

Memorial EMS
Decatur Memorial EMS
Springfield Memorial EMS

General Assessment and Interventions



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General Assessment and Interventions

The goal of the patient assessment process is to measure the status of the patient's perfusion, identify life-threatening conditions, determine the patient's chief complaint and/or mechanism of injury, evaluate the complaint (OPQRST) and obtain a (SAMPLE) history.

The components of the patient assessment process include the scene survey, initial assessment (ABCs) and rapid trauma assessment or detailed physical exam. A focused physical exam may be conducted if the general impression of the patient's condition appears to be of a specific nature.

The EMS provider must constantly monitor the patient's perfusion status. Perfusion is defined as the adequate flow of blood through the body's tissues. For perfusion to be adequate the patient must have an adequate blood volume (with adequate supplies of oxygen and glucose), a properly functioning cardiovascular system and an intact neurological system for regulation of vascular dilation. Failure of the body to maintain adequate perfusion will result in signs and symptoms of shock.

Signs and symptoms of shock vary depending on the degree and cause of shock. Level of consciousness is an important assessment of the patient's vital organ perfusion status. A patient with an altered level of consciousness must be considered at risk of shock. Peripheral tissue condition is another important indicator of perfusion status. A patient with cool, clammy, pale, or cyanotic skin should be considered at risk for shock.

If the patient is found to be in shock, the assessment process should be directed at finding the cause of shock, immediate interventions to support perfusion and prompt transport. Furthermore, if the mechanism of injury or assessment findings suggests that the patient may have a condition that could result in shock, EMS personnel should carefully assess the patient's perfusion status and prepare to treat shock.

The goal of patient care is to identify patients in shock or at risk of shock, initiating care that will directly assist maintaining the patient's perfusion and safely transporting the patient to an appropriate emergency department or trauma center in a timely manner.

The EMS provider must maintain a constant awareness as to what would be the best course of action for optimum and compassionate patient care. The benefit of remaining on scene to establish specific treatments verses prompt transport to a definitive care facility should be a consideration of each patient contact.

General Patient Assessment and Initial Care Procedure

Scene Size-Up

1. Initiate body substance isolation (BSI) precautions prior to arrival at the scene for all patient contacts. Apply appropriate personal protective equipment (PPE). Use special care in the handling of sharps, contaminated objects, linens, etc.
2. Assure the well-being of the EMS crew by assessing **scene safety**. If the scene is not safe, do not enter until appropriate authorities have secured the area (i.e. violent crime calls, domestic violence calls, hazardous materials, etc.).
3. Determine the mechanism of injury, number of patients and need for additional resources.

General Patient Assessment

1. Initial Assessment (Primary Survey)
 - a) Airway: Assess airway patency and assess for possible spinal injury.
 - b) Breathing: Assess for respiratory distress, bilateral chest expansion, rate, pattern & depth of ventilations, adequacy of gas exchange, use of accessory muscles and lung sounds.
 - c) Circulation: Assess rate, quality & regularity of pulses, skin condition, hemodynamic status, and neck veins. Evaluate and record cardiac rhythm if indicated.
 - d) Disability: Mini-neuro exam and assessment of mental status:
 - **A** – Alert
 - **V** – Not alert but responds to verbal stimuli
 - **P** – Not alert but responds to painful stimuli
 - **U** – Unresponsive to all stimuli
 - e) Expose: Examine patient as indicated.
2. Focused History and Physical Exam (Secondary Survey) or Detailed Physical Exam.
 - a) Vitals signs and Glasgow Coma Score
 - b) Chief complaint and history of present illness
 - c) Past medical history, current medications, and allergies
 - d) Systematic head-to-toe assessment (detailed exam/secondary survey)

