Pennsylvania Statewide

Basic Life Support Protocols

Pennsylvania Department of Health
Bureau of Emergency Medical Services

Effective July 1, 2013

pennsylvania
DEPARTMENT OF HEALTH

(717) 787-8740

March 1, 2013

Dear EMS Provider:

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

This 2013 update of the Statewide BLS Protocols focuses narrowly on:
a) improved care for sudden cardiac arrest and
b) updating the trauma patient destination protocol for the addition of Level IV trauma centers and increased consistency with the 2011 CDC/ACS national trauma field triage guidelines.

Recent advances have led to significant improvement in patient outcome from sudden cardiac arrest when EMS agencies have embraced a pit crew approach that focuses on CPR best practices. The Bureau of EMS, in conjunction with the Pennsylvania HeartRescue Project, has developed resources to educate EMS providers to these protocol changes.

Pennsylvania has used Statewide BLS Protocols since September 1, 2004, and this edition is an update to the version that has been in use since July 1, 2011. New sections of the protocols that correspond to these 2013 updates are identified with yellow highlighting and sections that have been removed are struck through and highlighted, which will assist EMS providers when reviewing changes. This 2013 version of the statewide protocols may be used by EMS providers as soon as they are familiar with the updates, but all providers must be using these updated protocols by the effective date of July 1, 2013.

Several resources will be available to assist ALS providers in becoming familiar with the protocol updates. These include an in-service presentation that will be available to regions and agencies and educational information on the Learning Management System (LMS). **All EMS providers should complete the course "High-functioning CPR Teams: Science Lecture" (BEMS course #006372) to familiarize themselves with these updates to cardiac arrest care.** The optional related simulation-based hands-on course "High-functioning CPR Team: Pit Crew High-Fidelity Simulation (BEMS course #006373) is recommended for providers within all EMS agencies.

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.

When providing patient care under the EMS Act, EMS providers of all levels must follow applicable protocols. Although the Statewide BLS Protocols are written for BLS-level care, they also apply to the BLS-level care that is performed by ALS providers. 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 practitioner believes that following a protocol is <u>not</u> in the best interest of the patient, the EMS practitioner should contact a medical command physician if possible.** Cases where deviation from the protocol is justified are rare. The reason for any deviation should be documented. All deviations are subject to investigation to determine whether or not they were appropriate. In all cases, EMS 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.state.pa.us The Statewide BLS Protocols may be directly printed or downloaded into a PDA 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 Dept of Health, Bureau of EMS, Room 606, 625 Forster Street, Harrisburg, PA 17120.

Joseph W. Schmider
Director
Bureau of Emergency Medical Services
Pennsylvania Department of Health

Douglas F. Kupas, MD
Commonwealth EMS Medical Director
Bureau of Emergency Medical Services
Pennsylvania Department of Health

SECTION 900: Special Considerations

APPENDICES

SCENE SAFETY GUIDELINES

Criteria:

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

System requirements:

A. These guidelines provide general information related to scene safety. These guidelines are not designed to supersede an EMS agency's policy regarding management of providers' safety [as required by EMS Act regulation(s), but this general information may augment the agency's policy.

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

Procedure:

A. If violence or weapons are anticipated:
1. EMS providers should wait for law enforcement officers to secure scene before entry.
2. Avoid entering the scene alone.[1]

B. If violence is encountered or threatened, retreat to a safe place if possible and await law enforcement. **MVAs, Industrial Accidents, Hazardous Materials situations:**
1. General considerations:
   a. Obtain as much information as possible prior to arrival on the scene.
   b. Look for hazardous materials, placards, labels, spills, and/or containers (spilling or leaking). Consider entering scene from uphill/upwind.
   c. Look for downed electrical wires.
   d. Call for assistance, as needed.
2. Upon approach of scene, look for place to park vehicle:
   a. Upwind and uphill of possible fuel spills and hazardous materials.
   b. Park in a manner that allows for rapid departure.
   c. Allows for access for fire/rescue and other support vehicles.
3. Safety:
   a. Consider placement of flares/warning devices.[2]
   b. Avoid entering a damaged/disabled vehicle until it is stabilized.
   c. Do not place your EMS vehicle so that its lights blind oncoming traffic.
   d. Use all available lights to light up scene on all sides of your vehicle.
   e. PPE is suggested for all responders entering vehicle or in area immediately around involved vehicle(s).
   f. All EMS providers should wear ANSI compliant high-visibility reflective outerwear at scenes along roadways when required by federal regulation 23 CRF 634. EMS agencies should consider a policy requiring all EMS providers to wear high-visibility outerwear at all times when on an EMS call and outside of a vehicle.

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

e. Never stand directly in front of a vehicle.

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

D. Residence scenes with suspected violent individuals:

1. Approach of scene:
   a. Attempt to ascertain, via radio communications, whether authorized personnel have declared the scene under control prior to arrival.
   b. Do not enter environments that have not been determined to be secure or that have been determined unsafe.
      1) Consider waiting for police if dispatched for an assault, stabbing, shooting, etc.
   c. Shut down warning lights and sirens one block or more before reaching destination.
   d. Park in a manner that allows rapid departure.
   e. Park 100' prior to or past the residence.
2. Arrival on scene:
   a. Approach residence on an angle.
   b. Listen for sounds; screaming, yelling, gun shots.
   c. Glance through window, if available. Avoid standing directly in front of a window or door.
   d. Carry portable radio, but keep volume low.
   e. If you decide to leave, walk backward to vehicle.
3. Position at door:
   a. Stand on the knob side of door; do not stand in front of door.
   b. Knock and announce yourself.
   c. When someone answers door – have him or her lead the way to the patient.
   d. Open door all the way and look through the doorjamb.
4. Entering the residence:
   a. Scan room for potential weapons.
   b. Be wary of kitchens (knives, glass, caustic cleaners, etc.).
   c. Observe for alternative exits.
   d. Do not let anyone get between you and the door, or back you into a corner.
   e. Do not let yourself get locked in.
5. Deteriorating situations:
   a. Leave (with or without patient).
   b. Walk backwards from the scene and do not turn your back.
   c. Meet police at an intersection or nearby landmark, not a residence.
   d. Do not take sides or accuse anyone of anything.

E. Lethal weapons:

1. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat.
2. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders
   a. Guns should be handed over to a law enforcement officer if possible or placed in a locked space, when available.
      1) If necessary for scene security, safely move firearm keeping finger off of the trigger and hammer and keeping barrel pointed in a safe direction away from self and others.
      2) Do not unload a gun.
   b. Knives should be placed in a locked place, when available.

Notes:

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

INFECTION CONTROL / BODY SUBSTANCE ISOLATION GUIDELINES

Criteria:

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

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

System Requirements:

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

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

Procedure:

A. All patients:

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

d. Notify receiving facility of patient's condition so appropriate isolation room can be prepared.

8. Thoroughly clean and disinfect equipment after each use following agency guidelines that are consistent with Center for Disease Control recommendations.

9. Place all disposable equipment and contaminated trash in a clearly marked plastic red Biohazard bag and dispose of appropriately.

   a. Contaminated uniforms and clothing should be removed, placed in an appropriately marked red Biohazard bag and laundered / decontaminated.

   b. All needles and sharps must be disposed of in a sharps receptacle unit and disposed of appropriately.

Notes:

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

REFUSAL OF TREATMENT / TRANSPORT
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with illness or injury refuses treatment or transport.

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

Exclusion Criteria:

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

System Requirements:

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

Procedure

A. All Patients:

1. Assess patient using Initial Contact and Patient Care Protocol #201.
    a. If the patient is combative or otherwise poses a potential threat to EMS practitioners, retreat from the immediate area and contact law enforcement.
    b. Consider ALS if a medical condition may be altering the patient's ability to make medical decisions.
2. Attempt to secure consent to treatment / transport. [1,2,3,4]
3. Assess the following (use EMS Patient Refusal Checklist if required by regional or agency):
    a. Assess patient's ability to make medical decisions and understand consequences (e.g. alert and oriented x 4, GCS=15, no evidence of suicidal ideation/attempt, no evidence of intoxication with drugs or alcohol, ability to communicate an understanding of the consequences of refusal).
    b. Assess patient's understanding of risks to refusing treatment/transport.
    c. Assess patient for evidence of medical conditions that may affect ability to make decisions (e.g. hypoglycemia, hypoxia, hypotension)
4. If acute illness or injury has altered the patient's ability to make medical decisions and if the patient does not pose a physical threat to the EMS practitioners, the practitioners may treat and transport the patient as per appropriate treatment protocol. Otherwise contact medical command. See Behavioral Disorders/Agitated Patient (Restraint) protocol #801 is appropriate.
5. Contact medical command, when available communication technology permits, if using the EMS Refusal Checklist and any response is completed within a shaded box **or** if patient assessment reveals at least one of the following:
    a. EMS practitioner is concerned that the patient may have a serious illness or injury.
    b. Patient has suicidal ideation, chest pain, shortness of breath, hypoxia, syncope, or evidence of altered mental status from head injury intoxication or other condition.
    c. Patient does not appear to have the ability to make medical decisions or understand the consequences of those decisions.
    d. The patient is less than 18 years of age.

e. Vital signs are abnormal.

6. If patient is capable of making and understanding the consequences of medical decisions and there is no indication to contact medical command or medical command has authorized the patient to refuse treatment/transport, then:

   a. Explain possible consequences of refusing treatment/transport to the patient [3]

   b. Have patient and witness sign the EMS Refusal Checklist or other refusal form [4].

   c. Consider the following:

      1) Educate patient/family to call back if patient worsens or changes mind

      2) Have patient/family contact the patient's physician

      3) Offer assistance in arranging alternative transportation.

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

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

Possible MC Orders:

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

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

Notes:

1. If the patient lacks the capacity to make medical decisions, the EMS practitioner shall comply with the decision of another person who has the capacity to make medical decisions, is reasonably available, and who the EMS practitioner, in good faith, believes to have legal authority to make the decision to consent to or refuse treatment or transport of the patient.

   a. The EMS practitioner may contact this person by phone.

b. This person will often, but not always, be a parent or legal guardian of the patient. The EMS practitioner should ensure that the person understands why the person is being approached and that person's options, and is willing to make the requested treatment or transport decisions for the patient.

2. If the patient is 18 years of age or older, has graduated from high school, has married, has been pregnant, or is an emancipated minor, the patient may make the decision to consent to or refuse treatment or transport. A minor is emancipated for the purpose of consenting to medical care if the minor's parents expressly, or implicitly by virtue of their conduct, surrender their right to exercise parental duties as to the care of the minor. If a minor has been married or has borne a child, the minor may make the decision to consent to or refuse treatment or transport of his or her child. If the minor professes to satisfy any of the aforementioned criteria, but does not satisfy the criterion, the EMS practitioner may nevertheless comply with the decision if the EMS practitioner, in good faith, believes the minor.

3. If a patient who has the capacity to make medical decisions refuses to accept recommended treatment or transport, the EMS practitioner should consider talking with a family member or friend of the patient. With the patient's permission, the EMS practitioner should attempt to incorporate this person's input into the patient's reconsideration of his or her decision. These persons may be able to convince the patient to accept the recommended care.

4. For minor patients who appear to lack the capacity or legal authority to make medical decisions:

   a. If the minor's parent, guardian, or other person who appears to be authorized to make medical decisions for the patient is contacted by phone, the EMS practitioner should have a witness confirm the decision. If the decision is to refuse the recommended treatment or transport, the EMS practitioner should request the witness to sign the refusal checklist of form.

   b. If a person who appears to have the authority to make medical decisions for the minor cannot be located, and the EMS practitioner believes that an attempt to secure consent would result in delay of treatment which would increase the risk to the minor's life or health, the EMS practitioner shall contact a medical command physician for direction. The physician may direct medical treatment and transport of a minor if an attempt to secure the consent of an authorized person would result in delay of treatment which the physician reasonably believes would increase the risk to the minor's life or health.

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

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

Performance Parameters:

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

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

EMS Patient Refusal Checklist

EMS Agency: _____ Date: _____ Time: _____

Patient Name: _____ Age: _____ Phone #: _____

Incident Location: _____ Incident # _____

Situation of Injury/Illness: _____

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

Patient Assessment:

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

18 years of age or older: ___ Yes ___ No

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

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

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

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

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

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

Medical Command:

Physician contacted: _____ Facility: _____ Time: _____

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

Medical Command orders: _____

Patient Outcome:

___ Patient refuses transport to a hospital against EMS advice

___ Patient accepts transportation to hospital by EMS but refuses any or all treatment offered (specify treatments refused: _____)

___ Patient does not desire transport to hospital by ambulance, EMS believe alternative treatment/transportation plan is reasonable

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

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

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

EMS Patient Refusal Checklist (Spanish Language Version)

EMS Agency: _____ Date: _____ Time: _____

Patient Name: _____ Age: _____ Phone #: _____

Incident Location: _____ Incident # _____

Situation of Injury/Illness: _____

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

Patient Assessment:

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

18 years of age or older: ___ Yes ___ No

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

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

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

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

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

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

Medical Command:

Physician contacted: _____ Facility: _____ Time: _____

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

Medical Command orders: _____

Patient Outcome:

___ Patient refuses transport to a hospital against EMS advice

___ Patient accepts transportation to hospital by EMS but refuses any or all treatment offered (specify treatments refused: _____)

___ Patient does not desire transport to hospital by ambulance, EMS believe alternative treatment/transportation plan is reasonable

Este formulario se me ha entregado debido a que me he rehusado a recibir una evaluación, atención o transportación del personal de *EMS (*servicios médicos de emergencia*)* para mí o para el paciente al que represento. Entiendo que los de *EMS* no son médicos y que no están capacitados ni autorizados para diagnosticar y que su atención no toma el lugar de la de un médico. Reconozco que pudiera haber de por medio una grave herida o enfermedad que pudiera agravarse sino se recibe atención médica aunque yo (o el paciente) me sienta bien en estos momentos. Entiendo que podría yo cambiar de idea y llamar al 911 si el cuidado o asistencia son requeridos más tarde. Además sé que dicha atención está disponible en cualquier salón de emergencia de asistencia pública las 24 horas del día. Reconozco que este consejo me ha sido explicado por el personal de la ambulancia y que he leído y entendido este formulario completamente.

_____	_____	_____
Firma (Paciente u otro) Signature (Patient or Other)	Fecha Date	EMS, firma EMS Provider Signature

_____	_____
Si no es el paciente, nombre y parentesco con el paciente (letra de imprenta) **If other than patient, print name and relationship to patient**	Firma del testigo **Witness Signature**

THIS PAGE INTENTIONALLY LEFT BLANK

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

Criteria:

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

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

C. EMS provider transfers care to another provider.

Exclusion Criteria:

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

Procedure:

A. Cancellations:

1. After being dispatched to an incident, an ALS or BLS provider may cancel its response when following the direction of a PSAP or dispatch center. Reasons for response cancellation by the PSAP or dispatch center may include the following situations:

   a. When the PSAP/ dispatch center diverts the responding provider to an EMS incident of higher priority, as determined by the PSAP/ dispatch center's EMD protocols, and replaces the initially responding provider with another EMS provider, the initial provider may divert to the higher priority call.

   b. When the PSAP/ dispatch center determines that another EMS agency can handle the incident more quickly or more appropriately.

   c. When EMS providers on scene determine that a patient does not require care beyond the scope of practice of the on scene provider, the EMS practitioner may cancel additional responding EMS providers. This includes cancellation of providers responding to patients who are obviously dead (see Protocol #322).

   d. When law enforcement or fire department personnel on scene indicate that no incident or patient was found, these other public safety services may cancel responding EMS providers.

   e. When the PSAP/ dispatch center is notified that the patient was transported by privately owned vehicle or by other means (caller, police, or other authorized personnel on the scene).

   f. When BLS is transporting a patient that requires ALS, ALS may be cancelled if it is determined that ALS cannot rendezvous with the BLS provider in time to provide ALS care before the BLS ambulance arrives at the hospital.

2. EMS agencies or regions may have policies that require the responding provider to proceed to the scene non-emergently if the on-scene individual that recommends cancellation is not an EMS practitioner.

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

1. Assess mechanism of injury or history of illness, patient symptoms, and assess patient for corresponding signs of injury or illness

2. If individual declines care, there is no evidence of injury or illness, and the involved person has no symptoms or signs of injury/ illness, then the EMS practitioner has no further obligation to this individual.

3. If it does not hinder treatment or transportation of injured patients, documentation on the EMS PCR should, at the minimum, include the following for each non-injured patient:
    a. Name
    b. History, confirming lack of significant symptoms.
    c. Patient assessment, confirming lack of signs or findings consistent with illness/injury.
4. If serious mechanism of injury, symptoms of injury or illness, or physical exam findings are consistent with injury or illness, follow Patient Refusal of Treatment Protocol # 111.

C. Release of patients:

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

D. Provider Endangerment:

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

Notes:

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

Performance Parameters:

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

EMS VEHICLE OPERATIONS/SAFETY GUIDELINES

Criteria:

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

System Requirements:

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

Policy:

A. Use of lights and other warning devices [EMS Act regulation 28 § 1005.10 (g)]:

1. EMS vehicle may not use emergency lights or audible warning devices, unless they do so in accordance with standards imposed by 75 Pa.C.S (relating to Vehicle Code) and are transporting or responding to a call involving a patient who presents or is in good faith perceived to present a combination of circumstances resulting in a need for immediate medical intervention. When transporting the patient, the need for immediate medical intervention must be beyond the capabilities of the ambulance crew using available supplies and equipment.
2. The use of L&S during response or transport should not be confused with whether a patient had an emergency condition requiring urgent assessment, treatment, or transport by EMS providers. Many patients that require emergency assessment, treatment, and transport may be appropriately and safety cared for by EMS personnel without the use of a L&S response or transport.

B. Response to incident:

1. The EMSVO is responsible for the mode of response to the scene based upon information available at dispatch. If the PSAP or dispatch center provides a response category based upon EMD criteria, EMS vehicles shall respond with L&S only when the dispatch category is consistent with a L&S response. [2] Response mode may be altered based upon additional information that is received by the dispatch center while the EMS vehicle is enroute to scene.
2. L & S use is generally NOT appropriate in the following circumstances:
   a. "Stand-bys" at the scene of any fire department-related incident that does not involve active interior structural attack, hazardous materials (see below), known injuries to firefighters or other public safety personnel or the need for immediate deployment of a rehabilitation sector.
   b. Carbon monoxide detector alarm activations without the report of any ill persons at the scene.
   c. Assist to another public safety agency when there is no immediate danger to life or health.
   d. Response to a hospital for immediate interfacility transport.
   e. Response to a medical alarm system activation.
   f. Response to patients who have apparently expired.
   g. EMS agencies should consider whether L&S should be used when responding to emergency requests for EMS at facilities where health care personnel are already available to patients who are not suspected to be in cardiac arrest – for example skilled nursing facilities and medical offices.
   h. EMS agencies should consider whether L&S should be used when responding to MVCs with unknown injuries.
3. Special circumstances may justify L&S use to an emergency incident scene when the emergency vehicle is not transporting a crew for the purposes of caring for a patient:
   a. Transportation of personnel or materials resources considered critical or essential to the management of an emergency incident scene. Transportation of human or materials resources considered critical or essential to the prevention or treatment of acute

illness/injury at a medical facility or other location at which such a circumstance may occur (i.e. transportation of an amputated limb, organ retrieval, etc).

