



Arkansas Department of Health
Section of EMS

BASIC LIFE SUPPORT PROTOCOLS

October 2012

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

The Section of EMS Emergency Medical Services will use these protocols as the “model” for BLS care in the State of Arkansas. Procedures outside the limits of these protocols must be approved by the EMS service medical director and can only be performed by the EMT when providing care with that EMS service.

While local medical control may limit the services provided by pre-hospital care providers, they MAY NOT authorize EMTs (all levels) to exceed the general scope of practice outlined in these protocols. These protocols present a general guide and are not intended to be a step-by-step approach to patient treatment. Common sense and good judgment will, in some instances, require slight deviation from these protocols. In specific instances, and based on the patient presentation and radio report, on-line medical control may order treatment modifications provided such treatment is consistent with the scope of training.

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If you have any questions concerning these protocols or any other EMS issues, please contact the Section of EMS at 501-661-2262.

Sample Protocols

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

UNIVERSAL PRECAUTIONS

Criteria:

- A.** These guidelines should be used whenever contact with patient body substances is anticipated and/or when cleaning areas or equipment contaminated with blood or other body fluids.
- B.** Your patients may have communicable diseases without you knowing it; therefore, these guidelines should be followed for care of all patients.

System Requirements:

- A.** These guidelines provide general information related to body substance isolation and the use of universal precautions. These guidelines are not designed to supersede an EMS agency's infection control policy, but this general information may augment the agency's policy.
- B.** These guidelines do not comprehensively cover all possible situations, and EMS practitioner judgment should be used when the EMS agency's infection control policy does not provide specific direction.

Procedure:

A. All patients:

1. Wear gloves on all calls where contact with blood or body fluid (including wound drainage, urine, vomit, feces, diarrhea, saliva, nasal discharge) is anticipated or when handling items or equipment that may be contaminated with blood or other body fluids.
2. Wash your hands often and after every call. Wash hands even after using gloves:
 - a. Use hot water with soap and wash for 15 seconds before rinsing and drying.
 - b. If water is not available, use alcohol or a hand-cleaning germicide.
3. Keep all open cuts and abrasions covered with adhesive bandages that repel liquids. (e.g. cover with commercial occlusive dressings or medical gloves)
4. Use goggles or glasses when spraying or splashing of body fluids is possible. (e.g. spitting or arterial bleed). As soon as possible, the EMS practitioner should wash face, neck and any other body surfaces exposed or potentially exposed to splashed body fluids.
5. If an EMS practitioner has an exposure to blood or body fluids, the practitioner must follow the agency's infection control policy and the incident must be immediately reported to the agency infection control officer as required. EMS practitioners who have had an exposure should be evaluated as soon as possible, since antiviral prophylactic treatment that decreases the chance of HIV infection must be initiated within hours to be most effective. In most cases, it is best to be evaluated at a medical facility, preferably the facility that treated the patient (donor of the blood or body fluids), as soon as possible after the exposure.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

7. Preventing exposure to respiratory diseases:
 - a. Respiratory precautions should be used when caring for any patient with a known or suspected infectious disease that is transmitted by respiratory droplets. e.g. tuberculosis, influenza, or SARS)
 - b. HEPA mask (N-95 or better), gowns, goggles and gloves should be worn during patient contact.
 - c. A mask should be placed upon the patient if his/her respiratory condition permits.
 - d. Notify receiving facility of patient's condition so appropriate isolation room can be prepared.

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

9. Place all disposable equipment and contaminated trash in a clearly marked plastic red Biohazard bag and dispose of appropriately.
 - a. Contaminated uniforms and clothing should be removed, placed in an appropriately marked red Biohazard bag and laundered / decontaminated.
 - b. All needles and sharps must be disposed of in a sharps receptacle unit and disposed of appropriately.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

SCENE SAFETY- GUIDELINES

This guideline applies to every EMS response, particularly if dispatch information or initial scene size-up suggests:

1. Violent patient or bystanders
2. Weapons involved
3. Industrial accident or MVA with potential hazardous materials
4. Patient(s) contaminated with chemicals

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

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

Procedure:

A. If violence or weapons are anticipated:

1. EMS providers should wait for law enforcement officers to secure scene before entry.
2. Avoid entering the scene alone.

B. If violence is encountered or threatened, retreat to a safe place if possible and awaits law enforcement. **MVAs, Industrial Accidents, Hazardous Materials situations:**

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

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

101

RESPIRATORY DISTRESS/FAILURE

NOTE: All patients who are in respiratory arrest must have ventilatory assistance unless a valid Arkansas Prehospital DNR Order and/or Form is presented to the crew.

1. Monitor the airway.
2. If an obstructed airway is suspected, see **Protocol #102**
3. Administer oxygen.
4. For patients over one (1) year of age who are experiencing exacerbation of asthma or wheezing, see **protocol #108**
5. Do **NOT** permit physical activity.
6. Request Advanced Life Support assistance if necessary and coordinate and intercept. Do not delay transport waiting for Advanced Life Support assistance
7. Monitor breathing for adequacy.

NOTE: Monitor breathing continuously. Be alert for signs of hypoxia and/or increasing respiratory distress.

8. Place the patient in a Fowler's, semi-Fowler's position, or in a position of comfort.
9. Transport.
10. For the patient with signs of on-going hypoxia, inability to adequately protect their airway, and/or exhibiting signs of inadequate respiration, assisted ventilations may be required. This should be done utilizing the following method:
 - a. Bag-Valve-Mask and reservoir with flow set at 10-15 liters/minute.

NOTE: Do not use a demand valve resuscitator due to the possibility of causing severe, life-threatening complications

11. Transport to the nearest most appropriate facility.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

102

OBSTRUCTED AIRWAY

1. If the patient is conscious and **can breathe**, cough, speak, or cry:
 - a. Encourage coughing.
2. If the patient is unconscious or **cannot breathe**, cough, speak, or cry:
 - a. Perform obstructed airway clearing maneuvers.
 - b. Request Advanced Life Support assistance if available.
3. Transport and consider ALS intercept.
4. Continue obstructed airway maneuvers enroute to the hospital until the foreign body is dislodged.

NOTE: **The patient must be taken to the hospital for evaluation even if the airway is cleared.**

5. If airway obstruction is relieved:
 - a. Monitor the airway.
 - b. Begin Basic Cardiac Life Support procedures, if appropriate. (See Protocol #103)
 - c. Administer oxygen.
 - d. Monitor breathing for adequacy.
 - e. Continue transport to the nearest most appropriate facility.

