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MEDICAL PROTOCOLS

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Section 14 Table of Contents

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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** prior to administration in these situations.

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.

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If $\geq$ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If $\leq$94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to $\geq$94%.
3. Perform a **blood glucose level test.**
4. **Oral Glucose**: If blood sugar $\leq$ 60mg/dL, give Oral Glucose 15g PO. The patient must be alert, sitting in an upright position, have good airway control and an intact gag reflex. *Glucose tablets, high carb foods, sugary juices, etc. may be used in lieu of Oral Glucose.

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Altered Level of Consciousness (ALOC) Protocol

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Perform a **blood glucose level test** to re-evaluate blood sugar 5 minutes after administration of Oral Glucose. If blood sugar remains ≤ 60mg/dL, administer a 2nd dose of Oral Glucose (15g) or high carb food alternative. Patients with a blood glucose level of 100-249mg/dL do not require additional treatment.
3. **Glucagon**: 1mg IM if blood sugar is ≤ 60mg/dL, the patient is unresponsive and/or has questionable airway control, or absent gag reflex.
4. Initiate Paramedic Care intercept if needed and transport as soon as possible.

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care*.
2. Obtain **IV access**.
3. **D10W**: 250mL IV if blood sugar is ≤ 60mg/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 ≥ 250mg/dL, give 500ml 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.

Altered Level of Consciousness (ALOC) Protocol

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I.*
2. Contact receiving hospital as soon as possible.

Pearls

- **Look for Medic Alert tags.**
- **The provider should know what ''HI'' and ''LO'' parameters are for their specific glucometers. When "HI or LO" readings are found, this should be included in the PCR.**
- **Glucometer quality control tests should be performed weekly.**
- **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 ≥ 800mg/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 history 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 / PARAMEDIC: 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 cause of the patient's hypoglycemia can be easily explained (*e.g.* patient took insulin but did not eat).**

Suspected Stroke Protocol

A stroke 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.**

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

Maintain a high index of suspicion for patients with previous medical history of:

- TIA
- CVA
- Hypertension
- Cardiac disease
- Sickle cell anemia
- Atrial Fibrillation
- Recent surgery

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 large vessel occlusion the *Los Angeles Motor Score* should be utilized.

Suspected Stroke Protocol

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

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If ≥ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If ≤94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to ≥94%.
3. **Perform blood glucose level test** to rule out low blood glucose as a reason for ALOC. If the blood glucose is ≤ 60 refer to the ALOC Protocol.
4. Check and record vital signs every ***5 minutes*** until the transporting unit arrives.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. If active seizure is noted, refer to Seizure Protocol.
4. Apply **Waveform Capnography**.
5. Initiate PARAMEDIC intercept if needed and **transport without delay**.
6. If a 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 patients last known well.** (this is the last time the patient or bystanders report the patient to be seen without symptoms).

Suspected Stroke Protocol

Transporting Units

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

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 applicable EMS *Stroke Transfer Protocol* and *Patient Destination Criteria*.
    b. Include Medical Control in the decision making.

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care*.
2. Obtain **IV access**.

Suspected Stroke Protocol

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I*.

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 whose 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 treatment and intervention. 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.**
- **SMR should be provided if spinal cord injury or other trauma is suspected.**
- **Communicate acute stroke/suspected stroke early in the report 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.**

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.

EMR Care

EMR 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*.
1. **Oxygen**: If respiratory distress is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If $\geq$ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If $\leq$94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to $\geq$94%.
2. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. Perform **blood glucose level test**, if $\leq$ 60 refer to ALOC Protocol as well.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Apply **Waveform Capnography** (if equipped).
3. Initiate Paramedic care intercept and transport ASAP.

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Seizure Protocol

A-EMT/ EMT-I

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT 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.
3. Obtain **IV access**

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I*.
2. **Midazolam (Versed)**: 10mg IM, *Do not delay for placement of IV.* 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.