C. Patient transport:

1. The EMS provider primarily responsible for patient care during transportation will advise the driver of the appropriate mode of transportation based upon the medical condition of the patient.
2. In most situations, the use of L&S during patient transport is not indicated: [4]
   a. Emergent transport should be used in any situation in which the most highly trained EMS practitioner believes that the patient's condition will be worsened by a delay equivalent to the time that can be gained by emergent transport. Medical command may be used to assist with this decision. The justification for using this criterion should be documented on the patient care report.
   b. Examples of Medical Conditions that May Benefit by L&S Transport
      1) Inability to obtain or maintain a patent airway
      2) Critically unstable patient with impending cardiac arrest.
   c. The vast majority of patient's will not have better medical outcomes by decreasing transport time by the time saved by L&S transport.
   d. The patient's physiologic responses to L&S use (increased tachycardia and blood pressure) may be detrimental to some patient's medical conditions.
   e. When EMS providers are not restrained, the increased risk of EMS vehicle crash while using L&S may increase the risk of injury to EMS providers. The extremely poor prognosis for patients transported with CPR in progress does not justify the use of L&S transport for most patients in cardiac arrest.
   f. **When in doubt,** contact with a medical command may provide additional direction related to whether there is an urgent need to transport with L&S.
3. No emergency warning lights or siren will be used when ALS care is not indicated (for example, ALS cancelled by BLS or ALS released by medical command). [5]
4. Mode of transport for interfacility transfers will be based upon the medical protocol and the directions of the referring physician or medical command physician who provides the orders for patient care during the transport. Generally, interfacility transport patients have been stabilized to a point where the minimal time saved by L&S transport is not of importance to patient outcome.
5. Exceptions to these policies can be made under extraordinary circumstances (e.g., disaster conditions or a back log of high priority calls where the demand for EMS vehicles exceeds available resources). These exceptions should be documented.
6. Systems with field supervisors may consider a policy requiring notification of the supervisor before any L&S transport.

D. Other operational safety considerations:

1. The following procedures should be followed for safe EMS vehicle operations:
   a. Operational Issues:
      1) Daytime running lights or low-beam headlights will be on (functioning as daytime running lights) at all times while operating EMS vehicles during L&S and non-L&S driving.
      2) L&S should **both** be used when exercising any moving privilege (examples include, proceeding through a red light or stop sign after coming to a complete stop or opposing traffic in an opposing land or one-way street) granted to EMS vehicles that are responding or transporting in an emergency mode.
      3) When traveling in an opposing traffic lane, the maximum speed generally should not exceed 20 m.p.h.
   b. PSAP and Dispatch Centers: EMS systems are encouraged to cooperate with the dispatch centers in developing procedures to "downgrade" the response of incoming units to Non-L&S when initial on-scene units determine that there is no immediate threat to life.
   c. Documentation: The dispatch category (e.g., "code 3", "ALS emergency", etc.) that justifies L&S response should be documented on the patient care report. The justification for using L&S during transport should also be documented on the patient care report (e.g., "gunshot wound to the abdomen", "systolic BP<90", etc.).

d. Seat Belt and Restraint Use: Seat belts or restraints will be securely fastened to the following individuals when the vehicle is in motion:
   1) All EMS vehicle operators
   2) All patients
   3) All non-EMS passengers (cab and patient compartment)
   4) All EMS practitioners (when patient care allows)
   5) All infants and toddlers (these children should be transported in an age appropriate child seat if their condition allows). Children should not be placed in cab passenger seat with airbag.

e. Avoid Distracted EMSVOs
   1) Distracted driving is responsible for many MVCs, and EMS agencies should assure that policies reduce the risk of a distracted driving accident.
      a) EMSVOs should not view pagers, cell phone screens, text messages, or mobile data terminals or enter data into GPS devices while an EMS vehicle is in motion.
         (1) These functions should be the responsibility of another EMS provider when another provider is in the vehicle.
         (2) When another EMS vehicle provider is not available, the EMSVO should stop the vehicle before using a cell phone or viewing a pager.
         (3) EMS agencies should work with PSAPs and dispatch centers to create policies that reduce distracted driving. For example, radio communication should be used instead of a pager message when communicating a message to an EMS vehicle that is known to be travelling.

f. Sterile Cockpit Operations
   1) When responding or transporting with L&S, there should be no communication with the EMSVO that is not specific to the mission or function of driving the vehicle.

Notes:

1. These guidelines are secondary to and do not supersede the Pennsylvania Motor Vehicle Code.
2. Dispatch centers/PSAPs and EMS regions are encouraged to have medically approved EMD protocols that differentiate which emergency situations or conditions are appropriate for L&S responses (for example, “Echo”, “code 3”, “red”, etc…) from a lesser level of response (for example, “Alpha”, “Bravo”, “Code 2”, “Yellow”, etc…) based upon medical questions asked by the dispatcher. The dispatch category classification, or determinant that justifies L&S use should be documented on the PCR.
3. Firefighters cross-trained as EMS providers who respond in an EMS vehicle to a fire station or fire incident in order to complete a fire apparatus crew are considered an exception to this policy.
4. In most cases (more than 95% - 99% of EMS incidents), EMS providers can perform the initial care required to stabilize the patient’s condition to a point where the small amount of time gained by L&S transport will not affect the patient’s medical condition or outcome. In previous studies and in most situations, L&S transport generally only decreases transport time by a couple of minutes or less.
5. L &S may be indicated in some situations where ALS is indicated, but not available or cancelled, because the ALS crew cannot rendezvous with the BLS crew prior to transport to the closest appropriate medical facility.

Performance Parameters:

A. Review for correlation between dispatch classification/category and documented mode of response to scene.

B. Monitor percentage of “911” calls using L&S during response to EMS calls. Routine or scheduled transports should be excluded. [Potential benchmark <50% of responses with L&S].

C. Review for documentation of reason for L&S transport when patient does not meet criteria listed in section C.2.b.(1 & 2).

D. Monitor percentage of urgent/emergent (“911”) calls using L&S during transport. [Potential benchmark <1%% of patients transported with L&S]

E. Treat every L&S patient transport as a sentinel event for QI and medical director review

THIS PAGE INTENTIONALLY LEFT BLANK

REHABILITATION AT FIRE/ INCIDENT SCENE GUIDELINES

Criteria:

A. The intent of rehabilitation (Rehab) is to provide a structured, consistent method for the evaluation and remediation of common ailments associated with the activities at fire / hazardous materials and incident scenes; including but not limited to: overexertion, dehydration, metabolic disturbances, and exposure to temperature extremes.

1. This guideline may be used by EMS agencies when requested to operate within an established rehabilitation area/sector at the scene of a working fire / hazardous materials, other comprehensive emergency incident, or extended training exercise.
2. If a Rehab area has not been established at an incident scene, this guideline may still be used when providing medical monitoring to fire or other emergency personnel at an incident scene.

Procedure:

A. Primary EMS responsibilities

1. The primary responsibility of EMS personnel during Rehab is to provide medical monitoring, remediation of hypothermia/hyperthermia and emergency medical care.
2. Based on local practice/policy, EMS personnel may be involved in the other aspects of Rehab outside of their primary responsibility or other duties as assigned by the Incident Command (IC) or EMS Operations, but not to the extent which they interfere with medical monitoring and/or emergency medical care.

B. Emergency medical care

1. At any point in their Rehab period, personnel with any significant complaints (e.g. chest pain, respiratory distress, altered mental status, or trauma) should be treated using the applicable Statewide EMS protocol.
2. Medical treatment provided during Rehab must be in accordance with applicable Statewide EMS Protocol(s).
3. Appropriate notification should be made, following the Incident Command System (ICS) structure, regarding any personnel transported from the incident, refusing to cooperate with the Rehab process, returning to duty without meeting criteria for medical clearance, or who have successfully completed rehab but will not return to duty at the incident.
4. If any personnel refuse a medical assessment, treatment and/or medical advice as offered in Rehab, advise the appropriate line officer (IC, Safety Officer, etc), and follow Statewide BLS Protocol #111: Refusal of Treatment/Transport.

C. Equipment

1. Rehab should have the necessary EMS equipment/supplies to accommodate the nature/size of the operation. Suggested minimum equipment available should include:
   a. Standard BLS equipment, including; stethoscope, sphygmomanometer, thermometer (electronic, digital, non-tympanic), hot/cold packs, oxygen, bandages, dressings, AED, pulse oximeter (if available), and CO co-oximeter (if available).
   b. Clipboards, personnel accountability/log in sheets, tags, or other appropriate accountability and/or documentation forms.
   c. If indicated by risk of incident, at least one ambulance (with staff) available to transport patients from the Rehab area.

D. Medical monitoring

1. Upon arrival at the scene, EMS providers should report to the IC, Rehab Officer, or other appropriate entity as designated by the ICS and confirm the EMS expectations based on the nature/scope of the incident.

2. EMS providers may be tasked with providing personnel accountability (via their documentation) within the Rehab area.

3. All personnel entering Rehab should have their initial vital signs assessed after a brief relaxation period (approximately 5 min.) (including pulse, respirations, blood pressure, and oral temperature). [See "Vital Signs Parameters" table below for range of vital signs considered to be normal for return to duty.]EMS providers should carefully monitor personnel for signs of heat stress (e.g. altered level of consciousness, abnormal vital signs, elevated temperature) and significant medical complaints (i.e. chest pain, dyspnea).

4. At any point during their Rehab period, personnel with "abnormal" vital signs should receive additional monitoring in Rehab, and should not be released for further activity until their vital signs are within "normal" parameters. Personnel with continued abnormal vital signs after 20 minutes in Rehab should be treated per applicable protocol which may include transport to the Emergency Department.

5. At the conclusion of their Rehab period (generally lasting at least 20 minutes in duration), personnel with "normal" vital signs and no serious signs or symptoms may be permitted to return to normal activity.

6. All vital signs and Rehab assessments should be documented. EMS services may choose to use a log, tag, or other means of appropriate documentation [See Emergency Scene Rehabilitation Tag in Appendix R-5]. An EMS PCR must be completed as required (e.g. for every patient transported by ambulance and every patient refusing treatment or transport).Suggested Vital Signs Parameters

	Pulse	**Respiration**	**Blood Pressure**	**Oral Temperature**	**Oxygen Saturation[6] (SpO2%) (Optional)**	**Carbon Monoxide Saturation[7] (SpCO%) (Optional)**
Normal	>60 or ≤100	>12 or <20	Systolic: < 160 Diastolic: < 90	< 99.5°F <37.5°C	≥ 95%	Non-smoker: < 5% Smoker: < 10%
Abnormal	>100	<12 or > 20	Systolic: <90 or >160 Diastolic: >90	≥ 99.5°F ≥37.5°C	< 95%	≥ 12% (w/assoc. signs & symptoms of CO poisoning)

Appendix A: Supporting Information - Rehab Plan Development

A. **Pre-Event Planning**

1. The development a comprehensive Rehab plan should be a collaborative effort between the affected emergency services agencies (i.e. law enforcement, fire/rescue, hazardous materials response teams and emergency medical services) using established national standards, including National Fire Protection Association (NFPA) Standard 1584, or Emergency Incident Rehabilitation – Federal Emergency Management Agency.
2. When possible, EMS agencies should consider assisting responder agencies in recording baseline resting vital sign measurements on active crew members that they may routinely encounter while providing Rehab. This process could assist in the overall health well-being/prevention goals of the participating agencies, and strengthen inter-agency relations.
3. Responder health information may be stored in a secure manner on an ambulance or other emergency vehicle, in a manner which ensures confidentiality, until accessed for Rehab purposes.
4. Access to baseline vital signs would assist EMS practitioners involved in Rehab in determining abnormal deviations from patient specific “normal” values.

B. **Incident Command System (ICS)**

1. When circumstances/conditions warrant, the Incident Commander (IC) is responsible to ensure that a Rehab Area (Sector/Group/Unit) is established, including adequate EMS resources.
2. An individual with appropriate knowledge and experience should assume the role of Rehab Officer (position titles may vary), and follow the chain of command established by the IC. Rehab generally falls under the Logistics Section, but may operate under the Operations Section in a limited ICS structure.

C. **Rehab Area Logistics**

1. When possible, the Rehab Area should be located in an area:
    a. Away from hazardous conditions including; smoke, run-off, and vehicle exhaust (uphill and upwind), media, and spectators.
    b. Large enough to accommodate the expected number of personnel.
    c. That provides adequate shelter from adverse environmental conditions (i.e. warmth in winter and shade in summer).
    d. In close proximity to both the self-contained breathing apparatus (SCBA) exchange station and the ambulance staging area.
    e. With access to or in close proximity to potable water (either running or bottled) and rest rooms if possible.
2. The Rehab Area should be established with a consideration for the optimal flow of personnel.

D. **Rehab Operations**

1. Rehab should provide a means for responder accountability during the Rehab period; all personnel entering should be logged in/out (i.e. firefighters may surrender their accountability tag on entry).
2. Personnel entering Rehab should remove excess outer clothing to extent possible to allow for passive cooling (i.e. removal of helmet, hood, turnout coat). Limit level of undress when operating in extreme cold conditions.
3. EMS personnel providing Rehab may facilitate the following:
    a. Crew rest; all personnel should remain in Rehab for at least 20 minutes. Ideally, Rehab should contain adequate seating so personnel can rest comfortably.

b. Rehydration; water and/or electrolytes replacement solution (i.e. sports drink) should be available to ensure **at least** sixteen (16) ounces per person, per visit. Carbonated and caffeinated beverages should be avoided.

c. Nourishment; calorie replacement should be provided for prolonged incidents (i.e. more than 2 hours activity).

E. **Rehab Specific Equipment**

1. Additional Rehab specific equipment/supplies that may be of benefit may include, but is not limited to:

   a. Tarp/tent/awning or other protection from the elements, chairs/adequate seating, towels.

   b. Means for cooling in hot conditions (e.g. air conditioned vehicle or building, misting fans, forearm immersion chair, etc.); means for warming in cold conditions (heated vehicle or building, blankets, auxiliary heater).

   c. Potable water, electrolyte replacement solutions.

   d. Calorie/carbohydrate replacement snacks.

   e. Broth, soup, or other more significant nourishment for prolonged incidents.

   f. Means for washing hands and face; either antibacterial soap and water or pre-moistened towelettes.

TRAUMA PATIENT DESTINATION CRITERIA

Assess patient for any one of the following

Physiologic Criteria:

- Patient does not follow commands (GCS Motor ≤ 5)
- Hypotension, even a single episode (SBP < 90 mmHg)
- Respiratory rate <10 or >29 breaths/minute or need for ventilator support (<20 in age < 1 year)

Anatomic Criteria:

- Penetrating injury to head, neck, torso and extremities proximal to elbow or knee (unless obviously superficial)
- Chest wall instability or deformity (for example, flail chest)
- Two or more proximal long-bone (humerus or femur) fractures
- Crushed/degloved/mangled or pulseless extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Paralysis (spinal cord injury)

YES →

CATEGORY I TRAUMA

- **Requires immediate transport to a trauma center (Level 1 or 2), if within 45 minutes**
- **Otherwise, transport to a Level 3 (preferred) or Level 4 trauma center if patient can arrive at the Level 3 or Level 4 center within 45 minutes or before an air ambulance can arrive to the patient's location**
- **Notify Trauma Center ASAP (including category and ETA)**

NO ↓

Mechanism of Injury:

- Falls
  - Adult: > 20 feet (one story = 10 feet)
  - Children: > 10 feet or 2-3 x height of child
- High Risk Auto Crash
  - Passenger compartment intrusion, including roof: > 12 in. occupant site or > 18 in. into compartment any site
  - Ejection (partial or complete) from automobile
  - Death in same passenger compartment
- Auto vs. pedestrian/ bicyclist thrown, run over, or significant (>20 mph) impact
- Motorcycle crash > 20 mph

Other factors combined with traumatic injuries:

- Older Adults: SBP<110 may indicate shock after age 65
- Anticoagulants or bleeding disorder
- Burns with trauma mechanism
- Pregnancy (>20 weeks)
- Finger amputation

YES →

CATEGORY 2 TRAUMA

EITHER:

- **Contact Medical Command at closest Trauma Center (Level 1,2,or 3) for authorization for air medical transport if needed.**

OR

- **Transport by ground to closest Trauma Center (Level 1, 2, or 3) (if within 45 minutes)**
- **Otherwise, transport to closest Level 4 Trauma Center (if within 45 minutes).**

NO ↓

CATEGORY 3 TRAUMA

TRANSPORT TO CLOSEST APPROPRIATE RECEIVING FACILITY:

- **Frequently reassess for Category 1 or 2 criteria**
- **Contact medical command, if doubt about appropriate destination**

TRAUMA PATIENT DESTINATION
STATEWIDE BLS PROTOCOL

CRITERIA:

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

EXCLUSION CRITERIA:

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

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

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

POLICY:

A. Extremely critical patients that are rapidly worsening:

1. Patients with the following conditions should be transported as rapidly as possible to the closest receiving hospital: [2]

   a. Patients without an adequate airway, including patients with obstructed or nearly obstructed airways and patients with inhalation injuries and signs of airway burns).

   b. Patients that cannot be adequately ventilated.

   c. Patients exsanguinating from uncontrollable external bleeding with rapidly worsening vital signs (for example, a patient with severe hypotension and rapid bleeding, from a neck or extremity laceration, that cannot be controlled.).

   d. Other patients, as determined by a medical command physician, whose lives would be jeopardized by transportation to any but the closest receiving hospital.

2. The receiving facility should be contacted immediately to allow maximum time to prepare for the arrival of the patient.

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

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

   a. Transport patient to the closest trauma center (Level 1 or 2) [4,5] by the method that will deliver the patient in the least amount of time if patient can arrive at the closest Level 1 or 2 trauma center in ≤ 45 minutes. These patients should only be taken to a level 3 (preferably) or level 4 trauma center when the patient can arrive at a level 3 or 4 trauma center by ground in less time than it will take for an air ambulance to arrive at the patient's location. It is generally best for these patients to be taken to a trauma center, but if they cannot reach any trauma center in a reasonable time (e.g. 45 minutes by ground), they should be transported to the closest ED. Consider contacting medical command to assist with this decision.

   b. Transport patient by ground if driving time to a Level 1 or 2 trauma center is ≤ 30 minutes. Consider air transport if either:

      1) Air transport will deliver the patient to the Level 1 or 2 trauma center sooner than ground transport, or

      2) Patient has a GCS ≤ 8, and air ambulance crew will arrive at patient in less time than the time to transport to closest trauma center.

   c. Communicate patient report and ETA to receiving trauma center as soon as possible, because this permits mobilization of the trauma team prior to the patient's arrival.

2. **Category 2 trauma patient destination** [These patients may benefit from evaluation and treatment at a trauma center, but mechanism of injury alone is not strongly related to serious patient injuries. If ground transport to a trauma center (Level 1, 2, or 3) can be accomplished

in ≤ 45 minutes, air transport is generally not necessary for these patients who do not meet anatomic or physiologic trauma triage criteria.]

a. If air ambulance transport is thought to be needed, contact medical command (if communication capability permits) at closest trauma center. If communication with medical command at closest trauma center is not possible, contact medical command at closest non-trauma center if possible.

b. Reassess patient's condition frequently for worsening to Category 1 trauma criteria.

c. Transport patient to the closest trauma center (preferably Level 1, 2, or 3) [4,5] if patient can arrive at the closest trauma center in ≤ 45 minutes. It is generally best for these patients to be taken to a trauma center, but if they cannot reach any trauma center in a reasonable time (e.g. 45 minutes by ground), they should be transported to the closest ED. Consider contacting medical command to assist with this decision or to authorize air transport.