NON-TRAUMATIC CARDIAC ARREST

Follow the Most Recent American Heart Association Guidelines

1. Begin Basic Cardiac Life Support procedures.
2. Request Advanced Life Support assistance if available..
3. Apply an automated external defibrillator:
 - a. If EMS witnessed arrests, perform CPR until defibrillator is attached.
 - b. In arrests not witnessed by EMS, perform two (2) minutes of CPR prior to defibrillator use.
NOTE: If an AED utilizing VF waveform analysis is available, perform CPR until the defibrillator is attached for all arrests.
 - c. If pediatric patient, under 9 years of age, see Protocol #153
4. Analyze (do not perform CPR while the machine is analyzing).
 - Whenever the “NO SHOCK INDICATED” message appears, CPR should be performed for 2 minutes followed by the next analysis.
5. After a total of three (3) cycles of CPR and analysis, continue CPR.
6. Transport. During transport, or if transport is delayed, continue CPR, re-analyze every 2 minutes, and shock as indicated.

Special Considerations When Using an AED

- If present, remove Nitroglycerin patch and wipe off remaining paste; avoid contact with your skin.
- Prior to pad placement, the chest should be as dry as possible
- Attach automated external defibrillator pads
- If the patient has a pacemaker, position the pads at least one (1) inch away from the pacemaker device.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

104

SUSPECTED MYOCARDIAL INFARCTION

NOTE: Acute coronary syndrome is a term used for any condition brought on by sudden reduced blood flow to the heart.

1. Monitor the airway.
2. Administer oxygen.
3. Do **not** permit physical activity.
4. Request Advanced Life Support assistance if available. Do NOT delay transport and consider ALS intercept
5. Monitor breathing for adequacy.
6. Place patient in a position of comfort.
7. If the patient is 33 years of age or older, or a patient of any age who has a cardiac history, administer two (2) Chewable Aspirins, totaling 162 mg, by mouth, unless the patient has a known Aspirin allergy or hypersensitivity.
8. If chest pain is still present, assist the patient with self-administration of the patient's own previously prescribed Nitroglycerin, if available. One tablet or spray may be taken provided that the patient's **systolic** pressure is at least 120 mm Hg. Repeat at 3 to 5 minute intervals, to a maximum of 3 tablets, if discomfort is not relieved and the systolic BP is >100mmHg.
 - Obtain order from medical direction either on-line or off-line.
 - Take blood pressure – if systolic BP is >100mmHg. Continue with care.
 - Assure right medication, right patient, right route, and patient alert.
 - Check expiration date of nitroglycerin.
 - Question patient on last dose administration, effects, and assures understanding of route of administration.
 - Ask patient to lift tongue and place tablet or spray dose under tongue (while wearing gloves) or have patient place tablet or spray under tongue.
 - Have patient keep mouth closed with tablet under tongue (without swallowing) until dissolved and absorbed.
 - Recheck blood pressure within 2 minutes.

NOTE: Unless otherwise directed by On-Line Medical Control, patients who have used erectile dysfunction medications in the previous 72 hours shall not be given Nitroglycerin.

9. Transport to the nearest most appropriate facility.

OXYGEN ADMINISTRATION

A. Patients presenting with the following conditions:

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

B. All patients:

1. Apply oxygen:
 - 1) Patients who require high concentration oxygen per specific protocols should receive oxygen via non-rebreather mask¹, except:
 - 2) If patient will not tolerate oxygen mask, use a nasal cannula at 4-6 (lpm).
 - b. Administer oxygen by nasal cannula if high concentration oxygen is not required.
 - 1) If pulse oximetry available, may administer oxygen by nasal cannula if needed to attain SpO₂ ≥94%. See Pulse Oximetry Protocol #106. Note- this does not apply to patients with suspected carbon monoxide or cyanide exposure. These patients should receive 100% O₂ via NRB mask.
2. Be prepared to assist ventilations as necessary. If ventilation is required, high concentration oxygen should be given by the ventilatory device.
3. Patients who normally receive oxygen as part of their usual medical care should be kept on their prescribed rate, unless presenting with one of the criteria listed above.

PULSE OXIMETRY

- A.** Patient with shortness of breath or respiratory distress.
- B.** Patient with chronic lung disease (COPD, emphysema) who are receiving oxygen therapy.
- C.** Any patient requiring oxygen therapy as determined by other appropriate Statewide BLS medical treatment protocols.

Exclusion Criteria:

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

System Requirements:

- A.** BLS services may carry a pulse oximeter for use by appropriately trained EMTs.
 - 1. An agency medical director and appropriate provider education must be completed before the service is permitted to carry a pulse oximeter.
- B.** EMTs may provide optional pulse oximetry monitoring if the EMT has completed training in the use of the pulse oximeter, is approved by the EMS agency medical director, and is functioning with a BLS service that is approved to carry a pulse oximeter.

Procedure:

A. All patients requiring oxygen therapy

- 1. Administer oxygen as determined by appropriate medical treatment protocol.
 - a. Providing oxygen therapy, patient extrication, and on-scene time should never be delayed while obtaining an O₂ saturation reading.
- 2. Monitor O₂ saturation (SpO₂) with pulsoximeter
 - a. Assure that reading is accurate. Patient's pulse should correlate with waves or pulsations on pulsoximeter.
 - b. Possible causes of inability to obtain as accurate SpO₂ reading include:
 - 1) Peripheral vasoconstriction (cold extremities, smoking, chronic hypoxia, or vascular obstruction/deficit).
 - 2) Severe anemia (low hemoglobin).

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

- 3) Hypovolemia.
 - 4) Dirty Fingers or dark/metallic nail polish.
 - 5) Methemoglobinemia.
 - 6) Carbon monoxide – **Do not apply pulse oximeter to patient with suspected carbon monoxide poisoning.**
4. Use of SpO₂ reading to alter oxygen dosage:
- a. The following patients should receive high-flow oxygen at all times when possible:
 - 1) Patients with symptoms or signs of severe respiratory distress (air hunger, cyanosis, chest wall/subcostal retractions, etc.)
 - 2) Patients with suspected carbon monoxide poisoning.
 - 3) Patients with respiratory distress who are being prepared for air medical transport.
 - b. Other patients (particularly patients with chronic lung disease or patients who do not tolerate an oxygen mask) may have oxygen mask replaced by nasal cannula or nasal cannula oxygen dose decreased if:
 - 1) SpO₂ reading remains ≥94% on lower oxygen dose.
 - 2) Patient's color is good (not cyanotic).
 - 3) Patient's respiratory distress does not worsen.
5. Document initial SpO₂ reading after beginning oxygen therapy, and document SpO₂ reading after any changes in oxygen dose or type of delivery system/mask.