I.M. Only Dosing	I.V./I.O. Only Dosing	I.M. Then I.V. Established Dosing
Versed- 10mg I.M. then 5mg one time in 5 minutes if still actively seizing	Versed- 5mg I.V./I.O. then 2.5mg every 5 minutes if still actively seizing until a total of 15mg administered.	Versed- 10mg I.M. then 2.5mg I.V./I.O. every 5 minutes if still actively seizing until a total of 15mg administered.

Critical Thinking

- Versed (Midazolam) typically comes in a concentration of 10mg/ 2ml (always check concentration and 5 rights). In this concentration *2.5mg = 0.5 ml, 5.0mg = 1 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. If diluted the provider should note this on the waste documentation.

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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.

EMR Care

EMR 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. Be prepared to support the patient's respirations with BVM if necessary and have suction readily available.
3. **Oxygen**: If respiratory distress is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If $\geq$ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If $\leq$94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to $\geq$94%.
4. Check and record vital signs every ***5 minutes*** until the transporting unit arrives.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Initiate Paramedic Care 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. **Obtain 12-lead EKG** (if equipped).
6. Keep the patient as calm as possible. Assist with patient movement as much as possible.
7. Contact the receiving hospital as soon as possible.

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Hypertensive Crisis Protocol

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care*.
2. Treatment symptoms based on appropriate protocols.

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I*.
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 may 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. 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.

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If ≥ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If ≤94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to ≥94%.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Initiate Paramedic Care 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**. (If known pregnant female **Contact Medical Control** prior)

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care*. Obtain **IV access.**
2. **Ondansetron (Zofran):** 4mg ODT or IV for nausea and/or vomiting. May repeat in 20 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.
4. **Pain medication**
    a. Based on *Pain Control Protocol* dosing.

Acute Abdominal Pain Protocol

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I.*
2. **Pain medication**
    a. Based on *Pain Control Protocol* dosing.
3. 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.**

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.

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If $\geq$ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If $\leq$94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to $\geq$94%.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Perform **blood glucose level test**, if blood sugar is < 60mg/DL refer to ALOC Protocol.
3. **Ondansetron (Zofran) ODT:** 4mg for nausea and/or vomiting. (If known pregnant female **Contact Medical Control** prior)
4. Consider **12 lead EKG** especially in elderly, female, and/or diabetic patients.
5. Initiate Paramedic Care intercept if needed and transport as soon as possible.

Acute Nausea & Vomiting Protocol

A-EMT/ EMT-I Care

A-EMT/ EMT-I should be focused on continuing or initiating an advanced level of care, identifying potential serious conditions and stabilizing airway and circulation where appropriate.

1. A-EMT/ EMT-I includes all components of *EMT Care*. Obtain **IV Access**.
2. **Ondansetron (Zofran):** 4mg ODT or IV for nausea and/or vomiting. May repeat in 20 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 ≥100mmHg.

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I*. Initiate transport ASAP

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 envenomation's 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.

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If ≥ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If ≤94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to ≥94%.
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.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. Initiate Paramedic Care intercept and transport as soon as possible.
3. **Epinephrine 1:1,000 (1mg/1ml)**: 0.3mg (auto-injector dose) or 0.5mg (draw-up dose) 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. **DuoNeb:** Albuterol (Proventil) 2.5mg + Ipratropium bromide (Atrovent) 0.5mg via nebulizer. May repeat the Duo-neb x2 after completion of the first if needed for continued symptomatic relief.
5. Apply **Waveform Capnography** (if equipped).
6. **Contact Medical Control** as soon as possible.

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Allergic Reaction / Anaphylaxis Protocol

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT 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 and no S/S of fluid overload are present.
5. **Benadryl**: 50mg IV or IM for severe itching and/or hives.

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I.*
    1. **METHYLPREDNISOLONE** (Solu-Medrol): 125 mg IV. *Methylprednisolone (Solu-Medrol) 125mg I.M. may be administered if I.V. access is unsuccessful and after all other treatments have been completed.*
    2. 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.**
- **The left Thigh is the preferred administration site for IM Epinephrine.**

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.

