

MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

MEDICAL PROTOCOLS



MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

**Altered Level of Consciousness
(ALOC) Protocol**

A patient with an altered level of consciousness (ALOC) may present with a variety of symptoms from minor thought disturbances & confusion to complete unresponsiveness (syncope/ near syncope). The causes of ALOC include cardiac emergencies, hypoxia, hypoglycemia/diabetic emergencies, epilepsy/seizures, alcohol/drug related emergencies, trauma, sepsis, stroke or any other condition which disrupts brain perfusion.

-If an Opioid overdose is suspected, refer to *The Drug Overdose and Poisoning Protocol* directly while still ruling out any other causes such as hypoxia, hypo/hyperglycemia, stroke, seizure, etc.

-In cases of ALOC of unknown etiology **with respiratory depression/insufficiency**, *The Drug Overdose and Poisoning Protocol* (Narcan) may be utilized.

-If a patient is verifiably in Hospice and presents with diminished LOC/respiratory depression, Narcan administration may not be appropriate. **Contact Medical Control**

A patient who has experienced syncope or ALOC of any type should receive a thorough evaluation for secondary injuries (*e.g.* fall injuries associated with the ALOC) and for possible underlying causes. Although a patient's ALOC may be resolved in the field, the patient should still be strongly encouraged to accept EMS care and ambulance transport to the hospital for further evaluation.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. **Oxygen**: If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
3. **Oral Glucose**: 15g PO **if** the patient has a history of diabetes and has in possession a tube of Oral Glucose, is alert, is able to sit in an upright position, has good airway control and an intact gag reflex.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.

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**Altered Level of Consciousness
(ALOC) Protocol**

BLS Care {Continued}

2. Perform a **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains $\leq 60\text{mg/dL}$, administer a 2nd dose of Oral Glucose (15g). Patients with a blood glucose level of 100-249mg/dL do not require additional treatment.
3. **Glucagon**: 1mg IM if blood sugar is $\leq 60\text{mg/dL}$, the patient is unresponsive and/or has questionable airway control, or absent gag reflex.
4. Initiate ALS intercept if needed and transport as soon as possible.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion, and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS Care*.
2. Obtain **IV access**.
3. **D10W**: 250 mL IV if blood sugar is $\leq 60\text{mg/dL}$, Continue infusion until patient is capable of eating a meal.
 - a. Documentation should include approximate fluid administration of D10W.
4. Perform a 2nd **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of D10W or Glucagon.
5. **Fluid Bolus**: For glucose levels $\geq 250\text{mg/dL}$, give 500 ml and reassess. Repeat fluid bolus as needed. Do not give the bolus if fluid overload is a concern
6. Obtain **12-Lead EKG** and transmit to receiving hospital if non-opiate overdose (or opiate overdose unresponsive to Narcan) or if cause of ALOC is uncertain.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
2. Contact receiving hospital as soon as possible.

**Altered Level of Consciousness
(ALOC) Protocol**

Pearls

- Look for Medic Alert tags.
- The provider should know what ‘HI’ and ‘LO’ parameters are for their specific glucometers.
- Signs/symptoms of hypoglycemia include: Weakness/shakiness, tachycardia, cold/clammy skin, headache, irritability, ALOC/bizarre behavior or loss of consciousness.
- If the glucose reading is mildly above 60mg/dL with S/S of Hypoglycemia treat as such, but be hyper-alert for CVA S/S.
- Signs/symptoms of hyperglycemia include: increased thirst, increased hunger, and increased urination. The patient presentation can range from asymptomatic to more severe symptoms such as altered mental status, coma, and vomiting.
- Patients with a blood glucose of ≥ 800 mg/dL. can be profoundly hypovolemic, requiring large quantities of I.V. fluids for adequate resuscitation.
- Use caution when administering fluid boluses to patients with a Hx of CHF or chronic renal failure. Do not start a fluid bolus on a patient who already appears overloaded.
- No intercept is required if the patient becomes alert/oriented after the administration of Oral Glucose or Glucagon unless the patient has a condition that warrants intercept.
- **ILS / ALS:** If a patient refuses transport after administration of D10W (& is Alert, and oriented to person, place, time, and situation), the call may be treated as a low risk refusal as long as the following criteria are met (and documented in the Patient Care Report):
 - The cause of the patient’s hypoglycemia can be easily explained (*e.g.* patient took insulin but did not eat).

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Suspected Stroke Protocol

A stroke or “brain attack” is a sudden interruption in blood flow to the brain resulting in neurological deficit. It affects approximately 750,000 Americans each year, is the 5th leading cause of death and is the leading cause of adult disability. With new treatment options available, EMS personnel should alert Medical Control as quickly as possible whenever a potential stroke patient is identified.

The most common causes of a stroke are:

- Cerebral thrombosis (a blood clot obstructing the artery).
- Cerebral embolus (a mass or air bubble obstructing the artery).
- Cerebral hemorrhage (ruptured artery / ruptured aneurysm).

Signs & symptoms of a stroke include:

- Hemiplegia (paralysis on one side of the body)
- Hemiparesis (weakness on one side of the body)
- Decreased sensation or numbness without trauma
- Facial droop
- Unequal grips
- Dizziness, vertigo or syncope
- Aphasia or slurred speech
- ALOC or seizures
- Nausea/ vomiting
- Sudden, severe headache with no known cause
- Visual disturbances (e.g. blurred vision, double vision)
- Generalized weakness
- Frequent or unexplained falls

Risk factors that increase the likelihood of stroke are:

- Hypertension
- Atherosclerosis / coronary artery disease
- Atrial fibrillation
- Hyperlipidemia
- Diabetes
- Vasculitis
- Lupus

To facilitate accuracy in diagnosing stroke and to expedite transport, an easy-to-use neurological examination tool is recommended. Although there are several different types available, the most “user-friendly” is the *FAST Exam*. Additionally, for a more accurate assessment of the severity of the stroke the *Los Angeles Motor Score* should be utilized.

Suspected Stroke Protocol

FAST Exam

FAST Exam

Facial Droop (*ask the patient to show their teeth or smile*):

- **Normal** – Both sides of the face move equally.
- **Abnormal** – One side of the face does not move as well as the other.

