Statewide Standard Treatment Protocol

Delaware Basic Life Support Protocols, Guidelines and Standing Orders

For

Prehospital and Interfacility Patients

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State of Delaware

Department of Health and Social Services

Division of Public Health

Office of Emergency Medical Service

Statewide Standard Treatment Protocols

And

Basic Life Support Standing Orders

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This treatment protocol for basic life support has been adopted and is enacted by the State Fire Prevention Commission pursuant to Delaware Code, Title 16, Chapter 98, Section 9802 (24).

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INTRODUCTION AND EMT STANDARD OF CARE

Delaware Emergency Medical Technician (EMT) Protocols

Issued by the State of Delaware EMS Medical Directors
In cooperation with the Delaware State Fire Prevention Commission and
the Office of Emergency Medical Services

The Delaware Emergency Medical Technician protocols and the standing orders contained within have been developed as an adjunct to the standards of care as contained in the United States Department of Transportation Educational Standards and verified through the National Registry of Emergency Medical Technicians certification process.

All Delaware certified EMS providers administering patient care are doing so under the provisions of the State EMS Medical Director's medical license in accordance with Del Code Title 16, Chapter 98 Section 9802.

These protocols are not all-inclusive. They address in particular those patients for which EMTs may assist with previously prescribed medications such as nitroglycerin, invasive procedures such as automatic external defibrillation, and complex clinical situations such as refusal of treatment which the EMS medical directors have chosen to address through protocols as reinforcement to standard EMT training.

Deviation from standing orders may be undertaken only by direct order from an approved base station physician serving as Medical Control Physician within a Delaware Office of EMS approved facility or by a State of Delaware EMS medical director directly involved in the care of the patient.

"Any person, agency, organization or entity who knows or in good faith suspects child abuse or neglect shall make a report in accordance with § 904 of this title (Title 16 of Delaware Code). For purposes of this section, "person" shall include, but shall not be limited to, any physician, any other person in the healing arts including any person licensed to render services in medicine, osteopathy or dentistry, any intern, resident, nurse, school employee, social worker, psychologist, medical examiner, hospital, health care institution, the Medical Society of Delaware or law enforcement agency." Child Abuse Reporting Phone Contact: 1-800-292-9582

Any person having reasonable cause to believe that an adult person is infirm or incapacitated as defined in § 3902 of this title (Title 31 of Delaware Code) and is in need of protective services as defined in § 3904 of this title shall report such information to the Department of Health and Social Services. Division of Services for Aging and Adults with Physical Disabilities (DSAAPD): 1-800-223-9074.

All certified EMS providers involved with patient care shall adhere to all federal and state HIPAA laws and regulations (45 CFR 160, 162, and 164 & DEL CODE 16, CH12 §1212). Providers should use due caution when using social media in order to comply with HIPAA laws and regulations.

All certified EMS providers, involved with patient care, are equally responsible for assuring the patient(s) receives appropriate medical care.

Patient - A patient is individual who is sick, injured, wounded or otherwise incapacitated or helpless and/or seeks immediate medical attention for whom EMS has been activated.

Patient Priority:

Priority I Patient suffering from an immediate life or limb threatening injury or illness.

Priority II Patients suffering from an injury or illness that if left untreated could potentially threaten life or limb.

Priority III Patient suffering from an injury or illness that requires medical attention but does not threaten life or limb.

EMT Minimum skills and procedures:

1. Patient assessment (primary and secondary surveys)
2. Patient assessment - using the pediatric assessment triangle for general impression
3. Use of body substance isolation (BSI)
4. Obtaining vital signs including temperatures
5. Scene assessment and notification responsibilities in suspected abuse cases
6. Airway control (manual)
7. Use of airway adjuncts (nasopharyngeal, oropharyngeal airways and other devices approved for BLS by the State EMS Medical Director)
8. Spine immobilization/stabilization
9. Cardio-pulmonary resuscitation
10. Bleeding control and shock management
11. Splinting of fractures and dislocations
12. Use of suction equipment
13. Application of oxygen delivery devices
14. Vaginal delivery
15. Use of tourniquets and approved hemostatic agents
16. Assist with nitroglycerin
17. Assist with bronchodilator
18. Assist with Aspirin
19. Assist with patient's medication auto-injectors
20. Measurement of blood glucose and administration of oral glucose
21. Administration of defibrillation
22. Pulse oximetry and CO-oximetry
23. Monitor IV fluids
24. Use of a length based color coded resuscitation tape for age appropriate treatments (Broselow Tape®)
25. VAD support and emergency procedures

Optional EMT Skills and Procedures:

1. Use of an approved carbon monoxide detector
2. Use of an approved continuous positive airway pressure devices (CPAP).
3. Use of Intranasal Naloxone
4. Use of approved mechanical chest compression device
5. Administer EMS supplied EpiPen or EpiPen Jr.
6. Administer EMS supplied Aspirin
7. Administer EMS supplied Albuterol

Requesting Advanced Life Support (ALS) Requirements:

If at any time during contact the patient begins to show signs of worsening, an Advanced Life Support (ALS) unit should be considered.

Basic Life Support (BLS) should request an ALS provider when the patient's needs exceed their capabilities. These conditions may include but are not limited to:

- Altered level of consciousness
- Allergic reaction with difficulty breathing or swallowing, altered level of consciousness, or known previous reaction; hives within 5 minutes of exposure
- Cardiac symptoms
- Cardiac arrest
- Diabetic problem (not alert and/or abnormal breathing)
- Multi-system trauma or severe single system trauma
- OB/GYN (imminent delivery, 2nd or 3rd trimester bleeding or miscarriage)
- Overdose/poisoning (associated with any other categories on this list)
- Respiratory distress
- Respiratory arrest/failure
- Sudden Unexplained Infant Death (SUID)
- Seizures/convulsions (Status or trauma related)
- Entrapment with injuries that meet trauma triage criteria
- Severe blood loss
- Shock (Hypoperfusion)
- Stroke/CVA symptoms
- Syncope (associated with any other categories on this list or cardiac history)
- Unconsciousness
- Abnormal vital signs for that particular patient

If transport by BLS to an appropriate receiving facility can be accomplished before ALS can initiate care, then the BLS service should transport immediately.

BLS services should not delay patient care or transport while waiting for ALS personnel. If ALS arrival at scene is not anticipated before initiation of transport, arrangements should be made to rendezvous with the ALS service. If the rendezvous will delay transport greater than the transport time to the hospital, continue transport and advise the hospital of patient condition and lack of ALS on board.

Transport Requirements:

Respond to EMS call in accordance with the currently approved Priority Medical Dispatch (PMD) Protocols.

Transport shall be made in a safe manner as to prevent further injury. Utilize lights and siren as appropriate based on patient condition.

- It is the consensus of the EMS medical directors that during transport to the hospital, the use of lights and sirens is *not medically indicated* for the majority of EMS patients.

- It is in the best interest of patient care that the highest medically trained on duty practitioner should determine the appropriate mode of transport based on patient condition.

Transfer the patient to ambulance using the most appropriate means necessary while not exacerbating the patient(s) symptoms.

Secure patient in ambulance using appropriate equipment per ambulance and stretcher design. Agency standard operating procedures should meet or exceed manufacturers' recommendations and any applicable Delaware State Fire Prevention regulations and Delaware law.

The medical directors encourage providers to use safety restraints while the ambulance is in motion.

Transport patient to the most appropriate medical facility via appropriate mode of transportation without delay.

- When possible, patient care is enhanced by transport to a facility of prior treatment and the patient's, families, or personal physician's choice should be strongly considered.

- If the patient's wishes are in conflict with existing protocol (e.g., trauma, OB, NICU, or stroke/STEMI) the appropriate destination should be chosen. The medical control physician is the final determinant if assistance is needed.

- EMS providers should consider diversion status when determining destination. Patients shall be advised conditions for treatment may exceed their expectation when a facility is on divert. Priority One patients shall be transported to the closest appropriate facility; unless the facility is closed.

- Patient care does not end until transfer of care of the patient to appropriately trained health care provider.

At the time of patient delivery to an approved healthcare facility, the EMT must give a verbal report to a physician, physician assistant, or nurse at the patient's bedside (a triage desk report is appropriate if patient's disposition is to hallway or waiting room).

Documentation Requirements:

An essential part of prehospital medical care is the completion of a Patient Care Report (PCR). The PCR provides written documentation of patient condition and treatment for medical and legal purposes. EMS personnel shall be responsible for providing clear, concise, complete and accurate documentation.

EMS providers must complete, without exception, a State of Delaware PCR on each patient contact, and shall document all relevant findings, and treatments.

Every attempt shall be made to complete the PCR prior to leaving the receiving facility.

- In the absence of extraordinary circumstances a PCR should be submitted to the receiving facility within four (4) hours of patient disposition.

- EMS providers must complete and submit a PCR to the receiving facility prior to going off duty.

- Only EMS calls that are originally dispatched as "service call or public assist" can be entered into the PCR system as such.

- A PCR entry is not needed for any Good Samaritan occurrences. Providers are encouraged to leave their information with the transporting agency.

A completed PCR is also necessary to identify EMS providers in the event of a potential infectious disease exposure

Use of Quality Assurance/Quality Improvement (QA/QI) Requirements:

Quality Assurance/Quality Improvement (QA/QI) measures must be compliant with the established Delaware State Fire Prevention Commission QA/QI Committee detailed in the State of Delaware's Ambulance Regulations and approved by the State BLS EMS Medical Director and State EMS Medical Director.

EMT/TELEPHONE REPORT GUIDELINES

The EMT report to medical control should be brief and concise. The goal is to provide enough vital information to medical control so that they may provide informed direction for the patient's continued care and plan for the patient's disposition. Reports generally should not exceed thirty (30) seconds in duration in order to provide economical use of time by the EMT, the medical control physician, and nursing personnel.

For Priority I patients call online medical control utilizing the following report format:

- BLS unit number
- Specific notification (Trauma, Cardiac Arrest, Stroke, CPAP, etc.)
- Estimated time of arrival.
- Priority.
- Patient age.
- Patient sex.
- Chief complaint and related past medical history (i.e., patient with chest pain, history of MI and CABG or patient with altered mental status and history of insulin dependent diabetes).
- Vital signs.
- Significant physical findings (i.e., patient with shortness of breath found to have wheezing and to be hot to the touch, or the patient complaining of leg pain who has deformity of the mid-thigh without distal pulses).
- Care rendered.
- Response to care.

For hospitals that prefer radio reports regarding BLS patients who are a Priority of II or III and are being treated by standing orders with no anticipated requests for orders, the following brief report format is acceptable:

- BLS unit number.
- Priority.
- Patient age.
- Patient sex.
- Chief complaint
- Standing Order being followed
- Estimated time of arrival

The above information should be more than adequate for most BLS runs. When additional information is felt to be important for patient care or disposition, the medical control physician is well within their jurisdiction to request more information.

GENERAL PATIENT CARE- Adult

INDICATIONS: Any patient, who is greater than or equal to the age of 14 years, requiring prehospital medical evaluation by a prehospital health care provider in the State of Delaware.

The General Patient Care protocol will be followed in conjunction with all other applicable protocols.

A patient is an individual who is sick, injured, wounded or otherwise incapacitated or helpless and/or seeks immediate medical attention for whom EMS has been activated.

The most current version of the American Heart Association Guidelines for Cardiopulmonary Resuscitation is considered the standard for CPR within these protocols.

- Perform scene survey. Delaware EMS Medical Directors recommend that all EMS crews carry "room" carbon monoxide detectors with an audible alert on their first- in bag for provider and patient protection.*
- Observe body substance isolation (BSI) precautions. (Follow your agency's infection control policy and Infection Control Protocol.)
- Scene Safety
- Note any potential hazards to rescuers or patients. Report findings to incident command if established.
- This includes but is not limited to traffic flow, wires, vehicle fluid spills, broken glass, sharp metal, fire, combative patients, hostile crowds, and hazardous materials.
- Utilize the current Emergency Responder Guidebook to determine if a hazardous materials scene is safe to enter.
- Observe patient position and surroundings that have contributed to the injury.
- Identify the number of patients; perform Triage if necessary. See Triage Protocol.
- Consider the need for additional resources, ALS, and aeromedical transport. Request resources from Incident Command if established.
- Manage cervical spine as needed. Consider Spinal Trauma Protocol
- Physical patient assessment shall be done to identify injury.
- Level of consciousness (AVPU)
- Determine GCS. See chart for guidance.
- Airway
  - Patent (Able to speak/ cry)
  - Patient able to maintain their own airway
  - Utilize manual maneuvers, suction, and approved adjuncts as necessary

- Breathing
  - Rate
  - Quality
  - Obvious sounds without stethoscope
  - Auscultate lung sounds.
  - Utilize appropriate oxygen delivery device (NRM, Simple Mask, NC, BVM) and appropriate concentration for the device
  - Consider BONES to identify difficult to ventilate situations.
    - B: Beard
    - O: Obese
    - N: Neck mobility (c-collar)
    - E: Elderly
    - S: Snores

- Circulation
  - Central pulse versus peripheral pulses: Present & equal
  - Skin color
  - Capillary refill
  - Gross hemorrhage present. See Bleeding/Shock Protocol

- **DCAP-BTLS (D**eformities, **C**ontusions and Crepitus, **A**brasions, **P**enetrations/Punctures, **B**urns, **T**enderness, **L**acerations, **S**welling)

- Determine pulse, motor, and sensory function in all extremities.

- Obtain a set of Vital signs and pulse oxygenation level. See Non-Invasive Gas Monitoring Protocol.

- Monitor Blood Glucose as appropriate.

- Obtain SAMPLE history and OPQRST history if patient can speak (**O**nset, **P**rovocation/**P**alliation, **Q**uality, **S**everity**, **T**ime)

- Assess pertinent body systems as appropriate.

- Assess and record pain severity, if applicable, using age appropriate pain scale.

- Use CPR assist devices as appropriate***

- Assign treatment priority and make a transport decision.

- Consider proposed receiving facility's diversion status and inform patient (family) as appropriate.

- Patients should be taken to the approved facility's emergency department, labor and delivery area or to an inpatient bed if arranged prior to arrival at the facility. If there are questions or doubts as to the appropriate facility or point of delivery, the medical control physician will be the arbitrator. All unstable patients should be transported directly to a Hospital Emergency Department or other appropriate receiving facility as defined by the State EMS Medical Director.

- Victims of sexual assault should be transported to a facility staffed with a Sexual Assault Nurse Examiner (SANE). If patient has significant trauma transport to appropriate trauma facility.

- Patients are to be transported to Delaware Office of EMS approved facilities within the EMS agency's usual operations area.
- On scene direction of medical care is provided by the on duty Delaware EMS provider with the highest level of licensure and/or certification. Rescue operations and control of the scene remains under the direction of the Fire Officer in Charge.
- Contact medical control as needed. Document medical control physician number and any orders on the patient care report.
- During transport continue with secondary assessment and note any changes in the patient's condition.
- Responsibility of care does not end until transfer of care of the patient to an appropriately trained health care provider is completed.

It should be noted that the protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The EMT provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

"Any person, agency, organization or entity who knows or in good faith suspects child abuse or neglect shall make a report in accordance with § 904 of this title (Title 16 of Delaware Code). For purposes of this section, "person" shall include, but shall not be limited to, any physician, any other person in the healing arts including any person licensed to render services in medicine, osteopathy or dentistry, any intern, resident, nurse, school employee, social worker, psychologist, medical examiner, hospital, health care institution, the Medical Society of Delaware or law enforcement agency."

Child Abuse Reporting Phone Contact: 1-800-292-9582
Any person having reasonable cause to believe that an adult person is infirm or incapacitated as defined in § 3902 of this title (Title 31 of Delaware Code) and is in need of protective services as defined in § 3904 of this title shall report such information to the Department of Health and Social Services.

Division of Services for Aging and Adults with Physical Disabilities (DSAAPD): 1-800-223-9074.

*CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

**Reference Wong-Baker Pain Chart to determine severity.

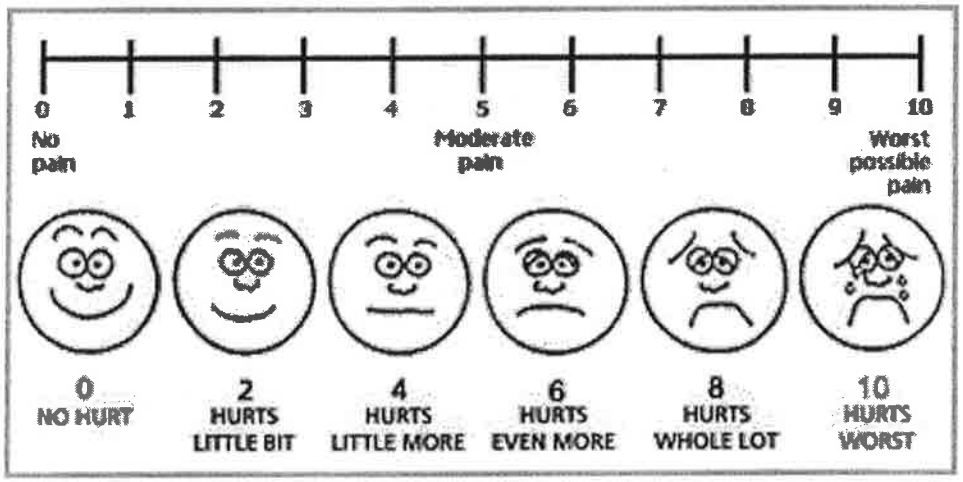
***CPR assist device must be an FDA approved device approved for use by the Delaware Office of Emergency Medical Services and coordinated with the county EMS medical director and county paramedic service.

Adult GCS

	Eyes	Verbal	Motor
1	No Response	No Response	No Response
2	To Pain	Incomprehensible	Extension (Decerebrate)
3	To Verbal	Inappropriate	Flexion (Decorticate)
4	Spontaneous	Confused	Withdraws to Pain
5		Oriented	Localizes Pain
6			Obeys Commands
Total:		Minimum Score: 3/15	Maximum Score 15/15

Normal Vital Signs For Age of Patient

Age	Heart Rate	Respiratory Rate	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)
Newborn	100-180	30-60	70	46
Infant	120-150	20-40	70	46
1-5 years	80-150	20-30	70 + 2 x age in years	2/3 systolic
5-14 years	60-120	15-30	90 + 2 x age in years	2/3 systolic
14+ years	60-100	8-24	90-140	60-85



GENERAL PATIENT CARE- Pediatric

INDICATIONS: Any patient, who is less than the age of 14 years (neonates are considered birth - 30 days old), requiring prehospital medical evaluation by a prehospital health care provider in the State of Delaware.