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If $\geq$ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If $\leq$94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to $\geq$94%.
4. **Narcan**: 2mg IN if suspected narcotic overdose **and respiratory rate/ effort is insufficient.** May repeat in 2-3 minutes to a maximum dose of 4 mg if no response.

EMT Care

EMT 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. EMT Care includes all components of *EMR Care*.
2. **Narcan**: 2mg IN/ IM if suspected narcotic overdose **and respiratory rate/ effort is insufficient.** May repeat in 2-3 minutes to a maximum dose of 4 mg if no response.
3. Apply **Waveform Capnography** (if equipped).
4. Initiate Paramedic Care intercept if needed and transport as soon as possible.

Drug Overdose and Poisoning Protocol

A-EMT/ EMT-I Care

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care*.
2. Obtain **IV/IO access**.
3. **Narcan:** 0.4mg – 2mg IV every 2-3 minutes to a max of 6 mg if suspected narcotic overdose **and respiratory rate/ effort is insufficient**.
   ******If a patient who 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. **IV Fluid Therapy**: 500mL fluid boluses if the patient is hypotensive to maintain a systolic BP of at least 100mmHg.
5. Contact the receiving hospital as soon as possible or Medical Control if necessary.

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I*.
2. **Sodium Bicarbonate**: 50meq IV/IO if known tricyclic antidepressant (TCA) or known Aspirin (ASA) overdose.
3. **Midazolam (Versed):** 2.5mg IV or 5mg IM for suspected stimulant poisoning/ over-ingestion. (Cocaine, Methamphetamine, Bath salts, Adderall, etc.)
4. **Medical Control** may consider **Glucagon IV/ IO** for known Beta Blocker overdose.

Drug Overdose and Poisoning Protocol

Critical Thinking Elements

- **Our goal 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, Impramine, 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 barbiturates. 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.**

Sepsis

Sepsis, or septic shock, refers to the massive immune response to an infection within the body. Often 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. Sepsis ranks among the top ten causes of mortality, but also ranks as the costliest 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.

EMR Care

1. Screen all patients with medical complaints in addition to anyone with suspected underlying sepsis complaint.
2. Render initial care in accordance with the *Routine Patient Care Protocol*.
3. **Oxygen**: If respiratory distress is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If ≥ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If ≤94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to ≥94%.
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 ≥38*C (100.4*F) or ≤ 35.5* 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

*Pregnancy may increase the shock index findings due to the normal physiologic changes.

EMT Care

1. EMT Care includes all components of *EMR Care*.
2. Apply **Waveform Capnography**

Sepsis

A-EMT/ EMT-I

1. A-EMT/ EMT-I includes all components of *EMT 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.
4. Notify receiving hospital of "SEPSIS ALERT"
5. Consider **12-Lead EKG**

Paramedic Care

1. Paramedic Care includes all components of *A-EMT/ EMT-I*.
2. After at least a 1 Liter Fluid bolus has been infused, Initiate Norepinephrine if SBP remains ≤ 90mmHg or MAP ≤65mmHg.
    a. **Norepinephrine:** 4mcg/min (15gtts/min on 60 drop tubing) IO or large bore proximal IV (18 gauge or larger).
    b. Titrate Norepinephrine every 5min min by 4mcg/min to maintain SBP ≥ 90mmHg or MAP ≥ 65mmHg.
    c. Contact the receiving hospital as soon as possible.

DOSING CHART BASED ON 60 GTT/mL TUBING

Desired Dose (mcg/min)	4 mcg/min	8 mcg/min	12 mcg/min	16 mcg/min	20 mcg/min
Drip rate (drops/min)	15 gtts/min	30 gtts/min	45 gtts/min	60 gtts/min	75 gtts/min

- Norepinephrine is 4mg in 250mL of D5W (typical) giving a concentration of 16mcg/mL.
- Norepinephrine and 60 gtt tubing must be stored together in drug bag.
- Monitor IV site for any signs of medication extravasation. If concerns for norepinephrine extravasation, discontinue use of involved IV site (for any use) and notify receiving hospital staff of extravasation at patient handoff. Leave the IV cannula in place.