Notes:

1. Low oxygen in the blood (hypoxia) is sometimes needed as a stimulus to breathing in some patients with chronic lung diseases like COPD or emphysema. Pulse oximetry may be helpful in assuring that these patients are receiving adequate oxygen without suppressing their drive to breath with high-flow oxygen. **Note: Patients in significant respiratory distress should receive high-flow oxygen even if they have a history of chronic lung disease.**
2. Pulse oximetry readings can be falsely high in carbon monoxide poisoning, and it would not be appropriate to decrease oxygen therapy based upon pulse oximetry. For this reason, pulse oximetry should not be used in these patients.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

107

PERSCRIBED INHALER ADMINISTRATION

1. Obtain order from medical direction either on-line or off-line.
2. Assure right medication, right patient, right route, right dose, and patient alert enough to use inhaler.
3. Check the expiration date of the inhaler.
4. Check to see if the patient has already taken any doses.
5. Assure the inhaler is at room temperature or warmer.
6. Shake the inhaler vigorously several times.
7. Remove oxygen adjunct from patient.
8. Have the patient exhale deeply.
9. Have the patient put his lips around the opening of the inhaler.
10. Have the patient depress the handheld inhaler as he begins to inhale deeply.
11. Instruct the patient to hold their breath for as long as he/she comfortably can (so medication can be absorbed).
12. Replace oxygen on patient.
13. Allow patient to breathe a few times and repeat second dose per medical direction. If patient has a spacer device for use with their inhaler, it should be used.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

108

WHEEZING

For patients over one (1) year of age who are experiencing exacerbation of asthma or wheezing

1. Assess the airway
2. Administer oxygen
3. Monitor breathing

NOTE: If patient exhibits signs of imminent respiratory failure, refer to **Protocol #101 – Adult Respiratory Distress/Failure** or **Protocol #150 – Pediatric Respiratory Distress/Failure**.

4. Do not permit physical activity
5. Place the patient in a Fowler's or Semi-Fowler's position
6. Assess the following prior to administration of the first nebulized treatment:
 - Vital signs
 - Patient's ability to speak in complete sentences
 - Accessory muscle use
7. Administer Albuterol Sulfate 0.083%, one (1) unit dose or 3 cc via nebulizer at a flow rate that will deliver the solution over 5 minutes to 15 minutes. Do not delay transport to complete medication administration.
8. Begin transport to the nearest most appropriate facility.

NOTE: For patients in severe respiratory distress, call for advanced life support assistance. Do not delay transport.

9. If symptoms persist, Albuterol Sulfate 0.083% may be repeated twice for a total of three (3) doses, with the third occurring during transport or Patient has a prescribed inhaler available.
 - Consult medical direction
 - Facilitate administration of inhaler; see Prescribed Inhaler, Administration See **Protocol 108**
10. If the patient is having severe respiratory distress or shock and is under 33 years of age, administer Epinephrine (**one dose only**) via an auto-injector. **Only after contacting online Medical Control**

NOTE: Patients 9 years of age and older or weighing more than 30 kg (66 lbs) use adult Epinephrine auto-injector (0.3 mg); patients younger than 9 years of age or weighing less than 30 kg (66 lbs) use pediatric Epinephrine auto-injector (0.15 mg).

11. Contact On-Line Medical Control for authorization to administer a second dose of Epinephrine via an auto-injector.
12. Upon completion of patient treatment reassess the patient. **See Step # 6.**

NOTE: Medical control must be contacted for any patient refusing medical assistance or transport.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

109

ANAPHYLACTIC REACTION

Anaphylaxis can be a potentially life threatening situation most often associated with a history of exposure to an inciting agent / allergen (bee sting or other insect venom, medications/drugs, or foods such as peanuts, seafood, etc.). The presence of respiratory distress (upper airway obstruction [stridor], severe bronchospasm [wheezing]) and/or cardiovascular collapse/hypotensive shock characterize the clinical findings that authorize and require treatment according to this protocol.

Patients 9 years of age and older or weighing more than 30 kg (66 lbs) use adult Epi-auto injector (0.3 mg); patients younger than 9 years of age or weighing less than 30 kg (66 lbs) use pediatric Epi-auto injector (0.15 mg).

1. Determine that the patient's history includes a history of anaphylaxis, severe allergic reaction and/or recent exposure to an allergen or inciting agent.
2. Request Advanced Life Support assistance, if available. Do NOT delay transport.
3. Administer high concentration oxygen.
4. Assess the cardiac and respiratory status of the patient.
 - a. If both the cardiac and respiratory status of the patient are normal, initiate transport.
 - b. If either the cardiac or respiratory status of the patient is **abnormal**, proceed as follows:
 - i. If the patient is having severe respiratory distress or shock administer Epinephrine via an auto-injector.
 - ii. Contact On-Line Medical Control for authorization to administer a second dose of Epinephrine via an auto-injector if needed.
 - iv. Refer immediately to the Prehospital Treatment Protocol for Respiratory Distress/Failure (**Protocol #101**), Obstructed Airway (**Protocol #102**), or Shock (**Protocol #115**) as appropriate.
5. If cardiac arrest occurs, refer immediately to the Prehospital Treatment Protocol for Non-Traumatic Cardiac Arrest (**Protocol #103**).

ALTERED MENTAL STATUS/DIABETIC EMERGENCIES

NOTE: Emotionally disturbed patients must be presumed to have an underlying medical or traumatic condition causing an altered mental status.

Assess such patients for an underlying medical or traumatic condition causing an altered mental status and treat as necessary.

1. Assess the situation for potential or actual danger

NOTE: All suicidal or violent threats or gestures must be taken seriously.

2. If an underlying medical or traumatic condition causing an altered mental status is not apparent; the patient is fully conscious, alert, and able to communicate; and an emotional disturbance is suspected, see **Protocol #130**
3. Monitor the airway.
4. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
5. Administer oxygen.
6. Obtain blood sugar reading
 - Normal Ranges
 - Child 60-100mg/dl
 - Adult 70-105mg/dl
7. If a low blood sugar level is noted and the patient is conscious, is able to swallow, and is able to drink without assistance, administer glucose orally.