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Initial Medical Care

1. **Airway:** Establish and maintain a patient's airway by using appropriate patient positioning, airway adjuncts, suctioning and advanced airway control (intubation). Consistently monitor patient's ability to maintain their airway.
2. **Breathing:** Evaluate adequacy of respirations by assessing chest movement, lung sounds and skin condition. Initiate oxygen therapy if indicated and provide or assist ventilations as necessary.
3. **Circulation:** Evaluate perfusion status by assessing carotid and peripheral pulses and skin condition. Initiate CPR and early defibrillation if indicated. Control any external hemorrhage as soon as it is identified and establish IV access with IVF if indicated. No more than two (2) attempts should be made to establish an IV on scene unless requested by Medical Control. Assess both central and peripheral skin for cyanosis.
4. Loosen tight clothing and reassure patient; keep NPO (nothing by mouth) unless specified by protocol or Medical Control.
5. EMT/ A-EMT Units: Initiate Paramedic intercept if indicated (Refer to *Intercept Policy* for optimal patient care).
6. Place the patient in a semi-Fowler's (45°) position of comfort unless contraindicated. Patients with altered mental status should be placed on their side. The backboard should be tilted for immobilized patients with altered mental status to prevent aspiration.
7. Evaluate pain. Ask the patient to rate any pain on a scale of "0-10" with "0" indicating a pain-free state and "10" being the worst pain imaginable.
8. Recheck and record vital signs and patient responses at least every **15 minutes** for stable patients, every **5 minutes** for unstable patients **and after each intervention**. Be sure to accurately document the times the vitals were obtained.
****Special consideration with vital signs for inter-facility**.** For discharged and EMT Care stable inter-facility transfers, vital signs should be obtained and documented every 2 hours with minimum being at the start and end of trip.
9. Establish **Medical Control** contact as indicated.
10. Transport to the closest appropriate hospital. NOTE: Follow System-specific policies regarding patient destination and bypass procedures.

Routine (Initial) Patient Care Protocol

EMR Care

EMR Care should be focused on assessing the situation and establishing initial care to treat and prevent shock:

1. Open and/or maintain an open airway.
2. Loosen all tight clothing and be prepared to expose vital body regions if necessary.
3. Reassure patient by identifying yourself, explaining how you will help them and inform the patient that additional help is en route.
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 $\geq 94\%$.
5. Place patient in a position of comfort. Sit patient upright unless the patient is hypotensive (SBP<100mmHg) or has a potential for spine injury.
6. Ensure that EMS has been activated for further care and transport. Provide responding units with pertinent patient information.
7. Monitor the patient's level of consciousness, vital signs, etc. for any acute changes.

EMT Care

EMT Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation.

1. EMT Care includes all components of *EMR Care*.
2. If indicated and capabilities exist, obtain and transmit 12 lead EKG. Print two extra copies for the transporting unit.
3. Initiate Paramedic Care intercept, if indicated (or A-EMT/EMT-I intercept if Paramedic Care is unavailable).
4. Simultaneously with above, perform physical exam/assessment, obtain baseline vital signs and obtain patient history.
5. Continue to reassess patient en route to the hospital.
6. Transport should be initiated at the earliest possible opportunity.

Routine (Initial) Patient Care Protocol

A-EMT/ EMT-I Care

A-EMT/ EMT-I Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. A-EMT/ EMT-I Care includes all of the components of *EMT Care*.
2. If indicated, establish IV access using a 1000mL IVF with macro drip or blood tubing. No more than two (2) attempts should be made on scene. Infuse at a rate to keep the vein open (TKO) – approximately 8 to 15 drops (gtts) per minute. If no concern for fluid needs, an IV lock can be utilized.
3. Dependent upon patient condition, consider initiating IV access en route to the hospital.
4. Obtain a 12-Lead EKG, if indicated and transmit to receiving hospital. Provide the receiving nurse/physician with a copy of the 12-Lead upon arrival in the ED with request for physician review of the EKG as soon as possible.

Paramedic Care

Paramedic Care should be directed at conducting a thorough patient assessment, providing care to treat for shock and preparing or providing patient transportation. The necessity of establishing IV access is determined by the patient's condition and chief complaint. Consideration should also be given to the proximity of the receiving facility.

1. Paramedic Care includes all the components of *A-EMT/ EMT-I Care*.
2. Additional Paramedic Care based on complaint specific protocol.