The General Patient Care protocol will be followed in conjunction with all other applicable protocols.

A patient is individual who is sick, injured, wounded or otherwise incapacitated or helpless and/or seeks immediate medical attention for whom EMS has been activated.

The most current version of the American Heart Association Guidelines for Cardiopulmonary Resuscitation is considered the standard for CPR within these protocols.

Perform scene survey. Delaware EMS Medical Directors recommend that all EMS crews carry "room" carbon monoxide detectors with an audible alert on their first- in bag for provider and patient protection.*

- Observe body substance isolation (BSI) precautions.
- Follow your agency's infection control policy and Infection Control Protocol.
- Consider the need for additional resources.
- Determine responsiveness using AVPU (alert, verbal, painful, unresponsive).**
- Determine GCS. See chart for guidance.
- Appropriately manage cervical spine as needed. Consider Spinal Trauma Protocol.
- Use a systematic approach to a pediatric assessment. General assessment should be done using the pediatric assessment triangle (PAT). Components of the pediatric assessment triangle include:
    - Appearance
    - Work of breathing
    - Circulation
- Appearance includes: muscle tone, ability to be consoled, look or gaze, and speech or quality of cry, overall mental status. (Enlist the parents or caregivers in determining what is normal for the child).
- Work of breathing: airway sounds, signs of increased breathing, use of accessory muscles and increased or declining respiratory effort.
- Circulation: assessed by observing pallor, mottling, cyanosis, presence and quality of peripheral or central pulses.
- After using the PAT, proceed to a primary assessment:
    - Airway for patency.

        - If epiglottitis or croup is suspected, transport sitting straight upright to assist with clearing of respiratory secretions. Do not attempt to examine upper airway or otherwise aggravate the patient.

        - Secure an airway as needed and appropriately.

    - Breathing for respiratory effort and quality.

        - Administer oxygen as appropriate.

    - Circulation for pulse rate, skin temperature and capillary refill.

- Expose the patient as needed for assessment needs.

    - Keep in mind that pediatric patients are prone to hypothermia faster than their adult counterparts. Maintain a warm environment and keep exposure to a minimum.

- Treat life-threatening conditions as necessary.***

- Evaluate blood pressure, pulses, respiratory rate, GCS (Glasgow Coma Scale) and tactile temperature: if available use thermometer to take an accurate temperature. Refer to normal vital signs chart for pediatrics, or a Broselow tape.

- Reassess with a frequency indicated by patient condition.

- Monitor the patient via the use of a Pulse Oximeter as appropriate.

- Monitor blood glucose level as appropriate.

- If no life threat has been determined in the primary survey, proceed to a secondary survey that will include a focused medical history using the SAMPLE mnemonic and thorough physical exam.

- Assess and record pain severity, if applicable, using age appropriate pain scale

- Assign treatment priority and make transport decision.

- Consider proposed receiving facility's diversion status and inform patient (family) as appropriate.

- Transport patient to an appropriate medical facility via appropriate mode of transportation without delay.

- If at all possible, do not separate the parent/caregiver and the child.

- Patients should be taken to the approved facility's emergency department, labor and delivery area or to an inpatient bed if arranged prior to arrival at the facility. If there are questions or doubts as to the appropriate facility or point of delivery, the medical control physician will be the arbitrator. All unstable patients should be transported directly to an emergency facility.

- Victims of sexual assault should be transported to a facility staffed with a Sexual Assault Nurse Examiner (SANE). If patient has significant trauma transport to appropriate

trauma facility.

- Patients are to be transported to Delaware Office of EMS approved facilities within the EMS agency's usual operations area.
- On scene direction of medical care is provided by the Delaware EMS provider with the highest level of licensure and/or certification

It should be noted that the protocol above is a guideline to be followed in as much as it aids in providing appropriate and timely medical care. The EMT provider may change the order or omit steps listed above as dictated by sound judgment of the care provider and/or presentation of the patient(s).

*CO-oximetry may be performed as an option by agencies carrying CO monitoring equipment.

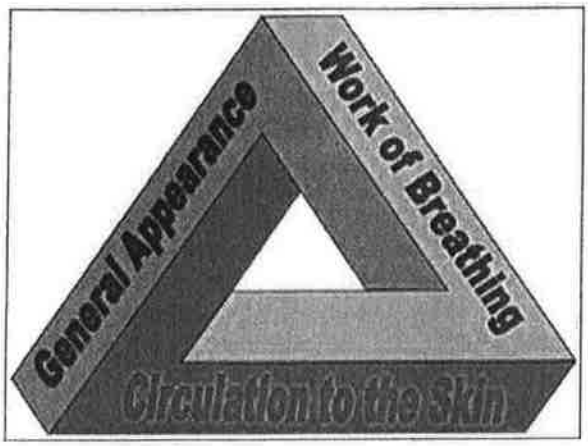
**Pediatric emergencies are influenced by the unique anatomical features, immature physiology, and variable developmental achievements of children. EMTs must know normal pediatric presentations for each age group in order to determine what is abnormal, and what to expect for treatments provided in an emergency situation.

***Characteristics of life-threatening illnesses in the pediatric population may include combinations of the following:

- Initial subtle signs of illness that progress to a condition that requires emergent interventions
- Relatively rapid in onset with precipitous deterioration
- Frequent involvement of the respiratory or central nervous system
- Require rapid intervention
- Necessitate care at a pediatric tertiary care center

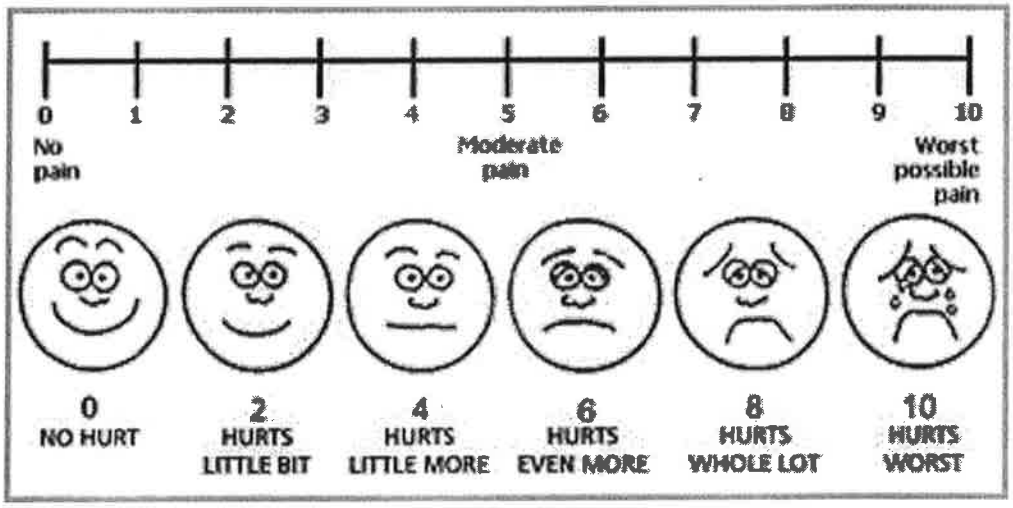
"Any person, agency, organization or entity who knows or in good faith suspects child abuse or neglect shall make a report in accordance with§ 904 of this title (Title 16 of Delaware Code). For purposes of this section, "person" shall include, but shall not be limited to, any physician, any other person in the healing arts including any person licensed to render services in medicine, osteopathy or dentistry, any intern, resident, nurse, school employee, social worker, psychologist, medical examiner, hospital, health care institution, the Medical Society of Delaware or law enforcement agency."

PEDIATRIC ASSESSMENT TRIANGLE (PAT)



Pediatric GCS

	Eyes	Verbal	Motor
1	No Response	No Response	No Response
2	To Pain	Inconsolable, Agitated	Extension (Decerebrate)
3	To Speech	Inconsistently Consolable/ Moans	Flexion (Decorticate)
4	Spontaneous	Consolable Cry	Withdraws to Pain
5		Coos, Babbles	Withdraws to touch
6			Normal spontaneous movement
Total:		Minimum Score: 3/15	Maximum Score 15/15



Normal Vital Signs For Age of Patient

Age	Heart Rate	Respiratory Rate	Systolic Blood Pressure (mmHg)	Diastolic Blood Pressure (mmHg)
Newborn	100-180	30-60	70	46
Infant	120-150	20-40	70	46
1-5 years	80-150	20-30	70 + 2 x age in years	2/3 systolic
5-14 years	60-120	15-30	90 + 2 x age in years	2/3 systolic
14+ years	60-100	8-24	90-140	60-85

INFECTION CONTROL

INDICATIONS: 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.

These guidelines provide general information related to body substance isolation and the use of universal precautions. These guidelines are not designed to supersede an Emergency Medical Service's Infection Control Policy; but should be a resource for their creation. It will serve as policy in the absence of a service's policy.

These guidelines do not comprehensively cover all possible situations, and EMS practitioner judgment should be used when the Emergency Medical Service's Infection Control Policy does not provide specific direction.

Nothing in this guideline shall be construed to authorize the disclosure of confidential medical information by the health facility or any of the EMS practitioners except as otherwise authorized by law.

- Wear gloves on all calls where contact with blood or body fluid is anticipated or when handling items or equipment that may be contaminated with blood or other body fluids.

- Wash hands as often as possible and after every call.

- Keep all open cuts and abrasions covered with adhesive bandages that repel liquids.

- Use goggles or glasses when spraying or splashing of body fluids is possible.

- Respiratory precautions should be used when caring for any patient with a known or suspected infectious disease that is transmitted by respiratory droplets or with someone who has a productive cough.

- A mask should be placed upon the patient if his/her respiratory condition permits.

- If an EMS practitioner has a potential exposure to blood, body fluids, or airborne pathogens; the practitioner must follow Delaware Law Title 16 Chapter 12A and the Emergency Medical Service's Infection Control Policy. The incident must be immediately reported to the service's Infection Control Officer.

- EMS practitioners should clean their wound with soap and water; flush mucous membranes with water/saline; or treat any other wound as dictated by severity of the wound.

- EMS practitioners who have a confirmed exposure (as confirmed by the service's Infection Control Officer or Receiving Medical Facility) should be evaluated at the receiving facility. If the patient is not transported, contact the infection control officer for guidance on a facility to be evaluated.

- A State of Delaware Infectious Control Form *"Report of Potential Exposure"* should be filled out at the receiving hospital or forwarded to the Chief Medical Examiner/Coroner

as soon as possible.

- EMS practitioners who have been treated for a confirmed exposure should follow through with post-exposure medical care and/or prescribed treatment.

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

- Place all disposable equipment and contaminated trash in a clearly marked plastic biohazard bag and dispose of appropriately.

- Contaminated uniforms and clothing should be removed, placed in an appropriately marked biohazard bag and laundered/ decontaminated.

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

REFUSAL OF SERVICE

INDICATIONS: EMTs will often respond to scenes where the patient wishes to decline service. It is important that the provider obtains the patient's informed consent before leaving the scene; otherwise the provider might be exposed to legal liability for abandonment of the patient.

A patient is an individual who is sick, injured, wounded or otherwise incapacitated or helpless and/or seeks immediate medical attention for whom EMS has been activated.

" Refusal of service (ROS) represents a high risk protocol for the patient and the provider. ROS subjects the patient to potential/life and health risk and leaves the provider and their agency at risk for legal action. This protocol attempts to reduce risk to all parties. "

All subjects of an EMS activation should be encouraged to seek care. EMS providers shall never attempt to discourage a patient or families from being transported by EMS for further evaluation. Each patient who refuses service must be fully informed about needed treatment and possible outcomes including possible disability or death, and should verbalize understanding of the risks associated with refusing the needed care. If the patient is felt to need treatment, every effort should be made to persuade the patient to consent to needed health care. Consider involving family, police, paramedics, and physician at the hospital. Strongly consider contacting medical control if the provider has any concerns regarding the welfare of the patient. Document the informed consent process, concerns, and if applicable, physician number and any orders on the PCR and complete the approved State of Delaware refusal of service form.

- Follow General Patient Care Protocols.
- Take a SAMPLE history. Perform and document a primary and secondary survey utilizing OPQRST and DCAP-BTLS.
- Document the patient's mental status and vital signs. If the provider assessment is refused, document this clearly.

Patients with the following conditions require contact with medical control for refusal of service. All efforts must be made to contact medical control prior to refusal of service.

- Suspicion of intoxication by drugs (prescription or legal) or alcohol, as evidenced by admission of use, presence of suspected drug paraphernalia, odor of alcohol, unsteady gait, slurred speech, or altered mentation;
- Suspicion of suffering acutely from mental disease or have suicidal or homicidal ideation, as evidenced by hallucinations, delusions, agitation, admission or evidence of wish to do harm to self or others, or a concern from others of intention to do harm to self or others;
- Appear to be suffering from a significant head injury as evidenced by loss of consciousness, head trauma, or altered mental status;

- Appear to be suffering from hypoxia or acute respiratory distress as evidenced by abnormal vital signs, increased work of breathing, low oxygen saturation, abnormal lung sounds, or altered mental status

- Appear to be suffering from hypoglycemia as evidenced by altered mental status, agitation, or unstable vital signs

- Patients who are disoriented, have abnormal vital signs, or are uncooperative for any reason

- Any intervention performed by any other healthcare provider

- A summons of EMS to a health care facility or call initiated by a health care provider

- The patient is less than 18 years old

All patients with the following circumstances require contact with medical control for refusal of service unless paramedics are also present and have obtained a refusal. All efforts must be made to contact medical control prior to refusal of service.

- Document the physician control number and any orders on the run sheet

- BLS cancels ALS prior to ALS arrival

- BLS personnel encounter a patient meeting the criteria for ALS care but no ALS is responding

- Medical calls dispatched as a Delta or Echo response

- Patients who suffer the same mechanism of injury as a Delta or Echo level trauma patient

- The provider feels the patient is being physically or emotionally coerced into making a decision against the patients best interests

- Patients, who **do not meet any of** the criteria above, may consent to refusal of service without medical control acknowledgment

CHEST PAIN

Non-traumatic - Possible Cardiac Origin

INDICATIONS: The pattern of pain suggestive of cardiac origin is highly variable. Chest or epigastric pain associated with shortness of breath, sweating, nausea, vomiting, radiating or non-radiating pain of the neck, jaw, left arm, or back. Patients with chest pain of suspected cardiac etiology require rapid stabilization and transport.

- Follow General Patient Care and Infection Control Protocols.
- Provide appropriate supplemental oxygen. Obtain a Pulse Oximeter reading (see Non Invasive Gas Monitoring Protocol).
- Assist the patient with taking uncoated Aspirin up to 325mg. This dose includes any dispatcher directed or patient administered doses prior to EMS arrival. Patients with allergies to aspirin or non-steroidal anti-inflammatory drugs (NSAIDs i.e., Aleve, Motrin, ibuprofen, etc.) may not receive aspirin. Properly document the administration of aspirin in the PCR.
- If the patient has their prescribed nitroglycerin and their systolic blood pressure is greater than 100mm Hg, assist or give the patient nitroglycerin as prescribed. Assess the patient's blood pressure before each dose. The patient should not take nitroglycerin if the systolic blood pressure falls below 100mm Hg. Do not exceed 3 doses given 3 to 5 minutes apart. Further orders must come from medical control.*
- Make sure that the medication prescribed to the patient and has not expired.
- Packaging and safe transport should not be delayed significantly for aspirin or nitroglycerin therapy.
- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.
- If a paramedic unit is not available, radio a report to the emergency department advising of the estimated time of arrival (ETA) and patient status.
- Contact medical control directly with any questions or concerns regarding nitroglycerin therapy as needed.
- Document on the EMS patient care report the name of the medication, the time(s) of the administration, the number doses taken and document the blood pressure readings before administration.

** Withhold nitroglycerin and contact medical control if the patient relates taking sildenafil (Viagra®/Revatio®) or vardenafil (Levitra®) within the last 24 hours or tadalafil (Cialis®, Adcirca® for pulmonary hypertension), or any other prescription erectile dysfunction drugs within the last 48 hours.*

Do not administer aspirin if the patient reports an allergy to aspirin or other NSAIDs.

ACUTE RESPIRATORY DISTRESS - Adult

INDICATIONS: Signs and symptoms of acute exacerbations of asthma, emphysema, reactive airway disease and allergic reactions may include wheezing, cough, shortness of breath, diminished breath sounds, retractions, tachypnea, and/or air hunger.

Providers will be able to identify the need for albuterol, levalbuterol and Combivent medication treatments and administer it as appropriate.

- Allow the patient to maintain a position of comfort (usually sitting).
- Follow General Patient Care and Infection Control Protocols.
- Provide appropriate supplemental oxygen. Obtain a Pulse Oximeter reading (see Non-Invasive Gas Monitoring Protocol). Consider obtaining a carbon monoxide reading, if greater than 5, apply oxygen.
- Assess lung sounds during the physical examination.
- If a patient has a bronchodilator meter dose inhaler prescribed by their physician, assist the patient as prescribed. Generally, two puffs is the appropriate dosage. Use a spacer if available. The inhaler may be used again in fifteen minutes for a total of 4 puffs. Contact medical control before assisting with additional doses or if the patient took more than 4 puffs within one hour of EMS arrival.
- If the patient's pulse rate is over 150 beats per minute, contact medical control prior to a second dose of bronchodilator.
- Not all metered dose inhalers contain bronchodilators. The inhaler should specify that the medication is to be used for episodes of wheezing, shortness of breath, asthma attack, allergic reaction, etc. Make sure that the medication is prescribed to the patient and is not expired.
- If patient's heart rate is less than 150 beats per minute, and if appropriate, assist the patient with their own nebulizer as prescribed by the patient's physician. These include albuterol, levalbuterol and Combivent. Generally the dosage for an adult is 2 unit dose vials poured into nebulizer. Connect nebulizer to an oxygen source at 8 liters per minute and place the nebulizer mouth piece in their mouth or face mask in to position so that the patient is breathing the misted medication.
- If upon arrival patient is currently taking his prescribed nebulizer, it is appropriate to transport the patient while finishing the treatment.
- Restart patient on oxygen therapy at appropriate concentration.
- Reassess patient, especially lung sounds, vitals, and oxygen saturation after each treatment. If minimal relief is obtained, treatment may be repeated once.
- Packaging and safe transport should not be delayed significantly by bronchodilator or nebulizer administration.

- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.

- If a paramedic unit is not available, radio a report to the emergency department advising of ETA and patient status.

- Contact medical control with any questions or concerns. Document medical control physician number and any orders on the patient care report.

- Document on the EMS patient care report the name of the medication, the time(s) of administration, the number of doses, and pulse rate before administration.

ACUTE RESPIRATORY DISTRESS/FAILURE - Pediatric

INDICATIONS: Signs and symptoms of acute exacerbations of asthma, reactive airway disease and allergic reactions may include wheezing, cough, shortness of breath, diminished breath sounds, retractions, tachypnea, and/or air hunger.

Acute Respiratory Distress: a clinical state characterized by increased respiratory rate, and an increased effort represented by nasal flaring, retractions and accessory muscle use. Respiratory distress can be associated with changes in airway sounds, skin color, and mental status.

Acute Respiratory Failure/Arrest: a clinical state of inadequate oxygenation, ventilation, or both. It may be characterized by signs of distress or inadequate respiratory effort.

Providers will be able to identify the need for albuterol, levalbuterol and Combivent medication treatments and administer it as appropriate

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- Allow the patient to maintain a position of comfort (usually sitting).
- Follow Pediatric General Patient Care and Infection Control Protocols.
- Provide appropriate supplemental oxygen.
- Consider ALS
- Obtain a pulse oximeter reading (see Non-Invasive Gas Monitoring Protocol). Consider obtaining a carbon monoxide reading, if greater than 5, apply oxygen via non-rebreather.
- Perform an initial assessment using the pediatric assessment triangle
- Be prepared to support ABCs
- Continually reassess respiratory effort
- Keep patient warm
- Complete Airway Obstruction (Foreign body):
    - Open mouth and remove object if visible
    - Reposition the airway and check for ventilation, if not spontaneous, then ventilate the patient.
    - Consider back blows and chest/abdominal thrusts (age dependent)

- Partial Airway Obstruction (Upper airway):
    - Suspect: foreign body, epiglottitis, anaphylaxis, stridor, choking episode, drooling, hoarseness, and/or retractions
    - Avoid any agitation, place child in position of comfort.
    - Consider alternate oxygen delivery methods, such as blow by
    - Do not attempt an invasive airway maneuver (Oropharyngeal and Nasopharyngeal Airway adjuncts)
- Reactive Airway Disease (lower airway):
    - Wheezing, grunting, retractions, tachypnea, diminished respirations, decreased breath sounds, tachycardia/bradycardia, and/or decreased level of consciousness
    - Place patient in position of comfort
    - If a patient has a bronchodilator meter dose inhaler prescribed by their physician, assist the patient as prescribed. Generally, two puffs is the appropriate dosage. Use a spacer if available. The inhaler may be used again in fifteen minutes for a total of 4 puffs. Contact medical control before assisting with additional doses or if the patient took more than 4 puffs within one hour of EMS arrival.
    - If the patient's palpated pulse rate is over 150 beats per minute, contact medical control prior to a second dose of bronchodilator.
    - Not all metered dose inhalers contain bronchodilators. The inhaler should specify that the medication is to be used for episodes of wheezing, shortness of breath, asthma attack, allergic reaction, etc. Make sure that the medication is prescribed to the patient and is not expired.
    - If patient's heart rate is less than 150 beats per minute, and if appropriate, assist the patient with their own nebulizer as prescribed by the patient's physician. These include albuterol, levalbuterol and Combivent. Generally the dosage for anyone over the age of 8 is 2 unit dose vials poured into nebulizer. Connect nebulizer to an oxygen source at 8 liters per minute and place the nebulizer mouth piece in their mouth or face mask in to position so that the patient is breathing the misted medication.
    - Dosage for children who have a home nebulizer and are age 8 years or younger should be administered as prescribed by the patient's physician. Generally this is one unit dose vial into nebulizer. Connect to oxygen source at 8 liters per minute. Consider using blow by mask on younger patients.
    - If upon arrival patient is currently taking his prescribed nebulizer it is appropriate to transport the patient while finishing the treatment.
    - Restart patient on oxygen therapy at appropriate concentration.

- Reassess patient, especially lung sounds, vitals, and oxygen saturation after each treatment. If minimal relief is obtained, treatment may be repeated once.
- Document on the EMS patient care report the name of the medication, the time(s) of administration, the number of doses, and pulse rate before administration.
- Packaging and safe transport should not be delayed significantly by bronchodilator or nebulizer administration.
- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.
- If a paramedic unit is not available, radio a report to the emergency department advising of ETA and patient status.
- Contact medical control with any questions or concerns. Document medical control physician number and any orders on the patient care report.

RESPIRATORY FAILURE/ARREST:

- Be vigilant in the assessment of the pediatric patient with a respiratory emergency.*
- Open the airway using either the jaw thrust or head tilt/chin lift maneuver.
- Clear the airway via suction if needed.
- Place in the appropriate airway adjunct to assist in patency.
- Nasal airways should not be placed in the infant or very small child. Assess the size of the nares and the proper length of the adjunct, as not to occlude the airway.
- Administer oxygen.
- Support ventilations with a size appropriate bag valve mask and age appropriate rate.
- Monitor cardiac status and be prepared to begin CPR

*High-risk infants: an infant who is on an apnea monitor or who has been identified as having an "apparent life-threatening event" (ALTE). These infants include those who have experienced periods of apnea (cessation of breathing), or are at risk of prolonged apnea. When you arrive at the scene of an incident involving this type of baby, no matter how well the baby may look, transport to the ED is always advised.

ALBUTEROL (PILOT PROTOCOL)

Participation requires approval by the State EMS Office. Companies seeking utilization of this protocol must have CPAP available for adults. Companies must agree to complete paperwork as designed by the EMS Office. Equipment and medication cost is to be borne by the participating companies.

INDICATIONS: Signs and symptoms of acute exacerbations of asthma, emphysema, reactive airway disease and allergic reactions may include wheezing, cough, shortness of breath, diminished breath sounds, retractions, tachypnea, and/or air hunger. Providers will be able to identify the need for Albuterol medication treatments and administer them as appropriate.

- Utilize the General Patient Care, Infection Control, Non-Invasive Gas Monitoring, and Respiratory Distress Protocols.
- Consider use of the Allergic Reaction Protocol
- Request ALS. If ALS is not available or if hospital is closer, initiate transport to the closest appropriate facility. Radio a report to the emergency department advising ETA and patient status.
- If patient is less than 1 year, contact medical control immediately.
- If patient's pulse is less than 150 beats per minute and the patient has a known history of Asthma, COPD; or signs of Asthma, COPD, or Allergic reaction are present: administer 5mg Albuterol via nebulizer with oxygen flow set at 8LPM.* For patients 1-14 years of age administer 2.5mg Albuterol via nebulizer with oxygen flow set at 8LPM.
- Reassess patient, especially lung sounds, vitals, and oxygen saturation.
- Repeat dose, 5mg Albuterol, via nebulizer with oxygen flow set at 8LPM if signs and symptoms of respiratory distress persist. * For patients 1-14 years of age administer 2.5mg Albuterol via nebulizer with oxygen flow set at 8LPM.
- Contact medical control with any questions or concerns. Document medical control physician number and any orders on the patient care report.
- Document on the EMS patient care report the name of the medication, the time(s) of administration, the number of doses, and pulse rate before administration.

* If respiratory status worsens, stop Albuterol treatment and begin CPAP or BVM for adults. Utilize BVM for pediatric patients.

NON-INVASIVE GAS MONITORING
PULSE OXIMETRY and CO-OXIMETRY

INDICATIONS: Pulse oximetry and CO-oximetry is an adjunctive technique that can help to detect hypoxia and to assess the impact of oxygen therapy. The EMT assessment and treatment of the patient is much more important than the pulse oximeter or CO-oximeter reading. The pulse oximeter and CO-oximeter supplies one additional small piece of information.

"Room" Carbon monoxide monitoring: is an adjunctive technique that can help to detect the presence of carbon monoxide in the air that would pose a threat to the patient and EMS crews.

- "Room" Carbon monoxide monitoring:*
    - If audible alert sounds suspect the presence of carbon monoxide.
    - Consider scene safety and additional resources
    - As soon as practical, remove patient to non-contaminated area
- Pulse oximetry and CO-oximetry:
    - Provide appropriate supplemental oxygen.
    - Obtain a pulse oximeter reading (Sa02). **
        - The pulse oximeter reading can be assessed prior to giving oxygen if this does not significantly delay oxygen therapy. A reading taken after oxygen has been administered can be compared to the first reading for signs of improvement or deterioration of oxygenation.
        - Make sure the pulse-ox reading correlates with the patient's palpated pulse rate
- Obtain CO-oximeter reading, if available ***
    - If carboxyhemoglobin is <5%, consider other possible causes of symptoms.
    - If carboxyhemoglobin is >5%, and patient has suffered a loss of consciousness or altered mental status, suspect CO poisoning
- Continue appropriate oxygen therapy utilizing non-rebreather mask or BVM and transport
- Always treat the patient, not the pulse oximeter or CO-oximeter reading. Do not let the pulse oximeter or CO-oximeter delay other assessment or treatment.

*Delaware EMS Medical Directors recommend that all EMS crews carry "room" carbon monoxide detectors with an audible alert on their first- in bag for provider and patient protection.

**Certain medical conditions will give a falsely high pulse oximeter reading. The most common condition is carbon monoxide poisoning. Do not rely on a pulse oximeter reading if carbon monoxide toxicity is a consideration.

***CO oximetry may be performed as an option by agencies carrying CO monitoring equipment

CONTINUOUS POSITIVE AIRWAY PRESSURE (CPAP)

Requires local or agency EMS Medical Director approval prior to agency participation.

INDICATIONS: Respiratory distress or failure, due to cardiogenic pulmonary edema (CHF), asthma, chronic obstructive pulmonary disease (COPD), or emphysema in which the patient demonstrates spontaneous respirations and a patent, self-maintained airway.

VITAL SIGNS AND ASSESSMENT CRITERIA: (a majority of vital sign and assessment criteria should be present)

- Tachypnea = Respiratory Rate greater than or equal to 24 bpm
- Tachycardia= Heart Rate greater than or equal to 100 bpm
- Hypertension = Systolic Blood Pressure greater than or equal to 120mmHg
- Hypoxia = Pulse Oximetry reading less than or equal to 90%
- Labored breathing that results in the patient being unable to complete a full sentence

CONTRAINDICATIONS:

- Circumstances in which endotracheal intubation or a surgical airway is preferred or necessary to secure a patent airway
- Circumstances in which the patient does not improve or continues to deteriorate despite CPAP administration
- Patients with respiratory distress secondary to trauma

- Assure a patent airway.
- Administer 100% 02 via appropriate delivery system.
- Perform appropriate patient assessment including obtaining vital signs, pulse oximeter (Sp02) reading, and cardiac rhythm *(regular or irregular).*
- Apply CPAP device per manufacturer's instructions.*
- Continuously reassess the patient.
- Monitor continuous pulse oximetry.
- Follow the appropriate set of standing orders for continued treatment.
- Albuterol nebulizers may be kept in-line with CPAP. This may require the nebulizer flow rate to increase based on CPAP manufacturer's recommendations.
- Contact the medical control as soon as possible to allow for prompt availability of hospital CPAP / BiPAP equipment and respiratory personnel.

- A patient care report **must** be completed and left with the patient's caregivers before leaving the medical facility.

*For circumstances in which the patient does not improve or continues to deteriorate despite CPAP and/or medical therapy, terminate CPAP administration and perform BVM ventilation.

ALLERGIC REACTION

INDICATIONS: Generalized allergic manifestations such as urticaria, swelling, respiratory distress, or a known allergen exposure.

Severe Allergic Reactions include:

- Airway obstruction (partial or complete)
- Swelling of the tongue, face, or neck areas
- Clinical evidence of shock including altered mental status, confusion, hypotension (systolic <90mmHg), delayed capillary refill, and cool, clammy, or mottled skin.

Some patients with severe asthma may manifest their allergic reaction primarily as an asthma attack.

- Utilize General Patient Care and Infection Control Protocols.
- Provide appropriate supplemental oxygen. Obtain a pulse oximeter reading (see Non-Invasive Gas Monitoring Protocol).
- Assess lung sounds during the physical examination.
- If an insect stinger is present, remove it with a flat edge such as credit card. **Do Not** pinch the stinger to remove it.
- Consider Respiratory Distress Protocol.

For Severe Allergic Reactions (Anaphylaxis)

- If a patient has epinephrine via auto-injector (Epi-Pen®, Epi-Pen Jr.®, or Twinjet®) prescribed by their physician, assist the patient with their epinephrine auto-injector. Otherwise, utilize the BLS agency auto-injector if available.
- Administer one dose of epinephrine via auto-injector (Epi-Pen®, Epi-Pen Jr.®, or Twinjet®) as indicated. **Use cautiously in patients 35 years and older.***
- EpiPen® Auto-injector (adult >30kg / 66lbs) delivers a single 0.3 mg epinephrine dose.
- EpiPen Jr® Auto-injector (children 15-30kg / 33-66lbs) delivers a single 0.15 mg epinephrine dose.
- TwinJect® Auto-injector (adult 30kg / 66lbs) can deliver up to two doses of epinephrine (0.3 mg and 0.15 mg).
- Check the auto-injector to ensure the medication is not expired, has not become discolored, does not contain particulates, or sediments.
- Prep skin site with alcohol (only if alcohol is available-not necessary).
- Remove the safety cap from the auto-injector.

- Place the tip of the auto-injector against the lateral aspect of the patient's thigh midway between the waist and knee.

- Push the injector firmly against the thigh until the spring-loaded needle is deployed and the medication is injected **(AT LEAST 10 SECONDS).**

- Dispose of the auto-injector in a sharps container: **Be careful of the needle as it will now be protruding from the end of the injector.**

- Medical control should be contacted before an additional dose of epinephrine via auto-injector is administered if symptoms continue after 10 minutes.

- Packaging and safe transport should not be delayed significantly by epinephrine administration.

- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.

- If a paramedic unit is not available, radio a report to the emergency department advising of ETA and patient status.

- Contact the medical control with any questions or concerns regarding epinephrine therapy if needed. Document medical control physician number and any orders on the patient care report.

- Document on the EMS patient care report the name of the medication, the prescribing physician (if applicable}, dose and the time of administration. A PCR MUST be submitted to the emergency department at time of patient arrival if epinephrine is administered.

*It is optional for BLS agencies to carry epinephrine auto-injector(s) on BLS units that were not prescribed by the patient's physician. **This requires Local or Agency EMS Medical Director approval and additional training prior to participation.**

ALTERED MENTAL STATUS

INDICATIONS: Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness. If a patient is known to have Diabetes Mellitus and has altered mental status, the cause of the altered mental status may be low blood sugar.

- Follow General Patient Care and Infection Control Protocols.
- Determine the appropriate response of the patient based on the developmental expectations of each age group. Enlist the assistance of the parent/caregiver or family member to determine what is "normal" for this patient.*
- Contact Medical Control if the patient is ≤14 years of age for guidance with appropriate blood sugar level and medication dosages.
- Provide appropriate supplemental oxygen. Obtain a pulse oximeter reading (see Non-Invasive Gas Monitoring Protocol). Manage the airway appropriately.
- Be alert to signs of trauma on physical exam. Patients with altered mental status due to trauma should not be given anything by mouth in case their condition worsens unexpectedly or the patient requires surgery.
- Obtain a blood sugar level (see BLS glucose testing policy). If the blood sugar is less than 60mg/dl and the patient is alert and able to protect their airway, use oral glucose 15-24 grams. Make sure that the oral glucose has not expired.
- If the patient is unresponsive or not alert enough to protect their own airway, paramedics or hospital personnel will need to administer intravenous glucose in order to avoid aspiration.
- Monitor and record vital signs. If patient's blood pressure drops below 100 mmHg systolic, treat for shock.
- If after 10 minutes the patient continues to be symptomatic, re-determine blood glucose level and administer a second dose of oral glucose 15-24 grams if glucose is still below 60mg/dl and patient is alert and able to protect their own airway.
- Do not delay safe transport in order to obtain a blood glucose level.
- Document on the EMS patient care report the time of administration of oral glucose and any change in the patient's condition.
- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.
- If a paramedic unit is not available, initiate transportation to a CT capable, stroke certified** medical facility and provide a radio report to the emergency department advising them of the ETA and patient's condition.
- Contact medical control directly with any questions or concerns. Document the medical control number of the physician and any orders on the patient care report.

For suspected narcotic overdose:

Refer to Suspected Opiate Overdose Protocol.

*Special Considerations for causes of Altered Mental Status:

- **A** Alcohol and abuse
- **E** Epilepsy, electrolytes, encephalopathy
- **I** Insulin
- **O** Opiates, overdose
- **U** Uremia
- **T** Trauma, temperature
- **I** Infection
- **P** Poison, Psychogenic
- **S** Shock, seizure, stroke, space occupying lesions, SAH

**Stroke Certified by the State of Delaware or The Joint Commission (TJC), formerly the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Refer to the county EMS Medical Director's current list of stroke certified medical facilities.

SUSPECTED OPIATE OVERDOSE

Available to Basic Life Support Companies on approval of the State EMS Medical Director or BLS Medical Director. Additional Training is required.

INDICATIONS: Incomprehensible speech, inappropriate verbal responses, inability to follow verbal commands, decreased responsiveness, or unresponsiveness, respiratory distress or apnea. This protocol will allow BLS to treat patients with a history based on bystanders, provider's prior knowledge of the patient, or suspicion of potential narcotic overdose as evidenced by nearby medications or drug paraphernalia.

- Follow General Patient Care and Infection Control Protocols.
- Manage airway, breathing, and circulation.
- Provide appropriate supplemental oxygen. Obtain a pulse oximeter reading (see Non-Invasive Gas Monitoring Protocol).
- Be alert to signs of trauma on physical exam. Patients with altered mental status due to trauma should not be given anything by mouth in case their condition worsens unexpectedly or the patient requires surgery.
- If patient is ≤ 14 years old, contact medical control immediately for guidance.
- Consider the administration 1mg Naloxone (Narcan®) IN (intranasal via the LMA MAD Nasal™ device) to provide for a patent, self-maintained airway and adequate respirations. If no improvement in the patient's respiratory status after two (2) minutes, a second dose of 1mg of Naloxone may be given in the opposite nare.
    - **Caution:** patients with near complete reversal of a narcotic overdose may become very agitated and combative.
    - It is not safe to allow a narcotic overdose patient to refuse service after receiving Naloxone- contact medical control prior to a refusal of service.
- Continue to manage the patient's airway until they are breathing adequately and are able to protect their airway from aspiration.
- Do not delay safe transport to await results of treatment.
- If there is no response to Naloxone (Narcan®) within five minutes, consider other causes of altered mental status and proceed to alternative standing orders.
- A paramedic unit must assist with patient care unless the nearest appropriate hospital is closer than the paramedic unit.
- If a paramedic unit is not available, initiate transportation to a CT capable, stroke certified* medical facility and provide a radio report to the emergency department advising them of the ETA and patient's condition.
- Contact medical control directly with any questions or concerns. Document the medical control number of the physician and any orders on the patient care report.