NOTE: Do not give oral solutions to unconscious or patients with head injuries.

7. Request Advanced Life Support assistance, if appropriate.
8. Transport.
9. Assess and monitor the Glasgow Coma score.
 - a. Do **not** delay transport.

STROKE (CEREBROVASCULAR ACCIDENT)

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

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

Exclusion Criteria:

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

Treatment:

A. All patients:

1. Maintain open airway.
 - a. Use an oral or nasal airway as appropriate.
2. Apply oxygen (High concentration if altered mental status) if SpO₂ is unknown or <94%.
3. Monitor pulse oximetry [Optional].
4. Obtain patient history, (i.e. OPQRST) and examine patient.
 - a. Exact time of symptom onset is extremely important.
 - b. Assess LA Stroke Scale
6. If stroke indicated by the LA Stroke Scale **AND** patient can be delivered to the receiving facility within 3 hours of symptom onset, then
 - a. Package patient and transport ASAP.
 - b. Contact medical command and receiving facility as soon as possible.
7. Transport to a stroke center, if possible. It may be important for a family member to accompany the patient during transport to verify the time of symptom onset and provide consent for therapy.

SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS

113

SEIZURES

1. Protect the patient from injury.
2. Monitor the airway.
3. Do **not** force anything into the patient's mouth.
4. Attempt to position the patient to maintain airway patency.
5. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
6. Avoid unnecessary or excessive restraint.
7. Administer oxygen.
8. Monitor breathing for adequacy.
9. Request Advanced Life Support assistance for ongoing seizures at time of patient contact.
10. Treat all injuries as appropriate.
11. Transport (Do not delay transport waiting for ALS unit, consider ALS intercept.)

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

114

POISONING OR DRUG OVERDOSE

1. Monitor the airway.
2. Administer oxygen.
3. Request Advanced Life Support assistance for patients with respiratory distress/failure or altered mental status, or if so directed by Medical Control.
4. For Special Considerations, see below.
5. Bring a sample of the substance or the container(s) to the hospital.
6. Transport and request Advanced Life Support assistance in necessary.
(Do not delay transport waiting for ALS unit, consider ALS intercept.)

SPECIAL CONSIDERATIONS

INGESTED SUBSTANCES

1. Do **not** induce vomiting.
2. Do **not** attempt to neutralize the substance.

INHALED SUBSTANCES

NOTE: Ensure that the scene is safe to enter.

1. Remove the patient from the contaminated environment.
2. Administer oxygen, especially if carbon monoxide poisoning is suspected.

ENVENOMATIONS

1. Insect stings:
 - a. Remove stinger by scraping.
 - b. Cover with a sterile dressing.
 - c. Apply cold compresses to the site.

NOTE: Transport should not be delayed for this treatment.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

3. Snakebite:
 - a. Keep injection site lower than the level of the heart.
 - b. Cover with a sterile dressing.
 - c. Immobilize the area and restrict patient activity.
 - d. Transport

ABSORPTIONS

NOTE: Take precautions to avoid contamination of yourself and others.

1. Remove all contaminated clothing.
2. Brush away any dry agents or blot away any excess liquids from the skin.
3. Flush the area with sterile saline, sterile water, or plain water for at least 10 minutes.
4. Bandage any contact burns with a **saline-moistened**, sterile dressing.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

115

SHOCK

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

Exclusion Criteria:

- A. Cardiac Arrest related to trauma – see **Protocol # 120**
B. Hypotension not related to trauma.

Treatment:

A. All patients:

1. C-spine stabilization.
 - b. Consider call for ALS if available, but should not delay patient transport.
 - c. Consider request for air ambulance
 - d. Consider rapid extrication.
2. Control external bleeding.
3. Administer oxygen
4. Spinal immobilization as appropriate
5. Treat specific injuries:
 - a. Also follow injury specific trauma protocols if applicable for head injury, impaled object, amputation, or burns. See **Protocol #123**
 - b. If sucking chest wound, cover wound with occlusive dressing sealed on 3 sides. Release dressing if worsened shortness of breath.
 - c. If intestinal evisceration, cover intestines with a sterile dressing moistened with sterile saline or water; cover the area with an occlusive material (aluminum foil or plastic wrap). Cover the area with a towel or blanket to keep it warm. **DO NOT PUSH VISCERA BACK INTO ABDOMEN.** Transport with knees slightly flexed if possible.
6. Consider Trendelenberg position (foot of stretcher elevated approximately 6 inches) if:
 - a. Patient has hypotension, and
 - b. There are no chest injuries, no head injuries, no shortness of breath, and position does not cause shortness of breath.
7. Maintain body temperature.
8. For all major or moderate trauma patients contact the ATCC for destination recommendation.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

116

ABDOMINAL PAIN

1. Administer oxygen, if appropriate.
2. If a traumatic cause is suspected, see **Protocol #124**.
3. Do **not** allow the patient to eat or drink.
4. Assess for shock and treat, if appropriate, see **Protocol #115**
5. Place patient in a position of comfort.
6. Transport.

Sample Protocols

TRAUMATIC CARDIAC ARREST

1. Simultaneously begin transportation of the patient and Basic Cardiac Life Support procedures, as circumstances permit.
2. Excluding patients with penetrating chest trauma apply AED as described in **Protocol #103** (Non-Traumatic Cardiac Arrest).
 - a. If the “Shock indicated” message is received, continue with treatment as described in **Protocol #103**
 - b. If the “No shock indicated” message is received, begin transport immediately.

NOTE: Traumatic cardiac arrest is a critical, life-threatening emergency and should be transported immediately.

3. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
4. Request Advanced Life Support assistance if necessary.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

121

HEAD AND SPINE INJURIES

1. Establish and maintain airway control while stabilizing the cervical spine.

NOTE: Do not use a nasopharyngeal airway in patients with facial injuries or if severe head injury has occurred.

2. Spinal Immobilization must be considered especially in the following conditions:
 - a. Altered mental status for any reason, including possible intoxication due to drugs or alcohol.
 - b. GCS <15
 - c. Complaint of, or inability of the provider to assess for, neck and/or spine pain or tenderness.
 - d. Weakness, paralysis, tingling, or numbness of the trunk or extremities at any time since the injury.
 - e. Deformity of the spine not present prior to the injury.
 - f. Distracting injury or circumstances, including anything producing an unreliable physical exam or history.
 - g. High risk mechanism (axial load such as diving or tackling, high-speed motor vehicle accidents, rollover accidents, falls greater than standing height).
 - h. Provider concern for potential spinal injury.