Arm Drift (*ask the patient to close their eyes and hold both arms out straight for 10 seconds*):

- **Normal** – Both arms move the same or do not move at all.
- **Abnormal** – One arm does not move or one arm drifts downward compared to the other.

Speech (*ask the patient to say, "The sky is blue in Cincinnati"*):

- **Normal** – The patient says the phrase correctly with no slurring of words.
- **Abnormal** – The patient slurs words, uses the wrong words or is unable to speak.

Los Angeles Motor Scale

Facial Droop with Smile	
0	Absent
1	Present
Arm Drift	
0	Absent
1	Drifts down on one side
2	Falls rapidly on one side
Grip Strength Deficit	
0	Normal
1	Weak grip on one side
2	No grip on one side
Total patient score	
Score of 1-2 is positive for stroke symptoms	
Score of 4 or higher indicates high probability of Emergent Large Vessel Occlusion	

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Suspected Stroke Protocol

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. **Oxygen:** If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
3. Check and record vital signs every **5 minutes** until the transporting unit arrives.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test** to rule out low blood glucose as a reason for ALOC. If the blood glucose is less than 60 refer to the ALOC Protocol.
4. If active seizure is noted, refer to Seizure Protocol.
5. Initiate ALS intercept if needed and **transport without delay**.
6. If female patient aged 15-50 is hypertensive, question possibility of pregnancy or postpartum. Communicate such findings to transporting agency and receiving facility to ensure patient is being transported to most appropriate facility.
7. Check and record vital signs and GCS every **5 minutes**.
8. If **FAST** exam is positive (based on 1 or more elements of the exam), complete **LAMS** exam and communicate the **time of symptom onset**.

Transporting Units

While one goal of EMS is to provide expedient care prior to hospital arrival another is to provide continuity of care. The stroke patient is a truly critical patient where every minute counts.

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Suspected Stroke Protocol

Transporting Units- continued

1. Scene time should be limited to ten (10) minutes or less.
 - a. Agencies working with EMD services who utilize the Stroke Diagnostic Tool card will be notified of dispatch assessment. Until proven otherwise, patient should be assessed for stroke and scene treatment be limited to most critical needs.
2. Communication to receiving ED should be completed as soon as possible.
 - a. Report should follow *Alert Radio Report* format.
3. In order to assist treating facility in treatment decisions regarding time sensitive treatment contact with family/ witness is very important.
 - a. If not transporting witness/ family with patient, obtain phone number where they can be reached.
4. Destination decisions must be informed decisions based on local and regional destination capabilities, time since onset and transportation distances.
 - a. See *EMS Region 3 Stroke Transfer Protocol* and *EMS Triage Destination Plan*.
 - b. Include **Medical Control** in the decision making

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS Care*.
2. Obtain **IV access**.

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Suspected Stroke Protocol

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.

EMS Alert Patient Report- Stroke

The following information and format necessitate expedited delivery of information for potential pre-hospital stroke declaration.

1. Unit identification
2. ETA & Destination if other than Medical Control Center being contacted.
 - a. (Agencies should utilize their approved local Medical Control.)
 - b. (Agencies who's normal Medical Control Center may not always be the receiving destination of a stroke patient must communicate early to determine destination. Report should include everything needed to activate Stroke Team.)
3. "Inbound EMS Patient Report- Stroke Alert."
 - a. The above statement should be made within the first 5 seconds of the communication.
4. History of present illness
 - a. FAST exam results
 - b. LAMS exam results
 - c. Specific time of Last Known Well
5. Patient Status
 - a. Level of Consciousness
 - b. Vital Signs
 - c. Additional pertinent complaints
6. Acknowledge necessary treatment plan. (May not be complete at time of communication.)
7. Determine destination (facility and location).