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

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

a. Transport to appropriate local receiving hospital

b. Reassess patient frequently for worsening to Category 1 or 2 criteria.

C. Air medical transport considerations:

1. When choosing transport by air, in addition to the actual transport time, which is clearly faster by air, EMS providers should consider the amount of time required for arrival of an air ambulance, patient preparation by the air medical crew, and patient loading.

2. When air ambulance transport is indicated, EMS providers must request an air ambulance through the local PSAP without requesting a specific air ambulance service. The incident command system, when in place, should be used to accomplish this request. The PSAP should initially contact the air ambulance service that is based closest to the scene.

3. The air ambulance may bring equipment and personnel with resources that are not available on the ground ambulances. These may be useful in the following situations:

a. Patients with GCS ≤ 8 may benefit from advanced airway techniques that the air medical crew can perform.

b. Air ambulance services may transport specialized medical teams for the treatment of unusual situations (for example, severe entrapment with the possibility of field amputation).

4. Prolonged delays at scene while awaiting air medical transport should be avoided.

a. If an air ambulance is not available due to weather or other circumstances, transport the patient by ground using policy section B to determine destination.

b. If patient is not entrapped, transport to an established helipad (for example a ground helipad at the closest receiving hospital [6,7], an FAA helipad at an airport, or other predetermined landing zone) if the ETA to the helipad is less than the ETA of the air ambulance to the scene.

5. Air ambulances will transport patients with acute traumatic injuries to destinations consistent with the Air Ambulance Trauma Patient Destination Protocol #190, and these patients will generally be transported only to a Level 1 or 2 center.

D. Considerations related to contact with medical command:

1. When medical command is required for a Category 1 or 2 trauma patient, contact a medical command facility accessible to the EMS provider using the following order of preference:

a. The receiving trauma center if the destination is known and that center is also a medical command facility.

b. The closest trauma center with a medical command facility.

c. The closest medical command facility.

2. If the patient will be transported by air ambulance, the air ambulance crew will determine the destination based upon the Statewide Air Medical Trauma Patient Destination Protocol.

3. Transport by ambulance to a facility other than the closest appropriate trauma center is permitted if directed by a medical command physician if the medical command physician is presented with medical circumstances that lead the medical command physician to reasonably perceive that a departure from the prior provisions in this protocol is in the patient's best interest. This may occur in special situations including the following:

   a. Specialty care is required that is not available at the closest trauma center (e.g. pediatric trauma center resources or burn center resources).

   b. The closest appropriate trauma center is on "diversion" based upon information from that center.

   c. The patient or other person with legal authority to act for the patient refuses transport to the closest appropriate trauma center.

Notes:

1. Patients in cardiac arrest who have penetrating trauma or are in third trimester (>24 weeks) of pregnancy should be taken to the closest trauma center if time to arrival at the closest trauma center is 15 minutes or less. Otherwise, patient should be transported to the closest hospital.

2. Transport should generally not be delayed while awaiting the arrival of ALS service or an air ambulance unless the ALS service or air ambulance has a confirmed ETA to the scene that is less than the ETA to the closest hospital.

3. Although these categories may be useful in identifying patients who should be transported to a trauma center during a mass casualty incident, patient transport prioritization should follow the system identified in the regional/ local mass casualty incident plan.

4. "Trauma Center" refers to a Level 1, 2, 3, or 4 Trauma Center that is currently accredited in this commonwealth and similarly qualified trauma centers in adjacent states. The most current Department lists of these resources should be used for reference. This definition of trauma center applies throughout this protocol.

5. **Pediatric patient considerations**: Patients that are 14 years of age or younger may be transported to the closest pediatric trauma center (Level 1 or 2 Pediatric Trauma Center) if the patient's condition is not extremely critical (see policy section B.1. above) and the difference between transport to the closest trauma center and transport to the pediatric trauma center is no more than 10 minutes.

6. If the patient is not entrapped, EMS providers should generally not wait on scene for an air ambulance if the ETA of the air ambulance is longer than the ground transport time to the closest hospital's helipad. Established helipads are generally safer than scene landing zones, and the resources of the adjacent hospital are available if the air ambulance is delayed or has to abort the flight. When using a helipad that can be accessed without entering a hospital, the patient's transport should not be delayed by stopping for evaluation within the hospital. If there is a significant delay in the arrival of the air ambulance, the patient should be taken to the hospital's ED for stabilization. Contact with medical command may be used if doubt exists about whether the patient should be evaluated in the hospital's ED.

7. This does not apply to hospital rooftop helipads that require access through the hospital. If a patient must be taken through a hospital to access their helipad, EMTALA requirements may cause a delay while the patient stops for an evaluation in the ED. EMS providers should avoid accessing these receiving facilities for the use of their helipad unless the patient meets the criteria of extremely critical patients who are worsening rapidly as defined in Policy section B.1. above.

Performance Parameters:

A. Review all cases where patient meets criteria for Category 1 or 2 Trauma for appropriate destination and appropriate use of air transport.

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

AIR MEDICAL TRANSPORT FOR NON-TRAUMA PATIENTS
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with ST-elevation myocardial infarction (STEMI) for whom air transport is considered.

B. Patient with acute stroke symptoms for whom air transport is considered.

C. Patient with any medical emergency for which direct air medical transport from the scene is being considered.

Exclusion Criteria:

A. Patient requiring air medical transport for traumatic injury – See Trauma Patient Destination Protocol #180

Possible Medical Command Orders:

A. Authorization of Air Ambulance transport for the patient

B. Transport by ground to appropriate facility (local hospital or more distant hospital for specialized care).

Policy:

A. Medical considerations when requesting air ambulance transport:

1. Extremely critical patients that are rapidly worsening:

   a. Patients with the following conditions should be transported as rapidly as possible to the closest receiving hospital:

      1) Patients without an adequate airway.

      2) Patients that cannot be adequately ventilated

      3) Other patients, as determined by a medical command physician, whose lives would be jeopardized by transportation to any but the closest receiving hospital.

   b. Transport should generally not be delayed while awaiting the arrival of ALS service or air ambulance unless the ALS service or air ambulance has a confirmed ETA to the scene that is less than the ETA to the closest hospital.

   c. STEMI patients:

      1) A 12-lead ECG should be obtained before contact with medical command to request air transport for a patient with suspected STEMI. Also follow Suspected Acute Coronary Syndrome protocol #5001. For the best patient care, it is ideal that this ECG be transmitted to the medical command facility and (eventually) to the receiving facility once determined.

      2) Transport the patient by ground if driving time to the specialty center capable of providing emergency primary percutaneous coronary intervention (PPCI) is less than 30-45 minutes.

   d. Acute stroke patients:

      1) Consider air medical transport if a patient has acute stroke symptoms **and** were last witnessed to be in their normal state within the last 3 hours. Also follow Stroke protocol #706/7006.

      2) The time urgency for acute stroke patients applies to patients who are candidates for thrombolytic therapy. Patients with contraindications to thrombolytic therapy should not be transported by air solely for the purpose of reducing transport time to a stroke center.

3) Transport the patient by ground if driving time to the specialty center (certified primary stroke center) is less than 30-45 minutes.

e. Other patients requiring specialty care not available at closest hospital

1) Transport the patient by ground if driving time to the specialty center (burn center, psychiatric center, etc.) is less than 30-45 minutes.

B. Air medical transport considerations:

1. When considering transport by air, in addition to the actual transport time, which is clearly faster by air, EMS providers should consider the amount of time required for arrival of an air ambulance, patient preparation by the air medical crew, and patient loading.
2. When air ambulance transport is indicated, EMS providers must request an air ambulance through the local Public Safety Answering Point (PSAP) without requesting a specific air ambulance service. The PSAP should initially contact the air ambulance service that is based closest to the scene.
3. The air ambulance may bring equipment and personnel with resources that are not available on the ground ambulances. These may be useful in the following situations:
   a. Patients with GCS ≤ 8 may benefit from advanced airway techniques that the air medical crew can perform.
   b. Air ambulances may transport specialized medical teams for the treatment of unusual situations (for example, neonatal teams). Although gathering a specialized team may dramatically lengthen the time to arrival of the air ambulance to the scene.
4. Prolonged delays at scene while awaiting air medical transport should be avoided.

C. Considerations related to contact with medical command:

1. **Medical command must be contacted, when possible, for approval for air medical transport for any non-trauma patient that the EMS practitioner believes would benefit by air medical transport.**
2. The EMS provider should contact a medical command facility accessible to the EMS provider using the following order of preference:
   a. The closest specialty facility (based upon the patient's medical condition) that is also a medical command facility. For example, the closest center capable of emergency PCI for patient with STEMI. Regional protocol may establish a list of emergency STEMI centers or stroke centers.
   b. The closest medical command facility. In regions where the EMS practitioner is not aware of the location of the closest facility capable of handling the patient's needs, the closest medical command facility should be contacted. If the closest medical command facility orders air transport to a further away specialty center, then the EMS practitioner should also contact the specialty receiving center, preferably via their medical command facility, as soon as possible to provide patient information.
3. If the patient will be transported by air ambulance, the air ambulance crew will determine the destination, and they will transport the patient to the closest facility that can provide the specialized care.

Performance Parameters:

A. 100% audit of all cases for appropriate use of air medical evacuation and appropriate use of other applicable protocols (e.g. Chest pain, CVA)

TRAUMA PATIENT DESTINATION – AIR TRANSPORT
STATEWIDE BLS PROTOCOL

Purpose:

A. This protocol shall ensure that when an air ambulance service has been contacted to transport a patient in the prehospital setting, and that patient has sustained an acute traumatic injury, the patient is transported to the most appropriate receiving facility.

Criteria:

A. All patients, in the prehospital setting, with acute traumatic injuries for which air ambulance transport has been requested.

Exclusion Criteria:

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

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

Policy:

A. **Trauma patients transported from prehospital scenes**

1. **Transport to closest Level 1 or Level 2.**[1] Unless specifically permitted by this protocol, trauma patients transported by air ambulance shall be transported to the closest Level 1 or 2 trauma center without distinguishing between Level 1 and Level 2 centers. For the purpose of this protocol, a reference to "closest trauma center" shall be construed to mean the Level 1 or 2 trauma center that is closest to the patient in terms of air transport distance.[2]

2. **Weather conditions exception.** Transport by air ambulance to a trauma center other than the closest Level 1 or 2 center is permitted if the pilot determines that weather conditions prohibit air travel to the closest trauma center.

   a. In this case, transport shall proceed to the closest trauma center (Level 1 or 2 preferred) permitted by weather conditions.

   b. If air transport to the closest trauma center accessible due to weather will take longer than ground transport to the closest trauma center, the patient shall be transported by ground ambulance.

3. **Ten-mile exception.**[3,4,5] Transport by air ambulance to a Level 1 or 2 trauma center other than the closest center is permitted if the difference between the air transport distance to the other center and air transport distance to the closest center is ten nautical miles or less.

4. **Pediatric exception.**[3,4,5] An air ambulance may transport a pediatric patient (14 years of age or younger) to the closest pediatric trauma center if the difference between the air transport distance to the pediatric center and the air transport distance to the closest Level 1 or 2 trauma center is 30 nautical miles or less.

5. **Burn patient exception.**[3,4,5] An air ambulance may transport a patient with serious burns[6] to the closest burn center if the difference between the air transport distance to the burn center and the air transport distance to the closest trauma center is 30 nautical miles or less. Additionally,

   a. If there is no burn center within the additional 30 nautical miles of air transport distance and the air medical crew determines that the patient's condition is stable, the crew shall contact a medical command facility for direction as to whether it should transport to a more distant burn center.

   b. If the burn is associated with other acute traumatic injury, the burn center destination must also be a trauma center.

c. If the patient is 14 years of age or younger, the burn center must be capable of treating pediatric burn patients.

d. If a burn patient has a suspected inhalation injury, the patient must be transported to the closest trauma center unless the patient's airway has been protected by endotracheal intubation prior to transport.

6. **Trauma center on "diversion" exception.**[3] An air ambulance may transport a patient to the next closest Level 1 or 2 trauma center if the closest center is on "divert" for trauma patients. [In some situations, necessary resources may not be available at the closest trauma center (e.g. the center is on diversion for trauma patients because the center's resources are committed to other trauma patients).]

   a. The air ambulance service may not consider a trauma center to be on divert for trauma patients unless that center has notified the air ambulance service of the divert condition. This notification from the trauma center may be through the air ambulance service's communication center or by direct communication with the air ambulance. This notification may occur by any type of communication, including web-based diversion notification.

   b. In the case of a mass casualty incident, the air ambulance crew shall follow the direction of the designated EMS Transport Officer, or his/her designee, related to transport to an alternate trauma center if the closest trauma center does not have the resources to accept the patient based upon communication that occurs between the trauma center(s) and the EMS Transport Officer or other designated official.

7. **Medical command exception.** Transport by air ambulance to a facility other than the closest trauma center, or transport by ground ambulance to a facility instead of air transport to the closest trauma center, is permitted if directed by a medical command physician because the medical command physician is presented with medical circumstances that lead the medical command physician to reasonably perceive that a departure from the prior provisions in this protocol is in the patient's best interest. This may occur in the following situations:

   a. The medical command physician determines, in conjunction with the closest trauma center, that anticipated specialty care is not available at the closest trauma center (e.g. hyperbaric oxygen, extracorporeal rewarming, burn care, specialty pediatric care, etc…)

   b. The medical command physician determines that the patient has a condition that should be treated at the closest receiving facility or would be most appropriately treated by ground ambulance transport.

8. **Patient choice exception.**[3] Transport by air ambulance to a facility other than the closest Level 1 or 2 trauma center or other facility that meets the criteria in sections 1-7 is permitted if the patient or other person with legal authority to act for the patient (hereafter "legal representative")[7] makes an unsolicited request for transport to a different facility. This is subject to the following:

   a. The air medical crew does not discuss possible destinations other than destinations that meet the criteria in sections 1-7 of this protocol, unless such discussion is initiated by the patient or the patient's legal representative.

   b. The air medical crew communicates the request to a medical command physician and, if the medical command physician has a reasonable cause to believe that the difference in estimated transport time could adversely affect the patient's condition or recovery, the air medical crew or medical command physician provides that information to the patient or legal representative.

c. The medical command physician determines that the patient or the patient's legal representative is alert and oriented and communicates an understanding of the potential adverse consequences to the patient if the request is followed.

d. The request is not unreasonable. Circumstances in which the request may be considered to be unreasonable include, but are not limited to, weather conditions as determined by the pilot make the transport to the trauma center hazardous, and the travel time to the trauma center is excessive.

9. **Medical command assistance.** If the crew of an air ambulance has any question regarding the facility to which a patient is to be transported or whether the transport should be made by ground or air ambulance, the crew shall contact a medical command facility for assistance. Ideally, this medical command facility will be either the medical command facility at the institution affiliated with the air ambulance service or at the closest trauma center.

B. **Contact with receiving trauma/burn center**

1. Communicate with the receiving center as soon as possible to provide patient information and an estimated time of arrival. The air ambulance crew should do this, if feasible, since it is the best source of patient information. Provide this information to the receiving facility as soon as possible, since the information may affect the mobilization of various resources within the facility in preparation for the arrival of the patient. The mobilization of these resources may vary among centers. In carrying out this responsibility the following apply to the air ambulance crew:

a. Give precedence to contact with the receiving center over contact with the air ambulance medical command when orders beyond standing treatment protocols are not needed or anticipated.

b. Do not delay transporting the patient while waiting to establish communication with the receiving facility.

c. Contact the receiving center by the method preferred by the center (within the air ambulance's communication capabilities).

d. Follow medical direction given by the receiving center's medical command facility. Note: The air ambulance service may require that medical command orders received from a receiving facility's medical command be verified or adjusted by the air ambulance service's primary medical command but this should be a rare exception.

C. **Resources to assist air medical services.** When available, the most current Department records of the following resources shall be used to assist an air medical service when using this protocol, unless the air ambulance service has more recent information:

1. Centers Designated to Receive Patients with Trauma

a. Trauma Centers including a designation of centers specially qualified to receive pediatric trauma patients.

b. Burn Centers, including a designation of centers specially qualified to receive pediatric burn patients.

c. Centers capable of providing hyperbaric oxygen therapy

d. Centers capable of extracorporeal rewarming (cardiac bypass)

2. Designated method of contacting each trauma center, including preferred radio frequency or Phone number.

NOTES:

1. "Trauma Center" refers to a Level 1 or 2 trauma center that is currently accredited in this Commonwealth and similarly qualified trauma centers in adjacent states (See section C.1.a.).

This definition of trauma center applies throughout this protocol.

2. "Air transport distance" refers to the distance from the landing zone at the scene to the landing zone at the trauma center as measured in nautical miles.
3. This ten-mile exception, pediatric exception, burn patient exception, or patient choice exception is not applicable if:
    a. During air transport the patient does not have an adequate airway and cannot be adequately ventilated, has rapidly worsening vital signs, or has absence of vital signs. Under these circumstances, the patient shall be transported by the fastest possible means to the closest trauma center, or based upon crew judgment may be transported to the closest receiving facility.
    b. When the patient has not yet been loaded into an air ambulance, if the patient does not have an adequate airway and cannot be adequately ventilated or is exsanguinating externally with rapidly worsening vital signs. Under these circumstances, the air medical personnel shall strongly consider transport by ground ambulance if the estimated transport time to the closest receiving facility (whether or not this facility is a trauma center) by ground ambulance is shorter than the estimated transport time by air to that facility or any other receiving facility.
4. When this exception is applicable, the air ambulance crew may offer the patient or the patient's legal representative discretion to choose transport to any facility permitted by the exception.
5. This exception shall not be used in conjunction with or cumulative to any other exception.
6. Serious burns are defined as burns that meet the American Burn Association or American College of Surgeons burn unit referral criteria.
7. The ambulance crew need only have a good faith belief that the person has legal authority to make the decision for the patient, provided the crew is without knowledge of facts negating that authority.

Performance Parameters:

A. Review of documentation for adherence to protocol for all acute trauma patients in the prehospital setting who are not transported to the closest trauma center.

Authority:

A. This protocol applies to all persons regulated under the EMS Act when they are involved with the transport of a trauma patient by an air ambulance or involved in the process of determining whether an air ambulance should be used to transport a trauma patient.

B. This protocol is issued pursuant to section 5(c) of the Emergency Medical Services Act, 35 P.S. §6925(c), which gives the Department of Health authority to establish protocols for the transport and transfer of acutely ill and injured patients to the most appropriate facility.

AIR AMBULANCE SAFETY CONSIDERATIONS
STATEWIDE BLS PROTOCOL

Criteria:

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

Exclusion Criteria:

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

Procedure:

A. Landing Zone (LZ) Recommendations:

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

B. Marking the LZ:

1. Mark 4 corners of desired landing spot with a 5th marker on side wind is coming from, so that the pilot can determine wind direction for landing
2. **DO NOT POINT WHITE LIGHTS AT THE AIRCRAFT AT ANY TIME!!!** (Blinds pilot, ruins night vision.)

