Pennsylvania Statewide

Intermediate Advanced Life Support Protocols

Pennsylvania Department of Health
Bureau of Emergency Medical Services

2023

pennsylvania
DEPARTMENT OF HEALTH

(717) 787-8740

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Dear EMS Provider:

The Bureau of EMS, Department of Health, is pleased to provide these updated "Statewide IALS Protocols" to the EMS providers of Pennsylvania.

This 2021 update contains many important changes, but some of the highlights include new protocols:

- 1101i IALS Release to BLS

Pennsylvania has used Statewide IALS Protocols since July 1, 2015, and this edition is an update to the version that has been in effect since September 1, 2020. To assist IALS providers when reviewing the changes, new sections of the protocols that correspond to this 2020 version are identified with yellow highlighting, and sections that have been removed are struck through and highlighted. IALS providers may use this 2020 version of the statewide IALS protocols as soon as they are educated to the changes, but all providers functioning as an IALS must use these protocols by the effective date of January 1, 2024.

EMS providers 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. Each EMS provider 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. All providers have an equal and shared responsibility to care for and treat all patients.

To assist providers in becoming familiar with the changes to the protocols, a continuing education presentation is available to regions and agencies. This update is available for in-person presentations, or the course can be completed on TRAIN PA, the on-line Learning Management System (LMS).

The 2023 IALS Protocol Update (BEMS course # 1000058615) will be considered a core requirement for all levels of EMS providers that register their certification during the current time period.

It is essential that EMS agencies and regions that utilize IALS ambulances work with their county PSAPs and dispatch centers to ensure that the expansion of this level of care does not keep ALS agenciess from being dispatched to appropriate calls. For example, an IALS agency with a provider functioning at the IALS level may be appropriate for a diabetic patient

with altered mental status, but the additional interventions of an ALS agency should be dispatched to other patients with altered level of consciousness. EMS agencies providing IALS should work in conjunction with their PSAP and local ALS agenciess to ensure the best care for their patients.

When providing patient care under the EMS Act, EMS providers of all levels must follow applicable protocols. Since written protocols cannot feasibly address all patient care situations that may develop, the Department expects EMS providers to use their training and judgment regarding any protocol-driven care that would be harmful to a patient. **When the provider believes that following a protocol is <u>not</u> in the best interest of the patient, the EMS provider 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 providers are expected to deliver care within the scope of practice for their level of certification.

The Department of Health's Bureau of EMS website will always contain the most current version of the EMS protocols, the scope of practice for each level of provider, important EMS Information Bulletins, and many other helpful resources. This information can be accessed online at www.health.pa.gov. The Statewide IALS Protocols may be directly printed or downloaded into a mobile device for easy reference.

The Department is committed to providing Pennsylvania's EMS providers with the most up-to-date protocols, and to do this requires periodic updates. The protocols will be reviewed regularly, and EMS providers are encouraged to provide recommendations for improvement at any time. Comments should be directed to the Commonwealth EMS Medical Director, Pennsylvania Department of Health, Bureau of EMS, 1310 Elmerton Avenue, Harrisburg, PA 17110.

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GENERAL PROTOCOL PRINCIPLES

STATEWIDE IALS PROTOCOL

A. Statewide Medication List

1. AEMTs may only use medications that are listed on the Approved and Required Medication List as published in the Pennsylvania Bulletin and posted on the Bureau of EMS website.

2. At a minimum, the IALS (Intermediate Advanced Life Support) vehicle must carry each medication that is required to provide the care that is listed in the Statewide AEMT protocols. This list will be used by regional council staff when conducting licensure inspections. In addition, the IALS vehicle may carry any additional medications that are listed within state AEMT drug list as optional.

B. Medications/Procedural Skills

1. The protocols may list some medications and treatments that are optional and are not required of every IALS vehicle or of every AEMT provider. Any optional medications or treatments within the AEMT scope of practice or medication list may be carried on an IALS vehicle at the discretion of the EMS agency medical director.

2. AEMTs are able to obtain and transmit a 12-lead ECG for suspected acute coronary syndrome (ACS) when indicated by protocol. Although cardiac monitors on IALS vehicles may also be capable of continuous monitoring of an ECG rhythm strip, this is not in the scope of practice of an AEMT. ~~**Under no circumstances should an AEMT connect a patient to a continuous ECG rhythm monitoring, unless when directly supervised and assisting an EMS provider above the level of AEMT.**~~ The AEMT may leave a patient connected to the 12 lead ECG and should repeat and transmit the 12-lead ECG with any change in patient condition. This is not a substitute for a higher level provider to be observing the monitor.

3. General medication issues

   a. When possible, dosing for various medications has been standardized across all protocols. EMS providers must use their training and knowledge to assure that doses given are appropriate for the patient's age and weight. Although doses may not exceed those listed in the protocol, it may be appropriate to decrease the doses of some medications based upon patient condition, patient vital signs or patient age.

   b. All references to medications, abbreviations, and doses have been standardized with attention to pharmacologic principles of medication error reduction.

   c. Agencies should assure that medications are stored in a manner that provides for maximal shelf life and appropriate security. Some medications may have limitations to the listed expiration date if the medication is not refrigerated. EMS agencies should follow Department guidance and good medication storage practices to assure that medications have not lost their potency.

   d. EMS providers are expected to know the contraindications for each medication and are expected to assess patients for allergies, when possible, to any medication that is given. EMS providers should not administer medications to a patient when that medication is contraindicated in that situation.

4. Normal saline solution (NSS) and balanced solutions. When intravenous fluids are indicated, NSS is used throughout these protocols. NSS has the advantage of being compatible with all EMS medications and being preferred for patients with traumatic head injury. Lactated Ringers[1] and other balanced salt solutions may be carried as an option by an EMS agency if approved by the agency medical director and used within the protocols when NSS is indicated, but it is up to the agency medical director to educate providers when one fluid is indicated over another. This does not apply to hypertonic concentrations of these solutions or to solutions with replacement doses of electrolytes, or other solvents, that exceed physiologic concentrations.

5. **The use of intravenous EPINEPHrine is restricted to use during cardiac arrest only and should not be given in any other situation by IV or IO routes.** Carrying and administering EPINEPHrine, diphenhydrAMINE, or ondansetron by IV or IO routes are optional and require approval of the EMS agency medical director.

6. Drawing blood samples – Drawing blood in the prehospital setting may assist receiving facilities in providing better diagnoses or more rapid treatment of patients, but in some areas the receiving facilities will not accept blood drawn by prehospital providers.

7. Vascular Access:

   a. Intravenous access – AEMTs may initiate intravenous access when included in treatment protocols. Peripheral venous access will be established with a NSS intravenous infusion, unless the EMS agency medical director establishes indications for other fluids as defined in protocol 1000i section G.3.. The rate of the infusion should be determined by specific IV fluid volumes as stated in the appropriate protocol or a saline lock may be established if fluid volume is not indicated.

   b. Intraosseous access – AEMTs may insert an intraosseous needle for vascular access when indicated by a specific treatment protocol.

      1) IO access may be obtained in the following extremity sites:

         a) Proximal tibia

         b) Distal femur

         c) Proximal humerus

      2) Any acceptable method or device carried by an ALS agency that obtains IO access in an extremity site listed above is appropriate. The AEMT must have received education and be assessed as competent in the skill by the EMS agency medical director. EMS agency policy may indicate which technique or extremity sites listed above are acceptable for IO access.

C. Pediatric issues

1. Unless otherwise stated, pediatric protocols will apply to patients ≤ 14 years of age. If the patient's age is not known, then pediatric protocols will apply until there are physical signs that the patient has reached puberty/adolescence as indicated by armpit hair in boys and breast development in girls.

2. All iALS agencies and above must carry a commercial length-based device to estimate patient weight and appropriate drug dosages. When possible, these devices should be used as the primary method for determining the weight/appropriate drug doses for children. Additionally, the following formula or table may be used:

   a. Formula: (Age in years x 3) + 7 = estimated weight in kgs.

   b. Table

      1) 1 y/o =10 kg

      2) 3 y/o =15 kg

      3) 5 y/o =20 kg

      4) 7 y/o =25 kg

      5) 9 y/o =30 kg

D. Equipment Issues

1. All medical devices must be used, maintained, and calibrated in accordance with the recommendations from the manufacturer.

2. All IALS vehicles must carry electronic glucose testing meters, and these agenciess must have either a CLIA license or certificate of waiver. An IALS agency performing glucose testing with a meter cleared for home use by the FDA must hold a CLIA certificate of waiver. A CLIA certificate of waiver (CoW) is good for two years. Each agency is responsible for determining whether a CLIA license or waiver is required.

E. Release to BLS

1. An ALS vehicle should be dispatched to patients that are anticipated to need care that exceeds the level of an EMT, and the ALS provider above the level of AEMT can assist with decision to release to a BLS crew using the Statewide ALS Release to BLS Protocol.

Notes:

1. AEMTS will advise higher level providers when LR has been initiated.

IALS RELEASE TO BLS

STATEWIDE IALS PROTOCOL

Criteria:

1. Patient assessed by IALS provider who determines that treatment above the BLS level is not needed or anticipated to be needed.

Exclusion Criteria:

A. Any patient who refuses IALS care (e.g. patient refuses IV) should be transported by the IALS unit, unless patient refuses transport by the IALS unit then contact medical command.

Procedure:

A. If a BLS crew arrives on-scene prior to the IALS provider arrival:

1. If multiple patients, perform triage.

2. BLS provider performs assessment of the patient in accordance with Statewide BLS Protocols and prepares for transport.

B. When IALS and BLS agencies have arrived at a patient incident:

1. If BLS provide did initial patient assessment, BLS provider will give a verbal patient report to the IALS provider.

2. IALS provider will assess the patient and determine if care beyond BLS level is needed or may be anticipated to be needed.[1] The IALS provider will complete a PCR documenting their assessment for every patient assessed except when triaging patients in a muti-casuality incident.

3. IALS provider may hand off patient to BLS provider if patient does not require IALS care.

4. If an IALS provider performs any IALS procedure (including ECG, but not general IALS care patient assessment or glucose check) they must contact Medical Command prior to hand off to BLS.

C. When the IALS and BLS providers are on the crew of an IALS ambulance together:

1. The IALS provider must perform the initial assessment. After determining that IALS care is neither needed or anticipated to be needed, the IALS provider may hand off care to the BLS provider on the crew, but the IALS provider must review and is also responsible for the PCR completed by their BLS partner.

2. Should the patient condition unexpectedly change, the BLS partner should notify the IALS provider driving the vehicle, who should stop the vehicle at the next safe and practical point, return to the patient, receive a verbacl report or interim care, and resume care of the patient.

Notes:

1. When the number of patients exceeds the number of IALS providers, the IALS provider(s) must triage the patient that require a higher level of care, and may not have the resources to evaluate all patients directly.

Performance Parameters:

A. Review calls where the number of patients exceeds the number of IALS providers, the IALS provider(s) must triage the patient that require a higher level of care, and may not have the resources to evaluate all patients directly.

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INDICATIONS FOR ALS USE

STATEWIDE IALS PROTOCOL

Criteria:

A. All patients.

Exclusion Criteria:

A. None.

Procedure:

A. All patients: [1]

1. An IALS agency provider should consider requesting an ALS squad/ambulance when a patient's needs exceed their capabilities. These conditions may include but are not limited to:
   a. Altered level of consciousness (except apparent hypoglycemia or opioid overdose that may be managed by IALS)
   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 (except altered level of consciousness from apparent hypoglycemia that may be managed by IALS)
   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), except altered level of consciousness from apparent opioid overdose, which may be managed by IALS
   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. Excited delirium – fighting against restraints without being aware of actions
   t. 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.
      5) Pediatric Patients: Vital signs outside of normal range per Statewide BLS Protocol Pediatric Vital Signs (Appendix G)

2. If transport by IALS ambulance to an appropriate receiving facility can be accomplished before ALS can initiate care, then the IALS agency should transport as soon as possible and should not request or should cancel ALS. For patients in cardiac arrest, protocols 3031iA and 3031iP should guide the appropriate time to initiate transport.

3. IALS ambulances should not delay patient care and transport while waiting for ALS agency. If ALS arrival at scene is not anticipated before initiation of transport, arrangements should be made to rendezvous with the ALS agency. [2]

Notes:

1. AEMTs should initiate patient care and transport to the level of their ability following applicable BLS /AEMT protocol(s).
2. In the case of a long IALS transport time with a nearby ALS agency 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 IALS 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 IALS only. Note that ALS care is not mandatory for these conditions in all cases.

CONFIRMATION OF AIRWAY PLACEMENT
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient who has a supraglottic (King/ iGel) airway device inserted by EMS provider.

Exclusion Criteria:

A. None

System Requirements:

A. Every IALS vehicle must carry and use an electronic wave-form $ETCO_2$ ~~detector device~~ monitor[1] for confirmation and continuous monitoring of alternative airway device placement.

Procedure:

A. Insert Alternative Airway Device

B. Attach electronic $ETCO_2$ monitor to BVM.

C. Ventilate [2] while simultaneously:

1. Assuring "positive" CO_2 wave with each ventilation.
2. Verifying absence of gastric sounds.

D. Verify presence of bilateral breath sounds.

E. Secure airway device.

F. Continuously monitor waveform capnography. [3]

G. Reassess bilateral breath sounds and absence of gastric sounds after each move or transfer of the patient.

H. Document all of the above.

Notes:

~~1.~~ 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 status asthmaticus), morbid obesity, late stages of pregnancy, or cardiac arrest.~~

2. Immediately remove ~~alternative~~ supraglottic airway device if any step reveals evidence of lack of lung ventilation. If there is any doubt about adequate ventilation with an alternative airway device, remove the device and ventilate with BVM.
3. Quantitative $ETCO_2$ readings may be beneficial in assessing the quality of CPR or as an indicator of the prognosis for successful resuscitation.

Performance Parameters:

A. Review all alternative airway device insertions for documentation of absence of gastric sound, presence of bilateral breath sounds, and appropriate use of a confirmation device.

B. If systems have the capability of recording a capnograph tracing, review records of all ~~intubated~~ patients with advanced airway in place. to assure that capnograph was recorded.

C. Document $ETCO_2$ reading immediately after airway device placement, after each movement or transfer of patient and final transfer to ED stretcher.

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GENERAL CARDIAC ARREST – ADULT

STATEWIDE IALS PROTOCOL

Initial Patient Contact - See Protocol # 201
Patient pulseless, may have gasping/agonal breathing

Cardiac arrest witnessed by EMS personnel
OR
Quality CPR in progress on EMS arrival

NO

YES

200 Uninterrupted Chest Compressions[1,2]

Analyze with AED
Shock (360 joules[3,4]) if indicated

200 Uninterrupted Chest Compressions[1,2]

Analyze with AED
Shock (360 joules[3,4]) if indicated

200 Uninterrupted Chest Compressions[1,2]

Analyze with AED
Shock (360 joules[3,4]) if indicated

200 Uninterrupted Chest Compressions[1,2]

Analyze with AED
Shock (360 joules[3,4]) if indicated

Continue cycles of 200 compressions followed by AED analysis/shock[1,3]
BVM: 1 ventilation/ 15 compressions
May use mechanical CPR device (optional)

DURING UNINTERRUPTED COMPRESSIONS:

IO/IV Access ASAP
EPINEPHrine (0.1 mg/mL)
1 mg IO/IV
every 3 - 5 minutes
(if available)[5]

Airway Options[6]:
- Naso/oropharyngeal Airway
- Advanced Airway (King LT or iGel)[7]

Ventilation Options[6]:
- No Ventilation (during initial cycles of compressions if less than 3 providers)
- 1 ventilation every 10 compressions (Monitor Perfusion with Capnography)

Supplemental Oxygen

Give Compressions while AED is charging

NO mechanical CPR device during initial 10 minutes[1]

Checking glucose during CPR is not appropriate

If ROSC,

Assess Vital Signs

Provide Oxygen and Ventilate as needed (Goal= SpO2 95-99%)

Obtain and Transmit 12-Lead ECG

After Above Steps, Transport ASAP

DO NOT INTERRUPT CPR TO PACKAGE AND TRANSPORT. CONSIDER AWAITING ARRIVAL OF ALS if ALS ETA < 20 mins.[8,9]

OR

Contact Medical Command for possible field termination of CPR[10]

GENERAL CARDIAC ARREST – ADULT
STATEWIDE IALS PROTOCOL

Criteria:

A. Adult patient (>14 years old) with cardiac arrest (may have gasping or agonal breathing).

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 – see 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.

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

System Requirements:

A. Ideally, providers in each EMS agency will use a “pit crew” approach when using this protocol to ensure the most effective and efficient cardiac arrest care. Training should include teamwork simulations integrating QRS, BLS, IALS, and ALS crew members who regularly work together. High-performance systems should practice teamwork using “pit crew” techniques with predefined roles and crew resource management principles. For example:

1. Rescuer 1 and 2 set up on opposite sides of patient’s chest and perform continuous chest compressions, alternating after every 100 compressions to avoid fatigue.