Suspected Stroke Protocol

Pearls

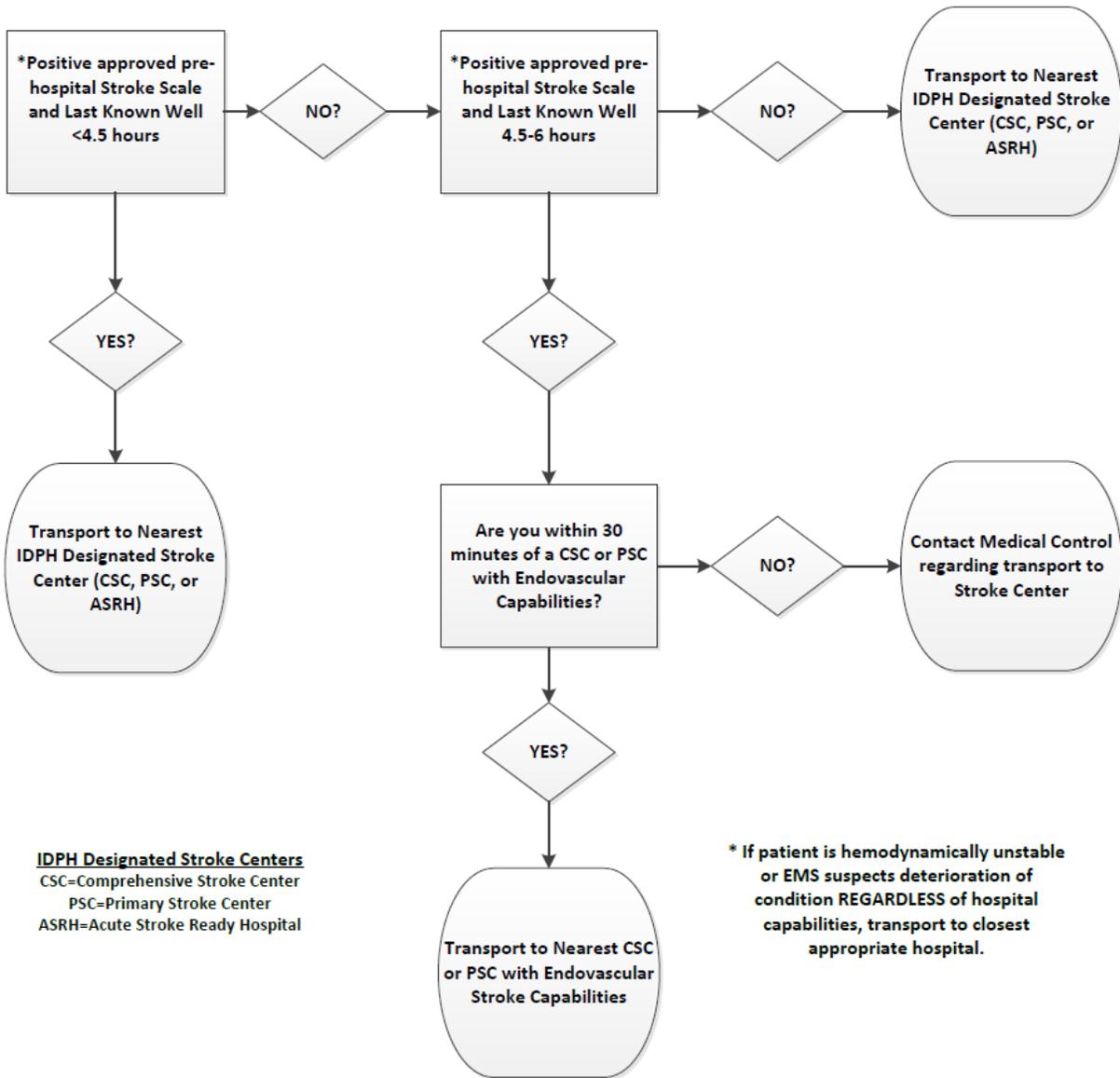
- Stroke onset time (defined as the last time the person was known to be normal) is key in determining the eligibility of IV TPA. EMS personnel should ask family members or bystanders the stroke onset time if the patient is unable to provide that information.
- The treatment window for Strokes is very time sensitive. Thrombolytics, the first step of treatment is only available for the first 270 minutes. **TIME IS BRAIN!!**
- Interventional angiography can be performed up to 24 hours after onset of symptoms.
- Bradycardia may be present in a suspected stroke patient due to increased ICP. Do NOT give Atropine if the patient's BP is normal or elevated. Contact Medical Control for consultation.
- Spinal immobilization should be provided if spinal cord injury or other trauma is suspected.
- Monitor and maintain the patient's airway. Have suction readily available.
- Communicate acute stroke/suspected stroke early in radio transmission to the receiving hospital or Medical Control.
- Document in the PCR whether the FAST exam is negative or positive. If positive, document "FAST exam positive" along with what components make it such and the findings of the LAMS.
- Do NOT administer Nitroglycerin (NTG) to a suspected stroke patient with elevated blood pressure in attempt to lower blood pressure. NTG may lower cerebral perfusion pressure (CPP) too much and actually increase ischemia to the brain tissue.

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Suspected Stroke Protocol

**Region 3
Stroke Transfer Protocol**

Approved by: EMS Regional committee
Date: 7.16.2014



IDPH Designated Stroke Centers
CSC=Comprehensive Stroke Center
PSC=Primary Stroke Center
ASRH=Acute Stroke Ready Hospital

* If patient is hemodynamically unstable or EMS suspects deterioration of condition REGARDLESS of hospital capabilities, transport to closest appropriate hospital.

<http://www.ihatoday.org/health-care-issues/hospital-preparedness.aspx>

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Seizure Protocol

A seizure is a temporary, abnormal electrical activity of the brain that results in loss of consciousness, loss of organized muscle tone and presence of convulsions. The patient will usually regain consciousness within 1 to 3 minutes followed by a period of confusion and fatigue (*post-ictal state*).

Multiple seizures in a brief time span or seizures lasting more than 5 minutes may constitute status epilepticus and require EMS intervention to stop the seizure. Causes of seizures include: epilepsy, stroke, head trauma, hypoglycemia, hypoxia, infection, a rapid change in core body temperature (*e.g.* febrile seizure), eclampsia, and alcohol withdraw and overdose.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. **Oxygen**: If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
3. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Perform **blood glucose level test**, if less than 60 refer to ALOC Protocol as well.
3. Apply **Waveform Capnography** (if equipped).
4. Initiate ALS intercept and transport ASAP.

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS Care*.
2. **Midazolam (Versed)**: 10 mg IM for seizure activity. May repeat 5 mg IM one time in **5 minutes** if the patient is still seizing.

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Seizure Protocol

ILS Care {Continued}

3. Obtain **IV access**.
4. If blood sugar is $< 60\text{mg/DL}$, refer to ALOC Protocol.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
2. **Midazolam (Versed)**: 10mg IM *immediately if patient is still seizing and IV has not been established* May repeat 5 mg IM one time in **5 minutes** if the patient is still seizing.
Or if IV is already established:
Midazolam (Versed): 5 mg IV/IO over 1 minute for seizure activity. May repeat 2.5 mg IV/IO every **5 minutes** as needed to a total of 15mg.
3. Contact the receiving hospital as soon as possible.

Critical Thinking

- Versed (Midazolam) typically comes in a concentration of 10mg/ 2ml (always check concentration and 5 rights). In this concentration $2.5\text{mg} = 0.5\text{ ml}$, $5.0\text{mg} = 1\text{ ml}$ etc. Keep in mind that should Versed come in 5mg/ 1ml, it is still this same concentration!
- A provider could choose to make a Versed 1mg/ 1ml concentration for **IV administration only**. To do this, take a NS pre-filled 10 ml flush and discard 2 ml. Then attach a needle, draw up the entire 10 mg/ 2 ml of Versed. Next, pull back on the syringe drawing in extra air. This extra space is needed to completely mix the new concentration (shake gently back and forth). **Mixing the medication completely is CRUCIAL.**
The provider now has made Versed into a 1mg/ 1ml concentration for ease of administration. This is the only MEMS approved Versed dilution should the provider choose to do so.

