of Operation** – annual certificate issued by the Marin County EMS Agency to a private ambulance company doing business in Marin that has met all regulatory requirements.
2. **Emergent Transfer** – A patient transfer that requires immediate transportation by ambulance to another facility for a higher level of care (e.g., STEMI, stroke, trauma, etc.). Typically facilitated by local 911 ALS resources.
3. **Interfacility Transfer** – The transfer of a patient by ambulance from one healthcare facility to another healthcare facility.
4. **Permitted Ambulance** – An ambulance with a current inspection permit from the Marin County EMS Agency.
5. **Permitted Ambulance Service Provider** – A private ambulance service provider with a current Certificate of Operation on file with the Marin County EMS Agency.
6. **Rapid Re-Triage** – An emergent transfer of a trauma patient from an Emergency Department to a designated Trauma Center.
7. **Specialty Care Transfer** – A patient transfer that utilizes a hospital-based specialty team (NICU, PICU, ECMO, Stroke) for patient care.

POLICY

Interfacility transfers may only be conducted by established local fire department ambulance service providers and permitted private ambulance service providers. Non-permitted ambulance providers are only authorized to facilitate interfacility transfers that originate outside of Marin County and terminate in Marin County. Interfacility transfers requiring ALS or CCT level of care must utilize a vehicle staffed, equipped, and permitted for that level of care.

Unless otherwise directed, transporting personnel shall operate under the medical direction of the sending physician in compliance with the County of Marin, State, and Federal laws, through direct contact or standing orders, and in a manner permitted by their scope of practice.

A list of current permitted ambulance service providers shall be maintained on the Marin EMS Agency website at: www.MarinEMS.org

PROCEDURE

The sending facility shall have confirmed acceptance by receiving facility prior to the transfer. 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 requested, they will confer with the sending physician to assure the appropriate level of care during transfer.

The standard scope of practice allows for:

- **EMT**

- Monitoring of 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.
- Monitoring of 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.
- Transporting patients with completely patient-controlled devices including CPAP/BiPAP, medication pumps, etc. requiring no monitoring or adjustment during transport.

- **Paramedic**

- Monitoring and adjustment of intravenous fluids containing potassium ≤ 40 mEq/L.
- Monitoring of thoracostomy tubes.
- Performing suctioning of patients not on mechanical ventilators with stomal intubation.
- Monitoring of patients with nitroglycerin paste initiated prior to transport.

Emergent Transfers

An emergent interfacility transfer such as the rapid re-triage of a trauma patient or confirmed STEMI patient shall be facilitated by a local ALS fire department ambulance provider. Private ambulance providers may be utilized for emergent transfers only if there is no local ALS fire department provider available or the level of care is above the ALS level.

Specialty Team Transports

For purposes of this policy and the Marin County Ambulance Regulations, a specialty team transport is not required to be conducted in a permitted ambulance so long as the ambulance provider possesses a current Certificate of Operation for Marin County and all patient care is delivered by the hospital-based specialty team.

Any provider conducting a specialty team transport originating in Marin County must comply with data reporting requirements described in the current Ambulance Regulations.

Use of Air Ambulance Resources

Only hospitals with an approved on-site helipad may directly receive interfacility transfers by air ambulance.

When coordinating an outgoing interfacility transfer requiring the use of an air ambulance, the sending facility shall contact the Fire/EMS Communication Center to dispatch appropriate fire department units to secure the emergency landing zone.

It is the responsibility of the air medical provider or sending facility staff to make ground transportation arrangements at the sending facility. Every attempt shall be made to utilize a non 911 provider for the transport of patients and crew to and from the landing site.

Special Considerations

- For emergent transfers with CCT service requirements, when no provider is able to fulfill the transfer request within the required ETA and further delay would cause a significant risk of increased morbidity or mortality, under the direction of the sending physician, a sending facility caregiver (RN, NP, PA, Physician or RT) may attend to the patient during transport utilizing the highest level ambulance available as a last resort.
- Transporting team members shall provide care within their own scope of practice.
- All advanced monitoring equipment or medications anticipated to be required during transport that 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.

Local Disasters

In the case of a disaster where no permitted ambulance service provider is available, non-permitted ambulances from non-permitted ambulance service providers may be used to transfer patients.

Appendix A

Guideline for determining level of service (BLS-ALS-CCT)

Condition	BLS	ALS	CCT
Oxygen by mask or cannula	✓		
IV fluids running (Normal Saline, Lactated Ringers, Dextrose)	✓		
Confuse/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			✓

EMS AIRCRAFT

PURPOSE

To provide policy for integrating dispatch and utilization of aircraft into the Marin County EMS system as a specialized resource for prehospital response, transport, and care of patients. Aircraft utilization provides a valuable adjunct to the Marin County EMS System by minimizing the time to definitive care in prescribed circumstances.

RELATED POLICIES

Emergency Medical Dispatch Policy, #4200; Trauma Triage and Destination Guideline Policy, #4613; Prehospital/Hospital Contact Policy, # 7001

AUTHORITY

California Administrative Code, Title 22, Divisions 2.5 and 9.

APPLICABILITY

All aircraft providing prehospital patient transport within the Marin County EMS System must be authorized by the EMS agency in their county of origin, or by the EMS Authority, or by a United States Government agency.

POLICY

- A. The patient's condition, available ground resources, incident location in relation to receiving facility and call circumstances will be evaluated by caregivers in the field to determine if air transport is appropriate.
- B. The type of aircraft to be requested will be determined by the Incident Commander and/or the County Communications Center based on provider availability, response time criteria and nature of the service needed. See Appendix A.

PROCEDURE FOR AIRCRAFT DISPATCH

- A. Aircraft will be dispatched simultaneously with ground units for specific circumstances as follows:
 - 1. Area of the call is inaccessible to ground unit(s) or ground access is compromised;
 - 2. Air assistance may be needed with rescue activities; or
 - 3. Ground transport time to the hospital is > 30 minutes and the applicable Emergency Medical Dispatch Protocol (policy #4200, Appendix A) recommends simultaneous dispatch.
 - 4. Reported traumatic injury and Level III Trauma Center is on trauma diversion.
- B. Aircraft Dispatch may also occur in the following manner:
 - 1. Upon request of the responding unit while en route to the scene.
 - 2. Upon request of onscene personnel following patient assessment.

PROCEDURE FOR AIRCRAFT USE

- A. Consider use of an EMS aircraft where:
 - 1. A patient meets Trauma Triage Tool anatomic or physiologic criteria and the time closest facility is a Level II Trauma Center.
 - 2. Ground transport time is greater than 30 minutes.

B. Procedural Considerations

1. EMS aircraft should not transport patients in cardiac arrest. Aircraft crew shall have discretion to transport patients receiving CPR in certain situations (refractory VF, unsafe scene conditions, hypothermia, etc.).
2. Marin County Communications Center will notify law enforcement and fire agencies with jurisdiction over the landing zone.
3. The EMS aircraft may be canceled by the on-scene Incident Commander.

C. Medical control

1. Treatment decisions will be made according to medical control policies and procedures governing the provider agency having responsibility for care.

GENERAL AND RELATED PROCEDURES**A. Marin County personnel may accompany a patient in an EMS aircraft during transport if all of the following conditions are met:**

1. Personnel have been providing care for the patient prior to arrival of the aircraft;
2. Aircraft pilot and crew request that personnel accompany the patient during transport to assist with care.

B. Patient care records will be kept as follows:

1. Marin County personnel will complete a Marin County PCR as per policy/procedure, and when known, forward it to the receiving hospital.
2. EMS aircraft crew will complete a PCR as required by policy/procedure within their county of origin, and forward a copy to Marin County EMS Agency.

C. The following times, when available, will be relayed to and recorded by Marin County Communications Center:

1. ETA at time of original dispatch request
2. When airborne, en route to scene
3. Arrival at scene
4. Departure from scene
5. Destination hospital
6. Arrival at receiving hospital

D. As part of the Quality Improvement Program, the EMS Agency will review all aircraft dispatches.**E. Aircraft may be utilized by acute care hospitals for interfacility transfers.**

1. Hospitals will contact EMS aircraft providers directly.
2. The hospital requesting an EMS aircraft will notify the Marin County Communications Center of aircraft activity so fire and law enforcement agencies can be notified of the probable aircraft landing site.
3. Hospitals shall notify the Marin County EMS Agency of interfacility transfers by EMS aircraft on a monthly basis.

APPENDIX A

PROVIDER LIST AND CLASSIFICATION DEFINITIONS

Provider Name	Classification	Function	Staffing	Location
Stanford University LIFELIGHT	Air Ambulance	Medical	Pilot Nurses (2)	Palo Alto
CONAIR - 1	Air Ambulance	Medical/Fire Support	Pilot/Nurse/Paramedic	Concord
CONAIR - 2	Air Ambulance	Medical/Fire Support	Pilot/Nurse/Paramedic	Concord
Sonoma County Fire SOCO-1	Air Ambulance	Medical/Fire Support	Pilot/Nurse/Paramedic	Santa Rosa
Sonoma County Sheriff's Office Henry 1	ALS Rescue	Law, Medical, Long-line rescue	Pilot/Paramedic/EMT	Santa Rosa
California Highway Patrol H-30	ALS Rescue	Law, Medical	Pilot Paramedic	Napa
U.S. Coast Guard Helicopter	Auxiliary	Water rescue, Long-line rescue	2 Pilots EMT rescue swimmer	SFO

CLASSIFICATION DEFINITIONS

- A. "Air Ambulance" means any aircraft specifically constructed, modified, or equipped and used for the primary purpose of responding to emergency calls and transporting critically ill or injured patients whose medical flight crew has at a minimum two attendants certified or licensed in advanced life support.
- B. "Rescue Craft" means an aircraft whose usual function is not prehospital emergency medical transport but which may be utilized for prehospital emergency patient transport when use of an air or ground ambulance is inappropriate or unavailable.
- C. "ALS Rescue Aircraft" means a rescue aircraft that is equipped to provide ALS service, staffed with a minimum of one ALS medical flight crew member.
- D. "Air Rescue Service" means an air service used for emergencies including search and rescue.
- E. "BLS Rescue Service" means a rescue aircraft whose medical crew has, at a minimum, one attendant certified as an EMT-1.
- F. "Auxiliary Aircraft" is a rescue aircraft which does not have a medical flight crew or whose flight crew does not meet the minimum requirements of a BLS Rescue Aircraft.

AMBULANCE DIVERSION POLICY

Purpose

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

Related Policies

- Trauma Triage and Destination Guideline Policy, 4613
- Destination Guidelines, GPC 4

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

- **Full diversion** means a rerouting of all ambulance traffic
- **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:
 - I. CT Scanner inoperable
 - II. Neurosurgeon not available
 - III. Trauma Center diversion
 - IV. Emergency Department saturation
 - V. 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 limited to the following:
 - Definitions and standards for activation which are consistent with this policy/procedure
 - Identification of the internal approval process, including persons or positions that must be involved in the decision-making process
 - Mechanisms for notification, on-going monitoring, removal from diversion status; identification and activation of back-up 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 Conditions Specific Diversion is determined per each facility's plan, consistent with the following:
1. The following patients may not be rerouted:
 - Obstetrical patients in active labor
 - Patients with respiratory distress and unmanageable airway
 - Patients with uncontrolled external hemorrhage
 - Patients requiring ALS, but having no paramedic in attendance
 - Patients with CPR in progress (unless transporting to the nearest STEMI Receiving Center for patients in refractory VF)
 - 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
 2. CT Scanner Inoperable:
 - 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
 - Patients who meet Mechanism of Injury and/or Additional Factors will be transported to Kaiser Permanente San Rafael EDAT
 - Patients with the following get transported to the closest facility with functioning CT scanner:
 - I. Signs or symptoms of a new CVA
 - II. Head injury patients not meeting trauma criteria with anticoagulant use and/or bleeding disorders
 3. Neurosurgeon Not Available:
 - Patients with signs and symptoms of head, neck or spinal cord trauma: transport to Level II Trauma Center; if conditions preclude air transport, consult with MarinHealth Medical Center Level III Trauma Center
 - 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:
 - 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
 - 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
 - Patients who meet Mechanism of Injury and/or Additional Factors Trauma Triage Criteria shall be transported to the EDAT

- The following conditions DO NOT constitute acceptable grounds for Trauma Center Diversion:
 - I. A lack of clinical specialty back-up, inpatient bed space, monitored beds, or inpatient nursing staff
 - II. ED Saturation Diversion
 - III. Inoperable CT Scanner (see section 3B)

5. ED Saturation Diversion:

- Ambulance traffic may be diverted due to emergency department saturation when emergency department resources are fully committed and unable to accept incoming ambulance traffic
- Trauma, STEMI, suspected CVA, and OB patients >20 weeks (with a pregnancy related complaint), neonates (≤ 28 days) with evidence of shock, and/or OB patients 0-6 weeks postpartum will NOT be rerouted
- 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
- At the beginning and end of any diversion period, a hospital must update ReddiNet
- 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
- In all cases of diversion, senior management or designee must be notified and must approve activation of the diversion status

6. Cath Lab Diversion

- STEMI ambulance traffic will be diverted when a STEMI Receiving Center Cath Lab is unavailable because of physical plant or mechanical problems
- 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 termination diversion status

1. Initiating diversion

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

2. Termination of diversion

- Diversion status will be terminated as soon as possible or within two hours of initiation, whichever comes first
- 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

- 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

EMS DISTRIBUTION OF NALOXONE KITS

Purpose

- To oversee the “leave behind” Narcan program which allows emergency medical responders to distribute “leave behind” naloxone (Narcan) kits at the scene of an overdose or perceived overdose

Policy

- A. EMS provider logistics staff will receive naloxone kits intended for laypersons use, as they are available from external suppliers
- B. Naloxone kits will be distributed to EMS providers in a manner similar to current supply chain procedures
- C. EMS providers will distribute “leave behind” Narcan kits at the scene of an overdose, or upon their discretion, will give a naloxone kit to any person encountered on an EMS call that is at risk of experiencing an opiate overdose (e.g. a current opiate overdose patient who refuses transport) or any person in position to assist a person at risk of opiate overdose
- D. Shall not give naloxone to patients or bystanders from the regular EMS patient care supply
- E. Resupply provider’s naloxone kits, as stock is available, via usual supply chain procedures. It may be the case that no resupply is available; layperson naloxone kits are not a required in-service medication

HOSPITAL REPORT/CONSULT

Purpose

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

Related Policies

- Trauma Triage and Destination Guideline Policy, 4613
- BLS Treatment Guidelines
- Communication Failure, 7002
- STEMI, C 9
- EMS Communication System, 7004
- Stroke/TIA, N 4
- MCI Plan
- Sepsis, M 6

Definitions

- **Report Only** is a notification to the receiving facility that a patient is enroute
- **Notification** is a communication meant to alert hospital staff that a specialty care patient is enroute. Notifications include:
 - I. Trauma
 - II. Stroke
 - III. STEMI
 - IV. Sepsis
- **Physician Consult** is a consultative discussion between field personnel and an ED physician

Policy

A. Report Only

- Shall occur anytime a prehospital unit transports a patient
- May be performed by any prehospital personnel
- Reports shall include the following:
 - I. Transport unit identification
 - II. Level of care being provided (ALS or BLS)
 - III. Estimated time of arrival to receiving facility
 - IV. Level of transport (code 2 or 3)
 - V. General category of patient (type of illness or injury) or treatment guideline being used for an ALS patient
 - VI. Condition of patient (stable, improving, or worsening)

B. Notification (Trauma/Stroke/STEMI/Sepsis)

- Field personnel will advise the receiving facility a minimum of ten minutes prior to arrival (or as soon as possible if transport less than ten minutes)

- Is required when patients meets notification criteria
- Notifications shall include the following:
 - I. Unit and transport code
 - II. Notification type (e.g., Trauma, Stroke, STEMI, Sepsis)
 - III. Age/Gender
 - IV. Pertinent findings for the specific notification (see related protocol)
 - V. ETA

C. Physician Consult

- Shall occur when specified in an ALS or BLS Treatment Protocol
- 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
- Physician Consult shall include the following:
 - I. The need for physician consultation
 - II. Patient assessment information as appropriate
 - III. 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 shall occur:

- Treatment should be administered according to the appropriate ALS or BLS treatment protocol
- Medications or treatments listed as “physician consult required” may not be administered or performed
- 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 MCI Plan omitting contact or hospital consultation

PATIENT CARE RECORD (PCR)

Purpose

To establish requirements for the timely completion, submission, and reporting of Marin County Patient Care Records.

Related Policies

ALS to BLS Transfer of Care, ATG 4
Against Medical Advice (AMA), GPC 2
Release at Scene (RAS), GPC 3
Trauma Re-Triage, 4604 A & B
Traumatic Injuries, T 1
Approved Medical Abbreviations, 7006B

Definitions

Patient- someone who meets any one or more of the following criteria:

- Has a chief complaint or has made a request for medical assistance;
 - Has obvious signs or symptoms of injury or illness;
 - Has been involved in an event where mechanism of injury would cause the responder to reasonably believe that an injury may be present;
 - Appears to be disoriented or to have impaired psychiatric function;
 - Has evidence of suicidal intent;
 - Is deceased.
- **Emergency Medical (EM) Number** - A unique number assigned by the Marin County Communication Center to identify each 911call dispatched for medical assistance.
 - **Incident Number**- The unique number assigned to all requests for service. Commonly referred to as the "F" number.
 - **Electronic Patient Care Record (ePCR)** - the permanent record of prehospital patient evaluation and the delivery of care.
 - **Field Transfer Form (FTF)** - a paper record of patient care used by field personnel only when an ePCR is unavailable.
 - **Posting** - the process of uploading the ePCR from ImageTrend Elite to the server.
 - **Completed PCR** - the status of a PCR when it has been posted to the server and locked.

Policy

A PCR shall be completed for every call for which an EM number is issued.

A PCR shall be completed and posted as soon as possible or within 24 hours of completion of call.

A PCR shall be completed and posted as soon as possible or within 3 hours of completion of call for notification patients (e.g. sepsis, stroke, STEMI, trauma) or critical patients (e.g. cardiac arrest and/or airway emergency).

The PCR shall be completed by the personnel assigned to the transport unit. EMS personnel shall not leave shift with incomplete PCRs outstanding. All crew members are responsible for accuracy of the content of the PCR.

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.

Transported Patients

The PCR shall be completed by the personnel assigned to the transport unit.

When available, the PCR shall contain at a minimum:

- Patient name
- Patient address
- Patient phone number
- Date of birth
- Chief complaint
- Contact information of the best medical historian
- Medical decision maker (when not the patient)
- Pertinent findings on exam
- Last known well (if applicable)
- Vital signs
- Medications
- Allergies
- Presence of advanced directive/DNR
- Medications administered
- Procedures performed
- Kaiser/insurance number

The PCR shall include all care rendered by the transporting providers as well as any care given prior to arrival by first responders and/or bystanders. 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).

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.

Data gathering and documentation responsibilities should never take precedence over hands-on rescue and patient care and therefore may not always be possible to complete 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.

Non-Transports (e.g. Cancelled, AMA, RAS, Dead on Scene)

An ePCR shall be completed as soon as possible and no later 24 hours following completion of the call.

- A. For calls where there is no patient transported, the unit that completes the ePCR shall be determined according to provider agency policy.

- B. All AMA patients must have a documented assessment and vital signs. The paramedic or EMT most involved in patient care is responsible for completing the PCR.
- C. Personnel assigned outside of the county to provide medical mutual aid (e.g. fire-line EMT/Paramedic, cover engine assignment), shall complete a paper PCR for each patient contact. The PCR will be created on site and retained by the provider agency.
- D. 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.

Documentation Requirements

- A. When reasonably possible, complete demographic information should be included in the PCR.
- B. Only approved medical abbreviations may be used for PCR documentation (see Policy 7006B).
- C. 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, including but not limited to:
 - An appropriate physical assessment that includes all relevant portions of a head-to-toe physical exam.
 - A minimum of two complete sets of vital signs (VS) for every patient including pulse, respirations, blood pressure and pulse oximetry. Repeat and document VS every 5 minutes for unstable patients, and every 15 minutes for stable patients (e.g. BLS patients). When required by policy, a temperature should also be documented at least once in the VS section. For children ≤ 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.
 - A pain scale shall be documented for all patients ≥ 6 months who have a GCS >14 .
 - All pediatric patients being treated and transported by ALS shall be measured with a color-coded resuscitation tape. The corresponding color wrist band shall be applied, and the patient treated according to the Pediatric Dosing Guide (PTG 2A)
 - All pertinent medications taken by the patient prior and/or administered by a first responder shall be documented if known.
 - The CAD to PCR interface should be used to populate all PCR data fields as appropriate. Imported data may be manually corrected as needed.
 - When the cardiac monitor is applied, data shall 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.
 - All 12-lead ECGs must be imported. Any significant rhythm changes must be documented.
 - For drug administrations, the drug dosages, route, administration time, and response shall be documented.
 - All treatments and patient response to treatments shall be documented in chronological order.

- For patients with extremity injury, neuromuscular status must be noted before and after immobilization.
- For patients with spinal motion restriction, document motor function before and after motion restriction.
- For IV administration, document catheter placement, catheter size, number of attempts and flow rate if applicable.
- Any Physician Consult request and response.
- All information pertaining to EMS personnel, including electronic signatures.

APPROVED MEDICAL ABBREVIATIONS

PURPOSE

To identify the abbreviations and symbols which an Emergency Medical Technician (EMT) or Paramedic may use for documentation purposes in Marin County.

ABBREVIATIONS

Abbreviation / Symbol	Description
♀	female
♂	male
⊕	positive
⊖	negative
°C	degrees Celsius
°F	degrees Fahrenheit
(L)	left
(R)	right
1°	primary
2°	secondary
<	less than
>	greater than
@	at
Δ	change
↓	decrease(d)
↑	increase(d)
≈	approximately
x	times
ā	before
A/O	alert and oriented
A/S	at scene / arrived at scene
abd	abdomen
AC	antecubical
AFIB	atrial fibrillation
AICD	Automatic Internal Cardiac Defibrillator
AKA	above the knee amputation
ALOC	altered level of consciousness
ALS	Advanced Life Support
AM	morning
AMA	against medical advice
AMI	acute myocardial infarction
AOS	arrived on scene
approx	approximately
ASA	acetylsalicylic acid, aspirin
ASAP	as soon as possible
ATF	arrived to find
B/C	because
BBB	bundle branch block
BG	blood glucose
BGL	blood glucose level

Bilat	bilateral
BAK	below the knee amputation
BLS	Basic Life Support
BM	bowel movement
BP	blood pressure
bpm	beats per minute
BSA	burn surface area
BVM	bag valve mask
c̄	with
C/C	chief complaint
C/O	complain of
C2	code two
C3	code three
CA	cancer
CAD	coronary artery disease, computer assisted dispatch
CHF	congestive heart failure
CHP	California Highway Patrol
CMPA	Central Marin Police Authority
CO	complain of / carbon monoxide
COPD	chronic obstructive pulmonary disease
CP	chest pain
CPAP	continuous positive airway pressure
CPR	cardio pulmonary resuscitation
CPSS	Cincinnati prehospital stroke scale
CSM	circulation, sensation, movement
CVA	cerebral vascular accident
DDM	designated decision maker
DKA	diabetic ketoacidosis
DM	Diabetes mellitus
DNI	Do not intubate
DNR	do not resuscitate
DVT	deep vein thrombosis
dx	diagnosis
ECG	electrocardiogram
ED	emergency department
EKG	electrocardiogram
EMD	Emergency Medical Dispatch
EMS	Emergency Medical Service
EMT	Emergency Medical Technician
EMT-P	Paramedic
ENRT	enroute
ER	Emergency Room
ESO	electronic PCR software
ET	endotracheal
ETA	estimated time of arrival
ETCO ₂	end-tidal carbon dioxide
ETI	endotracheal intubation
ETOH	alcohol
ETT	endotracheal tube
F	female

FTF	Field transfer form
fx	fracture
G	Gram
G	gauge
GCS	Glasgow Coma Scale
GI	gastrointestinal
gm	gram
GSW	gunshot wound
gtt(s)	drop(s)
GU	genitourinary
h	hour
H/N/B	head, neck, back
H ₂ O	water
HA	headache
HHN	hand-held nebulizer
HOB	Head of bed
HR	heart rate
HTN	hypertension
Hwy	highway
hx	history
ICD	Internal Cardiac Defibrillator
ICU	intensive care unit
IM	intramuscular
IN	intranasal
IO	intraosseous
IV	intravenous
IVP	intravenous push
JVD	jugular venous distension
KED	Kendrick Extrication Device
kg	kilograms
KSR	Kaiser San Rafael
CTL	Kaiser Terra Linda
L	liter
L	left
lac	laceration
LKW	Last known well
LL	left lateral
LLQ	left lower quadrant
LOC	loss of consciousness / level of consciousness
LS	lung sounds
Lt	left
LVO	Large vessel occlusion
LUQ	left upper quadrant
LZ	Landing zone
m	min
M	male
m/o	Month old
mA	Milliamp
MAD	mucosal atomization device
MCSO	Marin County Sheriff's Office (deputy)
MD	medical doctor

mEq	milliequivalent
mg	milligram
mg/dl	milligrams per deciliter
MGH	Marin General Hospital
MI	myocardial infarction
MICU	mobile intensive care unit
MIN	minimum / minute
ml	milliliter
MOI	mechanism of injury
MPH	miles per hour
MS	morphine sulfate / multiple sclerosis
MSo4	morphine
MVA	motor vehicle accident
MVC	motor vehicle crash
MVPD	Mill Valley Police Department
N&V or N/V or NV	nausea and vomiting
NaCL	Sodium Chloride
NAD	no apparent distress
NC	nasal cannula
NCH	Novato Community Hospital
NEG	negative
Neuro	neurological
NITRO	nitroglycerin
NKDA	no known drug allergies
NPA	nasopharyngeal airway
NPD	Novato Police Department
NRB	non-rebreather mask
NS	normal saline
NSR	normal sinus rhythm
NTG	nitroglycerine
NVD	nausea, vomiting, diarrhea
O ₂	oxygen
O ₂ sat	peripheral capillary oxygen saturation
OD	overdose
ODT	orally disintegrating tablet
OPA	oropharyngeal airway
̄p	after
P/W/D	pink warm dry
PAC	premature atrial contraction
PALP	palpitation
PARA	parity, e.g. gravid 2, para 1 means the patient has been pregnant twice and given birth once; also written G2P1
PCN	penicillin
PE	pulmonary edema / pedal edema / patient exam
PEA	pulseless electrical activity
PERL	pupils equal reactive to light
PERRL	Pupils equal, round, reactive to light
PJC	premature junctional contraction
PM	evening
PMD	primary/personal/private medical doctor
PO	by mouth

POC	position of comfort
POLST	Physician Orders for Life Sustaining Treatment
PRN	as needed
PSYCH	psychiatric
PT	patient
PTA	prior to arrival
PTS	patients
PTSD	post traumatic stress disorder
Pulse Ox	peripheral capillary oxygen saturation
PVC	premature ventricular contraction
PVH	Petaluma Valley Hospital
PVT	private
PX	pain
q	every
R	right
RA	room air
RAS	released at scene
RLQ	right lower quadrant
RMC	routine medical care
RN	registered nurse
ROM	range of motion
ROSC	return of spontaneous circulation
RP	reporting party
RPM	respirations per minute
RR	respiratory rate
Rt	right
Rx	prescription
̄s	without
S. Brady	sinus brady
S. Tach	sinus tachycardia
S/NT/ND	Soft, non-tender, no distention
S/P	status post
S/S	signs and symptoms
SBP	systolic blood pressure
SC, SQ	subcutaneous
SL	sublingual
SM	small
SMR	spinal motion restriction
SNF	skilled nursing facility
SOB	shortness of breath
SPO ₂	peripheral capillary oxygen saturation
SRC	STEMI Receiving Center
SRPD	San Rafael PD
STEMI	ST Segment Elevation Myocardial Infarction
SVT	supraventricular tachycardia
TACH	tachycardia
TB	tuberculosis
TEMP	temperature
TIA	transient ischemic attack
TKO	to keep open
TOC	transfer of care

TRANS	transport / transfer
TTT	Trauma Triage Tool
TX	treatment
UCSF	University California San Francisco
UOA	upon our arrival
USGC	United States Coast Guard
UTI	urinary tract infection
UTL	unable to locate
UTO	unable to obtain
V	victim
V/S or VS	vital sign
VA	Veteran's Administration
VAD	Ventricular Assist Device
VF	ventricular fibrillation
VL	Video laryngoscopy
VT	ventricular tachycardia
W/	with
w/c	wheelchair
w/o	wide open
WBC	white blood count
WNL	within normal limits
Y/O or YO	Year(s) old

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CANCELLATION OF ALS UNIT

Indication

- First Responders request to cancel an ALS unit

- First Responder personnel may cancel the response of ALS personnel under the following conditions:
 - Patient does not have a priority complaint or symptoms warranting a Level D response as outlined in Policy 4200, Emergency Medical Dispatch
 - Patient meets criteria for BLS Declaration of Death in the pre-hospital setting

AGAINST MEDICAL ADVICE (AMA)

Indication

- For patients or Designated Decision Maker (DDM) refusing medical care against the advice of the medical personnel on scene or of the receiving hospital

- All patients requesting medical attention will be offered treatment and/or transportation after a complete assessment, including a full set of vital signs
- Patients/DDMs with decision making capacity have the right to accept or refuse any or all pre-hospital care and transportation as long as EMS personnel have explained the care and the patient/DDM understands by restating the nature and implications of such decisions

- The following information must be provided to the patient or DDM by EMS personnel:
 - The recommended treatment and benefits for receiving care
 - The risks and possible complications involved
 - Reasonable consequences for not seeking care and treatment for the condition
 - Alternative care and transport options which may include private transport to a clinic, physician's office or an Emergency Department, or telephone consultation with a physician

Have patient/DDM sign the AMA form

☎ PHYSICIAN CONSULT- required

- Patient requests transport to a facility that is not the recommended destination, and that decision would create a life-threatening or high-risk situation
- Patient requests an out of county transport when informed of the recommended destination within Marin County
- Pediatric brief resolved unexplained event (BRUE)

☎ PHYSICIAN CONSULT- strongly recommended

- Patients ≥ 65 years requesting AMA with the complaint(s) of chest pain, SOB, syncope
- New onset of headache
- New onset of seizure
- TIA/resolving stroke symptoms
- Traumatic injuries (particularly head injury on anticoagulants)
- Pediatric complaints
- Pregnancy related issues

SPECIAL CONSIDERATIONS

- Consider early involvement of law enforcement if there is any threat to self, others or grave disability
- Treat as necessary to prevent death or serious disability
- If the patient cannot legally refuse care or is mentally incapable of refusing care, document on the PCR that the patient required immediate treatment and/or transport, and lacked the mental capacity to understand the risks/consequences of the refusal (implied consent)
- Do not request a 5150 hold unless the patient presents a danger to self or others as an apparent result of a psychiatric problem
- At no time are field personnel to put themselves in danger by attempting to transport or treat a patient who refuses. At all times, good judgment should be used, appropriate assistance obtained, and supporting documentations completed

CRITICAL INFORMATION

- Patients who may legally give consent or refuse medical treatment are as follows:
 - At least 18 years of age
 - A minor (<18 years) who is lawfully married/divorced, or on active duty with the armed forces
 - A minor who seeks prevention or treatment of pregnancy or sexual assault
 - A minor ≥ 12 years of age seeking treatment of rape, contagious diseases, alcohol or drug abuse
 - A self-sufficient minor, ≥ 15 years of age, caring for themselves
 - A legally emancipated minor
- DDM is an individual to whom the patient or a court has given legal authority to make medical decisions concerning the patient's healthcare (a parent or Durable Power of Attorney)
- An AMA may be obtained by telephone consent for patients who do not have a DDM physically present

RELEASE AT SCENE (RAS)

Indication

- EMS personnel and the patient or Designated Decision Maker (DDM) concur that the illness/injury does not require immediate treatment/transport via emergency/911 services

- All patients requesting medical attention will be offered treatment and/or transportation after a complete assessment, including a full set of vital signs
- Patients/DDMs with decision making capacity have the right to accept or refuse any or all pre-hospital care and transportation as long as EMS personnel have explained the care and the patient/DDM understands by restating the nature and implications of such decisions



- EMS personnel should advise the patient/DDM of alternative care and transport options which may include:
 - Private transport to a clinic, physician's office, or an Emergency Department
 - Telephone consultation with a physician



Have patient/DDM sign the RAS form

☎ PHYSICIAN CONSULT

- If there are any questions or concerns regarding the patient's disposition

CRITICAL INFORMATION

- Patients who may legally give consent or refuse medical treatment are as follows:
 - At least 18 years of age
 - A minor (<18 years) who is lawfully married/divorced, or on active duty with the armed forces
 - A minor who seeks prevention or treatment of pregnancy or sexual assault
 - A minor ≥12 years of age seeking treatment of rape, contagious diseases, alcohol or drug abuse
 - A self-sufficient minor, ≥15 years of age, caring for themselves
 - A legally emancipated minor
- DDM is an individual to whom the patient or a court has given legal authority to make medical decisions concerning the patient's healthcare (a parent or Durable Power of Attorney)
- An RAS may be obtained by telephone consent for patients who do not have a DDM physically present

SPECIAL CONSIDERATIONS

- Consider early involvement of law enforcement if there is any threat to self, others or grave disability

DESTINATION GUIDELINES

Indication

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

Kaiser Permanente San

Rafael Medical Center

Emergency Department
Approved for Trauma (EDAT) -
Terra Linda -

- STEMI receiving center (SRC)
- Primary Stroke Center
- General Pediatric Receiving Center (PedRC)

MarinHealth Medical Center

(MHMC)

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 wks with a complaint related to pregnancy
- Neonates (≤ 28 days) with signs of shock
- STEMI receiving center (SRC)
- Primary Stroke Center
- Advanced Pediatric Receiving Center (PedRC)

Novato Community Hospital

Basic level receiving facility
- Novato-

- Primary Stroke Center
- General Pediatric Receiving Center (PedRC)

📞 PHYSICIAN CONSULT

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

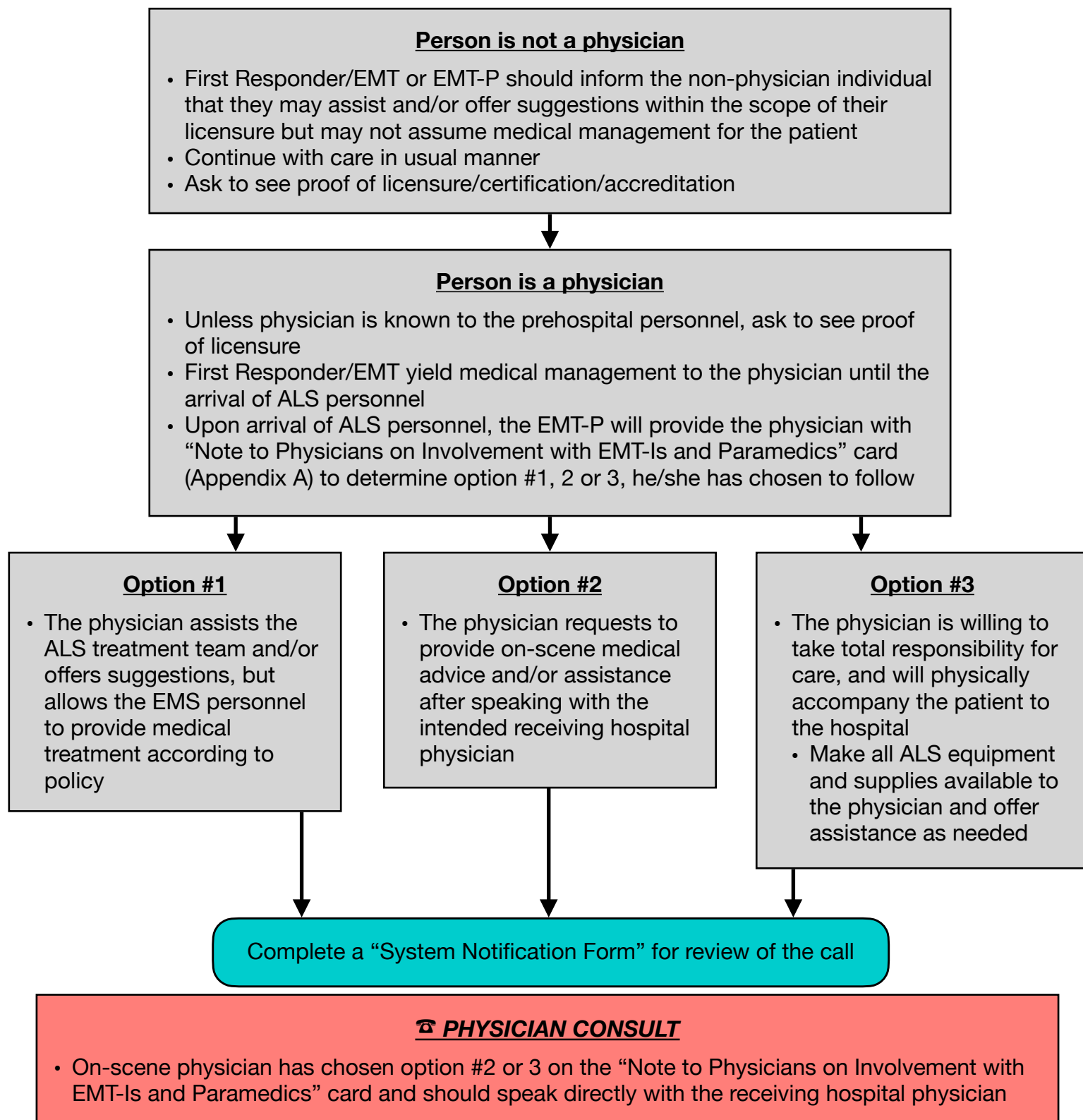
CRITICAL INFORMATION

- 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 is unstable or life threatening, the patient should be transported to the time closest receiving facility:
 - Patients with unmanageable airway
 - CPR in progress (unless transporting to SRC for rVF)
 - Uncontrolled external hemorrhage
 - Patient requiring ALS but having no paramedic in attendance
- The following factors will be considered in determining patient destination:
 - Patient condition
 - Patient/family request
 - Clinical capabilities of the receiving hospital
 - Patient's physician request or preference
 - Paramedic discretion
- Patients with return of spontaneous circulation (ROSC) post cardiac arrest will be transported to the nearest SRC
- Burn patients, without other trauma mechanism, shall be transported by ground ambulance to the time closest emergency department (ED)
- Neonates (≤ 28 days) with signs of shock shall be transported to MarinHealth Medical Center
- Patients with psychiatric complaints will be transported to their preferred facility or the closest ED unless specialty care (trauma, STEMI, stroke, pregnancy) is warranted
- Ventricular Assist Device (VAD) patients: If patient is stable and complaint is 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 (uncooperative, aggressive, disruptive)

MEDICAL PERSONNEL ON SCENE

Indication

- Determination of patient care responsibilities at the scene of an emergency when someone present identifies themselves as medically trained



DO NOT RESUSCITATE (DNR) PHYSICIANS ORDER FOR LIFE- SUSTAINING TREATMENT (POLST)

Indication

- Patients in respiratory or cardiopulmonary arrest with valid DNR documentation on scene

Follow standard procedures on arrival and assess the patient

If information of a DNR exists

- Responders shall request to see the signed order, form or medallion
- If a DNR is not present at the scene, but a person who is present and can be identified as an immediate family member or spouse requests no resuscitation and has the full agreement of any others who are present on scene, resuscitation may be withheld or stopped if it has already been initiated

If patient with a DNR collapses in public

- Responders will notify the appropriate public safety agency and remain on the scene until their arrival

☎ PHYSICIAN CONSULT

- If there is any problem of any sort at the scene or if any therapy was instituted and the therapy is now in question

CRITICAL INFORMATION

- DNR order is not valid in suspected homicide or suicide situations
- If the patient or Designated Decision Maker (DDM) requests treatment, including resuscitation, the request should be honored
- The patient should receive treatment for pain, dyspnea, major hemorrhage, relief of choking or other medical conditions
- Do Not Resuscitate (DNR) means **NO**:
 - Assisted ventilation
 - Defibrillation
 - Chest compressions
 - Intubation
 - Cardiotoxic drugs
- Approved prehospital DNR directives include
 - A DNR directive signed by both the patient and physician; a copy or original is valid
 - A DNR order signed by a physician in the patient's chart at a licensed health facility
 - A Physician's Order for Life-Sustaining Treatment (POLST) form indicating DNR
 - An Emergency Medical Services Authority/California Medical Association (EMSA/CMA) "Prehospital Do Not Resuscitate" form
 - An approved medallion (e.g. Medic-Alert) inscribed with the words: "Do Not Resuscitate- EMS"
 - A DNR order issued by the patient's physician who is on scene, or who issues a DNR order verbally over the phone to field personnel
- If any doubt exists, begin CPR immediately. Once initiated, CPR should be continued unless it is determined the patient meets determination of death criteria or a valid DNR order/form is presented. If conflicting documents exist, follow the most recently dated document

ANATOMICAL GIFT/ DONOR CARD SEARCH

Indications

- Conducting a “reasonable search” on an unconscious adult patient for whom it appears death is imminent for the purpose of locating documents to identify organ donation requests

- Conduct the search in the presence of a witness not involved in the search, preferable a law enforcement officer

If the individual is declared or pronounced dead in the field

- The coroner or law enforcement officer should perform the search instead of prehospital personnel

If prehospital personnel searched the patient before arrival of law enforcement/coroner

- Notification of such search must be disclosed when law enforcement and/or coroner arrive at the scene

- Documentation of donor status must remain with the patient
- Notify the receiving hospital if documentation of donor status is located

Critical Information

- This procedure shall be secondary to the requirement that ambulance or emergency personnel provide emergency services to the patient

SUSPECTED ABUSE/NEGLECT/ INFLICTED PHYSICAL INJURY

Indications

- Identification and guidelines for reporting and treating suspected child abuse (persons <18 years), dependent adults between the ages of 18 and 64 years (those with physical or mental limitations restricting their ability to carry out normal activities), domestic abuse (intimate partner violence, includes dating relationships), and elder adults (≥65 years)
- Abuse is defined as harmful, wrongful, neglectful or improper treatment which may result in physical or mental injury
- Physical injury includes any injury that is self-inflicted or inflicted by another person or any assaultive or abusive contact

- BLS/ALS RMC
- Treat and transport the patient per Destination Guidelines Policy GPC4

If patient or patient's Designated Decision Maker (DDM) refuses transportation and patient's life IS in imminent danger

- Stay on scene, request local law enforcement agency to respond and place patient in protective custody

If patient or patient's DDM refuses transportation and patient's life is NOT in imminent danger

- Leave the scene, contact law enforcement, establish radio contact with the intended receiving hospital, describe situation including reasons for suspecting abuse

If abuse suspected in individuals other than the patient

- Follow the procedures stated above for imminent and/or non-imminent danger

- Contact the local law enforcement agency and/or one of the following protective service agencies by phone within 24 hours and submit completed report within 36 hours of incident
- Marin Children and Family Services Emergency Response 415-473-7153
- State of California Report of Suspected Child Abuse (Form SS 8583- see GPC 9A)
- Marin County Adult Protective Services 415-473-2774
- State of California Report of Suspected Dependent Adult/Elder Abuse (Form SOC 341- See GPC 9B)

- For inflicted physical injury:
 - Healthcare provider shall place a telephone call to the law enforcement agency with investigative jurisdiction as soon as practically possible
 - A written report shall be completed (OES form 2-920) and faxed to the law enforcement agency within two working days (see below for fax numbers)
 - Both telephone and written reports shall be submitted if the patient has expired
 - The prehospital providers at the scene shall determine who amongst them submits the report

Critical Information

- Common findings in victims of child abuse are as follows:
 - Suspicious fractures in children <3yrs
 - Multiple fractures
 - Unexplained bruising
 - Starvation/dehydration
- Common findings in parents/guardians of abused child/elder/domestic partners/dependent adults are as follows:
 - Contradictory stories regarding patient's injury
 - Evasive answers to questions
 - Anger directed towards or little concern for the patient
 - Drug use
 - Inability to locate parent/guardian

Law Enforcement Agency	Fax
• Belvedere	415-435-9471
• Central Marin	415-927-5167
• Fairfax	415-457-8769
• Marin Sheriff	415-473-4126
• Mill Valley	415-389-4148
• Novato	415-898-5344
• Ross	415-453-6124
• San Rafael	415-485-3402
• Sausalito	415-289-4175
• Tiburon	415-789-2828

SEXUAL ASSAULT/HUMAN TRAFFICKING

Indication

- Patients with complaints consistent with sexual assault or evidence of human trafficking
- Human trafficking involves labor or services, through the use of force, fraud, or coercion for the purposes of subjection to involuntary servitude, peonage, debt bondage or slavery
- Commercial sex acts through the use of force, fraud or coercion
- Any commercial sex act, if the person is under 18 years of age, regardless of whether any form of coercion is involved

- BLS/ALS RMC
- Calm/reassure patient
- Assign responder of same gender as patient if possible

Treat medical conditions, traumatic injuries per protocol

- Transport to an appropriate Marin County hospital, following the Destination Guidelines Policy

If patient/Designated Decision Maker refuses transport

- Instruct patient not to bathe, shower, or change clothes until after contact with and advice by law enforcement. Advise patient of alternative care/transport options per AMA and RAS policy

SPECIAL CONSIDERATIONS

- If patient's clothing is removed and law enforcement is not at scene, place clothing in a paper bag and bring to the hospital. Do not use a plastic bag
- A patient who requires/requests a specialized evidentiary examination will first be transported to a Marin County hospital. Once medically cleared, the patient will be transported by the appropriate law enforcement agency to Kaiser Permanente Vallejo Medical Center

Critical Information

- Preserve possible evidence and advise patient not to clean, bathe or change clothes until examination by hospital personnel
- Notify police and dispatch of nature of call
- EMS personnel are encouraged to report to local law enforcement suspected human trafficking cases
 - Warning signs of human trafficking include:
 - Individuals who are segregated from contact with others, or don't have control of their own ID/documents
 - Locations with unsuitable living conditions or unreasonable security measures
 - Incidents where responders are approached and asked for protection/asylum from other individuals at a scene
- For suspected human trafficking, offer the patient the 24/7 National Human Trafficking hotline number: 1-888-373-7888 or they can text "HELP" or "INFO" to 233733

PATIENT RESTRAINT

Indication

- Violent or potentially violent patient capable of harming themselves or others

BLS/ALS RMC

Apply the minimum restraint necessary to accomplish patient care and safe transportation

- Restraints must not compromise airway, breathing or circulations
- Restraint equipment applied by law enforcement (i.e. handcuffs, plastic ties, hobble restraints, or WRAP) must not compromise airway, breathing or circulation

Evaluate restrained extremities for CSM every 15 min

Equipment

- Quick release synthetic, soft, or padded leather restraints

SPECIAL CONSIDERATIONS

- Aggressive or violent behavior may be indications of: head trauma, alcohol or drug ingestion, metabolic disorders, stress and psychiatric disorders which require ALS intervention
- Restraints applied by law enforcement require the officer's continued presence

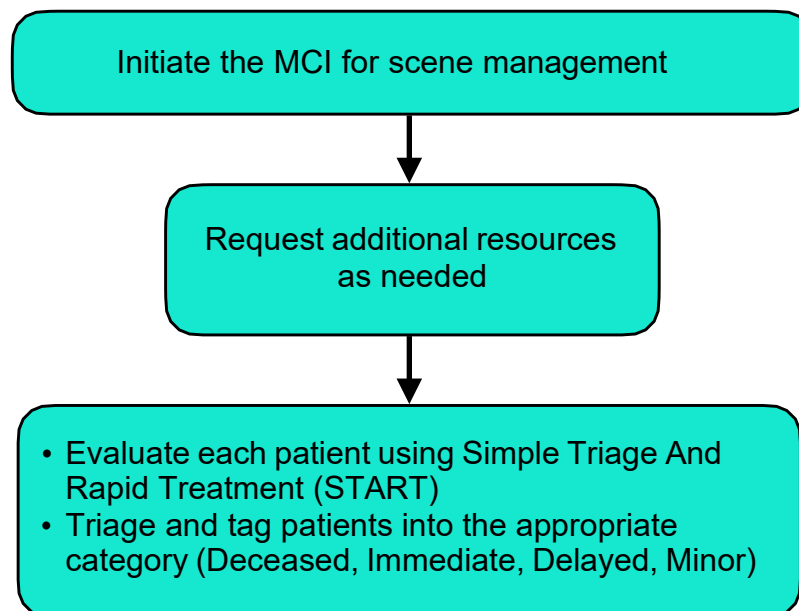
Critical Information

- Refer to Adult Sedation Policy, ATG 3
- Contraindications
 - The following devices and restraint techniques should NOT be applied by EMS personnel:
 - Hard plastic ties or any restraint device requiring a key to remove
 - Backboard, scoop-stretcher or flat as a "sandwich" restraint
 - Restraining of a patient's hands and feet behind the patient
 - Methods or materials that could cause vascular or neurological compromise

MULTI-CASUALTY INCIDENT (MCI)

Indication

Any incident with multiple patients may indicate the use of the County Multi-Casualty Incident (MCI) Plan.