Pearls

- Transfers home, to an ECF, or inter-facility with an IV lock only (no meds or fluids) may be taken at the BLS level.
- Routine IV Fluids such as Normal Saline, Lactated Ringers, Dextrose solutions etc. may be transferred from facility to facility (at the EMT-I level and above) without medical control consultation.
- When determining the extent of care needed to stabilize the patient, the EMS provider should utilize assessment and educated decision making. Consideration should include the patient's presentation, chief complaint, risk of shock, and proximity to the receiving facility.
- IV access should not be attempted on scene with a trauma patient.
- Obtain a 12-Lead EKG as soon as possible if indicated. See *12 Lead Identified STEMI Declaration Protocol* for indications.

Intravenous Cannulation Procedure

(A-EMT/ EMT-I, TEMS, & Paramedic Only)

Intravenous cannulation is used in the Prehospital setting to establish a route for drug administration and/or to provide fluid replacement. Intravenous cannulation should not significantly delay scene times or be attempted while on scene with a trauma patient who meets load-and-go criteria.

1. Explain to the patient the need for and a brief description of the procedure.
2. Observe the universal precautions for body substance exposure.
3. Obtain an appropriately sized catheter.
4. Check the fluid:
 - a) Is it the right fluid?
 - b) Check the expiration date.
 - c) Check for color and clarity (IVF should be clear with no particles).
5. Continue with procedure per scope of practice guidelines.

Saline Locks

Saline locks may be used if fluid replacement is not indicated:

1. Procedure per scope of practice guidelines

External Jugular Vein Cannulation (Paramedic Only)

External Jugular (EJ) access can be utilized only if traditional extremity cannulation and IO access are unable to be obtained and the patient requires immediate stabilizing fluid replacement and/or drug administration.

1. Only one (1) attempt at EJ vein cannulation may be made in the Prehospital setting.
2. Procedure per scope of practice guidelines.

Pearls

- If blood begins to back-flow in the IV tubing, check the location of the bag to assure it is in a gravity flow position and check to assure all valves are properly set. If the IV equipment is properly set and blood continues to back-flow, re-examine the vessel to assure arterial cannulation has not occurred.
- Edema, pain, and lack of fluid flow at the site indicates infiltration and the IV must be discontinued.
- Do not partially withdraw a needle and reinsert into the catheter. This can cause catheter shear.
- Hang IV fluids in trauma patients, patients who are in shock, patients with unstable vital signs or patients requiring multiple drug administrations.
- External jugular vein cannulation is contraindicated in patients with suspected cervical spine injury.
- Suspected infiltrates need to be verbally reported to receiving staff and noted in the PCR. Additional medical treatment may be required based on the medication and quantity of medication that infiltrated.

Intraosseous Cannulation Procedure

(A-EMT/ EMT-I & Paramedic Only)

In patients presenting with conditions such as shock from any cause, cardiac arrest, overdose with airway compromise, impairment in mentation or hemodynamic parameters, severe dehydration associated with unresponsiveness or shock, and multi-system trauma, it may be impossible to find an accessible vein. This is a challenge commonly faced by prehospital providers, which hinders optimal patient care by limiting treatment options and increasing scene time trying to obtain vascular access.

The intraosseous space may be viewed as a non-collapsible, easily accessed space for any fluid or medication. Intraosseous infusion is preferred over endotracheal routes of medication administration and is a viable alternative when IV therapy is not available or not accessible. Intraosseous infusion is immediately available, safe, and effective.

Indications

1. Intravenous fluids and medications are emergently needed **AND** the patient demonstrates one of the following criteria (no I.V. attempts are required).
 - Clinical signs of shock (syncope/ near syncope, confusion, diaphoresis, pallor, combativeness, tachycardia, tachypnea, hypotension) from any cause with a systolic BP less than 80 mm Hg.
 - Patients in extremis (at immediate risk of death or disability). Examples include: multi-system trauma, anaphylaxis, status asthmaticus, status epilepticus, life-threatening dysrhythmia or bradycardia, severe respiratory distress with hypoxia and/or alteration in consciousness, respiratory arrest, and overdose associated with alteration in vital signs, mental status, and/or dysrhythmia.
 - Cardiac/ Respiratory/ Traumatic Arrest
2. EZ-IO is only approved for patients ≥ 3 kg. **If less than 3 kg, a Paramedic** should initiate an IO using a **Jamshidi needle**.