2. Use metronome or CPR feedback device to ensure that compression rate is 100-120/ minute.

3. Chest compressions are only interrupted during rhythm check (AED analysis or manual) and defibrillation shocks. Continue compressions when AED/ defibrillator is charging.

4. During the first four cycles of compressions/defibrillation (approximately 10 minutes) do not apply or use mechanical CPR device.

5. Use of a CPR checklist to ensure that all best practices are followed during CPR.

B. For efficient “pit crew” style care, the EMS agency medical director should establish whether any ventilation is given during initial compression cycles. If BVM ventilation is used, compressions should not be interrupted when giving a ventilation every 10 compressions.

C. The EMS agency, overseen by the agency medical director, must perform a QI review of care and outcome for every patient that receives CPR.

1. The QI should be coordinated with involved ALS agency and receiving hospital to include hospital admission, discharge, and condition information. This EMS agency QI can be accomplished by participation in the Cardiac Arrest Registry for Enhanced Survival (CARES) program through the ALS agency.

2. The QI should be coordinated with local PSAP/dispatch centers to review opportunities to assure optimal recognition of possible cardiac arrest cases and provision of dispatch-assisted CPR (including hands-only CPR when appropriate).

Notes:

1. Excellent CPR is a priority:

   a. Push hard (at least 2 inches deep) and fast (100-120/min) and allow full recoil of chest during compressions.

   b. Change rescuer doing compressions every 1-2 minutes (100-200 compressions) to avoid fatigue

c. Restart CPR immediately after any defibrillation attempts.

d. Keep pauses in CPR to a minimum. Immediately after AED recommends shock resume compressions until AED is fully charged, then immediately after shock, resume compressions without checking pulse or rhythm. Avoid pauses in CPR during airway management.

e. CPR sequence is CAB (Compressions, Airway, Ventilation) for all ages, except the ABC sequence should be used in drowning.

f. For pregnant patients, a rescuer should manually displace the uterus to the patient's left during CPR.

g. Mechanical CPR devices may be utilized, after consultation with the agency Medical Director, when there is low manpower or transport of the patient is expected.

2. Do not move or package patient for transport at this time. Chest compressions are much less effective during patient transportation/movement, and any possible interventions by medical command will be less effective without optimal CPR.

3. Shock at maximum output of defibrillator, up to maximum of 360 joules, for initial and subsequent defibrillation attempts.

4. Patient with severe hypothermia (if available, core temperature < 90° F or 32° C) see Hypothermic Protocol # 681. For hypothermic patients, no more than 1 shock should be delivered. Further action will be directed by medical command. Begin transport immediately after initial countershock. Transport to center with capability of cardiopulmonary bypass surgery if possible.

5. **WARNING:** The concentration of IV/IO EPINEPHrine (0.1 mg/mL) for cardiac arrest is different than the concentration used for IM use in anaphylaxis (1 mg/mL). Administration of EPINEPHrine in cardiac arrest is optional for an IALS agency, ~~requires additional training,~~ and must be approved by the EMS agency medical director.

6. The optimal airway management/ventilation during initial cycles of uninterrupted compressions has not been established. Agency medical director can set agency policy using the following approaches:

   a. Open airway with manual technique or naso/oropharyngeal airway – with or without passive oxygen

   b. Provide either no active ventilation (passive ventilation from compressions) or bag ventilate 8-10 breaths per minute (one ventilation every 10 compressions) without interrupting compressions (monitor perfusion with capnography if providing active ventilation)

   c. If BVM ventilation, consider 2-thumbs-up 2-person BVM technique

7. Confirm and document tube placement with absence of gastric sounds and presence of bilateral breath sounds ***AND*** continuous waveform $ETCO_2$ detector. Follow Confirmation of Airway

8. Monitor CPR quality with waveform capnography – in cardiac arrest, level of ETCO2 capnography correlates with perfusion/cardiac output from CPR. The minimum ETCO2 reading is 10mmHg with an optimal goal of >20mmHg. A SUDDEN increase in ETCO2 by >10mmHg may indicate return of spontaneous circulation (ROSC)

9. If the AED continues to indicate that shocks are advised, it is best to focus on excellent chest compressions and use AED to reanalyze every 2 minutes until ALS arrives. Packaging or moving the patient at this point will decrease the effectiveness of CPR. After three AED messages of "no shock advised", contact medical command. If unable to contact medical command, transport patient as soon as possible while continuing CPR.

10. During packaging and transport, minimize interruptions of CPR and reanalyze rhythm about every 10 minutes, and deliver additional shocks if advised.

    a. The vehicle and all patient movement should stop before reanalyzing the rhythm.

b. Providers must be familiar with the AED used by their agency. AEDs that automatically analyze every 2 minutes 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.

c. Transport without lights or siren to minimize chance of injury to EMS personnel providing CPR and patient care, unless unusual circumstances exist.

11. AHA Guidelines suggest that the following are reliable and valid criteria for BLS termination of resuscitation. Before moving the patient to the ambulance, consider contact with medical command for orders to terminate CPR in the field if ALL of the following apply:

    a. Arrest not witnessed by EMS personnel, AND

    b. No return of spontaneous circulation/ pulse (prior to transport), AND

    c. No AED shock was delivered (prior to transport).

12. If CPR has been initiated, the patient remains pulseless with no shock advised, and the patient has received four doses of Epinephrine, contact medical command to consider termination of resuscitation.

Performance Parameters:

A. EMS agency should document patient outcome and QI indicators for cardiac arrest, including ROSC during EMS care, ROSC on arrival to ED, admitted to hospital, discharged from hospital alive, and neurologic function on discharge.

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 for cases where patient was inappropriately moved before arrival of ALS. Moving patients with CPR before ROSC is associated with decreased survival.

GENERAL CARDIAC ARREST – PEDIATRIC

STATEWIDE IALS PROTOCOL

Initial Patient Contact - See Protocol # 201
Patient pulseless, may have gasping/agonal breathing
Call for ALS if not already dispatched
Assess patient age

Infant < 1 year of age

CPR [1,2,3] 15:2 (Infant)

TRANSPORT [9] ASAP

Child between 1-14 years old
Cardiac arrest witnessed by EMS personnel
OR
Quality CPR in progress on EMS arrival

NO

YES [2]

CPR 15:2 [1,2]
10 cycles or 2 minutes

Analyze with AED[3,4]
Shock (360 joules[,5,6,7]) if indicated

CPR 15:2 [1,2]
10 cycles or 2 minutes

Analyze with AED[3,4]
Shock (360 joules[,5,6,7]) if indicated

CPR 15:2 [1,2]
10 cycles or 2 minutes

Analyze with AED[3,4]
Shock (360 joules[,5,6,7]) if indicated

CPR 15:2 [1,2]
10 cycles or 2 minutes

Analyze with AED[3,4]
Shock (360 joules[,5,6,7]) if indicated

Continue cycles CPR 15:2
followed by AED
analysis/shock every 2 minutes

If ROSC:

Assess Vital Signs

Provide Oxygen and Ventilate as needed (Goal= SpO2 95-99%, if available)

Place in Recovery Position

Transport ASAP

DO NOT INTERRUPT CPR TO PACKAGE AND TRANSPORT. CONSIDER AWAITING ARRIVAL OF ALS if ALS ETA < 20 mins[7],[10,11]
OR

Contact Medical Command for possible field termination of CPR[12]

PAUSE FOR VENTILATIONS, BUT MINIMIZE ALL OTHER INTERRUPTIONS IN COMPRESSIONS

Give Compressions while AED is charging

ONLY IF ENOUGH HELP FOR QUALITY CPR:
IO/IV Access
EPINEPHrine (0.1 mg/mL)
See Pediatric Dose Chart,
every 3 - 5 minutes
(if available)[8]

Naso/oropharyngeal Airway
or
Age-appropriate Supraglottic Airway, King LT or iGel
(if available)[9]

Monitor capnography

Supplemental Oxygen

Mechanical CPR should not be used for pediatric patients

GENERAL CARDIAC ARREST – PEDIATRIC
STATEWIDE IALS PROTOCOL

Criteria:

A. Pediatric patient (≤14 years old) with cardiac arrest (may have gasping or agonal breathing).

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 – see 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.

C. Cardiac arrest in newborn – see Newborn / Neonatal Resuscitation Protocol # 333.

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

Possible Medical Command Orders:

A. After 4 "no shock advised messages, if ETA to hospital or ETA of ALS are > 15 minutes, medical command may order termination of resuscitation efforts.

Notes:

1. Ventilations should be given over 1 second. When giving chest compressions:
   a. Push hard (at least 1/3 AP chest diameter for children and infants)
   b. Push fast (100-120 compressions/min)
   c. Release hand pressure completely after each compression.
   d. To avoid tiring, rescuer doing chest compressions should be replaced at least every 5 cycles or 2 minutes.
   e. **It is essential to minimize interruptions in chest compressions during CPR.**
   f. CPR sequence is CAB (Compressions, Airway, Ventilation) for all ages, except the ABC sequence should be used in drowning.
   g. Compression to ventilation ratio is 30:2 for all single rescuers, but 15:2 for children and infants when 2 rescuers are available.
2. 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. Routine cricoid pressure is not recommended during CPR.
   a. **Before ~~extraglottic/ alternative~~ supraglottic airway**, compression to ventilation ratio is: Child and Infant = 15:2. (**NOTE:** 1-rescuer CPR compression to ventilation ratio is 30:2 for all patients except newborns)
   b. **After ~~extraglottic/~~ advanced airway, avoid ~~overzealous~~ hyperventilation**.

      After an advanced airway is in place, chest compressions should be given by one rescuer at a rate of 100-120 compressions/ minute without pauses while a second rescuer provides continuous ventilations at a rate of 8-10 breaths/ minute for all patient ages.
   c. If unable to ventilate, proceed to Obstructed Airway maneuvers.
3. **Pediatric AED Use**: If pediatric AED electrodes are immediately available, follow protocol flowchart for adult patients but use pediatric AED electrodes if patient is < 8 years old. If no pediatric AED electrodes are available, adult AED/electrodes should be used on patients < 8 year old, including infants. Check pulse only after the AED gives a "no shock indicated" message. After each shock is delivered, start CPR immediately without checking the pulse.
4. If no shock is indicated, check pulse, if pulseless repeat 5 cycles of CPR and then re-analyze (if applicable). After three sequential "no shock indicated" messages, repeat "analyze" period every 10 minutes. (Note: some AEDs automatically re-analyze for you.)
5. If available, pediatric AED pads used on patients < 8 years of age will provide appropriate lower shock energy dose.

6. Patient with severe hypothermia (if available, core temperature < 90° F or 32° C) see Hypothermic Protocol # 681. For hypothermic patients, no more than 1 shock should be delivered. Further action will be directed by medical command. Begin transport immediately after initial countershock. Transport to center with capability of cardiopulmonary bypass surgery if possible.
7. If the AED continues to indicate that shocks are advised, it is best to focus on excellent chest compressions and use AED to reanalyze every 2 minutes until ALS arrives. Packaging or moving the patient at this point will decrease the effectiveness of CPR. After three AED messages of "no shock advised", contact medical command. If unable to contact medical command, transport patient as soon as possible while continuing CPR.
8. **WARNING:** The concentration of IV/IO EPINEPHrine (0.1 mg/mL) for cardiac arrest is different than the concentration used for IM use in anaphylaxis (1 mg/mL). Administration of EPINEPHrine in cardiac arrest is optional for an IALS agency, ~~requires additional training,~~ and must be approved by the EMS agency medical director.
9. Confirm and document tube placement with absence of gastric sounds and presence of bilateral breath sounds ***AND*** continuous electronic waveform capnography ~~$ETCO_2$ detector~~. Follow Confirmation of Airway
10. During packaging and transport, minimize interruptions of CPR and reanalyze rhythm about every 10 minutes, and deliver additional shocks if advised.
    a. The vehicle and all patient movement should stop before reanalyzing the rhythm.
    b. Providers must be familiar with the AED used by their agency. AEDs that automatically analyze every 2 minutes 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.
    c. Transport without lights or siren to minimize chance of injury to EMS personnel providing CPR and patient care, unless unusual circumstances exist.
11. Agency medical director may establish policy for immediate transport if local pediatric receiving center in close proximity has capabilities for extracorporeal membrane oxygenation (ECMO) and mutually agree on appropriate criteria for rapid transport for immediate ECMO.
12. AHA Guidelines suggest that the following are reliable and valid criteria for BLS termination of resuscitation. Before moving the patient to the ambulance, consider contact with medical command for orders to terminate CPR in the field if ALL of the following apply:
    a. Arrest not witnessed by EMS personnel, AND
    b. No return of spontaneous circulation/ pulse (prior to transport), AND
    c. No AED shock was delivered (prior to transport).

Performance Parameters:

A. EMS agency should document patient outcome and QI indicators for cardiac arrest, including ROSC during EMS care, ROSC on arrival to ED, admitted to hospital, discharged from hospital alive, and neurologic function on discharge.

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.]

Pediatric Dose Chart – EPINEPHrine, 0.1 mg/ 1 mL for Cardiac Arrest

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg
EPINEPHrine IV/IO DOSE (mL)	**Contact Medical Command**	**1 mL**	**1.5 mL**	**2 mL**	**2.5 mL**	**3 mL**	**4 mL**	**5 mL**

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CARDIAC ARREST – TRAUMATIC

STATEWIDE IALS PROTOCOL

Initial Patient Contact – See Protocol # 201
Cervical spine stabilization, when indicated
Rapid extrication

Assess for evidence of DOA and apparent cause of cardiac arrest? [1]

Traumatic cause [2,3]

DOA OR Medical / Non-traumatic cause → **Proceed to appropriate cardiac arrest protocol *OR* DOA Protocol #322**

- Effective CPR[4] is important
- Manage Airway [5,6]
  - BVM or Advanced Airway (King LT/ iGel, preferred)
  - Ventilate 10 breaths/min,
- Control severe external bleeding
- **Rapid Transport is a priority** [7,8]
  - Restrict spinal motion if indicated [9]
- **Consider Other Medications/Treatments** (See Box at Right)

OTHER MEDICATIONS/ TREATMENTS
Consider these treatments enroute if patient can arrive at a Trauma Center in < 15 minutes

Initiate IV/IO NSS
Adults: administer NSS wide open up to 1000 mL
Peds: administer NSS wide open up to ~~60~~ 20 mL/kg up to 1000mL

Monitor Pulse oximetry

Apply AED, analyze rhythm, and shock if indicated.

EPINEPHrine (0.1 mg/mL concentration);
Adults: 1 mg IV/IO every 3-5 mins.
Peds: See Pediatric Dose Chart, IV/IO every 3-5 mins

Monitor $ETCO_2$

Consider other etiologies of cardiac arrest and follow appropriate protocol

RETURN OF SPONTANEOUS CIRCULATION (ROSC)?

YES → **Follow Major Multisystem Trauma Protocol #6002**

NO → **CONSIDER FIELD TERMINATION OF RESUSCITATION** [10]
OR
CONTINUE RESUSCITATION AND BEGIN TRANSPORT

→ **Contact Medical Command**

→ Repeat NSS bolus
Adult: up to 1000 mL wide open
Peds: up to ~~60~~ 20 mL mL/kg wide open up to 1000mL

CARDIAC ARREST - TRAUMATIC
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient in cardiac arrest from suspected traumatic cause.

Exclusion Criteria:

A. Patient that meets DOA criteria (including unwitnessed cardiac arrest of traumatic cause, decapitation, rigor mortis, etc…) – See DOA Protocol #322.

B. Patient in cardiac arrest due to medical or non-traumatic causes [1]

Possible MC Orders:

A. Terminate resuscitation in the field

Notes:

1. If the trauma appears to be minor and a medical condition appears to be the cause of the cardiac arrest, follow the appropriate cardiac arrest protocol.
2. If cardiac arrest is witnessed by EMS provider, or there is evidence that the patient had any signs of life within a few minutes before the arrival of EMS personnel, proceed with this protocol. Otherwise, follow DOA Protocol # 322.
3. Unless there is an immediately correctable cause, victims of traumatic cardiac arrest must arrive at a hospital within a few minutes to have any chance of survival. Placement of an advanced supraglottic airway ~~(King LT or iGel)~~ may increase this very short time window for survival.
4. Excellent CPR is a priority:
    a. Chest compressions should be continuous with an upstroke ventilation every 10 compressions (15:2 for children and infants).
    b. Push hard and fast (100-120 compressions/min) and allow full recoil of chest during compressions.
    c. Change rescuer doing compressions every 2 minutes to avoid fatigue.
    d. After advanced airway, ventilation rate should be 10/minute without pausing compressions to deliver ventilation.
    e. Avoid pauses in CPR during airway management and other interventions.