3. Flares
    a. Good at night can be seen from a great distance.
    b. Limited use during the day, hard to see from the air.
    c. Be aware of fire potential caused by rotor wash.
    d. Be sure to collect after use.
4. Traffic cones
    a. Easy to see in daylight.
    b. Blown over easily unless weighted.
    c. Not useful at night unless internally illuminated by very bright light.
5. Strobes **are not useful.**
6. Vehicles **are not recommended, as they become obstacles.**
7. Personnel **are not recommended as markers.**
8. Rotating red, yellow, or blue lights
    a. Easy to see at night from miles away.
    b. Pilot may ask for them to be turned off after LZ is identified depending on overall illumination
9. Miscellaneous:
    a. Control bystanders to prevent their approach to aircraft and LZ.
    b. Pilot always has the final say in LZ acceptance.
    c. Many variables occur even if LZ has been used in the past.

C. Rotor craft safety:

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

INITIAL PATIENT CONTACT
STATEWIDE BLS PROTOCOL

Criteria:

A. All patients.

Exclusion Criteria:

A. None

Procedure:

A. Scene Size-Up:

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

B. All Patients:

1. If trauma MOI, stabilize cervical spine during assessment.
2. Perform initial assessment. (Form a general impression of the patient; determine the chief complaint and/or life threatening problems; determine responsiveness; assess airway and breathing; assess circulation.) [1]
3. Assure open airway; proceed with obstructed airway treatment if needed.
4. If pulseless, proceed to appropriate protocol:
   a. DOA protocol # 322 or OOH-DNR protocol # 324 if indicated, or
   b. Cardiac Arrest (General) protocol #331, or
   c. Cardiac Arrest (Traumatic) protocol # 332 if a traumatic injury is clearly responsible for patient's cardiac arrest.
5. If breathing is inadequate, ventilate patient as needed.
6. Control any serious or uncontrolled bleeding – see Protocol #601
7. If priority condition exists administer high concentration oxygen, treat immediately, and transport with reassessment and treatment by applicable protocol while enroute to the appropriate medical facility.
   a. Priority conditions are:
      1) Unable to obtain open airway
      2) Poor general impression
      3) Altered mental status and not following commands
      4) Difficulty breathing/ inadequate ventilation.
      5) Hypoperfusion (Shock).
      6) Complicated childbirth
      7) Chest pain with SBP< 100
      8) Uncontrolled bleeding
      9) Severe pain, anywhere
   b. If no priority condition exists, obtain history (SAMPLE & OPQRST) and perform focused physical exam.
8. Treat and transport per applicable protocol(s).

Notes:

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

OXYGEN ADMINISTRATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients presenting with the following conditions:

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

Exclusion Criteria:

A. None.

Procedure:

A. All patients:

1. Apply oxygen:
   a. Administer high concentration oxygen if the patient has a priority condition (as defined in Initial Patient Contact Protocol #201) or as directed by specific treatment protocol for the patient's condition.
      1) Patients who require high concentration oxygen per specific protocols should receive oxygen via non-rebreather mask[1], except:
      2) If patient will not tolerate oxygen mask, use a nasal cannula at 4-6 liters per minute (lpm).
   b. Administer oxygen by nasal cannula if high concentration oxygen is not required.
      1) **[OPTIONAL]** If pulse oximetry available, may administer oxygen by nasal cannula if needed to attain SpO2 ≥ 94%. See Pulse Oximetry Protocol #226. Note- this does not apply to patients with suspected carbon monoxide or cyanide exposure. These patients should receive 100% O2 via NRB mask. [2]
2. Be prepared to assist ventilations as necessary. If ventilation is required, high concentration oxygen should be given by the ventilatory device.
3. Patients who normally receive oxygen as part of their usual medical care should be kept on their prescribed rate, unless presenting with one of the criteria listed above.

B. Pediatric patients:

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

Notes:

1. Respiratory efforts may be suppressed by high concentration oxygen in patients with obstructive lung diseases (e.g. COPD), but if the patient has a condition requiring high concentration oxygen, it is more important to maximize oxygenation. Practitioners should reassess the patient for signs of respiratory depression and should be prepared to assist ventilations if needed.
2. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥ 94%.

ABUSE & NEGLECT (CHILD)
STATEWIDE BLS PROTOCOL

Criteria:

A. Any victim of suspected child abuse: [1]

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

B. Any victim of suspected elder abuse:

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

Exclusion Criteria:

A. None

Procedure:

A. All patients:

1. Treat any injuries/illness according to standard protocol.
2. When time permits, perform a visual inspection of the patient's surroundings looking for injury or abuse risk factors that may be associated with the patient's complaints.
3. EMS Practitioner – patient/family interaction:
   a. **DO NOT** question or accuse the caretaker in cases of possible abuse or neglect.
   b. **DO NOT** discuss possible abuse or neglect issues with the patient in the presence of the abuser or other family members.
4. Transport, if possible. Protect the individual from additional harm by encouraging transport to receiving facility, even if injuries appear to be minor.
   a. If transported to receiving facility, report concerns to staff at receiving facility **and** to appropriate agencies as required. (See section A.5.)

b. If patient, parent or guardian refuses transport, see Refusal of Treatment/Transport protocol #111.
   1) Contact medical command.
   2) If the medical command physician agrees, contact the law enforcement authority having jurisdiction or the appropriate county protective services agency.
   3) **DO NOT** endanger yourself or the EMS crew by inciting a confrontation with family members, relatives or caregivers. If you feel threatened, leave the scene for a safe refuge and immediately contact law enforcement agency having jurisdiction.

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

Notes:

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

INDICATIONS FOR ALS USE
STATEWIDE BLS PROTOCOL

Criteria:

A. All patients.

Exclusion Criteria:

A. None.

Procedure:

A. All patients: [1]

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

Notes:

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

Performance Parameters:

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

VENTILATION VIA ENDOTRACHEAL TUBE OR ALTERNATIVE/RESCUE AIRWAY ASSISTING WITH ALS PROCEDURES – STATEWIDE BLS PROTOCOL

Criteria:

A. This protocol will be used to guide ventilation via endotracheal tube or Alternative/ Rescue Airway by BLS providers.

Exclusion Criteria:

A. None

System Requirements:

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

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

Procedure:

A. All Patients: [1]

1. Connect the bag-valve device or oxygen powered positive pressure ventilator to the ETT or to the proper port of the Alternative/ Rescue Airway and begin to ventilate:
   a. Ventilate at adequate rate. **AVOID OVERZEALOUS HYPERVENTILATION!**
      1) Generally appropriate rates for ventilation are: [2]

a)	Adults	>8 y/o	8-12 breaths / minute
b)	Children	1-8 y/o	20 breaths / minute
c)	Infants	< 1 y/o	25 breaths / minute

      2) Controlled hyperventilation is appropriate in some cases of head injury **–** See Head Injury Protocol # 611.
   b. Ventilate with adequate volume. Provide steady squeeze of bag-valve device until chest rise is noted.
   c. When available and appropriate for age, a carbon dioxide monitor should always be placed in-line between the tube and the ventilating device during patient ventilation.
2. Assure that the bag-valve device is connected to supplemental oxygen.
3. Assist the ALS practitioner in securing the tube to prevent movement.
   a. This may be accomplished with the use of a commercial tube-holder, twill tape, or with the use of adhesive tape.
   b. The ALS practitioner may request immobilization with a spine board and CID to minimize tube dislodgement from neck motion.
4. Notify the ALS practitioner immediately if:
   a. The tube position is changed for any reason such as patient movement or movement of the ambulance.
   b. There is any change in the ease of patient ventilation.
   c. There is a reduction in carbon dioxide production if CO_2 detector is used.[2]
   d. The patient begins to breathe spontaneously.
5. If patient has a pulse and if pulse oximeter is available, place pulse oximeter on patient and notify ALS practitioner immediately if SpO_2 decreases.
6. If available, monitor ventilatory rate on CO_2 monitor to assist with appropriate ventilation rate.

Notes:

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

Performance Parameters:

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

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

PULSE OXIMETRY
STATEWIDE BLS PROTOCOL [OPTIONAL]

Criteria:

A. Patient with shortness of breath or respiratory distress.

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

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

Exclusion Criteria:

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

System Requirements:

A. [Optional] BLS services may carry a pulse oximeter for use by appropriately trained EMTs.

1. These services must comply with additional Department of Health BLS pulse oximeter requirements including the presence of an agency medical director and appropriate provider education before the service is permitted to carry a pulse oximeter.

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

Procedure:

A. All patients requiring oxygen therapy

1. Initial Patient Contact – see Protocol #201.
2. Administer oxygen as determined by appropriate medical treatment protocol.
   a. Providing oxygen therapy, patient extrication, and on-scene time should never be delayed while obtaining an O_2 saturation reading.
3. Monitor O_2 saturation (SpO_2) with pulse oximeter
   a. Assure that reading is accurate. Patient's pulse should correlate with waves or pulsations on pulse oximeter.
   b. Possible causes of inability to obtain as accurate SpO_2 reading include:
      1) Peripheral vasoconstriction (cold extremities, smoking, chronic hypoxia, or vascular obstruction/deficit).
      2) Severe anemia (low hemoglobin).
      3) Hypovolemia.
      4) Dirty Fingers or dark/metallic nail polish.
      5) Methemoglobinemia.
      6) Carbon monoxide – **Do not apply pulsoximeter to patient with suspected carbon monoxide poisoning.** [2]
4. Use of SpO_2 reading to alter oxygen dosage:
   a. The following patients should receive high-flow oxygen at all times when possible:
      1) Patients with symptoms or signs of severe respiratory distress (air hunger, cyanosis, chest wall/subcostal retractions, etc.)
      2) Patients with suspected carbon monoxide poisoning.

3) Patients with respiratory distress who are being prepared for air medical transport.

b. Other patients (particularly patients with chronic lung disease or patients who do not tolerate an oxygen mask) may have oxygen mask replaced by nasal cannula or nasal cannula oxygen dose decreased if:

1) SpO_2 reading remains ≥ 94% on lower oxygen dose.

2) Patient's color is good (not cyanotic).

3) Patient's respiratory distress does not worsen.

5. Document initial SpO_2 reading after beginning oxygen therapy, and document SpO_2 reading after any changes in oxygen dose or type of delivery system/mask.

Notes:

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

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

Performance Parameters:

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

B. Monitor records for documentation of SpO_2 readings ≥ 94% for all patients who receive less than high-flow 100% oxygen when lower doses are permitted by appropriate protocol.

CARBON MONOXIDE CO-OXIMETRY
STATEWIDE BLS PROTOCOL [OPTIONAL]

Criteria:

A. Firefighter screening at fire scene

B. Patient with symptoms consistent with carbon monoxide (CO) poisoning – altered mental status or headache

Exclusion Criteria:

A. The use of pulse oximetry is covered in the Pulse Oximetry Protocol #226.

System Requirements:

A. [Optional] BLS services may carry a co-oximeter for use by appropriately trained EMTs.

1. These services must comply with additional Department of Health co-oximeter requirements including the presence of an agency medical director and appropriate provider education before the service is permitted to carry a co-oximeter.

B. EMTs may provide optional co-oximetry monitoring if the EMT has completed training in the use of the co-oximeter, is approved by the EMS agency medical director, and is functioning with a BLS service that is approved to carry a co-oximeter.

Policy:

A. General noninvasive spectrophotometry

1. Noninvasive spectrophotometry can be used to measure the concentration of various physiologic components of blood. These include oxygen saturation, carbon dioxide, methemoglobin, and hemoglobin levels.
2. These physiologic components may be measured by EMTs personnel using spectrophotometry (co-oximetry) devices.
3. The measurements obtained from these devices are similar to those from laboratory tests, but each measurement has a range of possible error. **The measurements obtained from co-oximetry may raise an EMS providers awareness of a medical condition like carbon monoxide poisoning, but the measurements from these devices should NOT be used to change patient care.** Follow applicable protocols for appropriate treatment of medical conditions.

B. Firefighter, without symptoms, being screened for CO at fire scene

1. Co-oximetry is a screening device and is not the sole determinant of CO risk.
2. Co-oximetry baseline levels are elevated in smokers.
3. Co-oximetry may be useful in screening firefighters for exposure to carbon monoxide at a fire scene.
4. In this setting, EMS providers shall follow the Fire Ground Rehabilitation Protocol (#150)

C. Patient (civilian or firefighter) with symptoms consistent with CO poisoning

1. CO-oximetry is a screening device and is not the sole determinant of CO risk. Patients with suspected CO poisoning should be treated using Poisoning/ Toxic Exposure Protocol #831.
2. Monitor concentration of carboxyhemoglobin (COHb) with Co-oximeter
   a. Assure that reading is accurate. Patient's pulse should correlate with waves or pulsations on Co-oximeter.
   b. Possible causes of inability to obtain as accurate COHb reading include:

1) Peripheral vasoconstriction (cold extremities, smoking, chronic hypoxia, or vascular obstruction/deficit).
2) Severe anemia (low hemoglobin).
3) Hypovolemia.
4) Dirty fingers or dark/metallic nail polish.

3. **Co-oximeter reading may assist in confirming CO poisoning in symptomatic patients, but EMS providers must not alter oxygen administration or disposition based upon COHb level.**
   a. Environmental CO detectors carried in “first-in” bags are more useful than CO-oximetry in alerting EMS providers to an environment with elevated CO.
   b. If patient has risk for CO poisoning and symptoms of CO poisoning, high-flow oxygen should be administered without regard to CO-oximeter reading.
   c. After obtaining an initial CO-oximetry measurement in a patient, repeated measurements are not necessary.
   d. Diversion of a patient to a center capable of providing hyperbaric oxygen may only be done after contact with a medical command physician. The level of COHb is not a reason for diversion to hyperbaric therapy or for air medical transport.
4. Document initial COHb measurement on PCR.
5. If in doubt about COHb measurement or medical treatment suggested by appropriate protocols, then Contact Medical Command.

Performance Parameters:

A. Monitor records for treatment of suspected carbon monoxide poisoning using appropriate protocols (e.g. Poisoning/ Toxin Exposure Protocol #831.

B. Monitor records for documentation of COHb and/or other noninvasive oximetry measurements.

ECG MONITOR PREPARATION ASSISTING WITH ALS PROCEDURES
STATEWIDE BLS PROTOCOL

Criteria:

A. This protocol will be used to guide ECG monitor preparation by BLS providers when an ALS practitioner has requested assistance with set-up of ECG monitor.

B. ECG monitor set-up must occur only when in direct presence of responsible ALS practitioner who is functioning on-scene with an ALS service.

Exclusion Criteria:

A. This protocol does not apply to the application of an AED to a pulseless and unresponsive patient.

B. BLS providers are not permitted to apply AED electrodes or other ECG monitors to non-cardiac arrest patients for the purpose of ECG monitoring unless in the direct presence of a responsible ALS practitioner who is functioning on-scene with an ALS service.

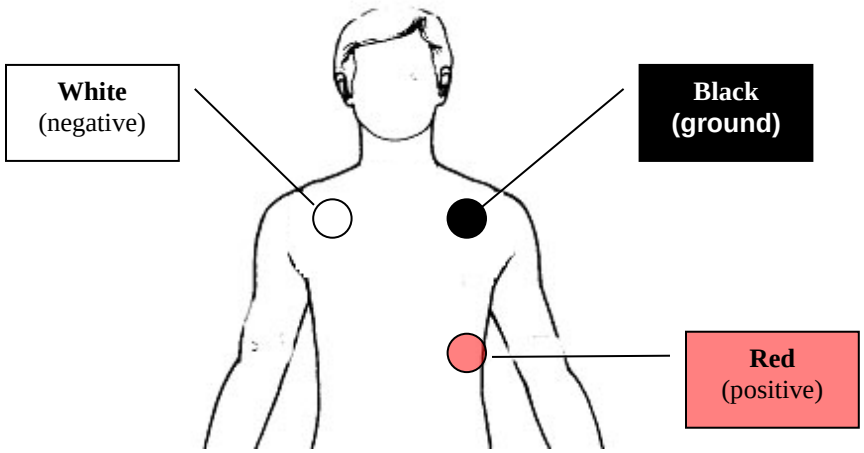
System Requirements:

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

Procedure:

A. All Patients: [1]

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



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

Notes:

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

THIS PAGE INTENTIONALLY LEFT BLANK

SPINAL IMMOBILIZATION
STATEWIDE BLS PROTOCOL

Criteria:

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

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

OR

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

OR

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

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

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

Exclusion Criteria:

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

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

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

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

Procedure:

A. All patients:

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

OR

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

2. **Immobilize the entire spine[3,4] in any trauma patient who sustains an injury with a mechanism having the potential for causing spinal injury and who has at least one of these clinical criteria: [5]**
   a. Altered mental status (including any patient that is not completely alert and oriented)

b. Evidence of intoxication with alcohol or drugs

c. A distracting painful injury (including any suspected extremity fracture)

d. Neurologic deficit (including extremity numbness or weakness- even if resolved)

e. Spinal pain or tenderness (in the neck or back)

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

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

Notes:

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

Performance Parameters:

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

DEAD ON ARRIVAL (DOA)
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient presenting with the following

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

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

Exclusion Criteria:

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

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

Treatment:

A. All patients:

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

Possible Medical Command Orders:

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

Note:

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

Performance Parameters:

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

OUT-OF-HOSPITAL DO NOT RESUSCITATE STATEWIDE BLS PROTOCOL

Criteria:

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

Exclusion Criteria:

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

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

C. Advance directives, living wills, POLST, and other DNR forms that are not valid Pennsylvania Department of Health OOH-DNR orders may not be followed by EMS providers unless validated by a medical command physician. When presented with these documents, including a POLST, CPR / resuscitation should be initiated and medical command should be contacted as soon as possible. [2]

D. Patient is not in cardiac or respiratory arrest.

Treatment:

A. All patients in cardiac or respiratory arrest:[3]

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

Possible Medical Command Orders:

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

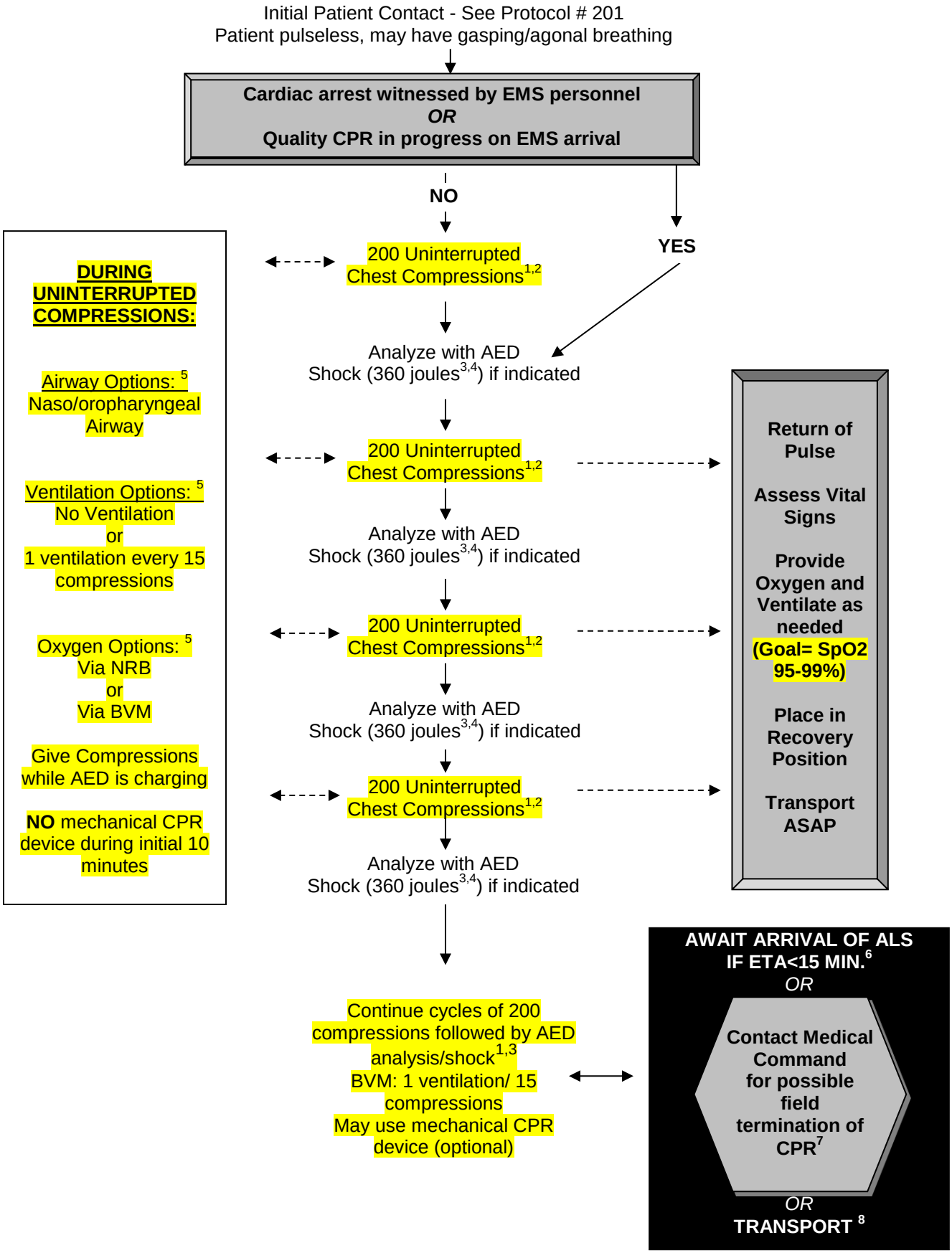
Note:

1. EMS providers shall follow this protocol and, when appropriate, shall honor an OOH-DNR within a hospital.
2. The Pennsylvania Orders for Life Sustaining Treatment (POLST) form is a specific type of a more general POLST (Physician Orders for Life Sustaining Treatment) form that has been standardized and contains the Pennsylvania Department of Health logo. If presented with a PaDOH version of the POLST, the standardized form should simplify any discussion related to termination of resuscitation efforts with a medical command physician.
3. An OOH-DNR order, bracelet or necklace is of no consequence unless the patient is in cardiac or respiratory arrest, if vital signs are present, the EMS practitioner shall provide medical interventions necessary and appropriate to provide comfort to the patient and alleviate pain unless otherwise directed by the patient or a medical command physician. Follow appropriate treatment protocols.
4. For pregnant patients, the EMS provider shall examine the original signed OOH-DNR to ensure completion of Section 2B “Physicians for Pregnant Patients Only” by the patient’s attending physician in order to honor the OOH-DNR and withhold or discontinue CPR.

Performance Parameters:

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

GENERAL CARDIAC ARREST – ADULT STATEWIDE BLS PROTOCOL



GENERAL CARDIAC ARREST – ADULT
STATEWIDE BLS 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, 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 (approximately10 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 15 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.

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. 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 (one ventilation every 15 compressions) without interrupting compressions

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

6. 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.

7. 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).

8. 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. Practitioners 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.

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.

GENERAL CARDIAC ARREST – PEDIATRIC STATEWIDE BLS 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

PAUSE FOR VENTILATIONS, BUT MINIMIZE ALL OTHER INTERRUPTIONS IN COMPRESSIONS

Give Compressions while AED is charging

Naso/oropharyngeal Airway

Supplemental Oxygen

Mechanical CPR should not be used for pediatric patients

Return of Pulse

Assess Vital Signs

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

Place in Recovery Position

Transport ASAP

AWAIT ARRIVAL OF ALS IF ETA<15 MIN.[7]
OR
Contact Medical Command for possible field termination of CPR[8]
OR
TRANSPORT [9]

GENERAL CARDIAC ARREST – PEDIATRIC
STATEWIDE BLS 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 intubation**, compression to ventilation ratio is: Adult = 30:2; Child and Infant = 15:2. (**NOTE:** 1-rescuer CPR compression to ventilation ratio is 30:2 for all patients except newborns)
    b. **After intubation/ Alternative/ Rescue 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. 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).
9. 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. Practitioners 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.

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.]

THIS PAGE INTENTIONALLY LEFT BLANK

CARDIAC ARREST – TRAUMATIC
STATEWIDE BLS PROTOCOL

Criteria:

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

Exclusion Criteria:

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

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

Treatment:

A. Patients in cardiac arrest due to trauma:

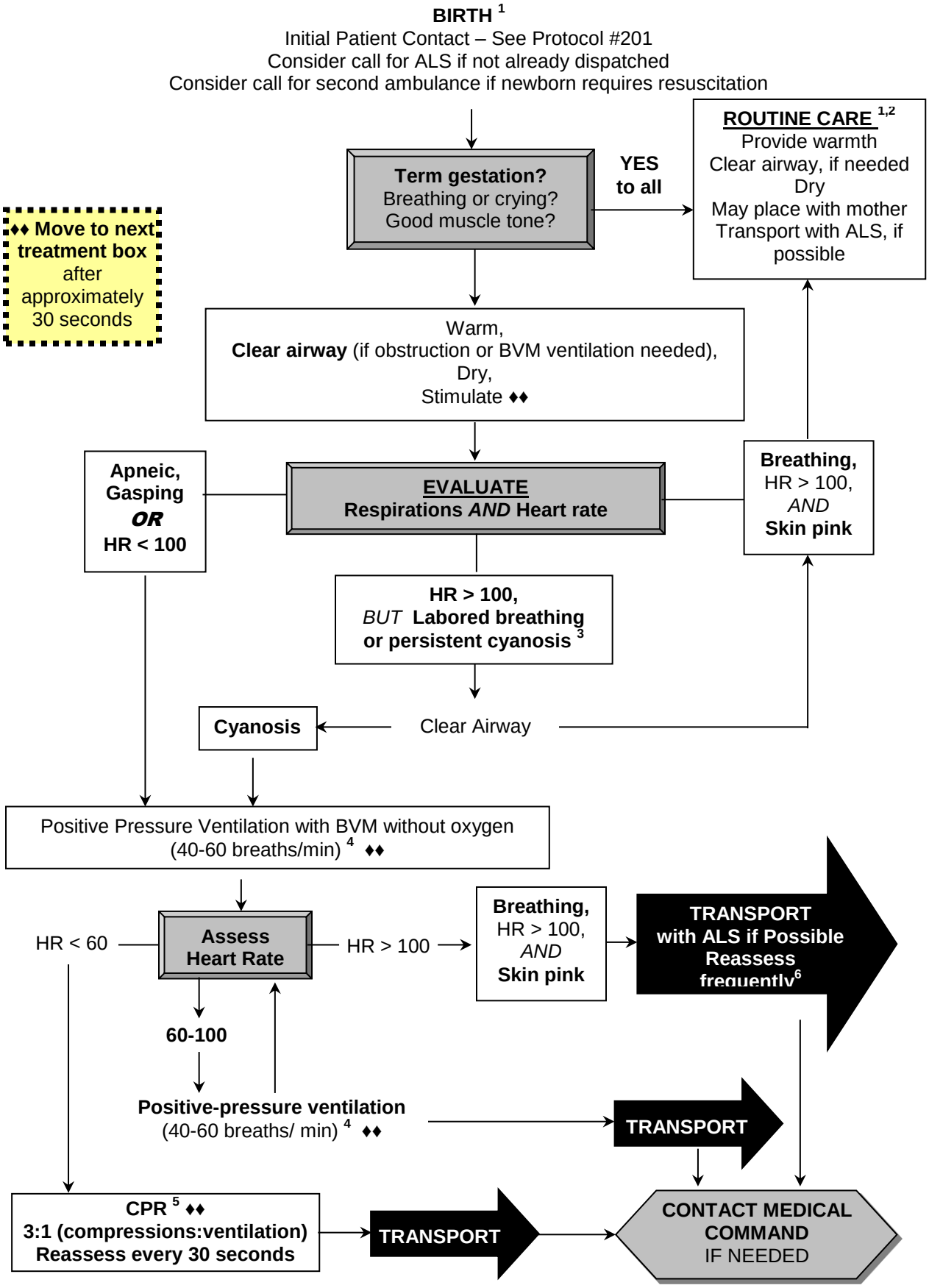
1. Initial Patient Contact – see protocol #201.
    a. If any doubt exists that the apparent injuries are responsible for the cardiac arrest, follow Cardiac Arrest Protocol #331, including the use of AED when indicated. Otherwise, AED use is not indicated in cardiac arrest from severe traumatic injuries.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

Notes:

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

THIS PAGE INTENTIONALLY LEFT BLANK

NEWBORN / NEONATAL RESUSCITATION
STATEWIDE BLS PROTOCOL



NEWBORN / NEONATAL RESUSCITATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Newborn infant

Exclusion Criteria:

A. Resuscitation may not be appropriate in rare cases where gestational age (confirmed gestational age <20 weeks) or fatal birth defects (for example anencephaly or absence of skull bones and brain hemispheres) are consistent associated with certain early death.

Treatment:

A. All Patients

1. Refer to accompanying flowchart.

Note:

1. The newborn should be evaluated immediately after birth and reevaluated for respiratory effort, heart rate, and color every 30 seconds during the initial care until it is clear that the newborn is stable.
2. Transport the stable infant in a warm environment and within an infant car seat (if available) that has been firmly secured within the ambulance.
3. Examine for central cyanosis at the face, trunk and mucous membranes. Acrocyanosis of hands and feet only is usually a normal finding if the infant is vigorous, breathing, and heart rate >100.
4. Positive pressure ventilation should use the minimum volume and pressure to achieve chest rise and /or achieve or maintain HR>100.
5. Two thumb-encircling chest technique is preferred. Compressions and ventilations should occur in a 3:1 ratio and should be done quickly enough to provide approximately 90 compressions and 30 ventilations per minute.
6. Newborns who required resuscitation are at risk for deterioration and should be transported in the environment that permits frequent reassessment. Transport under the care of an ALS provideris ideal if available.

ALLERGIC REACTION / ANAPHYLAXIS
STATEWIDE BLS PROTOCOL

Criteria:

A. Severe Allergic Reaction: A patient with the following symptoms of severe allergic reaction or anaphylaxis after suspected exposure to an allergen:

1. Symptoms of severe allergic reaction include:
   a. Difficulty breathing and wheezing.
   b. Swollen tongue and lips or difficulty swallowing.
   c. Hypotension.
2. Common allergens that may lead to allergic reactions include
   a. Bee/ Wasp/ Hornet stings
   b. Medications (e.g. antibiotics)
   c. Foods (e.g. peanuts, seafood)

B. Moderate Allergic Reaction: A patient with a moderate allergic reaction may have:

1. Mild shortness of breath with wheezing
2. Extensive hives and itching
3. Mild tongue/ lip swelling without difficulty swallowing of shortness of breath.

Exclusion Criteria:

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

System Requirements:

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

B. **[Optional]** BLS services may carry EPINEPHrine auto-injectors for administration by the agency's EMTs.

1. These services must comply with Department of Health EPINEPHrine auto-injector requirements for these services and for the training of service providers before the service is permitted to stock and carry EPINEPHrine auto-injectors.
2. These services must carry 2 adult and 2 pediatric dose EPINEPHrine auto-injectors that are stored and maintained in a manner consistent with Department requirements.

Treatment:

A. All patients treated by BLS services that DO NOT carry EPINEPHrine auto-injectors (i.e. patient-assisted EPINEPHrine):

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210.
2. Administer oxygen. (High concentration if difficulty breathing or signs of shock)
3. Determine the severity of the patient's symptoms.
   a. For severe symptoms listed above:
      1) If the patient has a prescribed EPINEPHrine auto-injector, assist[2] with the administration of single unit dose of EPINEPHrine via auto injector.[3,4,5,6,7] [EMT ONLY]
         a) **Adult dose 0.3 mg (e.g. EpiPen)**
         b) **Pediatric dose 0.15 mg (e.g. EpiPen Junior)**
      2) Monitor vital signs and reassess patient.
      3) Contact medical command.
   b. For moderate symptoms listed above:
      1) Contact medical command if the patient has a prescribed EPINEPHrine auto-injector.
4. Monitor vital signs and reassess patient.

5. Monitor pulse oximetry, [OPTIONAL]. [8]
6. Transport.

B. All patients treated by EMTs functioning with BLS services that are approved to carry EPINEPHrine auto-injectors (i.e. primary administration of EPINEPHrine) [OPTIONAL]:

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210.
2. Administer high concentration oxygen.
3. Determine severity of patient's symptoms
   a. For severe symptoms listed above:
      1) Administer a single unit dose of EPINEPHrine via auto injector.[4,5,7]
         a) **Adult dose 0.3 mg (e.g. EpiPen)**
         b) **Pediatric dose 0.15 mg (e.g. EpiPen Junior)**
      2) Monitor vital signs and reassess patient
      3) Contact Medical Command.
   b. For moderate symptoms listed above, Contact Medical Command and follow directions of medical command physician.
4. Monitor vital signs and reassess patient.
5. Monitor pulse oximetry, [OPTIONAL]. [8]
6. Transport.
7. Contact Medical Command if condition worsens.

Possible Medical Command Orders:

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

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

Notes:

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

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

5. Use caution in patients over 55 years old. Contact Medical Command if patient does not have severe symptoms as defined above or if unsure whether this is an allergic reaction.
6. If the patient does not have a prescribed EPINEPHrine auto injector, but there is a bystander available with an auto injector, contact medical command.
7. Dispose of the injector in a biohazard container.
8. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.

Performance Parameters:

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

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

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

RESPIRATORY DISTRESS/RESPIRATORY FAILURE
STATEWIDE BLS PROTOCOL

Criteria:

A. Shortness of breath or difficulty breathing

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

Exclusion Criteria:

A. None.

System Requirements:

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

B. CPAP may only be administered by an EMT that has completed the DOH BLS CPAP training and has been approved to administer CPAP by the EMS agency medical director.

C. [Optional] BLS services may carry CPAP devices for use by the agency's EMTs.

1. These services must assure that all EMTs using CPAP have completed the DOH BLS CPAP training and have been approved by the agency medical director.
2. These services must carry a CPAP device that has a manometer (or other means to provide specific CPAP pressure) and meets any other specifications required by the DOH.
3. These services must be approved to carry pulse oximeters – See Protocol #226.
4. The EMS agency medical director must oversee the CPAP training, use of CPAP, and quality improvement audits.

Treatment:

A. All patients:

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

B. Pediatric patients:

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

C. All patients:

1. Apply high concentration oxygen. If necessary, assist respirations with a bag-valve-mask, but avoid overzealous hyperventilation.
2. Monitor pulse oximetry[1] [OPTIONAL – MANDATORY IF USING CPAP]
3. Continuous Positive Airway Pressure (CPAP) [OPTIONAL]:
    a. Apply CPAP to adult patient if patient does not have any contraindication to CPAP [2] AND has **at least TWO** of the following after high concentration oxygen:
        1) Pulse oximetry < 90%

2) Respiratory rate > 25 bpm
3) Use of accessory muscles during respiration

b. If CPAP is applied [3]:
1) Titrate pressure up until either improvement or **maximum of 10 cm H_2O pressure**.
2) Remove CPAP if respiratory status deteriorates and assist with BVM ventilation if needed.

4. Assist patient with his/ her bronchodilator inhaler [EMT ONLY] for conditions associated with wheezing [4,5,6]
a. Must be a "short-acting" rapid onset, **bronchodilator** [7,8]
5. Transport and reassess enroute
6. Contact medical command if EMT is unclear whether the patient's inhaler is a "short-acting" bronchodilator or if EMT has assisted with bronchodilator inhaler administration.[8,9]

Possible Medical Command Orders:

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

Notes:

1. See Pulse Oximetry Protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
2. CPAP is not indicated if patient:
a. has altered mental status and/or cannot follow commands.
b. ≤ 14 y/o, unless ordered by Medical Command
c. has respiratory rate < 10 ***OR*** apnea ***OR*** is unable to maintain an open airway.
d. has chest trauma or is suspected of having a pneumothorax.
e. has a tracheostomy.
f. is actively vomiting or has upper GI bleeding.
3. If CPAP is used:
a. Oxygen supply may be depleted rapidly, especially if prolonged transport times. Monitor supply to avoid complete depletion.
b. Assure that ALS has been requested, if available, and advise responding ALS service that CPAP is being used.
c. Notify hospital of CPAP use ASAP to assure that CPAP device is available on arrival. Transport patient into hospital on CPAP and do not remove until hospital therapy is ready to be placed on patient.
d. Watch for gastric distention, which can result in vomiting.
e. CPAP can be used on patient with Do-Not-Resuscitate order.
f. Vital signs (including pulse oximetry), must be obtained and documented every 5 minutes.
4. An EMT may assist with the medication **ONE TIME ONLY** prior to contacting Medical Command. Any subsequent administration requires direction from a medical command physician.
5. Bronchodilator inhaler must be prescribed for the patient, and EMS must identify and administer the prescribed dose ("one" or "two" inhalations) for the specific patient.
6. If unsure of the appropriate action, contact Medical Command for further direction.
7. If unable to contact medical command, may repeat previous dose of bronchodilator inhaler 20 minutes after initial dose.
8. The following are commonly prescribed short-acting, rapid-onset, beta-2 agonist inhalants that the EMT may assist with administration:

Brand Name	Generic Name
Combivent	Albuterol / Ipratroprium Combination
Maxair	Pirbuterol Acetate
Proair	Albuterol
Proventil	Albuterol
Ventolin,	Albuterol
Xopenex	Levalbuterol

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

Long-acting, Delayed-Onset Inhalers	
Brand Name	**Generic Name**
Aero-Bid, Aero-Bid M	Flunisolide
Advair	Salmeterol / Fluticasone Combination
Alvesco	Ciclesonide
Asmanex	Mometasone
Atrovent	Ipratropium Bromide
Beclovent	Beclomethasone Dipropionate
Brovana	Arformoterol
Dulera	Formoterol / Mometasone Combination
Flovent	Fluticasone Propionate
Foradil	Formoterol
Intal	Cromolyn Sodium
Performomist	Formoterol
Pulmicort	Budesonide
Qvar	Beclomethasone Dipropionate
Serevent	Salmeterol Xinafoate
Spireva	Tiotropium
Symbacort	Formoterol / Budesonide Combination
Vanceril	Beclomethasone Dipropionate

Performance Parameters:

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

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

THIS PAGE INTENTIONALLY LEFT BLANK

CHEST PAIN
STATEWIDE BLS PROTOCOL

Criteria:

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

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

Exclusion Criteria:

A. Chest pain, probably not cardiac origin.

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

System Requirements:

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

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available. See Indications for ALS Use protocol #210
2. Apply oxygen (High concentration if patient also has difficulty breathing or hypoperfusion)
3. Monitor pulse oximetry[1] [OPTIONAL] and titrate oxygen to the lowest concentration that will maintain $SpO_2 \geq 94\%$.
4. Assist patient with his/her prescribed nitroglycerin based upon the following:[2,3,4,5] [EMT ONLY]
   a. Suspected cardiac origin as outlined above.
   b. **WARNING**: Do not give nitroglycerin if you are aware that a patient has taken Viagra or similar medications for erectile dysfunction within the last 24-48 hours. [6]
   c. Patient is currently experiencing chest pain or discomfort.
   d. Blood pressure is > 100 systolic.
5. Transport.
6. Monitor vital signs and reassess.
7. Contact medical command if EMT has assisted with nitroglycerin. [7]

Possible Medical Command Orders:

A. Medical command may order additional doses of nitroglycerin.

Notes:

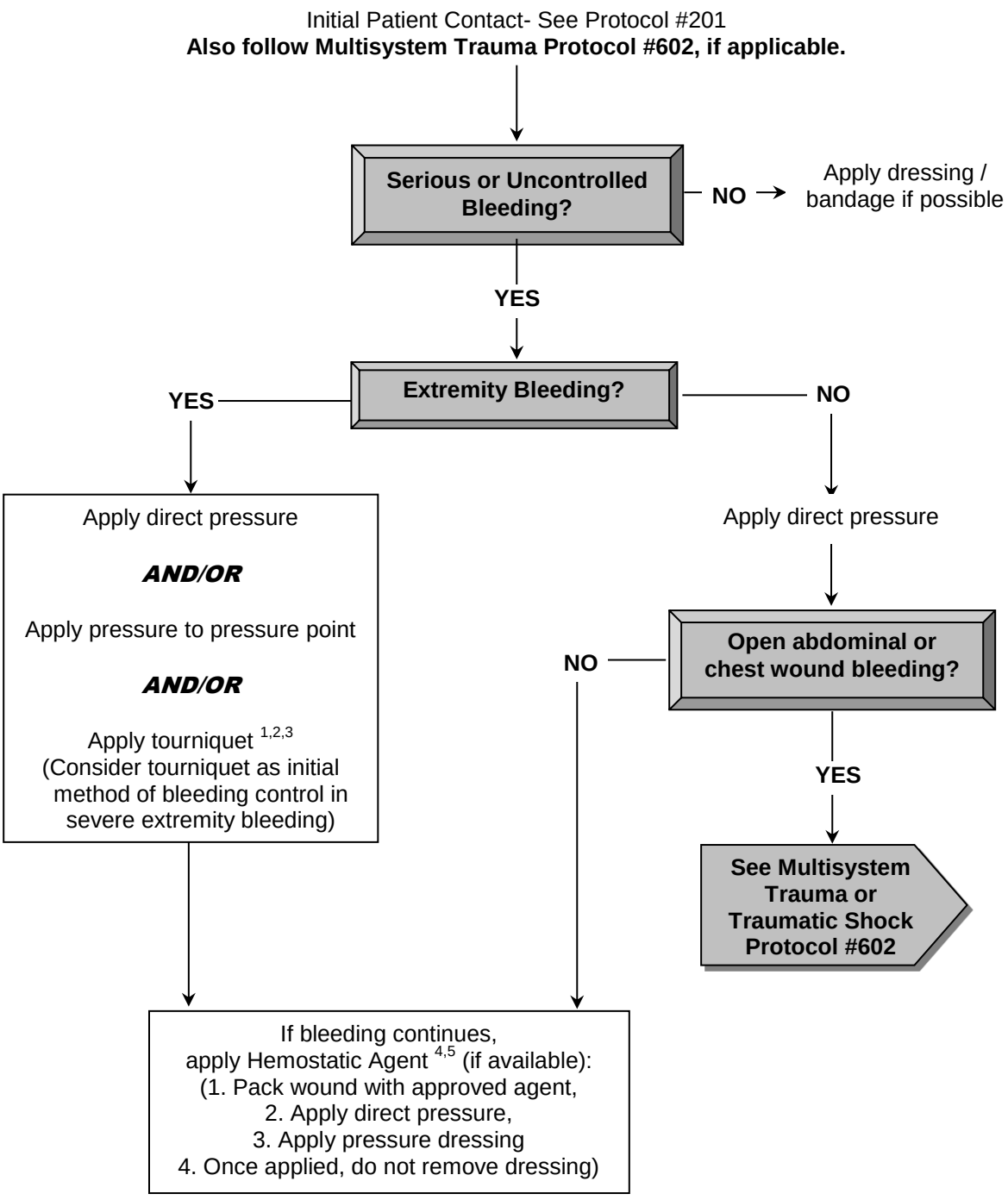
1. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
2. An EMT may assist with the medication **ONE TIME ONLY** prior to contacting Medical Command. Any subsequent administration requires direction from a medical command physician.
3. Nitroglycerin must be prescribed for the patient, and EMS must identify and administer the prescribed dose (sublingual “tablet” or “spray”).
4. Nitroglycerin should not be given to a child.
5. If unsure of the appropriate action, the EMT should contact Medical Command for further direction.
6. Nitroglycerine use may lead to severe, and possibly fatal, hypotension when given within 24-48 hours after a patient has used drugs that treat erectile dysfunction (phosphoodiesterase inhibitors) and pulmonary hypertension. Nitroglycerine should not be given within 24 hours of taking Viagra /Revatio (sildenafil) or Levitra (vardenafil) or within 48 hours of taking Cialis (tadalafil).
7. If unable to contact medical command, may repeat nitroglycerin one time 5 minutes after initial dose as long as systolic blood pressure is > 100 prior to second dose.

Performance Parameters:

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

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

BLEEDING CONTROL
STATEWIDE BLS PROTOCOL



BLEEDING CONTROL
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients with bleeding or open wounds

Exclusion Criteria:

A. Internal bleeding

B. Vaginal bleeding

System Requirements:

A. By 7/1/11, every BLS/ALS ambulance and QRS must carry at least one commercial tourniquet.

B. [Optional] EMS services may carry approved hemostatic agents for use by appropriately trained EMS providers if the agency complies with the following additional requirements:

1. The agency must have a medical director.
2. The agency and agency medical director must assure that all providers that will potentially use the hemostatic agent are appropriately trained in its use.

C. If an agency chooses to carry a hemostatic agent (optional), the agency medical director must select an agent that is approved as defined on the Pennsylvania EMS Vehicle Equipment List.

Notes:

1. Application of a tourniquet may be the best initial option to control severe extremity bleeding. Especially when a patient has signs of hypovolemic shock, extremity injuries from explosive devices, in mass casualty situations, or when bleeding is profuse.
2. EMS providers may use commercial (tactical/military-type) tourniquets or may use a cravat or blood pressure cuff as a tourniquet. Do not use rope, wire or other thin strictures that may lead to more damage.
3. When a tourniquet is applied:
   a. Apply it as far distally as possible
   b. In mass casualty situations, write a “T” and the time of application on the patient’s forehead or record tourniquet and time on triage tag.
   c. Do not release tourniquet pressure in the field unless ordered to by medical command.
4. Hemostatic agents are most likely to be indicated for wounds involving the scalp, face, neck, axilla, groin, or buttocks.
5. Hemostatic agents are NOT appropriate for minor bleeding, bleeding that can be controlled by direct pressure, bleeding that can be controlled by application of a tourniquet, or bleeding from open abdominal or chest wounds.

Performance Parameters:

A. Review all cases where tourniquets or hemostatic agents are applied to patient to assure that patient met protocol indications.

MULTISYSTEM TRAUMA OR TRAUMATIC SHOCK
STATEWIDE BLS PROTOCOL

Criteria:

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

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

Exclusion Criteria:

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

B. Hypotension not related to trauma.

Treatment:

A. All patients:

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

10. Monitor pulse oximetry [OPTIONAL] [4]

11. Monitor vital signs and reassess.

Notes:

1. Rapid extrication may be appropriate in the following circumstances: danger of explosion (including potential secondary explosion at a terrorism incident); rapidly rising water; danger of structural collapse; hostile environments (e.g. riots); patient position prevents access to another patient that meets criteria for rapid extrication; shock; inability to establish an airway, adequately ventilate a patient, or control bleeding in entrapped position; or cardiac arrest.
2. In wilderness / delayed transport situations with prolonged evacuation time (at least several hours), examine the bowel for visible perforation or fecal odor. If no perforation is suspected, irrigate the eviscerated intestine with saline and gently try to replace in abdomen.
3. If patient is cold, use blankets and possibly hot packs at armpits and groin to prevent additional heat loss.
4. See Pulse Oximetry Protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.

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. Possible benchmark for on scene time for non-entrapped patients = 10 minutes.

C. Documentation of applicable trauma triage criteria.

BLAST/ EXPLOSIVE INJURY
STATEWIDE BLS PROTOCOL

Criteria:

A. Injuries sustained in a blast or explosion, including:

1. Industrial explosions
2. Terrorist bombings
3. Any other type of explosion

Exclusion Criteria:

A. None

System Requirements:

A. If elevated threat of terrorist bombing, agencies should consider carrying several commercial tourniquets.

B. If elevated threat of terrorist bombing, fire/rescue/EMS agencies should consider availability of a Geiger counter with initial responding units.

C. Personal Protective Equipment:

1. If toxic materials are suspected, only appropriately trained and equipped providers should enter the immediate area.
2. Without suspected toxic hazards, appropriate PPE for explosion scenes include outerwear (like coveralls and heavy "turn out" coat), heavy gloves, steel-toed shoes, hardhat, eye protection, dust particle mask.

Treatment:

A. All Patients:

1. Scene Safety – see Protocol # 102
   a. Consider risks of secondary explosions at scene, triage area, staging area, or receiving facilities
      1) Be observant for victims, vehicles, packages or containers that seem out of place.
   b. Consider risks of radiation contaminated victims of terrorist explosions.
      1) Screen scene with Geiger counter, if radiation is suspected and device is available
   c. Consider risks of unstable buildings and infrastructure.
2. Initial Patient Contact – see Protocol #201
   a. Initiate regional MCI plan if needed
      1) Triage patients using regional MCI plan [1,2,3]
         a) During triage, apply tourniquets to severely bleeding extremities.
      2) Explosion scenes should be presumed to be crime scenes until cleared by authorities – see Protocol # 919
   b. Explosions/ blasts may cause bilateral ruptured tympanic membranes – consider that communications with patients may be impaired.
   c. If thrown by explosion, immobilize spine if indicated – see Protocol # 261
3. If severe bleeding, see Protocol #601
   a. Use tourniquets early if severe extremity bleeding.
4. Consider blast-related injuries:
   a. Primary blast injuries (from blast pressure wave) [4]
      1) If Blast Lung suspected due to: SOB, rapid respirations, hypoxia [5] (pulse oximetry <95% when available), wheezing, cough, or coughing blood.
         a) Administer high-flow oxygen
         b) Monitor pulse oximetry [Optional], if available [5]
         c) Observe stable patients for signs of blast lung

b. Secondary blast injuries (from projectiles) [6]
   1) If impaled objects, follow Protocol #632
c. Tertiary blast injuries (from patient falling or being thrown by blast or pinned by debris) [7]
   1) Immobilize spine, if required – see Protocol # 261
   2) If multisystem trauma – see Protocol # 602
   3) If crush syndrome suspected due to entrapment for >30 minutes under heavy object/debris – obtain ALS if possible.
d. Quaternary blast injuries (all other injuries/conditions) [8]
   1) If burns – see Protocol # 671

5. Transport
   a. Do not delay transport if ALS is unavailable
   b. Transport to trauma center if Category I or II trauma patient – see Protocol # 180
   c. Closest ED may not be most appropriate receiving facility [9]
6. Contact Medical Command, if needed

Possible MC Orders:

A. TBA if any

Notes:

1. Severe internal injuries caused by blast wave may not be apparent initially. Eardrum (tympanic membrane – TM) rupture is the most common type of blast pressure injury and may be associated with other more serious blast injuries. When TM rupture is not present, other blast pressure injuries are less likely.
2. Projectile injuries (e.g. from nails or other sharp objects) may be overlooked at initial triage.
3. In MCIs with explosions, most patients have minor injuries. Overtriage may delay treatment of the smaller number of patients with salvageable life-threatening injuries.
4. Primary blast injuries are caused by the pressure wave of the blast. These include eardrum (tympanic membrane – TM) rupture, eye globe rupture, blast lung, intestinal rupture, and intra-abdominal bleeding.
5. Hypoxia may precede other signs of blast lung injury like tachypnea or shortness of breath. Hypoxia despite high-flow oxygen is an indication for early endotracheal intubation, and highest priority triage and priority transport are indicated.
6. Secondary blast injuries are caused by projectiles. These may include debris from structures like glass or wood or may include debris from improvised explosive devices (IEDs) like nails in a pipe bomb. Serious injuries from penetrating objects may be overlooked during triage.
7. Tertiary blast injuries are caused by falling, being thrown or being pinned or entrapped. These include fractures and other injuries seen in blunt trauma. They also may include crush syndrome and compartment syndrome in entrapped patients.
8. Quaternary blast injuries are caused by other trauma/ environment related to explosions or by preexisting conditions of patient. Examples include burns and respiratory distress due to post-explosion dust.
9. Historically, in explosions with a large number of patients, the closest ED becomes overwhelmed with ambulatory patients before any EMS patients arrive. These overwhelmed facilities may not be able to appropriately treat more serious patients arriving by EMS. Transport officer should take this into consideration when dispersing patients to receiving facilities.

Performance Parameters:

A. Transport Category I and II trauma patients within 10 minutes of EMS patient contact unless delayed because patients exceed medical resources available

Additional Resources:

www.emergency.cdc.gov/BlastInjuries Centers for Disease Control

HEAD INJURY
STATEWIDE BLS PROTOCOL

Criteria:

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

Exclusion Criteria:

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

Treatment:

A. All patients:

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

Notes:

1. Avoid any straps or constriction across the neck since this may increase intracranial pressure.
2. Unresponsiveness or extensor posturing to painful stimulus corresponds to GCS motor score of 1-2.
3. Patients who follow commands do not need to be transported to a trauma center unless other criteria exist for transport to a trauma center.
4. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.

Performance Parameters:

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

IMPALED OBJECT
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with an impaled object.

Exclusion Criteria:

A. None.

Treatment:

A. All patients:

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

Possible Medical Command Orders:

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

Notes:

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

AMPUTATION
STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with amputation of a digit or limb.

Exclusion Criteria:

A. None

Treatment:

A. All patients:

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

Possible Medical Command Orders:

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

Notes:

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

THIS PAGE INTENTIONALLY LEFT BLANK

BURNS
STATEWIDE BLS PROTOCOL

Criteria:

A. Thermal injury from exposure to intense heat

B. Injury from electrical shock or lightning strike

C. Skin injury from chemical exposure

Exclusion Criteria:

A. None

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.
    a. When dealing with hazards associated with burns (e.g. fire, electricity, chemicals) appropriate PPE must be worn and individuals with appropriate training should deal with these hazards.
    b. When triaging multiple patients with lightning injury, initial resources should be committed to individuals that have no sign of life (i.e. “reverse triage”) rather than individuals who have vital signs.
    c. Stop the burning process with water or saline. Caution- use care to avoid hypothermia.
    d. Immobilize C-spine, if indicated – See Cervical Spine Immobilization Protocol # 261.
    e. Consider call for ALS or air medical transport as appropriate. See Indications for ALS Use protocol #210.
2. Assure open airway and assist ventilations as needed. [1]
3. Administer high concentration oxygen if: [2]
    a. Coughing or short of breath.
    b. Exposure to smoke in a confined space.
    c. Facial burns
    d. Burn area greater than 15% BSA.
4. Remove all clothing, jewelry and any debris from involved area. Cut around clothing that is stuck to wound.
5. Treat special conditions as follows:
    a. Semi-solids (tar, etc.):
        1) Flush with cool water.
    b. Chemical burn:
        1) Liquid substance - Irrigate with copious amounts of room temperature water. Do not contaminate uninjured areas while flushing.
        2) Dry substances- With gloves and appropriate PPE, brush remaining powder from skin and clothing, then irrigate with copious amounts of water.[3]
    c. Electrical:
        1) Dress entrance and exit wounds and other injuries.
6. Care of burned skin:

a. Cover burned areas with dry sterile burn sheets/ dressings or sterile commercial burn sheets/ dressings.

b. Maintain body temperature.

c. Estimate the extent of the burn using the Rule of Nines (See appendix).

7. Transport to the closest appropriate medical facility, as follows:

a. If unable to maintain airway or unable to ventilate or patient has symptoms of shortness of breath / cough or inhalation injury suspected (for example burned nasal hairs or carbonaceous sputum) or if unable to control profuse bleeding, transport to closest hospital.

b. If patient has associated trauma and meets trauma triage criteria, transport per Trauma Triage Protocol # 180.

c. Transport to a burn center if:

1) The patient has burns to more than 15% BSA or burns to the face or hands, and

2) The patient does not meet trauma triage criteria, and

3) The difference between estimated transport time to the closest receiving facility and the burn center is 20 minutes or less.

d. If patient meets none of the above, transport to closest hospital.

e. Contact medical command if unsure of most appropriate destination.

8. Monitor vital signs and reassess

Notes:

1. **Caution:** patients who have inhaled hot gases or have burns about the face or who have symptoms of shortness of breath or cough can deteriorate rapidly.
2. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
3. Note- some substances, like dry lime will cause a heat-producing reaction when mixed with water. Copious water should be available before beginning to irrigate.

Performance Parameters:

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

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

HYPOTHERMIA / COLD INJURY / FROSTBITE
STATEWIDE BLS PROTOCOL

Criteria:

A. Generalized cooling that significantly reduces the body temperature.

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

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

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

Exclusion Criteria:

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

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

Treatment:

A. All patients:

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

B. Systemic Hypothermia:

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

C. Frost bite:

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

Notes:

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

HEAT EMERGENCY
STATEWIDE BLS PROTOCOL

Criteria:

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

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

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

Exclusion Criteria:

A. None.

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.

B. Heat Stroke:

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

C. Heat Exhaustion:

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

Notes:

1. Patient's thermoregulatory mechanisms break down completely. Body temperature is elevated to extreme levels, which results in multi-system tissue damage including altered mental status. Heat stroke often affects elderly patients with underlying medical disorders. Patients usually have dry skin; however, up to 50% of patients with exertional heat stroke may exhibit persistent sweating. Therefore, patients with heat stroke may be sweating.
2. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
3. **Do not delay transport if these cooling modalities are not immediately available.**
4. Do not permit the patient to drink if altered mental status or abdominal pain.

NEAR DROWNING AND DIVING INJURY
STATEWIDE BLS PROTOCOL

Criteria:

A. Submersion leading to respiratory symptoms

Exclusion Criteria:

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

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

Treatment:

A. All patients:

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

Possible Medical Command Orders:

A. Medical command may contact the Divers Alert Network (DAN) Hotline at 919-684-9111. This 24-hour hotline is associated with Duke University and assists medical professionals in arranging evacuation and hyperbaric recompression at properly equipped and staffed chambers.

Notes:

1. Cervical spine injuries must be considered for any patient found ill or injured in any body of water or immediately removed from a body of water.
2. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
3. Rough handling may cause the hypothermic patient to develop a fatal arrhythmia.
4. If SCUBA incident with rapid ascent, transport on the left side of the body with the head down.
5. Since respiratory problems may be delayed, all patients should be transported. Contact medical command if patient refuses transport.