Contraindications

1. Fracture of the bone selected for IO infusion (consider another approved site of insertion)
2. Excessive tissue at insertion site with absence of anatomical landmarks (consider another approved site of insertion)
3. Previous significant orthopedic procedures (i.e. prosthesis or hardware placement) (consider another approved site of insertion)
4. Infection at the site selected for insertion (consider another approved site of insertion)

Intraosseous Cannulation Procedure

(A-EMT/ EMT-I & Paramedic Only)

Considerations

- Drip rates will be slower than achieved with intravenous (IV) access. To improve continuous infusion rates, use a pressure infusion bag (or BP cuff).
- Insertion of the EZ-IO in conscious patients or patients responsive to pain has been noted to cause mild to moderate discomfort comparable to the insertion of a large bore IV catheter. IO infusion, however, has been noted to cause severe discomfort.

EZ-IO Procedure

1. Observe universal precautions.
2. Prepare the EZ-IO driver and needle set:
 - a) 15ga, 15mm long needle for patients weighing between 3kg and 39kg.
 - b) 15ga, 25mm long needle for patients weighing greater than 40kg.
 - c) 15ga, 45 mm long needle for patients weighing greater than 40kg with excessive tissue depth.
3. Locate an appropriate insertion site. Approved sites and positioning include:
 - *Proximal Humerus* preferred site) - Patient arm internally rotated with palm over the Abdomen. Place ulnar aspect of one hand over the Biceps tendon. Place the other hand over the middle of the Humerus. Using your thumbs, identify the greater Tuberosity. Insert the IO 1cm above the surgical neck. Angle the IO at a 45-degree angle to optimize insertion.
 - *Proximal Tibia*- 2 finger breadths below the Patella, 1-2cm medial to the Tibial Tuberosity.
 - *Distal Tibia*- Palpate the Medial Malleolus and then palpate 2cm proximal. Identify the borders of the Tibia to ensure optimal insertion.
4. Prep the site with Betadine or chlorhexidine and set up infusion solution as for regular IV.
5. Stabilize site and insert appropriate needle set.
6. Remove EZ-IO driver from needle set while stabilizing catheter hub.
7. Remove stylet from the catheter; place stylet in EZ-IO shuttle or approved sharps container.

Intraosseous Cannulation Procedure

(A-EMT/ EMT-I & Paramedic Only)

EZ-IO Procedure {Continued}

8. Attach 5-10mL syringe and aspirate bone marrow (0.5 mL) to confirm placement.
 - a) IO catheter should be at a 90-degree angle and firmly seated in the bone.
 - b) Blood may be visible at the tip of the stylet.
 - c) The IO catheter should flush freely without difficulty or evidence of extravasation. 5-10 mL IVF should be rapidly infused.
9. Connect the luer-lock equipped IV administration set.
10. For **patients responsive to pain** (or for previously unresponsive patients who become conscious or aware of pain):
 - d) Adult patients: **Lidocaine:** 40 mg IO (slowly) to reduce discomfort from infusion.
 - e) Pediatric patients: **Lidocaine:** 0.5 mg/kg up to 40 mg IO (slowly) to reduce discomfort from infusion.
11. Flush the IO catheter with 10mL of normal saline.
12. Utilize a pressure bag for continuous infusions where applicable. If a pressure bag is not available, wrap a BP cuff around the bag of normal saline and inflate the cuff until desired flow rate is achieved.
13. Dress site, secure tubing and apply wristband as directed. Can be accomplished with tape or commercial wristband.
14. Closely monitor EZ-IO site en route.

Pearls

- The Humeral head is the preferred site for IO access as it has flow rates approximately 2X that of proximal tibia and is comparable to large bore peripheral IVs.
- Do not use an area previously used for IO attempts.
- **Sometimes marrow cannot be aspirated and does not necessarily indicate improper placement.**
- Excessive movement of the IO needle may result in leakage.
- Do not place more than one IO unless absolutely necessary.
- Cease use of device immediately if infiltration is suspected.