13. ~~Monitor CPR Quality with waveform capnography – in cardiac arrest level of $ETCO_2$ correlates with perfusion/cardiac output from CPR. A SUDDEN increase in $ETCO_2$ by >10 mmHg may indicate return of spontaneous circulation (ROSC).~~ Monitor CPR quality with waveform capnography – in cardiac arrest, level of ETCO2 capnography correlates with perfusion/cardiac output from CPR. The minimum ETCO2 reading is 10mmHg with an optimal goal of >20mmHg. A SUDDEN increase in ETCO2 by >10mmHg may indicate return of spontaneous circulation (ROSC)

5. Ventilate with BVM or ~~alternative~~ supraglottic airway. ~~(King LT or iGel).~~
6. Confirm and document alternative airway placement with absence of gastric sounds and presence of bilateral breath sounds *AND* electronic waveform capnography ~~confirmatory device (like wave-form $ETCO_2$ detector).~~ Follow Confirmation of Airway Placement Protocol #2032.
7. Transport immediately if patient can arrive at a trauma center (preferred destination) or the closest hospital in ≤ 15 minutes.
    a. 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.
    b. Notify the receiving facility ASAP to allow maximum time for preparation to receive the patient.

c. Air medical transport of patients in traumatic cardiac arrest is generally not indicated.

8. 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.
9. See Cervical Spine Immobilization Protocol # 261
10. Field termination of resuscitation must be ordered by Medical Command Physician, otherwise continue resuscitation attempts and initiate transport.

Performance Parameters:

A. Review all care given on scene for benefit of intervention versus potential delay to transport time. Especially procedures other than airway management and chest needle decompression in non-entrapped victims with short transport times.

B. Review for transport to appropriate destination based upon protocol.

C. Consider possible benchmark of on-scene time < 10 minutes for non-entrapped patients, although agencies may want to set goal of even less time on-scene

Pediatric Dose Chart – EPINEPHrine for Cardiac Arrest

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg
EPINEPHrine (0.1 mg/ 1 mL) IV/ IO DOSE (mL)	**Contact Medical Command**	**1 mL**	**1.5 mL**	**2 mL**	**2.5 mL**	**3 mL**	**4 mL**	**5 mL**

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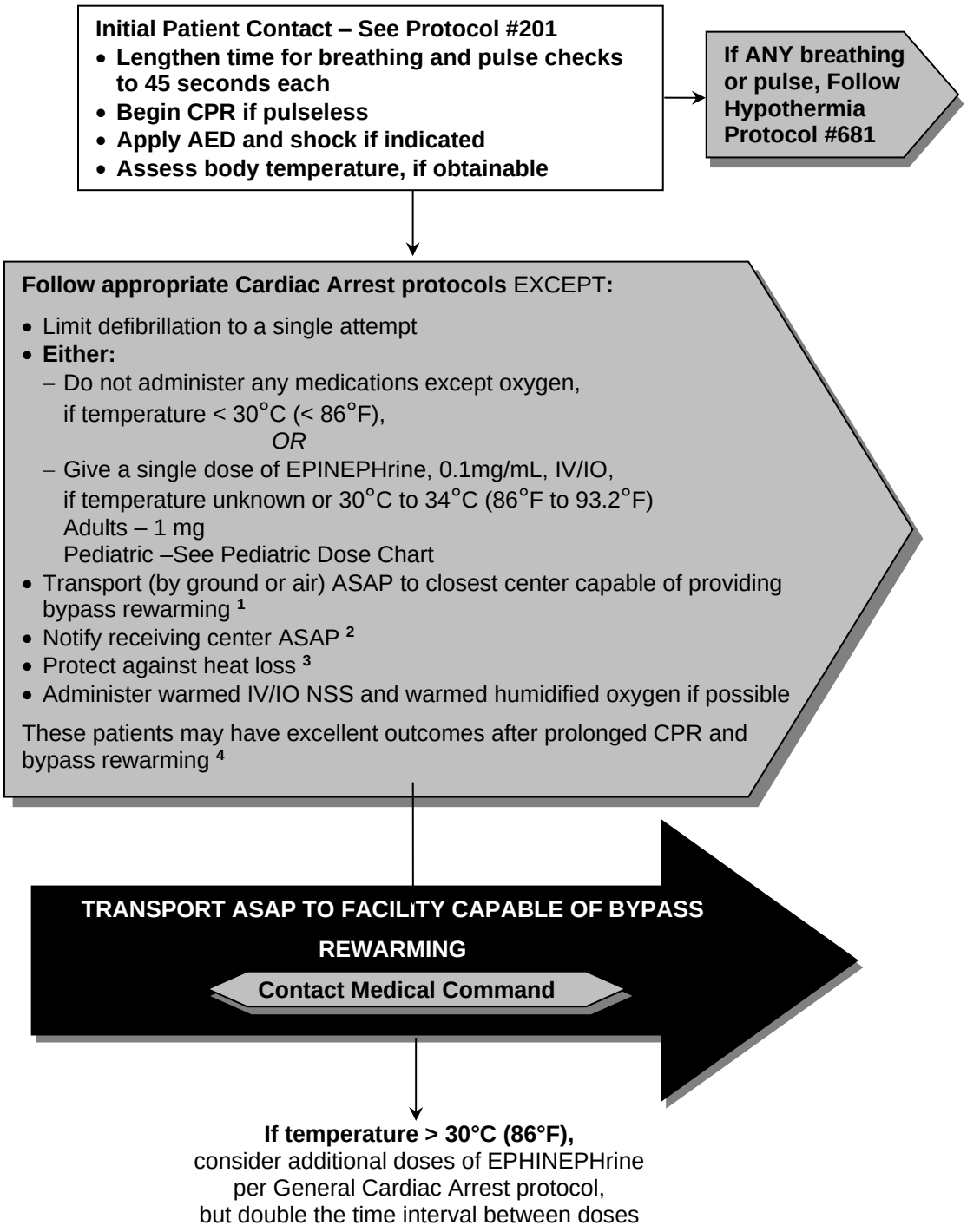
CARDIAC ARREST – HYPOTHERMIA

STATEWIDE IALS PROTOCOL



CARDIAC ARREST – HYPOTHERMIA
STATEWIDE IALS 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 – Follow 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.).

B. Patients in cardiac arrest but without suspected hypothermia (temperature >34 C° or > 92.3 F°) or who have been rewarmed to a temperature > 34 C°, follow appropriate Cardiac Arrest protocol.

C. Patients with hypothermia (temperature < 34 C°) that are not in cardiac arrest. Follow Hypothermia Protocol #681.

Notes:

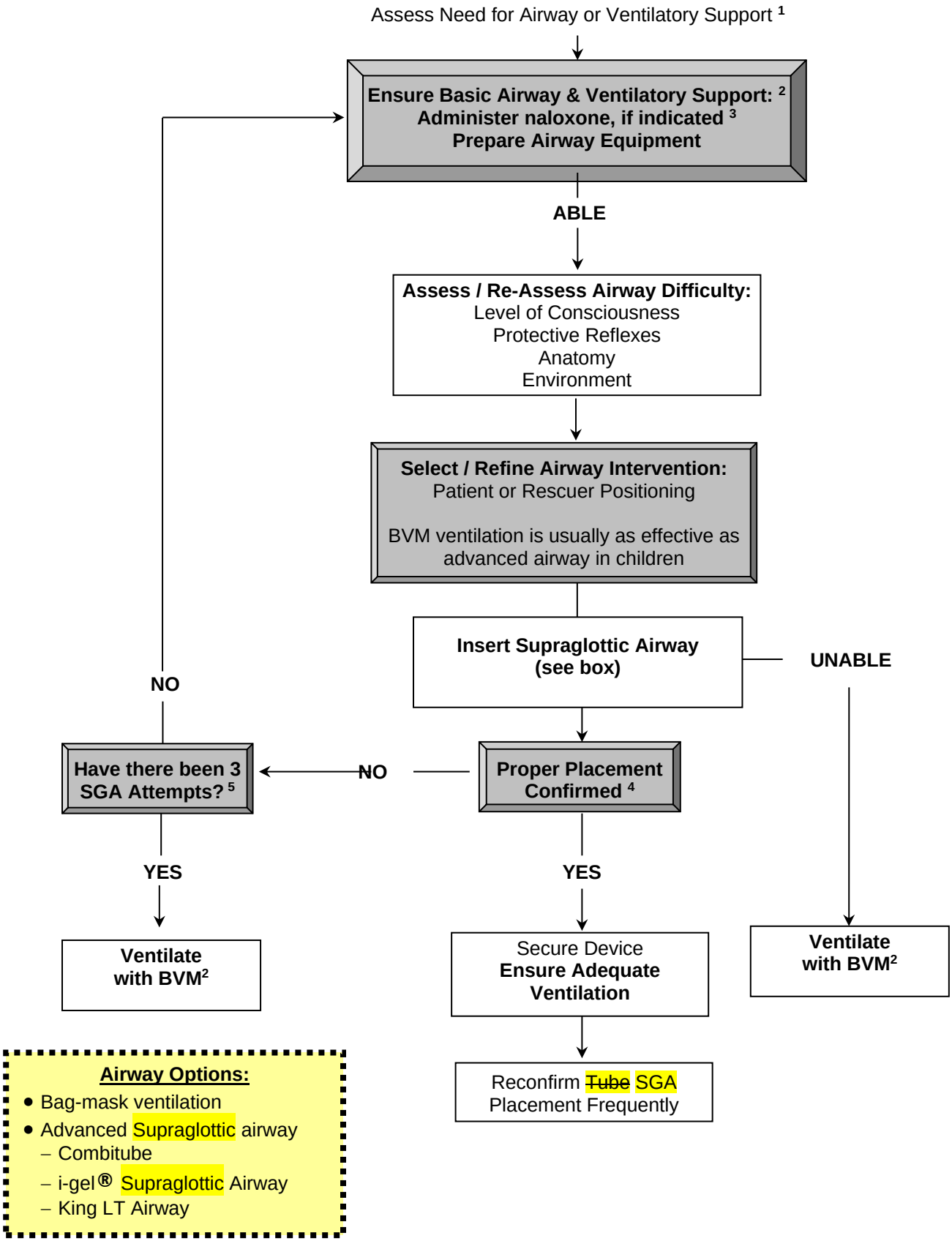
1. Initiate transport to center capable of cardiac bypass rewarming (Level I trauma centers or other facilities known to have capability of emergency bypass rewarming) as soon as possible. Medical Command can be contacted for assistance in identifying appropriate facility and mode of transport. Consider 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.
2. Notify the receiving facility as soon as possible. Bypass rewarming requires the mobilization of specialized personnel and equipment.
3. Prevent heat loss by all means available:
   a. Move to warm environment (like inside ambulance with heaters on maximum)
   b. Remove wet clothing
   c. Wrap patient in warm dry blankets
   d. Apply heat packs to axilla, groin, and neck
4. In severe hypothermia, EMS providers should attempt to prevent additional heat loss, but transport should not be delayed by attempts to provide rewarming in the field.

Pediatric Dose Chart – EPINEPHrine, for Cardiac Arrest

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg
EPINEPHrine IV/IO DOSE (0.1 mg/ 1mL)	**Contact Medical Command**	**1 mL**	**1.5 mL**	**2 mL**	**2.5 mL**	**3 mL**	**4 mL**	**5 mL**

AIRWAY MANAGEMENT

STATEWIDE IALS PROTOCOL



AIRWAY MANAGEMENT
STATEWIDE IALS PROTOCOL

Criteria:

A. Any patient that requires airway management to assure adequate ventilation or a patent airway

Exclusion Criteria:

A. Patient with obstructed airway- Follow BLS procedures for airway obstruction

Notes:

1. The need for airway management is based upon the provider's judgment after a rapid global assessment of the patient. Indications for airway management include:
   a. Apnea or agonal respirations
   b. Airway reflexes compromised
   c. Ventilatory effort compromised
   d. Injury or medical condition compromising airway patency
   e. Potential for future rapid compromise of airway (for example airway burns or expanding neck hematoma).
2. If patient ventilation is initially adequate, but airway management is anticipated, high-flow oxygen should be administered. If ventilation is inadequate, provide positive pressure ventilation with high-flow oxygen (ideally, BVM ventilation should be done with two-person two-thumbs-up technique, and an oropharyngeal/ nasopharyngeal airway if possible).
3. If narcotic overdose is suspected, administer naloxone per Altered Mental Status AEMT Protocol #7002iA or 7002iP while ventilating with BVM if needed.
4. Confirm and document tube placement with absence of gastric sounds and presence of bilateral breath sounds *AND* continuous waveform $ETCO_2$ monitor. Follow Confirmation of Airway Placement AEMT Protocol #2032i
5. Placing the tip of ~~an extraglotic/ alternative~~ a supraglottic airway into the patient's mouth is considered an insertion attempt, and each attempt should be documented as successful or unsuccessful. A maximum number of 3 attempts (total for all providers) is suggested. The EMS agency medical director may determine the number of insertion attempts that are appropriate.

Performance Parameters:

A. Review PCRs for documentation of the following:
   1. In perfusing patients, document pulse oximetry, heart rate, and electronic wave-form capnography ~~ETCO$_2$~~ during insertion attempts. In perfusing patients, ideally a continuous recording strip is documented.
   2. Document number of attempts at insertion of ~~extraglottic/ alternative~~ supraglottic airway.
   3. Document confirmation of tube placement consistent with AEMT protocol #2032i

ALLERGIC REACTION

STATEWIDE IALS PROTOCOL

Initial Patient Contact - see Protocol #201
Look for Medic Alert bracelet/necklace

↓

Manage Airway/ Ventilate, if needed
Apply Oxygen if needed

↓

Monitor Pulse Oximetry, remove stinger if visible[1],
keep part dependent if possible, apply cold pack as available

↓

Respiratory Distress/ Wheezing or Hypotension (BP < 90 systolic) [2]

NO

↓

Initiate IV NSS for
moderate reactions [3]

↓

Oral DiphenhydrAMINE
See Oral Medication Dose Chart [3]
(max. dose 50 mg)

↓

CONTACT MEDICAL COMMAND

YES

↓

Patient

Adult

↓

EPINEPHrine (1 mg/mL)
0.3 mg IM

↓

Initiate IV/IO NSS
If SBP < 90, give
1000 mL wide open

↓

DiphenhydrAMINE
50 mg IV/IO

↓

If wheezing, Nebulized
Bronchodilator (see box)
May repeat continuously,
if needed

↓

Contact Medical Command

↓

Repeat **EPINEPHrine** IM [4]

Repeat IV NSS bolus
(up to 2000 mL total)

Pediatric

↓

EPINEPHrine (1 mg/mL), IM
See Pediatric Dose Chart

↓

Initiate IV/IO NSS
If SBP < [70 + (age x 2)],
20 mL /kg wide open

↓

DiphenhydrAMINE, IV/IO
See Pediatric Dose Chart

↓

If wheezing, Nebulized
Bronchodilator (see box)
May repeat
continuously, if needed

↓

Contact Medical Command

↓

Repeat **EPINEPHrine** IM [4]

Repeat IV/IO NSS bolus
(up to 60 mL/kg total)

BRONCHODILATOR OPTIONS

- **Albutero**l (approx. 2.5 mg) nebulized
  For Pediatric patients under 20 kg, Albuterol (approx. 2.5 mg) nebulized.
  For pediatric patients greater than 20 kg. (approx. 5mg) nebulized.

OR

- **Albuterol** (approx 3 mg)/ ipratropium (500 mcg) combination nebulized.