NOTE: Once spinal immobilization has been initiated, it must not be removed in the prehospital setting.

3. If necessary, initiate spinal immobilization, utilize the Rapid Takedown technique **only** if the patient is standing.
4. Administer oxygen.
5. Monitor breathing for adequacy.

NOTE: Monitor breathing continuously. Be alert for signs of hypoxia and/or increasing respiratory distress.

6. Control external bleeding.
7. Assess and monitor the Glasgow Coma Score.
9. If the Glasgow Coma Scale (GCS) score is less than 8, ventilate the patient with high concentration oxygen at a rate of 12 breaths per minute for an adult patient and up to 20 breaths per minute for a pediatric patient.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

10. If the Glasgow Coma Scale (GCS) score is less than 8, and active seizures or one or more of the following signs of brain herniation are present, hyperventilate the patient with high concentration oxygen at a rate of 20 breaths per minute for an adult patient and up to 25 breaths per minute for a pediatric patient.
- a. Fixed or asymmetric pupils
 - b. Abnormal flexion or extension (neurologic posturing)
 - c. Hypertension and bradycardia (Cushing's Reflex)
 - d. Intermittent apnea (periodic breathing)
 - e. Further decrease in GCS score of 2 or more points (neurologic deterioration)

NOTE: Do not hyperventilate unless the above criteria are met.

11. Assess for shock and treat, if appropriate. (See **Protocol #115**)
12. Transport

NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

NECK INJURIES

NOTE: Be alert for airway problems and cervical spine injuries.

1. Monitor the airway.
2. Observe spinal injury precautions. (See **Protocol #121**)
3. Administer oxygen.
4. Monitor breathing for adequacy.
5. Control external bleeding.
6. Seal the wound with an **occlusive** dressing.
 - a. Do **not** bandage completely around the neck.
7. Assess for shock and treat, if appropriate. (See **Protocol #115**)
8. Transport.

NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS

123

CHEST INJURIES

1. Monitor the airway.
2. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
3. Administer oxygen.

NOTE: Do **not** use a demand valve resuscitator due to the possibility of causing severe, life-threatening complications.

4. Monitor breathing for adequacy.
5. Control external bleeding.
6. For Special Considerations, see below.
7. Assess for shock and treat, if appropriate. (See **Protocol #115**)
8. Transport.

NOTE: Decreased breath sounds and muffled heart sounds indicate life-threatening chest injuries. The patient should be transported immediately and ALS intercept should be considered if available.

SPECIAL CONSIDERATIONS

OPEN CHEST WOUND

1. Place an occlusive dressing over the wound and tape on three sides.
2. If the patient's condition worsens, remove the occlusive dressing and have the patient fully exhale. Replace and re-tape the occlusive dressing on three sides after exhalation, and request Advanced Life Support intercept if available.

CLOSED CHEST WOUND

1. If the patient's condition worsens, request Advanced Life Support assistance.

FLAIL CHEST

1. Apply bulky dressing to the flail segment
2. If the patient's condition worsens, request Advanced Life Support assistance

IMPALED OBJECTS

1. Do **not** remove the object.
2. Support and secure the object with bulky dressings.

ABDOMINAL INJURIES

1. Monitor the airway.
2. Administer oxygen.
3. Monitor breathing for adequacy.
4. Control external bleeding.
5. Assess for shock and treat, if appropriate. (See **Protocol #115**)
6. For Special Considerations, see below.
7. Transport.

NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

SPECIAL CONSIDERATIONS

EVISCERATION:

1. Do **not** replace the protruding organ.
2. Place **saline-moistened**, sterile dressings over the organ.
3. Do **not** pour fluid directly onto the wound.
4. Secure dry, bulky dressings over the moistened dressings.
5. An occlusive dressing may be placed as the final layer to maintain body heat.
6. Position the patient appropriately with knees slightly bent.

IMPALED OBJECTS:

1. Do **not** remove the object.
2. Support and secure the object with bulky dressings.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

125

BONE AND JOINT INJURIES

1. Monitor the airway.
2. Administer oxygen, if appropriate.
3. Control external bleeding.
 - a. Avoid excessive pressure over injury sites.
4. Assess for shock and treat, if appropriate. (See **Protocol #115**)
5. Manually stabilize the injury.
6. Cover protruding bones and associated wounds with dry, sterile dressings.
7. Immobilize the injury.

NOTE: Check for peripheral (distal) pulses, motor function, and sensation in the injured extremity before and after immobilization.

- a. Angulated long bone deformities should be straightened provided resistance is not felt, into a splintable position.
- b. Joints above and below the deformity should be immobilized.
- c. A deformed joint should be immobilized in the position found, unless it cannot be effectively immobilized in this position.
- d. A traction splint is the splint of choice for all isolated closed femur fractures.
- e. Elevate the injury site, if possible.

NOTE: Splinting should not delay transport of the critical or unstable patient.

8. Transport.

NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

SOFT TISSUE INJURIES

NOTE: Infection control precautions must be followed when making contact with the patient's blood or secretions.

1. Monitor the airway.
2. Administer oxygen, if appropriate.
3. Control external bleeding.
 - a. If a severe extremity hemorrhage cannot be controlled by direct pressure, apply a tourniquet.
4. Assess for shock and treat, if appropriate. (See **Protocol #115**)
5. For Special Considerations, see below.
6. Transport

NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

SPECIAL CONSIDERATIONS

IMPALED OBJECT

1. Do **not** remove the object.
2. Support and secure the object with bulky dressings.

NOTE: If the object is impaled in the cheek and is compromising the airway, remove it and bandage both sides of the wound.

AMPUTATED OR COMPLETELY AVULSED TISSUE

1. Wrap the part in **saline-moistened, sterile** dressings.
 - a. Do **not** soak.
2. Place the part into a plastic bag and seal the bag.
3. Label the bag with the patient's name and time of injury.
4. Place the bag in ice, or a cooled area.
5. Protect the stump with a **saline-moistened, sterile** dressing.

NOTE: Avoid freezing the tissue. Do not use dry ice.

EYE INJURIES

1. Monitor the airway.
2. Administer oxygen, if appropriate.
3. Control external bleeding.
4. Do **not** apply pressure to the globe of the eye.
5. Remove contact lenses, if possible.
6. For Special Considerations, see below.
7. Bandage both eyes loosely.
8. Transport.