*Stroke Certified by the State of Delaware or The Joint Commission (TJC), formerly the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Refer to the county EMS Medical Director's current list of stroke certified medical facilities.

SEPSIS - Adult

INDICATIONS: Sepsis is the life threatening manifestation of severe infection.

- Follow General Patient Care and Infection Control Protocols.
- Provide appropriate supplemental oxygen. Obtain a pulse oximeter reading (see pulse oximeter protocol).
- Monitor blood glucose level as appropriate (see BLS glucose testing policy).
- Consider sepsis in patients presenting with:
    - Suspicion of infection*
    - 2 or more systemic inflammatory response syndrome (SIRS) criteria:
        - Temperature greater than 38 C (100.4 F) or less than 36 C (96.8 F)
        - Heart rate greater than 90
        - Respiratory rate greater than 20
        - Hypotension (Systolic BP less than 90)
- Consider requesting paramedics
- Contact medical control directly with any questions or concerns. Document the medical control number of the physician and any orders on the patient care report
- Notify receiving hospital upon arrival of potentially septic patient

*Risk factors for infection:

- Elderly patients with altered mental status from baseline
- Nursing home patients
- Chronic disease (e.g. diabetes, renal failure/dialysis)
- Immunosuppression (e.g. cancer with chemotherapy, HIV+, transplant)
- Indwelling catheters and central lines

SUSPECTED STROKE

INDICATIONS: Patients may have the following clinical symptom(s):

- Altered level of consciousness
- Impaired speech
- Unilateral weakness / hemiparesis
- Facial asymmetry / droop
- Headache
- Poor coordination or balance
- Partial loss of peripheral vision
- Vertigo
- Consider hypoglycemia, trauma, and other etiologies of stroke symptoms, and follow applicable protocol if appropriate.

- Follow general patient care guidelines
- Provide appropriate supplemental oxygen. Obtain a pulse oximeter reading (see Non-Invasive Gas Monitoring Protocol)
- Consider ALS
- Be alert to signs of trauma on physical exam
- Obtain a blood sugar level (see BLS glucose testing policy)
- Note exact time of symptom onset*
- Assess Cincinnati Stroke Scale
- Transport to the nearest appropriate CT-capable, Stroke Certified** medical facility without delay
- Transport in semi-Fowlers position
- Contact medical control directly with any questions or concerns. Document the medical control number of the physician and any orders on the patient care report.
- Medical Control may divert patient to local hospital that is the most prepared to care for acute stroke patients.

*Attempt to identify the precise time of the onset or last known well of the patient. The time of onset is extremely important information, and patient care may be different if the patient can be delivered to a comprehensive stroke center capable of treating acute strokes if greater than 4.5 hours and under 6.0 hours from onset of symptoms. If the patient awoke with their symptoms, then the symptom onset is not known.

**Stroke Certified by the State of Delaware or The Joint Commission (TJC), formerly the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Refer to the OEMS current list of stroke certified medical facilities.

The Office of Emergency Medical Services (OEMS) will periodically compile and publish a list of approved receiving facilities based on the receiving facilities level of certification and available types of care. This list should be considered when determining the most appropriate destination for patients. The list is available on the OEMS web site.

Cincinnati Prehospital Stroke Scale

Facial Droop (Patient smiles or shows teeth)
Normal: Both sides of face move equally
Abnormal: One side of face does not move at all

Arm Drift (Patient holds arms straight out in front of him/her and closes eyes)
Normal: Both arms move equally or not at all
Abnormal: One arm drifts compared to the other

Speech (Patient attempts to say "The sky is blue in Delaware")
Normal: Patient uses correct words with no slurring
Abnormal: Slurred or inappropriate words or mute

INITIATION OF RESUSCITATIVE EFFORTS

INDICATIONS: For initiation of cardiopulmonary resuscitation (CPR) for patients in cardiac arrest.

- Follow General Patient Care and Infection Control Protocols.
- For patients with Ventricular Assist Devices (VAD's) reference VAD protocol.
- CPR (use of mechanical chest compression device is recommended) shall be initiated for all patients **unless** one or more of the following criteria apply:
    - Resuscitation would place the rescuer at significant risk of physical injury
    - Injuries which are obviously incompatible with life.*
        - decapitation
        - body fragmentation
        - severe crush injury to head (without vital signs)
        - severe crush injury to chest (without vital signs)
        - severe thermal burns (without vital signs)
        - gunshot wounds to the head with lateral entrance wound and an opposite side exit wound (without vital signs)
- Decomposition of the body
    - skeletalization
    - severe bloating (without vital signs)
    - skin slough (without vital signs)
- Presentation of any legal document to withhold life-saving efforts requires immediate contact with medical control.
- For patients who do not meet the criteria for initiation of cardiopulmonary resuscitation, withhold resuscitation and have paramedics continue in non-emergent for a death pronouncement.

*At no time should BLS cancel paramedics to make a pronouncement as BLS providers cannot make pronouncements in the field. **The only exception, to cancelling the paramedics, would be that if the patient met the criteria for the obvious death circumstances per Priority Medical Dispatch®**

ADULT CARDIAC ARREST

Current AHA guidelines reflect the importance of compressions for survival from cardiac arrest. EMS practice must evolve to address this important change.

- Compressions should begin as soon as possible following EMS arrival.
    - Rapid movement to the patient by providers is critical
    - Treating the patient where they are found allows compressions to be started without delay. Only provider safety issues should prompt patient movement.
- Compressions should be consistent with AHA guidelines.
    - No procedure should slow or stop compressions
        - Interruption for defibrillation should be minimal and compressions should resume AS SOON AS shock delivery is complete.
        - Frequently switch providers performing chest compressions to maintain peak performance.
- High Quality CPR
    - Mechanical chest compression device should be set to continuous
    - If mechanical chest compression device not utilized, crews should perform continuous compression PIT CREW HIGH PERFORMANCE CPR.
        - No pauses for ventilations
        - Ventilations on the upstroke of CPR
    - No procedure should slow or stop compressions
    - Interruption for defibrillation should be minimal and compressions should resume AS SOON AS shock delivery is complete.
    - Frequently switch providers performing chest compressions to maintain peak performance
    - For patient care and provider safety, the EMS medical directors advocate the use of an optional mechanical chest compression device.
- Compressions should be FAST, HARD, and DEEP at a rate of 100-120 compressions per minute and to a depth of at least 2 inches.
    - Faster or slower rates worsen patient outcome
    - Ensure complete recoil of the chest wall prior to the next compression
- Ventilations
    - Ventilate at 8-10 breaths per minute to decrease intra-thoracic pressure

- Ventilations should be just enough to see chest rise

- Complete a minimum of 6 minutes of compressions before moving patients off scene or initiating transport unless the use of a mechanical chest compression device has been established and is providing effective compressions.

  - Patient movement on stretchers prevents effective CPR

  - Effective CPR cannot be safely performed in a moving ambulance

- **For patient care and provider safety, the EMS medical directors advocate the use of an optional mechanical chest compression device.**

VENTRICULAR ASSIST DEVICE (VAD OR LVAD)

INDICATIONS: A ventricular assist device is a surgically implanted mechanical pump that is used to support blood flow and heart function in people who have weakened hearts. The device pumps blood from the lower chamber of the heart to the body and vital organs. This protocol applies to any medical emergency where the patient has one of these devices.

- Follow General Patient Care and Infection Control Protocols.
- The patient & family are trained on this device. Listen to and document their guidance.
- Listen to heart sounds. In a functioning device, you should hear a continuous whirling sound.
- Locate the device usually found at the patient's waist. Look at the controller and identify which device is being used. Contact the emergency number provided if your patient is unstable, alarms are activated, or the device is off.
- If patient has altered mental status, refer to the Altered Mental Status Protocol.
- Consider Respiratory Distress Protocol.
- Find their backup bag and keep it with the patient.
- Vitals
    - Pulse may not be palpable in these patients.
    - Manual blood pressure may not be obtainable. Utilize an automated cuff to determine blood pressure.
    - Pulse oximetry may not be accurate due to continuous flow from VAD.
- Refer to color code on the VAD to the color on the guidance chart.
- Consider closest appropriate VAD/LVAD facility within geographic operational area.

LVAD Guidance Chart

	Heart Mate II	HeartWare	Jarvik 2000 FlowMaker	HeartMate XVE	Thoratec PVAD/IVAD
Can I perform CPR?	Only if absolutely necessary	Yes, but risk of dislodging device is high	Yes	No	No
Is there a hand pump or external device?	No	No	No	Yes Pump @ 60-90 beats/minute	Yes Blue & Red bulbs
If the device slows down, will an alarm go off?	Yes: Audible & flashing light	Yes: Audible & Flashing light	Yes: Audible & solid red light	Yes: Audible & solid red light	Yes
Can I speed up the rate of the device?	No	No	Indicator dial	No	No
Can I use an AED?	Yes	Yes	Yes	No	Yes
Does the patient have a pulse with this device?	may be weak or non-palpable	No	Yes	Yes	Yes
What is an acceptable Mean arterial pressure?	70-90 mmHg	75-90 mmHg	65-75 mmHg	Normal BP 110/80 – 140/80	Normal BP readings
What color is the battery alarm?	Yellow to red	Solid yellow to flashing red	Battery light yellow to red	Solid yellow - Solid Red battery light	Blinking yellow light
What color is the low flow hazard alarm?	Red heart flashing	Yellow triangle flashing	Red Solid Red Stop Sign with bell on the interior	Solid Red Heart	Solid Red Light
Are there any transport limitations?	No	Ground transport only	No	10,000 feet elevation maximum	10,000 feet elevation maximum
How long do batteries last?	Black: 3 hours Gray: 8 -10 hours	4-6 hours Orange indicator light present on battery	10 hours	8 hours	2½ hours

Orange Dark Blue Purple Yellow Light Blue

PEDIATRIC CARDIAC ARREST

Current AHA guidelines reflect the importance of compressions for survival from cardiac arrest. EMS practice must evolve to address this important change.

- Compressions should begin as soon as possible following EMS arrival.
    - Rapid movement to the patient by providers is critical
    - Treating the patient where they are found allows compressions to be started without delay. Only provider safety issues should prompt patient movement.
- Compressions should be consistent with AHA guidelines.
    - No procedure should slow or stop compressions
        - Interruption for defibrillation should be minimal and compressions should resume AS SOON AS shock delivery is complete.
        - Frequently switch providers performing chest compressions to maintain peak performance.
- "Push fast": push at a rate of 100-120 compressions per minute
- "Push hard": push with sufficient force to depress at least one third the anterior posterior (AP) diameter of the chest
    - 1 ½ inches (4cm) in infants
    - 2 inches (5cm) in children
    - Faster or slower rates worsen patient outcome
    - Ensure complete recoil of the chest wall prior to the next compression
- **High-quality CPR**
    - Mechanical chest compression device should be set to continuous
    - If mechanical chest compression device not utilized , crews should perform continuous compression PIT CREW HIGH PERFORMANCE CPR.
        - No pauses for ventilations
        - Ventilations on the upstroke of CPR
    - No procedure should slow or stop compressions
    - Interruption for defibrillation should be minimal and compressions should resume AS SOON AS shock delivery is complete.
    - Frequently switch providers performing chest compressions to maintain peak performance

- For patient care and provider safety, the EMS medical directors advocate the use of an optional mechanical chest compression device.

- Ventilations
  - Ventilate at 8-10 breaths per minute to decrease intra-thoracic pressure
  - Ventilations should be just enough to see chest rise
  - Avoid excessive ventilation
- Complete a minimum of 6 minutes of compressions before moving patients off scene or initiating transport unless the use of a mechanical chest compression device has been established and is providing effective compressions.
  - Patient movement on stretchers prevents effective CPR
  - Effective CPR cannot be safely performed in a moving ambulance

GUIDELINES REGARDING DO NOT RESUSCITATE ORDERS

Living Will:*

- Living wills do not apply to out-of-hospital care.
- A living will has no impact on the decision of whether or not to initiate or continue resuscitative efforts or any other care.
- Contact medical control immediately for guidance.

Do Not Resuscitate Order (DNR):

- Contact medical control immediately for guidance.

Prehospital Advance Care Directive (PACD):

- Contact medical control immediately for guidance.

Medical Orders for Life-Sustaining Treatment (MOLST):

- Contact medical control immediately for guidance.

PEDIATRIC AND ADULT TRAUMA

INDICATIONS: This Trauma Protocol applies to patient with trauma injuries. It shall serve as the minimum care that should be rendered for a traumatic injury. Only lifesaving interventions should be performed on scene; after appropriate airway management, "Load and Go" treatment should be done.

- Utilize the General Patient Care-Adult, General Patient Care-Pediatric, and Infection Control Protocols

- Perform a rapid trauma exam. This should be done systematically from head to toe on all adults and significantly injured pediatric patients. For isolated injuries, a toe to head approach should be utilized in pediatric patients.

- Reference Trauma Decision Tree for hospital destination

- Patients with an immediate airway or significant hemorrhage should be transported to the closest facility for stabilization. Scene times should be kept to a maximum of 10 minutes unless extenuating circumstances exist. These shall be documented in the PCR.

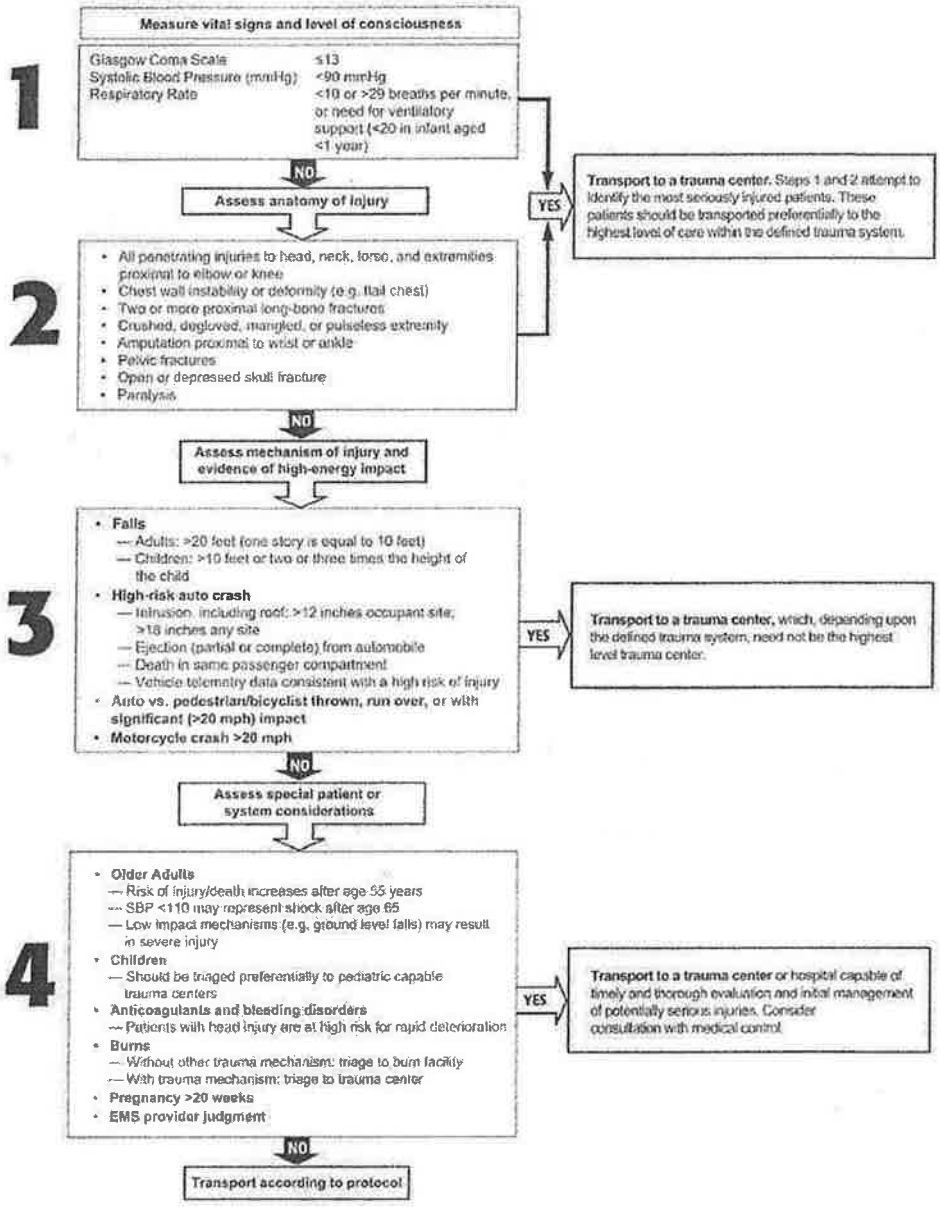
- Remove clothing as necessary and perform secondary assessment.

- Perform Ongoing Assessment

    - Every 5 minutes for Priority One patients

    - Every 15 minutes for Priority two or three patients

2011 Guidelines for Field Triage of Injured Patients



When in doubt, transport to a trauma center.

SPINAL TRAUMA

INDICATIONS: Patients with a decreased motor or sensory ability, numbness and tingling about their body following a traumatic injury, or an obvious head/neck/spinal injury as observed on a rapid trauma exam.

- Utilize the Pediatric and Adult Trauma Protocol.
- Spinal Immobilization should be done on the following patients in the presence of trauma:
  - Altered Mental status
    - Evidence of intoxication/ drug use
    - Found unresponsive in presence of trauma environment
  - Neurological Deficit
    - Decreased motor or sensory ability
    - Numbness or tingling about body following a traumatic injury
  - Obvious head/neck/spinal injury
    - Spinal pain, tenderness, or obvious deformity (step offs)
    - Bleeding from the ears following trauma
    - Battle's Signs, raccoon eyes
- Significant multi-system Trauma
- Presence of a distracting painful injury
- Use an appropriately sized Cervical Collar.*
  - Utilize rolled towels and tape if an appropriate size is not available.
- Maintain Airway while stabilizing C-spine.
  - If Airway cannot be maintained while stabilizing C-Spine; contact Medical Control immediately.
- Maintain C-spine immobilization.
- Pregnant patients: Tilt backboard to the left to remove pressure placed on the vena cava from the gravid uterus.
- Monitor pulse, motor, and sensory function in all extremities as part of the ongoing assessment.