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Sepsis

EMS Alert Patient Report- Sepsis

If Miami Sepsis Score of 3-4 ***AND*** ETCO2 ≤ 25, identify patient as EMS Alert Patient Report- Potential Sepsis.
OR
If Miami Sepsis Score of 3-4 ***AND*** SBP ≤ 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 ETCO2
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).

Pearls

- **ETCO2 ≤ 25 correlates with a Lactic Acid ≥ 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.**

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Sepsis Shock Index Chart

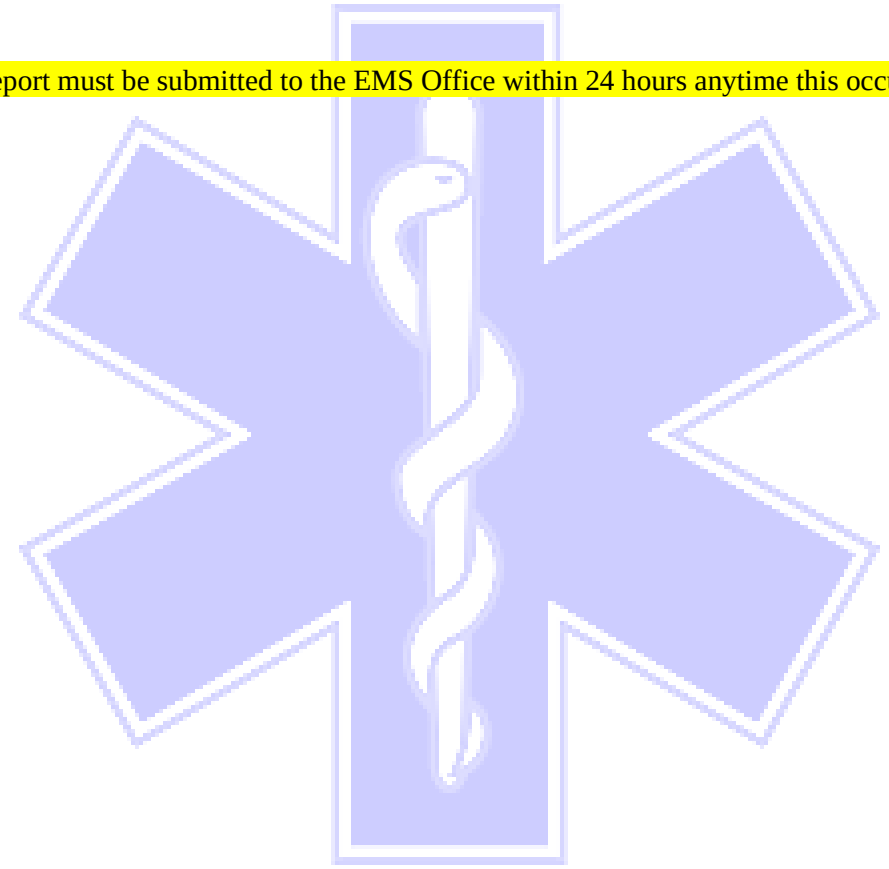
												Heart Rate																		
		60	62	64	66	68	70	72	74	76	78	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110	112	114	116	120
	70	0.86	0.89	0.91	0.94	0.97	1.00	1.03	1.06	1.09	1.11	1.14	1.17	1.20	1.23	1.26	1.29	1.31	1.34	1.37	1.40	1.43	1.46	1.49	1.51	1.54	1.57	1.60	1.63	1.66	1.71
	72	0.83	0.86	0.89	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	0.71	0.73	0.74	0.75	0.78
	156	0.38	0.40	0.41	0.42	0.44	0.45	0.46	0.47	0.49	0.50	0.51	0.53	0.54	0.55	0.56	0.58	0.59	0.60	0.62	0.63	0.64	0.65	0.67	0.68	0.69	0.71	0.72	0.73	0.74	0.77
	158	0.38	0.39	0.41	0.42	0.43	0.44	0.46	0.47	0.48	0.49	0.51	0.52	0.53	0.54	0.56	0.57	0.58	0.59	0.61	0.62	0.63	0.65	0.66	0.67	0.68	0.70	0.71	0.72	0.73	0.76
	160	0.38	0.39	0.40	0.41	0.43	0.44	0.45	0.46	0.48	0.49	0.50	0.51	0.53	0.54	0.55	0.56	0.58	0.59	0.60	0.61	0.63	0.64	0.65	0.66	0.68	0.69	0.70	0.71	0.73	0.75