SPECIAL CONSIDERATIONS

FOREIGN OBJECT

1. Immediately and continuously flush the affected eye(s) with Normal Saline (0.9% NS) for a minimum of 20 minutes, continuing therapy enroute to the hospital.

AVULSED EYE

1. Do **not** attempt to replace the eye back into the socket.
2. Wrap the eye with **saline-moistened**, sterile dressings.
3. Stabilize this with a paper cup or similar object.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

128

BURNS

1. Monitor the airway.
2. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
3. Administer oxygen.
NOTE: Patients with inhalation injury should receive humidified oxygen (if available) and require advanced life support assistance.
4. Stop the burning process.
5. Prevent contamination of the wound. Avoid making contact with non-sterile materials if possible. Do not remove clothing adherent to the wound.
6. Monitor breathing for adequacy.
7. Assess for shock and treat, if appropriate. (See **Protocol #115**)
8. For Special Considerations, see below.
9. Calculate the percentage and degree of affected areas.
10. For burns less than 10% BSA, cover the affected areas with saline-moistened, sterile dressings, then wrap in dry, sterile sheets. For burns greater than 10% BSA, cover the affected areas with dry, sterile dressings, then wrap in dry, sterile sheets.
11. Maintain body temperature.
NOTE: Large body surface area involvement may lead to rapid heat loss in the burn patient.
12. Transport.
NOTE: For all major or moderate trauma patients contact the ATCC for destination recommendation.

SPECIAL CONSIDERATIONS

THERMAL BURNS

1. Cool hot or smoldering skin (up to 20% of the body surface area at a time) with cool water or Normal Saline (0.9% NS).

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

CHEMICAL BURNS

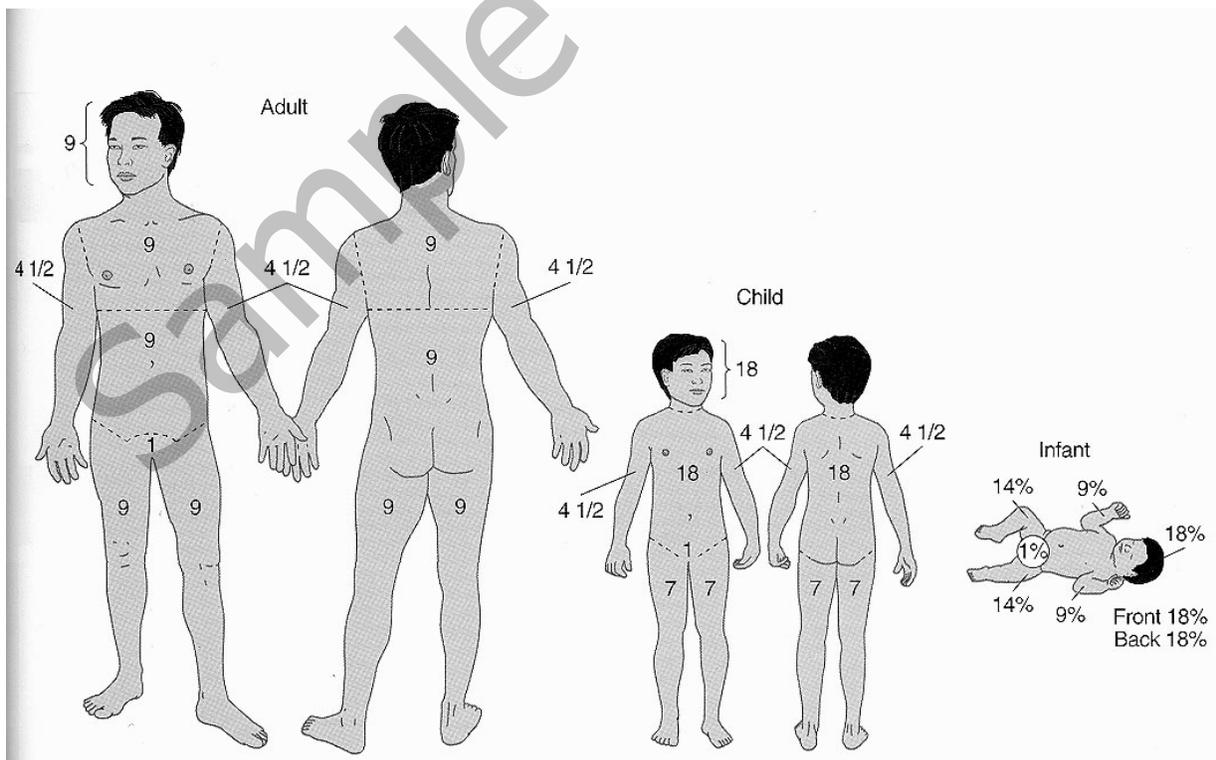
NOTE: Take precautions to avoid contamination of yourself and others.

1. Obtain the name of the product, if possible.
2. Remove any contaminated clothing or personal articles.
3. Brush dry agents off the skin, then flush with water for at least 10 minutes.
4. Blot any excessive liquids from the skin, then flush liquid chemical agents with water:
 - a. From the skin for at least 10 minutes.
 - b. From the eyes for at least 20 minutes.

ELECTRICAL BURNS

Note: Be alert for cervical spine and other skeletal injuries.

1. Begin Basic Cardiac Life Support procedures, if appropriate. (See **Protocol #103**)
2. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
3. Request Advanced Life Support assistance.
4. Locate and bandage the **obvious** entrance and exit wounds.
5. Treat skeletal injuries, if appropriate. (See **Protocol #125**)



EMOTIONALLY DISTURBED PATIENT

NOTE: Emotionally disturbed patients must be presumed to have an underlying medical or traumatic condition causing an altered mental status.

Assess such patients for an underlying medical or traumatic condition causing an altered mental status and treat as necessary.

1. Assess the situation for potential or actual danger and establish a safe zone, if necessary.

NOTE: All suicidal or violent threats or gestures must be taken seriously.

2. If an underlying medical or traumatic condition causing an altered mental status is not apparent; the patient is fully conscious, alert, and able to communicate; and an emotional disturbance is suspected, proceed as follows:

- b. Open communications with the patient.
- c. Attempt to determine the cause of the immediate crisis.
- d. Attempt to obtain a past medical history.
- e. Document the exact nature of the problem, including the patient's own words.
- f. If, in the judgment of the EMT, the patient requires and is refusing treatment and the patient's judgment may be impaired, contact Medical Control.