- Mark level of sensory deficit gently on patient's skin w/ pen or tape to facilitate neurological monitoring

*Refer to the manufacturer's recommendations for proper use.

Note: *Penetrating trauma to the extremities or core (below the clavicles) without neurologic deficit does not require board or collar.*

Modifiers:

High risk: *Should be immobilized*
- *Age > 64 years*
- *Dangerous mechanism (fall > 5 stairs, axial load, high speed MVC with ejection and / or rollover)*
- *Motorized recreation vehicles*
- *Bicycle collision*

Low Risk: *May be cleared*
- *Simple low speed rear-end MVC without being pushed into oncoming traffic, without rollover, without being struck by a large vehicle or high speed vehicle*
- *Ambulatory at any time*

HEAD TRAUMA

INDICATIONS: Altered Mental Status, external bleeding from the head (nose, ears, mouth), Battle's Signs, raccoon eyes, crepitus of the head area, uneven pupils, fixed and dilated pupils, decerebrate posturing, decorticate posturing, signs or brain herniation (hypertension, bradycardia), seizures following a traumatic event, or obvious injury.

- Utilize the Pediatric and Adult Trauma Protocol.
- Maintain Airway and breathing.
- If signs of brain herniation are present (decerebrate/decorticate posturing, hypertension, bradycardia, decreased GCS), ventilate at 12-20 breaths/ minute.
- If no signs of herniation are present, ventilate at 10-12 breaths/minute.
- Obtain GCS
- Utilize Spinal Trauma Protocol
- Obtain blood glucose. See Altered Mental Status Protocol
- Assess neurological status every 5 minutes.

EPISTAXIS

INDICATIONS: Bleeding from the nose in a trauma or non-trauma setting. Patient history of blood thinning medication, recent surgery, or blunt force/penetrating trauma may require ALS intervention.

- Utilize Pediatric & Adult Trauma Protocol
- Place direct pressure on the nares with a gauze dressing
- Have patient tilt their head forward
- Utilize additional gauze if needed
- Utilize cold pack to bridge of nose if needed
- Contact ALS if bleeding cannot be controlled

EYE INJURIES

INDICATIONS: Injury to eye(s) or sudden vision impairment. Includes foreign body irritants, bright light exposure such as UV or welding, chemical irritation, dislodgement, or penetrating injury.

- Utilize Pediatric & Adult Trauma Protocol
- Penetrating Trauma:
  - Observe for bleeding and leakage of iris material or clear fluid
  - Do not palpate or apply pressure to the eye
  - Shield injured eye
  - Patch uninjured eye for adult patients only
  - Stabilize impaled object in place. DO NOT remove the object
  - Avoid unnecessary movement. Advise patient not to cough, sneeze, or move more than absolutely necessary.
- Dislodged Eye
  - Cover with cup and secure
- Ultraviolet light exposure (arc welder, sun lamp burn)
  - Place cool compresses lightly over both eye lids
  - Symptoms may be delayed 3-10 hours
- Sudden loss of vision
  - Visualize if each eye is intact
  - Assess for hemorrhage, lacerations, or contusions
  - Assess for leaking fluid
  - Assess Visual Acuity (ability to see light changes, hand motion, count fingers)
  - Assess for visible foreign bodies in the eye
  - Flush eye with Sterile Normal Saline to remove objects
  - Assess for ability to move eyes together
  - Lightly bandage both eyes
- Chemical Burn

- Irrigate eye with normal saline or water for 20 minutes
- If initiating transport will not interrupt eye irrigation, irrigate en route to the hospital
- Notify the hospital of the chemical involved

CHEST AND ABDOMINAL TRAUMA

INDICATIONS: Blunt or penetrating trauma to the chest area, paradoxical motion, sucking chest wound, air hunger/ respiratory distress in presence of chest trauma, altered mental status or signs of shock in presence of chest trauma.

- Utilize the Pediatric and Adult Trauma Protocol
- Request ALS
- Remove clothing from the chest and abdomen. Do not destroy evidence of impalements or gunshot wounds
- Chest Trauma
    - Stabilize flail segments
    - Seal any open chest wound by taping 3 sides with an occlusive dressing or a commercial device that is approved by the medical directors
    - Stabilize any impaled objects in place
    - Control external bleeding. See Bleeding/Shock Protocol
    - Continue to assess for changes (absent lung sounds, getting more difficult to BVM ventilate, tracheal deviation) and update ALS/hospital as needed
    - Traumatic chest pain is not cardiac chest pain. If the patient has a cardiac history, contact Medical Control before assisting with any Nitroglycerin. See Chest Pain Protocol
- Abdominal Trauma
    - Stabilize any impaled objects in place
    - Control external bleeding. See Bleeding/Shock Protocol.
    - Cover eviscerations with moist, sterile dressings.
    - Apply occlusive bandage over dressings.
    - Expedite transport if patient had blunt trauma, has rigid and tender abdomen, or is pregnant.

BLEEDING/SHOCK

INDICATIONS: Significant external hemorrhage, signs of internal bleeding, signs of shock, hypotension, altered mental status, cool clammy skin, delayed capillary refill.

- Utilize the Pediatric and Adult Trauma Protocol
- Consider C-spine immobilization. See Spinal Trauma Protocol
- External Hemorrhage:
    - Apply direct pressure to the wound.
    - If direct pressure is not adequate to control hemorrhage, a provider may use a tourniquet for hemorrhage in the extremities. Request ALS
    - For hemorrhage that cannot be controlled with the above, apply an approved hemostatic agent with direct pressure directly to the wound
    - Continue to apply gauze over the bandages of the wound with direct pressure. Do not remove the hemostatic agent
    - Contact medical control and provide pertinent information including hemostatic agent and tourniquet as appropriate
    - Keep the patient warm, prevent heat loss
    - If patient is hypotensive, lay them flat if possible. Consider elevating lower extremities
    - On arrival to health care facility, a report to the medical staff must include the type of bleeding, the methods used to control the bleeding, the hemostatic agent used, number of agent used, and if any dressings were lost en route. If a tourniquet was used; when was it applied, and if medical control requested an attempt to release the tourniquet, what occurred
- Internal Hemorrhage
    - Consider ALS for unstable vital signs
    - Keep the patient warm, prevent heat loss
    - If patient is hypotensive, lay them flat if possible. Consider elevating lower extremities
    - Rapid transport to the closest facility for stabilization
- Vaginal or Rectal Bleeding
    - Do not insert anything into the patient's body
    - Consider ALS for unstable vital signs

- Keep the patient warm, prevent heat loss
- Keep patient supine
  - Consider elevating lower extremities if the patient is hypotensive
  - Consider bending the patient's knees if abdominal pain accompanies the bleeding
- Utilize a pad to absorb bleeding and note how many were used.
- Rapid transport to the closest facility for stabilization.

- Anaphylaxis: See Allergic Reaction Protocol.

MUSCULOSKELETAL TRAUMA

INDICATIONS: Musculoskeletal and extremity injuries, pelvic injury, total or partial amputation, dislocations, instability, crepitus, pain, deformities, contusions, penetrations, and swelling.

- Utilize the Pediatric and Adult Trauma Protocol
- General Care
  - Treat all painful, swollen, or deformed areas as fractures
  - Evaluate Injury site(s)
  - Treat open wounds. See Bleeding/Shock Protocol
  - Determine patient priority
    - Stable= splint before leaving scene
    - Unstable= splint en route to the hospital
  - For hand injuries, remove rings if swelling is present
- Pelvic Injuries
  - Consider ALS
  - Splint with a circumferential device that has been approved by the Medical Directors
  - Immobilize on long backboard
  - If signs of shock are present, see Bleeding/Shock Protocol
- Extremity Injuries
  - Assess Pulse, motor and sensory function
  - Attempt to straighten severely angulated extremities by applying gentle, steady axial traction. **Stop if resistance is met.**
  - Apply splinting device as appropriate for the injury and situation. This includes traction devices.
  - Re-assess pulse, motor and sensory function
  - Elevate extremity
  - Apply a cold pack to the injury site
  - Consider ALS for pain management
- Amputation

- Control bleeding. See Bleeding/Shock Protocol
- Request ALS
- Do not place clamps on any exposed arteries or veins
- Wrap severed part in sterile gauze and place in a zip tight bag
- Place bag in ice water. Only use enough ice to keep water cold during transport. Do not pack the severed part in ice

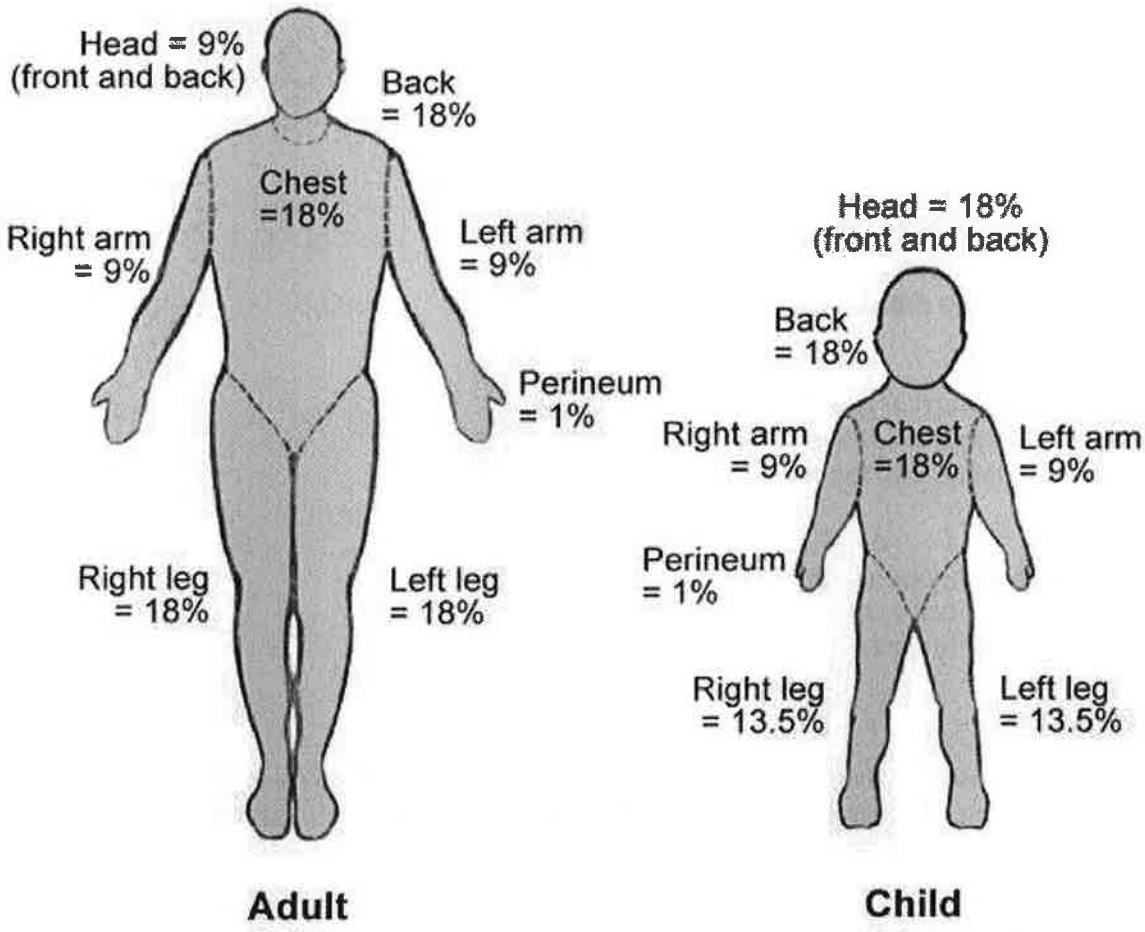
- Partial Amputations
  - Control bleeding. See Bleeding/Shock Protocol
  - Consider ALS
  - Splint injured area
  - Wrap ice pack in a towel and place on the injury site

BURNS

INDICATIONS: A patient who has been exposed to radiation, thermal, electrical, environmental, or chemical reactions that cause burns.

- Utilize the Pediatric and Adult Trauma Protocol.
- Stop the burning process, if safe to do so:
  - Decontaminate if chemical or radiological burn.
  - Ensure patient is not energized if electrical or lightning burn prior to entering the area.*
- If patient is in cardiac arrest, utilize cardiac arrest protocol.
- Request ALS if appropriate. Consider the need for pain management.
- Monitor for airway burns; if any of the following signs or symptoms are present, request ALS:
  - Singed facial or nasal hairs
  - Hoarse voice or stridor
  - Difficulty breathing
  - Carbonaceous sputum
  - Burns on face.
- Remove jewelry and clothing; completely expose burned area.
- Assess burn percentage using the "Rule of Nines"
- Bandage burned areas using clean, dry sheets.
- **Do NOT** pop/ lance any blisters that form.
- Cover the patient and provide for an appropriate warm environment to prevent heat loss.

*High voltage and lightning injuries may have internal injuries from blast effect. Utilize other appropriate trauma protocols as needed. Electrical injuries are often associated with falls and seizures. Note entrance or exit wounds for electrical and lightning injuries. Look for the appearance of feathering with any lightning injury.


Head = 9%
(front and back)
Back
= 18%
Chest
=18%
Right arm
= 9%
Left arm
= 9%
Perineum
= 1%
Right leg
= 18%
Left leg
= 18%
Adult
Head = 18%
(front and back)
Back
= 18%
Right arm
= 9%
Chest
=18%
Left arm
= 9%
Perineum
= 1%
Right leg
= 13.5%
Left leg
= 13.5%
Child

TRIAGE FOR MASS CASUALTY

If a victim appears to be a young adult, use START.
If a victim appears to be a child, use Jump START.

Simple Triage And Rapid Treatment (START)

Step 1:
Triage officer announces that all patients that can walk should get up and walk to a designated area for eventual secondary triage. All ambulatory patients are initially tagged as Green.

Step 2:
- Triage officer assesses patients in the order in which they are encountered
- Assess for presence or absence of spontaneous respirations
- If breathing, move to Step 3
- If apneic, open airway
- If patient remains apneic, tag as Black
- If patient starts breathing, tag as Red

Step 3:
- Assess respiratory rate
- If ≤30, proceed to Step 4
- If > 30, tag patient as Red

Step 4:
- Assess capillary refill
- If ≤ 2 seconds, move to Step 5
- If > 2 seconds, tag as Red

Step 5:
- Assess mental status
- If able to obey commands, tag as Yellow
- If unable to obey commands, tag as Red

Jump START
Step 1:
Identify and direct all ambulatory patients to designated Green area for secondary triage and treatment. Begin assessment of non-ambulatory patients as you come to them.

Step 2:
- If breathing spontaneously, go on to the next step, assessing respiratory rate.
- If apneic or with very irregular breathing, open the airway using standard positioning techniques.
- If positioning results in resumption of spontaneous respirations, tag the patient immediate and move on.

Step 3: Jump
If no breathing after airway opening, check for peripheral pulse. If no pulse, tag patient deceased/non-salvageable and move on.
If there is a peripheral pulse, give 5 mouth to barrier ventilations. If apnea persists, tag patient deceased/non-salvageable and move on.

- If breathing resumes after the "jumpstart", tag patient immediate and move on.

Step 4:
- If respiratory rate is 15-45/min, proceed to assess perfusion.
- If respiratory rate is <15 or >45/min or irregular, tag patient as immediate and move on.

Step 5:
- If peripheral pulse is palpable, proceed to assess mental status.
- If no peripheral pulse is present (in the least injured limb), tag patient immediate and move on.

Step 6:
- Use AVPU scale to assess mental status.
- If Alert, responsive to Verbal, or appropriately responsive to Pain, tag as delayed and move on.
- If inappropriately responsive to Pain or Unresponsive, tag as immediate and move on.

Modification for non-ambulatory children
- Infants who normally can't walk yet
- Children with developmental delay
- Children with acute injuries preventing them from walking *before* the incident
- Children with chronic disabilities

Step 7:
- Evaluate using the Jump START algorithm
- If any RED criteria, tag as RED.
- If pt. satisfies YELLOW criteria:
    - YELLOW if significant external signs of injury are found (i.e. deep penetrating wounds, severe bleeding, severe burns, amputations, distended tender abdomen)
    - GREEN if no significant external injury

Step 8:
Unless clearly suffering from injuries incompatible with life, victims tagged in the BLACK category should be reassessed once critical interventions have been completed for RED and YELLOW patients.

TASER PROBE REMOVAL

INDICATIONS: Patient with uncomplicated probes from a conducted electrical weapon (Taser®) embedded into non-sensitive areas of the skin.

CONTRAINDICATIONS:

Patients with probe penetration in vulnerable areas of the body (female breast, genitalia, or above the level of the clavicles) or suspicion that the probe is imbedded into bone, blood vessels, or other sensitive area; should be transported for evaluation and probe removal at the receiving medical facility.

- Utilize General Patient Care and Infection Control Protocol
- Ensure wires are disconnected from the weapon
- Stabilize skin around probe using non-dominant hand. Grasp the probe by metal body using your dominant hand. Remove probe in a single and quick motion
- Dispose of taser probe in sharps container
- Clean the wound with antiseptic wipe and apply an appropriate dressing

WATER RELATED EMERGENCIES

INDICATIONS: Victims of drowning or near drowning, history of diving or breathing compressed air. Symptoms include altered mental status, numbness, pain in extremities, joint pain, blurred vision, blood from nose ears and mouth, seizures, unresponsiveness.

- Utilize the Pediatric and Adult Trauma Protocol.
- Consider Spinal Trauma Protocol.
- Remove wet clothing. Keep patient warm and dry.
- Any near drowning patient should be transported for evaluation regardless of current assessment findings.
- Utilize Cardiac Arrest Protocol for drowning's.
- Initiate attempts at resuscitation.
- Be alert for vomiting. Have suction ready for use.
- If a Dive Emergency
    - Consider aviation for transport to hyperbaric chamber facility
    - Contact Divers Alert Network for guidance in emergencies 1-919-684-9111

BITES AND ENVENOMATION

INDICATIONS: Bite by a suspected poisonous snake or spider with puncture marks to the skin and accompanied by swelling, pain, warm skin around bite area. A rash, wound, oozing blood, evidence of infection, difficulty breathing, wheezing, shortness of breath, hives, itching, hypotension or other signs of shock may be present. Animal bites or human bites received where the skin is broken. Human bites to a provider should be treated as an infectious disease exposure.

