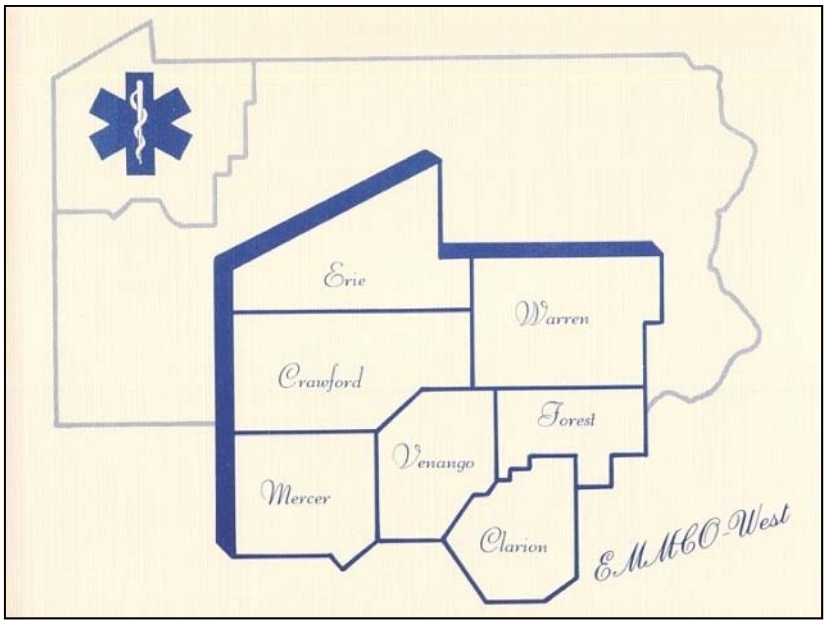


EMMCO West
Regional EMS Council
Of Northwestern PA

Regional ALS Protocols

EMMCO West, Inc
16271 Conneaut Lake Rd, Suite 101
Meadville, PA 16335
www.emmco.org
814-337-5380
Effective 03/01/06

EMMCO WEST, Inc.

Northwestern PA Regional EMS Council

To: EMMCO West ALS Practitioners, ALS Service Medical Directors, ALS Service Administrators, Medical Command Physicians, & EMS System Stakeholders

From: William D. McClincy
Executive Director

Date: December 1, 2005

Ref.: Implementation of revised regional ALS protocols

Between December 1, 2005 and March 1, 2006, our region will embark upon a regional implementation of the revised regional ALS protocols. This is the first comprehensive revision to the EMMCO West ALS Protocols since 1996 although some treatments and patient modalities have changed in the past 10 years. Thanks to the input and review of our region's EMS stakeholders, these ALS protocol revisions have come to fruition.

Each ALS service and ALS service medical director will be conducting rollout sessions for their ALS personnel. The attached documents and CD ROM contain the materials necessary to conduct the ALS protocol rollout sessions. ALS services should plan on 2.5 – 3 hours for each ALS protocol rollout session. EMMCO West will be printing copies of the revised ALS protocols for each currently recognized paramedic or PHRN with medical command authorization. EMMCO West staff members will distribute these ALS protocols and will be in attendance at the rollout sessions to answer any questions. ALS services need to contact jane@emmco.org to schedule an EMMCO West staff member to attend their service's rollout session(s).

ALS service administrators and ALS service medical directors need to assure **ALL ALS personnel** under their direction have attended a rollout session and submitted confirmation of their updates to EMMCO West, Inc.. As of **March 1, 2006**, ALS services and/or personnel who have not completed a rollout session / updated their ALS personnel will be subject to disciplinary actions pursuit ant to Title 28, subchapters 1003.24(d), 1003.25b (c), 1003.27 (11), 1005.11 4. (d), and 1005.12 (16).

EMMCO West staff members will be in contact with regional medical command facilities. An orientation session will be conducted with medical command physicians on the revised ALS protocols.

Please contact me (bill@emmco.org), any EMMCO West staff member, or Dr. Brian Risavi, EMMCO West's Regional Medical Director if you have questions or need assistance implementing these revised ALS protocols.

Suite 101, 16271 Conneaut Lake Road, Meadville, PA 16335
814-337-5380, 814-337-0871 Fax, www.emmco.org

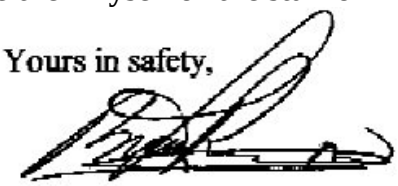
Dear EMS Provider,

The EMMCO West Regional Medical Advisory Committee, in conjunction with the Pennsylvania Department of Health, has devoted a tremendous amount of time and effort to revising the ALS protocols for the entire seven-county region. I would like to personally thank each and every physician, nurse, paramedic, and emergency medical technician for their thoughtful input in the revision and updating of these protocols. I would also like to extend my sincere thanks to the staff of EMMCO West for their outstanding efforts in this monumental task.

The Pennsylvania Department of Health, EMS Office, has approved the protocols in their entirety and the process of beginning rollouts to orient providers to the new protocols is already underway. The process of orientation will include a PowerPoint® presentation, distribution of copies of the new protocols to ALS providers, Medical Command facilities/physicians, ALS services medical directors, and question/answer sessions scheduled throughout the region; including a session at Symposium 2006 in March.

You will note that some of the protocols have been designated as optional (at the discretion of the ALS service medical director) and some definitions have been clarified. Please review these new protocols carefully and direct any questions and/or concerns to either myself or the staff of EMMCO West.

Yours in safety,



Brian L. Risavi, DO, FACEP, FAAEM, HP-DO
Regional Medical Director
EMMCO West Regional EMS Council

EMMCO West Regional ALS Protocols

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EMMCO West Regional ALS Drug List

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Introduction

The Regional Medical Director of EMMCO West, through consultation with the Regional Medical Advisory Committee is charged with the responsibility of developing, and updating prehospital medical treatment protocols and other guidelines under which the prehospital ALS personnel within the EMMCO West EMS region shall function.

This manual defines ALS treatment protocols with a specification of what portions of those protocols may be accomplished as treatment and what portions are to be done with medical command orders. The intent of the protocol is multi-purpose, outlining treatment which is performed without medical command contact. The protocols serve as guidelines to the paramedic when direct contact with medical command is lost, as in a telecommunications failure or malfunctions (in these situations prehospital ALS practitioners are to follow the protocol as directed after medical command is contacted as noted in the flow charts). The protocols suggest Possible Medical Command Orders which may be expected after contacting medical command. And lastly, the protocols will also serve as a guide to the Medical Command Physician who will be providing on-line or on-scene medical command orders for prehospital ALS personnel.

This manual is to be utilized by prehospital ALS personnel functioning with medical command authorization with an ALS service in EMMCO West region. However, the individual Service Medical Directors may institute restrictions on the ALS practitioner functioning within their respective service if the restriction does not preclude the individual from performing the services specified within the scope of the individual's certification or recognition as permitted by the ALS protocols for the region.

These protocols are not to be exceeded by ALS personnel. Medical Command Physicians may apply them within standard medical practice, but not to exceed the ALS personnel's scope of practice.

EMMCO West is responsible for assuring that each Medical Command Facility Medical Director and ALS Service Medical Director is provided with a complete copy of this document. The ALS Service Medical Directors and Medical Command Facility Medical Directors are responsible for distributing a copy of this protocol to their ALS personnel and Medical Command Physicians respectively and ensure that they are familiar with the protocols.

Manual Updates and Revisions

1. When this manual, or a procedure within is revised, changed or updated, all prehospital ALS personnel, Medical Command Facility Medical Directors, Emergency Department Directors of receiving facilities, and ALS Services/ Service Medical Directors shall be notified in writing.

2. Notification Procedures:

   A. EMMCO West is responsible for notifying Medical Command Facility Medical Directors and ALS Service Medical Directors and other receiving facilities within the region.
      a. Medical Command Facility Medical Directors are responsible to notify:
         - All Medical Command Physicians at their respective facilities
         - Applicable Emergency Department staff (e.g. Nurses and Paramedic Coordinator- if the facility has such a position or its equivalent);
      b. ALS Service Medical Directors are responsible to notify:
         - ALS Services
         - Individual prehospital ALS personnel (e.g. paramedics and health professionals functioning within their respective service(s)).
         - The Service Medical Director may designate an appropriate alternate to carry out the notification of updates or revisions.
         - The Service Medical Director is ultimately responsible for the notification having been accomplished, regardless of who may be designated to actually conduct it.

3. Notification content:
   - Procedure or policy change
   - Reasons for the change
   - A copy of the change that has occurred, with instructions as to where it should be placed in the manual
   - Date of implementation of the change
   - Date verification responses is required

   A. A verification form is to be completed by each Medical Command Physician and returned to the Medical Command Facility Medical Director

   B. A verification form is to be completed by each ALS practitioner and returned to the Service Medical Director by a specified date. (A similar form is to be provided by the service management as well, relevant to the service acknowledging receipt of the information.)
      a. The verification form will state:
      - Confirmation of receipt of the information
      - Confirmation of reading of all of the information
      - Confirmation of understanding all of the information
      - Confirmation of compliance with training requirements (if applicable)
      - Signature of the individual (service manager, on service's form)
      - Date of signature

4. Failure to return verification form

   - If an individual practitioner fails to return the verification form, or returns it and does not comply with the change as of the effective date, the ALS Service Medical Director should initiate the process for withdrawing Medical Command Authorization as outlined in the Regulations to the EMS Act.

Definitions

Protocol: Written prescribed medical procedures adopted by EMMCO West, Inc., in consultation with the EMMCO West Regional Medical Advisory Committee, and approved by the Pennsylvania Department of Health.

Standing Order: Specified medical procedures within a protocol that an EMS Practitioner (ALS or BLS) shall perform prior to the initiation of on-line/on-scene medical command contact. Within each protocol, specific standing orders may be included. This is treatment that is performed without Medical Command contact.

ED Notification: Contact made by the EMS crew (ALS or BLS) to a receiving facility intended to notify the facility that they are transporting a patient to their facility and to provide the facility with a brief description of the patient's history of present injury/illness, pertinent medical information, treatment provided and response to treatment. Radio is the preferred method of ED notification but as an exception to the rule may occur via telephone, cell phone or relay. If seeking medical command from one facility and transporting to another receiving facility, some method of notifying the receiving facility should be in place. ED notification via radio may be appropriate.

Medical Command Contact (Contact Medical Command**):** For the purposes of a protocol, Medical Command Contact is defined as contact made by the EMS crew (ALS or BLS) to a Medical Command Physician for the purposes of orders or direction in the management of a patient when the patient has received treatment above the medical command line and the patient still has symptoms or unstable vital signs or any other condition that the EMS practitioner believes should be discussed with the medical command physician. This may occur via “On-line” radio or telephone or “On-scene” command physician at the emergency site. Should the medical command contact be lost, as in a telecommunications failure or malfunctions, the prehospital ALS practitioners may consider and perform at their discretion the procedures or treatments after the medical command box as noted in the flow charts ONLY if unable to contact medical command. However medical command may be sought at any time throughout a protocol.

Possible Medical Command Orders: For the purposes of a protocol, Possible Medical Command Orders is defined as contact made by the EMS crew (ALS or BLS) to a Medical Command Physician for the purposes of orders or direction in the management of a patient when the patient has received treatment above the medical command line and the patient still has symptoms or unstable vital signs or any other condition that the EMS practitioner believes should be discussed with the medical command physician. These possible orders are given by the Medical Command Physician once medical command is contacted and stays within the scope of practice of the EMS practitioner. These possible medical command orders are within the written protocol ONLY and MUST have on–line or on-scene medical direction. Protocols in which possible medical command orders do not appear in the flowchart are intended to be performed ONLY when directed by a medical command order.

Optional Medication/Procedure/Equipment: Throughout the document some protocols have optional medications, procedures or equipment that may be administered by regional practitioners if approved by service medical director. These medications, procedures or equipment are not required to be used or carried by each service, but are included to allow each service the ability to carry these medications/procedures/equipment if the service and the service medical director agree that it would be beneficial to the service and/or the patients in their service area. It is the responsibility of the service medical director to educate ALS personnel on these medications.

Optional medication/procedure/equipment will be clearly marked as optional (if available) to allow for easy identification. In the event your service medical director / service does not permit the use of these medications/procedure/equipment, ALS practitioners should omit the step and follow the next appropriate step in the protocol.

Example of optional (if available)

1. *Consider* Amiodarone (optional / if available))
- *Dilute 150 mg in 100cc normal saline*
- *Administer over 10 minutes*

DEPARTMENT OF HEALTH

Pennsylvania Statewide

Basic Life Support Protocols

Pennsylvania Department of Health
Emergency Medical Services Office

Effective September 1, 2004

DEPARTMENT OF HEALTH

(717) 787-8740

May 13, 2004

Dear EMS Personnel:

The EMS Office, Department of Health, is pleased to provide these "Statewide BLS Protocols" to the EMS personnel of Pennsylvania. The protocols are the result of a three-year project led by Dr. Douglas Kupas, Commonwealth Emergency Medical Director. Wherever possible, the protocols were developed to be evidence-based and to include the best thinking of expert practitioners. Input came from hundreds of EMS practitioners, medical directors, and other stakeholders to create practical protocols that will support EMS personnel in providing the most up-to-date EMS care possible for the residents and visitors of the Commonwealth. The protocols are based upon and mesh completely with other documents, i.e., Pennsylvania's EMT and First Responder curricula, scope of practice notices for EMS personnel, and BLS skills sheets, to provide a uniform, consistent, and high-quality foundation for prehospital care. The protocols will support initial training of personnel, be reinforced through continuing education programs, and be applied in the delivery of patient care in the field.

EMS personnel are permitted to perform patient care, within their PA defined scope of practice, when following the appropriate protocol(s) or when following the order of a medical command physician. While many of the protocols merely formalize the care that is already provided by many of PA's EMS personnel, a few contain state-of-the-art information that may be new to some practitioners. Each EMS practitioner is responsible for being knowledgeable regarding current State-approved protocols so that he/she may provide the safest, highest quality and most effective care to patients.

When providing patient care under the EMS Act, EMS personnel of all levels must follow applicable protocols. Although the Statewide BLS Protocols are written for BLS-level care, they also apply to the BLS-level care administered by ALS practitioners. Since written protocols cannot feasibly address all patient care situations that may develop, the EMS Office expects EMS personnel to use their training and judgment regarding any protocol-driven care that would be harmful to a patient. **When the practitioner believes that following a protocol is <u>not</u> in the best interest of the patient, the EMS practitioner should contact a medical command physician if possible.** Cases where deviation from the protocol is justified are rare. The reason for any deviation should be documented. All deviations are subject to investigation to determine whether or not they were appropriate. In all cases, EMS personnel are expected to deliver care within the scope of practice for their level of certification.

The Department of Health's EMS Office website will always contain the most current version of the EMS protocols, the scope of practice for each level of practitioner, important EMS Information Bulletins, and many other helpful resources. This information can be accessed online at www.health.state.pa.us/ems. The Statewide BLS Protocols may be directly printed or downloaded into a PDA for easy reference. Additionally, the Learning Management System contains supportive training information relative to the protocols. If you are not registered for this free continuing education system, please contact the regional EMS council responsible for the area in which you live.

The Department thanks the committees of PEHSC, the regional EMS councils, the regional and service medical directors, and the many organizations and individual EMS personnel, for their contributions. The Department is especially grateful for the contributions of Mr. J. Scott Goodale whose computer and formatting skills were indispensable. The protocols will be reviewed every year. EMS personnel are encouraged to provide recommendations for improvement at any time. Comments should be directed to the Commonwealth Emergency Medical Director, EMS Office, PO Box 90, Harrisburg, PA 17108.

Sincerely,

Margaret E. Trimble, Director
Emergency Medical Services Office
Pennsylvania Department of Health

APPENDICES

SCENE SAFETY GUIDELINES

Criteria:

A. This guideline applies to every EMS response, particularly if dispatch information or initial scene size-up suggests:
   1. Violent patient or bystanders.
   2. Weapons involved.
   3. Industrial accident or MVA with potential hazardous materials
   4. Patient(s) contaminated with chemicals

System requirements:

A. These guidelines provide general information related to scene safety. These guidelines are not designed to supersede an ambulance service's policy regarding management of personnel safety [as required by EMS Act regulation 28 § 1005.10 (l)], but this general information may augment the service's policy.

B. These guidelines do not comprehensively cover all possible situations, and EMS practitioner judgment should be used when the ambulance service's policy does not provide specific direction.

Procedure:

A. **If violence or weapons are anticipated:**
   1. EMS personnel should wait for law enforcement officers to secure scene before entry.
   2. Avoid entering the scene alone.[1]
   3. If violence is encountered or threatened, retreat to a safe place if possible and await law enforcement.

B. **MVAs, Industrial Accidents, Hazardous Materials situations:**
   1. General considerations:
      a. Obtain as much information as possible prior to arrival on the scene.
      b. Look for hazardous materials, placards, labels, spills, and/or containers (spilling or leaking). Consider entering scene from uphill/upwind.
      c. Look for downed electrical wires.
      d. Call for assistance, as needed.
   2. Upon approach of scene, look for place to park vehicle:
      a. Upwind and uphill of possible fuel spills and hazardous materials.
      b. Park in a manner that allows for rapid departure.
      c. Allows for access for fire/rescue and other support vehicles.
   3. Safety:
      a. Consider placement of flares/warning devices.[2]
      b. Avoid entering a damaged/disabled vehicle until it is stabilized.
      c. Do not place your EMS vehicle so that its lights blind oncoming traffic.
      d. Use all available lights to light up scene on all sides of your vehicle.
      e. PPE is suggested for all responders entering vehicle or in area immediately around involved vehicle(s).

C. **Parked Vehicles (non-crash scenes):**
   1. Position Ambulance:
      a. Behind vehicle, if possible, in a manner that allows rapid departure and maximum safety of EMS personnel.
      b. Turn headlights on high beam and utilize spotlights aimed at rear view mirror.
      c. Inform the dispatch center, by radio, of the vehicle type, state and number of license plate and number of occupants **prior** to approaching the suspect vehicle.
   2. One person approaches vehicle:
      a. If at night, use a flashlight in the hand that is away from the vehicle and your body.
      b. Proceed slowly toward the driver's seat; keep your body as close as possible to the vehicle (less of a target). Stay behind the "B" post and use it as cover.[3]
      c. Ensure trunk of vehicle is secured; push down on it as you walk by.
      d. Check for potential weapons and persons in back seat.
         1) Never stand directly to the side or in front of the persons in the front seat.
      e. Never stand directly in front of a vehicle.

3. Patients:
   a. Attempt to arouse victim by tapping on roof/window.
   b. Identify yourself as an EMS practitioner.
   c. Ask what the problem is.
   d. Don't let patient reach for anything.
   e. Ask occupants to remain in the vehicle until you tell them to get out.

D. **Residence scenes with suspected violent individuals:**
1. Approach of scene:
   a. Attempt to ascertain, via radio communications, whether authorized personnel have declared the scene under control prior to arrival.
   b. Do not enter environments that have not been determined to be secure or that have been determined unsafe.
      1) Consider waiting for police if dispatched for an assault, stabbing, shooting, etc.
   c. Shut down warning lights and sirens one block or more before reaching destination.
   d. Park in a manner that allows rapid departure.
   e. Park 100' prior to or past the residence.

2. Arrival on scene:
   a. Approach residence on an angle.
   b. Listen for sounds; screaming, yelling, gun shots.
   c. Glance through window, if available. Avoid standing directly in front of a window or door.
   d. Carry portable radio, but keep volume low.
   e. If you decide to leave, walk backward to vehicle.

3. Position at door:
   a. Stand on the knob side of door; do not stand in front of door.
   b. Knock and announce yourself.
   c. When someone answers door – have him or her lead the way to the patient.
   d. Open door all the way and look through the doorjamb.

4. Entering the residence:
   a. Scan room for potential weapons.
   b. Be wary of kitchens (knives, glass, caustic cleaners, etc.).
   c. Observe for alternative exits.
   d. Do not let anyone get between you and the door, or back you into a corner.
   e. Do not let yourself get locked in.

5. Deteriorating situations:
   a. Leave (with or without patient).
   b. Walk backwards from the scene and do not turn your back.
   c. Meet police at an intersection or nearby landmark, not a residence.
   d. Do not take sides or accuse anyone of anything.

E. **Lethal weapons:**
1. Secure any weapon that can be used against you or the crew out of the reach of the patient. Weapons should be secured by a law enforcement officer, if present.
   a. Guns should be handed over to a law enforcement officer if possible or placed in a locked space, when available.
      1) Place two fingers on the barrel of the gun and place in a secure area.
         a) Do not unload a gun.
      2) Do not move a firearm unless it poses an immediate threat.
   b. Knives should be placed in a locked place, when available.

Notes:

1. Each responder should carry a portable radio, if available.
2. Flares should not be used in the vicinity of flammable materials.
3. Avoid side and rear doors when approaching a van. Vans should be approached from the front right corner.

INFECTION CONTROL / BODY SUBSTANCE ISOLATION GUIDELINES

Criteria:

A. These guidelines should be used whenever contact with patient body substances is anticipated and/or when cleaning areas or equipment contaminated with blood or other body fluids.

B. Your patients may have communicable diseases without you knowing it; therefore, these guidelines should be followed for care of all patients.

System Requirements:

A. These guidelines provide general information related to body substance isolation and the use of universal precautions. These guidelines are not designed to supercede an ambulance service's infection control policy [as required by EMS Act regulation 28 § 1005.10 (l)], but this general information may augment the service's policy.

B. These guidelines do not comprehensively cover all possible situations, and EMS practitioner judgment should be used when the ambulance service's infection control policy does not provide specific direction.

Procedure:

A. **All patients:**

1. Wear gloves on all calls where contact with blood or body fluid (including wound drainage, urine, vomit, feces, diarrhea, saliva, nasal discharge) is anticipated or when handling items or equipment that may be contaminated with blood or other body fluids.
2. Wash your hands often and after every call. Wash hands even after using gloves:
   a. Use hot water with soap and wash for 15 seconds before rinsing and drying.
   b. If water is not available, use alcohol or a hand-cleaning germicide.
3. Keep all open cuts and abrasions covered with adhesive bandages that repel liquids. (e.g. cover with commercial occlusive dressings or medical gloves)
4. Use goggles or glasses when spraying or splashing of body fluids is possible. (e.g. spitting or arterial bleed). As soon as possible, the EMS practitioner should wash face, neck and any other body surfaces exposed or potentially exposed to splashed body fluids.
5. Use pocket masks with filters/ one-way valves or bag-valve-masks when ventilating a patient.
6. If an EMS practitioner has an exposure to blood or body fluids[1], the practitioner must follow the service's infection control policy and the incident must be immediately reported to the service infection control officer as required. EMS practitioners who have had an exposure[2] should be evaluated as soon as possible, since antiviral prophylactic treatment that decreases the chance of HIV infection must be initiated within hours to be most effective. In most cases, it is best to be evaluated at a medical facility, preferably the facility that treated the patient (donor of the blood or body fluids), as soon as possible after the exposure.
7. Preventing exposure to respiratory diseases:
   a. Respiratory precautions should be used when caring for any patient with a known or suspected infectious disease that is transmitted by respiratory droplets. (e.g. tuberculosis, influenza, or SARS)
   b. HEPA mask (N-95 or better), gowns, goggles and gloves should be worn during patient contact.
   c. A mask should be placed upon the patient if his/her respiratory condition permits.
   d. Notify receiving facility of patient's condition so appropriate isolation room can be prepared.
8. Thoroughly clean and disinfect equipment after each use following service guidelines that are consistent with Center for Disease Control recommendations.
9. Place all disposable equipment and contaminated trash in a clearly marked plastic red Biohazard bag and dispose of appropriately.
   a. Contaminated uniforms and clothing should be removed, placed in an appropriately marked red Biohazard bag and laundered / decontaminated.
   b. All needles and sharps must be disposed of in a sharps receptacle unit and disposed of appropriately.

Notes:

1. At-risk exposure is defined as “a percutaneous injury (e.g. needle stick or cut with a sharp object) or contact of mucous membrane or non-intact skin (e.g. exposed skin that is chapped, abraded, or afflicted with dermatitis) with blood, tissue or other body fluids that are potentially infectious.” Other “potentially” infectious materials (risk of transmission is unknown) are CSF (cerebral spinal fluid), synovial, pleural, peritoneal, pericardial and amniotic fluid, semen and vaginal secretions. Feces, nasal secretions, saliva, sputum, sweat, tears, urine and vomitus are not considered potentially infectious unless they contain blood.

REFUSAL OF TREATMENT / TRANSPORT
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with illness or injury refuses treatment or transport.
B. Individual with legal authority to make decisions for an ill or injured patient refuses treatment or transport.

Exclusion Criteria:

A. Patient involved in incident but not injured or ill, See Protocol #112.

System Requirements:

A. **[OPTIONAL]** An EMS service or region may require its personnel to complete an EMS Patient Refusal Checklist as part of the PCR for every patient that refuses transport. Regional medical treatment protocol may require contact with medical command physician for all patients refusing treatment and/or transport.

Procedure

A. **All Patients:**
   1. Assess patient using Initial Contact and Patient Care Protocol #201.
      a. If the patient is combative or otherwise poses a potential threat to EMS practitioners, retreat from the immediate area and contact law enforcement.
      b. Consider ALS if a medical condition may be altering the patient's ability to make medical decisions.
   2. Attempt to secure consent to treatment / transport. [1,2,3,4]
   3. Assess the following (use EMS Patient Refusal Checklist if required by regional or service):
      a. Assess patient's ability to make medical decisions and understand consequences (e.g. alert and oriented x 4, GCS=15, no evidence of suicidal ideation/attempt, no evidence of intoxication with drugs or alcohol, ability to communicate an understanding of the consequences of refusal).
      b. Assess patient's understanding of risks to refusing treatment/transport.
      c. Assess patient for evidence of medical conditions that may affect ability to make decisions (e.g. hypoglycemia, hypoxia, hypotension)
   4. If acute illness or injury has altered the patient's ability to make medical decisions and if the patient does not pose a physical threat to the EMS practitioners, the practitioners may treat and transport the patient as per appropriate treatment protocol. Otherwise contact medical command. See Behavioral Disorders/Agitated Patient (Restraint) protocol #801 is appropriate.
   5. Contact medical command if using the EMS Refusal Checklist and any response is completed within a shaded box **or** if patient assessment reveals at least one of the following:
      a. EMS practitioner is concerned that the patient may have a serious illness or injury.
      b. Patient has suicidal ideation, chest pain, shortness of breath, hypoxia, syncope, or evidence of altered mental status from head injury intoxication or other condition.
      c. Patient does not appear to have the ability to make medical decisions or understand the consequences of those decisions.
      d. The patient is less than 18 years of age.
      e. Vital signs are abnormal.
   6. If patient is capable of making and understanding the consequences of medical decisions and there is no indication to contact medical command or medical command has authorized the patient to refuse treatment/transport, then:
      a. Explain possible consequences of refusing treatment/transport to the patient [3]
      b. Have patient and witness sign the EMS Refusal Checklist or other refusal form [4].
      c. Consider the following:
         1) Educate patient/family to call back if patient worsens or changes mind
         2) Have patient/family contact the patient's physician
         3) Offer assistance in arranging alternative transportation.

B. **Document:** The assessment of the patient and details of discussions must be thoroughly documented on the patient care report (PCR), EMS services may choose to require that practitioners complete the EMS Patient Refusal Checklist that is included in this protocol as part of the PCR for every patient that refuses treatment. In the absence of a completed EMS Patient Refusal checklist, documentation in the PCR should generally include:

1. History of event, injury, or illness.
2. Appropriate patient assessment.
3. Assessment of patient's ability to make medical decisions and ability to understand the consequences of decisions.
4. Symptoms and signs indicating the need for treatment/transport.
5. Information provided to the patient and/or family in attempts to convince the patient to consent to treatment or transport. This may include information concerning the consequences of refusal, alternatives for care that were offered to the patient, and time spent on scene attempting to convince the individual.
6. Names of family members or friends involved in discussions, when applicable.
7. Indication that the patient and/or family understands the potential consequences of refusing treatment or transport.
8. Medical command contact and instructions, when applicable.
9. Signatures of patient and/or witnesses when possible.

Possible MC Orders:

A. Medical command physician may request to speak with the patient, family, or friends when possible.

B. Medical command physician may order EMS personnel to contact law enforcement or mental health agency to facilitate treatment and/or transport against the patient's will. In this case, the safety of the EMS practitioners is paramount and no attempt should be made to carry out an order to treat or transport if it endangers the EMS practitioners. Contact law enforcement as needed.

Notes:

1. If the patient lacks the capacity to make medical decisions, the EMS practitioner shall comply with the decision of another person who has the capacity to make medical decisions, is reasonably available, and who the EMS practitioner, in good faith, believes to have legal authority to make the decision to consent to or refuse treatment or transport of the patient.
   a. The EMS practitioner may contact this person by phone.
   b. This person will often, but not always, be a parent or legal guardian of the patient. The EMS practitioner should ensure that the person understands why the person is being approached and that person's options, and is willing to make the requested treatment or transport decisions for the patient.
2. If the patient is 18 years of age or older, has graduated from high school, has married, has been pregnant, or is an emancipated minor, the patient may make the decision to consent to or refuse treatment or transport. A minor is emancipated for the purpose of consenting to medical care if the minor's parents expressly, or implicitly by virtue of their conduct, surrender their right to exercise parental duties as to the care of the minor. If a minor has been married or has borne a child, the minor may make the decision to consent to or refuse treatment or transport of his or her child. If the minor professes to satisfy any of the aforementioned criteria, but does not satisfy the criterion, the EMS practitioner may nevertheless comply with the decision if the EMS practitioner, in good faith, believes the minor.
3. If a patient who has the capacity to make medical decisions refuses to accept recommended treatment or transport, the EMS practitioner should consider talking with a family member or friend of the patient. With the patient's permission, the EMS practitioner should attempt to incorporate this person's input into the patient's reconsideration of his or her decision. These persons may be able to convince the patient to accept the recommended care.
4. For minor patients who appear to lack the capacity or legal authority to make medical decisions:
   a. If the minor's parent, guardian, or other person who appears to be authorized to make medical decisions for the patient is contacted by phone, the EMS practitioner should have a witness confirm the decision. If the decision is to refuse the recommended treatment or transport, the EMS practitioner should request the witness to sign the refusal checklist of form.
   b. If a person who appears to have the authority to make medical decisions for the minor cannot be located, and the EMS practitioner believes that an attempt to secure consent would result in delay of treatment which would increase the risk to the minor's life or health, the EMS practitioner shall contact a medical command physician for direction. The physician may direct medical treatment and transport of a minor if an attempt to secure the consent of an authorized person would result in delay of treatment which the physician reasonably believes would increase the risk to the minor's life or health.

c. If a person who appears to have authority to make medical decisions for the minor cannot be located, the EMS practitioner believes an attempt to secure consent would result in delay of treatment which would increase the risk to the minor's life or health, and the EMS practitioner is unable to contact a medical command physician for direction, the EMS practitioner may provide medical treatment to the and transport a minor patient without securing consent. An EMS practitioner may provide medical treatment to and transport any person who is unable to give consent for any reason, including minority, where there is no other person reasonably available who is legally authorized to refuse or give consent to the medical treatment or transport, providing the EMS practitioner has acted in good faith and without knowledge of facts negating consent.

5. The medical command physician may wish to speak directly to the patient if possible. Speaking with the medical command physician may cause the patient to change his or her mind and consent to treatment or transport.

Performance Parameters:

A. Compliance with completion of the EMS Patient Refusal checklist for every patient that refuses transport, if required by service or regional policy.

B. Compliance with medical command physician contact when indicated by criteria listed in protocol.

EMS Patient Refusal Checklist

EMS Service: _____ Date: _____ Time: _____

Patient Name: _____ Age: _____ Phone #: _____

Incident Location: _____ Incident # _____

Situation of Injury/Illness: _____

Check marks in shaded areas require consult with Medical Command before patient release

Patient Assessment:

Suspected serious injury or illness based upon patient
History, mechanism of injury, or physical examination: ___ Yes ___ No

18 years of age or older: ___ Yes ___ No

Patient Oriented to:
Person ___ Yes ___ No
Place ___ Yes ___ No
Time ___ Yes ___ No
Event ___ Yes ___ No

Any evidence of:
Suicide attempt? ___ Yes ___ No
Head Injury? ___ Yes ___ No
Intoxication? ___ Yes ___ No
Chest Pain? ___ Yes ___ No
Dyspnea? ___ Yes ___ No
Syncope? ___ Yes ___ No

Vital Signs:	***Consult Medical Command if:***
Pulse _____	<50bpm or >100 bpm
Sys BP _____	<100 mm Hg or > 200 mm Hg
Dia BP _____	<50 mm Hg or > 100 mm Hg
Resp _____	< 12rpm or > 24rpm

If altered mental status or diabetic –(ALS only)-
Chemstrip/Glucometer: _____mg/dl < 60mg/dl

If chest pain, S.O.B. or altered mental status --
SpO2 (if available): _____% < 95%

Risks explained to patient: _____
Patient understands clinical situation __Yes __No
Patient verbalizes understanding of risks __Yes __No
Patient's plan to seek further medical evaluation: _____

Medical Command:

Physician contacted: _____ Facility: _____ Time: _____

Command spoke to patient: Yes ___ No ___ Command not contacted ___ Why? _____

Medical Command orders: _____

Patient Outcome:

___ Patient refuses transport to a hospital against EMS advice
___ Patient accepts transportation to hospital by EMS but refuses any or all treatment offered (specify treatments refused: _____)
___ Patient does not desire transport to hospital by ambulance, EMS believe alternative treatment/transportation plan is reasonable

This form is being provided to me because I have refused assessment, treatment and/or transport by EMS personnel for myself or on behalf of this patient. I understand that EMS personnel are not physicians and are not qualified or authorized to make a diagnosis and that their care is not a substitute for that of a physician. I recognize that there may be a serious injury or illness which could get worse without medical attention even though I (or the patient) may feel fine at the present time. I understand that I may change my mind and call 911 if treatment or assistance is needed later. I also understand that treatment is available at an emergency department 24 hours a day. I acknowledge that this advice has been explained to me by the ambulance crew and that I have read this form completely and understand its terms.

_____ _____ _____
Signature (Patient or Other) Date EMS Provider Signature

_____ _____
If other than patient, print name and relationship to patient Witness Signature

NON-TRANSPORT OF PATIENTS OR CANCELLATION OF RESPONSE STATEWIDE BLS PROTOCOL

Criteria:

A. EMS provider cancelled before arriving at the scene of an incident.

B. EMS provider who has been dispatched to respond encounters an individual who denies injury/illness and has no apparent injury/illness when assessed by the EMS practitioner.[1]

C. EMS provider transfers care to another provider.

Exclusion Criteria:

A. This protocol does not apply to an on-scene EMS provider evaluating a patient who is ill or injured but refuses treatment or transport – see Protocol # 111.

Procedure:

A. **Cancellations:**

1. After being dispatched to an incident, an ALS or BLS provider may cancel its response when following the direction of a PSAP or dispatch center. Reasons for response cancellation by the PSAP or dispatch center may include the following situations:
   a. When the PSAP/ dispatch center diverts the responding provider to an EMS incident of higher priority, as determined by the PSAP/ dispatch center's EMD protocols, and replaces the initially responding provider with another EMS provider, the initial provider may divert to the higher priority call.
   b. When the PSAP/ dispatch center determines that another EMS service can handle the incident more quickly or more appropriately.
   c. When EMS personnel on scene determine that a patient does not require care beyond the scope of practice of the on scene provider, the EMS practitioner may cancel additional responding EMS providers. This includes cancellation of providers responding to patients who are obviously dead (see Protocol #322).
   d. When law enforcement or fire department personnel on scene indicate that no incident or patient was found, these other public safety services may cancel responding EMS providers.
   e. When the PSAP/ dispatch center is notified that the patient was transported by privately owned vehicle or by other means (caller, police, or other authorized personnel on the scene).
   f. When BLS is transporting a patient that requires ALS, ALS may be cancelled if it is determined that ALS cannot rendezvous with the BLS provider in time to provide ALS care before the BLS ambulance arrives at the hospital.
2. Ambulance services or regions may have policies that require the responding provider to proceed to the scene non-emergently if the on-scene individual that recommends cancellation is not an EMS practitioner.

B. **Persons involved but not injured or ill:**[1] The following apply if an individual for whom an EMS provider has been dispatched to respond denies injury/illness and has no apparent injury/illness when assessed by the EMS practitioner:

1. Assess mechanism of injury or history of illness, patient symptoms, and assess patient for corresponding signs of injury or illness
2. If individual declines care, there is no evidence of injury or illness, and the involved person has no symptoms or signs of injury/ illness, then the EMS practitioner has no further obligation to this individual.
3. If it does not hinder treatment or transportation of injured patients, documentation on the EMS PCR should, at the minimum, include the following for each non-injured patient:
   a. Name
   b. History, confirming lack of significant symptoms.
   c. Patient assessment, confirming lack of signs or findings consistent with illness/injury.
4. If serious mechanism of injury, symptoms of injury or illness, or physical exam findings are consistent with injury or illness, follow Patient Refusal of Treatment Protocol # 111.

C. **Release of patients:**

1. When patient care is transferred to another EMS practitioner, the initial practitioner must transfer care to an individual with an equivalent or higher level of training (e.g. EMT to EMT, ALS to ALS, ground to air medical crew) except in the following situations:
   a. Transfer to a lower level provider is permitted by applicable protocol or when ordered by a medical command physician. (e.g. ALS service releases patient care and/or transport to BLS service)
   b. Patient care needs outnumber EMS personnel resources at scene and waiting for an equivalent or higher level of care practitioner will delay patient treatment or transport.

D. **Provider Endangerment:**

1. Under no circumstances should a provider be required to endanger his or her life or health to provide patient care. See Scene Safety protocol #102.

Notes:

1. Pertains to persons who have had EMS summoned on their behalf by a third party, but deny being injured or ill (i.e.: a person in a minor MVA who denies complaints). This is not applicable if the patient has symptoms.

Performance Parameters:

A. Review cases of cancellation of ALS by BLS personnel for appropriateness

LIGHTS AND SIREN USE PROTOCOL

Criteria:

A. All EMS incident responses and patient transports. [1]

System Requirements:

A. These guidelines provide general information and "best practice" guidelines related to the use of lights and sirens by EMS personnel during incident response and patient transport. Ambulance services may use these guidelines to fulfill the service's requirement for a policy regarding the use of lights and other warning devices pas required by EMS Act regulation 28 § 1005.10 (l) or regions may use these guidelines in establishing regional treatment and transport protocols.

Policy:

A. **Use of lights and other warning devices [EMS Act regulation 28 § 1005.10 (g)]:**
   1. Ambulance may not use emergency lights or audible warning devices, unless they do so in accordance with standards imposed by 75 Pa.C.S/ (relating to Vehicle Code) and are transporting or responding to a call involving a patient who presents or is in good faith perceived to present a combination of circumstances resulting in a need for immediate medical intervention. When transporting the patient, the need for immediate medical intervention must be beyond the capabilities of the ambulance crew using available supplies and equipment.

B. **Response to incident:**
   1. The EMS vehicle driver is responsible for the mode of response to the scene based upon information available at dispatch. If the PSAP or dispatch center provides a response category based upon EMD criteria, EMS services shall respond in a mode (L&S or non-L&S) consistent with the category of the call at dispatch as directed by the dispatch center. [2] Response mode may be altered based upon additional information that is received by the dispatch center while the EMS vehicle is enroute to scene.
   2. L & S use is generally NOT appropriate in the following circumstances:
      a. "Stand-bys" at the scene of any fire department-related incident that does not involve active interior structural attack, hazardous materials (see below), known injuries to firefighters or other public safety personnel or the need for immediate deployment of a rehabilitation sector.
      b. Carbon monoxide detector alarm activations without the report of any ill persons at the scene.
      c. Assist to another public safety agency when there is no immediate danger to life or health.
   3. Special circumstances may justify L&S use to an emergency incident scene when the emergency vehicle is not transporting a crew for the purposes of caring for a patient:
      a. Transportation of personnel or materials resources considered critical or essential to the management of an emergency incident scene.
      b. Transportation of human or materials resources considered critical or essential to the prevention or treatment of acute illness/injury at a medical facility or other location at which such a circumstance may occur (i.e. transportation of an amputated limb, organ retrieval, etc).

C. **Patient transport:**
   1. The crewmember primarily responsible for patient care during transportation will advise the driver of the appropriate mode of transportation based upon the medical condition of the patient.
   2. L&S should not be used during patient transport unless the patient meets one of the following medical criteria: [4,5]
      a. Emergent transport should be used in any situation in which the most highly trained EMS practitioner believes that the patient's condition will be worsened by a delay equivalent to the time that can be gained by emergent transport. Medical command may be used to assist with this decision. The justification for using this criterion should be documented on the patient care report.
      b. **Vital signs**
         1) Systolic BP < 90 mmHg (or < 70 + [2 x age] for patients under 8 years old).
         2) Adults with respiratory rate > 32/min or < 10/min.

c. **Airway**
   1) Inability to establish or maintain a patent airway.
   2) Upper airway stridor.

d. **Respiratory**
   1) Severe respiratory distress. (Objective criteria may include pulse oximetry less than 90%, retractions, stridor, or respiratory rate > 32/min or < 10 min).

e. **Circulatory**
   1) Cardiac arrest with persistent ventricular fibrillation, hypothermia, overdose/ or poisoning.
   Note: Most other cardiac arrest patients should not be transported with L&S. [6]

f. **Trauma**
   1) Patient with anatomic or physiologic criteria for triage to a trauma center (Category 1 Trauma). Refer to Trauma Triage Protocol #180.

g. **Neurologic**
   1) Patient does not follow commands (motor portion of GCS $\leq$ 5).
   2) Recurrent or persistent generalized seizure activity.
   3) Acute stroke symptoms (patient has Cincinnati Prehospital Stroke Scale findings) that began within the last 3 hours. See Stroke Protocol #706.

h. **Pediatrics**
   1) Upper airway stridor.

i. **When in doubt,** contact with a medical command may provide additional direction related to whether there is an urgent need to transport with L&S.

3. No emergency warning lights or siren will be used when ALS care is not indicated (for example, ALS cancelled by BLS or ALS released by medical command). [7]
4. Mode of transport for interfacility transfers will be based upon the medical protocol and the directions of the referring physician or medical command physician who provides the orders for patient care during the transport. Generally, interfacility transport patients have been stabilized to a point where the minimal time saved by L&S transport is not of importance to patient outcome.
5. Exceptions to these policies can be made under extraordinary circumstances (e.g., disaster conditions or a back log of high priority calls where the demand for EMS ambulances exceeds available resources). These exceptions should be documented.

D. **Other operational safety considerations:**
1. The following procedures should be followed for safe EMS vehicle operations:
   a. Daytime running lights or low-beam headlights will be on (functioning as daytime running lights) at all times while operating EMS vehicles during L&S and non-L&S driving.
   b. L&S should **both** be used when exercising any moving privilege (examples include, proceeding through a red light or stop sign after coming to a complete stop or opposing traffic in an opposing land or one-way street) granted to EMS vehicles that are responding or transporting in an emergency mode.
   c. When traveling in an opposing traffic lane, the maximum speed generally should not exceed 20 m.p.h.
   d. EMS systems are encouraged to cooperate with the dispatch centers in developing procedures to “downgrade” the response of incoming units to Non-L&S when initial on-scene units determine that there is no immediate threat to life.
   e. The dispatch category (e.g., “code 3”, “ALS emergency”, etc.) that justifies L&S response should be documented on the patient care report. The justification for using L&S during transport should also be documented on the patient care report (e.g., “gunshot would to the abdomen”, “systolic BP<90”, etc.).
   f. Seat belts or restraints will be securely fastened to the following individuals when the vehicle is in motion:
      1) All EMS vehicle operators
      2) All patients
      3) All non-EMS passengers (cab and patient compartment)
      4) All EMS practitioners (when patient care allows)
      5) All infants and toddlers (these children should be transported in an age appropriate child seat if their condition allows). Children should not be placed in cab passenger seat with airbag.

Notes:

1. These guidelines are secondary to and do not supercede the Pennsylvania Motor Vehicle Code.
2. Dispatch centers/PSAPs and EMS regions are encouraged to have medically approved EMD protocols that differentiate emergent responses (for example, “emergency”, “code 3”, “red”, “Charlie”, “Delta”, etc…) from a lesser level of response (for example, “urgent”, “code 2”, “yellow”, “Alpha”, “Bravo”, etc…) based upon medical questions asked by the dispatcher. The dispatch category classification, or determinant that justifies L&S use should be documented on the PaPCR.
3. Firefighters cross-trained as EMS personnel who respond in an EMS vehicle to a fire station or fire incident in order to complete a fire apparatus crew are considered an exception to this policy.
4. In most cases (up to 95% of EMS incidents), EMS personnel can perform the initial care required to stabilize the patient’s condition to a point where the small amount of time gained by L&S transport will not affect the patient’s medical condition or outcome. In previous studies and in most situations, L&S transport generally only decreases transport time by a couple of minutes or less.
5. Each of these criteria refers to an acute change in the patient’s condition. For example, a patient who is chronically comatose would not automatically require L&S transport because the individual does not follow commands (criterion 2.g.1). Additionally, if the patient improves with treatment and no longer meets the criteria, L&S transport is not necessary.
6. The American Heart Association gives a class III recommendation to L&S transport of patients in cardiac arrest. A Class III indication is not helpful and is potentially harmful. Providing CPR during L&S transport may increase the risk for injury to EMS personnel.

L&S may be indicated in some situations where ALS is indicated, but not available or cancelled, because the ALS crew can not rendezvous with the BLS crew prior to transport to the closest appropriate medical facility.

Performance Parameters:

A. Review for correlation between dispatch classification/category and documented mode of response to scene.
B. Monitor percentage of “911” calls using L&S during response to EMS calls. Routine or scheduled transports should be excluded. [Potential benchmark <50% of responses with L&S].
C. Review for documentation of reason for L&S transport when patient does not meet criteria listed in section A.13.b – A.13.h.
D. Monitor percentage of urgent/emergent (“911”) calls using L&S during transport. [Potential benchmark >90-95% of patients transported without L&S]

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TRAUMA PATIENT DESTINATION
STATEWIDE BLS PROTOCOL

CRITERIA:

A. All patients, in the prehospital setting, with acute traumatic injuries.

EXCLUSION CRITERIA:

A. Patients who are being transported from one acute care hospital to another.

B. Patients who do not have acute traumatic injuries, or patients with a medical problem that is more serious than any associated minor acute traumatic injuries.

C. Patients transported by air ambulance services. Air ambulance personnel will use the Statewide Air Medical Transport Trauma Patient Destination Protocol #190.

POLICY:

A. **Extremely critical patients that are rapidly worsening:**

1. Patients with the following conditions should be transported as rapidly as possible to the closest receiving hospital: [2]
   a. Patients without an adequate airway, including patients with obstructed or nearly obstructed airways and patients with inhalation injuries and signs of airway burns).
   b. Patients that cannot be adequately ventilated.
   c. Patients exsanguinating from uncontrollable external bleeding with rapidly worsening vital signs (for example, a patient with severe hypotension and rapid bleeding, from a neck or extremity laceration, that cannot be controlled.).
   d. Other patients, as determined by a medical command physician, whose lives would be jeopardized by transportation to any but the closest receiving hospital.
2. The receiving facility should be contacted immediately to allow maximum time to prepare for the arrival of the patient.

B. **All other patients with acute traumatic injuries:** Use accompanying flow chart to determine patient's trauma triage category, and transport accordingly: [3]

1. **Category 1 trauma patient destination** [These anatomic or physiologic criteria are strongly correlated with severe injury and the need for immediate care at a trauma center, when possible]:

   a. Transport patient to the closest trauma center [4,5] by the method that will deliver the patient in the least amount of time if patient can arrive at the closest trauma center in ≤ 30 minutes. Otherwise contact medical command, if possible, for assistance in determining destination.

   b. Consider air transport if either:
      1) Air transport will deliver the patient to the trauma center sooner than ground transport, or
      2) Patient has a GCS ≤ 8, and air ambulance crew will arrive at patient in less time than the time to transport to closest trauma center.
   c. Communicate patient report and ETA to receiving trauma center as soon as possible, because this permits mobilization of the trauma team prior to the patient's arrival.

2. **Category 2 trauma patient destination** [These patients may benefit from evaluation and treatment at a trauma center, but mechanism of injury alone is not strongly related to serious patient injuries. If ground transport to a trauma center can be accomplished in ≤ 30 minutes, air transport is generally not necessary for these patients who do not meet anatomic or physiologic trauma triage criteria.]

   a. Contact medical command if required by regional protocol. **Note: EMS regions may require attempted contact with medical command for assistance with destination decisions for Category 2 trauma patients.**
   b. Reassess patient's condition frequently for worsening to Category 1 trauma criteria.
   c. Transport patient to the closest trauma center [4,5] if patient can arrive at the closest trauma center in ≤ 30 minutes. Otherwise contact medical command, if possible, for assistance in determining destination.
   d. Consider air transport if ground transport time is > 30 minutes.

e. Communicate patient report and ETA to receiving trauma center as soon as possible, because some trauma centers may mobilize a trauma team for Category 2 trauma patients.

3. **Category 3 trauma patients** [Transportation of these patients to the closest receiving facility is generally acceptable.]

   a. Transport to appropriate local receiving hospital
   b. Reassess patient frequently for worsening to Category 1 or 2 criteria.

C. **Air medical transport considerations:**

1. When choosing transport by air, in addition to the actual transport time, which is clearly faster by air, EMS personnel should consider the amount of time required for arrival of an air ambulance, patient preparation by the air medical crew, and patient loading.
2. When air ambulance transport is indicated, EMS personnel should request the closest available air ambulance through the local PSAP. The incident command system, when in place, should be used to accomplish this request.
3. The air ambulance may bring equipment and personnel with resources that are not available on the ground ambulances. These may be useful in the following situations:
   a. Patients with GCS ≤ 8 may benefit from advanced airway techniques that the air medical crew can perform.
   b. Air medical services may transport specialized medical teams for the treatment of unusual situations (for example, severe entrapment with the possibility of field amputation).
4. Prolonged delays at scene while awaiting air medical transport should be avoided.
   a. If an air ambulance is not available due to weather or other circumstances, transport the patient by ground using policy section C to determine destination.
   b. If patient is not entrapped, transport to an established helipad (for example a ground helipad at the closest receiving hospital [6,7], an FAA helipad at an airport, or other predetermined landing zone) if the ETA to the helipad is less than the ETA of the air ambulance to the scene.

D. **Considerations related to contact with medical command:**

1. When medical command is required for a Category 1 or 2 trauma patient, contact a medical command center accessible to the EMS provider using the following order of preference:
   a. The receiving trauma center if the destination is known and that center is also a medical command facility.
   b. The closest trauma center with a medical command facility.
   c. The closest medical command facility.
2. If the EMS crew has any question regarding the facility to which a patient is to be transported or whether the transport should be made by ground or air ambulance, the crew shall contact a medical command facility for direction.
3. If the patient will be transported by air ambulance, the air ambulance crew will determine the destination based upon the Statewide Air Medical Trauma Patient Destination Protocol.
4. Transport by ambulance to a facility other than the closest trauma center is permitted if directed by a medical command physician if the medical command physician is presented with medical circumstances that lead the medical command physician to reasonably perceive that a departure from the prior provisions in this protocol is in the patient's best interest. This may occur in special situations including the following:
   a. Specialty care is required that is not available at the closest trauma center (e.g. pediatric trauma center resources or burn center resources).
   b. The closest trauma center is on "diversion" based upon information from that center.
   c. The patient or other person with legal authority to act for the patient refuses transport to the closest trauma center.