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Hypertensive Crisis Protocol

A hypertensive emergency is an elevation of the BP that may result in organ damage or dysfunction. The organs most likely damaged by a hypertensive emergency are the brain, heart and kidneys. Hypertension is also an indication that an underlying condition may exist which is causing the brain to demand more blood from the cardiovascular system. It can also be an indication of head injury with increased ICP, hypoxia or endocrine dysfunction. The goal of treatment is a slow, gradual reduction in BP rather than an abrupt lowering of BP that may cause further neurological complications.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing, has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. **Oxygen:** If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
3. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
4. Check and record vital signs every **5 minutes** until the transporting unit arrives.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Initiate ALS intercept if needed and **transport suspected stroke patients without delay**.
3. If female patient aged 15-50 is hypertensive, question possibility of pregnancy or postpartum. Communicate such findings to transporting agency and receiving facility to ensure patient is being transported to most appropriate facility.
4. Check and record vital signs and GCS every **5 minutes**.
5. Keep the patient as calm as possible. Assist with patient movement as much as possible.
6. Contact the receiving hospital as soon as possible.

Hypertensive Crisis Protocol

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS Care*.
2. Treatment symptoms based on appropriate protocols.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
3. Check and record vital signs and GCS every *5 minutes*.
4. Contact the receiving hospital as soon as possible.

Critical Thinking Elements

- A patient with a systolic BP > 150mmHg and/or diastolic BP > 90mmHg without neurological deficit should be considered stable.
- A patient with a diastolic BP > 130mmHg with non-traumatic neurological deficits (e.g. visual disturbances, seizure activity, paralysis, ALOC) and/or chest pain/discomfort and/or pulmonary edema should be considered an acute hypertensive crisis.
- Assess for **chest pain/discomfort and/or pulmonary edema**. If present, treat per appropriate protocol.

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Acute Abdominal Pain Protocol

Abdominal pain may vary from minor discomfort to acute pain. Abdominal pain may indicate inflammation, hemorrhage, perforation, obstruction and/or ischemia of an internal organ. Correct management of the patient in abdominal pain depends on recognizing the degree of distress the patient is suffering and identifying the possible etiology of the distress.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. Allow the patient to remain in a position that is most comfortable.
3. **Oxygen:** If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Initiate ALS intercept if needed and transport as soon as possible.

Transporting Units

Transporting units should have a heightened awareness that moving the patient could exacerbate the patient's pain as well as nausea.

1. **Ondansetron (Zofran) ODT:** 4mg for nausea and/or vomiting. May repeat in 30 minutes if needed. (If known pregnant female **contact medical control** prior)

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS care includes all components of *BLS care*. Obtain **IV access**.
2. **Ondansetron (Zofran):** 4mg ODT or IV for nausea and/or vomiting. May repeat in 30 minutes if needed. (If known pregnant female **contact medical control** prior)
3. **IV Fluid Therapy:** 500mL fluid bolus if the patient is hypotensive to achieve a systolic BP of at least 100mmHg.

Acute Abdominal Pain Protocol

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
2. Place patient in position of comfort.
3. Pain medication
 - a. Based on *Pain Control Protocol* dosing.
4. Contact the receiving hospital as soon as possible.

Critical Thinking Elements

- **Assess for thoracic aortic (aneurysm) rupture or trauma in addition to GI etiologies.**
- **Assess for leaking or ruptured abdominal aortic aneurysm (AAA). Common signs and symptoms may include previous history un-repaired AAA, abdominal distention, pulsating masses, lower extremity mottling, diaphoresis, anxiety/restlessness and/or sharp "tearing" pain between the shoulder blades or in the lower back.**
- **Give special attention to female patients of childbearing years. Acute abdominal pain should be considered to be an ectopic pregnancy until proven otherwise.**
- **Consider possible etiologies and obtain a detailed history & physical exam:**
 - **Inflammation = slow onset of discomfort, malaise, anorexia, fever & chills.**
 - **Hemorrhage = steady pain, pain radiating to the shoulders, signs & symptoms of hypovolemia.**
 - **Perforation = acute onset of severe symptoms and steady pain with fever.**
 - **Obstruction = cramping pain, nausea, vomiting, decreased bowel activity and upper quadrant pain.**
 - **Ischemia = acute onset of steady pain (usually no fever noted).**
- **Do not allow the patient to eat or drink.**
- **Signs & symptoms of renal calculi (i.e. kidney stone) include: acute & severe flank pain that starts in the back and radiates to the groin, extreme restlessness, hematuria and previous history of kidney stones.**

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Acute Nausea & Vomiting Protocol

Acute nausea and vomiting may occur from a variety of illness including, but not limited to:

- Adverse medication effects
- Bowel obstruction
- Increased intracranial pressure
- Intraabdominal emergencies
- Myocardial infarction
- Other cardiac events such as dysrhythmias

An attempt at determining potential causes of isolated nausea or vomiting must be made in order to identify potential life threatening conditions.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. Place the patient in an upright or lateral recumbent position as tolerated.
3. Monitor airway status in vomiting patients as aspiration may occur. Reposition the patient as necessary to maintain a patent airway.
4. **Oxygen:** If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock & preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Perform **blood glucose level test**, if blood sugar is $< 60\text{mg/DL}$ refer to ALOC Protocol.
3. **Ondansetron (Zofran) ODT:** 4mg **for nausea and/or vomiting**. May repeat in 30 minutes if needed. (If known pregnant female **contact medical control** prior)
4. Consider **12 lead EKG** especially in elderly, female, and/or diabetic patients.
5. Initiate ALS intercept if needed and transport as soon as possible.

Acute Nausea & Vomiting Protocol

ILS Care

ILS Care should be focused on continuing or initiating an advanced level of care, identifying potential serious conditions and stabilizing airway and circulation where appropriate.

1. ILS Care includes all components of *BLS Care*. Obtain **IV Access**.
2. **Ondansetron (Zofran)**: 4mg ODT or IV **for nausea and/or vomiting**. May repeat in 30 minutes if needed. (If known pregnant female **contact medical control** prior)
3. **IV Fluid Therapy**: 500mL fluid bolus if the patient is hypotensive to achieve a systolic BP greater than 100mmHg.

ALS Care

ALS Care should be directed at continuing or establishing a more advanced level of care, identifying potential serious conditions, stabilizing airway and circulation where appropriate and providing pharmacological relief from symptoms of nausea and vomiting.

