



City of Cleveland
Department of Public Safety
Protocol
2018



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General Information Section



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These protocols could not have become a reality had it not been for an unprecedented cooperative effort among countless employees of the City of Cleveland's Division of Emergency Medical Service. Additionally, through the hard work and direction of Dr. Thomas E. Collins, MD, FACEP, FAEMS Medical Director for the Department of Public Safety, and the invaluable input from the Public Safety Physicians Advisory Board, these protocols are the most up to date and comprehensive in the history of pre-hospital care in the City of Cleveland.

These protocols are in a flow chart format and intended to be a "quick reference" for the pre-hospital provider. It is imperative that every provider have a sufficient knowledge base to function at their level of training. It is the responsibility of the provider to determine the next corrective intervention within the specific protocol if patient condition does not improve. Routine basic and advanced levels of care have been combined into two separate protocols. The provider is instructed to initially refer to either the routine medical care or routine trauma care protocols.

There are four distinct symbols and colors indicating level of care and responsibility, as well as medical command intervention. All items in black designate EMT level. The green **EMT-B** symbol indicates that any provider at the EMT level or higher may perform the intervention. The blue Star of Life  indicates the intervention must be performed by a paramedic. The red telephone  indicates that permission must be obtained through medical command prior to performing the intervention.

It should be noted that a specific protocol can not be generated for each and every complaint or condition encountered in the pre-hospital setting. In situations that do not specifically meet a protocol, the provider shall treat patients in accordance with accepted medical standards within their individual level of training and guidelines established by the Medical Director for the City of Cleveland, Department of Public Safety.

Many individuals deserve special acknowledgement. Through their hard work and dedication this document was made possible.

Thomas E. Collins MD, FACEP, FAEMS, Chairman Physicians Advisory Board
Medical Director Department of Public Safety

Nicole Carlton, Commissioner, Cleveland EMS



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City of Cleveland: Department of Public Safety

From the Medical Director

The greatest privilege for a physician is the opportunity to care for others. It is with great pride that I share this privilege with the men and women of the Department of Public Safety. Each day, as you begin your shift, I ask that you embark to provide the best care possible, treat others with the utmost respect, and humbly appreciate the responsibility that the citizens and visitors of Cleveland have given you.

A handwritten signature in blue ink, appearing to read "Thomas E. Collins Jr.", followed by a small mark.

A handwritten date in blue ink, "8/6/2018".

Thomas E. Collins Jr., MD, FACEP, FAEMS
Medical Director
City of Cleveland – Department of Public Safety
Division of EMS
Division of Fire
Division of Police

Date

Medical Direction

The provisions of basic and advanced life support by EMTs (emergency medical responders, emergency medical technicians, and paramedics) in the City of Cleveland is authorized and overseen by the physician Medical Director.

Responsibilities of the medical director include:

- 1) Recommending to the Physicians Medical Advisory Board modifications, additions, and deletions to medical policy, protocols, and standing orders regarding pre-hospital care.
- 2) Assisting CEMS, CFD and CPD in monitoring all phases of pre-hospital care and adherence to protocols/policies. This includes, but is not limited to;
 - a. Run reviews
 - b. Monitoring of radio and telemetry communication
 - c. On-site monitoring of field activities
 - d. Establishing and monitoring standards of pre-hospital education and continuing education.
- 3) Establishing performance improvement standards, and providing support to the Total Quality Improvement Section.
 - a. Total Quality Improvement/QA Section assists the medical director in identifying and addressing any protocol or pre-hospital care issues.
- 4) Extending legal authority for drug or other licenses requiring physician authorization.
- 5) Help maintain a positive working relationship with the medical community, including the medical personnel who function as the system's on-line medical control.
- 6) The medical director, or his representative, will be made aware of any pre-hospital care issues involving CEMS, CFD and CPD.
- 7) The medical director will serve as the chairman of the Physicians Medical Advisory Medical Board.

Physicians Medical Advisory Board

- 1) The Physicians Medical Advisory Board is designed to assist in attaining the maximum level of pre-hospital care in the City of Cleveland. This is accomplished through input and discussion by physicians, and pre-hospital professionals.
- 2) The Physicians Medical Advisory Board is committed to give their time, effort, and professional skills to assist CEMS, CFD and CPD in improving the level of pre-hospital care.
- 3) The Physicians Medical Advisory Board can make recommendations for changes in the system to improve the standard of care.
- 4) The Physicians Medical Advisory Board can be used as an information resource for the administration, council, and the media.
- 5) The Physicians Medical Advisory Board will submit quarterly reports to the Mayor and the Director of Public Safety.

Routine Patient Care Section

Routine Medical Care Protocol

A. Scene Size-up

1. Conduct a scene size-up.
 - i. Assure the well-being of the providers on scene.
 - ii. Do not enter if the scene is unsafe.
 - iii. If there are several patients with the same complaint, consider the possibility of a hazmat incident, toxic exposure, WMD incident, or carbon monoxide poisoning.
2. Take body substance isolation precautions as indicated.
3. Determine the nature of the emergency.
4. Determine the number of patients. If there are multiple patients, establish Medical Command through the Incident Commander and call for additional resources if needed.
5. Determine the nature of the illness and/or the mechanism of injury.

B. Initial Assessment

1. Form a general impression while approaching the patient. Determine the patient's age, gender, level of consciousness, spontaneous breathing, and quality of respirations.
 - i. Pediatric: Consider leaving the child with their parent/guardian in the position of comfort during the evaluation and treatment if it does not impede necessary assessment and care of the child.
2. Provide manual c-spine immobilization, if indicated.
3. Determine the chief complaint.
4. Determine level of consciousness:
 - i. Level of consciousness
 - a. AVPU (Alert, Verbal, Pain, Unresponsive)
5. Airway
 - i. Open the patient's airway if it is not patent.
 - a. Perform a jaw-thrust maneuver if a neck or back injury is suspected.
 - b. To obtain a neutral airway position, consider padding behind the shoulders of the pediatric patient.
 - c. Perform a head-tilt-chin-lift maneuver if a neck or back injury is **NOT** suspected.
 - ii. Inspect the inside of the patient's mouth and remove any visible objects. **DO NOT** perform blind finger sweeps.
 - iii. Suction as needed.
 - iv. Insert an adjunct as indicated.
 - a. Acceptable adjuncts depending on the patient's status include the OPA, NPA, ETT, and King LT-SD.
6. Breathing
 - i. Assess the patient's respirations.
 - a. Assess the patient's chest for rise and fall.
 - b. Listen for respirations.
 - c. Feel for respirations.
 - d. Auscultate the patient's lung sounds.

- ii. Assess the patient for respiratory distress.
 - iii. Assure adequate ventilation.
 - a. If indicated, assist the patient's ventilations.
 - iv. Initiate appropriate O2 therapy.
 - v. Manage any illness or injury that may compromise breathing/ventilations.
7. Circulation
- i. Check pulse.
 - a. If absent, begin CPR, and perform a quick look. If indicated, refer to the Field Pronouncement Procedure (Non-Transport-2).
 - ii. Assess skin (color, temperature, condition).
 - iii. Assess for and control any major bleeding.
 - iv. Initiate shock management as indicated.
8. Disability
- i. Evaluate the patient's neurological status.
 - a. Assess the patient's Glasgow Coma Score and mental status.
 - b. Note any seizures, confusion, and lethargy.
 - c. Assess the patient for gross abnormality in motor function and sensation in the extremities.
 - ii. Expose areas as indicated.
9. Identify priority patients and make a transport decision. If the patient is critical, refer to the specific protocol and treat accordingly.

C. Focused History and Physical Exam

1. Interview the patient or bystanders to obtain a history of the present complaint
 - i. Obtain information of the complaint, including:
 - a. **OPQRST (Onset, Provocation, Quality, Radiation, Severity, and Time of illness).**
 - ii. Obtain a patient history
 - a. **SAMPLE (Signs and Symptoms, Allergies, Medications, Past pertinent history, Last oral intake, and Events leading to present illness).**
2. Obtain baseline vital signs.
 - i. Blood pressure.
 - ii. Respiratory rate and quality.
 - iii. Heart rate and quality.
 - iv. Skin color, temperature, and condition.
 - v. Pulse oximetry.
 - a. Attempt to obtain a SpO2 prior to oxygen administration. **DO NOT** discontinue oxygen administration if it was already started in order to obtain a pre-oxygen administration SpO2.
 - b. **DO NOT** withhold oxygen from a critical patient in order to obtain a baseline SpO2 measurement.

3. Perform a **FOCUSED** physical exam as indicated:

- i. Head
 - a. Assess the patient for a headache, dizziness, or lightheadedness.
 - b. Assess the patient for any visual disturbances.
 - c. Assess the patient for any facial droop.
 - d. Assess the eyes for PEARL (**P**upils **E**qual **A**nd **R**eactive to **L**ight).
- ii. Neurologic
 - a. Assess the patient's Glasgow Coma Score, mental status, and note any confusion, lethargy, or seizures.
 - b. Assess for gross abnormality in motor function and sensation in the extremities.
 - c. Perform a Prehospital Stroke Scale, if indicated.
- iii. Neck
 - a. Check for JVD
- iv. Chest/Cardiovascular
 - a. Assess the patient for chest discomfort or palpitations.
 - b. Assess the patient for cardiac dysrhythmias.
 - c. Assess the patient for pedal edema.
- v. Respiratory
 - a. Assess the patient for respiratory distress.
 - b. Assess the patient for retractions, accessory muscle use, and nasal flaring.
 - c. Auscultate the patient's lung sounds.
- vi. Abdominal
 - a. Assess the abdomen for tenderness, rigidity and distension.
 - b. Assess the abdomen for a pulsating mass.
- vii. GI/GU/Reproductive
 - a. **ONLY IF INDICATED**, assess the genitalia/perineum.
 - b. Assess the patient for any bleeding or unusual discharge.
 - c. Assess the patient for any pain and discomfort.
- viii. Lower Extremities
 - a. Assess the lower extremities for motor, sensory, and distal circulation.
- ix. Upper Extremities
 - a. Assess the upper extremities for motor, sensory, and distal circulation.
- x. Posterior Thorax, Lumbar, and Buttocks
 - a. Assess the posterior thorax, lumbar, and buttocks for any abnormality.
- xi. Psychological/Social
 - a. Assess the patient's orientation.

- b. Determine if the patient is a threat to him/herself or to others.
- c. Assess if the patient's living conditions are dangerous to his/her welfare.
- d. Assess for red flags for maltreatment.
- e. Make the appropriate reports if abuse or neglect is suspected.
- f. Contact a Captain/Commander and report your suspicions, and:
 1. If it is a geriatric or pediatric patient, call 216-696-KIDS, CPD, Adult Services or Department of Aging to file a report.
- xii. Perform appropriate interventions and refer to the appropriate protocol as indicated.
- xiii. Transport the patient to the appropriate medical facility.

D. Ongoing Exam

1. Repeat initial assessment as needed.
2. Reassess the patient's vital signs
 - i. Critical Patient: Reassess every 5 minutes.
 - ii. Stable Patient: Reassess every 15 minutes.
 - iii. Reassess after every significant intervention or change in patient status.
3. Repeat the focused history and physical exam as needed.

Key Points

General

- All patient care and documentation **MUST** be appropriate for your level of training and within the standard of care for the City of Cleveland.
- Only functioning paramedics can perform ALS procedures.
- Refer to the appropriate protocol for all successfully resuscitated cardiac arrest patients.
- One provider can begin resuscitation and treatment while the other performs the assessment.
- It may be necessary to reference several protocols while treating a patient.
- Refer to the appropriate protocol and provide the required interventions as indicated.
- Additional focus may be needed in specific areas as indicated by the patient's chief complaint.
- Patients should be reassessed after every intervention.
- Airway management and oxygen administration should be initiated based upon the results of the patient assessment and the protocols.
- IVs should be initiated in all patients based upon the results of the patient assessment, and the Intravenous Access Procedure (Procedure-18). Attempt to draw blood samples whenever an IV is initiated.
- The IV/IO route of medication administration is preferred over the IM or ETT route.
- A medication should be administered IM if an IV was unable to be obtained, is only indicated for IM use, and the medication is allowed to be administered by IM.
- A medication should be administered via ETT if an IV/IO was unable to be established or while an IV/IO is being attempted.
- When a medication is administered IM or ETT instead of IV/IO, the reason why must be documented.

- Administer cardiac monitoring (3-Lead) and perform a 12-Lead EKG based upon the results of the patient assessment or the protocols. If indicated and possible, perform a 12-Lead EKG before moving to the squad and before any medication administration refer to the 12-Lead Procedure (Procedure-1).
- Check the patient's BGL based upon the patient's assessment and the protocols.
- When assessing for pain, use a 0-10 pain scale; 0 = no pain; 10 = worst pain ever experienced.
- Patients who are having a sickle cell crisis may benefit from high flow oxygen and IV fluids.
- It is mandatory to document the reason why an intervention was not performed if it was indicated.
- If Med Command cannot be reached, the paramedic should act in the best interest of the patient and continue to follow the appropriate protocol. The paramedic must have made an attempt(s) to contact Med Command, and clearly document the reason why Med Command was unable to be contacted.
- If Med Command requests that a functioning paramedic perform an intervention outside of the protocol; the functioning paramedic may follow the orders as long as **ALL** of the following applies:
 - The patient's condition could be severely affected if the intervention was not performed.
 - The paramedic has documented training in the intervention within the last 2 years.
 - The intervention is in the recognized scope of practice for paramedics in the state of Ohio.
 - The paramedic has received permission to perform the intervention from Med Command.
 - Med Command was notified that the intervention is not in the protocol.
- Pre-hospital care providers must contact the receiving hospital as early as possible in any of the following situations:
 - Whenever endotracheal intubation, ventilatory assistance, or other invasive life-support procedure have been performed.
 - Any patient with deranged vital signs:
 - Pulse less than 60 bpm or greater than 120 bpm.
 - Respirations of less than 10 or greater than 30 per minute in an adult.
 - Blood pressure of less than 100 systolic or greater than 180 systolic in an adult.
 - Any pediatric patient with abnormal vital signs
 - Altered mental status or coma.
 - Any patient whose treatment required a medication administration besides Oxygen or IV/IO fluids.
 - Any patient who is believed to be experiencing a myocardial ischemia/infarction, stroke, obstructed airway, or active labor.
 - Any combative or suicidal patient.
 - Any patient who may have been a victim of sexual assault.
 - Any patient who has special needs, such as a ventilator, special bed, or any patient who may need to be isolated.
 - Any patient who is considered a major trauma.
 - When ordered to by a Captain and/or Commander.

- Pre-Hospital equipment may change at any time due to vendor availability. If new equipment is issued and a protocol is not in place follow the manufacturer's recommendations and instructions for application and use.

Adult

- Use the current AHA guidelines for the appropriate number of compressions and ventilations.
 - 1 Person CPR: 30 compressions to 2 ventilations
 - 2 Person CPR: 30 compressions to 2 ventilations
- Once an advance airway is placed, give 1 ventilation every 6-8 seconds without attempting to synchronize breaths between compressions. The rate of compressions is approximately 100-120 per minute.
- When providing ventilations to an adult patient with a pulse, provide 1 ventilation every 5-6 seconds.
- Patients who are taking beta-blockers may not have an elevated heart rate, but may be in shock.
- General weakness can be a symptom of a life threatening illness.
- Diabetic patients may have abnormal presentations of AMI and other conditions due to neuropathy.
- An adult patient is considered hypotensive if their systolic BP is 100 mmHg or less.
- An elderly patient (70 or older) is considered hypotensive if their systolic BP is 120 mmHg or less.
- Assess the patient after every 300 ml of normal saline. Continue with fluid resuscitation until it is no longer indicated and be alert for fluid overload.

Routine Pediatric Medical Care Protocol

A. Scene Size-up

1. Conduct a scene size-up.
 - i. Assure the well being of the providers on scene.
 - ii. Do not enter if the scene is unsafe.
 - iii. If there are several patients with the same complaint, consider the possibility of a hazmat incident, toxic exposure, WMD incident, or carbon monoxide poisoning
2. Take body substance isolation precautions as indicated.
3. Determine the nature of the emergency.
4. Determine the number of patients. If there are multiple patients, establish Medical Command through the Incident Commander and call for additional resources if needed.
5. Determine the nature of the illness and/or the mechanism of injury.

B. Initial Assessment

1. Form a general impression while approaching the patient. Determine the patient's age, gender, level of consciousness, spontaneous breathing and quality of respirations.

Pediatric Assessment Triangle (PAT)

Three Components:

- a. Appearance
 - b. Work of breathing
 - c. Circulation
2. Provide manual c-spine immobilization, if indicated.
 3. Determine the chief complaint.
 - a. Ask the parents or care providers about the child's on-going health problems, if present.
 - b. Are there any medical devices currently being used.
 4. Determine level of consciousness:
 - i. Level of consciousness
 - a. AVPU (**A**lert, **V**erbal, **P**ain, **U**nresponsive)
 - ii. Find out whether the child has any limitations affecting growth, neurological function, physical function, or development.
 - iii. If no other source of information is available, you should see whether the child has a clinical information folder/binder.
 5. Airway
 - i. Open the patient's airway if it is not patent.
 - a. Perform a jaw-thrust maneuver if a neck or back injury is suspected.
 - b. To obtain a neutral airway position, consider padding behind the shoulders of the pediatric patient.
 - c. Perform a head-tilt-chin-lift maneuver if a neck or back injury is **NOT** suspected.
 - ii. Inspect the inside of the patient's mouth and remove any visible objects.
DO NOT perform blind finger sweeps.
 - iii. Suction as needed.
 - iv. Insert an adjunct as indicated.

- a. Acceptable adjuncts depending on the patient's status include the OPA, NPA, ETT, and King LT.
- 6. Breathing
 - i. Assess the patient's respirations.
 - a. Assess the patient's chest for rise and fall.
 - b. Inspect skin, lips, and nail beds for cyanosis.
 - c. Listen for respirations.
 - d. Feel for respirations.
 - e. Auscultate the patient's lung sounds.
 - ii. Assess the patient for respiratory distress.
 - iii. Assure adequate ventilation.
 - a. If indicated, assist the patient's ventilations.
 - iv. Initiate appropriate O2 therapy.
 - v. Manage any illness or injury that may compromise breathing/ventilations.
- 7. Circulation
 - i. Check pulse.
 - a. If absent, begin CPR, and perform a quick look. If indicated, refer to the Field Pronouncement Procedure (Non-Transport-2)
 - ii. Assess skin (color; temperature; condition).
 - iii. Assess for and control any major bleeding.
 - iv. Initiate shock management as indicated.
 - a. Signs of early shock may be hard to detect in some technology-assisted children because their normal heart rate is faster than usual.
- 8. Disability
 - i. Evaluate the patient's neurological status.
 - a. Assess the patient's Glasgow Coma Score, and mental status.
 - b. Note any seizures, confusion, and lethargy.
 - c. Children with special health care needs may have an altered mental status as their usual baseline condition. This is often true of children with mental retardation or developmental delay.
 - d. Ask the caregiver if the patient's current mental status is different than their baseline mental status in order to assess the child accurately.
 - e. Assess the patient for gross abnormality in motor function and sensation in the extremities.
 - ii. Expose areas as indicated.
- 9. Identify priority patients and make a transport decision. If the patient is critical, refer to the specific protocol and treat accordingly.

Focused History and Physical Exam

- 1. Interview the patient, parent, or care providers to obtain a history of the present complaint
 - i. Obtain information of the complaint, including:

- a. OPQRST (**O**nset, **P**rovocation, **Q**uality, **R**adiation, **S**everity, and **T**ime of illness)
 - ii. Obtain a patient history
 - a. SAMPLE (**S**igns and Symptoms, **A**llergies, **M**edications, **P**ast pertinent history, **L**ast oral intake, **E**vents leading to present illness).
 - b. Consider all potential non-traumatic causes (Hypothermia, Overdose, Underlying medical conditions, Check blood glucose levels).
- 2. Obtain baseline vital signs.
 - iii. Blood pressure.
 - iv. Respiratory rate and quality.
 - v. Heart rate and quality.
 - vi. Skin color, temperature, and condition.
 - vii. Pulse oximetry.
 - a. Attempt to obtain a SpO2 prior to oxygen administration. **DO NOT** discontinue oxygen administration if it was already started in order to obtain a pre-oxygen administration SpO2.
 - b. **DO NOT** withhold oxygen from a critical patient in order to obtain a baseline SpO2 measurement.
- 3. Perform a **FOCUSED** physical exam as indicated:
 - i. Head
 - a. Assess the patient for a headache, dizziness, or lightheadiness.
 - b. Assess the patient for any visual disturbances.
 - c. Assess the patient for any facial droop.
 - d. Assess the eyes for PEARL. (**P**upils **E**qual **A**nd **R**eactive to **L**ight)
 - ii. Neurologic
 - a. Assess the patient's Glasgow Coma Score, mental status, and note any confusion, lethargy, or seizures.
 - b. Assess for gross abnormality in motor function and sensation in the extremities.
 - c. Perform a Prehospital Stroke Scale.
 - iii. Neck
 - a. Check for JVD
 - iv. Chest/Cardiovascular
 - a. Assess the patient for chest discomfort or palpitations.
 - b. Assess the patient for cardiac dysrhythmias.
 - c. Assess the patient for pedal edema.
 - v. Respiratory
 - a. Assess the patient for respiratory distress.
 - b. Assess the patient for retractions, accessory muscle use, and nasal flaring.
 - c. Auscultate the patient's lung sounds.
 - vi. Abdominal
 - a. Assess the abdomen for tenderness, rigidity and distension.
 - b. Assess the abdomen for a pulsating mass.

- vii. GI/GU/Reproductive
 - a. **ONLY IF INDICATED**, assess the genitalia/perineum.
 - b. Assess the patient for any bleeding or unusual discharge
 - c. Assess the patient for any pain and discomfort
- viii. Lower Extremities
 - a. Assess the lower extremities for motor, sensory, and distal circulation.
- ix. Upper Extremities
 - a. Assess the upper extremities for motor, sensory, and distal circulation.
- x. Posterior Thorax, Lumbar, and Buttocks
 - a. Assess the posterior thorax, lumbar, and buttocks for any abnormality
- xi. Psychological/Social
 - a. Assess the patient's orientation
 - b. Determine if the patient is a threat to him/herself or to others
 - c. Assess if the patient's living conditions are dangerous to his/her welfare
 - d. Assess for red flags for maltreatment
 - e. Make the appropriate reports if abuse or neglect is suspected.
 - i. Contact a Captain/Commander and report your suspicions, and:
 - 1. If it is a pediatric patient, call 216-696-KIDS or CPD to file a report.
- xii. Perform appropriate interventions and refer to the appropriate protocol as indicated.
- xiii. Transport the patient to the appropriate medical facility.

C. Ongoing Exam

- 1. Repeat initial assessment as needed.
- 2. Reassess the patient's vital signs
 - i. Critical Patient: Reassess every 5 minutes.
 - ii. Stable Patient: Reassess every 15 minutes.
 - iii. Reassess after every significant intervention or change in patient status.
- 3. Repeat the focused history and physical exam as needed.

Key Points

General

- All patient care and documentation **MUST** be appropriate for your level of training and within the standard of care of the city of Cleveland.
- Only functioning paramedics can perform ALS procedures.
- Refer to the appropriate protocol for all successfully resuscitated cardiac arrest patients.
- One provider can begin resuscitation and treatment while the other performs the assessment.
- It may be necessary to reference several protocols while treating a patient.
- Refer to the appropriate protocol and provide the required interventions as indicated.

- Additional focus may be needed in specific areas as indicated by the patient's chief complaint.
- Airway management and oxygen administration should be initiated based upon the results of the patient assessment and the protocols.
- Many children with special health care needs are susceptible to airway obstructions and the complications that can arise from it.
- Children with congenital heart disease or chronic illness are often unable to compensate effectively for breathing problems. As a result, their condition may worsen more rapidly than you would normally expect.
- A child with special health care needs who has any of the following conditions should be considered unstable:
 - Partially or totally obstructed tracheostomy
 - Respiratory difficulties in ventilator-dependent children
 - Slow heart rate, irregular pulses, or signs of early shock in children with pacemakers
 - Fever, nausea, vomiting, headache, or a change in normal mental status in children with Cerebral Spinal Fluid (CSF) shunts
 - Signs of worsening illness in any child who has a chronic health problem and has taken appropriate home therapy for the problem.
- IVs should be initiated in all patients based upon the results of the patient assessment, and the Intravenous Access Procedure (Procedure-18). Attempt to draw blood samples whenever an IV is initiated.
- The IV/IO route of medication administration is preferred over the IM or ETT route.
- A medication should be administered IM if an IV was unable to be obtained, is only indicated for IM use, and the medication is allowed to be administered by IM.
- A medication should be administered via ETT if an IV/IO was unable to be established or while an IV/IO is being attempted.
- When a medication is administered IM or ETT instead of IV/IO, the reason why must be documented.
- Administer cardiac monitoring (3-Lead) and perform a 12-Lead EKG based upon the results of the patient assessment or the protocols. If indicated and possible, perform a 12-Lead EKG before moving to the squad and before any medication administration refer to the 12-Lead Procedure (Procedure-1).
- Check the patient's BGL based upon the patient's assessment and the protocols.
- When assessing for pain, use a 0-10 pain scale; 0 = no pain; 10 = worst pain ever experienced.
- Patients who are having a sickle cell attack may benefit from high flow oxygen and IV fluids.
- It is mandatory to document the reason why an intervention was not performed if it was indicated.
- If Med Command cannot be reached, the paramedic should act in the best interest of the patient and continue to follow the appropriate protocol. The paramedic must have made an attempt(s) to contact Med Command, and clearly document the reason why Med Command was unable to be contacted.
- If Med Command requests that a functioning paramedic perform an intervention outside of the protocol; the functioning paramedic may follow the orders as long as **ALL** of the following applies:
 - The patient's condition could be severely affected if the intervention was not performed.

- The paramedic has documented training in the intervention within the last 2 years.
 - The intervention is in the recognized scope of practice for paramedics in the state of Ohio.
 - The paramedic has received permission to perform the intervention from Med Command.
 - Med Command was notified that the intervention is not in the protocol.
- Pre-hospital care providers must contact the receiving hospital as early as possible in any of the following situations:
 - Whenever endotracheal intubation, ventilatory assistance, or other invasive life-support procedure have been performed.
 - Any patient with deranged vital signs:
 - Any pediatric patient with abnormal vital signs
 - Altered mental status or coma.
 - Any patient whose treatment required a medication administration besides Oxygen or IV/IO fluids.
 - Any patient who is believed to be experiencing a myocardial ischemia/infarction, stroke, obstructed airway, or active labor.
 - Any combative or suicidal patient.
 - Any patient who may have been a victim of sexual assault.
 - Any patient who has special needs, such as a ventilator, special bed, or any patient who may need to be isolated.
 - Any patient who is considered a major trauma.
 - When ordered to by a Captain and/or Commander.
- Use the current AHA guidelines for the appropriate number of compressions and ventilations.
 - 1 Person (Child and Infant) CPR: 30 compressions to 2 ventilations
 - 2 Person (Child and Infant) CPR: 15 compressions to 2 ventilations
- Once an advance airway is placed, give 1 ventilation every 6-8 seconds without attempting to synchronize breaths between compressions. The rate of compressions is approximately 100-120 per minute.
- If resources allow, the patient should be taken to their desired hospital
 - If resources are limited, patients shall be taken to the closest hospital within their network: (if patient has complex medical problems, recent surgery, or recent admission- efforts to transport to that specific hospital shall be made.)
 - If a patient or family members request an extended transport destination, field employees shall contact *Red Center Captain* for permission prior to accommodating the request.
- When providing ventilations to a child or infant patient with a pulse, provide 1 ventilation every 3-5 seconds.
- When using the AHA guidelines, a child is a patient that is 1 year of age to the onset of puberty (about 12-14 years old) as defined by the presence of secondary sex characteristics. For example, breast development in girls and armpit hair in boys.
- When using the AHA guidelines, an infant is under the age of 1 year.
- Assess the pediatric patient after every 20 ml/kg fluid bolus of normal saline, and continue with fluid resuscitation until it is no longer indicated.
- A weight based medication dose administered to a pediatric patient should **NOT** exceed the adult dose.

- For pediatric patients, IV attempts should be made if the patient is age 5 or older, if the patient is in need of medications, or in critical condition.
- Refer to the Intraosseous Procedure (Procedure-17), if indicated.
- It may be necessary to alter the order of the assessment (except for the Initial Assessment) based upon the developmental stage of the patient.
- Children with Special Health Care Needs (CSHCN) have many allergies and children with Spina bifida are often allergic to latex. Before treating a patient, ask the care givers if they are allergic to latex or have any other allergies.
(Some regularly used equipment that contain latex includes gloves, oxygen masks, IV tubing, BVM, blood pressure cuffs, IV catheters, etc.)
- Assess and treat a child with special health care needs as you would any other patients- **treat the ABC's first!**
- The best source of information about Children with Special Health Care Needs (CSHCN) is the person who cares for the child on a daily basis. Listen to this caregiver and follow their guidance regarding the child's treatment.
- Children with chronic illnesses often have different physical development from well children. Therefore, their baseline vital signs may differ from normal standards.
Also, the size and development level may be different from age-based norms and length based tapes to calculate drug dosages may not be accurate. Ask the caregivers if the child normally has abnormal vital signs (i.e. fast heart rate or low pulse ox).
- Treat the child, not the equipment! For technology assisted children, determine if the emergency may be related to an equipment malfunction and manage the child appropriately using your own equipment.
- Some Children with Special Health Care Needs (CSHCN) may have sensory deficits (i.e. they be hearing impaired or blind) but may have age-appropriate cognitive abilities. Follow the caregivers lead in talking to and comforting a child during treatment and transport. Do not assume that a CSHCN is developmentally delayed!
- When moving a special needs child, a slow careful transfer with two or more people is preferable. Do not try to straighten or unnecessarily manipulate contracted extremities as it may cause injury or pain to the child.
- Caregivers of Children with Special Health Care Needs (CSHCN) often carry "Go Bags" or diaper bags that contain supplies to use with the child's medical technologies and additional equipment such as extra tracheostomy tubes, adapters for feeding tubes, suction catheters etc. Before leaving the scene, ask the caregivers if they have a "go bag" and carry it with you.
- Caregivers may also carry a brief medical information form, card, binder or the child may be enrolled in a medical alert program whereby emergency personnel can get quick access to the child's medical history. Ask the caregivers if they have an emergency information form or some other form of medical information for their child.
- Refer to the Pediatric Vital Signs Chart, as needed.

<u>AGE</u>	<u>Systolic BP</u>	<u>Respirations</u>	<u>Heart Rate</u>
Infant	> 60	30 – 60	100 – 160
Toddler	> 70	24 – 40	90 – 150
Preschooler	> 75	22 – 34	80 – 140
School-aged Child	> 80	18 – 30	70 – 120
Adolescent	> 90	12 – 16	60 - 100

Routine Trauma Care Protocol

A. Scene Size-up

1. Conduct a scene size-up.
 - i. Assure the well being of the providers on scene.
 - ii. Do not enter if the scene is unsafe.
 - iii. If there are several patients with the same complaint, consider the possibility of a hazmat incident, toxic exposure, WMD incident, or carbon monoxide poisoning.
2. Take body substance isolation precautions as indicated.
3. Determine the nature of the emergency.
4. Determine the number of patients. If there are multiple patients, establish Medical Command through the Incident Commander and call for additional resources if needed.
5. Determine the mechanism of injury and provide c-spine immobilization as indicated.

B. Initial Assessment

1. Form a general impression while approaching the patient. Determine the patient's age, gender, level of consciousness, spontaneous breathing, and quality of respirations.
2. Provide manual c-spine immobilization if indicated.
3. Determine the chief complaint.
4. Determine:
 - i. Level of consciousness
 - a. AVPU (Alert, Verbal, Pain, Unresponsive)
5. Airway
 - i. Open the patient's airway if it is not patent.
 - a. Perform a jaw-thrust maneuver if a neck or back injury is suspected.
 - b. To obtain a neutral airway position, consider padding behind the shoulders of pediatric patients.
 - c. Perform a head-tilt-chin-lift maneuver if a neck or back injury is **NOT** suspected.
 - ii. Inspect the inside of the patient's mouth and remove any visible objects.
 - iii. Suction as needed.
 - iv. Insert an adjunct as indicated.
 - a. Acceptable adjuncts depending on the patient's status include the OPA, NPA, ETT, and King LT-SD.
6. Breathing
 - i. Assess the patient's respirations.
 - a. Assess the patient's chest for rise and fall.
 - b. Listen for respirations.
 - c. Feel for respirations.
 - d. Auscultate the patient's lung sounds.

- ii. Assure adequate ventilation.
 - a. If indicated, assist the patient's ventilations.
 - iii. Initiate appropriate O2 therapy.
 - iv. Manage any injury that may compromise breathing/ventilations.
- 7. Circulation**
- i. Check pulse.
 - a. If absent, begin CPR, and perform a quick look. If indicated, refer to the Field Pronouncement Procedure (Non-Transport-2).
 - ii. Assess skin (color, temperature, condition).
 - iii. Assess for and control any major bleeding.
 - iv. Initiate shock management as indicated.
- 8. Disability**
- i. Evaluate the patient's neurological status.
 - a. Assess the patient's Glasgow Coma Score, and mental status.
 - b. Note any seizures, confusion, and lethargy.
 - c. Assess the patient for gross abnormality in motor function and sensation in the extremities.
 - ii. Expose areas as indicated.
- 9. Identify priority patients and make a transport decision.** If the patient is critical, or meets NOTS Trauma (Adult: Trauma-9, Pediatric: Ped-14), complete the rest of your assessment enroute.
- a. Limit the scene time to less than 10 minutes if the patient meets **ANY** of the NOTS Trauma criteria.
 - b. If the patient meets **ANY** of the NOTS Trauma (Adult: Trauma-9, Pediatric: Ped-14), transport the patient to the closest appropriate trauma center.
 - c. Perform appropriate interventions as indicated.

Focused History and Physical Exam/Rapid Trauma Assessment

- 1. Interview the patient or bystanders to obtain a history of the present complaint.**
 - ii. Obtain information of the complaint, including (if it applies);
 - a. The mechanism of injury.
 - b. The estimated speed of the impact.
 - c. The movement of the vehicle after the impact.
 - d. Position of the patient in the vehicle and if restraints were used.
 - e. If the airbags were deployed.
 - f. Number of shots heard.
 - g. The size of the knife or type of firearm.
 - h. Height of the fall.
 - i. Any other pertinent information.
 - iii. Obtain a patient history
 - a. **SAMPLE** (**S**igns and Symptoms, **A**llergies, **M**edications, **P**ast pertinent history, **L**ast oral intake, **E**vents leading up to the present injury).
- 2. Obtain baseline vital signs.**

- iv. Blood pressure.
- v. Respiratory rate and quality.
- vi. Heart rate and quality.
- vii. Skin color, temperature, and condition.
- viii. Pulse oximetry.
 - a. Attempt to obtain a SpO₂ prior to oxygen administration. **DO NOT** discontinue oxygen administration if it was already started in order to obtain a pre-oxygen administration SpO₂.
 - b. **DO NOT** withhold oxygen from a critical patient in order to obtain a baseline SpO₂ measurement.

3. Perform a Rapid Trauma Assessment

(DCAP-BLS-TIC: **D**eformities, **C**ontusions, **A**brasions, **P**enetrations, **B**urns, **L**acerations, **S**welling, **I**nstability and **C**repitus).

- i. Head
 - a. Check the entire head for DCAP-BLS-TIC.
 - b. Check the head for instability and crepitus.
 - c. Check the nose, ears and mouth for cerebrospinal fluids.
 - d. Assess eyes for PEARL (**P**upils **E**qual **A**nd **R**eactive to **L**ight).
- ii. Neurologic
 - a. Assess the patient's Glasgow Coma Score, mental status, and note any confusion, lethargy, or seizures.
 - b. Assess for gross abnormality in motor function and sensation in the extremities.
- iii. Neck
 - a. Check the entire neck for DCAP-BLS-TIC.
 - b. Check the neck for instability, crepitus, and "step offs."
 - c. Check for tracheal deviation.
 - d. Check for JVD.
- iv. Chest
 - a. Check the entire chest for DCAP-BLS-TIC.
 - b. Check the chest for instability and crepitus.
 - c. Auscultate the chest for lung sounds.
- v. Abdominal
 - a. Check the entire abdomen for DCAP-BLS-TIC.
 - b. Check the abdomen for rigidity and distension.
 - c. Check the pelvis for instability and crepitus.
 - d. Only if indicated, inspect the genitalia/perineum.
- vi. Lower Extremities
 - a. Check the entire lower extremities for DCAP-BLS-TIC.
 - b. Check the lower extremities for instability and crepitus.
 - c. Check the lower extremities for motor, sensory, and distal circulation.
- vii. Upper Extremities
 - a. Check the entire upper extremities for DCAP-BLS-TIC.
 - b. Check the upper extremities for instability and crepitus.
 - c. Check the upper extremities for motor, sensory, and distal circulation.

- viii. Posterior Thorax, Lumbar, and Buttocks
 - a. Check the posterior thorax, lumbar, and buttocks area for DCAP-BLS-TIC.
 - b. Check the entire posterior thorax, lumbar, and buttocks area for instability and crepitus.
- ix. Psychological/Social
 - a. Assess the patient's orientation.
 - b. Determine if the patient is a threat to him/herself or to others.
 - c. If possible, assess if the patient's living conditions are dangerous to his/her welfare.
 - d. Assess for red flags of maltreatment.
 - e. Make the appropriate reports if abuse or neglect is suspected.
 - f. Contact a Captain/Commander and report your suspicions, and:
 - 1. If it is a geriatric or pediatric patient, call 216-696-KIDS, CPD, Adult Protective Services or Department of Aging to file a report.
- x. Manage secondary injuries appropriately.
 - a. If the patient is a major trauma, treat secondary injuries while enroute and only if it does not interfere with performing more important interventions.

C. Detailed Physical Exam (If time allows)

1. Repeat the initial assessment as needed.
2. Perform a more detailed rapid trauma assessment.
3. Reassess the patient's vital signs.
 - i. Critical Patient: Reassess every 5 minutes.
 - ii. Stable Patient: Reassess every 15 minutes.
 - iii. Reassess after every significant intervention or change in patient status.

D. Ongoing Exam

1. Repeat the initial assessment as needed.
2. Repeat the detailed physical exam as indicated.
3. Reassess the patient's vital signs.
 - i. Critical Patient: Reassess every 5 minutes.
 - ii. Stable Patient: Reassess every 15 minutes.
 - iii. Reassess after every significant intervention or change in patient status.

Key Points

General

- All patient care and documentation **MUST** be appropriate for your level of training and within the standard of care for the City of Cleveland.
- Only functioning paramedics can perform ALS procedures.
- Use the most current AHA guidelines for CPR and rescue breathing.
- Refer to the appropriate protocol for all successfully resuscitated cardiac arrest patients.
- One provider can begin resuscitation and treatment while the other performs the assessment.
- It may be necessary to reference several protocols while treating a patient.
- Refer to the appropriate protocol and provide the required interventions as indicated.
- Additional focus may be needed in specific areas as indicated by the patient's chief complaint.
- Airway management and oxygen administration should be initiated based upon the results of the patient assessment and the protocols. NPA's are **NOT** to be used with head injuries.
- IVs should be initiated in all patients based upon the results of the patient assessment, and the Intravenous Access Procedure (Procedure-18). Attempt to draw blood samples whenever an IV is initiated.
- Refer to the Intraosseous Access Procedure (Procedure-17) as indicated.
- The IV/IO route of medication administration is preferred over the IM or ETT route.
- A medication should be administered IM if an IV was unable to be obtained, and the medication is allowed to be administered by IM.
- A medication should be administered via ETT if an IV/IO was unable to be established or while an IV/IO is being attempted.
- When a medication is administered IM or ETT instead of IV/IO, the reason why must be documented.
- Administer cardiac monitoring (3-Lead) and perform a 12-Lead EKG based upon the results of the patient assessment or the protocols. Refer to 12-Lead Procedure (Procedure-1). If indicated, perform a 12-Lead EKG before moving to the squad and before any medication administration.
- Check the patient's BGL based upon the patient's assessment and the protocols.
- When assessing for pain, use a 0-10 pain scale; 0 = no pain; 10 = worst pain ever experienced.
- It is mandatory to document the reason why an intervention was not performed if it was indicated.
- If Med Command cannot be reached, the paramedic should act in the best interest of the patient and continue to follow the appropriate protocol. The paramedic must have made an attempt(s) to contact Med Command, and clearly document the reason why Med Command was unable to be contacted.
- If Med Command requests that a functioning paramedic perform an intervention outside of the protocol, the functioning paramedic may follow the orders as long as **ALL** of the following applies:
 - The patient's condition could be severely affected if the intervention was not performed.
 - The paramedic has documented training in the intervention within the last 2 years.
 - The intervention is in the recognized scope of practice for paramedics in the state of Ohio.
 - The paramedic has received permission to perform the intervention from Med Command.
 - Med Command was notified that the intervention is not in the protocol.
- Pre-hospital care providers must contact the receiving hospital as early as possible in any of the following situations:

- Whenever an advanced airway is placed, ventilatory assistance, or other invasive life-support procedure have been performed.
- Any patient with deranged vital signs:
 - Pulse less than 60 bpm or greater than 120 bpm.
 - Respirations of less than 10 or greater than 30 per minute in an adult.
 - Blood pressure of less than 100 systolic or greater than 180 systolic in an adult.
 - Any pediatric patient with abnormal vital signs
 - Altered mental status or coma.
- Any patient whose treatment required a medication administration besides Oxygen or IV/IO fluids.
- Any patient who is believed to be experiencing a myocardial ischemia/infarction, stroke, obstructed airway, or active labor.
- Any combative or suicidal patient.
- Any patient who may have been a victim of sexual assault.
- Any patient who has special needs, such as a ventilator, special bed, or any patient who may need to be isolated.
- Any patient who is considered a major trauma.
- When ordered to by a Captain and/or Commander.
- Pre-Hospital equipment may change at any time due to vendor availability. If new equipment is issued and a protocol is not in place follow the manufacturer's recommendations and instructions for application and use.