ALTERED LEVEL OF CONSCIOUSNESS/ DIABETIC EMERGENCY STATEWIDE BLS PROTOCOL

Criteria:

A. Patient with new decrease in level of consciousness. Causes may include:

1. Hypoglycemia.
2. Drug overdose.
3. Stroke.
4. Head Trauma.
5. Seizure.

Exclusion Criteria:

A. If stroke is suspected - see Stroke Protocol # 706.

B. If carbon monoxide, drug overdose, or other poisoning is suspected - see Poisoning Protocol #831

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.
   a. Consider call for ALS if available.
2. Manage Airway and assist ventilation as necessary.
3. Administer high concentration oxygen.[1]
4. Examine patient for evidence of specific causes (for example Stroke, Poisoning, Head Injury, or Seizure) and follow other protocols when appropriate:
   a. Medic alert tag.
   b. Needle marks.
   c. Medicine containers.
   d. Insect stings or bites.
   e. Head trauma
   f. Incontinence of urine.
   g. Tongue bite wounds
   h. Stroke
5. If patient is unresponsive and there is no concern for trauma, place patient in the lateral recumbent (recovery) position and continue to monitor airway.
6. Administer oral glucose if hypoglycemia is suspected and patient can swallow. [2]
7. Transport immediately.
8. Re-assess the patient.

Notes:

1. See Pulse Oximetry Protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
2. Hypoglycemia is suspected if patient has a history of diabetes or takes insulin or oral diabetes medications. If the patient can't swallow but still has gag reflex, oral glucose may be placed between the cheek and gum in small amounts.

Performance Parameters:

A. Review all uses of oral glucose for appropriate assessment for non-diabetic causes of altered consciousness.

THIS PAGE INTENTIONALLY LEFT BLANK

SUSPECTED STROKE
STATEWIDE BLS PROTOCOL

Criteria:

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

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

Exclusion Criteria:

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

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.
   a. If history of diabetes and signs of hypoglycemia, also follow Diabetic Emergency protocol #702
   b. Consider call for ALS if altered level of consciousness. See Indications for ALS Use protocol #210
2. Maintain open airway.
   a. Use an oral or nasal airway as appropriate.
3. Apply oxygen (High concentration if altered mental status) if SpO_2 is unknown or <94%.
4. Monitor pulse oximetry [Optional].[1]
5. Obtain patient history, (i.e. OPQRST) and examine patient.
   a. Exact time of symptom onset or time patient last seen in normal state is extremely important.[2]
   b. Assess Cincinnati Stroke Scale[3]
6. If stroke indicated by the Cincinnati Stroke Scale **AND** patient can be delivered to the receiving facility within 3 hours of symptom onset[4], then
   a. Package patient and transport ASAP.
   b. Contact medical command and receiving facility as soon as possible.[5]
7. Transport to a certified primary stroke center, if the patient can arrive at the stroke center within 45 minutes.[6,7] It may be important for a family member to accompany the patient during transport to verify the time of symptom onset and provide consent for therapy.
8. **Transport in supine position**.
   a. If patient can't tolerate being flat, avoid raising head and shoulders more than 30°.

Possible Medical Command Orders:

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

Notes:

1. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%.
2. Attempt to identify the precise time of the onset of the patient's first symptoms. The time of onset is extremely important information, and patient care may be different if patient can be delivered to a certified primary stroke center within 3 hours from onset of symptoms. Time of onset is based upon the last time that the patient was witnessed to be at his/her neurologic baseline.
3. **Cincinnati Prehospital Stroke Scale**. If any of the following is abnormal and new for the patient, he/she may have an acute stroke:
   a) Facial Droop (patient smiles or shows teeth) - abnormal if one side of the face does not move as well as the other.
   b) Arm Drift (patient holds arms straight out in front of him/her and closes eyes) – abnormal if one arm drifts down compared with the other.
   c) Speech (patient attempts to say "The sky is blue in Pennsylvania") – abnormal if patient slurs words, uses inappropriate words, or can't speak.
   d) Although not parts of the Cincinnati Prehospital Stroke Scale, sudden onset of unilateral leg weakness or sudden decrease in peripheral vision are also signs of acute stroke.
4. In rural areas, if patient can be delivered by air (but not by ground) to receiving facility within 3 hours of symptom onset, consider contact with medical command for assistance in deciding upon the utility of air medical transport.
5. Report time of symptom onset and abnormal findings from Cincinnati Prehospital Stroke Scale to medical command physician.
6. The current list of recognized certified Primary Stroke Centers is posted on the Pennsylvania Department of Health website. If the closest appropriate receiving facility is not a certified Primary Stroke Center, then the patient should be transported to the closest certified Primary Stroke Center if the patient can arrive at the stroke center within 45 minutes.
7. 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.

Performance Parameters:

A. Review on scene time for all cases of suspected stroke with time of symptom onset less than 3 hours

EMERGENCY CHILDBIRTH
STATEWIDE BLS PROTOCOL

Criteria:

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

Treatment:

A. All patients:

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

B. Normal delivery and Newborn Care:

1. Assist with vaginal delivery of infant[1]
    a. Check for cord around neck, if present:
        1) Attempt to gently slip cord over head. If cord is tight,
        2) Clamp in two places (approximately 2" apart) and cut between clamps.
2. Suction infant's oropharynx and then nasopharynx.[2]
3. Note time of delivery.
4. Keep infant warm and dry.
5. Stimulate infant.
6. If the infant does not require resuscitation, keep the infant at or below the level of the mother while drying and warming and delay clamping the cord for at least one minute.
7. Clamp and cut cord 4 finger widths (4-6 inches) from infant.
8. Assess and record APGAR scores at 1 and 5 minutes after delivery.
9. Deliver and preserve placenta (**DO NOT** pull on cord or placenta). [3]
10. Monitor vital signs and reassess
11. Transport

C. Complicated delivery: (mother with unstable vital signs, arm or leg presentation, prolapsed umbilical cord, or breech delivery)

1. Prepare for immediate emergent transport.
2. Handle delivery based upon complications, as follows:
    a. If breech delivery, attempt to gently deliver head, but **DO NOT** pull on infant. If head does not deliver easily, placed gloved fingers into the vagina and provide a space between the vaginal wall and the infant's mouth/nose.

b. If prolapsed cord, elevate the mother's pelvis (may elevate pelvis with pillows or place mother in knee/chest position) place gloved hand into vagina and gently push infant's head up into uterus to prevent compression of cord.

c. If limb (single arm or leg) presentation, transport immediately and emergently.

d. If head delivers but shoulders do not:

1) Push mother's knees up to her shoulders.

2) Have another practitioner apply abdominal pressure above the pubic bone.

3) Attempt to gently deliver shoulders.

3. Transport immediately and emergently, if suggested maneuvers are not successful.

4. Contact receiving hospital and medical command while enroute to allow time for facility to prepare for patient care.

5. Monitor vital signs and reassess.

D. Newborn Care:

1. **For depressed newborn proceed to Newborn/Neonatal Resuscitation Protocol # 333.**

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

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

Notes:

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

Performance Parameters:

A. Review documentation of assessment for imminent delivery.

B. Review for documentation of neonatal assessment using APGAR scores.

AGITATED BEHAVIOR / PSYCHIATRIC DISORDERS
STATEWIDE BLS PROTOCOL

Criteria:

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

OR

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

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

Exclusion Criteria:

A. None

Treatment:

A. All patients:

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

Procedure for patients that require physical restraint:

A. All Patients:

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

Possible Medical Command Orders:

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

Notes:

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

Performance Parameters:

A. Review for documentation of reason for restraint and restraint method used. Consider reviewing every call when physical restraint is used.

B. Hospital-operated EMS agencies may have additional JCAHO requirements for documentation.

C. Review for documentation of frequent reassessment of vital signs, cardiopulmonary status, and neurovascular status of restrained extremities. Consider benchmark of documenting these items at least every 15 minutes.

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

Criteria:

A. Patient who has accidentally or purposefully been exposed to toxic substances. Including:

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

Exclusion Criteria:

A. None

Treatment:

A. All patients:

1. Initial Patient Contact – see Protocol # 201.
   a. **WARNING: EMS providers must not enter confined spaces with potential toxic gases (e.g. manure pits, silos, spaces with carbon monoxide, spaces with industrial gases) unless providers have proper training and PPE.**
   b. If toxic exposure/ overdose is the result of intentional behavior- also see Behavioral Emergency/ Patient Restraint protocol #801.
2. Maintain adequate airway.
3. Administer high concentration oxygen, if altered level of consciousness, shortness of breath, abnormal respiratory rate, or patient coughing.
4. [OPTIONAL] Monitor pulse oximetry. [1]
5. Consider call for ALS if available, particularly for decreased LOC. See Indications for ALS Use protocol #210.
6. Determine:
   a. What – identify specific toxin and amount, if possible.
      1) If possible, safely transport source of toxin (e.g. prescription pill bottles) with patient to receiving facility.
      2) EMS vehicles should not transport dangerous items (e.g. toxic chemicals that are not sealed in their original containers, live snakes, etc.…)
   b. When – identify time of exposure, if possible.
   c. Why – identify reason for exposure, if possible.
   d. Where – identify environmental site issues (e.g. exposure in a confined space or carbon monoxide present).
7. Do not give anything by mouth to a patient with an altered level of consciousness or an unconscious patient.[2]
8. Treat specific toxins based upon the appropriate category:
   a. **Ingested Toxins.** Treat all exposures as follows:
      1) **DO NOT INDUCE VOMITING.**
      2) Poison Control Center or Medical Command for possible order for activated charcoal (if available).[3,4,5]
   b. **Inhaled Toxins.** Treat all symptomatic (e.g. SOB, cough, headache, decreased LOC) patients as follows:
      1) Only personnel with proper training and wearing proper PPE should enter environments that may have toxic gases.
      2) Remove patient from environment.
      3) Ventilate, if needed.
      4) Administer 100% oxygen.

a) **WARNING: Pulse oximetry monitors give false readings in patients that have been exposed to carbon monoxide or cyanide, and these devices should never be used in these patients**.

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

d. **For Injected Poisons/ Snakebite:**
   1) Identify type of snake or animal (e.g. scorpion), if safe and possible. If identity of a snake is not known, all victims of snakebite should be treated as if the snake is poisonous. Do not delay transport while attempting to capture or kill a snake.
   2) Calm patient.
   3) Administer high-flow oxygen, if respiratory symptoms are present.
   4) Remove jewelry and tight clothing.
   5) Consider immobilizing the involved body part. For snakebite, when time to arrive at a hospital is extended, consider a pressure immobilization bandage using an elastic (ACE-type) bandage wrapped around the entire length of the bitten extremity – comfortably tight and snug but allowing for a finger to be slipped under it. If extremity involved, keep the extremity below the level of the patient's heart.
   6) Keep the patient as still as possible to reduce the circulation of the venom. Carry patient for transport, if possible.
   7) Apply constricting band proximal to bite if patient is hypotensive.
   8) **DO NOT APPLY ICE.**

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

Possible Medical Command Orders:

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

Notes:

1. See Pulse Oximetry protocol #226. Pulse oximetry may only be used by BLS services and providers that meet DOH pulse oximetry requirements. If used, pulse oximetry must not delay the application of oxygen. Record SpO_2 after administration of oxygen. If pulse oximetry is used and patient does not tolerate NRB mask, may switch to nasal cannula as long as SpO_2 remains ≥94%. Pulse oximetry is not accurate in patients with suspected exposure to carbon monoxide or cyanide and shall not be used in these situations.
2. Contact Poison Control Center or Medical Command before administering anything by mouth.
3. National **Poison Control Center Phone number is 800-222-1222**. EMS providers must follow instructions from Poison Control Center unless the orders are superseded by orders from a medical command physician. These instructions must be documented on the PCR.
4. Activated charcoal (if available) may only be given by order of medical command or poison control.
5. Contraindications to charcoal:

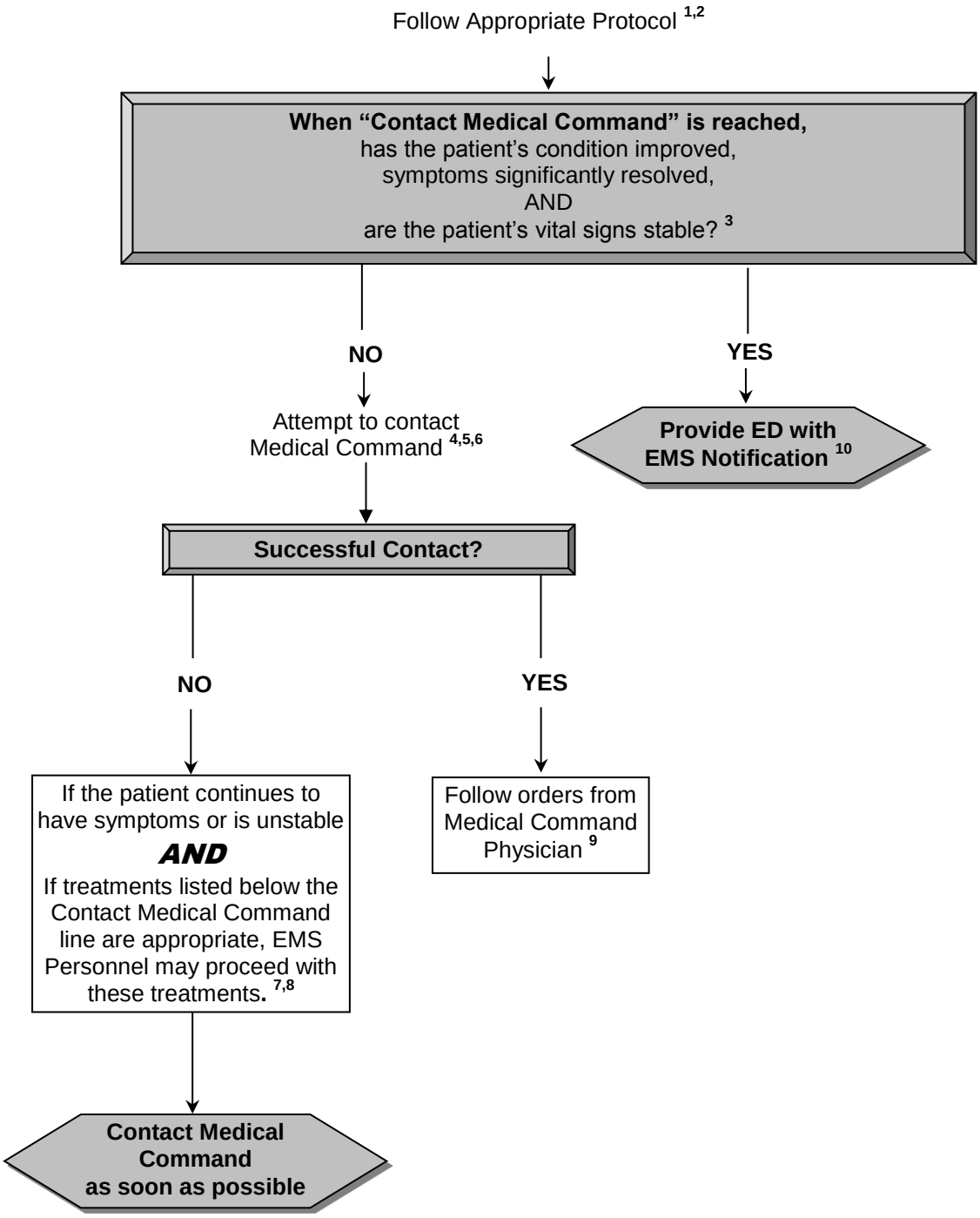
a. Patient unable to swallow/protect airway.
b. Seizures.
c. Hydrocarbons ingestion (e.g. turpentine)
d. Caustic substance ingestion (e.g. liquid drain cleaner or milk pipe cleaner)

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

Performance Parameters:

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

MEDICAL COMMAND CONTACT
STATEWIDE BLS PROTOCOL



MEDICAL COMMAND CONTACT
STATEWIDE BLS PROTOCOL

Purpose of Medical Command contact:

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

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

C. In certain circumstances, as defined by the Statewide BLS Protocols, medical command must be contacted by EMS (BLS or ALS) 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 practitioner to contact a medical command physician. In some protocols, there are accommodations for additional care when a medical command facility cannot be contacted.

F. The protocol section entitled "Possible Medical Command Orders" are intended to educate EMS practitioners to the possible orders that they may receive, and 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. An EMS agency medical director may require more frequent contact with medical command than required by protocol for ALS providers who have restrictions on their medical command authorization. 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 nitroglycerins 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 ambulances 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.** For Category 1 and 2 trauma patients, the receiving or closest trauma center should be contacted for medical command if possible (see Protocol #180). 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 practitioner if unable to contact medical command if the ALS practitioner believes that these treatments are appropriate and necessary.
8. Attempts to contact medical command must be documented on the PCR, and the practitioner should document the reasons for continuing with care below the medical command box. Only mark the Medical Command section of the PA PCR if you sought Medical Command.
9. Every time medical command was contacted, the EMS practitioner must document the medical command facility, the medical command physician, and the orders received.
10. If patient condition worsens after EMS notification, contact medical command.

Performance Parameters:

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

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

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

THIS PAGE INTENTIONALLY LEFT BLANK

ON-SCENE PHYSICIAN / RN
STATEWIDE BLS PROTOCOL

Criteria:

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

OR

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

Exclusion Criteria:

A. None

Procedure

A. When a bystander at an emergency scene identifies himself/herself as a physician:

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

B. When a bystander at an emergency scene identifies himself/herself as a registered nurse:

1. Ask to see evidence of the nurse's license and prehospital credentials, unless the EMS practitioner knows them.
2. Inform the nurse of the regulatory responsibility to medical command.
3. An RN may provide assistance within their scope of practice or certification level at the discretion of the EMS crew when approved by the medical command physician.

C. When a medical command physician arrives on-scene as a member of the EMS agency's routine response:

1. The medical command physician may provide on-scene medical command orders to practitioners of the EMS agency if all of the following occur:

   a. The EMS agency has a prearranged agreement for the medical command physician to respond and participate in on-scene medical command, and the EMS agency medical director is aware of this arrangement.

   b. The medical command physician is an active medical command physician with a medical command facility that has an arrangement with the EMS agency to provide on-scene medical command.

   c. All orders given by the on-scene medical command physician must be documented either on the PaPCR for the incident or on the medical command facilities usual medical command form. This documentation must be kept in the usual manner of the medical command facility and must be available for QI at the facility.

   d. The EMS providers must be able to identify the on-scene medical command physician as an individual who is associated with the agency to provide on-scene medical command.

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

TRANSPORTATION OF SERVICE ANIMALS GUIDELINES

Purpose:

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

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

Criteria:

A. Any call involving a patient with service animals.

Exclusion Criteria:

A. None.

Procedure

A. All Patients with Service Animals:

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

Notes:

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

CRIME SCENE PRESERVATION GUIDELINES

Criteria:

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

Exclusion Criteria:

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

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

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

Procedure

A. Provide life saving measures: [1, 2]

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

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

C. In cases of obvious death, <u>DO NOT</u> move the body:

1. Leave the scene the same way you entered.
2. Leave the scene in the same condition as when you entered.
3. Do not allow anyone to enter the scene until police arrive.

D. Notify the investigating law enforcement officer of any alteration of the crime scene by EMS providers including:

1. Any movement of furniture, tables, etc., by providers.
2. The original position of the items.
3. If you turned on lights.
4. What you touched, moved, etc.