1. ALS Care includes all components of *ILS Care*. Initiate transport ASAP

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**Allergic Reaction /
Anaphylaxis Protocol**

Allergic reactions can be triggered by virtually any allergen. An allergen is a substance (usually protein-based) which produces a hypersensitive reaction. Drugs, blood products, foods and envenomations are examples of substances which may produce hypersensitive reactions.

Signs & symptoms of a hypersensitive reaction may range from isolated hives to wheezing, shock and cardiac arrest. Anaphylaxis is a life threatening reaction that requires prompt recognition and intervention. An anaphylactic reaction may result in airway compromise and circulatory collapse within minutes.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. **Oxygen**: If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
3. **Epi-Pen**: If the patient has a history of allergic reactions and has in their possession a prescribed Epi-Pen, is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis, assist the patient with administering the Epi-Pen.

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Initiate ALS intercept and transport as soon as possible.
3. **Epinephrine 1: 1,000**: 0.3-0.5mg IM if the patient has a history of allergic reactions and/or is suffering from hives, wheezing, hoarseness, hypotension, ALOC or indicates a history of anaphylaxis.
 - a. Administer based on *Medication Administration Procedure*.
4. **Proventil (Albuterol)**: 2.5mg in 3mL of normal saline via nebulizer over 15 minutes. May repeat Albuterol 2.5mg every **15 minutes** as needed
5. Apply **Waveform Capnography** (if equipped).
6. **Contact Medical Control** as soon as possible.

Allergic Reaction / Anaphylaxis Protocol

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS care*.
2. Obtain **IV/IO access**.
3. **In-line nebulizer** may be utilized if patient is unresponsive/in respiratory arrest.
4. **IV Fluid Therapy**: 500mL fluid bolus's if patient is hypotensive to maintain a systolic BP of at least 100mmHg.

****Do not use Ipratropium****

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
2. **Benadryl**: 50mg IV or IM for severe itching and/or hives.
3. Contact the receiving hospital as soon as possible.

****Epi IM Kits**, as an alternative to Epi-Pen auto-injectors, use epinephrine IM injection kits. These kits contain an ampule or vial of 1mg of 1:1000 epinephrine, syringes, IM needle and filter needle, and alcohol swabs as well as instructions for adults and children.

Critical Thinking:

Acute Dystonic reaction: a common and distressing complication of certain anti-emetic and antipsychotic medications. Acute Dystonic Reactions are characterized by involuntary contractions of the muscles of the extremities, face, neck, tongue, abdomen, pelvis, or larynx that lead to abnormal movements or postures.

If suspected, contact Medical Control for possible Benadryl administration order.

Drug Overdose and Poisoning Protocol

Poisoning may occur by ingesting, injecting, inhaling or absorbing a harmful substance or a substance in harmful quantities. Due to the magnitude and multiplicity of agents that are toxic or could be used as toxins, this protocol focuses on a general approach to the patient who has taken an overdose or has been exposed to a toxic agent. The substance container may have vital information for resuscitation of a poisoned patient. Communication with Medical Control is the best way to obtain rapid and accurate advice on treatment guidelines for specific substances.

Emergency Medical Responder Care

Emergency Medical Responder Care should be focused on assessing the situation and initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock. Also of importance is to attempt to identify the substance (drug or poison) that that was involved.

1. Consider possible scene & patient contamination and follow agency safety procedures.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. **Oxygen**: If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
4. **Narcan**: 2mg IN if suspected narcotic overdose **and respiratory rate/ effort is insufficient.**

BLS Care

BLS Care should be directed at conducting a thorough patient assessment, initiating routine patient care to assure that the patient has a patent airway, is breathing and has a perfusing pulse as well as beginning treatment for shock and preparing the patient for or providing transport.

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. **Narcan**: 2mg IN/ IM if suspected narcotic overdose **and respiratory rate/ effort is insufficient.**
3. Apply **Waveform Capnography** (if equipped).

Drug Overdose and Poisoning Protocol

ILS Care

ILS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ILS Care includes all components of *BLS Care*.
2. Obtain **IV/IO access**.
3. **Narcan:** 0.4mg – 2mg IV every 2-4 minutes to a max of 6 mg if suspected narcotic overdose **and respiratory rate/ effort is insufficient**.
4. ****If a patient is given Narcan and their condition improves as a result desires to refuse transport, follow the high risk refusal policy. Every effort should be made to make transport agreeable to the patient. If the patient continues to refuse, contact medical control for direction.**
5. **IV Fluid Therapy:** 500mL fluid bolus's if the patient is hypotensive to maintain a systolic BP of at least 100mmHg.
6. Initiate ALS intercept if needed and transport as soon as possible.
7. Contact the receiving hospital as soon as possible or Medical Control if necessary.

ALS Care

ALS Care should be directed at continuing or establishing care, conducting a thorough patient assessment, stabilizing the patient's perfusion and preparing for or providing patient transport.

1. ALS Care includes all components of *ILS Care*.
2. ALS should modify Narcan usage as follows:
3. **Narcan:** 0.4mg – 2mg IV every 2-4 minutes to a max of 6 mg if suspected narcotic overdose **and respiratory rate/ effort is insufficient**.
****If a patient is given Narcan and their condition improves as a result desires to refuse transport, follow the high risk refusal policy. Every effort should be made to make transport agreeable to the patient. If the patient continues to refuse, contact medical control for direction.**
4. **Sodium Bicarbonate:** 50meq IV/IO if known tricyclic antidepressant (TCA) or known Aspirin (ASA) overdose.
5. **Midazolam (Versed):** 2.5mg IV or 5mg IM for suspected stimulant poisoning/ over-ingestion. (Cocaine, Methamphetamine, Bath salts, Adderall, etc.)