- Utilize the General Patient Care and Infection Control Protocols.
- Utilize the Adult & Pediatric Trauma and Bleeding/Shock Protocols if appropriate.
- Consider use of the Allergic Reaction Protocol and Respiratory Distress Protocols.
- Request Animal Control if needed
- Obtain a description of the insect/animal in question
    - Picture or adequate description

  Do Not transport insect/animal in question with you to the hospital.

Venomous Bites

- Contact Medical Control
- Transport to closest facility for further evaluation
- Note the time, location size of bite/sting
- Mark the area of swelling lightly with a pen or marker to assist with ongoing evaluation
- Immobilize the area of injury at the level of the heart if possible. Remove any constricting clothing or jewelry near the bite area.
- **Do Not** use ice on the wound
- Place a constriction band proximal to the bite. The band should only restrict superficial venous and lymphatic flow while maintaining distal pulses and capillary refill. The band should be snug enough that 2 fingers still fit underneath the band.

HEAT EMERGENCIES

INDICATIONS: Exposure to high temperatures, hot skin, tachycardia, altered mental status, dizziness, nausea, headache, mild hypotension, weakness/fatigue, thirst, or muscle cramps. Consider patient's clothing or uniform in relation to ambient temperature.

- Utilize the General Patient Care and Infection Control Protocols
- Place patient in a cool environment
- Remove excess clothing
- Utilize the ambulance air conditioning in the patient compartment to keep ambient air temperature @ 70 ° F
- If skin is normal to the touch: apply cool compresses. Dampen towel and apply to the head & neck areas.

Heat Stroke

- Request ALS
- Treat as a life threatening emergency
- Fan the patient with cool mist if available
- Place ice packs in the armpit, groin, and neck areas
- Place cool wet sheet over the patient
- If patient begins to shiver, slow the cooling process

Heat Exhaustion

- Allow oral intake of cool fluids (water or sports drink only) if the patient is alert and oriented and without nausea or abdominal pain.

Heat Cramps

- Painful involuntary muscle spasms that commonly occur during heavy exercise in warm environments or prolonged exposure to hot environments without adequate fluid replenishment.
- Allow oral intake of cool fluids (water or sports drink only) if the patient is alert and oriented and without nausea or abdominal pain.
- Have patient gently stretch affected area if safe to do so.

COLD EMERGENCIES

INDICATIONS: Patient exposed to cold environmental conditions. This may be acute or over a period of time. Body temperature < 96.8° F (36° C), frostbite, submersion in cold water.

- Follow General Patient care & Infection Control Protocols
- Place patient in a warm environment
- Remove wet clothing and replace with warm blankets. Handle the patient gently and avoid excess movement. Utilize heat packs on the exterior of blankets in the neck, arm pit and groin areas
- **Do Not** place heat packs, hot water bottles, IV bags, or other heat-retaining devices directly on the patient's skin
- Utilize the ambulance heater in the patient compartment to keep ambient air temperature @ 76° F
- **Do Not** rely on pulse oximeter readings until the patient is warm
- Utilize cardiac arrest protocol if needed. Measure pulse for 60 seconds to determine if one is present when dealing with severe hypothermia.
- If patient is in cardiac arrest from drowning or hypothermia; do **not** perform active re-warming.

Frostbite

- Keep patient warm while exposing the affected part
- **Do Not** rub the affected part, permit the patient to use the affected part, puncture blisters, expose part to dry heat, or immerse part in hot water
- Remove jewelry if near the affected area
- Apply loose sterile dressing to the affected area

OBSTETRICS

INDICATIONS: Patients for whom delivery is imminent as evidenced by crowning, bloody show, breach or limb presentation. OB patients not to full gestation (40 weeks) should be transported to the closest appropriate facility.

- Utilize General Patient Care and Infection Control Protocols.
- Gather obstetrical history
  - number of times pregnant (gravida)
  - number of living children (para)
  - estimated due date
  - date since last menstrual period
  - measure fundal height to determine gestation and due date if date is not known
  - any known problems, # of children in current pregnancy (twins, triplets, etc.)
  - length of contraction, amount of time between contractions
- If delivery is not imminent, transport patient in a left lateral recumbent position to prevent undue pressure from being exerted on the lower vena cava by the gravid uterus.
- Remove clothing below the mother's waist; visualize perineum.
- Create a clean field for the delivery area utilizing OB kit.
- If patient is experiencing urge to push or to have a bowel movement, prepare to deliver.
- Assist with delivery.
- If complications arise, request ALS and contact medical control immediately.
- If meconium staining is present, request ALS.
- Suction mouth with bulb syringe then nose when head presents.
- **Do Not** pull on infant or put traction on umbilical cord. Guide & control the infant out.
- Maintain newborn's body temperature. If mother capable place infant skin to skin to preserve body temperature. Consider emergency blanket, silver swaddler, or other heat retaining device. If mother not capable of skin to skin contact the use of the above blankets to preserve warmth. Ensure the head is covered, but do not cover the newborn's face.
- Stimulate the infant to cry by rubbing the back; unless meconium was present.
- Dry the newborn with a clean towel.

- Clamp and the umbilical cord after newborn is dry; 6 inches away from the newborn's navel area and second clamp 2 inches farther. Cut cord between the clamps.

- Obtain APGAR scores at 1 minute and 5 minutes after delivery

- Monitor newborn's heart rate, respirations, and oxygen saturation. Consider blow-by oxygen 5-6LPM. Normal pulse is 120-160/minute and normal respiratory rate is 40-60/minute.

- If heart rate is <60 beats/ minute perform CPR; Request ALS

- If heart rate <100 beats per minute, gasping or apnea, provide BVM ventilation with oxygen at a rate of 30 breaths/minute; Request ALS.

- If heart rate <100 beats per minute and the newborn is cyanotic or has labored breathing, clear the airway, monitor oxygen saturation and provide blow by oxygen.*

- Re-assess newborn every 30 seconds for change in heart rate or respiratory status. If no change at 1 minute, provide BVM ventilation and request ALS.

- Obtain a blood glucose reading via heel stick from the newborn. If reading is less than 40mg/dl, request ALS for hypoglycemia.

- Transport to the hospital. Consider safe transport methods.

Treating the Mother after Delivery

- Place mother in a position of comfort following the delivery. Prepare for placenta.

- Apply direct pressure to any external bleeding only.

- If placenta delivers, place in a red bag, seal it, and keep it with the mother.

- Perform fundal massage if cramping or bleeding persists.

- Utilize bulky gauze dressing to absorb any bleeding. **Do not** insert these into the vagina or anus.

- If the mother's BP drops below 90mmHg systolic during the delivery, place her in a left lateral recumbent position if possible and re-assess BP.

Limb Presentation

- If a limb presents, treat as a life threatening emergency.

- Request ALS

- Place the mother in a knee to chest position on the stretcher

- Transport emergently to the hospital.

Breach Delivery

Deliver newborn as above with the following change: After chest has delivered, place a gloved hand in the vaginal opening to create an airway for the newborn, providing a V-shaped area around the infant's mouth. Ensure the cord is not wrapped around the newborn's head.

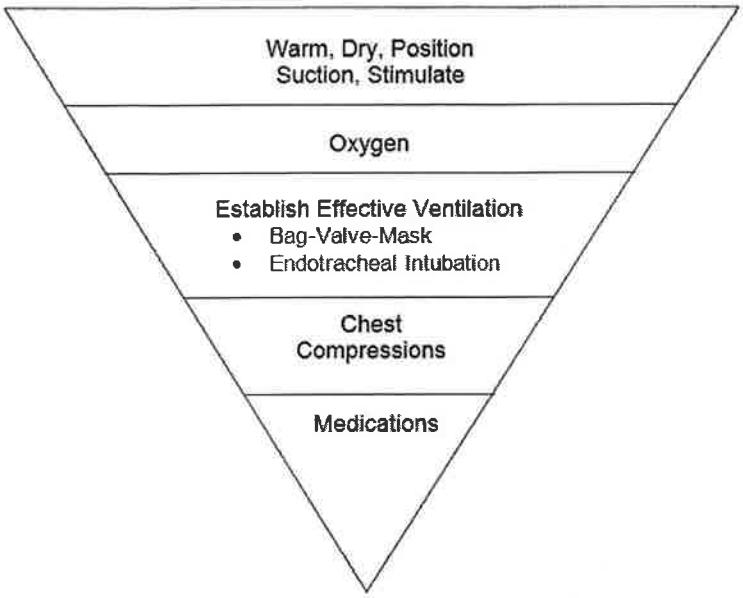
Cord Prolapse

- Place the mother in a knee to chest position on the stretcher.
- Keep cord moist with saline soaked gauze.
- Attempt to relieve pressure on the cord by gently lifting the presenting part off the cord.
- Ensure a pulse can still be felt in the cord.

Nuchal Cord

If the cord is around the newborn's neck, it must be released from the neck immediately. Slip cord over newborn's delivered head or shoulder. If unable to slip the cord free, clamp and cut the cord.

** It is normal for a newborn to have an oxygen saturation of 60-65% in the first minute of life; 65-70% in the second minute of life; the oxygen saturation at 5 minutes is 80-85%; at ten minutes oxygen saturation is 85-95%.*



APGAR SCORING SYSTEM

INDICATOR	0	1	2
HEART RATE	None apparent No pulse	Less than 100 beats per minute Sluggish	Strong heartbeat 100 beats per minute or better
RESPIRATORY RATE	No breaths taken No chest movement	Hyperventilation Cry is weak	Spirited cry Brisk movement
MUSCLE TONE	Limp arms and legs No movement	Extremities show some flexion and bending	Excellent flexion Energetic movement
REFLEX IRRITABILITY	No facial or verbal response to aspiration	Minimal motion Signs of grimace	Hearty cry
COLOR	Ashen or pale blue	Trunk pink, but extremities may be blue	Trunk and extremities are pink

PATIENT RESTRAINT

Patient care remains the primary responsibility of the EMS provider. The method of restraint shall not restrict the adequate monitoring of vital signs, ability to protect the patient's airway, compromise peripheral neurovascular status or otherwise prevent appropriate and necessary therapeutic measures. It is recognized that evaluation of many patient parameters requires patient cooperation and thus may be difficult or impossible.*

Soft restraints are to be used only when necessary in situations where the patient is potentially violent and may be of danger to themselves or others. Patients who have clinical capacity retain a right to refuse transport. Soft restraints are padded or leather wrist or ankle straps. Plastic ties, ropes, and handcuffs are not considered soft restraints. EMS providers must remember that aggressive violent behavior may be a symptom of medical conditions such as but not limited to:

- Head trauma
- Alcohol/drug related problems
- Metabolic disorders (i.e., hypoglycemia, hypoxia, etc.)
- Psychiatric/stress related disorders

- All restraints should have the ability to be quickly released, if necessary in an emergency.
- Any patient in handcuffs shall be considered in police custody and require police presence to maintain custody of that individual. It is medically acceptable to have a police officer follow a restrained patient's ambulance to the hospital in their police vehicle, as long as they maintain a position and contact with the transporting ambulance that will allow the officer to quickly release any restraining device that requires a key or special releasing device that they have applied in the event of a sudden deterioration in a restrained patient's condition.
- Patients should be transported in the supine position to ensure adequate respiratory and circulatory monitoring and management.
- The prone position should be a position of last resort and rarely used. This position carries a higher risk of patient injury or death.
- All restrained patients should be placed on a stretcher with adequate foam padding particularly underneath the head. Extremity restraints should be secured to the stationary portion of the stretcher frame.
- Stretcher straps should still be placed on all patients as these are similar to seatbelts during transport.
- Restraints that use multiple knots or that may restrict chest wall motion are unacceptable.
- Restrained extremities should be monitored for color, sensory and motor function, pulse

quality, and capillary refill at the time of application and at least every 15 minutes thereafter. The patient's respiratory status and pulse oximetry should be monitored during transport.

- Consider requesting ALS.
- Restraint documentation on the EMS PCR shall include:
    - Reason for restraint
    - Agency responsible for restraint application (i.e., EMS, Police)
    - Documentation of vital signs, pulse ox, capillary refill and peripheral neurovascular status (motor/sensory).
- Medical control must be contacted if a patient is deemed too violent or uncooperative to be safely transported using the restraint methods and devices permitted by their prehospital protocols.

*This policy is not intended for the Interfacility transport of medically cleared involuntarily committed psychiatric patients.

FIRE GROUND REHABILITATION

INDICATIONS: 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. This protocol shall be used in a rehabilitation area/sector or during medical monitoring of personnel at an incident scene.

- Utilize the General Patient Care, Non-Invasive Gas Monitoring, and Infection Control Protocols.

- Consider use of the Trauma and Burns Protocols.

- The primary responsibility of EMS personnel during Rehab is to provide medical monitoring, remediation of hypothermia/hyperthermia and emergency medical care.

- EMS Personnel, once assigned, should remain committed to the rehabilitation section. This may change pending an unforeseen MCI situation.

- 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 State of Delaware BLS protocol.

- 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.

- 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.).

Equipment

- Rehab should have the necessary EMS equipment/supplies to accommodate the nature/size of the operation. Suggested minimum equipment available should include:
  - Standard BLS equipment, including; stethoscope, sphygmomanometer, thermometer (electronic, digital, non-tympanic), hot/cold packs, oxygen, bandages, dressings, AED, pulse oximeter, and CO co-oximeter (RAD57 if available).
  - Clipboards, personnel accountability/log in sheets, tags, or other appropriate accountability and/or documentation forms.
  - If indicated by risk of incident, at least one ambulance (with staff) available to transport patients from the Rehab area.

Medical monitoring

- 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.

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

- 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).

- 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.

- 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.

- All vital signs and Rehab assessments should be documented on an approved form (see example at end of this protocol). EMS services may choose to use a log, tag, or as appropriate. An EMS PCR must be completed as required (e.g., for every patient transported by ambulance and every patient refusing medical treatment or transport).

Suggested Vital Signs Parameters:

	Pulse	Respiration	Blood Pressure	Oral Temp	Oxygen Saturation (SpO2) (Optional)	Carbon Monoxide Saturation (SpCO%) (optional)
Normal	>60 or <100	>12 or <20	Systolic' < 150 Diastolic: < 90	<99.5F <37.5°C	>95%	Non-smoker < 5% Smoker: < 10%
Abnormal	>100	<12 or > 20	Systolic: <90 or >150 Diastolic >90	>99.5°F >37.5°C	<95%	>12% (w/assoc. signs & symptoms of CO poisoning)

Pre-Event Planning

- Fire Services are encouraged to maintain a listing of active personnel along with at rest baseline vital signs for those members in a secure location. This information is considered protected health information and must be stored in accordance with HIPAA.

- Baseline Vitals should be made accessible to the EMS Provider in charge of the Rehab area.

Rehab Area Logistics

- The Rehab Area should be established with a consideration for the optimal flow of personnel. It should be in an area away from media personnel, environmental hazards, smoke/exhaust, and any other hazards associated with the scene.

Rehab Operations

- 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).

- 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.

- EMS personnel providing Rehab may facilitate the following:

    - Crew rest; all personnel should remain in Rehab for at least 20 minutes; Ideally, Rehab should contain adequate seating so personnel can rest comfortably.

    - 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

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

Rehab Specific Equipment

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

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

    - 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).

    - Potable water, electrolyte replacement solutions.

    - Calorie/carbohydrate replacement snacks.

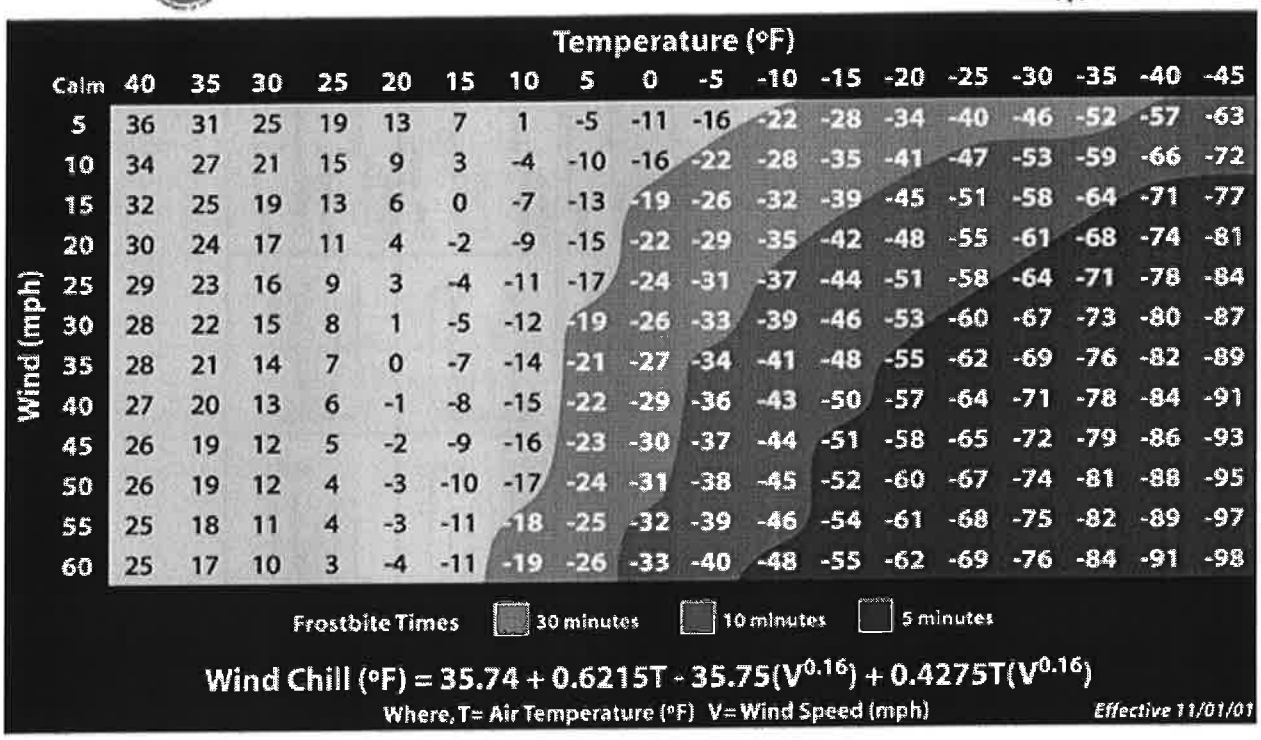
    - Broth, soup, or other more significant nourishment for prolonged incidents.