Notes:

1. Patients in cardiac arrest who have penetrating trauma or are in third trimester (>24 weeks) of pregnancy should be taken to the closest trauma center if time to arrival at the closest trauma center is 15 minutes or less. Otherwise, patient should be transported to the closest hospital.
2. Transport should generally not be delayed while awaiting the arrival of ALS service or an air ambulance unless the ALS service or air ambulance has a confirmed ETA to the scene that is less than the ETA to the closest hospital.

3. Although these categories may be useful in identifying patients who should be transported to a trauma center during a mass casualty incident, patient transport prioritization should follow the system identified in the regional/ local mass casualty incident plan.
4. "Trauma Center" refers to a Regional Resource Trauma Center (Level 1) or a Regional Trauma Center (Level 2) that is currently accredited in this commonwealth and similarly qualified trauma centers in adjacent states. The most current Department lists of these resources should be used for reference. This definition of trauma center applies throughout this protocol.
5. **Pediatric patient considerations**: Patients that are 14 years of age or younger may be transported to the closest pediatric trauma center (which includes an adult trauma center with additional qualifications in pediatric trauma) if the patient's condition is not extremely critical (see policy section B.1. above) and the difference between transport to the closest trauma center and transport to the pediatric trauma center is no more than 10 minutes.
6. If the patient is not entrapped, EMS personnel should generally not wait on scene for an air ambulance if the ETA of the air ambulance is longer than the ground transport time to the closest hospital's helipad. Established helipads are generally safer than scene landing zones, and the resources of the adjacent hospital are available if the air ambulance is delayed or has to abort the flight. When using a helipad that can be accessed without entering a hospital, the patient's transport should not be delayed by stopping for evaluation within the hospital. If there is a significant delay in the arrival of the air ambulance, the patient should be taken to the hospital's ED for stabilization. Contact with medical command may be used if doubt exists about whether the patient should be evaluated in the hospital's ED.
7. This does not apply to hospital rooftop helipads that require access through the hospital. If a patient must be taken through a hospital to access their helipad, EMTALA requirements may cause a delay while the patient stops for an evaluation in the ED. EMS personnel should avoid accessing these receiving facilities for the use of their helipad unless the patient meets the criteria of extremely critical patients who are worsening rapidly as defined in Policy section B.1. above.

Performance Parameters:

A. Review all cases where patient meets criteria for Category 1 or 2 Trauma for appropriate destination and appropriate use of air transport.
B. Review on-scene time of all patients meeting Category 1 or Category 2 criteria. Consider possible benchmark of <10 minute on-scene time at in at least 90% of non-entrapped cases. Review all cases where on-scene time is > 10 minutes for appropriateness of care and documentation of reason for prolonged on-scene time.

Trauma Triage Criteria

Assess patient for any one of the following

Physiologic Criteria:
- Patient does not follow commands (GCS Motor ≤ 5)
- Hypotension, even a single episode (SBP < 90 mmHg in adults or SBP <70 in children)

Anatomic Criteria:
- Penetrating injury to head, neck, torso and extremities proximal to elbow or knee (unless obviously superficial)
- Chest injuries with respiratory distress (for example, flail chest)
- Two or more proximal long-bone (humerus or femur) fractures
- Pelvic fractures
- Limb paralysis (spinal cord injury)
- Amputation proximal to wrist or ankle

YES →

CATEGORY I TRAUMA
- **Requires immediate transport to a trauma center, if possible**
- **Notify Trauma Center ASAP**

NO

Mechanism of Injury:
- Death of another occupant in same vehicle
- Auto vs. pedestrian (bicycle) injury with significant impact
- Pedestrian thrown or run over
- Extrication time > 20 minutes
- Falls from > 20 feet
- Ejection from vehicle
- Vehicle rollover
- High-energy vehicle crash
- Motorcycle crash with separation of rider from motorcycle

Other factors combined with traumatic injuries:
- Age < 5 years or > 55 years
- Combination of trauma with burns
- Known heart disease, CHF, or COPD
- Known bleeding disorder or taking coumadin/ heparin
- Pregnancy (>20 weeks)
- Rigid or diffusely tender abdomen
- Amputation of fingers with possibility of reattachment

YES →

CATEGORY 2 TRAUMA

EITHER:
- **Contact medical command (if required in EMS region)**

OR
- **Transport to Trauma Center (if possible)**

NO

CATEGORY 3 TRAUMA

TRANSPORT TO CLOSEST APPROPRIATE RECEIVING FACILITY:
- **Frequently reassess for Category 1 or 2 criteria**
- **Contact medical command, if doubt about appropriate destination**

AIR AMBULANCE SAFETY CONSIDERATION GUIDELINES

Criteria:

A. Landing zone operations associated with use of an air ambulance.

Exclusion Criteria:

A. These guidelines provide general information related to safety when interacting with air ambulances. This general information may augment information that is provided by local air ambulance services, but since specific recommendations may differ by aircraft type or other factors it is not meant to supercede such information.

Procedure:

A. **Landing Zone (LZ) Recommendations:**

1. **Location:**
   a. Global Positioning Satellite (GPS) systems may assist providing precise location of LZ.
2. **Size:**
   a. Depends on size of aircraft, most use 100' x 100'.
   b. A larger LZ is recommended when higher surroundings and obstacles are present or multiple aircraft are responding.
3. **Slope:**
   a. Must be relatively level.
4. **Ground cover:**
   a. Dust can cause "brown out" where dust generated by rotor wash obscures pilot's visualization.
   b. Snow can cause "white out".
   c. Both can be planned for and overcome by pilot—be prepared for lots of blowing debris.
   d. Gravel—rotor wash throws gravel—broken windows, paint damage, eye injuries can occur.
   e. Other—be aware of anything in and around LZ such as twigs, tents, charts, linen, mattresses, rope, scene tape, garbage cans, turnout gear, rescue and medical equipment.
   f. Mud—aircraft can sink resulting in structural damage and difficulty taking off.
   g. Brush--should not be more than 1-2 ft deep, may need to be cut or tramped down.
5. **Obstacles:**
   a. Antennas, buildings, towers, wires, poles, hills, etc up to a mile from the LZ should be reported to the pilot. Do not assume that they see them.
   b. Other obstacles in the immediate vicinity of the LZ must be identified and relayed to the aircraft by the LZ Officer--Wires, poles, signs, antennas, trees, fences, geography, ground depressions, livestock, bystanders, apparatus and other vehicles, buildings, grave markers, etc.
6. **Using roadways as LZ:**
   a. **NO** vehicular traffic through LZ, including police, fire, and EMS vehicles.
   b. **NO** pedestrian traffic.
   c. PSP and local police maintain authority in decision to close roadways and thoroughfares.

B. **Marking the LZ:**

1. Mark 4 corners of desired landing spot with a 5th marker on side wind is coming from, so that the pilot can determine wind direction for landing
2. **DO NOT POINT WHITE LIGHTS AT THE AIRCRAFT AT ANY TIME!!!** (Blinds pilot, ruins night vision.)
3. Flares
   a. Good at night can be seen from a great distance.
   b. Limited use during the day, hard to see from the air.
   c. Be aware of fire potential caused by rotor wash.
   d. Be sure to collect after use.

4. Traffic cones
   a. Easy to see in daylight.
   b. Blown over easily unless weighted.
   c. Not useful at night unless internally illuminated by very bright light.
5. Strobes **are not useful.**
6. Vehicles **are not recommended, as they become obstacles.**
7. Personnel **are not recommended as markers.**
8. Rotating red, yellow, or blue lights
   a. Easy to see at night from miles away.
   b. Pilot may ask for them to be turned off after LZ is identified depending on overall illumination
9. Miscellaneous:
   a. Control bystanders to prevent their approach to aircraft and LZ.
   b. Pilot always has the final say in LZ acceptance.
   c. Many variables occur even if LZ has been used in the past.

C. **Rotor craft safety:**

1. All personnel should be outside LZ during landing and take off.
2. Never approach the aircraft unless requested or accompanied by air ambulance crewmember from the air ambulance.
3. Never open doors or operate aircraft mechanisms under routine conditions.
4. Never approach aircraft from front or back—only from the side and only when requested by a crewmember.
5. Tail rotor spins at high rate making it difficult to see and avoid, some are close to the ground (within striking distance to humans).
6. Main rotor systems vary widely—some types come within 4-5 ft of ground.
7. No running near aircraft.
8. No smoking within 100 ft (jet fuel and oxygen present).
9. No vehicles inside LZ.
10. Never approach or depart from an aircraft on a side where the ground is higher than the ground the aircraft is sitting on.
11. All loose objects must be secured before aircraft lands and departs.
12. Close all vehicle doors during landing and take off.
13. An engine company at LZ is not necessary unless required by local protocol.
14. Hot Loading:
    a. Follow air ambulance crew direction carefully.
    b. Wear turnout gear if available including eye, head, and ear protection.
    c. Remove all baseball caps and hats and store safely.
    d. Approach Aircraft only when accompanied by air ambulance crew.
    e. After loading the patient, depart aircraft and LZ by the exact path used to enter.
    f. Never carry anything that is higher than the level of your head (including IV bags.)

INITIAL PATIENT CONTACT
STATEWIDE BLS PROTOCOL

Criteria:

A. All patients.

Exclusion Criteria:

A. None

Procedure:

A. **Scene Size-Up:**

1. Evaluate scene safety – see Protocol # 102.
   a. If scene is unsafe and cannot be made safe, do not enter.
2. Utilize appropriate Body Substance Isolation / Universal Precautions – see Protocol # 103.
3. Determine Mechanism of injury (MOI) or nature of illness and number of patients.
   a. Initiate local or regional mass casualty plan if the number of surviving patients exceeds the threshold for initiating such plan (in accordance with applicable regional protocol). Call for additional BLS/ ALS ambulances if needed.
4. Summon ALS or aeromedical service, if indicated and available.

B. **All Patients:**

1. If trauma MOI, stabilize cervical spine during assessment.
2. Perform initial assessment. (Form a general impression of the patient; determine the chief complaint and/or life threatening problems; determine responsiveness; assess airway and breathing; assess circulation.) [1]
3. Assure open airway; proceed with obstructed airway treatment if needed.
4. If pulseless, proceed to appropriate protocol:
   a. DOA protocol # 322 or OOH-DNR protocol # 324 if indicated, or
   b. Cardiac Arrest (General) protocol #331, or
   c. Cardiac Arrest (Traumatic) protocol # 332 if a traumatic injury is clearly responsible for patient's cardiac arrest.
5. If breathing is inadequate, ventilate patient as needed.
6. If priority condition exists administer high concentration oxygen, treat immediately, and transport with reassessment and treatment by applicable protocol while enroute to the appropriate medical facility.
   a. Priority conditions are:
      1) Unable to obtain open airway
      2) Poor general impression
      3) Altered mental status and not following commands
      4) Difficulty breathing/ inadequate ventilation.
      5) Hypoperfusion (Shock).
      6) Complicated childbirth
      7) Chest pain with SBP< 100
      8) Uncontrolled bleeding
      9) Severe pain, anywhere
   b. If no priority condition exists, obtain history (SAMPLE & OPQRST) and perform focused physical exam.
7. Treat and transport per applicable protocol(s).

Notes:

1. If assessment of patient justifies ALS or air medical care, summon ALS or air ambulance service if available and not already dispatched. See Indications for ALS Use protocol #210 and Trauma Patient Destination protocol # 180.

OXYGEN ADMINISTRATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients presenting with the following conditions:

1. Shock.
2. Shortness of breath or respiratory distress.
3. Inhalation injury/ toxicity (including carbon monoxide exposure, smoke inhalation, chemical inhalation, etc…)
4. Suspected or known stroke or seizure.
5. Chest pain.
6. Suspected or known major trauma.
7. Acute change in level of consciousness.
8. Patient whose condition seems serious during initial assessment.
9. Patient with priority condition on Initial Patient Contact (protocol #201).
10. Patients who normally receive oxygen as part of their usual medical care.

Exclusion Criteria:

A. None.

Procedure:

A. **All patients:**

1. Apply oxygen:
   a. Administer high concentration oxygen if the patient has a priority condition (as defined in Initial Patient Contact Protocol #201) or as directed by specific treatment protocol for the patient's condition.
      1) Patients who require high concentration oxygen per specific protocols should receive oxygen via non-rebreather mask[1], except:
      2) If patient will not tolerate oxygen mask, use a nasal cannula at 4-6 liters per minute (lpm).
   b. Administer oxygen by nasal cannula if high concentration oxygen is not required.
      1) **[OPTIONAL]** If pulsoximetry available, may administer oxygen by nasal cannula if SpO2 > 95% on cannula. See Pulse Oximetry Protocol #226. Note- this does not apply to patients with suspected carbon monoxide or cyanide exposure. These patients should receive 100% O2 via NRB mask. [2]
2. Be prepared to assist ventilations as necessary. If ventilation is required, high concentration oxygen should be given by the ventilatory device.
3. Patients who normally receive oxygen as part of their usual medical care should be kept on their prescribed rate, unless presenting with one of the criteria listed above.

B. **Pediatric patients:**

1. Use appropriate size facemask or nasal cannula for pediatric patients.
   a. If the pediatric patient will not tolerate the mask or cannula, use blow-by oxygen via oxygen extension tubing.

Notes:

1. Respiratory efforts may be suppressed by high concentration oxygen in patients with obstructive lung diseases (e.g. COPD), but if the patient has a condition requiring high concentration oxygen, it is more important to maximize oxygenation. Practitioners should reassess the patient for signs of respiratory depression and should be prepared to assist ventilations if needed.
2. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.

ABUSE & NEGLECT (CHILD)
STATEWIDE BLS PROTOCOL

Criteria:

A. Any victim of suspected child abuse. [1]
   1. The following situations may be associated with child abuse:
      a. Poor nutrition and/or care including unsanitary or dangerous environment.
      b. Delay in seeking treatment for obviously significant medical problem.
      c. Patient, parent, or caregiver give significantly differing histories of injury or illness.
      d. History of minor trauma in a child with extensive physical injuries.
      e. Caregiver ascribes blame for serious injuries to a younger sibling or playmate.
   2. Possible physical exam findings associated with such abuse or neglect may include:
      a. Injured child less than two years old, especially hot water burns and fractures.
      b. Facial, mouth or genital injuries
      c. Multiplanar injuries (front and back, right and left).
      d. Injuries of different ages (old and new).
      e. Comatose child with no clear cause.
      f. Critically ill or injured child with no clear cause.
      g. Child in cardiac or respiratory arrest with no clear cause.

B. Any victim of suspected elder abuse.
   1. The following situations may be associated with elder abuse:
      a. Implausible explanation of physical findings.
      b. Delay in seeking care for illness or injury.
      c. "Doctor shopping," frequent emergency department visits or frequent use of emergency medical services (NOTE: This statement must not be mistaken for those persons who have serious illness and legitimate reasons for utilization of acute care medical services).
      d. Fear or distancing self from caregiver.
      e. Caregiver's refusal to leave elder alone.
   2. Possible physical exam findings associated with such abuse or neglect may include:
      a. Bruises in unusual areas (inner arm, torso, buttocks, scalp0>
      b. Patterned or multicolored bruises of different ages, abrasions or burns.
      c. Clothing soiled or inappropriate for season.
      d. Inadequate care of nails, teeth or skin.
      e. Pressure sores (decubitus ulcers).
      f. Bruised and/or bleeding genitalia, perineum or anal area.
      g. Dehydration, malnutrition or unexpected weight loss.
      h. Unsafe or unhygienic living environment.

Exclusion Criteria:

A. None.

Procedure:

A. **All patients:**
   1. Treat any injuries/illness according to standard protocol.
   2. When time permits, perform a visual inspection of the patient's surroundings looking for injury or abuse risk factors that may be associated with the patient's complaints.
   3. EMS Practitioner – patient/family interaction:
      a. **DO NOT** question or accuse the caretaker in cases of possible abuse or neglect.
      b. **DO NOT** discuss possible abuse or neglect issues with the patient in the presence of the abuser or other family members.
   4. Transport, if possible. Protect the individual from additional harm by encouraging transport to receiving facility, even if injuries appear to be minor.
      a. If transported to receiving facility, report concerns to staff at receiving facility **and** to appropriate agencies as required. (See section A.5.)
      b. If patient, parent or guardian refuses transport, see Refusal of Treatment/Transport protocol #111.
         1) Contact medical command.
         2) If the medical command physician agrees, contact the law enforcement authority having jurisdiction or the appropriate county protective services agency.
         3) **DO NOT** endanger yourself or the EMS crew by inciting a confrontation with family members, relatives or caregivers. If you feel threatened, leave the scene for a safe refuge and immediately contact law enforcement agency having jurisdiction.

5. Report suspicion of abuse or neglect to appropriate authorities as required whether or not the patient was transported.
   a. **Suspected Child Abuse (minors under 18 years of age):** [1,2]
      1) If an EMS practitioner has reasonable cause to suspect that a child (minor) has been abused or neglected, the practitioner must report the suspected abuse.
         a) The suspected abuse **must be reported immediately** in verbal form to the PA Child Abuse Hotline (DPW) at 800-932-0313, **AND**
         b) The suspected abuse **must be reported within 48 hours** in written form to the appropriate county Children and Youth agency by completing a CY-47 form. [3]
   b. **Suspected Elder Abuse (individuals 60 years of age or older):** [2]
      1) If an EMS practitioner has reasonable cause to suspect that an individual 60 years of age or older needs protective services, the practitioner may report that information. ["Protective services" are activities, resources and supports to detect, prevent or eliminate abuse, neglect, exploitation, and abandonment.]
         a) The suspected abuse, neglect or needs **may be reported immediately** in verbal form to the PA Elder Abuse Hotline at 800-490-8505.
         b) The suspected abuse or concerns may be reported to the local provider of protective services.
6. Document [4]

Notes:

1. Pennsylvania law requires mandatory reporting by health care practitioners, including EMS practitioners, of any child in whom there is reasonable cause to suspect abuse.
2. **Reporting mechanisms:**
   a. In addition to the required reporting to the abuse hotline or protective service agency, always report suspicion of child or elder abuse or neglected to the receiving physician.
   b. Some hospital social service departments may assist EMS practitioners in making the required contacts and reports, but in cases where reporting of suspected abuse is required, it remains the EMS practitioner's responsibility to assure that these reports have been made.
   c. The local law enforcement agency must be contacted if the EMS provider believes that the patient is in imminent danger of death or serious injury. They should also be contacted when there is evidence of physical or sexual abuse, since these two forms of abuse constitute assault.
   d. Knowing whether or not abuse has occurred is sometimes difficult. The DPW hotline call-takers will provide assistance.
3. EMS personnel are also encouraged to make this report to the local Children and Youth Agency immediately by phone.
4. **Documentation considerations:**
   a. The documentation for an EMS contact with a potential victim of abuse or neglect must be comprehensive and objective in nature.
   b. Document history of present illness/injury in detail, but avoid taking the patient's complaints out of context. Note pertinent positives and negatives only as the patient or caregiver answered them, not as the EMS practitioners believes they may exist.
   c. Document physical findings exactly as they appear, but avoid making statements that cannot be attested to in a court of law (exact age of contusions, exact cause of injury, etc.)
   d. Document environmental and household findings exactly as they appear, but avoid making generalizations and editorial comments (i.e. "numerous overfilled trash cans," rather than "the house was a mess").
   e. Document which authorities were contacted and when.

INDICATIONS FOR ALS USE
STATEWIDE BLS PROTOCOL

Criteria:

A. All patients.

Exclusion Criteria:

A. None.

Procedure:

A. **All patients:** [1]

1. Basic Life Support ambulance may request an Advanced Life Support (ALS) provider when they think that the patient's needs exceed their capabilities. These conditions may include but are not limited to:
   a. Altered level of consciousness.
   b. Allergic reaction to medication or bites with difficulty breathing or swallowing, altered level of consciousness, or known previous reaction; hives within 5 minutes of exposure.
   c. Cardiac symptoms.
   d. Cardiac arrest.
   e. Diabetic problem (not alert and/or abnormal breathing).
   f. Multi-system trauma or severe single system trauma.
   g. OB/Gyn (2^{nd} or 3^{rd} trimester bleeding or miscarriage).
   h. Overdose/poisoning (associated with any other categories on this list).
   i. Respiratory distress.
   j. Respiratory arrest.
   k. Seizures/convulsions.
   l. Entrapment with injuries (unless obviously minor injuries).
   m. Severe blood loss.
   n. Shock (Hypoperfusion).
   o. Stroke/CVA symptoms.
   p. Syncope (fainting).
   q. Unconsciousness.
   r. Severe pain anywhere.
   s. A patient with vital signs outside of the normal range:
      1) Patient does not follow commands (motor GCS $\leq$5).
      2) Systolic BP < 90.
      3) Pulse: <60 or >120 or irregular.
      4) Respirations: < 10 or >35 a minute or irregular.
2. If transport time by BLS to an appropriate receiving facility can be accomplished before ALS can initiate care, then the BLS service should transport as soon as possible and should not request or should cancel ALS.
3. BLS services should not delay patient care and transport while waiting for ALS personnel. If ALS arrival at scene is not anticipated before initiation of transport, arrangements should be made to rendezvous with the ALS service. [2]

Notes:

1. BLS personnel should initiate patient care and transport to the level of their ability following applicable BLS protocol(s).
2. In the case of a long BLS transport time with a nearby ALS service coming from the opposite direction, it may be appropriate to delay transport for a short period of time while awaiting the arrival of ALS if this delay will significantly decrease the time to ALS care for the patient. When BLS transport time to a receiving facility is relatively short, this delay is not appropriate.

Performance Parameters:

A. Review outcome and care of patients with above conditions who were treated/transported by BLS only. Note that ALS care in not mandatory for these conditions in all cases.

VENTILATION VIA ENDOTRACHEAL TUBE OR COMBITUBE ® AIRWAY ASSISTING WITH ALS PROCEDURES STATEWIDE BLS PROTOCOL

Criteria:

A. This protocol will be used to guide ventilation via endotracheal tube or Combitube ® by BLS personnel.

Exclusion Criteria:

A. None

System Requirements:

A. EMT should receive training in this skill either as part of their EMT course curriculum or by successful completion of continuing education.

B. Ventilation via ETT or Combitube ® must occur only when in direct presence of a responsible ALS practitioner who is on-scene functioning with an ALS service.

Procedure:

A. **All Patients:** [1]

1. Connect the bag-valve device or oxygen powered positive pressure ventilator to the ETT or to the proper port of the Combitube ® and begin to ventilate:
   a. Ventilate at adequate rate. **AVOID OVERZEALOUS HYPERVENTILATION!**
      1) Generally appropriate rates for ventilation are: [2]
         a) Adults >8 y/o 8-12 breaths / minute
         b) Children 1-8 y/o 20 breaths / minute
         c) Infants < 1 y/o 25 breaths / minute
      2) Controlled hyperventilation is appropriate in some cases of head injury – See Head Injury Protocol # 611.
   b. Ventilate with adequate volume. Provide steady squeeze of bag-valve device until chest rise is noted.
   c. When available and appropriate for age, a carbon dioxide monitor should always be placed in-line between the tube and the ventilating device during patient ventilation.
2. Assure that the bag-valve device is connected to supplemental oxygen.
3. Assist the ALS practitioner in securing the tube to prevent movement.
   a. This may be accomplished with the use of a commercial tube-holder, twill tape, or with the use of adhesive tape.
   b. The ALS practitioner may request immobilization with a spine board and CID to minimize tube dislodgement from neck motion.
4. Notify the ALS practitioner immediately if:
   a. The tube position is changed for any reason such as patient movement or movement of the ambulance.
   b. There is any change in the ease of patient ventilation.
   c. There is a reduction in carbon dioxide production if CO_2 detector is used.[2]
   d. The patient begins to breathe spontaneously.
5. If patient has a pulse and if pulsoximeter is available, place pulsoximeter on patient and notify ALS practitioner immediately if SpO_2 decreases.
6. If available, monitor ventilatory rate on CO_2 monitor to assist with appropriate ventilation rate.

Notes:

1. Although an EMT may assist with ventilation via an ETT or Combitube ®, continuous assurance of tube position and adequate ventilation is the responsibility of the ALS practitioner.
2. When available, a carbon dioxide (CO_2) detector must be attached between tube and bag-valve assembly. The EMT should immediately notify the ALS practitioner if CO_2 detector shows a decrease or absence of expired CO_2. Electronic CO_2 monitors are also helpful to assist in regulating rate of ventilation.

Performance Parameters:

A. If available, capnograph report should be used to evaluate appropriate rate of ventilation (generally 8-12 breaths per minute for adults).

B. Review all cases with inadvertent extubation or tube misplacement after initial intubation.

PULSE OXIMETRY
STATEWIDE BLS PROTOCOL [OPTIONAL]

Criteria:

A. Patient with shortness of breath or respiratory distress.

B. Patient with chronic lung disease (COPD, emphysema) who are receiving oxygen therapy. [1]

C. Any patient requiring oxygen therapy as determined by other appropriate Statewide BLS medical treatment protocols.

Exclusion Criteria:

A. Patient with suspected carbon monoxide poisoning. These patients should all receive high-flow 100% oxygen without regard to pulsoximeter reading. [2]

System Requirements:

A. [Optional] BLS services may carry a pulsoximeter for use by appropriately trained EMTs.
   1. These services must comply with additional Department of Health BLS pulsoximeter requirements including the presence of a BLS service medical director and appropriate personnel training before the service is permitted to carry a pulsoximeter.

B. EMTs may provide optional pulsoximetry monitoring if the EMT has completed training in the use of the pulsoximeter, is approved by the BLS service medical director, and is functioning with a BLS service that is approved to carry a pulsoximeter.

Procedure:

A. **All patients requiring oxygen therapy**
   1. Initial Patient Contact – see Protocol #201.
   2. Administer oxygen as determined by appropriate medical treatment protocol.
      a. Providing oxygen therapy, patient extrication, and on-scene time should never be delayed while obtaining an O_2 saturation reading.
   3. Monitor O_2 saturation (SpO_2) with pulsoximeter
      a. Assure that reading is accurate. Patient's pulse should correlate with waves or pulsations on pulsoximeter.
      b. Possible causes of inability to obtain as accurate SpO_2 reading include:
         1) Peripheral vasoconstriction (cold extremities, smoking, chronic hypoxia, or vascular obstruction/deficit).
         2) Severe anemia (low hemoglobin).
         3) Hypovolemia.
         4) Dirty Fingers or dark/metallic nail polish.
         5) Methemoglobinemia.
         6) Carbon monoxide – **Do not apply pulsoximeter to patient with suspected carbon monoxide poisoning.** [2]
   4. Use of SpO_2 reading to alter oxygen dosage:
      a. The following patients should receive high-flow oxygen at all times when possible:
         1) Patients with symptoms or signs of severe respiratory distress (air hunger, cyanosis, chest wall/subcostal retractions, etc.)
         2) Patients with suspected carbon monoxide poisoning.
         3) Patients with respiratory distress who are being prepared for air medical transport.
      b. Other patients (particularly patients with chronic lung disease or patients who do not tolerate an oxygen mask) may have oxygen mask replaced by nasal cannula or nasal cannula oxygen dose decreased if:
         1) SpO_2 reading remains >95% on lower oxygen dose.
         2) Patient's color is good (not cyanotic).
         3) Patient's respiratory distress does not worsen.
   5. Document initial SpO_2 reading after beginning oxygen therapy, and document SpO_2 reading after any changes in oxygen dose or type of delivery system/mask.

Notes:

1. Low oxygen in the blood (hypoxia) is sometimes needed as a stimulus to breathing in some patients with chronic lung diseases like COPD or emphysema. Pulsoximetry may be helpful in assuring that these patients are receiving adequate oxygen without suppressing their drive to breath with high-flow oxygen. **Note: Patients in significant respiratory distress should receive high-flow oxygen even if they have a history of chronic lung disease.**

2. Pulsoximetry readings can be falsely high in carbon monoxide poisoning, and it would not be appropriate to decrease oxygen therapy based upon pulsoximetry. For this reason, pulsoximetry should not be used in these patients.

Performance Parameters:

A. Monitor records for appropriate use of high-flow oxygen regardless of SpO_2 readings when appropriate.

B. Monitor records for documentation of SpO_2 readings >95% for all patients who receive less than high-flow 100% oxygen when lower doses are permitted by appropriate protocol.

ECG MONITOR PREPARATION
ASSISTING WITH ALS PROCEDURES
STATEWIDE BLS PROTOCOL

Criteria:

A. This protocol will be used to guide ECG monitor preparation by BLS personnel when an ALS practitioner has requested assistance with set-up of ECG monitor.
B. ECG monitor set-up must occur only when in direct presence of responsible ALS practitioner who is functioning on-scene with an ALS service.

Exclusion Criteria:

A. This protocol does not apply to the application of an AED to a pulseless and unresponsive patient.
B. BLS personnel are not permitted to apply AED electrodes or other ECG monitors to non-cardiac arrest patients for the purpose of ECG monitoring unless in the direct presence of a responsible ALS practitioner who is functioning on-scene with an ALS service.

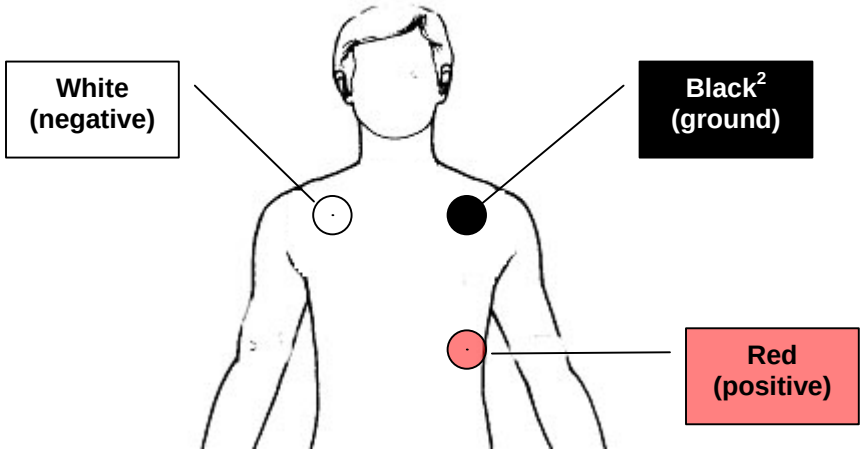
System Requirements:

A. EMT should receive training in this skill either as part of their EMT course curriculum or by successful completion of continuing education.

Procedure:

A. **All Patients:** [1]

1. Turn monitor power switch “On”.
2. Connect electrode cable to monitor (may be preconnected).
3. Connect an electrode to each snap on electrode cable.
4. Dry skin, if necessary, (in some cases, it may be necessary to shave a small patch of hair with a disposable shaver).
5. Apply electrodes to proper place as shown below. Note that some ALS services may monitor additional leads or use different electrode lead colors.



6. Record strip of ECG for approximately 12 seconds and provide to ALS practitioner for documentation.

Notes:

1. Although an EMT may assist with ECG monitoring, the ALS practitioner is responsible to assure that the monitor has been correctly set up and is responsible for all ECG interpretation.
2. If properly trained and directly supervised by an ALS practitioner who is functioning on-scene with an ALS service, the BLS personnel may connect electrodes to monitor a different lead or to obtain a 12-lead ECG.
3. The color and position of ground electrodes may vary, but the position of the red and white electrodes is standard.

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SPINAL IMMOBILIZATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Blunt traumatic injury with risk of possible spinal fracture or spinal cord injury based upon:

1. Symptoms of:
   a. Neck or back pain
   b. Extremity (upper or lower) weakness or numbness, even if symptoms have resolved.

OR

2. Mechanism of injury consistent with possible spinal injury, including:
   a. Any fall from standing or sitting with evidence of striking head.
   b. Any fall from a height (above ground level).
   c. Any MVC
   d. Any trauma where victim was thrown (e.g. pedestrian accident or explosion).
   e. Any lightning or high voltage electrical injury.
   f. Any injury sustained while swimming/ diving or near drowning where diving may have been involved.

OR

3. Any unknown or possible mechanism of injury when the history from patient or bystanders does not exclude the possibility of a spine injury. [1]

B. Penetrating trauma to the neck or back with signs/symptoms of neurologic deficit (extremity weakness or numbness).

C. This protocol also applies to inter-facility transfer of any patient that is being transferred due to injuries from a traumatic mechanism unless a medical command physician agrees that the patient may be transported without spinal immobilization.

Exclusion Criteria:

A. No history or no mechanism of injury that would be consistent with spinal injury.

B. Penetrating trauma to the neck or back without neurologic deficit.

C. Penetrating head trauma (for example gun shot wounds to the head).

D. Patients with non-traumatic back or neck pain related to movement, position or heavy lifting.[1]

Procedure:

A. **All patients:**

1. Provide manual stabilization of the cervical spine[2] until,
   a. Full spinal immobilization has been completed (usually requires a rigid c-spine collar, cervical immobilization device and long spine/back board.

OR

   b. Immobilization is not indicated as determined by this protocol.

2. **Immobilize the entire spine[3,4] in any trauma patient who sustains an injury with a mechanism having the potential for causing spinal injury and who has at least one of these clinical criteria:[5]**
   a. Altered mental status (including any patient that is not completely alert and oriented)
   b. Evidence of intoxication with alcohol or drugs
   c. A distracting painful injury (including any suspected extremity fracture)
   d. Neurologic deficit (including extremity numbness or weakness- even if resolved)
   e. Spinal pain or tenderness (in the neck or back)

   WARNING: These criteria cannot be assessed on any patient with a language or communication barrier (including young pediatric patients) that prevents understanding and appropriately responding to the assessment questions. If there is any doubt about whether the patient meets any of the clinical criteria listed above, immobilize the spine.

3. Follow other appropriate treatment or transport protocols. [6]

Notes:

1. Beware - minimal trauma may lead to spinal fractures inpatients with history of Rheumatoid Arthritis, severe osteoarthritis, Down's Syndrome, cancer, or ankylosing spondylitis. If these patients meet the criteria for spinal immobilization, they should be immobilized even if their mechanism was relatively minor (e.g. heavy lifting or twisting.
2. Maintain patent airway while maintaining C-spine stabilization. Use jaw-trust if needed. Consider nasopharyngeal or oropharyngeal airway if decreased LOC and no gag reflex.
3. If spinal immobilization is indicated by any of these clinical criteria, a rigid cervical collar should be applied immediately, and cervical spine stabilization should be continued until the patient has been immobilized with a long spine board and cervical immobilization device. A full-body vacuum splint may be used in place of a long spine board and C.I.D.
4. If the patient is in a seated position, a short spine board or similar device may be used to immobilize the spine during transfer to the long spine board.
5. Patients without a mechanism of injury with the potential for causing a spinal injury (as listed in the inclusion criteria above) or those patients without one of the listed clinical findings may have spinal immobilization omitted.
6. During patient assessment, consider signs of spinal cord injury and/or neurogenic shock.

Performance Parameters:

A. Review all cases of trauma patients that did not receive spinal immobilization for documentation of appropriate assessment of all five clinical criteria listed in the protocol.

MAST SUIT USE
STATEWIDE BLS PROTOCOL [OPTIONAL]

Criteria:

A. Patients with suspected fractures of the pelvis.[1]
   1. Traction splinting is preferred for patients with isolated femur fractures.
   2. Padded board splints or similar splinting devices are preferred for isolated tibia/ fibula fractures.

B. Patients with shock due to blunt abdominal trauma or other cause. [This is a relative indication, but may be considered if transport time is long.]

Exclusion Criteria:

A. Pulmonary edema or CHF
B. Chest trauma with possible pulmonary injury.

System Requirements:

A. MAST suit. (MAST suit is optional equipment for BLS and ALS)

B. If carried by service, practitioners must have MAST training as part of their EMT course curriculum or practitioners must complete MAST training/continuing education course or service medical director must verify skill competency.

Procedure:

A. **All patients:**

   1. Remove all of patient's clothing, including undergarments.
   2. Place the garment under patient with the top of the garment just below the inferior margin of the rib cage.
   3. Enclose the leg sections then the abdomen section and secure.
   4. If considering MAST as treatment for shock, medical command must be contacted to receive orders to inflate the MAST. This is not necessary when only used as a splinting device.
   5. Open the stopcocks to the appropriate leg/abdomen sections:
      a. Abdominal section must not be inflated in patient that is suspected to be pregnant.
      b. For suspected pelvic fractures, inflate all sections.
      c. For lower extremity fractures, inflate only the affected extremity.
   6. Inflate the MAST similar to an air splint, using the foot pump, until slight finger pressure causes indentation in the splint.[3]
   7. Close all valves.
   8. Record the patient's blood pressure.
   9. Do not deflate the MAST garment, unless ordered to do so by a medical command physician.[4]

Possible Medical Command Orders:

A. Inflate the garment.

B. Do not inflate the garment.

Notes:

1. MAST are used only to stabilize possible fractures of the femur and pelvis. Other methods of stabilizing these injuries should be considered before application of MAST. Traction splints are preferred over MAST for treatment of possible femur fractures, but MAST may be preferable when a suspected pelvis fracture is associated with other lower extremity fractures.
2. Pediatric MAST should be used for pediatric patients. Do not use adult MAST if it is too big for patient.
3. If inflating to treat shock after order by medical command physician, inflate until the Velcro crackles or to the pressure that the medical command physician orders (usually 20-25 mm Hg).
4. Deflation will normally be accomplished by the emergency department personnel.

Performance Parameters:

A. Review cases of MAST use for appropriateness of use and any delays in on-scene time.

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DEAD ON ARRIVAL (DOA)
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient presenting with the following
   1. Decomposition.
   2. Rigor mortis (Caution: do not confuse with stiffness due to cold environment)
   3. Dependent lividity.
   4. Decapitation.
   5. Unwitnessed cardiac arrest of traumatic cause.
   6. Traumatic cardiac arrest in entrapped patient with severe injury that is not compatible with life.
   7. Incineration.
   8. Submersion greater than 1 hour.

B. In cases of mass casualty incidents where the number of seriously injured patients exceeds the personnel and resources to care for them, any patient who is apneic and pulseless may be triaged as DOA. [1]

Exclusion Criteria:

A. Obviously pregnant patient with cardiac arrest after trauma, if cardiac arrest was witnessed by EMS practitioners. These patients should receive resuscitation and immediate transport to the closest receiving facility. See Trauma Patient Destination Protocol # 180.

B. Hypothermia. These patients may be apneic, pulseless, and stiff. Resuscitation should be attempted in hypothermia cases unless body temperature is the same as the surrounding temperature and other signs of death are present (decomposition, lividity, etc…). See hypothermia protocol #681.

Treatment:

A. **All patients:**

   1. Initial Patient Contact – see Protocol # 201.
   2. Verify pulseless and apneic.
   3. Verify patient meets DOA criteria listed above.
      a. **If any doubt exists, initiate resuscitation and follow Cardiac Arrest Protocol # 331 and consider medical command contact.**
      b. If patient meets DOA criteria listed above, ALS should be cancelled.
   4. If the scene is a suspected crime scene, see Crime Scene Preservation Guidelines #919.
   5. In all cases where death has been determined, notify the Coroner or Medical Examiner's office or investigating agency. Follow the direction of the Coroner or Medical Examiner's office/investigating agency regarding custody of the body.

Possible Medical Command Orders:

A. If CPR was initiated, but the medical command physician is convinced that the efforts will be futile, MC physician may order termination of the resuscitation efforts.

Note:

1. In the case of multiple patients from lightning strike, reverse triage applies, and available resources should be committed to treating the patients with no signs of life unless they meet the other criteria listed above.

Performance Parameters:

A. Review all cases for documentation of DOA criteria listed above.

OUT-OF-HOSPITAL DO NOT RESUSCITATE STATEWIDE BLS PROTOCOL

Criteria:

A. Patient displaying an Out-of-Hospital Do Not Resuscitate (OOH-DNR) original order, bracelet, or necklace who is in cardiac or respiratory arrest.[1]

Exclusion Criteria:

A. Patient does not display, and patient surrogate does not produce, an OOH-DNR original order, bracelet, or necklace.

B. An OOH-DNR order may be revoked by a patient or their surrogate at any time. If the patient or surrogate communicates to an EMS practitioner their intent to revoke the order, the EMS practitioner shall provide CPR if the individual is in cardiac or respiratory arrest.

C. Advance directives, living wills, and other DNR forms that are not valid Pennsylvania Department of Health OOH-DNR orders may not be followed by EMS personnel unless validated by a medical command physician. When presented with these documents, CPR / resuscitation should be initiated and medical command should be contacted as soon as possible.

D. Patient is not in cardiac or respiratory arrest.

Treatment:

A. **All patients in cardiac or respiratory arrest:** [2]

1. Follow Scene Safety protocol #102 and BSI precautions.
2. Verify the presence of a valid PA DOH OOH-DNR original order, bracelet, or necklace.
   a. If there is any question of whether the OOH-DNR order is valid, the patient or their surrogate has revoked the order, or whether the patient is pregnant[3], the EMS practitioner shall:
      1) Initiate resuscitation using appropriate protocol(s), and
      2) Contact medical command as soon as possible
3. Verify pulselessness or apnea.
4. If a bystander has already initiated CPR:
   a. Assist with CPR and contact medical command immediately.
5. If CPR has not been initiated before the arrival of EMS personnel:
   a. The OOH-DNR shall be honored and CPR shall be withheld or discontinued.
   b. Contact the local coroner or medical examiner.

Possible Medical Command Orders:

A. The medical command physician may order termination of resuscitation efforts if CPR was not initiated by EMS personnel.

Note:

1. EMS personnel shall follow this protocol and, when appropriate, shall honor an OOH-DNR within a hospital.
2. An OOH-DNR order, bracelet or necklace is of no consequence unless the patient is in cardiac or respiratory arrest, if vital signs are present, the EMS practitioner shall provide medical interventions necessary and appropriate to provide comfort to the patient and alleviate pain unless otherwise directed by the patient or a medical command physician. Follow appropriate treatment protocols.
3. For pregnant patients, the EMS personnel shall examine the original signed OOH-DNR to ensure completion of Section 2B “Physicians for Pregnant Patients Only” by the patient’s attending physician in order to honor the OOH-DNR and withhold or discontinue CPR.

Performance Parameters:

A. Review all cases for documentation of presence of a PA DOH recognized OOH-DNR order, bracelet, or necklace.

CARDIAC ARREST – GENERAL
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient unresponsive, pulseless and apneic/agonal breaths.

Exclusion Criteria:

A. If patient meets criteria for DOA (e.g. decapitation, decomposition, rigor mortis in warm environment, etc…) then follow DOA protocol # 322.
B. Cardiac arrest due to acute traumatic injury – Follow Cardiac Arrest - Traumatic Protocol #332. AED use is not indicated in traumatic cardiac arrest, but this protocol should be followed if there is the possibility of a medical condition causing cardiac arrest prior to a traumatic incident.

System Requirements:

A. Functioning as an AED service is optional for BLS services, but if the service chooses to provide this function, the service must meet the DOH approved service and personnel training requirements for an AED service.

Treatment:

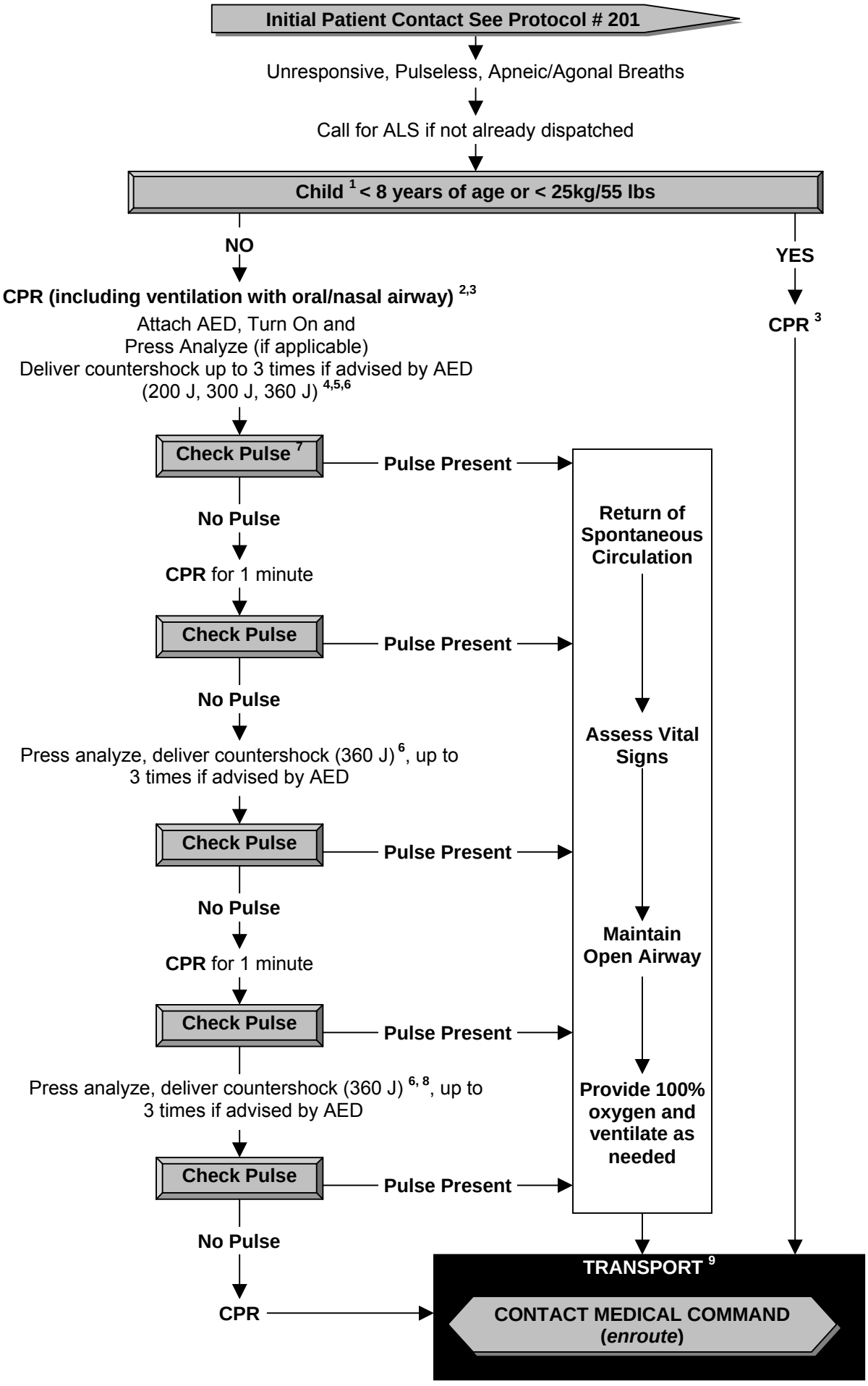
A. **All Patients**
   1. Refer to accompanying flowchart.

Possible Medical Command Orders:

A. Repeat sets of 3-stacked shocks with 1 min of CPR between each set until a "no shock indicated" (VF is no longer present).
B. In pediatric patients, may order use of adult AED.

Note:

1. **Pediatric Guidelines**: If pediatric AED is immediately available, follow protocol flowchart for adult patients but use pediatric AED. If no pediatric AED is available, initiate CPR and contact medical command. Medical Command Physician may order the use of an adult AED for patients less than 8 years old.
2. The single rescuer with an AED should verify unresponsiveness, open the airway (A), give two ventilations (B), and check the pulse (C), if a cardiac arrest is confirmed, the AED should be attached, and the rescuer should proceed with the protocol.
3. Ventilate the patient with appropriate oral/nasopharyngeal airway using high flow oxygen, as soon as possible, but **Do Not** delay CPR to connect oxygen. Ideal ventilation includes two-person technique and cricoid pressure.
   a. Before intubation, compression to ventilation ratio is: Adult 15:2; Pediatric 5:1.
   b. **Avoid overzealous hyperventilation**. After intubation, ventilation rate should be:
      1) Adults >8y/o 10 breaths / min.
      2) Child <1-8 y/o 20 breaths/ min.
      3) Infant < 1 y/o 25 breaths / min.
   c. If unable to ventilate, proceed to Obstructed Airway maneuvers.
4. Check pulse only after the completion of each group of three shocks or after the AED gives a "no shock indicated" message.
5. If no shock is indicated, check pulse, repeat 1 min of CPR if pulseless, check pulse again, and then re-analyze (if applicable). After three sequential "no shock indicated" messages, repeat "analyze" period every 10 min. **Note:** some AEDs automatically re-analyze for you.
6. Some biphasic devices may shock at lower energy levels. Equivalent biphasic energy doses must be determined by the service AED medical director using manufacturer recommendations and current literature.
7. Patient with severe hypothermia (if available, core temperature <90° F or 32° C) see Hypothermic Protocol # 681. For hypothermic patients, no more than 3 shocks should be delivered. Further action will be directed by medical command. Begin transport immediately after initial set of three countershocks.
8. If VF persists after three sets (or 9 shocks), contact medical command. If unable to contact medical command, transport patient as soon as possible while continuing CPR.
9. During transport, reanalyze rhythm about every 10 minutes, and deliver sets of 3 additional shocks if advised.
   a. The vehicle and all patient movement should stop before reanalyzing the rhythm.
   b. Practitioners must be familiar with the AED used by their service. AEDs that automatically analyze every minute should be temporarily disabled during patient movement and transport, since the motion of transport may lead to inappropriate shocks. In many machines, this can be accomplished by disconnecting the electrodes from the machine. Avoid turning the AED off, since this may reset all of the data collection within the device.


Initial Patient Contact See Protocol # 201
Unresponsive, Pulseless, Apneic/Agonal Breaths
Call for ALS if not already dispatched
Child [1] < 8 years of age or < 25kg/55 lbs
NO
YES
CPR (including ventilation with oral/nasal airway) [2,3]
CPR [3]
Attach AED, Turn On and
Press Analyze (if applicable)
Deliver countershock up to 3 times if advised by AED
(200 J, 300 J, 360 J) [4,5,6]
Check Pulse [7]
Pulse Present
No Pulse
CPR for 1 minute
Check Pulse
Pulse Present
No Pulse
Press analyze, deliver countershock (360 J) [6], up to
3 times if advised by AED
Check Pulse
Pulse Present
No Pulse
CPR for 1 minute
Check Pulse
Pulse Present
Press analyze, deliver countershock (360 J) [6, 8], up to
3 times if advised by AED
Check Pulse
Pulse Present
No Pulse
CPR
Return of Spontaneous Circulation
Assess Vital Signs
Maintain Open Airway
Provide 100% oxygen and ventilate as needed
TRANSPORT [9]
CONTACT MEDICAL COMMAND
(enroute)

Performance Parameters:

A. System review of percentage of cardiac arrests that are dispatched as cardiac arrests or as the highest category by the dispatch center's EMD classification system. Review for percentage that were offered and received EMD pre-arrival instructions in CPR.