SPINAL MOTION RESTRICTION (SMR)

Indication

- Any patient identified by Marin County's Spinal Injury Assessment (GPC 13a) to warrant full or modified SMR. The spinal injury assessment should be performed prior to application of SMR. SMR describes the procedure used to care for patients with possible unstable spinal injuries

Full SMR

(Cervical collar with full-length vacuum spring or rigid device with lateral immobilization and straps)

- Indications:
 - Patients with obvious acute neurologic deficit (paralysis or weakness)
 - Priapism or suspected spinal shock
- Procedure:
 - Assess motor/sensory function before and after SMR application**
 - regularly reassess and document motor/sensory function (include finger abduction, wrist/finger extension, plantar/dorsal flexion and sharp/dull exam if possible) following application of SMR
 - Remove athletic equipment (if applicable)**
 - Apply rigid cervical collar**
 - Cervical collar may be omitted for patients with isolated lumbar and/or lower thoracic spine tenderness
 - If needed, **extricate patient** limiting movement of the spine
 - Apply adequate padding** on backboards or use vacuum mattress to prevent tissue ischemia and increase comfort
 - Secure patient to device
 - Consider the use of SpO2 and EtCO2** to monitor respiratory function

Modified SMR

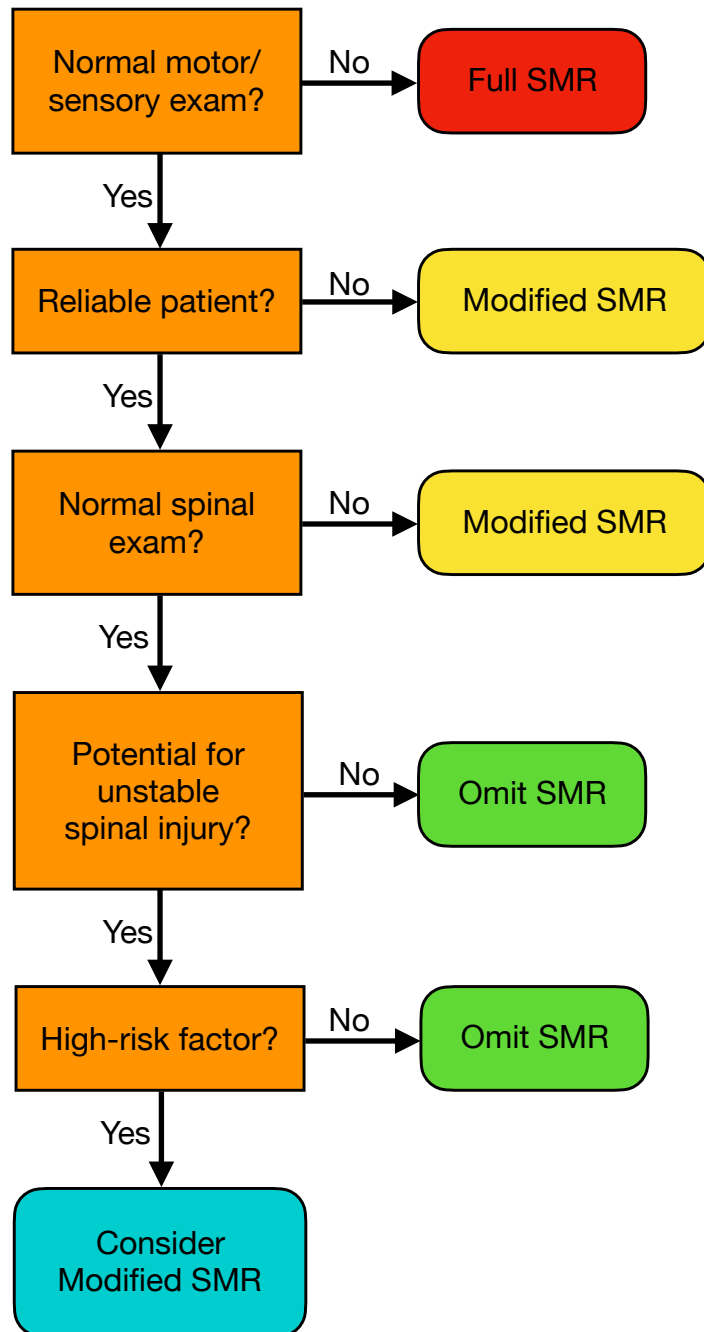
(May include any of the following: rigid cervical collar alone; self limiting motion; padding to limit movement; KED; or 1/2 length vacuum splint)

- Indications:
 - Patients who do not meet criteria for full SMR, but who are at high risk due to blunt trauma mechanism
 - Ambulatory/self-extricated patients who have mid-line neck pain and/or tenderness
- Procedure:
 - Use the least invasive methods/tools available** which minimize patient discomfort and respiratory compromise
 - Least invasive examples: Lateral, semi-fowler's or fowler's position with cervical collar only; pillows; vacuum splint or gurney mattress; child's car seat
 - Hard backboards should only be used when absolutely necessary** (e.g. patient transfer)
 - Consider pull sheets, other flexible devices (e.g. flat stretchers), or scoops and scoop-like devices
 - Provide manual stabilization** restricting gross motion.
 - Alert and cooperative patients** may be allowed to self-limit motion if appropriate with or without cervical collar
 - Self-extrication** is allowable for patients meeting criteria for modified SMR

SPECIAL CONSIDERATIONS

- Full SMR is not benign; it can lead to pain, respiratory compromise, skin breakdown and contribute to cerebral hypoperfusion in patients with stroke or head injury
- **Routine use of SMR should be avoided.** Its use should be reserved for patients with confirmatory physical findings or high clinical suspicion of unstable spinal fracture
- **SMR is not indicated in patients with isolated penetrating trauma**
- Use SMR with caution with patients presenting with **dyspnea** and position appropriately
- If patient experiences negative effects of SMR methods used, alternative measures should be implemented as soon as possible
- **Pregnant patients >20 weeks:** should be positioned on the left side, immobilized as appropriate, supporting fetus
- **Combative patients:** Avoid methods that provoke increased spinal movement and/or combativeness
- **Athletic Equipment:** (football helmet and shoulder pads; lacrosse helmet and shoulder pads; baseball/softball helmet)
 - In event of suspected spine injury during participation in equipment-intensive sport, removal of equipment is strongly recommended prior to application of SMR
 - Equipment should be removed by the rescuers most familiar with the equipment (I.e. Athletic Trainers when present)
 - Removal of helmet and/or shoulder pads provides early access to the patient's airway/chest
- **Pediatric patients**
 - Consider the use of SpO2 and EtCO2 to monitor respiratory function
 - Consider use of padded pediatric motion restricting board
 - Avoid methods that provoke increased spinal movement
 - Unless secured to backboard, pediatric patients shall be transported in a child restraint system (CRS)

SPINAL INJURY ASSESSMENT



CRITICAL INFORMATION

- See GPC 13, Spinal Motion Immobilization for full and modified SMR procedure, and pediatric/pregnancy considerations
- **Motor exam:**
 - Wrist/finger extension
 - Finger abduction
 - Plantar and dorsiflexion of both feet
- **Sensory exam:**
 - Check for abnormal sensation in all extremities
- **Unreliable patient:**
 - ALOC
 - Alcohol or drug impairment
 - Distracting injury
 - Language barrier
- **Spinal assessment:**
 - Palpate entire spine for pain, step off, and swelling
- **High-risk factors:**
 - Age ≥ 65 years
 - Meets trauma mechanism of injury
 - Axial load to the head

BARIATRIC PATIENT TRANSPORT

Indication

- To be used when the weight of the patient exceeds the weight limitations of ambulance equipment

• When ambulance crews are faced with a patient that exceeds the weight limitations of the standard ambulance equipment, personnel shall request a 'bariatric ambulance' from their dispatcher. Crews will provide the estimated weight of the patient



- The dispatcher shall contact the local private ambulance providers to determine if they have a bariatric unit available. The private ambulance provider will provide an ETA to the incident scene
- Dispatchers will relay this information to the personnel at the incident who will then confirm their need for the specialized equipment



If patient's condition is such that a delay in transport (caused by the use of a bariatric equipped ambulance) will potentially cause additional harm to the patient

- Ambulance personnel should consider transporting the patient on the floor of the standard ambulance. In those cases, floor and wall cot hardware shall be removed (if possible) as to not compromise patient safety



- Bariatric patients shall only be transported in an ambulance
- As early as possible, field personnel will relay to the destination hospital that they are inbound with a bariatric patient. The communication will include the approximate weight of the patient



- Field personnel shall notify their agency CQI coordinator and immediate supervisor of any incident involving the management and transport of a bariatric patient. Management personnel will review all cases for appropriate care

Critical Information

- The emergent need to transport a patient shall supersede the application of this policy
- At all times, the dignity of the patient will be preserved and considered a high priority for all personnel
- Ambulance cots shall be clearly labeled with weight capacity information
- Additional personnel shall be utilized when moving bariatric patients to prevent injury to rescue personnel and the patient
- The additional time to move the patient shall be considered when evaluating the decision to wait for a bariatric transport unit

SPECIALTY PATIENT

Indication

- A patient with unique medical or behavioral prehospital needs which fall outside current county protocols

Purpose

- Medical technology and increase home health capabilities have created a special population of patients that may interface with the EMS system. The purpose of this policy is to provide specifically approved care and EMS services to those who are identified as Specialty Patients
- The agency will work with that patient and/or Designated Decision Maker (DDM) and his or her primary care physician in order to develop and improve a Specialty Patient Protocol (SPP) which will provide guidance to EMS should the need arise

Active and Current SPP in place

- Comm Center will notify first responders of SPP enroute to call
- Responding EMS units are to follow current SPP for that particular patient which has been approved by the Marin County Medical Director and which will be located in the lock box of all ALS units and with the inventory checklist of all BLS units
- Unless specified in the SPP, transport the patient according to Destination Guidelines (GPC 4). In some cases, if the patient is stable, transport may involve bypassing the closest facility for a more distant yet medically appropriate destination
- If the patient or DDM requests changes to their current protocol, the transporting unit will contact the intended receiving facility for physician consult. Personnel shall not exceed their established scope of practice

No SPP in place

- When an EMS provider identifies the possible need for an SPP, the provider shall contact their immediate supervisor and the provider's Medical Director (i.e., a fire department may be notified by a patient's physician that the patient is in need of an SPP)
- If the possible need is identified during the course of rendering care to a patient, the provider shall treat the patient according to existing protocols. At the conclusion of the call, the provider shall contact their immediate supervisor and the providers's Medical Director

- All established and approved SPPs will be written on official Marin County letterhead and signed by the current Marin County EMS Agency Medical Director. Issue date and expiration date will be included
- Current SPPs will be reviewed annually as par of Policy and Procedure updates

PEDIATRIC PATIENT TRANSPORT

Purpose

- To provide guidance regarding the safe transport of the pediatric patient in an ambulance

General Information

- Transportation of a child in any of the following ways is not permissible:
 - Unrestrained
 - On a parent/caregiver's lap or held in their arms
 - Using only horizontal stretcher straps if the child cannot be properly restrained according to the stretcher manufacturer's specifications for proper restraint of patients
 - On the bench seat or any seat perpendicular to the forward motion of the vehicle
- "Car seat" refers to a size appropriate car seat which has rear and/or forward facing belt paths and which have been secured appropriately
- "CRS" refers to a child restraint system designed specifically for ambulance stretcher use and which has been properly secured

- The child's age and weight shall be considered when utilizing an appropriate restraint system
- Use of child's own car seat is only permitted for one of the following (children <2 years must be rear facing):
 - The child is not a patient and is being transported with the parent or caregiver who is a patient
 - No other restraint systems are available
 - Minor vehicle crash (ie: "fender bender")
- The child shall be secured by harness at all times. Whenever possible, procedures should be performed around the harness straps

Transportation of a child requiring monitoring or interventions

- Preferred: Transport using a CRS
- Alternative: With the child's head at the top of the stretcher, secure the child to the stretcher with three horizontal straps and one vertical strap across each shoulder

Transportation of a child requiring cervical spinal immobilization, spinal motion restriction, or lying flat

- Preferred: Use CRS. When appropriate, use cervical collar and secure child to stretcher

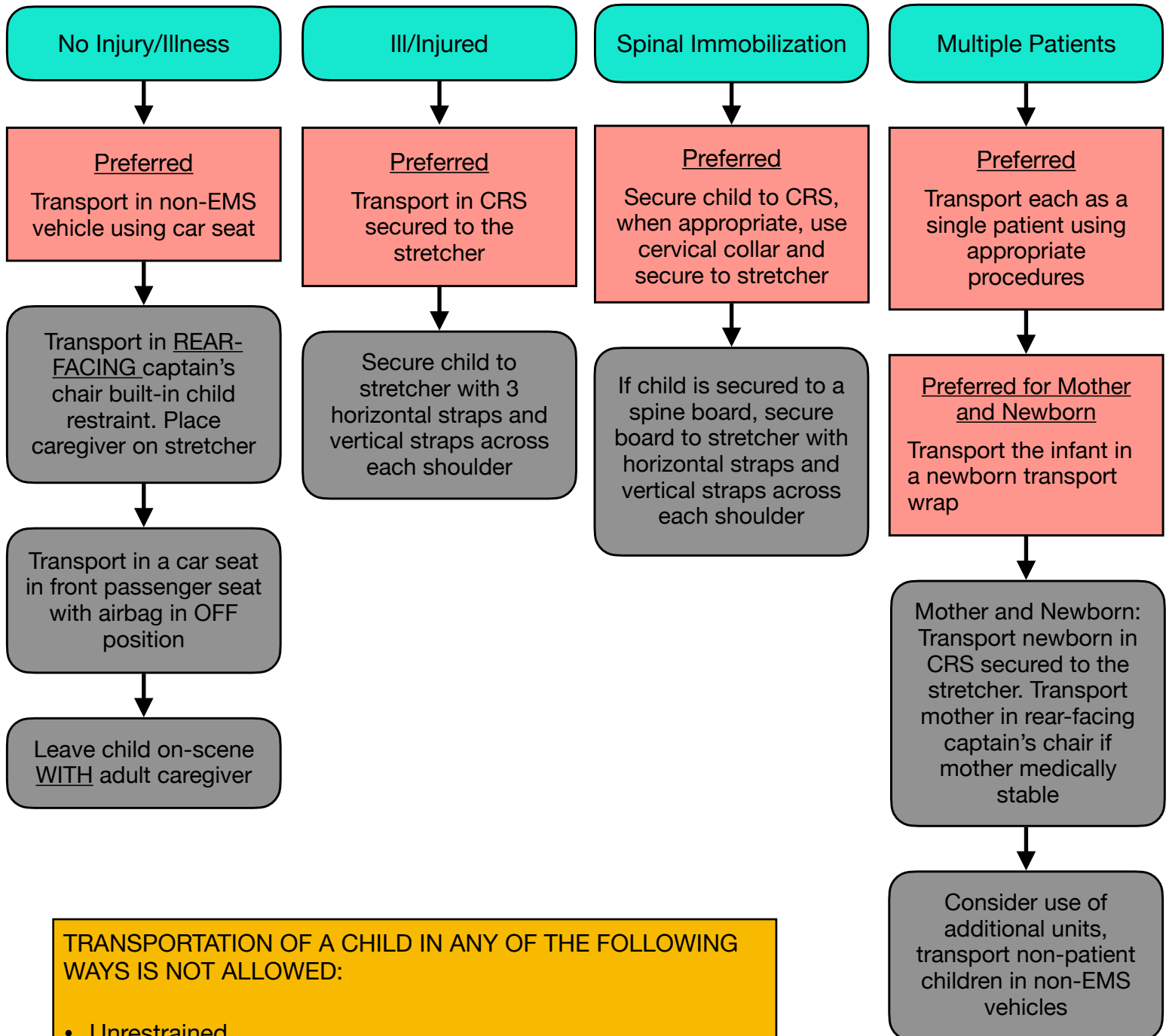
Transportation of a child who is not a patient

- Consider delaying transport until additional vehicles are available if it will not compromise other patient care or transport
- Preferred: Transport child in a vehicle other than an ambulance using a car seat
- Preferred alternative: Transport child using the rear-facing EMS provider captain's chair built-in child restraint
- Alternative: Transport child in a car seat in the front passenger seat of the ambulance with the airbags off

Transportation of a child or children requiring transport as part of a multiple patient transport (newborn with mother, multiple children, etc)

- Preferred: If possible, transport each as a single child according to guidance above. Additional resources may be necessary
- Preferred for mother and newborn: Transport the newborn in a newborn transport wrap (i.e., Aegis Neonate wrap)
- Alternative for mother and newborn: Transport the newborn in a CRS secured appropriately to stretcher. Transport mother in rear-facing EMS provider captain's chair if mother is medically stable. Consider the use of additional units to accomplish safe transport

PEDIATRIC PATIENT TRANSPORT FLOWCHART



TRANSPORTATION OF A CHILD IN ANY OF THE FOLLOWING WAYS IS NOT ALLOWED:

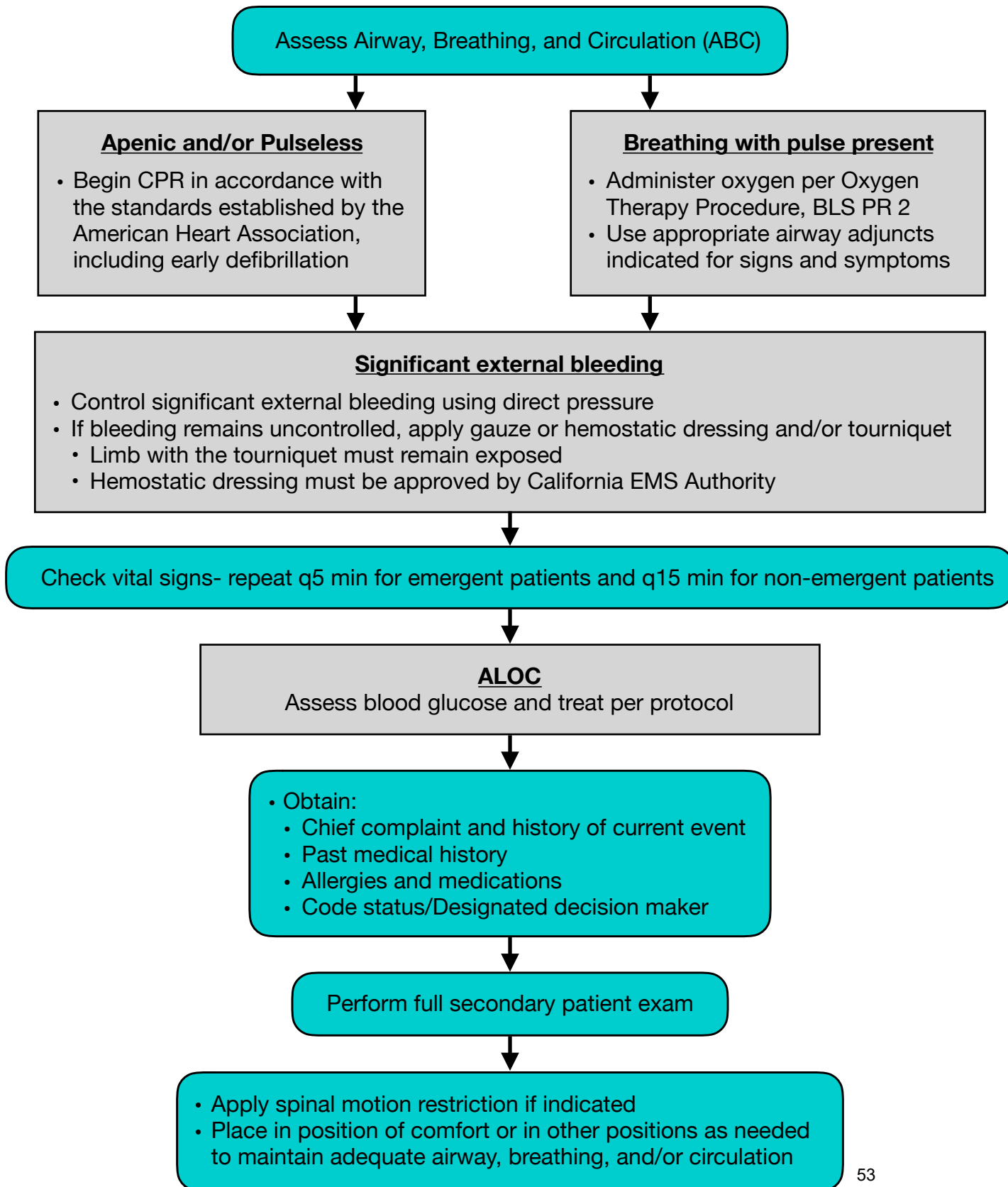
- Unrestrained
- On a parent/caregiver's lap or held in their arms
- Using only horizontal stretcher straps if the child cannot be properly restrained according to manufacturer specifications
- On the bench seat or any seat perpendicular to the forward motion of the vehicle

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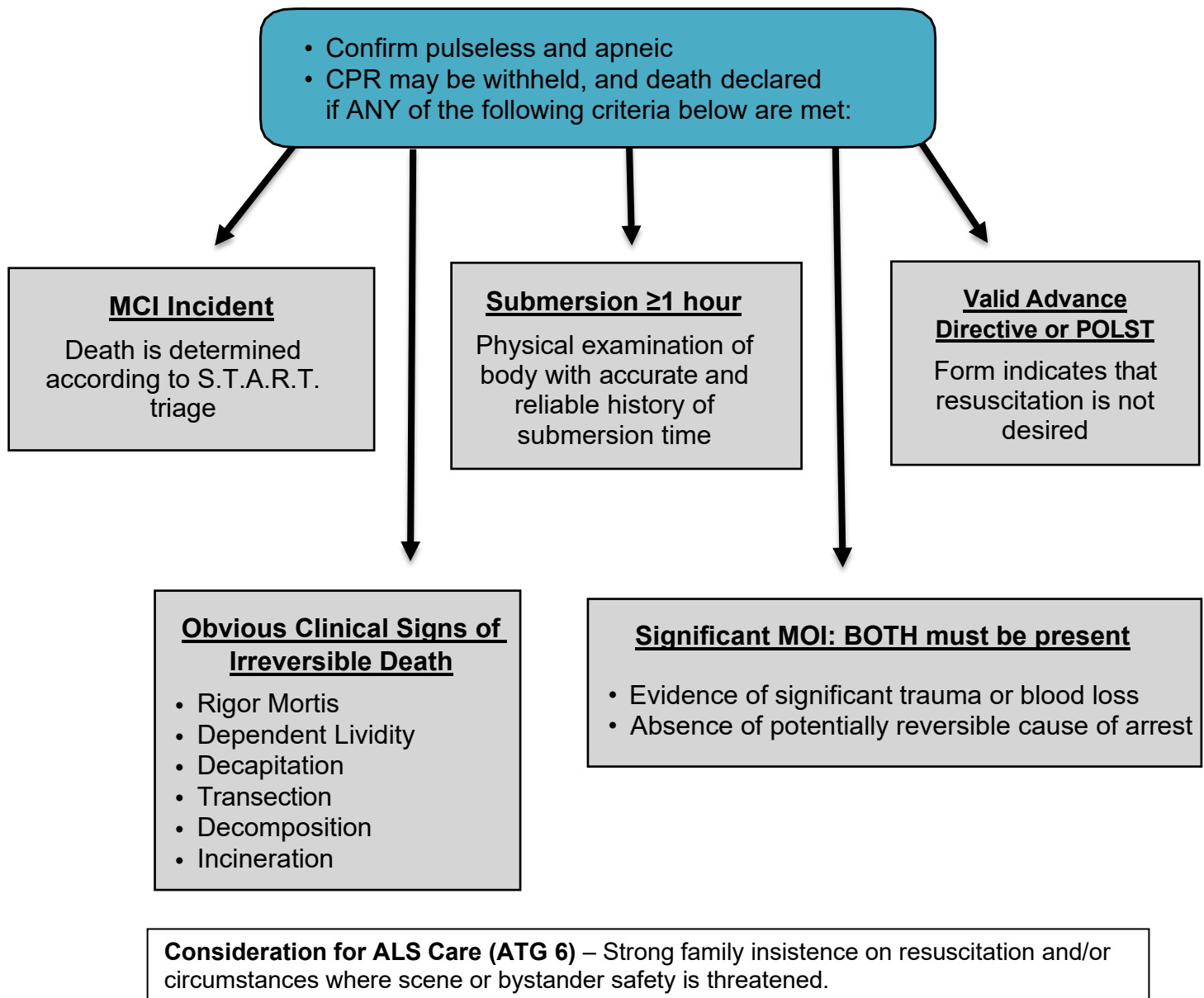
BLS ROUTINE MEDICAL CARE

Indications

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



BLS DETERMINATION OF DEATH



When patient meets criteria for declaration of death in the field:

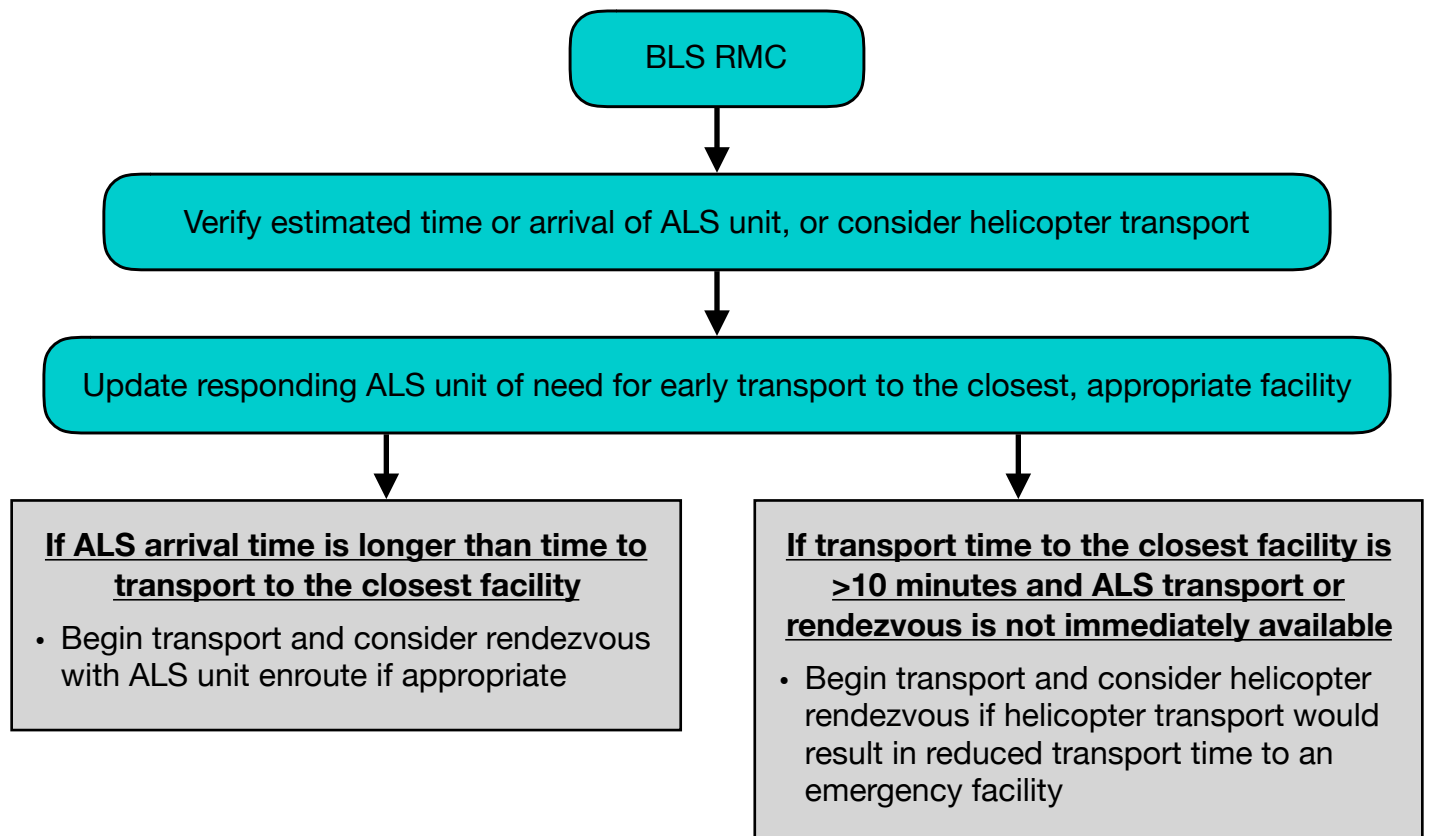
- Notify the appropriate law enforcement agency if applicable
- Remain on the scene until law enforcement or coroner arrive if applicable
- Complete a Field Determination of Death Form at scene and leave one copy for coroner if applicable

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



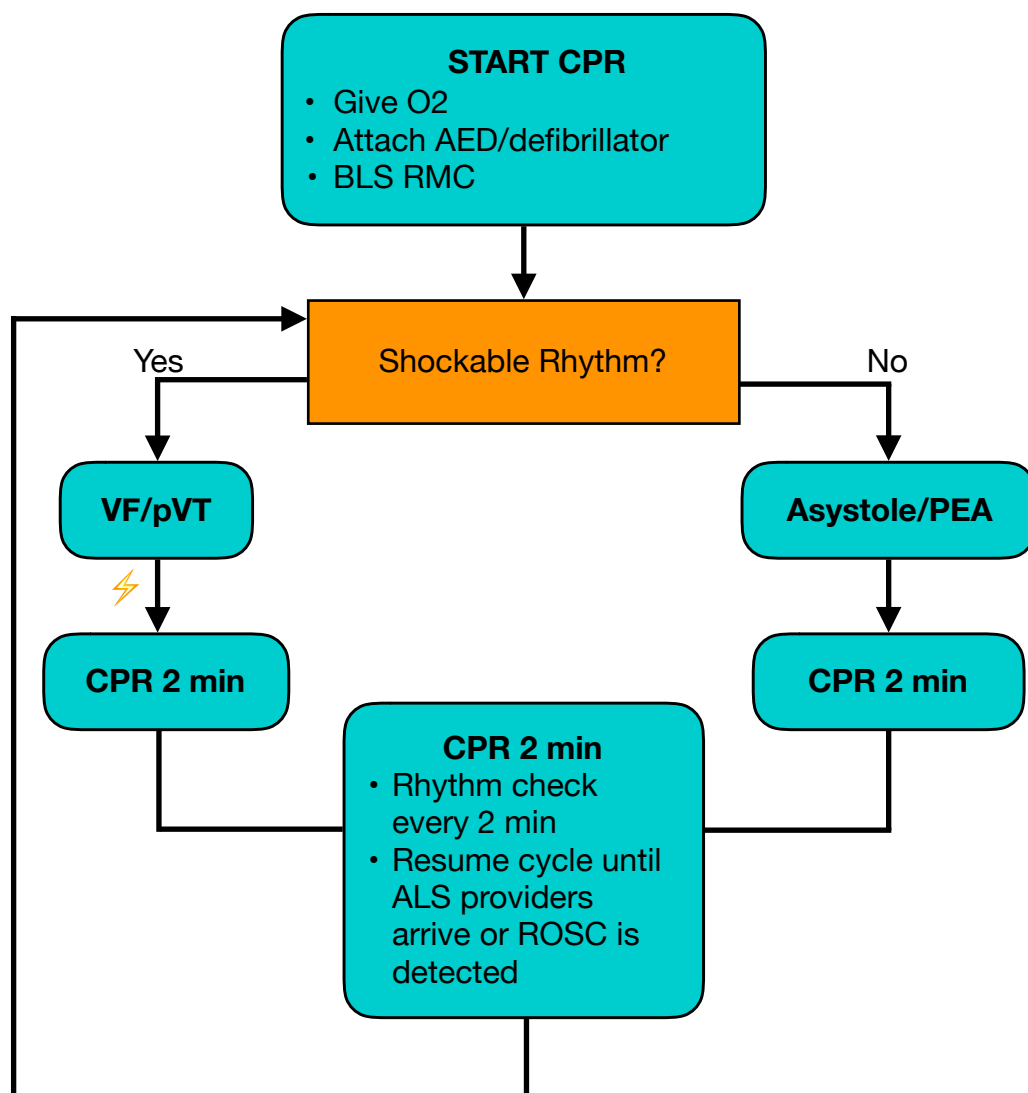
SPECIAL CONSIDERATION

- 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, initiate warming measures, start CPR, and immediately transport
- Defibrillate per manufacturer's recommendations
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

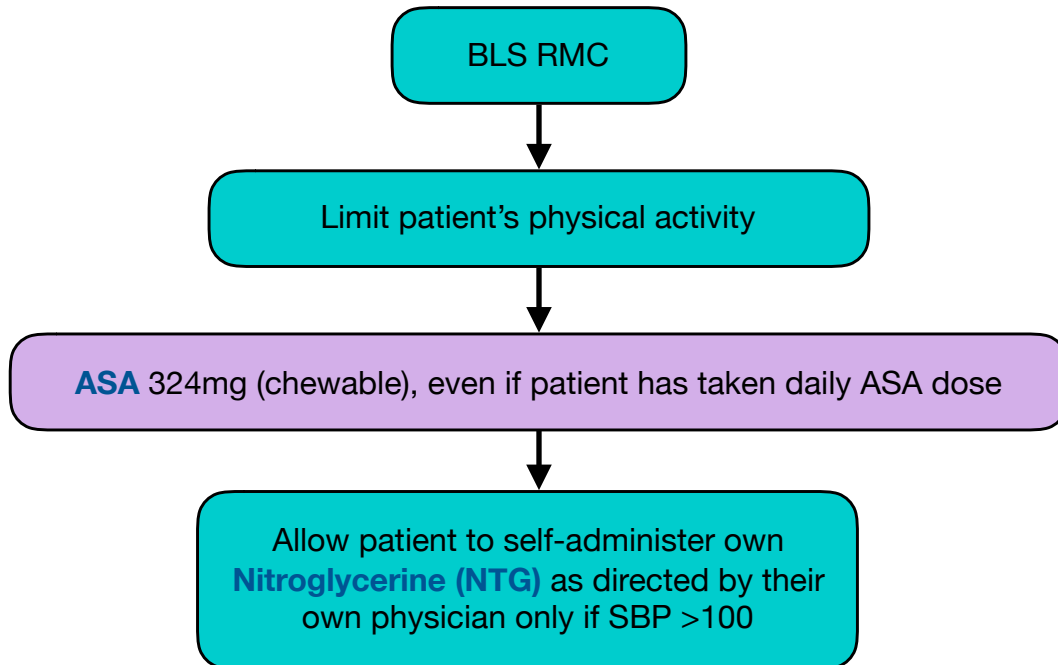
Airway Management

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

CHEST PAIN/ACUTE CORONARY SYNDROME BLS

Indications

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



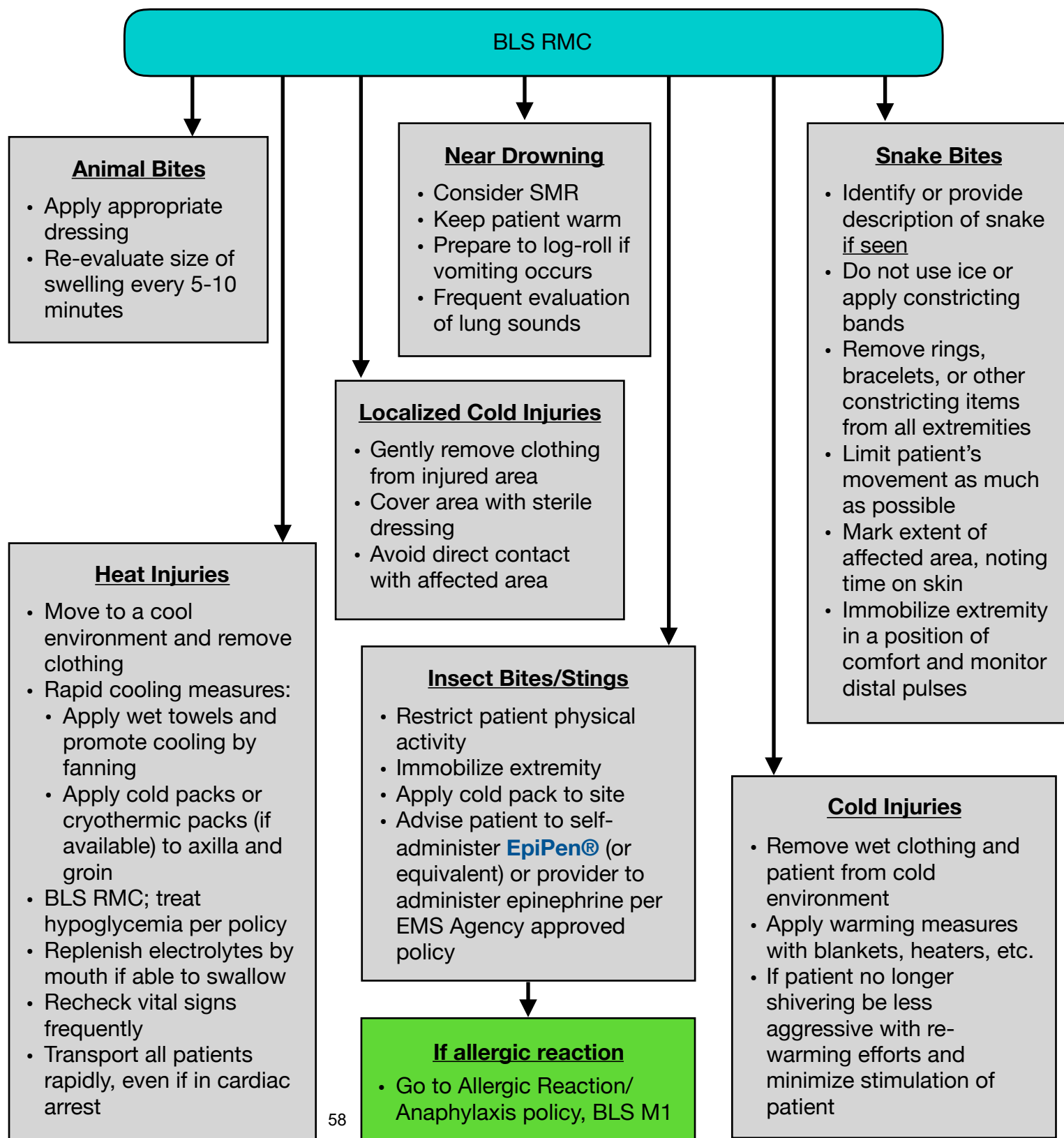
SPECIAL CONSIDERATIONS

- 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

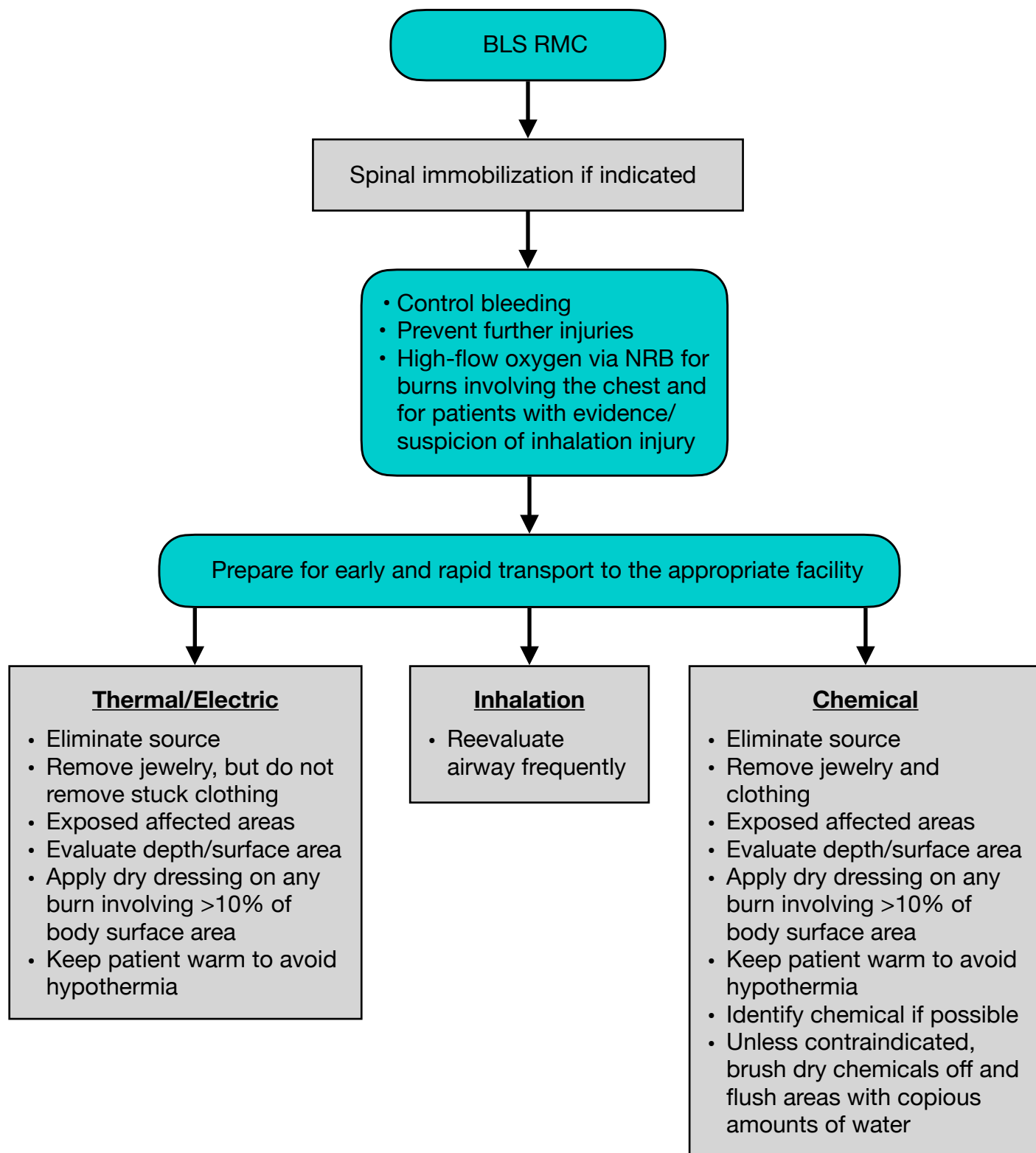
- For the following environmental emergencies: animal bites, snake bites, insect bites/stings, near drowning, heat injuries, cold injuries, localized cold injuries