OR

- **Levalbuterol** 1.25mg in approximately 3mL solution

ALLERGIC REACTION
STATEWIDE IALS PROTOCOL

Criteria:

A. Severe Allergic Reaction/Anaphylaxis: A patient with any of 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. 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

C. Mild Allergic Reaction: A patient with a mild reaction may have:

1. Local swelling or itching isolated to extremity or area around bite site.

Possible MC Orders:

A. If unconscious or life threatening condition, consider additional doses of EPINEPHrine.

1. Additional dose of EPINEPHrine 0.3 mg IM (0.3 mL of 1 mg/mL concentration) in adults

---

Notes:

1. Remove stinger(s) by gently scraping stinger free with a blade or credit card, without squeezing or using forceps. In severe reaction, do not delay treatment while attempting to remove stingers.
2. In pediatrics, hypotension is SBP < ~~[70 + (age x 2)]~~ ~~For~~ children 1-10 years old and BP <70 + (age x2) or if greater than 10 years old and BP < 90
3. For mild reactions, IV access is not necessary. May provide diphenhydrAMINE, 1 mg/kg to maximum of 50 mg orally (if tablets/capsules/elixir available). See Common Oral Medication Dosing Chart in Appendix C. May use local benzocaine applicator at bite/sting site.
4. EPINEPHrine IM dose may be repeated once if hypotension and severe symptoms persist. Higher doses may be needed in patients that are taking ß-blocker medications. **WARNING: An AEMT may not administer EPINEPHrine by IV or IO routes except in cardiac arrest.**

Performance Parameters:

A. Review for documentation of level of consciousness, airway patency, and pulse oximetry reading.

Pediatric Dose Chart – for Severe Allergic Reaction/ Anaphylaxis

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14	Adult
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg	>50 kg
DiphenhydrAMINE (50 mg/ mL vial)IV/ IO slow push over 2-3 min.	**Contact Medical Command**	**0.2 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**	**1 mL**	**1 mL**
EPINEPHrine (1 mg/1 mL) IM for allergic reaction	**Contact Medical Command**	**0.15 mL**	**0.15 mL**	**0.15 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**

Pediatric Oral Dose Chart – for Minor Allergic Reaction

AGE (years)	< 2	2-3	4-5	6-8	9-10	11-12	13-14
Reported Weight (lbs)		25-35 lbs	36-47 lbs	48-59 lbs	60-71 lbs	72-95 lbs	>95 lbs
Provide dose based upon AGE, unless you have specific information about patient weight. These are one-time INITIAL doses by the oral route. Do not give these oral medications if the patient has had the medication within the last 4-6 hours.							
Children's DiphenhydrAMINE (Benadryl) 12.5 mg / 5 ml	**Contact Medical Command**	**5 mL**	**5 mL**	**7.5 mL**	**10 mL**	**10 mL**	**10 mL**

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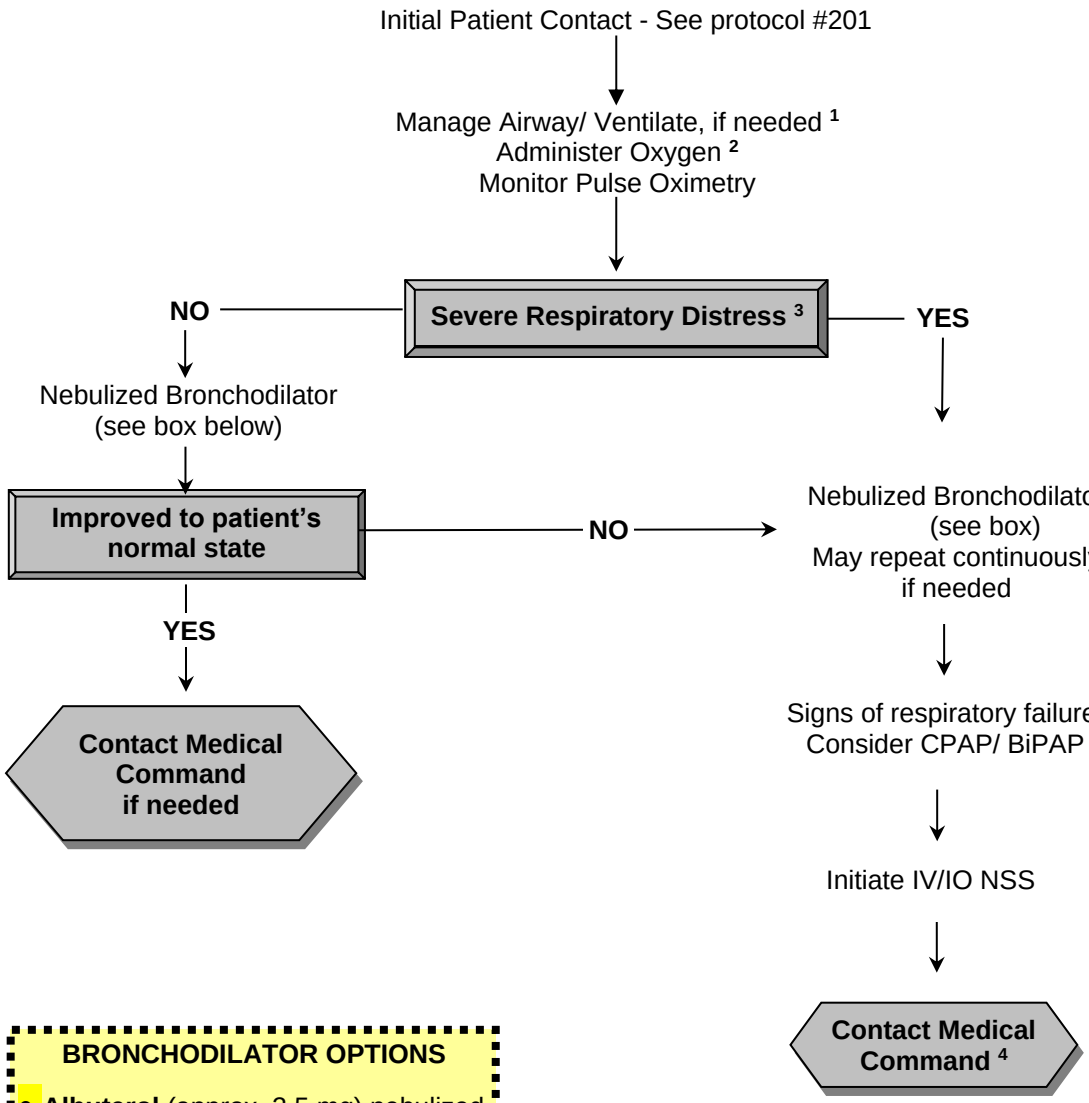
ASTHMA / COPD / BRONCHOSPASM

STATEWIDE IALS PROTOCOL



BRONCHODILATOR OPTIONS

- **Albuterol** (approx. 2.5 mg) nebulized For Pediatric patients under 20 kg, Albuterol (approx. 2.5 mg) nebulized. For pediatric patients greater than 20 kg. (approx. 5mg) nebulized.

OR

- **Albuterol** (approx 3 mg)/ Ipratropium (500 mcg) combination nebulized.

OR

- **Levalbuterol** 1.25mg in approximately 3mL solution

ASTHMA / COPD / BRONCHOSPASM
STATEWIDE IALS 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 – Follow appropriate trauma protocol.

B. Respiratory distress secondary to congestive heart failure - Follow BLS Respiratory Distress Protocol #421

C. Allergic reactions – Follow Allergic Reaction AEMT Protocol #4011i

D. Suspected Croup – Follow Croup AEMT Protocol #4023i

Possible MC Orders:

A. Additional nebulized bronchodilators

B. EPINEPHrine (IM)

C. CPAP/BiPAP, if not already being used.

D. Methylprednisolone (SoluMedrol) 1-2mg/kg max 125mg

Notes:

1. **WARNING:** Although sometimes needed, advanced airways further narrow the airway restriction in a severe asthma exacerbation, and this may worsen some cases. Aggressive use of bronchodilators is generally the most important therapy for severe asthma exacerbation.
2. Administer oxygen at high-flow rate to all patients in severe respiratory distress. COPD patients **NOT** in respiratory distress should be given oxygen to maintain adequate O_2 saturation (e.g. >90%).
3. Indications of severe respiratory distress include:
   a. apprehension, anxiety, combativeness
   b. hypoxia, SpO_2 < 90%
   c. intercostals/subcostal retractions
   d. nasal flaring
   e. cyanosis
   f. use of accessory muscles
4. EPINEPHrine IM may be given only when order from Medical Command Physician. **WARNING: An AEMT may not administer EPINEPHrine by IV or IO routes except in cardiac arrest.**

Performance Parameters:

A. Review for documentation of lung sounds, pulse oximetry, repeat assessments/ pulse oximetry readings, and response to treatment.

CROUP/ STRIDOR/ UPPER AIRWAY DISEASE – PEDIATRIC

STATEWIDE IALS PROTOCOL

Initial Patient Contact - See protocol #201

Manage Airway/ Ventilate, if needed [1]
Administer Oxygen [2]
Monitor Pulse Oximetry

Severe Respiratory Distress [3] (Stridor severe or persistent at rest, tachypnea or retractions present)

NO

Consider Nebulized Bronchodilator if lower airway wheezing only (see box below)

Contact Medical Command

YES

Possible epiglotitis (Toxic appearance with high fever, drooling, tripod position, and severe respiratory distress)

YES

Minimize agitation and transport

Contact Medical Command

NO

Nebulized EPINEPHrine
Either
2.25% racemic EPINEPHrine, 0.5 mL in 2 mL NSS (if available)
OR
EPINEPHrine (1 mg/mL), 5 mL via nebulizer

Contact Medical Command

BRONCHODILATOR OPTIONS

- **Albuterol** (approx. 2.5 mg) nebulized
  For Pediatric patients under 20 kg, Albuterol (approx. 2.5 mg) nebulized.
  For pediatric patients greater than 20 kg. (approx. 5mg) nebulized.

OR

Albuterol (approx 3 mg)/ **Ipratropium** (500 mcg) combination nebulized

OR

- **Levalbuterol** 1.25mg in approximately 3mL solution

CROUP/ STRIDOR/ UPPER AIRWAY DISEASE – PEDIATRIC
STATEWIDE IALS PROTOCOL

Criteria:

A. A pediatric patient with signs and symptoms of stridor and cough from upper respiratory disease:

1. Symptoms/signs may include:
   a. Stridor
   b. Barking cough
   c. May have signs of respiratory infection (e.g. fever, nasal congestion, cough, sore throat)

Exclusion Criteria:

A. Patient with obstructed airway- Follow BLS procedures for airway obstruction

B. Respiratory distress secondary to lower airway bronchoconstriction – Follow Asthma/ COPD/Bronchospasm AEMT Protocol #4022i

C. Respiratory distress secondary to trauma – Follow appropriate trauma protocol.

D. Allergic reactions – Follow Allergic Reaction AEMT Protocol #4011i

Possible MC Orders:

A. Nebulized bronchodilator if suspected lower airway bronchospasm.

Notes:

1. **WARNING:** Avoid ~~extraglottic/ alternative~~ supraglottic airway insertion attempts if epiglottitis is suspected – most patients can be adequately ventilated with BVM. If epiglottitis is possible, manipulating the airway with intubation attempts can be fatal.
2. Administer oxygen at high-flow rate to all patients in severe respiratory distress.
3. Indications of severe respiratory distress include:
   a. apprehension, anxiety, combativeness
   b. hypoxia, SpO_2 < 90%
   c. intercostals/subcostal retractions
   d. nasal flaring
   e. cyanosis
   f. use of accessory muscles

Performance Paramet**ers:**

A. Review for documentation of lung sounds, pulse oximetry, repeat assessments/ pulse oximetry readings, and response to treatment.

B. Review cases of nebulized EPINEPHrine use for appropriate differentiation between croup and lower respiratory bronchospasm.

CHEST PAIN / SUSPECTED ACUTE CORONARY SYNDROME

STATEWIDE IALS PROTOCOL

Initial Patient Contact – see Protocol #201
Consider non-cardiac causes [1]
Administer Oxygen titrated to SpO_2 95-99% [2]
Monitor Pulse Oximetry

↓

Administer Aspirin 324 mg PO chewed [3]

↓

Systolic pressure >100

YES

Initiate IV NSS

Obtain 12-Lead ECG [4,5,6] **and Transmit to receiving facility ASAP**

If not using **Viagra-type** drugs [7], **Nitroglycerin** 0.4 mg SL (Repeat up to 3 doses [6])

↓

Contact Medical Command [6]

↓

If STEMI identified by ECG device and Medical Command can't be contacted,

- transport to closest STEMI receiving center [5,6] capable of emergency primary percutaneous coronary angioplasty (PPCI) if within 45 minute transport time.
- intercept with ALS enroute, if possible.

NO

Initiate IV NSS

Obtain 12-Lead ECG [4,5,6] **and Transmit to receiving facility ASAP**

↓

Contact Medical Command [6]

CHEST PAIN / SUSPECTED ACUTE CORONARY SYNDROME
STATEWIDE IALS PROTOCOL

Criteria:

A. Adult patients with symptoms of possible cardiac ischemia. Diabetics, women, and elderly patients may have atypical symptoms without retrosternal chest pain. May include:
1. Retrosternal chest heaviness/pressure/pain
2. Radiation of pain to arm(s), neck, or jaw
3. Associated Shortness of Breath, nausea/vomiting, or sweating
4. Possibly worsened by exertion
5. Patient over 30 y/o or with known cardiac ischemic disease
6. Patient with history of recent cocaine/amphetamine/stimulant drug use

Exclusion Criteria:

A. Chest pain/symptoms, 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

Possible MC Orders:

A. Diversion to receiving facility capable of emergent primary percutaneous coronary intervention (PPCI).

Notes:

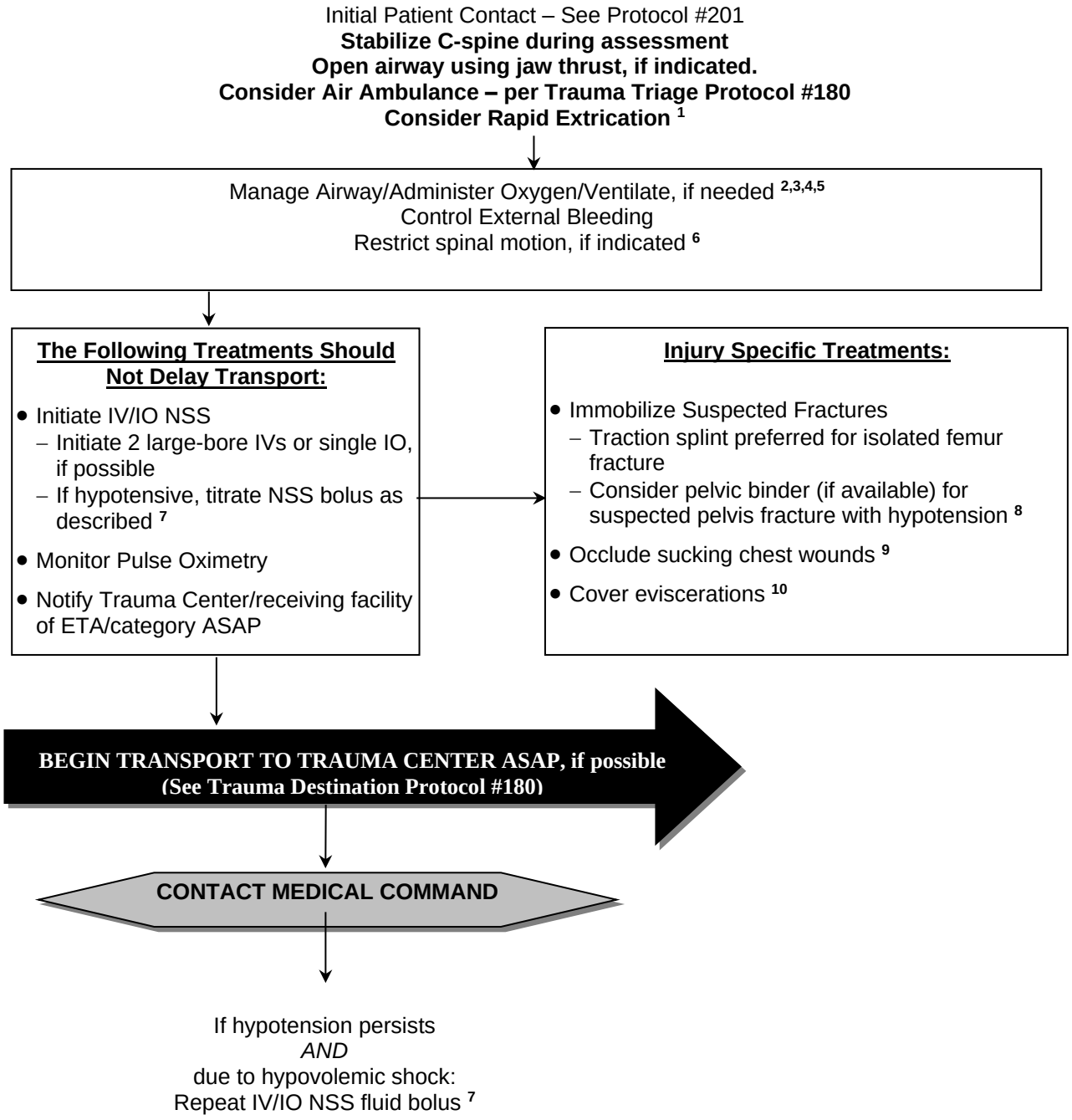
1. Some potentially lethal mimics of Acute Coronary Syndrome (ACS) that must be considered as the patient is assessed and treated include:
   a. Aortic dissection
   b. Acute pericarditis
   c. Acute myocarditis
   d. Spontaneous pneumothorax
   e. Pulmonary embolism
   f. Pneumonia/Lung infection
2. Administer oxygen by appropriate method and monitor Pulse Oximetry. Place patient in position of comfort. Nasal cannula may be utilized if patient is unable to tolerate a facemask.
3. ~~3.~~ Preferred method is to chew 4 baby ASA (81 mg each).
4. **12-lead ECG is to be obtained as soon as possible after patient contact, but in no more than 10 minutes. 12-lead ECG should be transmitted to receiving/ command facility ASAP. If transmission failure, give copy of all 12-lead ECGs to ED physician ASAP on arrival to facility.**
5. Contact medical command after transmitting 12-lead ECG to determine if it is consistent with STEMI since some patients may benefit from transport to a receiving facility capable of emergent primary percutaneous coronary intervention (PPCI). Medical Command may order transport to STEMI-receiving center (facilities that are either accredited as a Mission Lifeline STEMI (Heart Attack) Receiving Center by the American Heart Association or accredited as a Chest Pain Center with PCI by the Society of Cardiovascular Patient Care or identified by the EMS region to have PPCI capabilities). See protocol 170.
6. Early contact with Medical Command is encouraged for patients with chest pain who have continued pain despite 3 doses of NTG, shock, or evidence of STEMI on prehospital 12-lead ECG, since these patients may benefit by direct transport to a receiving facility capable of PPCI.
7. **WARNING:** Nitroglycerin may lead to fatal hypotension if given to patients using drugs for erectile dysfunction.
   a. **DO NOT** administer nitroglycerin (NTG) to a patient has taken sildenafil (Viagra/Revatio) or vardenafil (Levitra) within 24 hours.
   b. **DO NOT** administer NTG to a patient who has taken tadalafil (Cialis) within the last 48 hours.
   c. These medications may be used for conditions other than erectile dysfunction (e.g. Revation is used for pulmonary hypertension).