Alternate Vascular Access

(Paramedic 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.



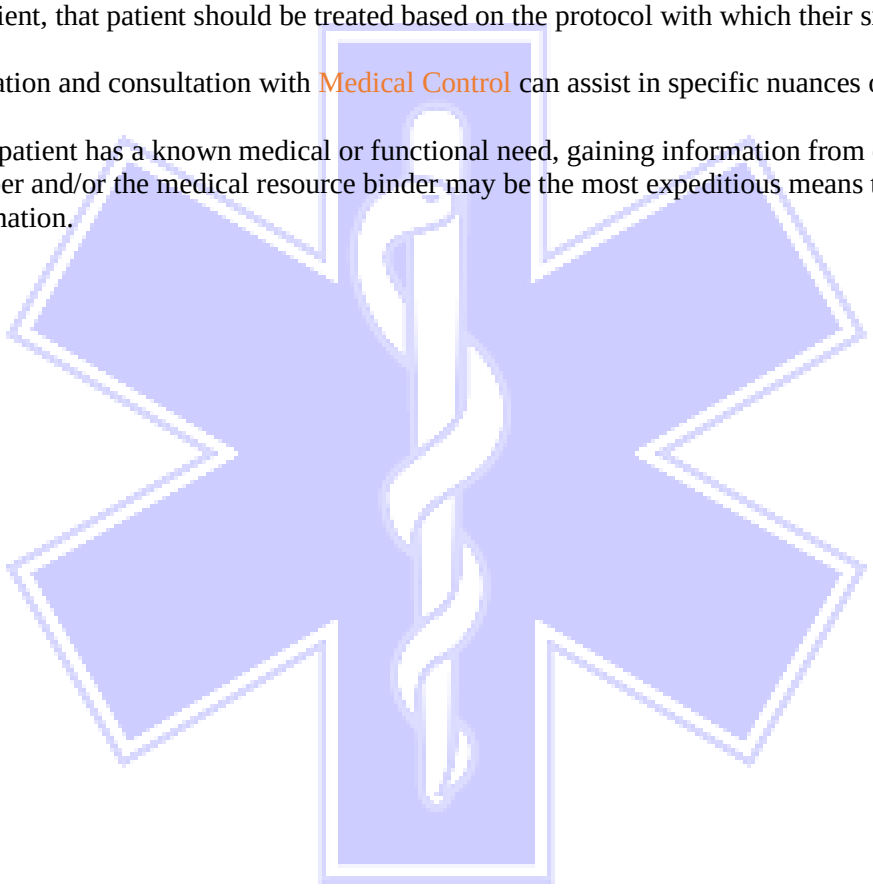
- An incident report must be submitted to the EMS Office within 24 hours anytime this occurs.

Patients Without Protocols

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

EMR, BLS, TEMS, ILS, and Paramedic Care

1. In any situation where EMS feels a specific condition exists which they do not have a protocol to specifically address the patient, that patient should be treated based on the protocol with which their 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.



Hemorrhagic Shock Alert

Hemorrhagic blood loss can be the result of circumstances outside of what are typically described as trauma. As such, a mechanism for EMS to communicate the urgent need to transfuse blood could significantly expediate patient care.