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

SPECIAL CONSIDERATION

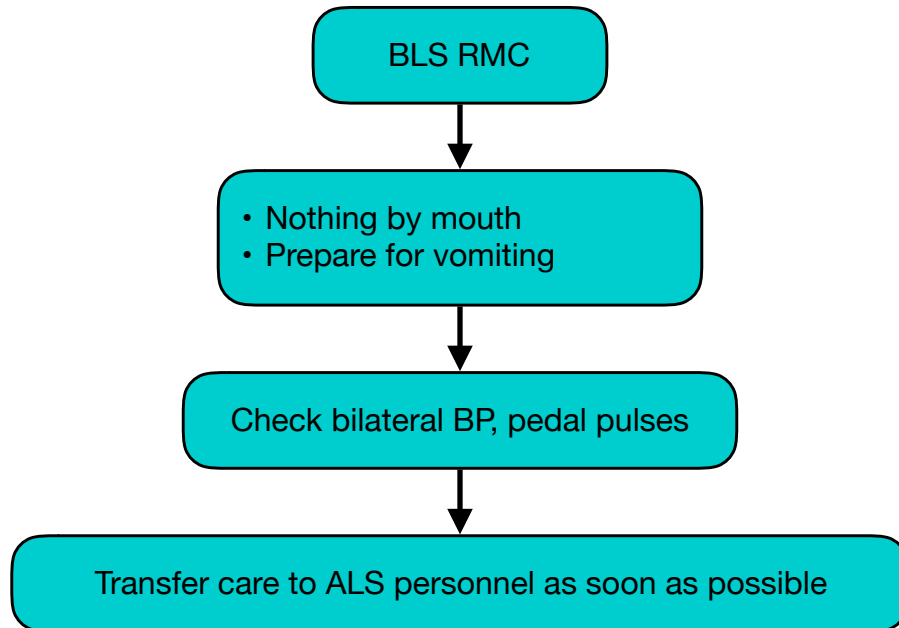
- Elderly patients with signs of anaphylaxis and history of hypertension or heart disease should still be given epinephrine with caution. If concerned, ☎ **PHYSICIAN CONSULT**

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

ABDOMINAL PAIN

Indications

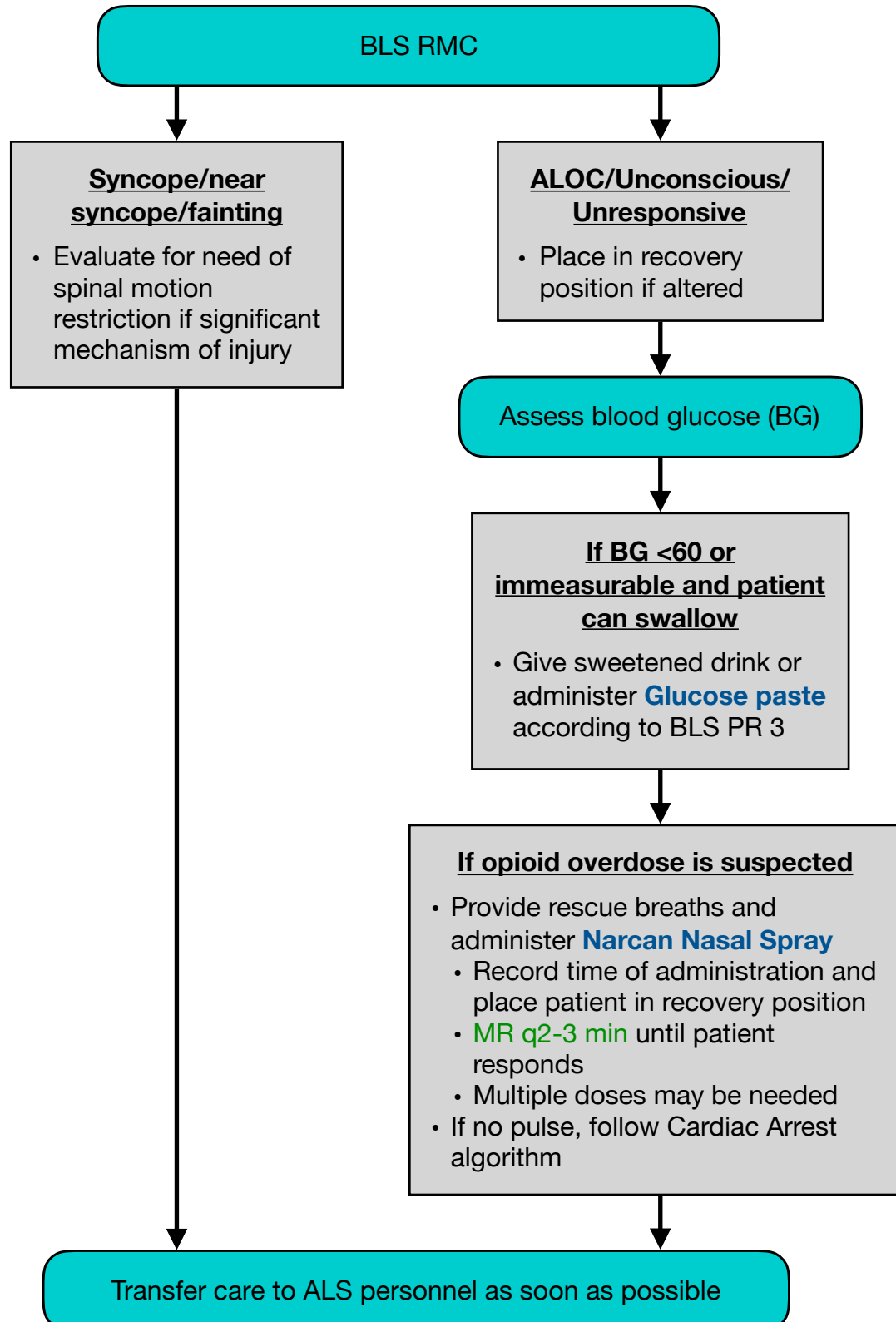
- Patient with a complaint of pain in the abdomen



NEUROLOGICAL EMERGENCIES

Indications

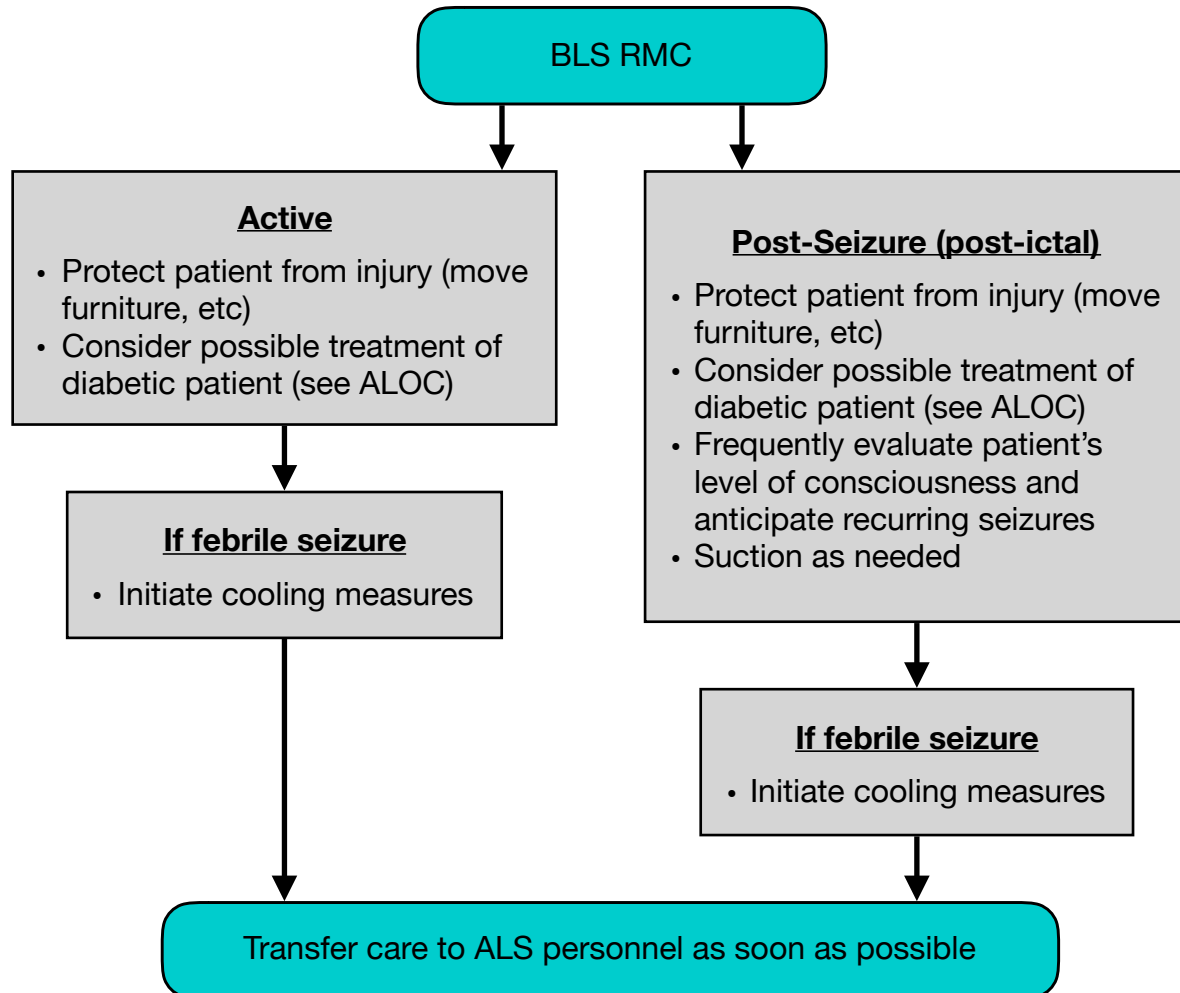
- Patient with a change in mentation



SEIZURE

Indications

- Patient with reported or continuing seizure activity



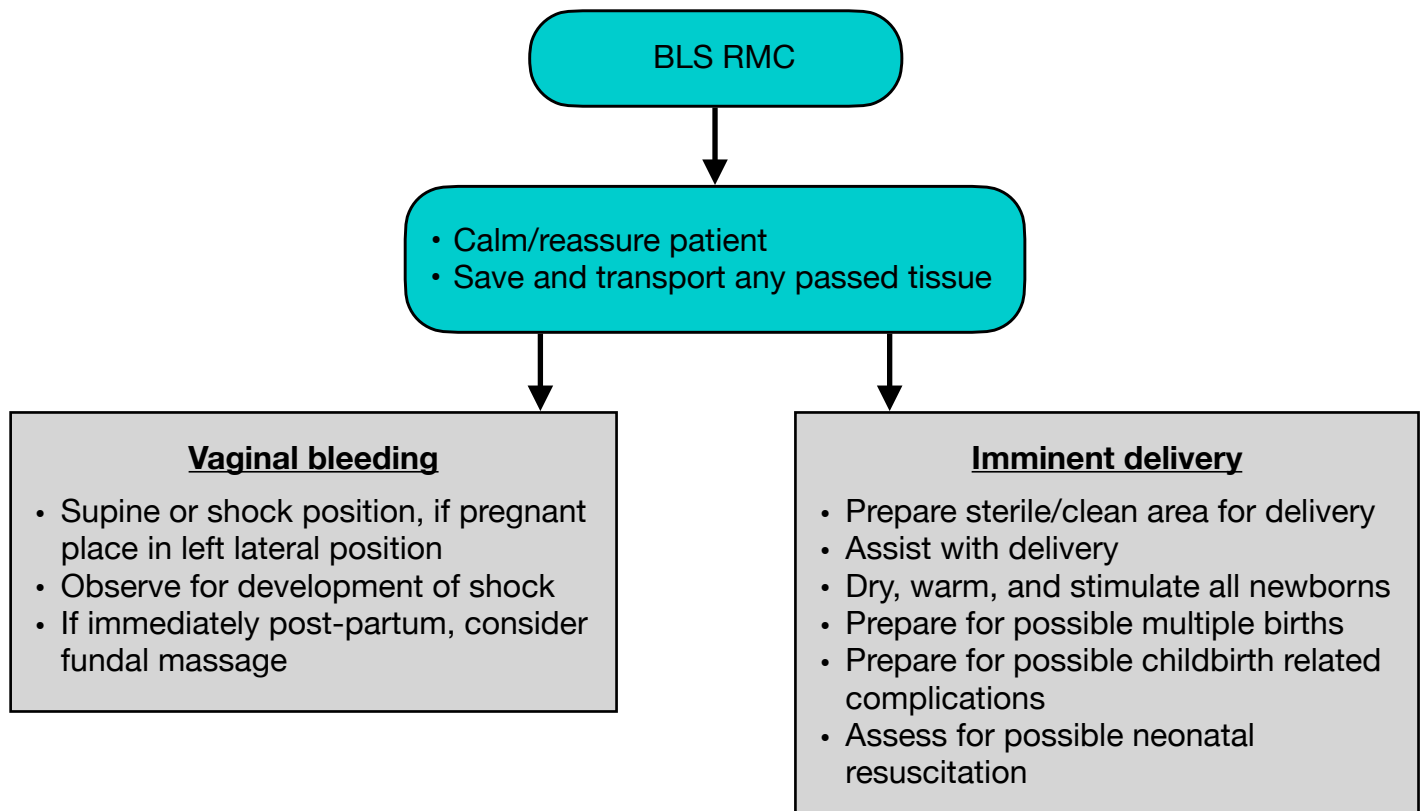
SPECIAL CONSIDERATIONS

- 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

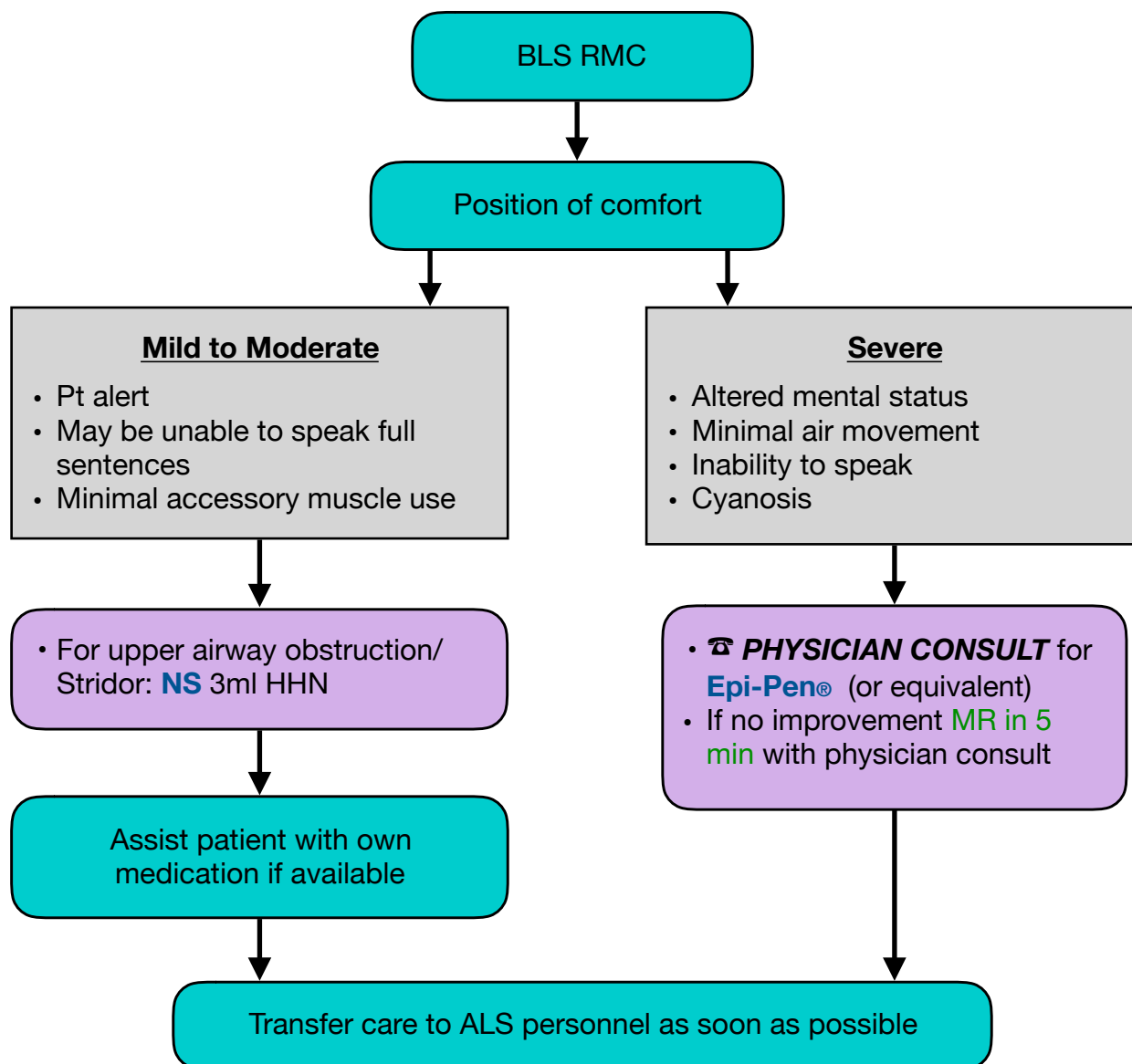
SPECIAL CONSIDERATION

- Prepare for rapid transport in both situations

SHORTNESS OF BREATH BLS

Indications

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



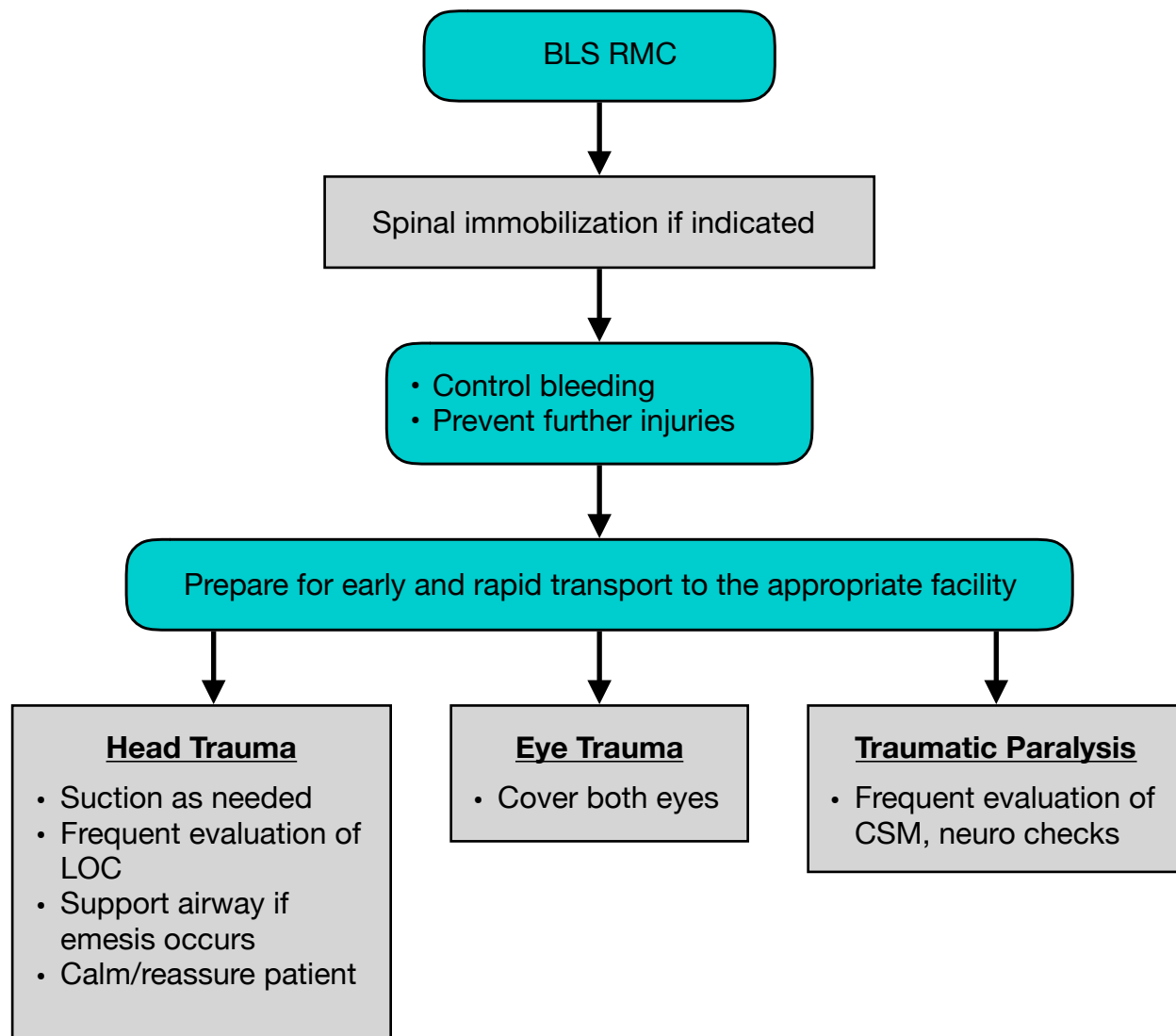
SPECIAL CONSIDERATION

- 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



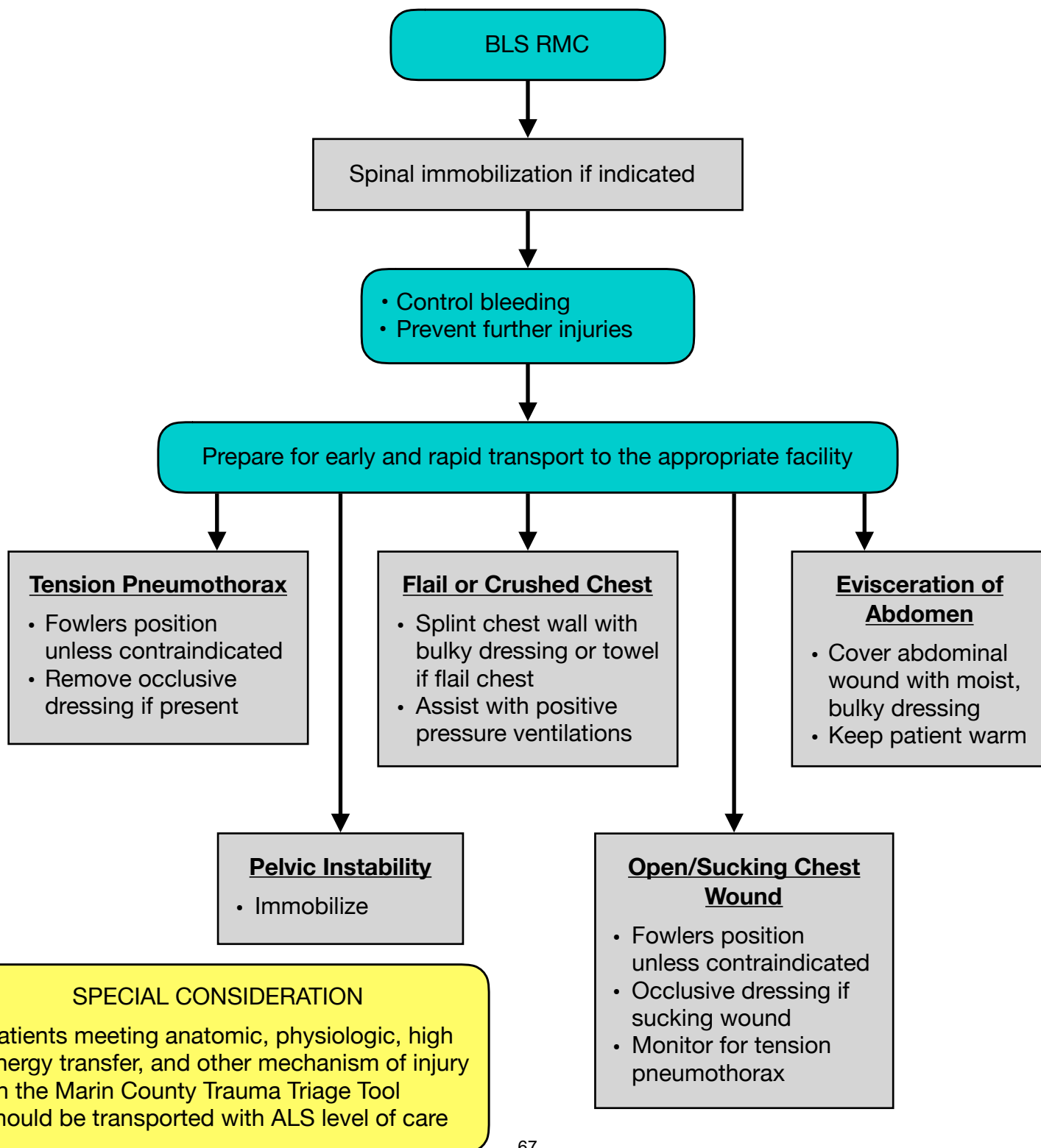
SPECIAL CONSIDERATION

- 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

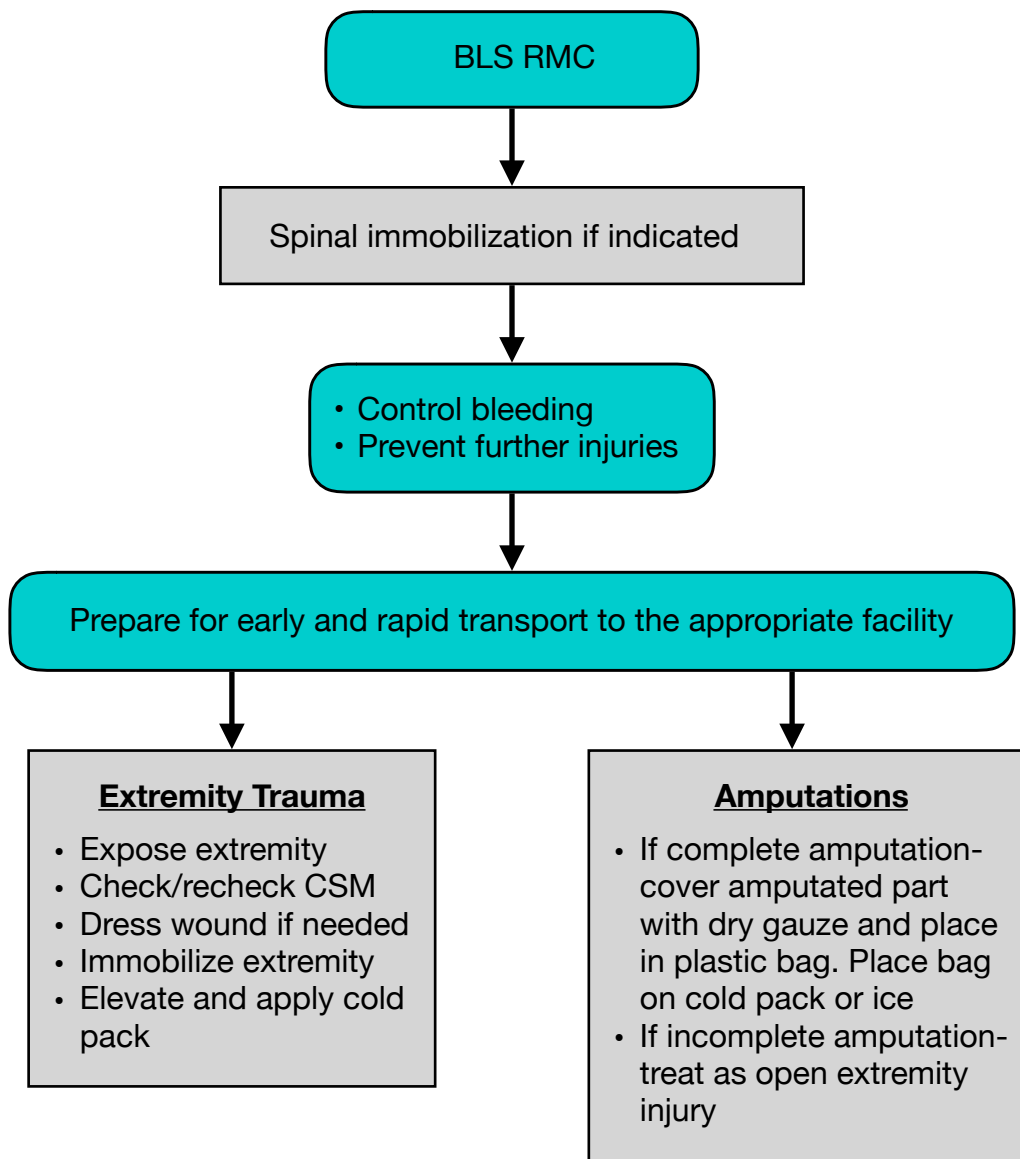
- Patient with a traumatic injury to the chest and/or abdomen



TRAUMATIC EMERGENCIES- EXTREMITIES

Indications

- Patient with a traumatic injury to the extremities



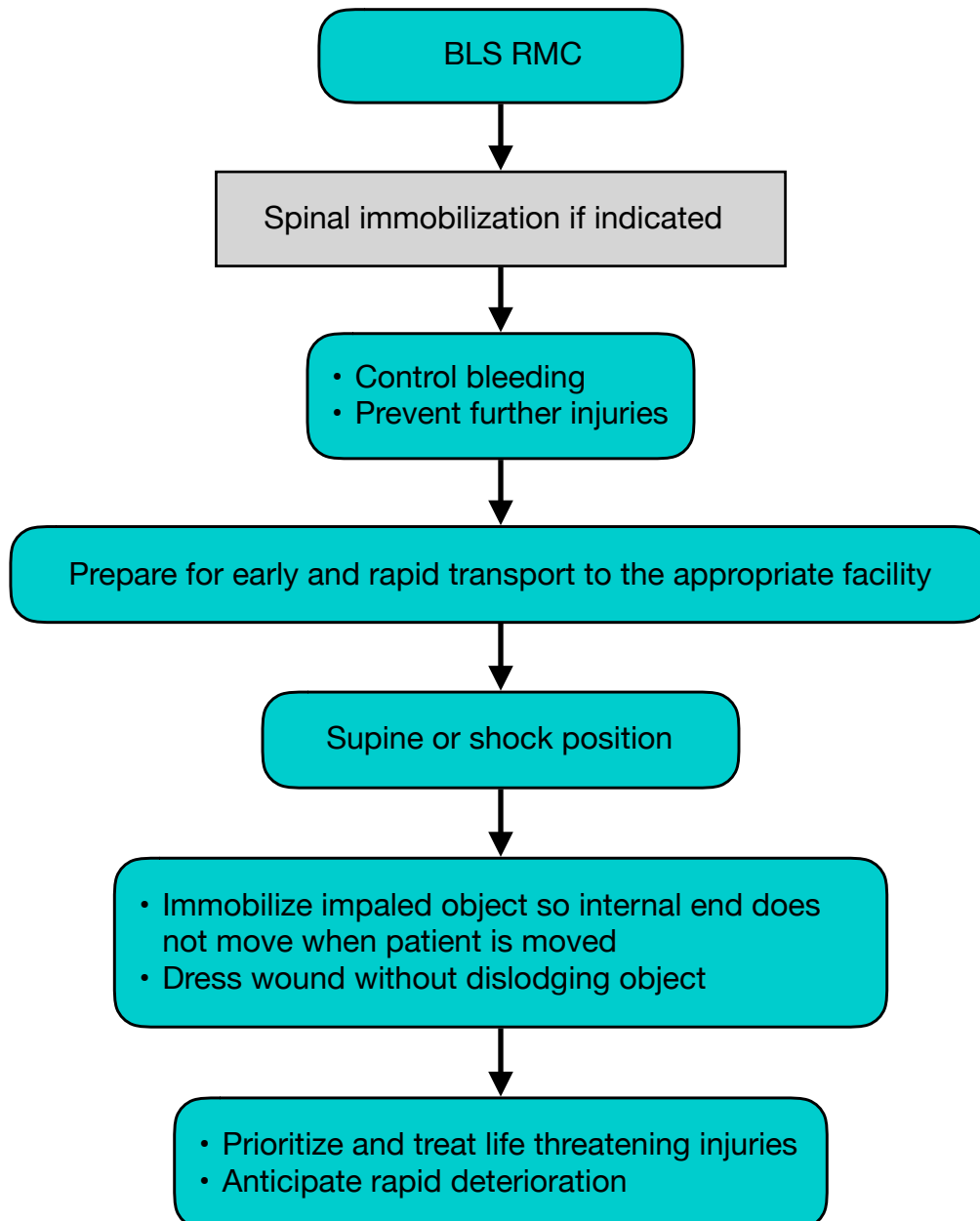
SPECIAL CONSIDERATION

- 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



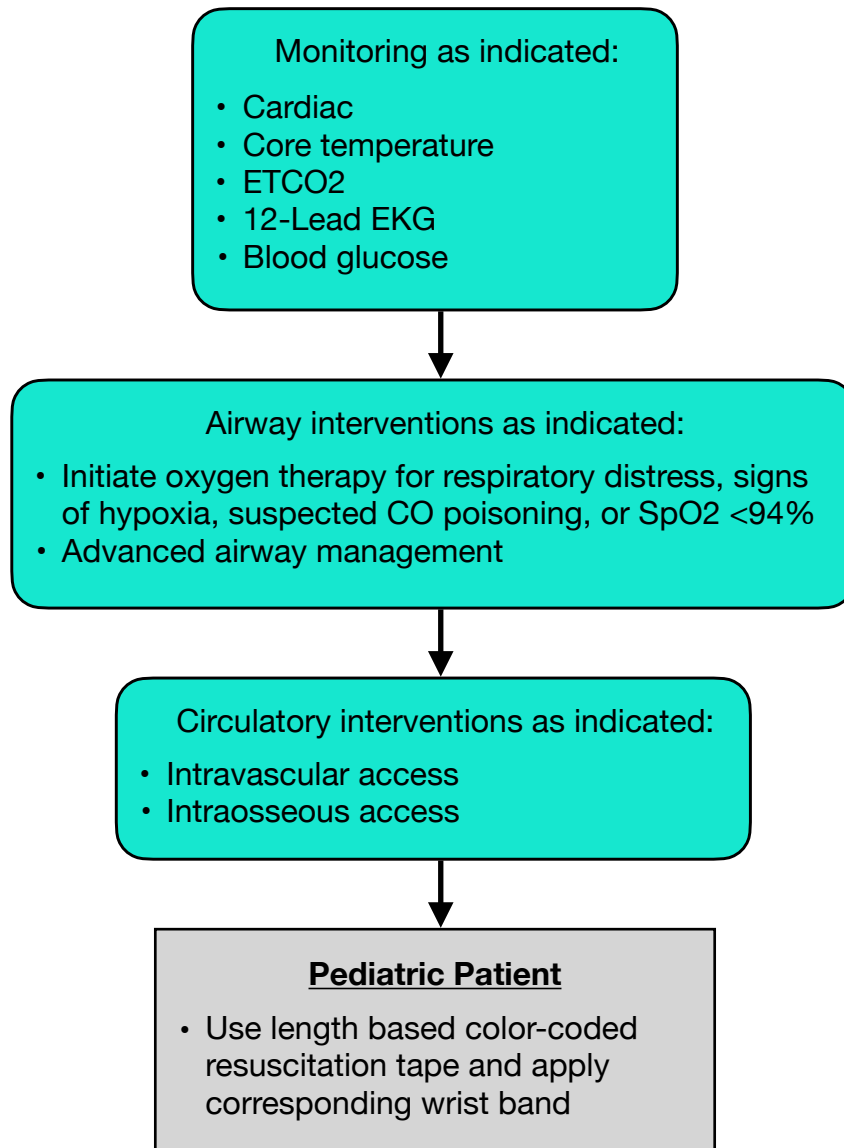
SPECIAL CONSIDERATION

- 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

ROUTINE MEDICAL CARE (RMC) ALS

Indications

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



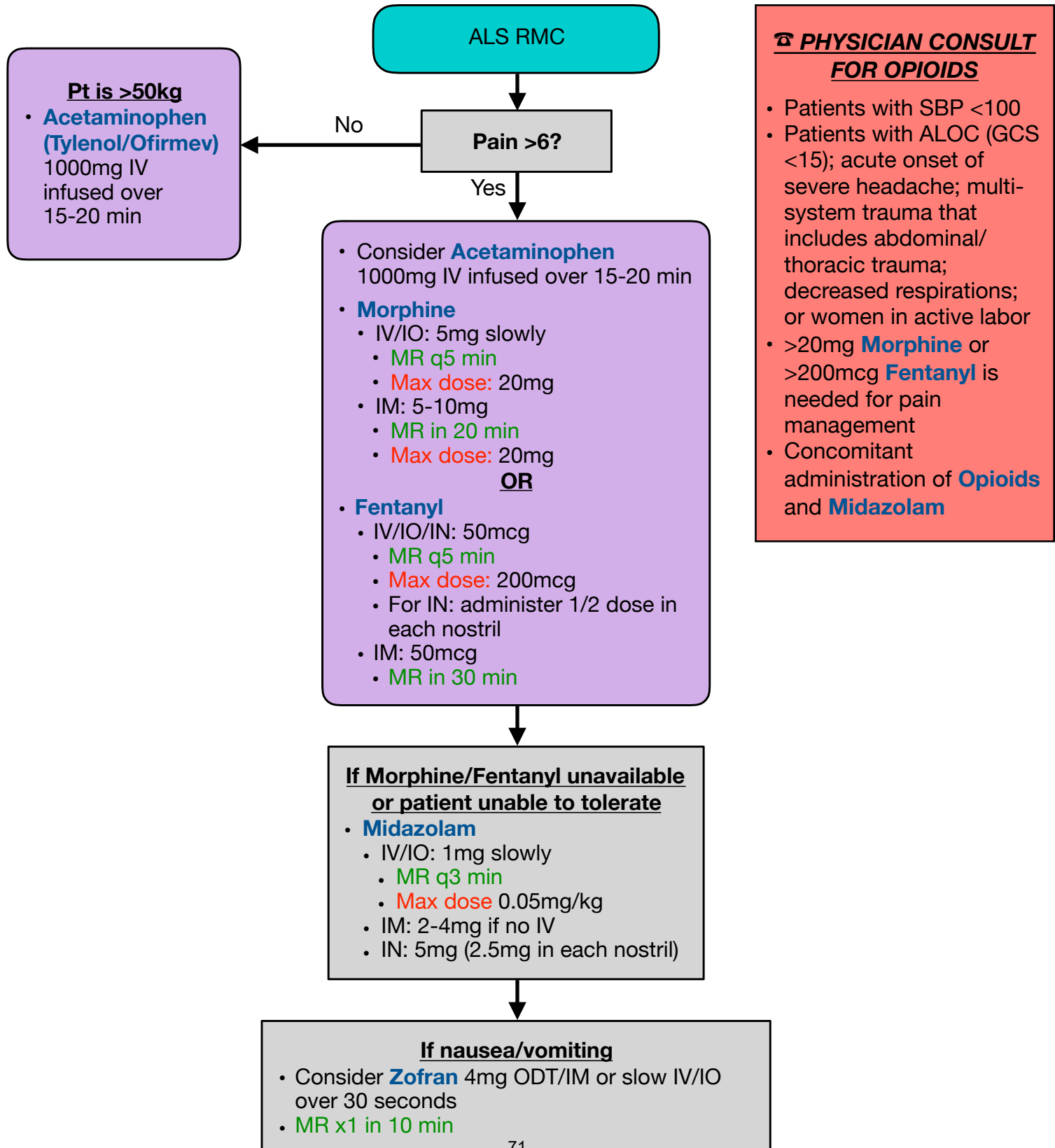
CRITICAL INFORMATION

- Best practice is to maintain cardiac/ETCO2 monitoring all the way through transfer of care
- Continuous monitoring is required for any patient who has been administered a sedative or analgesic during EMS evaluation/transport

ADULT PAIN MANAGEMENT

Indications

- Patient with apparent or reported pain



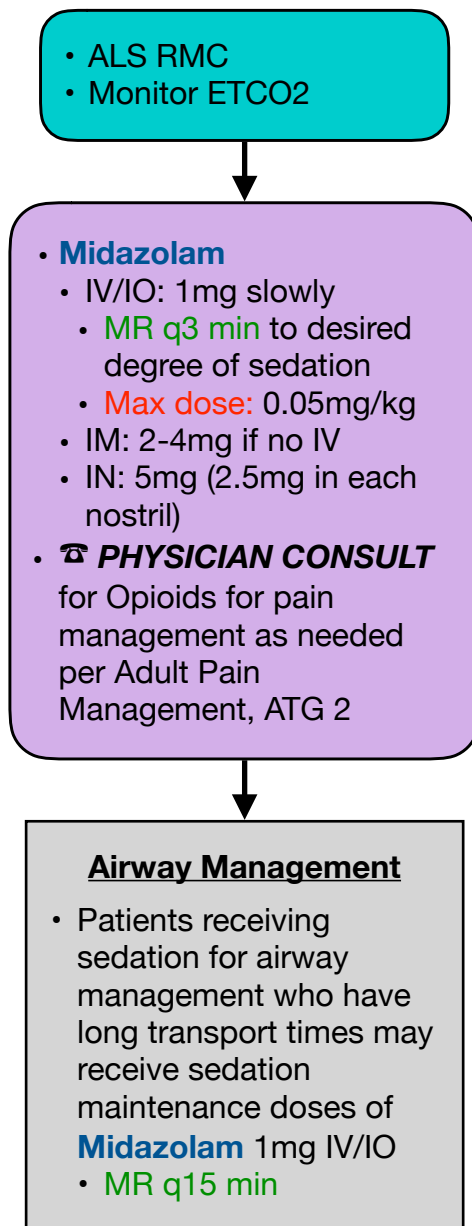
PHYSICIAN CONSULT FOR OPIOIDS

- 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/combattiveness interfering with critical ALS interventions and airway control or that endangers patient or caregiver
- Airway management



CRITICAL INFORMATION

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

Special Considerations

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

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

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

📞 PHYSICIAN CONSULT

- Head injury (airway is stable)
- Multiple system trauma (airway is stable)
- Concomitant administration of **Opioids** and **Midazolam**

ALS TO BLS TRANSFER OF CARE

Indications

- Patient needs or desires transport to a hospital and does not meet criteria for ALS interventions

Criteria for transfer:

- Patent airway, maintained without assistance or adjuncts
- No hemodynamic changes are anticipated during transport
- No imminent changes are anticipated in the patient's present condition
- GCS ≥ 14

SPECIAL CONSIDERATIONS

- The ALS first responder or provider will complete a County approved Patient Care Record (PCR)
- The ALS first responder will hand off electronic patient care record to BLS transport unit

Critical Information

- The EMT in attendance must be comfortable with the patient's condition
- Transport by the ALS transport ambulance should be considered if the transfer of care to the BLS staffed ambulance would incur a time delay greater than the projected transport time to the intended receiving facility

ADULT INTRAOSSEOUS (IO) INFUSION

Indications

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

SPECIAL CONSIDERATIONS

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

Critical Information

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

ALS DETERMINATION OF DEATH

Indications

- Patient in cardiac arrest who does not meet criteria for BLS determination of death (DOD) and does not have a valid DNR order. **Excludes MCI incidents where triage principles preclude the initiation of CPR and circumstances where scene or bystander safety is threatened.**

- Apply leads and document rhythm in two leads for minimum of 1 minute
- DOD can be made prior to, or immediately after initiating resuscitation when:

Medical- ALL must be present

- Presenting rhythm is asystole
- Event was NOT witnessed
- Effective bystander CPR was NOT initiated
- No evidence of potentially reversible cause of arrest
- No AED or manual shock delivered

Trauma- ALL must be present

- Blunt, penetrating or profound multi-system trauma, or significant blood loss
- Pulseless and/or Apnea
- Absence of potentially reversible cause of arrest

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

Does patient meet all above criteria?