B. Review of number of cardiac arrest patients that received bystander CPR. [Benchmark may be set with the goal of increasing community CPR classes to improve this percentage.]

C. System review of time from dispatch to arrival on scene of initial responder with access to AED. [Possible benchmark of response of 5 minutes or less to 90% of cardiac arrests.]

D. Review all cardiac arrests for rate of return of spontaneous circulation (ROSC) and survival to hospital discharge using the Utstein criteria.

E. Review percentage of cardiac arrest patients that have access to an AED if ALS ambulance does not routinely arrive within 5 minutes.

CARDIAC ARREST – TRAUMATIC
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient unresponsive, pulseless, and apneic/agonal breaths when acute traumatic injury is the cause of the cardiac arrest.

Exclusion Criteria:

A. If patient meets criteria for DOA (e.g. decapitation, decomposition, rigor mortis in warm environment, etc…) then follow DOA protocol # 322.

B. Patients in cardiac arrest due to overdose, hypothermia, cardiac disease, or other medical conditions when traumatic injuries are not suspected to be the primary reason for cardiac arrest – see Cardiac Arrest protocol # 331.

Treatment:

A. **Patients in cardiac arrest due to trauma:**

1. Initial Patient Contact – see protocol #201.
   a. If any doubt exists that the apparent injuries are responsible for the cardiac arrest, follow Cardiac Arrest Protocol #331, including the use of AED when indicated. Otherwise, AED use is not indicated in cardiac arrest from severe traumatic injuries.
   b. If cardiac arrest is witnessed by EMS personnel, or there is evidence that the patient had any signs of life within a few minutes before the arrival of EMS personnel, proceed to step 2 below.[1,2] Otherwise, follow DOA protocol # 322.
2. Initiate CPR with cervical spine stabilization.
3. Additional treatments prior to transport should be limited to:
   a. Rapid extrication with spinal immobilization
   b. Assure adequate airway and adequate ventilation. [3]
4. Transport immediately if patient can arrive at a trauma center (preferred destination) or the closest hospital in ≤ 15 minutes.[4]
   a. Notify the receiving facility ASAP to allow maximum time for preparation to receive the patient.
   b. Contact medical command for possible field termination of resuscitation if the patient remains in cardiac arrest after initial resuscitation attempt and cannot arrive at the closest receiving facility within 15 minutes.
   c. Air medical transport of patients in traumatic cardiac arrest is generally not indicated.

Notes:

1. If bystanders have initiated resuscitation, EMS personnel should continue CPR and contact medical command to consider terminating resuscitation.
2. To have any chance of survival, victims of traumatic cardiac arrest must arrive at a hospital within a few minutes.
3. If ALS is immediately available, endotracheal intubation or decompression of a tension pneumothorax may increase this very short time window for survival, but rapid extrication and transport should not be delayed if ALS is not on scene.
4. If the patient can arrive at the closest trauma center within 15 minutes, the patient should be taken to the trauma center even if another hospital is closer.

ALLERGIC REACTION / ANAPHYLAXIS
STATEWIDE BLS PROTOCOL

Criteria:

A. Severe Allergic Reaction: A patient with the following symptoms of severe allergic reaction or anaphylaxis after suspected exposure to an allergen:
   1. Symptoms of severe allergic reaction include:
      a. Difficulty breathing and wheezing.
      b. Swollen tongue and lips or difficulty swallowing.
      c. Hypotension.
   2. Common allergens that may lead to allergic reactions include
      a. Bee/ Wasp/ Hornet stings
      b. Medications (e.g. antibiotics)
      c. Foods (e.g. peanuts, seafood)

B. Moderate Allergic Reaction: A patient with a moderate allergic reaction may have:
   1. Mild shortness of breath with wheezing
   2. Extensive hives and itching
   3. Mild tongue/ lip swelling without difficulty swallowing of shortness of breath.

Exclusion Criteria:

A. Mild allergic reaction isolated to minor hives without any of the criteria listed above.[1]

System Requirements:

A. Only an EMT that has completed the epinephrine patient-assisted auto-injector module through the EMT curriculum or continuing education may administer patient-assisted epinephrine by auto-injector.

B. **[Optional]** BLS services may carry epinephrine auto-injectors for administration by the service's EMTs.
   1. These services must comply with Department of Health epinephrine auto-injector requirements for these services and for the training of service personnel before the service is permitted to stock and carry epinephrine auto-injectors.
   2. These services must carry 2 adult and 2 pediatric dose epinephrine auto-injectors that are stored and maintained in a manner consistent with Department requirements.

Treatment:

A. **All patients treated by BLS services that DO NOT carry epinephrine auto-injectors (i.e. patient-assisted epinephrine):**
   1. Initial Patient Contact – see Protocol # 201.
      a. Consider call for ALS if available. See Indications for ALS Use protocol #210.
   2. Administer oxygen. (High concentration if difficulty breathing or signs of shock)
   3. Determine the severity of the patient's symptoms.
      a. For severe symptoms listed above:
         1) If the patient has a prescribed epinephrine auto-injector, assist[2] with the administration of single unit dose of epinephrine via auto injector.[3,4,5,6,7] [EMT ONLY]
            a) **Adult dose 0.3 mg (e.g. EpiPen)**
            b) **Pediatric dose 0.15 mg (e.g. EpiPen Junior)**
         2) Monitor vital signs and reassess patient.
         3) Contact medical command.
      b. For moderate symptoms listed above:
         1) Contact medical command if the patient has a prescribed epinephrine auto-injector.
   4. Monitor vital signs and reassess patient.
   5. Monitor pulsoximetry, [OPTIONAL].[8]
   6. Transport.

B. **All patients treated by EMTs functioning with BLS services that are approved to carry epinephrine auto-injectors (i.e. primary administration of epinephrine) [OPTIONAL]:**
   1. Initial Patient Contact – see Protocol # 201.
      a. Consider call for ALS if available. See Indications for ALS Use protocol #210.
   2. Administer high concentration oxygen.

3. Determine severity of patient's symptoms
   a. For severe symptoms listed above:
      1) Administer a single unit dose of epinephrine via auto injector.[4,5,7]
         a) **Adult dose 0.3 mg (e.g. EpiPen)**
         b) **Pediatric dose 0.15 mg (e.g. EpiPen Junior)**
      2) Monitor vital signs and reassess patient
      3) Contact Medical Command.
   b. For moderate symptoms listed above, Contact Medical Command and follow directions of medical command physician.
4. Monitor vital signs and reassess patient.
5. Monitor pulsoximetry, [OPTIONAL]. [8]
6. Transport.
7. Contact Medical Command if condition worsens.

Possible Medical Command Orders:

A. If patient has a second epinephrine auto-injector, medical command physician may order EMT to assist patient with the administration of a second dose of epinephrine.

B. If BLS service carries epinephrine auto-injector, medical command physician may order administration of epinephrine.

Notes:

1. Patients with mild allergic reactions should be reassessed for the development of more severe symptoms.
2. The EMT may need to administer the medication rather than assist if the patient has a decreased level of consciousness.
3. Assure that the available auto-injector was prescribed for the patient and is not expired.
4. Side effects of epinephrine are rare. They include:

Increased heart rate	Vomiting	Excitability
Nausea	Chest Pain	Headache
Dizziness	Anxiousness	Pallor

5. Use caution in patients over 55 years old. Contact Medical Command if patient does not have severe symptoms as defined above or if unsure whether this is an allergic reaction.
6. If the patient does not have a prescribed epinephrine auto injector, but there is a bystander available with an auto injector, contact medical command.
7. Dispose of the injector in a biohazard container.
8. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.

Performance Parameters:

A. Review every case of EMT administered or assisted epinephrine auto-injector use for documentation of symptoms defined in protocol.

B. Review every case of EMT administered or assisted epinephrine auto-injector for the appropriate contact with medical command as required by the protocol.

C. Consider benchmark of on scene time < 10 minutes.

RESPIRATORY DISTRESS/RESPIRATORY FAILURE
STATEWIDE BLS PROTOCOL

Criteria:

A. Shortness of breath or difficulty breathing.

1. Conditions which produce SOB from bronchoconstriction that may respond to bronchodilators. These conditions generally are associated with wheezing.
   a. COPD (emphysema, chronic bronchitis)
   b. Asthma
   c. Allergic reaction
   d. Respiratory infections (pneumonia, acute bronchitis)
2. Conditions which produce SOB without bronchoconstriction that **do not** respond to bronchodilators. These conditions usually are not associated with wheezing.
   a. CHF
   b. Pulmonary embolism

Exclusion Criteria:

A. None.

System Requirements:

A. Only an EMT that has completed the bronchodilator module through the EMT curriculum or continuing education may assist the patient with administration of a bronchodilator.

Treatment:

A. **All patients:**
1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210
2. If allergic reaction is suspected and patient meets criteria, proceed with Allergic Reaction / Anaphylaxis protocol #411.

B. **Pediatric patients:**
NOTE: If child is sitting in a tripod position with excessive drooling this may be epiglottitis, **transport immediately.** Do not lay the patient flat and do not attempt to visualize the throat.

C. **All patients:**
3. Apply high concentration oxygen. If necessary, assist respirations with a bag-valve-mask, but avoid overzealous hyperventilation.
4. Monitor pulsoximetry[1] [OPTIONAL]
5. Assist patient with his/ her bronchodilator inhaler [EMT ONLY] for conditions associated with wheezing [2,3,4]
   a. Must be a "short-acting" rapid onset, **bronchodilator** [5,6]
6. Transport and reassess enroute.
7. Contact medical command if EMT is unclear whether the patient's inhaler is a "short-acting" bronchodilator or if EMT has assisted with bronchodilator inhaler administration.[7]

Possible Medical Command Orders:

A. May order additional doses of patient's bronchodilator.

Notes:

1. See Pulsoximetry Protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.
2. An EMT may assist with the medication **ONE TIME ONLY** prior to contacting Medical Command. Any subsequent administration requires direction from a medical command physician.
3. Bronchodilator inhaler must be prescribed for the patient, and EMS must identify and administer the prescribed dose ("one" or "two" inhalations) for the specific patient.
4. If unsure of the appropriate action, contact Medical Command for further direction.
5. If unable to contact medical command, may repeat previous dose of bronchodilator inhaler 20 minutes after initial dose.

6. The following are commonly prescribed short-acting, rapid-onset, beta-2 agonist inhalants that the EMT may assist with administration:

Brand Name	Generic Name
Alupent	Metaproterenol Sulfate
Brethaire	Terbutaline Sulfate
Bronkometer	Isoetharine Mesylate
Combivent	Albuterol and Ipratroprium
Duo-medihaler	Isoproterenol Hydrochloride/Phenylephedrine Combo
Isuprel Mistometer	Isoproterenol Hydrochloride
Maxair	Pirbuterol Acetate
Medihaler-Iso	Isoproterenol Sulfate
Metaprel	Metaproterenol
Proventil	Albuterol
Tornalate	Biotolterol Mesylate
Ventolin	Albuterol

7. The following are drugs that **SHOULD NOT** be used:

Long-acting, Delayed-Onset, Bronchodilators	
Brand Name	**Generic Name**
Serevent	Salmeterol Xinafoate
Corticosteroids	
Brand Name	**Generic Name**
Aero-bid	Flunisolide
Azmacort	Triamcinolone Acetonide
Beclovent	Beclomethasone Dipropionate
Decadron Respihaler	Dexamethasone Sodium Phosphate
Dexacort Respihaler	Dexamethasone Sodium Phosphate
Flovent	Fluticasone Propionate
Vanceril	Beclomethasone Dipropionate
Anticholinergics	
Brand Name	**Generic Name**
Atrovent	Ipratropium Bromide
Non-Steroidal Anti-inflammatories	
Brand Name	**Generic Name**
Intal	Cromolyn Sodium
Tilade	Nedocromil Sodium
Over-the-counter Drugs	
Brand Name	**Generic Name**
Primatene Mist	Epinephrine

Performance Parameters:

A. Review every case of EMT assisted bronchodilator inhaler administration for documentation for appropriate indication, appropriate medication, and appropriate contact with medical command.

B. Consider benchmark of on scene time < 15 minutes if ALS not on scene.

CHEST PAIN
STATEWIDE BLS PROTOCOL

Criteria:

A. Chest pain of possible cardiac origin. May include:

1. Retrosternal chest heaviness/pressure/pain
2. Radiation of pain to neck, arms or jaw
3. Associated SOB, nausea/vomiting or sweating
4. Possibly worsened by exertion
5. Patient over 30 y/o
6. Patient with history of recent cocaine use

Exclusion Criteria:

A. Chest pain, probably not cardiac origin.

1. May include:
   a. Pleuritic chest pain- worsens with deep breath or bending/turning.
   b. Patient less than 30 y/o
2. If associated with shortness of breath, follow Shortness of Breath protocol #421

System Requirements:

A. Only an EMT that has completed the nitroglycerin module of the curriculum or continuing education may assist with NTG administration.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210
2. Apply oxygen (High concentration if patient also has difficulty breathing or hypoperfusion)
3. Monitor pulsoximetry[1] [OPTIONAL]
4. Assist patient with his/her prescribed nitroglycerin based upon the following:[2,3,4,5] [EMT ONLY]
   a. Suspected cardiac origin as outlined above.
   b. **WARNING**: Do not give nitroglycerin if you are aware that a patient has taken Viagra or similar medications for erectile dysfunction within the last 24-48 hours. [6]
   c. Patient is currently experiencing chest pain or discomfort.
   d. Blood pressure is > 100 systolic.
5. Transport.
6. Monitor vital signs and reassess.
7. Contact medical command if EMT has assisted with nitroglycerin. [7]

Possible Medical Command Orders:

A. Medical command may order additional doses of nitroglycerin.

Notes:

1. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.
2. An EMT may assist with the medication **ONE TIME ONLY** prior to contacting Medical Command. Any subsequent administration requires direction from a medical command physician.
3. Nitroglycerin must be prescribed for the patient, and EMS must identify and administer the prescribed dose (sublingual “tablet” or “spray”).

4. Nitroglycerin should not be given to a child.
5. If unsure of the appropriate action, the EMT should contact Medical Command for further direction.
6. Nitroglycerine use may lead to severe, and possibly fatal, hypotension when given within 24-48 hours after a patient has used drugs that treat erectile dysfunction (phosphoodiesterase inhibitors). Nitroglycerine should not be given within 24 hours of taking Viagra (sildenafil) or Levitra (vardenafil) or within 48 hours of taking Cialis (tadalafil).
7. If unable to contact medical command, may repeat nitroglycerin one time 5 minutes after initial dose as long as systolic blood pressure is > 100 prior to second dose.

Performance Parameters:

A. For every case of assisting with nitroglycerin, assure documentation of history consistent with cardiac chest pain, assure documentation of vital signs before and after nitroglycerin, assure appropriate contact with medical command.

B. Consider benchmark of on scene time < 15 minutes if ALS not on scene.

MULTISYSTEM TRAUMA OR TRAUMATIC SHOCK
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient that meets Category 1 or Category 2 trauma triage criteria and has evidence of injury.

B. Patient with symptoms of shock/hypoperfusion related to a traumatic injury.

Exclusion Criteria:

A. Cardiac Arrest related to trauma – see Cardiac Arrest – Traumatic Protocol # 332.

B. Hypotension not related to trauma.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. C-spine stabilization.
   b. Consider call for ALS if available, but should not delay patient transport. See Indications for ALS Use protocol #210.
   c. Consider request for air ambulance- if applicable per Trauma Destination Protocol #180.
   d. Consider rapid extrication.[1]
2. Control external bleeding.
3. Administer oxygen (high concentration if Category 1 trauma criteria).
4. Spinal immobilization as appropriate – See Cervical Spine Immobilization Protocol # 261.
5. Treat specific injuries:
   a. Also follow injury specific trauma protocols if applicable for head injury, impaled object, amputation, or burns.
   b. If sucking chest wound, cover wound with occlusive dressing sealed on 3 sides. Release dressing if worsened shortness of breath.
   c. If intestinal evisceration, cover intestines with a sterile dressing moistened with sterile saline or water; cover the area with an occlusive material (aluminum foil or plastic wrap). Cover the area with a towel or blanket to keep it warm. **DO NOT PUSH VISCERA BACK INTO ABDOMEN.**[2] Transport with knees slightly flexed if possible.
6. Consider Trendelenberg position (foot of stretcher elevated approximately 6 inches) if:
   a. Patient has hypotension, and
   b. There are no chest injuries, no head injuries, no shortness of breath, and position does not cause shortness of breath.
7. Maintain body temperature.[3]
8. If suspected pelvic fracture and hypotension, apply MAST (if available) for splinting [4] – See MAST Suit Use Protocol # 253.
   a. Traction splinting is preferred for isolated femur fractures.
   b. Padded board splints or other similar devices are preferred for isolated tibia/fibula fractures, but if tibia/fibula fractures are associated with suspected pelvis fractures, MAST may be used for splinting.
9. Transport the patient ASAP as per Trauma Destination Protocol – See Protocol # 180.
10. Monitor pulsoximetry [OPTIONAL] [5]
11. Monitor vital signs and reassess.

Possible Medical Command Orders:

A. Medical command may order inflation of MAST suit.

Notes:

1. Rapid extrication may be appropriate in the following circumstances: danger of explosion (including potential secondary explosion at a terrorism incident); rapidly rising water; danger of structural collapse; hostile environments (e.g. riots); patient position prevents access to another patient that meets criteria for rapid extrication; shock; inability to establish an airway, adequately ventilate a patient, or control bleeding in entrapped position; or cardiac arrest.

2. In wilderness / delayed transport situations with prolonged evacuation time (at least several hours), examine the bowel for visible perforation or fecal odor. If no perforation is suspected, irrigate the eviscerated intestine with saline and gently try to replace in abdomen.
3. If patient is cold, use blankets and possibly hot packs at armpits and groin to prevent additional heat loss.
4. Pelvic binder splinting devices (circumferential commercial devices that compress the pelvis) are also appropriate splinting devices.
5. See Pulsoximetry Protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.

Performance Parameters:

A. Documentation of reason for any on scene time interval over 10 minutes.

B. Percentage of calls, without entrapment, with on scene time interval $\leq$10 minutes. Possible benchmark for on scene time for non-entrapped patients = 10 minutes.

C. Documentation of applicable trauma triage criteria.

HEAD INJURY
STATEWIDE BLS PROTOCOL

Criteria:

A. Head injury and altered mental status (GCS <15).

Exclusion Criteria:

A. Head injury, but alert and oriented with Glasgow Coma Scale = 15.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210
   b. Consider call for air ambulance. See Trauma Destination protocol #180
2. Immobilize cervical spine.[1]
3. Assure a patent airway.
4. Administer high concentration oxygen.
5. Assure adequate ventilation. Assist ventilation, if necessary. **AVOID OVERZEALOUS HYPERVENTILATION.**
   a. If unresponsive to pain or extensor posturing to pain or pupils are unequal or non-reactive, hyperventilate at 20 bpm for an adult, 30 bpm for a child, or 35 bpm for an infant.[2]
   b. Otherwise ventilate at 10 bpm for an adult, 20 bpm for a child or 25 bpm for an infant).
6. Also follow Multisystem Trauma/ Shock Protocol # 602, if applicable.
7. Place sterile dressing over soft tissue injury sites as time permits:
   a. Do not apply pressure to open or depressed skull fracture.
   b. Treat eye injuries appropriately.
8. Transport according to Trauma Destination protocol # 180.[3]
9. Monitor pulsoximetry [OPTIONAL], but all patients with GCS < 15 should continue to receive high concentration oxygen.[4]
10. Monitor vital signs and reassess.

Notes:

1. Avoid any straps or constriction across the neck since this may increase intracranial pressure.
2. Unresponsiveness or extensor posturing to painful stimulus corresponds to GCS motor score of 1-2.
3. Patients who follow commands do not need to be transported to a trauma center unless other criteria exist for transport to a trauma center.
4. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.

Performance Parameters:

A. Patients with GCS ≤ 13 should be transported to a trauma center when possible.

IMPALED OBJECT
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with an impaled object.

Exclusion Criteria:

A. None.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
2. Follow Multisystem Trauma/ Traumatic Shock protocol #602, if applicable.
3. Treat special conditions as follows:
   a. If the impaled object is in the cheek and bleeding profusely or obstructing the airway:
      1) Remove object if this can easily be done.
      2) Maintain open airway.
      3) Control bleeding and dress wound.
   b. If the impaled object is in the eye:
      1) Stabilize object with sterile dressing, place cup over eye and secure.
      2) Cover unaffected eye.
   c. If the impaled object is not in the cheek or eye:
      1) Stabilize object with bulk dressing and secure.
      2) Do not remove object.
   d. If patient is impaled on stationary or fixed object:
      1) If possible, carefully sever object.
      2) Secure object with bulky dressing.
      3) Check for exit wound and treat accordingly.
      4) Attempt to transport object with patient.
4. Do not remove the object unless it occludes or endangers the airway or prohibits the performance of adequate CPR. If unsure of appropriateness of removing object, contact Medical Command.[1]
5. Control bleeding and place sterile bulky dressings over the wound and around the object to stabilize it in place. Secure dressings in place width bandages and tape.
6. Immobilize the injury as appropriate.
7. Transport.

Possible Medical Command Orders:

A. In some instances in addition to those permitted above, medical command may order removal of the impaled object.

Notes:

1. In wilderness/ delayed transport situations, removal of the object may be appropriate to facilitate transport or wound irrigation.

AMPUTATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with amputation of a digit or limb.

Exclusion Criteria:

A. None

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if signs of hypovolemic shock or if patient is entrapped. See Indications for ALS Use protocol #210
2. Control bleeding.
3. Also follow Mulitsystem Trauma/ Traumatic Shock protocol # 602 unless amputation only involves fingers/ toes.
4. Place sterile dressing over open soft tissue injury sites.
5. Retrieve avulsed or amputated part: [1]
   a. Wrap avulsed part in gauze soaked with sterile saline.
   b. Place part in sealed plastic bag.
   c. Keep part cool. Place the sealed bag in a second bag containing ice water. Rotate the part often during transport. **Do not place directly on ice**.
   d. For amputation of limbs, wrap the part in a clean moistened towel or other like material and place it in a large plastic bag and keep it cool.
   e. Do not place the part directly on ice.
6. Transport to appropriate facility.[2,3]

Possible Medical Command Orders:

A. Medical command physician may order transport to a facility capable of reimplantation surgery or to a trauma center.

Notes:

1. If priority condition exists, do not delay transport to search for missing part. Additional emergency personnel may remain at scene to retrieve part. Ideally EMS personnel should prepare any amputated part, as described above, before transport to patient's location.
2. Any patient with an amputation above the wrist or above the ankle should be transported per Trauma Destination protocol # 180.
3. Patients with finger amputations may benefit by direct transport to a center capable of reimplantation surgery. Call medical command as needed for guidance.

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BURNS
STATEWIDE BLS PROTOCOL

Criteria:

A. Thermal injury from exposure to intense heat

B. Injury from electrical shock or lightning strike

C. Skin injury from chemical exposure

Exclusion Criteria:

A. None

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. When dealing with hazards associated with burns (e.g. fire, electricity, chemicals) appropriate PPE must be worn and individuals with appropriate training should deal with these hazards.
   b. When triaging multiple patients with lightning injury, initial resources should be committed to individuals that have no sign of life (i.e. "reverse triage") rather than individuals who have vital signs.
   c. Stop the burning process with water or saline. Caution- use care to avoid hypothermia.
   d. Immobilize C-spine, if indicated – See Cervical Spine Immobilization Protocol # 261.
   e. Consider call for ALS or air medical transport as appropriate. See Indications for ALS Use protocol #210.
2. Assure open airway and assist ventilations as needed. [1]
3. Administer high concentration oxygen if: [2]
   a. Coughing or short of breath.
   b. Exposure to smoke in a confined space.
   c. Facial burns
   d. Burn area greater than 15% BSA.
4. Remove all clothing, jewelry and any debris from involved area. Cut around clothing that is stuck to wound.
5. Treat special conditions as follows:
   a. Semi-solids (tar, etc.):
      1) Flush with cool water.
   b. Chemical burn:
      1) Liquid substance - Irrigate with copious amounts of room temperature water. Do not contaminate uninjured areas while flushing.
      2) Dry substances- With gloves and appropriate PPE, brush remaining powder from skin and clothing, then irrigate with copious amounts of water.[3]
   c. Electrical:
      1) Dress entrance and exit wounds and other injuries.
6. Care of burned skin:
   a. Cover burned areas with dry sterile burn sheets/ dressings or sterile commercial burn sheets/ dressings.
   b. Maintain body temperature.
   c. Estimate the extent of the burn using the Rule of Nines (See appendix).
7. Transport to the closest appropriate medical facility, as follows:
   a. If unable to maintain airway or unable to ventilate or patient has symptoms of shortness of breath / cough or inhalation injury suspected (for example burned nasal hairs or carbonaceous sputum) or if unable to control profuse bleeding, transport to closest hospital.
   b. If patient has associated trauma and meets trauma triage criteria, transport per Trauma Triage Protocol # 180.
   c. Transport to a burn center if:
      1) The patient has burns to more than 15% BSA or burns to the face or hands, and
      2) The patient does not meet trauma triage criteria, and
      3) The difference between estimated transport time to the closest receiving facility and the burn center is 20 minutes or less.
   d. If patient meets none of the above, transport to closest hospital.
   e. Contact medical command if unsure of most appropriate destination.

8. Monitor vital signs and reassess

Notes:

4. **Caution:** patients who have inhaled hot gases or have burns about the face or who have symptoms of shortness of breath or cough can deteriorate rapidly.

5. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.

6. Note- some substances, like dry lime will cause a heat-producing reaction when mixed with water. Copious water should be available before beginning to irrigate.

Performance Parameters:

A. Compliance with trauma triage and burn center destination protocols.

B. Evaluate on scene times for non-entrapped burn victims. Victims that meet criteria for high concentration of oxygen should be transported rapidly. Possible benchmark for on scene time for unentrapped victims = 10 minutes.

HYPOTHERMIA / COLD INJURY / FROSTBITE
STATEWIDE BLS PROTOCOL

Criteria:

A. Generalized cooling that significantly reduces the body temperature.

B. If temperature reading is available, body temperature < 95° F (35° C).

C. Note that hypothermia is severe if core body temperature is < 90° F (32° C).

D. Frostbite generally affects feet, hands, ears, and/or face. Skin initially appears reddened, then mottled, bluish, white and/or gray. This is painful initially then becomes numb.

Exclusion Criteria:

A. DOA, including the following - see DOA protocol # 322.

1. Submersion for >1 hour.
2. Body tissue/chest wall frozen solid.
3. Body temperature same as surrounding temperature and other signs of death (lividity/ rigor)

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. Assess pulse for 45 seconds.[1]
   b. Consider call for ALS if available. See Indications for ALS Use protocol #210.
   c. Consider air ambulance if severe hypothermia and transport time to hospital capable of rapid extracorporeal rewarming is more than 30 minutes.
2. Apply oxygen (High concentration if altered mental status). [2,3]

B. **Systemic Hypothermia:**

3. Handle patient gently and avoid excessive or rough movement of the patient.
4. Place the patient in a warm, draft free environment.
5. Remove wet clothing and cover with warm blankets.
6. **If the patient is unconscious or is not shivering:**
   a. If respirations and pulse are absent, start CPR. [1,4] It is possible that the patient is still alive.
   b. Transport **IMMEDIATELY** [5,6,7], continuing CPR as necessary.
   c. Contact Medical Command.
7. **If the patient is conscious and shivering:**
   a. Rewarm the patient slowly:
      1) Place heat packs on the patient's groin, lateral chest or axilla and neck. Do not place heat packs directly against skin- wrap in towel.
      2) If the patient is alert, administer warm non-caffeinated beverages (if available) by mouth slowly.[8]
8. Transport [6]
9. Perform ongoing assessment.

C. **Frost bite:**

3. Keep patient warm while exposing affected part.
4. Apply loose sterile dressing to affected part.
5. **DO NOT:**
   a. Rub effected part or break blisters.
   b. Expose part to dry heat.
   c. Immerse part in snow or hot water.[9]
   d. Allow affected part to thaw if it may refreeze before transport is completed.
6. **DO:**
   a. Transport, keeping patient warm.
   b. Perform ongoing assessment.

Notes:

1. **Vital signs should be taken for a longer time than usual, so that a very slow pulse or respiratory rate is not missed. Assess pulse for 45 seconds. If a pulse or respirations are detected, *do not perform CPR.***
2. Use warmed humidified oxygen if available.
3. Services that use optional pulsoximetry monitors should not use them in hypothermic patients since pulsoximeters are unreliable in this situation.
4. In suspected severe hypothermia (core temperature, if available, is below 90° F) and an AED is advising shock, shock no more than 3 times. If there is still no pulse, continue CPR and transport to an appropriate facility.
5. If cardiac arrest or unresponsive to verbal stimuli, transport to trauma center following Trauma Triage Protocol # 180. Transport to center capable of extracorporial rewarming (cardiac bypass) if this adds no more than 20 minutes to transport time to closest appropriate trauma destination hospital. Contact medical command at destination facility as soon as possible to provide maximum time for staff to prepare to receive the patient.
6. If the patient has severe hypothermia and vertical evacuation is required, transport the patient in a level position when possible. Transporting vertically with the head up has been associated with seizures and death.
7. In submersion or cardiac arrest, hypothermia is protective. Do not attempt to rewarm the patient during transport to a facility that is capable of rapid extracorporeal rewarming.
8. **DO NOT** permit fluids by mouth if patient also has severe traumatic injuries or abdominal pain.
9. In wilderness / delayed transport situations, rewarming the frostbitten area in warm water may be appropriate if transport is delayed significantly. The area should not be rewarmed unless it can be completely rewarmed and then protected from additional cold injury.

HEAT EMERGENCY
STATEWIDE BLS PROTOCOL

Criteria:

A. **Heat Stroke**[1] – Patients should be treated as heat stroke if they have all of the following:

1. Exposure to hot environment, and
2. Hot skin, and
3. Altered mental status

B. **Heat Exhaustion** - Patient presents with dizziness, nausea, headache, tachycardia and mild hypotension. No mental status changes. Temperature is less than 103^{O} F. Rapid recovery generally follows saline administration.

Exclusion Criteria:

A. None.

Treatment:

A. **All patients:**
1. Initial Patient Contact – see Protocol # 201.

B. **Heat Stroke:**
2. Consider call for ALS if available. See Indications for ALS Use protocol #210.
3. Remove the patient from the heat source, if possible.
4. Administer oxygen.[2]
5. Remove excess clothing:
6. ***If skin is hot to touch and patient has altered mental status, treat as life threatening emergency:***
   a. Cool the patient quickly by dousing with water/ applying wet towels and applying ice (e.g. packing in ice or applying cold packs at the neck, axilla (armpits) and groin.[3])
   b. If shivering begins, slow cooling process.
   c. Do not give anything by mouth.
   d. Transport immediately.
   e. Perform ongoing assessment.

C. **Heat Exhaustion:**
2. Remove the patient from the heat source.
3. Administer oxygen. [2]
4. Remove excess clothing.
   a. Apply cool compresses.
   b. Allow oral intake of cool fluids (ideally commercial sport/rehydration drinks) if the patient is alert and oriented and without nausea.[4]
   c. Transport.
   d. Perform ongoing assessment.

Notes:

1. Patient's thermoregulatory mechanisms break down completely. Body temperature is elevated to extreme levels, which results in multi-system tissue damage including altered mental status. Heat stroke often affects elderly patients with underlying medical disorders. Patients usually have dry skin; however, up to 50% of patients with exertional heat stroke may exhibit persistent sweating. Therefore, patients with heat stroke may be sweating.
2. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.
3. **Do not delay transport if these cooling modalities are not immediately available.**
4. Do not permit the patient to drink if altered mental status or abdominal pain.

NEAR DROWNING AND DIVING INJURY
STATEWIDE BLS PROTOCOL

Criteria:

A. Submersion leading to respiratory symptoms

Exclusion Criteria:

A. Patients in cardiac arrest – See Cardiac Arrest Protocol # 331.

B. Patients with confirmed submersion for more than 1 hour – See DOA Protocol # 322.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if symptoms of shortness of breath. See Indications for ALS Use protocol #210
   b. Consider air transport if altered LOC. See Air Ambulance Use protocol #190.
2. If diving accident is possible, stabilize cervical spine and follow Cervical Spine Immobilization protocol # 261.[1]
3. Maintain airway
4. Apply oxygen (High concentration if respiratory distress or altered level of consciousness).
   a. Assist ventilations and suction if secretions block the airway.
   b. Obtain pulse oximetry reading [OPTIONAL]. [2]
5. Consider hypothermia. If present – See Hypothermia Protocol # 681.
   a. Handle the patient gently and carefully[3].
6. Transport immediately.[4,5]
7. Monitor vital signs and reassess.

Notes:

1. Diving injuries must be considered for any patient found ill or injured in any body of water or immediately removed from a body of water.
2. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.
3. Rough handling may cause the hypothermic patient to develop a fatal arrhythmia.
4. If SCUBA incident with rapid ascent, transport on the left side of the body with the head down.
5. Since respiratory problems may be delayed, all patients should be transported. Contact medical command if patient refuses transport.

SUSPECTED STROKE
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients may have the following clinical symptom(s):

1. Altered level of consciousness
2. Impaired speech
3. Unilateral weakness / hemiparesis
4. Facial asymmetry / droop
5. Headache
6. Poor coordination or balance
7. Partial loss of peripheral vision
8. Vertigo

Exclusion Criteria:

A. Consider hypoglycemia, trauma, and other etiologies of stroke symptoms, and follow applicable protocol if appropriate.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. If history of diabetes and signs of hypoglycemia, also follow Diabetic Emergency protocol #702
   b. Consider call for ALS if altered level of consciousness. See Indications for ALS Use protocol #210
2. Maintain open airway.
   a. Use an oral or nasal airway as appropriate.
3. Apply oxygen (High concentration if altered mental status)
4. Monitor pulsoximetry [Optional].[1]
5. Obtain patient history, (i.e. OPQRST) and examine patient.
   a. Exact time of symptom onset is extremely important.[2]
   b. Assess Cincinnati Stroke Scale[3]
6. If stroke indicated by the Cincinnati Stroke Scale **AND** patient can be delivered to the receiving facility within 3 hours of symptom onset[4], then
   a. Package patient and transport ASAP.
   b. Contact medical command and receiving facility as soon as possible.[5]
7. Transport with the head and shoulders elevated 15-30° if possible.

Possible Medical Command Orders:

A. Medical command may divert patient to local hospital that is the most prepared to care for acute stroke patients.

Notes:

1. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%.
2. Attempt to identify the precise time of the onset of the patient's first symptoms. The time of onset is extremely important information, and patient care may be different if patient can be delivered to a receiving hospital capable of treating acute strokes within 3 hours from onset of symptoms. If the patient awoke with their symptoms, then the symptom onset is not considered to be < 3 hours.

3. **Cincinnati Prehospital Stroke Scale**. If any of the following is abnormal and new for the patient, he/she may have an acute stroke:
   a. Facial Droop (patient smiles or shows teeth) - abnormal if one side of the face does not move as well as the other.
   b. Arm Drift (patient holds arms straight out in front of him/her and closes eyes) – abnormal if one arm drifts down compared with the other.
   c. Speech (patient attempts to say "The sky is blue in Pennsylvania") – abnormal if patient slurs words, uses inappropriate words, or can't speak.
4. In rural areas, if patient can be delivered by air (but not by ground) to receiving facility within 3 hours of symptom onset, consider contact with medical command for assistance in deciding upon the utility of air medical transport.
5. Report time of symptom onset and abnormal findings from Cincinnati Prehospital Stroke Scale to medical command physician.

Performance Parameters:

A. Review on scene time for all cases of suspected stroke with time of symptom onset less than 3 hours from time of EMS arrival. Consider benchmark of on scene time ≤ 10 minutes.

EMERGENCY CHILDBIRTH
STATEWIDE BLS PROTOCOL

Criteria:

A. Pregnancy with signs of imminent delivery including crowning, mother with urge for bowel movement, frequent contractions < every 2 minutes, or worsening of perineal discomfort.

Treatment:

A. **All patients:**
   1. Initial Patient Contact – see Protocol # 201.
      a. Consider call for ALS if available. See Indications for ALS Use protocol #210.
   2. Prepare for delivery if crowning or if contractions < every 2 minutes and patient feels need to push
      a. Position patient for delivery
      b. Bring OB kit to patient
      c. Prepare for delivery in a place where the infant will be warm
   3. Administer oxygen.
   4. Monitor vital signs frequently
      a. If hypotensive, place patient in left lateral recumbent position or manually push uterus to patient's left.

B. **Normal delivery and Newborn Care:**
   5. Assist with vaginal delivery of infant[1]
      a. Check for cord around neck, if present:
         1) Attempt to gently slip cord over head. If cord is tight,
         2) Clamp in two places (approximately 2" apart) and cut between clamps.
   6. Suction infant's oropharynx and then nasopharynx.[2]
   7. Note time of delivery.
   8. Keep infant warm and dry.
   9. Stimulate infant.
   10. Clamp and cut cord 4 finger widths (4-6 inches) from infant.
   11. Assess and record APGAR scores at 1 and 5 minutes after delivery.
   12. Deliver and preserve placenta (**DO NOT** pull on cord or placenta). [3]
   13. Monitor vital signs and reassess
   14. Transport

C. **Complicated delivery:** (mother with unstable vital signs, arm or leg presentation, prolapsed umbilical cord, or breech delivery)
   5. Prepare for immediate emergent transport.
   6. Handle delivery based upon complications, as follows:
      a. If breech delivery, attempt to gently deliver head, but **DO NOT** pull on infant. If head does not deliver easily, placed gloved fingers into the vagina and provide a space between the vaginal wall and the infant's mouth/nose.
      b. If prolapsed cord, elevate the mother's pelvis (may elevate pelvis with pillows or place mother in knee/chest position) place gloved hand into vagina and gently push infant's head up into uterus to prevent compression of cord.
      c. If limb (single arm or leg) presentation, transport immediately and emergently.
      d. If head delivers but shoulders do not:
         1) Push mother's knees up to her shoulders.
         2) Have another practitioner apply abdominal pressure above the pubic bone.
         3) Attempt to gently deliver shoulders.
   7. Transport immediately and emergently, if suggested maneuvers are not successful.
   8. Contact receiving hospital and medical command while enroute to allow time for facility to prepare for patient care.
   9. Monitor vital signs and reassess.

D. **Newborn Care:**

1. **For depressed newborn proceed to Newborn/Neonatal Resuscitation Protocol # 332.**

APGAR SCORING CHART			
Clinical Signs	**Zero**	**One**	**Two**
A = Appearance (Color)	Blue, pale	Body pink, Extremities blue	All pink
P = Pulse (Heart Rate)	Absent	<100	>100
G = Grimace (Irritability) [1]	No response	Grimace or weak cry	Cough/ sneeze or withdraws foot and cries
A = Activity (Muscle Tone)	Limp	Some flexion of arms and/or legs	Well flexed
R = Respiratory effort	Absent	Slow respirations	Strong cry

[1]Response to catheter in nostril (tested after pharynx is cleared) or finger snap against sole of foot.

Notes:

1. On scene time may be delayed up to 20 minutes while awaiting infant delivery if:
   a. Patient has signs of crowning or urge to push/ frequent contractions < every 2 minutes.
   b. Infant is not expected to be premature (i.e. delivery is within 3 weeks of due date or 37 weeks estimated gestational age)
   c. Delivery is not complicated by prolapsed cord, limb presentation, breech birth, or failure to progress (i.e. head has delivered but shoulders do not deliver).
2. Initial suctioning may be done as soon as head delivers.
3. If mother and infant are stable, transport may be delayed for up to 20 minutes for delivery of placenta.

Performance Parameters:

1. Review documentation of assessment for imminent delivery.
2. Review for documentation of neonatal assessment using APGAR scores.

AGITATED BEHAVIOR / PSYCHIATRIC DISORDERS
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with a psychiatric or behavioral disorder who is at imminent risk of self-injury or is a threat to others.

OR

B. Patient with a medical condition causing agitation and possibly violent behavior. Examples of these conditions are:

1. Alcohol or drug (e.g. PCP, methamphetamine, cocaine) intoxications
2. Hypoglycemia
3. Stroke
4. Drug overdose
5. Post-ictal after seizure
6. Head trauma

Exclusion Criteria:

A. None

Treatment:

A. **All patients:**

1. If violence or weapons are anticipated, consider waiting for law enforcement to secure the scene. **Do not block patient's exit** – See Scene Safety Protocol # 102.
2. Initial Patient Contact – see Protocol # 201.
   a. Call for law enforcement, if available, if patient is violent
   b. Call for ALS, if available, if patient has altered LOC or is agitated. See Indications for ALS Use protocol #210
3. Assess for possible underlying medical conditions such as hypoglycemia, drug overdose, trauma, hypoxia, or post-ictal from seizure.
   a. If present, use the applicable protocol.
4. Attempt to establish a rapport with the patient.[1]
5. If patient is a potential threat to him/herself or others and restraint can be accomplished safely by personnel on scene, the patient may be restrained (see procedure below) and transported against his/her will
   a. Restrain the patient in the following situations:
      1) Law enforcement personnel order restraint and transport
      2) Mental health delegate on scene has initiated involuntary commitment papers (i.e. 302)
      3) Medical command physician orders restraint and transport
      4) The patient is a direct threat to EMS personnel and must be restrained to avoid injury.
      5) The patient exhibits suicidal thoughts or actions.
   b. If adequate personnel are not immediately available to restrain the patient, EMS personnel shall remain in a safe proximity to the scene and shall notify law enforcement or local mental health agency of the patient's location and actions.
6. If the patient struggles violently against the restraints,
   a. Call for ALS if available[2]
   b. Administer high concentration oxygen via NRB mask.
7. Contact medical command for an order to restrain and transport the patient against his/her will, if not done previously.
8. Transport
   a. Restraints during transport should restrict the patient enough to reasonably prevent escape from the vehicle or harm to EMS personnel.
   b. EMS personnel must be with a patient at all times if the individual was restrained using this protocol.
9. Monitor vital signs and reassess
   a. Reassess and document neurovascular function of restrained extremities.

Procedure for patients that require physical restraint:

A. **All Patients:**
1. Use the minimum amount of restraint necessary to safely accomplish patient care and transportation with regard to the patient's dignity.
2. Assure that adequate personnel are present and that police assistance has arrived, if available, before attempts to restrain patient.
3. Call for ALS, if available, if patient continues to struggle against restraint.[2]
4. Restrain all 4 extremities with patient supine on stretcher.[3,4,5,6]
5. Use soft restraints to prevent the patient from injuring him or herself or others.[7]
   a. If the handcuffs or law enforcement devices are used to restrain the patient, a law enforcement officer should accompany the patient in the ambulance
   b. It is preferable that a law enforcement officer follows the ambulance in a patrol car to the receiving facility if physical restraint is necessary.
6. Do not place restraints in a manner that may interfere with evaluation and treatment of the patient or in any way that may compromise patient's respiratory effort.[8]
7. If the patient is spitting, may cover his/her face with a surgical mask or with a NRB mask with high flow oxygen.[9]
8. Evaluate circulation to the extremities frequently.
9. Thoroughly document reasons for restraining the patient, the restraint method used, and results of frequent reassessment.

Possible Medical Command Orders:

A. Medical command may order restraint and transport of a patient against his/her will.

Notes:

1. Verbal techniques include:
   a. Direct empathetic and calm voice.
   b. Present clear limits and options.
   c. Respect personal space.
   d. Avoid direct eye contact.
   e. Non-confrontational posture.
2. There is a risk of serious complications or death if patient continues to struggle violently against restraints. Sedation by ALS personnel may be indicated in some circumstances as directed by ALS protocols or by order from medical command physician.
3. Initial "take down" may be done in a prone position to decrease the patient's visual field and ability to bite, punch, and kick. After the individual is controlled, he/she should be restrained to the stretcher or other transport device in the supine position.
4. **DO NOT restrain patient in a hog-tied or prone position.**
5. **DO NOT** sandwich patient between devices, such as long boards or Reeve's stretchers, for transport. Avoid restraint to unpadded devices like backboards.
6. A stretcher strap that fits snuggly just above the knees is effective in decreasing the patient's ability to kick.
7. Padded or leather wrist or ankle straps are appropriate. Handcuffs and plastic ties are not considered soft restraints.
8. Never apply restraints near the patient's neck or apply restraints or pressure in a fashion that restricts the patient's respiratory effort.
9. Never cover a patient's mouth of nose except with a surgical mask or a NRB mask with high flow oxygen. A NRB mask with high flow oxygen may be used to prevent spitting in a patient that also may have hypoxia or another medical condition causing his/her agitation, but a NRB mask should never be used to prevent spitting without also administering high flow oxygen through the mask.

Performance Parameters:

A. Review for documentation of reason for restraint and restraint method used. Consider reviewing every call when physical restraint is used.
B. Hospital-operated services may have additional JCAHO requirements for documentation.
C. Review for documentation of frequent reassessment of vital signs, cardiopulmonary status, and neurovascular status of restrained extremities. Consider benchmark of documenting these items at least every 15 minutes.

POISONING/TOXIN EXPOSURE (INGESTION / INHALATION / ABSORPTION / INJECTION) STATEWIDE BLS PROTOCOL

Criteria:

A. Patient who has accidentally or purposefully been exposed to toxic substances. Including:
   1. Ingested toxins
      a. For example pills, capsules, medications, recreational drugs, poisonous plants, strong acids or alkali household or industrial compounds
   2. Inhaled toxins
      a. For example carbon monoxide and other toxic gases
   3. Absorbed toxins
      a. For example substances on skin or splashed into eyes
   4. Injected toxins
      a. For example snake bites or substances injected through the skin

Exclusion Criteria:

A. None

Treatment:

A. **All patients:**
   1. Initial Patient Contact – see Protocol # 201.
      a. **WARNING: EMS personnel must not enter confined spaces with potential toxic gases (e.g. manure pits, silos, spaces with carbon monoxide, spaces with industrial gases) unless personnel have proper training and PPE.**
      b. If toxic exposure/ overdose is the result of intentional behavior- also see Behavioral Emergency/ Patient Restraint protocol #801.
   2. Maintain adequate airway.
   3. Administer high concentration oxygen, if altered level of consciousness, shortness of breath, abnormal respiratory rate, or patient coughing.
   4. [OPTIONAL] Monitor pulsoximetry. [1]
   5. Consider call for ALS if available, particularly for decreased LOC. See Indications for ALS Use protocol #210.
   6. Determine:
      a. What – identify specific toxin and amount, if possible.
         1) If possible, safely transport source of toxin (e.g. prescription pill bottles) with patient to receiving facility.
         2) EMS services should not transport dangerous items (e.g. toxic chemicals that are not sealed in their original containers, live snakes, etc.…)
      b. When – identify time of exposure, if possible.
      c. Why – identify reason for exposure, if possible.
      d. Where – identify environmental site issues (e.g. exposure in a confined space or carbon monoxide present).
   7. Do not give anything by mouth to a patient with an altered level of consciousness or an unconscious patient.[2]
   8. Treat specific toxins based upon the appropriate category:
      a. **Ingested Toxins.** Treat all exposures as follows:
         1) **DO NOT INDUCE VOMITING.**
         2) Poison Control Center or Medical Command for possible order for activated charcoal.[3,4,5]
      b. **Inhaled Toxins.** Treat all symptomatic (e.g. SOB, cough, headache, decreased LOC) patients as follows:
         1) Only personnel with proper training and wearing proper PPE should enter environments that may have toxic gases.
         2) Remove patient from environment.
         3) Ventilate, if needed.
         4) Administer 100% oxygen.
            a) **WARNING: Pulsoximetry monitors give false readings in patients that have been exposed to carbon monoxide or cyanide, and these devices should never be used in these patients**.

c. **For Absorbed Toxins:**
   1) Remove contaminated clothing.
   2) Flush affected area copiously:
      a) Liquid substance- Irrigate with copious amounts of room temperature water. Do not contaminate uninjured areas while flushing.
      b) Dry substances- With gloves and appropriate PPE, brush remaining powder from skin and clothing, then irrigate with copious amounts of water.[6]
      c) Eyes- Flush affected eyes continuously with water of saline if eye exposure.

d. **For Injected Poisons/ Snakebite:**
   1) Identify type of snake or animal (e.g. scorpion), if safe and possible. If identity of a snake is not known, all victims of snakebite should be treated as if the snake is poisonous. Do not delay transport while attempting to capture or kill a snake.
   2) Calm patient.
   3) Administer high-flow oxygen, if respiratory symptoms are present.
   4) Remove jewelry and tight clothing.
   5) Consider immobilizing the involved body part. If extremity involved, keep the extremity below the level of the patient's heart.
   6) Keep the patient as still as possible to reduce the circulation of the venom. Carry patient for transport, if possible.
   7) Apply constricting band proximal to bite if patient is hypotensive.
   8) **DO NOT APPLY ICE.**

9. Transport.
10. Monitor vital signs and reassess.
11. Contact Medical Command or Poison Control Center[3] if additional direction is needed.

Possible Medical Command Orders:

A. Administration of activated charcoal may be ordered [4,5]:

1. **Adults:** 25 - 50 gm orally of pre-mixed activated charcoal.
2. **Children:** 1 gm/ kg orally or approximately 12.5 - 25 gm orally of pre-mixed activated charcoal.

Notes:

1. See Pulsoximetry protocol #226. Pulsoximetry may only be used by BLS services and personnel that meet DOH pulsoximetry requirements. If used, pulsoximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulsoximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains >95%. Pulsoximetry is not accurate in patients with suspected exposure to carbon monoxide or cyanide and shall not be used in these situations.
2. Contact Poison Control Center or Medical Command before administering anything by mouth.
3. National **Poison Control Center telephone number is 800-222-1222**. EMS personnel must follow instructions from Poison Control Center unless the orders are superceded by orders from a medical command physician. These instructions must be documented on the PCR.
4. Activated charcoal may only be given by order of medical command or poison control.
5. Contraindications to charcoal:
   a. Patient unable to swallow/protect airway.
   b. Seizures.
   c. Hydrocarbons ingestion (e.g. turpentine)
   d. Caustic substance ingestion (e.g. liquid drain cleaner or milk pipe cleaner)
6. Note- some substances, like dry lime will cause a heat-producing reaction when mixed with water. Copious water should be available before beginning to irrigate.

Performance Parameters:

A. Review for documentation of orders received from Poison Control Centers or Medical Command.

ON-SCENE PHYSICIAN / RN
STATEWIDE BLS PROTOCOL

Criteria:

A. At the scene of illness or injury, a bystander identifies himself or herself as a licensed physician or registered nurse and this healthcare practitioner wants to direct the care of the patient.