Performance Parameters:

A. All patients should either receive aspirin or the PCR should include documentation of why aspirin was contraindicated.
B. Review for appropriate transmission of 12-lead ECG. Review for appropriate diversion to facility capable of PCI and/or for appropriate notification of receiving facility when STEMI is identified.
C. 12-lead ECGs documented with graphs included in PCR.
D. Possible benchmark for on scene time of ≤ 20 minutes.
E. Vital signs documented after each use of vasoactive medication (e.g. nitroglycerin).

MULTISYSTEM TRAUMA OR TRAUMATIC SHOCK

STATEWIDE IALS PROTOCOL



MULTISYSTEM TRAUMA OR TRAUMATIC SHOCK
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient that meets Category 1 or Category 2 trauma triage criteria related to traumatic injury.

B. Patients with symptoms of spinal cord injury including extremity weakness, numbness or sensory loss.

Exclusion Criteria:

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

B. Hypotension not related to trauma – See appropriate Shock or Cardiac protocol.

C. Patient that meets Category 3 trauma triage criteria – See appropriate injury-specific protocol.

Possible Medical Command Orders:

A. Additional NSS for hypotension.

B. Assistance with destination decisions (Trauma Center v. non-Trauma Center, Pediatric Trauma Center v. Adult Trauma Center, etc.)

Notes:

1. Rapid extrication may be appropriate in any unsafe environment: 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 ventilatory support include GCS < 8, inadequate respiratory effort, and airway not patent.
3. Consider BVM ventilation if needed.
4. Confirm and document advanced airway (King LT or iGel) placement with absence of gastric sounds and presence of bilateral breath sounds *AND* confirmation with electronic waveform capnography ~~confirmatory device (like wave-form $ETCO_2$ detector)~~. Follow Confirmation of Airway Placement Protocol #2032.
5. If ventilation is needed, **AVOID ~~OVERZEALOUS~~ HYPERVENTILATION**.
    a. For all other trauma patients requiring ventilation, ventilate initially at the following rate, ideally with a timing device: ~~patients with these signs of severe head injury (GCS motor score of 1-2 or unequal/unreactive pupils), hyperventilate at:~~
        1) 10 bpm for adults
        2) 20 bpm for children >2 and ≤14 y/o
        3) 25 bpm for infant < 2 y/o
    b. Then monitor capnography and adjust ventilation rate to ETCO2 target of 40mmHg (range 35-45mmHg)
    ~~c. For all other trauma patients requiring ventilation, ventilate at:~~
        ~~1) 10 bpm for adults~~
        ~~2) 20 bpm for children ≤ 14 y/o~~
6. Follow BLS Spine Care Protocol #261.

7. IV/IO NSS fluid resuscitation should be guided by the following:
    a. Adults: Administer NSS at wide open rate only until desired blood pressure is attained:
        1) When bleeding has not been controlled, titrate NSS to permit moderate hypotension (SBP between 70-90) unless severe head injury also present.
        2) When bleeding has been controlled or if severe head injury, titrate NSS to achieve SBP >90.
        3) Maximum NSS dose is 1000 mL before contacting Medical Command.
    b. Pediatrics (preadolescent or age ≤ 14 y/o:
        1) When bleeding has not been controlled, titrate NSS to permit moderate hypotension (SBP between [50 + 2(age)] – [70 + 2(age)]), unless severe head injury also present.
        2) When bleeding has been controlled or if severe head injury, titrate NSS to achieve SBP > 70 + 2(age).
        3) Maximum NSS dose is ~~40~~ 20 mL/kg before contacting Medical Command.
8. Pelvic binder splinting devices (circumferential commercial devices that compress the pelvis) are appropriate splinting devices.
9. If sucking chest wound, cover wound with occlusive dressing sealed on 3 sides. Release dressing if worsened shortness of breath or signs of tension pneumothorax.
10. 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. Transport with knees slightly flexed if possible.
    a. **DO NOT PUSH VISCERA BACK INTO ABDOMEN**, unless prolonged extrication. 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.

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 ≤ 10 minutes. Consider benchmark for on scene time for non-entrapped patients ≤ 10 minutes and ≤ 20 minutes for entrapped trauma patients and Category 2 trauma patients.

C. Documentation of applicable trauma triage criteria.

D. Appropriate destination per Trauma Patient Destination Protocol #180.

E. Appropriate utilization of air medical transport per Trauma Patient Destination Protocol #180.

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MUSCULOSKELETAL TRAUMA

STATEWIDE IALS PROTOCOL

Initial Patient Contact – See Protocol #201

Splint suspected fractures as appropriate:

- Traction splinting is preferred for isolated femur fractures [1]
- Straighten severely angulated fractures if distal extremity has signs of decreased perfusion.

Assess pain on 1-10 scale
Assess Neurovascular Status distal to injury

Oral medication not contraindicated

- Place in position of comfort
- Provide verbal reassurance

If mild to moderate pain:

- **Acetaminophen**, [2] if available, 650 mg orally
  Peds: See Pediatric Oral Medication Dose Chart
  OR
- **Aspirin** 324-650 mg orally (adult > 14 y/o only)
  OR
- **Ibuprofen**, if available, 600 mg orally [3,] Peds >/= 6 months, 10mg/kg (max 600mg)
  Peds ≥ 2 y/o, See Pediatric Oral Med. Dose Chart

WARNING: Do not administer these medications if patient had medication recently (within 4 hours for acetaminophen/aspirin, within 6 hours for NSAID).

Peds < 2 y/o

Nausea or contraindication to oral medication or moderate/severe pain

- Place in position of comfort
- Provide verbal reassurance
- Initiate IV/IO NSS [4]
- If nausea, consider ondansetron, if available (see protocol 7010i)
- Administer **Nitrous Oxide** [5] (if available, see box below)
- Monitor Pulse Oximetry (if nitrous oxide given)

CONTACT MEDICAL COMMAND

ANALGESIC MEDICATION OPTION
Nitrous Oxide, if available, (50:50) by inhalation [6]

Pediatric Oral Dose Chart for Mild Pain

AGE (years)	6 mos to < 2		2-3	4-5	6-8	9-10	11-12	13-14
Reported Weight (lbs)	12-17 lbs	18-23 Lbs	24-35 lbs	36-47 lbs	48-59 lbs	60-71 lbs	72-95 lbs	>95 lbs
Reported Weight (kg)	5.5-7.5 kg	8-11 kg	11.5-16 kg	16.5-21 kg	22-27 kg	27.5-32.5 kg	33-43 kg	> 43 kg
Provide dose based upon AGE, unless you have specific information about patient weight. These are one-time INITIAL doses by the oral route. Do not give these oral medications if the patient has had the medication within the last 4-6 hours. Ensure proper syringe is available to deliver graduated dose required								
Infant Drops Ibuprofen (Motrin, Advil) 50 mg/1.25 ml)	1.2 ml	2.0 ml	2.5 ml	3.75 ml	5 ml	- - -	- - -	- - -
Children's Ibuprofen 100 mg / 5 ml	3 ml	5 ml	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL
Children's Acetaminophen (Tylenol) 160 mg / 5ml	2.5 ml	3.75 ml	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL

MUSCULOSKELETAL TRAUMA
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient with isolated suspected extremity fractures.

B. Patient with acute extremity pain after trauma

C. Patient with acute back pain, excluding chronic back pain

D. Patient with acute thoracic/ rib pain after trauma

Exclusion Criteria:

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

Possible Medical Command Orders:

A. Analgesia/ pain medication

1. Ketorlac for adults 15mg IV or 30mg IM.

Notes:

1. Traction splinting should not be used for hip (proximal femoral neck) fractures.
2. Acetaminophen is contraindicated in patients with liver disease/failure.
3. NSAID (nonsteroidal anti-inflammatory drugs), including ibuprofen, are contraindicated if:
    a. Oral NSAID (e.g. ibuprofen, naproxen, etc.) taken by patient in last 6 hours
    b. Bleeding or suspected bleeding (e.g. external/internal trauma, gastrointestinal, vascular).
    c. Known kidney disease/failure or kidney transplant
    d. NSAIDS can be given to any child older than 6 months. The maximum dose is 600mg.
4. IV/IO access is not required for administration of nitrous oxide.
5. Reassess and document 1-10 pain score 15-30 minutes after analgesic dose or at time of transfer of care.
6. Nitrous oxide should be self-administered. Patient should be coached to hold mask on his/her face, and the patient will drop mask if he/she becomes sedated. Over-sedation may occur if EMS provider holds mask to patient's face. Nitrous oxide may be administered without IV access. Avoid nitrous oxide in:
    a. SBP <90 [Pediatrics < 70 + (2 x age)]
    b. obvious intoxication
    c. head injury with altered mental status
    d. chronic lung disease
    e. suspected pneumothorax
    f. suspected bowel obstruction
    g. decompression sickness (e.g. from diving/submersion)

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. Severity of pain documented for all painful conditions and documented before and after analgesic medications/ interventions.

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CRUSH SYNDROME

STATEWIDE IALS PROTOCOL

Initial Patient Contact- See Protocol #201
Follow all other appropriate Trauma Protocols also
Administer Oxygen
In collapsed building, place surgical mask/ filter mask on patient, if possible [1]
Monitorpulse oximetry

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Initiate IV/ IO NSS
Administer NSS bolus of 20 mL /kg (warm if possible) [2,3]
If IV/IO not available, consider **albuterol**
(approx..2.5 mg nebulized

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Patient Entrapped? — **NO** → **See Multisystem Trauma Protocol #6002i, Extremity Injury Protocol #6003i, or other appropriate protocol(s)**

YES

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Before Extrication:
Coordinate extrication time with Rescue
Assess extremity neurovascular status
Initiate second IV/IO if possible
If hypotension or entrapped > 1 hour, administer additional NSS bolus of 20 mL /kg/hr
(or administer fluids to maintain urine output of 300 mL/hr [Peds: 2 mL/kg/hr])
Examine urine/ measure output if prolonged entrapment

Contact Medical Command if communications possible

After extrication:
IV NSS wide open to maintain SBP > 100 ~~[Pediatrics SBP > 70 + 2 (age)]~~
For children 1-10 years old and BP <70 + (age x2) or if greater than 10 years old and BP < 90

Contact Medical Command

CRUSH SYNDROME
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient entrapped and crushed under heavy load (e.g. extremities and/or body crushed in building collapse, trench collapse, industrial accident, or pinned under/by heavy vehicle/ farm equipment for more than 30 minutes and with suspected crush syndrome:

Exclusion Criteria:

A. Patient trapped for less than 30 minutes

B. Patient entrapped but without significant tissue crushing.

C. Altered mental status – See Altered Level of Consciousness Protocol #7002iA or #7002iP.

Possible Medical Command Orders:

A. Alteration in intravenous fluid volume

Notes:

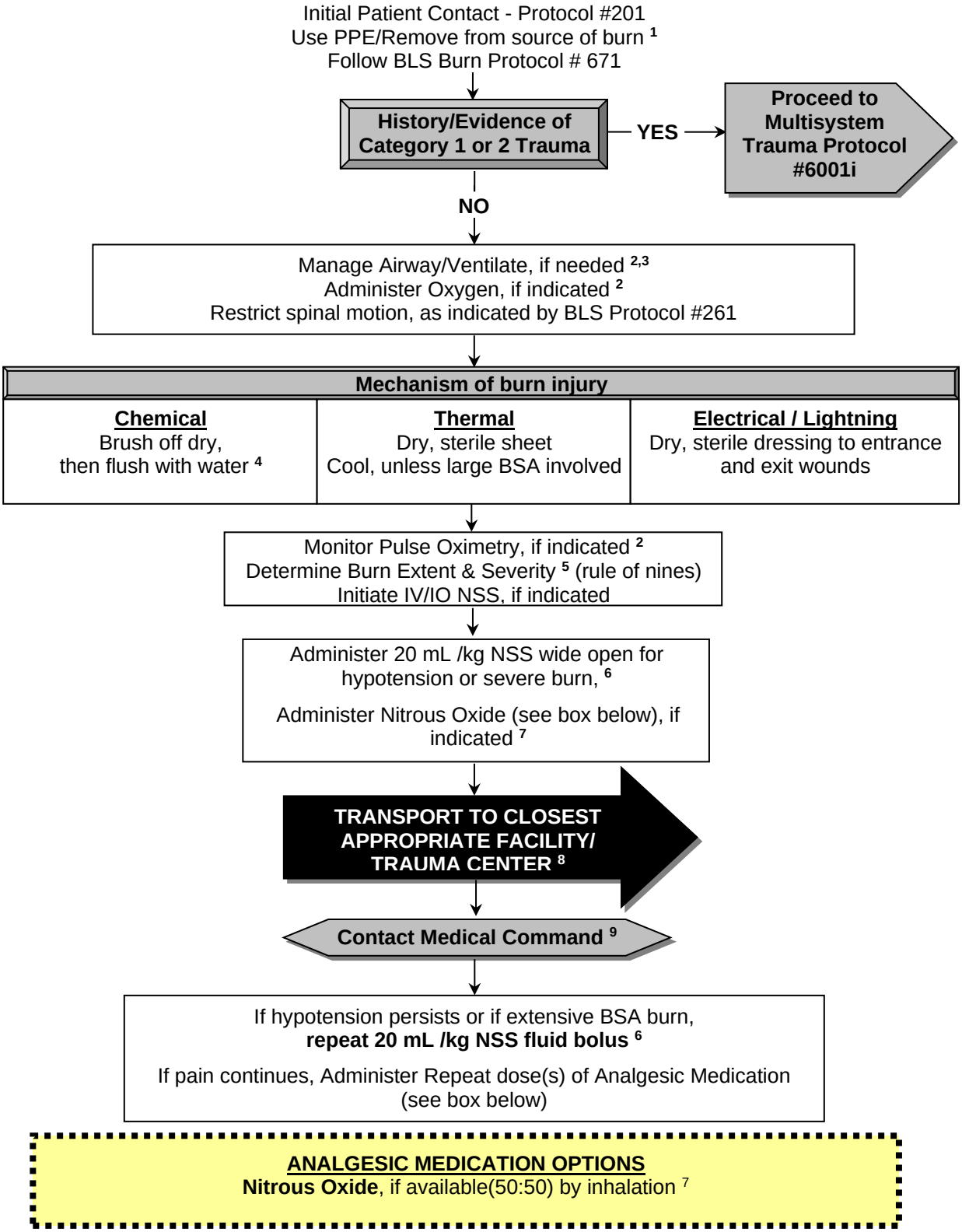
1. In addition to a dust mask, victims may need eye, head and hearing protection if rescue crews are working nearby. Surgical mask should not be applied if patient requires oxygen by mask.
2. Avoid using Ringer's lactate as an IV fluid due to its potassium content.
3. Victims of structural collapse may become hypothermic in prolonged incidents, even in warm weather.

Performance Parameters:

A. Review every case where crush syndrome protocol used.

BURNS

STATEWIDE IALS PROTOCOL



BURNS
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient with burns from:

1. Thermal injury
2. Chemical dermal injury.

B. Patient with lightning or electrical injury.

Possible MC Orders:

A. Transport to a burn center or trauma center

B. 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 and Pulse Oximetry monitoring.
3. Consider early intubation in patients with respiratory distress, hoarseness, carbonaceous sputum or stridor. If unsure, contact medical command early for assistance with this decision.
4. 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 cooking oil if available; 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. May administer tetracaine eye drops before flushing. Continue eye flushing during transport.
5. Indicators of severe burn injury include:
   a. Respiratory tract injury, inhalation injury.
   b. 2nd and 3rd degree burns that involve face, hands, feet, genitalia or perineal area or those that involve skin overlying major joints.
   c. 3rd degree burns of greater than 5% BSA.
   d. 2nd 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.