Yes

Do not initiate
resuscitation

No

Initiate
resuscitation

- 📞 **Trauma center consult** for further care and destination decision
- If consult is not available, transport patient to the closest facility if there is the following:
 - Unmanageable airway
 - Uncontrolled external hemorrhage
 - CPR in progress (unless transporting to SRC for refractory V-Fib)

If determination of death still cannot be made

- 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 and remain on the scene until released by law enforcement
- Complete a Field Determination of Death Form at scene and leave copy for coroner if the patient will be transferred to coroner

ADULT MEDICATION STANDARD DOSAGES

DRUG	CONCENTRATION	STANDARD DOSE
Acetaminophen (Tylenol/Ofirmev)	1000mg/100ml	<u>IV/IO</u> 1000mg over 15-20 min
Adenosine	6mg/2ml	6mg rapid push followed by 20ml NS flush <u>IV/IO</u> <i>Repeat:</i> 12mg
Albuterol	2.5mg/3ml NS	<u>Nebulized</u> 5mg/6ml NS
Amiodarone	150mg/3ml	<u>IV/IO</u> <u>VF/Pulseless VTach:</u> 300mg push <i>Repeat:</i> 150mg push in 3-5min <u>Perfusing/Recurrent VTach:</u> 150mg over 10 min (15mg/min) <i>Repeat:</i> q10 min PRN
Aspirin (Chewable)	Variable	<u>PO</u> 324mg
Atropine	1mg/10ml	<u>IV/IO</u> <u>Bradycardia:</u> 1mg <i>Repeat:</i> q3-5 min <i>Max total:</i> 3mg <u>Organophosphate Poisoning:</u> 2mg slowly <i>Repeat:</i> q2-5 min until drying of secretions
Calcium chloride 10%	1gm/10ml	<u>IV/IO</u> Suspected Hyperkalemia in: <u>Asystole/PEA:</u> 1gm <u>Crush Syndrome:</u> 1gm over 5 min Flush with NS before and after
Cyanokit	5gm/vial	<u>IV/IO</u> 5 grams over 15min <i>Repeat:</i> x1 if severe signs <i>Max total dose:</i> 10 grams

DRUG	CONCENTRATION	STANDARD DOSE
Dextrose 10%	25gm/250ml	<u>IV/IO</u> 125ml bolus over 10 min; recheck BG <i>Repeat:</i> as needed
Diphenhydramine (Benadryl)	50mg/ml	<u>IV/IO/IM</u> 50mg
Epinephrine	1mg/ml EpiPen ® 0.3mg	<u>IM</u> <u>Allergic reaction/Anaphylaxis:</u> 0.3mg or EpiPen ® <i>Repeat:</i> x1 in 5 min
Epinephrine	0.1mg/ml	<u>IV/IO</u> 1mg (10ml) followed by 20ml NS flush <i>Repeat:</i> q3-5min
Epinephrine (Push-Dose)	0.01mg/ml	<u>IV/IO</u> <u>SBP <80:</u> Mix 1ml Epinephrine (0.1mg/ml) with 9ml NS in a 10ml syringe <i>Initial:</i> 1ml <i>Repeat:</i> q3-5 min, titrate to maintain SBP >80
Fentanyl (Sublimaze)	100mcg/2ml	<u>IV/IO</u> 50mcg slowly <i>Repeat:</i> q5 min <i>Max dose:</i> 200mcg <u>IM</u> 50mcg <i>Repeat:</i> in 30 min <u>IN</u> 50mcg; administer 1/2 dose in each nostril <i>Repeat:</i> q5 min <i>Max dose:</i> 200mcg

ADULT MEDICATION STANDARD DOSAGES

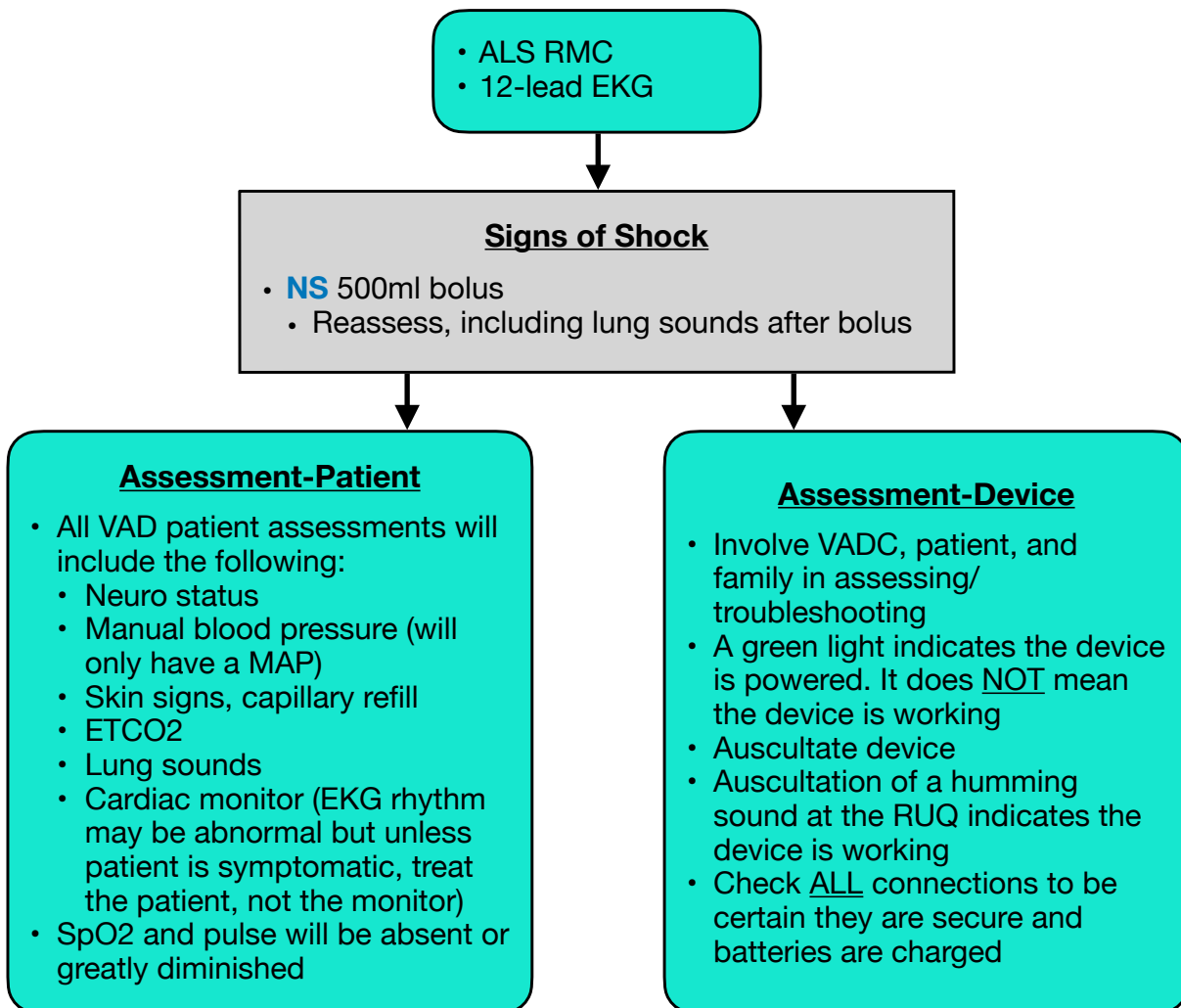
DRUG	CONCENTRATION	STANDARD DOSE
Glucose Paste	15 grams/tube	<u>PO</u> 30 grams
Glucagon	1mg/ml	<u>IM</u> 1mg
Ipratropium (Atrovent)	500mcg/2.5ml Unit dose	<u>Nebulized</u> 500mcg
Lidocaine 2%	20mg/ml	<u>IO</u> 20-40mg over 30-60 seconds <i>Repeat:</i> q15 min
77		<u>IV/IO</u> <u>Cardioversion/Pacing/Seizure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

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

VENTRICULAR ASSIST DEVICE (VAD)

Indications

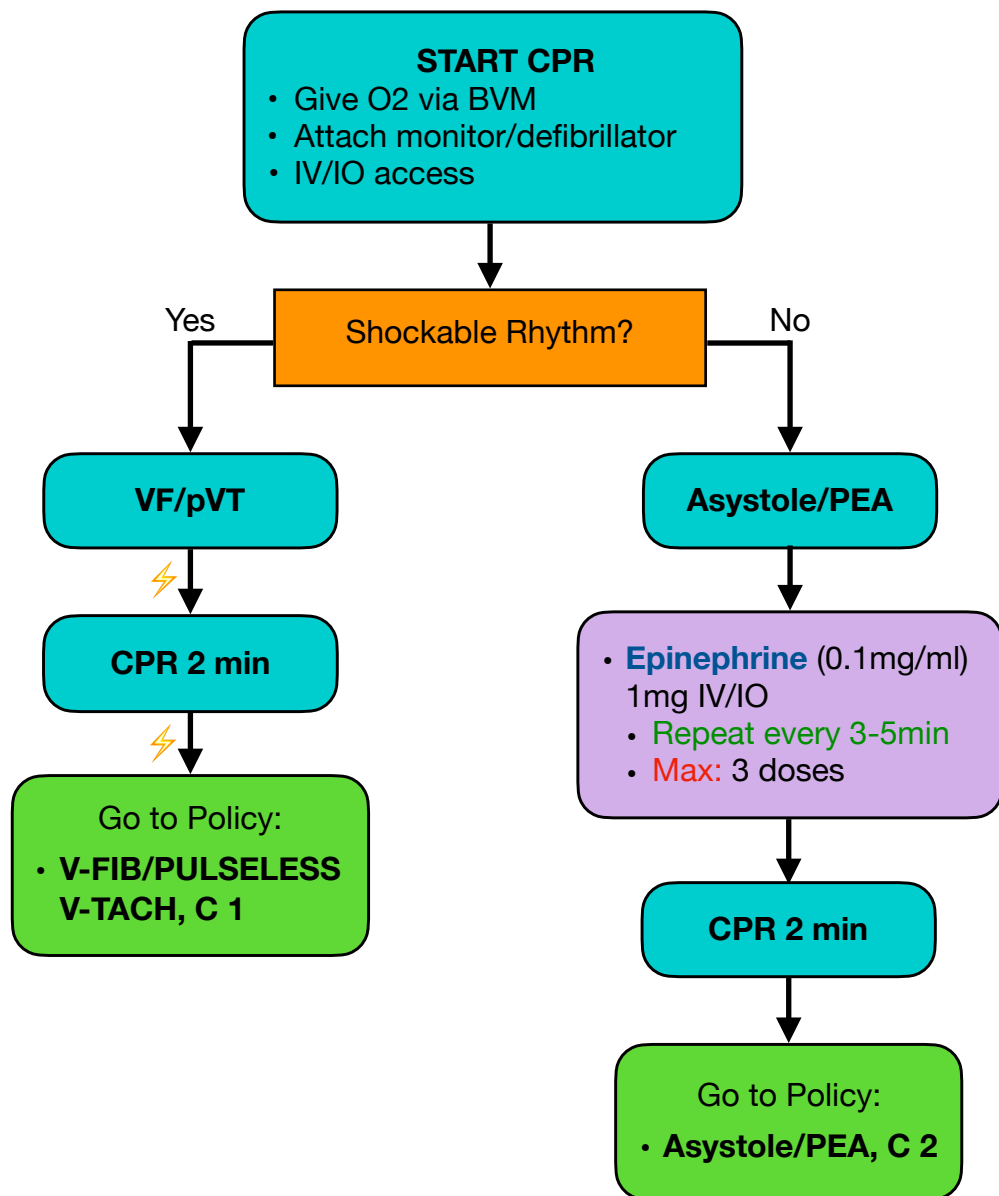
- For assessment, management, treatment, stabilization and/or transport of a patient with a VAD



Critical Information

- If defibrillation is needed, do not place pads over pt's device
- Withhold chest compression unless the patient is pulseless, unconscious, and you and the VADC has determined the device has stopped working
- The VAD Coordinator (VADC) should be contacted immediately. Dispatch may have VADC contact information. The patient and caregiver will have contact information; it may also be found on the device, a medical alert bracelet, near a phone, or other obvious location. The VADC may be on the phone upon EMS arrival
- The VADC is a valuable resource but is NOT medical control. Request physician consult if necessary
- If appropriate, request POLST/DNR status

ADULT CARDIAC ARREST



CRITICAL INFORMATION

- Witnessed vs Unwitnessed
- Consider pre-cordial thump if witnessed and defibrillator not immediately available
- Compress at 100-120/min, 2" depth with full recoil of chest
- Use metronome or similar device
- Mechanical CPR is mandatory during transportation
- Change compressors every 2 minutes
- Minimize interruptions
- Defibrillate at 200J, 300J, 360J, or at manufacturer's recommendation
- Do not stop compressions while defibrillator is charging
- Resume compressions immediately after shock

BLS 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

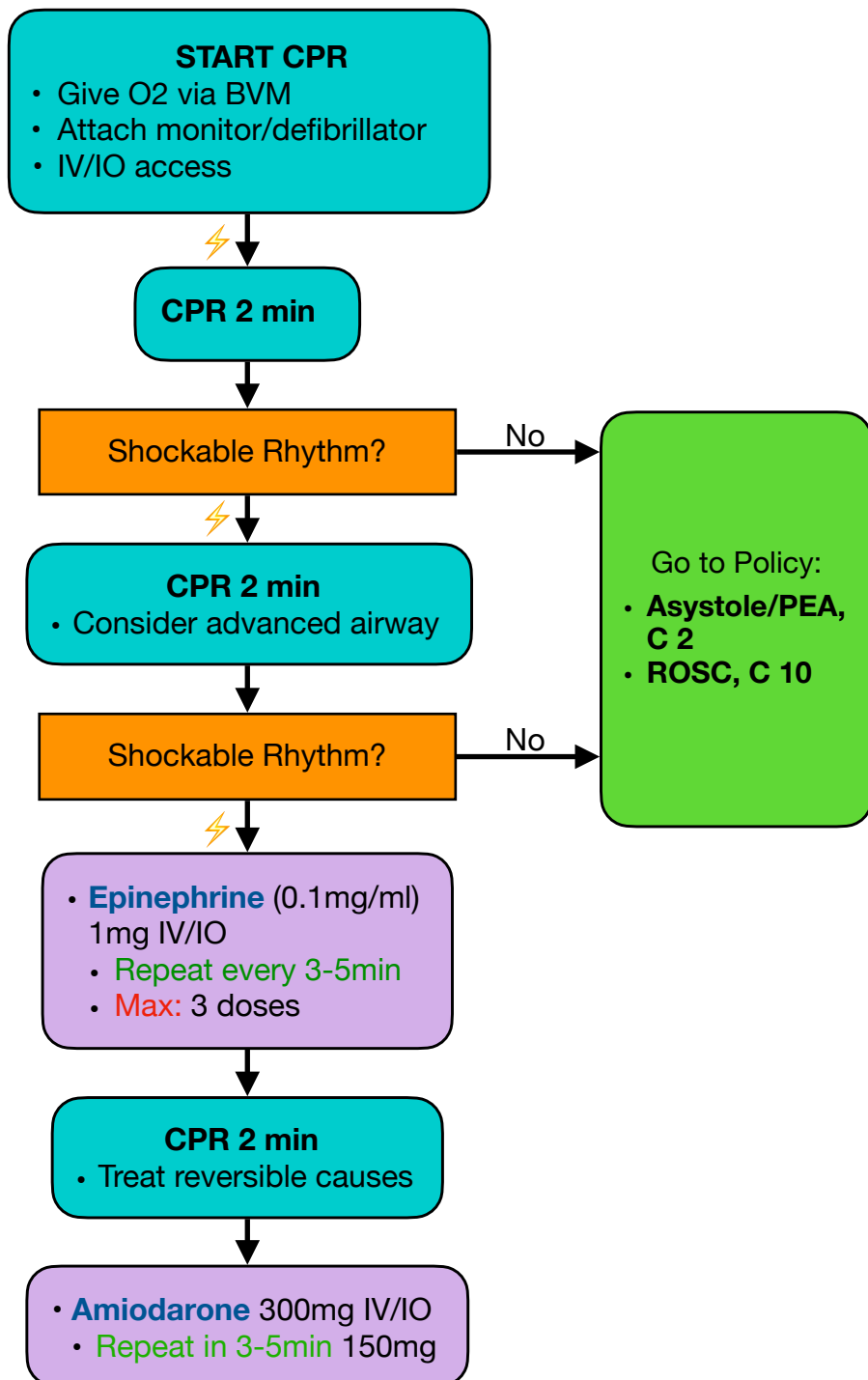
ALS Airway Management

- King Airway/iGel/Video laryngoscopy (VL)
- Laryngoscopy for ETT must occur with CPR in progress. Do not interrupt CPR for >10 seconds for tube placement
- Use continuous ETCO2 to monitor CPR effectiveness and advanced airway placement
- Maintain SpO2 94-99%
- 1 breath every 6 seconds

SPECIAL CONSIDERATIONS

- If patient is <75yrs and in refractory V-fib (3 unsuccessful shocks), transport to nearest available STEMI Receiving Center. Otherwise provide resuscitation on scene until ROSC or when patient meets Determination of Death criteria
- Regardless of the above, transportation is warranted in the following situations: unsafe scene conditions, unstable airway, hypothermia/hyperthermia as primary cause of arrest, any patient pulled from a fire in cardiac arrest
- To assure ROSC continues, remain on scene for 5-10 minutes and then transport to a STEMI Receiving Center

V-FIB/PULSELESS V-TACH



CRITICAL INFORMATION

- Compress at 100-120/min, 2" depth with full recoil of chest
- 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.

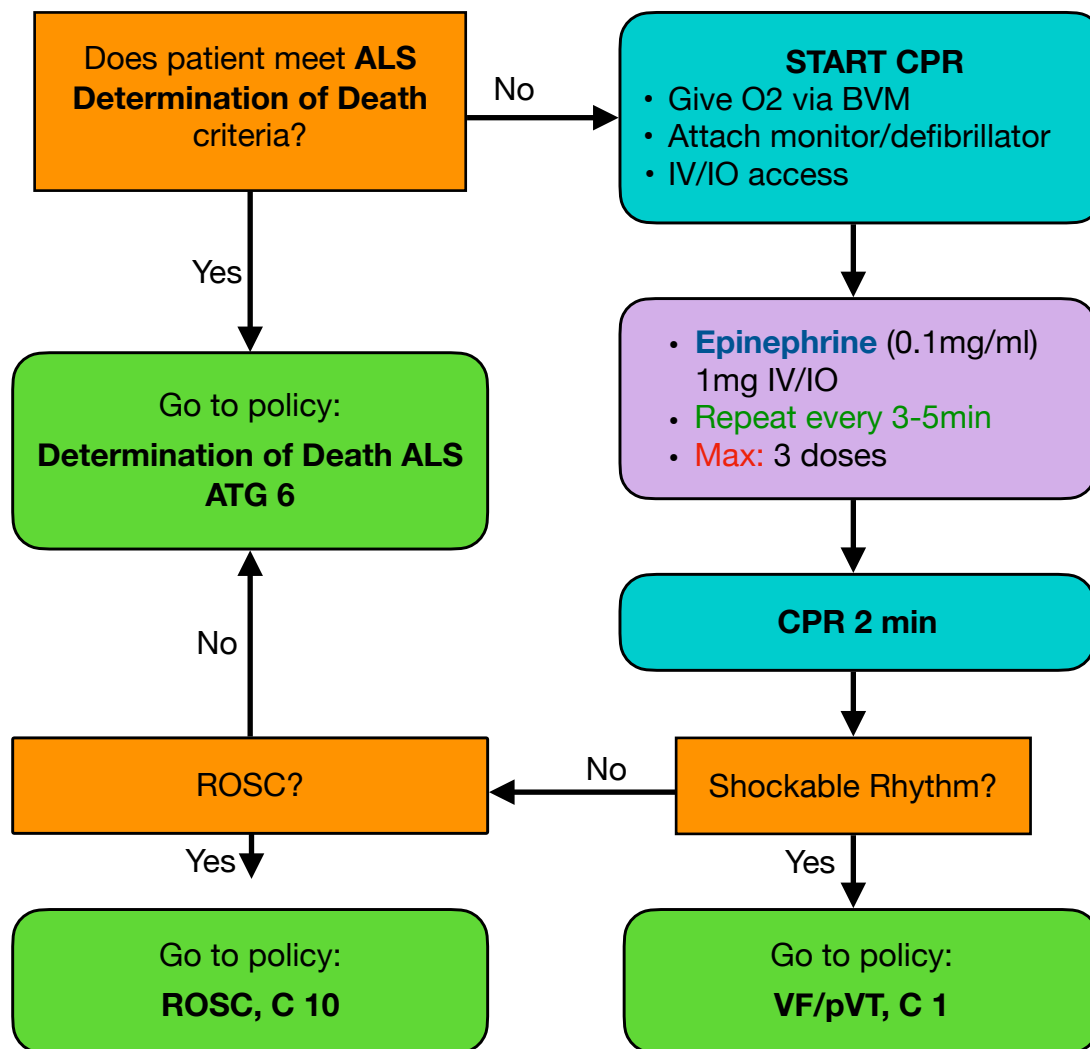
- If ROSC after **Amiodarone**, consider **Amiodarone drip** 150mg in 100ml NS, 1mg/min = 40gtts/min with 60gtt/ml tubing
- If hyperkalemia is suspected in renal dialysis patients, give 1 gram of 10% **Calcium Chloride** IV/IO and 50mEq of **Sodium Bicarbonate** IV/IO

Reversible Causes

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

- DO NOT transport rVF patients with any of the following: >75yrs, hospice, advanced dementia, irreversible neurological injury, active malignancy
- 📞 **PHYSICIAN CONSULT** to transport rVF patients with: unwitnessed arrest, >5min prior to resuscitation initiation (bystander or EMS personnel), non-cardiac etiology known or suspected

ASYSTOLE/PEA



CRITICAL INFORMATION

- Immediate determination of death can be made if patient meets **Determination of Death ALS ATG 6** criteria
- If hyperkalemia is suspected in renal dialysis patients, administer 1 gram of 10% **Calcium Chloride** IV/IO and 50mEq of **Sodium Bicarbonate** IV/IO

SPECIAL CONSIDERATION

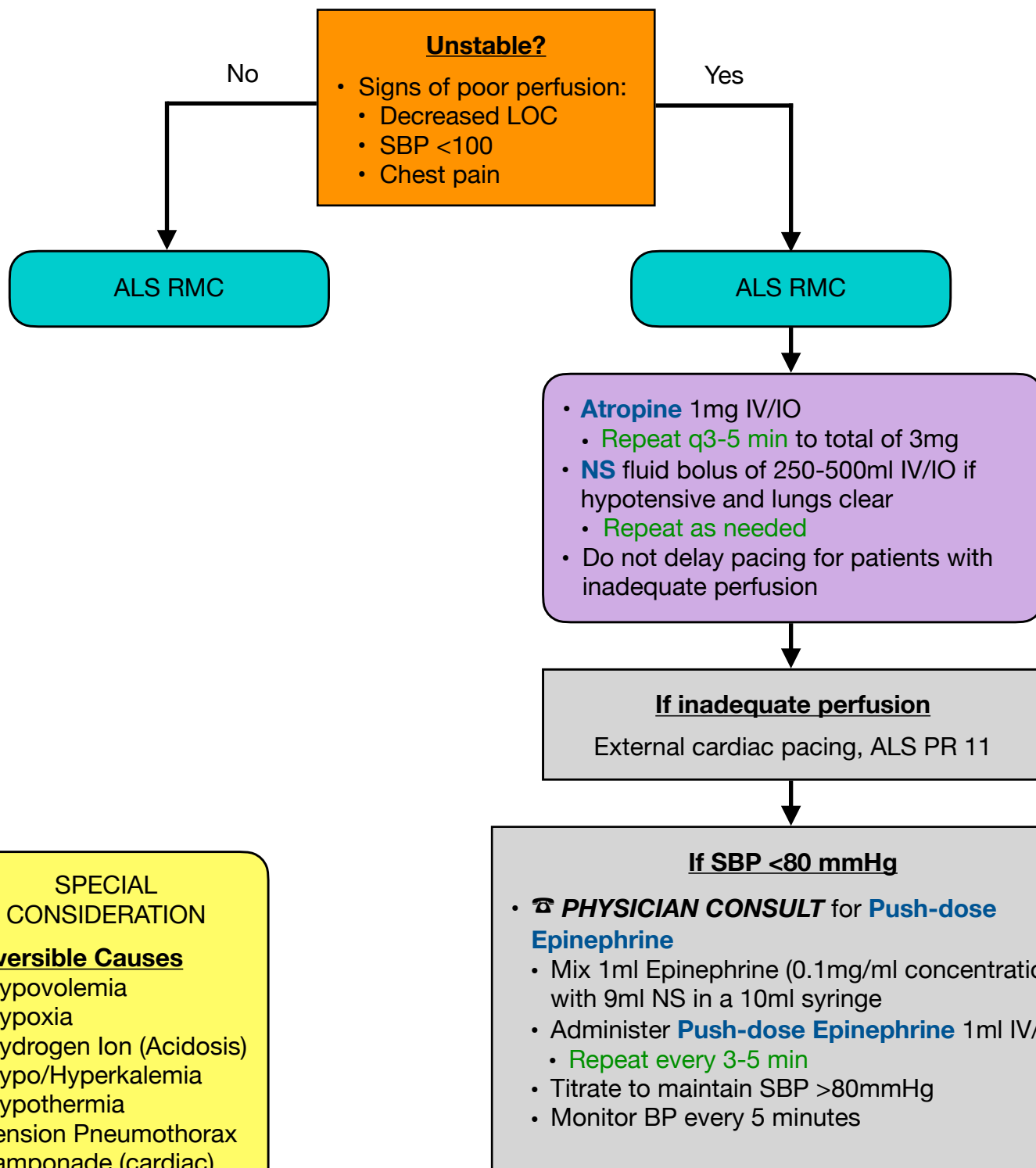
Reversible Causes

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

BRADYCARDIA

Indications

- HR <50 with adequate or inadequate perfusion



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

Yes

ALS RMC

12-lead EKG

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

ALS RMC

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

If patient is conscious

- Go to Adult Sedation, ATG 3

If patient is critical

- If any delay in synchronized cardioversion, defibrillate the patient

If no response to cardioversion

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

SPECIAL CONSIDERATION

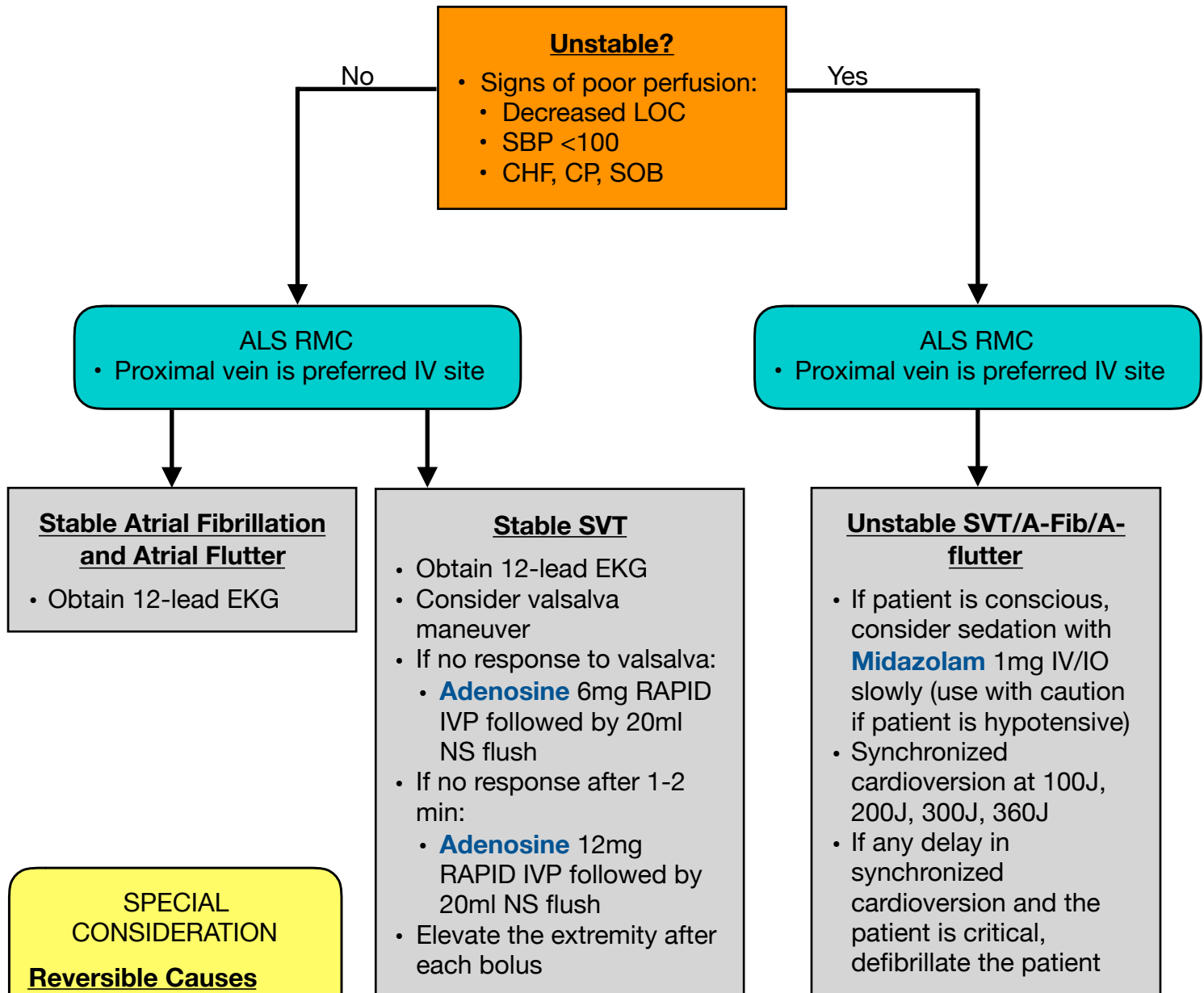
Reversible Causes

- 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)



SPECIAL CONSIDERATION

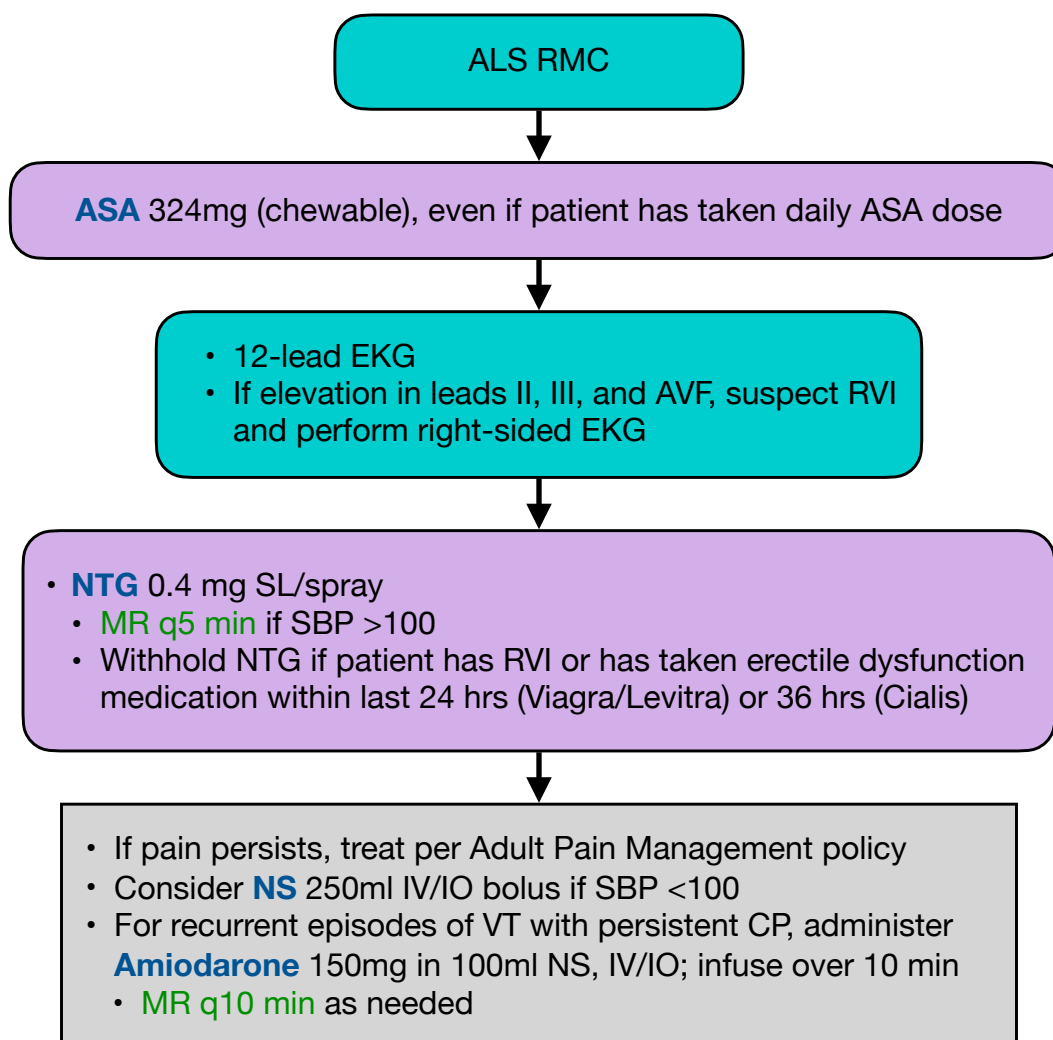
Reversible Causes

- 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)



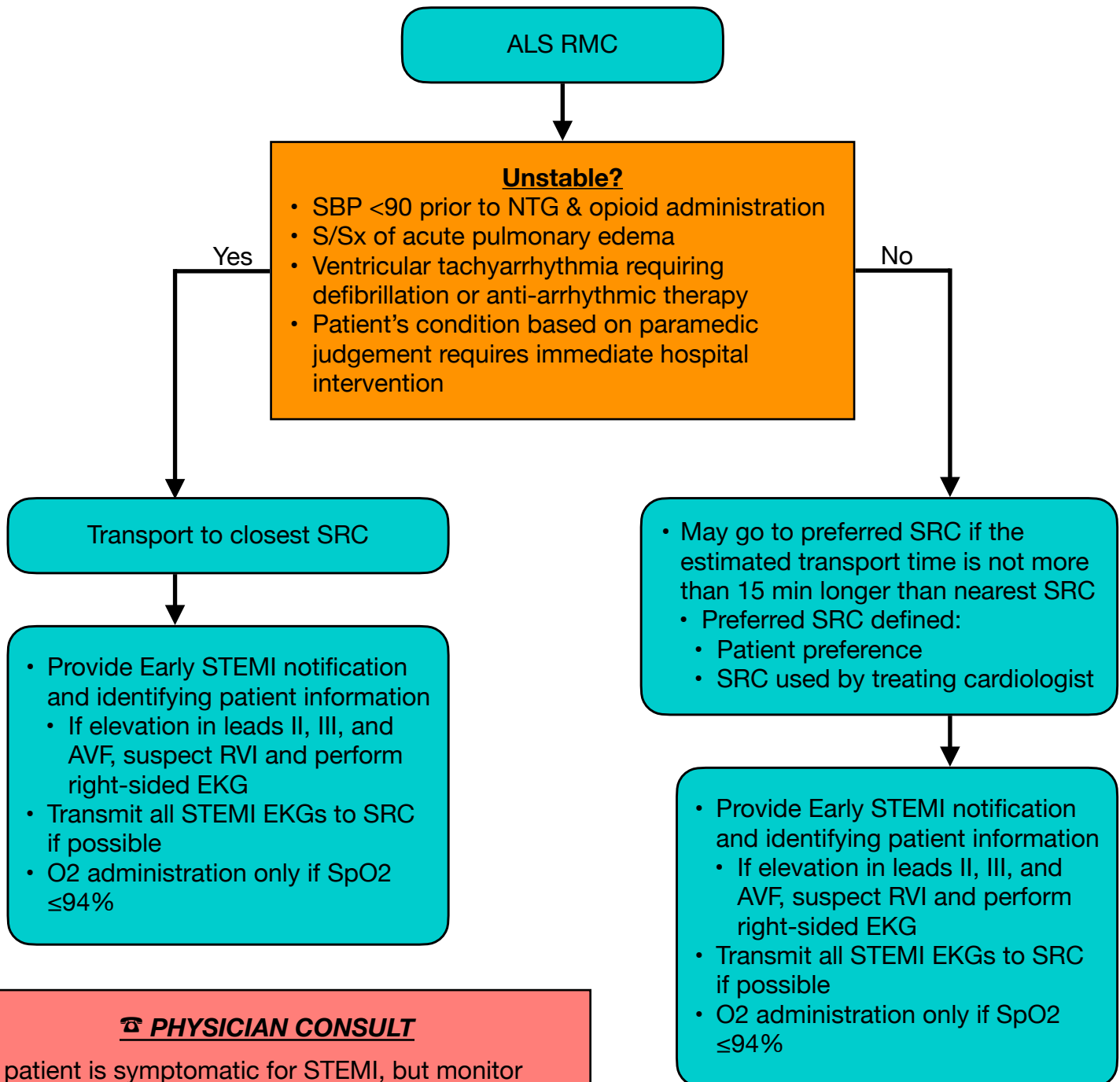
SPECIAL CONSIDERATIONS

- IV access before NTG if SBP <120 or Patient doesn't routinely take NTG
- Routine O2 administration unnecessary if SpO2 ≥94%
- Infarctions may be present with normal 12-leads
- Consider other potential causes of chest pain: pulmonary embolus, pneumonia, aortic aneurysm, and pneumothorax
- ☎ Physician consult if possible contraindication to aspirin (ie: head injury, GI bleed, other anti-coagulant use, etc.)