Adult

- Patients who are taking beta-blockers may not have an elevated heart rate, but may be in shock.
- Hip fractures and dislocations in the elderly have a high mortality rate.
- What would be considered a minor or moderate injury in the adult patient can be life threatening in the elderly.
- An adult patient is considered hypotensive if their systolic BP is 100 mmHg or less.
- An elderly patient (70 or older) is considered hypotensive if their systolic BP is 120 mmHg or less.
- Assess the adult patient after every 300 ml of normal saline. Continue with fluid resuscitation until it is no longer indicated and be alert for fluid overload.

Pediatric

- Assess the pediatric patient after every 20 ml/kg fluid bolus of normal saline, and continue with fluid resuscitation until it is no longer indicated.
- A weight based medication dose administered to a pediatric patient should **NOT** exceed the adult dose.
- Refer to the Intraosseous Procedure (Procedure-17), if indicated.
- For pediatric patients, IV attempts should be considered if the patient is presenting with signs and symptoms of dehydration, in need of medications, or in critical condition and is age 5 or older.
- It may be necessary to alter the order of the assessment (except for the initial assessment) based upon the developmental stage of the patient.
- A pediatric trauma patient is any trauma patient who is 15 years old or younger.

<u>AGE</u>	<u>Systolic BP</u>	<u>Respirations</u>	<u>Heart Rate</u>
Infant	> 60	30 - 60	100 - 160
Toddler	> 70	24 - 40	90 - 150
Preschooler	> 75	22 - 34	80 - 140
School-aged Child	> 80	18 - 30	70 - 120
Adolescent	> 90	12 - 16	60 - 100

Adult Medical Section

Abdominal Pain

Signs and Symptoms:

- nausea/vomiting
- constipation
- melena
- urinary problems
- fever
- diarrhea
- tachycardia
- diaphoresis
- vaginal bleeding or discharge
- pulsating mass in the abdomen

Routine Medical Care Protocol (Routine-1)

↓
EMT-B Assess for shock and refer to the appropriate protocol.

↓
EMT-B Do not allow the patient to eat or drink.

↓
EMT-B If the patient is hypotensive,
Refer to Hypovolemic Shock Protocol (Medical-18) and treat accordingly.

↓
EMT-B If the patient BGL is less than 80 mg/dl, refer to Diabetic Emergencies Protocol (Medical-13) and treat accordingly.

↓
✱ If the patient is experiencing persistent vomiting, administer Promethazine (Phenergan) 12.5 mg IV or 25 mg IM.

OR

Administer Ondansetron (Zofran) 4 mg IV (2-4) minutes,
may repeat every 15 minutes (max 8 mg)

OR

4 mg IV/PO may repeat every 15 minutes (max 8 mg)

↓
Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Consider an ectopic pregnancy in women of childbearing age complaining of abdominal pain.
- In some patients, cardiac chest pain may manifest as abdominal pain. Consider this in all patients with abdominal pain, especially patients with diabetes, women, and the elderly.
- If the abdominal pain may be of cardiac origin, perform cardiac monitoring and a 12-Lead EKG.
- Diabetic Ketoacidosis (DKA) may present with abdominal pain and vomiting.
- If the patient experiences a dystonic reaction after the administration Promethazine (Phenergan), administer Diphenhydramine (Benadryl) 25 mg IV or IM.
- Signs and symptoms of a dystonic reaction include; eye deviation, difficulty speaking, a “thick” tongue, involuntary twitching and jerking of the extremities, recent use of some anti-psychotic medications, and the use of some anti-emetic medications.

Abnormal Birth Presentation

Indications:

- Abnormal fetus presentation:
- frank breech (buttocks presents first)
- footling breech (one foot or both feet presenting)
- transverse lie (fetus is on his/her side with possible arm or leg presenting)
- face first
- prolapsed cord (umbilical cord presents first)

Frank Breech

Routine Medical Care Protocol (Routine-1)



EMT-B Administer high flow oxygen.



EMT-B Allow for delivery of the infant, but be careful not to pull.



EMT-B If the infant will not completely deliver, form an airway by inserting 2 gloved fingers into the vagina to form a “V” over the infant’s mouth and nose. A passage of air must be created by pushing the birth canal away from the infant’s face. This passage must be maintained until the infant is COMPLETELY delivered.



EMT-B Maintain the airway and transport immediately.



Reassess



Contact Med Command for further assistance, if needed.

Prolapsed Cord

Routine Medical Care Protocol (Routine 1)



EMT-B Administer high flow oxygen.



EMT-B Transport the patient with her hips elevated or in the knee-chest position. Place a moist dressing around the cord.



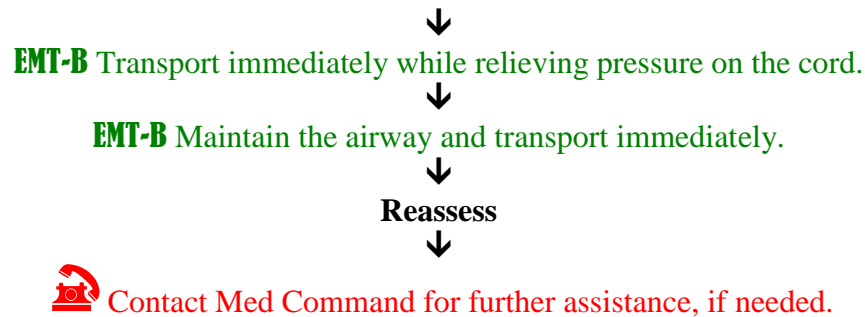
EMT-B Assess the cord for pulsation.



EMT-B Insert gloved fingers into the vagina to relieve the pressure on the cord.

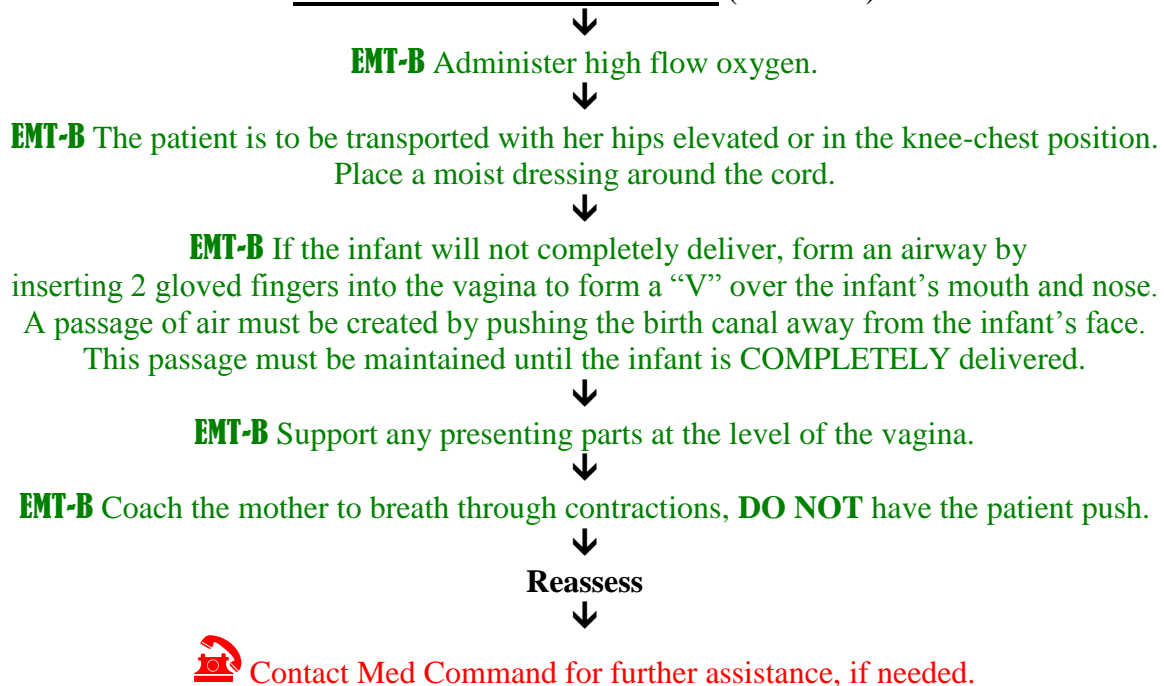


EMT-B DO NOT attempt to push the cord back into the vagina.



Footling Breech/ Transverse Lie/ Face First

Routine Medical Care Protocol (Routine-1)



Key Points

- **DO NOT** pull on any presenting body parts.
- These patients will most likely require a c-section, so immediate transport is needed.
- Prolonged, non-progressive labor distresses the fetus and mother. Be sure to reassess mother’s vital signs continuously.
- OB Capable Hospitals:
 - Cleveland Clinic Hospitals – Fairview Hospital, Hillcrest Hospital, Cleveland Clinic main campus for Emergency OB only
 - University Hospitals – University Hospital Cleveland Medical Center, Rainbow Babies and Children’s Hospital, Parma Medical Center, St. John’s Medical Center*
 - Independent Hospital – MetroHealth Medical Center, Southwest General Health Center

Airway Obstruction

Signs and Symptoms:

- witnessed aspiration
- sudden episode of choking or gagging
- stridor
- change in skin color
- decreased LOC
- increased or decreased respiratory rate
- labored breathing
- unproductive cough


Routine Medical Care Protocol (Routine-1)

EMT-B If the patient is conscious and coughing, encourage the patient to continue coughing.

EMT-B Administer high flow O2 by mask.

EMT-B If the patient is conscious with a complete obstruction, perform the Heimlich maneuver.

EMT-B Continue until the object is removed or the patient becomes unconscious.

 If the patient becomes unconscious, open the airway and try to visualize the foreign body. Only perform a finger sweep if the foreign body is visualized. Consider using direct laryngoscopy or fiber optic (King Vision) to visualize the object. If visualized, attempt to remove it with Magill forceps.

EMT-B If the patient becomes unconscious immediately start CPR, starting with chest compressions. Be sure to check the airway for any foreign body prior to ventilations.

EMT-B Reposition the airway and ventilate. If unable to ventilate, reposition and attempt to ventilate again. Prior to each breath visually check the airway for obstructing objects, remove if visible. Repeat the sequence as needed.

Reassess



Contact Med Command for further assistance, if needed.

Key Points

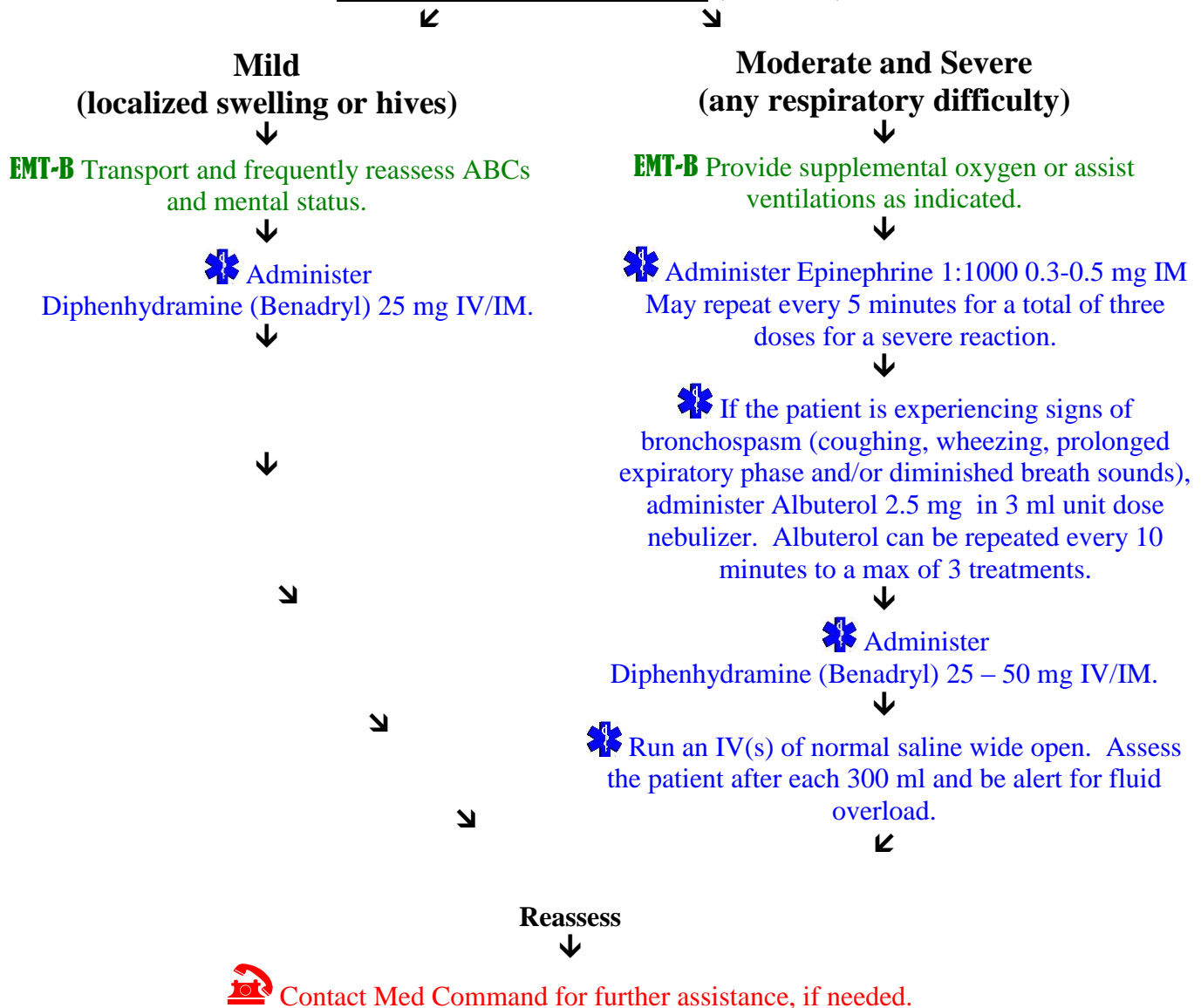
- Even with a complete airway obstruction, positive-pressure ventilation is often successful.
- **NEVER** perform blind finger sweeps.
- Attempts to clear the airway should only be made if foreign body aspiration is strongly suspected and there is complete airway obstruction.

Allergic Reaction and Anaphylaxis

Signs and Symptoms:

- | | |
|---------------------------|-------------------------------|
| • warm burning feeling | • severe respiratory distress |
| • itching | • altered LOC/coma |
| • rhinorrhea | • cyanosis |
| • hoarseness/stridor | • pulmonary edema |
| • wheezing | • facial/airway edema |
| • bronchospasm (coughing) | • urticaria/hives |
| • shock | • dyspnea |

Routine Medical Care Protocol (Routine-1)



Key Points

- Routinely reassess the patient and provide supportive care.
- Treat patients with a history of anaphylaxis aggressively.
- EMT-B/Paramedic: If the patient has a prescribed Epinephrine auto-injector, you may assist the patient with administering the auto-injector in the mid-anterior lateral thigh. Hold the auto-injector against the thigh for a minimum of 10 seconds. A dose of an adult EpiPen auto-injector is 0.3 mg in 0.3 ml of Epinephrine 1:1000.
- Use caution when using Epinephrine for patients with a cardiac history.
- Use caution when using Epinephrine for patients with a heart rate greater than 120 bpm.
- Albuterol can be administered via ETT by doubling the dose.
- When possible, remove any stingers by “scraping.”

Asystole/PEA

Signs and Symptoms:

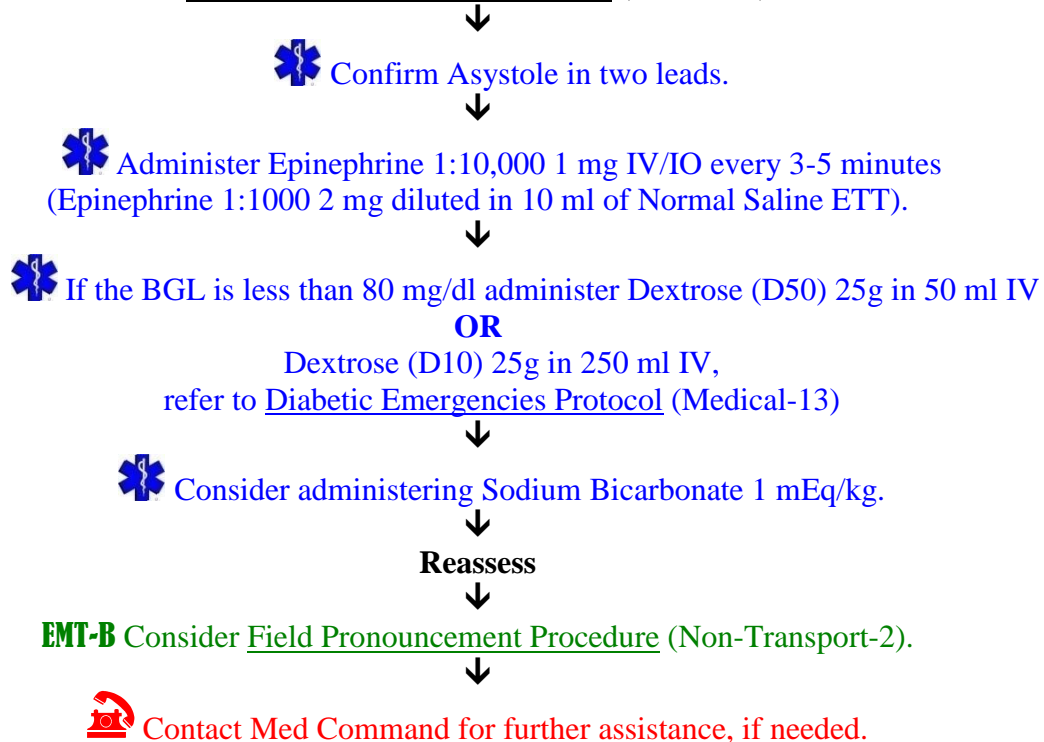
- pulseless
- apneic or agonal respirations
- cyanosis

Consider Causes:

Consider the causes of asystole and treat accordingly.

- | | |
|-------------------------|-----------------|
| • hypovolemia | • drug overdose |
| • cardiac tamponade | • hypoxia |
| • tension pneumothorax | • hypothermia |
| • pulmonary embolism | • hypoglycemia |
| • myocardial infarction | • acidosis |
| • tricyclic overdose | • hyperkalemia |

Routine Medical Care Protocol (Routine-1)



Key Points

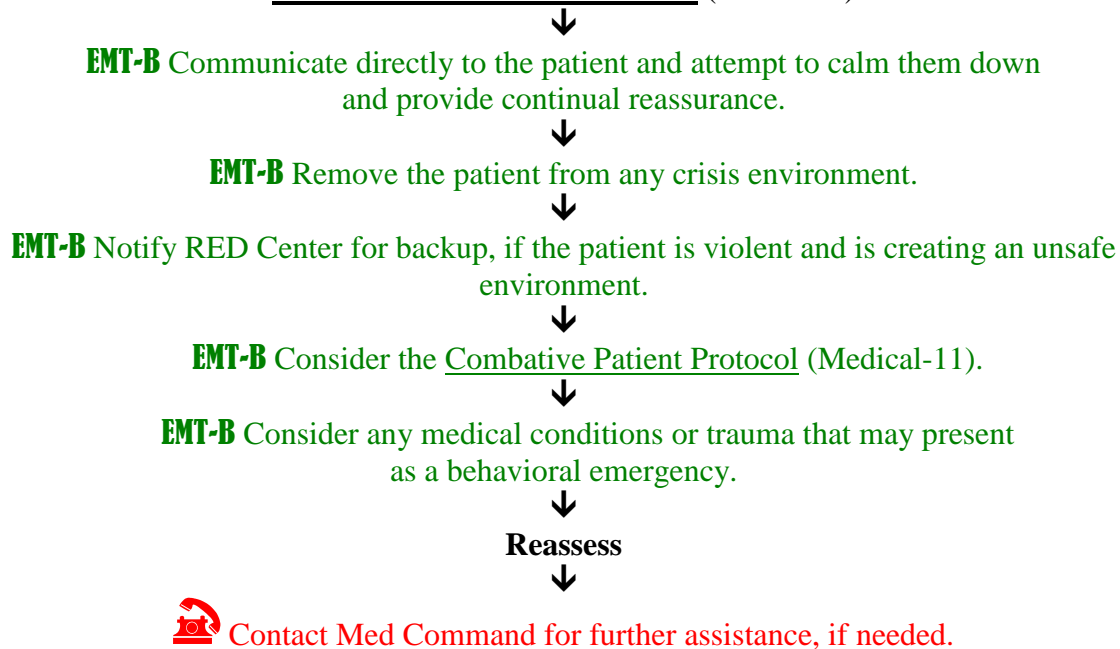
- If the patient converts to another rhythm, or has a **R**eturn **o**f **S**pontaneous **C**irculation (ROSC) refer to the appropriate protocol and treat accordingly.
- Treat as ventricular fibrillation if you cannot differentiate between asystole and fine ventricular fibrillation.
- The IV/IO route of medication administration is preferred over the ETT route.
- The medications that can be administered ETT are: (LEAN) **L**idocaine, **E**pinephrine, **A**trypine/**A**lbuterol, **N**aloxone (Narcan).
- **NO** medication can be administered via King LT-SD.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- Dextrose 50% or Dextrose 10% should only be administered to an adult patient with a confirmed blood glucose level less than 80 mg/dl.
- Naloxone (Narcan) administration is authorized for patients in cardiac arrest from suspected opioid overdose. Refer to Opioid Overdose Protocol (Medical-22) for dosage.
- Med Command must be contacted prior to administering antidotes for all poisonings/overdoses except for narcotic overdoses.
- Consider volume infusion for all patients in PEA. Be alert for fluid overload.
- Please note that field pronouncement **CANNOT** be performed on patients in PEA.
- Sodium Bicarbonate can be given earlier in patients with known dialysis treatment. Sodium Bicarbonate is only used for tricyclic antidepressant overdoses, hyperkalemia, and for a prolonged down time (15-20 minutes). The reason for its use must be documented.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Down time is the amount of time that the patient was in cardiac arrest.

Behavioral Emergencies Protocol

Signs and Symptoms:

- depression
- anxiety
- manic behavior
- schizophrenic behavior
- paranoia
- delirium
- dementia
- suicide attempts and ideation
- homicidal ideation
- substance abuse
- agitation
- psychosis
- hallucinations

Routine Medical Care Protocol (Routine-1)



Key Points

- The safety of on scene personnel is the first priority.
- Consider the medical causes of acute psychosis. Causes may include; head trauma, stroke, hypoglycemia, acute intoxication, sepsis, CNS insult, and hypoxia.
- Suicide ideation or attempts **MUST** be transported for evaluation.
- Evaluate the patient for any dangerous weapons or objects.
- Be alert for rapidly changing behavior.
- Limit patient stimulation and use de-escalation techniques.
- Only law enforcement personnel can apply handcuffs to a combative patient and **MUST** remain with the patient while they are transported. Be sure to contact the receiving hospital with the patient status, as soon as possible.

Bradycardia

Signs and Symptoms:

- hypotension
- altered mental status
- PVCs
- chest pain/discomfort
- shortness of breath/dyspnea
- diaphoresis
- palpitations
- heart rate less than 60

Routine Medical Care Protocol (Routine-1)



Perform a 12-Lead EKG.

Does the patient have signs of poor perfusion?



YES

NO



If the patient has signs of poor perfusion, administer Atropine 0.5-1 mg IV every 5 minutes (max dose 3 mg).

EMT-B Support the ABCs and routinely reassess the patient if the patient's HR is less than 60 bpm with adequate perfusion.



If the patient is conscious, prior to pacing, consider sedation with Diazepam (Valium) 2.5-5 mg IV

OR

Lorazepam (Ativan) 0.5-1 mg IV or 1-2 mg IM/IN. If the patient has bradycardia refractory to Atropine, contact Med Command for Transcutaneous Pacing.



If the patient's HR resolved but has BP less than 100 mmHg, run an IV of normal saline wide open. Assess the patient after each 300 ml, and be alert for fluid overload.



If the patient is hypotensive and does not respond to IV fluid resuscitation, administer Dopamine 5-20 micrograms/kg/min IV titrated to effect.



Reassess**Contact Med Command for further assistance, if needed.**

Key Points

- Identify and treat possible causes for bradycardia:
 - Hypoxia
 - Hypothermia
 - Head injury
 - Heart block
 - Toxic ingestion/exposure
- Transcutaneous pacing is the treatment of choice for Type II second degree heart blocks and third degree heart blocks.
- Atropine is now indicated in Type II second degree heart blocks and third degree heart blocks.
- If the patient is critical and an IV cannot be established, initiate pacing with Med Command permission.
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- Routinely reassess the patient after all interventions even if they do not produce any changes.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*

Cardiac Arrest

Routine Medical Care Protocol (Routine-1)



EMT-B If the patient has DNR paperwork
refer to DNR Procedure (Non-Transport-1).



EMT-B First responder units, refer to AED Procedure (Procedure-4).



EMT-B Begin CPR.



Identify the arrhythmia and refer to the appropriate protocol and treat accordingly.



EMT-B If arrest possibly due to opioid use, refer to Opioid Protocol (Medical-22)



EMT-B If the patient regains a pulse,
refer to Post-Resuscitation Care Protocol (Medical-23)



Contact Med Command for further assistance, if needed.

Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Attempt to obtain patient history from family members or bystanders.
 - estimated down time
 - medical history
 - complaints prior to arrest
 - bystander CPR prior to EMS arrival
 - AED use prior to EMS arrival
- All Cardiac arrest patients should be placed on backboard or reeves stretcher.
- The IV/IO route of medications administration is preferred over the ETT route.
- The medications that can be administered ETT are: (LEAN) Lidocaine, Epinephrine, Atrypine/Albuterol, Naloxone (Narcan).
- **NO** medication can be administered via King LT-SD.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Administer Dextrose only if the adult patient has a BGL less than 80 mg/dl (60 mg/dl in pediatric patients). Dextrose should be administered as soon as hypoglycemia is determined.
- Naloxone (Narcan) administration is authorized for patients in cardiac arrest from suspected opioid overdose.
- Med Command must be contacted prior to administering antidotes for all poisonings/overdoses except for narcotic overdoses.
- Routinely reassess the patient after all interventions even if they do not produce any changes.
- If indicated, refer to the Field Pronouncement Procedure (Non-Transport-2).

Chest Discomfort

Signs and Symptoms:

- crushing heaviness
- chest pressure
- substernal pain
- epigastric discomfort
- pain radiating to the arm or jaw
- dyspnea
- syncope
- dizziness
- cool/clammy skin
- diaphoresis
- general weakness
- nausea/vomiting

Routine Medical Care Protocol (Routine-1)



Perform a 12 LEAD EKG



If the EKG indicates ST elevation or AMI, immediately transmit the 12-Lead EKG to the appropriate hospital and contact them as soon as possible.

All other EKGs should be transmitted to the receiving facility ASAP if the ED has EKG receiving capabilities



EMT-B If the patient has cardiac chest discomfort, administer Aspirin 325 mg PO
OR

Administer 4 Baby Aspirin at 80-81 mg chewable tablets each.



If the patient's systolic BP is greater than 100 mmHg (BP greater than 120 mmHg if over 70 years old), administer Nitroglycerin (GoNitro) 400 mcg SL.



If the patient's chest discomfort persists and the patient's BP is greater than 100 mmHg (BP greater than 120mmHg if over 70 years old), repeat Nitroglycerin (GoNitro) every 5 minutes (max of 3 doses).



If the patient's chest discomfort persists after 3 Nitroglycerin administrations, administer Morphine Sulfate 2-4 mg IV.

OR

Fentanyl Citrate 25-50 mcg IV



If the patient is having more than 6 multifocal PVCs a minute WITH ST elevation on the 12-Lead or runs of ventricular tachycardia, and is NOT bradycardic; contact Med Command to administer Lidocaine 1-1.5 mg/kg IV and initiate a Lidocaine Drip at 2-4 mg/min.

OR

Amiodarone 150 mg IV in 100 ml of D5W over 10 minutes.



If the patient's chest pain is relieved, repeat a 12-Lead EKG.
 Refer to the 12-Lead Procedure (Procedure-1).

Reassess



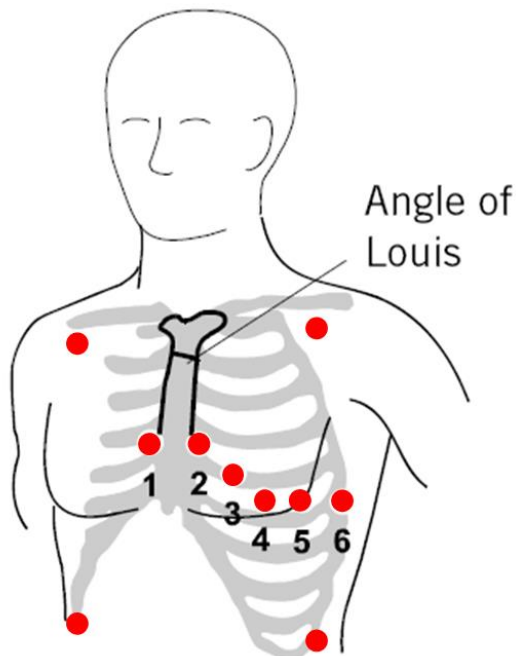
Contact Med Command for further assistance, if needed.

Key Points

- Refer to Bradycardia Protocol (Medical-7) if indicated (HR less than 60 bpm).
- Refer to Narrow Complex Tachycardia Protocol (Medical-20) or the Wide Complex Tachycardia Protocol (Medical-34) if indicated.
- If a person is experiencing a STEMI after the use of cocaine/cocaine based drugs, a benzodiazepine should be considered after the administration of Aspirin. Paramedics may administer a single dose of Lorazepam (Ativan) 1-2 mg IV or Diazepam (Valium) 2.5-5 mg IV. Nitroglycerin may be administered after benzodiazepine if the patient has an adequate blood pressure.
- If the patient becomes hypotensive from Nitroglycerin, Morphine, Lidocaine or Amiodarone administration, place the patient in the Trendelenburg position and administer a 300 ml Normal Saline bolus.
- Be prepared to administer Naloxone (Narcan) 0.4 mg-2 mg IV/IM or 2 mg IN if the patient experiences respiratory depression or hypotension due to Morphine or Fentanyl administration.
- If pulmonary edema is present, refer to Pulmonary Edema Protocol (Medical-25).
- Be suspicious of a "Silent MI" in the elderly, diabetics, and women.
- Consider other causes of chest pain such as aortic aneurysms, pericarditis, and pulmonary embolisms.
- Aspirin can be administered to a patient on Coumadin, unless the patient's physician has advised them otherwise.
- If the patient took a dose of Aspirin that was less than 324-325 mg in the last 24 hours, then additional Aspirin can be administered to achieve a therapeutic dose of 324-325 mg. For example, if a patient took an 81 mg dose of Aspirin 12 hours ago, then the paramedic can administer 3 baby Aspirin (243 mg) to achieve a total dose of 324 mg.
- **DO NOT** administer Nitroglycerin to a patient who took any erectile dysfunction medication within the last 48 hours. Some examples of erectile dysfunction medications include: Sildenafil (Viagra), Vardenafil HCL (Levitra), and Tadalafil (Cialis).
- Nitroglycerin can be administered to a patient by EMS if the patient has already taken 3 of their own prior to your arrival. Document it if the patient had any changes in their symptoms or a headache after taking their own Nitroglycerin.
- Nitroglycerin can still be administered if IV attempts were unsuccessful and the patient has a BP greater than 120 mmHg or BP greater than 150 mmHg if over 70 years old.
 - **DO NOT** administer Nitroglycerin to a patient who is experiencing an inferior wall myocardial infarction unless IV access was successfully obtained.
- **Patients experiencing an inferior wall MI or a suspected right sided MI consider Fentanyl Citrate 25-50 mcg as a Morphine Sulfate substitute, with Med Command permission.**
- Morphine Sulfate should be used in caution with patients experiencing unstable angina, hypotension, and hypovolemia.
- **DO NOT** treat the PVCs with Lidocaine or Amiodarone, if the patient is bradycardic.
- If the patient has more than 6 multifocal PVCs a minute **WITH** ST elevation or runs of ventricular tachycardia and a history of liver failure, or CHF give Lidocaine 0.5-0.75 mg/kg IV/IO.
- Amiodarone should be administered using the "piggy back" method.
- All patients complaining of chest discomfort must be administered at least 4 lpm of oxygen by nasal cannula. Administer oxygen by non-rebreather or assist the patient's ventilations as indicated.

Key Points Continued

- Oxygen administration, 12-Lead EKG, continuous cardiac monitoring, and an IV are indicated for patients complaining of possibly cardiac related chest pain, or if the chest pain was relieved prior to your arrival.
- If the EKG indicates ST elevation or AMI, immediately transport to a STEMI capable hospital. Refer to the Hospital Transport Guide (Appendix-1)
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*



Placement of the “V” Leads

V1: 4th ICS-Right of the Sternum

V2: 4th ICS-Left of the Sternum

V3: Between V2 and V4

V4: 5th ICS Mid-clavicular

V5: Between V4 and V6

V6: Even with V4 Mid-axillary

12 Lead Reference Table

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

STEMI Capable Hospitals:

- Cleveland Clinic Hospitals – Cleveland Clinic Hospital, Fairview Hospital, Hillcrest Hospital
- University Hospitals – University Hospitals Cleveland Medical Center, Ahuja Medical Center, Parma Medical Center, St. John Medical Center*
- Independent Hospital – MetroHealth Medical Center, Southwest General Health Center, St. Vincent Charity Hospital

Coma/Altered Mental Status

Signs and Symptoms:

- unresponsiveness
- altered mental status
- inadequate respirations
- confusion
- agitation

Routine Medical Care Protocol (Routine-1)



Consider and treat the causes



CNS Infection or Insult



EMT-B If the patient has adequate respiratory effort and is responsive to verbal stimuli, continue supportive BLS and ALS care.



EMT-B If a stroke is suspected, refer to the Stroke Protocol (Medical-30) and treat accordingly.



Reassess



 **Contact Med Command** for further assistance, if needed.

Hypovolemia or Dehydration




If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



Reassess



 **Contact Med Command** for further assistance, if needed.

Hypoglycemia



EMT-B If the patient's BGL is less than 80 mg/dl, refer to the Diabetic Emergencies Protocol (Medical-13) and treat accordingly.



 **Contact Med Command** for further assistance, if needed.

Toxic Ingestion/ Exposure



EMT-B Decontaminate the patient and contact the Hazmat Team, if needed.



EMT-B If possible, determine when, how much and name of ingested or exposure substance. If safe to do so, bring a sample with you to the hospital.



EMT-B If the patient has known or suspected exposure to Nerve Agents or organophosphates, refer to the Duo Dote (Procedure-10)



EMT-B If the patient has known or suspected narcotic ingestion, refer to Opioid Overdose Protocol (Medical-22)



EMT-B Determine what interventions were administered prior to EMS arrival: (syrup of ipecac, ingestion of milk, vomiting, etc.)




Trauma



EMT-B If there is suspicion of trauma, refer to the appropriate protocol and treat accordingly.



 **Contact Med Command** for further assistance, if needed.



Key Points

- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- Scene safety is the number one priority. If scene is unsafe, leave and wait for CPD or stage until scene is secure.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible and follow their instructions.
- The patient and/or crew must be decontaminated prior to transport. **DO NOT** transport a contaminated patient to a treatment facility.
- If exposed to nerve agents or organophosphates symptoms may include:
 - **Mild** symptoms include: muscle twitching and diaphoresis.
 - **Moderate** symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching.
 - **Severe** symptoms include: unconsciousness, seizures, flaccidity, and apnea.
- **SLUDGEM**: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Muscle twitching.
- Contact Med Command for all patients under the age of 1 month who are experiencing a seizure related to nerve agent exposure.
- A Duo Dote includes 600 mg Pralidoxime (2-PAM Cl) and 2 mg Atropine in one prefilled auto-injector. Should be used on the mid anterior lateral thigh.
- **Nerve Agents** include, but are not limited to, Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR.
- **Organophosphate Chemicals** are found in many pesticides and bug sprays, chemicals include, but are not limited to, azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithroton, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.
- **Tricyclic Anti-depressants** include (but not limited to): Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, and Trimipramine.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.

Project DAWN / Opiate Overdose Refusal

- Narcotic OD patients that receive Naloxone (Narcan) administered by a layperson, law enforcement and/or EMS/CFD may refuse transport if they are:
 - Awake and alert
 - Have normal respirations, normal pulse oximetry, and no respiratory distress
 - Emergency Responders **SHALL** provide the patient with a Project DAWN Kit prior to leaving the scene. If there are no Project DAWN Kits available, emergency responders **SHALL** encourage the patient to contact the Project DAWN office to obtain replacement supplies (216-778-5677). Project DAWN Kits are also available at CEMS Headquarters Monday to Friday during 0900-1600 hours.
 - These patients should be offered transport and informed about the potential risk of recurrent CNS and respiratory depression. These patients follow the Refusal/AMAOD policy and require notification of the RED Center Captain.

Combative Patient

Signs and Symptoms:

Combative patient of unknown origin.

Consider Causes:

Consider other causes and refer to the appropriate protocol as indicated:

- drug over dose
- ETOH
- diabetic emergency
- trauma
- seizure
- head injury
- behavioral emergencies
- hypoxia


Routine Medical Care Protocol (Routine-1)

↓
EMT-B Notify the RED Center that the patient is combative.

↓
EMT-B Communicate directly to the patient and attempt to calm them down.

↓
EMT-B Utilize de-escalating techniques including limiting noise and other stimulation.


↓
EMT-B Restrain the patient using soft restraints if they are uncooperative, combative, and the safety of the patient or care providers is at risk. Use the minimal amount of restraints necessary to assure patient and personnel safety. **NEVER** put any restraint on a patient that may limit ventilation or obstruct the airway.

↓
 If the patient continues to pose a threat, administer
Lorazepam (Ativan) 1-2 mg IV

OR

Lorazepam (Ativan) 2-4 mg IM/IN


↓
Reassess

↓
 If the patient continues to pose a threat and be combative, after 5 minutes,
administer Lorazepam (Ativan) 1-2 mg IV

OR

Lorazepam (Ativan) 2-4 mg IM/IN

↓
Reassess

↓
 Contact Med Command for further assistance, if needed.

Key Points

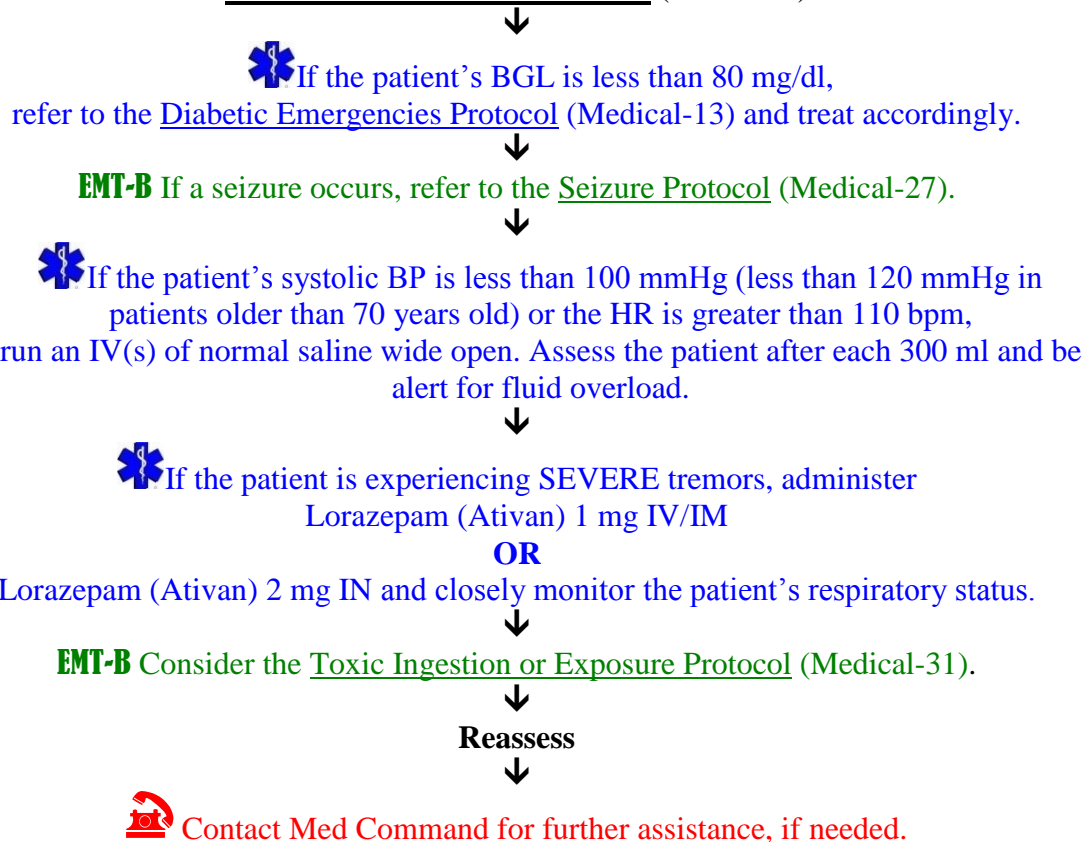
- The safety of on-scene personnel is the first priority.
- **DO NOT** use pharmacological sedation if there is suspicion of head trauma or head injury. If a head injury is suspected, Lorazepam (Ativan) should be withheld unless the patient is actively seizing.
- Use the least amount of restraint to achieve the desired purpose. Restrain the patient in the supine position or lateral position. No devices such as backboards, splints, or other devices shall be on top of the patient. **NEVER** restrain a patient in the prone position.
- Document attempts to verbally de-escalate or restrain the patient before chemical restraint was used.
- Reassess the patient's vital signs every 5 minutes. Constantly monitor the patient's pulse, SpO2 and document all reassessments.
- Be alert for respiratory depression after Lorazepam (Ativan) administration and treat accordingly.
- Make sure there is adequate personnel available before efforts to restrain the combative patient are made.
- Soft restraints such as cravats or rolled bandages can be used for extremity restraints. Sheets may be used to limit pelvic or lower extremity movement. Sheets shall **NEVER** be used across the patient's chest.
- The restraints should not be limiting to the patient's circulation or respiratory status.
- All restraints should have the ability to be quickly released. Extremities that are restrained shall have a circulation check at least every 5 minutes. The first of these checks should occur as soon as possible after placement of the restraints. This documentation **MUST** be on the patient care report.
- Only law enforcement personnel can apply handcuffs to a combative patient and **MUST** remain with the patient while they are transported. Be sure to contact the receiving hospital with the patient status as soon as possible.
- Clearly document the reason why any physical restraints or medications were used on a combative patient.