E. At an outdoor crime scene, do not disturb shoe prints; tire marks, shell casings, etc.

1. Limit movement at the crime scene.
2. Attempt to keep others out of the area.

F. Firearms/Weapons:

1. Do not move firearms (loaded or unloaded) unless it poses a potential immediate threat.
2. Secure any weapon that can be used against you or the crew out of the reach of the patient and bystanders.
    a. Guns should be handed over to a law enforcement officer if possible or placed in a locked space, when available.
        1) If necessary for scene security, safely move firearm keeping finger off of the trigger and hammer and keeping barrel pointed in a safe direction away from self and others.
        2) Do not unload a gun.
    b. Knives should be placed in a locked place, when available.
3. Do not clean or disturb a patient's hands (when involved with a firearm). Consider covering a patient's hands with a paper bag during treatment/transport.

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

Notes:

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

INDWELLING INTRAVENOUS CATHETERS / DEVICES
STATEWIDE BLS PROTOCOL

Criteria:

A. Patients that have an "Indwelling intravenous catheter without medication running:" [1]

1. Includes any capped catheter that is inserted into a patient's vein or artery including, but not limited to, saline/heparin locks, Broviac catheters, Hickman catheters, PICC lines, Mediports and arterio-venous dialysis catheters

OR

B. Patients that have a "Medication running that is part of the patient's normal treatment plan:"

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

OR

C. Patients that have a medical device as part of their ongoing treatment when the device will not require any monitoring or care by EMS providers during the transport:

1. This includes devices like wound vacuum drains, nephrostomy tubes, Foley catheters, and other devices that will either be managed by the patient/ patient's family or by medical personnel who will only intermittently monitor the device.

Exclusion Criteria:

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

Procedure:

A. All Patients:

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

B. Potential complications. Handle as specified:

1. **Bleeding at insertion point:**

   a. Apply direct, manual pressure using body fluid precautions and request assistance from ALS, if not controlled.

2. **Leaking of fluids/medications:**

   a. Clamp fluid line if possible and contact medical command.

3. **Dislodged catheter:**

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

4. **Pump malfunction:**

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

5. **Infiltration or extravasation (leaking of fluid or blood into tissues characterized by pain and swelling at injection site):**

   a. If possible, stop the infusion and return to the hospital [2] or health care facility for evaluation and replacement of line. Request assistance from ALS as needed. Apply cold pack to infusion site.

6. **Suspected medication overdose or adverse medication reaction:**

   a. Contact medical command or request assistance from ALS, if indicated.

7. **Inadvertent puncture or transection of line:**

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

Notes:

1. Definitions:

   a. **Saline or heparin lock:** a short peripheral catheter (1-2") usually present in the hand or forearm intended for intermittent infusions. A small length of tubing may or may not be present between the hub of the catheter and the locking cap. Saline or heparin flushes are used to maintain patency.

   b. **Midline catheter:** Midline catheters are 3 to 8-inch peripheral catheters that are becoming an increasingly popular alternative to both short peripheral and Central Venous Catheters (CVC's). Midline catheters are inserted via the antecubital fossa into peripheral veins (such as the proximal basilic or cephalic veins, or distal subclavian vein; they do not enter central veins. Midline catheters are composed of either silicone or a polyurethane-elastomer hydrogel. PICC catheters: Peripherally inserted CVCs (PICCs) provide an alternative to subclavian or jugular vein catheterization and are inserted into the superior vena cava by way of the cephalic and basilar veins of the antecubital space.

   c. **Surgically implanted central catheters:** including Hickman, Broviac, Groshong, and Quinton, commonly are used to provide vascular access to patients requiring prolonged IV therapy (e.g., chemotherapy, home infusion therapy, hemodialysis). In contrast to percutaneously inserted CVCs, these catheters have a tunneled portion exiting the skin and a Dacron cuff just inside the exit site that helps hold them in place. Skin sutures may or may not be present.

2. If closer to the planned destination health care facility, contact medical command for assistance in determining the best destination for the patient.

SUSPECTED INFLUENZA-LIKE ILLNESS (ILI)
STATEWIDE BLS PROTOCOL

Criteria:

A. This protocol applies to all patients encountered by EMS during an epidemic/ pandemic of influenza. [Note: Infectious diseases are dynamic and EMS providers should frequently check the EMS Protocols Link on the Pennsylvania Department of Health Bureau of EMS's webpage at http://www.health.state.pa.us/ems for the most current version of this protocol]

B. The Centers for Disease Control and Prevention (CDC) has declared an epidemic of a viral illness like H1N1 influenza A, SARS or avian influenza.

Exclusion Criteria:

A. None

System Requirements:

A. All levels of responders should have fit-tested disposable N95 respirator, eye protection, and disposable non-sterile gloves and gown.

B. EMS agencies in geographic areas with confirmed cases of ILI should screen their EMS providers for fever or symptoms of acute respiratory illness before each shift, and EMS providers should immediately report symptoms that develop during or after a shift. EMS agencies should work with their occupational health programs, EMS agency medical director, and EMS regional councils to make sure that long-term PPE needs and prophylactic antiviral needs (as directed by the PaDOH) are addressed.

C. Dispatch/ PSAP Issues:

1. PSAP call takers should screen callers to determine if the patient, or someone at the incident location, has symptoms of "influenza-like illness" (ILI - which include nasal congestion/ runny nose, sore throat, cough, fever, or other flu-like symptoms), and symptoms of "influenza-like illness" should be communicated to responders prior to arrival at the scene. Ask patient to meet EMS at the door, if the patient condition permits.
2. EMS agencies should collaborate with their PSAP, regional EMS council, and medical director/ PSAP medical director/ regional EMS medical director to review resources dispatched to calls. For some categories of calls, it may be reasonable to send only an ambulance (BLS when appropriate) to avoid exposure to first responders (including QRS, firefighters, law enforcement). If a community becomes inundated with calls for possible ILI, it may be appropriate to send only a QRS/first responder or to direct the caller to other community resources established for individuals with symptoms of ILI.

Procedure:

A. All Patients:

1. If symptoms of ILI are suspected based upon dispatch information, consider limiting the number of initial providers that approach the patient or enter a residence.

B. Patients with medical condition that requires immediate care and EMS providers suspect possible influenza-like illness (ILI) but cannot complete assessment for suspected case of ILI(for example a cardiac arrest with preceding respiratory illness):

1. EMS providers should don PPE for suspected case of ILI before proceeding with patient care/ resuscitation. [1]

C. If there <u>HAS NOT</u> been ILI reported in the geographic area:

1. Assess patient while staying at least 6 feet away from patient and bystanders with symptoms and exercise appropriate routine respiratory droplet precautions (cough etiquette, hand hygiene, and spatial separation) while assessing all patients for suspected cases of ILI.
2. Assess all patients for "influenza-like illness" (ILI = nasal congestion/ runny nose, sore throat, or cough with or without fever (≥100°F or37.8°C if measured).
   a. If no ILI, proceed to protocol #201 and other appropriate protocols.
3. If ILI, place a standard surgical mask on the patient (if tolerated) and use appropriate PPE for ILI. [1,2,3]

D. If the CDC HAS reported cases of confirmed ILI in the geographic area:

1. Address scene safety:
   a. If EMS providers have been advised by PSAP that there is potential "influenza-like illness" (ILI) on scene, EMS providers should don PPE for suspected case of ILI prior to entering scene. [1]
   b. If PSAP has not identified individuals with symptoms of ILI on scene, EMS providers should stay more than 6 feet away from patient and bystanders with symptoms and exercise appropriate routine respiratory droplet precautions (cough etiquette, hand hygiene, and spatial separation) while assessing all patients for suspected cases of ILI.
2. Assess all patients for "influenza-like illness" (ILI = nasal congestion/ runny nose, sore throat, or cough with or without fever (≥100°F or37.8°C if measured).
   a. If ILI, don appropriate PPE for suspected case of ILI before proceeding with care. [1,2,3]
   b. If no ILI, proceed to protocol #201 and other appropriate protocols.

E. All patients:

1. Proceed to protocol #201 and other appropriate protocols
   a. Assess pulse oximetry, if available. See protocol #226.
   b. Apply oxygen, if appropriate. See protocol #202. [2]
2. If patient has symptoms of ILI or is a case of suspected ILI:
   a. Contact the receiving facility prior to arrival and advise of "influenza-like illness".
3. Contact Medical Command, if indicated/ required.
   a. For isolated ILI or suspected case of ILI in otherwise stable patients, regional protocol may require contact with medical command prior to transport for possible integration or care with local pandemic plan.
4. Before returning to service, clean/ decontaminate the vehicle following "Interim Guidance for Cleaning Emergency Medical Service Transport Vehicles during an Influenza Pandemic" available at http://www.pandemicflu.gov/plan/healthcare/cleaning_ems.html. [4]

Possible MC Orders:

A. If traditional medical systems become overwhelmed by the numbers of suspected ILI patients, the Department of Health may establish alternatives to traditional care that may be ordered by medical command or by regional EMS protocol. These alternatives may include assessment without transport, delivery of antivirals to the patient's residence, referral or diversion to somewhere other than an emergency department, etc.

Notes:

1. Personal Protective Equipment (PPE)
   a. **For case of suspected ILI**– don fit-tested disposable N95 respirator and eye protection (e.g., goggles; eye shield), disposable non-sterile gloves, and gown, when coming into close contact with the patient.
      i. EMS providers should wear this PPE when in close contact with patient (within 6 feet of patient), when in the patient compartment of the ambulance with the patient, and when in the front passenger compartment of the ambulance (unless the patient compartment and passenger compartments of the ambulance are physically separate).
      ii. All EMS providers engaged in aerosol generating activities (e.g. endotracheal intubation, nebulizer treatments, BVM ventilation, or CPR) should wear PPE for suspected ILI unless EMS providers are able to rule out ILI.
      iii. EMS providers who cannot wear a fit-tested N95 respirator (e.g. due to beard or unavailability of supplies) should wear a standard surgical mask and avoid engaging in aerosol generating activities if possible.
      iv. Use good respiratory hygiene – use non-sterile gloves for contact with patient, patient secretions, or surfaces that may have been contaminated. Follow hand hygiene, including hand washing or cleansing with alcohol-based hand disinfectant after contact.
2. Use of standard surgical masks on patients:

a. Patients with ILI should wear a standard surgical mask, if tolerated, during patient assessment, care, transport, and transportation in public areas of receiving facility.

b. Small facemasks are available that can be worn by children, but it may be problematic for children to wear them correctly and consistently. Moreover, no facemasks (or respirators) have been cleared by the FDA specifically for use by children.

c. Oxygen can be applied by nasal cannula under a standard surgical mask, if tolerated. Oxygen applied by NRB mask can reduce spread of droplets by cough, and this can be further reduced by covering the NRB with a standard surgical mask if tolerated.

3. Encourage good patient compartment vehicle airflow/ ventilation to reduce the concentration of aerosol accumulation when possible.

4. Cleaning the EMS vehicle after transporting a suspected or confirmed case of ILI:

a. The following are general guidelines for cleaning or maintaining EMS vehicles and equipment. This guidance may be modified or additional procedures may be recommended by the CDC as new information becomes available.

b. EMS providers should wear appropriate PPE when cleaning vehicle and equipment.

c. Routine cleaning with soap or detergent and water to remove soil and organic matter, followed by the proper use of disinfectants, are the basic components of effective environmental management of influenza. Reducing the number of influenza virus particles on a surface through these steps can reduce the chances of hand transfer of the virus. Influenza viruses are susceptible to inactivation by a number of chemical disinfectants readily available from consumer and commercial sources.

d. After the patient has been removed and prior to cleaning, the air within the vehicle may be exhausted by opening the doors and windows of the vehicle while the ventilation system is running. This should be done outdoors and away from pedestrian traffic. Routine cleaning methods should be employed throughout the vehicle and on non-disposable equipment.

Performance Parameters:

A. Review cases of ILI where patient was not transported.

Additional Resources:

www.health.state.pa.us Pennsylvania Department of Health

www.cdc.gov Centers for Disease Control

www.pandemicflu.gov U.S. Health and Human Services pandemic flu information

THIS PAGE INTENTIONALLY LEFT BLANK

RESOURCE TABLES

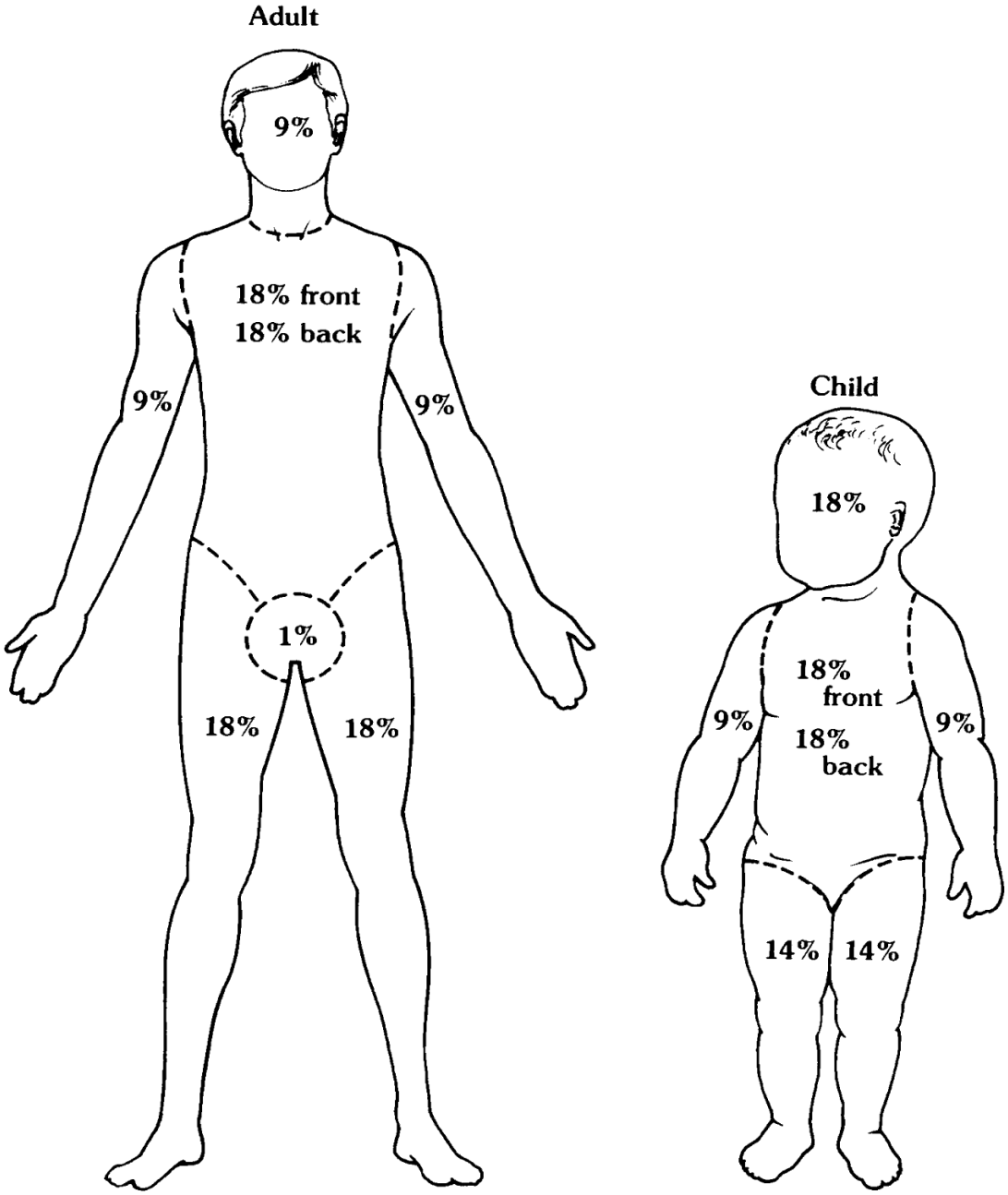
Page

APGAR SCORING CHART

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

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

BURN CHART - RULE OF NINES



GLASGOW ADULT COMA SCALE

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

GLASGOW COMA SCALE

EYES OPEN:

Spontaneously 4
To verbal command 3
To pain 2
No Response .....1 **Score** (1 to 4) = ☐

MOTOR RESPONSE:

To verbal command:

Obeys.....6

Painful Stimulus [1]:

Localizes pain 5
Flexion-withdrawal 4
Flexion-abnormal (decorticate rigidity).....3
Extension (decerebrate rigidity) 2
No response.....1 **Score** (1 to 6) = ☐

VERBAL RESPONSE [2]:

Oriented, converses.....5
Disoriented, converses.....4
Inappropriate words 3
Incomprehensible sounds 2
No response.....1 **Score** (1 to 5) = ☐

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

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

GLASGOW PEDIATRIC COMA SCALE

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

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

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

REHABILITATION PATIENT TAG

REHAB TAG	DATE:
COMPANY:	
NAME:	AGE:

ENTRY VITALS

TIME	B/P	PULSE	RESP	TEMP
To Enter Medical	Systolic <90 or >160 Diastolic > 110	>100	>20	≥99.5 F ≥37.5 C

☐	**REHAB ONLY**
☐	**MEDICAL EVAL AND REHAB**

VITAL TAKEN AT 10 MINUTE INTERVAL (max)

				RETAIN
TIME				
B/P				>160 Systolic < 100 Systolic > 90 Diastolic
PULSE				> 100
RESP				>20
TEMP				> 99.5 F >37.5 C
Taken By:				

DISPOSITION

☐	Return to Duty
☐	Off Duty
☐	Transport to a Hospital

Rehab Officer:	
Time Released:	

HEAT STRESS INDEX

Heat Stress Index									
	Relative Humidity								
^{O}F	10%	20%	30%	40%	50%	60%	70%	80%	90%
104	98	104	110	120	132				
102	97	101	108	117	125				
100	95	99	105	110	120	132			
98	93	97	101	106	110	125			
96	91	95	98	104	108	120	128		
94	89	93	95	100	105	111	122		
92	87	90	92	96	100	106	114	122	
90	85	88	90	92	96	100	106	114	122
88	82	86	87	89	93	95	100	106	115
86	80	84	85	87	90	92	96	100	109
84	78	81	83	85	86	89	91	95	99
82	77	79	80	81	84	86	89	91	95
80	75	77	78	79	81	83	85	86	89
78	72	75	77	78	79	80	81	83	85
76	70	72	75	76	77	77	77	78	79
74	68	70	73	74	75	75	75	76	77
NOTE:	Add 10°F when protective clothing is worn. Add 10°F when in direct sunlight.								

Humiture ^{O}F	Danger Category	Injury Threat
Above 130^{O}	EXTREME DANGER	Heat stroke imminent!
105^{O} to 130^{O}	DANGER	Heat cramps or exhaustion likely, heat stroke possible if exposure is prolonged and there is physical activity.
90^{O} to 105^{O}	EXTREME CAUTION	Heat cramps and heat exhaustion possible if exposure is prolonged and there is physical activity.
80^{O} to 90^{O}	CAUTION	Fatigue possible if exposure is prolonged and there is physical activity.
Below 80^{O}	NONE	Little or no danger under normal circumstances.

WIND CHILL CHART

NWS Windchill Chart

Wind (mph) \ Temperature (°F)	Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5		36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10		34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15		32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20		30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25		29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30		28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35		28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40		27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45		26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50		26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95
55		25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97
60		25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T= Air Temperature (°F) V= Wind Speed (mph)

Effective 11/01/01

APPENDICES