NOTE: Only the amount of force required to effectively restrain the patient may be used.

3. Transport

HEAT-RELATED EMERGENCIES

1. Cool the environment or move the patient to a cooler environment.
2. Remove excessive clothing.
3. Administer oxygen.
4. Restrict physical activity.
5. Assess for shock and treat, if appropriate. (See **Protocol #115**)
6. For Special Considerations, see below.
7. Transport.

SPECIAL CONSIDERATIONS

HEAT CRAMPS

1. Provide water by mouth.

HEAT EXHAUSTION

1. Provide water by mouth if the patient is conscious, has a gag reflex, and is able to drink without assistance.

HEAT STROKE or EXERTIONAL HEAT ILLNESS

1. Monitor the airway.
2. Cool the patient rapidly.
3. Remove clothing and equipment
4. Cool athlete immediately by:
 - Immerse athlete in tub of cold water with ice or ice bags
 - If tub is not available
 - place ice bags or ice over as much of body as possible, cover body with cold towels (replace towels frequently), fan body or spray with cold water
5. Monitor ABCs, monitor temperature (core temperature if available), and CNS

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

6. Cease aggressive cooling when core temperature reaches approximately 101-102 F; continue to monitor
7. Transport

NOTE: When observing athletes, look for other signs and symptoms that may indicate they are suffering from exertional heat stroke:

- Rectal temperature greater than 104°F (40°C).
- Irrational behavior, irritability, emotional instability
- Altered consciousness, coma
- Disorientation or dizziness
- Headache
- Confusion or just look "out of it"
- Nausea or vomiting
- Diarrhea
- Muscle cramps, loss of muscle function/balance, inability to walk
- Collapse, staggering or sluggish feeling
- Profuse sweating
- Decreasing performance or weakness
- Dehydration, dry mouth, thirst
- Rapid pulse, low blood pressure, quick breathing
- Other outside factors may include:
 - They are out of shape or obese
 - It is a hot and humid day
 - Practice is near the start of the season, and near the end of practice
 - It is the first day in full pads and equipment

COLD-RELATED EMERGENCIES

1. Warm the environment or move the patient to a warmer environment.
2. Prevent further loss of body heat.
3. Do **not** allow the patient to smoke or drink either alcohol or caffeinated beverages.
4. For Special Considerations, see below.
5. Transport.

SPECIAL CONSIDERATIONS

FROSTNIP, FROSTBITE, FREEZING (Local)

1. Remove clothing from the affected area.
2. Wrap the area in dry, bulky dressings.
3. Do **not** rub the area or rupture blisters.

HYPOTHERMIA (General)

1. Monitor the airway.
2. Begin Basic Cardiac Life Support procedures, if appropriate. (See Protocol #403.)

NOTE: Hypothermic patients remain viable for a longer period of time. Therefore, CPR should be initiated on all pulseless and apneic hypothermic patients.

3. Administer oxygen.
4. Monitor breathing for adequacy.
5. Gently remove any wet clothing.
6. Wrap the patient in dry blankets.

NOTE: Avoid rough handling of the hypothermic patient so as to reduce the risk of inducing cardiac arrest.

7. If the patient is conscious, is able to swallow, and is able to drink without assistance, give warm liquids slowly by mouth.
8. If the patient has an altered mental status, request Advanced Life Support assistance if available.

DROWNING OR NEAR DROWNING

1. Remove the patient from the water.
2. Observe spinal injury precautions, if appropriate. (See **Protocol #121**)
3. Monitor the airway.
4. Assist ventilations, if appropriate. (See **Protocol #101**)
5. Begin Basic Cardiac Life Support procedures, if appropriate. (See **Protocol #103**)

NOTE: Hypothermic patients remain viable for a longer period of time. Therefore, CPR should be initiated on all pulseless and apneic hypothermic patients.

6. Administer oxygen.
7. Monitor breathing for adequacy.
8. Assess for shock and treat, if appropriate. (See **Protocol #115**)
9. Transport.

NOTE: In cases of cold water drowning (water temperature below 70° F), treat for hypothermia. (see **Protocol #132**)

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

134

DECOMPRESSION SICKNESS

1. Monitor the airway.
2. Administer oxygen.
3. Place the patient in a **left** lateral recumbent position.
4. If possible, obtain the following information:
 - a. recent dive history;
 - b. the maximum depth of the dive(s);
 - c. the total time spent underwater;
 - d. the mixture of compressed gases used.
5. Transport

Sample Protocols

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

140

OBSTETRIC EMERGENCIES

1. Monitor the airway.
 2. Administer oxygen.
 3. Place the patient in a left lateral recumbent position.
 4. If the patient is immobilized, elevate the right side of the long board a few inches.
 5. Assess for shock and treat, if appropriate. (See **Protocol #115**)
- NOTE: Consider Supine Hypotension Syndrome as a cause of shock.**
6. For Special Considerations, request Advanced Life Support assistance if available
 7. Transport.

SPECIAL CONSIDERATIONS

HYPERTENSION

1. Keep the mother calm, avoid loud noises, and transport with dim lighting in the patient compartment of the ambulance.

SEIZURES

1. If seizures occur, see **Protocol #113**

IMMINENT DELIVERY

1. If delivery has begun, refer to **Protocol #441**

POST-PARTUM HEMORRHAGE

1. Massage the mother's abdomen over the uterus.
2. Place a sanitary napkin over the vaginal opening.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

141

EMERGENCY CHILDBIRTH

1. Assess the mother for shock and treat, if appropriate. (See **Protocol #115**)
2. If the mother is in active labor, perform a visual inspection of the perineum for bulging or crowning.
3. If delivery has begun, proceed as follows:
 - a. Request Advanced Life Support assistance.
4. If any of the following are present, refer to the Special Conditions section:
 - a. Prolapsed umbilical cord (cord protruding through vaginal opening)
 - b. Umbilical cord (cord wrapped around the neonate's neck)
 - c. Breech (buttocks) presentation
 - d. Limb (extremity) presentation
 - e. Multiple births
 - f. Premature births
 - g. Amniotic sac not ruptured
 - h. Amniotic fluid that is meconium stained

NOTE: **Advanced life support assistance should always be requested for premature or multiple births, or if the amniotic fluid is meconium stained.**

5. Apply gentle pressure against the neonate's head to prevent tearing of the perineum.
 - a. Do **not** apply pressure to the soft spots (fontanelles).
6. As the head presents, clear the airway of secretions, as follows:
 - a. First suction the mouth, inserting the bulb syringe, no more than 1½ inches, then the nose, inserting the bulb syringe no more than ½ inch. Depress the bulb syringe prior to insertion into the neonate's mouth and nose.