OR

B. At the scene of an incident, a medical command physician wants to provide on-scene medical command.

Exclusion Criteria:

A. None

Procedure

A. **When a bystander at an emergency scene identifies himself/herself as a physician:**
   1. Ask to see the physician's identification and credentials as a physician, unless the EMS practitioner knows them.
   2. Inform the physician of the regulatory responsibility to medical command.
   3. Immediately contact medical command facility and speak to the medical command physician.
   4. Instruct the physician on scene in radio/phone operation and have the on scene physician speak directly with the medical command physician.
   5. The medical command physician can:
      a. Request that the physician on scene function in an observer capacity only.
      b. Retain medical command but consider suggestions offered by the physician on scene.
      c. Permit the physician on scene to take responsibility for patient care. **NOTE: If the on-scene physician agrees to assume this responsibility, they are required to accompany the patient to the receiving facility in the ambulance if the physician performs skills that are beyond the scope of practice of the EMS personnel or if the EMS personnel are uncomfortable following the orders given by the physician.** Under these circumstances, EMS practitioners will:
         1) Make equipment and supplies available to the physician and offer assistance.
         2) Ensure that the physician accompanies the patient to the receiving facility in the ambulance.
         3) Ensure that the physician signs for all instructions and medical care given on the patient care report. Document the physician's name on the PaPCR.
         4) Keep the receiving facility advised of the patient and transport status. Follow directions from the on-scene physician unless the physician orders treatment that is beyond the scope of practice of the EMS practitioner.

B. **When a bystander at an emergency scene identifies himself/herself as a registered nurse:**
   1. Ask to see evidence of the nurse's license and prehospital credentials, unless the EMS practitioner knows them.
   2. Inform the nurse of the regulatory responsibility to medical command.
   3. An RN may provide assistance within their scope of practice or certification level at the discretion of the EMS crew when approved by the medical command physician.

C. **When a medical command physician arrives on-scene as a member of the ambulance service's routine response:**
   1. The medical command physician may provide on-scene medical command orders to practitioners of the ambulance service if all of the following occur:
      a. The ambulance service has a prearranged agreement for the medical command physician to respond and participate in on-scene medical command, and the ambulance service medical director is aware of this arrangement.
      b. The medical command physician is an active medical command physician with a medical command facility that has an arrangement with the ambulance service to provide on-scene medical command.
      c. All orders given by the on-scene medical command physician must be documented either on the PaPCR for the incident or on the medical command facilities usual medical command form. This documentation must be kept in the usual manner of the medical command facility and must be available for QI at the facility.
      d. The EMS personnel must be able to identify the on-scene medical command physician as an individual who is associated with the service to provide on-scene medical command.

2. If a medical command physician who is not associated with the ambulance service arrives on-scene and offers assistance, follow the procedure related to bystander physician on scene (Procedure section A).

TRANSPORTATION OF SERVICE ANIMALS GUIDELINES

Purpose:
The purpose of this policy is to provide guidance to EMS personnel who encounter individuals who are assisted by service animals, including guide dogs for the visually impaired and other types of service animals. However, because of the nature of the services we provide it can sometimes be difficult to accommodate a patient and a service animal in an ambulance.

EMS personnel should be guided by this policy in determining whether service animals should be transported with the individual in the ambulance or wheelchair van, or whether alternate methods of transporting the service animal should be utilized.

Criteria:

A. Any call involving a patient with service animals.

Exclusion Criteria:

A. None.

Procedure

A. **All Patients with Service Animals:**

1. Service animals, for example, guide dogs utilized by visually impaired persons, shall be permitted to accompany the patient in the ambulance or wheelchair van unless the presence of the service animal will disrupt emergency or urgent patient care or there is some basis for the crew members to believe that the safety of the crew, the patient or others would be compromised by the presence of the service animal in the ambulance or wheelchair van
2. EMS personnel should assess the level of care required to provide competent medical attention to the patient.
3. When the presence of a service animal in the ambulance might interfere with patient care, jeopardize the safety of the crew, the patient or others, or cause damage to the ambulance or equipment, personnel should make other arrangements for simultaneous transport of the service animal to the receiving facility. Unless emergency conditions dictate otherwise, absolutely every effort must be made to reunite the patient with the service animal at the time of the patient's arrival at the hospital or other destination.
4. Acceptable alternative methods of transporting a service animal to the receiving facility include, but are not necessarily limited to, family members, friends or neighbors of the patient, or a law enforcement official. Attempt to obtain and document the consent of the patient for transport of the service animal by such person. If no such individuals are available, contact the service base or PSAP and request that additional manpower respond to transport the service animal.
5. Personnel should document on the patient care report instances where the patient utilizes a service animal, and should document on the patient care report whether or not the service animal was transported with the patient. If the service animal is not transported with the patient, a separate incident report should be maintained by the ambulance service describing the reasons that the service animal was not transported with the patient.

Notes:

1. EMS services in PA provide quality services to all individuals regardless of race, color, national origin, sex, disability, or creed, and comply with all applicable state and Federal laws regarding discrimination and access to public accommodations.

CRIME SCENE PRESERVATION GUIDELINES

Criteria:

A. Any EMS encounter with a location that is the suspected or potential scene of a crime.

Exclusion Criteria:

A. The safety of the EMS personnel is of paramount importance, and these guidelines do not come before the principles outlined in the Scene Safety Guidelines #102.

B. These guidelines provide general information related to crime scene preservation. These guidelines are not designed to supercede an ambulance service's policy; however this general information may augment a service's policy.

C. These guidelines do not comprehensively cover all possible situation, and EMS practitioner judgment should be used when the ambulance service's policy does not provide specific direction.

Procedure

A. **Provide life saving measures:** [1, 2]
   1. Never cut through holes in clothing created by bullets or knives.
   2. Retain all clothing, place in a paper bag.
   3. When transporting a patient who may be dying, ascertain name and/or description of assailant, if possible.

B. **Consider wearing gloves for all patient care and other activities within the crime scene.**

C. **In cases of obvious death, <u>DO NOT</u> move the body:**
   1. Leave the scene the same way you entered.
   2. Leave the scene in the same condition as when you entered.
   3. Do not allow anyone to enter the scene until police arrive.

D. **Notify the investigating law enforcement officer of any alteration of the crime scene by EMS personnel including:**
   1. Any movement of furniture, tables, etc., by providers.
   2. The original position of the items.
   3. If you turned on lights.
   4. What you touched, moved, etc.

E. **At an outdoor crime scene, do not disturb shoe prints; tire marks, shell casings, etc.**
   1. Limit movement at the crime scene.
   2. Attempt to keep others out of the area.

F. **Firearms/Weapons:**
   1. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat.
   2. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.
      a. Guns should be handed over to a low enforcement officer if possible or placed in a locked space, when available.
         1) Place two gingers on the barrel of the gun and place in a secure area.
         2) Do not unload a gun.
      b. Knives should be placed in a locked place, when available.
   3. Do not clean or disturb a patient's hands (when involved with a firearm). Consider covering a patient's hands with a paper bag during treatment/transport.

G. **Listen for conversations overheard at the crime scene. Report any conversations to law enforcement officials.**

Notes:

1. Your first duty is to provide emergency medical care at the scene of an illness/injury.
2. Certain measures can be taken to assist law enforcement personnel in preserving a crime scene without jeopardy to the patient.

INDWELLING INTRAVENOUS CATHETERS / DEVICES
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients that have an "Indwelling intravenous catheter without medication running:" [1]
   1. Includes any capped catheter that is inserted into a patient's vein or artery including, but not limited to, saline/heparin locks, Broviac catheters, Hickman catheters, PICC lines, Mediports and arterio-venous dialysis catheters

OR

B. Patients that have a "Medication running that is part of the patient's normal treatment plan:"
   1. This includes medications and devices that the patient or his/her family has been taught to use and either have been managing by themselves or will manage by themselves at the transport destination. These devices or medications may require infrequent maintenance, but do not require regular nursing assessment or patient monitoring related to the medication that is being administered. Examples include, but are not limited to, transportation of a patient with an analgesic pump to home, rehabilitation, or nursing home.

Exclusion Criteria:

A. More temporary intravenous medications like crystalloid fluids, antibiotics, intravenous drip medications that require frequent monitoring and maintenance, or intravenous pumps that are not part of the patient's long-term care plan. These excluded medications are usually initiated before inter-facility or tertiary care transfer rather than before transfer to home, rehabilitation or nursing home care.

Procedure:

A. **All Patients:**
   1. BLS personnel may transport patients who meet the criteria of this protocol. If the patient has other symptoms or signs that warrant ALS care, then call for ALS if available.

B. **Potential complications.** Handle as specified:

   2. **Bleeding at insertion point:**
      a. Apply direct, manual pressure using body fluid precautions and request assistance from ALS, if not controlled.

   3. **Leaking of fluids/medications:**
      a. Clamp fluid line if possible and contact medical command.

   4. **Dislodged catheter:**
      a. If no bleeding is present, tape securely in place and return to hospital [2] or health care facility that can provide a replacement line. (Please note: it is normal for some mid-line and PICC catheters to extend several centimeters outside the skin.)

   5. **Pump malfunction:**
      a. Patients and/or family members, who have received proper education and training, should be allowed to troubleshoot alarms. Otherwise, request assistance from ALS or return to facility for intervention[2]. Contact medical command for direction on disabling the pump until intervention is provided.

   6. **Infiltration or extravasation (leaking of fluid or blood into tissues characterized by pain and swelling at injection site):**
      a. If possible, stop the infusion and return to the hospital [2] or health care facility for evaluation and replacement of line. Request assistance from ALS as needed. Apply cold pack to infusion site.

   7. **Suspected medication overdose or adverse medication reaction:**
      a. Contact medical command or request assistance from ALS, if indicated.

   8. **Inadvertent puncture or transection of line:**
      a. Immediately clamp patient end of fractured line and cover with sterile dressing to prevent air embolus and reduce infection risk. Request assistance from ALS, if indicated, and return to facility[2] for removal and/or replacement.

Notes:

1. Definitions:
   a. **Saline or heparin lock:** a short peripheral catheter (1-2") usually present in the hand or forearm intended for intermittent infusions. A small length of tubing may or may not be present between the hub of the catheter and the locking cap. Saline or heparin flushes are used to maintain patency.
   b. **Midline catheter:** Midline catheters are 3 to 8-inch peripheral catheters that are becoming an increasingly popular alternative to both short peripheral and Central Venous Catheters (CVC's). Midline catheters are inserted via the antecubital fossa into peripheral veins (such as the proximal basilic or cephalic veins, or distal subclavian vein; they do not enter central veins. Midline catheters are composed of either silicone or a polyurethane-elastomer hydrogel. PICC catheters: Peripherally inserted CVCs (PICCs) provide an alternative to subclavian or jugular vein catheterization and are inserted into the superior vena cava by way of the cephalic and basilar veins of the antecubital space.
   c. **Surgically implanted central catheters:** including Hickman, Broviac, Groshong, and Quinton, commonly are used to provide vascular access to patients requiring prolonged IV therapy (e.g., chemotherapy, home infusion therapy, hemodialysis). In contrast to percutaneously inserted CVCs, these catheters have a tunneled portion exiting the skin and a Dacron cuff just inside the exit site that helps hold them in place. Skin sutures may or may not be present.
2. If closer to the planned destination health care facility, contact medical command for assistance in determining the best destination for the patient.

RESOURCE TABLES

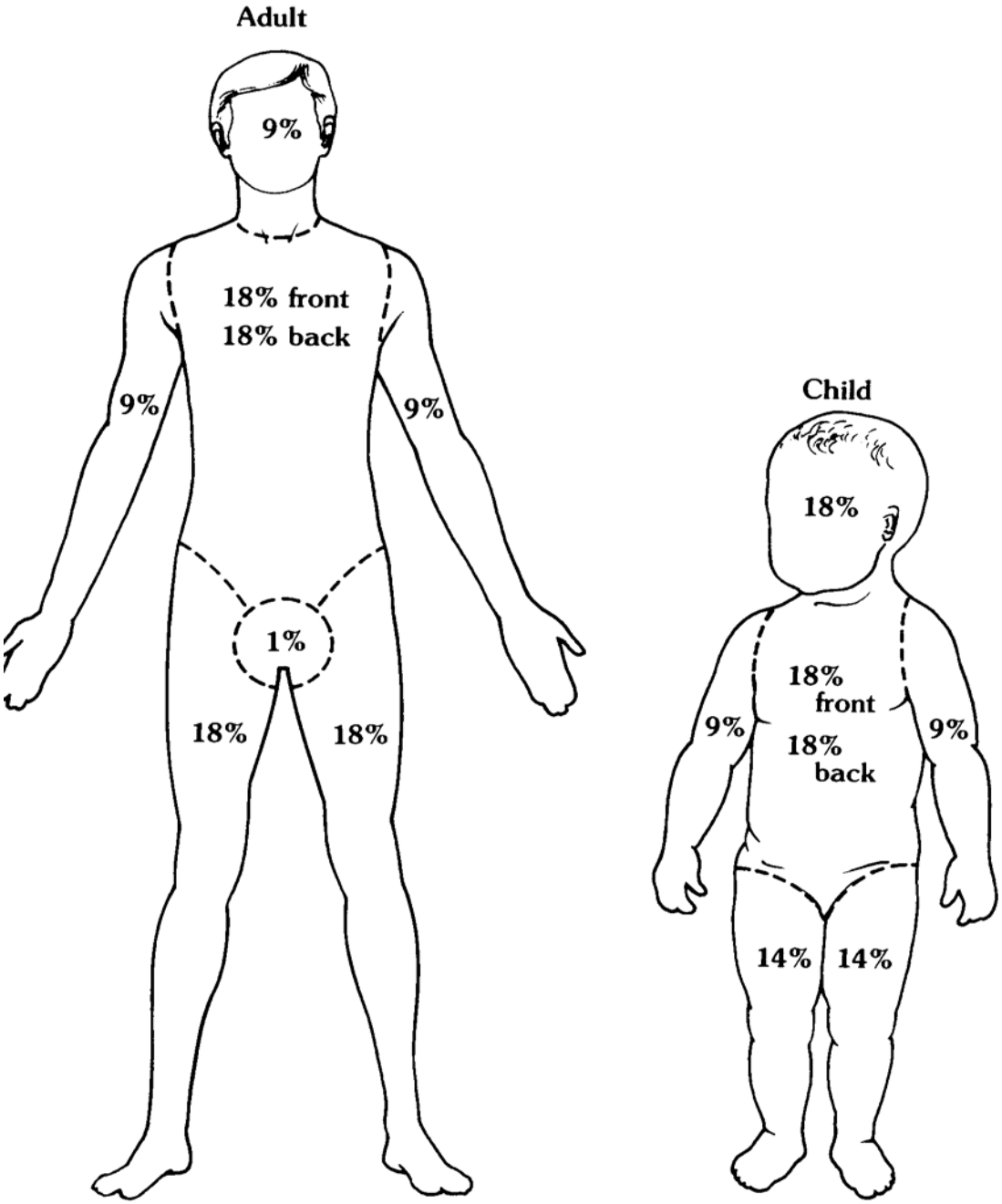
Page

APGAR SCORING CHART

Clinical Signs	Zero	One	Two
A = Appearance (Color)	Blue, pale	Body pink, Extremities blue	All pink
P = Pulse (Heart Rate)	Absent	<100	>100
G = Grimace (Reflex Response)[1,2]	No response	Grimace	Cough, sneeze
A = Activity (Muscle Tone)	Limp	Some flexion of arms and/or legs	Well flexed
R = Respiratory effort	Absent	Weak cry, Hypoventilation	Strong cry

[1]Response to catheter in nostril (tested after pharynx is cleared)
[2]Tangential foot slap

BURN CHART - RULE OF NINES



GLASGOW ADULT COMA SCALE

The Glasgow Coma Scale (based upon eye opening, verbal and motor response) is a practical means of monitoring changes in level of consciousness. If each response on the scale is given a number (high for normal and low for impaired responses), the responsiveness of the patient can be expressed by summation of the figures. The lowest score is 3; the highest is 15.

GLASGOW COMA SCALE

EYES OPEN:
- Spontaneously 4
- To verbal command 3
- To pain 2
- No Response 1

Score (1 to 4) = ☐

MOTOR RESPONSE:

To verbal command:
- Obeys 6

Painful Stimulus [1]:
- Localizes pain 5
- Flexion-withdrawal 4
- Flexion-abnormal (decorticate rigidity) 3
- Extension (decerebrate rigidity) 2
- No response 1

Score (1 to 6) = ☐

VERBAL RESPONSE [2]:
- Oriented, converses 5
- Disoriented, converses 4
- Inappropriate words 3
- Incomprehensible sounds 2
- No response 1

Score (1 to 5) = ☐

GLASGOW COMA SCALE TOTAL SCORE (3 to 15) = ☐

[1] apply knuckle to sternum, observe arms
[2] arouse patient with painful stimulus if necessary

GLASGOW PEDIATRIC COMA SCALE

EYES OPENING		
Score	**> 1 Year**	**< 1 Year**
4	Spontaneously	Spontaneously
3	To verbal command	To shout
2	To pain	To pain
1	No response	No response

BEST MOTOR RESPONSE		
Score	**> 1 Year**	**< 1 Year**
6	Obeys	Spontaneously
5	Localizes pain	Localizes pain
4	Flexion-withdrawal	Flexion-withdrawal
3	Flexion-abnormal (decorticate rigidity)	Flexion-abnormal (decerebrate rigidity)
2	Extension (decerebrate rigidity)	Extension (decerebrate rigidity)
1	No response	No response

BEST VERBAL RESPONSE			
Score	**> 5 Years**	**2-5 Years**	**0-23 Months**
5	Oriented & converses	Appropriate words & phrases	Smiles, coos appropriately
4	Disoriented & converses	Inappropriate words	Cries, consolable
3	Inappropriate words	Persistent cries and/or screams	Persistent inappropriate crying and/or screaming
2	Incomprehensible sounds	Grunts	Grunts, agitated/restless
1	No response	No response	No response

Appendices

PAIN MANAGEMENT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient presents with pain which is not associated with an underlying etiology addressed in another protocol.

Exclusion Criteria:

A. Chest pain of suspected cardiac nature – Follow Protocol # 5001

B. Pain as the result of a burn – Follow Protocol # 6071

C. Pain from extremity trauma – Follow Protocol # 6003

D. Multisystem trauma or traumatic/hypovolemic shock – Follow Multisystem Trauma or Traumatic Shock Protocol # 6002

E. Allergy to Narcotics

F. Systolic Bp < 100 for adults

G. Systolic BP < 70 +2(age in years) for children less than 14 y/o.

H. Respiratory Depression.

System Requirements:

A. The ALS service medical director must be willing to take responsibility for providing a prescription for all narcotics given by protocol prior to medical command contact if the receiving physician is uncomfortable providing a prescription for the medication. At the discretion of the ALS service medical director or by regional protocol, ALS practitioners may be required to contact medical command prior to administration of narcotic, in which case, the medical command physician is responsible for supplying a prescription for the medication that was ordered.

Treatment:

A. See accompanying flowchart.

Notes:

1. Sickle Cell Anemia pain should be treated with high flow oxygen.

Possible Medical Command Orders:

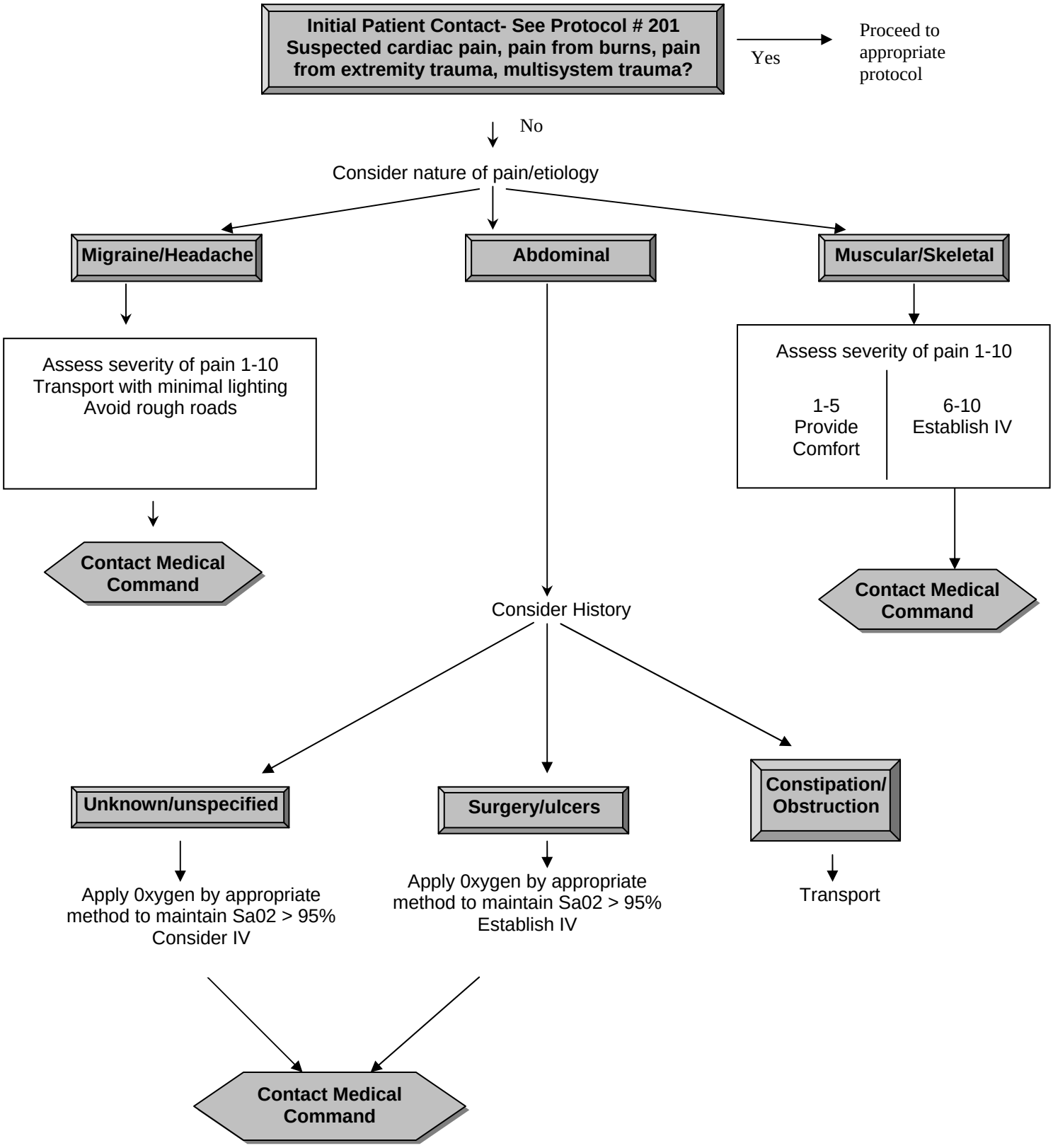
A. Fentanyl

B. Benzodiazepine

C. Morphine 0.1 mg/kg IV/IO, maximum dose 5 mg

PAIN MANAGMENT

STATEWIDE ALS PROTOCOL



CPAP/BiPAP USE
EMMCO WEST ALS PROTOCOL [OPTIONAL]

Criteria:

A. Conscious patient in severe respiratory distress due to suspected pulmonary edema or burn inhalation injuries.

B. Shortness of breath with pulsoximetry < 92% on high-flow oxygen via NRB mask.

Exclusion Criteria:

A. Suspected Pneumothorax.
B. Inability to maintain own airway.
C. Altered mental status
D. Agitated or Combative behavior.
E. Facial trauma or burns

System Requirements:

A. Prehospital CPAP/ BiPAP equipment that meets DOH requirements

Procedure:

A. Adult patients:
1. Assess patient and initiate high flow oxygen as indicated.
2. Monitor pulsoximetry.[1]
3. Apply CPAP/ BiPAP if oxygen saturation < 92% on high flow oxygen via NRB mask.
   a. Connect CPAP/BiPAP device to suitable oxygen supply.
   b. Attach breathing circuit to CPAP/BiPAP device and ensure device is functioning properly.
   c. Apply and secure appropriate size breathing circuit mask to patient.
   d. Titrate positive airway pressure up until improvement in patient pulsoximetry and symptoms.
      1) **WARNING**: Do not exceed pressures of 10 cm H_2O
4. Reassess the patient.
5. Follow CHF or Asthma protocols if appropriate.[2,3]
6. Transport
7. Contact Medical Command[4].

Possible MC Orders:

A. If CHF suspected, may order additional serial nitroglycerine.

B. If reactive airway disease suspected, may order nebulized bronchodilator treatment.

Notes:

1. Pulsoximetry should be monitored continuously during use of CPAP/BiPAP
2. If appropriate, nebulized bronchodilators may be administered during PAP ventilation via a side port.
3. When appropriate, nitroglycerine should be administered by tablets rather than spray when a patient is receiving PAP ventilation.
4. Advise the receiving ED of CPAP use as soon as possible. Many EDs do not have CPAP within the ED and may need to obtain it from within the hospital.

Performance Parameters:

A. Consider 100% audit of all CPAP cases for appropriate use of CPAP and appropriate use of other applicable protocols (e.g. CHF)

B. Review for documentation of pulsoximetry both before and after CPAP applied.

CONFIRMATION OF AIRWAY PLACEMENT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient who has ET tube or Combitube® inserted by EMS personnel.

Exclusion Criteria:

A. None

System Requirements:

A. Every ALS ambulance service must have a secondary device for confirmation of endotracheal tube placement that is easily accessible during the procedure of ET intubation or Combitube insertion. This must include one of the following:

1. Wave-form electronic $ETCO_2$ monitor (preferred)
2. Digital electronic $ETCO_2$ monitor [1]
3. Colorimetric $ETCO_2$ monitor AND aspiration esophageal detector device (EDD - e.g. syringe aspiration device or bulb aspiration device) [1]

B. Regional EMS councils may set regional standards for the type of secondary confirmation device to be used by every ALS ambulance service within the region.

Procedure:

A. When ALS service carries wave-form $ETCO_2$ or digital electronic $ETCO_2$ detector:

1. Insert ETT [2] or Combitube
2. Attach waveform $ETCO_2$ monitor to BVM.
3. Ventilate [3] while simultaneously:
   a. Assuring "positive" CO_2 wave with each ventilation.
   b. Verifying absence of gastric sounds.
4. Verify presence of bilateral breath sounds.
5. Secure tube.
6. Continuously monitor waveform $ETCO_2$. [4,5]
7. Document all of the above.

B. When ALS service DOES NOT carry wave-form or digital electronic $ETCO_2$ detector:

1. Insert ETT [2] or Combitube.
2. Check tube with suction/ aspiration via EDD [6,7]
   a. Resistance to syringe aspiration or lack of inflation of the self-inflating bulb indicates probable esophageal position of the tube. [1,8]
   b. During Combitube placement, switch to ventilation through the proximal (blue or # 1) lumen if resistance is noted on aspiration of the distal (clear or # 2) lumen or if the self-inflating bulb does not fill within a few seconds.
3. Attach colorimetric $ETCO_2$ to BVM.
4. Ventilate while simultaneously:
   a. Verifying absence of gastric sounds
   b. Assuring color change to YELLOW within several ventilations [1,8]
5. Verify presence of bilateral breath sounds.
6. Secure tube.
7. Continuously monitor colorimetric $ETCO_2$ if present.
8. Document all of the above.

Notes:

1. Digital electronic and colorimetric $ETCO_2$ detectors may give false negative results when the patient has had prolonged time in cardiac arrest. EDD aspiration devices may give false negative results in patients with lung disease (e.g. COPD or pneumonia) or cardiac arrest.
2. If ETT is not visualized to pass through a good view of glottic opening, then the chance of misplaced esophageal intubation is increased and transmitted sounds during auscultation alone may lead to misdiagnosed tube position.
3. Immediately remove ETT or switch to ventilation through other port of Combitube if any step reveals evidence of lack of lung ventilation.
4. Monitor $ETCO_2$ continuously during treatment and transport, but especially after any patient movement or change in resistance to ventilations.
5. Quantitative $ETCO_2$ readings may be beneficial in assessing the quality of CPR or as an indicator of the prognosis for successful resuscitation.
6. If Combitube is used, the EDD should only be applied to the clear (distal or # 2) lumen of the Combitube.
7. If the patient has a perfusing blood pressure prior to the intubation attempt, skip the EDD and proceed directly to colorimetric $ETCO_2$ detector.
8. Auscultation, EDD, and colorimetric $ETCO_2$ detectors can all provide false results in certain situations. Therefore, in addition to good breath sounds, confirmation of adequate ventilation by at least one secondary device (EDD or colorimetric $ETCO_2$) is enough to confirm tube placement, but the ETT should be removed if neither secondary device confirms ventilation.

Performance Parameters:

A. Review all ETI and Combitube insertions for documentation of absence of gastric sound, presence of bilateral breath sounds, and confirmation with the appropriate secondary device.

OROTRACHEAL INTUBATION
EMMCO WEST ALS GUIDELINE

Criteria:

A. Cardiac arrest

B. Patient with inadequate ventilations that requires manual ventilation by EMS personnel

C. Patient who is unable to maintain a patent airway with nasopharyngeal or oropharyngeal airways.

Exclusion Criteria:

A. In pediatric patients, ventilation with BVM may be the preferred method of ventilation and airway maintenance if the ETA to hospital is short and ventilation by BVM is adequate.

Procedure:

A. All Patients:

1. Assemble the equipment while providing maximal oxygen and continuing ventilation:
   a. Choose tube and blade size. (See Table below) [1]
   b. Introduce the stylet and be sure it stops 1 cm short of the tube's end. Test balloon with 5-10 ml syringe full of air.
   c. Assemble laryngoscope and check light.
   d. Connect and check suction.
2. Position patient: neck flexed forward, head extended back. Back of head should be level with or higher than back of shoulders.
   a. NOTE: neck should not be extended or flexed if cervical spine injury is suspected. In this case, intubation should be attempted with in-line cervical stabilization by another individual while neck is kept in a neutral position. During in-line stabilization, the cervical collar may be opened to permit better jaw mobility and improved visualization.
3. Ventilate prior to intubation, but avoid high volumes and overzealous ventilation. Two-person BVM technique with cricoid pressure is preferred. [2]
4. Insert laryngoscope to right of midline. Move it to midline, pushing tongue to left and out of view.[3]
5. Lift straight up on blade (no levering on teeth) to expose posterior pharynx. [4]
6. Identify epiglottis: tip of curved blade should sit in vallecula (in front of epiglottis), straight blade should lift epiglottis.
7. Gently lift blade to expose glottis, identify trachea by arytenoids and vocal cords. [5]
8. External laryngeal manipulation (by the intubator's right hand, generally in a backward, upward, and rightward direction) of the thyroid cartilage may dramatically improve the visualization of the glottic opening.
9. Insert tube from right side of mouth, along blade into trachea under direct vision.
10. Advance tube so cuff is 2-3 cm beyond cords.
11. Confirm placement and adequate ventilation using the Confirmation of Airway Placement Protocol- See protocol # 2032.
12. Inflate cuff with 5-10 ml of air. .Check for air leaking at mouth after cuff is inflated.
13. Secure tube using woven twill tape or commercial device.
14. Reconfirm tube placement per protocol # 2032, but especially after any patient movement. [6]

Notes:

1. In children, a length-based reference tape is the preferred method of determining tube and equipment sizes. Other methods include the formula of ETT size = [(age/4) + 4].
2. **Endotracheal intubation is NOT the procedure of choice in the first minutes of resuscitation.** It is a secondary procedure only. Most persons can be adequately ventilated with mouth-to-mask or BVM with oropharyngeal or nasopharyngeal airway. If the number of personnel is limited, defibrillation, good chest compressions with minimal interruption, and establishing an IV take precedence over intubation if the patient can be ventilated adequately.
3. An intubation attempt is defined by the insertion of the laryngoscope blade into the mouth passed the teeth or alveolar ridge. Every insertion of the blade should be considered an intubation attempt. Number of attempts must be documented.
4. Any dentures or partial dental plates should be removed prior to laryngoscopy.
5. Intubation should take no more than 15-20 seconds to complete: do not lose track of time. If visualization is difficult, stop and re-ventilate before trying again. If intubation is not successful

after 3 attempts, follow the Difficult Airway Algorithm and proceed to appropriate rescue or alternative device- see Protocol # ___.

6. If a patient's condition deteriorates, consider possible complications, such as:
   a. Esophageal intubation: particularly common when tube not visualized as it passes through cords. The greatest danger is in not recognizing the error. Auscultation over stomach during trial ventilations should reveal air gurgling through gastric contents with esophageal placement.
   b. Intubation of the right mainstem bronchus: be sure to listen to chest bilaterally.
   c. Upper airway trauma due to excess force with laryngoscope or to traumatic tube placement.
   d. Vomiting and aspiration during traumatic intubation or intubation of patient with intact gag reflex.
   e. Hypoxia due to prolonged intubation attempt.
   f. Induction of pneumothorax, either from overzealous ventilation or aggravation of underlying pneumothorax.
   g. Teeth or dentures may be broken.

Orotracheal Tube Size Table	
Age	**Endotracheal Tube (uncuffed)**
Premature	2.5 - 3.0
Newborn	2.5 - 3.0
2.5 - 3.0 months	3.5
18 months	4.0
3 years	4.5
5 years	5.0
8 years	6.0
10-15 years	6.5 - 7.0 cuffed
Adult	7.0 - 9.0 cuffed

Laryngoscope Blade Size Table	
Age	**Laryngoscope Blade Size**
Premature	0 Straight
Term-1 year	1 Straight
1-1½ year	1½ Straight
1½-12 years	1½ Straight
13+ years	3 Curved

NASOTRACHEAL INTUBATION
EMMCO WEST ALS GUIDELINE

Criteria:

A. Breathing patient, either awake or comatose, that has inadequate ventilation or oxygenation despite maximal treatment with non- intubation alternatives. Examples include:

1. Patient's predicted to be difficult to intubate by orotracheal route (e.g. extremely obese, short neck, inability to widely open jaw, severe tongue edema, etc.)
2. Patient's who are poor candidate for drug-facilitated intubation with etomidate or care by ALS service's that do not perform this optional skill.
3. Patient's entrapped in a sitting or other position that precludes direct laryngoscopy.

B. Asthma, pulmonary edema, and respiratory distress situations where patient is anxious and sitting upright and resists laying back.

Exclusion Criteria:

A. Apneic patients.

B. Patients with significant nasal or craniofacial trauma.

C. In general, this technique is not used in children.

Procedure:

A. All Patients:

1. Assemble equipment while providing high-flow oxygen by NRB mask, CPAP device or by assisting patient's ventilations with BVM.
   a. Choose correct ET tube size (slightly smaller than diameter of nasal passage, about 7 mm in adult).
   b. Connect and check suction.
2. Position patient with head in midline, neutral position (cervical collar may be in place, or assistant may hold in-line stabilization in trauma patients).
3. Lubricate ET tube with Xylocaine jelly or other water-soluble lubricant.
2. With gentle, steady pressure, advance the tube through the nose to the posterior pharynx. Use the patient's larger nostril. [1]
   a. If using the left nostril, pass the first few cm of ETT upside down to avoid driving bevel into nasal septum, then rotate the tube after partial insertion. This may avoid a nosebleed from the fragile septum.
3. Keeping the curve of the tube exactly in midline, continue advancing slowing.
4. There will be a slight resistance just before entering the trachea. Wait for an inspiratory effort before final advance into trachea. Patient may also cough or buck just before breath.
5. Continue advancing until air is exchanging through the tube.
6. Advance about 3-5cm further, then inflate cuff.
7. Confirm placement by assuring that patient's natural respirations are exiting through, and not around tube.
8. Confirm placement and adequate ventilation using the Confirmation of Airway Placement Protocol- See protocol # 2032.
9. Secure tube using woven twill tape or commercial device.
10. Reconfirm tube placement per protocol # 2032, but especially after any patient movement. [2]

Notes:

1. An intubation attempt is defined by the insertion of the tip of the tube into the nostril. The number of attempts must be documented.
2. Adjuncts to improve success rate include:
   a. using a "trigger tube" or Endotrol ETT that has a trigger to pull the distal tube anteriorly when near the glottis.
   b. attaching a BAAM device to the end of the ETT to provide a whistle sound during exhalation when the tube tip is at the glottis.
3. If a patient's condition deteriorates, consider possible complications, such as:
   a. Esophageal intubation: particularly common when tube not visualized as it passes through cords. The greatest danger is in not recognizing the error. Auscultation over stomach during

trial ventilations should reveal air gurgling through gastric contents with esophageal placement.

b. Intubation of the right mainstem bronchus: be sure to listen to chest bilaterally.
c. Nosebleed can lead to brisk hemorrhaging.
d. Vomiting and aspiration during traumatic intubation or intubation of patient with intact gag reflex.
e. Hypoxia due to prolonged intubation attempt.
f. Induction of pneumothorax, either from overzealous ventilation or aggravation of underlying pneumothorax.

COMBITUBE INSERTION
EMMCO WEST ALS GUIDELINE

Criteria:

A. The Combitube is only indicated in unresponsive patients without a gag reflex. Indications include:
1. Unsuccessful attempts at endotracheal intubation. The number of attempts at endotracheal intubation will be at the discretion of the paramedic based on the ability to visualize the vocal cords, but will not exceed three attempts per patient before attempting to place the Combitube.
2. Limited access to patient's head prohibiting endotracheal intubation.
3. Potential cervical spine injury and inability to perform adequate direct visualization with neck in neutral position

Exclusion Criteria:

A. The Combitube should not be used on patients with the following conditions:
1. Conscious or unconscious with a gag reflex.
2. Known esophageal disease (for example, esophageal varices, cancer or stricture).
3. Caustic oral ingestion.
4. Patient less than 4 feet tall

Procedure:

A. All patients:
1. Administer high flow oxygen and ventilate.
2. Select the correct size Combitube for the patient:
   a. The standard Combitube should be used for patients over 5'6" in height.
   b. The Combitube SA should be used for patients between 4" and 5' 6".
3. Check ETC balloons for leaks.
4. Lift the patient's jaw and tongue with the non-dominant hand. Discontinue any cricoid pressure.
5. Hold the ETC in the dominant hand and insert gently following the natural curve of the pharynx. Insert until the teeth or the alveolar ridge is between the two black lines.
6. Inflate the blue (# 1) pilot balloon leading to the pharyngeal balloon to the recommended amount by the manufacturer with air using the provided syringe.
7. Inflate the white (# 2) pilot balloon leading to the distal cuff to the recommended amount by the manufacturer with air using the small syringe.
8. Give initial ventilation through the blue (# 1) lumen while simultaneously confirming absence of gastric sounds. Then listen to confirm good bilateral breath sounds. Continue ventilating if gastric sounds are absent and breath sounds are good.
9. If gastric ventilation sounds are present or breath sounds are absent, ventilate through the short, clear (# 2) lumen while simultaneously confirming absence of gastric sounds. Then listen to confirm good bilateral breath sounds. Continue ventilating if gastric sounds are absent and breath sounds are good.
10. Confirm tube placement and ventilation using the Confirmation of Airway Placement Protocol – See protocol # 2032

ENDOTRACHEAL TUBE MEDICATION ADMINISTRATION
EMMCO WEST ALS GUIDELINE

Criteria: The use of this technique is being dramatically downplayed by the AHA. This is not a very effective way of administering meds, but many paramedics have been taught to use this routinely for the initial meds during cardiac arrest. I would recommend deleting this as a protocol since it appears to validate the procedure, and we are considering leaving most procedures out of the protocols. Otherwise, consider as a guideline only.

A. Any intubated patient, without IV access, for which the following medications are indicated:
1. Xylocaine (Lidocaine)
2. Epinephrine
3. Atropine
4. Naloxone (Narcan)

B. Intravenous administration is preferred over endotracheal administration in all instances. Endotracheal medication administration should only be used when previous attempts at IV access have been unsuccessful.

Exclusion Criteria:

A. Patient with patent IV Access

B. Medication to be administered is not one of the four listed above.

Procedure:

A. Ascertain that the patient is properly intubated and is being well ventilated.

B. Determine the proper medication and amount to administer. Medications delivered by the endotracheal route should be doubled in dosage, and consider following dose by a 5ml saline flush.

C. Disconnect the bag-valve-mask from the distal end of the endotracheal tube and deliver the medication into the tube lumen. Alternately, some bag-valve-mask devices have a medication port that allows the medication to be delivered without interrupting ventilations or the medication can be injected through the wall of the tube.

D. Replace the BVM on the tube, and rapidly ventilate the patient several times to clear the medication from the tube.

NEEDLE CRICOTHYROTOMY
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient with complete airway obstruction that cannot be relieved by basic and advanced obstructed airway techniques or a patient in respiratory arrest with a spinal or head injury who cannot be ventilated adequately with a bag-valve mask or a patient in respiratory arrest with facial injuries that preclude endotracheal intubation.

Exclusion Criteria:

A. Patients under 10 years of age.

System Requirements:

A. ALS ambulance services that choose to provide needle cricothyrotomies must carry a transtracheal ventilation system that is capable of providing oxygen at 50 PSI and must carry the equipment necessary for needle crichothyrotomy.

B. Commercial percutaneous cricothyrotomy kits may be used if approved by the service medical director.

C. Regional EMS Councils may set regional requirements or restrictions for crichothyrotomy by EMS personnel.

Procedure:

A. All patients:

1. Attempt to clear obstruction by basic and advanced methods.
2. Contact Medical Command to evaluate the need for the procedure.
3. Place the patient in supine position and place roll or pillow under the back and neck for hyperextension (except for head and spinal injuries).
4. Palpate and identify the Cricothyroid space:
   a. Palpate the thyroid notch anteriorly.
   b. Palpate the cricoid cartilage inferiorly.
   c. Locate the cricothyroid space between the cricoid and thyroid cartilages.
5. Stabilize the trachea by holding the thyroid cartilage between the thumb and fingers.
6. Prep the area.
7. Assemble and attach either a 10g, 12g, or 14g angiocath to a 10 ml syringe.[1]
8. Puncture the skin midline and directly over the cricoid cartilage, directing the needle at a 45-degree angle caudally.
9. Aspirate the syringe as the needle advances, any air aspiration signals entry into the treachea.
10. Withdraw the inner stylet while gently advancing the catheter into position.
11. Attach the catheter to the hub of the transtracheal jet insufflator.
12. Ventilate the patient while observing chest inflation and auscultating breath sounds.
13. Allow passive expiration while opening the Y adaptor on the jet insufflator, as to allow expiration**.**
14. Secure device to the neck.
15. Apply and continuously monitor pulse oximetry.
16. Prepare to transport.
17. Observe patient color, vital signs and level of consciousness and document findings.

Notes:

1. A commercially available alternative airway device like Nu-Trake or Pertrach may be used if approved by ALS service Medical Director and used in accordance to the manufacture's directions

ECG MONITORING
EMMCO WEST ALS GUIDELINE

Criteria:

A. Any patient who complains of cardiac type chest pain, i.e. pressure or heaviness.

B. Any patient with palpitations.

C. Any patient with symptoms that may be related to a previous history of angina, MI, CABG, valvular repair or replacement, HTN, or CVA.

D. Consider in any patient who complains of dizziness, dyspnea, weakness, diaphoresis, or patient with reported syncopal episode, particularly if over 45 years of age.

E. Any patient manifesting signs and symptoms of a stroke.

F. Any unconscious patient, adult or pediatric.

G. Any suspected drug abuser who complains of chest pain.

H. Any pediatric patient with a history of cardiac problems.

Procedure:

A. Determine the need for cardiac monitoring.

B. Clean lead sites with alcohol wipe to remove perspiration, dirt and dead skin cells. Allow areas to dry. Use benzoin preps for better adhesion on diaphoretic skin.

C. Attach leads at R and L subclavicular areas and L lateral chest area, avoiding the apex area of the heart.

D. Attach ECG lead wires to electrodes as coded, in a monitoring Lead II.

E. Attach cable to cardiac monitor/defibrillator.

F. Turn on ECG monitor and adjust sensitivity and QRS size to obtain the best possible picture.

G. Obtain at least a six-second strip and document the patient's name, date and time on the strip.

H. Obtain strips of any dysrhythmia, change in rate, changes due to medications given, or change in patient condition. Document patient's name, date and time. Sequentially number strips. Obtain a long enough strip so that documentation can be given to the hospital and documentation can be attached to the PaPCR.

I. Attach examples of baseline rhythm, changes in rhythm, changes due to medications given, or change in patient condition to the PaPCR.

Notes:

1. Utilization of cardiac monitoring means continuous monitoring from the scene, during transport, and continuing until care of the patient has been transferred to the staff of the receiving hospital.
2. Lead placement described under Procedure is for Standard Lead II. If the rhythm is not clearly displayed or the origin of the rhythm is not clearly defined, an alternate lead may be used to attempt to clarify the situation. An MCL-I lead is the most commonly used alternate lead. To display an MCL-I, place electrodes on the patient as for Standard Lead II. Connect wires to patient as follows:
   R shoulder (white=negative) to L shoulder
   L shoulder (black=ground) to 4th intercostals space just right of sternum
   L leg (red=positive) as in Standard Lead II
   R leg (green = ground)
   To ensure the proper QRS configuration in the MCL-I lead, leave the monitor in Lead II setting and move the red lead to the 4th intercostals space just right of sternum and the white lead to the left shoulder.
3. All cardiac monitor/defibrillators, including cables and lead wires should be checked on a regular basis to ensure that the equipment is functioning properly and that the batteries are fully charged.

ELECTRICAL COUNTERSHOCK
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient with pulseless V-Tach or Ventricular Fibrillation.

B. Patient with hypotension due to narrow complex tachycardia or V-Tach with a pulse.

Procedure:

A. All Patients:

1. Dry the chest wall if wet. Do not drip saline or conductive gel across the chest. This results in bridging, which conducts the current through the skin rather than through the heart.
2. Place conductive gel on chest and spread with paddles or place defibrillation pads. (Skin burns result from inadequate electrode gel on paddles and chest, or from inadequate contact between paddles and skin.)
3. Charge defibrillator to appropriate energy level with paddles in hand or after placing defibrillation pads if using a 'hands-off' defib device. Energy settings may differ from typical settings if using a biphasic device.
4. If V-Fib, assure that synchronize switch is OFF. If patient presents with unstable narrow complex tachycardia or V-Tach, assure that synchronizer switch is ON. Refer to appropriate treatment protocol for energy settings.
5. Place paddles with as much anterior/posterior direction of current as possible. Place one paddle just to the right of the upper sternum and below the clavicle, and the other just to the left of the apex, or just to the left of the left nipple in the anterior axillary line. Use twist to distribute conductive gel evenly on chest wall.
6. Recheck the rhythm. "Clear" the area.
7. Apply firm pressure (about 25 lbs.) to paddles; be careful not to lean and let the paddles slip off. This step does not apply if using a 'hands-off' defibrillation system.
8. Simultaneously Depress defibrillator buttons; watch for muscle contraction. Check rhythm and pulse after any defibrillation. Defibrillation should be accompanied by visible muscle contraction by the patient. If this does not occur, the paddles did not discharge. Recheck your equipment.

Notes:

1. Nitroglycerine paste and patches, which are commonly used by cardiac patients, are flammable and may ignite if not wiped from the chest prior to paddle contact.
2. Rescuer defibrillation may occur if you forget to clear the area or lean against a metal stretcher or patient during the procedure, or if you are in the presence of water, rain or snow
3. Unsuccessful defibrillation is often due to hypoxia or acidosis. Careful attention to airway management and proper CPR is important.
4. Defibrillation is not the first step in treating fibrillation due to traumatic hypovolemia. CPR and fluid resuscitation should be started first.
5. Defibrillation may not be successful in ventricular fibrillation due to hypothermia until the core temperature is above 88°F (31°C). Attempt to defibrillate, but prolonged CPR during rewarming may be necessary before conversion is possible.
6. Dysrhythmias are common following successful defibrillation. They respond to time and adequate oxygenation. Treat only if persisting >5 minutes.
7. Damage to the heart muscle is directly related to the amount of energy that is run through it. The lower defibrillation charges are recommended to minimize myocardial damage but still provide the maximum chance of defibrillating the heart.
8. Knowledge of your defibrillator is important! Delivered energy varies with different machines. Make sure your machine is maintained regularly. Testing with full discharge is recommended weekly. Low energy discharge is recommended daily when operating (a periodic full discharge can also improve battery performance). A chart should be attached to the machine listing actual delivered energy for usual energy levels.

TRANSCUTANEOUS PACING
EMMCO WEST ALS GUIDELINE

Criteria:

A. All patients with symptomatic bradycardia, without evidence of trauma, who:
1. Have high degree A-V block (second degree, type II, or third degree); or
2. Are refractory after administration of atropine 1.0 mg; or
3. Do not have patent IV access.
4. Patients who deteriorate from a perfusing rhythm to bradyasystole in the presence of the ALS practitioner (witnessed).

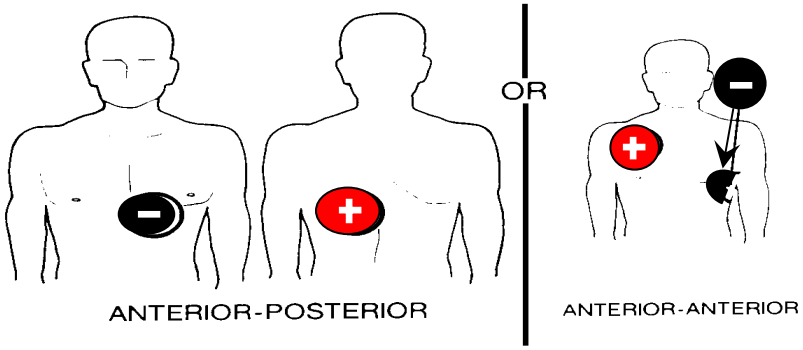
Exclusion Criteria:

A. Asystole in cardiac arrest that is not related to a witnessed deterioration from a perfusing rhythm to a bradyasystolic cardiac arrest.

B. Asystole in cardiac arrest of traumatic etiology.

Procedure:

A. All Patients: [1]
1. Initiate cardiac monitor.
2. Determine that patient meets established criteria for transcutaneous pacing.
3. Patient Teaching: Explain procedure to patient and, if appropriate, to family. Include explanation of possible discomfort and use of deep breathing or other relaxation techniques as well as sedation, as needed.
4. Connect pacing cable to PACE connector at "Monitor" side of cardiac monitor/defibrillator.
5. Connect QUIK-PACE electrodes to pacing cables, which are color coded *Black* and *Red*.
6. Attach pacing electrodes to patient:
   a. Apply electrodes to clean, dry skin. Clip, *do not shave* excess hair.
   b. Anterior-posterior positioning is preferred:
      1) Black = anterior; Red = posterior. Place the anterior electrode (negative) on left anterior chest halfway between the xiphoid process and the left nipple with the upper edge of the electrode below the nipple line. Place the posterior electrode (positive) on the left posterior chest, beneath the scapula and lateral to the spine.
   c. Anterior-anterior placement should only be used if A-P placement is contraindicated. Place the Black (negative) electrode on the left chest, mid-axillary, over the fourth intercostal space. Place the red (positive) electrode on the anterior right chest, subclavicular area. *(See diagram)*



7. Press "Pace". If needed, adjust ECG size so that each QRS complex that is sensed is marked by a " " symbol on the screen. The recorder paper will mark each pacer spike with a " " in the lower margin.
8. Set pacing rate using "Rate" selector. In the absence of Medical Command, set a rate of 80 bpm.
9. Activate pacing by using "Start/Stop" selector.
10. Adjust the pacing energy:
    a. In witnessed bradyasystole or unresponsiveness, quickly increase the energy level to maximum milliamps until electrical and mechanical capture, then slowly decrease the energy slightly above the lowest level that provides consistent capture.
    b. In a conscious patient, slowly increase current to a level slightly more than the threshold for electrical capture.
11. Reassess patient status including level of consciousness, perfusion and vital signs.