Medication Administration Procedure

Medication administration is accomplished by specific routes as indicated by the protocols. This procedure describes the traditional medication routes for use in the prehospital setting.

Preparation Steps

1. Observe universal precautions for body substance exposures.
2. Confirm the drug order, amount to be given and route.
3. Confirm that the patient is not allergic to the medication.
4. Check the medication:
 - Is it the right medication? *Beware of similar looking medications or a medicine not being in the "normal" location.*
 - Expiration date?
 - Color and clarity?
5. Explain to the patient *what* medication you are giving them and *why* you are giving it.
6. Assemble the necessary equipment.
 - Filter needles must be utilized any time a medication is removed from a glass ampule.
7. Calculate and draw up the desired volume of the drug or confirm the concentration of the drug if administering from a pre-filled syringe.
8. Eject any air from the syringe.
9. Confirm the medication again:
 - Is it the **right medication**?
 - Is it the **right patient**?
 - Is it the **right dose**?
 - Is it the **right route**?
 - Is it the **right time**?
 - Is the **right documentation** in the chart?

Intravenous Medication Administration

This procedure utilizes an IV that has previously been established and patency has been confirmed.

1. Procedure per scope of practice guidelines

EZ-IO Medication Administration

Refer to *Intravenous Medication Administration* steps. Unless specifically noted with a medication, any medication that can be given IV can be given IO.

1. Procedure per scope of practice guidelines.

Medication Administration Procedure

Subcutaneous Medication Administration

Subcutaneous injections are administered into the subcutaneous tissue (not the superficial dermis or the muscle).

1. Procedure per scope of practice guidelines.

Intramuscular Medication Administration

Intramuscular injections are administered into the muscle tissue and require adequate perfusion for absorption.

1. Procedure per scope of practice guidelines.

Intranasal Medication Administration

1. The intranasal route of medication administration offers another option when intravenous access is either unavailable, or when a parenteral delivery system is impracticable or contraindicated. Intranasal administration is safe, effective, and decreases risk of inadvertent needle stick injuries.
2. Procedure per scope of practice guidelines.

Contraindications

- Nasal trauma or recent sinus or nasal surgery
- Epistaxis, nasal congestion, or significant nasal discharge
- Cardiac Arrest

Pearls

- Approved I.N. medication- Narcan, Fentanyl (Peds only), Midazolam (Peds only)
- Maximum volume per nostril is 1 mL (more than 1 mL will cause medication run off)
- Divide the total amount of fluid to be delivered equally between each nostril.
- Allow 15 minutes before administering subsequent intranasal doses.
- Patients who have abused inhaled stimulants such as cocaine may have decreased effectiveness of intranasal medications.
- Hypotension may decrease absorption.

Pain Control Protocol

Pain, and the lack of relief from the pain, is the most common complaint among patients. Pain control can reduce the patient's anxiety and discomfort, making patient care easier. The patient's severity of pain must be properly assessed to provide appropriate relief. Managing pain clinically in the prehospital setting will provide greater patient care. While society is facing a narcotic medication addiction epidemic, the care provided by EMS regarding pain management should be focused on the event at hand rather than concerns of increasing that problem in society. As such, Pain Control will be reviewed through the CQI process.

EMR Care

EMR Care should focus on the reduction of the patient's anxiety due to the pain.

1. Render initial care in accordance with the *Routine Patient Care Protocol*.
2. Assess level of pain using the *Pain Assessment Scale (0-10)* or the *Wong-Baker Faces Pain Rating Scale*.
3. Place patient in a position of comfort.
4. Reassure the patient.
5. Consider ice or splinting.
6. Reassess level of pain using the approved pain scale.

EMT Care

EMT Care should focus on the reduction of the patient's anxiety due to the pain.

1. EMT Care includes all of the components of *EMR Care*.
2. Initiate Paramedic Care intercept, if indicated.

A-EMT/ EMT-I Care

A-EMT/ EMT-I Care should focus on the reduction of the patient's anxiety due to the pain as well as initiating pharmaceutical management.