ST ELEVATION MYOCARDIAL INFARCTION (STEMI)

Indications

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



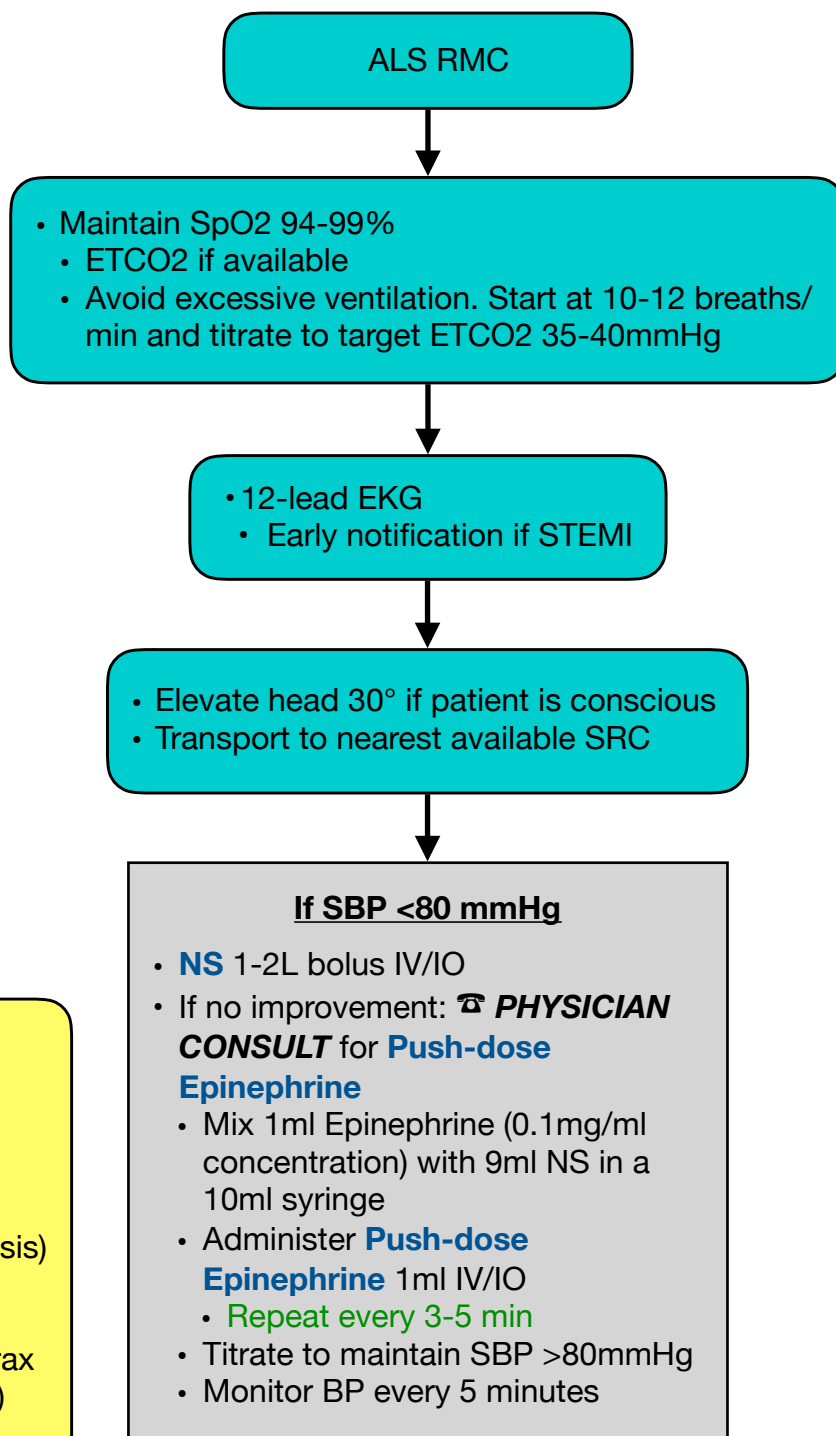
PHYSICIAN CONSULT

- If patient is symptomatic for STEMI, but monitor interpretation is not in agreement, **transmit EKG** and consult the SRC receiving physician
- If above findings occur, but transmission is not available, activate SRC with early STEMI notification

RETURN OF SPONTANEOUS CIRCULATION (ROSC)

Indications

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



SPECIAL CONSIDERATION

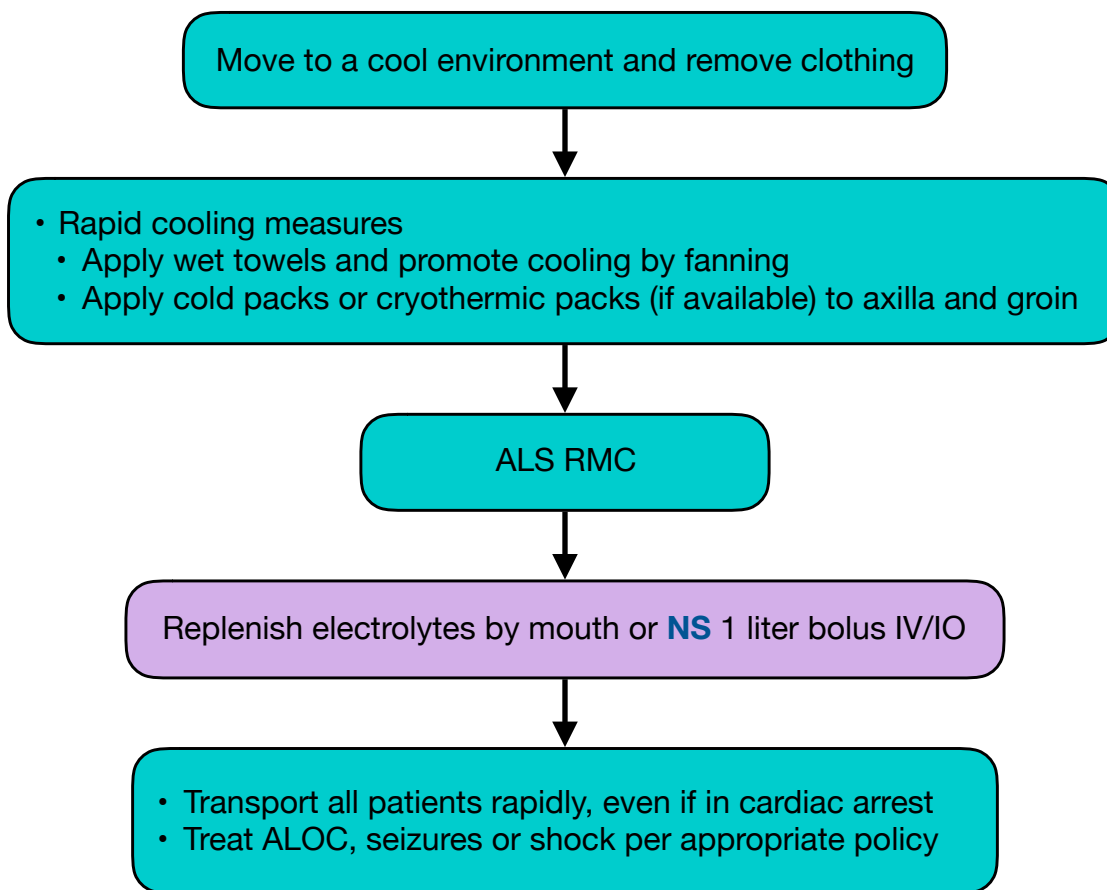
Reversible Causes

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

HEAT ILLNESS

Indications

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



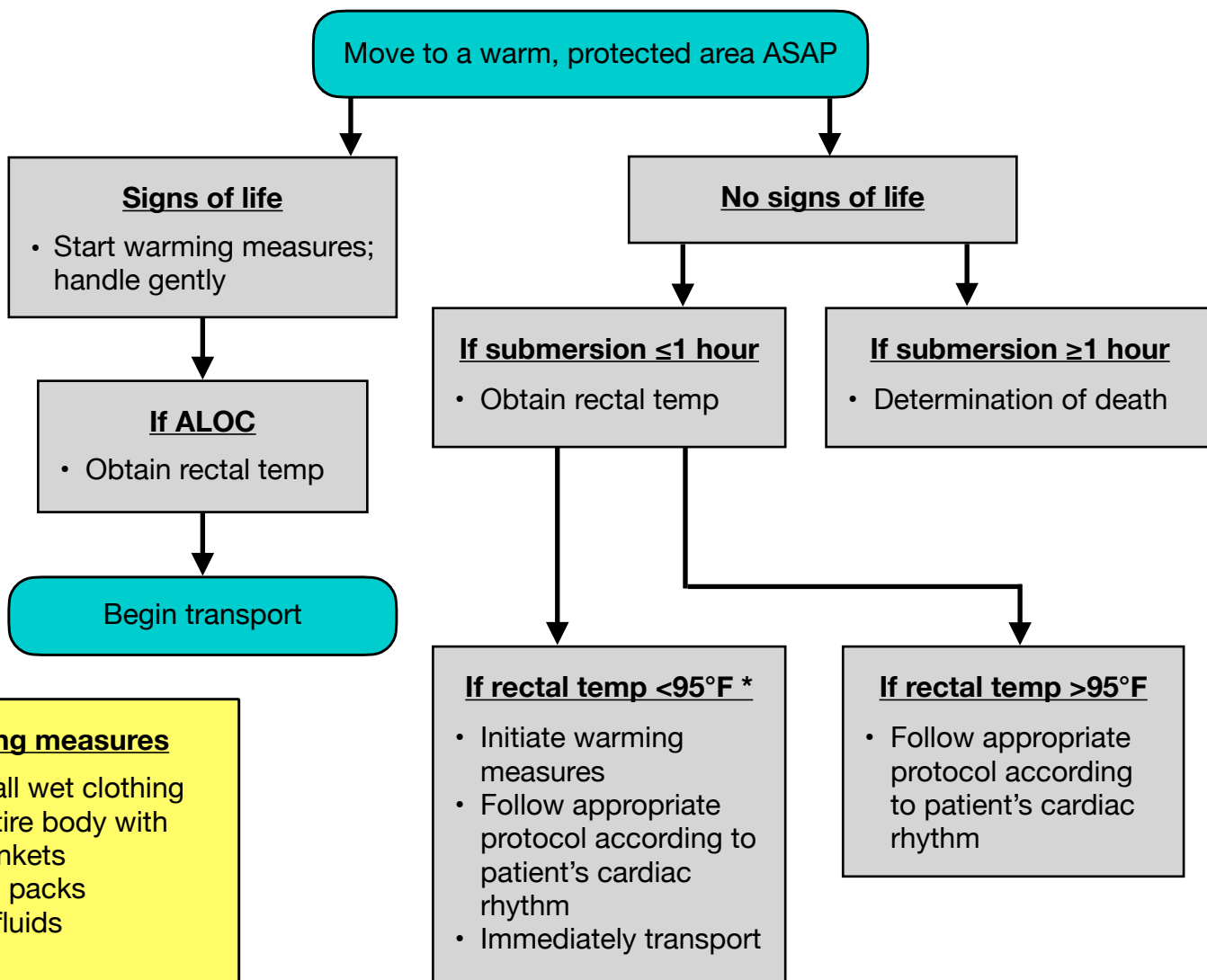
CRITICAL INFORMATION

- 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



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

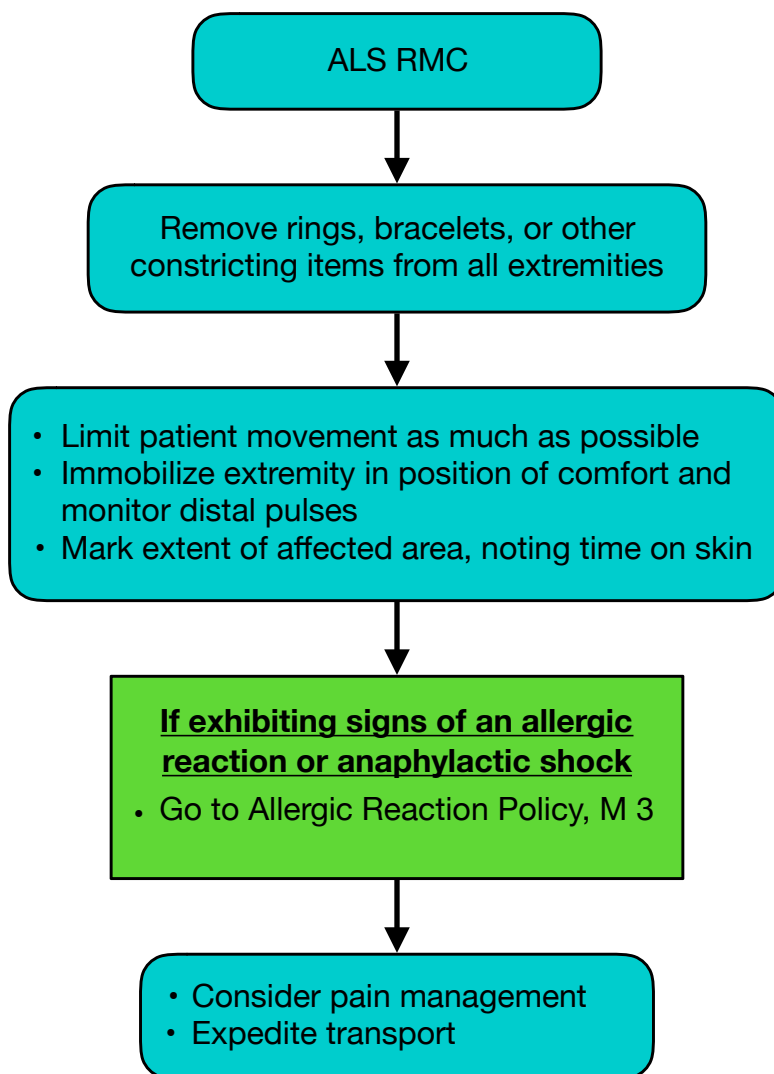
- Subtler presentations exist in elderly, newborns, chronically ill and alcoholics

* 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)



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

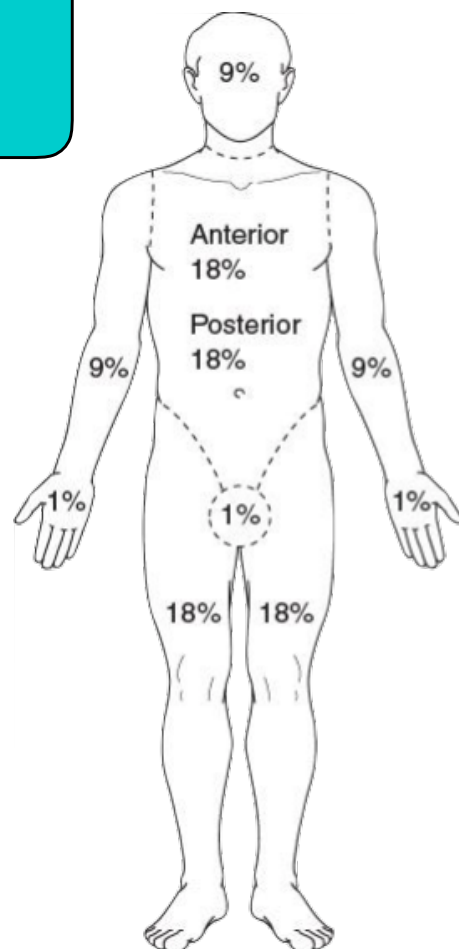
- Consider **Albuterol** 5mg in 6ml NS HHN

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

Transport according to Destination Guidelines

CRITICAL INFORMATION

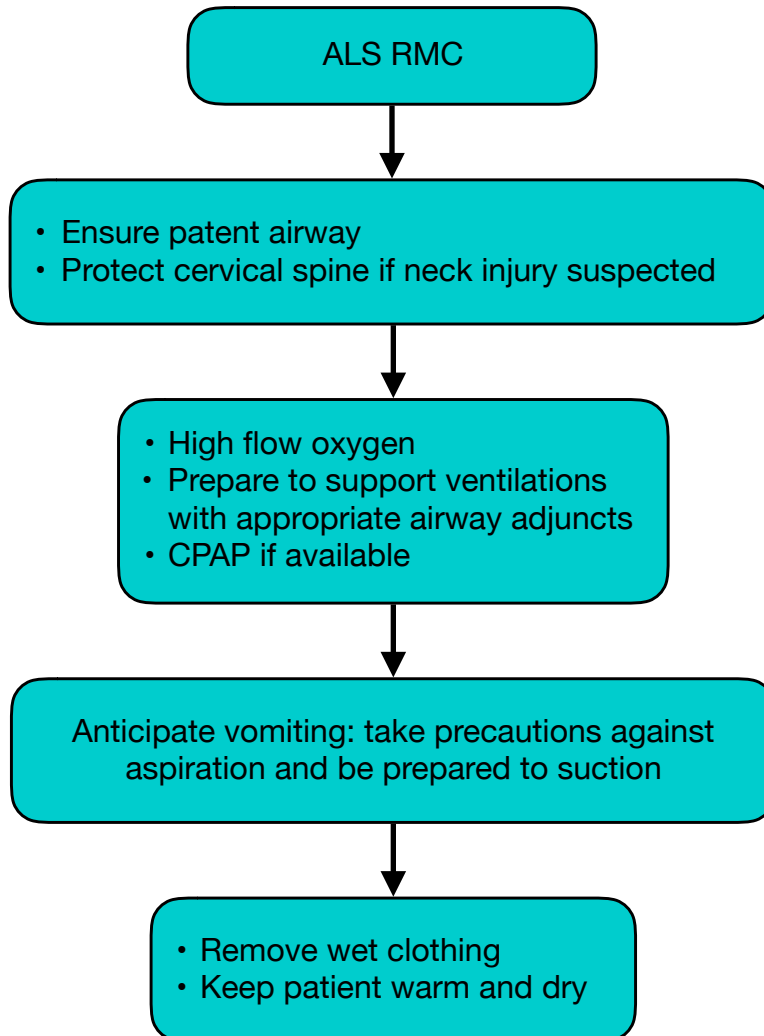
- Consider early intubation for severe facial burns
- Perform frequent airway assessments and consider early intubation for inhalation injury (ie: facial or chest burns, singed nares, soot/blisters in oropharynx)
- Burns with trauma mechanism need to be transported per the Marin County Trauma Triage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



DROWNING

Indications

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



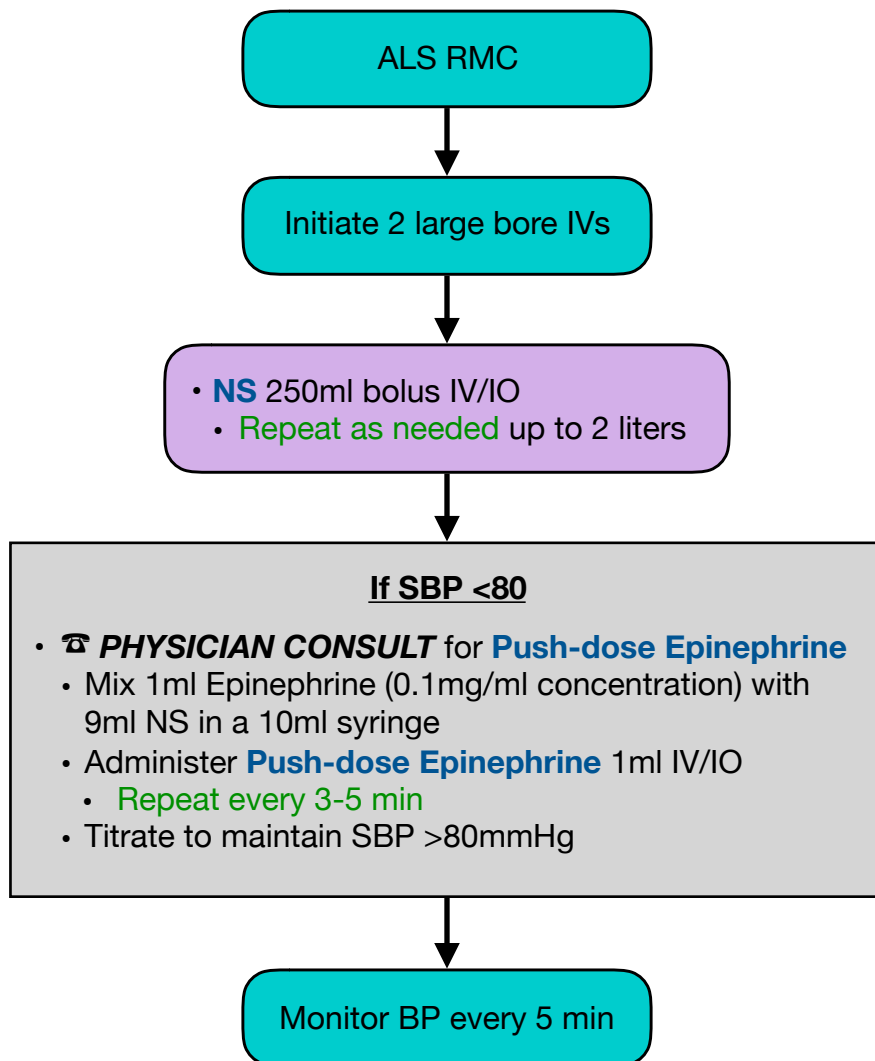
SPECIAL CONSIDERATIONS

- 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



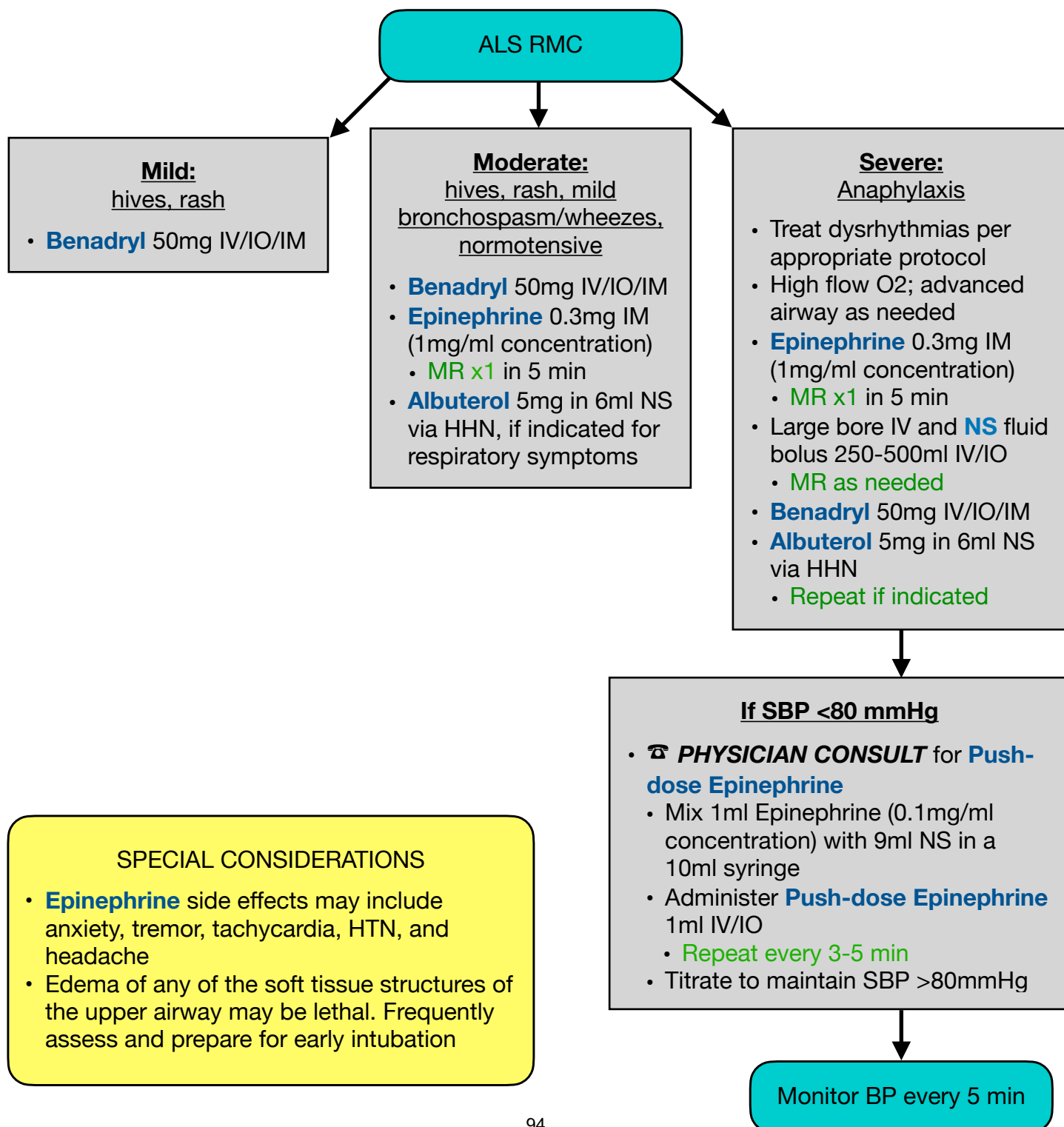
CRITICAL INFORMATION

- 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)



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.

Cyclic Antidepressants

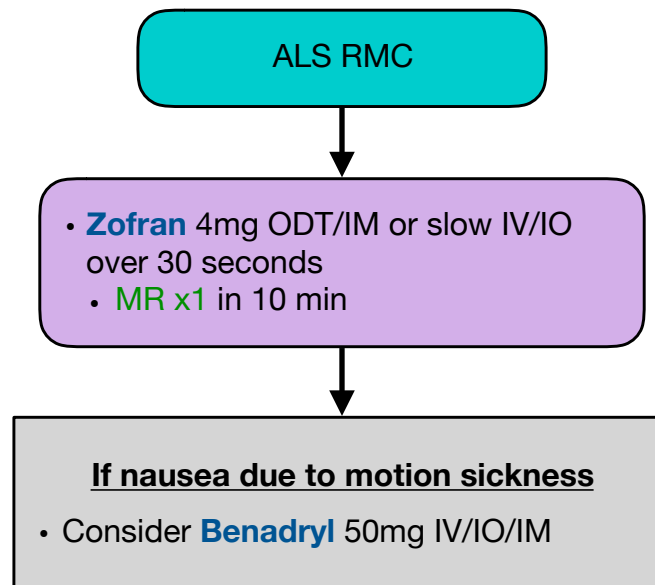
Frequently associated with respiratory depression, almost always tachycardic, widened QRS and ventricular arrhythmias generally indicate life-threatening ingestions

- In the presence of life-threatening dysrhythmias
 - Hyperventilate if assisting ventilations or intubating
- Sodium Bicarbonate** 50mEq IV/IO

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 monitoring

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

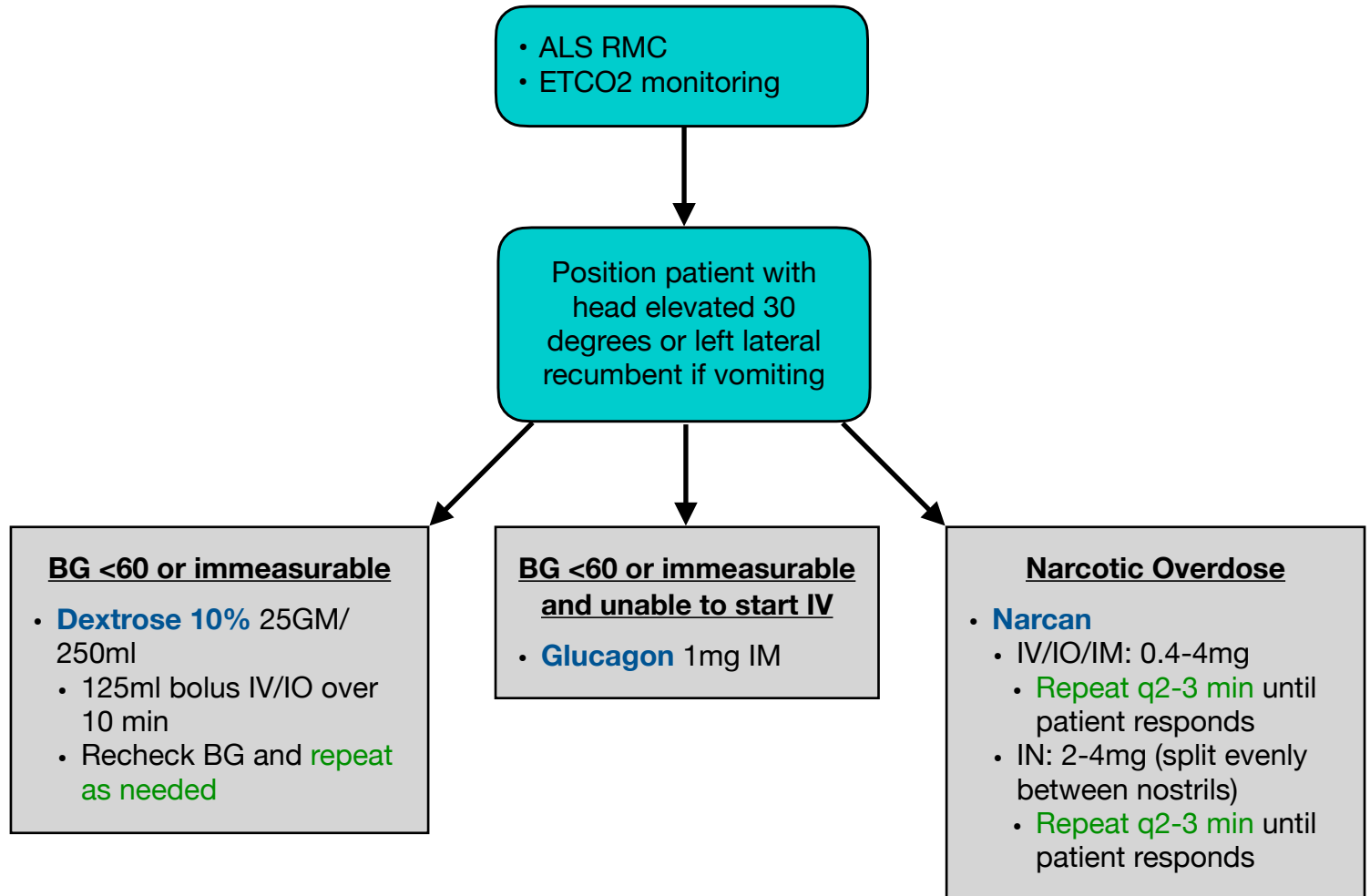
CRITICAL INFORMATION

- 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



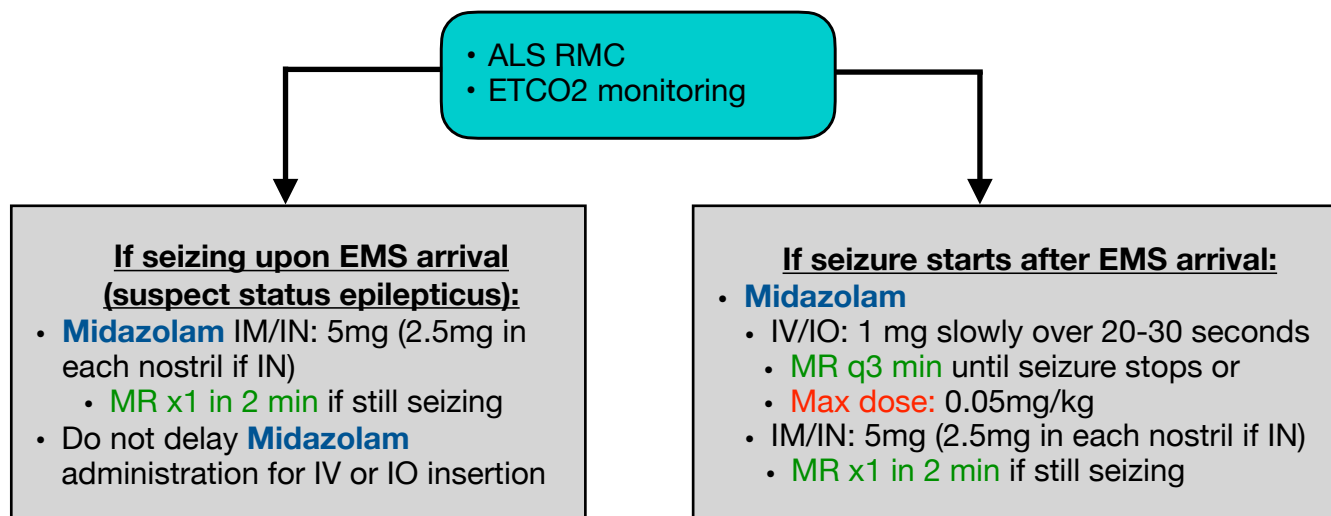
SPECIAL CONSIDERATIONS

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

SEIZURE

Indications

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



SPECIAL CONSIDERATIONS

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

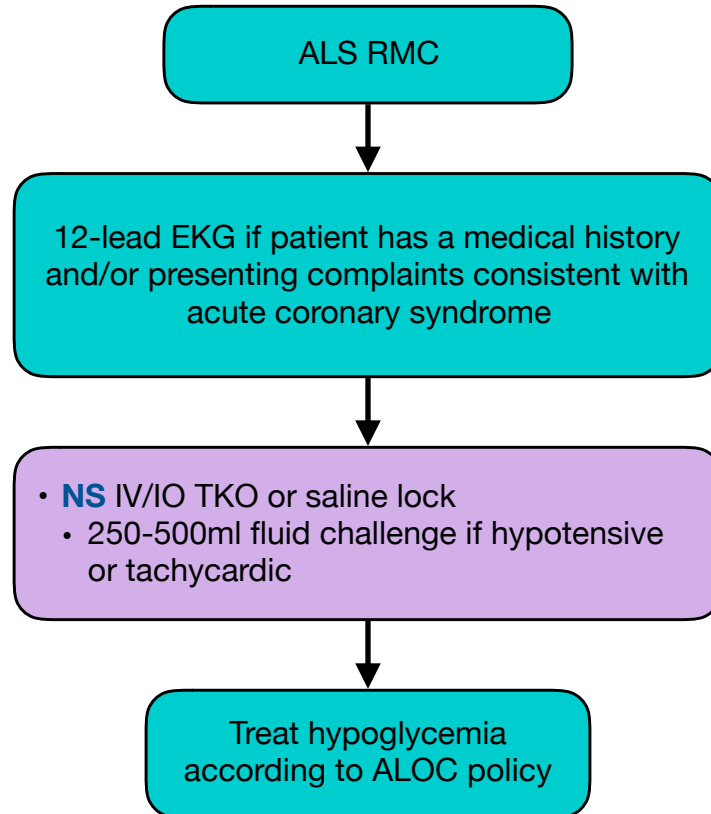
Midazolam Weight Based Chart- MAXIMUM DOSING for IV/IO only

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

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

STROKE/TIA

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

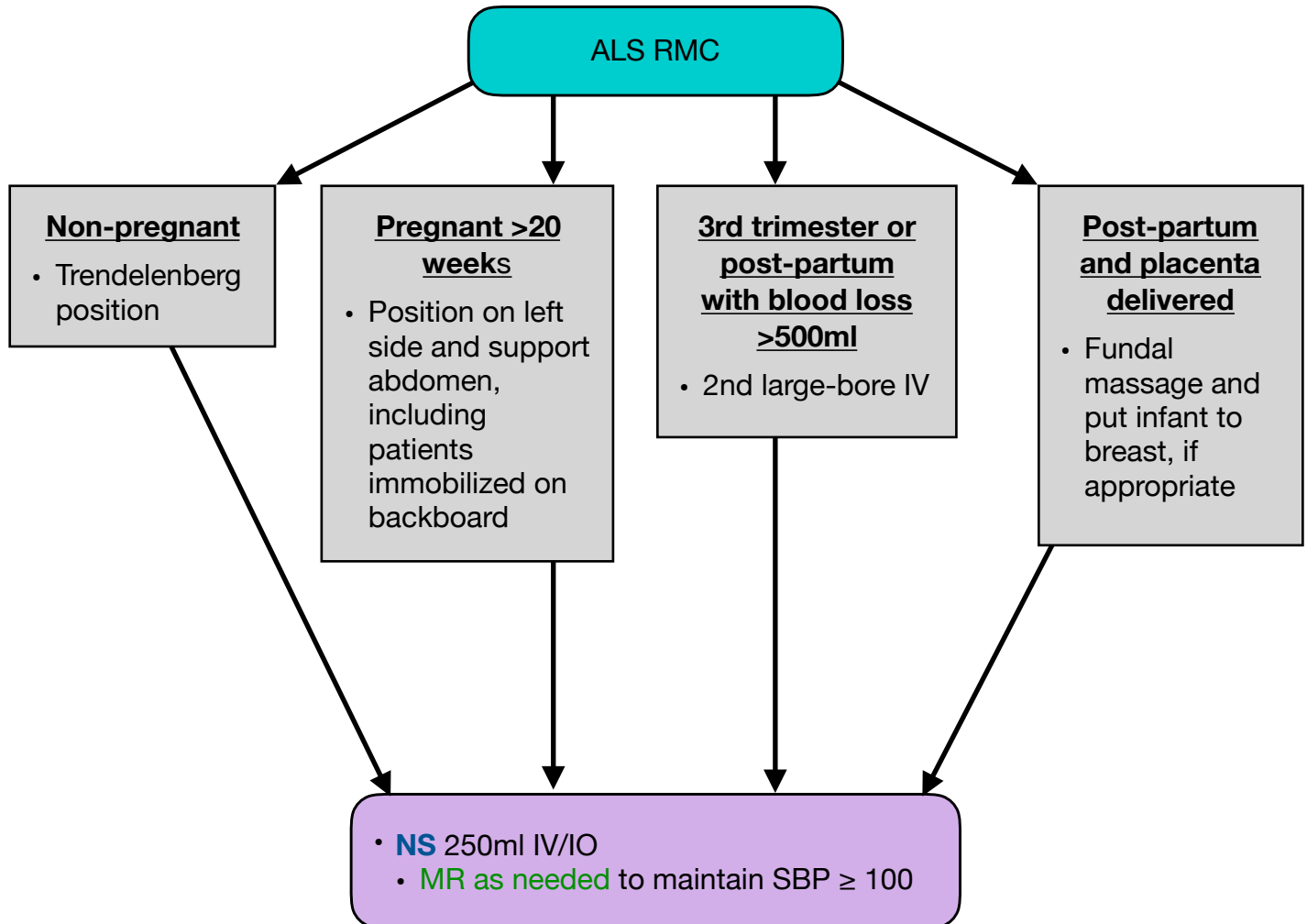
Visual Fields/Cerebellar Assessment

- 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

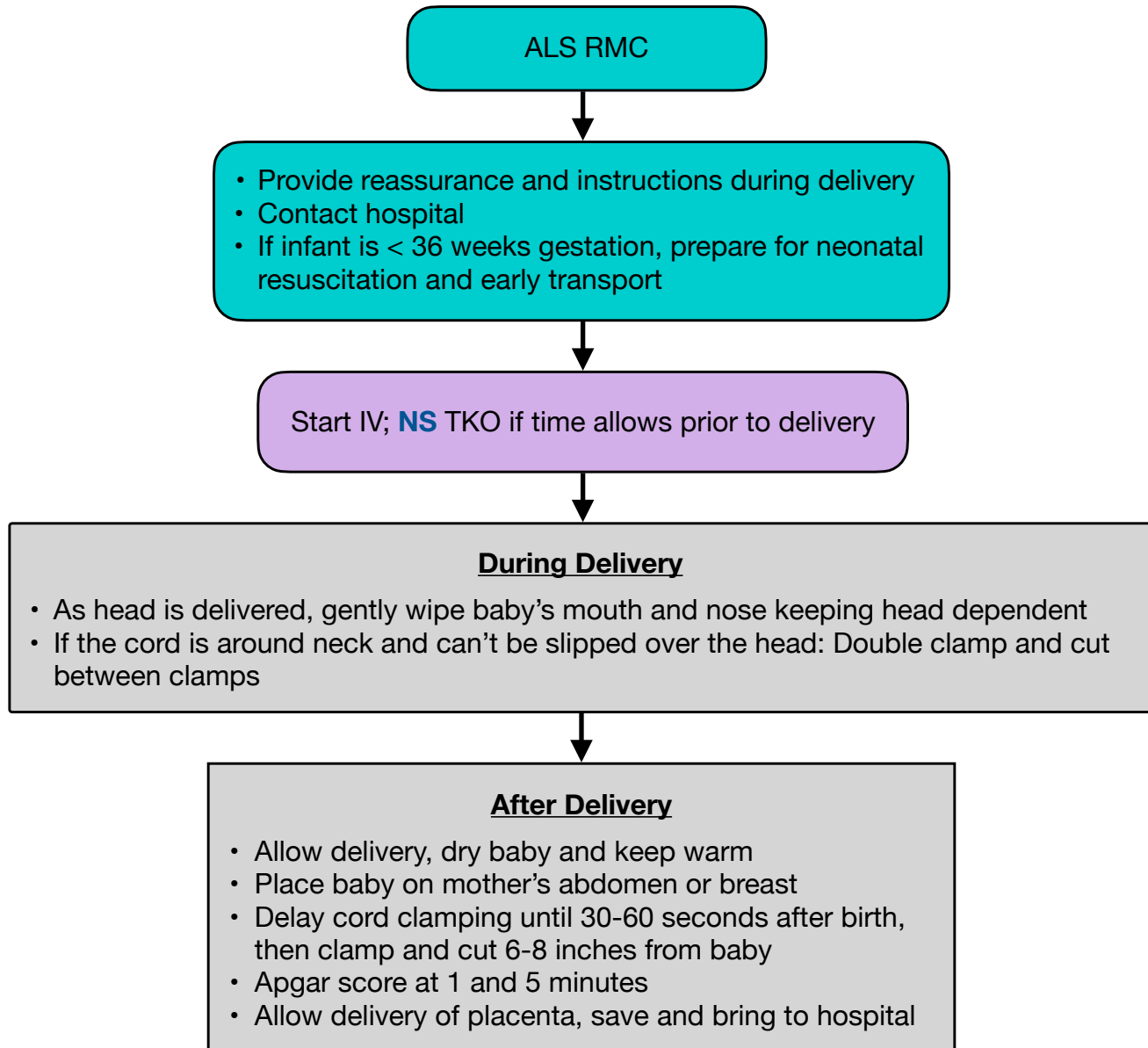
- Profuse or abnormal vaginal bleeding, any bleeding in pregnancy, including signs of shock



IMMINENT DELIVERY (NORMAL)

Indications

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

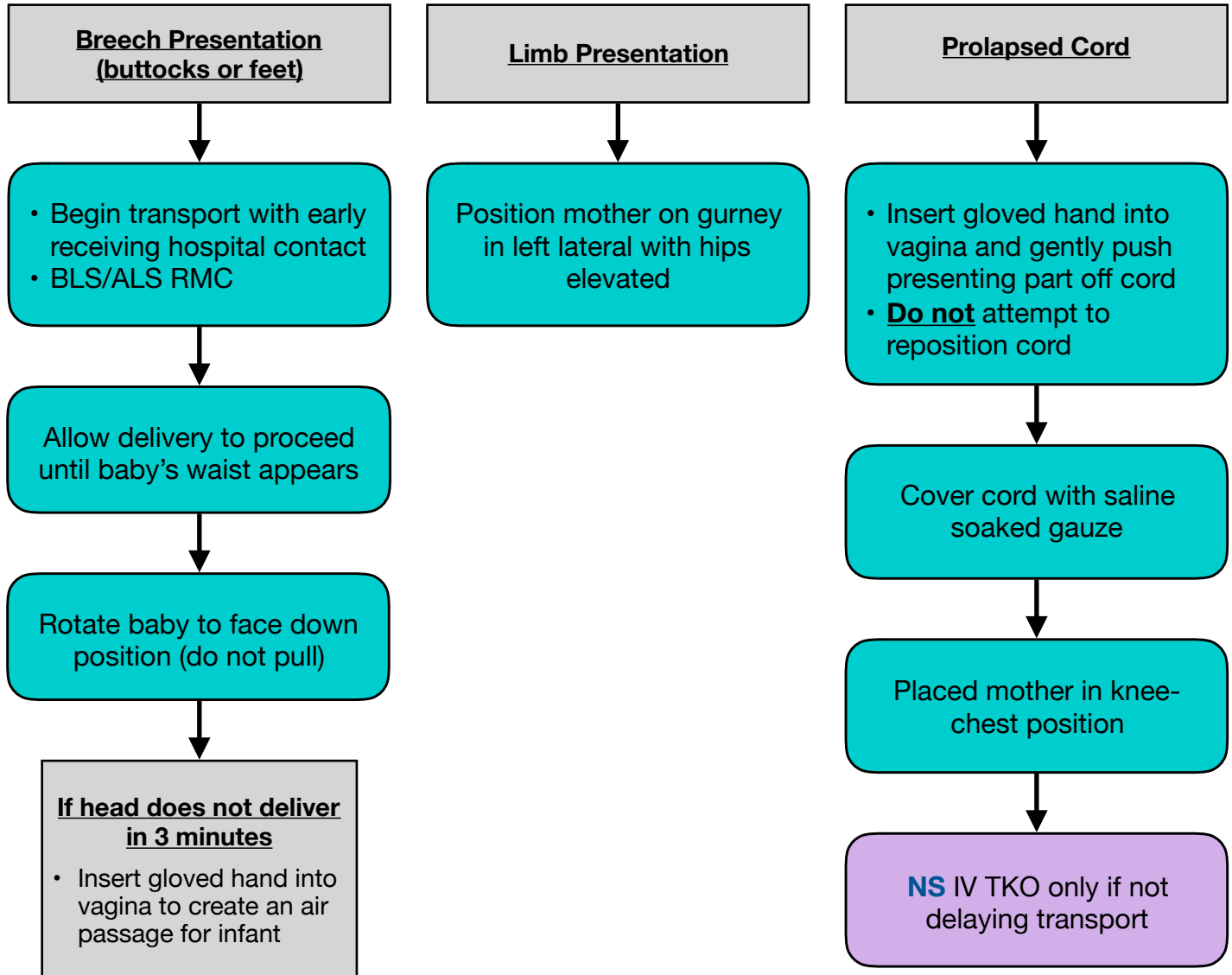


Sign	0	1	2
Heart Rate	Absent	Slow (<100)	≥100
Respirations	Absent	Slow, irregular	Good, crying
Muscle Tone	Limp	Some flexion	Active motion
Reflex Irritability	No response	Grimace	Cough, sneeze, cry
Color	Blue or pale	Pink body with blue extremities	Completely pink