Notes:

1. The guidelines shown are manufacturer specific. The step-by-step instructions may vary slightly from one model or manufacturer to another. In every case, follow the manufacturer's instructions for the specific model being utilized.
2. If pacing leads become disconnected or electrodes loosen, pacer function will cease and pacer energy will decrease to zero.
3. If ventricular fibrillation occurs, defibrillate immediately. Pacer function will cease when the "Charge" selector is used. Pacer energy will decrease to zero (pacing rate will decrease to 40 bpm) after defibrillation.
4. To electively terminate pacing, press "Start/Stop" selector.
5. When pacing is successful, document rate paced, energy used and positive capture on PaPCR. If pacing is unsuccessful, documentation is to include a statement that external pacing was attempted.
6. If ECG size is too low, pacer will operate asynchronously and may result in ventricular fibrillation.
7. Assess that pacer is sensing and marking the QRS complex and not the T-wave. If the T-wave is marked, change either the lead select or electrode placement to establish QRS sensing. Discharge on the T-wave will result in ventricular fibrillation.
8. Skeletal/muscle twitching should be expected. It is not an indication of pacer capture. If the patient is in discomfort, consider sedation

EXTERNAL JUGULAR IV ACCESS
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient in need of fluid administration for volume expansion or medication administration.

Exclusion Criteria:

A. Patient has a functioning peripheral extremity IV.

B. Patient has an indwelling central venous line and is hemodynamically unstable.

Procedure:

A. All Patients:

1. Explain the procedure to the patient whenever possible.
2. Position the patient: supine, elevate feet if patient condition allows (this may not be necessary or desirable if congestive heart failure or respiratory distress is present). Turn patient's head to opposite side from procedure.
3. Expose vein by having patient bear down if possible, and "tourniquet" vein with finger pressure just above clavicle.
4. **Scrub** insertion site (Betadine v. alcohol is less important than vigor.)
5. Do not palpate, unless necessary, after prep.
6. Align the cannula in the direction of the vein, with the point aimed toward the shoulder on the same side.
7. Puncture the skin over the vein first, then puncture vein itself. Use other hand to traction vein near clavicle to prevent rolling.
8. Attach syringe and aspirate if the pressure in the vein is not sufficient to give flashback. Advance cannula well into vein once it is penetrated. Occlude catheter with gloved finger until IV tubing is connected to help prevent air embolism. Attach IV tubing.
9. If initial attempt is unsuccessful, a second attempt may be made on the same side as the first prior to contacting medical command. Medical command must be contacted prior to making more than 2 attempts or if bilateral attempts are considered.
10. Open IV tubing clamp full to check flow and placement, then slow rate to TKO or as directed.
11. Cover puncture site with appropriate dressing. Secure tubing with tape, making sure of at least one 180° turn in the taped tubing to be sure any traction on the tubing is not transmitted to the cannula itself.
12. Recheck to be sure IV rate is as desired, and monitor.
13. Document fluid type, size of catheter, site and complications on PaPCR.

INTRAOSSEOUS (IO) ACCESS
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient in need of fluid administration for volume expansion or medication administration without IV access.

Procedure:

A. All Patients:

1. Connect tubing to IO solution container.
2. Fill drip chamber ½ full.
3. Expose IO site:
   a. Children < 3 years: proximal tibia, flat surface
   b. Children ≥ 3 years: proximal tibia or medial malleolus
   c. Adults: medial malleolus
4. Prepare insertion site (scrub with Betadine or alcohol).
5. Hold lower leg firmly (side-to-side) against firm surface.

B. Children:

1. Angling slightly away from perpendicular, toward the foot, penetrate the skin overlying the flat medial surface of the tibia, 1-2 cm below the tibial tuberosity. Apply firm but controlled pressure with a to-and-fro rotary motion until the tip of the needle passes through the cortex of the bone into the narrow cavity. In some infants, a release of resistance will be felt when this occurs.

C. Adults:

1. Locate the medial malleolus. Move 1-2 fingerbreadths anteriorly and locate the flat area of the tibia medial to the tibial crest. Holding the 18 gauge IO needle perpendicular to the site, insert the needle with a twisting motion until decreased resistance of a "pop" if felt.

D. All Patients:

1. Remove the stylet and aspirate with a blank syringe.
2. Infuse 1-2 ml NSS through the IO needle and observe for extravasation around the site and on the side of the leg opposite the needle entry site. Proper placement is characterized by:
   a. Solid anchoring of the needle;
   b. Minimal resistance to infusion; and
   c. Lack of extravasation of infused fluid.
3. Attach tubing from IO solution container.
4. Secure the IO needle.
5. Adjust IO rate as desired, and monitor.
6. **WARNING:** Sternal IO is **NOT** in scope of practice.

Notes:

1. Do not insert IO needles distal to a fracture site . Avoid inserting through burned tissue.
2. Do not puncture the same bone more than once.
3. Sterile technique should be utilized during IO placement.
4. This technique is best accomplished in children younger than three years, particularly infants.
5. Self-injury has also occurred while performing this procedure. Avoid this by holding the lower limb side-to-side, rather than with one hand underneath the limb, opposite the needle insertion site.
6. All of the complications of peripheral IV lines apply to IO lines, including air and other emboli.
7. Other complications include:
   a. Osteomyelitis (be sure to use sterile technique).
   b. Joint and growth plate damage (be sure to angle away from the joint).

CENTRAL VENOUSE LINES – ACCESS OF EXISTING CATHETERS
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient in need of fluid administration for volume expansion or medication administration.

B. Patient has an existing central venous line

Exclusion Criteria:

A. Central arterial lines may not be accessed

Procedure:

A. All Patients:

1. Explain the procedure to the patient whenever possible.
2. Select appropriately sized needle.
3. Select administration set or medication syringe as indicated.
4. Cleanse port
5. Connect tubing and fill chamber and tubing for live IV.
6. Prepare tape for securing needle to port.
7. Attach fluid
   a. IV tubing
   b. Lock and syringe
8. Flush/flow.
   a. Open flow regulator and observe drip chamber for flow.
   b. Withdraw slightly on syringe, watch for blood, flush.
9. If live IV, set flow rate to desired flow.
10. Observe site for swelling, redness, and pain.
11. Document details on PaPCR.

SUBLINGUAL/ORAL MEDICATION ADMINISTRATION
EMMCO WEST ALS GUIDELINE

Criteria:

A. Referring protocol indicates that a patient's condition is indicative of medication administration via oral ingestion or Sublingual (SL) administration.

Exclusion Criteria:

A. Patient has allergy to the medication referred to in protocol.

B. Patient is unconscious, or has an altered level of consciousness or for another reason is unable to swallow

Procedure:

A. Sublingual

1. Use appropriate BSI
2. Confirm the indication, medication, dose, and expiration date
3. Instruct patient to lift tongue toward the superior and posterior oral cavity
4. Place the pill or direct spray under the tongue on the floor of the oral cavity
5. Instruct the patient to return the tongue and mouth to a normal position and not to swallow the pill or liquid spray.
6. Observe the patient for positive or negative effects.

B. Oral

1. Use appropriate BSI
2. Consider whether medication should be taken with food or on empty stomach
3. Gather necessary equipment and prepare medication as indicated
4. Whenever possible, have the patient sit upright.
5. Instruct the patient to open their mouth and instruct the patient to place the medication in the patient's mouth. Assist as needed.
6. Follow with 4 to 8 oz ounces of drinking water.

Notes:

1. See specific protocol

Possible Medical Command Orders:

A. See specific protocol

PULMONARY MEDICATION ADMINISTRATION
EMMCO WEST ALS GUIDELINE

Criteria:

A. Referring protocol indicates that a patient's condition is indicative of medication administration via inhalation with a nebulizer or metered dose inhaler

Exclusion Criteria:

A. Patient has allergy to the medication referred to in protocol.

Procedure:

A. Nebulizer

1. Use appropriate BSI
2. Confirm the indication, medication, dose, and expiration date
3. Fill reservoir with medication, dilute if necessary with 3-5 cc of sterile saline
4. Attach oxygen source
5. Set regulator to 5-8 LPM.
6. Place device in patients mouth or place mask on face. If using a mouthpiece, instruct patient to seal lips around device. With mouthpiece and mask have patient inhale as deeply as possible, holding the medication for several seconds.

B. Metered Dose Inhaler

1. Use appropriate BSI
2. Confirm the indication, medication, dose, and expiration date
3. Assemble canister and mouthpiece
4. Remove mouthpiece cap
5. Shake for 5 seconds gently
6. Have patient seal mouth around inhaler
7. When patient inhales, press the canister down to allow medication to release.
8. Instruct patient to hold breath for several seconds
9. Have patient remove inhaler from mouth and breathe normally.
10. If second dose is required, follow manufactures recommendations on canister.

Notes:

1. For a severely symptomatic patient, use a nebulizer as opposed to a metered dose inhaler.

Possible Medical Command Orders:

A. See specific protocol

PERIPHERAL IV ACCESS/HEPARIN OR SALINE LOCK
EMMCO WEST ALS GUIDELINE

Criteria:

A. Patient in need of fluid administration for volume expansion or medication administration.

Exclusion Criteria:

A. Patient has a functioning peripheral extremity IV.

B. Patient has an indwelling central venous line and is hemodynamically unstable.

Procedure:

A. See accompanying flowchart

Notes:

1. After 3 attempts at an IV, contact medical command for guidance in non-critical patients.
2. Unless otherwise specified, use Macro drip tubing (10-20 gtt/ml)
3. Unless otherwise specified, order for IV access in adults is peripheral, external jugular, IO.
4. The ALS practitioner may attempt Jugular and IO if unable to access an IV in a Category 1 trauma patient on unstable/critical medical patient.
5. Document fluid type, size of catheter, site, and any complications on Pa PCR

Possible Medical Command Orders:

A. Jugular and IO access are at the discretion of the MC physician for critical or unstable medical patients.

B. Category 2 trauma patient: Jugular and IO access at the discretion of the MC physician.

C. Category 3 trauma patients generally do not need Jugular or IO access if a peripheral IV is not possible.

D. Unless otherwise specified, order for IV access in adults is peripheral, external jugular, IO.

PERIPHERAL IV ACCESS/HEPARIN OR SALINE LOCK
EMMCO WEST ALS GUIDELINE

Referred from specific protocol

Explain the procedure to the patient whenever possible.
Ask about alcohol or betadine allergies.
Select appropriate catheter size
Prepare tape or commercial adhesive devices and other equipment as necessary
Apply tourniquet
Palpate suitable vein, distal to proximal
Cleanse site appropriately[1]
Perform Venipuncture

- Apply traction to vein
- Insert stylett/catheter
- Note flashback
- Advance catheter
- Occlude proximal vein
- Remove stylette

If unsuccessful after 3 attempts

Unstable/critical medical or category 1 trauma patient[1]

yes

Consider EJ
Consider IO

no

Consider patient needs including need for volume replacement

IV

Ensure drip chamber and tubing is filled. [2]
Attach line
Open flow regulator and observe drip chamber for flow
Set flow rate
Observe for swelling, redness, pain

Heparin/Saline Lock

Attach lock
Attach syringe
Withdraw slightly, watch for blood
Flush with heparin/saline
Observe for swelling, redness, pain

Contact Medical Command

INTRAVENOUS/ INTRAOSSEOUS MEDICATION ADMINISTRATION
EMMCO WEST ALS GUIDELINE

Criteria:

A. Referring protocol indicates that a patient's condition is indicative of medication administration via IV or IO.

Exclusion Criteria:

A. Patient has allergy to the medication referred to in protocol.

B. IV line patency is in question. Restart IV in such cases.[1]

Procedure:

A. IV Bolus

1. Use appropriate BSI
2. Confirm the indication, medication, dose, and expiration date
3. Draw up medication or prepare prefilled syringe as appropriate
4. Identify the proximal IV port and cleanse with alcohol.
5. Pinch the tubing distal to the port
6. Inject the medication as indicated.
7. Remove the needle release tubing
8. Flush with 20 cc of fluid by opening regulator
9. Dispose of needle appropriately
10. Monitor patient for negative and positive effects.

B. IV Drip

1. Use appropriate BSI
2. Confirm indication, medication, dose, and expiration date
3. Prepare fluid bag or bottle, if premixed go to step 9
4. Draw up medication with syringe
5. Cleanse the medication port
6. Insert the medication into the port and inject the medication
7. Gently mix the contents.
8. Label the bag or bottle
9. Connect tubing to drip bag, fill drip chamber then tubing
10. Place the drip tubing needle in the administration bag's port and secure.
11. Reconfirm indication, drug, dose, and route of administration
12. Shut down the primary administration bag
13. Adjust drip rate as indicated or use IV pump as indicated.
14. Monitor patient for negative and positive effects.

Notes:

1. Some medications can be very caustic to soft tissue if IV is not patent.
2. Most IV drips use micro drip tubing.

Possible Medical Command Orders:

A. See specific protocol

AIRWAY OBSTRUCTION
EMMCO WEST ALS PROTOCOL

Criteria:

A. Obstructed airway from suspected foreign body.

Exclusion Criteria:

A. If acute obstruction of the airway is due to systemic allergic reactions, proceed to Allergic Reaction Protocol # 4011.

Procedure:

A. See accompanying flowchart.

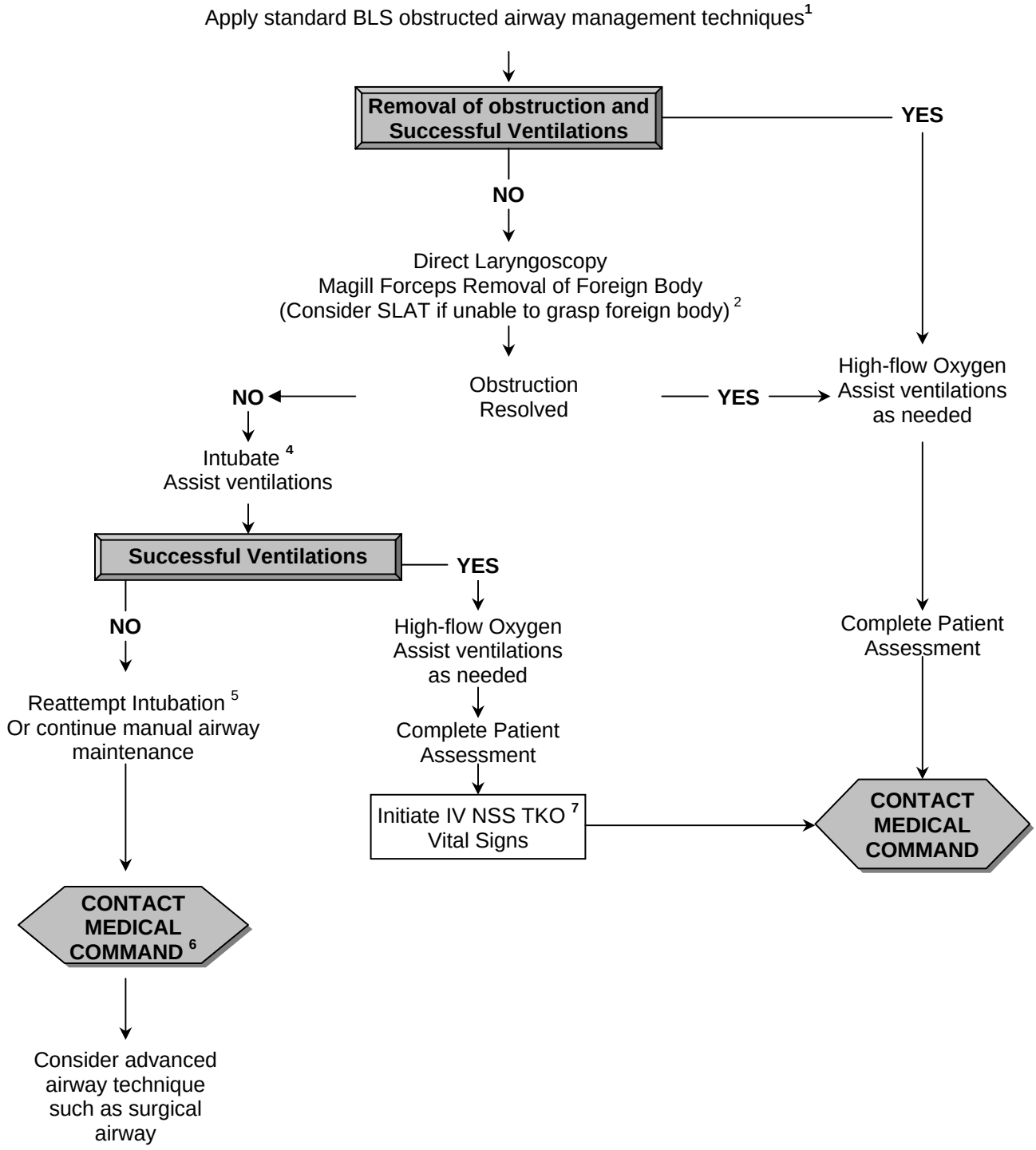
Possible MC Orders:

A. Needle cricothyrotomy per Protocol # 2041.

Notes:

1. For children < 1 year of age, put head down and use black blows/chest thrusts. For adults and children > 1 year of age, use abdominal thrusts. For pregnant patients or patients who are too obese for abdominal thrusts, use chest thrusts.
2. SLAT= **S**imultaneous **L**aryngoscopy and **A**bdominal **T**hrusts. When the foreign body can be visualized within the trachea but cannot be grasped by Magill forceps, there have been case reports of success when one rescuer visualizes the airway with a laryngoscope and another rescuer applies abdominal thrusts to temporarily dislodge the foreign body so that it can be grasped by the first rescuer with the Magill forceps
3. Successful ventilation is indicated by: Bilateral chest expansion, adequate tidal volume and lung sounds.
4. Endotracheal intubation is the preferred method of airway maintenance after removal of foreign body with Magill forceps
5. If ET tube is unsuccessful, consider Esophageal-Tracheal Combitube (ETC) per Protocol # 2035 or nasal intubation or use manual methods to maintain airway and ventilate with immediate transport to closest hospital.
6. Medical Command may order needle cricothyrotomy per Protocol # 2041.
7. On pediatric patients, if unable to obtain IV access, place an IO line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.
8. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference for ET tube and laryngoscope blade sizing.

AIRWAY OBSTRUCTION
EMMCO WEST ALS PROTOCOL



CARDIAC ARREST (HYPOTHERMIA)
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient in cardiac arrest from a suspected hypothermic cause (Generalized cooling that reduces the body temperature). Hypothermia may be:
1. Acute/ Immersion (e.g. sudden immersion in cold water)
2. Subacute/ Exertion (e.g. individual wandering in the woods)
3. Chronic/ "urban" (e.g. elderly individual with no heat in home)

Exclusion Criteria:

A. Patients in cardiac arrest that meet criteria for DOA – See BLS DOA protocol # 322.
1. Hypothermic patient in cardiac arrest after submersion for more than 1 hour.
2. Body tissue/chest wall frozen solid.
3. Hypothermia patients whose body temperature has reached the temperature of the surrounding environment with other signs of death (decomposition, lividity, etc.).

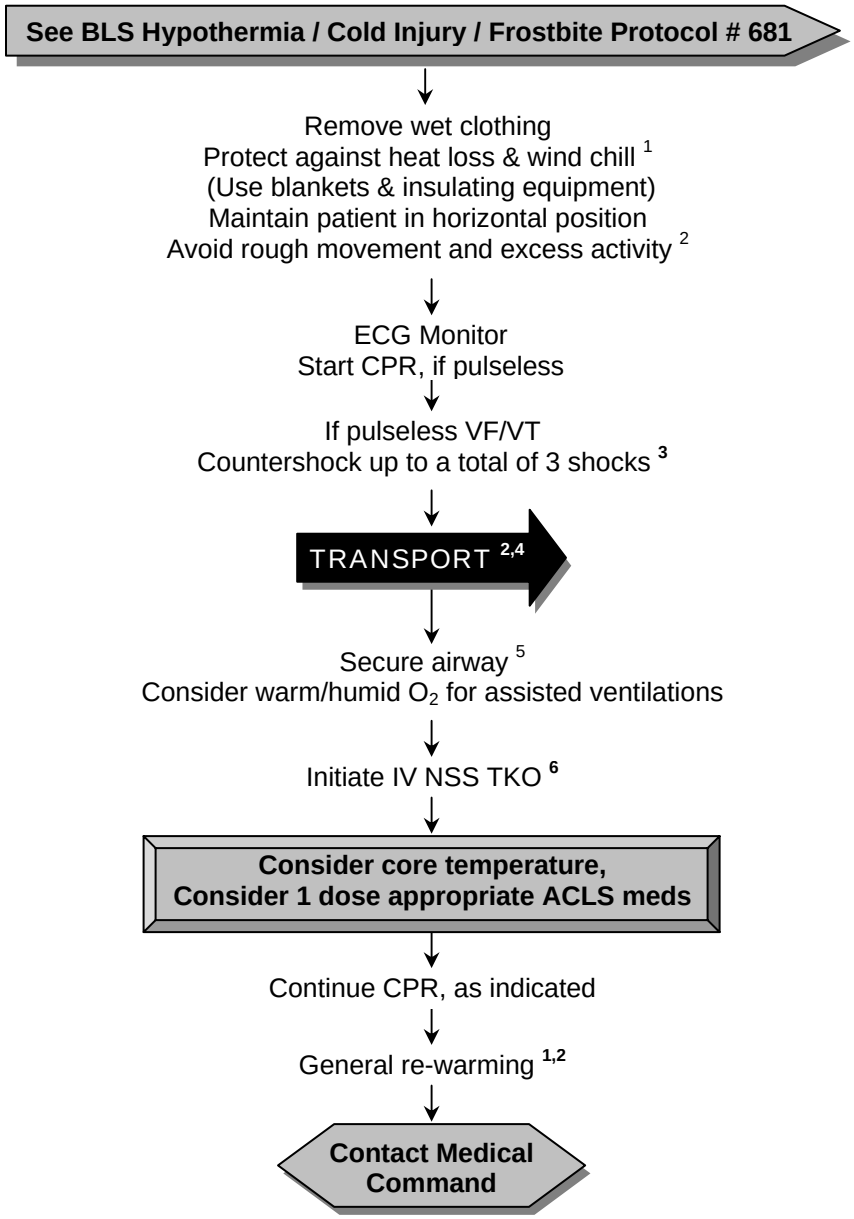
Procedure:

A. Refer to accompanying flowchart.

Notes:

1. Preserve of body heat.
2. Rough movement and excessive activity may precipitate VF. Transport patient gently and in a horizontal position. Watch for circulatory collapse during patient movement.
3. Defibrillation
   a. **Adult Patient:** Initial defibrillation attempt at 200 joules. Repeat defibrillation attempts at 300 joules and 360 joules. If biphasic defibrillator, use defibrillation energies recommended by medical director based upon manufacturer recommendations.
   b. **Pediatric Patient:** Initial defibrillation attempt at 2 joules/kg. Repeat defibrillation attempts at 4 joules/kg.
   c. **All Patients**: If the patient does not respond to 3 initial defibrillations, subsequent defibrillations should not be attempted until the patient is warmed. Early transport with CPR is indicated.
4. Initiate transport to center capable of cardiac bypass rewarming (trauma center) as soon as possible. Notify the receiving facility as soon as possible. Consider air transport if ground transport time is > 30 minutes or if it will decrease transport time. Generally air ambulances are not indicated for patients in cardiac arrest, but hypothermia is the exception to this.
5. Endotracheal intubation to provide effective ventilation with 100% oxygen. Provide gentle intubation. Confirm and document endotracheal tube placement. (See ALS Confirmation of Airway Placement Protocol # 2032) Avoid overzealous ventilation in view of extremely low metabolic state
6. In pediatric patient, if unable to obtain intravenous (IV) access, place an intraosseous (IO) line. (See ALS Intraosseous Access Protocol # 2067) Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.

CARDIAC ARREST (HYPOTHERMIA)
EMMCO WEST ALS PROTOCOL



VENTRICULAR FIBRILLATION / PULSELESS VT - ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with ventricular fibrillation or pulseless ventricular tachycardia.

Exclusion Criteria:

A. Cardiac arrest due to acute traumatic injury- Follow Cardiac Arrest- Traumatic Protocol

B. Cardiac arrest due to severe hypothermia- Follow Hypothermia Protocol

C. Patient displaying an Out-of-Hospital Do Not Resuscitate (OOH-DNR) original order, bracelet, or necklace- see OOH-DNR Protocol # 324.

Procedure:

A. See accompanying flowchart.

Possible MC Orders:

A. Additional antidysrhytmic therapy during cardiac arrest (magnesium sulfate 2 gm IV, procainamide 20 mg/min IV if available)

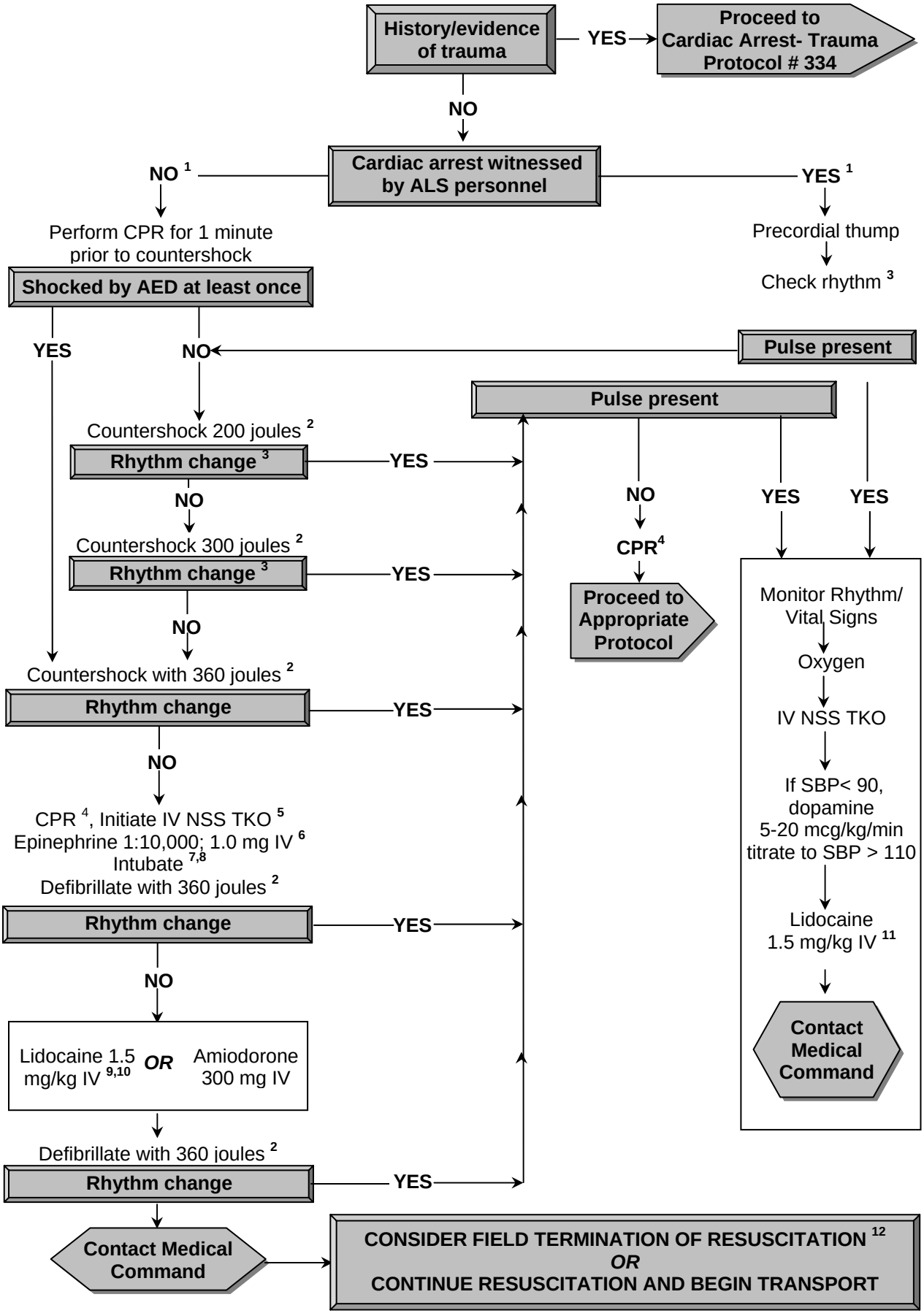
B. If pulse returns, lidocaine infusion of 2-4 mg/min after lidocaine bolus if long transport time.

C. Field termination of resuscitation.

Notes:

1. Implantable Cardic Defibrillator (ICD) may be present. Rescuer may receive slight shock, which is not dangerous.
2. If biphasic defibrillator is used, energy dose used should be set by service medical director based upon manufacturer recommendation and available literature.
3. Assess rhythm after each defibrillation attempt. If properly connected monitor displays persistent VF/VT, do not pause for a pulse check or perform CPR. If there is a change in rhythm after any defibrillation, check pulse, assess patient and proceed to appropriate cardiac protocol.
4. During CPR, ventilation rate should be 8-12 per min. Hyperventilation decreases the effectiveness of CPR, and ventilation rates should not exceed 12/ min. Excellent CPR is essential and the rate of chest compressions should be 100 compressions / min. Compressions/ ventilation ratio should be 15:2 without intubation. If intubated, compressions should not be paused to deliver ventilation. Breaks in CPR should be kept to an absolute minimum.
5. Consider unique etiologies:
   a. If torsade de pointes is suspected, administer magnesium sulfate, 2 gm IV after IV access.
   b. If hyperkalemia (e.g. renal dialysis patient who missed dialysis) is suspected, administer calcium chloride (10%) 10ml IV (if available) and sodium bicarbonate 50 mEq IV immediately after IV access.
   c. If tricyclic antidepressant overdose is suspected, administer sodium bicarbonate 50 mEq IV immediately after IV access.
6. When given IV, epinephrine should be repeated every 3 to 5 minutes. IV medications are preferred, but if IV is unsuccessful, epinephrine, 2 to 2.5 mg., may be administered via endotracheal tube.
7. Confirm and document tube placement with auscultation and $ETCO_2$ detector/ secondary device- Follow Confirmation of Airway Placement Protocol # 2032
8. If unable to intubate on up to 3 attempts, consider Combitube airway.
9. Lidocaine 3 mg/kg may be administered via endotracheal tube if IV is unsuccessful.
10. An additional lidocaine 1.5 mg/kg IV bolus may be administered in 3-5 minutes for refractory VF/VT for a total of 3 mg/kg.
11. Repeat lidocaine, 0.75 mg/kg IV, every 10 minutes to a total dose of 3 mg/kg.
12. Field termination of resuscitaton must be ordered by Medical Command Physician, otherwise continue resuscitation attempts and initiate transport.

VENTRICULAR FIBRILLATION / PULSELESS VT - ADULT
EMMCO WEST ALS PROTOCOL



VENTRICULAR FIBRILLATION / PULSELESS VT – PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. Non-traumatic pediatric patient in ventricular fibrillation or pulseless ventricular tachycardia.

Exclusion Criteria:

A. History or evidence of trauma present.

Procedure:

A. See accompanying flowchart.

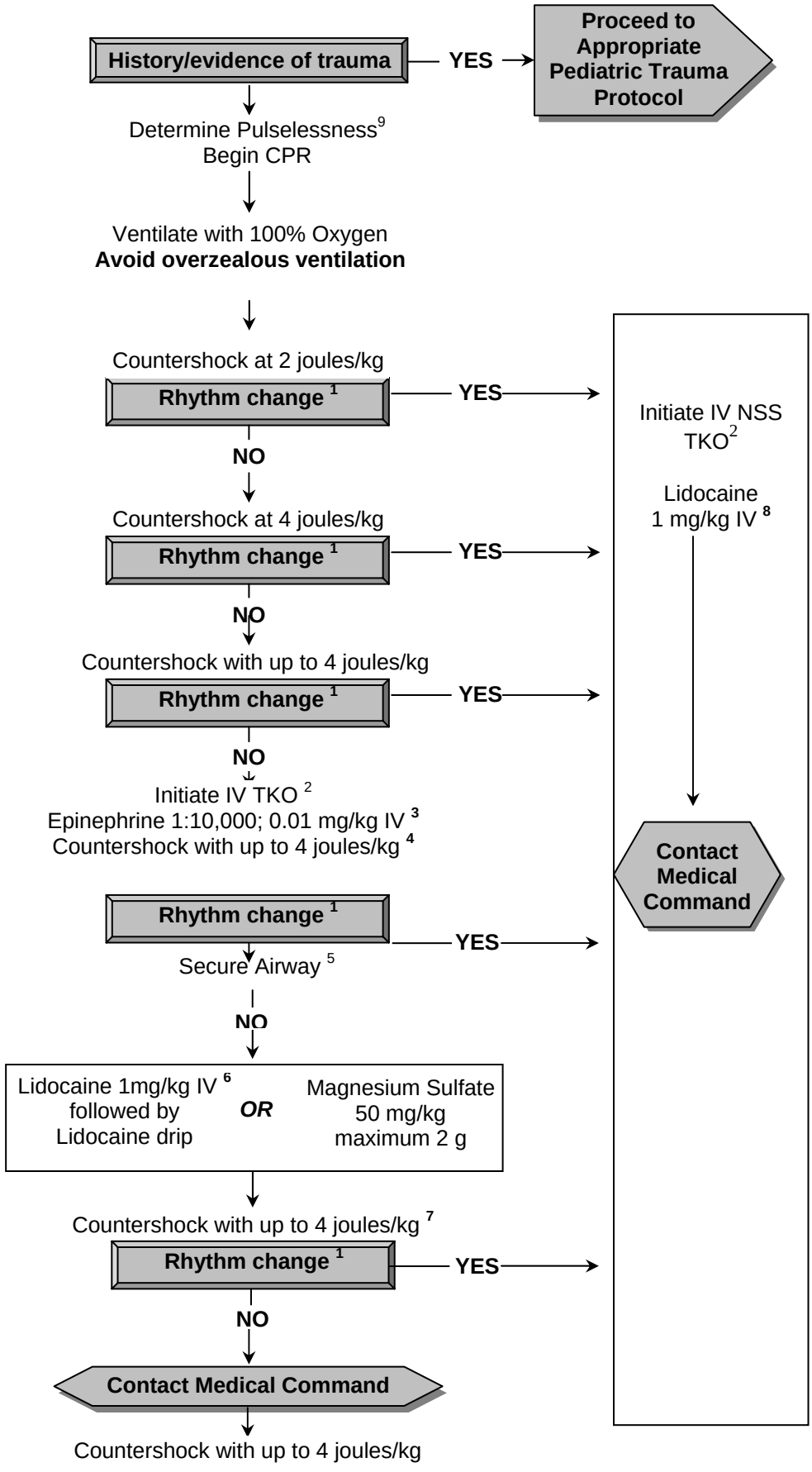
Possible MC Orders:

A. Xylocaine (Lidocaine) 0.5 mg/kg IV/IO every 8-10 minutes.

Notes:

1. Assess rhythm after each defibrillation attempt. If properly connected monitor displays persistent VF/VT, do not pause for a pulse check or perform CPR. If there is a change in rhythm after any countershock, check pulse, assess patient and proceed to appropriate cardiac protocol.
2. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.
3. When given IV/IO, Epinephrine should be repeated every 3-5 minutes. Epinephrine, 1:1,000; 0.1 mg/kg, may be administered via endotracheal tube if IV/IO is unsuccessful. Intubation is preferable if it can be accomplished simultaneously with other techniques.
4. If unable to intubate and unsuccessful with IV/IO insertion, defibrillate once and transport.
5. Confirm and document endotracheal tube placement with $ETCO_2$ Detector. Listen for and document equal bilateral breath sounds in the chest and an absence of sounds over the epigastrium.
6. Xylocaine (Lidocaine) 1 mg/kg may be administered via endotracheal tube if IV/IO unsuccessful.
7. An additional xylocaine (Lidocaine) 1 mg/kg IV bolus may be administered for refractory VF/VT.
8. If a loading dose of xylocaine (Lidocaine) has already been administered, administer xylocaine (Lidocaine) 0.5 mg/kg IV/IO. Repeat xylocaine (Lidocaine) 0.5 mg/kg IV/IO every 8-10 minutes according to cardiac status and Medical Command physician order. Bolus dosing is strongly preferred.
9. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference.

VENTRICULAR FIBRILLATION & PULSELESS VT – PEDIATRIC
EMMCO WEST ALS PROTOCOL



ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA) - ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Adult cardiac arrest patient presenting with asystole or potentially perfusing electrical rhythm but has no discernable pulses.

Exclusion Criteria:

A. Cardiac arrest due to acute traumatic injury- Follow Cardiac Arrest- Traumatic Protocol

B. Cardiac arrest due to severe hypothermia- Follow Cardiac Arrest-Hypothermia Protocol #3035

C. Patient displaying an Out-of-Hospital Do Not Resuscitate (OOH-DNR) original order, bracelet, or necklace - Follow OOH-DNR Protocol # 324.

Procedure:

A. See accompanying flowchart.

Possible MC Orders:

A. Terminate resuscitation in the field

B. Consider sodium bicarbonate if suspected hyperkalemia or overdose.

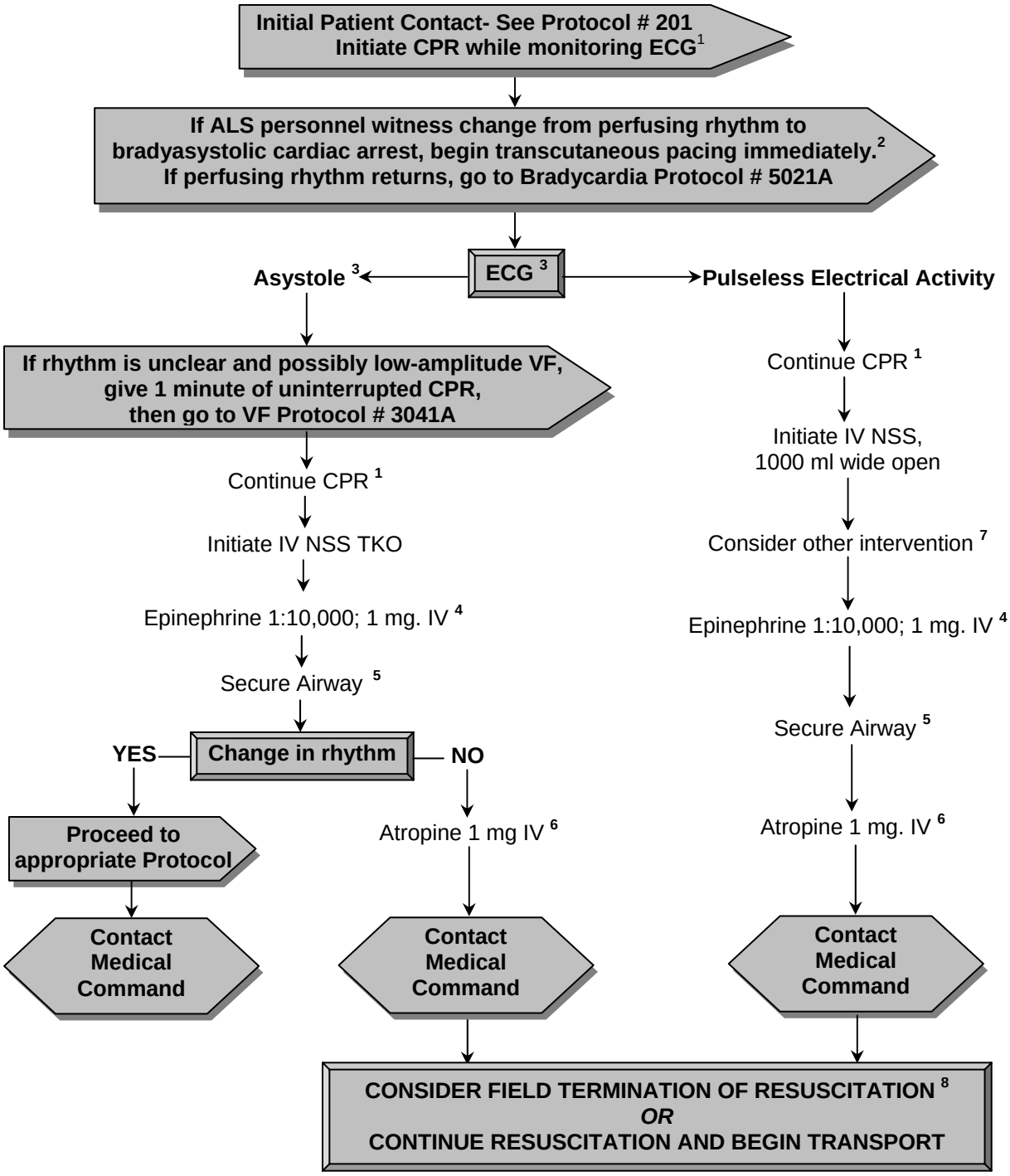
C. Consider calcium chloride, 10 ml of 10% solution IV (if available) if suspected renal failure/ dialysis patient or overdose of calcium channel blocker.

D. Consider glucagon, 3-10 mg (0.05mg/kg) IV if suspected ß-blocker overdose or calcium channel blocker overdose that is unresponsive to calcium chloride.

Notes:

1. During CPR, ventilation rate should be 8-12 per min. Hyperventilation decreases the effectiveness of CPR, and ventilation rates should not exceed 12/ min. Excellent CPR is essential and the rate of chest compressions should be 100 compressions / min. Compressions/ ventilation ratio should be 15:2 without intubation. If intubated, compressions should not be paused to deliver ventilation. Breaks in CPR should be kept to an absolute minimum.
2. When applying transcutaneous pacer for witnessed bradyasystolic cardiac arrest, begin with the highest energy dose available. Transcutaneous pacing is not indicated for asystole that is not witnessed or that results after conversion from another pulseless rhythm.
3. Confirm the presence of asystole in two leads.
4. When given IV, Epinephrine should be repeated every 3-5 minutes. If IV is unsuccessful, Epinephrine 2-2.5 mg may be administered via ETT.
5. Confirm and document tube placement with auscultation and $ETCO_2$ detector/ secondary device- Follow Confirmation of Airway Placement protocol # 2032
6. Atropine given if absolute bradycardia (< 60 bpm) or relative bradycardia. Repeat every 3-5 minutes, not to exceed a maximum dose of 3 mg (0.04mg/kg). If IV is unsuccessful, Atropine 2-2.5 mg. May be administered via ETT.
7. Consider possible causes: Hypoxia, Cardiac Tamponade, Tension Pneumothorax, Auto-PEEP from overzealous ventilation, Hypothermia, Massive pulmonary embolism, Drug overdose, such as tricyclic antidepressant, digitalis, beta blockers, calcium channel blockers, Hyperkalemia, Massive acute myocardial infarction. Treat identified causes. Consider early administration of Sodium Bicarbonate in cases of known tricyclic overdose or known hyperkalemia.
8. Field termination of resuscitaton must be ordered by Medical Command Physician, otherwise continue resuscitation attempts and initiate transport.

ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA) - ADULT
EMMCO WEST ALS PROTOCOL



ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA) - PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. Pediatric cardiac arrest patient presenting with asystole or potentially perfusing electrical rhythm but has no discernable pulses.

Procedure:

A. See accompanying flowchart.

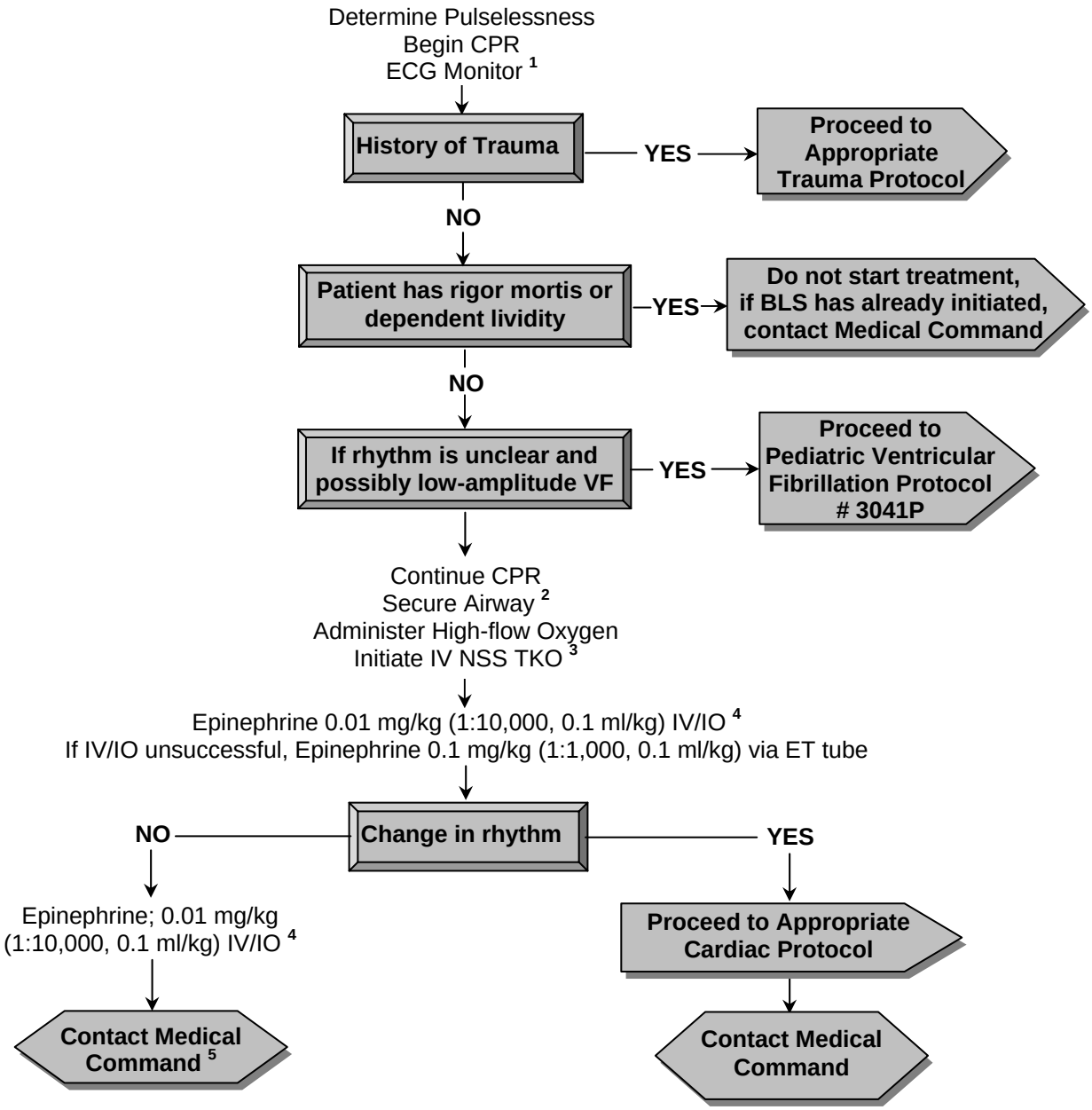
Possible MC Orders:

A. Atropine 0.02 mg/kg IV/IO or ETT. Minimum dose 0.1 mg, Maximum dose 0.5 mg. May be ordered to be repeated once after 3-5 minutes.
B. Glucagon 0.5 mg/kg IV if suspected ß–blocker overdose or calcium channel blocker overdose that is unresponsive to calcium chloride.
C. Calcium chloride (if available) 0.2 ml/kg of 10% solution if suspected calcium channel blocker overdose or hyperkalemia.

Notes:

1. Confirm the presence of asystole in two lead positions.
2. Confirm and document ETT placement with $ETCO_2$ detector. Consider false negatives with asystole and prolonged arrest time. Listen for and document equal bilateral breath sounds in the chest and an absence of sounds over the epigastrium.
3. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.
4. When given IV/IO, Epinephrine should be repeated every 3-5 minutes. Only the first IV/IO dose is given as 1:10,000 (0.01 mg/kg). All subsequent IV/IO doses are given as 1:1,000 (0.1 mg/kg). If IV/IO is unsuccessful, Epinephrine 0.1 mg/kg may be administered via endotracheal tube. All ET doses are 0.1 mg/kg (1:1,000).
5. Medical Command physician may order Atropine 0.02 mg/kg IV/IO or ETT. Minimum dose 0.1 mg, Maximum dose 0.5 mg. May be ordered to be repeated once after 3-5 minutes.
6. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference.

ASYSTOLE / PULSELESS ELECTRICAL ACTIVITY (PEA) - PEDIATRIC
EMMCO WEST ALS PROTOCOL



ALLERGIC REACTION
EMMCO WEST ALS PROTOCOL

Criteria:

A. Severe Allergic Reaction/Anaphylaxis: A patient with the following symptoms of severe allergic reaction after suspected exposure to an allergen (e.g. bee/wasp stings, medications/antibiotics, nuts, seafood):
1. Difficulty breathing and wheezing
2. Difficulty breathing from swollen tongue/ lips
3. Hypotension

B. Mild / Moderate Allergic Reaction: A patient with less severe reaction may have:
1. Mild shortness of breath with wheezing
2. Extensive hives and itching
3. Mild tongue/ lip swelling without difficulty swallowing or shortness of breath

Procedure:

A. See accompanying flowchart.

Possible MC Orders:

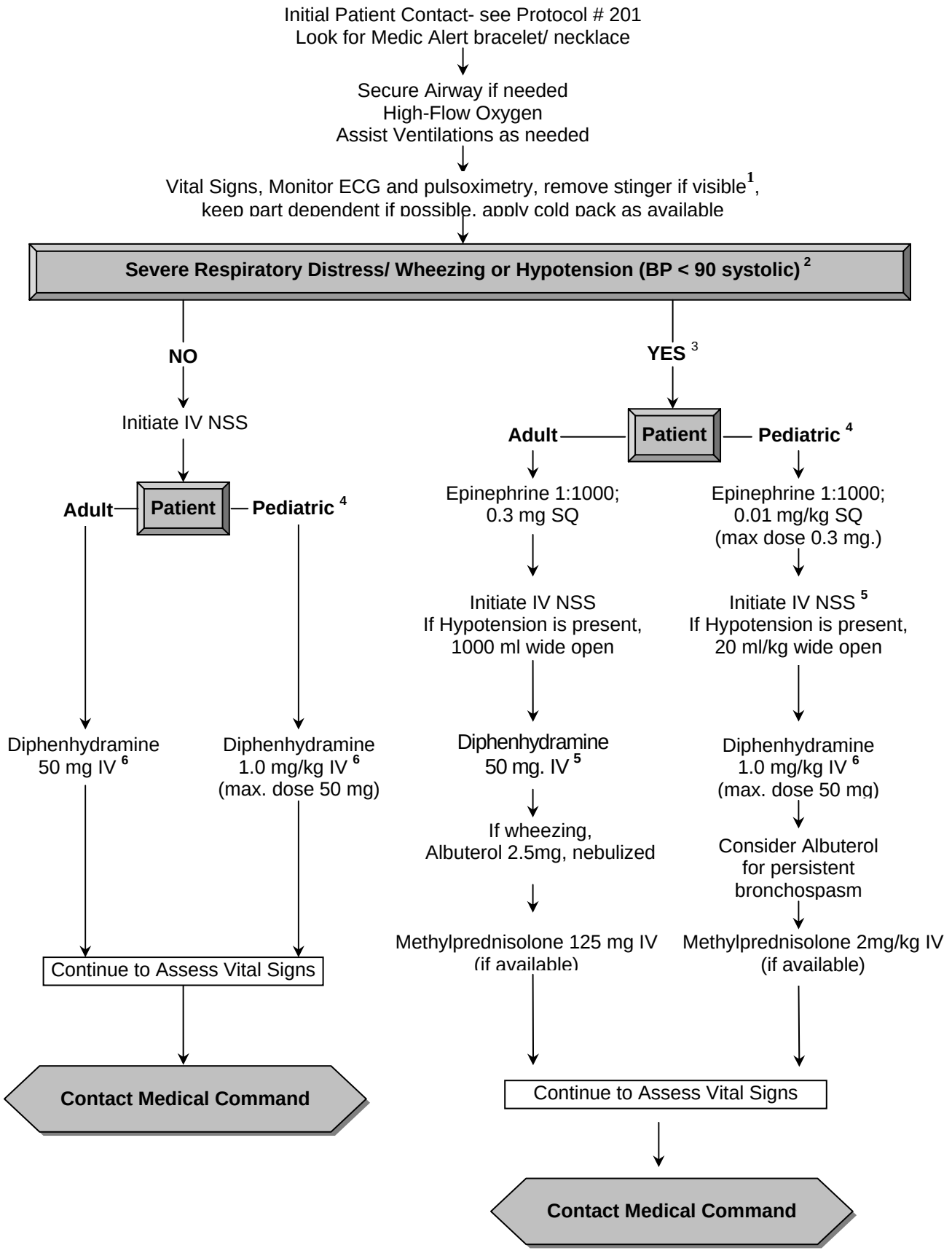
A. If unconscious or life threatening condition, consider additional doses of Epinephrine.
1. Additional dose of 1:1000 epinephrine 0.3 mg SQ
2. 1:10,000 Epinephrine 0.1 mg (1ml) IV / IO slow
3. 1:10,000 Epinephrine 0.2 mg (2 ml) via ETT

B. Glucagon (1-2 mg IV) may be ordered if hypotension does not resolve with NSS IV bolus or if chest pain or tachycardia are present.