Indications

- Immediate post-surgical procedure with acute signs of hypoperfusion
- Known diagnosis (or reasonable belief based on history and assessment) with likelihood of acute blood loss
    - Aortic aneurism
    - Ob/gyn emergency bleeding including ectopic
- Ruptured fistula, graft or other indwelling vascular access device
- GI Bleed (upper or lower)
- Esophageal varices
- Extreme epistaxis
- Post tonsillectomy hemorrhage

Common signs and symptoms of shock include:

- Confusion
- Restlessness
- Combativeness
- ALOC
- Pallor
- Diaphoresis
- Unexplained tachycardia (persistent or worsening after stress of the event subsides)
- Tachypnea
- Hypotension

Conditions that may indicate impending shock include:

- Tender and/or distended abdomen (as applicable)
- Hypotension
- Shock Index >1.0 (or if unable to obtain a BP, Tachycardia with absent Radial pulse)

EMR Care

EMR 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 is noted, 15 LPM via NRM or if unable to tolerate the mask, 6 LPM via nasal cannula.
    a. If no obvious respiratory distress is noted, apply a pulse ox. If ≥ 94% and no signs/ symptoms of respiratory distress, no Oxygen is required. If ≤94% apply nasal cannula at 2-6 LPM or 15 LPM via NRM as needed to raise pulse ox to ≥94%.
    b. Work to identify any blood thinners being taken by the patient.

Memorial EMS
Decatur Memorial EMS
Springfield Memorial EMS

Hemorrhagic Shock Alert

EMT Care

EMT 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. EMT Care includes all components of *EMR Care.*
2. Apply **waveform capnography** (if equipped)
3. Initiate ALS intercept and transport as soon as possible.

A-EMT/ EMT-I

A-EMT/ EMT-I 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. A-EMT/ EMT-I includes all components of *EMT Care.*
2. **IV Fluid Therapy**: 500mL fluid boluses as needed to maintain a systolic BP of 90mmHg. SBP 90 mmHg is optimum to avoid dislodging a clot. ***This permissive hypotension does NOT apply to significant TBI and pregnant patients*. Obtain multiple large bore IV's.**

Paramedic Care

Paramedic 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. Paramedic Care includes all components of *A-EMT/ EMT-I.*
2. If advanced airway control becomes necessary. Consider first line use of airway adjuncts such as the supraglottic airway if intubation appears difficult.
3. **Contact Medical Control** as soon as possible.

Critical Thinking Elements

- "Load & Go" with any patient who is suspected of hemorrhagic shock- on scene treatment should be minimal. Conduct a Primary Survey, manage the airway, and control any life-threatening hemorrhage. **Contact Medical Control** as early as possible.
- Hypotension may not occur in the initial stages of shock. However, aggressive therapy is indicated if there is significant signs and symptoms and/or shock is suspected.
- **IV access should be obtained enroute and should not delay transport time.**
- IV fluid bolus/flow rate should be regulated and patient response to fluid monitored closely.

Hemorrhagic Shock Alert

If Shock Index ≥ 1.0 **AND** any of the listed indicators, identify patient as EMS Alert Patient Report- Hemorrhagic Shock Alert

OR

If tachycardia with no palpable radial pulse **AND** any of the listed indicators, identify patient as EMS Alert Patient Report- Hemorrhagic Shock Alert

Indicators

- Immediate post-surgical procedure with acute signs of hypoperfusion
- Known diagnosis (or reasonable belief based on history and assessment) with likelihood of acute blood loss
  - Aortic aneurism
  - Ob/gyn emergency bleeding including ectopic
- Ruptured fistula, graft or other indwelling vascular access device
- GI Bleed (upper or lower)
- Esophageal varices
- Extreme epistaxis
- Post-tonsillectomy hemorrhage

The following information and format necessitate expedited delivery of information for potential pre-hospital Hemorrhage Shock Alert.

1. Unit identification
2. ETA & Destination if other than Medical Control Center being contacted.
3. “Inbound EMS Aler Patient Report- Hemorrhagic Shock Alert”
4. History of present illness/ condition
   a. Shock Index and Indicator
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.)