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

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.

NWS Windchill Chart



Wind (mph) \ Temperature (°F)	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Calm																		
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

Fire Ground/Incident Rehabilitation Form

Incident_____ Date _____ Sheet #_____

NAME	FC#	VITALS 1 Time_____	VITALS 2 Time ___	VITALS 3 Time_ ___	VITALS 4 Time_ ___	VITALS 5 Time_____	DISPOSITION
		B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO___ _%	Return to Fire Ground Transport to Hospital_____ Time_____
		B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P___ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	Return to Fire Ground_____ Transport to Hospital_____ Time_ _____
		B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO _____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_ R_____ O2 Sat_____% CO_____%	Return to Fire Ground_____ Transport to Hospital_____ Time_____
		B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/_ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	Return to Fire Ground_____ Transport to Hospital_____ Time_____
		B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/_ P_____ R_____ O2 Sat_____% CO_____%	B/P ___/___ P_____ R_____ O2 Sat_____% CO_ ___%	Return to Fire Ground_____ Transport to Hospital _____ Time_____

NON-EMERGENCY INTERFACILITY TRANSPORT

INDICATIONS: To provide emergency medical services safely and without delay to the patients requiring transfer from one medical facility to another medical facility, for patients being discharged from a medical facility to a home residence, patients that are direct admissions to the hospital that bypass the Emergency Department, or for patients being transported to and from a routine medical appointment.

These protocols are not intended to indemnify the medical sender or receiving facilities from their obligations under the EMTALA statutes.

This protocol is only intended for use for patients that otherwise meet basic life support transport criteria. Transport personnel are not authorized and **will not** provide services beyond their scope of care. Should services beyond scope be required, a person qualified in its performance shall accompany the patient during transport.

Providers dispatched for a non-emergency transport that encounter a patient experiencing an acute emergency are responsible for providing patient care or transferring the patient to a higher level provider, if needed, and transporting the patient to an emergency department.

Temporary intravenous medications like antibiotics, intravenous drip medication that require frequent monitoring and maintenance, or intravenous pumps that are not part of the patient's long-term care plan are **excluded** from this protocol. **These excluded medications require advanced personnel for transport.**

- BLS personnel may transport patients who meet the criteria of this protocol.

- Non-emergency Interfacility transports shall not compromise the local 911/EMS resources of the community. It is the responsibility of the ambulance service to determine whether adequate resources are available to maintain appropriate EMS coverage to their community before committing to such transport.

- All Interfacility transports will be documented using the approved prehospital EMS PCR.

Intravenous Fluid Transport

- All patients with an established intravenous (IV) access.

- The destination facility shall be an inpatient facility no more than 60 minutes from the facility of origin if IV fluids are hanging. If a saline/heplock is in place, time constraints do not apply *

- Patients with IV fluids shall have only standard IV fluids (normal saline, ½ normal saline, ringers lactate, or dextrose 5% and water) hanging at the time of transport. The fluids will be set at a Keep Vein Open (KVO) rate by the sending facility and will not have medications or supplements added to the fluid.

- All fluids shall have at least 500 cc remaining in the bag at the onset of transport.*

- The EMT shall not alter the flow rate of the IV fluids unless it is to shut them off in the

event of an emergency. IV fluids need to be shut down for the following reasons:

- Swelling, redness, or increased pain at the site of the IV insertion.
- Fluids in the bag have emptied.
- The IV catheter is inadvertently dislodged from the site.

- Paramedic intervention considered if the patient's condition deteriorates en route as evidenced by unstable vital signs, change in mental status or onset respiratory distress, chest pain, or neurological changes. The EMT is encouraged to contact medical control any time questions or concerns arise.

**The goal is to not have the bag of IV fluids empty prior.to arrival at the destination facility. In the event this happens, the IV will be shut off for the remainder of the transport.*

Definitions:

Pumps used by home-bound patients are considered patient administered medication. Home-bound is defined as a residence, rehabilitation unit, or nursing home. These patients may be transported providing the EMT does not have to manipulate or operate the pump and the administration route is through an intravenous line or parenteral nutrition line. If a malfunction arises with the pump or administration line, unplug the pump, turn the power off, and contact medical control.

Interfacility transport of patients on medication must be accompanied by an ALS provider (Paramedic, RN, RRT, NP, PA, or MD). This does not apply to home-bound patients receiving patient or family administered medication through an IV or parenteral nutrition line.

Implanted/ Invasive Device List

AICD (Automatic Internal Cardiac Defibrillator): approved for transport only and may not be manipulated by BLS personnel.

Chest Tube: approved for transport only and may not be manipulated by EMS personnel. If tube is accidently dislodged, cover wound with occlusive dressing taped on three sides, monitor for development of pneumothorax and contact medical control.

Completely Implantable Venous Access Port (Porta-cath, PICC): Used for infusion or long-term medication therapy (antibiotic, chemotherapy, etc.). These may not be accessed by EMT's. Transport of patients receiving medication requires ALS to accompany the patient.

Epidural Catheters: are approved for transport only and may not be manipulated by EMS personnel. If it dislodges apply sterile pressure dressing contact medical control.

Foley Catheter: are approved for transport only and may not be manipulated by EMS personnel. If the catheter dislodges contact medical control.

Gastrointestinal Tubes: Approved for transport only and may not be manipulated by EMS personnel. If it dislodges, apply dressing over the site and contact medical control.

Implantable Central Venous Catheters (Hickman, Broviac): These are surgically implanted for patients requiring long term venous access for meds or dialysis. These may have more than one lumen.

- EMT's may transport IV fluids in place only (no medications).

KVO rate: 1 drop per minute.

Percutaneous Drainage Tubes or Surgical Drains (Vacuum Drains): are approved for transport only and may not be manipulated by EMS personnel. If it dislodges, apply dressing over the site and contact medical control.

Peritoneal Dialysis Catheters: approved for transport only. If it dislodges, apply sterile pressure dressing and contact medical control.

Ventricular Assist Device (VAD, LVAD): are approved for transport and may not be manipulated by EMS personnel except in the event of a device failure. EMS providers should be briefed on the procedures of the specific device before transporting. Request ALS in the event of a device failure and contact the emergency number listed on the device. Follow guidance given and contact medical control.

Ventilators: Mechanical ventilation is a method to mechanically assist or replace spontaneous breathing. A vent patient is anyone who is dependent on a ventilator to sustain life.

- A vent dependent patient must have someone trained in the operation of the ventilator in use, who is also familiar with the monitoring and management of a patient with ventilator failure. This person may be an ALS provider (Paramedic, RN, NP, RRT, PA, MD) or a family member that has been trained on the device. BLS services are encouraged to check with their insurance agent before providing a transport with a family member in the patient compartment of the ambulance.

- Medical control shall be contacted and ALS intervention considered if the patient's condition deteriorates during transport. Deterioration is evidenced by unstable vital signs, change in mental status, or onset of respiratory distress, chest pain, or neurologic changes.

HAZARDOUS MATERIALS

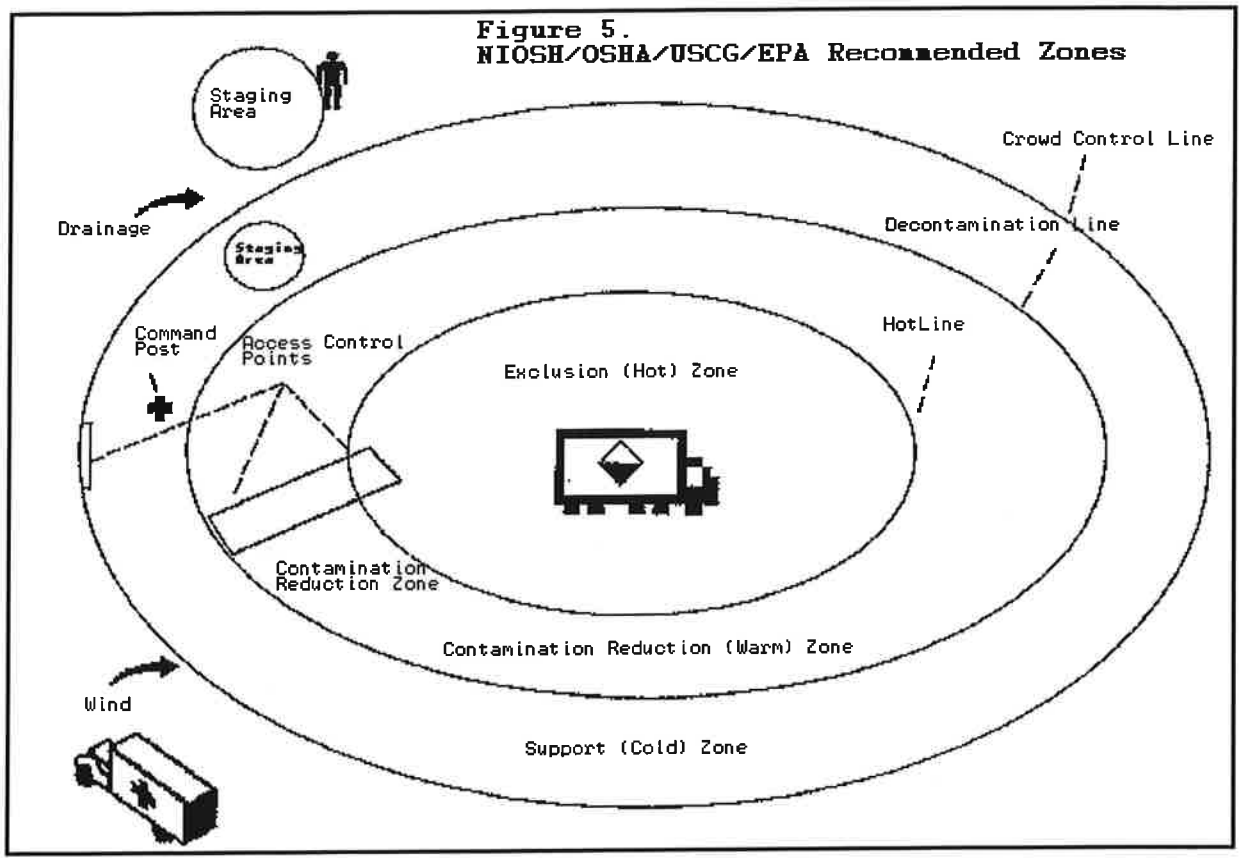
INDICATIONS: Dispatch to a known hazardous materials incident or findings of hazardous materials upon arrival. These include Biological, Nuclear, Incendiary, Chemical, Radiologic, or Explosive materials.

- Utilize General Patient Care and Infection Control Protocols.
- If an active Terroristic event is discovered, contact dispatch and report findings. This may include a description of the actor(s), vehicle(s) used, or weapon(s) involved.
- If signs of planning a terroristic event are discovered, contact the anti-terrorism line.

1-800-FORCE-12
(1-800-367-2312)

- Approach scene cautiously from an upwind, uphill, upstream position.
- Position vehicle well away from the incident, facing away from the scene.
- Declare a SERT response is needed to the Incident Commander.
- Secure scene and prohibit anyone else from entering.
- Determine the name of the hazardous material.
    - This may be obtained from ERG book utilizing placards in place on the container or vehicle.
    - If no placards are present or are visible, consult shipping papers. The shipping papers are often kept with the person operating the vehicle/ship/airplane/train.
    - If these are not accessible, contact CHEMTREC® at 1-800-424-9300.
    - If a military vehicle, contact the Department of Defense's Defense Logistics Agency at 1-800-851-8061.
- Advise Medical Control of the material involved and ERG Book Guidance; follow direction for treatment provided by Medical Control. Utilize appropriate protocol.
- Prepare ambulance for transport as directed by DNREC & Decontamination team. This may include draping the interior with plastic and removing all non-essential supplies/equipment from the ambulance.
- The HAZMAT Decontamination team & fire department are responsible for initial decontamination and patient packaging. Don appropriate PPE as directed by DNREC or the Incident Commander.
- Notify the receiving facility. Provide relevant information and ask where they would like you to park. **DO NOT** transport the patient directly to the Emergency Department (ED) Ambulance Entrance, unless advised to do so by the receiving facility.
- After transferring the patient to ED staff, return to the ambulance. The ambulance shall remain out of service until properly decontaminated. Contact Incident Command for direction.

- Crew members may need to be decontaminated prior to returning to duty depending on the hazardous material involved.



ORGANOPHOSPHATE POISONING/ NERVE AGENTS

INDICATIONS: Individuals exposed to suspected nerve agents or organophosphates that exhibit signs of SLUDGEM or DUMBBELS. Common names for nerve agents include Tabun (GA), Sarin (GB), and Soman (GD), GF and VX. Included in the organophosphate group are disulfoton, phorate, dimethoate, ciodrin, dichlorvos, dioxathion, ruelene, carbophenothion, supona, TEPP, EPN, HETP, parathion, malathion, ronnel, coumaphos, diazinon, trichlorfon, paraoxon, potasan, dimefox, mipafox, schradan, sevin, chlorpyrifos and dimeton.

S	Salivation	**D**	Diarrhea
L	Lacrimation	**U**	Urination
U	Urination	**M**	Miosis
D	Defecation (diarrhea)	**B**	Bronchospasm
G	Gastric emptying (vomiting)	**B**	Bradycardia
E	Emesis	**E**	Emesis
M	Miosis	**L**	Lacrimation
		S	Salivation

- Ensure proper decontamination has occurred. Remove patient's clothing. Be cautious of any off-gassing of chemical from under the clothing that may occur in this process.
- Administer Duo Dote Auto-Injector Intra-Muscular
- For Severe Symptoms (unresponsiveness, seizure, severe respiratory distress) administer 3 Duo Dote Auto-Injector Intra-Muscular

Hydrocarbon Exposure

Indications: Anyone doused in gasoline, diesel fuel, kerosene, paint thinner, or other ignitable liquid. These chemicals are absorbed through the skin and harm the liver. The largest hazard is fire.

- Decontaminate the patient. Remove contaminated clothing. In stable patients consider scrubbing skin with soap and water.
- Consider utilizing a hazardous materials decontamination unit.
- Notify the receiving hospital of the exposure and request direction on their decontamination area prior to entering the hospital.

Biological Agents

- Ensure all providers wear N95 masks to protect from inhalation exposure.
- Refer to Medical Control for guidance.

APPENDIX A

EMT PHARMACOLOGY INFORMATION

ANAPHYLACTIC PRECAUTIONS

Anaphylaxis:
A generalized reaction occurring with dramatic suddenness (usually within a few minutes) after a patient has been exposed to some foreign material.

Cause:
Any drug has the potential to precipitate anaphylaxis. Generally those administered intravenously or parenterally are more likely to result in life-threatening or fatal anaphylaxis than those ingested or applied to the skin or mucous membranes.

Clinical features:
The patient with anaphylaxis may develop laryngeal edema and bronchospasm which cause respiratory distress and anoxia. The sooner the symptoms develop after the initiating stimulus the more intense the reaction. The symptoms include the following: generalized flush, urticaria, pruritus, anxiety, dyspnea, wheezing, choking, orthopnea, vomiting, cyanosis, paresthesia, shock, and loss of consciousness. Anoxia, shock, and death may occur within 5-10 minutes.

Prevention:
Know the patient's allergy history by asking the patient or family before giving a new medication.
Know the precautions listed for each drug.

Treatment:
See Allergic Reaction protocol.

INTRAVENOUS INFILTRATION PRECAUTIONS

Before transporting any patient with an intravenous (IV) access catheter with a solution running, the EMT must check the IV site for patency and signs of infiltration and/or phlebitis. If infiltration occurs, stop the IV fluid do not remove the IV device. Contact the medical control physician immediately for orders.

Factors that increase the risk of infiltration:

- Sclerotic vascular disease
- Venous obstruction in the arm (check for edema)
- Radiation treatment near the site of injection
- High drug concentration
- Limited choice for vein selection

- Multiple venipunctures
- Elderly or debilitated
- Superior vena cava syndrome
- Specific characteristics of the drug
- Uncooperative/irrational individual

Symptoms of an infiltration:

If pain, burning or stinging occurs at the injection site, evaluate the site for swelling, redness, and inflammation. The presence of a blood return or absence of edema does not negate the possibility of the infusate being spread outside the vein to surrounding tissue. Drug leakage may occur at the site of a previous vessel injury while the needle/catheter is still in the vein.

ALBUTEROL SULFATE /IPRATROPIUM BROMIDE (COMBIVENT)

Pharmacology:

- Combination of ipratropium (an anticholinergic bronchodilator) and Albuterol (a beta-2 adrenergic bronchodilator)
- Ipratropium antagonizes the actions of the neurotransmitter acetylcholine, especially at the muscarinic receptor sites in bronchial smooth muscle
- Albuterol stimulates beta-2 adrenergic receptors of the bronchioles

Pharmacokinetics:

- Bronchodilation
- Onset of action approximately 15 minutes
- Peak effect attained within 1 hour
- Duration of action 4- 5 hours

Indications:

- To reverse bronchospasm (wheezing)

Adverse Effects:

- Tachycardia, palpitations, peripheral vasodilation, tremor, headache and nervousness may be seen infrequently

Precautions:

- Paradoxical bronchospasm often with firsts use of new canister
- Use with caution in patients with cardiovascular disease

Contraindications:

- Known hypersensitivity

Dosage:

- **Adults:** 2 puffs by metered dose inhaler

ALBUTEROL SULFATE PROVENTIL, VENTOLIN, AEROLIN, VENTORUN, ASTHAUN, ProAIR)

Pharmacology:

- Synthetic sympathomimetic amine (a type of stimulant)
- Stimulates beta-2 adrenergic receptors of the bronchioles
- Little effect on blood pressure
- Little cardiac effects
- Main effect is bronchodilation
- It may cause some vasodilation as evidenced by headache or flushing

Pharmacokinetics:

- Bronchodilation begins within 5 to 15 minutes after inhalation
- Peak effect occurs in 30 minutes to 2 hours
- Duration of action is usually 3-4 hours

Indications:

- To reverse bronchospasm (wheezing)

Adverse Effects:

- Tachycardia, palpitations, peripheral vasodilation, cough, headache, dizziness, tremor, and nervousness may be seen infrequently

Precautions:

- Bronchospasm may worsen in rare situations due to patient tolerance or hypersensitivity
- If respirations worsen, discontinue use.
- Should be used with caution in patients with hyperthyroidism or coronary artery disease

Contraindications:

- Known hypersensitivity

Dosage:

- **Adults:** 2.5- 5.0 mg by nebulized aerosol or 2 puffs by metered dose inhaler.
- **Children:** Age 8 or older: 2.5 - 5.0 mg by nebulized aerosol or 2 puffs by metered dose inhaler. Ages 2 to 8: 2.5 mg by nebulized aerosol or 2 puffs by metered dose inhaler.