Drug Overdose and Poisoning Protocol

Critical Thinking Elements

- Our goal (ALS) with Narcan is to counteract opioid induced (severe) respiratory depression, insufficiency, and apnea only. Our goal is NOT to “wake the patient up” or use it simply as a “rule out”. Using Narcan unnecessarily or excessively can cause withdrawals, agitation, vomiting, and possibly seizures. The use of Capnography is very beneficial for these patient encounters.
- Should EMS encounter a patient who received Narcan from Law Enforcement, EMS cannot resupply the officer. Law Enforcement agencies have their own supply process.
- DO NOT give a suspected poisoning patient anything by mouth.
- Common Acids: Hydrochloric Acid (swimming pool and toilet bowl cleaners), Sulfuric Acid (battery acid), Acetic Acid and Phenol.
- Common Bases (Alkali): Lye (washing powders and paint removers), drain pipe cleaners (Drano), disk batteries, bleach, ammonia, polishes, dyes and jewelry cleaners.
- Common TCAs: Amitriptyline, Elavil, Doxepin, Imipramine, Clomipramine, etc. Patients who overdose on TCAs may initially appear well but may rapidly deteriorate. Monitor closely for ALOC and cardiovascular instability. Tachycardia and a widened QRS complex are generally signs of a life-threatening ingestion.
- Central Nervous System Depressants: examples include but are not limited to alcohol, benzodiazepines, and barbituates. AMS, respiratory depression, hypotension, bradycardia, and vomiting are all common symptoms of over-ingestion. AMS and Routine Patient Care Protocol should be initiated. Contact Medical Control.
- Common Benzodiazepines: Valium, Diazepam, Ativan, Lorazepam, Xanax, etc.
- Beta Blockers: examples include but are not limited to Metoprolol, Atenolol, Propranolol, Toprol, Bisoprolol. These medications commonly end with “lol” when in generic form. Bradycardia, hypotension, pallor, diaphoresis, and syncope/ near-syncope are all common symptoms of over-ingestion. Routine Cardiac Care Protocol should be initiated. Contact Medical Control.
- Calcium Channel Blockers: examples include but are not limited to Amlodipine, Diltiazem, Verapamil, Nicardipine, and Procardia. These medications commonly end in “pine” when in generic form. AMS, Bradycardia, hypotension, and ECG changes are all common symptoms of over-ingestion. Routine Cardiac Care Protocol should be initiated. Contact Medical Control.

MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

Sepsis

-Sepsis, or septic shock, refers to the massive immune response to an infection within the body. Often times the patient is suffering from a known infection (urinary tract infections and pneumonia being the most common). However the scale of the infection, and the body's response to it, forces the body to focus on reacting to the infection at the risk of other body systems. Antibiotic resistance and the aging populations who are living longer have helped to gain recognition for this medical crisis. Sepsis ranks among the top ten causes of mortality, but also ranks as the most costly medical condition treated in the United States' hospitals.

-Septic shock is truly a life threatening emergency. However, when assessing a patient suffering from septic shock they present much more stable than the status of most life threatening conditions to which EMS responds. The septic shock patient may not appear to be in shock, there was not a sudden change in the patient's condition, nor was there a specific event that can be identified as the cause. Close examination will start to note a series of subtle changes that should be seen as key indicators of sepsis.

Emergency Medical Responder Care

1. Screen all patients ≥ 40 years old with medical complaint in addition to any with suspected underlying sepsis complaint.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. **Oxygen:** If respiratory distress noted, 15 LPM via NRM or 6 LPM via nasal cannula.
 - a. If no obvious respiratory distress, apply pulse ox. If $\geq 94\%$ and no signs/symptoms of respiratory distress, no Oxygen is required. If $\leq 89\%$ apply nasal cannula at 2-6 LPM. If unable to increase $\geq 94\%$ move to 15 LPM via NRM.
4. Focus should be given to a very thorough assessment.
5. Utilize the Miami Sepsis Scoring tool for initial indicators of shock.

Miami Sepsis Score

1	Body temp $\geq 38^{\circ}\text{C}$ (100.4°F) or $\leq 35.5^{\circ}\text{C}$ (96.0°F) *Make sure to specify how the temp was taken*
1	Respiratory Rate ≥ 22 / minute
2	Shock Index ≥ 0.7 (Heart rate/ Systolic Blood Pressure)
	Composite score

BLS Care

1. BLS Care includes all components of *Emergency Medical Responder Care*.
2. Apply **Waveform Capnography**

MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

Sepsis

ILS Care

1. ILS Care includes all components of *BLS Care*.
2. Obtain **IV/IO access**.
3. **IV fluid therapy:** If Sepsis Score of 3-4 begin a 500mL fluid bolus. Assess for signs of pulmonary edema/ CHF. Reassess vital signs and for signs of fluid overload after each 500 mL infused. If no signs of fluid overload may repeat until 2 L infused.

ALS Care

1. ALS Care includes all components of *ILS Care*.
2. Contact the receiving hospital as soon as possible.

EMS Alert Patient Report- Sepsis

If Miami Sepsis Score of 3-4 **AND** $ETCO_2 \leq 25$, identify patient as EMS Alert Patient Report- Potential Sepsis.

OR

If Miami Sepsis Score of 3-4 **AND** $SBP \leq 90$ mmHg identify patient as EMS Alert Patient Report- Potential Sepsis.

The following information and format necessitate expedited delivery of information for potential pre-hospital sepsis identification.

1. Unit identification
2. ETA & Destination if other than Medical Control Center being contacted.
3. "Inbound EMS Alert Patient Report- Potential Sepsis."
 - a. The above statement should be made within the first 5 seconds of the communication.
4. History of present illness
 - a. Miami Sepsis Score and $ETCO_2$
5. Patient Status
 - a. Level of consciousness
 - b. Vital Signs (including initial BP)
 - c. Additional pertinent complaints
6. Acknowledge necessary treatment plan. (May not be complete at time of communication.)
7. Determine destination (facility and location).