Delirium Tremens

Signs and Symptoms:

- gross tremors
- agitation
- confusion
- hallucinations (auditory and visual)
- seizures
- tachycardia
- dysrhythmias
- shock
- incontinence
- fever

Routine Medical Care Protocol (Routine-1)



Key Points

- Delirium tremens is an acute medical emergency with a 10-15% mortality rate.
- Delirium tremens may occur 12-48 hours after the last alcohol consumption.
- Be alert for respiratory depression after Lorazepam (Ativan) administration and treat accordingly.

Diabetic Emergencies

Signs and Symptoms:

Hyperglycemia:

- altered LOC/coma
- abdominal pain
- nausea and vomiting
- dehydration
- frequent thirst and urination
- general weakness or malaise
- hypovolemic shock
- hyperventilation
- deep and rapid respirations (Kussmaul Respirations)


Hypoglycemia:


- altered LOC/coma
- dizziness
- irritability
- diaphoresis
- convulsions
- hunger
- confusion

Routine Medical Care Protocol (Routine-1)

↓
EMT-B Check the patient's BGL.
↙ ↘

Hyperglycemia BGL is greater than 400 mg/dl

↓
 If the patient has a BGL is greater than 400 mg/dl or is showing signs of hyperglycemia and dehydration, run an IV(s) of normal saline wide open. Reassess after each 300 ml, and be alert for fluid overload.

↓
 If the patient is experiencing persistent vomiting, administer Promethazine (Phenergan) 12.5 mg IV or 25 mg IM.


OR
Administer Ondansetron (Zofran) 4 mg IV over 2-4 minutes, may repeat every 15 minutes (max 8 mg)

OR
4 mg IM/PO may repeat every 15 minutes (max of 8 mg)




Hypoglycemia BGL is less than 80 mg/dl

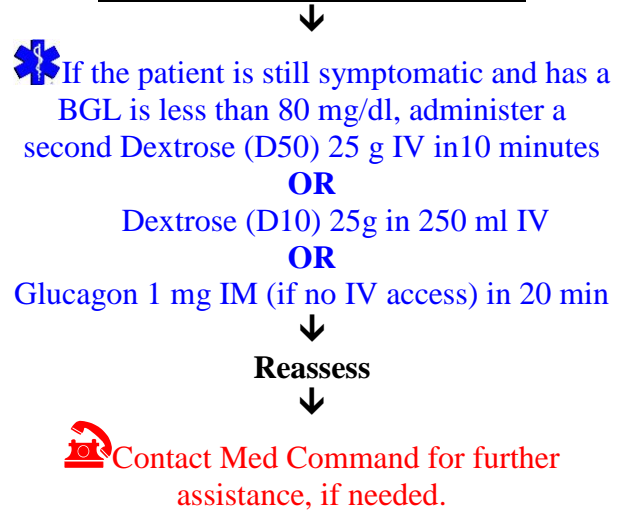
↓
EMT-B If the BGL is less than 80 mg/dl and the patient is symptomatic but is alert and oriented, able to follow commands, and has the ability to swallow, consider oral glucose 15-25 g.

↓
 If the BGL is less than 80 mg/dl and the patient is symptomatic administer Dextrose (D50) 25g in 50 ml IV.

OR
Dextrose (D10) 25g in 250 ml IV

↓
 If unable to start an IV after two attempts, administer Glucagon 1 mg IM.



Hyperglycemia – Continued**Hypoglycemia - Continued****Key Points****Hyperglycemia:**

- Diabetic Ketoacidosis (DKA) is a complication of diabetes mellitus. It can occur when insulin levels become inadequate to meet the metabolic demands of the body for a prolonged amount of time (onset can be within 12-24 hours). Without enough insulin the blood glucose increases and cellular glucose depletes. The body removes excess blood glucose by dumping it into the urine. Pediatric patients in DKA should be treated as hyperglycemic under the Pediatric Diabetic Protocol (Ped-10)
- Patients can have Hyperglycemia without having DKA.

Hypoglycemia:

- Always suspect Hypoglycemia in patients with an altered mental status.
- If a glucoscan is not available, patients with an altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.
- Dextrose is used to elevate BGL but it will not maintain it. The patient will need to follow up with a meal, if not transported to a hospital.
- If the patient is alert and has the ability to swallow, consider administering oral glucose, having the patient drink orange juice with sugar or a sugar-containing beverage, or have the patient eat a candy bar or a meal.
- Check the patient's BGL after the administration of Dextrose, Glucagon, and after any attempt to raise the patient's BGL.

Miscellaneous:

- If IV access is successful after Glucagon IM and the patient is still symptomatic, Dextrose (D50) 25g in 50 ml or Dextrose (D10) 25g in 250 ml IV can be administered immediately.
- If the patient experiences a dystonic reaction after the administration of Promethazine (Phenergan), administer Diphenhydramine (Benadryl) 25 mg IV or IM.
- Signs and symptoms of a dystonic reaction include; eye deviation, difficulty speaking, a "thick" tongue, involuntary twitching and jerking of the extremities, recent use of some anti-psychotic medications, and the use of some anti-emetic medications.
- Dextrose and Glucagon can only be repeated one time each.

Gastrointestinal Bleeding

Signs and Symptoms:

- weakness
- dizziness
- fainting
- abdominal distention or tenderness
- bleeding from mouth or rectum
- hematemesis (coffee ground emesis)
- melena (dark sticky feces)
- jaundice
- nausea and vomiting
- combativeness
- pale
- cool and clammy skin
- rapid pulse
- altered LOC/coma

Routine Medical Care Protocol (Routine-1)



EMT-B Administer supportive care.



If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



If the patient is experiencing persistent vomiting, administer Promethazine (Phenergan) 12.5 mg IV or 25 mg IM.

OR

Administer Ondansetron (Zofran) 4 mg IV over 2-4 minutes, may repeat every 15 minutes (max 8 mg)

OR

4 mg IM/PO, may repeat every 15 minutes (max 8 mg)



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Severe blood loss can result in rapid progression to shock.
- Consider placing a second large bore IV for patients in shock or with obvious GI bleeding.
- If the patient experiences a dystonic reaction after the administration of Promethazine (Phenergan), administer Diphenhydramine (Benadryl) 25 mg IV or IM.
- Signs and symptoms of a dystonic reaction include; eye deviation, difficulty speaking, a "thick" tongue, involuntary twitching and jerking of the extremities, recent use of some anti-psychotic medications, and the use of some anti-emetic medications.


Gynecological Emergencies

Signs and Symptoms:

- abdominal pain
- diffuse back pain
- cramping
- fever
- nausea/vomiting
- vaginal discharge
- shock
- vaginal bleeding

Routine Medical Care Protocol (Routine-1)



 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



EMT-B If the patient is complaining of abdominal pain, refer to the Abdominal Pain Protocol (Medical-1)



EMT-B If the patient has signs or symptoms of sepsis, refer to the Septic Shock Protocol. (Medical-28).



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- **General Information**
 - **DO NOT** apply packing in the vagina.
 - Be alert for fluid overload when administering fluids.
 - Consider starting a second IV if the patient is experiencing excessive vaginal bleeding or hypotension.
 - Transport to an appropriate OB facility if the patient is pregnant.
 - Document the following:
 - Pain or discomfort?
 - Last normal menstrual period?
 - Any missed menstrual cycles?
- **Abortion/Miscarriage**
 - The patient may be complaining of cramping, nausea, and vomiting.
 - Be sure to gather any expelled tissue and transport it to the receiving facility.
 - Signs of infection may not be present if the abortion/miscarriage was recent.
 - An abortion is any pregnancy that fails to survive over 20 weeks. When it occurs naturally, it is commonly called a "miscarriage."
- **Abruptio Placenta**
 - Usually occurs after 20 weeks.
 - Dark red vaginal bleeding.
 - May only experience internal bleeding
 - May complain of a "tearing" abdominal pain

- **Ectopic Pregnancy**
 - The patient may have missed a menstrual period or had a positive pregnancy test.
 - Acute unilateral lower abdominal pain that may radiate to the shoulder.
 - Any female of child bearing age complaining of abdominal pain is considered to have an ectopic pregnancy until proven otherwise.
- **Pelvic Inflammatory Disease**
 - Be tactful when questioning the patient to prevent embarrassment.
 - Diffuse back pain
 - Possibly lower abdominal pain
 - Pain during intercourse
 - Nausea, vomiting, or fever
 - Vaginal discharge
 - May walk with an altered gait due to abdominal pain
- **Placenta Previa**
 - Usually occurs during the last trimester
 - Painless
 - Bright red vaginal bleeding
- **Post Partum Hemorrhage**
 - Post partum blood loss greater than 300-500 ml
 - Bright red vaginal bleeding
 - Be alert for shock and hypotension
- **Uterine Inversion**
 - The uterine tissue presents from the vaginal canal
 - Be alert for vaginal bleeding and shock
- **Uterine Rupture**
 - Often caused by prolonged, obstructed, or non-progressive labor
 - Severe abdominal pain
- **Vaginal Bleeding**
 - If the patient is experiencing vaginal bleeding, **DO NOT** pack the vagina.
- **Post-Partum**
 - If patient is showing signs and symptoms of complications after delivery, then transport patient to the hospital where patient delivered. If unable to transport the patient to their delivery hospital, then transport patient to the closest appropriate hospital with OB/GYN capabilities. Refer to the Hospital Transport Guide (Appendix-1).
- **OB Capable Hospitals:**
 - Cleveland Clinic Hospitals – Fairview Hospital, Hillcrest Hospital, Cleveland Clinic main campus for emergency OB only
 - University Hospitals – University Hospitals Cleveland Medical Center, Rainbow Babies and Children's Hospital, Parma Medical Center, St. John's Medical Center*
 - Independent Hospital – MetroHealth Medical Center, Southwest General Health Center

Hypertensive Emergencies

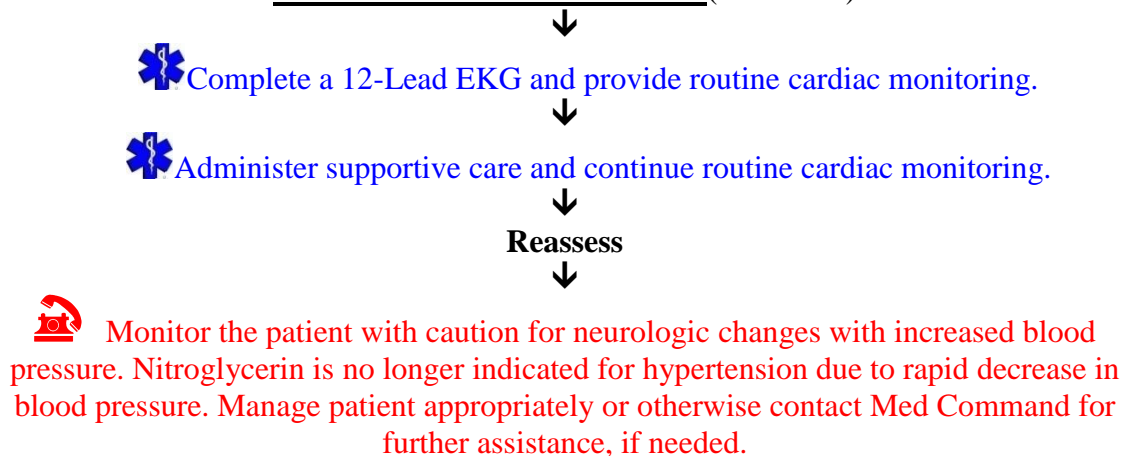
Signs and Symptoms:

- headache
- dizziness/vertigo
- weakness
- confusion
- ringing in the ears
- syncope
- neurological deficit or stroke
- nausea
- vomiting
- nose bleed
- bounding pulse
- tachycardia
- flushed skin
- numbness and tingling
- vision changes
- heart palpitations
- changes in mental status
- chest pain
- seizure
- muscle twitching
- lethargy
- Blood pressure:
Systolic ≥ 180 mmHg
OR
Diastolic ≥ 120 mmHg

Consider Causes: Consider other acute causes of hypertension and treat accordingly:

- chest pain/AMI
- stroke/head injury
- altered mental status
- seizure
- untreated chronic hypertension
- noncompliance with hypertension medication
- pain

Routine Medical Care Protocol (Routine-1)



Key Points

- Evidence of neurological deficit includes: confusion, slurred speech, facial asymmetry and focal weakness, coma, lethargy, and seizure activity.
- Evidence of cardiac impairment includes: angina, jugular vein distention, chest discomfort and pulmonary edema.
- Toxic ingestion such as cocaine, may present with a hypertension emergency.
- Hypertension can be a neuro-protective reflex in patients with increased intracranial pressure.

Hyperventilation

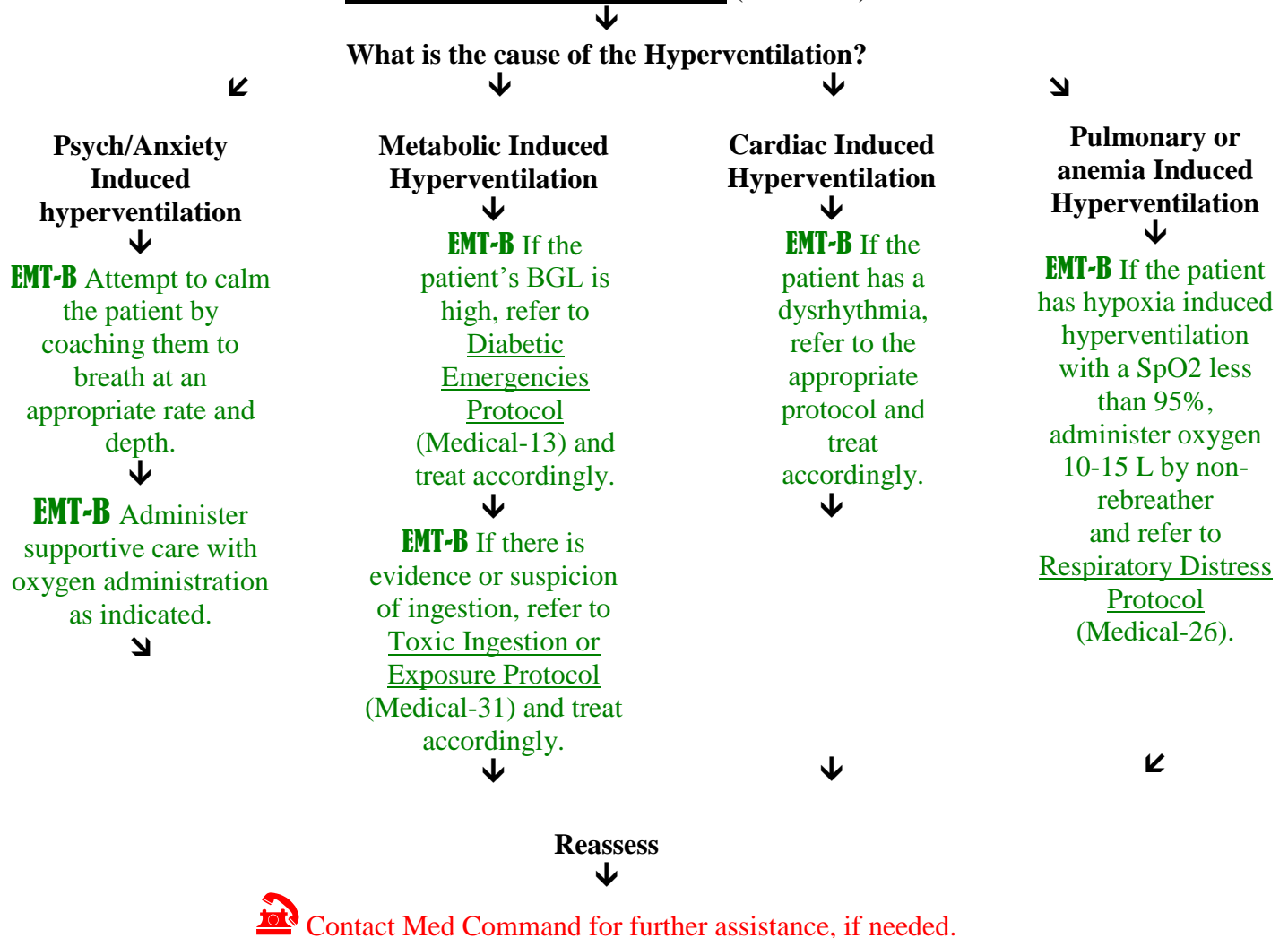
Signs and Symptoms:

- light headed or dizzy
- chest discomfort
- paresthesia
- confusion
- syncope
- seizure
- muscle cramps
- ventricular dysrhythmias

Consider Causes: Consider causes of hyperventilation and treat accordingly:

- anxiety
- labored respirations
- CO poisoning
- dyspnea
- pneumonia
- COPD/asthma
- pain
- pulmonary embolism
- severe anemia
- acidosis
- shock
- overdose
- aspirin overdose
- fever
- pneumothorax
- diabetic ketoacidosis
- pneumothorax

Routine Medical Care Protocol (Routine-1)



Key Points

- Place the patient on a nasal cannula if a non-rebreather causes anxiety.
- Be alert for respiratory depression with prolonged hyperventilation.
- Hypoxia induced hyperventilation patients can have normal SpO2 levels and should be administered high flow oxygen.
- **DO NOT** have the patient breathe into a bag or a non-rebreather without oxygen supplementation.

Hypovolemic Shock

Signs and Symptoms:

- tachycardia
- weak thready pulse
- hypotension with narrow pulse pressure
- hypotension or falling systolic BP
- pale skin
- clammy or dry skin
- dyspnea
- altered LOC/coma
- decreased urine output
- restlessness
- irritability

Routine Medical or Trauma Care Protocol (Routine-1 or 3)



If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



EMT-B If the patient is not responding to fluid replacement, consider other causes and treat accordingly.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Patients suffering from hemorrhagic shock secondary to trauma, should be treated under the NOTS Trauma-(Trauma-9), and should be rapidly transported to the nearest appropriate facility.
- Initiate a second large bore IV for all patients in hypovolemic shock.
- Place the patient in the Trendelenburg position and assess after 300 ml normal saline bolus.
- If patient fits requirements for IO, refer to the Intraosseous Infusion-(Procedure-17).
- Dopamine Hydrochloride is **NOT** indicated for patients with hypovolemic shock.

Imminent Delivery

Signs and Symptoms:

- heavy bloody show
- urge to push
- feeling need to defecate
- crowning
- frequent contractions (every 1-2 minutes)

Routine Medical Care Protocol (Routine-1)

↓
EMT-B If delivery is imminent; notify RED Center of delivery status. Prepare to deliver on- scene (protecting the patient's privacy). If delivery becomes imminent while enroute, stop the squad and prepare for delivery.

↓
EMT-B Have the following equipment:
OB kit, towels, oxygen, suction, and Broselow bag.

↓
EMT-B Coach the mother to breath regularly and deeply with contractions.

↓
EMT-B Control the delivery of the head by applying gentle pressure to prevent explosive delivery and injury to the mother.

↓
EMT-B If the umbilical cord is around the neck, gently slide it over the head. If the cord is too tight, clamp it in two places and cut it between the clamps.

↓
EMT-B Once the head is delivered instruct the mother to stop pushing, suction the airway with bulb syringe (mouth then each nostril). Assess for meconium staining.

↓
EMT-B Deliver the anterior then posterior shoulder.

↓
EMT-B The rest of the body will deliver rapidly. During delivery, it is necessary to support the body at the level of the vagina.

↓
EMT-B Once the baby is delivered; wait at least one minute before clamping of cord, unless infant needs immediate resuscitation. Clamp the cord 8 and 10 inches from the baby and cut between the clamps (ties may be used if clamps are not available).

↓
EMT-B Perform the APGAR Score at 1 minute and again at 5 minutes after birth.

↓
EMT-B Perform neonatal resuscitation by drying, warming, suctioning.

↓
EMT-B If you need to stimulate breathing for the newborn, provide tactile stimulation by rubbing the back or flicking the soles of the feet.

↓
EMT-B Refer to the Pediatric Newborn Resuscitation Protocol (Ped-16) as indicated.



EMT-B Control postpartum bleeding by massaging the uterine fundus or by encouraging the infant to nurse.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Obtain Pregnancy Status
 - Known complications
 - Due date
 - Has amniotic fluid passed (water broke)
 - Time of contractions
- Newborns are very slippery, so be careful not to drop the baby.
- Note the time of delivery, and if there will be a need for an additional unit due to complications, contact RED Center.
- The baby and the mother shall have 2 separate patient care reports.
- Meconium staining can be dangerous for the infant, additional suctioning will be required for these infants. Refer to the Suctioning Procedure – (Procedure-24).
- There is no need to wait on scene to deliver the placenta.
- If possible, transport between deliveries if the mother is expecting twins.
- Transport to a hospital that has labor and delivery capabilities. Refer to the Hospital Transport Guide – (Appendix-1).
- OB Capable Hospitals:
 - Cleveland Clinic Hospitals – Fairview Hospital, Hillcrest Hospital, Cleveland Clinic main campus for emergency OB
 - University Hospitals – University Hospitals Cleveland Medical Center, Rainbow Babies and Children’s Hospital, Parma Medical Center, St. John’s Medical Center*
 - Independent Hospital – MetroHealth Medical Center, Southwest General Health Center

APGAR

<u>Sign</u>	<u>0</u>	<u>1</u>	<u>2</u>
Activity/Muscle Tone	Limp	Some Flexion	Active, Good Activity
Pulse	Absent	Less Than 100	Greater Than 100
Grimace/Reflex Irritability	No Response	Some /Avoidance	Cough, Cry, Sneeze
Appearance/Color	Blue, Pale	Acrocyanosis	Pink
Respirations	Absent	Slow, Irregular, Ineffective	Crying, Effective

EMT-B Control postpartum bleeding by massaging the uterine fundus or by encouraging the infant to nurse.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Obtain Pregnancy Status
 - Known complications
 - Due date
 - Has amniotic fluid passed (water broke)
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Appearance/Color	Blue, Pale	Acrocyanosis	Pink
Respirations	Absent	Slow, Irregular, Ineffective	Crying, Effective


Narrow Complex Tachycardia

Signs and Symptoms:

- heart palpitations/chest discomfort
- dizziness
- dyspnea
- heart rate greater than 150 bpm

Routine Medical Care Protocol (Routine-1)


Consider other treatable causes of narrow complex tachycardia and treat accordingly (hypoxia, hypovolemia, toxic ingestion).

 Perform a 12-Lead EKG.

Is the patient UNSTABLE?


YES

Unstable Narrow Complex Tachycardia


 If the patient is conscious, prior to synchronized cardioversion, consider sedation with Diazepam (Valium) 2.5-5 mg IV


OR


Lorazepam (Ativan) 0.5-1 mg IV or 1-2 mg IM/IN.

 Perform synchronized cardioversion reassessing after each attempt. Use the following joule settings.

Zoll 70 J, 120 J, 150 J, 200J

 While contacting Med Command to obtain orders to synchronize cardiovert, or if there is a delay in synchronized cardioversion, administer Adenosine 6 mg IV followed by a rapid 20 ml fluid bolus.

 If the rhythm persists after 2 minutes, administer Adenosine 12 mg IV followed by a rapid 20 ml fluid bolus.


 If the rhythm persists after 2 minutes, administer Adenosine 12 mg IV (max dose 30 mg) followed by a rapid 20 ml fluid bolus.


NO


Stable Narrow Complex Tachycardia

Patients with palpitations, dizziness, mild chest discomfort and mild dyspnea, may be considered stable.

 Considering performing vagal maneuvers.

 If the rhythm persists, administer Adenosine 6 mg IV followed by a rapid 20 ml fluid bolus.

 If the rhythm persists after 2 minutes, administer Adenosine 12 mg IV followed by a rapid 20 ml fluid bolus.

 If the rhythm persists after 2 minutes, administer Adenosine 12 mg IV (max dose 30 mg) followed by a rapid 20 ml fluid bolus.



After conversion, repeat a 12-Lead EKG.



Reassess



Contact Med command for further assistance, if needed.

Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Possible causes of tachycardia are hypoxia, hypovolemia, fear, and pain. If possible obtain events leading up to SVT.
- Examples of vagal maneuvers include bearing down, coughing, or blowing into a syringe.
- **DO NOT** perform a carotid massage.
- **DO NOT** delay cardioversion to gain vascular access for the unstable patient.
- Consider applying the Combo patches prior to Adenosine administration.
- If possible, the IV should be initiated in either the left or right AC.
- When administering Adenosine, raise the patient's arm and immediately follow with a 20 ml rapid bolus of normal saline.
- Record 3-Lead EKG strips during Adenosine administration.
- Perform a 12-Lead EKG prior to and after Adenosine conversion or cardioversion of SVT.
- Refer to the appropriate protocol, if the patient converts into ventricular fibrillation or pulseless ventricular tachycardia. **DEFIBRILLATE** the patient at the initial joule setting.
- If you are in the process of Synchronize Cardioverting the patient and he/she goes into ventricular fibrillation or pulseless ventricular tachycardia confirm that PADS is still the selected lead and confirm the **SYNC** Button **IS NOT** selected prior to defibrillation.
- Give a copy of the EKGs and treatment summary to the receiving facility upon arrival.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*

Neurogenic Shock

Signs and Symptoms:

- evidence of trauma (lacerations, bruising, swelling, deformity)
- normal or bradycardic pulse rate
- hypotension with a narrow pulse pressure
- compromise in neurological function
- normal or flush skin color

Routine Medical or Trauma Care Protocol (Routine-1 or 3)



EMT-B Perform c-spine stabilization.



If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



If the patient is hypotensive and does not respond to IV/IO fluid resuscitation, administer Dopamine 5-20 micrograms/kg/min IV/IO titrated to effect.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Cushing's Reflex is a sign of increased ICP. Cushing's Reflex is a high blood pressure, low pulse rate, and irregular respirations.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).

Opioid Overdose

Signs and Symptoms:

- unresponsiveness
- altered mental status
- inadequate respirations
- pinpoint pupils
- presence of opioids or related paraphernalia

Routine Medical Care Protocol (Routine-1)



EMT-B Provide supplemental oxygen or assist ventilations as indicated.



EMT-B Administer Naloxone (Narcan) 2mg-4mg IN. May repeat every 2 minutes for a total of 2-3 doses (6-8mg).



 Administer Naloxone (Narcan):

- IV/IO: Administer 2-4mg IV/IO; May repeat every 2 minutes for a total of 3-6 doses (12mg).


OR

- IM: Administer 4mg IM; May repeat every 5 mins for a total of 3 doses (12mg).


OR

- IN: Administer 2-4mg IN **ONCE**.
If no response proceed to IV/IM/IO routes




 If no response after **ONE** dose given by trained medical personnel, begin efforts to transport patient hospital.



 If EMS or other trained medical professional (CPD or CFD) has administered a total of 12 mg of Naloxone (Narcan) and additional doses are needed, Contact Med Command.




 Encourage hospital transport for all patients of opioid overdose.
If patients are refusing transport
refer to Refusal Against Medical Advice Opiate Over Dose (Non-Transport-3)



Reassess



 Contact Med Command for further assistance, if needed

Key Points


- Scene safety is the number one priority. If scene unsafe leave and wait for CPD or stage until scene secure.
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- IO should **NOT** be used routinely in patients with reversible cause (i.e. opioid overdose, hypoglycemia)
- See refusal policy: Refusal Against Medical Advice Opiate Overdose
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdrawal, which includes vomiting, agitation, and/or combative behavior. Always be prepared for combative behavior.
- If Intranasal Route is being utilized, administer the full 2 mg of Naloxone (Narcan) via the atomizer or 4 mg via the intranasal auto-injector. Refer to the Intranasal Procedure (IN) (Procedure-16).
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- Double the dose of Naloxone (Narcan) if it is administered via ETT.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible, and follow their instructions.
- Consider Naloxone (Narcan) use in patients in cardiac/respiratory arrest if evidence of opioid use or other clear causes of why the arrest occurred.
- **Wear appropriate PPE (including but not limited to face mask and gloves) due to risk of inadvertent opioid exposure. Avoid touching any opioid related materials unless necessary for patient care.**
- If no response after **ONE** dose; begin efforts to transport patient to the hospital.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.
- Be sure to document any layperson (Project DAWN Kit #)/first responder interventions prior to arrival.


Project DAWN / Opiate Overdose Refusal

- Narcotic OD patients that receive Naloxone (Narcan) administered by a layperson, law enforcement and/or EMS/CFD may refuse transport if they are:
 - Awake and alert
 - Have normal respirations, normal pulse oximetry, and no respiratory distress
 - Emergency Responders **SHALL** provide the patient with a Project DAWN Kit prior to leaving the scene. If there are no Project DAWN Kits available, emergency responders **SHALL** encourage the patient to contact the Project Dawn office to obtain replacement supplies (216-778-5677). Project DAWN Kits are also available at CEMS Headquarters from Monday to Friday during 0900-1600 hours.
 - These patients should be offered transport and informed about the potential risk of recurrent CNS and respiratory depression. These patients follow the Refusal/AMAOD policy and require notification of the RED Center Captain.


Post-Resuscitation Care


Routine Medical Care Protocol (Routine-1)


 Perform a 12 LEAD EKG

 If the EKG indicates ST elevation or AMI, immediately transmit the 12-Lead EKG to the appropriate hospital and contact them as soon as possible.


EMT-B If the patient's heart rate is less than 60 bpm, refer the Bradycardia Protocol- (Medical-7).


 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO(s) of normal saline wide open administer 1-2L of normal saline. Assess the patient and be alert for fluid overload.

 If the patient is still hypotensive, administer Dopamine at 5-20 mcg/kg/min. titrated to effect.


 If the patient was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has received Lidocaine or Amiodarone follow the appropriate maintenance infusion below. If the patient has not received any antiarrhythmic and is not hypotensive, choose Lidocaine or Amiodarone for a maintenance infusion.


Lidocaine


 If the patient was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has not received any prior antiarrhythmic medications during the arrest, administer Lidocaine 1-1.5 mg/kg IV/IO and initiate a Lidocaine drip at 2-4 mg/min.

 If the patient received Lidocaine more than 10 minutes ago during the arrest, bolus the patient with Lidocaine at 0.5-0.75 mg/kg IV/IO and then initiate a Lidocaine drip at 2-4 mg/min.

Amiodarone

 If the patient was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and received Amiodarone during the arrest, administer Amiodarone 150 mg IV in 100 ml of D5W administered over 10 minutes.

 If the patient was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has not received any prior antiarrhythmic medications during the arrest, administer Amiodarone 150 mg IV in 100 ml of D5W administered over 10 minutes

 Amiodarone can be repeated once in 10 minutes.



If the patient has a Return of Spontaneous Circulation (ROSC) with a palpable pulse initiate Non-Traumatic Induced Hypothermia, refer to the Non-Traumatic Induced Hypothermia – (Procedure-21)



Contact Med command for further assistance, if needed.

Key Points

- This is the period of time between Return of Spontaneous Circulation – (ROSC) and the transfer of care at the emergency department. The focus is aimed at optimizing oxygenation and perfusion.
- If the patient has a patent IV/IO and an advanced airway has previously been established during cardiac arrest or respiratory arrest and patient becomes responsive and is actively resisting the advanced airway contact Med Command for orders to administer Lorazepam (Ativan) 2mg and Fentanyl (Sublimaze) 50 mcg to keep patient sedated.
- When selecting an antiarrhythmic choose only Lidocaine or Amiodarone. Lidocaine and Amiodarone should never be mixed or used together.
- Post resuscitation SVT should initially be left alone, but routinely monitor the patient. Follow Narrow Complex Tachycardia Protocol – (Medical-20) or contact Med Command if the patient becomes hypotensive.
- If the patient is bradycardic, refer to the Bradycardia Protocol – (Medical-7) and treat accordingly.
- Adequate oxygenation is the key to a good outcome.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or case push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2)-(Procedure-12).*
- Keep the patient as cool as possible while respecting the patient's dignity.
- If patient fits requirements for IO, refer to the Intraosseous Infusion – (Procedure-17).
- If the patient has a history of liver failure, or CHF and was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has not received any prior antiarrhythmic medications during the arrest, give Lidocaine 0.5-0.75 mg/kg IV/IO. Initiate a Lidocaine Drip at 2-4 mg/min.
- If the patient has a history of liver failure, or CHF and received Lidocaine more than 10 minutes ago during the arrest, bolus the patient with Lidocaine at 0.5-0.75 mg/kg IV/IO and then initiate a Lidocaine drip at 2-4 mg/min.
- Routinely assess the patient after all interventions even if they do not produce any changes.
- Patients with Return of Spontaneous Circulation (ROSC) will benefit from early cardiac angiography and should be transported to STEMI capable hospitals.
- STEMI Capable Hospitals:
 - Cleveland Clinic Hospitals – Cleveland Clinic Hospital, Fairview Hospital, Hillcrest Hospital
 - University Hospitals – University Hospitals Cleveland Medical Center, Ahuja Medical Center, Bedford Medical Center*, Parma Medical Center, St. John Medical Center*
 - Independent Hospital – MetroHealth Medical Center, Southwest General Health Center, St. Vincent Charity Hospital

Pre-Eclampsia and Eclampsia

Signs and Symptoms:

- hypertension
- increased weight gain
- edema in face, hands, sacrum
- headaches
- visual changes
- seizures
- appears postictal
- nausea

Routine Medical Care Protocol (Routine-1)



If the patient is having a seizure, administer Diazepam (Valium) 5-10 mg slow IV push, repeated once in 10 minutes (max dose of 10 mg).

OR



Lorazepam (Ativan) 1-2 mg IV or 2-4 mg IM/IN
(If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period)



EMT-B If the patient is no longer seizing or regains consciousness between seizures, provide supportive care and transport.



If the patient is tachycardic, run an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



EMT-B If the patient has BGL is less than 80, refer to the Diabetic Emergencies Protocol (Medical-13).



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Most eclampsia occurs between the 20th week of pregnancy up to 24 hours after delivery. However, it can occur up to 6 weeks post partum.
- There are many causes for seizures including: epilepsy, head trauma, tumor, overdose, infection, hypoglycemia, and withdrawal. Be sure to consider these when doing your assessments.
- Routinely assess the patient's airway and respiratory status.
- Be alert for respiratory depression after Diazepam (Valium) or Lorazepam (Ativan) administration and treat accordingly
- If the patient is experiencing seizures reassess vital signs every 5 minutes regardless of patient's mental status.
- Intravenous fluids can be administered to a hypertensive patient.
- If the patient is combative due to being postictal, **DO NOT** refer to the Combative Patient Protocol (Medical-11).
- If the patient is having a seizure, move any objects that may cause injury.

Pulmonary Edema

Signs and Symptoms:

- bilateral rales
- rhonchi
- rapid, shallow, labored breathing
- dyspnea
- coughing
- pink frothy sputum
- distended neck veins
- diminished or absent breath sounds
- wheezing
- stridor
- grunting
- normal to high BP
- mild to severe anxiety
- confusion
- apprehension
- cyanosis
- diaphoresis
- may have chest pain/discomfort
- intolerance to recline
- weakness
- swollen ankles

Routine Medical Care Protocol (Routine-1)

EMT-B If the patient is bradycardic (HR less than 60 bpm) or tachycardic (HR greater than 150 bpm) and hypotensive, refer to the appropriate protocols and treat accordingly.



Perform a 12-Lead EKG. Refer to the [12-Lead Procedure](#) (Procedure-1).



If the patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max of 3 treatments. (In cases where CPAP is used, Albuterol treatment(s) maybe administered)



If the patient systolic BP is greater than 100 mmHg (BP greater than 120 mmHg if over 70 years old) administer Nitroglycerin (GoNitro) 400 mcg SL. If the symptoms persist, administer Nitroglycerin 400 mcg SL every 5 minutes to a max of 3 doses. (In cases where CPAP is used, Nitroglycerin(s) maybe be administered)

EMT-B Consider [CPAP Procedure](#) (Procedure-9) moderate to severe dyspnea, titrate 5-10 cmH2O.



If the patient's systolic BP is greater than 100 mmHg (BP greater than 120 mmHg if over 70 years old) administer Furosemide (Lasix) 20-80 mg IV.

Reassess



Contact Med Command for further assistance, if needed.

Key points

- Not all “wet” lung sounds are pulmonary edema. Other causes of rales and rhonci include: pneumonia, emphysema, and bronchitis.
- Acute pulmonary edema may be a sign of acute cardiac ischemia, which may give rise to cardiovascular collapse and hypotension as well as malignant atrial and ventricular arrhythmias.
- Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. **DO NOT** withhold oxygen from hypoxic patients.
- The IV dose of Furosemide (Lasix) should be the same amount of mg as their total daily dose, 20 mg minimum up to 80 mg max. A patient taking a total dose Furosemide (Lasix) of 40 mg PO daily, should receive a 40 mg IV dose.
- Furosemide (Lasix) can be administered after the first or second dose of Nitroglycerin administration.
- Nitroglycerin can still be administered if IV attempts were unsuccessful and the patient has a BP greater than 120 mmHg or BP greater than 150 mmHg if over 70 years old.
- Prevent GoNitro powder from dispersing by removing CPAP mask completely.
- Morphine Sulfate is no longer indicated to treat Pulmonary Edema.
- If the patient is 70 years old or older and their systolic blood pressure is less than 120 mmHg, **DO NOT** administer Nitroglycerin or Furosemide (Lasix).
- Albuterol can be administered via ETT by doubling the dose.
- Considerations for CPAP:
 - Offer reassurance to the patient.
 - Consider CPAP if the patient is and remains alert with no active vomiting.
 - Advise the receiving hospital as soon as possible so they can be prepared for patient.
 - Document any adverse reactions as to why CPAP was discontinued.
 - Monitor your patient for gastric distension which may lead to vomiting from the patient.
 - If patient is able to tolerate, **DO NOT** remove CPAP prior to hospital arrival. If there is a delay for respiratory therapy, consider removing CPAP when changing oxygen tanks.
 - Make all reasonable attempts to administer nitroglycerin prior to the placement of CPAP.
 - Patients who continue to be in extremis may require additional nitroglycerin administrations after the application of CPAP. If this is needed limit interruptions in CPAP flow to less than 10 seconds.
 - Reassessment of the patient’s status is **critical** and should be performed every 5 minutes.
 - When documenting the run report be sure to include:
 - Vital signs – blood pressure, pulse, etc.
 - Respiratory – effort, rate, and patient lung sounds
 - CPAP control unit level
 - SPO2 prior to and post applying the CPAP
 - Reason for using CPAP
 - If patient’s respiratory status or level of consciousness decreases, remove mask and consider BVM ventilations and/or intubation. Refer to the Endotracheal Intubation Procedure (Procedure-14).
 - If CPAP control unit needs to be increased > 10 cmH2O, contact Med Command prior to increasing.
 - If additional oxygen is unavailable, consider BVM ventilations until additional oxygen can be obtained. (Due to unexplained delay in transport, etc.)
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient’s capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters .Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*

Respiratory Distress


Signs and Symptoms:


- tachypnea
- slow respiratory rate
- anxiety
- change in mental status
- pallor
- diaphoresis
- cyanosis
- unable to recline
- inability to complete sentences
- retraction of intercostal space
- accessory muscle use
- deep or shallow respirations
- wheezing
- bronchospasm (coughing)
- absent or diminished lung sounds

Routine Medical Care Protocol (Routine-1)


↓
EMT-B If the patient has hives, swelling or wheezing, consider the Anaphylaxis/Allergic Reaction Protocol (Medical-4) and treat accordingly.

↓
EMT-B If the patient is experiencing rales, rhonchi, JVD and/or peripheral edema, refer to the Pulmonary Edema Protocol (Medical-25).

↓
 If the patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max of 3 treatments. (In cases where CPAP is used, Albuterol(s) treatment may be administered)

↓
 If the patient is severely distressed and does not respond to Albuterol, consider administering Epinephrine 1:1000, 0.3-0.5 mg IM.

↓
EMT-B If the patient continues to experience respiratory distress refractory to treatment consider CPAP Procedure (Procedure-9) and treat accordingly.

↓
 If the patient has an unstable airway, follow the Endotracheal Intubation Procedure (Procedure-14).

↓
Reassess



↓
Contact Med Command for further assistance, if needed.

Key Points

- Be alert for respiratory depression in COPD patients on prolonged high flow oxygen administration. **DO NOT** withhold oxygen from hypoxic patients.
- Albuterol can be administered down the ETT, by doubling the dose.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- If Albuterol is administered, monitor the patient's cardiac rhythm and attempt to initiate an IV.
- For some patients in severe respiratory distress, wheezing may not be heard. Consider Albuterol for the known asthmatic in severe respiratory distress.
- Considerations for CPAP:
 - Offer reassurance to the patient.
 - Consider CPAP if the patient is and remains alert with no active vomiting.
 - Advise the receiving hospital as soon as possible so they can be prepared for patient.
 - Document any adverse reactions as to why CPAP was discontinued.
 - Monitor your patient for gastric distension which may lead to vomiting from the patient.
 - If patient is able to tolerate, **DO NOT** remove CPAP prior to hospital arrival. If there is a delay for respiratory therapy, consider removing CPAP when changing oxygen tanks.
 - Make all reasonable attempts to administer nitroglycerin prior to the placement of CPAP.
 - Patients who continue to be in extremis may require additional nitroglycerin administrations after the application of CPAP. If this is needed limit interruptions in CPAP flow to less than 10 seconds.
 - Reassessment of the patient's status is **critical** and should be performed every 5 minutes.
 - When documenting the run report be sure to include:
 - Vital signs – blood pressure, pulse, etc.
 - Respiratory – effort, rate, and patient lung sounds
 - CPAP control unit level
 - SPO2 prior to and post applying the CPAP
 - Reason for using CPAP
 - If patient's respiratory status or level of consciousness decreases, remove mask and consider BVM ventilations and/or intubation. Refer to the Endotracheal Intubation Procedure (Procedure-14).
 - If CPAP control unit needs to be increased > 10 cmH2O, contact Med Command prior to increasing.
 - If additional oxygen is unavailable, consider BVM ventilations until additional oxygen can be obtained. (Due to unexplained delay in transport, etc.)

Seizure

Signs and Symptoms:

- actively seizing
- recent seizure activity
- appears to be postictal

Routine Medical Care Protocol (Routine 1)




EMT-B If the patient is seizing, maintain their airway, and consider c-spine precautions.
Move any objects that may harm the patient.