IMMINENT DELIVERY (COMPLICATED)

Indications

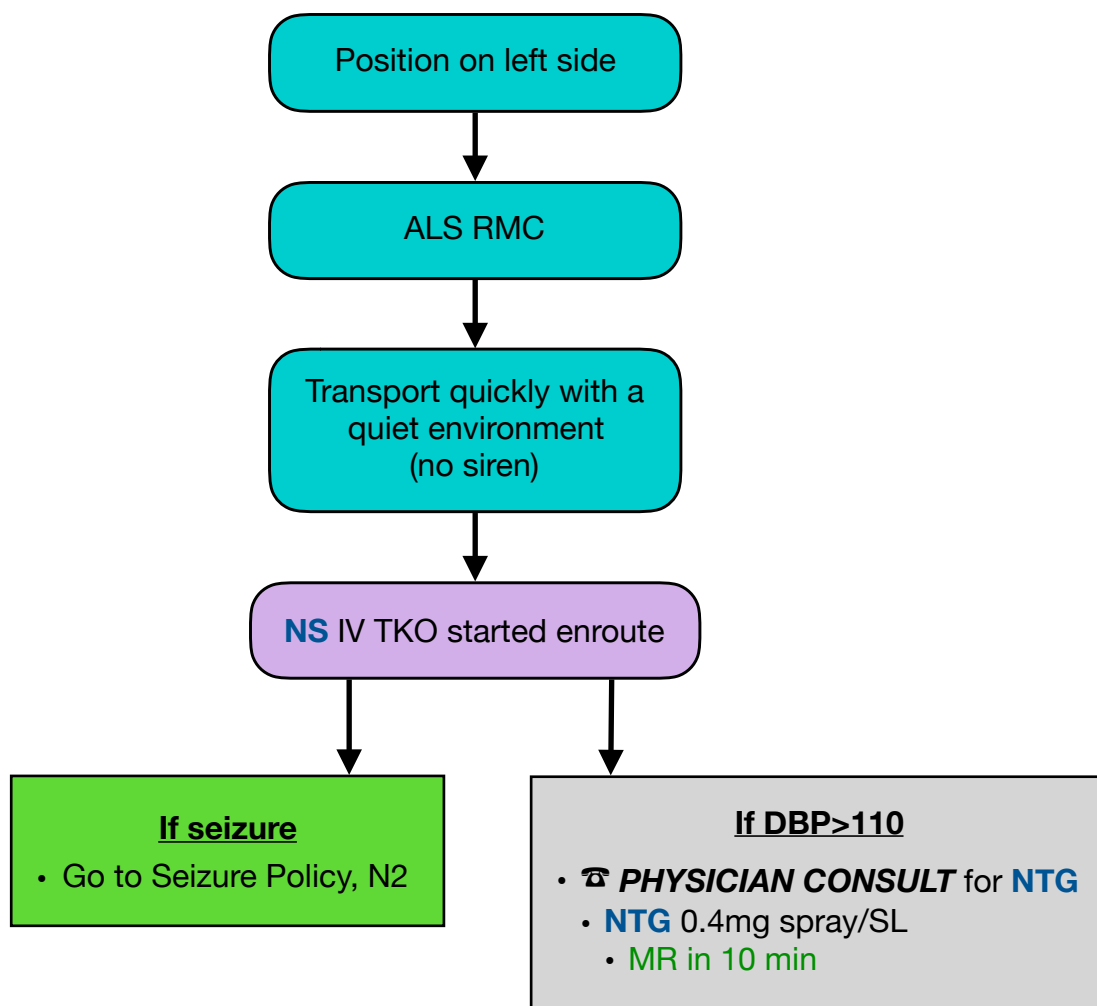
- Presentation of buttocks, extremity or umbilical cord prior to delivery of infant head
- Prolapsed cord: cord presents first and is compressed during delivery compromising infant circulation



PRE-ECLAMPISA/ ECLAMPSIA

Indications

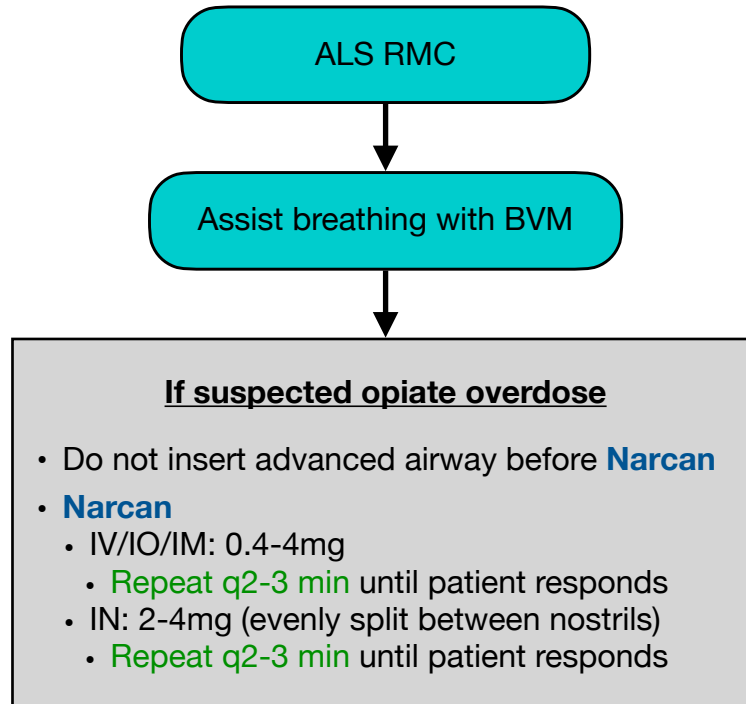
- Third trimester pregnancy with the following signs and symptoms:
 - Hypertension (SBP >160, DBP >110)
 - Mental status changes
 - Persistent headache
 - Visual disturbances
 - Peripheral edema (pre-eclampsia)
 - Seizures and/or coma (eclampsia)



RESPIRATORY ARREST

Indications

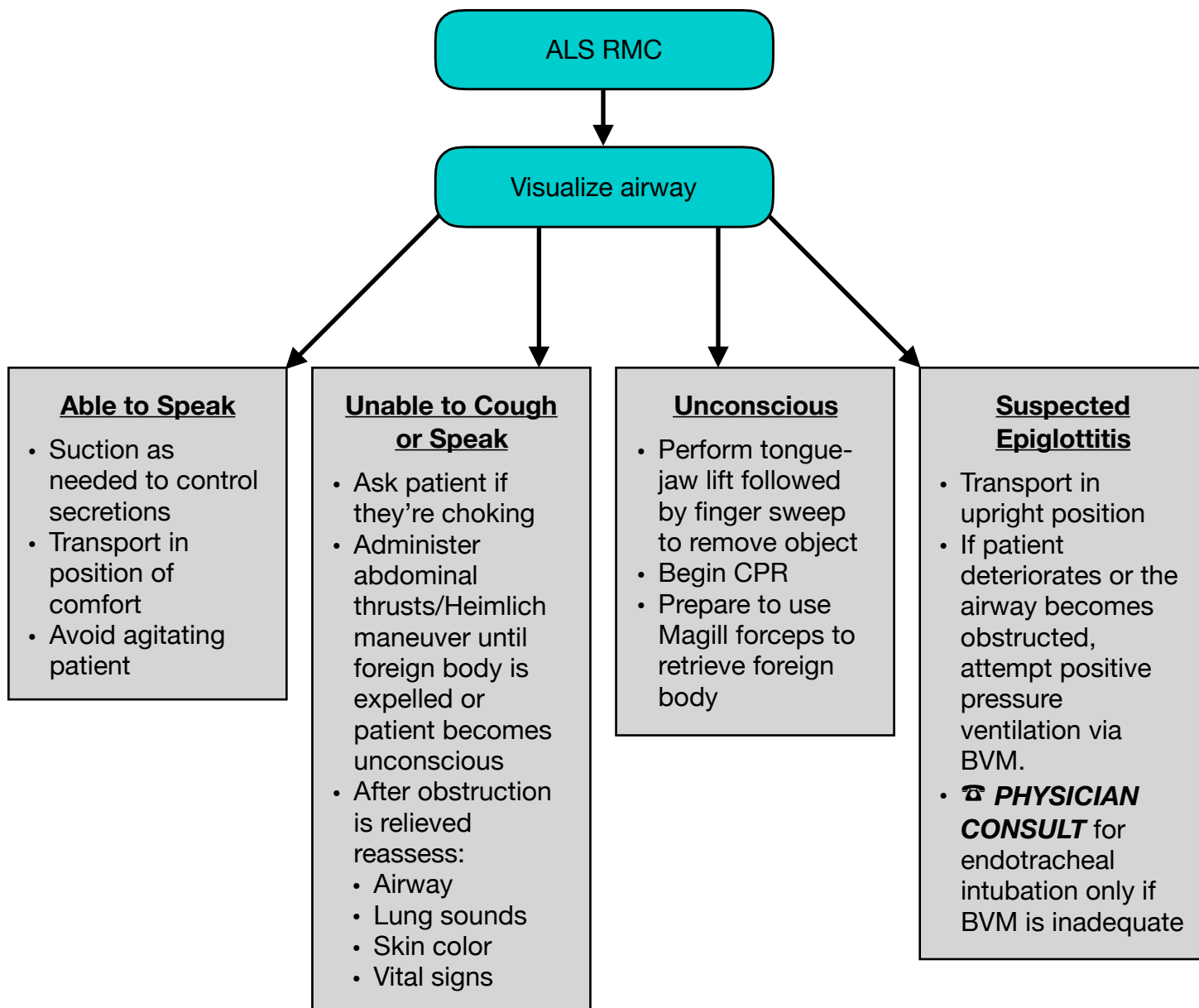
- Absence of spontaneous ventilations; pulse present



AIRWAY OBSTRUCTION

Indications

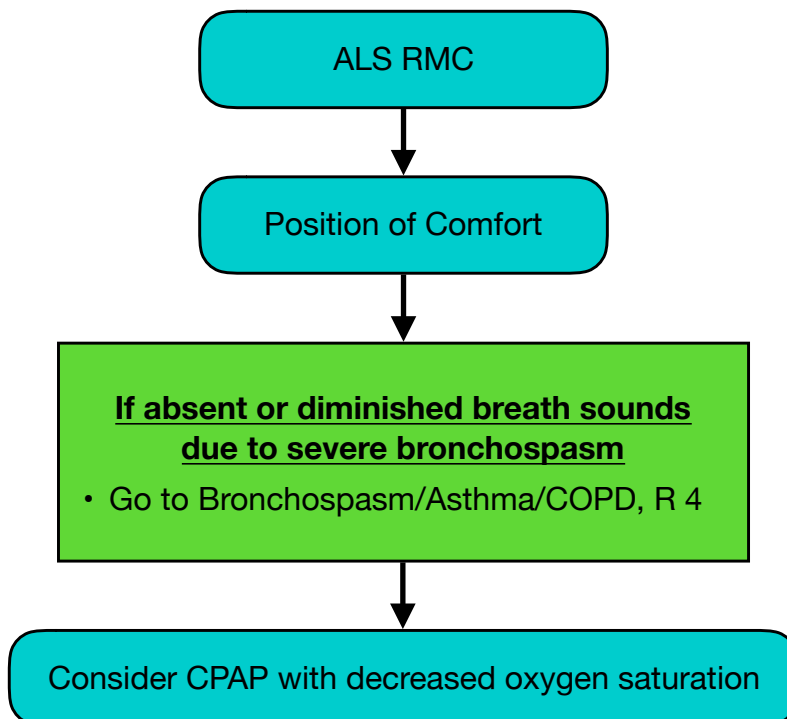
- Presence of upper respiratory infection, sore throat, fever, stridor, or drooling
- Mechanical upper airway obstruction with history of food aspiration (especially if elderly)



ACUTE RESPIRATORY DISTRESS

Indications

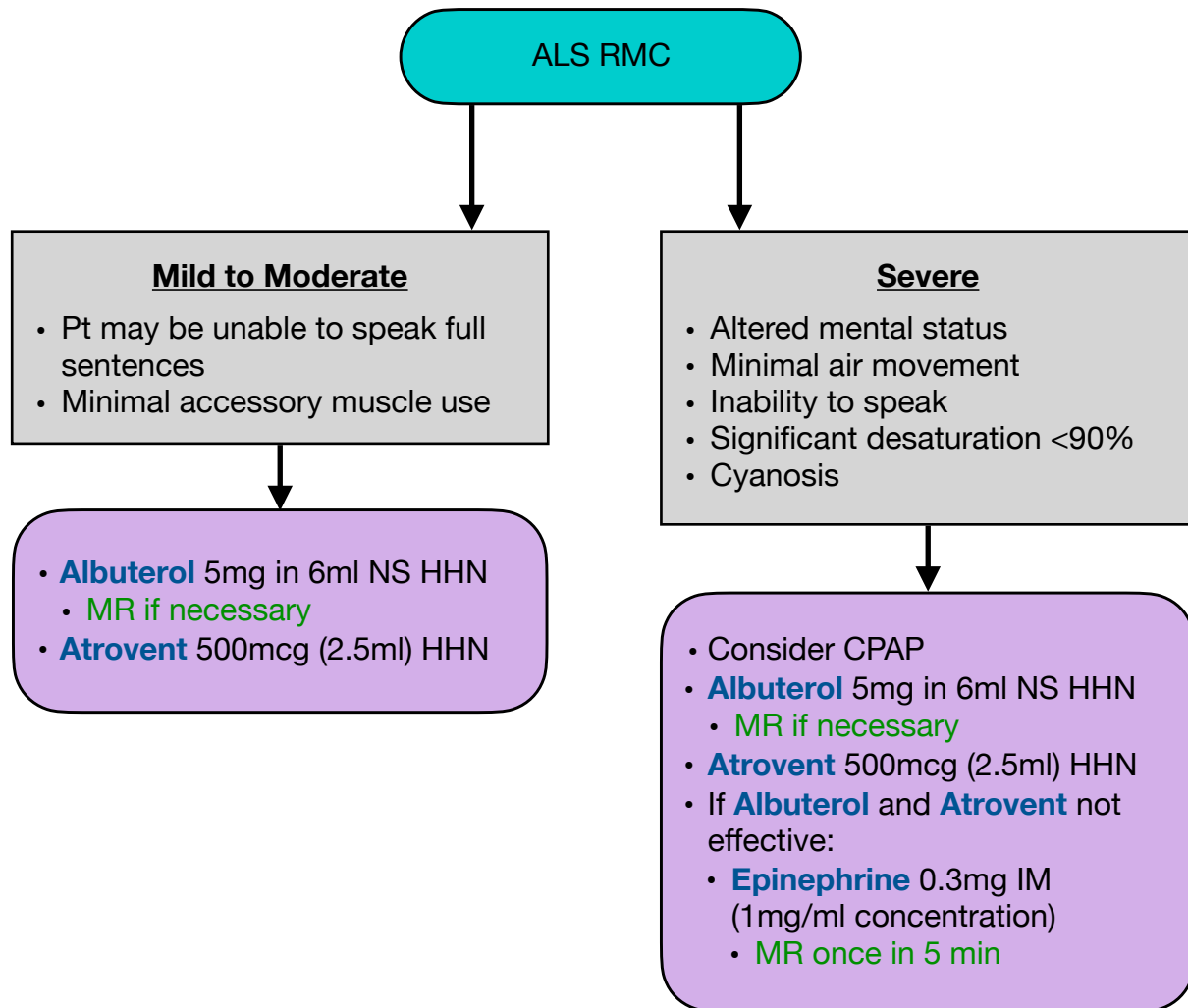
- Increased respiratory rate or sensation of difficulty breathing that is not clearly due to the clinical entities specified in other guidelines. Symptoms may be due to pneumonia, inhalation of toxic substances, pulmonary embolus



BRONCHOSPASM/ASTHMA/COPD

Indications

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



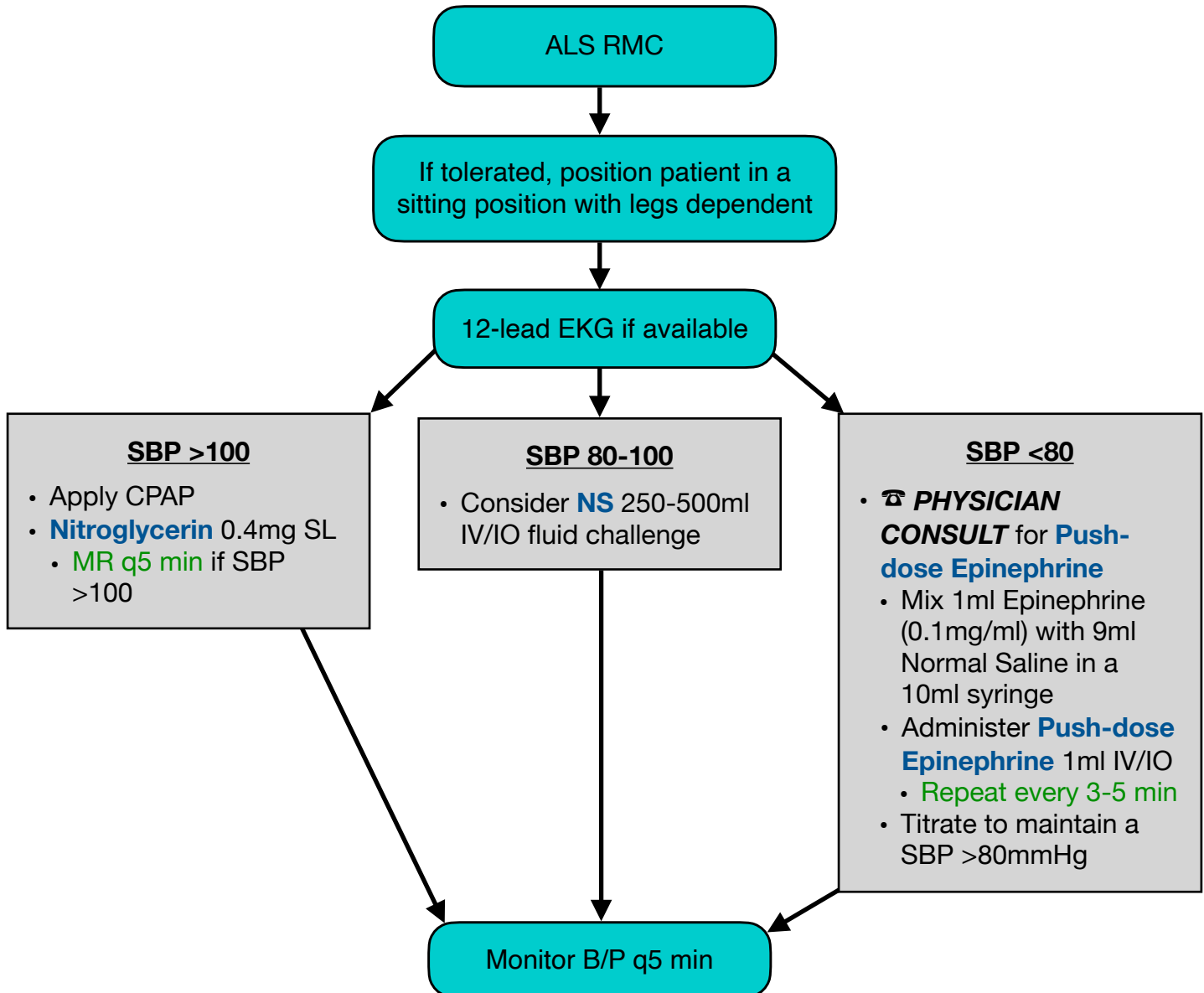
SPECIAL CONSIDERATIONS

- Do not repeat **Albuterol/Atrovent** if significant tachycardia or chest pain
- **Epinephrine** side effects may include anxiety, tremor, tachycardia, HTN and headache
- 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



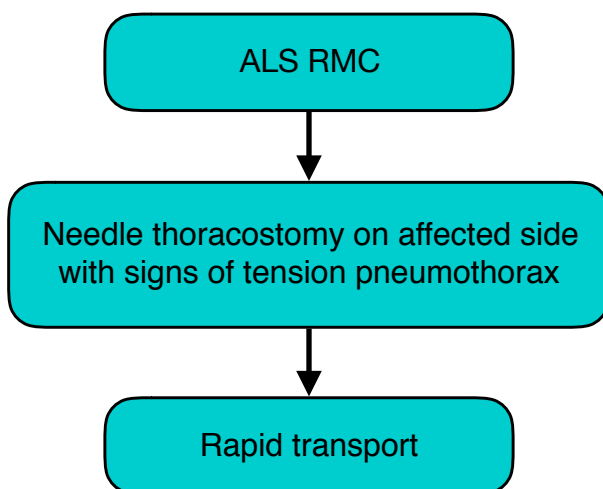
SPECIAL CONSIDERATION

- Do not give **Nitroglycerin** 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



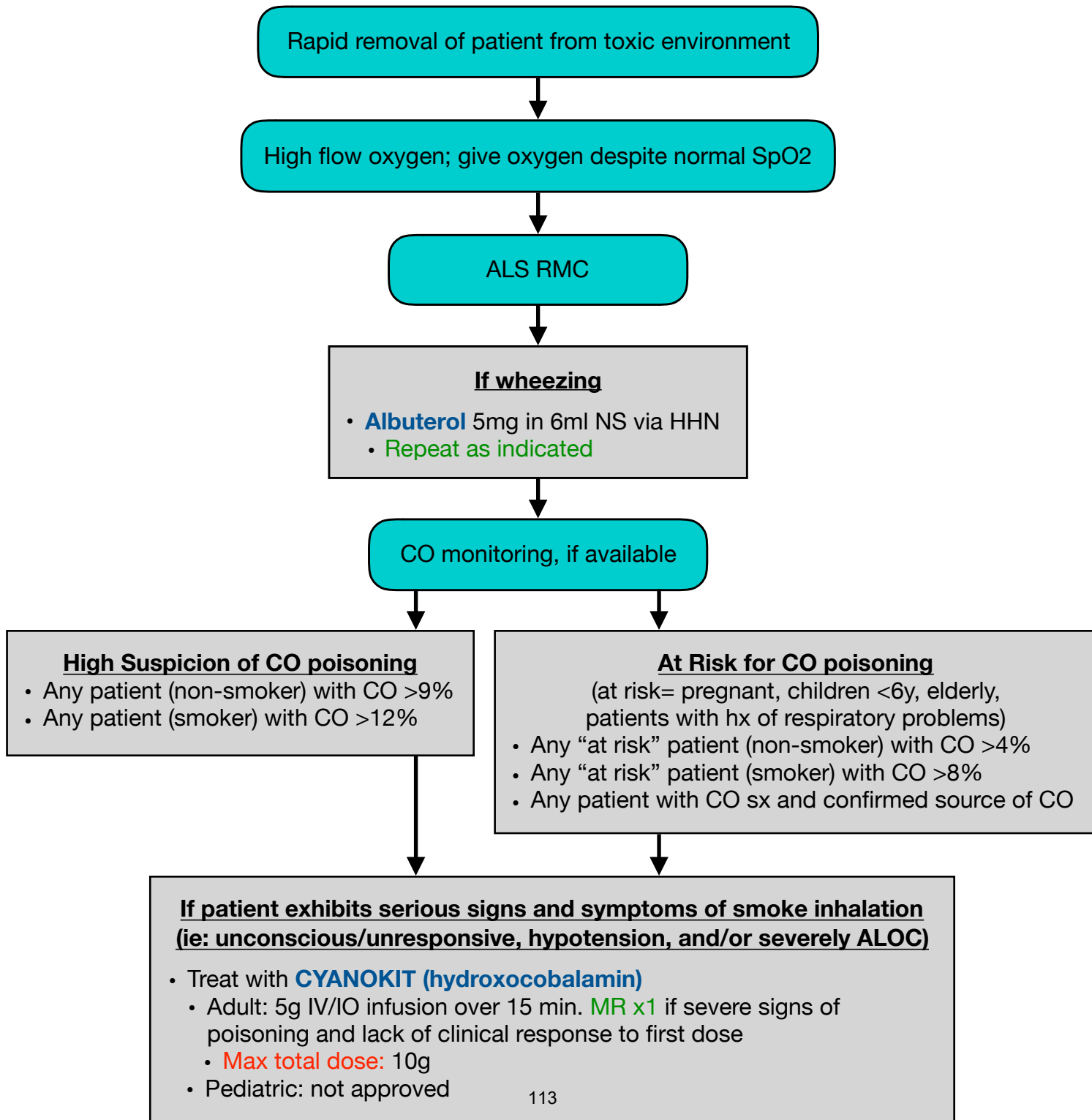
SPECIAL CONSIDERATION

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

TOXIC INHALATION

Indications

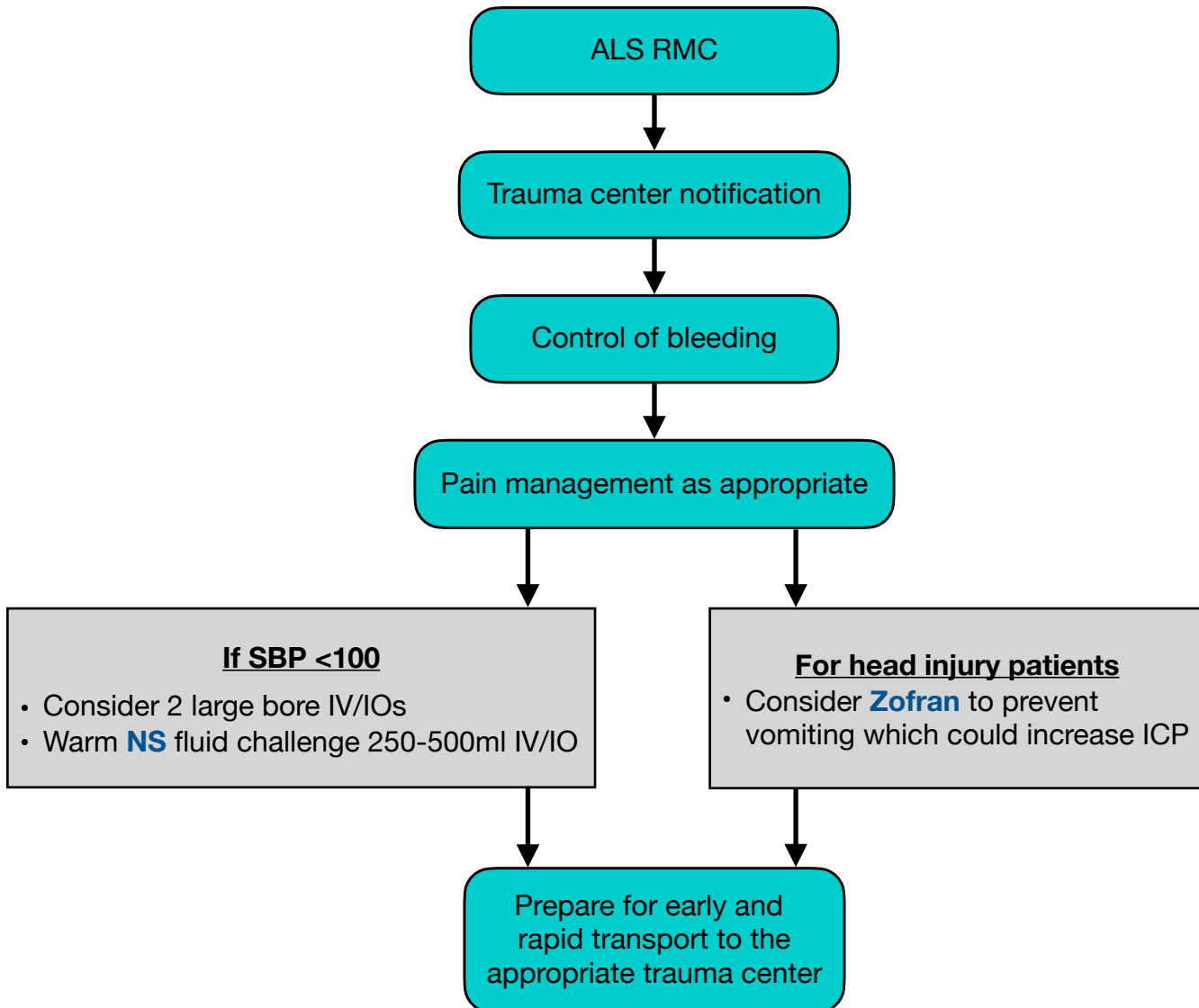
- Respiratory distress caused by inhalation of toxic gases
- Symptoms may include headache, malaise, dizziness, nausea/vomiting, seizures, hypotension, coma; may be associated with cherry-red color of mucous membranes (late sign)
- Consider carbon monoxide (CO) poisoning or cyanide poisoning with any 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 (GPC 9) and/or Sexual Assault/Human Trafficking (GPC 10) 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)

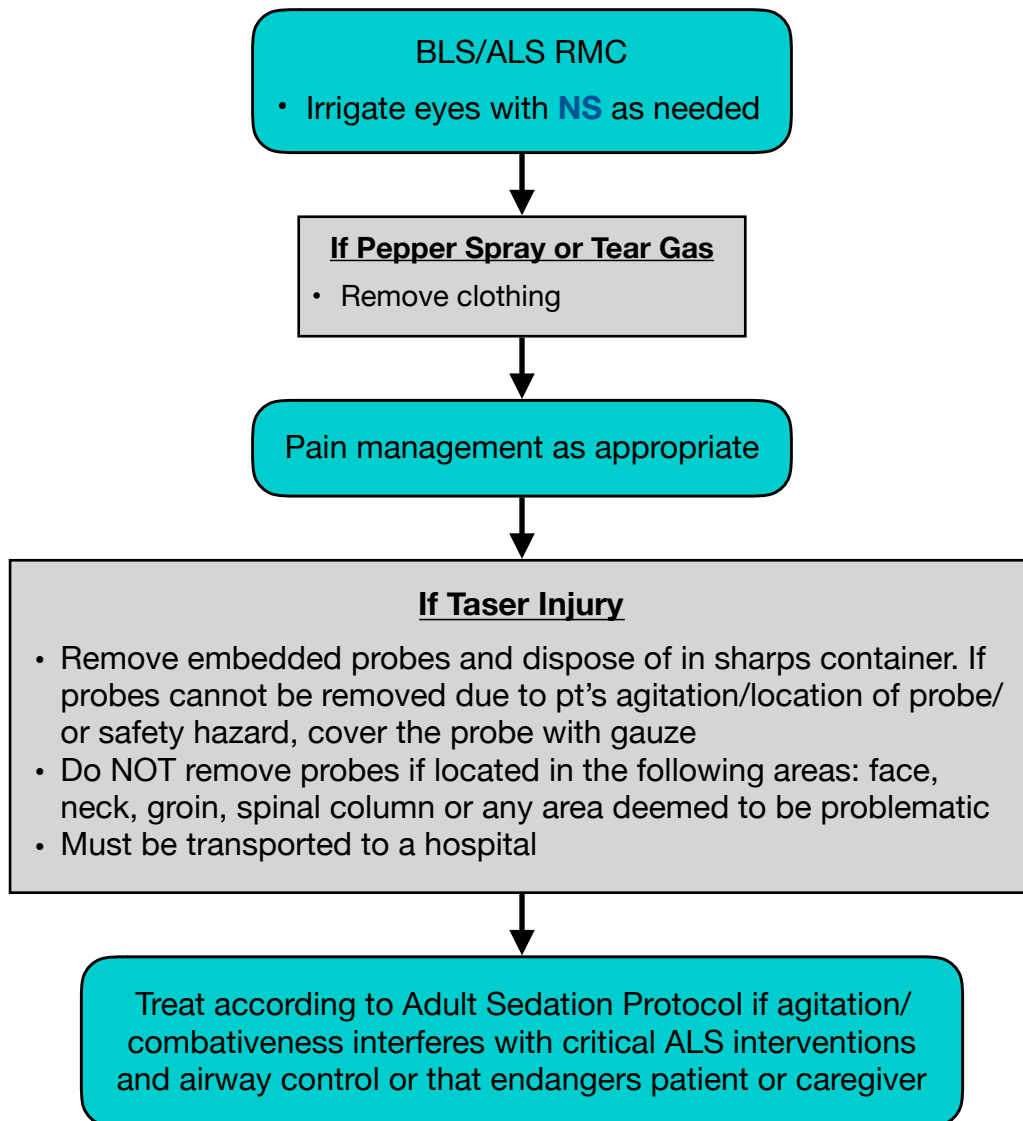
SPECIAL CONSIDERATION

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

MANAGEMENT OF LESS-THAN-LETHAL INTERVENTIONS

Indications

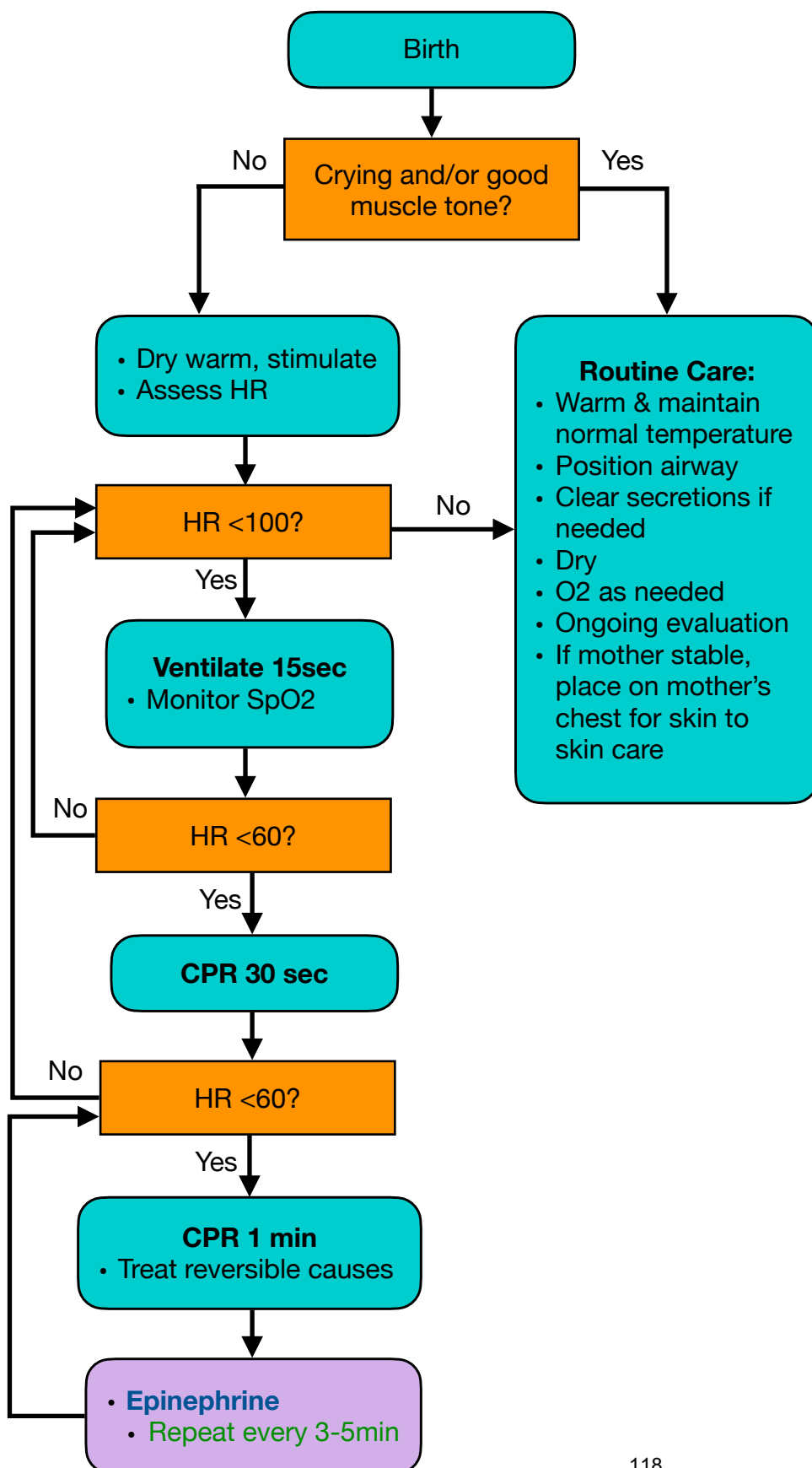
- Injuries incurred from police interventions such as taser, bean bags, or chemical agents



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

NEWBORN RESUSCITATION



CRITICAL INFORMATION

- Measure with color-coded resuscitation tape
- Compress at rate of 90bpm. Use metronome or similar device
- 3:1 compression/ventilation ratio with 2 person CPR
- Place pulse ox on right arm (due to ductus arteriosus)
- 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 with room air 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

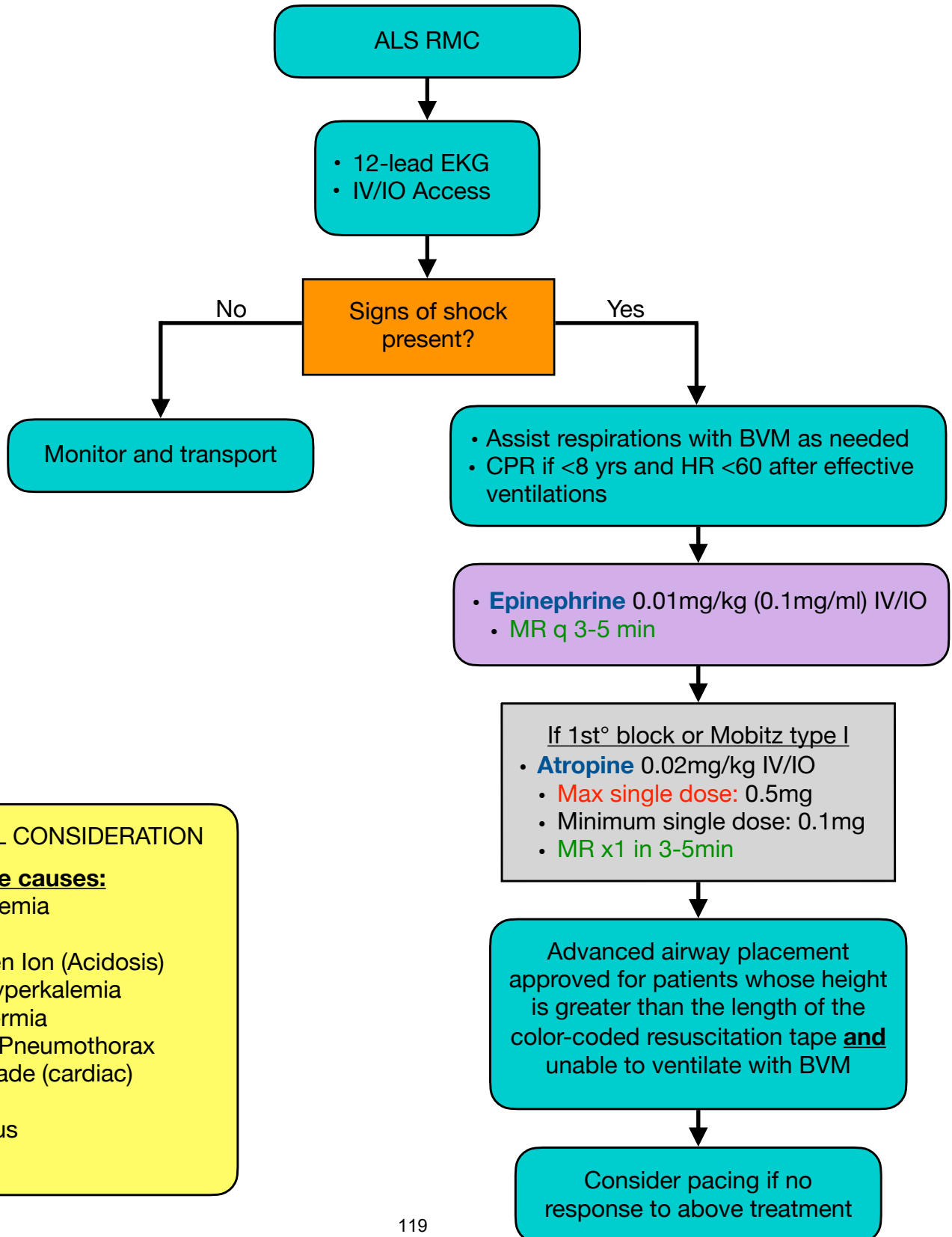
SpO2 Normal Values After Birth (in Min)