Sepsis

Pearls

- **ETCO₂ \leq 25 correlates with a Lactic Acid \geq 4.**
- **Sepsis survival is currently correlated with aggressive fluid resuscitation and early antibiotic treatment.**
- **Most of the patients that present to the Emergency Department with Severe Sepsis and Septic Shock arrive via EMS.**
- **A Miami Sepsis Score of 3 or 4 correlates with Sepsis and Severe Sepsis.**
- **Other Disease States that can mimic Sepsis include cardiogenic shock, hypovolemic shock, dehydration, hyperthyroidism, medication/ drug interaction, lesser infection or allergic reaction.**

EMS

MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

Sepsis Shock Index Chart

	60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	120	
70	0.86	0.89	0.91	0.94	0.97	1.00	1.03	1.06	1.09	1.11	1.14	1.17	1.20	1.23	1.26	1.29	1.31	1.34	1.37	1.40	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63	1.66	1.71	
72	0.83	0.86	0.89	0.92	0.94	0.97	1.00	1.03	1.06	1.08	1.11	1.14	1.17	1.19	1.22	1.25	1.28	1.31	1.33	1.36	1.39	1.42	1.44	1.47	1.50	1.53	1.56	1.58	1.61	1.67	
74	0.81	0.84	0.86	0.89	0.92	0.95	0.97	1.00	1.03	1.05	1.08	1.11	1.14	1.16	1.19	1.22	1.24	1.27	1.30	1.32	1.35	1.38	1.41	1.43	1.46	1.49	1.51	1.54	1.57	1.62	
76	0.79	0.82	0.84	0.87	0.89	0.92	0.95	0.97	1.00	1.03	1.05	1.08	1.11	1.13	1.16	1.18	1.21	1.24	1.26	1.29	1.32	1.34	1.37	1.39	1.42	1.45	1.47	1.50	1.53	1.58	
S	78	0.77	0.79	0.82	0.85	0.87	0.90	0.92	0.95	0.97	1.00	1.03	1.05	1.08	1.10	1.13	1.15	1.18	1.21	1.23	1.26	1.28	1.31	1.33	1.36	1.38	1.41	1.44	1.46	1.49	1.54
y	80	0.75	0.78	0.80	0.83	0.85	0.88	0.90	0.93	0.95	0.98	1.00	1.03	1.05	1.08	1.10	1.13	1.15	1.18	1.20	1.23	1.25	1.28	1.30	1.33	1.35	1.38	1.40	1.43	1.45	1.50
s	82	0.73	0.76	0.78	0.80	0.83	0.85	0.88	0.90	0.93	0.95	0.98	1.00	1.02	1.05	1.07	1.10	1.12	1.15	1.17	1.20	1.22	1.24	1.27	1.29	1.32	1.34	1.37	1.39	1.41	1.46
t	84	0.71	0.74	0.76	0.79	0.81	0.83	0.86	0.88	0.90	0.93	0.95	0.98	1.00	1.02	1.05	1.07	1.10	1.12	1.14	1.17	1.19	1.21	1.24	1.26	1.29	1.31	1.33	1.36	1.38	1.43
o	86	0.70	0.72	0.74	0.77	0.79	0.81	0.84	0.86	0.88	0.91	0.93	0.95	0.98	1.00	1.02	1.05	1.07	1.09	1.12	1.14	1.16	1.19	1.21	1.23	1.26	1.28	1.30	1.33	1.35	1.40
l	88	0.68	0.70	0.73	0.75	0.77	0.80	0.82	0.84	0.86	0.89	0.91	0.93	0.95	0.98	1.00	1.02	1.05	1.07	1.09	1.11	1.14	1.16	1.18	1.20	1.23	1.25	1.27	1.30	1.32	1.36
i	90	0.67	0.69	0.71	0.73	0.76	0.78	0.80	0.82	0.84	0.87	0.89	0.91	0.93	0.96	0.98	1.00	1.02	1.04	1.07	1.09	1.11	1.13	1.16	1.18	1.20	1.22	1.24	1.27	1.29	1.33
c	92	0.65	0.67	0.70	0.72	0.74	0.76	0.78	0.80	0.83	0.85	0.87	0.89	0.91	0.93	0.96	0.98	1.00	1.02	1.04	1.07	1.09	1.11	1.13	1.15	1.17	1.20	1.22	1.24	1.26	1.30
	94	0.64	0.66	0.68	0.70	0.72	0.74	0.77	0.79	0.81	0.83	0.85	0.87	0.89	0.91	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.09	1.11	1.13	1.15	1.17	1.19	1.21	1.23	1.28
B	96	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.83	0.85	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.13	1.15	1.17	1.19	1.21	1.25
l	98	0.61	0.63	0.65	0.67	0.69	0.71	0.73	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.18	1.22
o	100	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.16	1.20
o	102	0.59	0.61	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.76	0.78	0.80	0.82	0.84	0.86	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.14	1.18
d	104	0.58	0.60	0.62	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77	0.79	0.81	0.83	0.85	0.87	0.88	0.90	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.10	1.12	1.15
	106	0.57	0.58	0.60	0.62	0.64	0.66	0.68	0.70	0.72	0.74	0.75	0.77	0.79	0.81	0.83	0.85	0.87	0.89	0.91	0.92	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.08	1.09	1.13
P	108	0.56	0.57	0.59	0.61	0.63	0.65	0.67	0.69	0.70	0.72	0.74	0.76	0.78	0.80	0.81	0.83	0.85	0.87	0.89	0.91	0.93	0.94	0.96	0.98	1.00	1.02	1.04	1.06	1.07	1.11
r	110	0.55	0.56	0.58	0.60	0.62	0.64	0.65	0.67	0.69	0.71	0.73	0.75	0.76	0.78	0.80	0.82	0.84	0.85	0.87	0.89	0.91	0.93	0.95	0.96	0.98	1.00	1.02	1.04	1.05	1.09
e	112	0.54	0.55	0.57	0.59	0.61	0.63	0.64	0.66	0.68	0.70	0.71	0.73	0.75	0.77	0.79	0.80	0.82	0.84	0.86	0.88	0.89	0.91	0.93	0.95	0.96	0.98	1.00	1.02	1.04	1.07
s	114	0.53	0.54	0.56	0.58	0.60	0.61	0.63	0.65	0.67	0.68	0.70	0.72	0.74	0.75	0.77	0.79	0.81	0.82	0.84	0.86	0.88	0.89	0.91	0.93	0.95	0.96	0.98	1.00	1.02	1.05