 If the patient BGL is less than 80 mg/dl,
refer to the Diabetic Emergencies Protocol (Medical-13) and treat accordingly



 If the patient is having a seizure, administer
Diazepam (Valium) 5 mg IV repeated once in 10 minutes (max dose of 10 mg).


OR

 Lorazepam (Ativan) 1-2 mg IV or 2-4 mg IM/IN
(If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period)



EMT-B If the patient is no longer seizing or is able to regain
consciousness between seizures,
administer supportive care and transport.



 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in
patients older than 70 years old) or the HR is greater than 110 bpm,
run an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be
alert for fluid overload.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Be alert for foreign objects in the mouth.
- There are many causes for seizures including: epilepsy, head trauma, tumor, overdose, infection, hypoglycemia, and withdrawal. Be sure to consider these when doing your assessment.
- Fully immobilize the patient if there are signs and symptoms of cervical spine trauma prior to or during seizure.
- Continuously monitor the airway. Assist ventilations with a BVM or endotracheal intubation, if indicated.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital.
*Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Be alert for respiratory depression after Diazepam (Valium) or Lorazepam (Ativan) administration and treat accordingly.
- **DO NOT** administer Diazepam IM to patients.
- Diazepam (Valium) or Lorazepam (Ativan) may be administered before checking the patient's BGL, if they have a known seizure history.
- If the patient is hypoglycemic and actively seizing and an IV is established, treat the patient's low BGL before administering Diazepam (Valium) or Lorazepam (Ativan).
- If the patient is hypoglycemic and actively seizing and an IV is **NOT** established, administer Lorazepam (Ativan) IM/IN until an IV can be established.
- If the patient is combative and postictal, **DO NOT** refer to the Combative Patient Protocol (Medical-11).


Septic Shock

Signs and Symptoms:


- tachycardia
- hypovolemia
- hypotension with a narrow pulse pressure
- dehydration
- altered LOC/coma
- dyspnea
- febrile (may also be normal or low temperature in the elderly)
- signs of infection
- Hx of UTI

Routine Medical Care Protocol (Routine-1)



 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



 If the patient is hypotensive and does not respond after 2 liters of normal saline IV/IO fluid resuscitation, administer Dopamine 5-20 micrograms/kg/min IV/IO titrated to effect.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Hypotensive patients not in distress do not necessarily require aggressive intervention.
- Be alert for septic shock in the elderly.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).

Sickle Cell Crisis

Signs and Symptoms:

- severe abdominal pain
- enlarged abdomen
- fatigue
- weakness
- priapism
- fever
- headache
- altered mental status
- limited or loss of extremity movement
- numbness of extremities
- pain to the extremities
- painful joints
- chest pain
- dyspnea

Routine Medical Care Protocol (Routine-1)



Perform a 12-Lead EKG and continuously monitor the patient's cardiac rhythm.



EMT-B Administer high-flow oxygen at 15 lpm via a non-rebreather if the crisis started less than 12 hours ago. If the crisis started over 12 hours ago or the patient will not tolerate a non-rebreather, administer oxygen at 4 lpm via nasal cannula.



Administer an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



If the patient is experiencing intolerable pain and has a systolic blood pressure of 100 mmHg (120 mmHg for patients over the age of 70) administer Morphine Sulfate 2-4 mg IV/IM. May repeat in 10 minutes to a max of 4 mg.

OR



Fentanyl (Sublimaze) 25 - 50 mcg slow IV over 2 minutes.
May repeat in 10 minutes to a max of 50 mcg.

OR

Fentanyl (Sublimaze) 50 mcg IN



If the patient is not experiencing altered mental status or is experiencing persistent vomiting after administration of pain medications, consider administering Promethazine (Phenergan) 12.5 mg IV or 25 mg IM

OR

Administer Ondansetron (Zofran) 4 mg IV over 2-4 minutes,
may repeat every 15 minutes (max 8 mg)

OR

4 mg IM/PO may repeat every 15 minutes (max 8 mg)



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Sickle cell anemia is a disease in which your body produces abnormal red blood cells that are crescent or sickle shaped. The abnormal shaped red blood cells lead to anemia because they do not last as long as normal red blood cells. The abnormal shaped red blood cells get stuck in blood vessels which blocks blood flow. This can cause pain and organ damage.
- Sickle cell anemia usually affects people of African ancestry, but may affect people of Mediterranean and Middle Eastern descent.
- A Sickle Cell Crisis may occur for no apparent reason or maybe caused by dehydration, infection, stress, and trauma. It may also be caused by exposure to extreme temperatures, hypoxia, or strenuous exercise.
- Promethazine (Phenergan) will potentiate the effects of analgesics, routinely monitor the patient's vital signs for any changes.
- A sickle cell crisis can last for hours or even days.
- Chest pain and/or dyspnea in a sickle cell anemia patient can be a fatal condition called Acute Chest Syndrome. Acute Chest Syndrome is one of the most common causes of death for a sickle cell anemia patient, and is a vaso-occlusive crisis of the pulmonary vasculature.
- Oxygen administration will help oxygenate normal red blood cells and reduces sickling.
- Administer oxygen via nasal cannula at 4 lpm if the patient will not tolerate a non-rebreather.
- All patients who receive medication for pain must have continuous ECG monitoring, pulse oximetry, and oxygen administration.
- The patient's vital signs must be routinely reassessed. The routine reassessments must be documented on the run report.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine or Fentanyl (Sublimaze) administration.
- The dose of Naloxone (Narcan) 0.4 – 2 mg IV/IM or 2 mg IN.
- Med Command authorization is required for doses of Morphine Sulfate exceeding 4 mg or doses of Fentanyl (Sublimaze) exceeding 50 mcg.
- A 100 mcg dose of Fentanyl (Sublimaze) is equivalent to a 10 mg dose of Morphine.

Stroke

Signs and Symptoms:

- altered mental status
- slurred speech
- facial droop
- paralysis
- decorticate or decerebrate posturing
- sudden onset of unilateral muscle weakness
- altered gait or inability to walk
- snoring respirations

Routine Medical Care Protocol (Routine-1)

EMT-B Position the patient with head elevated 30° and protect the airway.

EMT-B Assess for deficit using the Cincinnati Prehospital Stroke Scale.

Positive Cincinnati Prehospital Stroke Scale

EMT-B Notify Mobile Stroke Transport Unit of positive Cincinnati Prehospital Stroke Scale.

EMT-B Obtain responding location of Mobile Stroke Transport Unit after proper patient assessment.

EMT-B Continue assessment, and necessary treatment and extrication while waiting on Mobile Stroke Transport Unit.

EMT-B If the Mobile Stroke Transport Unit's response location will cause a response time greater than 5 minutes, then cancel the Mobile Stroke Transport Unit and transport the patient to the appropriate stroke hospital.

Negative Cincinnati Prehospital Stroke Scale

EMT-B Notify Mobile Stroke Transport Unit of negative Cincinnati Prehospital Stroke Scale and cancel the Mobile Stroke Transport Unit.

EMT-B Refer to appropriate protocol and continue patient treatment and transport to Comprehensive Stroke Center. Refer to the Hospital Transport Guide (Appendix-1).

EMT-B If the patient BGL is less than 80 mg/dl, refer to the Diabetic Emergencies Protocol (Medical-13) and treat accordingly.



Routinely monitor for cardiac dysrhythmias. If indicated, refer to the appropriate protocol and treat accordingly.

EMT-B If the patient has a seizure, refer to the Seizure Protocol (Medical-27) and treat accordingly.

Reassess



Contact Med Command for further assistance, if needed.

Cincinnati Prehospital Stroke Scale

Facial Droop

- Normal: Both sides of the face move equally
- Abnormal: One side of the face does not move at all

Arm Drift

- Normal: Both arms move equally or not at all
- Abnormal: One arm drifts more than the other

Speech

- Normal: Patient uses correct words with no slurring
- Abnormal: Slurred or inappropriate words, or mute

Key Points

- Document the last time the patient was seen “normal.”
- If patient contact is within 24 hours of initial onset of stroke symptoms they could be a candidate for reperfusion therapy.
- When a patient has a positive Cincinnati Prehospital Stroke Scale Cleveland EMS/CFD are to contact the Mobile Stroke Transport Unit on the appropriate radio channel and are to remain in communication until arrival or cancellation.
- When transported by Cleveland EMS positive stroke patients should be transported to a Comprehensive Stroke Center.
- Stroke patients are considered a “load and go.”
- Frequently reassess neurological deficit every 10 minutes and document any findings.
- If a stroke is suspected, immediately notify the receiving facility. Early notification will allow the receiving hospital to activate the stroke team.
- Be alert for airway problems (difficulty swallowing, vomiting/aspiration).
- Note previous CVA, TIAs, history of trauma, surgeries, and medications.

Comprehensive Stroke Centers:

- Cleveland Clinic Main Campus
- University Hospitals Cleveland Medical Center
- MetroHealth Medical Center

Toxic Ingestion or Exposure

Signs and Symptoms:

- altered LOC/coma
- lethargy
- abnormal pupil size
- abnormal respirations
- abnormal lung sounds
- nausea
- emesis
- cardiac dysrhythmias
- tachycardia
- bradycardia

Routine Medical Care Protocol (Routine-1)



EMT-B If the patient's BGL is less than 80 mg/dl, refer to the Diabetic Emergencies Protocol (Medical-13) and treat accordingly.



EMT-B If the patient has altered mental status, refer to the Coma/Altered Mental Status Protocol (Medical-10) and treat accordingly.



EMT-B If the patient has known or suspected narcotic ingestion, refer to Opioid Overdose Protocol (Medical-22) administer Naloxone (Narcan) 2-4 mg IN and treat accordingly.

OR



If the patient has known or suspected narcotic ingestion, administer Naloxone (Narcan) 2-4 mg IV/IM or 2-4 mg IN once and treat accordingly.



If the patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max of 3 treatments.



EMT-B If the patient has known or suspected exposure to nerve agents or organophosphates, refer to the Duo Dote (Procedure-10) and treat accordingly.



If the patient is symptomatic from a tricyclic overdose, administer Sodium Bicarbonate 1 mEq/kg and a 1000 ml bolus of Normal Saline. Reassess the patient after each 300 ml, and be alert for fluid overload.



If the patient is hypotensive and does not respond to IV fluid resuscitation, administer Dopamine 5-20 micrograms/kg/min IV titrated to effect.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Scene safety is the number one priority.
- If it is safe, transport the overdose medication or substance with the patient to the receiving facility.
- If possible, bring a substance's MSDS sheets with you to the hospital.
- If applicable, **DO NOT** transport a patient to the hospital until properly decontaminated.
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdrawal, which includes vomiting, agitation, and/or combative behavior. Always be prepared for combative behavior.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedated and possibly increased dyspnea.
- If Intranasal Route is being utilized, administer the full 2 mg of Naloxone (Narcan) via the atomizer. Refer to the Intranasal Procedure (IN) (Procedure 16).
- Double the dose of Naloxone (Narcan) if it is administered via ETT.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible, and follow their instructions.
- The patient and/or crew must be decontaminated prior to transport. **DO NOT** transport a contaminated patient to a treatment facility.
- If exposed to nerve agents or organophosphates symptoms may include:
 - **Mild** symptoms include: muscle twitching and diaphoresis.
 - **Moderate** symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching.
 - **Severe** symptoms include: unconsciousness, seizures, flaccidity, and apnea.
- **SLUDGEM**: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Muscle twitching.
- Contact Med Command for all patients under the age of 1 month who are experiencing a seizure related to nerve agent exposure.
- A Duo Dote includes 600 mg Pralidoxime (2-PAM Cl) and 2 mg Atropine in one prefilled auto-injector. Should be used on the mid anterior lateral thigh.
- **Nerve Agents** include, but are not limited to: Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR.
- **Organophosphate** chemicals are found in many pesticides and bug sprays, chemicals include, but are not limited to: azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithrothion, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.
- **Tricyclic Anti-depressants** include (but not limited to): Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, and Trimipramine.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.

Project DAWN / Opiate Overdose Refusal

- Narcotic OD patients that receive Naloxone (Narcan) administered by a layperson, law enforcement and/or EMS/CFD may refuse transport if they are:
 - Awake and alert
 - Have normal respirations, normal pulse oximetry, and no respiratory distress
 - Emergency Responders **SHALL** provide the patient with a Project DAWN Kit prior to leaving the scene. If there are no Project DAWN Kits available, emergency responders **SHALL** encourage the patient to contact the Project Dawn office to obtain replacement supplies (216-778-5677). Project DAWN Kits are also available at CEMS Headquarters from Monday to Friday 0900-1600 hours.
 - These patients should be offered transport and informed about the potential risk of recurrent CNS and respiratory depression. These patients follow the Refusal/AMAOD policy and require notification of the RED Center Captain.

Ventricular Assist Device

Introduction:

Ventricular Assist Devices (VAD) are implanted to assist weak heart muscle to circulate blood to maintain hemodynamic stability.

Causes:

Ventricular Assist Devices are placed because of advanced heart failure. Patients receiving these devices may be waiting for a heart transplant or assisting the heart until it is strong enough to perform at normal function. These devices are also placed as a long term solution for patients not eligible for other care or treatments.

Routine Medical Care Protocol (Routine-1)

↓
EMT-B Establish chief complaint and perform thorough assessment.

↓
EMT-B Establish what hospital the device was placed and transport to Implant Facility.



↓
Contact Patient's VAD Center prior to administering ANY medications.

University Hospital
VAD Coordinators

216-844-1000
request pager 32343

Cleveland Clinic
VAD Coordinators
1-800-223-2273 or
216-444-2200
request pager 23400

VAD Coordinators will be Med Command for all Ventricular Assist Device Patients

Medical / Trauma

↓
EMT-B Trauma
Perform all treatments according to NOTS Trauma – (Trauma 9)
Transport to the patients Implant Facility
↓
EMT-B Medical
Perform all treatments according to patient's chief complaint



Indicators / Alarms

↓
EMT-B Confirm all power leads are connected to appropriate sources
↓
EMT-B Confirm batteries are charged and connected
↓
EMT-B If alarms are still active switch power to batteries and transport to appropriate hospital




Cardiac Arrest

↓
EMT-B Check for responsiveness
Assess pulse, auscultate for heart beat,
Assess respirations
↓
EMT-B Provide ventilatory support if needed.
↓
EMT-B If pulseless, auscultate chest or upper abdominal quadrants for hum of Ventricular Assist Device
↓
EMT-B If pump **IS** working **DO NOT** perform chest Compressions



Medical / Trauma – Continued

 If obvious hemorrhage is present administer IV Fluids as needed

 **Contact VAD Coordinators** prior to administering any medications


Reassess

EMT-B Transport to the Implant Facility

Indicators / Alarms – Continued

EMT-B Document alarm symbol or code

EMT-B If Red Heart light (pump flow <2.5 lpm) appears with steady audio tone, check all lead connections and power source, if alarm is still active

 Establish IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload

EMT-B Transport to the Implant Facility

Cardiac Arrest – Continued

EMT-B

No hum is auscultated, make sure all leads are connected

EMT-B

Check power sources, change power sources if needed


EMT-B

Press silence alarm or test select button on system controller to restart pump

EMT-B

Perform Chest Compressions **ONLY** if pump is not working and as

LAST RESORT

 Identify the arrhythmia and refer to the appropriate protocol and treat accordingly

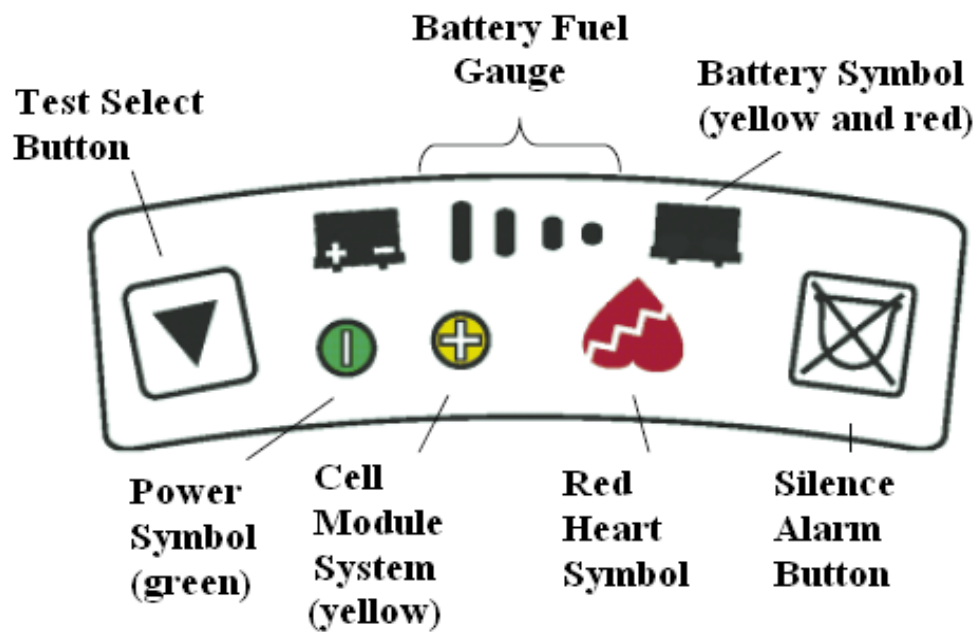
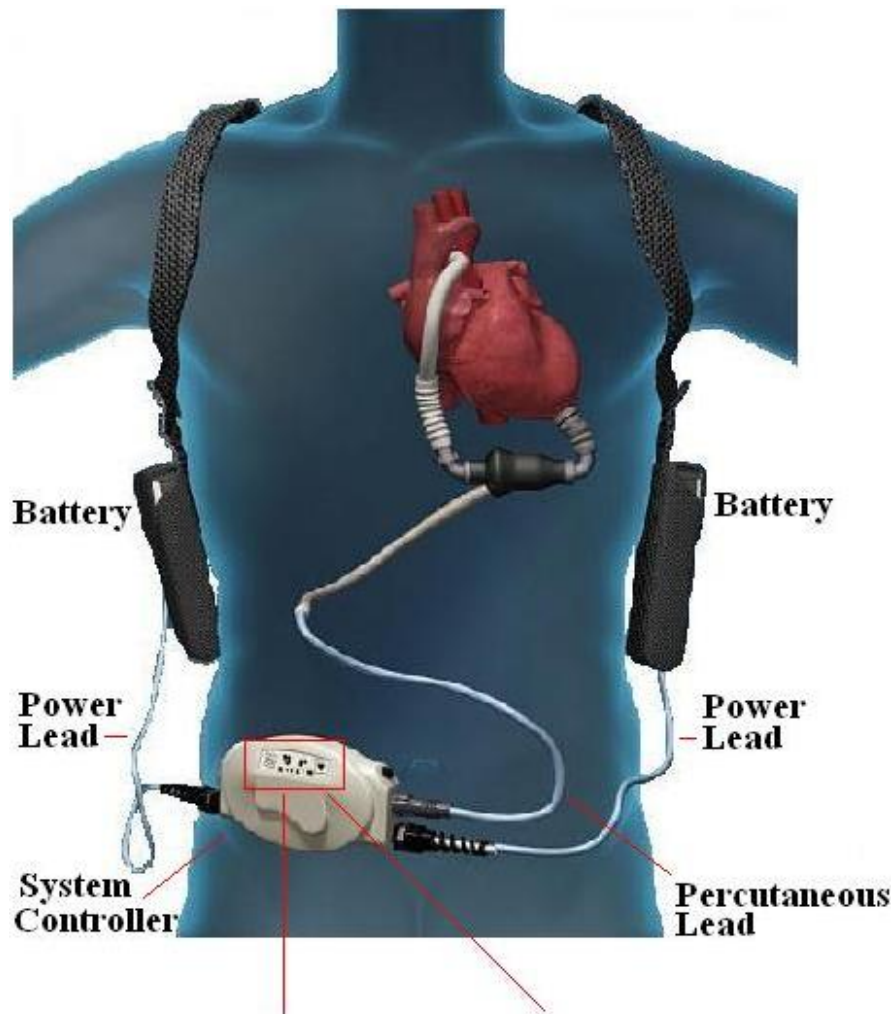
EMT-B Transport to the Implant Facility

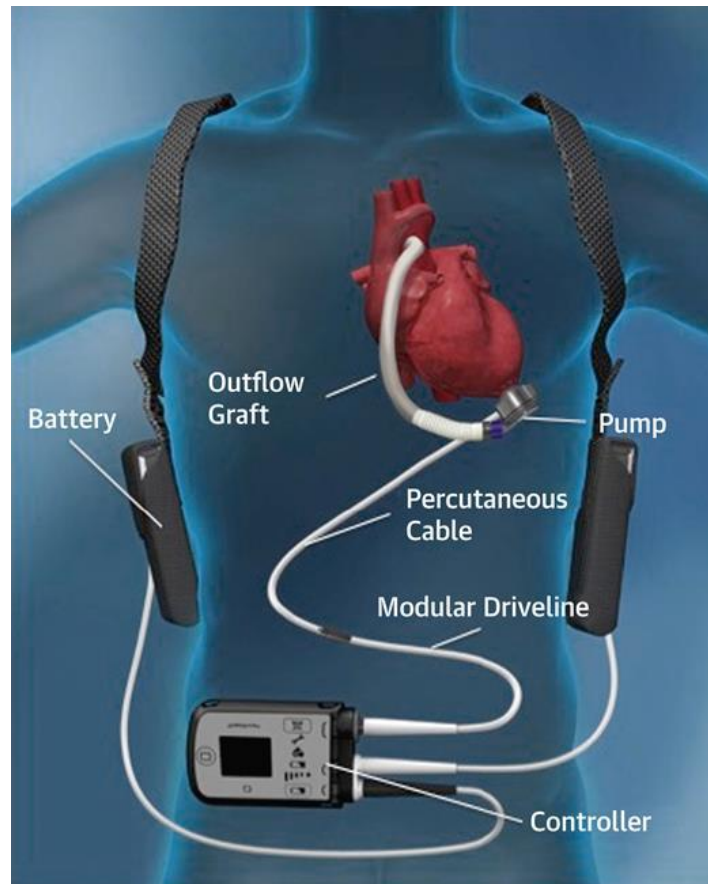
Reassess

 **Contact VAD Coordinators** if further assistance is needed.

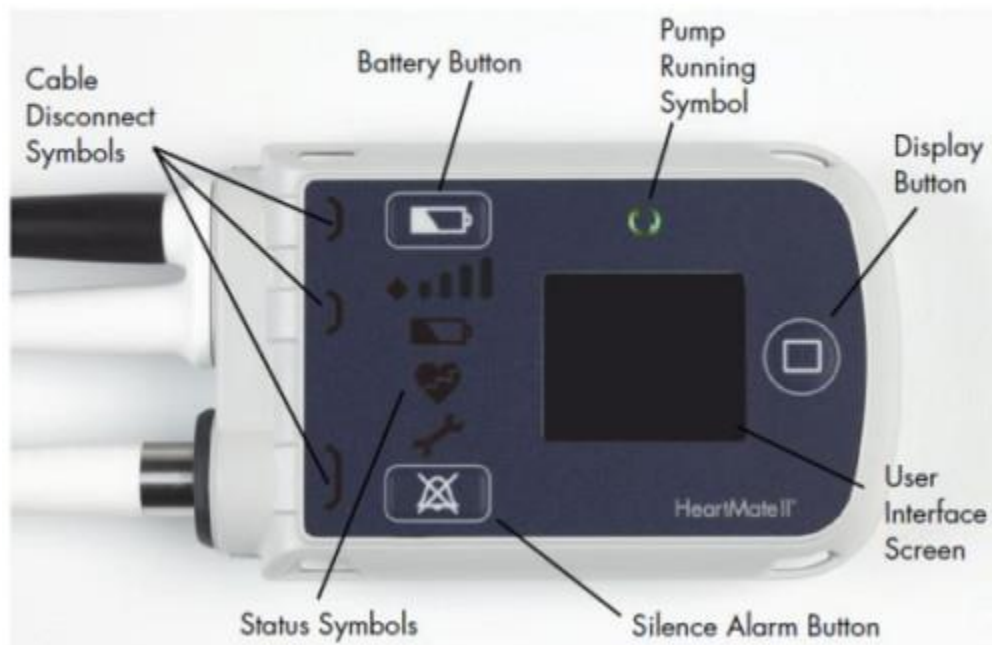
Key Points

- Patients normally may have a weak or non-palpable pulse.
- Frequently reassess vitals because pulse oximetry and blood pressures without doppler are not reliable.
- Use other indicators of perfusion such as skin signs, mental status and capnography.
- 12-Lead EKG's can be performed and transmitted to the receiving facility.
- IV and lab work can be performed.
- Cardioversion can be performed with VAD Coordinators approval.
- All ACLS medications may be given at the direction of VAD Coordinators.
- Ventricular Assist Device patients in cardiac arrest can receive defibrillations and medications without VAD Coordinators approval.
- Normal Saline and oxygen can be administered without VAD Coordinators approval.
- Document VAD Coordinator's name or physician number.
- **ONLY** change **ONE** power lead at a time.
- **ONLY** change **ONE** battery at a time.
- Patient's family members are highly trained in Ventricular Assist Devices and can be used as a resource. Transport family member with the patient.
- Transport Black Travel Bag (includes extra control unit and extra batteries) and as many extra batteries as possible with the patient to the Implant Facility.
- Transport patients to the facility where their device was implanted.
- All procedures should be as sterile as possible due to infections.





HeartMate II



Ventricular Fibrillation and Pulseless Ventricular Tachycardia

Important Notes:

- Perform immediate defibrillation if:
 - Witnessed down time less than 4 minutes with or without CPR.
 - Adequate CPR performed for 2 minutes prior to defibrillation.
- Otherwise, perform 2 minutes of CPR prior to attempting defibrillation.
- Perform 2 minutes of CPR between all defibrillation attempts.

Routine Medical Care Protocol-(Routine-1)



EMT-B In order to properly treat the patient, reference both the defibrillation and Medication Administration columns at the same time.



Administer defibrillations and medication administrations as they are indicated.



AED Continued Shock Procedure

First Responder/Bystander

EMS Continued Defibrillation

No Shock Advised	Defibrillate 120J	Defibrillate 150J	Continue Defibrillate 200J
One Shock	Defibrillate 150J	Defibrillate 200J	Continue Defibrillate 200J
Two Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J
Three Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J



Defibrillations



EMT-B Perform CPR for 2 minutes.



If the patient is in ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at **Zoll 120J**.



EMT-B Perform CPR for 2 minutes.



If the patient continues to be in ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at **Zoll 150J**.



EMT-B Perform CPR for 2 minutes.



If the patient continues to be in ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at **Zoll 200J**.



Medication Administrations



Administer Epinephrine 1:10,000 1 mg every 3-5 minutes (Epinephrine 1:1000 2 mg diluted in 10 ml of Normal Saline ETT).



Lidocaine 1-1.5 mg/kg every 5 minutes (max dose 3 mg/kg).

OR




Amiodarone 300 mg IV diluted in 20-30 ml of Normal Saline. Amiodarone may be repeated one time at 150 mg IV diluted in 20-30 ml in 5 minutes.




Defibrillations – Continued


EMT-B Perform CPR for 2 minute between all defibrillations.

 If the patient continues to be in ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at **Zoll 200J** every 2 minutes.


Reassess

 Contact Med Command for further assistance, if needed.

Medication Administrations

 If there has been a prolonged down time or known/suspected tricyclic antidepressant overdose, consider Sodium Bicarbonate 1 mEq/kg IV/IO.

Reassess

 Contact Med Command for further assistance, if needed.

Key Points

- If the patient converts to another rhythm, or has a **Return of Spontaneous Circulation (ROSC)**, refer to the appropriate protocol and treat accordingly.
- If the patient has a history of liver failure, or CHF give Lidocaine 0.5-0.75 mg/kg IV/IO as initial dose. Repeat every 5 minutes to a max dose of 3 mg/kg. If the patient converts to a non-bradycardic perfusing rhythm, initiate a Lidocaine Drip at 2-4 mg/min.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters.* Refer to the End Tidal CO2 (EtCO2) (Procedure-12).
- Perform intubation, IV/IO attempts, and medication administrations during the intervals that the patient is not being actively defibrillated.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia after being converted to **ANY** other rhythm, defibrillate at the previous setting used.
- Treat as ventricular fibrillation if you cannot differentiate between asystole and fine ventricular fibrillation.
- Defibrillation is the definitive therapy for ventricular fibrillation and pulseless ventricular tachycardia.
- The IV/IO route of medication administration is preferred over the ETT route.
- The medications that can be administered ETT are: (LEAN) Lidocaine, Epinephrine, Atropine/Albuterol, Naloxone (Narcan).
- **NO** medication can be administered via King LT-SD.
- Down time is the amount of time that the patient was in cardiac arrest.
- Sodium Bicarbonate can be given earlier in patients with known dialysis treatment. Sodium Bicarbonate is only used for tricyclic antidepressant overdoses, hyperkalemia, and for a prolonged down time (15-20 minutes). The reason for its use must be documented.

Wide Complex Tachycardia

Signs and Symptoms:

- wide complex tachycardia
- poor perfusion
- shock
- altered LOC/coma
- hypotension
- short of breath/dyspnea
- rales/wheezing/rhonchi

Routine Medical Care Protocol (Routine-1)

Without a pulse

EMT-B Follow the Pulseless V-Fib/V-Tach Protocol (Medical-33), as indicated.

With a pulse

Signs indicating Unstable Wide Complex Tachycardia (Ventricular Tachycardia):

- chest pain
- altered mental status
- systolic BP less than 100 mmHg
- heart rate greater than 150 bpm
- SOB/dyspnea


EMT-B Consider other causes and treat accordingly.

 Perform a 12 LEAD EKG


←UNSTABLE→

YES


Unstable Wide Complex Tachycardia

 If the patient is conscious, prior to synchronized cardioversion, consider sedation with Diazepam 2.5-5 mg IV


OR
Ativan 0.5-1 mg IV or 1-2 mg IM/IN.

 Perform synchronized cardioversion reassessing after each attempt.

Zoll 70 J, 120 J, 150 J, 200 J

 If the patient does not convert and continues to be unstable administer Lidocaine 1-1.5 mg/kg IV


OR


 Amiodarone 150 mg IV in 100 ml of D5W administered over 10 minutes. Amiodarone can be repeated once in 10 minutes

NO


Stable Wide Complex Tachycardia

Patients with palpitations, dizziness, very mild chest discomfort and dyspnea, may be considered stable.


 If the patient has regular monomorphic ventricular tachycardia consider administering Adenosine 6 mg IV followed by a rapid 20 ml fluid bolus.

 If the patient continues to have regular monomorphic ventricular tachycardia after 2 minutes, administer Adenosine 12 mg IV followed by a rapid 20 ml fluid bolus.


**Unstable Wide Complex Tachycardia
Continued**

 If no change and Lidocaine was used, administer Lidocaine 0.5-0.75 mg/kg IV, every 5 minutes (max dose 3 mg/kg).




 If the rhythm converts to a non-bradycardic perfusing rhythm due to Lidocaine, initiate a Lidocaine Drip at 2-4 mg/min.




 If the patient converts due to cardioversion, administer a loading dose of Lidocaine at 1-1.5 mg/kg and initiate a Lidocaine Drip at 2-4 mg/min.

OR

 Administer Amiodarone 150 mg IV in 100 ml of D5W over 10 minutes. Amiodarone can be repeated once in 10 minutes



 After Conversion, repeat a 12-Lead EKG.




Reassess




Contact Med Command for further assistance, if needed


**Stable Wide Complex Tachycardia
Continued**

 If the patient continues to have regular monomorphic ventricular tachycardia after 2 minutes, administer Adenosine 12 mg IV (max dose 30 mg) followed by a rapid 20 ml fluid bolus.




 If the patient does not spontaneously convert and continues to be stable, administer Lidocaine 1-1.5 mg/kg IV.


OR

 Amiodarone 150 mg IV over 10 minutes. Amiodarone can be repeated once in 10 minutes.



 If no change, and Lidocaine was used, administer Lidocaine 0.5-0.75 mg/kg IV, every 5 minutes (max dose 3 mg/kg).



 If the rhythm converts to a non-bradycardic perfusing rhythm due to Lidocaine, initiate a Lidocaine drip at 2-4 mg/min.



Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Consider applying the Combo patches prior to Lidocaine or Amiodarone administration.
- **DO NOT** delay cardioversion to gain vascular access for the patient.
- If the patient relapses back into wide complex tachycardia/ventricular tachycardia, initiate synchronized cardioversion with the joules setting that previously cardioverted the patient.
- Always consider the reversible causes of wide complex tachycardia, like hyperthermia, hyper/hypo-kalemia, or toxic ingestion or exposure.
- Record 3-Lead EKG prior to and after Lidocaine conversion, Amiodarone conversion or cardioversion of wide complex tachycardia/ventricular tachycardia.
- Perform a 12-Lead EKG prior to and after Lidocaine conversion, Amiodarone conversion or cardioversion of wide complex tachycardia/ventricular tachycardia.
- Perform a Treatment Summary and attach it to the patient run report.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*
- Be sure to treat the patient and not the monitor.
- If the patient has a history of liver failure, or CHF give Lidocaine 0.5-0.75 mg/kg IV/IO as initial dose. Repeat every 5 minutes to a max dose of 3 mg/kg and initiate a Lidocaine Drip at 2-4 mg/min.
- If the patient has a history of liver failure, or CHF and received Lidocaine more than 10 minutes ago during the arrest, bolus the patient with Lidocaine at 0.5-0.75 mg/kg IV/IO and then initiate a Lidocaine drip at 2-4 mg/min.

Trauma Section

Burns

Indications:

Patients with thermal, electrical, radiation, or chemical burns.

Major Burn Criteria:

- 2° (partial thickness) and 3° (full thickness) burns greater than 10% surface area
- burns of the face, hands, feet, and genitalia
- electrical shock with burn injury
- burn with inhalation injury
- any burn with potential functional or cosmetic impairment

Routine Trauma Care Protocol (Routine-3)



EMT-B Determine what type of burn has occurred;
If needed, contact RED Center and request a Hazmat Unit.




EMT-B Remove the patient from the heat or chemical source and stop the burning process.
Remove all wet clothing. If needed, perform decontamination on all patients with
chemical burns and exposures.




EMT-B Cover the exposed area with loose dry dressing.



 If the patient is experiencing smoke inhalation with bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max dose of 3 treatments.



 Adults with $\geq 25\%$ total body surface area burns, initiate intravenous fluid resuscitation of normal saline @ 60 gtts/min (1 drop per second) via macro drip (10gtts/ml). Assess after every 300 ml of fluid administration and be alert for fluid overload.



 Consider the Pain Management Protocol (Trauma-10).



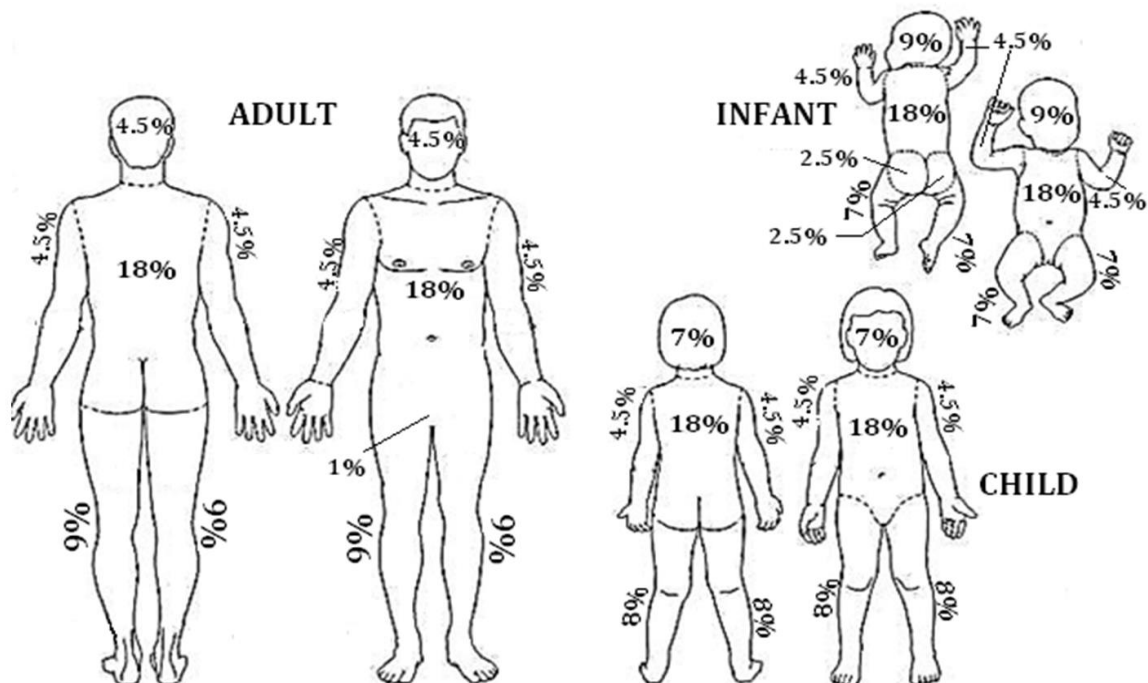
Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Handle patients gently to avoid further damage of the patient's skin.
- **DO NOT** apply ice packs or ice to burn patients due to tissue damage, increase risk of stroke, and reflex hypothermia.
- If the patient is exposed to a chemical, whenever possible, get the name of the chemical, and document it on the patient run report. **DO NOT** transport any hazardous materials with the patient.
- If possible, bring a substance's MSDS sheets with you to the hospital.
- Look for signs of dehydration and shock.
- Initiate early intubation for symptomatic patients with inhalation burns. Albuterol can be administered via ETT by doubling the dose.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- Patients with major burns should be transported to the MetroHealth Medical Regional Burn Center. MetroHealth Medical Center is Med Command for **ALL** burn patients.
- Patients with an unstable airway or who are rapidly deteriorating should be transported to the closest facility for airway stabilization.
- Patients with large surface burns lose the ability to regulate their body temperature. Avoid heat loss by covering the patient.
- Continuously monitor the cardiac rhythm of all electrical burn patients.



Chest/Abdominal Trauma

Indications:

Any blunt or penetrating trauma to the chest, neck, back, or upper abdomen.

Signs and Symptoms:

Simple Pneumothorax

- shortness of breath or dyspnea
- tachypnea
- cyanosis
- chest pain
- absent or diminished lung sounds on the affected side

Open Pneumothorax

- shortness of breath or dyspnea
- cyanosis
- sucking chest wound
- shock
- absent or diminished lung sounds on affected side

Tension Pneumothorax

- shortness of breath or dyspnea
- cyanosis
- shock
- absent or diminished lung sounds
- tracheal deviation (late sign)
- hypotension
- JVD
- tachycardia

Hemothorax

- shortness of breath or dyspnea
- cyanosis
- dullness to percussion sounds
- flat neck veins
- hypotension
- shock
- absent or diminished breath sounds
- tachycardia

Cardiac Tamponade

- hypotension
- decreasing pulse pressure
- elevated neck veins
- muffled heart tones
- bruising over the sternum
- tachycardia

Traumatic Asphyxia

- bloodshot, bulging eyes
- blue, bulging tongue,
- JVD
- cyanotic upper body
- Petechia

Flail Chest

- paradoxical chest wall movement
- asymmetric chest movement upon inspiration
- shortness of breath or dyspnea
- unstable chest segment
- significant chest wall pain

Routine Trauma Care Protocol (Routine-3)

If the patient has a tension pneumothorax, perform a chest decompression as indicated. Refer to [Chest Decompression Procedure \(Procedure-7\)](#).



EMT-B Stabilize any impaled objects and flail segments.



EMT-B If the patient has a sucking chest wound, refer to the [Chest Seal \(Procedure-8\)](#).



EMT-B If the patient has an evisceration, cover it with a wet, sterile dressing.



EMT-B Treat for shock, and refer to other protocols as indicated.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Reassess the patient. Watch for the development of a tension pneumothorax with sucking chest wounds.
- Look for both an entrance and exit wound(s) for all penetrating trauma, and treat accordingly.
- The on-scene time for NOTS **Priority 1** and **Priority 2** patients should not exceed 10 minutes without a documented, acceptable reason for the delay.
- **DO NOT** attempt to push protruding organs back into the abdomen.
- Consider treating patients according to the [Hypovolemic Shock Protocol](#) (Medical-18) if they have a rigid and/or tender abdomen.
- Assess chest seal for any leaks.
- Cover all penetrating chest trauma with a chest seal. Refer to the [Chest Seal \(Procedure-8\)](#).
- A tension pneumothorax can occur **WITHOUT** trauma.
- **DO NOT** remove any clothing that is stuck to the wound.

Drowning/Near-Drowning

Indications:

Altered level of consciousness, respiratory or cardiac arrest due to submersion emergency.

Routine Trauma Care Protocol (Routine-3)



EMT-B Place patient in a supine position and treat ABCs, as indicated. Consider the possibility of a c-spine injury in all near-drowning patients. All drowning patients **MUST** be fully immobilized. Perform oropharyngeal suctioning as indicated.



ALS and cardiac monitoring are indicated for the near-drowning patient. **DO NOT** administer any medications to a hypothermic patient.



EMT-B If the patient is hypothermic, refer to the Hypothermia Protocol (Trauma-8) and treat accordingly.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- All hypothermic/near-drowning patients should have resuscitation performed until care is transferred. Withhold resuscitation if there are other signs of obvious death (putrefaction, traumatic injury unsustainable to life, etc).
- Pulmonary edema can develop within 24-48 hours after submersion.
- Patients with low core temperatures may not respond to ALS drug interventions. Maintain warming procedure and supportive care.
- **DO NOT** perform the Heimlich maneuver to remove water from the lungs prior to resuscitation.

Extremity Trauma and Traumatic Amputation

Indications:

Trauma of any type that results in injury to one or more extremities.

Routine Trauma Care Protocol (Routine-3)



EMT-B Refer to the specific protocol if the patient has a life threatening injury, or fits the NOTS Trauma (Trauma-9).



EMT-B If injured extremity is to the hand and the injury DOES NOT meet NOTS Trauma (Trauma-9) criteria, transport the patient to hospital with Hand Specialist availability.



EMT-B If the patient has severe blood loss from traumatic injury and when primary means to stop bleeding has not maintained, refer to the Hemostatic Dressing (Procedure-15).



EMT-B Consider the Arterial Tourniquet Procedure (Procedure-3).



EMT-B Splint the injured extremity if the patient has s/s of a fracture, dislocation, sprain, or strain.



EMT-B Consider the Hypovolemic Shock Protocol (Medical-18).