Notes:

1. Remove stinger(s) by gently scraping stinger free with a blade or credit card, without squeezing or using forceps.
2. In pediatrics, SBP < 70 + (age x 2)
3. Anticipate early transport.
4. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available length-based reference
5. For pediatric patients, if unable to obtain IV access, place an IO line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.
6. IV route is preferred. Diphenhydramine (Benadryl) may be given IM if IV/IO is not available.

ALLERGIC REACTION
EMMCO WEST ALS PROTOCOL



ASTHMA / COPD / BRONCHOSPASM
EMMCO WEST ALS PROTOCOL

Criteria:

A. A patient with signs and symptoms of acute respiratory distress from bronchospasm or restrictive airway disease:
1. Symptoms / signs may include:
   a. Wheezing- will have expiratory wheezing unless they are unable to move adequate air to generate wheezes
   b. May have signs of respiratory infection (e.g. fever, nasal congestion, cough, sore throat)
   c. May have acute onset after inhaling irritant
2. This includes:
   a. Asthma exacerbation
   b. COPD exacerbation
   c. Wheezing from suspected pulmonary infection (e.g. pneumonia, acute bronchitis)

Exclusion Criteria:

A. Respiratory distress secondary to trauma (see trauma protocol # 6002)

B. Respiratory distress secondary to congestive heart failure (see CHF protocol # 5002)

C. Allergic reactions (see Allergic reaction protocol # 4011)

Procedure:

A. See accompanying flow chart.

Possible MC Orders:

A. Additional nebulized bronchodilators

B. Intravenous volume, NSS bolus or 20 ml/kg if fever, infection, or signs of dehydration.

C. Additional doses of Epinephrine (SQ or IV/IO)

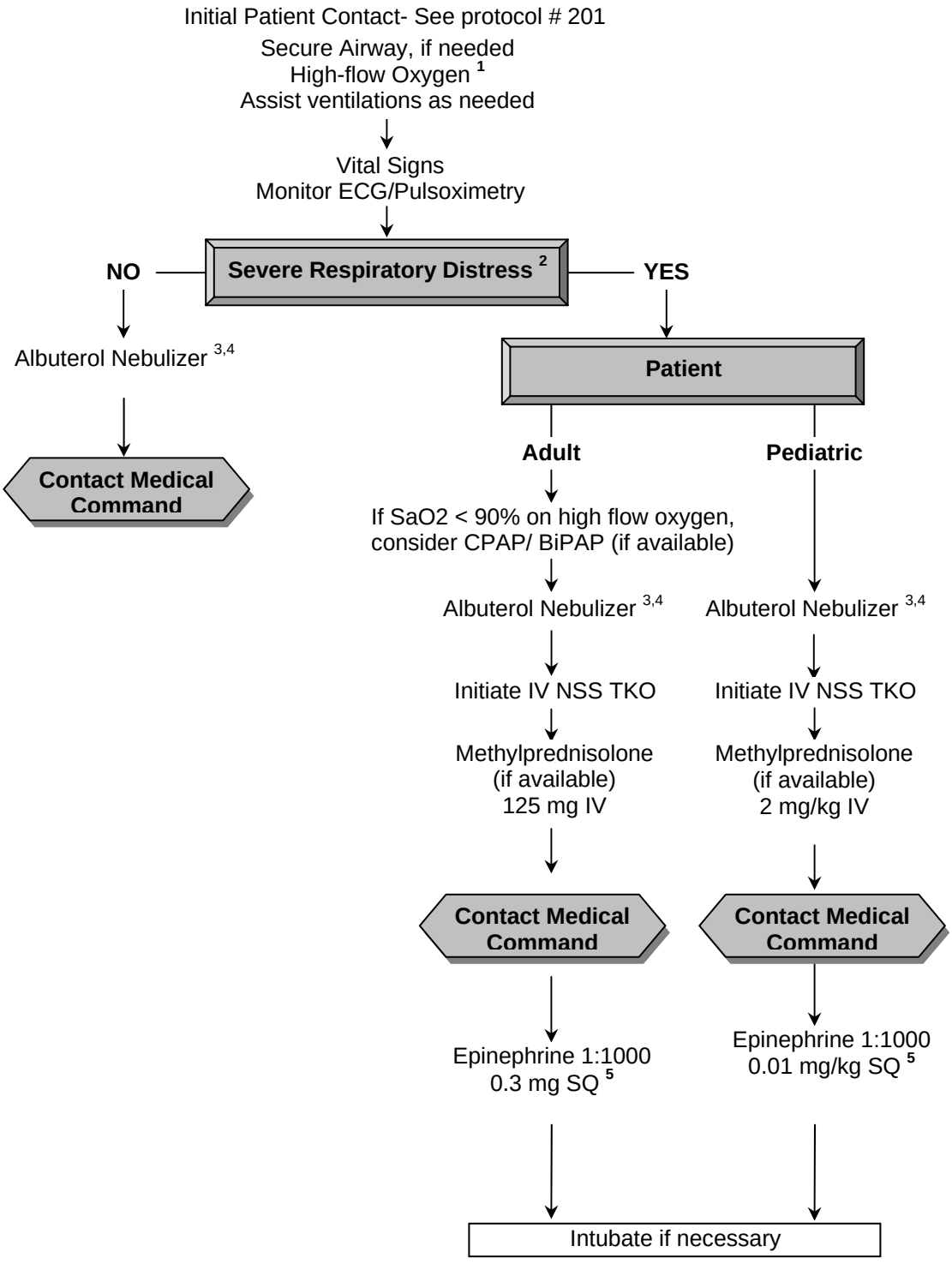
D. CPAP/ BiPAP, if available

E. Endotracheal Intubation.

Notes:

1. Administer oxygen at high-flow rate to all patients in respiratory distress. COPD patients NOT in respiratory distress should be given oxygen to maintain O2 saturation of > 90%.
2. Indications of severe respiratory distress include:
   a. apprehension, anxiety, combativeness
   b. hypoxia, SpO2 < 90%
   c. intercostals/ subcostal retractions
   d. nasal flaring
   e. cyanosis
   f. use of accessory muscles
3. Albuterol dose approximately, 2.5 mg or 0.5 cc of 0.5%, diluted to 3 ml in NSS. May substitute metaproteranol (Alupent) or Ipratropium/ albuterol combination therapy as directed by ALS Service Medical Director.
   a. Ipratropium 500 micrograms in 3mg albuterol (Duoneb) nebulized with 6 liters/min of oxygen and administered by inhalation. Ipratropium 500 micrograms in 3mg albuterol (Duoneb) utilization in pediatrics: < 12 years use ½ vial, > 12 years of age use 1 vial.
4. Nebulized bronchodilator may be repeated once if symptoms continue.
5. Epinephrine administration may be ordered by Medical Command Physician regardless of patient's age or past medical history. Epinephrine is relatively contraindicated during pregnancy; report pregnancy to physician. Epinephrine may be repeated only with order from Medical Command Physician.

ASTHMA / COPD / BRONCHOSPASM
EMMCO WEST ALS PROTOCOL



CHEST PAIN
EMMCO WEST ALS PROTOCOL

Criteria:

A. Chest pain of possible cardiac origin. May include:
1. Retrosternal chest heaviness/ pressure/ pain
2. Radiation of pain to arm(s), neck, or jaw
3. Associated SOB, nausea/ vomiting, or sweating
4. Possibly worsened by exertion
5. Patient over 30 y/o
6. Patient with history of recent cocaine use

Exclusion Criteria:

A. Chest pain, probably not cardiac origin:
1. May include:
   a. Pleuritic chest pain- worsens with deep breath or bending/ turning
   b. Patient less than 30 y/o

Procedure:

A. See accompanying flowchart

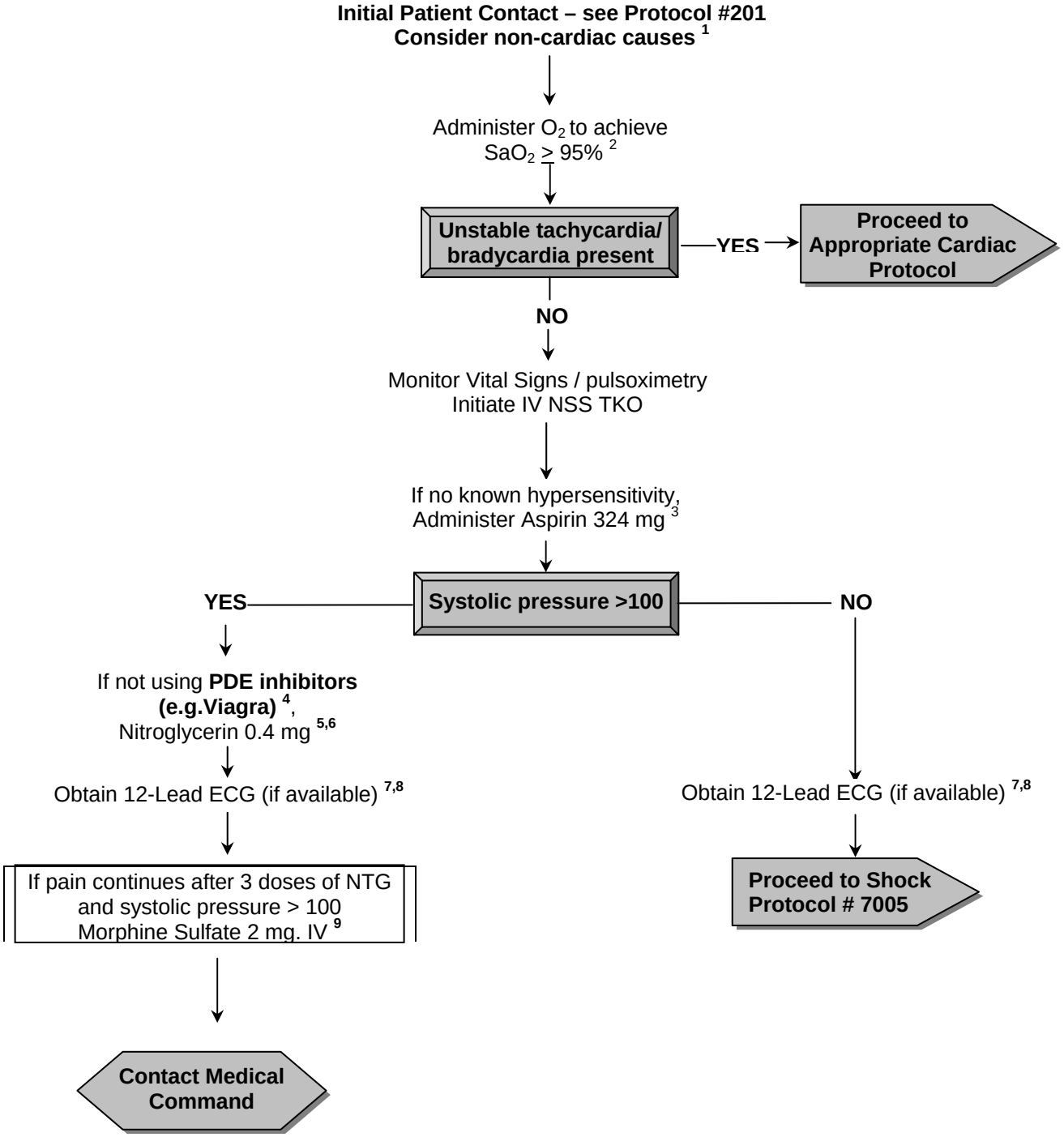
Possible MC Orders:

A. Additional doses of morphine sulfate.

Notes:

1. Some potentially lethal mimics of Acute Myocardial Infarction (AMI) that must be considered as the patient is assessed and treated include:
   a. Aortic dissection
   b. Acute pericarditis
   c. Acute myocarditis
   d. Spontaneous pneumothorax
   e. Pulmonary embolism
   f. Pneumonia/ Lung infection
2. Apply oxygen via appropriate method to maintain SaO2 $\geq$ 95% and place patient in position of comfort. Nasal cannula may be utilized if patient is unable to tolerate a facemask.
3. Preferred method is to chew 4 baby ASA (81 mg each)
4. WARNING: DO NOT give nitroglycerin (NTG) to a patient has taken Viagra or other medications for erectile dysfunction (e.g. Levitra or Cialis) within the last 48 hours.
5. NTG may be repeated every 3-5 minutes, up to 3 doses, if blood pressure is greater than 100 systolic. NTG may be given by either SL tablets or SL spray, unless one of these methods is required by service medical director or regional policy
6. Repeat vital signs and lung auscultation before and after administration of NTG and Morphine Sulfate.
7. Ideally, 12-lead ECG must be transmitted to medical command facility ASAP.
8. If 12-lead ECG is consistent with ST-elevation MI (STEMI), either:
   a. Follow regional destination protocol for STEMI, or
   b. Contact medical command ASAP since some patients may benefit from transport to receiving facilities capable of percutaneous coronary interventions.
9. Additional doses of Morphine sulfate must be ordered by Medical Command. Service Medical Director or regional policy may require that all narcotic doses be given only after medical command order.

CHEST PAIN
EMMCO WEST ALS PROTOCOL



CONGESTIVE HEART FAILURE (CHF)
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patients presenting with shortness of breath from pulmonary edema/ CHF, as indicted by:
1. severe dyspnea, tachypnea, bilateral rales, tachycardia, cough with frothy sputum, or orthopnea.
2. may be associated with restlessness, agitation, pedal edema, diaphoresis, or pallor.
3. patient may have history of diuretic or digitalis use.

Exclusion Criteria:

A. Patients presenting with shortness of breath from non-CHF etiologies:
1. Pneumonia: WARNING- Patients with SOB from pneumonia may have symptoms similar to those of CHF, but these patients may be harmed by diuretics. Fever may be present in these patients.
2. COPD exacerbation: These patients may take bronchodilators without a history of diuretic use.
3. Pneumothorax: CPAP is contraindicated in these patients.

Procedure:

A. See accompanying flow chart.

Possible MC Orders:

A. Dopamine infusion

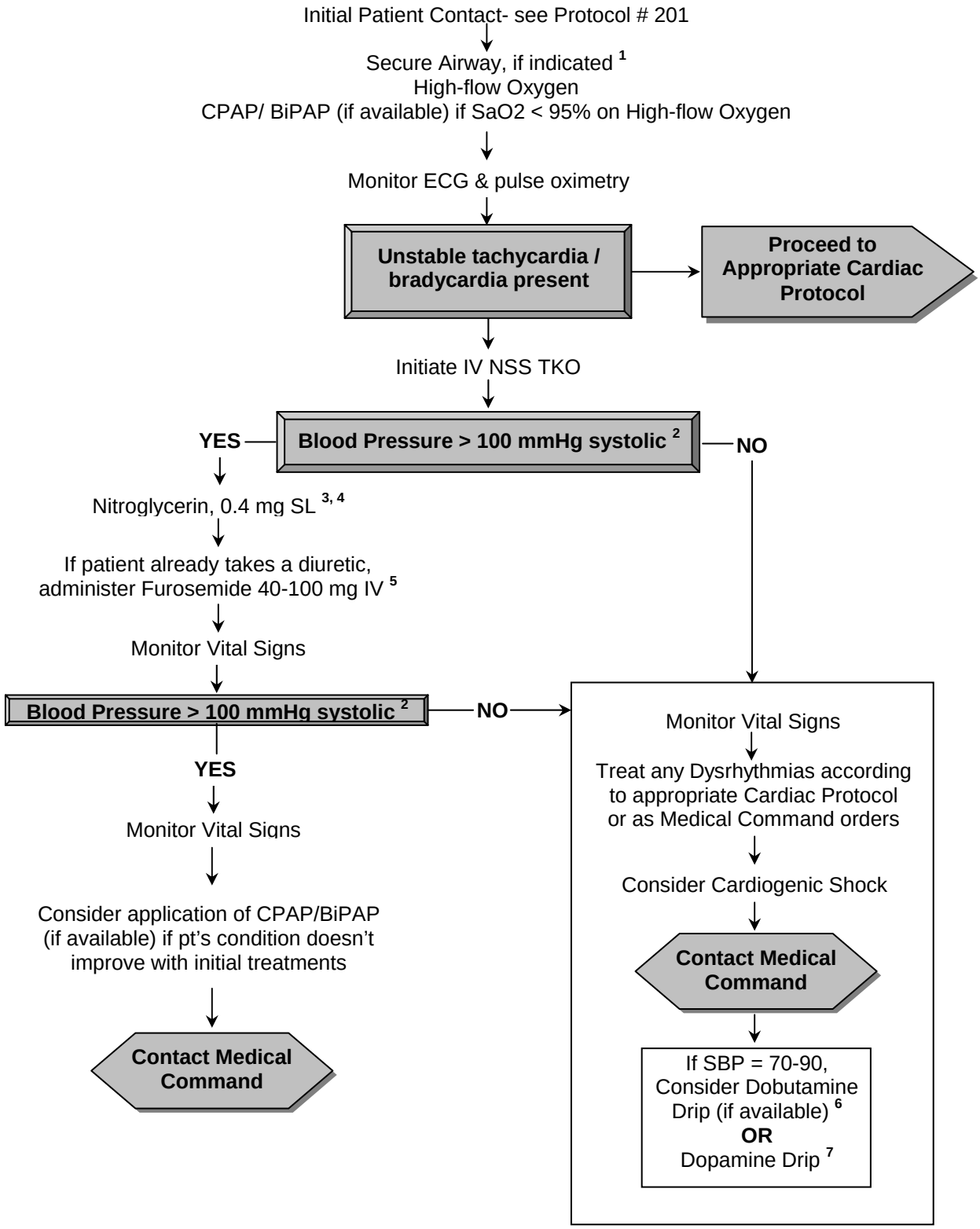
B. Dobutamine infusion

C. Endotracheal Intubation

Notes:

1. If respiratory rate is < 12, place patient in sitting position, positive pressure ventilation with 100% oxygen. If respiratory rate is > 12, apply high flow oxygen. Suction as needed. Consider nasal intubation if required. Confirm and document endotracheal tube placement with $ETCO_2$ detector. Listen for and document equal bilateral breath sounds in the chest and an absence of sounds over the epigastrium.
2. Relative hypotension in pulmonary edema may indicate poor cardiac function. Aggressive use of diuretics and nitroglycerin may result in extreme hypotension and further reduction of cardiac output. Contact Medical Command to discuss individualizing treatment options in these patients.
3. NTG may be repeated every 3-5 minutes as long as blood pressure is greater than 100 systolic. [Note: NTG repeated every 5 minutes is equivalent to a NTG infusion of 80 mcg/min] NTG may be given by either SL tablets or SL spray, unless one of these methods is required by service medical director or regional policy
4. Repeat vital signs and lung auscultation before and after administration of NTG.
5. If patient is taking diuretics, you may double patient's single dose up to a maximum of 100 mg.
6. Some recommendations suggest using dobutamine for mild shock (SBP 70-90) and dopamine for severe shock (SBP < 70). Use microdrip (60 gtts/ml) tubing for dobutamine drip. At concentration of 400mg/ 250 ml NSS, start at a drip rate of 30 drops per minute and titrate to SBP > 100 mmHg. **DO NOT EXCEED 60 gtts/min (or 20 mcg/kg/min) WITHOUT ORDER FROM MEDICAL COMMAND.** If SBP remains less than 90, add dopamine drip also.
7. Use microdrip (60 gtts/ml) tubing for dopamine drip. At concentration of 400mg/ 250 ml NSS, start at a drip rate of 30 drops per minute and titrate to BP >100 mmHg systolic. **DO NOT EXCEED 60 gtts/min (or 20 mcg/kg/min) WITHOUT ORDER FROM MEDICAL COMMAND.**

CONGESTIVE HEART FAILURE
EMMCO WEST ALS PROTOCOL



BRADYCARDIA - ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with heart rate less than 60 bpm with associated symptoms.

Exclusion Criteria:

A. Patient without pulse- Follow appropriate cardiac arrest protocol.

B. History or evidence of trauma- Follow appropriate trauma protocol

Treatment:

A. See accompanying flowchart.

Possible MC Orders:

A. Additional doses of Diazepam (Valium).

B. Dopamine 400 mg in 250 ml NSS.

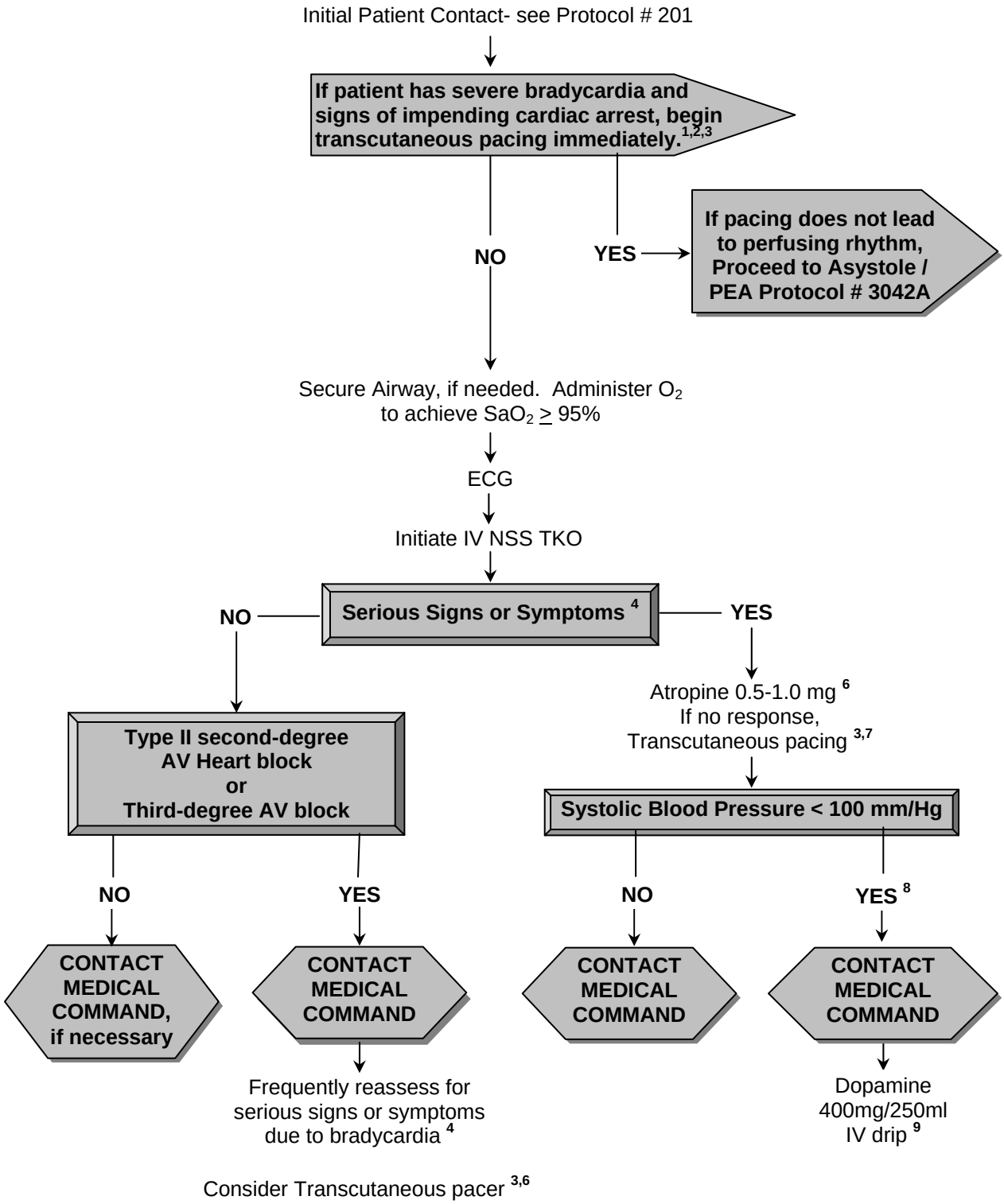
C. Glucagon if beta-blocker overdose is suspected.

D. Calcium Cl (if available) or glucagon if calcium channel-blocker overdose is suspected.

Notes:

1. When applying transcutaneous pacer for serious bradycardia or impending cardiac arrest, begin rapidly increasing the energy to obtain electrical capture.
2. Application and initiation of transcutaneous pacer should not be delayed while awaiting IV access if patient is symptomatic. If pacer fails to capture, then immediately start drug therapy and transport.
3. Some patients may not tolerate the pacing stimulus to the skin and chest wall that occurs with transcutaneous pacing. In these cases, consider using diazepam (Valium) 5 mg IV or midazolam (Versed) 3 mg IV to improve patient comfort. Do not give benzodiazepines if SBP < 100. Additional sedation may only be given when ordered by Medical Command.
4. Serious signs or symptoms include:
   a. **Symptoms:** Chest pain, shortness of breath, decreased level of consciousness ***AND***
   b. **Signs:** Low blood pressure, shock, pulmonary congestion, congestive heart failure, acute myocardial infarction.
5. Transcutaneous pacemaker electrodes may be applied to these patients without initiating pacing so that the pacemaker is ready if patient condition deteriorates.
6. Atropine administration may be repeated every five minutes, not to exceed a maximum dose of 3 mg (0.04 mg/kg). Caution must be exercised in administering Atropine to a patient with second-degree Type II and third-degree A-V block. Atropine is contraindicated in patients with third-degree heart block in the face of acute anterior wall myocardial infarction. It may also paradoxically decrease heart rate and blood pressure in second-degree Type II A-V block. Therefore, a medical command physician must be consulted before giving atropine to patients with high-grade A-V block. Transcutaneous pacer is preferred in these situations.
7. When initiating trancutaneous pacing on a patient that is conscious with a perfusing rhythm, the pacing energy level should be increased gradually to a level slightly above the minimum energy required to obtain electrical capture.
8. Consider overdose (e.g. beta-blocker or calcium channel-blocker).
9. Dopamine 400 mg in 250 ml NSS. Use microdrip tubing for Dopamine drip. Start at drip rate of 30 drops per minute and titrate to BP >100 mmHg.

BRADYCARDIA - ADULT
EMMCO WEST ALS PROTOCOL



BRADYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. The rate at which a child is bradycardic depends upon age. Bradycardia in children is usually caused by hypoxia and often responds to oxygen and ventilatory support.

Exclusion Criteria:

A. Patient without pulse- Follow appropriate cardiac arrest protocol.

B. History or evidence of trauma- Follow appropriate trauma protocol

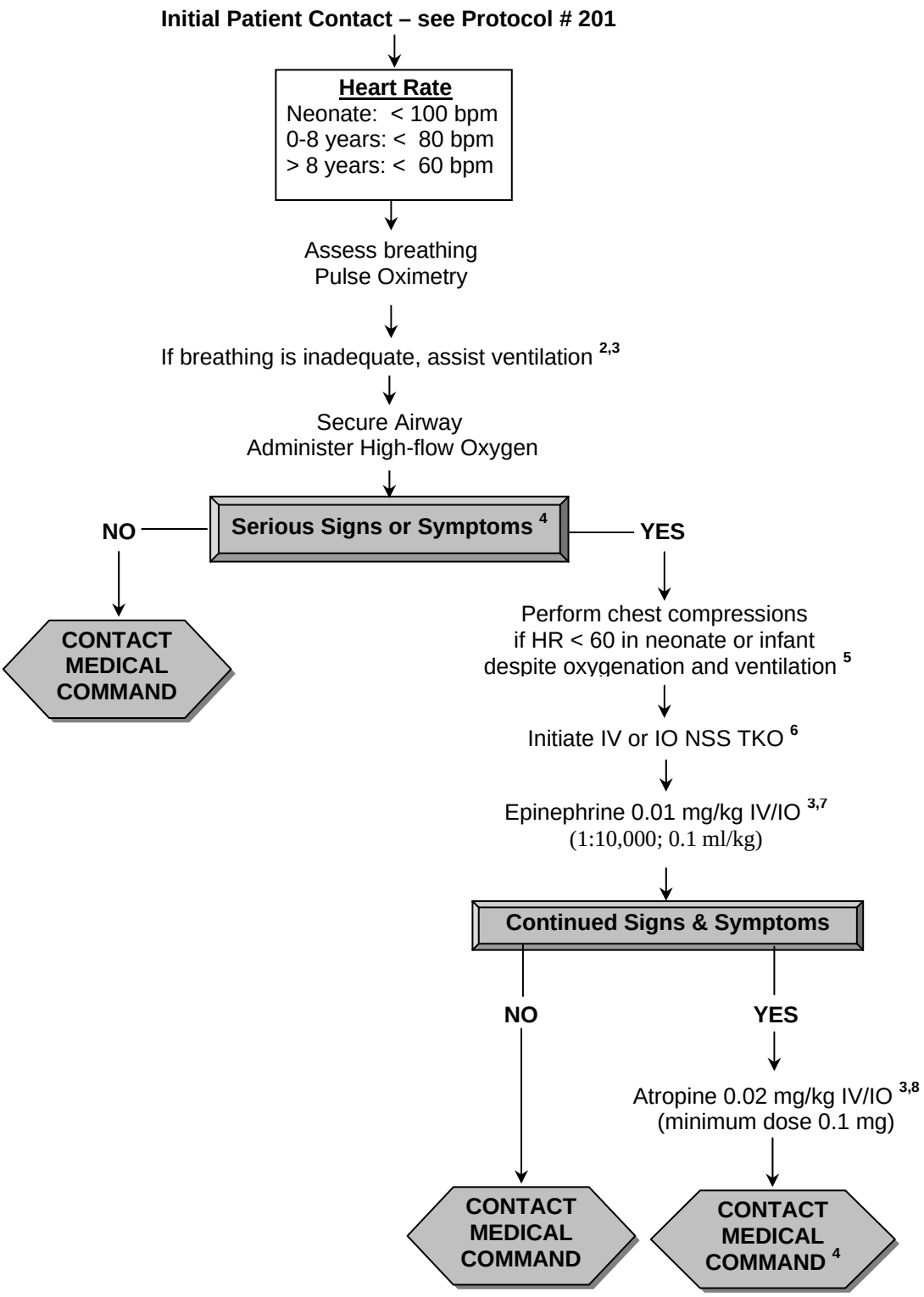
Procedure:

A. See accompanying flowchart.

Notes:

1. Consider possible etiologies:
   a. Hyper/hypokalemia, other metabolic disorders
   b. Hypothermia
   c. Hypovolemia (including vomiting/diarrhea)
   d. Hypoxia
   e. Toxins/ overdose (e.g. beta-blocker or calcium channel-blocker)
   f. Tamponade
   g. Tension pneumothorax
2. In children, ventilation by BVM is the preferred method if ETA to hospital is short. However, if patient cannot be adequately oxygenated/ ventilated or if ETA to hospital is long, intubation is indicated. If intubation is indicated, tube position must be verified using the Confirmation of Tube Placement protocol # 2032.
3. A length-based sizing/dosing guide (e.g. Broselow tape) should be used to determine equipment sizes and medication doses when indicated.
4. Serious signs or symptoms include:
   a. Poor perfusion - indicated by absent or weak peripheral pulses, increased capillary refill time, skin cool/mottled.
   b. Hypotension - SBP< 70 + (age x 2).
   c. Respiratory difficulty (respiratory rate >60/minute) indicated by increased work of breathing (retractions, nasal flaring, grunting), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.
   d. Bradycardia (heart rate <60/minute) associated with poor systemic perfusion should be treated in any infant or child, even if blood pressure is normal.
5. When CPR is required, a precise diagnosis of the specific bradyarrhythmia is not important. Perform chest compressions if, despite oxygenation and ventilation, the heart rate is <60/minute and associated with poor systemic perfusion in infant or child. Special conditions may apply in the presence of severe hypothermia.
6. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications. Do not delay transport to establish IV/IO.
7. When given IV/IO, Epinephrine may be repeated every 3-5 minutes. Epinephrine 0.1 mg/kg (1:1,000, 0.1 ml/kg) may be administered via endotracheal tube, but IV/IO route is preferred.
8. Atropine administration may be repeated once in five minutes. Maximum dose is 2 mg.

BRADYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL



NARROW COMPLEX TACHYCARDIA – ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Symptomatic adult patients with heart rates >100 bpm

1. Sustained SVT is a rhythm characterized by narrow QRS complexes
2. Symptomatic SVT is usually caused by heart rates >150 bpm.

Exclusion Criteria:

A. Sinus tachycardia- treat underlying cause rather than rhythm. Causes may include:
1. Trauma- Follow appropriate trauma protocol
2. Fever
3. Hypovolemia

B. Wide-complex tachycardias should not be treated with this protocol (SVT with wide QRS complex may be due to Wolf-Parkinson-White, and the use of calcium channel-blockers in these patients can lead to cardiac arrest.)

Treatment:

A. See accompanying flowchart.

Possible MC Orders:

A. Lidocaine

B. Amiodarone (if available)

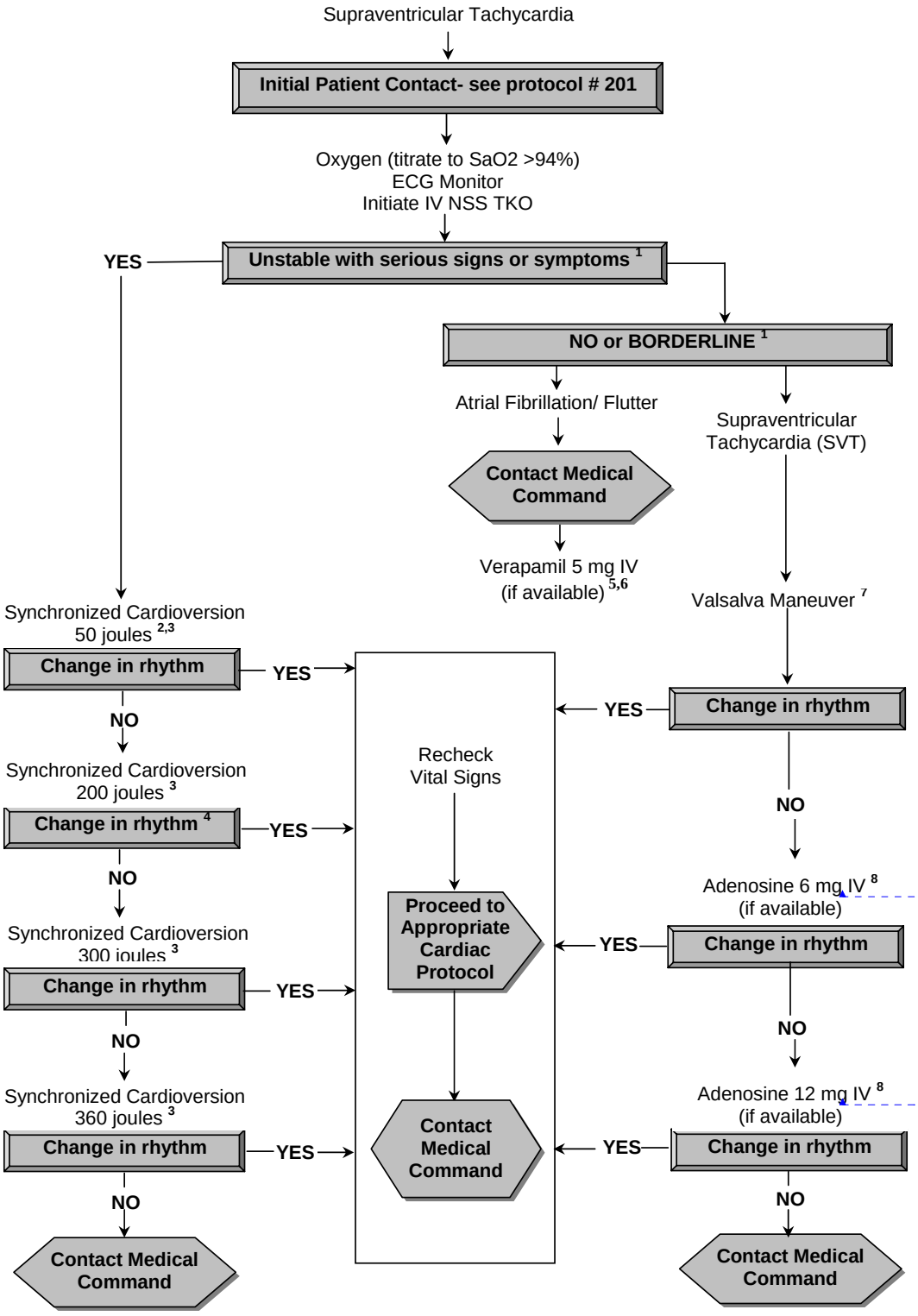
Notes:

1. Many patients who present with SVT have evidence of cardiovascular dysfunction (low blood pressure, chest pain, congestive heart failure, altered level of consciousness). A subset of these patients is unstable (such as shock, pulmonary edema, decreased level of consciousness) and requires immediate synchronized cardioversion. The rest who have mild hypotension, mild shortness of breath/scattered rales, chest discomfort and a GCS **>**13 may be treated with Adenosine. If the patient develops signs/ symptoms of unstable SVT at any time during treatment, proceed immediately to the cardioversion column. The following chart illustrates the continuum from borderline to critically unstable.

Borderline	**Unstable**
Low BP	Shock
SOB, Scattered Rales	Pulmonary Edema
Mild chest discomfort	Severe chest discomfort
Alert & oriented	Decreased level of consciousness
GCS 14-15	GCS ≤13

2. Sedation should be considered as time permits for conscious patients. May administer midazolam (Versed) 0.05mg/kg up to 4 mg IV (if available), or diazepam 5-10 mg IV or lorazepam 2 mg IV based upon service medical director preference. If conversion occurs, followed by recurrence of SVT, repeated electrical cardioversion is *not* indicated.
3. Lower energy dose for synchronized cardioversion may be indicated when using a biphasic countershock. When using biphasic defibrillators, the service medical director should determine the appropriate initial energy dose.
4. Unstable patients with chronic atrial fibrillation may be refractory to cardioversion. Consider early Medical Command contact and rapid transport.
5. Calcium channel-blockers should not be given if wide complex QRS or if SBP < 100. Adenosine is not indicated if ECG clearly indicates atrial fibrillation or flutter.
6. Service may use diltiazem (Cardizem) 20 mg IV, if available, if directed by regional protocol or service medical director.
7. Valsalva Maneuver is contraindicated if patient is older than 50 y/o or has history of hypertension.
8. Adenosine must be given by rapid IV push (over 1-3 seconds) by immediate bolus of 20 ml NSS. Adenosine success may be enhanced by administration through an antecubital IV with the arm elevated above the level of the heart during injection.

NARROW COMPLEX TACHYCARDIA – ADULT
EMMCO WEST ALS PROTOCOL



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NARROW COMPLEX SUPRAVENTRICULAR TACHYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patients ≤ 14 years of age presenting with narrow QRS complex (< 0.08 sec.) and symptomatic heart rates greater than normal for age
1. ECG indications of narrow complex SVT are:
   a. P waves absent or abnormal
   b. Abrupt rate change to or from normal
   c. Infants: usually > 220 bpm
   d. Children: usually > 180 bpm

Exclusion Criteria:

A. Tachycardia in trauma patients (see trauma protocol)

B. Probable sinus tachycardia. (Treat underlying cause- see appropriate protocol).
1. Indications of probable sinus tachycardia include:
   a. P waves present and normal
   b. Variable R-R interval with constant P-R Interval
   c. Infants- rate usually < 220
   d. Children- rate usually < 180
2. Possible causes of sinus tachycardia include:
   a. Fever
   b. Shock
   c. Hypovolemia (e.g. vomiting/ diarrhea)
   d. Hypoxia
   e. Abnormal electolyes
   f. Drug ingestions
   g. Pneumothorax
   h. Cardiac tamponade

C. PEA- Follow PEA protocol

Treatment:

A. See accompanying flowchart.

Possible MC Orders:

A. Amiodarone (if available)

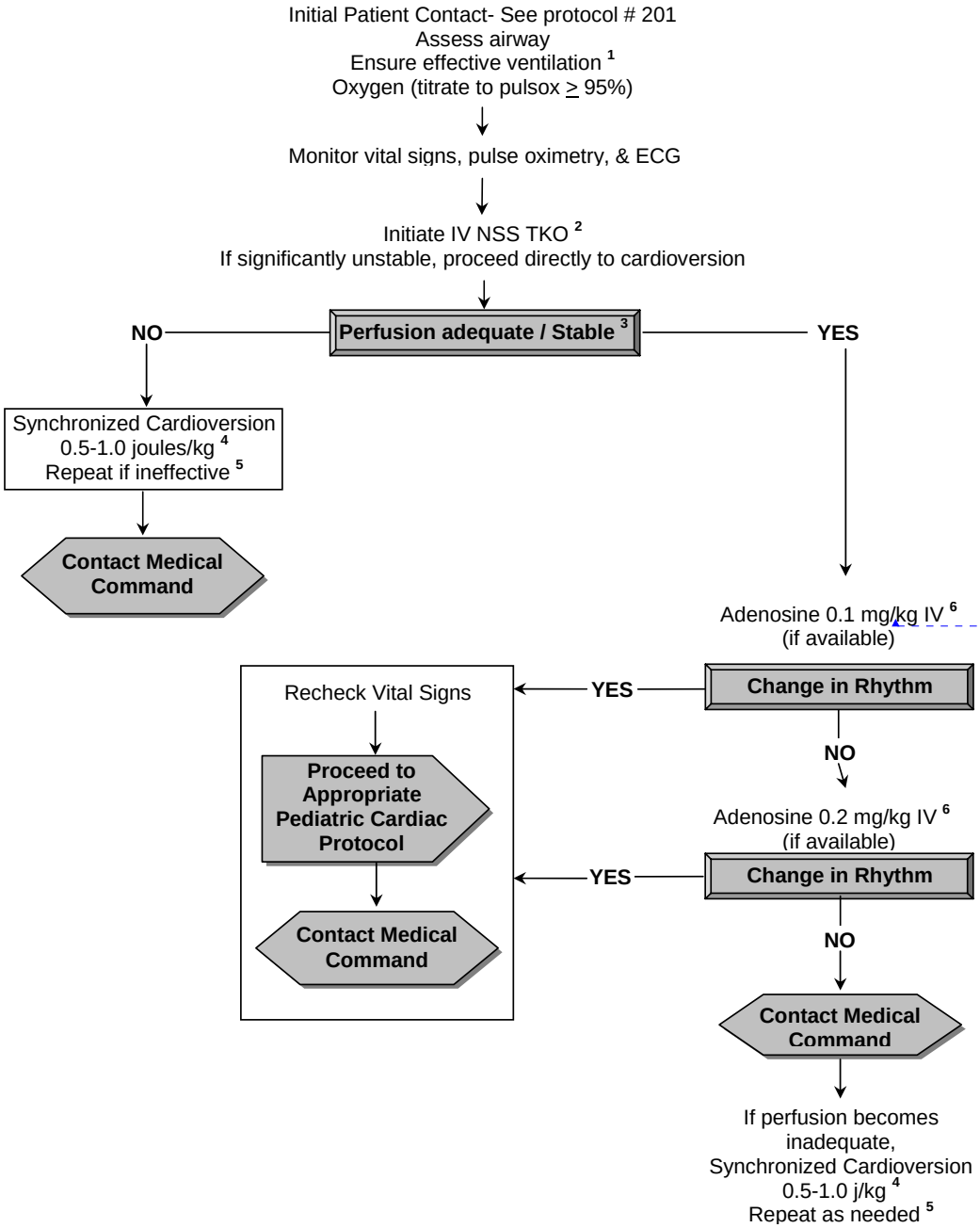
Notes:

1. In children, ventilation by BVM is the preferred method if ETA to hospital is short. However, if patient cannot be adequately oxygenated/ ventilated or if ETA to hospital is long, intubation is indicated. If intubation is indicated, tube position must be verified using the Confirmation of Tube Placement protocol.
2. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line may be used as the primary route of administration for fluid and medications
3. Inadequate perfusion suggested by altered level of consciousness, weak or absent peripheral pulses, or hypotension for age [SBP < 70 + (2 x age)].
4. Sedation should be considered if time permits. Midazolam (Versed) 0.05-0.1mg/kg IV as appropriate for conscious patients. Valium 0.1 mg/kg IV may also be used. If conversion occurs, followed by recurrence of SVT, repeated electrical cardioversion is *not* indicated.
5. If ineffective, synchronized cardioversion should be repeated by doubling the energy dose, to a maximum dose of 4 joules /kg.
6. Adenosine must be given by rapid IV/IO push (over 1-3 seconds), followed immediately by a rapid bolus of 5 ml NSS.

Performance Parameters:

A. Review ECGs for accuracy for all pediatric patients that receive adenosine or cardioversion.

NARROW COMPLEX SUPRAVENTRICULAR TACHYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL



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VENTRICULAR / WIDE COMPLEX TACHYCARDIA - ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with a rhythm that is characterized by an absence of P-waves, a widened QRS complex (wide complex tachycardia), and a ventricular rate > 100 beats per minute that persists for more than 30 seconds.

Exclusion Criteria:

A. Pulseless VT or wide complex tachycardia - Follow Ventricular Fibrillation Protocol # 3041

B. History or evidence of trauma- Follow appropriate trauma protocol

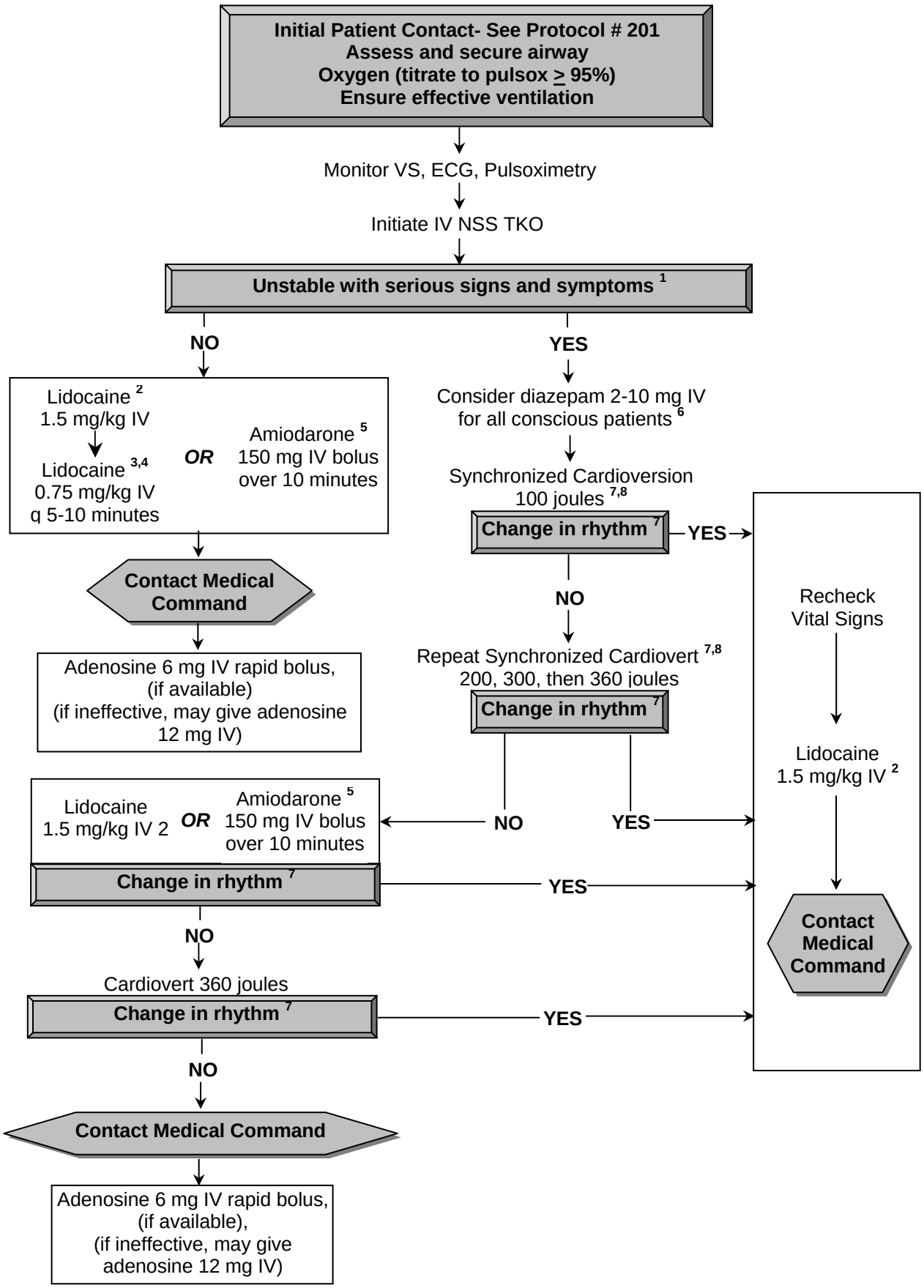
Treatment:

A. See accompanying flowchart.

Notes:

1. Unstable is defined as a rate > 150 with chest pain, dyspnea, CHF/pulmonary edema, hypotension (SBP < 90 mmHg), or altered level of consciousness.
2. Lidocaine doses should be reduced to 1.0 mg/kg initial dose and 0.5 mg/kg repeat doses if patient is over 65 y/o, has CHF, or has history of liver failure.
3. Maximum total dose of lidocaine is 3 mg/kg.
4. If ETA to hospital is short (i.e. < 15-20 minutes) repeated doses of lidocaine should be used. If ETA to hospital is longer than 15-20 minutes, lidocaine boluses should be followed with a lidocaine drip. Dose of drip should be based upon the number of boluses needed to change rhythm from wide complex tachycardia:
   a. 2 mg/ min lidocaine infusion if bolus = 1-1.5 mg/kg
   b. 3 mg/ min lidocaine infusion if boluses = total of 2-2.25 mg/kg
   c. 4 mg/ min lidocaine infusion if boluses = total of 3 mg/kg
5. Regional protocol or service medical director may require administration of amiodarone instead of lidocaine. Only one antidysrhythmic medication should be administered prior to contact with medical command.
6. Avoid sedation in hypotensive patients. Titrate diazepam to slurred speech (maximum 10 mg). Regions or service medical directors may require substitution of midazolam 0.05mg/kg (2-4 mg) IV or lorazepam 1-2 mg IV if available.
7. Assess pulse and rhythm after each synchronized cardioversion. If there is a change in rhythm after any cardioversion, check pulse, assess patient and proceed to appropriate cardiac protocol.
8. If biphasic defibrillator is used, service medical director should determine biphasic equivalent energy dose.