   Medical Command physician may direct transport to Burn Center in these cases.
6. **DO NOT** provide fluid bolus if respiratory symptoms are present.
7. Nitrous oxide should be self-administered. Patient should be coached to hold mask on his/her face, and the patient will drop mask if he/she becomes sedated. Oversedation may occur if EMS provider holds mask to patient's face.
8. Transport to the closest appropriate medical facility, using the following order of preference:

a. If unable to maintain airway or unable to ventilate or patient has symptoms of shortness of breath/cough or inhalation injury is suspected, transport to closest hospital.

b. Transport to Trauma Center, if patient has associated trauma. Follow Trauma Destination Protocol #180.

c. Transport to a burn center if:

1) The patient has burns to more than 15% BSA or burns to 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 none of the above apply, transport to the closest hospital.

9. 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.

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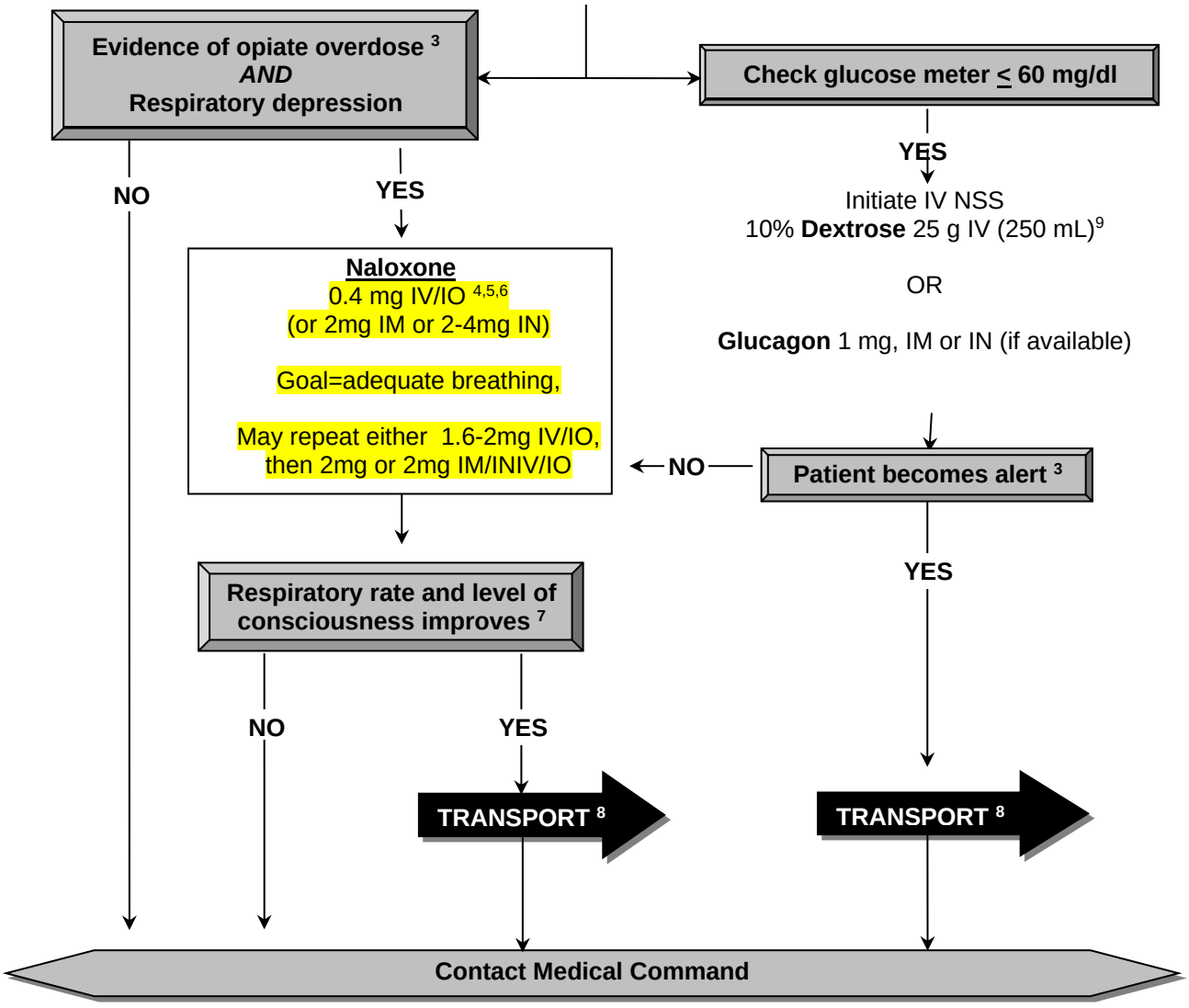
ALTERED LEVEL OF CONSCIOUSNESS

STATEWIDE IALS PROTOCOL

Initial Patient Contact - See Protocol # 201
Administer Oxygen [1]
Manage Airway/Ventilate, if needed
Monitor Pulse Oximetry [2]
Assess Glasgow Coma Scale



ALTERED LEVEL OF CONSCIOUSNESS - ADULT
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient with altered level of consciousness due to:

1. Unclear etiology after assessing patient
2. History consistent with hypoglycemia
3. Suspected drug ingestion /overdose
4. Seizure

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 AEMT protocol # 7005i
3. Toxicologic
   a. Carbon monoxide - Follow Poisoning/Toxic Exposure Protocol #831.
4. Stroke - Follow Stroke AEMT Protocol #7006i (If glucose <60, follow this protocol for dextrose dosing)
5. Other medical problems specifically suspected due to history or exam, e.g. choking, hypoxia due to respiratory failure, etc…- Follow applicable specific protocol.

Possible MC Orders:

~~**A. If history of chronic or daily use of opioids, medical command may recommend lower doses of naloxone to avoid withdrawal symptoms.**~~

B. Additional doses of dextrose or glucagon (if available)

Notes:

1. Administer oxygen by appropriate method.
2. See Pulse Oximetry Protocol #226. Pulse Oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen or ~~intubation~~ advanced airway placement.
3. Indications of possible opiate overdose include decreased respirations, pinpoint pupils, skin “track marks”, *AND/OR* the presence of drug paraphernalia.
4. Naloxone should not be given to patients that have an ~~extraglottic/ alternative~~ supraglottic airway in place and also have oxygen saturation >95% and SBP >90.
5. Naloxone can be administered IM, IO, or intranasally if IV cannot be established. IN administration should be done via an atomizing device, giving half of dose in each nostril. If IM route is required, use 2 mg.
6. The goal of each naloxone dose is return of adequate spontaneous respirations – the goal is not consciousness or walking. Do not give additional doses if patient breathing spontaneously with adequate oxygen saturation. Larger individual doses of naloxone can precipitate opiate withdrawal with the potential for a violent or combative patient that is difficult to manage at the scene and once the patient is admitted to the hospital. Some opioids may require higher doses of naloxone. Principles related to naloxone use include:
   a. Assisting ventilation with BVM should occur prior to and during naloxone administration if needed.

b. ~~If patient has history of chronic or daily use of opioids, contact medical command (if possible) for lower dosing to avoid withdrawal symptoms.~~ Options for titrating naloxone dosing every 2-4 minutes until adequate spontaneous respirations:

i. IV/IO: 0.4 mg, then 1.6 - 2 mg, then 2 mg (up to 4.4 mg total)

ii. IM/IN: 2 mg, then 2 mg (4 mg total); may use 4 mg IN prefilled device

iii. 2 mg dose by any route is acceptable for patient with both respiratory depression and poor perfusion (hypotension, weak/thread pulse), then additional 2 mg

c. If inadequate spontaneous ventilation after a total of up to 4 mg naloxone by any route, efforts should be focused on adequate BVM ventilation and placement of advanced airway, if possible

7. Indicators of improved mental status include:
   a. Orientation to person, place and time
   b. Increased alertness
   c. Increased responsiveness to questions
8. For patients refusing transport, adhere to Refusal of Treatment /Transport Protocol #111.
9. There is an increased risk of tissue damage if 50% dextrose extravasates, and the time to regaining consciousness is similar when using either 10% or 50%, therefore administration of 10% dextrose is preferred. IALS agenciess may carry dextrose for the treatment of hypoglycemia in adults in any concentration between 10 – 50%.

   25 gm of dextrose is:

   250 mL of 10% dextrose,

   100 mL of 25% dextrose,

   50 mL of 50% dextrose

Performance Parameters:

A. Review for proper use of naloxone and glucose and documentation of neurologic assessment/ response to treatment.

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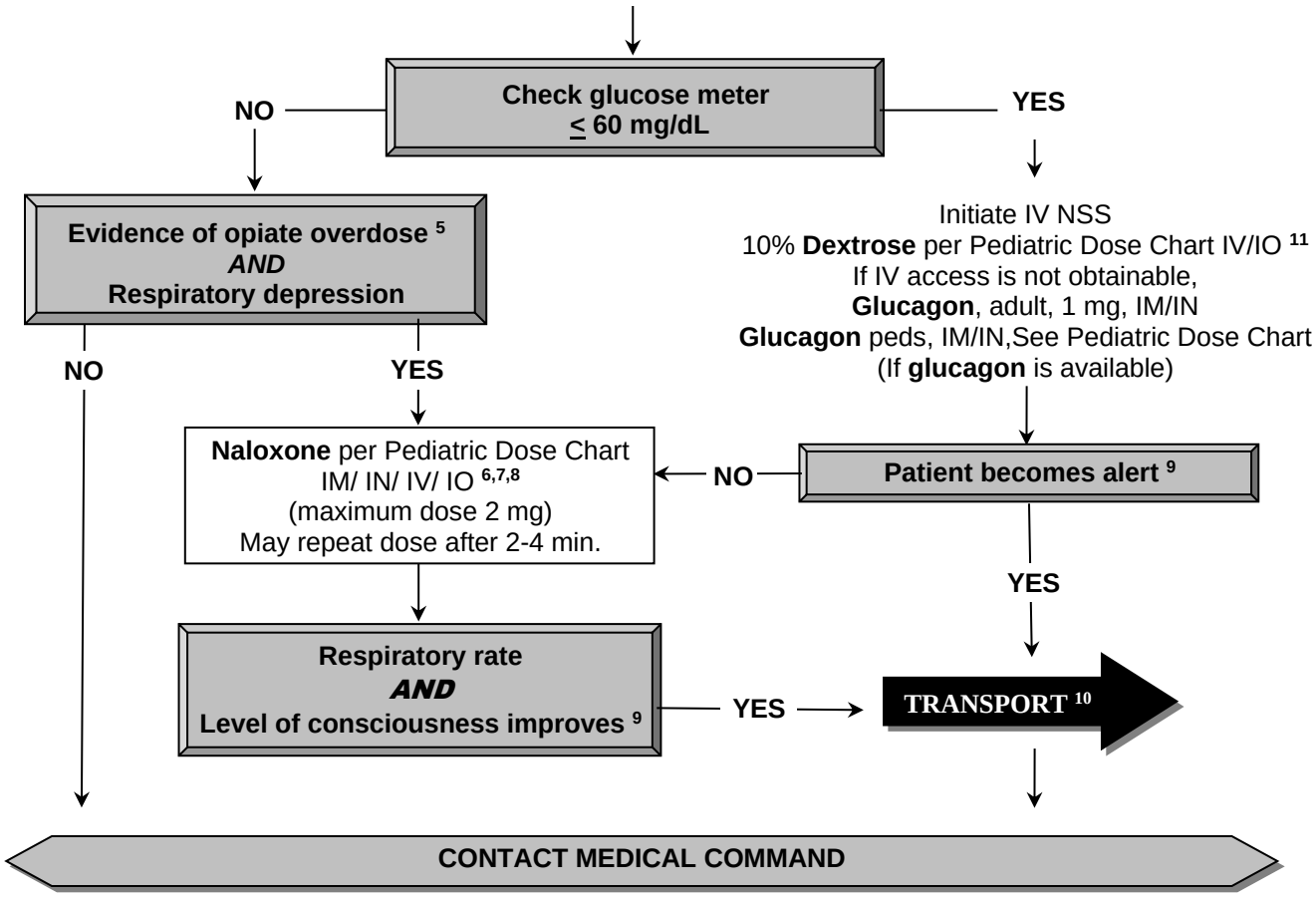
ALTERED LEVEL OF CONSCIOUSNESS - PEDIATRIC

STATEWIDE IALS PROTOCOL

Initial Patient Contact - See Protocol #201
Administer Oxygen [1]
Manage Airway/Ventilate, if needed [2,3]
Monitor Pulse Oximetry [4]
Assess Glasgow Coma Scale



Pediatric Dose Chart – for Altered Mental Status

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg
Dextrose, 10% IV/ IO infusion or slow push	Contact Medical Command	50 mL	75 mL	100 mL	125 mL	150 mL	200 mL	250 mL
WARNING: DOSES BELOW ARE IN MILLIGRAMS (mgs)								
Glucagon (reconstituted powder) IM/ IN	Contact Medical Command	0.5 mg	0.5 mg	1 mg	1 mg	1 mg	1 mg	1 mg
Naloxone (WARNING: multiple concentrations) IN/ IM/ IV/ IO	Contact Medical Command	1 mg	1.5 mg	2 mg	2 mg	2 mg	2 mg	2 mg

ALTERED LEVEL OF CONSCIOUSNESS - PEDIATRIC
STATEWIDE IALS 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)
3. Suspected drug ingestion /overdose
4. Seizure

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 AEMT Protocol #7005i
3. Toxicologic
   a. Carbon monoxide - Follow Poisoning / Toxic Exposure Protocol #831.
4. Other medical problems specifically suspected due to history or exam, e.g. choking, hypoxia due to respiratory failure, etc…- Follow applicable specific protocol.

Possible MC Orders:

A. ~~If history of chronic or daily use of opioid, medical command may order lower naloxone doses to avoid withdrawal~~

B. Additional doses of naloxone

C. Additional doses of dextrose or glucagon (if available)

Notes:

1. Administer oxygen by appropriate method.
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, insertion of age appropriate ~~extraglottic/ alternative~~ supraglottic airway is indicated. Use a length-based device to assist with selection of appropriate sized airway equipment.
3. Confirm and document ~~tube~~ supraglottic placement with auscultation and electronic waveform capnography ~~$ETCO_2$ detector/secondary device -~~ Follow Confirmation of Airway Placement Protocol #2032i
4. See Pulse Oximetry Protocol #226. Pulse Oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen or intubation.
5. Indications of possible opiate overdose include decreased respirations, pinpoint pupils, skin “track marks”, *AND/OR* the presence of drug paraphernalia.
6. Naloxone should not be given to patients that have a~~n extraglottic~~ supraglottic airway in place and also have oxygen saturation >95% and SBP >90.
7. Naloxone can be administered IM or intranasally. IN administration should be done via an atomizing device with dose split evenly between each nostril.

8. The goal of each naloxone dose is return of adequate spontaneous respirations – the goal is not consciousness or walking. Do not give additional doses if patient breathing spontaneously with adequate oxygen saturation. Larger individual doses of naloxone can precipitate opiate withdrawal with the potential for a violent or combative patient that is difficult to manage at the scene and once the patient is admitted to the hospital. If no response to dose of naloxone, dose may repeat in 2-4 minutes to a total of 4 mg. Some opioids may require higher doses of naloxone. Principles related to naloxone use include:
    a. Assisting ventilation with BVM should occur prior to and during naloxone administration if needed.
    b. If patient has history of chronic or daily opioid use, contact medical command (if possible) to consider lower dosing to avoid withdrawal symptoms.
    c. If inadequate spontaneous ventilation after a total of up to ~~4~~ 2mg naloxone by any route, efforts should be focused on adequate BVM ventilation and placement of advanced airway, if possible.
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. For patients refusing transport, adhere to Refusal of Treatment/Transport Protocol #111.
11. IALS agenciess may carry dextrose for the treatment of hypoglycemia in children in any concentration between 10-25%. Patients awaken in a similar amount of time whether using 10 or 25%. For neonates, 25% dextrose dose should be diluted with equal amounts of NSS for 12.5% dextrose at 4 mL/kg (or administer 5 mL/kg of 10% dextrose for any age).

Performance Parameters:

A. Review for proper use of naloxone and glucose and documentation of neurologic assessment/ response to treatment.

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NONTRAUMATIC PAIN MANAGEMENT

STATEWIDE IALS PROTOCOL

Initial Patient Contact – See Protocol #201

Assess pain on 1-10 scale
Headache with history of migraine (current headache similar to previous migraines)
OR
Flank/ Pelvic/Back Pain (Not due to Trauma or Injury)

Oral medication not contraindicated

- Place in position of comfort
- Provide verbal reassurance

If mild to moderate pain:

- **Acetaminophen**[1] , if available, 650 mg orally
  Peds See Oral Medication Dose Chart
  OR
- **Aspirin** ~~324-~~650 - 1000mg orally (adult > 14 y/o only)
  OR
- **Ibuprofen**, if available, 400 mg orally [2]
  Peds ≥ 2 y/o, See Oral Medication Dose Chart.