 Consider the Pain Management Protocol (Trauma-10).



Reassess



Contact Med Command for further assistance if an injured extremity appears pale with no palpable pulses. Gentle reduction maybe indicated.

Extremity Trauma Key Points

- In cases of major trauma, the backboard can work as a whole body splint.
- **DO NOT** take the time to splint injured extremities in major trauma patients unless it does not delay the scene time and does not prevent you from performing more pertinent patient care.
- Splint the extremity if the patient has signs and symptoms of a fracture or dislocation.
- Treat all suspected sprains or strains as fractures until proven otherwise.
- Splint the joint above and below for all suspected fractures.
- Splint the bone above and below for all suspected joint injuries.
- Check and document the patient's MSPs before and after splinting.
- A traction splint with a backboard is the preferred splint to use for femur fractures.
- Refer to the Hospital Transport Guide (Appendix-1) for listing of hand specialist.

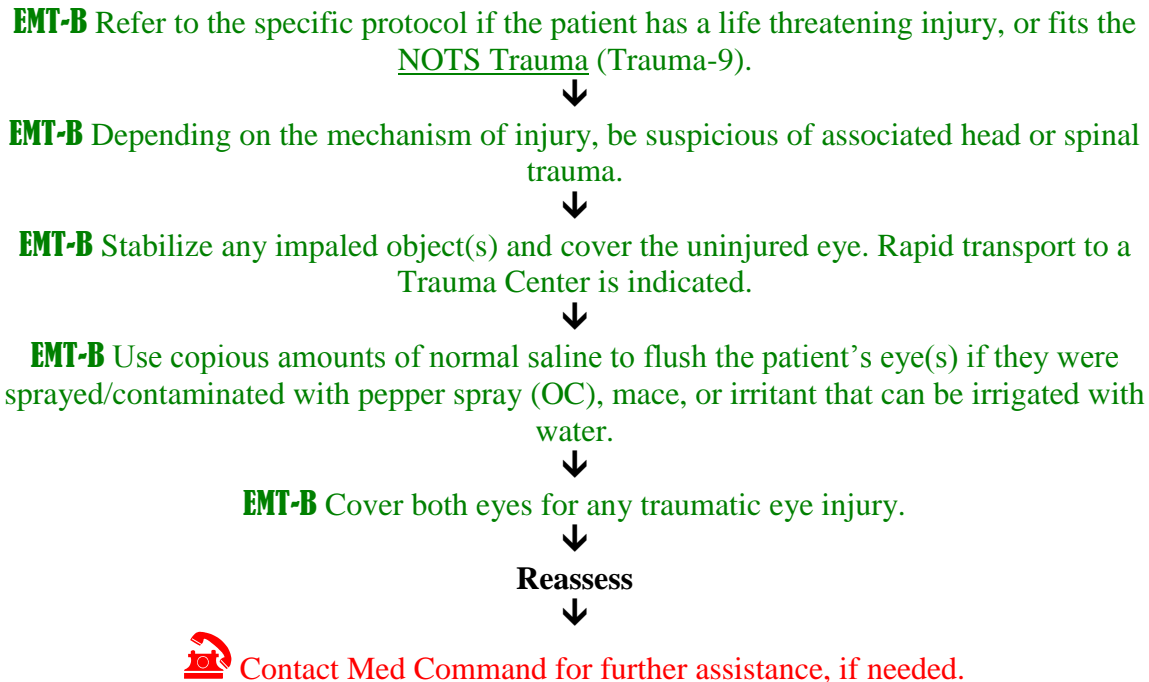
Traumatic Amputation Key Points

- **Care of the amputated extremity include:**
 - Cleanse an amputated extremity with normal saline or sterile water.
 - **DO NOT** place any amputated tissue directly on ice or cold pack. Instead, place the amputated limb into a plastic bag. Put the bag into a container of cool water with a few ice cubes (if available).
- Contact the receiving hospital with the patient information, and include the status of the amputated limb.
- Focus on patient care and not on the amputated extremity.
- Remember to calm and reassure the patient. Do not give the patient or their family members false hope of re-attachment of the affected limb. This decision is made by a medical team at the receiving hospital.
- Delegate someone to do an on scene search for the amputated part when it cannot be readily found and continue with patient care.
- If a patient is thought to have compartment syndrome or has a trapped limb and there is prolonged extrication contact Med Command for further direction and orders.
- The arterial tourniquet should be considered when direct pressure and elevation, or hemostatic dressing fails to control severe hemorrhage.
- Arterial tourniquet use can be initiated early if the patient is experiencing severe hemorrhage. If the first arterial tourniquet fails to control hemorrhage, a second arterial tourniquet may be placed distal to the initial tourniquet. Avoid gaps between the tourniquets to prevent additional compartment syndrome. **DO NOT** overlap tourniquets. Reassess for absence of distal pulses/bleeding to the affected extremity.
- Before you move the patient make sure that the arterial tourniquet is secured.
- Pulling the arterial tourniquet band snugly will ensure less work that the device will have to do. Remember to cinch, turn, screw.
- Frequently reassess your patient and the arterial tourniquet.
- Hand Specialty Hospitals:
 - Cleveland Clinic Hospitals – Cleveland Clinic Main Campus, Fairview Hospital, South Pointe Hospital, Hillcrest Hospital
 - University Hospitals – University Hospitals Cleveland Medical Center, Rainbow Babies and Children's Hospital, St. John's Medical Center*
 - Independent Hospital – MetroHealth Medical Center, St. Vincent Charity Medical Center, Southwest General Health Center

Eye Trauma

Indications:

Trauma of any type that results in injury to one or both eyes.

Routine Trauma Care Protocol (Routine-3)

Key Points

- Contact Med Command if you are unsure if something can be flushed with water.
- A garden hose can be used to help flush the patient's eye(s) if available. **DO NOT** use a high pressure hose or at a high force. If needed, irrigate the patient's eyes for approximately 5-15 minutes.
- Begin irrigating immediately, because irreversible damage can occur in a few minutes.

Head Injuries

Indications:

Patient with blunt or penetrating trauma to the head.

Signs and symptoms:

- altered LOC/coma
- headache
- dizziness
- restlessness/anxiety
- nausea/vomiting
- visual changes
- confusion
- Cushing's response (hypertension, bradycardia, change in respirations)
- cerebral spinal fluid or bleeding from the ears or nose
- unequal, sluggish or fixed pupils
- hemiplegia or quadriplegia
- asymmetrical appearance
- unsteady gait
- narrowing pulse pressure
- seizure

Routine Trauma Care Protocol (Routine-3)



EMT-B If the patient has a seizure,
Refer to the Seizure Protocol (Medical-27).



Reassess



Contact Med Command for further assistance, if needed.

Key points

- Look for a narrow pulse pressure.
- Signs and symptoms of herniation include:
 - Cushing's response.
 - Decreasing level of consciousness progressing towards coma
 - Dilation and outward—downward deviation of the pupil on the affected side.
 - Paralysis of the arm and leg on the opposite side of the injury or decerebrate posturing (arms and legs extended).
- When ETCO₂ is available, **DO NOT** hyperventilate. Ventilate the patient to achieve a range of 35 mmHg for all patients with head injuries.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*
- Be alert for c-spine injuries with head trauma.
- Continually reassess the patient.
- **DO NOT** administer Morphine or Fentanyl to head injury patients.
- **DO NOT** administer Lorazepam (Ativan) or Diazepam (Valium) unless the patient is actively seizing.

Hyperthermia/Heat Emergencies

Indications:

Patients who have prolonged exposure to heat or physical exertion.

Mild/Heat Cramps:

- muscular and abdominal cramping
- general weakness
- diaphoresis

Moderate/Heat Exhaustion:

- exhaustion
- shock like symptoms
- diaphoresis
- muscular and abdominal cramping

Severe/Heat Stroke:

- skin hot to the touch
- skin flushed or red
- dry skin or little diaphoresis
- confusion
- headache
- altered LOC/coma
- seizures
- unconscious

Routine Trauma Care Protocol (Routine-3)



EMT-B Mild to moderate cases; move patient to a cool environment, and be careful not to allow for the patient to become chilled.




EMT-B If the patient is having a seizure, refer to the Seizure Protocol (Medical-27).



EMT-B If the patient's symptoms are severe, begin cooling by wetting and fanning, turning up the air-conditioning, and applying cold packs under the arms and behind the neck.



 Once the cooling process is initiated, run an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Patients at risk for heat emergencies include neonates, infants, geriatric patients, and patients with mental illness.
- Heat stroke occurs when the cooling mechanism of the body (sweating) ceases due to temperature overload and/or electrolyte imbalances. Be alert for cardiac dysrhythmias for the patient with heat stroke.
- Heat exhaustion core temperature is < 104.9°F (< 40.5°C) and heat stroke core temperature is > 104.9°F (>40.5°C).
- Notify RED Center Captain of all hyperthermia/heat emergencies.

Hypothermia

Signs and Symptoms:

Mild:

- apathy
- disorientation
- tachycardia
- hypertension
- shivering

Moderate:

- hypotension
- bradycardia
- dysrhythmias
- decreased shivering
- muscle spasms

Severe:

- coma
- dysrhythmia
- asystole
- apnea
- muscle rigidity

Routine Trauma Care Protocol (Routine-3)



EMT-B Treat major trauma as first priority and the hypothermia as second.



EMT-B Avoid excessive movement and remove wet garments and prevent further heat loss by covering with blankets.



Place the ECG monitor prior to any invasive interventions.



DO NOT place ETT/ King LT-SD, unless the patient is apneic or has an unstable airway.

Be alert for V-Fib, if an ETT/ King LT-SD are attempted.



Run an IV of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



If the patient is in ventricular fibrillation or pulseless ventricular tachycardia, administer **ONE** defibrillation at **Zoll 120J**.



DO NOT administer cardiac drugs to the hypothermic patient until adequately warmed.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- All hypothermic patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrefaction, traumatic injury unsustainable to life, etc).
- Patients that appear cold and dead are **NOT** dead until they are warm and dead.
- Patients with low core temperatures may not respond to ALS drug interventions. Maintain warming procedure and supportive care. Warming procedures includes removing wet clothing, limiting exposure, and covering the patient with warm blankets if available.
- **DO NOT** allow patients with frozen extremities to ambulate.
- Superficial frostbite can be treated by using the patient's own body heat.
- **DO NOT** attempt to aggressively rewarm deep frostbite unless there is an extreme delay in transport, and there is a no risk that the affected body part will be refrozen. Contact Med Command prior to aggressively rewarming a deep frostbite injury.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- In Severe Cases: If patient is unresponsive or is presenting with signs or symptoms of shock then IO attempts Refer to the Intraosseous Infusion (Procedure-17).
- Mild hypothermia core temperature is 90° F-95° F (32.2° C-35° C), Moderate hypothermia is 82.4° F-90° F (28° C-32.2° C), and Severe hypothermia is below 82.4° F (< 28°C).
- Notify the RED Center Captain of all hypothermic emergencies.

NOTS Trauma

Adult (>16 years Old) Field Triage Decision Trauma Triage Protocol



Triage Center: 216-957-5433
1-800-233-5433
Medical Director: 216-778-2266

Step 1. Measure vital signs and level of consciousness of patient with a traumatic mechanism

- Glasgow Coma Scale < 12 with a traumatic mechanism
- Systolic blood pressure < 90 mmHg or
- Respiratory rate < 10 or > 29 breaths/minute or requiring airway/ventilatory support

YES

Protocol adapted from:
<http://www.cdc.gov/FieldTriage/>
www.publicsafety.ohio.gov
NOTS input

Take to a trauma center. These patients should be transported preferentially to the highest level of care within the trauma system. If transport to level I will add greater than 15 minutes, transport to nearest trauma facility

YES

Red = Priority 1

Step 2. Assess anatomy of injury

- Significant penetrating injuries to head, neck, torso, & extremities proximal to elbow or knee
- Two or more proximal long-bone fractures
- Crushed, degloved, threatened, pulseless or mangled extremity
- Amputation proximal to wrist or ankle
- Pelvic fractures
- Open or depressed skull fracture
- Paralysis

NO

Step 3. Assess mechanism of injury and evidence of high-energy impact

- Falls
 - Adults: > 10 ft. (one story is equal to 10 ft.)
- High-Risk Auto Crash
 - Intrusion: Including roof: > 12 in. occupant site; > 18 in. any site
 - Extrication time over 20 minutes
 - Ejection (partial or complete) from automobile
 - Death in same passenger compartment
 - Vehicle telemetry data consistent with high risk of injury
- Auto vs. Pedestrian/Bicyclist Thrown, Run Over, or with Significant (> 20 mph) Impact
- Motorcycle Crash > 20 mph

Yellow = Priority 2

YES

Transport patient to nearest trauma center within trauma system, need not be the highest level of trauma center.

NO

Step 4. Assess special patient or system considerations of trauma patients

- GCS : 12 -14 and evidence of traumatic injury
- Age
 - > 70 years to Trauma Center
- Anti coagulation and Bleeding Disorders: On Prescription Blood Thinners
- Significant Burns (+/- trauma mechanism) : Triage to MetroHealth
- Open Fractures
- Pregnancy > 20 Weeks
- EMS Provider Judgment – When in doubt transfer to a trauma center

YES

NO


Step 5. Patients not meeting above criteria – transport to closest emergency department

**Green =
Priority 3**

Routine Trauma Care Protocol (Routine-3)

EMT-B If the patient has an altered LOC or if there is suspicion for spinal injury, follow SMR guidelines (Procedure-6) and support ABCs.



 If the patient airway is unstable or is in respiratory distress, assist ventilations with a BVM and intubate, refer to Endotracheal Intubation Procedure (Procedure-14), if needed.



 If the patient has a tension pneumothorax, perform chest decompression as indicated. Refer to the Chest Decompression Procedure (Procedure-7).



EMT-B If the patient has a penetrating chest wound, refer to the Chest Seal (Procedure-8).



EMT-B If the patient has an impaled object, stabilize the impaled object.




EMT-B If the patient has severe blood loss from traumatic injury and when primary means to stop bleeding has not maintained, refer to the Hemostatic Dressing (Procedure-15)



EMT-B If the patient has severe amputation or severe blood flow, refer to the Arterial Tourniquet (Procedure 3).



 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV/IO of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- A trauma victim is considered to be a pediatric patient if they are 15 years old or younger.
- NOTS **Priority 1** and **Priority 2** Trauma patients are to be transported to the appropriate hospital based on the Northern Ohio Trauma System unless directed/approved otherwise by Med Command, RED Center, Captain/Commander or if the patient has an unstable airway.
- Contact the receiving hospital for all NOTS trauma or critical patients.
- Cover open wounds, burns, and eviscerations.
- With the exception of airway control, initiate ALS enroute when transporting NOTS **Priority 1** and **Priority 2** trauma patients. If ALS (besides airway control) is performed on scene, the reason why must be documented (for example, a patient trapped in a car).
- If unable to access the patient's airway and ventilate, then transport to the *closest* facility for airway stabilization.
- Reassess your patient for any changes that may occur and document changes.
- The on scene time for NOTS trauma patients should not exceed 10 minutes without documented and acceptable reason for the delay.
- All NOTS trauma patients **MUST** have the NOTS trauma identifying band applied and the NOTS trauma identifying number documented on the run report.
- All NOTS **Priority 1** and **Priority 2** patients should receive oxygen administration, an IV/IO, and cardiac monitoring.
- NOTS patients that require IV access should receive fluids accordingly; attach a 1000 ml bag of normal saline with macrodrip. Saline lock should not be used as a primary IV access. Consider a second large bore IV/IO for patients in shock.
- Provide a documented reason if an intervention could not be performed in the narrative.
- **DO NOT** use a nasopharyngeal airway when a patient has experienced head or nose trauma and/or you have reason to suspect a skull fracture.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- The arterial tourniquet should be considered when direct pressure and elevation, or hemostatic dressing fails to control severe hemorrhage. If the first arterial tourniquet fails to control hemorrhage, a second arterial tourniquet may be placed proximal to the initial tourniquet. Avoid gaps between the tourniquets to prevent additional compartment syndrome. **DO NOT** overlap tourniquets. Reassess for absence of distal pulses/bleeding to the affected extremity.
- Arterial tourniquet use can be initiated early if the patient is experiencing severe hemorrhage.
- Cover all penetrating chest trauma with a chest seal and assess chest seal for any leaks.
- **DO NOT** remove any clothing that is adhered to the wound or surrounding skin or tissue.

Pain Management

Indications:


For the treatment of acute pain due to an isolated injury, such as an extremity fracture, crush injury, or burns.

Routine Trauma Care Protocol (Routine-3)




EMT-B Conduct a numeric 0-10 pain scale assessment
(0 = no pain, 10 = the worst pain ever experienced).



 If the patient is experiencing intolerable pain and has a systolic blood pressure of 100 mmHg (120 mmHg for patients over the age of 70) administer Morphine Sulfate 2-4 mg IV/IM. May repeat in 10 minutes to a max of 4 mg.


OR

 Fentanyl (Sublimaze) 25 - 50 mcg slow IV over 2 minutes.
May repeat in 10 minutes to a max of 50 mcg.

OR

Fentanyl (Sublimaze) 50 mcg IN



 If the patient is not experiencing altered mental status or is experiencing persistent vomiting after administration of pain medications, consider administering Promethazine (Phenergan) 12.5 mg IV or 25 mg IM

OR

Administer Ondansetron (Zofran) 4 mg IV over 2-4 minutes,
May repeat every 15 minutes (max 8 mg)

OR

4 mg IM/PO may repeat every 15 minutes (max 8 mg)



 Contact Med Command for additional doses of Morphine or Fentanyl (Sublimaze)



Reassess



 Contact Med Command for further assistance, if needed

Key Points

- All patients who receive medication for pain must have continuous ECG monitoring, pulse oximetry and oxygen administration.
- The patient's vital signs must be routinely reassessed. The routine reassessments must be documented on the run report.
- Promethazine (Phenergan) will potentiate the effects of analgesics, routinely monitor the patient's vital signs for any changes.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine or Fentanyl (Sublimaze) administration.
- The dose of Naloxone (Narcan) 0.4 – 2 mg IV/IM or 2 mg IN.
- **DO NOT** administer Morphine or Fentanyl (Sublimaze) if there is any suspicion of a head injury.
- Med Command authorization is required for doses of Morphine Sulfate exceeding 4 mg or doses of Fentanyl (Sublimaze) exceeding 50 mcg.
- A 100 mcg dose of Fentanyl (Sublimaze) is equivalent to a 10 mg dose of Morphine.

Sexual Assault

Indications:

Any patient who states or is suspected to be a victim of a sexual assault.

Routine Trauma Care Protocol (Routine-3)



EMT-B Refer to the specific protocol if the patient has a life threatening injury, fits the NOTS Trauma (Trauma-9), or has experienced any other injury or medical emergency.

If the patient is a major trauma, transport them to an approved trauma center.



EMT-B Attempt to preserve all evidence while treating the patient for a sexual assault or any other associated injury/illness. Treat the patient's body and clothing as a crime scene while providing appropriate patient care.



EMT-B Attempt to determine when the sexual assault occurred. If the patient is an adult or an adolescent, advise them of the option of being evaluated at an emergency department with a SANE (Sexual Assault Nurse Examiner) program if the sexual assault occurred within the last 96 hours.



EMT-B If the patient consents, transport them to an emergency department that has a SANE program.



Reassess



Contact Med Command for further assistance, if needed.

Reference Hotlines

Reference Hotlines		
Cleveland Rape Crisis Center 24/7	216-616-6192	Suspected Rape Victims
Cuyahoga County Sheriff Department Radio Room 24/7	216-443-6085	Suspected Human Trafficking Victims
FBI National Critical Information Center Radio Room 24/7	216-662-6832	Suspected Labor Trafficking Victims

Key Points

- A victim of a sexual assault has experienced an emotionally traumatic event. It is imperative to be objective, non-judgmental, and compassionate.
- An abbreviated assessment may be indicated based on the patient's mental state.
- Your responsibility is patient care, not detective work. Questioning of the patient should be limited, as there is no need for the EMS provider to attempt to get a detailed description of the assault. That type of questioning by EMS can harm the investigation, and should be left up to professional investigators. However, it is imperative that you carefully document anything the patient says about the attack. **DO NOT** paraphrase.
- Based upon the patient's mental state, the following questions should be asked and documented:
 - What happened? (A brief description is acceptable)
 - When did the attack occur?
 - Did the patient bathe or clean up after the attack?
 - If the patient changed his/her clothes, attempt to bring the clothes in a brown paper bag. **DO NOT** use a plastic bag.
 - If the patient did not change his/her clothes, have the patient bring a change of clothes to the hospital (if possible).
- Inform the ED if the patient requests an advocate from the Cleveland Rape Crisis Center
- If needed, provide patient with the Cleveland Rape Crisis Center information (24 hotline) (216) 619-6192.
- A SANE (Sexual Assault Nurse Examiner) is an experienced RN with intensive classroom education, clinical experience, expertise in sexual assault evaluation, and forensic evidence collection.
- A SANE program is a facility that provides SANE services 24 hours a day, 7 days a week.
- Consider a victim of sexual assault may be involved in human or labor trafficking.
- A pediatric patient is any patient who is 15 years old or younger.
- Contact the receiving hospital to ensure SANE Unit Nurse is available for treatment. If patient is 15 years old or younger, transport to Pediatric SANE hospital. If patient is 16 years or older transport to Adult SANE hospital. Refer to the Hospital Transport Guide (Appendix-1).
- Adult SANE Hospitals:
 - Cleveland Clinic Hospitals – Fairview Hospital, Hillcrest Hospital
 - University Hospitals – University Hospitals Cleveland Medical Center
 - Independent Hospital – MetroHealth Medical Center, Southwest General Medical Center
- Pediatric SANE Hospitals:
 - Cleveland Clinic Hospitals – Fairview Hospital, Hillcrest Hospital
 - University Hospitals – Rainbow Babies and Children's Hospital



Human trafficking is a crime.

Human trafficking is slavery. It takes away a person's basic human right to freedom.

Human trafficking is sex trafficking and forced labor.

Victims of human trafficking are exploited for purposes of commercial sex and forced labor. They are tricked, forced, and manipulated into situations from which they see no escape.

Human trafficking happens here too.

Human trafficking takes place around the world, across the United States, and right here in northeast Ohio. It does not require the movement of a person from one location to another.

There is no one face to human trafficking.

Victims include children and adults, men and women, U.S. citizens and foreign-born individuals.

Victims are often hidden in plain sight.

Victims may be sold for sex on the street, on the internet, or anywhere. They may also be working in homes as domestic servants; at construction sites; on farms or nurseries; in hotels, restaurants, or nail/hair salons; or in other settings.

Victims don't self-identify.

Victims don't self-identify due to fear, shame, or not understanding that what is being done to them is a crime. The trafficker is in control and may even brand his or her victims.



Recognize the warning signs of human trafficking

Pay attention if a person:

- Appears submissive, afraid, or nervous.
- Tells a well rehearsed or inconsistent story.
- Is not in control of his or her identification papers.
- Shows signs of physical or mental abuse.
- Is not able to come and go as he or she pleases.
- Does not want to tell you about a tattoo which may, in fact, be a trafficker's branding.

Also be alert if a young person:

- Has a much older "boyfriend" or "girlfriend."
- Has new jewelry, new hairdo, or polished nails not paid for by the youth's parents or guardian.
- Has sporadic or poor school attendance.
- Possesses multiple hotel cards or cell phones.
- Wears clothing inappropriate for his or her age, or for the weather.

Hotlines

Support and information is available for human trafficking victims and for those who suspect they may have encountered a trafficking situation.

Cleveland Rape Crisis Center - Project STAR Hotline

Sex Trafficking Advocacy and Recovery

(855) 431-STAR (7827)

Bellefaire JCB Homeless and Missing Youth Program Hotline

(216) 570-8010

National Human Trafficking Resource Center Hotline

888-3737-8888

IF YOU SEE SOMETHING SUSPICIOUS, REPORT IT.

Call 911 or your local police if a person is at risk of imminent harm. Do not attempt to intervene in a situation you suspect is human trafficking.

FBI - Cleveland Office

(216) 522-1400

Cuyahoga County Sheriff's Department

(216) 443-6085

For more information, visit HappensHereToo.org

This message is supported by grant number 2015-VCCA-0225594 awarded by the Office for Victims of Crime, Office of Justice Programs, through the Ohio Attorney General's Office. Victims of federal crimes will be served. Stock Photos. Posed models.



Labor Trafficking Victim Indicators



Labor Trafficking: Victim Indicators

- Avoid eye contact with employers and outsiders
- Appear malnourished, exhausted, unwashed/dirty, or have untreated injuries
- Do not have a vehicle or transportation. Lack of employee vehicles on the property
- Wear dirty clothing or repeatedly wearing the same clothing
- Do not speak English and appear unaware of surroundings
- Repeatedly work long hours with no apparent days or time off
- Appear submissive or fearful of employer and/or supervisor
- Lack of personal items, such as cellular phones, keys, backpacks, wallets/purses
- Employer may speak or answer questions for employee
- Appear dependent upon employer for direction in all matters

Report Potential Labor Trafficking to your Local FBI Office or contact The National Human Trafficking Hotline at 1-888-373-7888

Labor Trafficking Workplace Indicator

Labor Trafficking: Workplace Indicators

- Employees are living on the premises/inside the business
- Employee(s) transported to work by employer or business
- Large van for transporting employees always on property
- No time clock or hours are maintained in ledger by employer
- No signs or posters advertising Fair Labor Standards, minimum wage, or worker's rights
- No posted schedule or employee hours in office
- Employees are same ethnicity/culture as employer and appear subservient
- Lack of paychecks, or evidence of payments to employees
- Employer abusive to employees (verbal or physical)
- Surveillance cameras located in uncommon places of the business

Taser Injuries

Indications:

Any patient that was subjected to taser use.

Routine Medical or Trauma Care Protocol (Routine-1 or 3)



EMT-B Confer with the law enforcement officers regarding the patient's behavior prior to EMS arrival.



EMT-B Refer to the specific protocol, if the patient has a life threatening injury, or medical illness.




EMT-B Refer to the Combative Patient Protocol (Medical-11), if the patient continues to be combative.




EMT-B Determine the location of the probes/barbs and gently remove them. **DO NOT** remove the probes/barbs if significant resistance is met, unless they interfere with patient care.



 Perform a 12-Lead EKG and continuously monitor the patient's EKG. If the patient has a dysrhythmia, refer to the appropriate protocol.



 If the patient's systolic BP is less than 100 mmHg (less than 120 mmHg in patients older than 70 years old) or the HR is greater than 110 bpm, run an IV(s) of normal saline wide open. Assess the patient after each 300 ml and be alert for fluid overload.



EMT-B Transport the patient to the closest appropriate medical facility.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- **ALL** patients subjected to taser use must be assessed for trauma and for medical causes for their combative behavior.
- The patient's vital signs must be reassessed every 5 minutes.
- Determine if the patient used any mind altering stimulants, has a cardiac history, and the date of their last Tetanus shot.
- **DO NOT** remove the probes/barbs if they are embedded in the patient's eye(s) or spine.
- The cord or wire may be cut, if the probes/barbs are left embedded in the patient.
- Removal of the probes/barbs. (Remove one at a time).
 - Stabilize the skin surrounding the puncture site by placing one hand by where the probe/barb is embedded.
 - Pull the probe/barb straight out from the puncture site in one fluid motion.
 - Repeat the procedure with the second probe/barb.
- Dispose of the probes/barbs in a sharps container unless they are needed for evidence by the police.

Trauma Arrest

Important Notes:

- Perform immediate defibrillation if:
 - Witnessed down time less than 4 minutes with or without CPR, or
 - Adequate CPR performed for 2 minutes prior to defibrillation.
- Otherwise, perform 2 minutes of CPR prior to attempting defibrillation.
- Perform 2 minutes of CPR between all defibrillation attempts.
- **Defibrillations/medications administrations should be withheld in blunt trauma cardiac arrests**

AED Continued Shock Procedure

First Responder/Bystander

EMS Continued Defibrillation

No Shock Advised	Defibrillate 120J	Defibrillate 150J	Continue Defibrillate 200J
One Shock	Defibrillate 150J	Defibrillate 200J	Continue Defibrillate 200J
Two Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J
Three Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J

Routine Trauma Care Protocol (Routine-3)

EMT-B Refer to the specific protocol, if the cardiac arrest is suspected to be primarily due to a medical reason.

EMT-B If the patient's witnessed down time has been greater than 20 minutes, consider the Field Pronouncement Procedure (Non-Transport-2).

EMT-B If the patient is in arrest due to penetrating trauma, reference both the defibrillation and medication administration columns at the same time.



Administer defibrillations and medications as they are indicated.

EMT-B Begin CPR

Penetrating Trauma

Defibrillations

If the patient is in ventricular fibrillation or pulseless tachycardia, defibrillate at **Zoll 120 J**.

EMT-B Perform CPR for 2 minutes.

If the patient is in ventricular fibrillation or pulseless tachycardia, defibrillate at **Zoll 150 J**.

Medication Administrations

Administer Epinephrine 1: 10,000 1 mg IV/IO every 3-5 minutes (Epinephrine 1:1000 2 mg diluted in 10 ml of Normal Saline ETT)

Continue with CPR and fluid resuscitation. **DO NOT** administer any other medications except Epinephrine.

Blunt Trauma

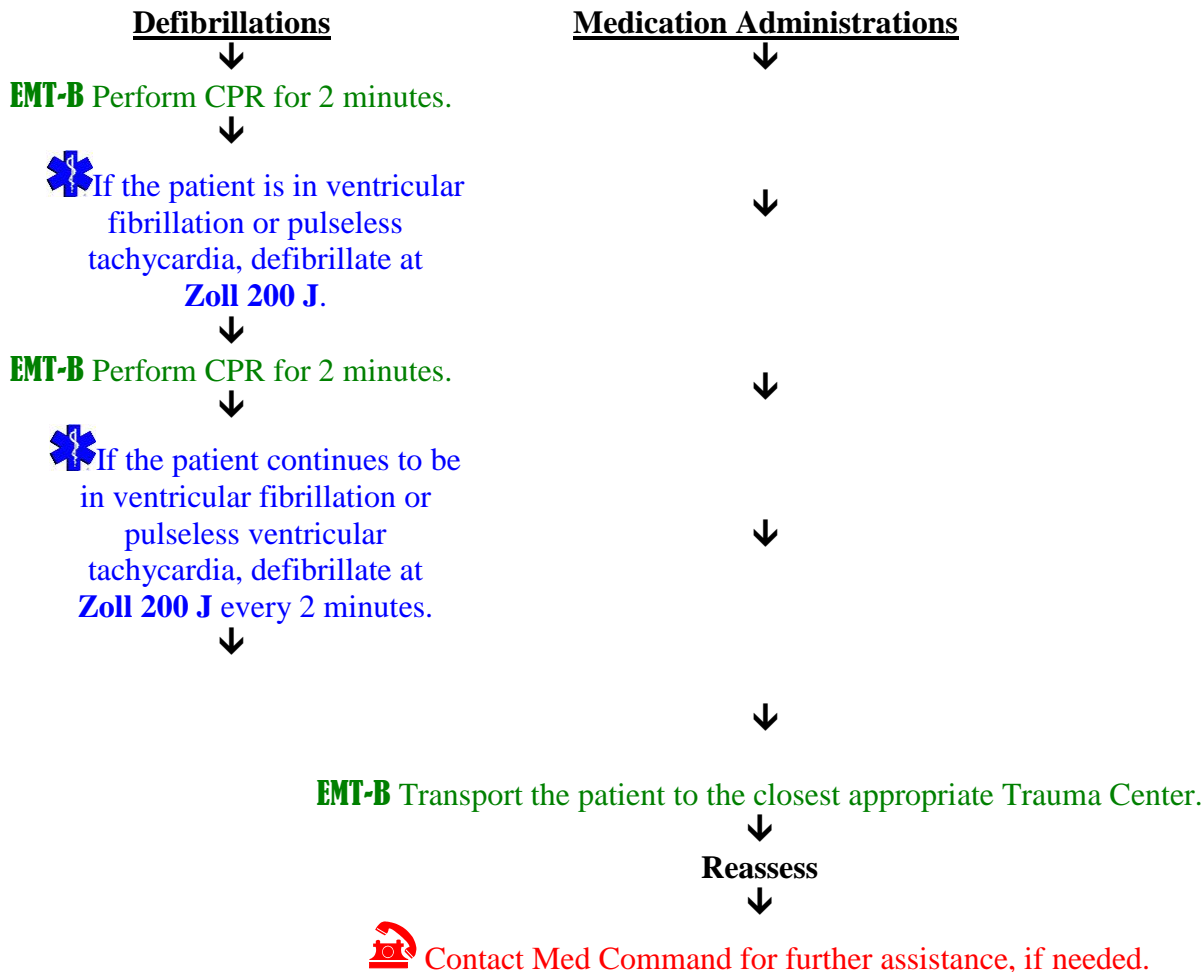
EMT-B Begin CPR. Resuscitative efforts should be limited to chest compressions, airway control, ventilations, and IV/IO fluids.

EMT-B Transport the patient to closest appropriate receiving facility.

Reassess



Contact Med Command for further assistance, if needed.



Key Points

- **Defibrillations and medications administrations should be withheld in blunt trauma cardiac arrests, unless cardiac arrest is suspected to be primarily due to a medical reason.**
- Down time is the amount of time the patient was in cardiac arrest.
- If you suspect that the patient is hypothermic, refer to Hypothermia (Trauma-8). Hypothermic patients in cardiac arrest should receive continual resuscitative efforts.
- Immediately transport traumatic cardiac arrest patients. **DO NOT** wait for back up if they are not already on scene.
- Blunt trauma cardiac arrest patients **DO NOT** have to be transported to a Trauma Center.
- With the exception of endotracheal intubation, traumatic cardiac arrests are “load and go” situations.
- Provide a documented reason if an intervention could not be performed in the narrative.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient’s capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- Reassess your patient for any changes that may occur.
- Contact the receiving hospital for all major trauma or critical patients.
- If unable to access the patient’s airway and ventilate, then transport to the *closest* facility for airway stabilization.

Pediatric Section

Pediatric Airway Obstruction

Signs and Symptoms:

- witnessed aspiration
- sudden episode of choking or gagging
- stridor
- change in skin color
- decreased LOC
- increased or decreased respiratory rate
- labored breathing
- unproductive cough

Routine Pediatric Medical Care Protocol (Routine-2)



Infant (0-12 months)

EMT-B If the patient is conscious and coughing, with partial obstruction, apply high flow oxygen, encourage the patient to continue coughing, and provide rapid transport.



EMT-B Administer high flow O2 by mask, as tolerated.




EMT-B If the patient is conscious, perform 5 back blows and 5 chest thrusts.



EMT-B Continue the sequence until the object is removed or the patient becomes unresponsive.



 If the patient becomes unconscious, open the airway and try to visualize the foreign body. Only perform a finger sweep if the foreign body is visualized. Consider using direct laryngoscopy to visualize the object. If visualized, attempt to remove it with Magill Forceps.



EMT-B If the patient becomes unresponsive immediately start CPR, starting with chest compressions. Be sure to check the airway for any foreign body prior to each ventilation sequence.



Child (1-8 years)

EMT-B If the patient is conscious and coughing, with partial obstruction, apply high flow oxygen, encourage the patient to continue coughing, and provide rapid transport.



EMT-B Administer high flow O2 by mask, as tolerated.




EMT-B If the patient is conscious with a complete obstruction, perform the Heimlich maneuver.



EMT-B Continue the sequence until the object is removed or the patient becomes unresponsive.



 If the patient becomes unconscious, open the airway and try to visualize the foreign body. Only perform a finger sweep if the foreign body is visualized. Consider using laryngoscopy to visualize the object. If visualized, attempt to remove it with Magill Forceps.



EMT-B If the patient becomes unresponsive immediately start CPR, starting with chest compressions. Be sure to check the airway for any foreign body prior to each ventilation sequence.





Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Infants 0-12 months **DO NOT** receive abdominal thrusts (Heimlich maneuver).
- Even with a complete airway obstruction, positive-pressure ventilation is often successful.
- **NEVER** perform blind finger sweeps.
- Attempt to clear the airway should only be made if foreign body aspiration is strongly suspected and there is complete airway obstruction.

Pediatric Allergic Reaction and Anaphylaxis

Signs and Symptoms:

- warm burning feeling
- itching
- rhinorrhea
- hoarseness/stridor
- wheezing
- shock
- respiratory distress
- altered LOC/coma
- cyanosis
- pulmonary edema
- facial/airway edema
- urticaria/hives
- dyspnea

Routine Pediatric Medical Care Protocol (Routine-2)



Key Points

- Routinely reassess the patient and provide supportive care.
- Treat patients with a history of anaphylaxis aggressively.
- EMT-B/Paramedic: if the patient has a prescribed Epinephrine auto-injector, you may assist the patient with administering the auto-injector in the mid-anterior lateral thigh. Hold the auto-injector against the thigh for a minimum of 10 seconds. A dose of an EpiPen Jr. is 0.15 mg in 0.3 ml of Epinephrine 1:1000.
- Use caution when using Epinephrine for patients with a cardiac history.
- Use caution when using Epinephrine for patients with a heart rate greater than 120 bpm.
- Albuterol can be administered via ETT by doubling the dose.
- When possible, remove any stingers by “scraping.”

Pediatric Asystole/PEA

Signs and Symptoms:

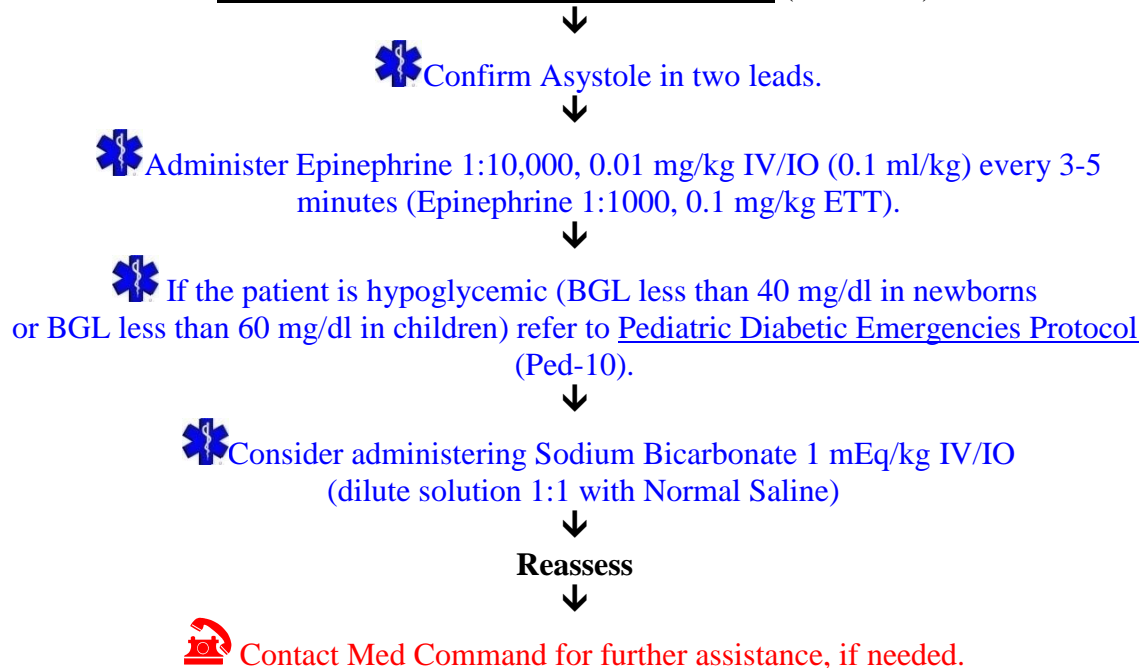
- unresponsive
- pulseless with rhythm
- apneic or agonal respirations
- cyanosis

Consider Treatable Causes:

Consider the causes of asystole or PEA and treat accordingly.

- | | |
|-------------------------|-----------------|
| • hypovolemia | • drug overdose |
| • cardiac tamponade | • hypoxia |
| • tension pneumothorax | • hypothermia |
| • pulmonary embolism | • hypoglycemia |
| • myocardial Infarction | • acidosis |
| • tricyclic overdose | • hyperkalemia |

Routine Pediatric Medical Care Protocol (Routine-2)



Key Points

- If the patient converts to another rhythm, or has a **Return of Spontaneous Circulation (ROSC)**, refer to the appropriate protocol and treat accordingly.
- Treat as ventricular fibrillation if you cannot differentiate between asystole and fine ventricular fibrillation.
- When assessing for a pulse palpate the brachial or femoral arteries for infants and the carotid or femoral artery for children.
- If the patient has an IO, routinely reassess for patency.
- The IV/IO route of medication administration is preferred over the ETT route.
- The medications that can be administered ETT are: (LEAN) **Lidocaine, Epinephrine, Atropine/Albuterol, Naloxone (Narcan).**
- When there is an established ETT, **DO NOT** delay administration of medications for IV/IO attempts. Administer the appropriate medications down the tube while attempting IV/IO access.
- Administer Dextrose only if the patient has a BGL less than 60 mg/dl in children or 40 mg/dl in newborns.
- Naloxone (Narcan) administration is authorized for patients in cardiac arrest from suspected opioid overdose.
- Med Command must be contacted prior to administering antidotes for all poisonings/overdoses except for narcotic overdoses.
- Sodium Bicarbonate is only used for tricyclic antidepressant overdoses, hyperkalemia, and for a prolonged down time (15-20 minutes). The reason for its use must be documented.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Down time is the amount of time that the patient was in cardiac arrest.

Pediatric Behavioral Emergencies

Signs and Symptoms:

- depression
- anxiety
- manic behavior
- schizophrenic behavior
- paranoia
- delirium
- dementia
- suicide attempts and ideation
- homicidal ideation
- substance abuse
- agitation
- psychosis
- hallucinations

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B Communicate directly to the patient and attempt to calm them down and provide continual reassurance.



EMT-B Remove the patient from any crisis environment.



EMT-B Notify RED Center for backup, if the patient is violent and is creating an unsafe environment.



EMT-B Consider the Pediatric Combative Patient Protocol (Ped-9).