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



SPECIAL CONSIDERATION

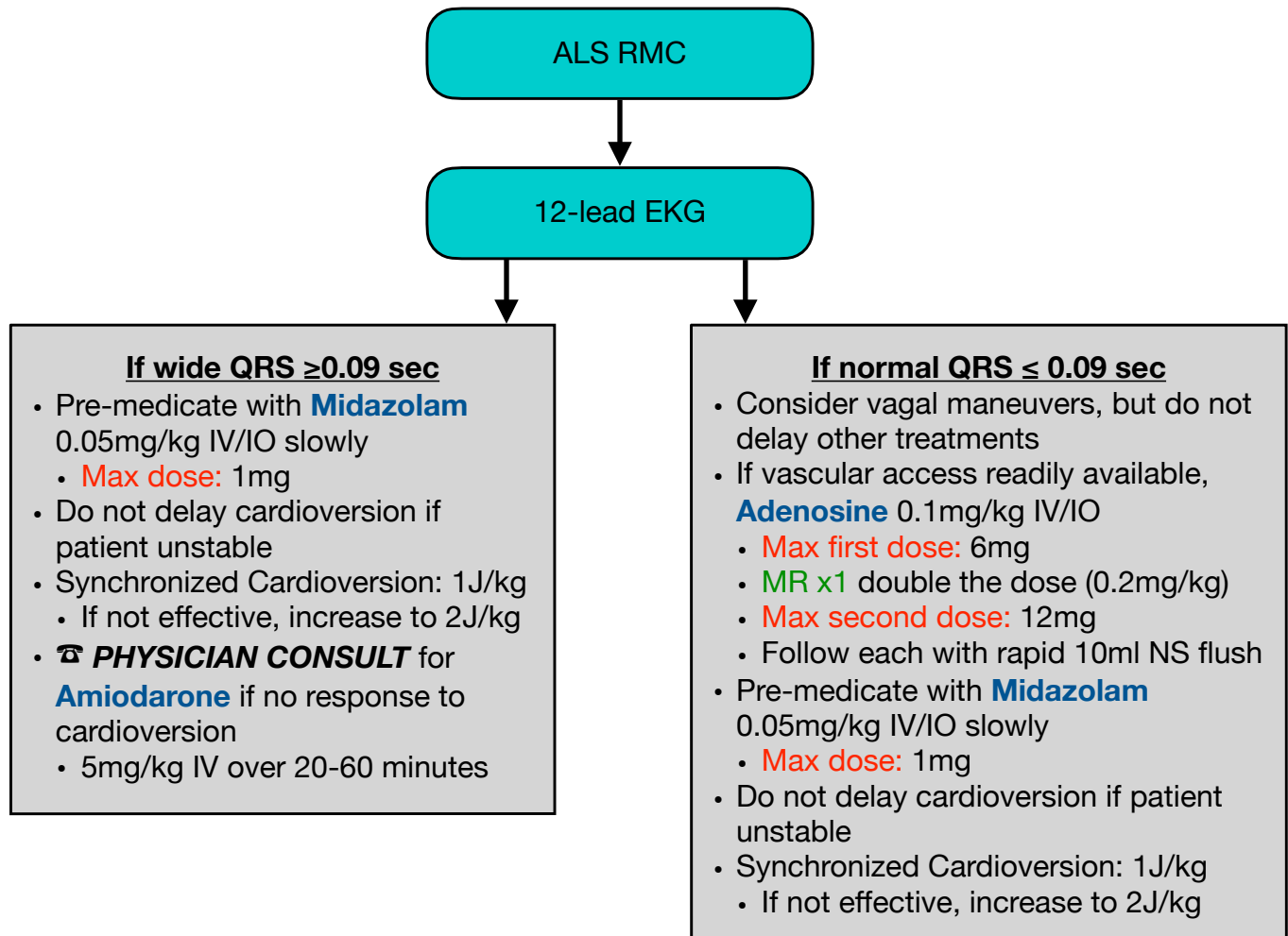
Reversible causes:

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

PEDIATRIC TACHYCARDIA

Indications

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



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

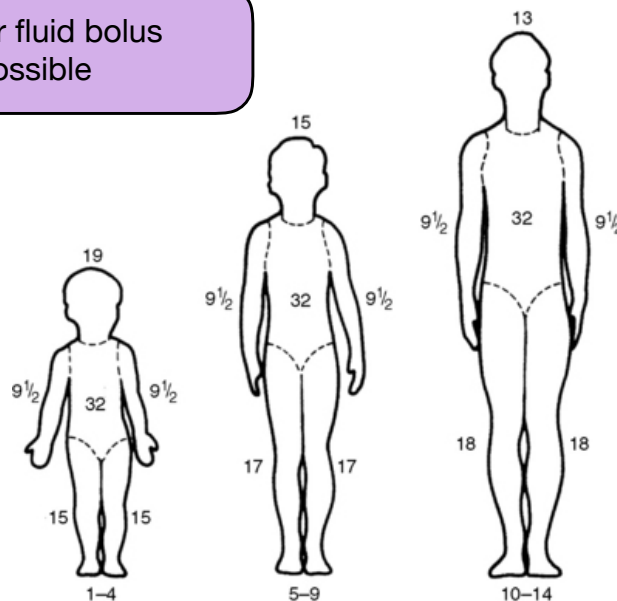
If wheezing

- 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

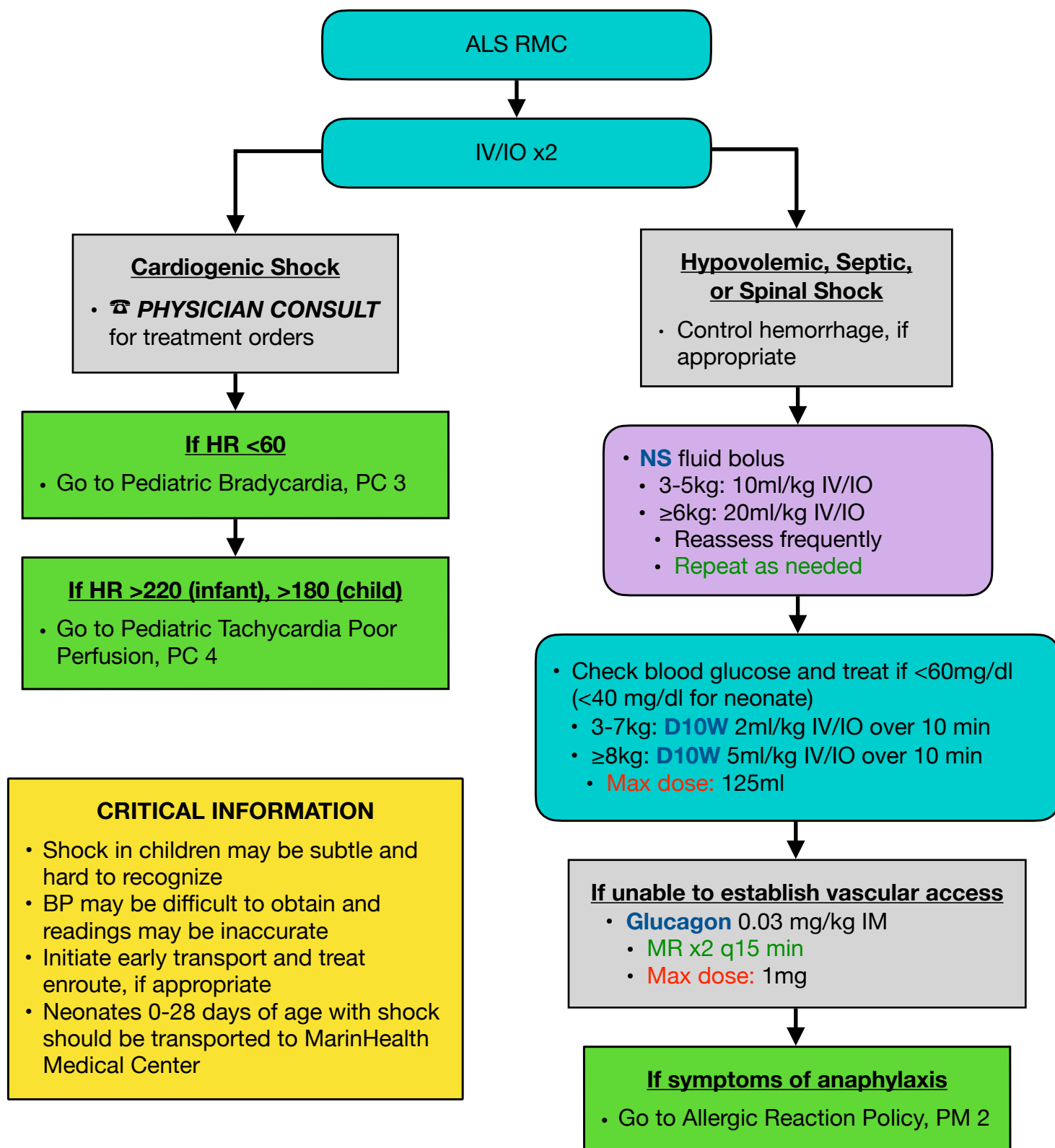
- Perform frequent airway assessments and consider early intubation for inhalation injury (ie: facial or chest burns, singed nares, soot/blisters in oropharynx)
- Burns with trauma mechanism need to be transported per the Marin County Trauma Triage Tool



PEDIATRIC SHOCK

Indications

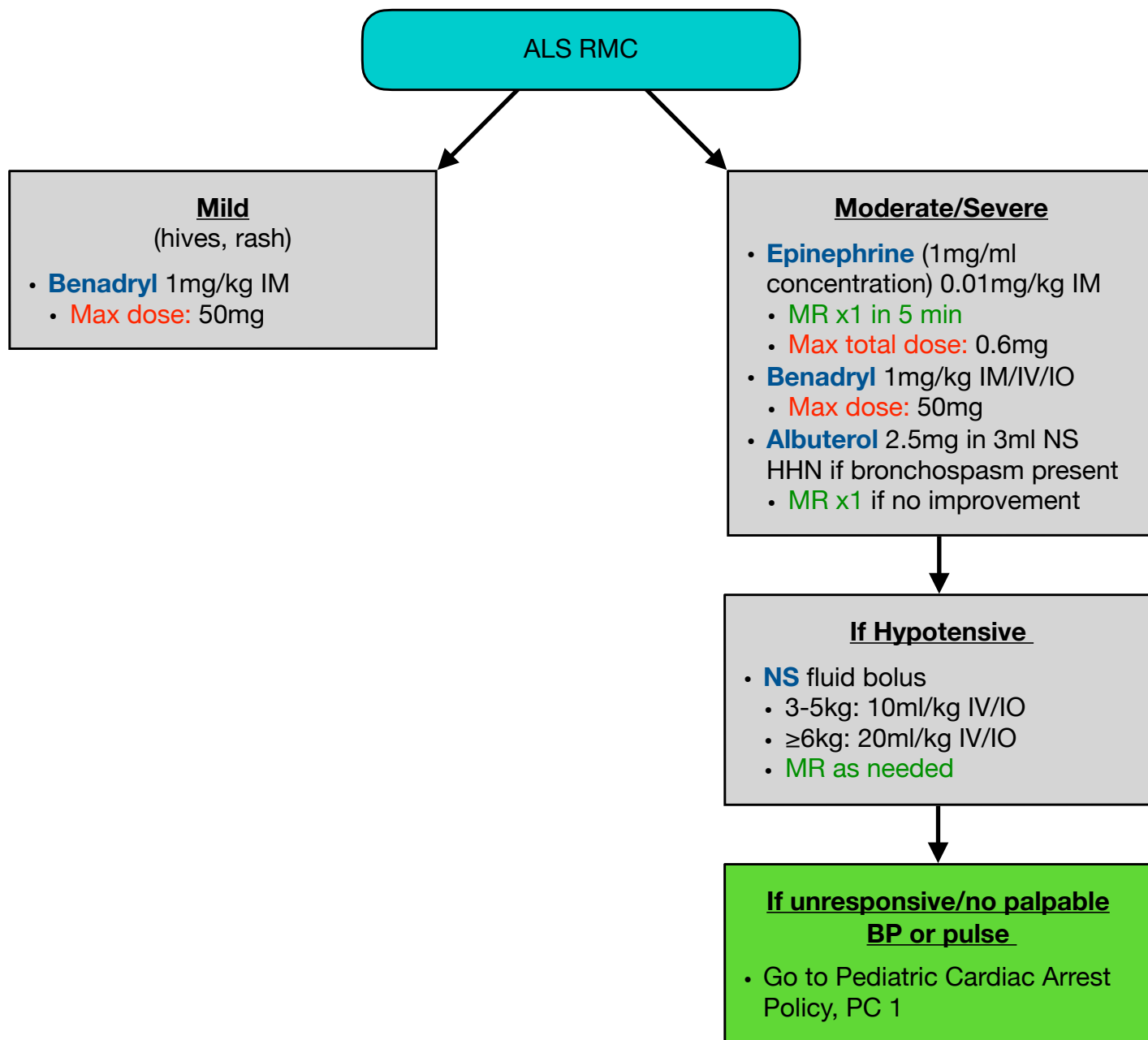
- Inadequate organ and tissue perfusion to meet metabolic demands as seen in the following signs and symptoms: pale, cool, clammy and/or mottled skin, ALOC, SBP <70mmHg



PEDIATRIC ALLERGIC REACTION

Indications

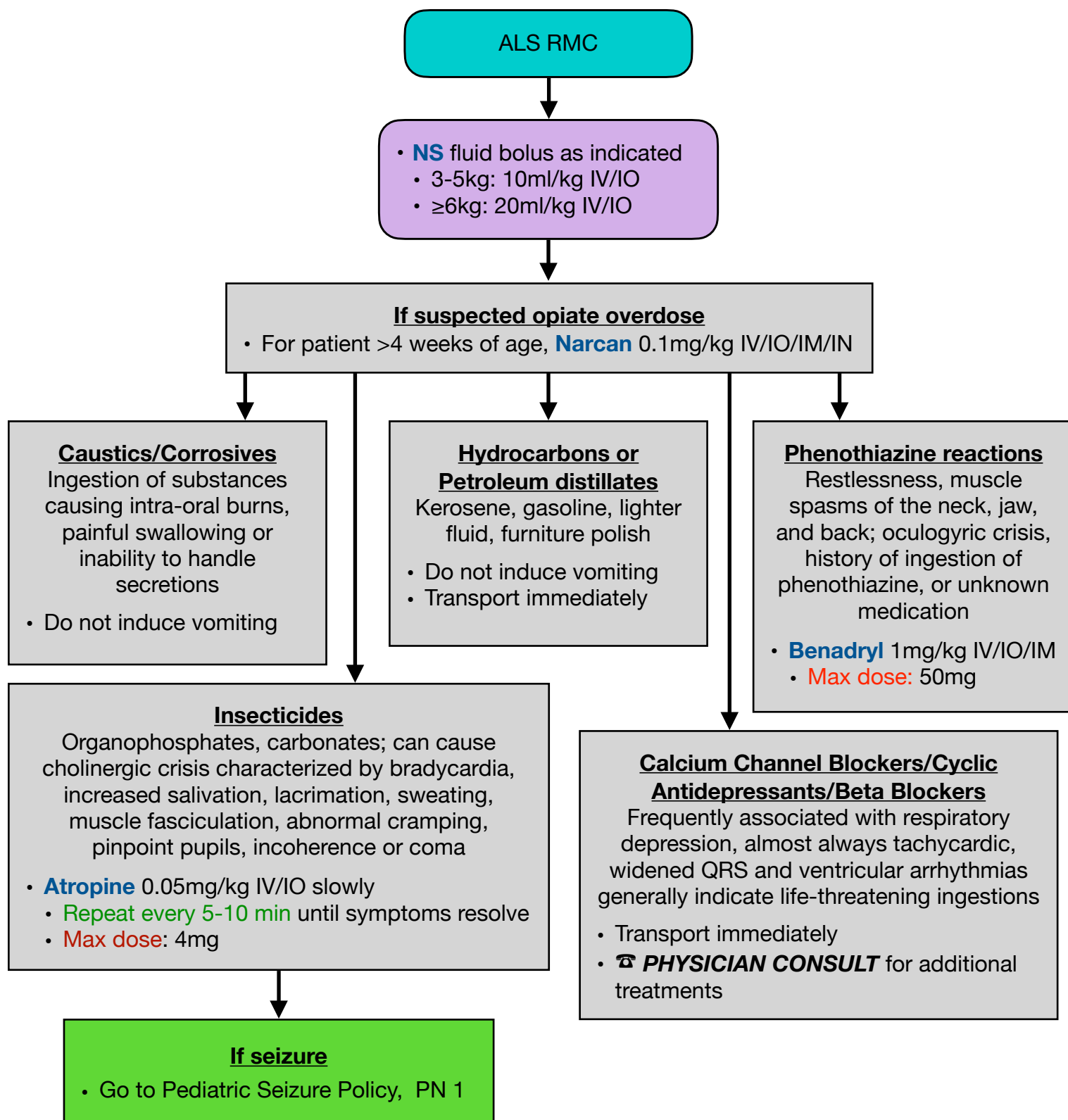
- Exposure to allergens causing airway, breathing and/or circulatory impairment



PEDIATRIC TOXIC EXPOSURE

Indications

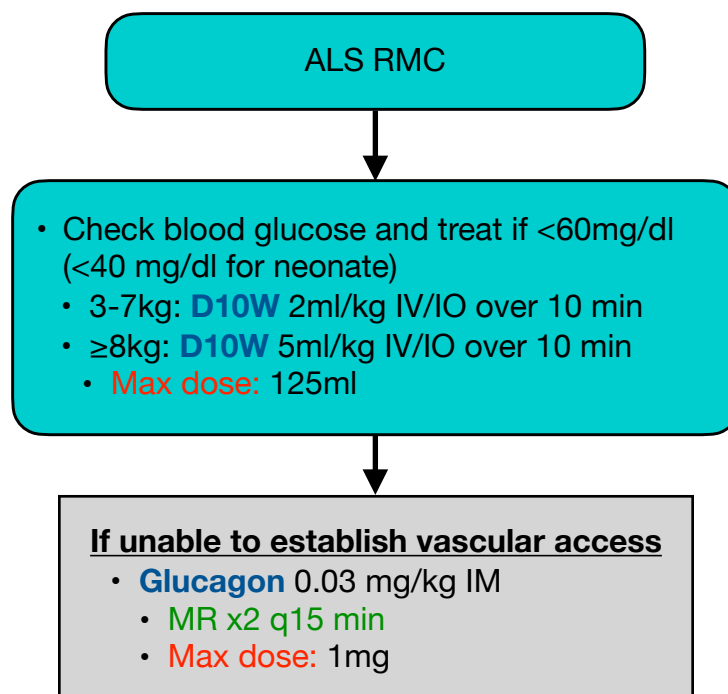
- Probable ingestion and/or exposure to one or more toxic substances, including alcohol and medications



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



☎ PHYSICIAN CONSULT

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

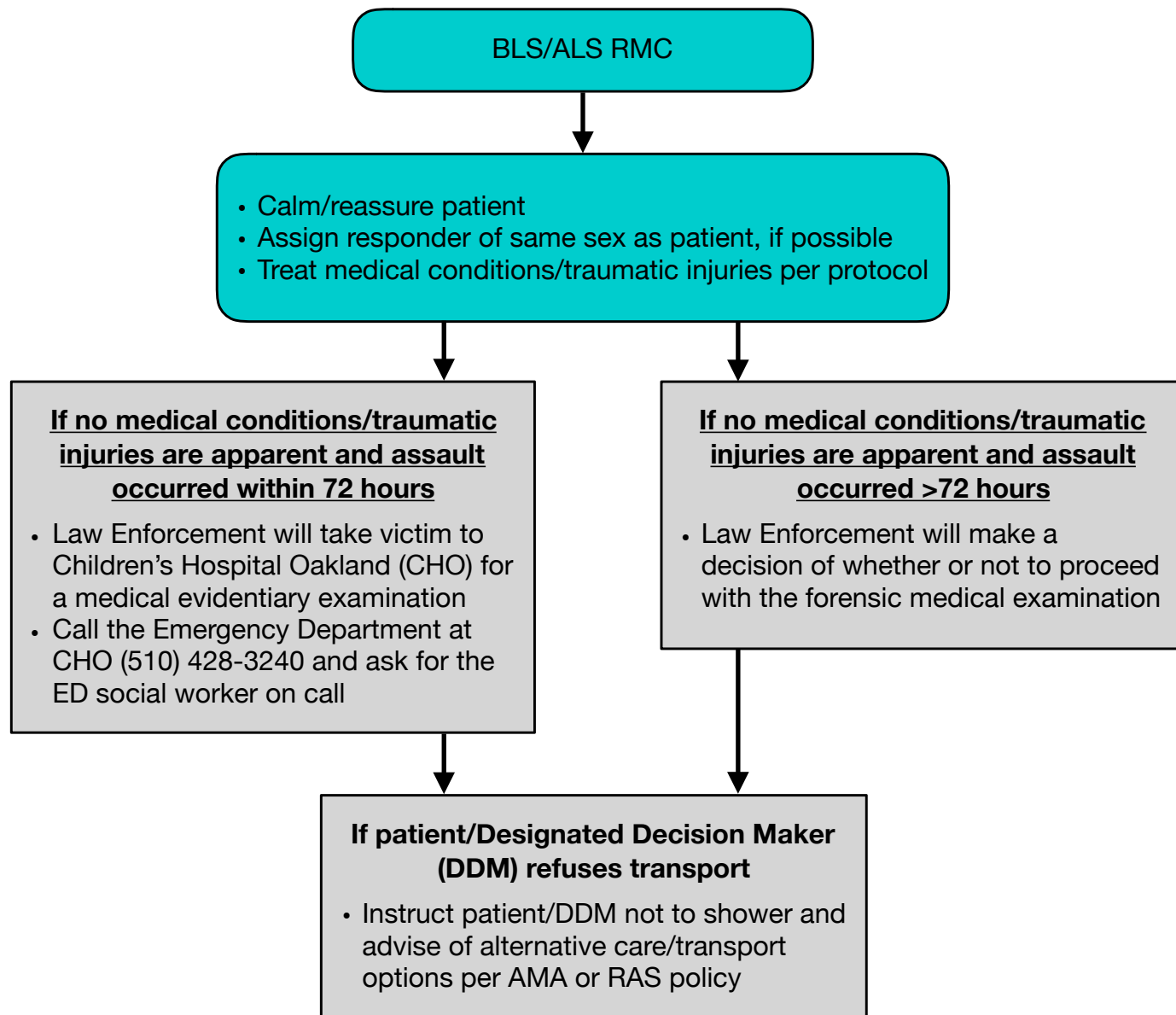
SPECIAL CONSIDERATIONS

- 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



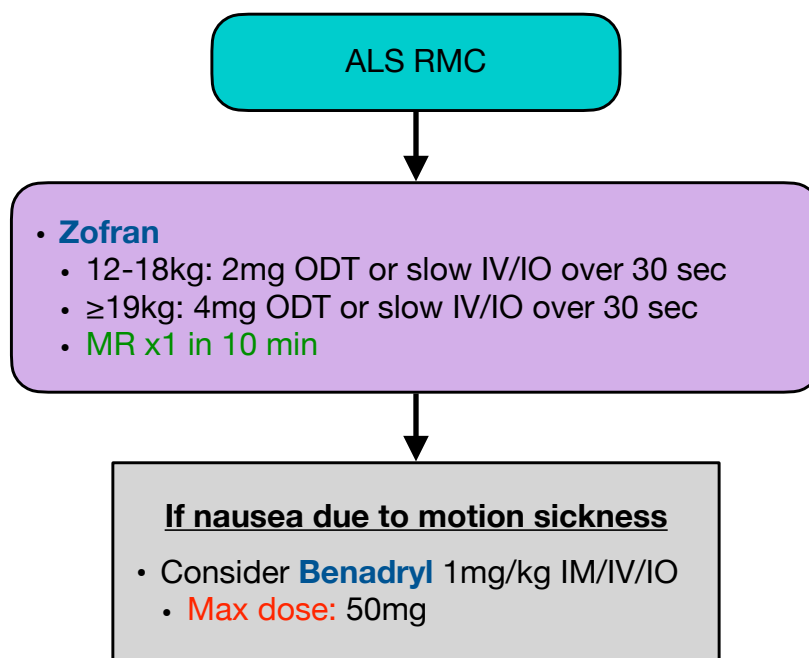
CRITICAL INFORMATION

- 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 NAUSEA/VOMITING

Indications

- Severe nausea
- Intractable vomiting
- Patients $\geq 12\text{kg}$
- Motion sickness



CRITICAL INFORMATION

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

PEDIATRIC SEIZURE

Indications

- Recurring or continuous generalized seizures with ALOC

If actively seizing upon arrival

- **Midazolam** 0.2mg/kg IM/IN

- ALS RMC
- ETCO2 monitoring

IV/IO access for prolonged seizures

- Check blood glucose and treat if <60mg/dl (<40 mg/dl for neonate)
- 3-7kg: **D10W** 2ml/kg IV/IO over 10 min
- ≥8kg: **D10W** 5ml/kg IV/IO over 10 min
- **Max dose:** 125ml

If unable to establish vascular access

- **Glucagon** 0.03mg/kg IM
- **MR x2 q15 min**
- **Max dose:** 1mg

- **Midazolam**
 - IV/IO: 0.05mg/kg slowly over 20-30 seconds
 - **Max per dose:** 1mg
 - **MR x2 q15 min**
 - **Total max dose:** 5mg
 - IM: 0.2mg/kg
 - **MR x1 in 10 min** if still seizing
 - IN: 0.2mg/kg
 - Split dose equally per nostril
 - **Max dose:** 5mg

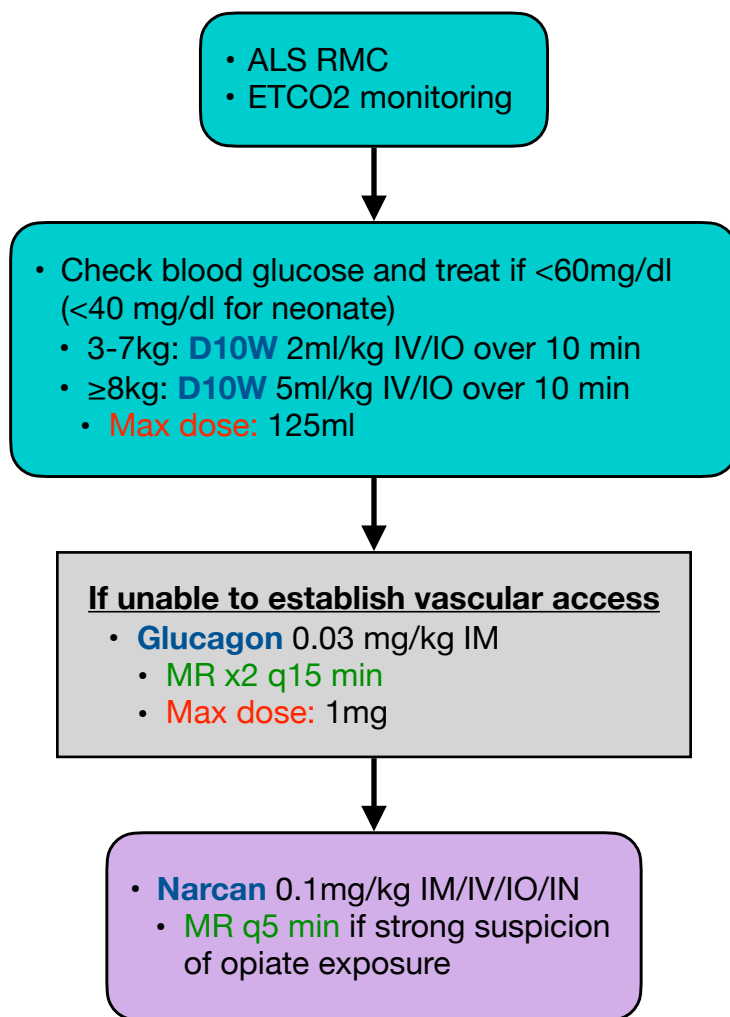
CRITICAL INFORMATION

- Evaluate for and treat hypoglycemia, hypoxia, narcotic overdose, trauma, fever, etc. prior to administering anti-seizure medications
- Never administer **Midazolam** rapid IV/IO since cardiac and/or respiratory arrest may occur

PEDIATRIC ALTERED LEVEL OF CONSCIOUSNESS (ALOC)

Indications

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



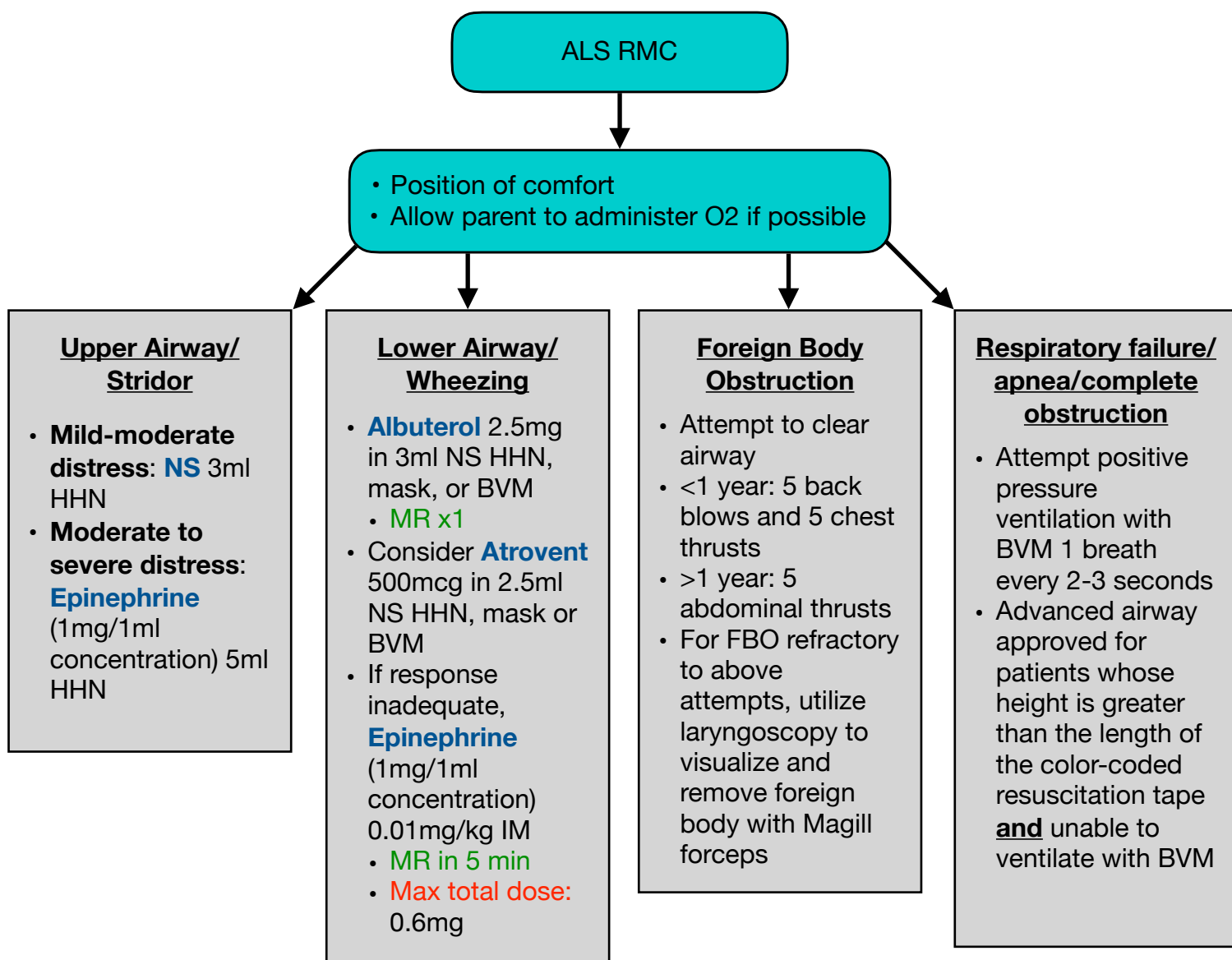
CRITICAL INFORMATION

- **Narcan** is contraindicated with neonatal resuscitation

PEDIATRIC RESPIRATORY DISTRESS

Indications

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



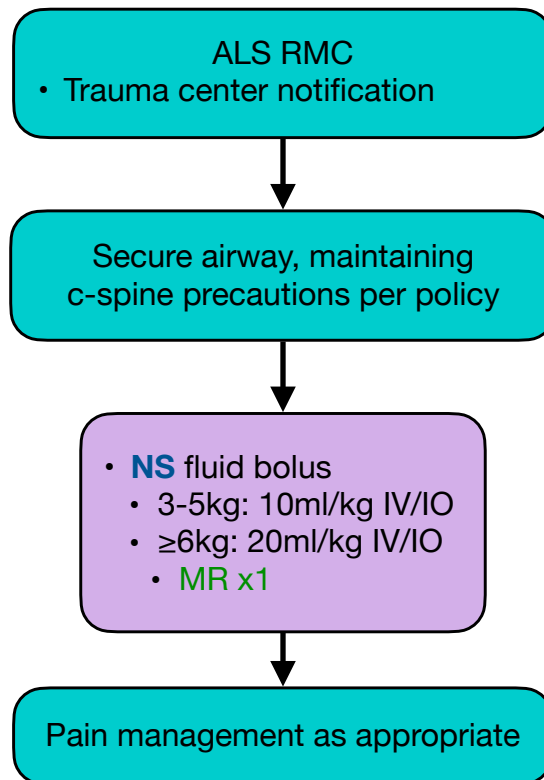
SPECIAL CONSIDERATION

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

PEDIATRIC TRAUMA

Indications

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



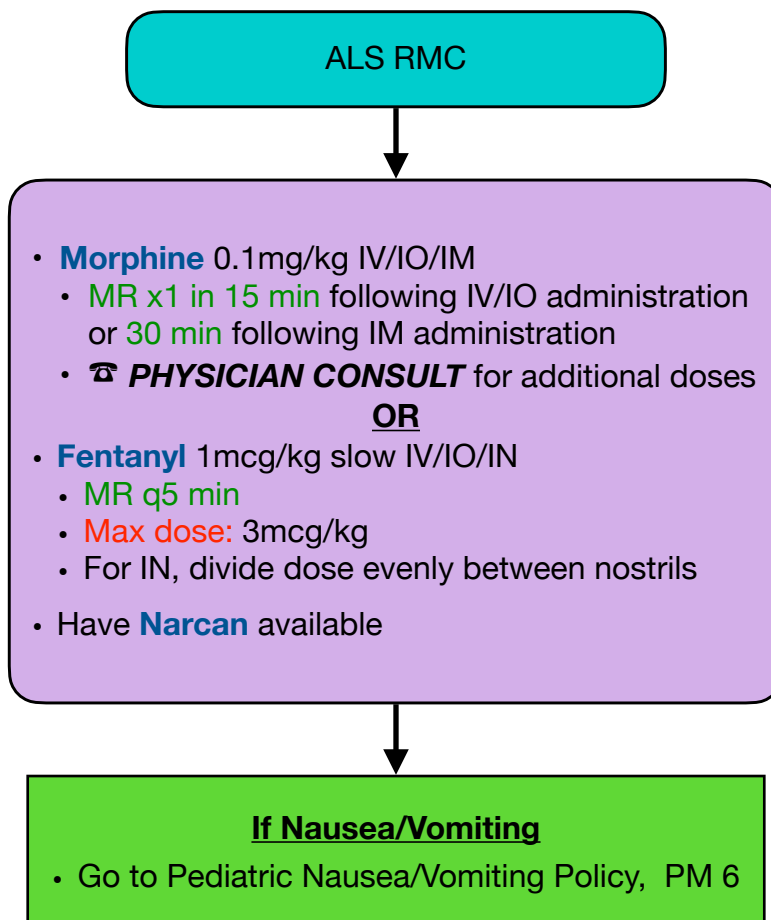
SPECIAL CONSIDERATION

- 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



☎ **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 (3mg/ml)	0.1mg/kg rapid IV/IO push, followed by 5ml NS flush <i>Max first dose:</i> 6mg <i>Repeat:</i> x1 double the dose (0.2mg/kg) <i>Max second dose:</i> 12mg
Albuterol	2.5mg/3ml NS	2.5mg/3ml NS <i>Repeat:</i> x1
Amiodarone	150mg/3ml (50mg/ml)	<u>Pulseless Arrest:</u> 5mg/kg IV/IO, followed by or diluted in 20ml NS after 3rd shock <i>Max dose:</i> 300mg <u>Tachycardia with poor perfusion:</u> 5mg/kg IV/IO over 20-60 min
Atropine	Preload: 1mg/10ml (0.1mg/ml) Vial: 0.4mg/ml	<u>Bradycardia:</u> 0.02mg/kg IV/IO Minimum dose 0.1mg <i>Max single dose:</i> 0.5mg <i>Repeat:</i> x1 in 3-5 min <u>Organophosphate Poisoning:</u> 0.05mg/kg IV/IO <i>Repeat:</i> q5-10 min <i>Max dose:</i> 4mg or until relief of symptoms
Dextrose 10%	D10%	<u>3-7kg:</u> 2ml/kg IV/IO <u>≥8kg:</u> 5ml/kg IV/IO <i>Max dose:</i> 125ml
Diphenhydramine (Benadryl)	50mg/ml	1mg/kg IV/IO/IM <i>Max dose:</i> 50mg
Epinephrine	1mg/10ml (0.1mg/ml)	<u>Cardiac Arrest:</u> 0.01mg/kg (0.1ml/kg) IV/IO <i>Repeat:</i> q3-5 min
Epinephrine	1mg/ml EpiPen Jr ® 0.15mg	<u>Allergic Reaction:</u> 0.01mg/kg IM <i>Repeat:</i> x1 in 5 min <i>Max dose:</i> 0.6mg EpiPen Jr ®: repeat as needed in 5 min <u>Upper Airway/Stridor:</u> 5mg in 5ml via nebulizer
Fentanyl	100mcg/2ml (50mcg/ml)	1mcg/kg slow IV/IO/IM/IN <i>Repeat:</i> q5 min <i>Max dose:</i> 3mcg/kg For IN: divide dose evenly between nostrils

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PEDIATRIC DOSING GUIDE

GRAY: 3-5kg/6-11lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
90-160	100-205	30-53	67-104	35-56	45-62

NS Fluid Bolus: 10ml/kg	40ml	DEFIBRILLATION: 2, 4J/kg	1st: 8J	2nd: 16J
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Blade for Foreign Body Removal	0	CARDIOVERSION: 1, 2J/kg	1st: 4J	2nd: 8J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	1st: 0.4mg 2nd: 0.8mg	1st: 0.14ml 2nd: 0.27ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR X1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	20mg	0.4ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.1mg	1ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	Preload: 1mg/10ml (0.1mg/ml) Vial: 0.4mg/ml	0.05mg/kg IV/IO	0.2mg	Preload: 2ml Vial: 0.5ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	2ml/kg IV/IO Max dose: 125ml		8ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	4mg	0.08ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.04mg	0.4ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.04mg	0.04ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN 135	5mg	5ml	

GRAY: 3-5kg/6-11lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	100mcg/2ml (50mcg/ml)	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	4mcg	0.08ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.12mg	0.12ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 2mg <u>2nd:</u> 1mg	<u>1st:</u> 0.1ml <u>2nd:</u> 0.05ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IM</u> Max single dose 5mg	0.8mg	0.16ml	MR x1 in 10 min if still seizing
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IN</u> Max dose 5mg	0.8mg	0.16ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow <u>IV/IO</u> Total max dose: 5mg	0.2mg	0.2ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.2mg	0.2ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	0.4mg	0.04ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	0.4mg	0.4ml	MR q5 min For IN: split dose equally in each nostril
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	4mEq	4ml	

PEDIATRIC DOSING GUIDE

PINK: 6-7kg/13-15lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
90-160	100-180	30-53	72-104	37-56	50-62

NS Fluid Bolus: 20ml/kg	130ml	DEFIBRILLATION: 2, 4J/kg	1st: 13J	2nd: 26J
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Blade for Foreign Body Removal	0	CARDIOVERSION: 1, 2J/kg	1st: 7J	2nd: 13J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 0.7mg <u>2nd:</u> 1.3mg	<u>1st:</u> 0.2ml <u>2nd:</u> 0.4ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR X1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	32mg	0.6ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.1mg	1ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	0.3mg	<u>Preload:</u> 3ml <u>Vial:</u> 0.8ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	2ml/kg IV/IO Max dose: 125ml		13ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	6.5mg	0.1ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.07mg	0.7ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.07mg	0.07ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₃₇	5mg	5ml	

PINK: 6-7kg/13-15lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	6.5mcg	0.13ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.2mg	0.2ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 3mg <u>2nd:</u> 2mg	<u>1st:</u> 0.2ml <u>2nd:</u> 0.1ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IM Max single dose 5mg	1.3mg	0.3ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IN Max dose 5mg	1.3mg	0.3ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Total max dose: 5mg	0.3mg	0.3ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.3mg	0.3ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	0.7mg	0.1ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	0.7mg	0.7ml	MR q5 min For IN: split dose equally in each nostril
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	6.5mEq	6.5ml	

PEDIATRIC DOSING GUIDE

RED: 8-9kg/18-20lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
90-160	100-180	30-53	72-104	37-56	50-62

NS Fluid Bolus: 20ml/kg	170ml	DEFIBRILLATION: 2, 4J/kg	1st: 17J	2nd: 34J
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Blade for Foreign Body Removal	1	CARDIOVERSION: 1, 2J/kg	1st: 9J	2nd: 17J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	1st: 0.9mg 2nd: 1.7mg	1st: 0.3ml 2nd: 0.6ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	42mg	0.8ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.2mg	2ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	Preload: 1mg/10ml (0.1mg/ml) Vial: 0.4mg/ml	0.05mg/kg IV/IO	0.4mg	Preload: 4ml Vial: 1.1ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		42ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	8.5mg	0.2ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.09mg	0.9ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.09mg	0.09ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₃₉	5mg	5ml	

RED: 8-9kg/18-20lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	8.5mcg	0.17ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.25mg	0.25ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 4mg <u>2nd:</u> 2mg	<u>1st:</u> 0.2ml <u>2nd:</u> 0.1ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IM Max single dose 5mg	1.7mg	0.3ml	MR x1 in 10 min if still seizing
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IN Max dose 5mg	1.7mg	0.3ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Total max dose: 5mg	0.4mg	0.4ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.4mg	0.4ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	0.9mg	0.1ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	0.9mg	0.9ml	MR q5 min For IN: split dose equally in each nostril
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	8.5mEq	8.5ml	

PEDIATRIC DOSING GUIDE

PURPLE: 10-11kg/22-24lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
90-160	100-180	30-53	72-104	37-56	50-62

NS Fluid Bolus: 20ml/kg	210ml	DEFIBRILLATION: 2, 4J/kg	1st: 20J	2nd: 40J
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Blade for Foreign Body Removal	1	CARDIOVERSION: 1, 2J/kg	1st: 10J	2nd: 20J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 1mg <u>2nd:</u> 2.1mg	<u>1st:</u> 0.3ml <u>2nd:</u> 0.7ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR X1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	50mg	1ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.2mg	2ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	0.5mg	<u>Preload:</u> 5ml <u>Vial:</u> 1.3ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		53ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	10.5mg	0.2ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.1mg	1ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.1mg	0.1ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₄₁	5mg	5ml	

PURPLE: 10-11kg/22-24lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	10.5mcg	0.21ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.3mg	0.3ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 5mg <u>2nd:</u> 3mg	<u>1st:</u> 0.3ml <u>2nd:</u> 0.2ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IM</u> Max single dose 5mg	2.1mg	0.4ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IN</u> Max dose 5mg	2.1mg	0.4ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow <u>IV/IO</u> Total max dose: 5mg	0.5mg	0.5ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.5mg	0.5ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	1mg	0.1ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	1mg	1ml	MR q5 min For IN: split dose equally in each nostril
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	10mEq	10ml	

PEDIATRIC DOSING GUIDE

YELLOW: 12-14kg/27-31lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
80-120	98-140	22-37	86-106	42-63	49-62

NS Fluid Bolus: 20ml/kg	260ml	DEFIBRILLATION: 2, 4J/kg	1st: 26J	2nd: 52J
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Blade for Foreign Body Removal	2	CARDIOVERSION: 1, 2J/kg	1st: 13J	2nd: 26J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 1.3mg <u>2nd:</u> 2.6mg	<u>1st:</u> 0.4ml <u>2nd:</u> 0.9ml	RIVP w/ 10ml NS flush MR x1 double the dose
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	65mg	1.3ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.3mg	3ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	0.7mg	<u>Preload:</u> 7ml <u>Vial:</u> 1.6ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		65ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	13mg	0.3ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.13mg	1.3ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.13mg	0.13ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₄₃	5mg	5ml	