ASPIRIN

Pharmacology:

- Inhibits platelet aggregation and prostaglandin synthesis

Pharmacokinetics:

- Inhibits platelet aggregation by irreversibly inhibiting prostaglandin cycle-oxygenase for the life of the platelet
- This prevents the formation of the platelet aggregating factor thromboxane A2.
- Onset of action is 1-2 hours
- Duration of action is 6 hours

Indications:

- Acute coronary syndrome- acute myocardial infarction, angina pectoris

Adverse Effects:

- Adverse reactions may include anaphylaxis, bronchospasm, dysrhythmias, hypotension, tachycardia, agitation, cerebral edema, intracranial hemorrhage, dehydration, hyperkalemia and renal failure.

Precautions:

- By inhibiting platelet function, aspirin may lead to an increase in bleeding for patients with bleeding disorders

Contraindications:

- Known allergy to aspirin or non-steroidal, anti-inflammatory drugs (NSAIDS) (i.e. Motrin, Aleve, Ibuprofen, etc.)
- Active GI ulcerations or bleeding, hemophilia or other bleeding disorders
- Pregnancy
- Children under 2 years of age

Dosage:

- Up to 325 mg uncoated PO even if the patient is pain-free

How supplied:

- Aspirin: chewable - 81 mg / tablet or Aspirin - 325 mg / tablet

DUODOTE

Pharmacology:

- Duo Dote is an auto injector that provides a single intramuscular dose of atropine and pralidoxime chloride. It is used as a self-administered therapy for symptomatic exposure to anticholinergic nerve agents and organophosphate pesticides.

Pharmacokinetics Atropine:

- Competitively blocks the effects of acetylcholine at muscarinic receptors on smooth muscle, cardiac muscle and secretory gland cells

Pharmacokinetics Pralidoxime:

- Reactivates acetylcholinesterase which has been inactivated by phosphorylation due to some organophosphorus nerve agents or pesticides.
- Does not reactivate phosphorylated acetylcholinesterase that has undergone the aging process

Indications:

- Poisoning by organophosphorus nerve agents and pesticides

Adverse Effects:

- Temporary headache caused by pralidoxime

Precautions:

- Pralidoxime is excreted in the urine – impaired renal function may result in higher blood levels

Contraindications:

- None in the presence of life-threatening organophosphorus poisoning

Dosage:

- Moderate symptoms: Administer 1 Duo Dote IM
- Severe symptoms: Administer 3 Duo Dotes IM

How supplied:

Auto-injector containing 2.1 mg. of Atropine Sulfate and 600 mg. of Pralidoxime Chloride

EPINEPHRINE

Pharmacology:

The administration of epinephrine causes increases in:

- Systemic vascular resistance
- Systemic arterial pressure
- Heart rate
- Contractile state
- Myocardial oxygen requirement
- Cardiac automaticity

Pharmacokinetics:

- Intravenously administered epinephrine has an extremely rapid onset of action
- Is rapidly inactivated by the liver.
- Subcutaneous administration of epinephrine results in slower absorption due to local vasoconstriction.
- Local massage will hasten absorption

Indications:

- Epinephrine selectively improves regional blood flow to the heart and brain
- The primary drug for the treatment of cardiac arrest
- Intravenous epinephrine may also be given to patients suffering true anaphylactic shock with impending cardiac arrest
- Patients suffering from severe allergic reactions may be given subcutaneous epinephrine
- Intravenous epinephrine may be an extremely dangerous drug when given intravenously to a person with normal circulatory status
- Its use should be reserved for cardiac arrest or for impending cardiac arrest due to anaphylactic shock

Precautions:

- Do not mix with sodium bicarbonate as this inactivates epinephrine
- Epinephrine causes a dramatic increase in myocardial oxygen consumption
- Its use in the setting of an acute MI should be restricted to cardiac arrest

Side Effects:

- The individual may complain of increased heart rate, pale skin (pallor), dizziness, chest pain, headache, nausea, vomiting, excitability and anxiousness after administration of epinephrine

Dosage:

Anaphylactic shock:

- **Adults-0.5** mg(O.S ml of 1:1000 solution) subcutaneously (EpiPen)
- **Children-0.01** mg/kg(maximum 0.3 mg) subcutaneously (EpiPen Jr)

GLUCOSE, ORAL (Insta-Glucose, Glutose)

Pharmacology:

- Carbohydrate gel

Pharmacokinetics Atropine:

- Provides source of carbohydrate for cellular metabolism

Indications:

- Altered mental status with a history of medication controlled diabetes
- Hypoglycemia

Adverse Effects:

- Transient increase in blood glucose level

Precautions:

- Patient must be able to maintain the patency of their own airway and effectively swallow the medication

Contraindications:

- Unresponsive patient
- Inability to swallow

Dosage:

- 1 tube =15 - 24 grams of glucose

How supplied:

- Carbohydrate gel
- Tube contains 15-24 grams of glucose (note; check tube labeling for exact amount, may vary slightly between manufacturers)

HEMOSTATIC AGENT

Indications:

- An agent used to reduce bleeding from minute vessels by hastening the clotting of blood or by the formation of an artificial clot.

Usage:

- Life-threatening bleeding may need to apply tourniquets and pressure points to slow such bleeding enough to apply the agent. Once you slow the high-pressure blood loss, you must still get the agent into contact or close proximity to the source of the bleeding. Some hemostatic agents, such as bandages and sponges, may prove difficult to insert deeply enough to contact the affected artery or organ. Once applied, most hemostatic agents require you to maintain direct pressure on the wound for 2-5 minutes, giving the agent the opportunity to work.

How supplied:

- For use in Delaware, the hemostatic agent must include the composition of X-ray detectable, granular beads of clotting agent contained in a porous mesh netting resembling a sponge/bandage.

Adverse Effects:

- CELOX: Individuals allergic to shellfish might risk an allergic reaction to chitosan based ChitoGauze.

- QuikClot: If incorrectly applied, the zeolite can quickly reach an extremely high temperature, causing burns and tissue damage.

LEVALBUTEROL (XOPENEX, LEVOLIN)

Pharmacology:

- Beta adrenergic receptor agonist
- Stimulates beta-2 adrenergic receptors of the bronchioles

Pharmacokinetics:

- Bronchodilation begins within 5 to 15 minutes after inhalation
- Peak effect occurs in 30 minutes to 2 hours
- Duration of action is usually 3-5 hours

Indications:

- To reverse bronchospasm (wheezing)

Adverse Effects:

- Tachycardia, palpitations, peripheral vasodilation, tremor, headache, dizziness, and nervousness may be seen infrequently

Precautions:

- Bronchospasm may worsen in rare situations due to patient tolerance or hypersensitivity
- If respirations worsen, discontinue use.

Contraindications:

- Known hypersensitivity

Dosage

- **Adults:** 0.63 = 1.25 mg by nebulized aerosol
- **Children:** Age 6- 11 years: 0.31 mg by nebulized aerosol

NALOXONE (NARCAN®)

Description:

- Naloxone is an opioid antagonist.

Pharmacology:

- Naloxone is a competitive narcotic antagonist, which reverses all effects of opioids (i.e. morphine), such as respiratory depression and central and peripheral nervous system effects.

Indications:

- Naloxone is indicated to reverse respiratory and central nervous system depression induced by opioids.

Onset/Duration:

- The onset of action is within a few minutes following an intravenous dose, whereas intramuscular and endotracheal/intranasal administration results in a slower onset of action. The duration of action is approximately 30-60 minutes.

Contraindications:

- Naloxone is contraindicated in hypersensitivity.

Warnings:

- Naloxone may induce opiate withdrawal in patients who are physically dependent. Certain drugs such as propoxyphene (Darvon) may require much higher doses of naloxone for reversal than we currently carry.

Drug Interactions:

- Naloxone is incompatible with bisulfate and alkaline solutions.

Adverse Reactions:

- Adverse reactions may include tachycardia, hypotension, dysrhythmias, nausea, vomiting, and diaphoresis.

Dosage and Routes of Administration:

- 1 mg intranasal (IN). Repeat 1mg IN in opposite nare if no respiratory status change after 2 minutes.

- For pediatric patients, contact medical control before administration for guidance on dose.

Storage:

- Store at 20-25 °C (68-77° F). Protect from light.

NITROGLYCERINE

Pharmacology:

- Vasodilator-effect on veins more than arteries

Pharmacokinetics Nitro paste:

- Absorbed through the skin
- For antianginal effects the onset is 30 minutes, while duration is 3 hours
- For vasodilation the onset is within 1 hour and duration is 3 to 6 hours.
- Half-life is 1-4 minutes.

Pharmacokinetics Nitro tabs and Nitro Spray:

- Absorbed through oral mucosa
- Antianginal and vasodilation effects within minutes
- Duration of action is less than 5 minutes

Indications:

- For treatment of angina
- Congestive heart failure
- Not to be used for asymptomatic hypertension

Adverse Effects:

- Dose-related
- Headache, hypotension, and dizziness

Precautions:

- May cause hypotension

Contraindications:

- Known hypersensitivity

Dosage:

- One-half to one inch every 6-8 hours
- 0.4 mg sublingual every 5 minutes
- DO NOT USE IN CHILDREN

How supplied:

- Nitrol ointment 2%
- Tablets 0.4 mg

OXYGEN

Pharmacology:

- Elevates oxygen tension in the blood
- Increases oxygen content of the blood
- Improves tissue oxygenation

Pharmacokinetics:

- Changing the percentage of inspired oxygen will result in blood and tissue equilibration within 5 to 20 minutes.

Indications:

- Acute chest pain
- Suspected hypoxemia of any etiology

  Cardiopulmonary arrest
- Trauma

Precautions:

- The main precaution is not administering enough oxygen to patients who need it. Never withhold oxygen from those in obvious need.
- Oxygen should be given with caution to patients with emphysema

Appendix B

Recommended Abbreviation List for Delaware EMS Reports

A

@	=	at
AAA	=	abdominal aortic aneurysm
ABC	=	airway, breathing, circulation
ABD	=	abdomen
AC	=	antecubital
ACLS	=	advanced cardiac life support
A&D	=	admission and discharge
AED	=	automatic external defibrillator
A-fib	=	atrial fibrillation
AIDS	=	acquired immune deficiency syndrome
ALS	=	advanced medical life support
AKA	=	above the knee amputation
AMA	=	against medical advice
AMI	=	acute myocardial infarction
AMT	=	amount
AOS	=	arrived on scene
APAP	=	acetaminophen
APGAR	=	infant assessment scale (appearance, pulse, grimace, activity, respirations)
APPROX	=	approximately
ASA	=	aspirin
ASHD	=	arteriosclerotic heart disease

B

BB	=	backboard
BBB	=	bundle branch block
BBS	=	bilateral breath sounds
BG	=	blood glucose
Bilat	=	bilateral
BKA	=	below knee amputation
BLS	=	basic life support
BM	=	bowel movement
BP	=	blood pressure
BVM	=	bag valve mask

C

C	=	Celsius
CA	=	cancer
CABG	=	coronary artery bypass graft
CAD	=	coronary artery disease
CAO	=	conscious alert and oriented
CAOx3	=	conscious alert and oriented to person place and time
CAOx4	=	conscious alert and oriented to person place time and events
Cath	=	catheterization
CC	=	chief complaint
CCU	=	coronary care unit
CHF	=	cardiac heart failure
CNS	=	central nervous system
CO	=	carbon monoxide

C/O	=	complains of
CO2	=	carbon dioxide
COD	=	cause of death
COPD	=	chronic obstructive pulmonary edema
CP	=	chest pain
CPR	=	cardio pulmonary resuscitation
CQI	=	continuous quality improvement
CT scan	=	computerized axial tomography
CVA	=	cerebral vascular accident
D		
DA	=	drug abuse
D/C	=	discontinue
DC	=	discharge
DCAP-BTLS	=	deformities, contusion, abrasions/avulsions, punctures/penetrations, burns, tenderness, lacerations, swelling
dL	=	deciliter
DNR	=	do not resuscitate
DOA	=	dead on arrival
DOS	=	dead on scene
DT's	=	delirium tremens
DVT	=	deep vein thrombosis
D5W	=	dextrose 5% in water
DX	=	diagnosis
E		
ECG	=	echocardiogram
EEG	=	electroencephalogram
EENT	=	ears, eyes, nose, throat
EJ	=	external jugular
EKG	=	electrocardiogram
EMS	=	emergency medical services
EMT	=	emergency medical technician
EOA	=	esophageal obturator airway
EPS	=	extra pyramidal symptoms
ETA	=	estimated time of arrival
ETOH	=	ethyl alcohol
ET	=	endotracheal tube
EXT	=	external
EXTS	=	extension
F		
f	=	female
F	=	Fahrenheit
FB	=	foreign body
FOB	=	foreign object/body
FLEX	=	flexion
FROM	=	full range of motion
FX	=	fracture
G		
g	=	grams
GCS	=	Glasgow coma scale
GI	=	gastrointestinal
GOA	=	gone on arrival
GSW	=	gunshot wound
gtts	=	drops
GU	=	genitourinary
GYN	=	gynecology
H		

H/A	=	headache
HEENT	=	head, eyes, ears, nose, throat
Hg	=	mercury
HIV	=	human immune deficiency virus
HR	=	heart rate
HTN	=	hypertension
Hx	=	history
hyper	=	above or high
hypo	=	below or low
I		
ICF	=	intracellular fluid
ICP	=	intracranial pressure
ICS	=	intercostal space
ICU	=	intensive care unit
IM	=	intramuscular
IO	=	Intraosseous
IV	=	intravenous
IVP	=	intravenous push
IVPB	=	intravenous piggy back
J		
J	=	joules
JVD	=	jugular vein distension
K		
Kg	=	kilogram
KO	=	keep open
KVO	=	keep volume open
L		
L	=	left
L&D	=	labor and delivery
LAT	=	lateral
LBBB	=	left bundle branch block
lb	=	pound
lbs	=	pounds
LLQ	=	left lower quadrant
LMP	=	last menstrual period
LOC	=	loss of consciousness
LR	=	lactated ringers
L-Spine	=	lumbar spine
LSB	=	long spine board
LUQ	=	left upper quadrant
LVAD	=	left ventricular assist device
M		
m	=	male
MAE	=	moves all extremities
MAST	=	military anti-shock trousers
mcg	=	microgram
MCI	=	mass casualty incident
MDI	=	metered dose inhaler
ME	=	medical examiner
mEq	=	milliequivalent
MED	=	mediation
mg	=	milligram
MICU	=	medical intensive care unit
MI	=	myocardial infarction
MOI	=	mechanism of injury
MRI	=	magnetic resonance imaging

MS	=	multiple sclerosis
MSO4	=	morphine sulfate
MVA	=	motor vehicle accident
N		
NaCl	=	sodium chloride
NAD	=	no acute distress
NC	=	nasal cannula
NEB	=	nebulizer
NKA	=	no known allergies
NKDA	=	no known drug allergies
NPA	=	nasopharyngeal airway
NRM	=	non-rebreather mask
NS	=	normal saline
NSR	=	normal sinus rhythm
NT	=	non-tender
NTG	=	nitroglycerine
N/V	=	nausea and vomiting
N/V/D	=	nausea, vomiting, and diarrhea
O		
O2	=	oxygen
O2Sat	=	oxygen saturation by pulse oximeter
OB	=	obstetrics
OD	=	overdose
OPA	=	oropharyngeal airway
OPQRST	=	onset, provocation/palliation, quality, radiation, severity, time
OTC	=	over the counter
(OU)	=	both eyes
P		
P	=	pulse
PAC	=	premature atrial contraction
PALP	=	palpation
PALS	=	pediatric advanced life support
PASG	=	pneumatic anti-shock garment
PCN	=	penicillin
P.E.	=	pulmonary embolism
PE	=	pulmonary edema
PEA	=	pulse-less electrical activity
PEEP	=	positive end expiratory pressure
PEARL	=	pupils equal and reactive to light
PJC	=	premature junctional contraction
PMHx	=	past medical history
PO	=	oral
POV	=	privately owned vehicle
PRN	=	as needed
PSVT	=	paroxysmal supraventricular tachycardia
PT	=	patient
PTA	=	prior to arrival
PVC	=	premature ventricular contraction
Q		
q	=	every
QAM	=	every morning
qd	=	every day
qh	=	every hour
q2h	=	every 2 hours (change # based on hours; ex: q4h=every 4 hours)
QHS	=	every night at bedtime
qid	=	four times a day

qod	=	every other day
R		
R	=	right
R/O	=	rule out
ROM	=	range of motion
RLQ	=	right lower quadrant
RUQ	=	right upper quadrant
Rx	=	prescription therapy
S		
s	=	without
SaO2	=	systemic arterial oxygen saturation (%)
SIDS	=	sudden infant death syndrome
SL	=	sublingual
SOB	=	shortness of breath
SPO2	=	oxygen saturation by pulse oximeter
SQ	=	subcutaneous
SR	=	sinus rhythm
ST	=	sinus tachycardia
STAT	=	at once
START	=	simple triage & rapid treatment
STD	=	sexually transmitted disease
SVT	=	supraventricular tachycardia
SZ	=	seizure
SX	=	symptom
T		
T	=	Temperature
TCP	=	transcutaneous pacing
TIA	=	transient ischemic attack
TKO	=	to keep open
Tx	=	treatment
U		
UOA	=	upon our arrival
URI	=	upper respiratory infection
UTI	=	urinary tract infection
UTL	=	unable to locate
V		
v-fib	=	ventricular fibrillation
VS	=	vital signs
VT	=	ventricular tachycardia
W		
W&D	=	warm and dry
WNL	=	within normal limits
WPW	=	Wolfe Parkinson White syndrome
X		
None		
Y		
YO	=	years old
YOA	=	years of age
YTD	=	year to date
Z		
None		

Symbols

Ψ	psychiatric
Δ	change

<	Less than
>	Greater than
=	equal
~	Approximately
+	Positive
-	Negative
?	Questionable

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