EMT-B Consider any medical conditions or trauma that may present as a behavioral emergency.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- The safety of on-scene personnel is the first priority.
- Consider the medical causes of acute psychosis. Causes may include: head trauma, stroke, hypoglycemia, acute intoxication, sepsis, CNS insult, and hypoxia.
- Suicide ideation or attempts must be transported for evaluation.
- Evaluate the patient for any dangerous weapons or objects.
- Be alert for rapidly changing behavior.
- Limit patient stimulation and use de-escalation techniques. Responders may need to ask family/friends to leave room, ask patient to turn off music/TV.
- Only law enforcement personnel can apply handcuffs to a combative patient and **MUST** remain with the patient while they are handcuffed. Be sure to contact the receiving hospital with the patient status, as soon as possible.

Pediatric Bradycardia

Indications:

HR less than 100 in neonates and HR less than 60 in infants and children. Treat only if the patient is hemodynamically unstable.

Signs and Symptoms:

- poor perfusion
- shock
- hypotension
- short of breath/dyspnea
- pulmonary fluid
- altered LOC/coma

Routine Pediatric Medical Care Protocol (Routine-2)

EMT-B If the patient is a neonate, refer to Newborn Resuscitation Protocol (Ped-16).



Perform a 12-Lead EKG.

Does the patient have signs of poor perfusion?

YES

EMT-B Assure adequate oxygenation and ventilation.

EMT-B If the patient's HR is less than 60 bpm for infants and children or 100 bpm for neonates **WITH** poor perfusion assist ventilation with BVM and 100% Oxygen, at 40-60 breaths per minute for 30 seconds. Continue BVM ventilations until HR is above 60 bpm with signs of adequate perfusion regardless of age.

EMT-B If the patient still does not gain spontaneous HR greater than 60 bpm **WITH** signs of adequate perfusion regardless of age after 30 seconds, then continue BVM ventilations at 40-60 breaths per minute for 30 seconds and **START** chest compressions at a rate of 100-120 bpm.


EMT-B Assess the HR after each 30 seconds of chest compressions and BVM ventilations. Continue chest compressions and BVM ventilations until HR is greater than 60 bpm **WITH** signs of adequate perfusion. Reassess after every 30 seconds of BVM and chest compressions.

EMT-B Check the patient's BGL. If the patient is hypoglycemic, BGL less than 40 mg/dl in newborns or BGL less than 60 mg/dl in children
Pediatric Diabetes Emergencies (Ped-10)


NO

EMT-B Support the ABCs and routinely reassess the patient if the patient's HR is less than 60 bpm for children or 100 bpm for neonates with adequate perfusion.


Unstable Bradycardia - Continued

 If the HR remains below 60 bpm with signs of poor perfusion after 4 cycles of chest compressions, continue chest compressions and administer Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/IO every 3-5 minutes until HR improves above 60 bpm or no longer has signs of poor perfusion.
(Epinephrine 1:1000 0.1 mg/kg ETT)



 If bradycardia persists with poor perfusion, administer Atropine 0.02 mg/kg IV/IO (minimum dose of 0.1 mg), repeated once in 5 minutes.



 If the HR returns with poor perfusion, administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.



Reassess



Contact Med Command for further assistance, if needed.

Stable Bradycardia - Continued



Key Points

- Identify and treat possible causes for pediatric bradycardia:
 - Hypoxia
 - Hypothermia
 - Head injury
 - Heart block
 - Toxic ingestion/exposure
- The minimum dose of Atropine that should be administered to a pediatric patient is 0.1 mg.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- If the rhythm changes, follow the appropriate protocol.
- Routinely reassess the patient after all interventions even if they do not produce any changes.

Pediatric Cardiac Arrest

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B If the patient has DNR paperwork
refer to DNR Procedure (Non-Transport-1).



EMT-B First responder units, refer to AED Procedure (Procedure-4).



EMT-B Begin CPR.



Identify the arrhythmia and refer to the appropriate protocol and treat accordingly.



EMT-B If the patient regains a pulse,
refer to Pediatric Post-Resuscitation Care Protocol (Ped-18)



Contact Med Command for further assistance, if needed.

Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Attempt to obtain patient history from family members or bystanders.
 - estimated down time
 - medical history
 - complaints prior to arrest
 - bystander CPR prior to EMS arrival
 - AED use prior to EMS arrival
- All Cardiac arrest patients should be placed on backboard or reeves stretcher.
- The IV/IO route of medications administration is preferred over the ETT route.
- The medications that can be administered ETT are: (LEAN) **L**idocaine, **E**pinephrine, **A**trypine/**A**lbuterol, **N**aloxone (Narcan).
- **NO** medication can be administered via King LT-SD.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Administer Dextrose only if the patient's BGL is less than 60 mg/dl in children, or 40 mg/dl in newborns. Dextrose should be administered as soon as hypoglycemia is determined.
- Naloxone (Narcan) administration is authorized for patients in cardiac arrest from suspected opioid overdose.
- Med Command must be contacted prior to administering antidotes for all poisonings/overdoses except for narcotic overdoses.
- Routinely reassess the patient after all interventions even if they do not produce any changes.

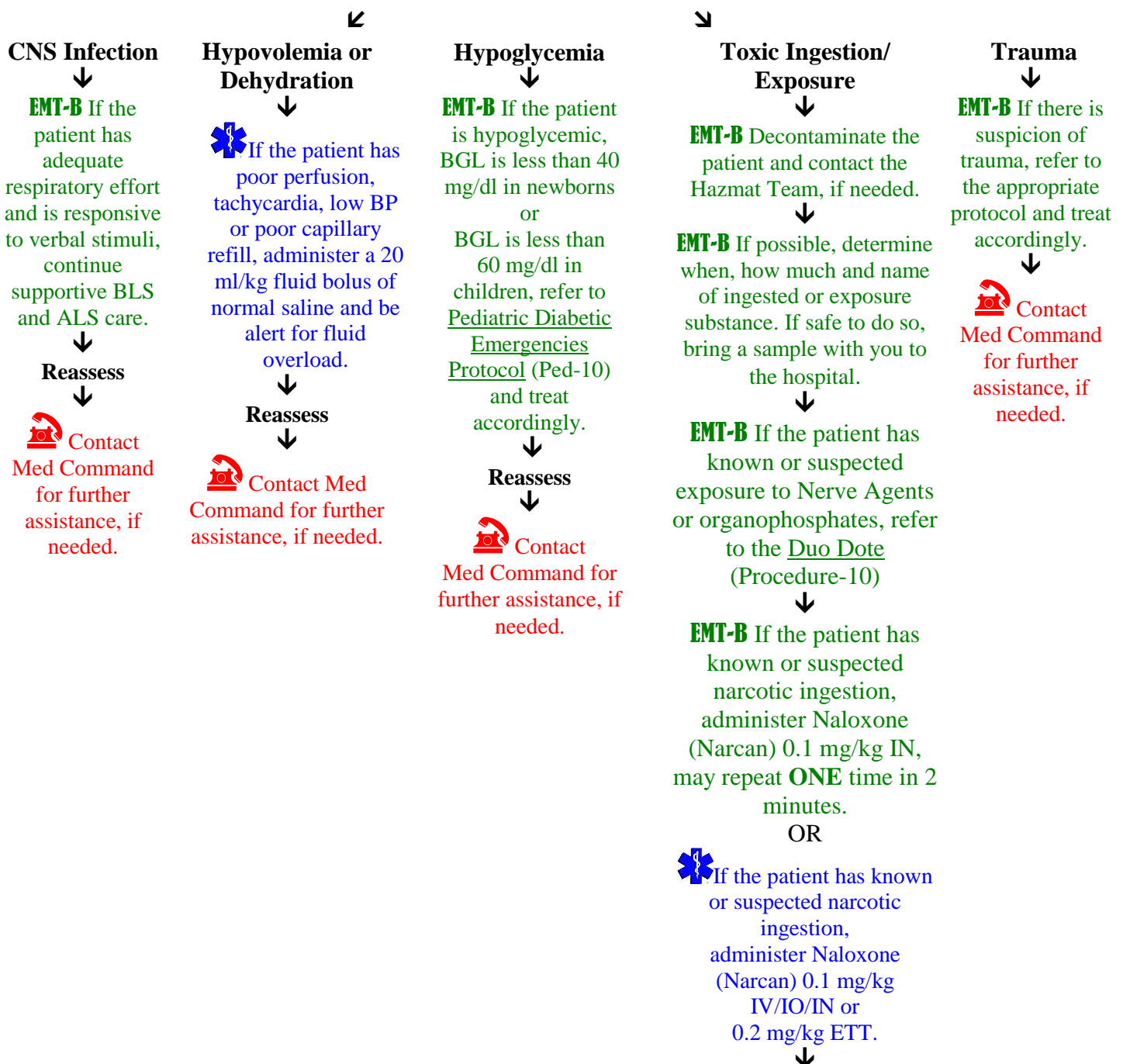
Pediatric Coma/Altered Mental Status

Signs and Symptoms:

- unresponsiveness
- decreased responsiveness
- inadequate respirations
- confusion
- agitation

Routine Pediatric Medical Care Protocol (Routine-2)

Consider and treat the causes



Altered Mental Status



EMT-B Determine what interventions were administered prior to EMS arrival: syrup of ipecac, ingestion of milk, vomiting, etc.



Reassess



Contact Med Command for further assistance, if needed

Key Points

- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdrawal, which includes vomiting, agitation, and/or combative behavior. Always be prepared for combative behavior.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedated and possibly increased dyspnea. All pediatric patients receiving Naloxone (Narcan) **MUST** be transported.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- Double the dose of Naloxone (Narcan) if it is administered via ETT.
- Scene safety is the number one priority.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible, and follow their instructions.
- The patient and/or crew must be decontaminated prior to transport. **DO NOT** transport a contaminated patient to a treatment facility.
- If exposed to nerve agents or organophosphates symptoms may include:
 - **Mild** symptoms include: muscle twitching and diaphoresis.
 - **Moderate** symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching.
 - **Severe** symptoms include: unconsciousness, seizures, flaccidity, and apnea.
- **SLUDGEM**: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Muscle twitching.
- Contact Med Command for all patients under the age of 1 month who are experiencing a seizure related to nerve agent exposure.
- A Duo Dote includes 600 mg Pralidoxime (2-PAM Cl) and 2 mg Atropine in one prefilled auto-injector. Should be used on the mid anterior lateral thigh.
- **Nerve Agents** include, but are not limited to, Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR.
- **Organophosphate Chemicals** are found in many pesticides and bug sprays, chemicals include, but are not limited to: azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithroton, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.
- **Tricyclic Anti-depressants** include (but not limited to): Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, and Trimipramine.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.

Pediatric Combative Patient

Sign and Symptoms:

Combative patient of unknown origin.

Consider Causes:

Consider other causes and refer to the appropriate protocol as indicated:

- illicit drug use or drug over dose
- ETOH
- diabetic emergency
- trauma
- seizure
- head injury
- behavioral emergencies
- hypoxia

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B Notify the RED Center that the patient is combative.



EMT-B Communicate directly to the patient and attempt to calm them down.



EMT-B Utilize de-escalating techniques including limiting noise and other stimulation.



EMT-B Restrain the patient using soft restraints if they are uncooperative, combative and the safety of the patient or care providers is at risk. Use the minimal amount of restraints necessary to assure patient and personnel safety. **NEVER** put any restraint on a patient that may limit ventilation or obstruct the airway.



If the Patient continues to pose a threat and is over the age of 10 years old consider administering Lorazepam (Ativan) 0.05 mg/kg IV/IO/IM/IN (max dose 1 mg).



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- The safety of on-scene personnel is the first priority.
- **DO NOT** use pharmacological sedation if there is suspicion of head trauma or head injury. If a head injury is suspected, Lorazepam (Ativan) should be withheld unless the patient is actively seizing.
- Use the least amount of restraint to achieve the desired purpose. Restrain the patient in the supine position or lateral position. No devices such as backboards, splints, or other devices shall be on top of the patient. **NEVER** restrain a patient in the prone position.
- Document attempts to verbally de-escalate or restrain the patient before pharmacological restraint was used.
- Reassess the patient's vital signs every 5 minutes. Constantly monitor the patient's pulse, SpO2 and document all reassessments.
- Be alert for respiratory depression after Lorazepam (Ativan) administration and treat accordingly.
- Make sure there is adequate personnel available before efforts to restrain the combative patient are made.
- Soft restraints such as cravats or rolled bandages can be used for extremity restraints. Sheets may be used to limit pelvic or lower extremity movement. Sheets shall never be used across the patient's chest.
- The restraints should not be limiting to the patient's circulation, or respiratory status.
- All restraints should have the ability to be quickly released. Extremities that are restrained shall have a circulation check at least every 5 minutes. The first of these checks should occur as soon as possible after placement of the restraints. This documentation **MUST** be on the patient care report.
- Only law enforcement personnel can apply handcuffs to a combative patient and must remain with the patient while they are handcuffed. Be sure to contact the receiving hospital with the patient status, as soon as possible.
- Clearly document the reason why any physical restraints or medications were used on a combative patient.
- If the patient experiences a dystonic reaction after the administration Promethazine (Phenergan), administer Diphenhydramine (Benadryl) 1 mg/kg, max of 25 mg IV/IO or IM.
- Signs and symptoms of a dystonic reaction include: eye deviation, difficulty speaking, a "thick" tongue, involuntary twitching and jerking of the extremities, recent use of some anti-psychotic medications, and the use of some anti-emetic medications.

Pediatric Cerebral Shunt (CSF)

Signs and Symptoms:

- unresponsiveness
- weakness
- fever
- headache
- altered mental status
- limited or loss of extremity movement
- numbness of extremities
- confusion

Routine Pediatric Medical Care Protocol (Routine-2)

↓
EMT-B Conduct a numeric (0-10) pain scale assessment
(0 = no pain, 10 = the worst pain ever experienced).

↓
 Place the patient on monitor and continuously monitor the patient's vital signs.

↓
EMT-B Transport and frequently reassess ABCs and mental status.

↓
EMT-B If patient is having a seizure, refer to the
Pediatric Seizure Protocol (Ped-21).

↓
EMT-B If patient is having respiratory distress, refer to the
Pediatric Respiratory Distress Protocol (Ped-19).

↓
Reassess

↓
 Contact Med Command for further assistance, if needed.

Key Points

- Document the patient's initial Glasgow Coma Score.
- The patient's vital signs must be routinely reassessed and the reassessments must be documented on the run report.
- The best source of information about Children with Special Health Care Needs (CSHCN) is the person who cares for the child on a daily basis. Listen to this caregiver and follow their guidance regarding the child's treatment.
- Children with chronic illnesses often have different physical development from well children. Therefore, their baseline vital signs may differ from normal standards. Also, height, weight, and development level may be different from age-based norms. Use of length-based tapes to calculate drug dosages may not be accurate. Ask the caregivers if the child normally has abnormal vital signs (i.e. fast heart rate or low pulse ox).
- A child with special health care needs who has any of the following conditions should be considered unstable:
 - Partially or totally obstructed tracheostomy
 - Respiratory difficulties in ventilator-dependent children
 - Slow heart rate, irregular pulses, or signs of early shock in children with pacemakers
 - Fever, nausea, vomiting, headache, or a change in normal mental status in children with Cerebral Spinal Fluid (CSF) shunts
 - Signs of worsening illness in any child who has a chronic health problem and has taken appropriate home therapy for the problem.
- Make every reasonable effort to transport a pediatric patient with a CSF shunt to their primary care hospital.

Pediatric Diabetic Emergencies

Signs and Symptoms:

Hyperglycemia:

- abdominal pain
- nausea and vomiting
- dehydration
- frequent thirst and urination
- lethargy and coma
- shock
- hyperventilation
- deep and rapid respirations (Kussmaul Respirations)

Hypoglycemia:

- altered LOC/coma
- dizziness
- irritability
- diaphoresis
- convulsions
- hunger
- confusion

Routine Pediatric Medical Care Protocol (Routine-2)


↓
EMT-B Check the patient's BGL.




Hyperglycemia

BGL is greater than 200 mg/dl



 If the patient has a BGL greater than 200 mg/dl and is symptomatic, administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.




 If no response or improvement, initiate a second 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.



Reassess



 **Contact Med Command for further assistance, if needed.**


Hypoglycemia

BGL is less than 40 mg/dl (newborn)
or BGL is less than 60 mg/dl (child)




EMT-B If the patient is hypoglycemic and the patient is symptomatic but is alert and oriented, able to follow commands and has the ability to swallow, consider oral glucose 7.5-12.5 g.



 If the patient has an altered level of consciousness, establish an IV/IO access, and administer Dextrose.

- If the patient is less than 2 months old, administer 5 ml/kg of Dextrose 10% (D10).
- If the patient is 2 months to 2 years old, administer 2 ml/kg of Dextrose 25% (D25).
- If the patient is 2 years old or older, administer 2 ml/kg of Dextrose 50% (D50)

OR

 If there is no IV access, administer Glucagon 0.01 mg/kg IM.



Hypoglycemia - Continued

If the patient did not respond, recheck the BGL. If the patient is still hypoglycemic, administer Dextrose in 10 minutes.

- If the patient is less than 2 months old, administer 5 ml/kg of Dextrose 10% (D10).
- If the patient is 2 months to 2 years old, administer 2 ml/kg of Dextrose 25% (D25).
- If the patient is 2 years old or older, administer 2 ml/kg of Dextrose 50% (D50)

OR



If there is no IV access, and the patient did not respond to the first Glucagon, after 20 minutes administer a second IM dose at 0.01 mg/kg



Reassess



Contact Med Command for further assistance, if needed.

Key Points**Hyperglycemia:**

- Diabetic Ketoacidosis (DKA) is a complication of diabetes mellitus. It can occur when insulin levels become inadequate to meet the metabolic demands of the body for a prolonged amount of time (onset can be within 12-24 hours). Without enough insulin the blood glucose increases and cellular glucose depletes. The body removes excess blood glucose by dumping it into the urine. Pediatric patients in DKA should be treated as hyperglycemic under the Pediatric Diabetic Emergency Protocol.
- Patients can have Hyperglycemia without having DKA.

Hypoglycemia:

- Always suspect Hypoglycemia in patients with an altered mental status.
- If a glucoscan is not available, patients with an altered mental status and signs and symptoms consistent with hypoglycemia should receive Dextrose or Glucagon.
- Dextrose is used to elevate BGL but it will not maintain it. The patient will need to follow up with a meal, if not transported to a hospital.
- If the patient is alert and has the ability to swallow: consider administering oral glucose, have the patient drink orange juice with sugar or a sugar-containing beverage, or have the patient eat a candy bar or a meal.
- Check the patient's BGL after the administration of Dextrose, Glucagon, or after any attempt to raise the patient's BGL.

Miscellaneous:

- If IV access is successful after Glucagon IM and the patient is still symptomatic, Dextrose can be administered.
- Dextrose and Glucagon can only be repeated one time each.

Pediatric Drowning/Near-Drowning

Indications:

Altered level of consciousness, respiratory or cardiac arrest due to submersion emergency.

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B Place patient in supine position and treat ABCs as indicated. Consider the possibility of a c-spine injury in all near-drowning patients. All drowning patients **MUST** be fully immobilized. Perform oropharyngeal suctioning as indicated.



ALS and cardiac monitoring are indicated for the near-drowning patient. **DO NOT** administer any medications to a hypothermic patient.



EMT-B If the patient is hypothermic, refer to Pediatric Hypothermia Protocol (Ped-13) and treat accordingly.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- All hypothermic/near-drowning patients should have resuscitation performed until care is transferred. Withhold resuscitation if there are other signs of obvious death (putrefaction, traumatic injury unsustainable to life, etc).
- Pulmonary edema can develop within 24-48 hours after submersion.
- Patients with low core temperatures may not respond to ALS drug interventions. Maintain warming procedure and supportive care.
- **DO NOT** perform the Heimlich maneuver to remove water from the lungs prior to resuscitation.

Pediatric Fever

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B Remove any extra layers of clothing.



EMT-B If patient is having a seizure, refer to the Pediatric Seizure Protocol (Ped-21).



EMT-B If patient is having respiratory distress, refer to the Pediatric Respiratory Distress Protocol (Ped-19).



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- **DO NOT** use sponges or moist towels to “cool” the patient.
- Treat all seizures the same whether they are febrile or neurologic.
- Suggest transport for all infants less than 8 weeks of age with a reported temperature greater than 100.4° F (38° C) or less than 96° F (35.5° C)
- For pediatric patients, IV attempts should be considered if the patient is presenting with signs and symptoms of dehydration, in need of medications, or in critical condition and is age 5 or older.

Pediatric Hypothermia

Signs and Symptoms:

Mild:

- apathy
- disorientation
- tachycardia
- hypertention
- shivering

Moderate:

- hypotention
- bradycardia
- dysrhythmias
- decreased shivering
- muscle spasms

Severe:


- coma
- dysrhythmias
- asystole
- apnea
- muscle rigidity

Pediatric Trauma Care Protocol (Routine-3)

↓
EMT-B Treat major trauma as the first priority and the hypothermia as the second.


↓
EMT-B Avoid excessive movement and remove wet garments and prevent further heat loss by covering with blankets.

↓
 Place the ECG monitor prior to any invasive interventions.

↓
 **DO NOT** place ETT unless the patient is apneic or has an unstable airway.
Be alert for ventricular fibrillation, if an Intubation is attempted.

↓
 Administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.

↓
 If that patient is in ventricular fibrillation or pulseless ventricular tachycardia, administer **ONE** defibrillation at **Zoll 2J/kg**.

↓
 **DO NOT** administer cardiac drugs to the hypothermic patient until adequately warmed.

↓
Reassess

↓
 Contact Med Command for further assistance, if needed.

Key Points

- All hypothermic patients should have resuscitation performed until care is transferred, or if there are other signs of obvious death (putrefaction, traumatic injury unsustainable to life).
- Patients that appear cold and dead are **NOT** dead until they are warm and dead, particularly true in pediatric drownings.
- Patients with low core temperatures may not respond to ALS drug interventions. Maintain warming procedure and supportive care. Warming procedures includes removing wet clothing, limiting exposure, and covering the patient with warm blankets if available.
- **DO NOT** allow patients with frozen extremities to ambulate.
- Superficial frostbite can be treated by using the patient's own body heat.
- **DO NOT** attempt to aggressively rewarm deep frostbite unless there is an extreme delay in transport, and there is no risk that the affected body part will be refrozen. Contact Med Command prior to aggressively rewarming a deep frostbite injury.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- In Severe Cases: If patient fits requirements for IO refer to the Intraosseous Infusion (Procedure-17).
- If you cannot select the exact joule setting when defibrillating a pediatric patient, select the energy setting closest to the indicated joules and transport to the nearest appropriate facility.
- Mild hypothermia core temperature is 90° F-95° F (32.2° C-35° C), Moderate hypothermia is 82.4° F-90° F (28° C-32.2° C), and Severe hypothermia is below 82.4° F (< 28°C).

Pediatric Major Trauma Triage Criteria


A patient is considered to be a “major trauma” if they fit **ANY** of the following criteria:


Indications:

1. Physiological conditions
 - a. Glasgow coma scale “less than” or equal to 13;
 - b. Loss of consciousness; or amnesia to the event
 - c. Deterioration in level of consciousness at the scene or during transport;
 - d. Failure to localize to pain;
 - e. Evidence of poor perfusion, or evidence of respiratory distress or failure.
 - f. Respiratory difficulty
2. Anatomic conditions
 - a. Penetrating trauma to the head, neck or torso;
 - b. Significant, penetrating trauma to extremities proximal to the knee or elbow
 - c. Injuries to the head, neck, or torso where the following physical findings are present:
 - i. Visible crush injury;
 - ii. Abdominal tenderness, distention, or seat belt sign;
 - iii. Pelvic fracture;
 - iv. Flail chest; or rib fractures (single or multiple)
 - d. Injuries to the extremities where the following physical findings are present:
 - i. Amputations proximal to the wrist or ankle;
 - ii. Visible crush injury;
 - iii. Fractures of two or more proximal long bones;
 - iv. Evidence of neurovascular compromise.
 - e. Signs and symptoms of spinal cord injury; paralysis, numbness, tingling, or weakness
 - f. Second or third degree burns greater than 10 % total body surface area, or other significant burns involving the face, feet, hands, genitalia, or airway.
3. Mechanism of injury.
 - a. Falls from a height greater than 10 feet
 - b. MVA where **ANY** of the following apply:
 - i. Extrication time greater than 20 minutes
 - ii. Impact speed greater than 40 mph
 - iii. Major auto deformity greater than 20 inches
 - iv. Passenger space invaded by one foot or more
 - v. Victim ejected from the vehicle
 - vi. Other passengers died in the accident
 - vii. Rollover
 - c. Auto vs. pedestrian or auto vs. bicycle injury with significant impact speed (greater than 5 mph).
 - d. Motorcycle crash greater than 20 mph or with separation of rider from bike
 - e. Pedestrian thrown or run over
4. Any case in which the EMT/Paramedic judges the injuries or mechanism constitute major trauma.

Pediatric Trauma Care Protocol (Routine-3)

↓
EMT-B If the patient has altered LOC or if there is suspicion for spinal injury, perform c-spine immobilization and support ABCs.

↓
 If the patient airway is unstable or is in respiratory distress, assist ventilations with a BVM and intubate, refer to Endotracheal Intubation Procedure (Procedure-14), if needed.


↓
 If the patient has a tension pneumothorax, perform a chest decompression as indicated. Refer to the Chest Decompression Procedure (Procedure-7).

↓
EMT-B If the patient has a penetrating chest wound, refer to Chest Seal (Procedure-8).


↓
EMT-B If the patient has an impaled object, stabilize the impaled object.

↓
EMT-B If the patient has severe blood loss from traumatic injury and when primary means to stop bleeding has not maintained, refer to the Hemostatic Dressing (Procedure-15)

↓
EMT-B If the patient has severe amputation or severe blood flow, refer to the Arterial Tourniquet (Procedure 3).

↓
 If the patient has poor perfusion secondary to blood loss, administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.

↓
Reassess

↓
 **Contact Med Command for further assistance, if needed.**

Key Points

- A trauma victim is considered to be a pediatric patient if they are 15 years old or younger.
- Major Trauma patients are to be transported to the closest Pediatric Trauma Center (MetroHealth Medical Center or Rainbow, Babies, and Children's Hospital) unless directed/approved otherwise by Med Command, Red Center, Captain/Commander or if the patient has an unstable airway.
- Contact the receiving hospital for all major trauma or critical patients.
- Cover open wounds, burns, and eviscerations.
- With the exception of airway control, initiate ALS enroute when transporting major trauma patients. If ALS (besides airway control) is performed on scene, the reason why must be documented. (for example, a patient trapped in a car.)
- If unable to access patient airway and ventilate, then transport to the **closest** facility for airway stabilization.
- The on scene time for major trauma patients should not exceed 10 minutes without documented, acceptable reason for the delay.
- All major trauma patients should receive oxygen administration, an IV/IO, and cardiac monitoring.
- Provide a documented reason if an intervention could not be performed.
- **DO NOT** use a nasopharyngeal airway when a patient has experienced head or nose trauma and/or you have reason to suspect a skull fracture.
- If patient fits requirements for IO refer to the Intraosseous Infusion (Procedure-17).
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Cover all penetrating chest trauma with a chest seal, and assess chest seal for any leaks.
- **DO NOT** remove any clothing that is adhered to the wound or surrounding skin or tissue.

Pediatric Cervical Spine Immobilization

Indications:

In trauma cases the neck should be immobilized under any of the following circumstances:

- Full immobilization is indicated if the patient complains of any neck pain, pain on palpation, or pain with range of motion. This includes “side” or “lateral” neck pain.
- The patient complains of numbness, tingling, or motor weakness in any extremity.
- Mechanism of injury with other distracting injuries.
- The patient has a head injury, altered mental status, or language barrier, which limits the patient’s ability to describe pain, numbness or weakness.
- The patient has a head injury or altered mental status that limits their ability to describe pain, numbness or weakness.
- Mechanism of injury with patient intoxication.
 - If the assessment suggests a mechanism of injury, which could result in cervical injury in a patient who is intoxicated, cervical immobilization must be provided whether or not the patient is alert and oriented.
 - This does not mean that every grossly intoxicated patient who is unable to provide reliable responses should have cervical immobilization.
 - If the mechanism of injury is such that a neck injury is not a reasonable possibility, cervical immobilization is not indicated.
 - For example, if a call involves a grossly intoxicated person who has an isolated ankle injury after a simple fall.
- Any time the paramedic or EMT judges that cervical immobilization is necessary.

Pediatric Considerations:

Small children (less than 7 years of age) have relatively large heads. Use of standard cervical immobilization and backboards will result in cervical flexion. Use an immobilization method that avoids flexion of the neck. Current approved methods include, but are not limited to;

- Devices which have a recess for the child’s occiput (Pedipak with padding applied).
- Placing the patient into the sniffing position by placing padding under the shoulders and lower back.
- Cervical collars should be used along with any of these modifications, unless there is not an appropriate size c-collar. If a circumstance prevents the use of a c-collar, other approved methods of immobilization include;
 - Manual immobilization
 - Blanket or towel roll immobilization
 - Tape immobilization

Documentation:

Properly document the decision not to provide cervical immobilization. This documentation must include the following information:

- **Subjective:**
 - The patient denies having any neck pain.
 - The patient denies having any extremity weakness or loss of movement.
 - The patient denies having any numbness, tingling or feeling of pins and needles in the extremities.
- **Objective:**
 - The patient is alert and oriented and there is **NO** evidence of intoxication.
 - There is no pain on palpation of the neck.
 - Motor function is intact in all of the extremities.
 - Sensation is intact in all extremities.

Key Points

- Use of a backboard for stabilization injuries other than the neck or to move the patient, does not automatically require cervical immobilization.
- Use of cervical immobilization in adult trauma patients, should always be followed with long board immobilization, including straps.
- Never leave patients alone if they are fully immobilized. Be prepared to turn the long board while maintaining c-spine stabilization if the patient begins to vomit.
- A c-collar by itself does **NOT** adequately immobilize the patient.
- A patient is considered fully immobilized when they are secured on a long backboard with 3 straps, a secured cervical immobilization device (towel rolls, head blocks, etc), and a cervical collar.
- Pediatric major trauma patients should **NOT** be treated under the NOTS SMR guidelines.

Pediatric Narrow Complex Tachycardia

Sign and Symptoms:

- heart palpitations/chest discomfort
- dizziness
- dyspnea
- poor perfusion

Sinus Tachycardia

- heart rate less than 220 in infants
- heart rate less than 180 in children
- variable heart rate
- QRS width less than 0.08 seconds

Narrow Complex Tachycardia

- heart rate greater than 220 in infants
- heart rate greater than 180 in children
- non-variable heart rate
- QRS width less than 0.08 seconds

Routine Pediatric Medical Care Protocol (Routine-2)

Consider other treatable causes of narrow complex tachycardia and treat accordingly (hypoxia, hypovolemia, toxic ingestion).



Perform a 12-Lead EKG.



Determine if the patient is experiencing narrow complex tachycardia.



Sinus Tachycardia

EMT-B Consider the cause of the tachycardia and treat accordingly.

EMT-B Provide supportive care as needed.

Reassess



Stable Narrow Complex Tachycardia

Patient with palpitations, dizziness, mild chest discomfort and/or mild dyspnea, may be considered stable.



If the patient is stable, monitor and provide supplemental oxygen.



Consider vagal maneuver.

Reassess



Unstable Narrow Complex Tachycardia



If the patient is unstable and showing signs of CHF or shock, administer Adenosine 0.1 mg/kg IV/IO (max dose 6 mg) followed by rapid 5-10 ml fluid bolus.

Reassess



If after 2 minutes the rhythm does not convert, administer Adenosine 0.2 mg/kg rapid IV/IO (max dose 12mg) followed by rapid 5-10 ml fluid bolus.

Reassess

ST – Continued**Stable NCT - Continued****Unstable NCT - Continued**

Consider sedation with
Diazepam (Valium)
0.2 mg/kg IV/IO (max 5 mg)

OR

Diazepam 0.5 mg/kg rectal
(max 10 mg)

OR

Lorazepam (Ativan) 0.05 mg/kg
IV/IO/IN
(IV/IO max dose 1 mg)
(IN max dose 2 mg)



If the patient is unstable, administer
synchronize cardioversion.
Reassess after each attempt. Use the joule
settings Zoll 0.5 J/kg, 1.0 J/kg, 2.0 J/kg



After conversion, repeat a 12-Lead EKG.



Reassess



Contact Med Command for further assistance if needed.

Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Possible causes of tachycardia are hypoxia, hypovolemia, fear, and pain. If possible obtain events leading up to SVT.
- Patients with palpitations, dizziness, mild chest discomfort, and dyspnea may be considered stable.
- Examples of vagal maneuvers include bearing down, coughing, or blowing into a syringe.
- **DO NOT** delay cardioversion to gain vascular access for the unstable patient.
- If the patient is stable, **DO NOT** cardiovert.
- Consider applying the Combo patches prior to Adenosine administration.
- Record 3-Lead EKG strips during Adenosine administration.
- Perform a 12-Lead EKG prior to and after Adenosine conversion or cardioversion of SVT.
- Refer to the appropriate protocol, if the patient converts into ventricular fibrillation or pulseless ventricular tachycardia. DEFIBRILLATE the patient at the initial joule setting.
- If you are in the process of Synchronize Cardioverting the patient and he/she goes into ventricular fibrillation or pulseless ventricular tachycardia confirm that PADS is still the selected lead and confirm the **SYNC** Button **IS NOT** selected prior to defibrillation.
- Give a copy of the EKGs and Treatment Summary to the receiving facility upon arrival.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*
- If you cannot select the exact joule setting when synchronize cardioverting a pediatric patient, select the energy setting closest to the indicated joules and transport to the nearest appropriate facility.

Pediatric Newborn Resuscitation

Routine Pediatric Medical Care Protocol (Routine-2)

EMT-B If meconium is present, immediately suction the mouth and then the nose.

EMT-B Dry, warm, position, clear airway, stimulate, and administer oxygen.


Is the patient distressed?
(poor skin perfusion or hypoventilation)

YES

EMT-B If the newborn is not breathing, has poor color, or signs of poor perfusion and has a HR less than 100 bpm, assist ventilations with the BVM and 100% Oxygen, at 40-60 breaths per minute. Continue BVM ventilations until the HR greater than 100 bpm.

EMT-B If the patient still does not gain spontaneous HR greater than 60 bpm after 30 seconds, then continue BVM ventilations and **START** chest compressions at a rate of 100-120 bpm.

EMT-B Check the patient's BGL. If the patient is hypoglycemic, BGL less than 40 mg/dl in newborns, Pediatric Diabetes Emergencies (Ped-10)

 If the HR remains below 60 bpm with signs of poor perfusion continue chest compressions and administer Epinephrine 1:10,000 0.01 mg/kg (0.1 ml/kg) IV/IO every 3-5 minutes until HR improves above 60 bpm or no longer has signs of poor perfusion.
(Epinephrine 1:1000 0.1 mg/kg ETT)

NO

EMT-B If the newborn is breathing or crying, has a HR greater than 100 bpm and is pink in color, then continue to dry, warm, suction, and give supportive care.

EMT-B Complete an APGAR at 1 and 5 minutes.

EMT-B Continue ongoing assessment enroute.

EMT-B If the patient regains a pulse or has adequate perfusion refer to Pediatric Post-Resuscitation Care Protocol (Ped-18)



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- If the patient is in distress, consider causes such as hypovolemia. Administer a 10 ml/kg fluid bolus of normal saline.
- If the BGL less than 40 mg/dl in newborns go to the Pediatric Diabetic Emergencies Protocol (Ped-10).
- Hypothermia is a common complication of home and field deliveries. Keep the baby warm and dry.
- If there is a history of recent maternal narcotic use, consider Naloxone (Narcan) 0.1 mg/kg IV/IO/IM/IN (0.2 mg/kg ETT) every 2 minutes until patient responds.
- **Contact Med Command for approval to administer IN Naloxone (Narcan) to pediatric patients younger than 28 days old.**
- Meconium may need to be suctioned several times to clear airway.
- The Medications that can be administered ETT are: (LEAN) Lidocaine, Epinephrine, Atropine/Albuterol, and Naloxone (Narcan).
- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Use caution not to allow newborns to slip from your grasp.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Routinely reassess the patient after all interventions even if they do not produce any changes.

Pediatric Pain Management

Indications:

For the treatment of acute pain due to an isolated injury, such as an extremity fracture, crush injury, or burns.

Routine Trauma Care Protocol (Routine-3)



EMT-B Conduct a numeric (0-10) pain scale assessment
(0 = no pain, 10 = the worst pain ever experienced).



If the patient is experiencing moderate to severe pain, administer Fentanyl (Sublimaze) 1 mcg/kg IV push over 2 minutes. May repeat in 10 minutes to a max of 2 mcg/kg. The total dose should **NOT** exceed **50 mcg**.

OR

Fentanyl (Sublimaze) 1 mcg/kg IN. May repeat in 10 minutes to a max of 2 mcg/kg. The total dose should **NOT** exceed **50 mcg**.

OR



Administer Morphine 0.05-0.1 mg/kg slow IV push. May repeat in 10 minutes to a max dose of 2 mg.



Contact Med Command for additional doses of Morphine or Fentanyl (Sublimaze)



Reassess



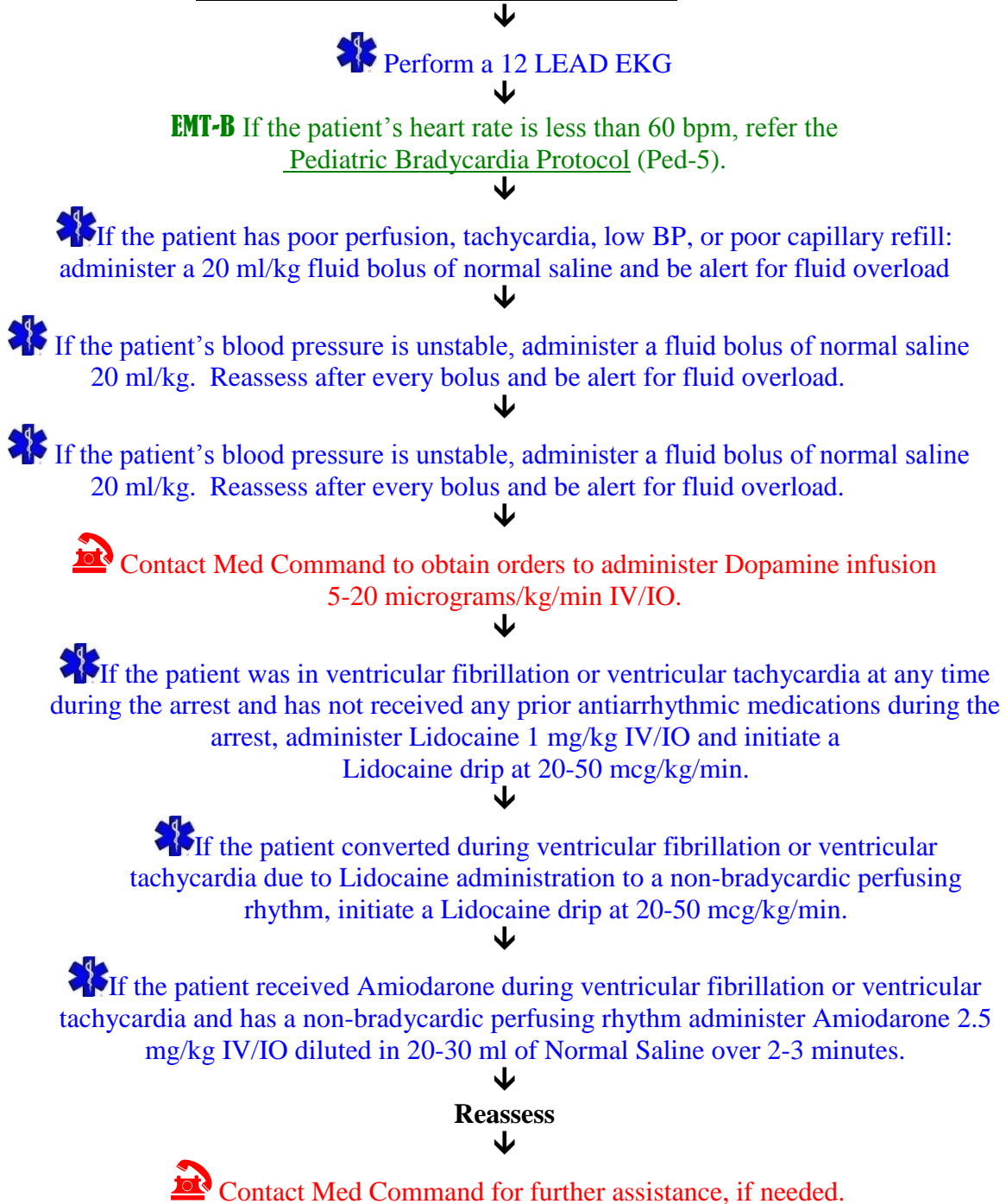
Contact Med Command for further assistance, if needed.

Key Points

- All patients who receive medication for pain must have routine cardiac monitoring and oxygen via nasal cannula. If the patient is suffering from shortness of breath, administer 10-15 L oxygen via non-rebreather.
- Have Naloxone (Narcan) on hand if the patient has respiratory depression or hypotension after Morphine or Fentanyl (Sublimaze) administration. Naloxone (Narcan) 0.1 mg/kg, may repeat every 2 minutes as needed.
- The patient's vital signs must be routinely reassessed. Documentation of routine vital signs assessment is required.
- Med Command authorization is required for doses of Morphine Sulfate exceeding 2 mg and doses of Fentanyl (Sublimaze) exceeding 2 mcg/kg or a total Fentanyl (Sublimaze) dose exceeding 50 mcg.
- Contact Med command for pediatric patients who have suffered significant burns.
- If there is any suspicion for head injury, **DO NOT** administer Morphine or Fentanyl (Sublimaze).

Pediatric Post-Resuscitation Care

Routine Pediatric Medical Care Protocol (Routine-2)



Key Points

- This is the period of time between Return of Spontaneous Circulation – (ROSC) and the transfer of care at the emergency department. The focus is aimed at optimizing oxygenation and perfusion.
- Post resuscitation SVT should initially be left alone, but routinely monitor the patient. Administer fluid boluses as needed, contact Med Command if the patient remains hypotensive after above treatments.
- If the patient is bradycardic, refer to the Pediatric Bradycardia Protocol (Ped-5) and treat accordingly.
- Adequate oxygenation is the key to a good outcome.
- Keep the patient covered while respecting the patient's dignity.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- If patient fits requirements for IO refer to the Intraosseous Infusion (Procedure-17).