WARNING: Do not administer these medications if patient had medication recently (within 4 hours for acetaminophen/aspirin, within 6 hours for NSAID).

Peds < 2 y/o

Nausea or contraindication to oral medication

- Place in position of comfort
- Provide verbal reassurance
- Initiate IV/IO NSS [3]
- If nausea, consider ondansetron, if available (see protocol 7010i)
- Administer Nitrous Oxide, if available (see box below)

CONTACT MEDICAL COMMAND

NONOPIOID ANALGESIC MEDICATION OPTIONS

Nitrous Oxide, if available (50:50) by inhalation [4]
Nitrous oxide should be self-administered. Patient should be coached to hold mask on their face, and the patient will drop mask if they become sedated.

NONTRAUMATIC PAIN MANAGEMENT
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient with headache that is similar to previous migraine headaches

B. Patient with flank pain, including suspected kidney stone pain

C. Patient with acute pelvic pain

Exclusion Criteria:

A. Headache pain that is new for patient, associated with cerebral aneurysm, or is worst headache of patient's life - these may be associated with intracranial hemorrhage

B. Known or suspected bleeding (gastrointestinal bleeding, leaking AAA, vaginal bleeding, etc.)

C. Abdominal pain

D. Known or suspected pregnancy

E. Pain from musculoskeletal trauma (Follow Musculoskeletal Trauma Protocol #6003i)

F. Known history of glucose-6-phosphate dehydrogenase (G6PD) deficiency

Possible Medical Command Orders:

A. Analgesia/ pain medication

1. Ketorlac for adults 15mg IV or 30mg IM.

Notes:

1. Acetaminophen is contraindicated in patients with liver disease/failure.
2. NSAID(nonsteroidal anti-inflammatory drugs), including ibuprofen and ketorolac, are contraindicated if:
    a. Oral NSAID (e.g. ibuprofen, naproxen, etc.) taken by patient in last 6 hours
    b. Gastrointestinal, vascular or other bleeding suspected.
    c. Known kidney disease/failure or kidney transplant.
3. IV/IO access is not required for administration of nitrous oxide
4. Nitrous oxide should be self-administered. Patient should be coached to hold mask on his/her face, and the patient will drop mask if he/she becomes sedated. Over sedation may occur if EMS provider holds mask to patient's face. Nitrous oxide may be administered without IV access. Avoid nitrous oxide in:
    a. SBP <90 ~~[Pediatrics < 70 + (2 x age)]~~ For children 1-10 years old and BP <70 + (age x2) or if greater than 10 years old and BP < 90
    b. altered mental status (e.g. obvious intoxication, head injury)
    c. chronic lung disease
    d. suspected pneumothorax
    e. suspected bowel obstruction
    f. decompression sickness (e.g. from diving/submersion)

Performance Parameters:

A. Severity of pain documented for all painful conditions, and documented before and after analgesic medications/ interventions.

Pediatric Oral Dose Chart for Mild Pain

AGE (years)	**6 mos to < 2**		2-3	4-5	6-8	9-10	11-12	13-14
Reported Weight (lbs)	**12-17 lbs**	**18-23 Lbs**	24-35 lbs	36-47 lbs	48-59 lbs	60-71 lbs	72-95 lbs	>95 lbs
Reported Weight (kg)	**5.5-7.5 kg**	**8-11 kg**	11.5-16 kg	16.5-21 kg	22-27 kg	27.5-32.5 kg	33-43 kg	> 43 kg
Provide dose based upon AGE, unless you have specific information about patient weight. These are one-time INITIAL doses by the oral route. Do not give these oral medications if the patient has had the medication within the last 4-6 hours. Ensure proper syringe is available to deliver graduated dose required								
Infant Drops Ibuprofen (Motrin, Advil) 50 mg/1.25 ml)	**1.2 ml**	**2.0 ml**	**2.5 ml**	**3.75 ml**	**5 ml**	- - -	- - -	- - -
Children's Ibuprofen 100 mg / 5 ml	**3 ml**	**5 ml**	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL
Children's Acetaminophen (Tylenol) 160 mg / 5ml	**2.5 ml**	**3.75 ml**	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL

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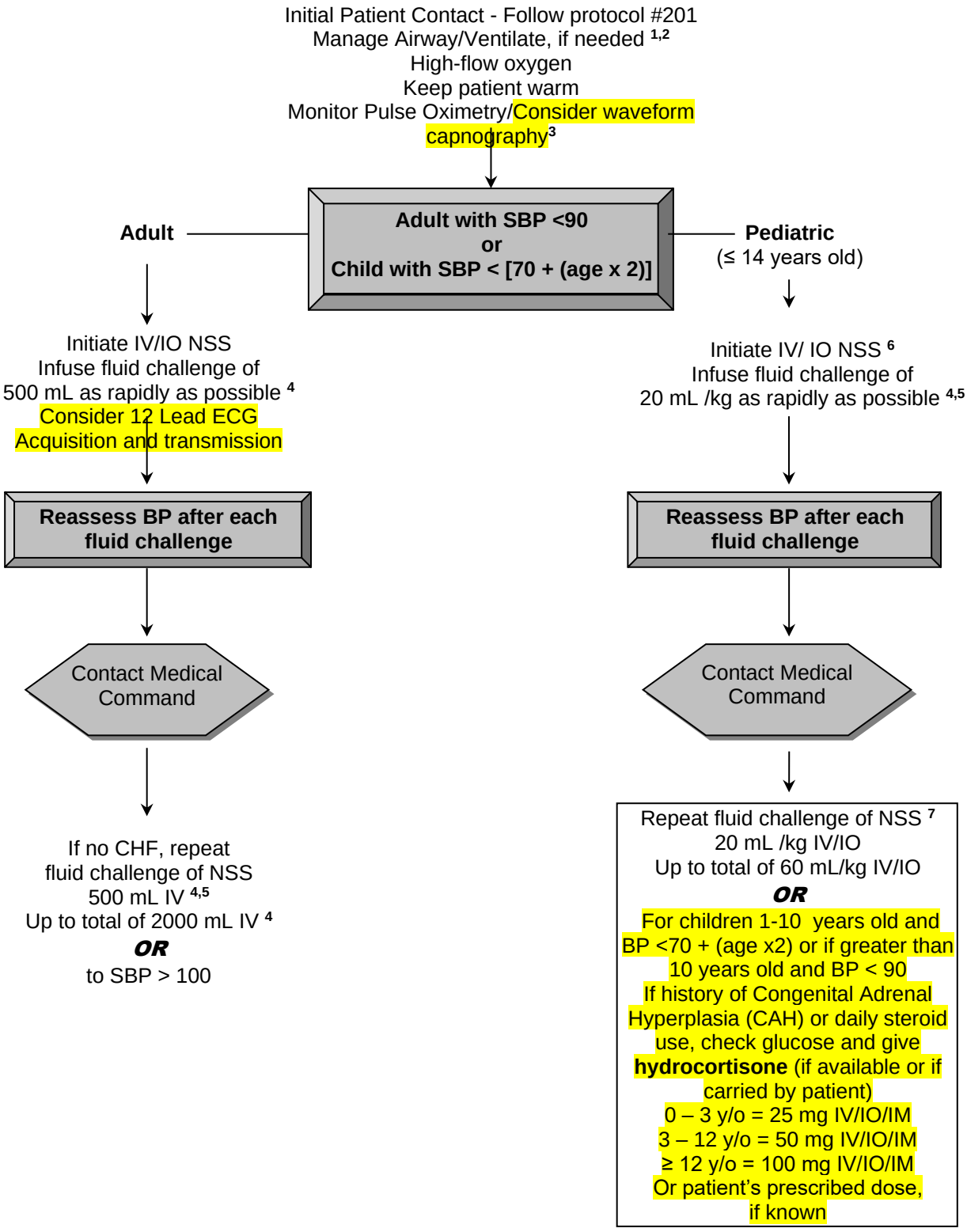
SHOCK/ SEPSIS

STATEWIDE IALS PROTOCOL



MEDICATION DOSE CHART

For INITIAL DOSE. Base dose on patient AGE unless you have reliable information about weight.

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14	Adult
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg	>50 kg
Crystalloid Fluid/ NSS IV/ IO infusion	**Contact Medical Command**	**200 mL**	**300 mL**	**400 mL**	**500 mL**	**600 mL**	**800 mL**	**1000 mL**	**2000 mL**

SHOCK/ SEPSIS
STATEWIDE IALS PROTOCOL

Criteria:

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

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 or from repetitive vomiting/diarrhea in infants/children.
3. Hypoperfusion of unknown etiology.

Exclusion Criteria:

A. Hypovolemic Shock of due to trauma – Permissive hypotension may be helpful in hemorrhagic shock from trauma.

Possible MC Orders:

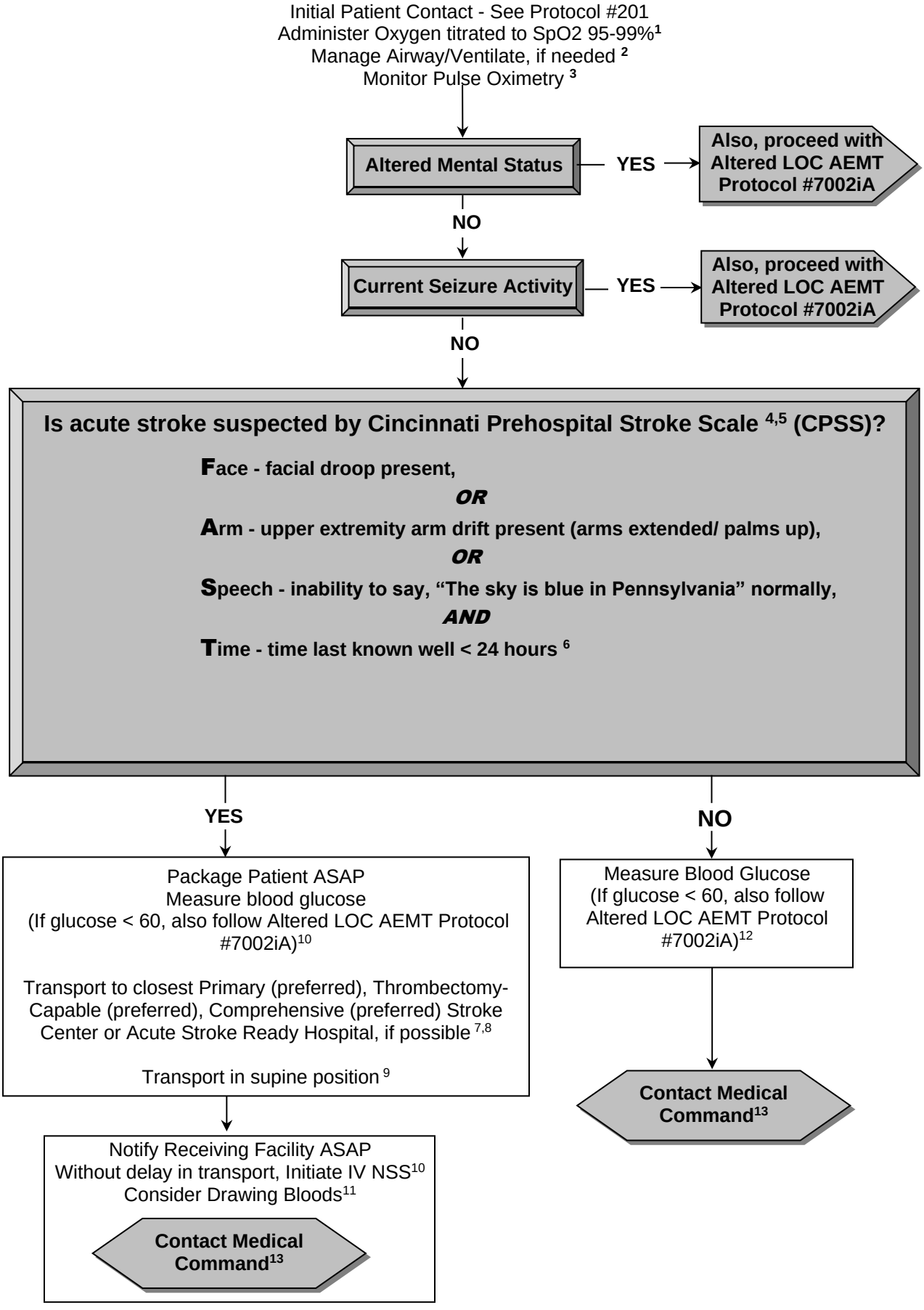
A. Additional NSS fluid boluses

Notes:

1. Confirm and document tube placement with auscultation and ~~$ETCO_2$ detector~~ electronic waveform capnography - Follow AEMT Confirmation of Airway Placement Protocol #2032i
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, insertion of age appropriate ~~extraglottic/ alternative~~ supraglottic airway is indicated. Use a length-based device to assist with selection of appropriately sized airway equipment.
3. See Pulse Oximetry Protocol #226. Pulse Oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen or intubation.
4. Bolus IV fluid should be given as quickly as possible, ideally in less than ten minutes.
5. Do not give IV fluid bolus prior to medical command if the patient has signs of CHF (for example, rales or significant pitting edema).
6. If unable to obtain peripheral IV access, place an intraosseous (IO) line, if available.
7. In infants, it is difficult to distinguish between hypoperfusion from hypovolemia and that due to cardiogenic shock. Hypovolemia frequently follows a history of repetitive vomiting/diarrhea. If cardiogenic shock is suspected, fluid boluses should be limited to the initial 20 mL/kg.

STROKE

STATEWIDE IALS PROTOCOL



STROKE
STATEWIDE IALS PROTOCOL

Criteria:

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

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

B. **CAUTION:** Respiratory and cardiovascular abnormalities may reflect increased intracranial pressure. 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.

Possible MC Orders:

A. Transport to a receiving facility that is a certified primary stroke center, comprehensive, or thrombectomy capable stroke center.

Notes:

1. Administer oxygen by appropriate method and monitor Pulse Oximetry, if available.
2. Confirm and document ~~tube~~ advanced airway placement with auscultation and electronic waveform capnography ~~$ETCO_2$ detector~~ - Follow AEMT Confirmation of Airway Placement Protocol #2032i
3. See Pulse Oximetry Protocol #226. Pulse Oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen or intubation.
4. Neurological examination includes level of consciousness, Glasgow Coma Scale, pupils, individual limb movements, and Cincinnati Prehospital Stroke Scale (CPSS).
5. **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.
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 certified primary stroke center within 3 hours from onset of symptoms. Time is based upon the last time that the patient was witnessed to be at his/her neurologic baseline.
7. The Department of Health maintains a listing of recognized stroke centers. Found at https://www.health.pa.gov/topics/EMS/Pages/Recognized-Stroke-Centers.aspx. Transport to the closest certified Primary Stroke Center, Thrombectomy-Capable Stroke Center or Comprehensive

Stroke Center if the patient can arrive at the stroke center within 45 minutes. Otherwise, transport to an Acute Stroke Ready Hospital, if the patient can arrive at that facility within 45 minutes.

8. 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. See Protocol #181.
9. If patient can't tolerate supine position, transport with head elevated < 30 degrees.
10. If patient will arrive for ED treatment within 3 hours of symptoms, initiate a second IV access with saline lock enroute to hospital.
11. Before administering glucose, blood should be drawn in red top tube for anlaysis 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 glucose < 60 or SBP < 90, initiate IV NSS and follow either Altered LOC AEMT protocol #7002iA for dextrose dosing or Shock AEMT protocol #7005i for fluid dosing. Otherwise, AEMT should not initiate IV in suspected stroke patient.
13. 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 prepare for the patient's arrival. Describe to the Medical Command Physician your findings, including CPSS results. Medical command may order transport to a certified primary stroke center. If the medical command physician is not at the receiving facility, the medical command physician should relay pertinent information to the receiving facility.

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.

B. Review documentation for CPSS criteria, time of symptom onset, glucose determination, and appropriate communication with medical command and receiving facility to maximize prearrival warning to receiving facility and most appropriate receiving facility.