YELLOW: 12-14kg/27-31lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	13.5mcg	0.27ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.4mg	0.4ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 6mg <u>2nd:</u> 3mg	<u>1st:</u> 0.3ml <u>2nd:</u> 0.2ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IM Max single dose 5mg	2.6mg	0.5ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IN Max dose 5mg	2.6mg	0.5ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Total max dose: 5mg	0.7mg	0.7ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.7mg	0.7ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	1.3mg	0.1ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	1.3mg	1.3ml	MR q5 min For IN: split dose equally in each nostril
ONDANSETRON <i>Zofran</i>	4mg tab 4mg/2ml	2mg ODT/slow IV	2mg	1ml 1/2 tab	Slow IV over 30 sec
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	13mEq	13ml	

PEDIATRIC DOSING GUIDE

WHITE: 15-18kg/33-40lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
65-100	80-120	20-28	89-112	46-72	58-69

NS Fluid Bolus: 20ml/kg	330ml	DEFIBRILLATION: 2, 4J/kg	1st: 33J	2nd: 66J
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Blade for Foreign Body Removal	2	CARDIOVERSION: 1, 2J/kg	1st: 17J	2nd: 33J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 1.7mg <u>2nd:</u> 3.4mg	<u>1st:</u> 0.6ml <u>2nd:</u> 1.1ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	80mg	1.6ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.3mg	3ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	0.8mg	<u>Preload:</u> 8ml <u>Vial:</u> 2.1ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		83ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	16.5mg	0.3ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.17mg	1.7ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.17mg	0.17ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₄₅	5mg	5ml	

WHITE: 15-18kg/33-40lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	16.5mcg	0.33ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.5mg	0.5ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 8mg <u>2nd:</u> 4mg	<u>1st:</u> 0.4ml <u>2nd:</u> 0.2ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IM Max single dose 5mg	3.3mg	0.7ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IN Max dose 5mg	3.3mg	0.7ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Total max dose: 5mg	0.8mg	0.8ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	0.8mg	0.8ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	1.7mg	0.2ml	MR x2 in 15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	1.7mg	1.7ml	MR q5 min For IN: split dose equally in each nostril
ONDANSETRON <i>Zofran</i>	4mg tab 4mg/2ml	2mg ODT/slow IV	2mg	1ml 1/2 tab	Slow IV over 30 sec
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	17mEq	17ml	

PEDIATRIC DOSING GUIDE

BLUE: 19-23kg/42-51lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
65-100	80-120	20-28	89-112	46-72	58-69

NS Fluid Bolus: 20ml/kg	420ml	DEFIBRILLATION: 2, 4J/kg	1st: 42J	2nd: 84J
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Blade for Foreign Body Removal	2	CARDIOVERSION: 1, 2J/kg	1st: 21J	2nd: 42J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	1st: 2.1mg 2nd: 4.2mg	1st: 0.7ml 2nd: 1.4ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	105mg	2.1ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.4mg	4ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	Preload: 1mg/10ml (0.1mg/ml) Vial: 0.4mg/ml	0.05mg/kg IV/IO	1mg	Preload: 10ml Vial: 2.6ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		105ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	21mg	0.4ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.2mg	2ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.2mg	0.2ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₄₇	5mg	5ml	

BLUE: 19-23kg/42-51lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	21mcg	0.42ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.6mg	0.6ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 10mg <u>2nd:</u> 5mg	<u>1st:</u> 0.5ml <u>2nd:</u> 0.3ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IM</u> Max single dose 5mg	4.2mg	0.8ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IN</u> Max dose 5mg	4.2mg	0.8ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow <u>IV/IO</u> Total max dose: 5mg	1mg	1ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	1mg	1ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	2.1mg	0.2ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	2mg	2ml	MR q5 min For IN: split dose equally in each nostril
ONDANSETRON <i>Zofran</i>	4mg tab 4mg/2ml	4mg ODT/slow IV	4mg	2ml 1 tab	Slow IV over 30 sec
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	21mEq	21ml	

PEDIATRIC DOSING GUIDE

ORANGE: 24-29kg/53-64lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
58-90	75-118	18-25	97-115	57-76	66-72

NS Fluid Bolus: 20ml/kg	530ml	DEFIBRILLATION: 2, 4J/kg	1st: 53J	2nd: 106J
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Blade for Foreign Body Removal:	2	CARDIOVERSION: 1, 2J/kg	1st: 26J	2nd: 53J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 2.7mg <u>2nd:</u> 5.4mg	<u>1st:</u> 0.9ml <u>2nd:</u> 1.8ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	130mg	2.6ml	Follow with or dilute in 20ml NS flush Give after 3rd shock
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.5mg	5ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	1.3mg	<u>Preload:</u> 13ml <u>Vial:</u> 3.3ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		125ml	Give over 10 min
DIPHENHYDRAMINE <i>Benadryl</i>	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	26mg	0.5ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.26mg	2.6ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.26mg	0.26ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN ₁₄₉	5mg	5ml	

ORANGE: 24-29kg/53-64lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	26.5mcg	0.53ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	0.8mg	0.8ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 13mg <u>2nd:</u> 6mg	<u>1st:</u> 0.7ml <u>2nd:</u> 0.4ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IM</u> Max single dose 5mg	5mg	1ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg <u>IN</u> Max dose 5mg	5mg	1ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow <u>IV/IO</u> Total max dose: 5mg	1mg	1ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	1mg	1ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	2.6mg	0.3ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN	2mg	2ml	MR q5 min For IN: split dose equally in each nostril
ONDANSETRON <i>Zofran</i>	4mg tab 4mg/2ml	4mg ODT/slow IV	4mg	2ml 1 tab	Slow IV over 30 sec
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	26mEq	26ml	

PEDIATRIC DOSING GUIDE

GREEN: 30-36kg/66-80lbs

Normal Vital Signs

HR asleep	HR awake	Respiratory Rate	Systolic BP	Diastolic BP	MAP
58-90	75-118	18-25	97-115	57-76	66-72

NS Fluid Bolus: 20ml/kg	660ml	DEFIBRILLATION: 2, 4J/kg	1st: 66J	2nd: 132J
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Blade for Foreign Body Removal:	3	CARDIOVERSION: 1, 2J/kg	1st: 33J	2nd: 66J
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Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
ADENOSINE	6mg/2ml (3mg/ml)	0.1mg/kg RIVP Max 1st dose: 6mg Max 2nd dose: 12mg	<u>1st:</u> 3.3mg <u>2nd:</u> 6.6mg	<u>1st:</u> 1.1ml <u>2nd:</u> 2.2ml	RIVP w/ 10ml NS flush MR x1 double the dose (0.2mg/kg)
ALBUTEROL	2.5mg/3ml	2.5mg/3ml HHN	2.5mg	3ml	MR x1
AMIODARONE (Pulseless arrest)	150mg/3ml (50mg/ml)	5mg/kg IV/IO Max single dose: 300mg	165mg	3.3ml	20ml NS flush MR x2 refractory rhythm
ATROPINE (Bradycardia)	1mg/10ml (0.1mg/ml)	0.02mg/kg IV/IO Min dose: 0.1mg Max single dose: 0.5mg	0.5mg	5ml	MR x1 in 3-5 min
ATROPINE (Organophosphate poisoning)	<u>Preload:</u> 1mg/10ml (0.1mg/ml) <u>Vial:</u> 0.4mg/ml	0.05mg/kg IV/IO	1.7mg	<u>Preload:</u> 17ml <u>Vial:</u> 4.1ml	MR q5-10 min until symptoms resolve
DEXTROSE	10%	5ml/kg IV/IO Max dose: 125ml		125ml	Give over 10 min
DIPHENHYDRAMINE Benadryl	50mg/ml	1mg/kg IM/IV/IO Max dose: 50mg	33mg	0.7ml	
EPINEPHRINE (Cardiac arrest/ Bradycardia)	1mg/10ml (0.1mg/ml)	0.01mg/kg IV/IO	0.33mg	3ml	MR q3-5 min
EPINEPHRINE (Allergic reaction/ Asthma)	1mg/ml	0.01mg/kg IM Total max dose: 0.6mg	0.3mg	0.3ml	MR x1 in 5 min
EPINEPHRINE (Upper airway/Stridor)	1mg/ml	5mg HHN 151	5mg	5ml	

GREEN: 30-36kg/66-80lbs

Medication	Concentration	Dose	Dose in mg	Dose in ml	Details
FENTANYL (Pain)	50mcg/ml	1mcg/kg IV/IO/IM/IN Max dose: 3mcg/kg	33mcg	0.66ml	MR q5 min For IN: split dose equally in each nostril
GLUCAGON (Hypoglycemia/Beta blocker OD)	1mg/ml	0.03mg/kg IM Max dose: 1mg	1mg	1ml	MR x2 q15 min if no IV established
IPRATROPIUM <i>Atrovent</i>	500mcg/2.5ml	500mcg/2.5ml HHN	500mcg	2.5ml	
LIDOCAINE 2% preservative free (IO insertion)	20mg/ml	0.5mg/kg slow IO Max dose: 40mg	<u>1st:</u> 17mg <u>2nd:</u> 8mg	<u>1st:</u> 0.8ml <u>2nd:</u> 0.4ml	MR x1 half initial dose (0.25mg/kg)
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IM Max single dose 5mg	5mg	1ml	MR x1 in 10 min
MIDAZOLAM <i>Versed</i> (Seizure)	5mg/ml	0.2mg/kg IN Max dose 5mg	5mg	1ml	Split dose equally in each nostril
MIDAZOLAM <i>Versed</i> (Seizure)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Total max dose: 5mg	1mg	1ml	MR x2 q15 min
MIDAZOLAM <i>Versed</i> (Cardioversion)	2mg/2ml (1mg/ml)	0.05mg/kg slow IV/IO Max dose: 1mg	1mg	1ml	
MORPHINE (Pain/burns)	10mg/ml	0.1mg/kg IV/IO/IM	3.3mg	0.3ml	MR x2 q15 min (IV/IO) MR in 30min (IM)
NALOXONE <i>Narcan</i>	2mg/2ml (1mg/ml)	0.1mg/kg IV/IO/IM/IN Max dose: 2mg	2mg	2ml	MR q5 min For IN: split dose equally in each nostril
ONDANSETRON <i>Zofran</i>	4mg tab 4mg/2ml	4mg ODT/slow IV	4mg	2ml 1 tab	Slow IV over 30 sec
SODIUM BICARBONATE	1mEq/ml	1mEq/kg IV/IO	33mEq	33ml	

AUTHORIZED PROCEDURES FOR EMT PERSONNEL

ALWAYS USE STANDARD PRECAUTIONS

POLICY

Upon proper training, EMTs may perform all procedures authorized in the EMT Scope of Practice per CCR Title 22, Division 9, Chapter 2.

EMT OPTIONAL SKILLS

- Accreditation for EMTs to practice optional skills shall be limited to those whose certificate is active and who are employed within the jurisdiction of the Marin County EMS Agency by a provider who is part of the Marin County organized EMS system.
- The following optional skills may be performed after the EMT has received training approved by the Marin County EMS Agency.
 - Administration of prepackaged Atropine and Pralidoxime Chloride
 - Administration of epinephrine by *prefilled syringe and/or drawing up* the proper drug dose into a syringe for suspected anaphylaxis and/or severe asthma.

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®**

Equipment

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

- 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

☎ PHYSICIAN CONSULT

- Treatment indication is severe asthma
- Necessity of second dose

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 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, Soman, 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

PELVIC BINDER APPLICATION PROCEDURE

Indications

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

Equipment

- Commercial pelvic binder
(e.g. SAM Pelvic Sling II, T-Pod)

Position patient in supine position



Slide pelvic binder under patient, positioning and applying device according to manufacturer's recommendations

Critical Information

- Contraindication: Pediatric patients

ADULT INTRAOSSEOUS PROCEDURE

Indications

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

Procedure Preparation

- Position and stabilize insertion site
- Continuously following aseptic technique, prepare insertion site with antiseptic solution and allow to dry via air or gauze pad

Procedure

- Insert IO needle according to manufacturer's directions
- Confirm placement
- Attach primed extension set and flush with 10ml **NS**

Equipment

- Intraosseous infusion needle and/or mechanical insertion device
- Chlorhexidine with alcohol swab or ampule
 - If patient has allergy to Chlorhexidine, use alcohol swab only
- Sterile gauze pads
- 10ml **NS** syringe
- IV **NS** solution and tubing with 3-way stopcock
- Supplies to secure infusion
- Pressure bag
- **Lidocaine 2%** (preservative free)

If patient awake and/or responsive to pain

- **Lidocaine 2% (preservative free)** 20-40mg over 30-60 seconds
- Wait 30-60 seconds before fluid infusion
- **MR in 15 min** if needed

If resistance is met

- Remove needle, apply pressure to site and attempt at secondary site

Critical Information

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

- Stabilize as recommended by manufacturer
- Attach pre-flooded IV tubing with pressure bag for infusion
- Monitor insertion site and patient condition

ORAL ENDOTRACHEAL INTUBATION PROCEDURE

Indications

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

Procedure preparation

- Open airway and pre-oxygenate with BVM for 1-3 minutes with 100% O₂
 - Avoid hyperventilation in cardiac arrest
- Select proper sized ETT and insert stylet
- Select proper sized laryngoscope blade and visualize larynx
- Suction as needed



Procedure

- Provide continuous high flow oxygen during procedure, if possible
- Under direct visualization, insert ETT 2-3cm past the cords.
 - Each attempt should not exceed 30 seconds, hyperventilating between attempts
- Remove stylet and inflate cuff



- Verify placement using all of the following:
 - Rise and fall of chest
 - Absence of epigastric sounds
 - Bilateral breath sounds
 - Presence of condensation in the tube
 - EDD or colorimetric CO₂ device
 - Capnometry/capnography
- Secure the tube. Consider spinal immobilization to prevent extubation
- Reassess tube placement after each movement.
- If any doubt about placement, confirm by capnography or direct visualization

Equipment

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

SPECIAL CONSIDERATIONS

- Defibrillation should precede intubation in VF/pulseless VT
- Consider use of ETTI if difficult intubation
- If unsuccessful after 1 attempt, may attempt King tube or iGel x1. If unsuccessful with King tube or iGel, then manage with BLS airway

Critical Information

- Absolute contraindications:
 - Patient fits on length based tape
 - Epiglottitis
- Relative contraindications:
 - Spontaneous respirations are present
 - Responsive patient with intact gag reflex
 - Suspected opiate overdose
 - Profound hypoglycemia

ENDOTRACHEAL TUBE INTRODUCER (ETTI) PROCEDURE

Indications

- Airway structure or condition which prevents adequate visualization by standard tools of endotracheal intubation. May include:
 - Patients with Grade II through IV laryngeal views (Cormack-Lehane grade)
 - Patients with airway edema regardless of laryngeal view

- Perform laryngoscopy and obtain the best possible laryngeal view
- Holding the ETTI in your right hand and the angled tip pointing upward, gently advance the ETTI anteriorly (under the epiglottis) to the glottic opening (cords)

Equipment

- Intubation supplies
- ETT Introducer

- Gently advance the ETTI until resistance is encountered at the carina
 - NEVER force the ETTI, pharyngeal/tracheal perforation may be caused
 - If no resistance is encountered and the entire length of the ETTI is inserted, the device is in the esophagus
- The ETTI is correctly placed when you see the device going through the cords, when the ratcheting of the tip on the trachea, an/or when resistance is met while advancing the device

- Once positioned, withdraw the ETTI until the 37cm black line mark is aligned with the lip and advance an ETT over the ETTI and into the trachea
 - If resistance is encountered while advancing the ETT, withdraw the ETT slightly, rotate 90° and reattempt
- Once ETT is in position, inflate cuff, then while holding the tube, remove the ETTI through the ETT
- Confirm tracheal placement

SPECIAL CONSIDERATIONS

- Use the confirmation methods standard for endotracheal intubation to verify placement of the ETT prior to and after initiating ventilation

Critical Information

- Contraindications:
 - Patient fits on length based tape
 - ETT smaller than 6.0

I-GEL AIRWAY PROCEDURE

Indications

- When ventilation cannot be adequately maintained by BLS techniques, intubation is anticipated to be difficult, or intubation is unsuccessful after one attempt

Pre-procedure

- Open airway and pre-oxygenate with BVM for 1-3 min with 100% O₂. Avoid hyperventilation in cardiac arrest
- Apply water soluble lubricant to the back, sides and front of the cuff. Ensure no lubricant remains in the bowl of the cuff
- Position the head into the “sniffing” position or neutral position if trauma is suspected
- Remove dentures before inserting tube



Procedure

- With the cuff opening facing the patient’s chin, glide the device downwards and backwards along the hard palate with a continuous but gentle push until definitive resistance is felt. The incisor teeth should be resting on the integral bite block
- Attach bag-valve to i-gel Airway
- Verify placement using all of the following
 - Rise and fall of chest
 - Bilateral breath sounds
 - Capnometry/capnography or colorimetric device
- Secure the tube with provided strap or commercial tube holder

Equipment

- i-gel or i-gel O₂ airway device
- Water soluble lubricant
- Portable suction device
- Capnometry/capnography or colorimetric device
- Stethoscope

I-gel Sizing

Size	Patient Size	Color	Patient weight
3	Small adult	Yellow	30-60kg
4	Medium adult	Green	50-90kg
5	Large adult	Orange	90+kg

SPECIAL CONSIDERATIONS

- If there is any doubt about the proper placement of the i-gel airway, remove device; ventilate the patient with BVM for 30 seconds and repeat sequence of steps
- If unsuccessful on second attempt, resume BLS airway management
- If an excessive air leak during ventilation is noticed, use one or all of the following:
 - Hand ventilate the patient with gentle and slow squeezing of the reservoir bag
 - Limit estimated tidal volume to no more than 5ml/kg
 - If all of the above fail then change to one size larger i-gel

Critical Information

- Contraindications:
 - Responsive patient with an intact gag reflex
 - Patient with known esophageal disease
 - Tracheal stoma
 - Patient fits on length based resuscitation tape
- Relative Contraindication:
 - Patients who have ingested caustic substances or have severe airway burns

INTRANASAL MEDICATION ADMINISTRATION PROCEDURE

Indications

- No IV access with the following symptoms:
 - Status epilepticus
 - Suspected narcotic overdose with respiratory depression
 - Apparent or reported pain level >6

Equipment

- MAD adapter (atomizer)
- Syringe
- Suction

- With medication in syringe, attach atomizer
- Do not lubricate tip



- Stabilizing the head, place applicator in nares and briskly compress the syringe plunger

SPECIAL CONSIDERATIONS

- Be attentive to excessive oral recreations, vomiting, and adequate tidal volume

Critical Information

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

NEEDLE THORACOSTOMY/ PLEURAL DECOMPRESSION PROCEDURE

Indications

- 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

Procedure Preparation

- Choose appropriate site on the affected side:
 - If patient head is elevated, locate the second intercostal space, mid-clavicular line
 - If patient is flat, locate the 4th or 5th intercostal space, mid-axillary line
- Prepare site with Betadine or chlorhexidine
- Attach the large gauge IV needle to a large syringe

Equipment

- 14g or larger ≥ 3 inches
- Heimlich or other one-way valve
- 10ml syringe

Procedure

- With the patient exhaling, introduce the needle at a 90° 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

VERIFICATION OF TUBE PLACEMENT PROCEDURE

Indications

- To verify the placement of an endotracheal tube

Equipment

- Esophageal Detector Device (EDD)
- Colorimetric CO2 device
- End tidal carbon dioxide detector
- Stethoscope
- Capnography device

After tube placement, apply EDD or Colorimetric device prior to first ventilation



- Verify placement using all of the following:
 - Rise and fall of chest
 - Auscultate the lungs; assess for presence of equality of breath sounds
 - Presence of condensation in the tube
 - Auscultate the stomach; assess for absence of epigastric sounds



Apply capnometer or capnography if available

IV ACCESS PROCEDURE

Indications

- To describe a method for establishment of intravenous access in the pre-hospital setting

Equipment

- IV catheter
- Equipment to secure line
- Tourniquet
- Syringe
- Saline lock or IV fluid/tubing, if indicated

Procedure Preparation

- Select insertion site and IV catheter size as appropriate to the patient's condition
 - Use smallest catheter and most distal site indicated
- Apply tourniquet above insertion site
- Don clean gloves
- Clean insertion site using a back and forth motion for 30 seconds with chlorhexidine, allow to air dry for 2 minutes

Procedure

- Insert IV catheter; assure latency
- Attach appropriate solution, begin flow, adjust rate or attach a saline lock if appropriate
 - If saline lock was started, irrigate with 5ml NS
- Apply occlusive sterile dressing over the insertion site
 - Do not put tape over the occlusive dressing
 - Secure with anchoring tape

- Saline locks may be used in lieu of intravenous lines when:
 - Treatment protocol specifies IV NS TKO
 - Fluid resuscitation or bolus is not anticipated

EXTERNAL CARDIAC PACING PROCEDURE

Indications

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

Procedure Preparation

- ALS RMC
- If tolerated, position patient supine, applying pacing electrodes to bare chest according to manufacturers recommendations (anterior/posterior or sternal/apex)
- Confirm and record ECG

Equipment

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

If patient is conscious

- Administer **Midazolam** 1mg slow IV/IO
- **MR q3 min** to desired degree of sedation
- **Max dose:** 0.05mg/kg

Procedure

- Set pacing rate at 60, turn on pacing module, and confirm pacer activity on monitor. May increase rate to 80
- Increase mA until capture occurs or maximum output is reached
- Once capture is confirmed, increase output by 10%
- Confirm pulses with paced rhythm
- Monitor vital signs and need for further sedatives or pain control

If SBP <90

- Consider **NS** 250ml bolus IV/IO

Critical Information

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

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

☎ PHYSICIAN CONSULT

- Concomitant administration of **opioids** (Morphine and Fentanyl) and **Midazolam**
- If SBP <80, obtain physician consult for **Push-dose Epinephrine**

12-LEAD ECG PROCEDURE

Indications

- Patients with a medical history and/or presenting complaints consistent with Acute Coronary Syndrome (ACS). Indications for the procedure may include one or more of the following:
 - Chest or upper abdominal pain, described as pressure or tightness
 - Nausea or vomiting
 - Diaphoresis
 - Shortness of breath and/or difficulty with ventilation
 - Anxiety, feeling of “doom”
 - Syncope or dizziness
 - Other signs or symptoms suggestive of ACS

Equipment

- ECG machine and leads

Procedure

- Attach ECG limb leads to arms and legs
- Attach ECG chest leads as follows:
 - V1: right of sternum, 4th intercostal space
 - V2: left of sternum, 4th intercostal space
 - V3: halfway between V2 and V4
 - V4: left 5th intercostal space, mid-clavicular line
 - V5: horizontal to V4, anterior axillary line
 - V6: horizontal to V5, mid-axillary line
 - V4R-V6R: right 5th intercostal space, mid-clavicular line to mid-axillary line (for suspected right ventricular infarction (RVI) and/or physician request). Lead V4R must be obtained whenever ST segment elevation is noted in leads II, III, and AVF

SPECIAL CONSIDERATIONS

- If the 12-lead ECG demonstrates ST elevation and an acute STEMI is suspected, refer to STEMI Policy C 9
- Infarctions may be present with a normal 12-lead ECG. Consider taking a 15-lead ECG

☎ PHYSICIAN CONSULT

- If interpretation of ECG is inconclusive and ST segment elevation is present, seek immediate consultation with STEMI Receiving Center (SRC)

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP) PROCEDURE

Indications

- Patients >8 years of age in severe respiratory distress and signs of CHF, COPD, and asthma
- Near drowning

Pre-procedure

- ALS RMC
- Place patient in a seated position with legs dependent
- Follow manufacturer directions for CPAP device set up
- Explain device to patient

Equipment

- CPAP equipment
- In-line nebulizer

Procedure

- Apply device to patient; set flow rate in excess of the patients inspiratory flow rate
- If albuterol and/or ipratropium appropriate, may administer with CPAP in-line nebulizer
- Reassess VS q5 min after CPAP applied, continuous SpO2 monitoring
- Increase oxygen percentage if patient does not demonstrate improvement after 5 minutes of application; repeat PRN to obtain improvement
- Remove the CPAP device and assist ventilations with BVM and/or intubation if patient condition worsens

Critical Information

- Contraindications:
 - Absolute:
 - Age <8 years
 - Respiratory or cardiac arrest
 - Agonal respirations
 - Severely depressed LOC
 - S/Sx of pneumothorax
 - Inability to maintain airway latency
 - Major trauma (especially head trauma with signs of ICP or significant chest trauma)
 - Facial anomalies or trauma
 - Vomiting
 - Relative contraindications
 - Systolic BP <100
 - History of pulmonary fibrosis or history of barotrauma
 - Decreased LOC
 - Claustrophobia or inability to tolerate mask (after 1-2 min trial)

SPECIAL CONSIDERATIONS

- Consider using sedation to alleviate possible anxiety associated with the CPAP device

KING AIRWAY PROCEDURE

Indications

- When ventilation cannot be adequately maintained by BLS techniques, intubation is anticipated to be difficult, or intubation is unsuccessful after one attempt

Pre-procedure

- Open airway and pre-oxygenate with BVM for 1-3 min with 100% O₂. Avoid hyperventilation in cardiac arrest
- Test cuff according to manufacturer's instructions
- Apply water soluble lubricant to distal end of the tube
- Position the head into the "sniffing" position or neutral position if trauma is suspected
- Remove dentures before placing tube to prevent laceration of the cuffs



Procedure

- Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums
- Inflate cuffs based on size of tube
- Attach bag-valve to King Airway
- If necessary, withdraw airway until ventilation is easy and free flowing the
- Verify placement using all of the following
 - Rise and fall of chest
 - Bilateral breath sounds
 - Capnometry/capnography or colorimetric device
- Secure the tube with tape or commercial tube holder, noting depth marking on tube

Equipment

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

King Tube Sizing

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

SPECIAL CONSIDERATIONS

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

Critical Information

- Contraindications:
 - Responsive patient with an intact gag reflex
 - Patient with known esophageal disease
 - Patients who have ingested caustic substances
 - Tracheal stoma
 - Patient fits on length based resuscitation tape

METERED DOSE INHALER (MDI) FIRELINE MEDICINE PROCEDURE

Indications

- To deliver an aerosolized bronchodilator for patients experiencing bronchospasm in the fireline medicine setting

Equipment

- Metered dose inhaler of Albuterol or Atrovent

Pre-procedure

- Have patient sit or stand in an upright position
- Remove dust cap and have the patient hold the MDI in an upright position
- Gently shake MDI for 5-10 seconds
- Have patient tilt head back slightly and exhale normally and completely



Procedure

- Have patient place lips around mouthpiece to produce a seal
- While inhaling slowly, have patient press down on inhaler to release the medication
- Inform patient to continue inhaling until they have taken the deepest breath possible
- Hold breath for 10 seconds
- Exhale slowly through pursed lips
- Administer a second dose as described above

PEDIATRIC INTRAOSSEOUS INFUSION PROCEDURE

Indications

- Patient in extremis, cardiac arrest, profound hypovolemia, or sepsis and in need of immediate delivery of medications/fluids and immediate IV access is not possible within 90 seconds

Procedure Preparation

- Position and stabilize insertion leg
- Locate primary site 1-2cm distal to tibial tuberosity and 1-2cm medial
- Continuously following aseptic technique, prepare insertion site and allow to dry via air or gauze

Equipment

- Intraosseous infusion needle and/or mechanical insertion device
- Chlorhexidine with alcohol solution
- Sterile gauze pads
- Saline lock
- IV **NS** solution and tubing with 3-way stopcock
- Supplies to secure infusion
- Pressure bag
- **Lidocaine 2%** (preservative free)

Automatic IO Device

- Insert needle through skin at 90° angle until bone contact
- Rotate applying gentle, steady pressure, letting the driver do the work
- Stop when a change of resistance is felt
- Stabilize hub and remove stylet
- Attach primed saline lock, aspirate to confirm placement
- Flush with 5ml **NS**

Manual IO Needle

- Choose desired depth of injection according to manufacturer's instructions
- Insert needle at 90° angle and advance according to manufacturer's instructions
- Stabilize hub and remove stylet
- Attach primed saline lock, aspirate to confirm placement
- Flush with 5ml **NS**

If patient >3kg and awake and/or responsive to pain

- **Lidocaine 2%** (preservative free) 0.5mg/kg slowly
- **MR x1 at half initial dose (0.25mg/kg)**
- **Max dose:** 40mg
- Wait 30-60 seconds before fluid infusion

If resistance is met

- Remove needle, apply pressure to site and attempt at secondary site

Critical Information

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

- Stabilize as recommended by manufacturer
- Attach pre-flooded IV tubing
- Administer fluid boluses via syringe utilizing the 3-way stopcock

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MCI Plan Information

Concept of Operations

The Marin County Multi-Casualty Incident Plan shall utilize the ReddiNet tool to alert the EMS system that an incident has occurred, provide for tracking of patients and to facilitate information exchange among hospitals, EMS, and other healthcare system personnel.

Incident Levels

The MCI Plan describes three levels of incident depending on the estimated number of patients involved who are likely to require ambulance transport. Those levels are as follows:

- **Level I** – An incident likely to generate **a minimum of 6 and no more than 10 patients** requiring ambulance transport, or a minimum of 4 patients all who are categorized as “Immediate”.
- **Level II** - An incident likely to generate **a minimum of 11 and no more than 35 patients** requiring ambulance transport, or a minimum of 6 patients all who are categorized as “Immediate”.
- **Level III** - An incident likely to generate **36 or more patients** requiring ambulance transport.

A fourth type of MCI is also included in the plan and addresses a slow moving, longer term event such as the recent pandemic generated at San Quentin Prison

- **eMCI** – An “outbreak” type of incident likely to generate 6 or more patients needing ambulance transport within a 24-hour period and may continue for several days or weeks (San Quentin Prison COVID-19 Outbreak). This is also referred to as an extended multi-casualty incident (eMCI).

Triage Categories

The following triage categories are based on the START Triage System and will be used to categorize patients during a multi-casualty incident. The term “injury” is used generically to describe the patients being triaged and is inclusive of both medical and trauma patients.

- **Minor** – Conscious patient deemed to have a minor illness or injury and typically ambulatory
- **Delayed** – Conscious patient deemed to have non-life threatening injuries that will need further medical attention
- **Immediate** – Conscious or unconscious patient deemed to be salvageable but in immediate need of further medical care
- **Expectant/Deceased** – Unresponsive patient with inadequate or absent pulse and breathing, requiring resuscitative measures

During an MCI, the use of the **Trauma Triage Tool** is at the discretion of the responders.

Rapid Re-Triage During an MCI

It must be understood that the availability of the rapid re-triage process may be unavailable for local transfers during an MCI event.

Non-trauma centers shall follow normal re-triage procedures and consider patient selection which maximizes potential clinical benefit of re-triage (e.g., head injury with rapid decreasing mental status suggestive of an epidural hematoma).

The transferring ED shall call the local trauma center and ask, "Are you available for a rapid re-triage?" If the answer is no, they should work through other channels (including MHOAC) for transfer to definitive care within the region.

First Wave Patient Distribution

The term "First Wave" refers to the number of patients each of the local and regional acute care hospitals have agreed to automatically accept in the event of an MCI. First Wave distribution automatically assigns a pre-determined number of patients to each hospital in the initial phase of the MCI response. Marin County hospitals **MUST** accept their automatically assigned minimum number of patients. First wave distribution is managed on-scene by Patient Transport Group Supervisor in coordination with the Control Facility utilizing the following principles:

- Send the first wave of patients to the most appropriate hospitals, using the best judgement on destination based on the knowledge you have at that time (including distinct hospital capabilities – e.g., neurosurgery only at MMC). Every effort will be made to transport trauma patients to a designated trauma center.
- Local and regional hospitals should be considered for first wave distribution depending on existing factors at the time of the incident such as geographic location, traffic patterns, etc.
- Transporting providers have the option to provide or not provide a radio report to receiving hospitals prior to arrival depending on patient workload.

The Communications Center (MarinCom) personnel will manage the First Wave distribution of patients utilizing ReddiNet. As soon as practical, the MHOAC will take over patient distribution and continue to manage patient distribution/destination in coordination with MedCom and document in ReddiNet.

First Wave Distribution for Marin County Facilities

Each of the following hospitals have agreed in advance to receive the following number and category of patients on the first wave of distribution during an activated MCI regardless of day of week or time of day. This distribution does not require prior notification should an MCI be activated.

	<u>Immediate</u>	<u>Delayed</u>	<u>Minor</u>
MMC	3	4	8
KSR	2	3	6
NCH	1	2	6

Second Wave Distribution

When the total number of patients from an incident exceeds the total number assigned slots in the defined local/regional First Wave distribution plan, Second Wave Distribution will be implemented.

Destination information and hospital availability, including out-of-county receiving hospital availability, will be available in ReddiNet. Second wave distribution will eventually employ the MHOAC as Control Facility.

Patient Tracking

Patient distribution and movement will be documented and monitored using the ReddiNet system. Each hospital will be responsible for entering all patients that arrive at their facility from the incident into the ReddiNet system. This must occur immediately upon arrival at the facility.

MHOAC will monitor and assist with patient distribution as soon as practical following the initiation of an MCI.

INITIATION

The initiation process advises the EMS system that an actual incident has occurred. **Initiation is required** for any incident that is likely to produce six (6) or more patients requiring ambulance transport or a minimum of four (4) patients categorized as “immediate”.

It will be the responsibility of the first Fire Officer on scene to formally initiate an MCI and direct the Communications Center to initiate an MCI in the ReddiNet System. Based on the initial scene size up, the Fire Officer will also advise the Communication Center as to the Level of MCI being initiated (Level 1, 2, 3). Initiation of the MCI may occur before or after the fire officer arrives on scene depending on the type of incident and the available information coming in from reporting parties.

The IC shall provide the following information to the dispatch center:

- Type of incident
- Incident Level (1, 2, or 3)
- Estimated number of patients likely to require transportation
- Need for additional resources
- Safety and/or approach instructions
- Ground and/or air ambulance staging locations
- Location of command post

The dispatch center will broadcast the initiation of an MCI via the radio system and initiate the MCI using the ReddiNet System.

RESOURCE REQUESTS

The MHOAC will assist with the coordination of resources from the Region, State and/or Federal partners. When needed, assistance or coordination may be provided by OES, EOC and/or DOC staff. Fire and Law Mutual Aid is requested through the Fire and Law mutual aid systems and, when possible, coordinated with the MHOAC.

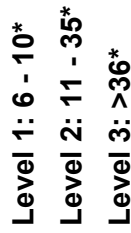
CANCELLATION

Cancellation of an MCI must come from the Incident Commander or his/her designee. The IC will notify the appropriate dispatch center to cancel the MCI.

MarinCom will broadcast that the MCI has been cancelled/ended via the radio system.

COMMAND WORKSHEET

Communications Plan				
Command: _____				
Tactical: _____				
Others: _____				
Number of Victims				
Immediate	Delayed	Minor	Morgue	
Victims	Engines	Ambulance	Air Ambulance	
5-10	2-4	3-5	1-2	
11-15	5	5-7	2-3	
15-20	8	7-10	3-4	
21-30	11	10-12	4-5	
31-50	14	12-15	5-6	
51+	14+	15+	6+	
Checklist				
Size Up Report				
<input type="checkbox"/> Initiate Alert / Activation				
<input type="checkbox"/> Life Safety Hazards				
<input type="checkbox"/> Terrorism?				
Assignments				
Follow Up Report				
<input type="checkbox"/> Incident Name / Assume Command				
<input type="checkbox"/> Command Post Location				
<input type="checkbox"/> Communications Plan				
<input type="checkbox"/> Additional Resources (see above)				
<input type="checkbox"/> Staging Location				
<input type="checkbox"/> Cross / Travel routes				
<input type="checkbox"/> Law Enforcement-ETA: _____				
<input type="checkbox"/> Traffic Control <input type="checkbox"/> Crowd Control				
<input type="checkbox"/> Evacuation <input type="checkbox"/> Scene Security				
<input type="checkbox"/> Air Ambulance				
<input type="checkbox"/> Medical Cache				
<input type="checkbox"/> Move Ups				
<input type="checkbox"/> Status reports				
Additional Considerations				
<input type="checkbox"/> County notifications				
<input type="checkbox"/> PIO				
<input type="checkbox"/> USAR for extrication				
<input type="checkbox"/> Health Haz-Mat-ETA _____				
<input type="checkbox"/> Health Department-ETA _____				
<input type="checkbox"/> Rehab: _____				
<input type="checkbox"/> Light Unit _____				
<input type="checkbox"/> Red Cross: #of Victims / Age / Sex _____				



* Guideline Only - actual number of patients may vary

* positions require a recorder

1st Priority
2nd Priority
3rd Priority

COMMON

ANTICOAGULANTS AND ANTI-PLATELETS

MOST COMMON AS OF PUBLICATION DATE AND MAY NOT INCLUDE ALL THAT ARE AVAILABLE.

Anticoagulant List

warfarin / Coumadin
enoxaparin / Lovenox
apixaban / Eliquis
rivaroxaban / Xarelto
dabigatran etexilate / Pradaxa
ticagrelor / Brilinta
deltaparin / Fragmin
edoxaban / Savaysa
fondaparinux / Arixtra
tinzaparin / Innohep
desirudin / Iprivask
heparin

Antiplatelet List

aspirin
clopidogrel / Plavix
prasugrel / Effient
ticagrelor / Brilinta
ticlopidine / Ticlid
dipyridamole/**aspirin** (Aggrenox)

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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 stroke 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., intraventricular shunt malfunction)
Note: Transport by air or ground to closest facility with an open CT scanner

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

PEDIATRIC TRAUMA TRIAGE TOOL

Pediatric Patients <14yrs

Uncontrolled Airway- Transport to closest Emergency Department

Major Physiologic Factors?

- GCS ≤ 13 (attributed to traumatic head injury)
- SBP < 80 mmHg age 7-14 or < 70 mmHg age < 7
- Respiratory rate < 20 in infant < 1 yr or requiring ventilatory support

Yes

Transport to Oakland Children's Hospital if ETA 30min or less, otherwise transport to MarinHealth Medical Center Level III Trauma center and provide Trauma Notification

No

Major Anatomic Factors?

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

Yes

No

Mechanism of Injury Factors?

- Falls > 10 ft or three times the height of the child
- High-risk auto crash and
 - Passenger space intrusion $> 18"$ ($> 12'$ occupant side)
 - Ejection (partial or complete) from vehicle
 - Death in same passenger compartment
- Auto vs. pedestrian or auto vs. bicyclist: thrown, run over, or with > 20 mph impact
- Motorcycle or bicycle crash: thrown and > 20 mph impact
- Burns with MOI factors

Yes

Provide Trauma Notification and transport to MHMC Level III Trauma Center

No

Additional factors?

Assessment of additional factors (e.g. anticoagulant use, anti-platelet use, bleeding disorders with head/torso injury, etc) or other complaints or exam findings cause paramedic to be concerned about the patient

Yes

No

Transport to closest ED or ED of patient's choice

TRAUMA TRIAGE TOOL

Patients 14yrs and older

Uncontrolled Airway- Transport to closest Emergency Department

Major Physiologic Factors?

- GCS ≤ 13 (attributed to traumatic head injury)
- SBP < 90 mmHg
- Respiratory rate < 10 or > 29 breaths per min

Yes

Provide Trauma Notification and transport to closest trauma center: MarinHeath Medical Center (MHMC) by ground, or a Level II by air

No

Major Anatomic Factors?

- Penetrating injuries to head, neck, torso, or extremities proximal to elbow or knee
- Flail chest
- Two or more proximal long bone fractures
- Crushed, degloved, mangled or amputated extremity proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis (partial or complete)

Yes

No

Mechanism of Injury Factors?

- Falls > 20 ft (1 story = 10ft)
- High-risk auto crash and
 - Passenger space intrusion > 18 " (> 12 " occupant side)
 - Ejection (partial or complete) from vehicle
 - Death in same passenger compartment
- Auto vs. pedestrian or auto vs. bicyclist: thrown, run over, or with > 20 mph impact
- Motorcycle or bicycle crash: thrown and > 20 mph impact
- Burns with MOI factors

Yes

Provide Trauma Notification and transport to MHMC Level III Trauma Center

No

Additional factors?

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

Yes

No

Transport to closest ED or ED of patient's choice

AREA HOSPITALS				
Name	Address	City	ED	Main
Kaiser Hospital, San Rafael	99 Montecillo Road	San Rafael	415-444-2410	415-444-2000
MarinHealth Medical Center	250 Bon Air Road	Greenbrae	415-925-7203	415-925-7000
Novato Community Hospital	180 Rowland Way	Novato	415-209-1350	415-209-1300
Children's Hospital Oakland	747 52d Street	Oakland	510-428-3240	510-428-3000
CPMC - Pacific	2333 Buchanan Street	San Francisco	415-600-3333	415-600-6000
CPMC – California West	3700 California Street	San Francisco	415-600-4444	415-600-4000
CPMC - Davies	45 Castro Street	San Francisco	415-600-0600	415-600-6000
Kaiser Hospital, San Francisco	2425 Geary Blvd	San Francisco	415-833-3300	415-833-2000
Zuckerberg San Francisco General	1001 Potrero Avenue	San Francisco	415-206-8111	415-206-8000
St. Francis Memorial	900 Hyde Street	San Francisco	415-353-6300	415-353-6000
St. Mary's Medical Center	450 Stanyan Street	San Francisco	415-750-5700	415-668-1000
UCSF Medical Center	505 Parnassus Avenue	San Francisco	415-502-8841	415-476-1000
UCSF Benioff Children's Hospital Mission Bay	1975 4th Street	San Francisco	415-353-1818	415-353-1203
VA SF Medical Center	4150 Clement Street	San Francisco	7415-50-2052	415-221-4810
Kaiser Hospital, Santa Rosa	401 Bicentennial Way	Santa Rosa	707-393-2025	707-393-4000
Petaluma Valley Hospital	400 N. McDowell Blvd	Petaluma	707-778-2634	707-778-1111
Santa Rosa Memorial Hospital	1165 Montgomery Drive	Santa Rosa	707-525-5207	707-546-3210
Sutter Medical Center of Santa Rosa	30 Mark West Springs Rd	Santa Rosa	707-576-4040	707-576-4000

Marin County Fire Stations							
SMFD	CMFD	SRFD	MFD	RVFD	MCFD		
1 805-7331	13 927-5049	51 485-3310	58 479-0122	18 453-7434	WOODACRE		473-6717
4 805-7334	14 927-5077	52 485-3139	NFPD	19 258-4619	POINT REYES		473-7699
9 805-7335	15 927-5007	53 492-1058	61 878-2681	20 258-4620	MARIN CITY		446-7610
TFPD	16 927-5041	54 485-3144	62 878-2682	21 258-4621	THROCKMORTON		388-5414
10 435-7203	KFPD	55 485-3143	63 878-2683	MVFD	HICKS VALLEY		662-2503
11 435-7200	17 453-7464	56 485-3144	64 878-2684	6 389-4155	TOMALES		707-878-2464
		57 485-3145	65 878-2685	7 389-4130	MEDIC 18		446-4440
NPS 561-5505	Stinson Beach 868-0622		Inverness 669-7151		Bolinias 868-1566		
GGNRA 289-1888	Muir Beach 380-9627		Nicasio 662-2201		Skywalker 662-1706		

Crisis Response Team
415-473-6392

Communications Center
MED 479-5304
FIRE 479-5303
LAW 479-5302

Poison Control
800-222-1222

EMS AGENCY	
1600 Los Gamos Drive, #220, Lobby C, San Rafael, CA 94903	
phone: 473-6871 fax: 473-3950	
www.MarinEMS.org	
Chris Le Baudour, Administrator	473-6833
Christian Lombard, EMS Specialist	473-7455
Devin Tsai, Asst. Medical Director	473-6871
Dustin Ballard, Medical Director	473-2588
Karrie Groves, CQI /Trauma Coordinator	473-6871
Liria Topuz, Office Assistant	473-7481
Troy Peterson, EMS Specialist	473-3287