Pediatric Respiratory Distress


Signs and symptoms:


- labored breathing
- abnormal respirations
- wheezing
- rales, or rhonci
- stridor
- absent or diminished lung sounds
- deep or shallow respirations
- change in mental status
- grunting
- nasal flaring
- retractions
- accessory muscle use
- cyanosis
- altered LOC/coma
- anxiety
- pallor


Routine Pediatric Medical Care Protocol (Routine-2)


↓
EMT-B If the patient is having an allergic reaction, refer to the Pediatric Allergic Reaction and Anaphylaxis Protocol (Ped-2) and treat accordingly.

↓
EMT-B If the patient is conscious with adequate ventilations, place the patient in a position of comfort and administer high flow oxygen by non-rebreather.

↓
 If the patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max of 3 treatments.

↓
 If the patient continues to be in severe respiratory distress, Administer Epinephrine 1:1000, 0.01 mg/kg IM (max dose 0.5 mg)

↓
 If the patient is not ventilating adequately or is in respiratory arrest, or losing consciousness, assist ventilations with BVM. If indicated, consider securing the patient's airway with an ETT. Refer to the Endotracheal Intubation Procedure (Procedure 14).

↓
 If unable to ventilate, reposition and try again.

↓
Reassess

↓
 **Contact Med Command for further assistance, if needed.**

Key Points

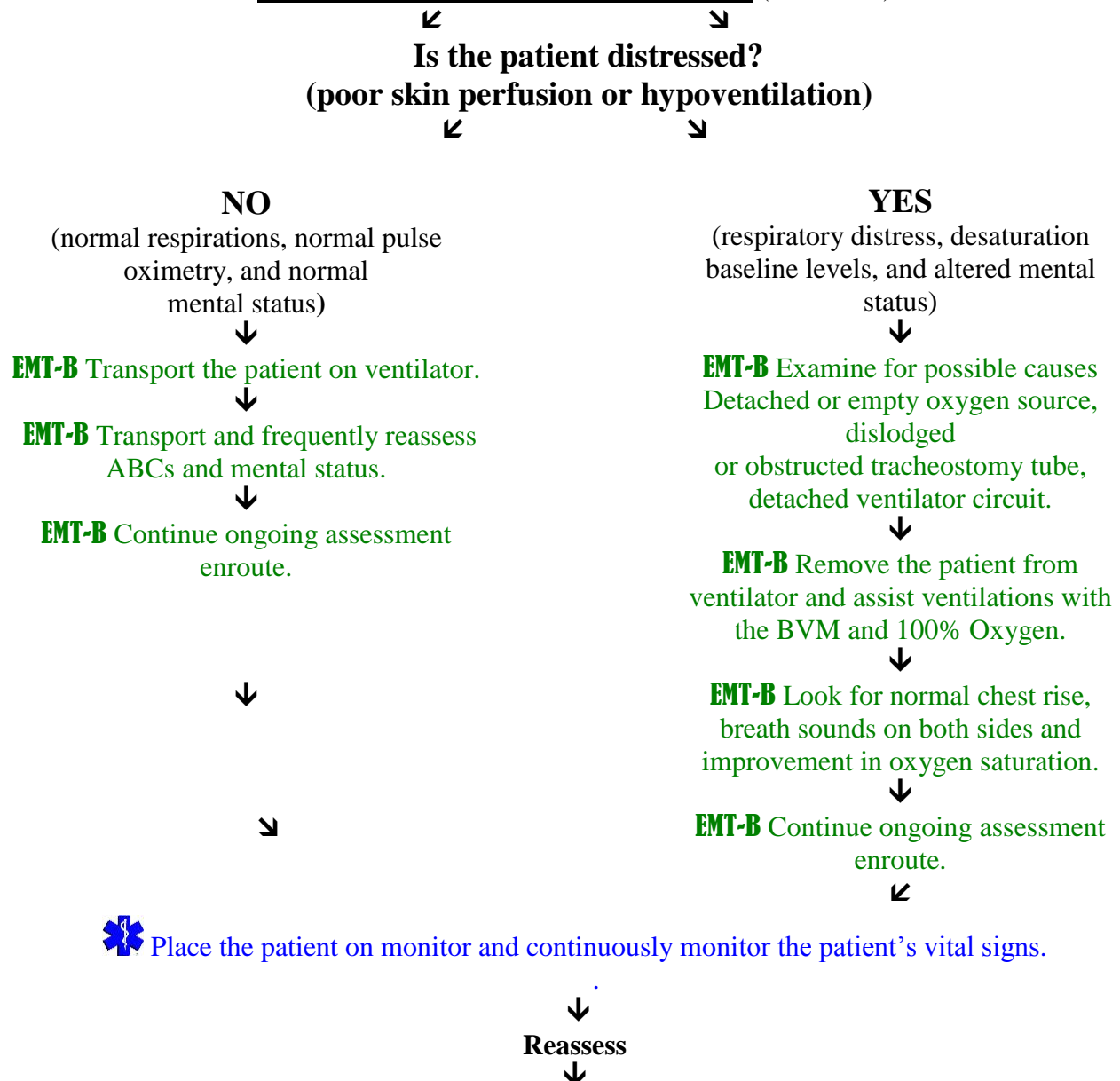
- **DO NOT** attempt an invasive airway procedure unless the patient is in respiratory arrest.
- For some patients in severe respiratory distress, wheezing may not be heard. Consider Albuterol for the known asthmatic in severe respiratory distress.
- If the patient has signs of respiratory failure, begin to assist ventilations with BVM, even when they are breathing.
- If Albuterol is administered monitor the patient's cardiac rhythm and vital signs.
- For pediatric patients, IV attempts should be considered if the patient is presenting with signs and symptoms of dehydration, in need of medications, or in critical condition and is age 5 or older.
- Contact Med Command for patients with a cardiac history.
- Epiglottitis should be considered if the patient has drooling, stridor, and is unable to speak or cry. **DO NOT** attempt invasive procedures on the conscious patient who is suspected to have epiglottitis.
- Albuterol can be administered down the ETT, by doubling the dose.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).*
- IM injection should be delivered in the mid anterior lateral thigh at a 90° angle with the skin flattened. Aspirate prior to administering medication.

Pediatric Respiratory Distress Ventilator

Signs and symptoms:

- cardiac arrest
- abnormal respirations
- absent or diminished lung sounds
- increased respirations
- change in mental status
- retractions
- accessory muscle use
- cyanosis
- altered LOC/coma
- anxiety
- pallor

Routine Pediatric Medical Care Protocol (Routine-2)





Contact Med Command for further assistance, if needed.

Key Points

- Document the patient's initial Glasgow Coma Score.
- The patient's vital sign must be routinely reassessed and the reassessment must be documented on the run report.
- **DO NOT** attempt an invasive airway procedure unless the patient is in respiratory arrest.
- If the patient has signs of respiratory failure, begin to assist ventilations with BVM, even when they are breathing.
- For pediatric patients, IV attempts should be considered if the patient is presenting with signs and symptoms of dehydration, in need of medications, or in critical condition and is age 5 or older.
- Look at the ventilator and determine alarm code (i.e. apnea, low respiratory rate, low minute ventilation, high pressure, etc.)
- Transport the patient to the appropriate medical facility. Bring the ventilator to the hospital if possible so the hospital can troubleshoot the issue.
- Assess the patient's breathing, including rate, auscultation, effort, and adequacy of ventilation as indicated by chest rise. Assess for signs of respiratory distress, failure, or arrest. Continue to monitor pulse oximetry reading.
- Monitor patient for abdominal distention.

Ventilator Troubleshooting

<i>Alarm</i>	<i>Possible Causes</i>	<i>Interventions</i>
Low pressure/apnea	Loose or disconnected circuit Leak in circuit Leak around tracheostomy site	Ensure all circuits are connected Check tracheostomy balloon Ensure tracheostomy well seated
Low power	Internal battery depleted	Plugged or obstructed airway
High Pressure	Plugged or obstructed airway	Clear obstruction Suction tracheostomy
	Coughing/bronchospasm	Administer Albuterol
Setting Error	Setting incorrectly adjusted	Manually ventilate patient Transport ventilator and patient
Power Switchover	Unit switched from AC to internal battery	Press "alarm silent" button after ensuring battery is powering ventilator

Pediatric Seizure

Signs and Symptoms:


- actively seizing
- recent seizure activity
- appears to be postictal

Routine Pediatric Medical Care Protocol (Routine-2)




EMT-B If the patient is seizing, maintain their airway, and consider c-spine precautions.
Move any objects that may harm the patient.





 Check patient's BGL, (BGL is less than 40 mg/dl in newborns or BGL is less than 60 mg/dl in children.) If the patient is hypoglycemic, refer to the Pediatric Diabetic Emergencies Protocol (Ped-10).





 If the patient is seizing administer
Lorazepam (Ativan) 0.1 mg/kg IM (individual max dose of 2 mg) **OR**
Lorazepam (Ativan) 0.1 mg/kg IN (individual max dose of 4 mg)
(If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period)



 Diazepam (Valium) 0.2 mg/kg slow IV/IO (max dose of 5 mg)
OR
 Administer Lorazepam (Ativan) 0.1 mg/kg slow IV/IO push over 2-5 minutes
(individual max dose of 2 mg)
(If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period)




 Diazepam (Valium) 0.5 mg/kg rectally (max rectal dose 10 mg) with a lubed syringe
OR

 Administer Lorazepam (Ativan) 0.2 mg/kg rectally with a lubed syringe.
(If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period)



EMT-B If the patient is no longer seizing or is able to regain consciousness between seizures, administer supportive care and transport.



 If the patient has poor perfusion, tachycardia, low BP or poor capillary refill, administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.



**Reassess****Contact Med Command for further assistance, if needed.**

Key Points

- Be alert for foreign objects in the mouth.
- There are many causes for seizures including: epilepsy, head trauma, tumor, overdose, infection, hypoglycemia, and withdrawal. Be sure to consider these when doing your assessment.
- Febrile seizures should be treated the same way other seizures are treated.
- Fully immobilize the patient if there is a possibility of trauma prior to or during seizure.
- Continuously monitor the airway. Assist ventilations with a BVM or endotracheal intubation, if indicated.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Be alert for respiratory depression after Diazepam (Valium) or Lorazepam (Ativan) administration and treat accordingly.
- **DO NOT** administer Diazepam IM to pediatric patients.
- Diazepam (Valium) or Lorazepam (Ativan) may be administered before checking the patient's BGL, if they have a known seizure history and no history of diabetes.
- If the patient is hypoglycemic and actively seizing and an IV is established, treat the patient's low BGL, before administering Diazepam (Valium) or Lorazepam (Ativan).
- If the patient is hypoglycemic and actively seizing and an IV is **NOT** established, administer Lorazepam (Ativan) IM/IN until an IV can be established.
- If an IV is not established and the patient is actively seizing administer Lorazepam (Ativan) IM/IN until an IV is established.
- If an IV is established and the patient is actively seizing Lorazepam (Ativan) IV is the preferred route of administration.

Pediatric Shock


Signs and Symptoms:


- altered LOC/coma
- weak peripheral pulses
- pale skin
- cool clammy skin
- dehydration
- dry mouth
- no tears
- diarrhea
- hemorrhage
- sunken fontanel
- sunken eyes
- poor skin turgor
- vomiting
- tachycardia

Routine Medical or Trauma Care Protocol (Routine-2 or 3)


↓
EMT-B If the patient has severe blood loss from traumatic injury and when primary means to stop bleeding has not maintained, refer to the Hemostatic Dressing (Procedure-15)

↓
EMT-B If the patient has severe amputation or severe blood flow, refer to the Arterial Tourniquet (Procedure-3).

↓
 If the patient is in shock, administer a 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.

↓
 If no response or improvement, initiate a second 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.

↓
EMT-B If the patient is not responding to fluid replacement, consider other causes and treat accordingly.

↓
 Contact Med Command to obtain orders to administer Dopamine infusion 5-20 micrograms/kg/min IV/IO.

↓
Reassess

↓
 Contact Med Command for further assistance, if needed.

Key Points

- Be sure to use the appropriate sized BP cuff.
- Findings in the primary assessment should alert you that the patient is in shock. Pay particular attention to the patient's mental status, tachycardia, skin color, and capillary refill.
- Place the patient in the Trendelenburg position and assess after 20 ml/kg normal saline bolus.
- If patient fits requirements for IO refer to the Intraosseous Infusion (Procedure-17).

Sickle Cell Crisis

Sign and Symptoms:

- severe abdominal pain
- enlarged abdomen
- fatigue
- weakness
- fever
- headache
- dactylitis (swelling of hands and feet)
- altered mental status
- limited or loss of extremity movement
- numbness of extremities
- pain to the extremities
- painful joints
- chest pain
- dyspnea

Routine Pediatric Medical Care Protocol (Routine-2)



Perform a 12-Lead EKG, if possible, and continuously monitor the patient's cardiac rhythm.

EMT-B Administer high-flow oxygen at 15 lpm via a non-rebreather if the crisis started less than 12 hours ago. If the crisis started over 12 hours ago or the patient will not tolerate a non-rebreather, administer oxygen at 4 lpm via nasal cannula.



Administer IV(s) of normal saline, 20 ml/kg fluid bolus of normal saline and be alert for fluid overload.



If the patient is experiencing moderate to severe pain, administer Fentanyl (Sublimaze) 1 mcg/kg IV push over 2 minutes. May repeat in 10 minutes to a max of 2 mcg/kg. The total dose should **NOT** exceed **50 mcg**.

OR

Fentanyl (Sublimaze) 1 mcg/kg IN. May repeat in 10 minutes to a max of 2 mcg/kg. The total dose should **NOT** exceed **50 mcg**.

OR



Administer Morphine 0.05-0.1 mg/kg slow IV push. May repeat in 10 minutes to a max dose of 2 mg.

Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Sickle cell anemia is a disease in which your body produces abnormal red blood cells that are crescent or sickle shaped. The abnormal shaped red blood cells lead to anemia, because they don't last as long as normal red blood cells. The abnormal shaped red blood cells get stuck in blood vessels which blocks blood flow. This can cause pain and organ damage.
- Sickle cell anemia usually affects people of African ancestry, but may affect people of Mediterranean and Middle Eastern descent.
- A Sickle Cell Crisis may occur for no apparent reason or maybe caused by dehydration, infection, stress, and trauma. It may also be caused by exposure to extreme temperatures, hypoxia, or strenuous exercise.
- A sickle cell crisis can last for hours or even days.
- Chest pain and/or dyspnea in a sickle cell anemia patient can be a fatal condition called Acute Chest Syndrome. Acute Chest Syndrome is one of the most common causes of death for a sickle cell anemia patient and is a vaso-occlusive crisis of the pulmonary vasculature.
- Oxygen administration will help oxygenate normal red blood cells and reduces sickling.
- All patients who receive medication for pain must have routine cardiac monitoring and oxygen via nasal cannula. If the patient is suffering from shortness of breath, administer 10-15 L oxygen via non-rebreather.
- Administer oxygen via nasal cannula at 4 lpm if the patient will not tolerate a non-rebreather.
- Have Naloxone (Narcan) 0.1 mg/kg (may repeat every 2 minutes as needed) on hand if the patient has respiratory depression or hypotension after Morphine or Fentanyl (Sublimaze) administration.
- Med Command authorization is required for doses of Morphine Sulfate exceeding 2 mg and doses of Fentanyl (Sublimaze) exceeding 2 mcg/kg or a total Fentanyl (Sublimaze) dose exceeding 50 mcg.
- The patient's vital signs must be routinely reassessed and the reassessments must be documented on the run report.

Pediatric Suspected Maltreatment

Routine Medical or Trauma Care Protocol (Routine-2 or 3)



EMT-B Transport the patient to an appropriate hospital if the parents allow EMS to transport and advise them to accompany the child. **AVOID ACCUSATIONS** as this may delay transport or create an unsafe scene.



EMT-B Discreetly contact a RED Center Captain/Commander if it is suspected that the child is in immediate danger, and the parent(s) do not agree to transport. The RED Center Captain/Commander will notify CPD and a Field Captain/Commander to assist.



EMT-B Follow up with the RED Center Captain from the hospital.



EMT-B Carefully document findings and report your concerns to the physicians or nurses at the hospital. EMS providers are responsible to report or assure that actual or suspected child abuse/neglect is reported to the local law enforcement agency.

OR

The Cuyahoga County Department of Children and Family Services (**696-KIDS**).



Contact Med Command for further assistance, if needed.

Key Points

Red Flags:

The presence of a red flag does not necessarily mean maltreatment. The suspicion of maltreatment is also based upon the EMS provider's observations and assessment.

Signs that parents may display may include (not all inclusive):

- parent apathy
- parent over reaction
- a story that changes or that is different when told by two different "witnesses"
- story does not match the injury
- injuries not appropriate for child's age
- unexplained injuries

Signs that the child may display may include (not all inclusive):

- pattern burns (donuts, stocking, glove, etc.)
- multiple bruises in various stages of healing
- not age appropriate when approached by strangers
- not age appropriate when approached by parent
- blood in undergarments

Pediatric Toxic Ingestion or Exposure

Signs and Symptoms:

- altered LOC/coma
- lethargy
- abnormal pupil size
- abnormal respirations
- abnormal lung sounds
- nausea
- emesis
- cardiac dysrhythmias
- tachycardia
- bradycardia

Routine Pediatric Medical Care Protocol (Routine-2)



EMT-B If the patient is hypoglycemic, BGL is less than 40 mg/dl in newborns or BGL is less than 60 mg/dl in children refer to the Pediatric Diabetic Emergencies Protocol (Ped-10).



EMT-B If the patient has altered mental status, refer to the Pediatric Coma/Altered Mental Status Protocol (Ped-8) and treat accordingly.



EMT-B If the patient has known or suspected narcotic ingestion, administer Naloxone (Narcan) 0.1 mg/kg IN, may repeat **ONE** time in 2 minutes.

OR



If the patient has known or suspected narcotic ingestion, administer Naloxone (Narcan) 0.1 mg/kg IV/IO/IN or 0.2 mg/kg ETT.



If the patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase, and/or diminished breath sounds), administer Albuterol 2.5 mg in 3 ml unit dose nebulizer. Albuterol can be repeated every 10 minutes to a max of 3 treatments.



EMT-B If the patient has known or suspected exposure to Nerve Agents or organophosphates, refer to the Duo Dote (Procedure-10)



If the patient is symptomatic from a tricyclic overdose, administer Sodium Bicarbonate 1 mEq/kg (dilute solution 1:1 with Normal Saline). Administer 20 ml/kg or Normal Saline and be alert for fluid overload.



If the patient is hypotensive and does not respond to IV fluid resuscitation, administer Dopamine 5-20 micrograms/kg/min IV titrated to effect.



Reassess



Contact Med Command for further assistance, if needed.

Key Points

- Scene safety is the number one priority.
- Protect the patient airway and support ABCs.
- Document the patient's initial Glasgow Coma Score.
- Determine what the patient was exposed to, how much, and when.
- Be sure to find out what interventions were administered prior to EMS arrival and document them.
- If it is safe, transport the overdose medication or substance with the patient to the receiving facility.
- If possible, bring a substance's MSDS sheets with you to the hospital.
- If the patient ingested bleach, monitor the airway and remove contaminated clothing.
- Med Command may order antidotes for specific ingestions.
- **DO NOT** use syrup of ipecac.
- If applicable, **DO NOT** transport a patient to the hospital until properly decontaminated.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdrawal, which includes vomiting, agitation, and/or combative behavior. Always be prepared for combative behavior.
- Naloxone (Narcan) may wear off in as little as 20 minutes causing the patient to become more sedated and possibly increased dyspnea. All pediatric patients receiving Naloxone (Narcan) **MUST** be transported.
- Double the dose of Naloxone (Narcan) if it is administered via ETT.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible, and follow their instructions.
- The patient and/or crew must be decontaminated prior to transport. **DO NOT** transport a contaminated patient to a treatment facility.
- If exposed to nerve agents or organophosphates symptoms may include:
 - **Mild** symptoms include: muscle twitching and diaphoresis.
 - **Moderate** symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching.
 - **Severe** symptoms include: unconsciousness, seizures, flaccidity, and apnea.
- **SLUDGEM**: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Muscle twitching.
- Contact Med Command for all patients under the age of 1 month who are experiencing a seizure related to nerve agent exposure.
- A Duo Dote includes 600 mg Pralidoxime (2-PAM Cl) and 2 mg Atropine in one pre-filled auto-injector. Should be used on the mid anterior lateral thigh.
- **Nerve Agents** include, but are not limited to, Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR.
- **Organophosphate** chemicals are found in many pesticides and bug sprays, chemicals include, but are not limited to: azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithroton, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.
- **Tricyclic Anti-depressants** include (but not limited to): Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, and Trimipramine.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.

Pediatric Ventricular Fibrillation and Pulseless Ventricular Tachycardia

Important Notes:

- Perform immediate defibrillation if:
 - Witness down time less than 4 minutes with or without CPR, or
 - Adequate CPR performed for 2 minutes prior to defibrillation.
- Otherwise, perform 2 minutes of CPR prior to attempting defibrillation.
- Perform 2 minutes of CPR between all defibrillation attempts.

Routine Pediatric Medical Care Protocol (Routine-2)

EMT-B In order to properly treat the patient, reference both the defibrillation and Medication Administration columns at the same time.



Administer defibrillations and medication administrations as they are indicated.

Defibrillations

EMT-B Perform CPR for 2 minutes.



Defibrillate at Zoll 2 J/kg

EMT-B Perform CPR for 2 minutes.



Defibrillate at Zoll 2 J/kg

EMT-B Perform CPR for 2 minutes.



Defibrillate at Zoll 2 J/kg

EMT-B Perform CPR for 2 minute between all defibrillations.



If the patient continues to be in ventricular fibrillation or pulseless ventricular tachycardia, defibrillate at Zoll 2 J/kg every 2 minutes.

Medication Administrations



Administer Epinephrine 1:10,000, 0.01 mg/kg IV/IO (0.1 ml/kg) every 3-5 minutes (Epinephrine 1:1000, 0.1 mg/kg ETT)



Administer Lidocaine 1.0 mg/kg IV/IO (double the dose for ETT). If the patient does not convert, administer Lidocaine 0.5 mg/kg (double the dose for ETT) once in 10-15 minutes to a max of 3 mg/kg.

If the patient converts to a non-bradycardic perfusing rhythm,

administer a Lidocaine drip 20-50 micrograms/kg/min

OR

Amiodarone 5 mg/kg IV/IO diluted in 20-30 ml of Normal Saline administer bolus over 2-3 minutes. If needed repeat every 5 minutes (max dose of 15 mg/kg/day).

If the rhythm converts to a non-bradycardic perfusing rhythm, administer Amiodarone bolus 2.5 mg/kg IV/IO diluted in 20-30 ml of Normal Saline administer bolus over 2-3 minutes.



If there has been a prolonged down time or known/suspected tricyclic antidepressant overdose, consider Sodium Bicarbonate

1 mEq/kg IV/IO.

(dilute solution 1:1 with Normal Saline)

Defibrillations –Continued**Reassess**

Contact Med Command for further assistance, if needed.

Medication Administrations –Continued**Reassess**

Contact Med Command for further assistance, if needed.

Key Points

- If the patient converts to another rhythm, follow the appropriate protocol and treat accordingly.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia after being converted to **ANY** other rhythm, defibrillate at the previous joule setting used.
- Defibrillation is the definitive therapy for ventricular fibrillation and pulseless ventricular tachycardia.
- The IV /IO route of medication administration is preferred over the ETT route.
- Administer Dextrose only if the patient has a BGL less than 60 mg/dl in children or 40 mg/dl in newborns.
- Dextrose should be administered as soon as hypoglycemia is determined.
- The medications that can be administered ETT are: (LEAN) **L**idocaine, **E**pinephrine, **A**tropine/**A**lbuterol, **N**aloxone (Narcan).
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters. Refer to the End Tidal CO2 (EtCO2) (Procedure-12).*
- Down time is the amount of time that the patient was in cardiac arrest.
- Sodium Bicarbonate is only used for tricyclic antidepressant overdoses, hyperkalemia, and for a prolonged down time (15-20 minutes). The reason for its use must be documented.
- Routinely reassess the patient after all interventions even if they do not produce any changes.
- If you cannot select the exact joule setting when defibrillating a pediatric patient, select the energy setting closest to the indicated joules and transport to the nearest appropriate facility.

Pediatric Wide Complex Tachycardia

Signs and Symptoms:

- wide complex tachycardia
- poor perfusion
- shock
- altered LOC/coma
- hypotension
- short of breath/dyspnea
- rales/wheezing/rhonchi

Routine Pediatric Medical Care Protocol (Routine-2)

Without a pulse

EMT-B Follow the Pediatric Pulseless V-Fib/V-Tach Protocol (Ped-26), as indicated.

With a pulse


EMT-B Consider other causes and treat accordingly.


 If possible, perform a 12 LEAD EKG

←UNSTABLE→

YES

Unstable Wide Complex Tachycardia

 If the patient HR greater than 150 bpm, consider synchronized cardioversion.


 Consider sedation with Diazepam (Valium) 0.2 mg/kg IV/IO (max 5 mg)

OR

Diazepam 0.5 mg/kg rectal (max 10 mg)

OR

Lorazepam (Ativan) 0.05 mg/kg IV/IO/IN
(IV/IO max dose 1 mg)
(IN max dose 2 mg)

 If the patient is unstable, perform synchronize cardioversion.

Reassess after each attempt. Use the joule settings Zoll 0.5 J/kg, 1.0 J/kg, 2.0 J/kg

NO


Stable Wide Complex Tachycardia

Patients with palpitations, dizziness, mild chest discomfort and/or mild dyspnea, may be considered stable.

EMT-B If the patient is stable, monitor and provide oxygen.


EMT-B Consider other causes and treat accordingly.

Unstable WCT- Continued


↓
 If the patient does not convert and continues to be unstable, administer Lidocaine 1 mg/kg IV/IO.

OR

Amiodarone 5 mg/kg (max dose of 150 mg) IV/IO diluted in 100 ml of D5W administered over 20-60 minutes.

↓
 If the rhythm does not convert after 10-15 minutes, and Lidocaine was used, administer Lidocaine 0.5 mg/kg IV/IO.

↓
 Contact Med Command for further Lidocaine or Amiodarone orders.

↓
 Perform a 12 Lead EKG.

↓
Reassess

↓
 Contact Med Command for further assistance, if needed.

Stable WCT- Continued



Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- Consider applying the Combo patches prior to Lidocaine or Amiodarone administration.
- **DO NOT** delay cardioversion to gain vascular access for the patient.
- If the patient relapses back into wide complex tachycardia/ventricular tachycardia, initiate synchronized cardioversion with the joule setting that previously cardioverted the patient.
- Always consider the reversible causes of wide complex tachycardia, like hyperthermia, hyper/hypo-kalemia, or toxic ingestion or exposure.
- Record 3-Lead EKG strips during Lidocaine or Amiodarone administration.
- Perform a 12-Lead EKG prior to and after Lidocaine conversion, Amiodarone conversion or cardioversion of wide complex tachycardia/ventricular tachycardia.
- Perform a Treatment Summary and attach it to the patient run report.
- *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*
- Be sure to treat the patient and not the monitor.
- Routinely reassess the patient after all interventions even if they do not produce any changes.
- If you cannot select the exact joule setting when synchronize cardioverting a pediatric patient, select the energy setting closest to the indicated joules and transport to the nearest appropriate facility.

Non-Transport Section

Do Not Resuscitate (DNR)

Indications:

Determine when to withhold or terminate resuscitative efforts when otherwise indicated for patients in respiratory or cardiac arrest.

Contraindications:

When the decision to withhold resuscitative efforts causes an unsafe scene for healthcare providers on scene.

Procedure:

1. Consider the following:
 - a. A written Do Not Resuscitation Order or order which otherwise limits or restricts resuscitation and/or treatment measures which is signed by a physician should be honored.
 - i. The order must be dated. If there are multiple different orders, the most current DNR Order should be utilized.
 - ii. The order may be on any kind of paper and does not have to be on letterhead or some other specific kind of paper. A written physician order contained in nursing home documentation is sufficient.
 - iii. The Do Not Resuscitate Order must be on hand. The word of family members, nursing home personnel or others in attendance is insufficient.
 - b. Physician Orders to withhold or limit resuscitation measures when taken over the phone or radio should be honored.
 - i. EMT must verify with the physician, who the patient is, and their condition indicating resuscitation.
 - ii. The EMT needs to verbally verify the existence of the physician's relationship with the patient (asking the physician on the phone or radio if they are the patient's physician is sufficient).
 - iii. The physician giving patient orders does not need to be a Med Command physician.
 - c. The presence of a Living Will or Durable Power of Attorney for Health Care should suggest the patient wishes regarding resuscitative measures.
 - i. Living Will should suggest the patient has specifications regarding resuscitation measures. The patient Living Will should be honored unless there are other circumstances clearly justifying proceeding with or terminating resuscitation measures.
 - ii. Durable Power of Attorney for Health Care, when presented, specifies the resuscitation wishes of the patient, and should be honored.

- d. History of chronic or terminal illness.
 - i. Many patients with severe chronic illnesses or terminal illnesses will benefit from comfort care, which falls short of resuscitation.
 - ii. Comfort care should never be withheld from patient for who a decision to withhold aggressive resuscitation measures has been made.
- e. Wishes expressed by family members present.
 - i. Family members statements regarding patient wishes are not sufficient to justify a decision to withhold resuscitation measures. For example, if the patient is not elderly and has no history of chronic illness, family statements regarding patient wishes should not weigh heavily.
 - ii. Contact Med Command, if the family members state the patient would not want “heroic measures” and no formal DNR, Living Will, or Durable Power of Attorney for Health Care exists. Continue BLS care while contacting Med Command.

Key Points

- The initiation of cardiac monitoring for assessment does not mean resuscitative measures have been initiated.
- Whenever resuscitation is futile, refer to the Field Pronouncement Procedure (Non-Transport-2).
- Carefully document the existence physician orders, DNR paperwork on the patient run sheet. If paperwork is presented, provide it to the law enforcement officers when they arrive on scene.
- If the medic goes against the wishes of any paperwork or family desires, the EMT must clearly document the reasons on the patient run report.
- If there are any conflicts or special circumstances, contact Med Command or a RED Center Captain/Commander for assistance.
- Whenever a patient who has limited or withheld resuscitation measures due to special DNR paperwork or physician orders, provide all information and available documents for the receiving facility.
- NOT all Hospice patients have a DNR order. Hospice Services may be providing palliative care for the patient during treatment or until the patient passes. Orders from the Hospice Services can only be made by the patient’s physician.

Definitions

- **DNR (Do Not Resuscitate):** Any legal document, signed by a physician that indicates to medical personnel which, if any, life sustaining measures should be taken when the patient's heart and respiratory functions have ceased.
- **Living Will:** A legal document that allows a person to specify the kinds of medical treatment he wishes to receive should the need arise.
- **Advanced Directives:** A document created to ensure that certain treatment choices are honored when a patient is unconscious or otherwise unable to express his choice of treatment.
- **Durable Power of Attorney:** It is a document, signed by a competent adult (the principal), designating a person that the principal trusts to make health care decisions on the principal's behalf should the principal be unable to make such decisions. The individual chosen to act on the principal's behalf is referred to as an agent.
- **Comfort Care:** Medical care intended to provide relief from pain and discomfort, such as pain management medications and supplemental oxygen.
- **Comfort Care Arrest – (DNR Comfort Care –Arrest) (DNRCC-Arrest):** They permit the use of life saving measures (medications, etc) before a person's heart or breathing stops, however, only comfort care can be provided after a person's heart or breathing stops.

Field Pronouncement Procedure

Indications (Field Pronouncement):

Field pronouncement should be considered if **ALL** of the following criteria are met:

- A traumatic cardiac arrest with a confirmed down time of greater than 20 minutes.
- A medical cardiac arrest patient who does NOT have a **Return of Spontaneous Circulation – (ROSC)** after at least 20 minutes of appropriate ALS treatment after EMS arrival.

Contraindications (Field Pronouncement):

- Patient under the age of 18.
- Victims of lightning strikes or electrocution.
- Victims of overdoses.
- Victims of cardiac arrest with known reversible causes.
- Drowning victims submerged less than 60 minutes and hypothermic.
- Hypothermic patients unless there are signs of obvious death and they are in asystole.
- Patient in ventricular fibrillation, pulseless ventricular tachycardia or PEA.
- Situations in which performing field pronouncement may place the EMS team in jeopardy.

Field Resuscitation Exclusions:

Field resuscitation of ALL pediatric and adult cardiac arrest patients should be withheld in any of the following circumstances:

- Signs of obvious death (rigor mortis, lividity) with confirmation of Asystole in 2 leads.
- Decomposition.
- Injuries incompatible with life (decapitation, incineration, pulseless/apneic patients with massive multi-system trauma, etc).
- Valid DNR or advanced directive.

Procedure

- 1) Assign a team member to counsel the family throughout the course of resuscitation and keep them informed of the patient's status.
- 2) If it appears likely that resuscitative efforts will not be successful, contact the RED center and request the police response.
- 3) If there is a delay of greater than 30 minutes for the police to arrive on scene, contact the RED Center Captain/Commander and discuss other options.
- 4) Contact the RED Center Captain/Commander if any of the team members feels like they would benefit from a CISM consultation.

Key Points

- Appropriate ALS care includes CPR, definitive airway management (ETT or King LT-SD), successful IV/IO initiation, and a minimum of 2 rounds of medication administration. If these cannot be accomplished in the field, then transport to the closest appropriate facility.
- Trauma arrest patients should be quickly transported to an appropriate receiving facility if their confirmed down time was less than 20 minutes. Resuscitative efforts on scene should be limited to airway control, CPR, and packaging. Further interventions and consideration of field pronouncement should only be considered if there is a significant delay on scene.
- Paramedics should not pronounce en-route.
- Pregnant patients estimated to be 20 weeks or later in gestation should have standard resuscitation initiated and be rapidly transported to a facility capable of providing an emergent c-section. Paramedics **CANNOT** perform a c-section even with Med Command permission.
- If the patient is pronounced on scene, leave the definitive airway (ETT or King LT-SD), IV/IO, and other interventions in place.
- Transport the patient immediately and continue resuscitative efforts en-route if your safety is in jeopardy.

Non-Transport Protocol

It is the general policy of the Division of Emergency Medical Service that **ALL** patients be transported to a medical facility. However, appropriate patients have the right to refuse transport. The purpose of this protocol is to guide the EMT/Paramedic through situations where an emergency run may result in a non-transport.

General Principles

1. In cases of refusal, authorization shall be obtained through consultation with a Captain/Commander, unless a specific exemption exists.
 - a. Specific exemptions that do not require consultation with a Captain/Commander are as follows.
 - i. False Call
 - ii. Gone On Arrival (GOA)
 - iii. Dead On Arrival (DOA)
 - iv. Unable To Locate (UTL)
 - v. Standby, where no patient contact occurs.
 - vi. EMS Back-up Unit, where no individual patient contact occurs.
 - vii. Cancelled by RED Center
2. The patient's wishes shall be honored whenever appropriate. The following patients may refuse transport.
 - a. A patient who is eighteen (18) or older, competent, alert and oriented to person, place and time.
 - b. Legal representative such as: parent of minor children, legally appointed guardians of wards, or attorney-in-fact named in a Durable Power of Attorney for Health Care.
 - c. Emancipated minors
 - i. Married; age less than eighteen (18).
 - ii. Patient age less than eighteen (18) who are living away from parent and self-supporting.
 - d. All patients or legal representatives who meet the other determinates and are fully informed of the possible consequences of the refusal of medical transport and definitive care.
3. The following patients **MAY NOT** refuse transport, and paramedics must confer with a Captain/Commander for approval:
 - a. Patients who are not oriented or competent and in need of care. Care shall be taken to ensure signs and symptoms of impairment are not a result of an underlying medical condition.
 - b. Parent(s) of minor children or legal guardian may not refuse if withholding such treatment would constitute abuse.
 - c. Parent(s) of minor children or legal guardian who is intoxicated, whether from drugs or alcohol.
4. The provision of lifesaving medical treatment shall never be delayed in order to determine whether refusal of treatment is legally effective.
5. Special caution shall be used when making transport or non-transport decisions involving the following conditions:
 - a. Intoxicated patient, whether from drug or alcohol.
 - b. Head injury patient.
 - c. Any patient with conditions that may affect cognitive ability.

Key Points

- Approval of non-transport shall be obtained following a consultation from a Captain/Commander. As situations warrant, Captains/Commanders may contact Med Command to assist with convincing the patient to seek medical care. Med Command **SHALL NOT** be contacted for approval in non-transport situations.
- Individual units are **NOT** to contact Med Command for approval for any non-transport situations. Med Command is to be contacted for medical advice pertaining to patient condition.
- Med Command communications shall be reserved for the following situations:
 - Medical direction
 - Obtaining treatment orders
 - Patient reporting
 - Medical advice situations that recommend the patient speak directly with a Med Command Physician.

Non –Transport Dispositions

1. EMS runs resulting in the non-transport of a patient/victim shall be divided into (2) two categories:
 - a. **Non-Transport Approval Not Required** (Standing Order)
 - b. **Non-Transport Approval Required**
 - i. Requires consultation with on-scene Field Captain/Commander; or
 - ii. Requires consultation with RED Center Captain/Commander; or
 - iii. Requires consultation with Field Captain/Commander.
2. Documentation of Approved Non-Transports must be detailed and descriptive.
 - a. Include all observations that support the non-transport decision and exempt the EMT/Paramedic from having to consult with a Captain/Commander for approval.
 - i. Observations must include the fact there were no patients/victims in need of medical treatment or transport.
 - b. The EMT/Paramedic must document all findings or lack of and any pertinent information that will create a picture of the event or scene to the reviewer.

Non-Transport Approval Not Required

Non-transport is approved without contacting a Captain/Commander in the following dispositions. Completion of the Refusal Information Form is not required in the following dispositions.

FALSE CALL	A run from a caller other than the supposed patient calls and the conditions do not exist. Example: A call comes in from a payphone that a man has been shot. The ambulance arrives to find nothing.
FC	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> ▪ Complete run documentation. ▪ Include all pertinent information and statements of the supposed patient(s) on scene that led to the conclusion this is a false call.
UNABLE TO LOCATE	After reasonable attempt to locate a patient or scene, the EMT/Paramedic determines the location does not exist or the patient on scene is unable to be located as dispatched.
UTL	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> ▪ Complete run documentation. ▪ Include all pertinent information and attempts made to locate the patient or scene.
GONE ON ARRIVAL	Call may have originated from the patient or other party; after reasonable attempts to locate the patient, the EMT/Paramedic obtains confirmation the patient has left the vicinity for reasons other than safety.
GOA	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> ▪ Complete run documentation. ▪ Include all pertinent information and witness statements support the patient is GOA.

Non-Transport Approval Not Required	
STAND BY	Units in Stand-By are dynamically stationed at a specified location as a precaution or in anticipation of a medical event occurring.
STBY	<p>Action</p> <ul style="list-style-type: none"> Complete run documentation Include all pertinent information. Document the division or department requesting CEMS stand-by, the nature of the stand-by, the Unit number or rank and badge number of the Officer clearing the CEMS ambulance from the stand-by status.
DEAD ON ARRIVAL	This disposition is the result of an injury or medical problem that renders the patient/victim dead upon EMS arrival. Death is confirmed and the patient/victim is not transported to a hospital.
DOA	<p>Action</p> <ul style="list-style-type: none"> The patient shall be assessed and death confirmed. In cases where resuscitative efforts are withheld, current DNR paperwork must be reviewed. Complete run documentation. Include all pertinent patient and scene information, including CPD or CMHA car number or badge number or any personnel patient care will be transferred to.
CANCELLED BY RED CENTER	The process of CEMS run cancellations are managed through RED Center Communications. The patient, family member or bystander, CFD, CPD or other EMS entity, may request cancellation if an ambulance is not wanted or no longer needed. Cancellations must take place prior to the ambulance arrival on-scene. If a cancellation is received after the ambulance has arrived, use of another non-transport disposition is indicated, i.e., FC, RFMM, NME, etc.
CXE, CXF, CXP, CXC, CXS, CXH	<p>Action</p> <ul style="list-style-type: none"> Complete run documentation as indicated. Include the origin of the cancellation; CXE: Cancelled by EMS, CXF: Cancelled by Cleveland Fire, CXP: Cancelled by Cleveland Police, CXC: Cancelled by caller, CXS: Cancelled by suburb and CXH: Cancelled by Hopkins.
CEMS, PD, FD, PRIVATE or SUBURB TO HANDLE	This disposition is the result of the patient/victim being transported by another ambulance within the same division or another agency other than CEMS transports or assumes care of the patient/victim.
CEMS, CPD, CFD, RST, PAT, SUB	<p>Action</p> <ul style="list-style-type: none"> Complete run documentation as indicated. Include the name of the agency or division and the number of the transporting vehicle. When unforeseen circumstances arise and an ambulance is unable to transport, the facts must be documented. As in the case of injury, equipment or vehicle failure. CEMS: another EMS squad assumes care of the patient/victim, CPD: Cleveland Police assumes care of the patient/victim, CFD: Cleveland Fire to handle, no transport, RST: Cleveland Fire rescue squad transports the patient/victim, PAT: Private ambulance company transports the patient/victim, SUB: Suburban police or fire department assumes care of the patient/victim.