VENTRICULAR / WIDE COMPLEX TACHYCARDIA - ADULT
EMMCO WEST ALS PROTOCOL



WIDE COMPLEX TACHYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient < 14 years old with a rhythm that is characterized by an absence of P-waves, a widened QRS complex (wide complex tachycardia), and age based tachycardia that persists for more than 30 seconds.

Exclusion Criteria:

A. Pulseless ventricular tachycardia- Follow Ventricular Fibrillation protocol

B. History of evidence of trauma- Follow appropriate trauma protocol.

Treatment:

A. See accompanying flowchart.

Possible MC Orders:

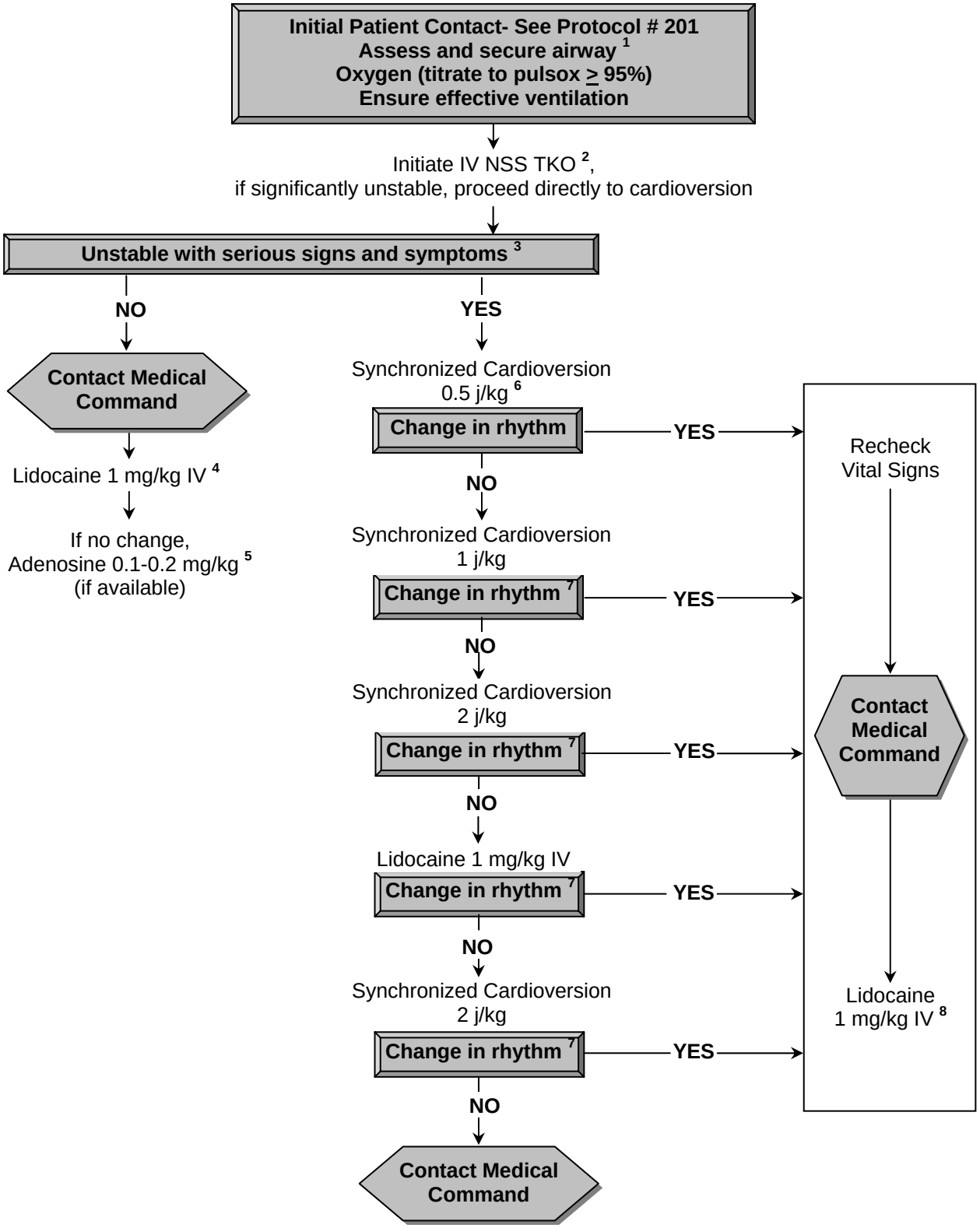
A. Adenosine for wide-complex tachycardia that may be supraventricular

B. Alternative antidysrhythmic medications, if available.

Notes:

1. In children, ventilation by BVM is the preferred method if ETA to hospital is short. However, if patient cannot be adequately oxygenated/ ventilated or if ETA to hospital is long, intubation is indicated. If intubation is indicated, tube position must be verified using the Confirmation of Tube Placement protocol # 2032.
2. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.
3. Serious Signs or Symptoms include:
   a. Poor perfusion - indicated by absent or weak peripheral pulses, increased capillary refill time, skin cool/mottled.
   b. Hypotension - SBP < 70 + (2 x age) or use length-based reference tape
   c. Respiratory difficulty - > 60, increased work of breathing (retractions, nasal flaring, grunting), cyanosis, altered level of consciousness (unusual irritability, lethargy, failure to respond to parents), stridor, wheezing.
4. After initial 1 mg/kg IV/IO bolus, lidocaine 0.5 mg/kg. IV every 8-10 minutes. Do not exceed total of 3 mg/kg.
5. If tachycardia does not terminate, consider adenosine (Adenocard) 0.1 mg/kg followed by rapid 2-5 ml NSS bolus. If tachycardia continues, consider adenosine 0.2 mg/kg IV/IO followed by rapid 2-5 ml NSS bolus.
6. Sedation should be considered for conscious patients if time permits, but do not delay countershock if critically unstable. Give diazepam 0.1 mg/kg IV/IO or midazolam (Versed) 0.1 mg/kg IV/IO. Choice of medication must follow regional protocol or choice of ALS service medical director.
7. Assess pulse and rhythm after each countershock. If there is a change in rhythm after any cardioversion, check pulse, assess patient and proceed to appropriate cardiac protocol.
8. If a loading dose of xylocaine (Lidocaine) has already been administered, administer lidocaine 0.5 mg/kg IV/IO. Repeat lidocaine 0.5 mg/kg IV/IO every 8-10 minutes. Do not exceed total dose of 3 mg/kg.
9. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference.

WIDE COMPLEX TACHYCARDIA – PEDIATRIC
EMMCO WEST ALS PROTOCOL



MULTISYSTEM TRAUMA OR TRAUMATIC SHOCK
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient that meets Category 1 or Category 2 trauma triage criteria and has evidence of injury.

B. Patient with symptoms of shock / hypoperfusion related to a traumatic injury.

Exclusion Criteria:

A. Cardiac Arrest related to trauma – see Cardiac Arrest – Traumatic Protocol # 332.

B. Hypotension not related to trauma.

Treatment:

A. **All patients:**

1. Initial Patient Contact – see Protocol # 201.
   a. C-spine stabilization.
   b. Consider request for air ambulance- if applicable per Trauma Patient Destination Protocol # 180.
   c. Consider rapid extrication.[1]
2. Perform needle chest decompression if indicated by hypotension AND diminished breath sounds.
3. Intubate as indicated. [2,3,4,5]
4. Control external bleeding.
5. Administer oxygen as indicated (high concentration if Category 1 trauma criteria).
6. Spinal immobilization as appropriate – See Cervical Spine Immobilization Protocol # 261.
7. Treat specific injuries:
   a. Also follow injury specific trauma protocols if applicable for head injury, impaled object, amputation, or burns.
   b. If sucking chest wound, cover wound with occlusive dressing sealed on 3 sides. Release dressing if worsened shortness of breath.
   c. If intestinal evisceration, cover intestines with a sterile dressing moistened with sterile saline or water; cover the area with an occlusive material (aluminum foil or plastic wrap). Cover the area with a towel or blanket to keep it warm. **DO NOT PUSH VISCERA BACK INTO ABDOMEN.**[6] Transport with knees slightly flexed if possible.
8. Immobilize suspected fractures without delaying transport.
   a. If suspected pelvic fracture and hypotension, apply pelvic compression device (if available) for splinting [7]
   b. If femur fracture is suspected, traction splinting is preferred for isolated femur fractures.
   c. Padded board splints or other similar devices are preferred for isolated tibia/fibula fractures.
9. Transport the patient ASAP as per Trauma Destination Protocol – See Protocol # 180.
10. Monitor pulsoximetry and ECG enroute.
11. Initiate IV NSS enroute. [8]
    a. Adults: If SBP< 90, administer up to 2 liters NSS wide open. Titrate to maintain a SBP 90-110.
    b. Pediatrics (< 14 y/o): If SBP< 70 + 2(age), administer 20 ml/kg NSS wide open.
12. Contact Medical Command
13. Monitor vital signs and reassess.

Possible Medical Command Orders:

A. Inflation of MAST suit for hypotension.

B. Additional NSS for hypotension.

Notes:

1. Rapid extrication may be appropriate in the following circumstances: danger of explosion (including potential secondary explosion at a terrorism incident); rapidly rising water; danger of structural collapse; hostile environments (e.g. riots); patient position prevents access to another patient that meets criteria for rapid extrication; shock; inability to establish an airway, adequately ventilate a patient, or control bleeding in entrapped position; or cardiac arrest.
2. Indications for intubation include GCS < 8, inadequate respiratory effort, and airway not patent.
3. When possible, the patient should be intubated by orotracheal route using manual inline stabilization of the cervical spine. When patient's reflexes and muscle tone do not permit orotracheal intubation, consider BVM ventilation if adequate, nasotracheal intubation or drug-facilitated orotracheal intubation with etomidate [optional]. In children, ventilation with BVM may be preferable to intubation if transport time is short and BVM is providing adequate ventilations.
4. Confirm and document tube placement with auscultation and $ETCO_2$ detector/ secondary device- Follow Confirmation of Airway Placement Protocol # 2032
5. If unable to intubate patient, depending upon the patient's condition, consider the use of the Combitube dual-lumen airway or cricothyrotomy [Optional].
6. In wilderness / delayed transport situations with prolonged evacuation time (at least several hours), examine the bowel for visible perforation or fecal odor. If no perforation is suspected, irrigate the eviscerated intestine with saline and gently try to replace in abdomen.
7. Pelvic binder splinting devices (circumferential commercial devices that compress the pelvis) are appropriate splinting devices. MAST, if available, may also be used for suspected pelvis fracture with hypotension or for suspected pelvis fracture when associated with other femur, tibia, or fibula fractures. – See MAST Suit Use Protocol # 263.
8. If time permits, attempt to obtain 2 large bore IV sites. If unable to obtain IV access, consider IO access.

Performance Parameters:

A. Documentation of reason for any on scene time interval over 10 minutes.

B. Percentage of calls, without entrapment, with on scene time interval $\leq$ 10 minutes. Consider benchmark for on scene time for non-entrapped patients $\leq$ 10 minutes and $\leq$ 20 minutes for entrapped trauma patients and Category 2 trauma patients.

C. Documentation of applicable trauma triage criteria.

D. Appropriate destination per Trauma Triage Protocol.

EXTREMITY TRAUMA
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with isolated suspected extremity fractures.

B. Patient with extremity pain after trauma.

Exclusion Criteria:

A. Multisystem trauma or traumatic / hypovolemic shock (Follow Multisystem Trauma or Traumatic Shock protocol # 6002)

B. Allergy to narcotics

C. Systolic BP < 100 for adults

D. Systolic BP < 70 + 2(age in years) for children less than 14 y/o

E. Respiratory depression

System Requirements:

A. The ALS service medical director must be willing to take responsibility for providing a prescription for all narcotics given by protocol prior to medical command contact if the receiving physician is uncomfortable providing a prescription for the medication. At the discretion of the ALS service medical director or by regional protocol, ALS practitioners may be required to contact medical command prior to administration of narcotic, in which case, the medical command physician is responsible for supplying a prescription for the medication that was ordered.

Treatment:

A. Initial Patient Contact- See protocol # 201.
1. Assess patient's pain on a "1-10 scale".
2. Assess neurovascular status distal to injury.

B. Splint suspected fractures as appropriate.
1. Traction splinting is preferred over MAST for isolated femur fractures.[1]
2. Straighten severely angulated fractures if distal extremity has no pulse, is pale, and has diminished capillary refill.

C. If pain is severe or if patient desires analgesia:
1. Monitor pulseoximetry
2. Establish IV NSS at TKO
3. Administer ONE of the following analgesics: [2,3]
4. Morphine, 0.1 mg/kg IV slowly, maximum dose 5 mg.[4], OR
5. Fentanyl, 1 mcg/kg IV slowly, maximum dose 100 mcg. [4,5]

D. Reassess patient for:
1. Change in pain score.
2. Neurovascular status distal to injury.
3. Developing hypoxia, hypotension or respiratory depression.
4. If respiratory depression or hypoxia occurs after morphine or fentanyl:
   a. Apply high-flow oxygen and ventilate if necessary.
   b. Administer naloxone 0.4mg IV, titrate additional doses until adequate ventilation or total dose of 2 mg.

E. Contact Medical Command

Possible Medical Command Orders:

A. Additional fentanyl or morphine

B. Intramuscular fentanyl or morphine if IV unsuccessful

C. Oral analgesia (e.g. aspirin)

Notes:

1. Traction splinting should not be used for hip (proximal femoral neck) fractures.
2. Narcotic pain medication should not be given if:
   a. Oxygen saturation ≤ 95%
   b. SBP <100 for adults
   c. SBP < 70 + 2(age in years) for children < 14 y/o
3. Narcotic pain medication may not be administered for other medical / trauma conditions (e.g. abdominal pain or multiple rib fractures) without being ordered by Medical Command.
4. Reduce dose in half for patients over 65 y/o.
5. Chest wall rigidity is an uncommon, yet serious adverse reaction to Fentanyl. Contact Medical Command immediately.
6. Any additional dose, or use in other medical or trauma situations requires notification of Medical Command.

Performance Parameters:

A. Pain medication given or documentation of pain medication being offered for suspected isolated extremity fractures.

B. Traction splinting used for isolated femur fractures without hypotension in all cases.

C. Vital signs and oxygen saturation documented before and after any administration of narcotic.

D. Severity of pain documented for all painful conditions.

SPINAL CORD INJURY
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patients with isolated suspected spinal cord injuries. After trauma (e.g. diving into a shallow pool or fall in an elderly patient with neck hyperextension), spinal cord injury would be suspected if patient has upper and/or lower extremity symptoms of:
1. Sensory loss or numbness
2. Weakness

Exclusion Criteria:

A. Patients with other injuries in addition to spinal cord injury - Follow Multisystem Trauma or Traumatic Shock protocol # 6002 and Trauma Destination protocol # 180.

B. Spinal cord injury patients with SBP < 100 - Follow Multisystem Trauma or Traumatic Shock protocol # 6002 and Trauma Destination Protocol # 180.

Treatment:

A. See accompanying flow chart.

Possible MC Orders:

A. Additional NSS fluid bolus

B. Intravenous dopamine if no response to adequate fluid bolus

C. Medical command at the closest appropriate trauma center (protocol # 180) may direct the patient to another trauma center that is more capable of handling spinal cord injury.

Notes:

1. Apply oxygen by appropriate method to maintain SaO2 ≥ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is ≥ 95%.
2. Patient may have inadequate ventilatory efforts if high cervical spine injury has diminished diaphragmatic breathing.
3. Confirm and document tube placement with auscultation and $ETCO_2$ detector/secondary device- Follow Confirmation of Airway Placement Protocol # 2032
4. If unable to intubate on up to 3 attempts, consider Combitube airway.
5. If BP < 100 and there is no evidence of other trauma, patient may be in spinal shock and blood pressure may be fluid dependent.
6. If there is a region-designated spinal cord injury center within 20 minutes and the patient's airway and hemodynamics are stable, assess the Spinal Cord Injury Assessment Scale. If the scale is ≤6, then transport to the spinal cord injury center. Otherwise, the destination should be the closest appropriate trauma center as directed by the Trauma Destination Protocol # 180.
7. Medical command at the closest appropriate trauma center may direct transport to a more appropriate trauma center if they are not capable of treating spinal cord injuries.

SPINAL CORD INJURY ASSESSMENT SCALE

The SCI Scale is a tool for assessment of the ability to move extremities, the ability to sense light touch and pain, and the presence or absence of pain and tenderness over the spine. Any patient with a score of three to six should be suspected of having sustained a spinal cord injury and should be transported to a comprehensive spinal cord injury center.

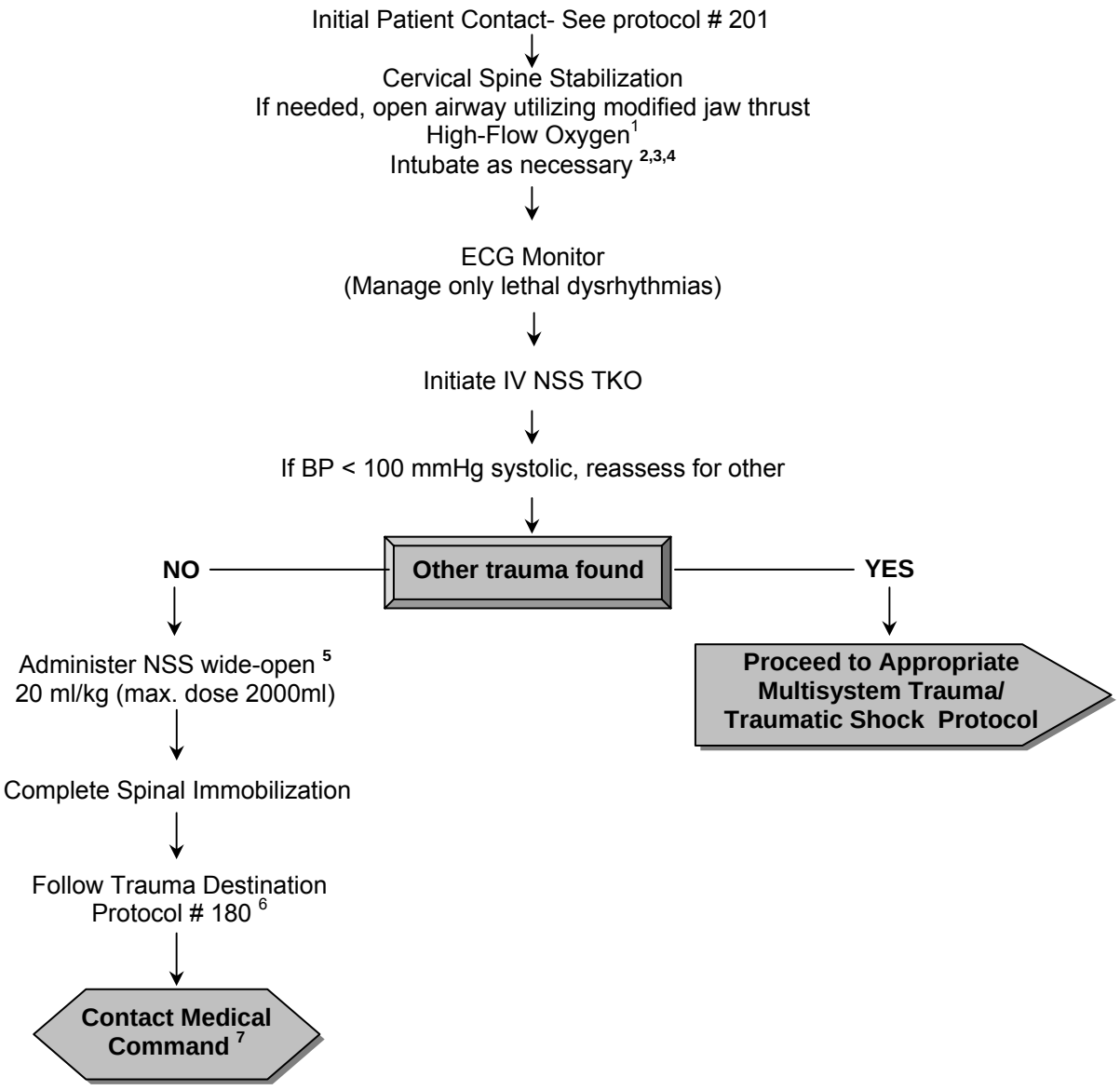
MOVEMENT		
Can move arms and legs normally	**3**	
Obvious weakness in arms and/or legs	**2**	[ ]
Unable to move arms and/or legs	**1**	
SENSATION[3]		
Can sense touch and pain in hands and feet	**3**	
Decreased ability to sense touch or pain	**2**	[ ]
Unable to sense touch or pain in hands and/or feet	**1**	
SPINAL PAIN		
No localized pain or tenderness over spine	**3**	
Localized pain or tenderness over spine	**2**	[ ]
Complains of pain in neck or back	**1**	

TOTAL [**3** to **9**]

Performance Parameters:

A. Review all spinal cord injury cases for transport to appropriate destination as defined by this protocol and the Trauma Patient Destination protocol # 180.

SPINAL CORD INJURY
EMMCO WEST ALS PROTOCOL



BURNS
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with burns from:
1. Thermal injury
2. Electrical Injury
3. Lightning injury
4. Chemical dermal injury.

System Requirements:

A. The ALS service medical director must be willing to take responsibility for providing a prescription for all narcotics given by protocol prior to medical command contact if the receiving physician is uncomfortable providing a prescription for the medication. At the discretion of the ALS service medical director or by regional protocol, ALS practitioners may be required to contact medical command prior to administration of narcotic, in which case, the medical command physician is responsible for supplying a prescription for the medication that was ordered.

Treatment:

A. See accompanying flow sheet:

Possible MC Orders:

A. Additional morphine or fentanyl

B. Transport to a burn center or trauma center

C. CPAP / BiPAP for respiratory difficulty

Notes:

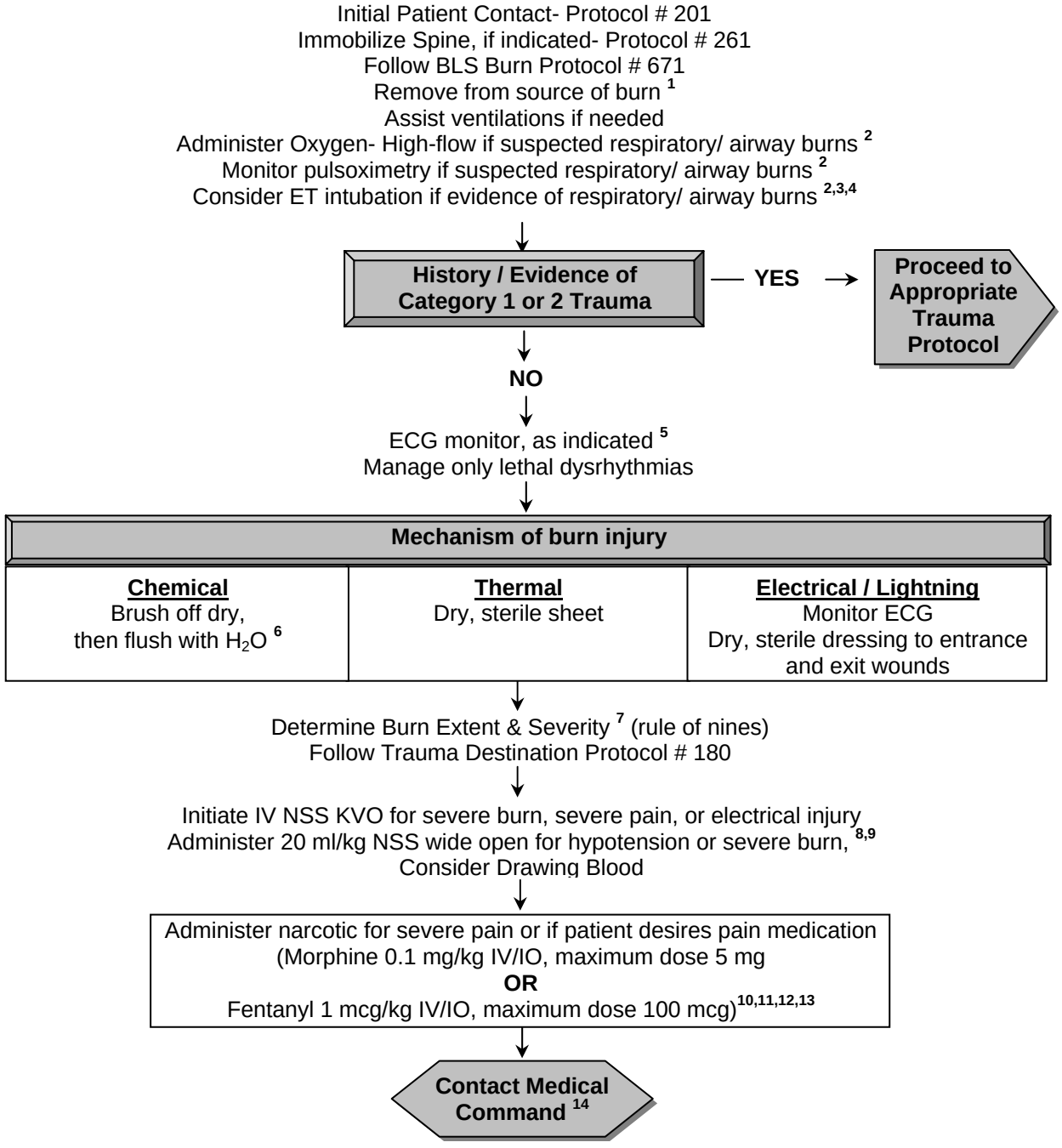
1. Consider scene safety. Be aware of possible chemical contamination and/or electrical sources. Stop the burning process. Remove clothing and constricting jewelry.
2. Determine presence of respiratory burns as indicated by carbonaceous sputum, cough, hoarseness, or stridor (late). All patients with exposure to smoke or fire in a confined space should receive high-flow oxygen.
3. Consider early intubation in patients with hoarseness, carbonaceous sputum or stridor. If unsure, contact medical command early for assistance with this decision.
4. Confirm and document tube placement with auscultation and $ETCO_2$ detector / secondary device- Follow Confirmation of Airway Placement Protocol # 2032
5. Monitor ECG for all patients with:
   a. Electrical / Lightning injury
   b. Respiratory symptoms
   c. Multisystem trauma
   d. Hypovolemic/ Traumatic Shock
6. For chemical burn exposure, begin flushing immediately with water or appropriate agent for chemical. Exceptions: for phosphorous and sodium, **DO NOT** flush with water, cover with oil (i.e. cooking oil) ; for Phenol remove with alcohol and follow with large volume of water. If eye is burned, flush with large volume of NSS for 15-20 minutes. Continue eye flushing during transport.
7. Indicators of severe burn injury include:
   a. Respiratory tract injury, inhalation injury.
   b. 2^{nd} and 3^{rd} degree burns that involve face, hands, feet, genitalia or perineal area or those that involve skin overlying major joints.
   c. 3^{rd} degree burns of greater than 5% BSA.
   d. 2^{nd} degree burns of greater than 15% BSA.
   e. Significant electrical burns, including lightning injury.
   f. Significant chemical burns.
   g. Burn injury in patients with pre-existing illnesses that could complicate management, prolong recovery, or affect mortality.
   h. Medical Command physician may direct transport to Burn Center.
8. Do not provide fluid bolus if respiratory symptoms are present without significant skin thermal burns.
9. If IV is unsuccessful, consider IO line in appropriate patient.

10. Narcotic pain medication should not be given if:
    a. Oxygen saturation ≤ 95%
    b. SBP < 100 for adults
    c. SBP < 70 + 2(age in years) for children < 14 y/o
11. Reduce dose in half for patients over 65 y/o
12. Any additional dose or use in multisystem trauma situations requires order from Medical Command before administering narcotic.
13. Chest wall rigidity is an uncommon, yet serious adverse reaction to fentanyl. **CONTACT MEDICAL COMMAND IMMEDIATELY.**
14. Medical Command Physician may direct transport to Burn Center.

Performance Parameters:

A. Review all burn calls for compliance with Trauma Destinations Protocol # 180

B. Review all burn calls for frequency of administration of or documentation of offering pain medication.



HEAT EMERGENCY
EMMCO WEST ALS PROTOCOL

Criteria:

A. **Heat Cramps** - Painful muscle spasms of the skeletal muscles that occur following heavy work or strenuous exercise in hot environments. Thought to be caused by rapid changes in extracellular fluid osmolarity resulting from fluid and sodium loss. Signs and symptoms include
   1. Alert
   2. Muscle cramps (normally in muscles most recently heavily exercised)
   3. Hot, diaphoretic skin
   4. Tachycardia
   5. Normotensive

B. **Heat exhaustion** - Patient presents with dizziness, nausea, headache, tachycardia, and possibly syncope. Usually from exposure to high ambient temperatures accompanied by dehydration due to poor fluid intake. Temperature is less than 103° F. Rapid recovery generally follows saline administration.

C. **Heat Stroke** [1] - Patient should be treated as heat stroke if he/she has ALL of the following
   1. Exposure to hot environment, and
   2. Hot skin, and
   3. Altered mental status

Exclusion Criteria:

A. None

Procedure

A. See accompanying flowchart.

Possible MC Orders:

A. Medical command physician may order release of care for mild heat cramps or mild heat exhaustion.

B. May order additional fluid boluses

Notes:

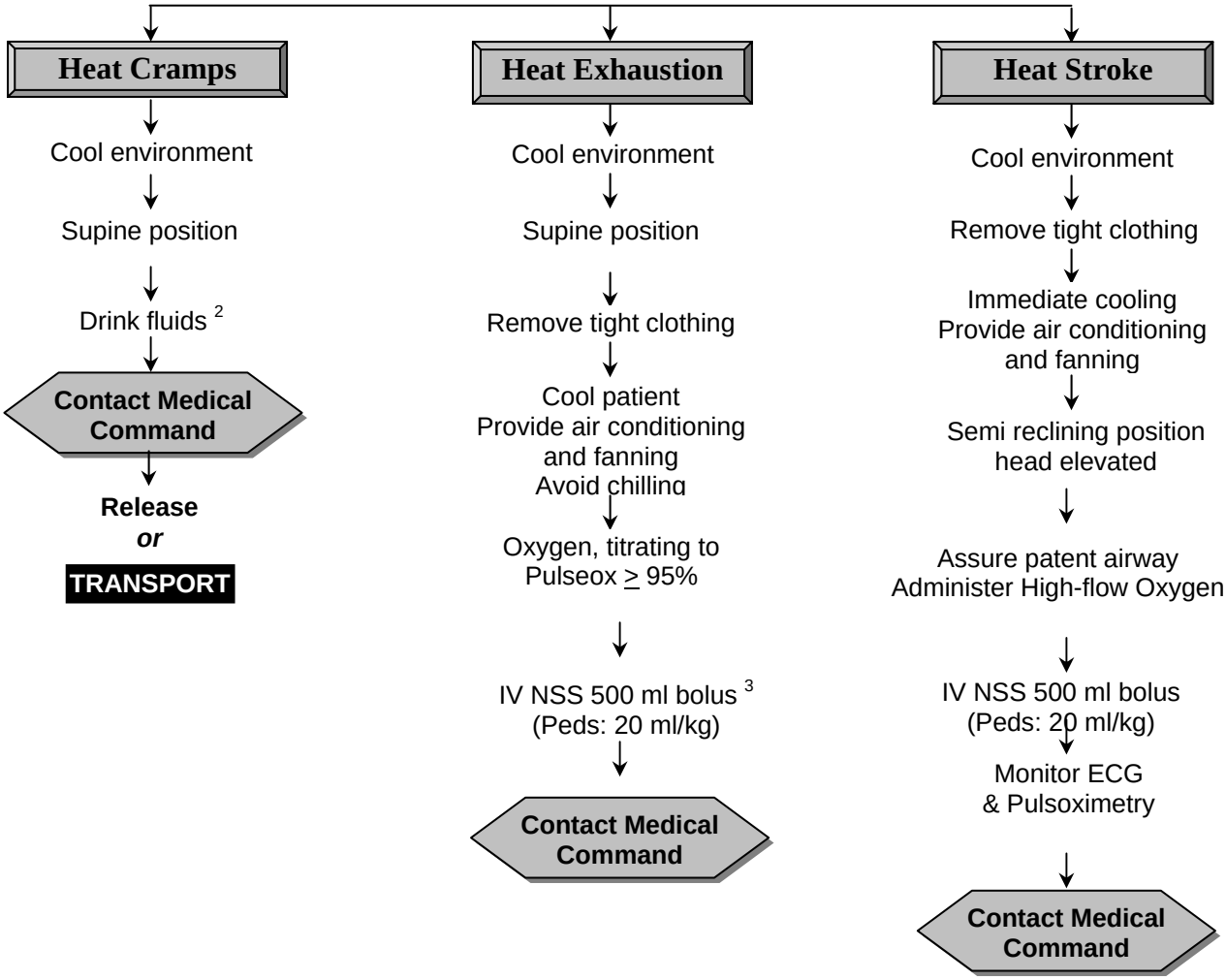
1. Patient's thermoregulatory mechanisms break down completely. Body temperature is elevated to extreme levels, which results in multi-system tissue damage including altered mental status. Heat stroke often affects elderly patients with underlying medical disorders. Patients usually have dry skin; however, up to 50% of patients with exertional heat stroke may exhibit persistent sweating. Therefore, patients with heat stroke may be sweating.
2. Allow oral intake of cool fluids or water (ideally commercial sport/rehydration drinks like Gatorade or Powerade) if patient is alert. Do not permit the patient to drink if altered mental status, abdominal pain or nausea. Avoid carbonated sodas, alcoholic beverages, and caffeinated beverages.
3. Patient may take oral fluid replacement rather than IV if no nausea. Allow oral intake of cool fluids or water (ideally commercial sport/rehydration drinks like Gatorade or Powerade) if patient is alert. Do not permit the patient to drink if altered mental status, abdominal pain or nausea. Avoid carbonated sodas, alcoholic beverages, and caffeinated beverages.

HEAT EMERGENCIES
EMMCO WEST ALS PROTOCOL

History/evidence of HEAT exposure

Initial Patient Contact – see Protocol # 201

Follow Heat Emergency Protocol – see Protocol # 686



ALTERED LEVEL OF CONSCIOUSNESS - ADULT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with altered level of consciousness due to:
1. Unclear etiology after assessing patient
2. History consistent with hypoglycemia

Exclusion Criteria:

A. Altered level of consciousness due to:
1. Trauma - Follow appropriate trauma protocol (e.g. head injury or multi-system trauma protocol)
2. Shock - Follow Shock protocol # 7005
3. Dysrhythmias - Follow appropriate dysrhythmia protocol.
4. Toxicologic
   a. Drug ingestion (known or strongly suspected) - Follow overdose protocol
   b. Carbon monoxide - Follow Poisoning / Toxic Exposure protocol # 8031.
   c. Cyanide - Follow Cyanide Exposure protocol # 8081.
   d. Nerve agent exposure - Follow Nerve Agent Exposure protocol # 8083.
5. Seizure - Follow Seizure protocol # 7007.
6. Stroke - Follow Stroke protocol # 7006.
7. Other medical problems specifically suspected due to history or exam, e.g. choking, hypoxia due to respiratory failure, etc…- Follow applicable specific protocol.

System Requirements:

A. ALS Services using glucose testing devices must follow CLIA rules, must train all ALS practitioners to use the glucose meters as recommended by the manufacturer, and must keep documentation of regular testing, at the interval recommended by the manufacturer, to validate and/or calibrate the device.

Procedure:

A. See accompanying flow chart.

Possible MC Orders:

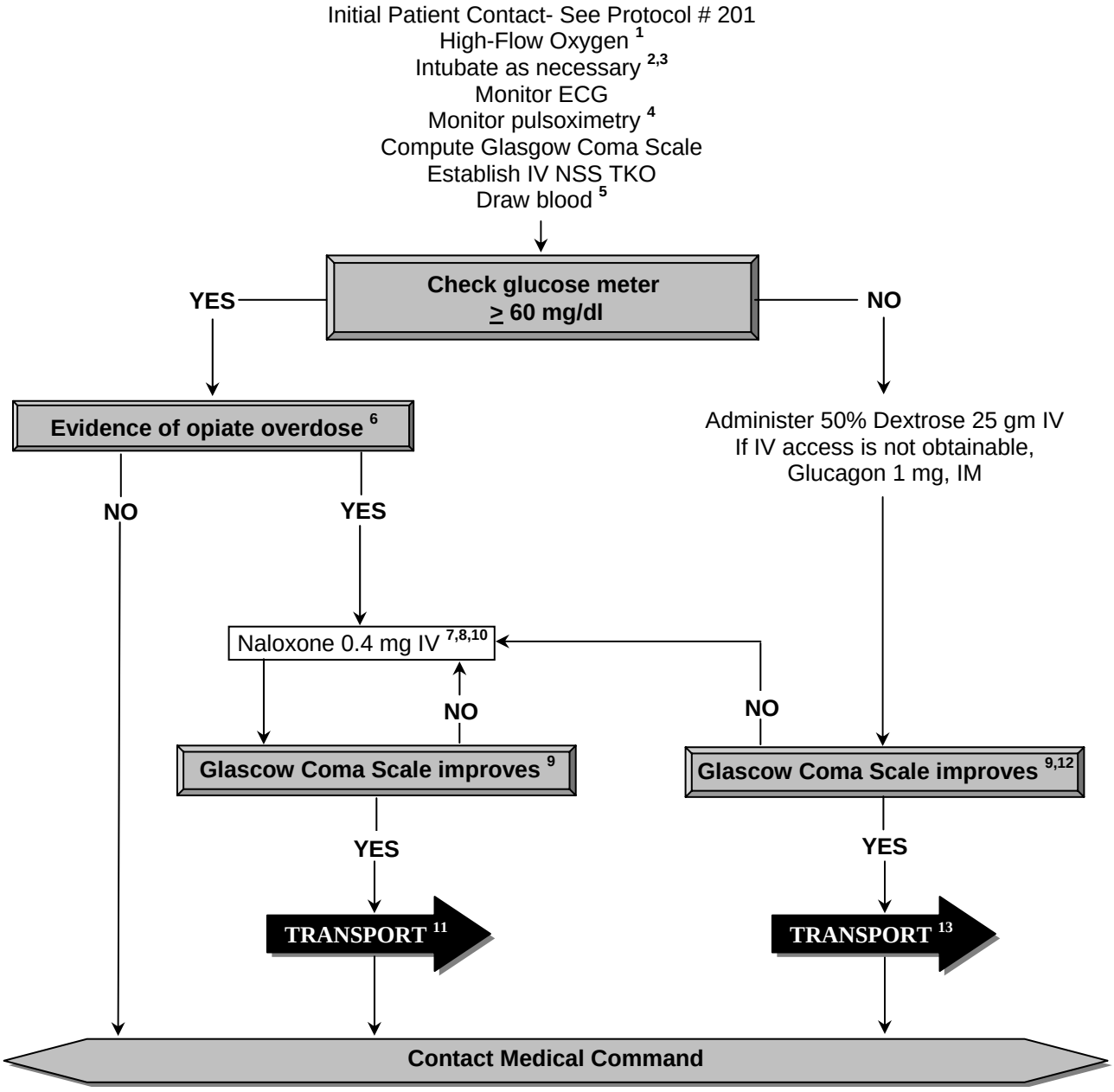
A. Additional doses of naloxone

B. Additional doses of dextrose or glucagons

Notes:

1. Apply oxygen by appropriate method to maintain SaO2 $\geq$ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is $\geq$ 95%.
2. Confirm and document tube placement with auscultation and $ETCO_2$ detector/ secondary device - Follow Confirmation of Airway Placement Protocol # 2032
3. If unable to intubate on up to 3 attempts, consider Combitube airway.
4. See Pulsoximetry Protocol # 226. Pulsoximetry must not delay the application of oxygen. Record SpO2 after administration of oxygen or intubation.
5. Blood should be drawn in red top tube for analysis at the hospital unless the patient is a known diabetic who takes insulin or oral diabetic medications (e.g. micronase, glyburide, glucophage, etc…)
6. Indications of possible opiate overdose include decreased respirations, pinpoint pupils, and/or the presence of drug paraphernalia.
7. Naloxone can be administered IM, ETT, or intranasally if IV cannot be established. Ideally, intranasal administration should be done via an atomizing device.
8. Larger individual doses of naloxone can precipitate opiate withdrawal with the potential for a violent or combative patient.
9. Indicators of improved mental status include:
   a. Orientation to person, place and time
   b. Increased alertness
   c. Increased responsiveness to questions
10. If no response to dose of naloxone, dose may be repeated in 0.4 mg increments to a total of 2 mg.
11. For patients refusing transport, adhere to Refusal of Treatment / Transport Protocol # 111.
12. It is not necessary to repeat glucose check unless patient refuses transport.
13. For patients refusing transport, adhere to Refusal of Treatment / Transport Protocol # 111. Patient may be released without Medical Command if all of the following are met in addition to criteria in protocol # 111:

a. Repeat glucose meter is > 80 mg/dl
b. Patient is an insulin-dependent diabetic (not on oral antihyperglycemics)
c. Patient returns to normal mental status, with no focal neurologic signs/symptoms after receiving intravenous dextrose
d. Patient can promptly obtain and will eat a carbohydrate meal.
e. Patient refuses transport, or patient and paramedics agree transport not needed
f. Another competent adult will be staying with patient
g. No major co-morbid conditions exist, such as chest pain, arrhythmias, dyspnea, seizures, intoxication
h. The patient received intravenous dextrose. Patient may not be released without medical command contact if given glucagon instead of dextrose.
i. If all of the above conditions are not met and the patient or legal guardian refuses transport, contact medical command. If the patient or legal guardian requests transport, honor the request.



ALTERED LEVEL OF CONSCIOUSNESS - PEDIATRIC
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with altered level of consciousness due to:
1. Unclear etiology after assessing patient
2. History consistent with hypoglycemia (in infants and children, hypoglycemia frequently accompanies overdose, alcohol ingestion, poisoning, or metabolic / medical diseases)

Exclusion Criteria:

A. Altered level of consciousness due to:
1. Trauma - Follow appropriate trauma protocol (e.g. head injury or multi-system trauma protocol)
2. Shock - Follow Shock protocol # 7005
3. Dysrhythmias - Follow appropriate dysrhythmia protocol.
4. Toxicologic
   a. Drug ingestion (known or strongly suspected) - Follow overdose protocol
   b. Carbon monoxide - Follow Poisoning / Toxic Exposure protocol # 8031.
   c. Cyanide - Follow Cyanide Exposure protocol # 8081.
   d. Nerve agent exposure- Follow Nerve Agent Exposure protocol # 8083.
5. Seizure - Follow Seizure protocol # 7007.
6. Stroke - Follow Stroke protocol # 7006.
7. Other medical problems specifically suspected due to history or exam, e.g. choking, hypoxia due to respiratory failure, etc…- Follow applicable specific protocol.

System Requirements:

A. ALS Services using glucose testing devices must follow CLIA rules, must train all ALS practitioners to use the glucose meters as recommended by the manufacturer, and must keep documentation of regular testing, at the interval recommended by the manufacturer, to validate and/or calibrate the device.

Procedure:

A. See accompanying flow chart.

Possible MC Orders:

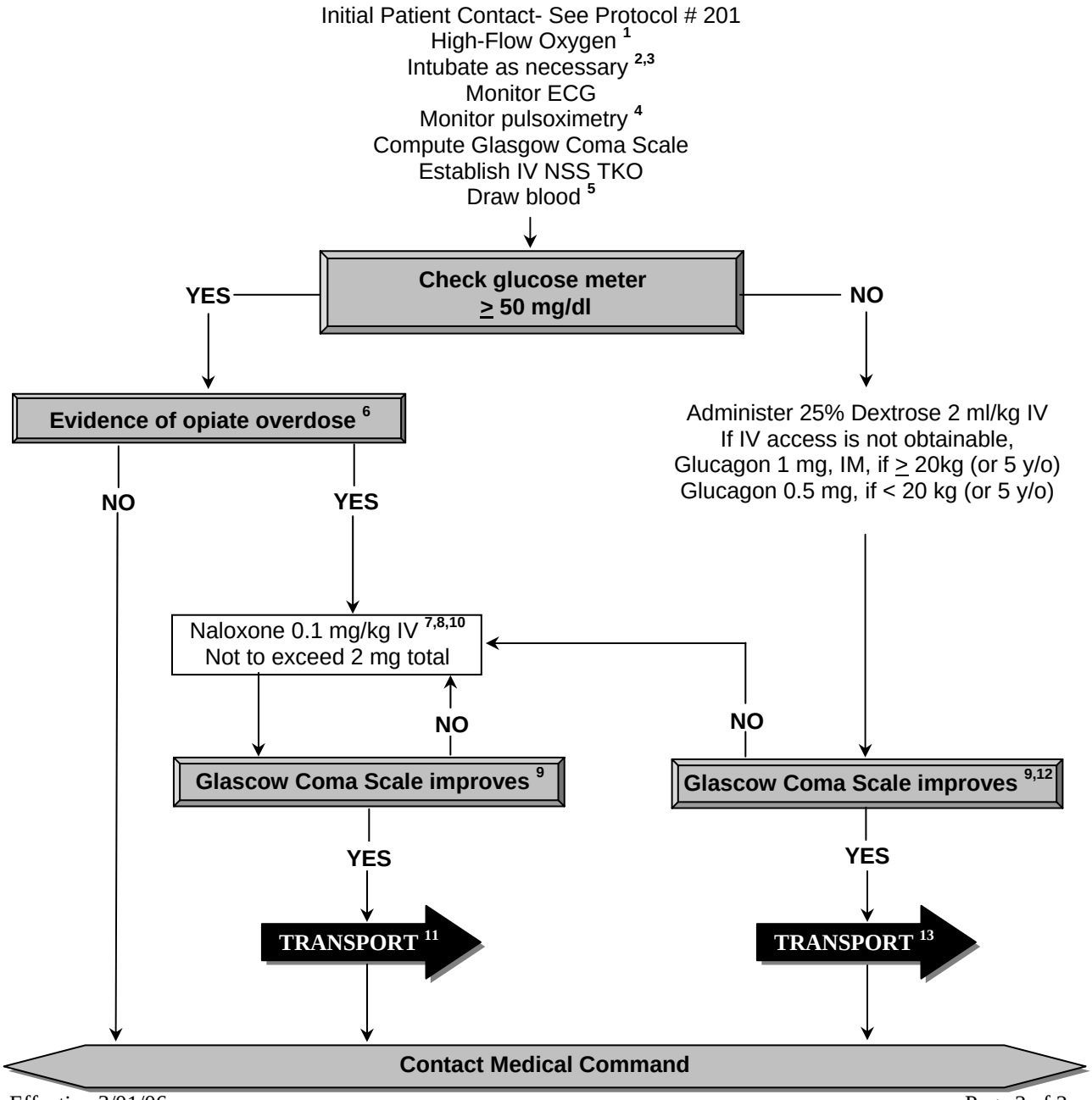
A. Additional doses of naloxone

B. Additional doses of dextrose or glucagons

Notes:

1. Apply oxygen by appropriate method to maintain SaO2 $\geq$ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is $\geq$ 95%.
2. In children, ventilation by bag-valve-mask is the preferred method of airway maintenance and ventilation if transport time is short. However, if patient cannot be adequately oxygenated or ventilated by bag-valve-mask or if transport time is long, intubation is indicated. Use a length-based device to assist with selection of appropriate sized airway equipment.
3. Confirm and document tube placement with auscultation and $ETCO_2$ detector/ secondary device - Follow Confirmation of Airway Placement Protocol # 2032
4. See Pulse Oximetry Protocol # 226. Pulsoximetry must not delay the application of oxygen. Record SpO2 after administration of oxygen or intubation.
5. Blood should be drawn in red top tube for analysis at the hospital unless the patient is a known diabetic who takes insulin or oral diabetic medications (e.g. micronase, glyburide, glucophage, etc…)
6. Indications of possible opiate overdose include decreased respirations, pinpoint pupils, and/or the presence of drug paraphernalia.
7. Naloxone can be administered IM, ETT, or intranasally if IV cannot be established. Ideally, intranasal administration should be done via an atomizing device.
8. Larger individual doses of naloxone can precipitate opiate withdrawal with the potential for a violent or combative patient.
9. Indicators of improved mental status include:
   a. Orientation to person, place and time
   b. Increased alertness
   c. Increased
   d. If no response to dose responsiveness to questions

10. Increased motor function of naloxone, dose may be repeated in 0.4 mg increments to a total of 2 mg.
11. For patients refusing transport, adhere to Refusal of Treatment / Transport Protocol # 111.
12. It is not necessary to repeat glucose check unless patient refuses transport.
13. For patients refusing transport, adhere to Refusal of Treatment / Transport Protocol # 111. Patient may be released without Medical Command if all of the following are met in addition to criteria in protocol # 111:
    a. Repeat glucose meter is > 60 mg/dl
    b. Patient is an insulin-dependent diabetic (not on oral antihyperglycemics)
    c. Patient returns to normal mental status, with no focal neurologic signs/symptoms after receiving intravenous dextrose
    d. Legal guardian refuses transport, or patient, legal guardian and paramedics agree transport not needed
    e. Legal guardian or another competent adult will be staying with patient
    f. No major co-morbid conditions exist, such as chest pain, arrhythmias, dyspnea, seizures, intoxication
    g. The patient received intravenous dextrose.
    h. Suicide attempt or gesture not suspected.
    i. If all of the above conditions are not met and the patient or legal guardian refuses transport, contact medical command. If the patient or legal guardian requests transport, honor the request.



SHOCK
EMMCO WEST ALS PROTOCOL

Criteria:

A. Hypoperfusion of body organs is characterized by alterations in mental status, pallor, diaphoresis, tachypnea, tachycardia, poor capillary refill, and hypotension.

B. This protocol applies only when other specific ALS protocols related to hypotension/ shock do not apply. For example:
1. Septic shock - signs or symptoms of hypoperfusion from a suspected infectious source (e.g. urosepsis, pneumonia, bacteremia / septicemia). These patients may present with a fever or preceding infectious illness.
2. Hypovolemic shock from gastrointestinal bleeding.
3. Hypoperfusion from repetitive vomiting/ diarrhea in infants/ children.
4. Hypoperfusion of unknown etiology.