1. A-EMT/ EMT-I Care includes all of the components of *EMT Care*.
2. Apply **Waveform Capnography** (Capnography must be applied to monitor respiratory status)
3. In cases of **extremity pain (deformity, inability to bear weight, inability to flex joints etc.), back pain, chest pain, burns, abdominal/ flank pain, and discomfort from an IO infusion pain medication may be given without calling medical control** if the systolic BP > 90mmHg. **Any other situation involving pain medication administration requires **Medical Control** order prior to giving the medication**
 - a) **Fentanyl:** 1mcg/kg IV (Maximum 100 mcg dose) over 2 minutes for pain. If unable to establish IV access, may administer Fentanyl 1mcg/kg IM (Maximum 100 mcg dose). If unable to establish IV access, may administer Fentanyl 1mcg/kg IM (Maximum 100 mcg dose). --**In patients with known renal failure, the Fentanyl dose must be reduced by half.**

Pain Control Protocol

Paramedic Care

Paramedic Care should focus on initiating and/or continuing pharmaceutical management of the patient's pain.

1. Paramedic Care includes all of the components of *A-EMT/ EMT-I Care*.
2. In cases of **extremity pain (deformity, inability to bear weight, inability to flex joints etc.), back pain, chest pain, burns, abdominal/ flank pain, and discomfort from an IO infusion pain medication may be given without calling medical control** if the systolic BP > 90mmHg. **Any other situation involving pain medication administration requires **Medical Control** order prior to giving the medication.**
 - a) **Morphine Sulfate:** 2-4mg IV every **5 minutes** to reduce the patient's pain.
If unable to establish IV access, may administer Morphine 2-4mg IM every **15 minutes**.
OR:
Fentanyl: 1mcg/kg IV (Maximum 100 mcg dose) over 2 minutes for pain. This IV dose may be repeated one time in **5 minutes** to a maximum of 200 mcg.
If unable to establish IV access, may administer Fentanyl 1mcg/kg IM (Maximum 100 mcg dose). IM dose may be repeated one time in **15 minutes** to a total of 200mcg.

-Fentanyl and Morphine can be given in either order or one without the other based on patient situation and need.

-**In patients with known renal failure, the Fentanyl dose must be reduced by half. The dose may be repeated one time.**
 - b) **Ketamine:** 0.3 mg/kg (use IBW) IV/IO over 2 minutes for continued pain only **after** either Morphine or Fentanyl has been administered.
Additional doses of Ketamine require **Medical Control order.**

-Additional doses of Morphine or Fentanyl may be given following Ketamine administration without medical control order.

Ketamine dosing is based upon Ideal Body Weight (IBW).

The formula for calculating IBW is:

Men= 50 kg + 2.3 kg for every inch over 5 foot tall.

Women= 45.5 kg + 2.3 kg for every inch over 5 foot tall.

** Patient height must be documented in the PCR**
 - c) **Ondansetron (Zofran):** 4mg IV/ ODT for nausea and/or vomiting. May repeat X 1 in 30 minutes, if needed. If known pregnant female, contact medical control prior to administering any Ondansetron.

Pain Control Protocol (cont.)

Wong-Baker FACES® Pain Rating Scale



Pearls

- Monitor the patient for respiratory depression when administering narcotics.
- Blood pressure should be monitored closely – check 5 minutes after narcotic administration (and prior to administering repeat doses).
- Verify that the patient is not allergic to the pharmaceutical agent prior to administration.
- Patients with ALOC or patients with unstable vital signs **should not receive pain medications.**
- **In patients with known renal failure, the Fentanyl dose must be reduced by half (A-EMT/EMT-I, PARAMEDIC). The dose may be repeated one time (PARAMEDIC)**
- Pain medication may be given IO to conscious patients experiencing discomfort from IO infusion.
- When IBW is calculated, the estimated height must be documented in the PCR.

CQI

- Use and security of controlled substances must follow strict procedures. Providers must follow waste and documentation procedure at all receiving facilities.
- If medication is diluted for more controlled administration, dilution must be noted with the waste of the remaining solution for accurate testing as well as in the PCR.
- Failure to follow established waste/ documentation procedures and maintain controlled substance security are **actionable** events in this EMS System.