s	116	0.52	0.53	0.55	0.57	0.59	0.60	0.62	0.64	0.66	0.67	0.69	0.71	0.72	0.74	0.76	0.78	0.79	0.81	0.83	0.84	0.86	0.88	0.90	0.91	0.93	0.95	0.97	0.98	1.00	1.03
u	118	0.51	0.53	0.54	0.56	0.58	0.59	0.61	0.63	0.64	0.66	0.68	0.69	0.71	0.73	0.75	0.76	0.78	0.80	0.81	0.83	0.85	0.86	0.88	0.90	0.92	0.93	0.95	0.97	0.98	1.02
r	120	0.50	0.52	0.53	0.55	0.57	0.58	0.60	0.62	0.63	0.65	0.67	0.68	0.70	0.72	0.73	0.75	0.77	0.78	0.80	0.82	0.83	0.85	0.87	0.88	0.90	0.92	0.93	0.95	0.97	1.00
e	122	0.49	0.51	0.52	0.54	0.56	0.57	0.59	0.61	0.62	0.64	0.66	0.67	0.69	0.70	0.72	0.74	0.75	0.77	0.79	0.80	0.82	0.84	0.85	0.87	0.89	0.90	0.92	0.93	0.95	0.98
	124	0.48	0.50	0.52	0.53	0.55	0.56	0.58	0.60	0.61	0.63	0.65	0.66	0.68	0.69	0.71	0.73	0.74	0.76	0.77	0.79	0.81	0.82	0.84	0.85	0.87	0.89	0.90	0.92	0.94	0.97
	128	0.47	0.48	0.50	0.52	0.53	0.55	0.56	0.58	0.59	0.61	0.63	0.64	0.66	0.67	0.69	0.70	0.72	0.73	0.75	0.77	0.78	0.80	0.81	0.83	0.84	0.86	0.88	0.89	0.91	0.94
	130	0.46	0.48	0.49	0.51	0.52	0.54	0.55	0.57	0.58	0.60	0.62	0.63	0.65	0.66	0.68	0.69	0.71	0.72	0.74	0.75	0.77	0.78	0.80	0.82	0.83	0.85	0.86	0.88	0.89	0.92
	132	0.45	0.47	0.48	0.50	0.52	0.53	0.55	0.56	0.58	0.59	0.61	0.62	0.64	0.65	0.67	0.68	0.70	0.71	0.73	0.74	0.76	0.77	0.79	0.80	0.82	0.83	0.85	0.86	0.88	0.91
	134	0.45	0.46	0.48	0.49	0.51	0.52	0.54	0.55	0.57	0.58	0.60	0.61	0.63	0.64	0.66	0.67	0.69	0.70	0.72	0.73	0.75	0.76	0.78	0.79	0.81	0.82	0.84	0.85	0.87	0.90
	136	0.44	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.59	0.60	0.62	0.63	0.65	0.66	0.68	0.69	0.71	0.72	0.74	0.75	0.76	0.78	0.79	0.81	0.82	0.84	0.85	0.88
	138	0.43	0.45	0.46	0.48	0.49	0.51	0.52	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65	0.67	0.68	0.70	0.71	0.72	0.74	0.75	0.77	0.78	0.80	0.81	0.83	0.84	0.87
	140	0.43	0.44	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.59	0.60	0.61	0.63	0.64	0.66	0.67	0.69	0.70	0.71	0.73	0.74	0.76	0.77	0.79	0.80	0.81	0.83	0.86
	142	0.42	0.44	0.45	0.46	0.48	0.49	0.51	0.52	0.54	0.55	0.56	0.58	0.59	0.61	0.62	0.63	0.65	0.66	0.68	0.69	0.70	0.72	0.73	0.75	0.76	0.77	0.79	0.80	0.82	0.85
	144	0.42	0.43	0.44	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.56	0.57	0.58	0.60	0.61	0.63	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.74	0.75	0.76	0.78	0.79	0.81	0.83
	146	0.41	0.42	0.44	0.45	0.47	0.48	0.49	0.51	0.52	0.53	0.55	0.56	0.58	0.59	0.60	0.62	0.63	0.64	0.66	0.67	0.68	0.70	0.71	0.73	0.74	0.75	0.77	0.78	0.79	0.82
	148	0.41	0.42	0.43	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.64	0.65	0.66	0.68	0.69	0.70	0.72	0.73	0.74	0.76	0.77	0.78	0.81
	150	0.40	0.41	0.43	0.44	0.45	0.47	0.48	0.49	0.51	0.52	0.53	0.55	0.56	0.57	0.59	0.60	0.61	0.63	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.75	0.76	0.77	0.80
	152	0.39	0.41	0.42	0.43	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.55	0.57	0.58	0.59	0.61	0.62	0.63	0.64	0.66	0.67	0.68	0.70	0.71	0.72	0.74	0.75	0.76	0.79
	154	0.39	0.40	0.42	0.43	0.44	0.45	0.47	0.48	0.49	0.51	0.52	0.53	0.55	0.56	0.57	0.58	0.60	0.61	0.62	0.64	0.65	0.66	0.68	0.69	0.70					

MEMORIAL EMS SYSTEM
ADULT PREHOSPITAL CARE MANUAL

Alternate Vascular Access
(ALS Only)

A pre-existing vascular access device is an indwelling catheter placed into a central vein to provide vascular access for those patients requiring long term intravenous therapy or hemodialysis.

Should EMS respond to a location where nursing staff have already accessed such devices and the patient needs fluid or medications, EMS may continue to utilize the device.

Patients Without Protocols

It is not realistically possible to include every potential situation that EMS may encounter during the course of their work. As such, this protocol should be referred to any times EMS encounters a situation where they have a known condition, but no specific protocol with which to refer.

EMR Care, BLS Care, TEMS Care, ILS Care, ALS Care

1. In any situation where EMS feels a specific condition exists which they do not have a protocol to specifically address the patient should be treated based on the protocol with which there signs and symptoms align.
2. Prompt notification and consultation with Medical Control can assist in specific nuances of the patient condition.
 - a. If the patient has a known medical or functional need, gaining information from caregiver or family member and/or the medical resource binder may be the most expeditious means to appropriate information.