Exclusion Criteria:

A. Hypotension with suspected traumatic etiology (e.g. traumatic hypovolemia or neurogenic shock due to spinal cord injury - See Multisystem Trauma or Traumatic Shock Protocol # 6002.

B. Hypotension with suspected pulmonary edema due to cardiogenic shock - See CHF Protocol # 5002.

Procedure:

A. See accompanying flowchart.

Possible MC Orders:

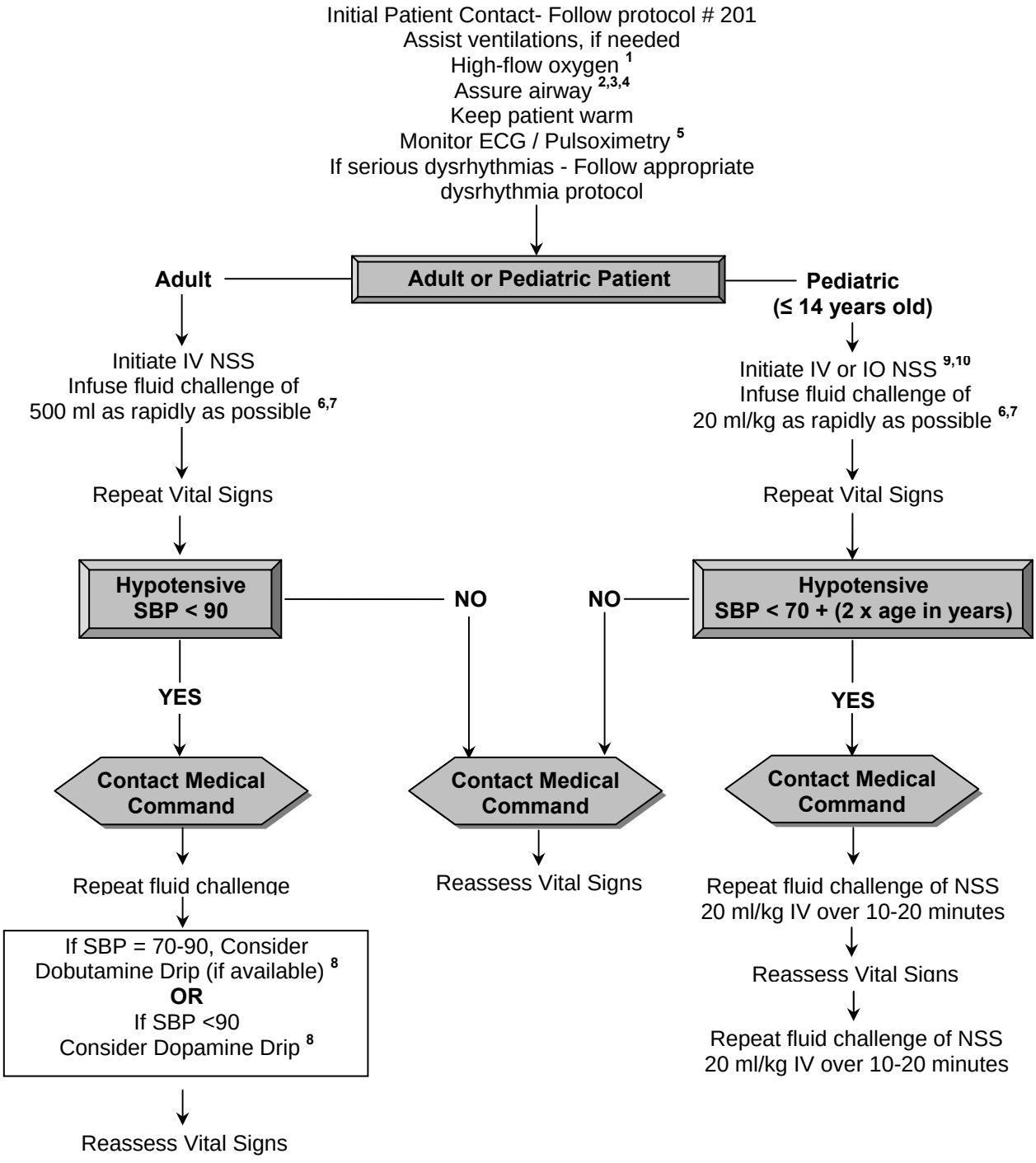
A. Additional NSS fluid boluses

B. Earlier intervention with vasopressor infusions (dopamine, dobutamine, epinephrine)

Notes:

1. Apply oxygen by appropriate method to maintain SaO2 $\geq$ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is $\geq$ 95%.
2. Confirm and document tube placement with auscultation and $ETCO_2$ detector / secondary device - Follow Confirmation of Airway Placement Protocol # 2032
3. If unable to intubate on up to 3 attempts, consider Combitube airway.
4. In children, ventilation by bag-valve-mask is the preferred method of airway maintenance and ventilation if transport time is short. However, if patient cannot be adequately oxygenated or ventilated by bag-valve-mask or if transport time is long, intubation is indicated. Use a length-based device to assist with selection of appropriate sized airway equipment.
5. See Pulse Oximetry Protocol # 226. Pulsoximetry must not delay the application of oxygen. Record SpO2 after administration of oxygen or intubation.
6. Bolus IV fluid should be given as quickly as possible, ideally in less than ten minutes.
7. Do not give IV fluid bolus prior to medical command if the patient has rales or significant pitting edema.
8. Some recommendations suggest using dobutamine for mild shock (SBP 70-90) and dopamine for severe shock (SBP< 70). Use microdrip (60 gtts/ml) tubing for dobutamine drip. A possible concentration for dopamine and dobutamine is 400mg in 250 ml NSS, start at a drip rate of 30 drops per minute and titrate to SBP > 100 mmHg. **DO NOT EXCEED 60 gtts/min (or 20 mcg/ min) WITHOUT ORDER FROM MEDICAL COMMAND.**
9. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference.
10. If unable to obtain peripheral intravenous (IV) access, place either an intraosseous (IO) line. Once established, the IO replaces the IV line as the primary route of administration for fluid and medications.

SHOCK
EMMCO WEST ALS PROTOCOL



STROKE
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patients may have the following clinical symptom(s):

1. Altered level of consciousness
2. Impaired speech
3. Unilateral weakness / hemiparesis
4. Facial asymmetry / droop
5. Headache
6. Poor coordination or balance
7. Partial loss of peripheral vision
8. Vertigo

B. **CAUTION:** Respiratory and cardiovascular abnormalities may reflect increased intracranial pressure. Vigorous lowering of the blood pressure may be dangerous.

Exclusion Criteria:

A. Consider hypoglycemia, trauma, and other etiologies that can cause focal neurological symptoms that mimic stroke, and follow applicable protocol if appropriate.

System Requirements:

A. ALS Services using glucose testing devices must follow CLIA rules, must train all ALS practitioners to use the glucose meters as recommended by the manufacturer, and must keep documentation of regular testing, at the interval recommended by the manufacturer, to validate and/or calibrate the device.

Procedure:

A. All Patients:

1. See accompanying flow chart.

Possible MC Orders:

A. Transport to a receiving hospital that is not the usual or closest hospital because the medical command physician has knowledge that another facility is able to better treat an acute stroke within a critical time window.

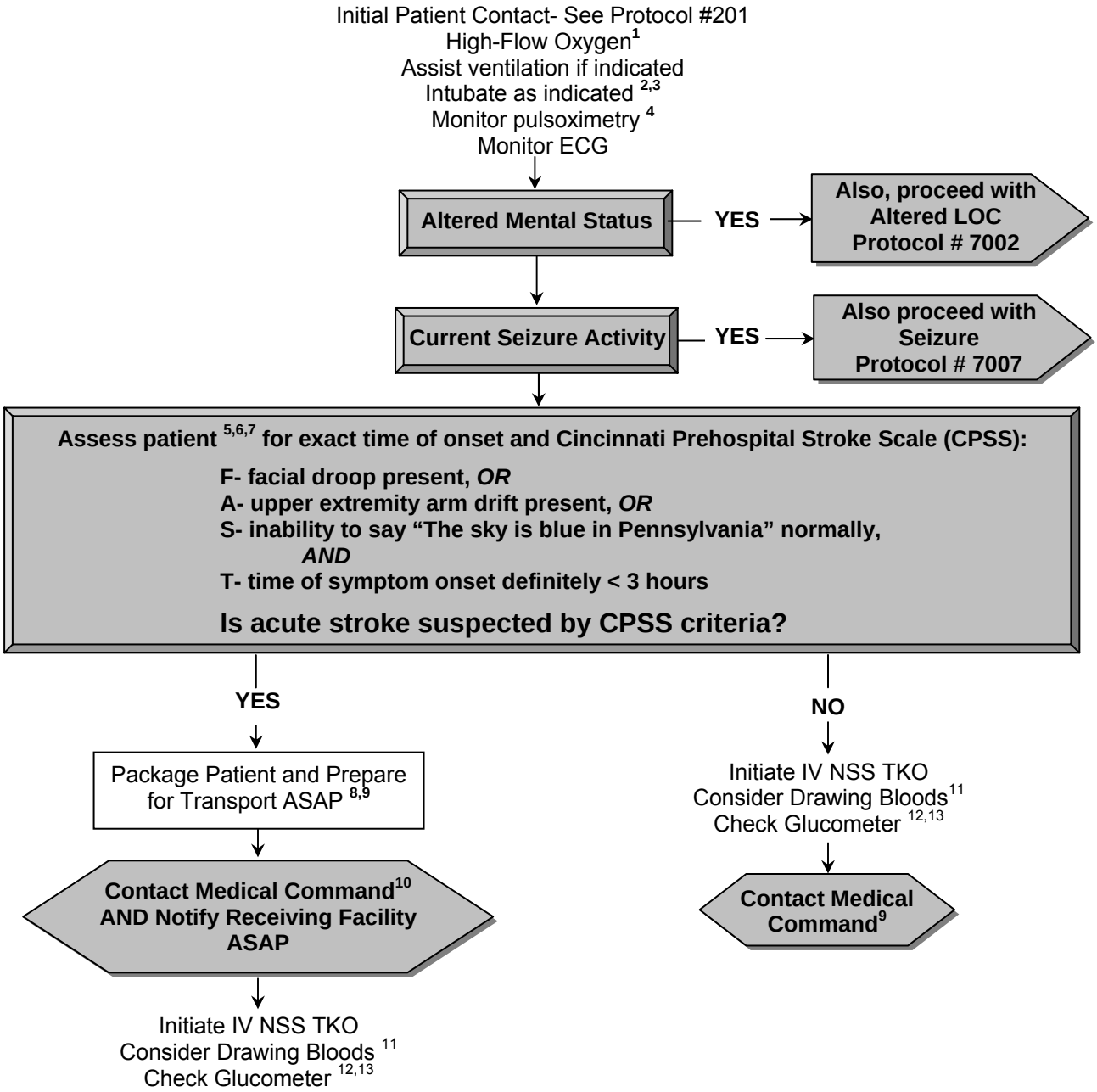
Notes:

1. Apply oxygen by appropriate method to maintain SaO2 $\geq$ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is $\geq$ 95%.
2. Confirm and document tube placement with auscultation and $ETCO_2$ detector / secondary device- Follow Confirmation of Airway Placement Protocol # 2032
3. If unable to intubate on up to 3 attempts, consider Combitube airway.
4. See Pulsoximetry protocol # 226. Pulsoximetry must not delay the application of oxygen. Record SpO2 after administration of oxygen or intubation.
5. Neurological examination includes level of consciousness, Glasgow Coma Scale, pupils, individual limb movements, and Cincinnati Prehospital Stroke Scale.
6. Attempt to identify the precise time of the onset of the patient's first symptoms. The time of onset is extremely important information, and patient care may be different if patient can be delivered to a receiving hospital capable of treating acute strokes within 3 hours from onset of symptoms. Time is based upon the last time that the patient was witnessed to be normal. (If the patient awoke with his/her symptoms, then the symptom onset is not considered to be < 3 hours.)
7. **Cincinnati Prehospital Stroke Scale**. If any of the following is **abnormal** and **new** for the patient, he/she may have an acute stroke:
   a. Facial Droop (patient smiles or shows teeth) - abnormal if one side of the face does not move as well as the other.
   b. Arm Drift (patient holds arms straight out in front of him/her and closes eyes) – abnormal if one arm drifts down compared with the other.
   c. Speech (patient attempts to say "The sky is blue in Pennsylvania") – abnormal if patient slurs words, uses inappropriate words, or can't speak.

8. Transport and Medical Command contact should not be delayed by attempts to initiate IV. IV access should be performed after notifying receiving hospital and can be done enroute.
9. In rural areas, if patient can be delivered by air (but not by ground) to receiving facility within 3 hours of symptom onset, consider contact with medical command for assistance in deciding upon the utility of air medical transport.
10. Contact Medical Command for all patients with acute CPSS symptoms that have onset within 3 hours of estimated arrival at the receiving facility, so the receiving hospital can be notified to prepare for the patient's arrival. Describe to the Medical Command Physician your findings, including CPSS results. Medical command may order transport to a facility other than the closest facility if another center is better prepared to evaluate and treat an acute stroke.
11. Before administering glucose, blood should be drawn in red top tube for analysis at the hospital unless the patient is a known diabetic who takes insulin or oral diabetic medications (e.g. micronase, glyburide, glucophage, etc…).
12. If Glucometer < 60 mg/dl, give 50% dextrose 25 gm. IV.
13. If using a Glucometer, follow the manufacturer's directions.

Performance Parameters:

A. Review on scene time for all cases of suspected stroke with time of symptom onset less than 3 hours from time of EMS arrival. Consider benchmark of on scene time ≤ 10 minutes.



SEIZURE
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patients who are actively seizing with generalized clonic-tonic seizure. Indicators of seizures requiring treatment include:
1. two or more consecutive seizures without return of consciousness between episodes.
2. ongoing seizure for more than 4 minutes.
3. seizures associated with hypoxia.

B. Patients who have had tonic-clonic seizure activity prior to EMS arrival.

Exclusion Criteria:

A. Patients who do not have a known history of seizure disorder and who are postictal following a single seizure- Follow Altered Level of Consciousness Protocol # 7002.

B. Patients who are postictal following a single seizure and have history or evidence of trauma - Follow Multisystem Trauma or Traumatic Shock Protocol # 6002 or Head Injury Protocol # 611, as indicated.

System Requirements:

A. ALS Services using glucose testing devices must follow CLIA rules, must train all ALS practitioners to use the glucose meters as recommended by the manufacturer, and must keep documentation of regular testing, at the interval recommended by the manufacturer, to validate and/or calibrate the device.

B. Services that carry lorazepam as an anticonvulsant must follow the Department's recommendations related to relabeling the expiration date to assure that the medication is discarded in the required time intervals. This medication does not maintain its activity until its expiration date when it is not refrigerated.

Treatment:

A. See accompanying flow chart.

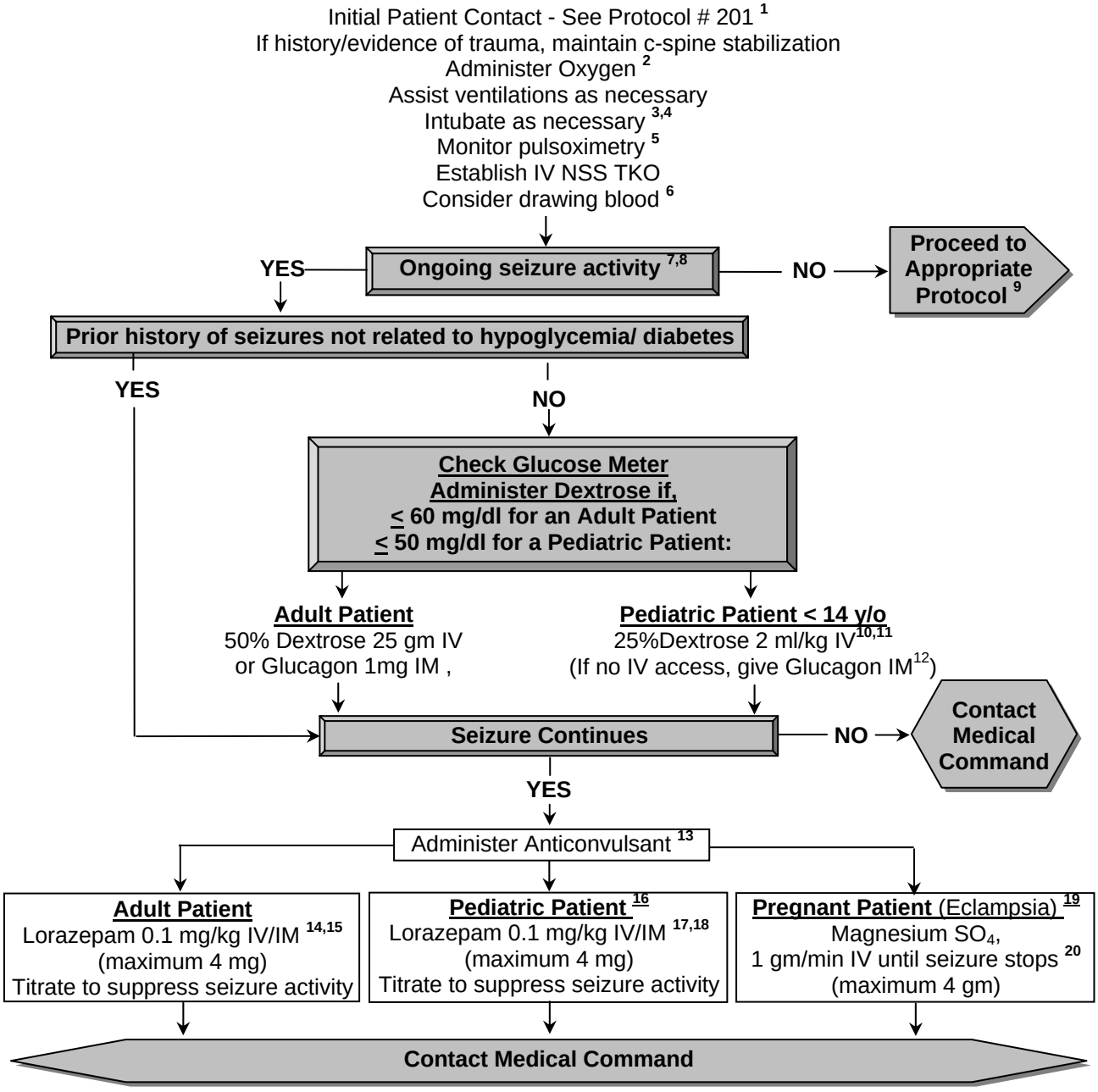
Possible MC Orders:

A. May order additional doses of benzodiazepine.

Notes:

1. Determine (if possible):
   a. Type of seizure:
      - Generalized
      - Focal
   b. Stage of seizure:
      - Active
      - Postictal
   c. Cause of seizure:
      - Infections
      - Drug overdose
      - Metabolic
      - Hypoxia
      - Toxins
      - Stroke
      - Traumatic
      - Vascular
      - Alcohol withdrawal
      - Non-compliance with medications
2. Apply oxygen by appropriate method to maintain SaO2 $\geq$ 95%. If patient cannot tolerate mask, Oxygen may be given by nasal cannula if SaO2 is $\geq$ 95%. Patients with ongoing seizure activity should receive high-flow oxygen.
3. Confirm and document tube placement with auscultation and $ETCO_2$ detector / secondary device - Follow Confirmation of Airway Placement Protocol # 2032
4. If unable to intubate on up to 3 attempts, consider Combitube airway.
5. See Pulsoximetry protocol # 226. Pulsoximetry must not delay the application of oxygen. Record SpO2 after administration of oxygen or intubation.
6. Blood should be drawn in red top tube for analysis at the hospital unless the patient is a known diabetic who takes insulin or oral diabetic medications (e.g. micronase, glyburide, glucophage, etc…), has a known history of seizure disorder, or has ongoing seizure activity that prohibits blood draw.
7. Prevent patient from sustaining physical injury.
8. If seizing, ECG and pulsoximeter monitoring may be delayed until seizure activity has ceased.
9. Patients with a known seizure disorder who are postictal following a *single* seizure should be managed to the point of IV initiation. Then, transport and Contact Medical Command as indicated. Patients with no known seizure history and who are postictal following a *single* seizure, proceed to appropriate (adult or pediatric) Altered Level of Consciousness Protocol # 7002. For patients with history/evidence of trauma who are postictal following a *single* seizure, proceed to appropriate Trauma Protocol.
10. If IV is not obtainable, IM and rectal alternatives should be used. Intraosseous (IO) line should only be considered if the pediatric seizure patient presents with severe respiratory compromise.
11. 50% Dextrose may be diluted 1:1 with NSS to administer 25% Dextrose

12. Glucagon dosage
    a. 1 mg IM if patient is ≥ 20 kg or 5 y/o
    b. 0.5 mg IM if patient is < 20 kg or 5 y/o
13. Regions or ALS service medical directors, with regional permission, may mandate the anticonvulsants that are to be used for primary treatment of seizures and alternatives to the primary treatment when IV access has not been obtained.
14. Alternatively, administer diazepam 5-10 mg IV.
15. If IV is not obtainable, administer midazolam 5 mg IM, if available.
16. On pediatric patients, it is strongly recommended to utilize a Broselow Tape or other similar commercially available reference.
17. Alternatively, administer diazepam 0.3 mg/kg IV, maximum 10 mg dose.
18. If IV is not obtainable, administer diazepam 0.5 mg/kg rectally or midazolam 0.15 mg/kg IM, if available.
19. Seizures related to eclampsia can occur in the third trimester or can even occur days or weeks after delivery. Eclampsia should be considered in pregnant or post-partum women who have a new onset seizure without prior history of seizure disorder or who have a history of preeclampsia or hypertension associated with the pregnancy.
20. If eclampsia seizure does not stop after 4 gm of magnesium, administer diazepam 5-10 mg IV or lorazepam 0.1 mg/kg IV/IM (maximum does of 4 mg).



SERIOUSLY ILL APPEARING PATIENT
EMMCO WEST ALS PROTOCOL

Criteria:

A. Any situation, not covered under another existing protocol, in which the practitioner determines that the patient is potentially seriously ill with a condition that may suddenly deteriorate, necessitating the administration of medications or fluids.

Exclusion Criteria:

A. Patient is stable and no ALS intervention is anticipated.

Treatment:

A. Initial Patient Contact- See Protocol # 201

B. Initiate IV access with heparin lock or with NSS at KVO[1]
1. If signs of hypoglycemia, check blood glucose- See Altered Mental Status Protocol # 7002A or 7002P if hypoglycemia
   a. Adults < 60 mg/dl glucose
   b. Children < 50 mg/dl glucose
2. Consider obtaining blood samples

C. Reassess patient as indicated.

D. Contact Medical Command if indicated

Notes:

1. Every puncture of the skin with an IV needle/catheter will be considered to be an IV attempt, and the number of attempts (unsuccessful and successful) must be documented. The ALS Service Medical Director may limit the number of intravenous attempts by written policy.

Performance Parameters:

A. Review for stable patients with no indication for necessity of initiating IV access.

A. Review for specific documentation of need for IV.

NAUSEA / VOMITING
EMMCO WEST ALS PROTOCOL

Criteria:

A. Adult patient with severe nausea or vomiting including one of the following:
1. Current nausea in patient that desires antiemetic
2. Lightheadedness or weakness after multiple episodes of vomiting.

Exclusion Criteria:

A. Patient is stable and no ALS intervention is anticipated.

B. Hypotension- See Shock protocol

C. Altered mental status – See Altered Mental Status protocol

Treatment:

A. Initial Patient Contact - See Protocol # 201

B. Initiate IV access with heparin lock or with NSS at KVO
1. If h/o diabetes or signs of hypoglycemia, check blood glucose. Follow Altered Mental Status Protocol # 7002A or 7002P if hypoglycemia:
   a. Adults < 60 mg/dl glucose
   b. Children < 50 mg/dl glucose
2. Consider obtaining blood samples

C. If severe nausea / vomiting:
1. Administer NSS bolus of 20 ml/kg
2. Administer phenergan (if available) 12.5 mg IV slowly. [1,2,3]

   WARNING: Phenergan should never be administered to patients < 2 y/o.

D. Reassess patient as indicated.

E. Contact Medical Command if indicated

Notes:

1. Phenergan is contraindicated if patient has hypotension, decreased LOC, allergy to phenergan or other phenothiazines..
2. Contact Medical Command before administration to any patient less than 14 y/o or any patient with a head injury. Phenergan should never be administered to patients < 2 y/o.
3. Contact Medical Command if patient develops restlessness, or muscle rigidity. Diphenhydramine may be indicated if patient develops these symptoms of dystonia.

Performance Parameters:

A. Review for stable patients with no indication for necessity of initiating IV access.

POST-PARTUM HEMORRHAGE
EMMCO WEST ALS PROTOCOL

Criteria:

A. Excessive uterine bleeding after delivery of neonate (continued steady flow of bright red blood)

B. Uterine bleeding and signs of hypoperfusion after delivery of neonate

Exclusion Criteria:

A. Patient known to be pregnant with multiple fetuses (more than delivered) or patient who is unsure that she is not pregnant with multiple fetuses.

Treatment

A. **All patients**

1. Follow Emergency Childbirth Protocol – see Protocol # 781.
    a. Assure that all fetuses have been delivered.
2. Administer high-flow oxygen.
3. Assess uterine tone and firmly massage the uterus.
4. Monitor pulse oximetry.
5. Initiate IV NSS, 500 ml bolus.
6. Contact Medical Command.

Possible MC Orders:

A. Oxytocin IV infusion, 10 units / 1000 ml NSS at wide-open rate. [Optional]

NEWBORN / NEONATAL CARE
EMMCO WEST ALS PROTOCOL

Criteria:

A. Newborn infant patient

Exclusion Criteria:

A. None

Procedure

A. See accompanying flow chart.

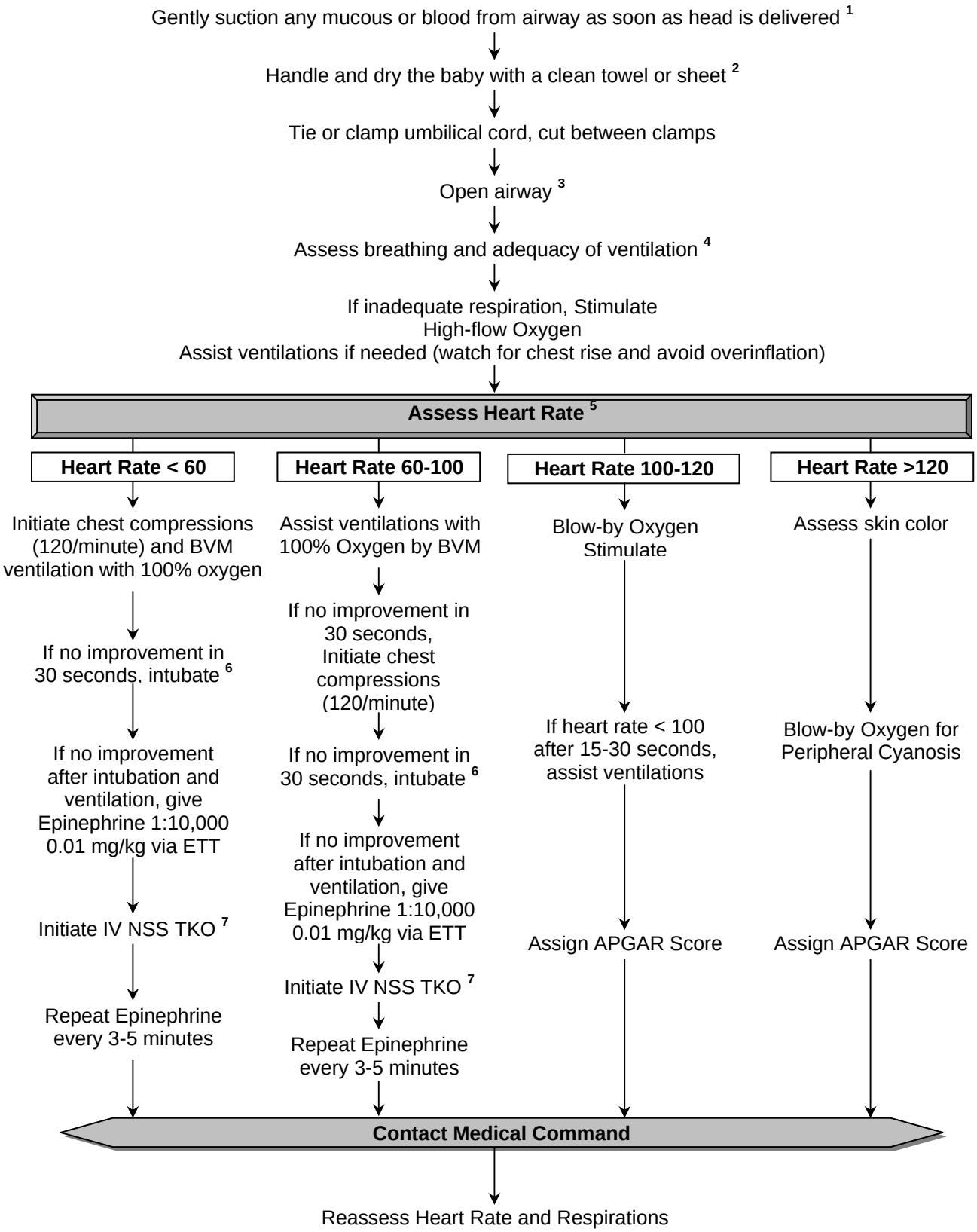
Notes:

1. Most newborns will clear their own airways. However, many need help. If suctioning, be *gentle*. Vigorous suctioning will cause bradycardia. Suction the mouth first and then the nose.
2. Wet babies are slippery and cool down quickly. Handling this way prevents hypothermia and provides a better hold on the infant. Position the infant supine or on side with the neck in a neutral position; overextension or flexion may cause airway obstruction.
3. If thick or particulate meconium is present, intubate and initiate endotracheal suctioning before the infant takes its first breath, if possible. Utilize a meconium suction adapter and suction while withdrawing the endotracheal tube. Repeat suctioning until endotracheal tube is clear of meconium. Closely monitor heart rate. If heart rate drops, ventilate with 100% oxygen and a bag-valve-mask.
4. Adequate respirations are characterized by crying or good respiratory effort (rate ~ 40). Slow or gasping respirations, apnea, central cyanosis and bradycardia (HR < 100) all suggest hypoxia and reflect a need for bagging the infant with 100% oxygen.
5. The need for further intervention will depend upon the newborn's response to adequate ventilations. Assess heart rate by auscultation, palpation of either the chest wall or the umbilical stump.
6. Confirm and document endotracheal tube placement with Pediatric-$ETCO_2$ detector. Listen for and document equal bilateral breath sounds in the chest and an absence of sounds over the epigastrium.
7. If unable to obtain intravenous (IV) access, place an intraosseous (IO) line. Once established, the IO line replaces the IV line as the primary route of administration for fluid and medications.

APGAR SCORING CHART			
Clinical Signs	**Zero**	**One**	**Two**
A = Appearance (Color)	Blue, pale	Body pink, Extremities blue	All pink
P = Pulse (Heart Rate)	Absent	< 100	> 100
G = Grimace (Reflex Response) [i, ii]	No response	Grimace	Cough, sneeze
A = Activity (Muscle Tone)	Limp	Some flexion of arms and/or legs	Well flexed
R = Respiratory effort	Absent	Weak cry Hypoventilation	Strong cry

[I] Tangential foot slap [II] Response to catheter in nostril (tested after pharynx is cleared)

NEWBORN / NEONATAL CARE
EMMCO WEST ALS PROTOCOL



AGITATED BEHAVIOR / PSYCHIATRIC DISORDERS
EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient with a psychiatric or behavioral disorder who is at imminent risk of self-injury or is a threat to others.

OR

A. Patient with a medical condition causing agitation and possibly violent behavior. Examples of these conditions are:

1. Alcohol or drug (e.g. PCP, methamphetamine, cocaine) intoxications
2. Hypoglycemia
3. Stroke
4. Drug overdose
5. Post-ictal after seizure Head trauma

Treatment:

A. All Patients

1. Follow BLS Agitated Behavior/ Psychiatric Disorders Protocol # 801.
   a. Attempt to establish rapport with patient using verbal de-escalation techniques.[1]
   b. Physically restrain patient, if indicated, using procedure in Protocol # 801. [2]
   c. Assess for possible underlying medical conditions such as hypoglycemia, drug overdose, trauma, hypoxia, or post-ictal from seizure.
      1) If present, use the applicable protocol.
2. Contact Medical Command [3]
3. Lorazepam 2 mg IM **/** IV (or diazepam 10 mg IM **/** IV) [4]
4. Monitor continuous ECG and pulsoximetry

Possible Medical Command Orders:

A. Additional benzodiazepine

Notes:

1. Interview techniques: Direct, empathetic and calm. Assure patient of their safety. Assure patient comfort. Present clear limits and options. Respect personal space. Avoid prolonged eye contact. Non-confrontational posture.
2. See BLS Agitated Behavior/ Psychiatric Disorders Protocol # 801 for procedure for patients that require physical restraint. Maintain patient dignity, assure adequate personnel, restrain patient supine on stretcher, use soft restraints, monitor patient's respiratory effort, and frequently evaluate circulation to extremities.
3. Do not permit patient to continue to struggle against restraints. This can lead to severe rhabdomyolysis and acidosis. Medical command should be contacted for possible chemical restraint with sedative medication.
4. If age >65, reduce doses to lorazepam 1 mg and diazepam 5 mg.

Performance Parameters:

A. Review every case of chemical restraint for documentation of physical restraint procedure, monitoring of respiratory effort, assessment of extremity neurovascular status every 15 minutes, and contact with medical command for chemical sedation if struggling against restraints.

POISONING/TOXIN EXPOSURE (INGESTION / INHALATION / ABSORPTION / INJECTION) EMMCO WEST ALS PROTOCOL

Criteria:

A. Patient who has accidentally or purposefully been exposed to toxic substances. Including:
   1. **Ingested toxins**
      a. For example pills, capsules, medications, recreational drugs, poisonous plants, strong acids or alkali household or industrial compounds
   2. **Inhaled toxins**
      a. For example carbon monoxide and other toxic gases
   3. **Absorbed toxins**
      a. For example substances on skin or splashed into eyes
   4. **Injected toxins**
      a. For example snake bites or substances injected through the skin

Exclusion Criteria:

A. Patient with altered level of consciousness- follow Protocol # 702.

B. Patient with exposure to organophosphate pesticide or nerve agent – follow Nerve Agent Exposure Protocol # 8083.

C. Patient with exposure to cyanide – follow Cyanide Exposure protocol # 8081.

Treatment:

A. **All patients:**
   1. Initial Patient Contact – see Protocol # 201.
      a. **WARNING: EMS personnel must not enter confined spaces with potential toxic gases (e.g. manure pits, silos, spaces with carbon monoxide, spaces with industrial gases) unless personnel have proper training and PPE.**
      b. If toxic exposure/ overdose is the result of intentional behavior - also see Agitated Behavior / Psychiatric Disorders protocol # 801. [1]
   2. Maintain adequate airway.
   3. Administer oxygen to maintain $SAO_2 \geq 95\%$ (High concentration oxygen if suspected carbon monoxide poisoning, respiratory distress, or cough).
   4. Monitor pulsoximetry. [2]
   5. Determine:
      a. **What** – identify specific toxin and amount, if possible.
         1) If possible, safely transport source of toxin (e.g. prescription pill bottles) with patient to receiving facility.
         2) EMS services should not transport dangerous items (e.g. toxic chemicals that are not sealed in their original containers, live snakes, etc….)
      b. **When** – identify time of exposure, if possible.
      c. **Why** – identify reason for exposure, if possible.
      d. **Where** – identify environmental site issues (e.g. exposure in a confined space or carbon monoxide present).
   6. Treat specific toxins based upon the appropriate category:
      a. **Ingested Toxins.** Treat all exposures as follows:
         1) **DO NOT INDUCE VOMITING.**
         2) Contact Poison Control Center or Medical Command for possible order for activated charcoal.[3,4,5]
         3) Initiate IV NSS KVO if patient has symptoms.
            a) If hypotensive, administer 500 ml NSS wide open (Peds - 20ml.kg wide open) [6]
         4) Check blood glucose- treat hypoglycemia per Altered Mental Status Protocol # 7002A or 7002P.
         5) Monitor ECG
      b. **Inhaled Toxins.** Treat all symptomatic (e.g. SOB, cough, headache, decreased LOC) patients as follows:
         1) Only personnel with proper training and wearing proper PPE should enter environments that may have toxic gases.
         2) Remove patient from environment.
         3) Ventilate with BVM, if needed.
         4) Intubate if indicated.
         5) Administer 100% oxygen.

6) Initiate IV NSS KVO
   a) If hypotensive, administer 500 ml NSS wide open (Peds - 20 ml/kg wide open).
7) Monitor ECG and pulsoximetry
   a) **WARNING: Pulsoximetry monitors give false readings in patients that have been exposed to carbon monoxide or cyanide, and these devices should never be used in these patients**.

c. **For Absorbed Toxins:**
1) Remove contaminated clothing.
2) Flush affected area copiously:
   a) Liquid substance - Irrigate with copious amounts of room temperature water. Do not contaminate uninjured areas while flushing.
   b) Dry substances - With gloves and appropriate PPE, brush remaining powder from skin and clothing, then irrigate with copious amounts of water.[7]
   c) Eyes - Flush affected eyes continuously with water of saline if eye exposure.

d. **For Injected Poisons/ Snakebite:**
1) Identify type of snake or animal (e.g. scorpion), if safe and possible. If identity of a snake is not known, all victims of snakebite should be treated as if the snake is poisonous. Do not delay transport or endanger individuals by attempting to capture or kill a snake.
2) Calm patient.
3) Administer high-flow oxygen, if respiratory symptoms are present.
4) Remove jewelry and tight clothing.
5) Consider immobilizing the involved body part. If extremity involved, keep the extremity below the level of the patient's heart.
6) Keep the patient as still as possible to reduce the circulation of the venom. Carry patient for transport, if possible.
7) Apply constricting band proximal to bite if patient is hypotensive. **DO NOT APPLY TOUNRIQUET.**
8) **DO NOT APPLY ICE.**

7. Initiate IV NSS KVO and draw blood (including tubes for type and cross (if available)
   a. If hypotensive, administer 500 ml NSS (Peds - 20 ml/kg wide open) [6]
8. Transport.
9. Monitor ECG, pulsoximetry, vital signs and reassess.
10. Contact Medical Command.

Possible Medical Command Orders:

A. Administration of activated charcoal may be ordered [4,5]:
   1. **Adults:** 25 - 50 gm orally of pre-mixed activated charcoal.
   2. **Children:** 1 gm/ kg orally or approximately 12.5 - 25 gm orally of pre-mixed activated charcoal.

B. If tricyclic antidepressant overdose and patient hypotensive, may order sodium bicarbonate.

C. If calcium channel blocker or beta-blocker overdose and hypotensive, may order calcium chloride (if available) or glucagon

D. If dystonic reaction, may order diphenhydramine.

E. If suspected asphyxiation from hydrogen sulfide (e.g. in manure pit), may order sodium thiosulfate (if available).

Notes:

1. Patients who have ingested a toxic substance with suicidal intent may not refuse transport. See Refusal of Treatment/Transport protocol # 111.
2. See Pulsoximetry protocol # 226. Pulsoximetry is not accurate in patients with suspected exposure to carbon monoxide or cyanide and shall not be used in these situations.
3. National **Poison Control Center telephone number is 800-222-1222**. EMS personnel must follow instructions from Poison Control Center unless the orders are superceded by orders from a medical command physician. These instructions must be documented on the PCR. Poison Control Center should only be contacted for stable patients with minor ingestions. Medical Command should be contacted for patients who are likely to require transportation to a hospital.
4. Activated charcoal may only be given by order of medical command or poison control.
5. Contraindications to charcoal:
   a. Patient unable to swallow / protect airway.
   b. Seizures.

c. Hydrocarbons ingestion (e.g. turpentine)
d. Caustic substance ingestion (e.g. liquid drain cleaner or milk pipe cleaner)

6. If unable to obtain IV access, place an intraosseous (IO) line. Once established, the IO line replaced the IV line as the primary route of administration for fluid and medications.
7. Note - some substances, like dry lime will cause a heat-producing reaction when mixed with water. Copious water should be available before beginning to irrigate.

Performance Parameters:

A. Review for documentation of orders received from Poison Control Centers or Medical Command.

MEDICAL COMMAND CONTACT/ EMS NOTIFICATION
EMMCO WEST ALS PROTOCOL

Purpose of Medical Command contact:

A. By the Pennsylvania EMS Act and its regulations, EMS personnel will provide care within their scope of practice and will follow Department of Health-approved protocols or Medical Command orders when delivering EMS care.

B. Medical Command must order any ALS treatment (medication or procedure) that an EMS practitioner provides when that treatment is not included in or is a deviation from the Department-approved protocols. This applies to all ALS care, including interfacility transport.

C. In certain circumstances, as defined by the Statewide BLS Protocols, medical command must be contacted by EMS (BLS or ALS) personnel.

D. Protocols cannot adequately address every possible patient scenario. The Pennsylvania EMS System provides a structured Medical Command system so that EMS personnel can contact a Medical Command Physician when the personnel are confronted with a situation that is not addressed by the protocols or when the EMS personnel have any doubt about the appropriate care for a patient.

E. In some situations and geographic locations, it is not possible for an EMS practitioner to contact a medical command physician. In some protocols, there are accommodations for additional care when a medical command facility cannot be contacted.

F. The protocol section entitled “Possible Medical Command Orders” are intended to educate EMS practitioners to the possible orders that they may receive, and to guide medical command physicians when giving orders to EMS practitioners. **Interventions listed under “Possible Medical Command Orders” may ONLY be done when they are ordered by a medical command physician. These possible treatments should not be done in situations where medical command cannot be contacted.**

G. Contact with medical command may be particularly helpful in the following situations:

1. Patients who are refusing treatment
2. Patients with time-dependent illnesses or injuries who may benefit from transport to a specific facility with special capabilities (e.g. acute stroke, acute ST-elevation MI)
3. Patients with conditions that have not responded to the usual protocol treatments.
4. Patients with unusual presentations that are not addressed in protocols.
5. Patients with rare illnesses or injuries that are not frequently encountered by EMS personnel.
6. Patients who may benefit from uncommon treatments (e.g. unusual overdoses with specific antidotes).

H. EMS Service Medical Directors may require more frequent contact with medical command than required by protocol for ALS personnel who have restrictions on their medical command authorization. EMS Service Medical Directors that want medical command to be contacted on every call must do this in conjunction with local medical command facilities or within a regional plan.

Purpose of facility "EMS Notification":

A. If a patient's condition has improved and the patient is stable, interventions from a medical command physician are rarely needed, and contact with the medical command physician is disruptive to the physician's care of other patients.

B. When medical command is not required or necessary, the receiving facility should still be notified if the patient is being transported to the Emergency Department. This "EMS notification" should be provided to the facility by phone or radio, and may be delivered to any appropriate individual at the facility.

C. An "EMS Notification" should be a short message that includes the EMS service name or designation, the patient age/gender, the chief complaint or patient problem, and whether the patient is stable or unstable.

D. "EMS Notification" is not necessary when a patient is not being transported to the receiving facilities Emergency Department (e.g. Inter-facility transfer to an acute care facility when the patient is a direct admission to an inpatient floor).

E. Providing "EMS Notification" to the ED may allow a facility to be better prepared for a patient arriving by ambulance and may decrease the amount of time needed to assign an ED bed to an arriving patient.

Policy:

A. See accompanying flowchart.

Notes:

1. You may contact medical command regardless of your position in the protocol if you need advice or direction in caring for the patient. Medical command should be contacted for orders if a patient requiring interfacility transport needs a medication/ treatment that are not included above the contact medical command line in any Department-approved protocol.
2. When in doubt, contact medical command.
3. For example, a patient with chest pain may have almost complete resolution of pain after oxygen, aspirin, and several nitroglycerines AND may have normal vital signs.
4. Regional policy may determine the preferred method of medical command contact/ EMS notification.
5. Cellular technology may be utilized but all EMS services must maintain the ability to contact medical command by radio also.
6. **If the receiving facility is also a medical command facility, the initial medical command contact should be made to the receiving facility.** If the receiving facility cannot be contacted, and alternate facility may be contacted. The medical command physician at the alternate facility is responsible for relaying the information to the receiving facility of the patient condition.
7. Procedures or treatments listed after the medical command box may be considered and performed at the discretion of the ALS practitioner if unable to contact medical command if the ALS practitioner believes that these treatments are appropriate and necessary.
8. Attempts to contact medical command must be documented on the PCR, and the practitioner should document the reasons for continuing with care below the medical command box. Only mark the Medical Command section of the PA PCR if you sought Medical Command.
9. Every time medical command was contacted, the EMS practitioner must document the medical command facility, the medical command physician, and the orders received.
10. If patient condition worsens after EMS notification, contact medical command.

Performance Parameters:

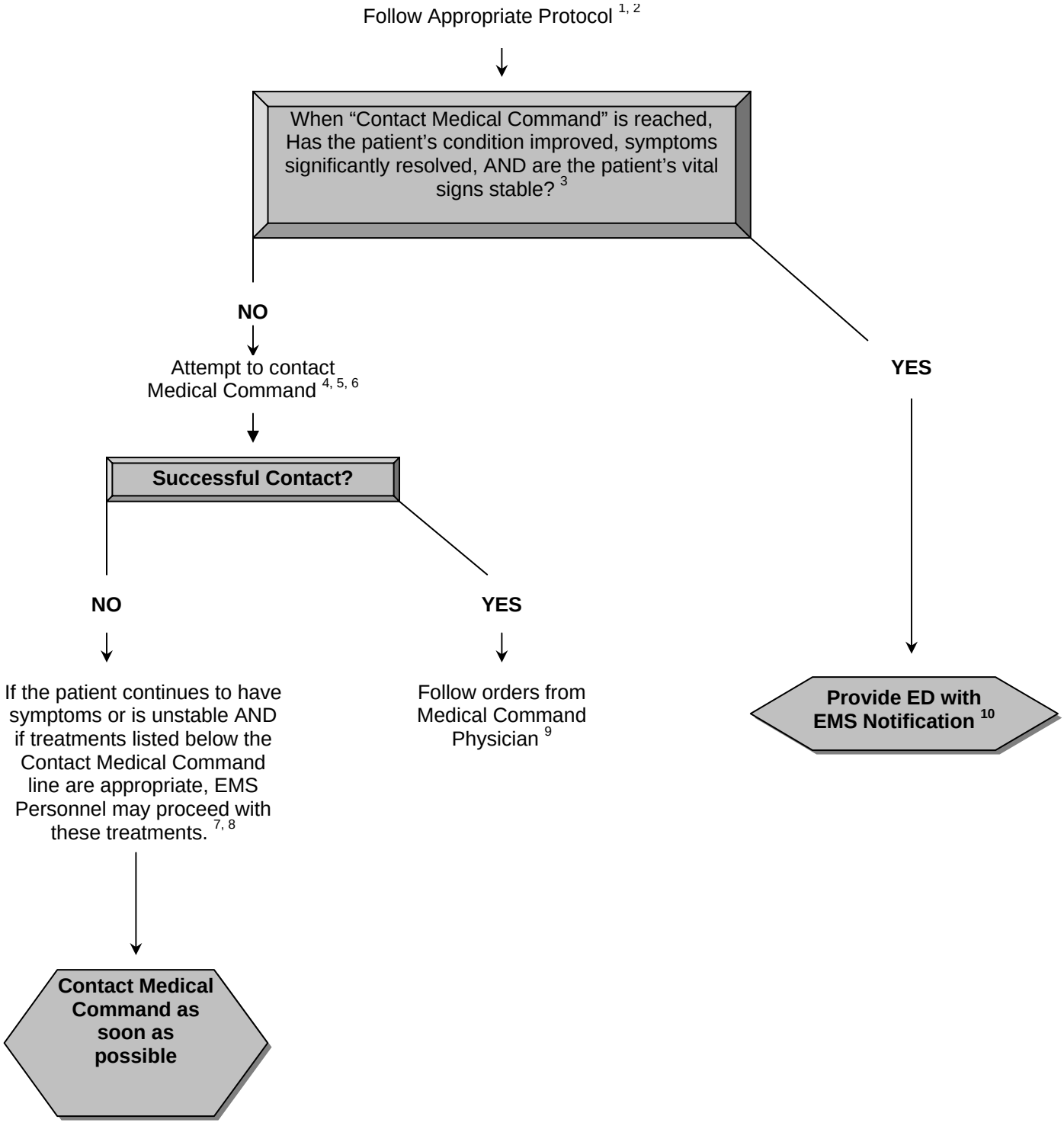
A. 100% audit of cases where treatments beyond the "contact medical command" box were performed after unsuccessful contact with medical command.

B. Documentation of medical command facility contacted, medical command physician contacted, and orders received in every case where medical command is contacted.

C. Review of cases for appropriate contact with medical command when required by certain protocols (e.g. acute stroke symptoms, refusal of treatment, etc…), when patient's condition does not improve with protocol treatment, and when patient's are unstable.

D. Review of cases for appropriate use of EMS notification, and inappropriate use of medical command contact for stable patients whose symptoms were alleviated by protocol treatments.

MEDICAL COMMAND CONTACT/EMS NOTIFICATION
EMMCO WEST ALS PROTOCOL



EMMCO West, Inc.
Regional EMS Council
ALS Drug List

Required ALS Medications	(Trade Names in *Italics)*
Activated Charcoal	*Actidose, Actidose-Aqua, InstaChar, LiquiChar*
Albuterol	*Proventil, Ventolin*
or Alupent	*Metaproteranol*
or Ipratropium/Albuterol combination	*Atrovent/Albuterol*
Aspirin (Baby)	
Atropine	
Diazapam	*Valium, Zetran*
or Lorazepam	*Ativan, Novo-Lorazepam*
or Midazolam	*Versed*
Diphenhydramine	*Benadryl*
Dopamine	*Intropin*
Epinephrine (1:1,000 and 1:10,000)	*Adrenaline, Epinephrine*
Furosemide	*Lasix*
Glucagon	*GlucaGen*
Glucose (Oral or Injectable)	
IV Crystalloid Fluid (*Normal Saline Solution)*	
Lidocaine	*Xylocaine*
Magnesium Sulfate	*Magnesium*
Morphine Sulfate	*Morphine, Roxanol, Duramorph, Astramorph*
Naloxone	*Narcan*
Nitroglycerin (Tablets or Spray)	*Nitro-bid,Nitrogard,Nitrostat,Nitrol,Nitro-Dur*
Oxygen	
Sodium Bicarbonate	

Optional ALS Medications	(Trade Names in *Italics)*
Adenosine	*Adenocard*
Amiodarone	*Cordarone, Pacerone*
Calcium Chloride	
Diltiazem	*Cardizem, Dilacor, Tiazac*
Dobutamine	*Dobutrex*
Fentanyl Citrate	*Sublimaze*
Methylprednisolone	*A-MethaPred, Solu-Medrol*
Oxytocin	*Oxytocin, Pitocin, Syntocinon*
Promethazine	*Phenergan, Anergan, Pentazine, Prorex*