NOTE: **Suctioning is critical.**

7. Support the head and thorax as the neonate delivers.
 - a. Momentarily position the head lower than the body to allow for drainage. Repeat suctioning as necessary prior to spontaneous or stimulated respirations.
8. Thoroughly but rapidly dry the newborn with a clean, dry towel.
9. Monitor the neonate's airway.
 - a. To stimulate breathing rub the lower back.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

NOTE: Spontaneous respirations should begin within 30 seconds after birth.

10. Resuscitate if necessary. (See **Protocol #143**)
11. Place the first clamp 8 to 10 inches from the neonate and the second clamp approximately 4 finger widths from the neonate. Cut between the clamps and immediately check both ends for bleeding.
12. If continuous bleeding is seen from either end of the cord, leave the clamps already applied and add a second clamp to the end that is bleeding.
13. Cover the neonate with a clean, dry towel or blanket, then wrap in a silver swaddler, exposing only the neonate's face.

NOTE: Neonates are subject to rapid heat loss and must be kept warm and dry.

14. For Special Considerations, **administer oxygen to the mother**, and see below.
15. Re-assess the mother for shock and treat, if appropriate. (See **Protocol #115**) If postpartum hemorrhage occurs, see **Protocol #140**
16. For care of the neonate, see **Protocol #142**
17. Transport.
 - a. Do **not** delay transport waiting for the placenta to deliver.

SPECIAL CONSIDERATIONS

NOTE: An abnormal delivery should be treated as an emergency with transport being a priority while providing appropriate care.

ABNORMAL PRESENTATION

Breech Presentation

1. Support the thorax of the neonate as it delivers.

NOTE: A full delivery may occur.

2. If the head does not deliver immediately, place sterile, gloved fingers between the neonate's face and the wall of the birth canal to establish an air passageway. This position must be maintained until the head delivers.

**SECTION OF EMERGENCY MEDICAL SERVICES
ARKANSAS BASIC EMERGENCY MEDICAL TECHNICIAN SAMPLE PROTOCOLS**

Limb Presentation

1. Elevate the mother's hips and legs.

Prolapsed Cord

1. Elevate the mother's hips and legs.
2. If the cord is not pulsating, place sterile, gloved fingers into the birth canal and push the head back 1 to 2 inches towards the cervix until the cord begins to pulsate.
3. Wrap **saline-moistened**, sterile dressings around the cord.

NOTE: Do not attempt to insert the cord back into the uterus. The cord should be continuously monitored for the presence of a pulse.

COMPLICATIONS DURING BIRTH

Cord Around the Neck

1. If the cord is loose, gently slip the cord over the neonate's head.
2. If this is not possible, immediately place 2 clamps on the cord and cut between them.

Amniotic Sac Not Ruptured

1. Immediately remove the sac from around the face using sterile, gloved fingers only.

Wedged Shoulders

1. Guide the head downward to aid in the delivery of the upper shoulder.

MULTIPLE BIRTHS

1. Clamp and cut the umbilical cord of the first neonate prior to the next birth.
2. If the second birth does not occur within 10 minutes, begin transport.

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

CARE OF THE NEONATE

For neonates, minutes to hours old

1. Thoroughly but rapidly dry the neonate with a clean, dry towel, and then wrap the neonate in a warming blanket (e.g. silver swaddler), exposing only the neonate's face.
2. Monitor the neonate's airway.
3. Suction the mouth and nose using a bulb syringe.
4. Administer oxygen to the neonate unless the neonate remains completely pink.
5. Monitor breathing for adequacy.

NOTE: If the neonate is unresponsive, limp, or has:

- Persistent central cyanosis (longer than 15 to 30 seconds);
- Respiratory rate is less than 30 breaths per minute (hypoventilation); or,
- Heart rate is less than 100 beats per minute (bradycardia)

See **Protocol #143**

6. Assess for shock and treat, if appropriate. (See **Protocol #458**)
7. Monitor the umbilical cord for bleeding.
8. Cover the neonate with a clean, dry towel or blanket, then wrap in a warming blanket (e.g. silver swaddler), exposing only the neonate's face.
9. Determine the Apgar Score at 1 and 5 minutes after delivery.

NOTE: Do not delay transport or resuscitation in order to obtain an Apgar Score.

10. Transport, keeping the neonate warm.

NOTE: Neonate infants are subject to rapid heat loss and must be kept warm and dry.

NEONATE RESUSCITATION

For neonate with:

- Persistent central cyanosis (longer than 15 to 30 seconds);
 - Respiratory rate less than 30 breaths per minute (hypoventilation);
 - Heart rate less than 100 beats per minute (bradycardia); **OR**
 - Cardiac arrest (absence of breathing and pulse):
1. Initiate neonate resuscitation procedures. (See guidelines below.)
 2. Request Advanced Life Support assistance.
 3. Transport, keeping the neonate warm.

GUIDELINES FOR NEONATE RESUSCITATION

NOTE: **Cardiopulmonary resuscitation in a neonate is performed utilizing chest compressions with interposed ventilations in a ratio of 3:1 at a rate of 120 (90 compressions, 30 ventilations) per minute.**

If the neonate has:

- Persistent Central Cyanosis;
 - A Respiratory Rate Less Than 30 Breaths Per Minute; **or**
 - A Heart Rate Between 60 And 100 Beats Per Minute:
1. Assist ventilation at a rate of 30 to 60 breaths per minute.
 2. Switch to high concentration mask or “blow by” oxygen once the respiratory rate is greater than 30 breaths per minute, the heart rate is greater than 100 beats per minute, and central cyanosis disappears.

If the neonate has:

- A Heart Rate Less Than 60 Beats Per Minute; **or**
 - Cardiac Arrest:
1. Start CPR immediately.
 2. Stop CPR and begin assisted ventilation at a rate of 30 to 60 breaths per minute once the heart rate is greater than 60 beats per minute and rapidly increasing.
 3. Switch to high concentration mask or “blow by” oxygen once the heart rate is greater than 120 beats per minute, the respiratory rate is greater than 30 breaths per minute, and central cyanosis disappears.