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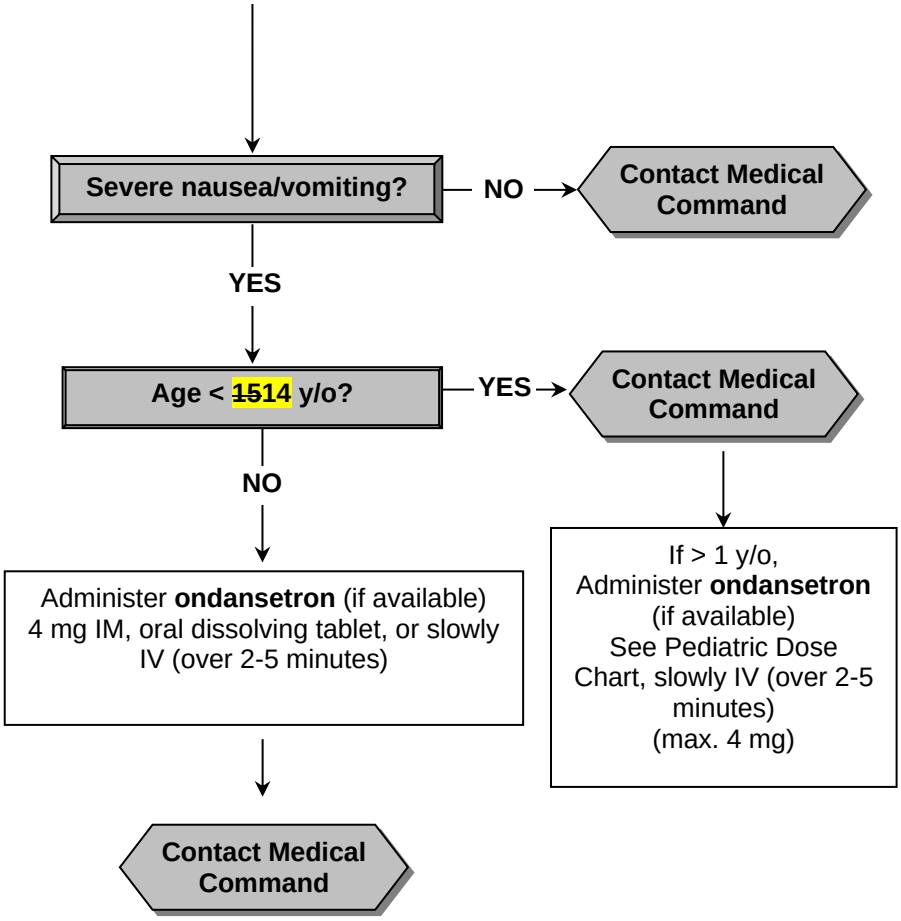
NAUSEA / VOMITING

STATEWIDE IALS PROTOCOL

Initial Patient Contact- See Protocol #201
Initiate IV NSS
Administer NSS bolus of 20 mL /kg (2000 mL max) if signs of tachycardia or hypotension
(unless contraindicated by h/o CHF, renal failure, etc)
Check blood glucose
Consider drawing blood samples



Pediatric Dose Chart – Ondansetron

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14	Adult
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg	>50 kg
Ondansetron (2 mg/ mL vial) IV slow push	***If <15 y/o, ATTEMPT MEDICAL COMMAND CONTACT FIRST***	**0.5 mL *** **	**1 mL *** **	**2 mL *** **	**2 mL *** **	**2 mL *** **	**2 mL *** **	**2 mL *** **	**2 mL**

NAUSEA / VOMITING
STATEWIDE IALS PROTOCOL

Criteria:

A. Patient with persistent nausea or vomiting.

Exclusion Criteria:

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

Possible Medical Command Orders:

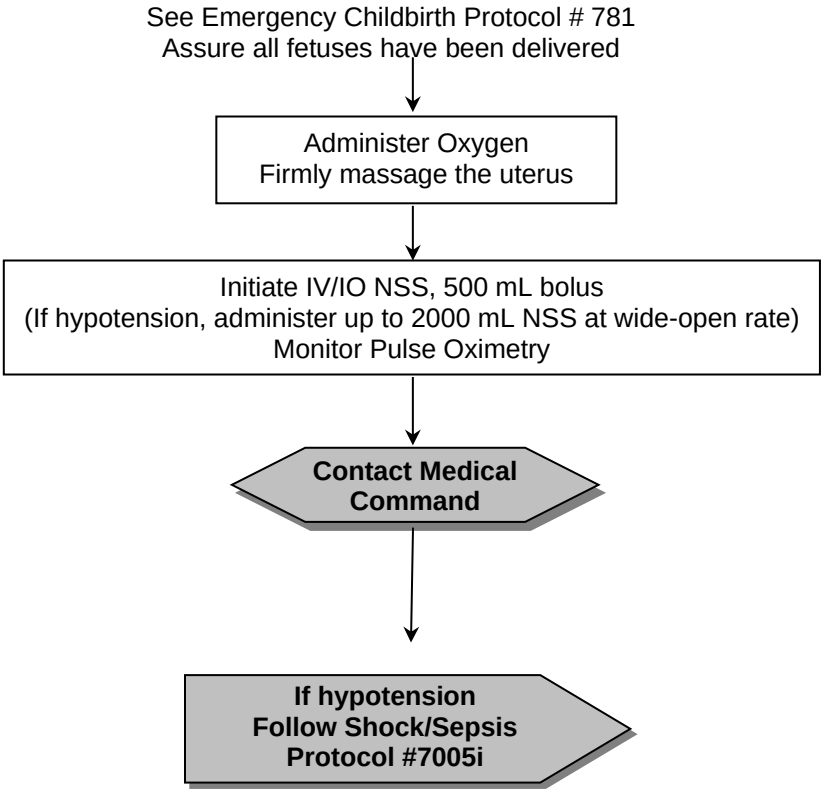
A. For children between 6 m/o –14 y/o, may order ondansetron (if available) 0.1 mg/kg IM/IV or 4 mg ODT (maximum dose of 4 mg).

Performance Parameters:

A. Review for contact with Medical Command before giving ondansetron to patients who are < 14 y/o.

POST-PARTUM HEMORRHAGE

STATEWIDE IALS PROTOCOL



POST-PARTUM HEMORRHAGE
STATEWIDE IALS 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)

B. Patient who has not had a prenatal ultrasound to confirm the number of fetuses.

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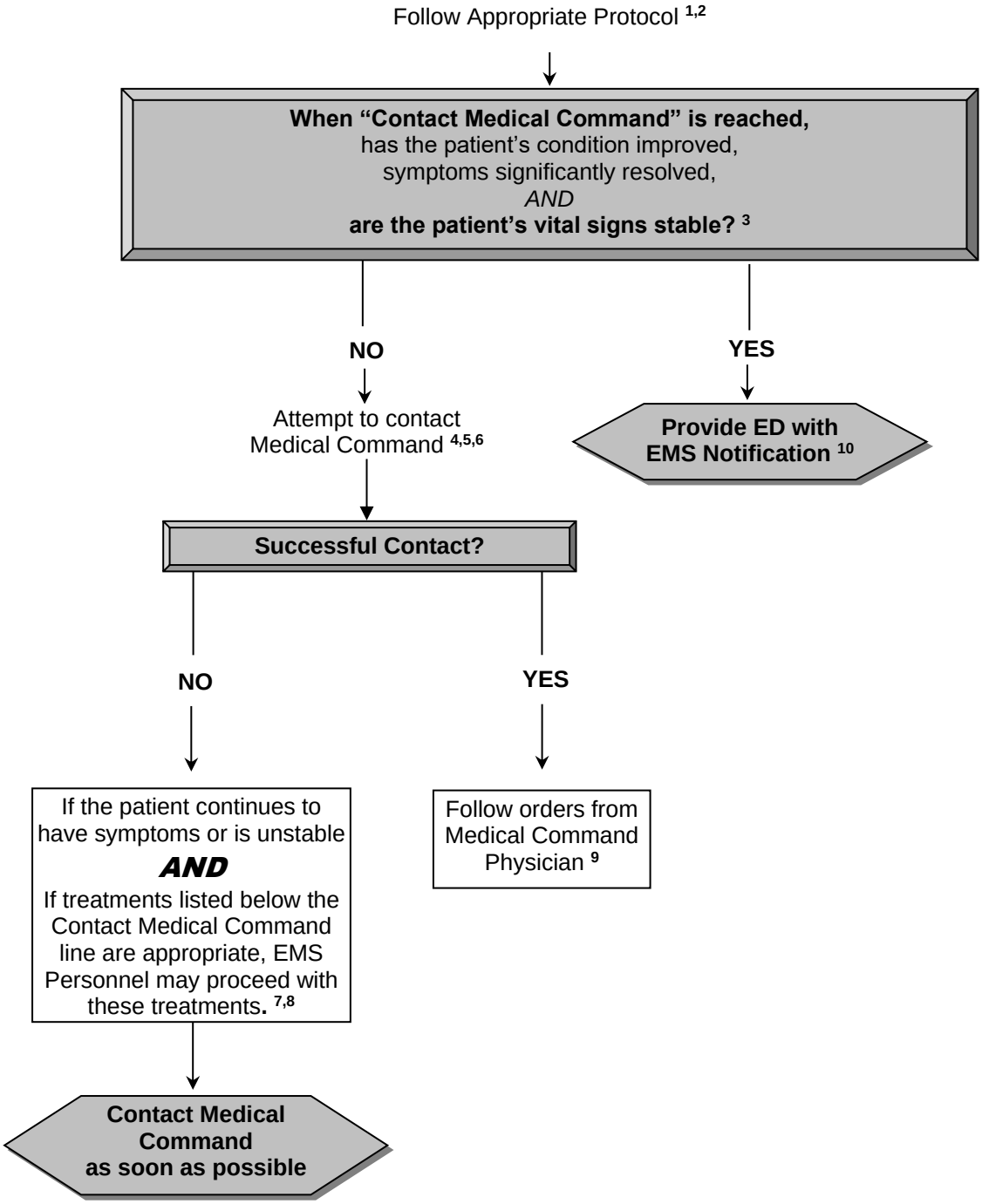
MEDICAL COMMAND CONTACT

STATEWIDE IALS PROTOCOL



MEDICAL COMMAND CONTACT
STATEWIDE IALS PROTOCOL

Purpose of Medical Command contact:

A. By the Pennsylvania EMSS 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 treatment (medication or procedure) that an EMS provider administers when that treatment is not included in or is a deviation from the Statewide EMS Protocols.

C. In certain circumstances, as defined by the Statewide BLS Protocols, medical command must be contacted by EMS providers.

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

E. In some situations and geographic locations, it is not possible for an EMS provider 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 providers to the possible orders that they may receive, and as a resource to medical command physicians. Medical command physicians are not obligated to provide orders consistent with these "possible orders". **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 providers.
6. Patients who may benefit from uncommon treatments (e.g. unusual overdoses with specific antidotes).

H. EMS agency medical directors may require more frequent contact with medical command than required by protocol for ALS personnel who have restrictions to the skills that they are credentialed to perform. EMS agency 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, regional policy may require that 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 ambulance identifier 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.

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 is 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 nitroglycerin 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 agenciess 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, an alternate facility may be contacted. The medical command physician at the alternate facility is responsible for relaying the information to the receiving facility.
7. Procedures or treatments listed after the medical command box may be considered and performed at the discretion of the ALS provider if unable to contact medical command if the ALS provider believes that these treatments are appropriate and necessary.
8. Attempts to contact medical command must be documented on the PCR, and the provider 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 provider 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 patients 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.

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APPENDICES

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APPENDIX A

REQUIRED DRUG LIST FOR IALS VEHICLES

Albuterol

Aspirin

Dextrose (at a minimum, must carry one formulation between 10-25%)

EPINEPHrine (1 mg/mL)

Glucagon

Naloxone

Nitroglycerine

Normal saline solution

Oxygen

NOTE: IALS vehicles may carry additional medications that are listed on most recent version of the medication list for IALS ambulances as published in the Pennsylvania Bulletin.

APPENDIX B

MEDICATION DOSE CHART

For INITIAL DOSE. Base dose on patient AGE unless you have reliable information about weight.

AGE (years)	<1	1-2	3-4	5-6	7-8	9-10	11-12	13-14	Adult
AVG. WEIGHT (kg)	<10 kg	10 kg	15 kg	20 kg	25 kg	30 kg	40 kg	50 kg	>50 kg
DOSES IN THIS SECTION ARE IN MILLILITERS (mLs)									
Crystalloid Fluid/ NSS IV/ IO infusion	**Contact Medical Command**	**200 mL**	**300 mL**	**400 mL**	**500 mL**	**600 mL**	**800 mL**	**1000 mL**	**2000 mL**
Dextrose 10% IV/ IO infusion or slow push	**Contact Medical Command**	**50 mL**	**75 mL**	**100 mL**	**125 mL**	**150 mL**	**200 mL**	**250 mL**	**250 mL**
DiphenhydrAMINE (50 mg/mL vial) IV/ IO slow push over 2-3 min.	**Contact Medical Command**	**0.2 mL**	**0.3 mL**	**0.4 mL**	**0.5 mL**	**0.6 mL**	**0.8 mL**	**1 mL**	**1 mL**
EPINEPHrine (1 mg/1 mL) IM for severe allergic reaction or asthma	**Contact Medical Command**	**0.15 mL**	**0.15 mL**	**0.15 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**	**0.3 mL**
EPINEPHrine (0.1 mg/ 1 mL) IV/ IO for CARDIAC ARREST	**Contact Medical Command**	**1 mL**	**1.5 mL**	**2 mL**	**2.5 mL**	**3 mL**	**4 mL**	**5 mL**	**10 mL**
Ondansetron (2 mg/mL vial) If <15, y/o attempt MEDICAL COMMAND CONTACT IV slow push	**Contact Medical Command**	**0.5 mL**	**1 mL**	**2 mL**	**2 mL**	**2 mL**	**2 mL**	**2 mL**	**2 mL**
WARNING: DOSES BELOW ARE IN MILLIGRAMS (mgs)									
Glucagon (reconstituted powder) IM/ IN	**Contact Medical Command**	**0.5 mg**	**0.5 mg**	**1 mg**	**1 mg**	**1 mg**	**1 mg**	**1 mg**	**1 mg**
Naloxone (WARNING: multiple concentrations) IN/ IM/ IV/ IO	**Contact Medical Command**	**1 mg**	**1.5 mg**	**2 mg**	**2 mg**	**2 mg**	**2 mg**	**2 mg**	**2 mg**

APPENDIX C

PEDIATRIC ORAL MEDICATION DOSING CHART FOR MILD PAIN

AGE (years)	6 mos to < 2		2-3	4-5	6-8	9-10	11-12	13-14
Reported Weight (lbs)	12-17 lbs	18-23 Lbs	24-35 lbs	36-47 lbs	48-59 lbs	60-71 lbs	72-95 lbs	>95 lbs
Reported Weight (kg)	5.5-7.5 kg	8-11 kg	11.5-16 kg	16.5-21 kg	22-27 kg	27.5-32.5 kg	33-43 kg	> 43 kg
Provide dose based upon AGE, unless you have specific information about patient weight. These are one-time INITIAL doses by the oral route. Do not give these oral medications if the patient has had the medication within the last 4-6 hours. Ensure proper syringe is available to deliver graduated dose required								
Infant Drops Ibuprofen (Motrin, Advil) 50 mg/1.25 ml)	1.2 ml	2.0 ml	2.5 ml	3.75 ml	5 ml	- - -	- - -	- - -
Children's Ibuprofen 100 mg / 5 ml	3 ml	5 ml	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL
Children's Acetaminophen (Tylenol) 160 mg / 5ml	2.5 ml	3.75 ml	5 mL	7.5 mL	10 mL	12.5 mL	15 mL	20 mL

APPENDIX D

PEDIATRIC WEIGHT CONVERSION CHART

PEDIATRIC WEIGHT CONVERSION

Pound	Ounce	kgs
5	5	2.4
5	8	2.5
5	12	2.6
5	15	2.7
6	3	2.8
6	6	2.9
6	10	3.0
6	13	3.1
7	1	3.2
7	4	3.3
7	8	3.4
7	11	3.5
7	15	3.6
8	3	3.7
8	6	3.8
8	10	3.9
8	13	4.0
9	1	4.1
9	4	4.2
9	8	4.3
9	11	4.4
9	15	4.5
10	2	4.6
10	6	4.7
10	9	4.8
10	13	4.9
11	0	5.0
11	4	5.1
11	7	5.2
11	11	5.3
11	14	5.4
12	2	5.5
12	6	5.6
12	9	5.7
12	13	5.8
13	0	5.9

Pound	Ounce	kgs
13	4	6.0
13	7	6.1
13	11	6.2
13	14	6.3
14	2	6.4
14	5	6.5
14	9	6.6
14	12	6.7
14	16	6.8
15	3	6.9
15	7	7.0
15	10	7.1
15	14	7.2
16	2	7.3
16	5	7.4
16	9	7.5
16	12	7.6
16	16	7.7
17	3	7.8
17	7	7.9
17	10	8.0
17	14	8.1
18	1	8.2
18	5	8.3
18	8	8.4
18	12	8.5
18	15	8.6
19	3	8.7
19	6	8.8
19	10	8.9
19	13	9.0

Pounds	kgs
22	10
24	11
26	12
29	13
31	14
33	15
35	16
37	17
40	18
42	19
44	20
46	21
49	22
51	23
53	24
55	25
57	26
60	27
62	28
64	29

Pounds	kgs
66	30
68	31
71	32
73	33
75	34
77	35
79	36
82	37
84	38
86	39
88	40
90	41
93	42
95	43
97	44
99	45
101	46
104	47
106	48
108	49

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