Non-Transport Dispositions

1. Documentation in all Non-Transports where patient contact has been established must be detailed and descriptive, including all observations, pertinent negatives and positives, the EMT/Paramedics findings, or lack of, and all information which support the Non-Transport conclusion (including attempts made to persuade the patient to be treated or transported, on-scene Field Captain/Commander, RED Center Captain/Commander, Field Captain/Commander and when indicated, med command consults).
2. The following Non-Transport dispositions require consultation with on-scene Field Captain/Commander, consultation with Red Center Captain/Commander, or Field Captain/Commander for authorization of non-transports.
3. The completion of the Non-Transport or Refusal Information Forms and Worksheet criteria are required.
 - **Predetermined risk factors have been incorporated into the Tablet PCR. If during the patient assessment, specific criteria are not met, the EMT/Paramedic will be prompted to establish communications with a Captain/Commander.**

Non-Transport Approval Required – Consultation with Captain/Commander

REFUSAL PATIENT ASSIST	The patient, a home health care provider or other “party” caller may generate a call, which results in a “Refusal Assist Only.” An ambulance has been requested for purposes other than a medical transport, as in the case of a home health aide needing assistance to transfer a patient from the bed to a chair. <i>Assisting a patient from a fall, regardless how minor must never be treated as an “Assist.”</i>
RPA	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> The patient shall be evaluated for any possible injury or medical concerns. Complete run documentation, including the patient’s vital signs and assessment. Report must be detailed and descriptive and support the conclusion that transport was refused. Provide patient/caregiver with the Refusal Information Form, explain the content of the form and obtain signature. If the patient is unable to sign, that fact must be documented. This Non-Transport disposition requires consultation with on-scene Field Captain/Commander, RED Center Captain/Commander, or Field Captain/Commander for authorization of non-transports.
NO MEDICAL EMERGENCY	<p>Where an ambulance has been requested for a supposed illness or injury that turns out to be a non-medical complaint.</p> <p>Example: A motorist calls for an unknown male down at a bus stop. The ambulance arrives to find the male easily aroused, stating he is homeless and was sleeping.</p>
NME	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> Fully evaluate the “NME” patient to ensure the need for further medical evaluation or transport is not indicated. Complete Run Documentation. Report must be detailed and descriptive and support the conclusion that transport was not indicated. This Non-Transport disposition require consultation with on-scene Field Captain/Commander, RED Center Captain/Commander, or Field Captain/Commander for authorization of non-transports.

Non-Transport Approval Required – Contact Red Center

REFUSAL AGAINST MEDICAL ADVICE	The patient's condition is such that the EMT Paramedic believes delay in transport places the patient's health at risk. The patient is competent, alert and oriented times three (3) and refusing treatment and/or transport.
RFAMA	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> • Use all reasonable means to persuade the patient to accept transport. • Consultation is required with on-scene Field Captain/Commander, Red Center Captain/Commander, or Field Captain/Commander. The Captain/Commander may make one of the following decisions: <ol style="list-style-type: none"> 1. EMS transport is necessary, but the patient's wishes may be honored and approve the RFAMA. 2. Make arrangements to have the patient speak directly with a Med Command Physician over the phone or radio for medical consultation. 3. May recommend transport despite the patient's refusal. • Complete run documentation, including vital signs and assessment. Report must include but not be limited to: <ol style="list-style-type: none"> 1. A detailed and descriptive narrative, which supports the conclusion that transport WAS indicated but REFUSED. 2. Information provided by the Captain/Commander, leading to the decision to approve the RFAMA. 3. The patient's statement he/she is refusing transport and reason. 4. The EMT/Paramedic statements made to persuade the patient to be transported, including risks of non-transport. 5. Any instructions or statements made by the on-line Physician. 6. The EMT/Paramedic instructions or statements made to family members, caregivers or bystanders remaining on-scene. 7. Provide the patient/caregiver with the Refusal Information Form, explain the content of the form and obtain signature for refusal. If the patient is unable to sign, that fact must be documented. 8. Any time a medication is administered to the patient EMT/Paramedic MUST advise the patient of all risks of refusing medical care against medical advice. 9. EMT/Paramedic MUST document second set of vitals and assessment.

Non-Transport Approval Required – Consultation with Captain/Commander

REFUSAL AGAINST MEDICAL ADVICE OPIATE OVERDOSE	<p>The patient was experiencing an opiate overdose and has been resuscitated by the administration of Naloxone (Narcan) from layperson, law enforcement, Cleveland Fire Department, and/or Cleveland EMS.</p> <p>Patients may refuse additional care and/or transport after Naloxone (Narcan) administration if they are:</p> <ul style="list-style-type: none"> • Awake and alert • Have normal respirations, normal pulse oximetry, and no respiratory distress
RFAMAOD	<p style="text-align: center;">Action</p> <ul style="list-style-type: none"> • Use all reasonable means to persuade the patient to accept transport. • Consultation is required with on-scene Field Captain/Commander, Red Center Captain/Commander, or Field Captain/Commander. The Captain/Commander may make one of the following decisions: <ol style="list-style-type: none"> 1. EMS transport is necessary, but the patient's wishes may be honored and approve the RFAMA-OD. 2. Make arrangements to have the patient speak directly with a Med Command Physician over the phone or radio for medical consultation. 3. May recommend transport despite the patient's refusal. • Complete run documentation, including vital signs and assessment. Report must include but not be limited to: <ol style="list-style-type: none"> 1. A detailed and descriptive narrative, which supports the conclusion that transport WAS indicated but REFUSED. 2. Information provided by the Captain/Commander, leading to the decision to approve the RFAMA-OD. 3. The patient's statement he/she is refusing transport and reason. 4. The EMT/Paramedic statements made to persuade the patient to be transported, including risks of non-transport. 5. Any instructions or statements made by the on-line Physician. 6. The EMT/Paramedic instructions or statements made to family members, caregivers or bystanders remaining on-scene. 7. Provide the patient/caregiver with the Refusal Information Form, explain the content of the form and obtain signature for refusal. If the patient is unable to sign, that fact must be documented. 8. Any time a medication is administered to the patient EMT/Paramedic MUST advise the patient of all risks of refusing medical care against medical advice. 9. EMT/Paramedic SHALL document second set of vitals and assessment with patient consent. If the patient refuses, document accordingly. 10. Emergency Responders SHALL provide the patient with a Project DAWN Kit, if there are no Project DAWN Kits available, emergency responders shall encourage the patient to contact the Project DAWN office to obtain replacement supplies (216-778-5677). Project DAWN Kits are also available at CEMS Headquarters from Monday to Friday during 0900-1600 hours. 11. If the patient is refusing further care/treatment and/or transport against medical advice EMT/Paramedic MUST advise the patient of: <ol style="list-style-type: none"> i. Potential central nervous system depression ii. Potential respiratory depression iii. Other associated risks up to and including DEATH

Procedures Section

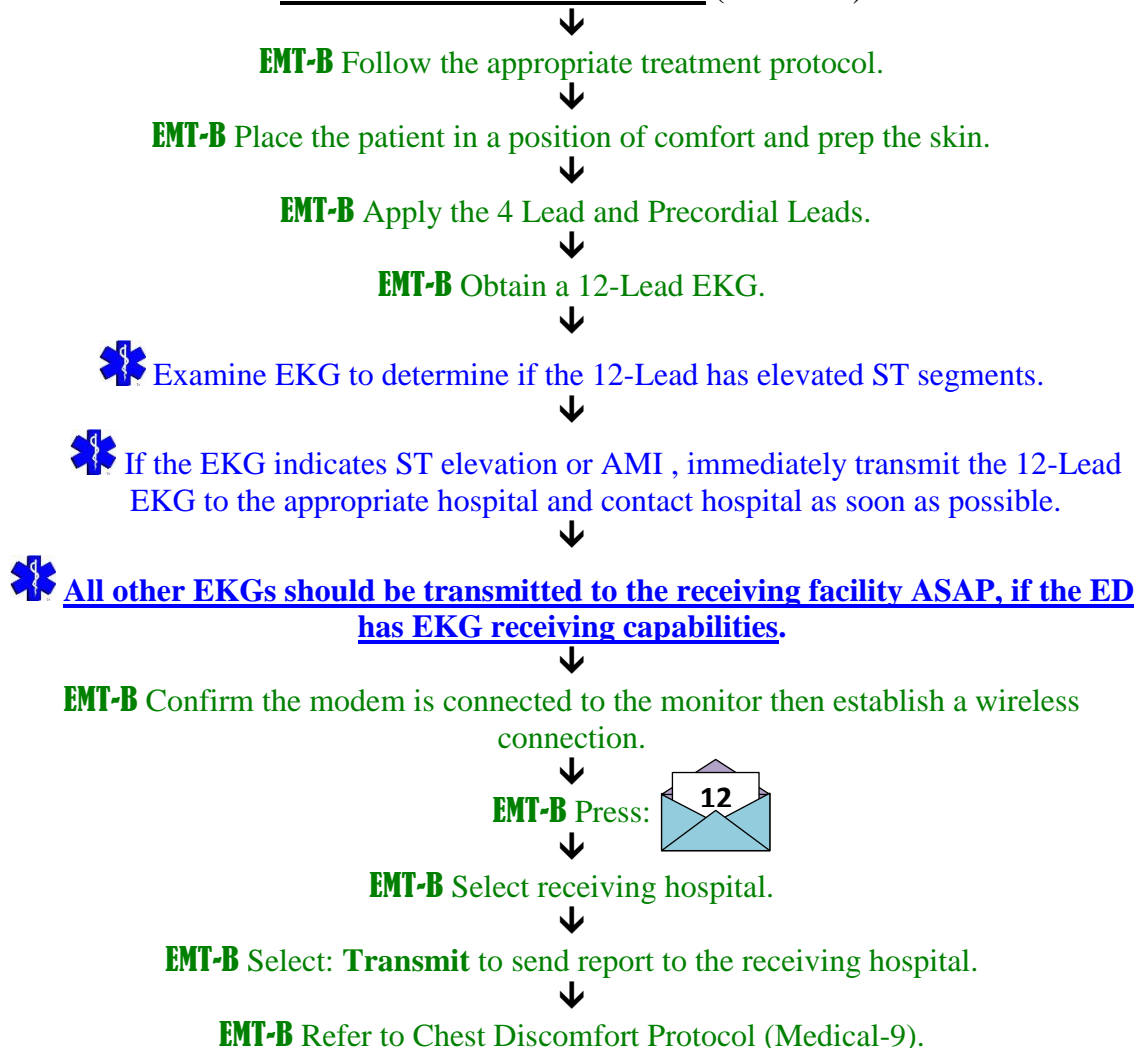
12-Lead EKG Procedure

Indications:

A 12-Lead EKG should be performed on any patient with a complaint that may be cardiac in origin.

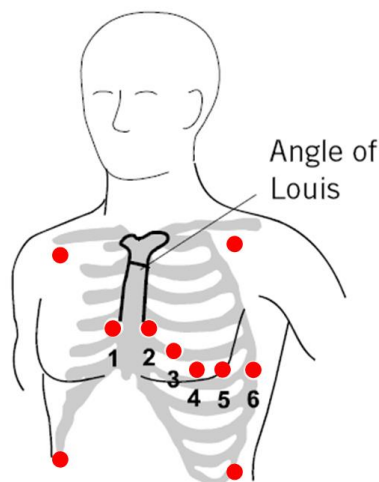
- Chest pain
- Chest discomfort
- Chest tightness
- Pulmonary edema
- Palpitations
- Irregular heartbeats
- Syncope
- Dizziness
- Hypertensive emergencies
- Weakness
- ABD pain, if possibly cardiac related
- Numbness/tingling/discomfort to any extremity or jaw
- In addition, any patient with a heart rate < 50 or > 120 without a known cause
- Med Command orders
- Unexplained diaphoresis

Routine Medical Care Protocol (Routine-1)



Key Points

- Protect the patient's modesty.
- The 12-Lead EKG should be acquired **prior** to medication administration (except Oxygen) and extricating the patient.
- Enter the: **Patient's: Last Name, First Name, Age, Gender, and Incident Number on all 12-Lead EKGs.**
- After 12-Lead is acquired, immediately transmit it to the appropriate hospital. The patient's first initial 12-Lead **MUST** be transmitted, **DO NOT** interrupt transmit unless patient has sufficient change in rhythm.
- If receiving hospital has no transmitting capability, contact the receiving hospital ASAP.
- Contact the receiving hospital with patient information, such as; **Medications, Onset Time, Vital Signs**, etc.
- When transmitting with a Zoll cardiac monitor establish a wireless connection, then:
 - Press: 12 Lead Envelope
 - Select: Destination Hospital Site by highlighting and selecting
 - Select: Transmit
 - Press: Select button while Transmit Box is highlighted
- If transmission should fail or the receiving ED cannot receive transmission, the EMS provider shall call the receiving hospital immediately for notification that the patient is experiencing a STEMI.
 - Upon arrival the EMS provider shall *hand* one copy of the 12-Lead EKG to the ED attending physician, and attach a second copy to the run report. Write the: **Date, Time, DOB**, and the **Patient's Name** on the EKG. If the physician is not readily available, please give the EKG to the nurse. After arriving at the ED, inform the Red Center Captain of the issue and request that IT Section be notified.
 - *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead.*



Placement of the "V" Leads

V1: 4th ICS-Right of the Sternum

V2: 4th ICS-Left of the Sternum

V3: Between V2 and V4

V4: 5th ICS Midclavicular

V5: Between V4 and V6

V6: Even with V4 Midaxillary

12 Lead Reference Table

I Lateral	aVR	V1 Septal	V4 Anterior
II Inferior	aVL Lateral	V2 Septal	V5 Lateral
III Inferior	aVF Inferior	V3 Anterior	V6 Lateral

Advanced Intravenous Access Procedure

Indications:

- Patients with indwelling catheters used for IV therapy.
- Central lines are Port-a-Caths, Infuse-a-Ports, Broviac and Hickman Catheters.
- PICC (Peripheral Inserted Central Catheter) line is a peripheral inserted central line.
- When patient is critical and there are no other means to obtain IV access.

Signs/Symptoms

- Patient is unresponsive or in full arrest.
- Patient in extremis and has critical need for emergent medication administration.
- Patient has critical need for emergent fluid administration.

Contraindications:

- Catheter appears infected at site.
- Catheter seems clotted and will not flow.
- Any Catheter requiring a special needle or attachment.
- Prehospital IV not critical.
- Subcutaneous ports.

Procedure

1. Inspect the site for infection or drainage.
2. Prepare the IV bag, IV tubing, or saline lock. Sterility must be maintained.
3. Remove cap and cleanse the **BLUE** catheter site using povidone-iodine swabs, and allow to dry. If povidone-iodine swabs are not available, use three alcohol swabs.
4. Make sure clamps are closed, except when aspirating, flushing, or infusing.
5. Attach a 10 mL syringe to the catheter and using gentle, even back pressure withdraw a minimum of 10 mL of blood or fluid from the catheter. Discard aspirated blood or fluid.
 - a. This will help aspirate any small clots that may have formed at the distal tip of the catheter.
6. If there is no resistance, no evidence of infiltration (i.e., no subcutaneous collection of fluid), flush the catheter gently with 10 mL of sterile normal saline.
DO NOT use the same syringe that was used for withdraw.
 - a. If you encounter any difficulties aspirating or flushing, inspect the catheter for kinks. If you still encounter difficulty, the catheter may be clotted or dislodged, it is advisable not to use the catheter.

7. Insert connecting IV tubing and begin administration of medications or IV fluids slowly and observe for any signs of infiltration.
 - a. If difficulties are encountered, stop the infusion and reassess.
8. Administer medications via side port of IV tubing.
9. Secure the catheter and IV tubing with tape.
10. Contact Med Command for further assistance.
11. **DO NOT** delay transport of a critical ill or injured patient to access a central line catheter on-scene.

Key Points

- If you are unable to aspirate or flush it may be a positional problem or external kinking. If measures to aspirate or flush don't work, consider alternative methods for venous access. If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- Attempting to access the patient's advanced IV or ports does constitute as a peripheral venous attempt.
- Always aspirate before flushing or infusing. This prevents embolization of any clots that may have formed in or around the catheter, as well as any air bubbles.
- Patients **MUST** be hemodynamically unstable or in extremis to require use of dialysis catheters or external central venous catheters. **BLUE** end on the catheter is venous access, red is arterial access. **Only** use the **BLUE** catheter.
- **DO NOT** flush beyond the tip of the catheter. Doing so will block the introducer needle and prevent flashback.
- It is prudent to close the clamps whenever you are not aspirating, flushing, or infusing.
- To avoid complications, always aspirate at least 10 mL of fluid or blood from the catheter prior to introducing medications or intravenous fluids.
- Sterility must be maintained. Pathogens can be introduced into your patient's bloodstream.
- When moving or transferring the patient, there is a risk of catheter dislodgement. Ensure there is adequate tubing length and that the catheter itself is not caught on cot side rails, sheets or other objects prior to transfer.
- If the catheter is accidentally removed, place firm pressure on the site for at least 10 minutes with several 4x4s, ABD pad or trauma dressing to control bleeding.

Arterial Tourniquet

Indications:

Only to be performed on patients who have severe amputation, or severe blood flow from a limb, or has a trapped limb.

- severe or significant blood loss
- hypotension
- heart rate <60
- signs /symptoms of poor perfusion
- cool and clammy skin
- pale
- severe arm or leg injuries

Contraindications:

- None, if indicated

Procedure

1. Check the limb for a pulse.
 - a. For arm, check for radial pulse on injured extremity.
 - b. For leg, check for pedal pulse on injured extremity.
2. Check the limb for bright red bleeding that does not stop after standard pressure dressing.
3. Make sure the Safety Screw is loosened slightly.
4. Place the wounded extremity through the loop of the band of the arterial tourniquet. Apply the arterial tourniquet 2-3 inches above the wound on the extremity.
5. Pull the strap down tightly.
6. Turn tourniquet handle/rod (windlass) until blood flow is occluded.
7. Secure tourniquet handle /rod (windlass) in one of the two tri-rings, then tighten Safety Screw.
8. Reassess for blood flow and absence of distal pulses.
9. Note the time that the arterial tourniquet was applied.
10. Continue to check the arterial tourniquet and patient until arrival at hospital. Provide the hospital with the time the arterial tourniquet was applied.
11. If tourniquet needs to be readjusted, moved, or removed follow steps in reverse order. If reapplying tourniquet select desired location and follow steps 1-11.

Key Points

- The arterial tourniquet should be considered when direct pressure and elevation or hemostatic dressing fails to control severe hemorrhage.
- Arterial tourniquet use can be initiated early if the patient is experiencing severe hemorrhage.
- For larger limbs, the strap can be removed from the clasp. Wrap strap around the limb and rethread strap from the underside of the clasp, then follow procedure instructions.
- Before you move the patient make sure the tourniquet handle/rod (windlass) is secured and the safety screw is tightened.
- Frequently reassess your patient and the arterial tourniquet.
- Consider placement in the axilla or groin (high and tight) if multiple wounds or unable to access the wound (rapid extraction due to situation).

Automated External Defibrillator (AED) Procedure

INDICATIONS:

1. The patient must meet ALL of the following criteria:
 - a. Unresponsive
 - b. Apneic (not breathing)
 - c. Pulseless
 - d. 8 years of age or older

OR

1 year of age or older (if the appropriate sized pads are available)
2. Resuscitation should be withheld in all cases where such efforts would be futile. Patients should be considered DOA and resuscitation should not be attempted in the following situations:
 - a. Refer to the Field Pronouncement Procedure (Non-Transport-2).
 - b. If a valid Do Not Resuscitate (DNR) order is present. Refer to the DNR Procedure (Non-Transport-1).

PROCEDURE:

1. If the patient meets all of the criteria listed above:
 - a. Assure the patient is in an area that is safe for AED use. Do not use an AED in an explosive atmosphere, extremely wet atmosphere, or on a metal surface.
 - b. Move the patient if necessary.
2. If the arrest was witnessed **by the EMTs** or the **CONFIRMED** down time is less than 4 minutes, immediately analyze the patient's rhythm with the AED and defibrillate if it is indicated.
3. If the arrest was **not** witnessed **by the EMTs** or the **CONFIRMED** down time is greater than 4 minutes **or is unknown**, perform CPR for 2 minutes (5 cycles). Then attach the AED, allow it to analyze, and then follow the voice prompts.
4. Set up the AED and ready the patient for defibrillation:
 - a. Clean and inspect the patient's chest.
 - b. Remove any Nitro paste, Nitro patches, or any medication patches and wipe area with gauze.
 - c. If necessary, shave any excess hair.
5. Turn the unit ON and follow the voice prompts.
6. Attach the defibrillation pads to the patient and then to the AED.
 - a. The sternum pad is to be attached to the patient's upper right chest, to the right of the sternum on the mid-clavicular line.
 - i. Placement may vary slightly if the patient has an IAD or pacemaker. **DO NOT** place the pads directly over IAD or pacemaker. Place the pads below the device mid clavicular.
 - b. The apex pad is to be attached to the patient's lower left rib cage, laterally and beneath the left nipple.

- c. For pediatric patients when alternate placement is necessary, place the pads posterior and anterior. **DO NOT** place pads over the spine.
7. Rhythm analysis:
 - a. **DO NOT** have any patient contact while the AED analyzes the rhythm.
 - b. Rhythm analysis should take approximately 9-13 seconds.
8. If the AED unit's voice prompts advise that "no shock is advised:"
 - a. Perform CPR for two minutes (5 cycles) and then the AED will analyze the patient's rhythm again.
9. If a shock is advised, make sure that everyone is clear of the patient and press the "shock" button:
 - a. The operator of the AED shall visually check that everyone is not in contact with the patient and state, "I'm clear, your clear, we are all clear!" before pressing the "shock" button.
10. After a shock is delivered, perform CPR for two minutes (5 cycles), and then the AED will reanalyze the rhythm. Follow the voice prompt.
11. Perform CPR for two minutes (5 cycles) between every rhythm analysis and/or defibrillation.
12. Constantly monitor the patient, if the patient's pulse returns:
 - a. Insure that the patient has an adequate airway.
 - b. Administer Oxygen via the appropriate adjunct.
 - c. Reassess the patient's vital signs for any changes.

TRANSFER OF PATIENT CARE TO ALS TRANSPORT UNIT/S

1. City of Cleveland functioning paramedics on the transporting units have authority over patient care.
2. The officer in charge of the EMT Basic unit will provide the functioning Paramedic on the transporting unit a quick verbal report containing the following information:
 - a. The number of shocks delivered by the AED.
 - b. The patient's estimated down time before the first shock was delivered.
 - c. If citizen CPR, Private sector AED use, or any other resuscitative measures were provided prior to the arrival of the EMT Basic unit.
3. The EMT Basic unit shall leave the AED attached and follow current AHA guidelines until directed to remove the AED unit from the patient by the transporting unit.
 - a. The EMT Basic unit is responsible for operating the AED under the direction of a functioning paramedic on the transporting unit upon their arrival. This is so the AEDs operation does not interfere with any necessary ALS interventions being performed.
 - b. The AED pads are interchangeable with the Zoll only, not compatible with Lifepak, and some ALS defibrillation equipment. The pads should be left in place if directed by the transporting unit.
4. A member of the EMT Basic unit must accompany the patient to the emergency department if the AED was used by the transporting ALS unit.

5. After patient care is transferred, the officer in charge of the AED shall ensure that the AED is immediately returned to service.
 - a. Defibrillation pads shall be replaced, pre-connected, and placed in the unit's case.
 - b. Defibrillation cables shall be inspected for damage and/or wear.
6. Contact Med Command for further assistance, if needed.

AED Continued Shock Procedure

First Responder/Bystander

EMS Continued Defibrillation

No Shock Advised	Defibrillate 120J	Defibrillate 150J	Continue Defibrillate 200J
One Shock	Defibrillate 150J	Defibrillate 200J	Continue Defibrillate 200J
Two Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J
Three Shock	Defibrillate 200J	Defibrillate 200J	Continue Defibrillate 200J

Key Points

- CPR with early defibrillation is essential (Remember to Push Hard and Push Fast).
- Use the current AHA guidelines for the appropriate number of compressions and ventilations.
 - 1 Person Adult CPR: 30 compressions to 2 ventilations
 - 2 Person Adult CPR: 30 compressions to 2 ventilations
 - 1 Person (Child and Infant) CPR: 30 compressions to 2 ventilations
 - 2 Person (Child and Infant) CPR: 15 compressions to 2 ventilations
- Once the adult, child, or infant patient is successfully intubated, give 1 ventilation every 6-8 seconds without attempting to synchronize breaths between compressions. The rate of compressions is approximately 100-120 per minute.
- When providing ventilations to an adult patient with a pulse provide 1 ventilation every 5-6 seconds.
- When providing ventilations to a child or infant patient with a pulse provide 1 ventilation every 3-5 seconds.
- When using the AHA guidelines, a child is a patient that is 1 year of age to the onset of puberty (about 8-14 years old) as defined by the presence of breast development in girls and armpit hair in boys.
- When using the AHA guidelines, an infant is under the age of 1 year.
- To ensure proper patient care, cooperation with the transporting ALS unit is imperative.
- **DO NOT** use pediatric pads on an adult patient.

Automatic Implantable Cardio-Defibrillator Devices (AICD) Procedure

INTRODUCTION:

An AICD is an implanted defibrillator device that consists of a lead system that senses cardiac activity. AICD has logic circuitry to analyze the sensed signals, a power supply for device function and generating high voltage, and a capacitor that stores and delivers electrical current to bradycardic and/or tachyarrhythmias that are detected within programmed parameters. These devices may malfunction occasionally.

MALFUNCTION:

For verified frequent, recurrent, and inappropriate AICD discharges, a magnet may be utilized to deactivate “runaway” devices. Inhibition of AICD devices should be considered only when continuous ECG monitoring with ACLS is readily available and there is evidence of device malfunction.

PROCEDURE:

1. Examine the patient to determine the location of the AICD device.
2. Examine EKG to determine that the AICD is malfunctioning (“runaway”).
3. **Contact Med Command.**
4. Initiate IV access, monitor patient’s airway, and reassess vital signs every 5 minutes.
5. Monitor EKG and verify “triggering” rhythm and inappropriate defibrillator discharge.
6. Place donut magnet directly over the AICD device to stop device from discharging. Confirm defibrillator is deactivated, firmly tape magnet in place and transport.
7. Treat underlying rhythm per ACLS protocols. If the patient requires defibrillation, **maximum joules** setting should be used. Avoid pads placement over the AICD.
8. If patient becomes unstable or in the event of rhythm change where a shock is desired (V-Fib/VT), remove the magnet to reactivate the AICD or deliver shock.
9. If the AICD patient becomes pulseless, it is safe and appropriate to start CPR.
 - a. While doing CPR if the AICD fires a slight tingling may be felt by responder doing chest compressions.
10. If AICD deactivation is unsuccessful (or a donut magnet is not available) and undesired shocks continue, consider administering pain medication.

Key Points

- It is very important to make the correct diagnosis before utilizing this protocol (EKG showing “triggering” rhythm and indications of recurrent AICD discharges).
- Some AICD devices will emit varying beeping or continuous tones when magnets are applied, others will not. Disregard these tones.
- If the magnet placement is successful in overriding the pulse generation of an AICD, **DO NOT REMOVE THE MAGNET**, unless the patient is in V-Fib/Pulseless V-Tach and the patient’s internal defibrillator will be utilized for defibrillation.
- Some units will return to operational activity after removal of the magnetic field.
- Magnets should be stored so as not to come in contact with magnetic sensitive materials, (i.e., Zoll modem, penbase, tapes, credit cards magnetic door entry cards and other electronic equipment).
- A small percentage of AICDs are impervious to magnetic fields (AICD recipients who work around magnetic fields have these special units) and will not be deactivated with the doughnut magnet. In such cases, advise Med Command and transport.
- Consider the use of the AICD magnet in deactivating cardiac pacemaker malfunctions.
- Identification information of the AICD type, date implanted and location of implantation (location of device usually indicated on a wallet card) should accompany the patient to the emergency department.
- Make every effort to transport the patient to the hospital that provides their AICD care.

Cervical/Spinal Motion Restriction Procedure

Maintain manual in-line spinal stabilization until completing a patient assessment

- **Patients with only penetrating trauma, regardless of whether deficits are present, should not be placed in SMR**
- Assume spinal motion restriction is indicated until proven otherwise

**NOTS Trauma Triage Center:
216.778.7850**

Reference:

- NAEMSP and ACS COT Position Statement- EMS Spinal Precautions and the Use of the Long Backboard (12-2012)
- NEXUS and Canadian C-spine Rule

Patients exhibiting: Apply Full Spinal Motion Restriction

- Blunt trauma and altered level of consciousness
- Any level spinal pain/tenderness and/or significant findings (crepitus, deformity or other irregular findings during palpation of the spine)
- Neurological complaint (i.e. numbness, tingling, motor weakness, etc.)
- High-energy mechanism of injury and the presence of:
 - Drug or alcohol impairment
 - Inability to communicate
 - Distracting injury

YES



Full Spinal Motion Restriction

- A variety of methods can be used to achieve full SMR. Page 2 of the guideline outlines some acceptable methods

NO



Patients exhibiting: Apply Limited Spinal Motion Restriction

- **Cervical pain/tenderness** during palpation without neurological findings
- Patients must have:
 - Normal level of consciousness (GCS = 15)
 - Ability to communicate
 - Ability to ambulate
 - No drug or alcohol impairment
 - No distracting injuries

YES



Limited Spinal Motion Restriction

- A variety of methods can be used to achieve limited SMR. Page 2 of the guideline outlines some acceptable methods

NO



Patients exhibiting: No Spinal Motion is Indicated

- **No** spine tenderness or anatomic abnormality
- Patients must have:
 - Normal level of consciousness (GCS = 15)
 - Ability to communicate
 - Ability to ambulate
 - No drug or alcohol impairment
 - No distracting injuries

YES



No Spinal Motion Restriction is indicated

- Special considerations are listed on Page 2 of this guideline. Review special considerations that may apply

High Risk Factors:

See bottom High Risk Factors at the bottom of page 2

“right patient, right place, right time”

Penetrating Trauma without other mechanism of injury (with or without deficits) - Spinal Motion Restriction not indicated

Appropriate full spinal motion restriction can be achieved using **ANY** one of the following options:

- Cervical collar or towels and blankets minimizing the movement of the cervical spine **AND**:
 - A long backboard or Reeves stretcher (with sheet under the patient) with voids padded appropriately secured with a minimum of three straps **OR**
 - A vacuum mattress (with sheet under patient) molded to patient's body to minimize motion **OR**
 - Laying supine on a firm mattress as warranted by assessment, provided efforts are made to reduce spinal motion

In cases where there is concern that full SMR increases pain or symptoms, secure in a position of comfort (with or without c-collar, long board, etc.)

Providers must document pertinent positive and/or negative findings supporting the above decision

Appropriate cervical motion restriction can be achieved using **ANY** one of the following options:

- Cervical collar or towels and blankets minimizing the movement of the cervical spine
- Patient's may be transported in a supine or semi-fowler's position depending on the individual patient need

Providers must document pertinent positive and/or negative findings supporting the above decision

Consider High Risk Factors:

- Patients ≥ 65 years of age, specifically patients with obvious head trauma (hematoma, lacerations, abrasions, etc.), consider cervical motion restriction
- Osteoporosis or ankylosing spondylitis (inflammatory disease which can fuse the spine, reducing flexibility)
- Chronic steroid use
- Axial loading
- Inability to ambulate

NOTS Trauma Triage Center:
216.778.7850

Reference:

- NAEMSP and ACS COT Position Statement- EMS Spinal Precautions and the Use of the Long Backboard (12-2012)
- NEXUS and Canadian C-spine Rule

High Risk/Suspicion

- Document pertinent positive and/or negative findings supporting the need for full SMR
- If clinical indications warrant (i.e. respiratory distress), may place patient with longboard or Reeves in reverse Trendelenberg position up to 30 degrees. Pad voids below device.

Moderate/Low risk/Suspicion

- Document pertinent positive and/or negative findings supporting the need for limited SMR

EMS Provider Judgment:

- If unsure of appropriate level of SMR, always make determination to protect the patient
- Evaluate SMR patients before and after restriction and document

“right patient, right place, right time”

Documentation:

Properly document the decision not to provide cervical immobilization. This documentation must include the following information:

- **Subjective:**
 - The patient denies having any neck pain.
 - The patient denies having any extremity weakness or loss of movement.
 - The patient denies having any numbness, tingling or feeling of pins and needles in the extremities.
- **Objective:**
 - The patient is alert and oriented and there is **NO** evidence of intoxication.
 - There is no pain on palpation of the neck.
 - Motor function is intact in all of the extremities.
 - Sensation is intact in all extremities.

Key Points

- Use of a backboard for stabilization injuries other than the neck or to move the patient, does not automatically require cervical immobilization.
- Never leave patients alone if they are fully immobilized. Be prepared to turn the long board while maintaining c-spine stabilization if the patient begins to vomit.

“right patient, right place, right time”

Chest Decompression Procedure

Indications:

Only perform a chest decompression if the patient has a tension pneumothorax with significant dyspnea. Signs and symptoms of a tension pneumothorax include:

- severe or significant dyspnea
- increasing dyspnea
- tachypnea
- absent breath sounds on the affected side. Possibly diminished breath sounds on the unaffected side
- tracheal deviation (rare/late sign)
- distended neck veins
- cyanosis
- hypotension
- tachycardia
- extreme anxiety, altered LOC/coma
- chest pain

Procedure:

1. Locate the site for needle insertion: Use the 2nd intercostal space in the mid-clavicular line.
2. Clean the area thoroughly with alcohol or betadine. Maintain sterility of gloves and utilize aseptic procedure to the fullest extent possible under the circumstances.
3. Hold the needle perpendicular to the skin at the insertion site and at the top edge of the rib. Insert straight in, riding along the upper edge of the third rib.
 - a. The intercostal artery runs along the inside of the lower edge of the rib, so always insert the needle along the upper edge to avoid bleeding.
4. In a tension pneumothorax, air under pressure should be released when the needle enters the pleural cavity. This will be heard as a rush of air through an open catheter-over-the-needle. If you are using a syringe attached to the catheter-over-the-needle you should be able to withdraw air by pulling out on the barrel of the syringe.
5. Once the presence of a tension pneumothorax has been confirmed:
 - a. Remove the needle, leaving the catheter in place.
 - b. Tape the catheter in place.

Key Points

- A tension pneumothorax can occur in any situation in which a simple pneumothorax occurs.
- A tension pneumothorax can occur **WITHOUT** trauma.
- Some patients who are at risk of developing a tension pneumothorax; include those receiving positive pressure ventilation, or any patient with blunt or penetrating trauma, and those with pre-existing lung diseases such as COPD.
- Cover all penetrating chest trauma with a chest seal. Refer to the Chest Seal (Procedure-8).
- In some cases of penetrating chest trauma, placing a chest seal on the wound will convert an open pneumothorax to a closed tension pneumothorax. In these cases, treatment consists of removing the chest seal and converting the wound back to an open pneumothorax. This may be the only treatment needed.
- **DO NOT** perform a chest decompression, if the patient is not in significant respiratory distress and is otherwise stable.
- Major trauma victims should have catheter-over-the-needles placed on one or both sides of the chest if **ALL** of the following are present:
 - Obvious chest trauma.
 - Patient intubated.
 - Difficulty bagging, tracheal deviation, or absent breath sounds on one or both sides.

Chest Seal

Indications:

Only perform the chest seal if the patient has an open pneumothorax or penetrating chest injury. Signs and symptoms of an open pneumothorax include:

- severe or significant dyspnea
- abnormal rise and fall of chest
- frothy blood from wound
- absent breath sounds on the affected side. Possibly diminished breath sounds on the unaffected side.
- sucking or hissing sound from wound
- coughing up blood
- cyanosis
- hypotension
- rapid but weak pulse
- extreme anxiety, altered LOC/coma
- chest pain

Procedure:

1. Open and expose site of wound.
2. Apply direct pressure with sterile gauze until chest seal can be preformed.
3. Open packaging and remove 4x4 gauze, use to remove excess bleeding around wound area.
 - a. Doing so will ensure that the adhesive will adhere to the patient's skin to maintain the seal.
4. Peel the circular liner off of chest seal and apply the seal so the valve (if applicable) is directly over the wound.
5. Once chest seal is in place auscultation lungs and reassess patient.
 - a. Assess for equal lung sounds.
 - b. Continually monitor the patient's SpO2, ease of breathing, heart rate, capnography (if intubated), and lung sounds.
 - c. Symmetrical rise and fall of the chest.
6. If patient's SPO2 does not increase, no symmetrical chest rise and fall, and the patient is having a hard time breathing or difficulty bagging. Consider tension pneumothorax. Refer to the Chest Decompression Procedure (Procedure-7).
7. If patient shows signs and symptoms of respiratory distress, refer to the Respiratory Distress Protocol (Procedure-26).



Key Points

- Assess chest seal for any leaks.
- Reassess for signs and symptoms of shock.
- Cover all penetrating chest trauma with a chest seal.
- In some cases of penetrating chest trauma, placing a chest seal on the wound will convert an open pneumothorax to a closed tension pneumothorax. In these cases, treatment consists of removing the chest seal and converting the wound back to an open pneumothorax. This may be the only treatment needed.
- A tension pneumothorax can occur **WITHOUT** trauma.
- **DO NOT** remove any clothing that is stuck to the wound.

Continuous Positive Airway Pressure (CPAP)

Indications:

1. Only use CPAP when initial supplemental oxygenation methods fail to improve O₂ saturation.
2. Only perform CPAP if the patient has history of significant dyspnea/hypoxemia, secondary to signs and symptoms of congestive heart failure, pulmonary edema, and chronic obstructive pulmonary disease:
 - severe or significant dyspnea
 - increasing dyspnea, RR>24
 - CHF
 - acute pulmonary edema
 - pneumonia
 - COPD
 - cyanosis
 - SPO₂<90%

Contraindications:

- trauma
- respiratory arrest
- agonal respirations
- unconscious
- pneumothorax
- altered mental status
- penetrating chest trauma
- active nausea/vomiting
- facial trauma
- shock with cardiac insufficiency
- should not be used on children under 12
- active upper GI bleeding

Procedure:

1. Assess patient to make sure they do not have a pneumothorax.
2. Place patient in sitting position.
3. Place the patient on the monitor and pulse oximeter.
4. **If patient's BP is <100 mmHg systolic contact Med Command prior to beginning CPAP.**
5. **EXPLAIN THE PROCEDURE TO THE PATIENT.**
6. Slowly increase the CPAP control unit to 3 cmH₂O, prior to placing it on the patient's face. When placing the mask over the patient's face, instruct the patient to breath in through their nose slowly and exhale through their mouth as long as possible (count slowly and aloud to four then instruct them to inhale).
7. Encourage the patient to continue exhaling out against the pressure as long as possible before inhaling.
8. Secure mask over the patient's mouth and nose and titrate flow rate during expiratory phase to achieve the desired cmH₂O. Slowly titrate until desired number below.
 - a. CHF – 10 cmH₂O
 - b. All other SOB/Dyspnea – 5 cmH₂O

9. If patient is experiencing signs of bronchospasm (coughing, wheezing, prolonged expiratory phase and/or diminished breath sounds), administer Albuterol 2.5mg in 3ml unit dose, turn nebulizer **ON**.
 - a. When administering an albuterol treatment the CPAP unit should be titrated to a minimum of 5 cmH₂O.
 - b. Once an Albuterol treatment is initiated you may experience up to a 50% pressure loss in cmH₂O, titrate flow rate to maintain cmH₂O pressure prior to the administration of Albuterol.
10. After the administration of Albuterol treatment(s) turn nebulizer **OFF**, titrate flow rate to the effective cmH₂O pressure to meet patient's physiologic demand.
11. Check for air leaks.
12. Monitor and document patient's vital signs, 3-Lead, SPO₂ and patient's overall respiratory response every 5 minutes.
13. Continue to coach patient to keep mask in place and readjust setting (cmH₂O) slowly during expiratory phase if needed.
14. Treatment should be continued throughout transport to ED.
15. If patient's respiratory status or level of consciousness decreases, remove mask and consider BVM ventilations and/or intubation. Refer to the Endotracheal Intubation Procedure (Procedure-14).

Key Points

- Offer reassurance to the patient.
- Advise the receiving hospital as soon as possible so they can be prepared for patient.
- If CPAP is discontinued, document the reasons and adverse reactions.
- Monitor your patient for gastric distension which may lead to vomiting from the patient.
- If patient is able to tolerate, **DO NOT** remove CPAP prior to hospital arrival.
- Reassessment of the patient's status is **critical** and should be performed every 5 minutes.
- The run report documentation should to include:
 - Vital signs – blood pressure, pulse, etc.
 - Respiratory – effort, rate, and patient lung sounds
 - CPAP control unit level
 - SPO₂ prior to and post applying the CPAP
 - Reason for using CPAP
- **If CPAP control unit needs to be increased > 10 cmH₂O, contact Med Command prior to increasing.**
- Make all reasonable attempts to administer nitroglycerin prior to the placement of CPAP.
- Patients who continue to be in extremis may require additional nitroglycerin administrations after the application of CPAP. If this is needed limit interruptions in CPAP flow to less than 10 seconds.
- Albuterol can be repeated every 10 minutes to a maximum of 3 doses. **Contact Med Command for permission to administer additional doses or continual Albuterol treatments.**
- When turning the nebulizer OFF, after the administration of an Albuterol treatment(s), you may have to reduce the flow rate to achieve the proper cmH₂O pressure that was effective prior to the administration of Albuterol.
- Excessive CPAP pressure may cause pulmonary and circulatory complications (i.e. tension pneumothorax, hypotension).
- Albuterol can be administered via ETT by doubling the dose.
- If additional oxygen is unavailable, consider BVM ventilations until additional oxygen can be obtained (i.e. unexplained delay in transport, etc).
- Prevent GoNitro powder from dispersing by removing CPAP mask completely.

Duo Dote Procedure

Indications:

Exposure to Sarin, Soman, Tabun, VX, organophosphates, and other nerve agents.

Routine Medical Care Protocol (Routine-1)

EMT-B Ensure scene safety and contact the Hazmat Team to begin the decontamination process. Follow all of the Hazmat Team's instructions.

EMT-B Determine the severity of the patient's symptoms.

No Symptoms

EMT-B Provide supportive care, closely monitor the patient, and transport.


Reassess

 **Contact Med Command for further assistance, if needed.**

Mild

EMT-B Provide supportive care, closely monitor the patient, and transport.

EMT-B If the patient is over the age of 10 or over 40 kg, administer *ONE* Duo Dote Kit.

 If the patient is under the age of 10 or under 40 kg, provide supportive care, and transport.


Reassess


 **Contact Med Command for further assistance, if needed.**


Moderate

EMT-B Provide supportive care, closely monitor the patient, and transport.

EMT-B If the patient is over the age of 10 or over 40 kg, administer *ONE* to *TWO* Duo Dote Kits. Repeat Duo Dote kits until secretions discontinue.

 If the patient was exposed to nerve agents and is under the age of 10 or under 40 kg, administer Atropine 0.05 mg/kg IV/IM every 5-10 minutes until the respiratory status improves to a max of 4mg.


 If the patient is less than 2 years old and experiencing organophosphate poisoning administer Atropine 0.02 mg/kg IV or 0.05 mg/kg IM every 5-10 minutes until symptoms improve.


 If the patient is 2 years old or older and experiencing organophosphate poisoning administer Atropine 1 mg IV/IM every 5-10 minutes until symptoms improve.


Severe

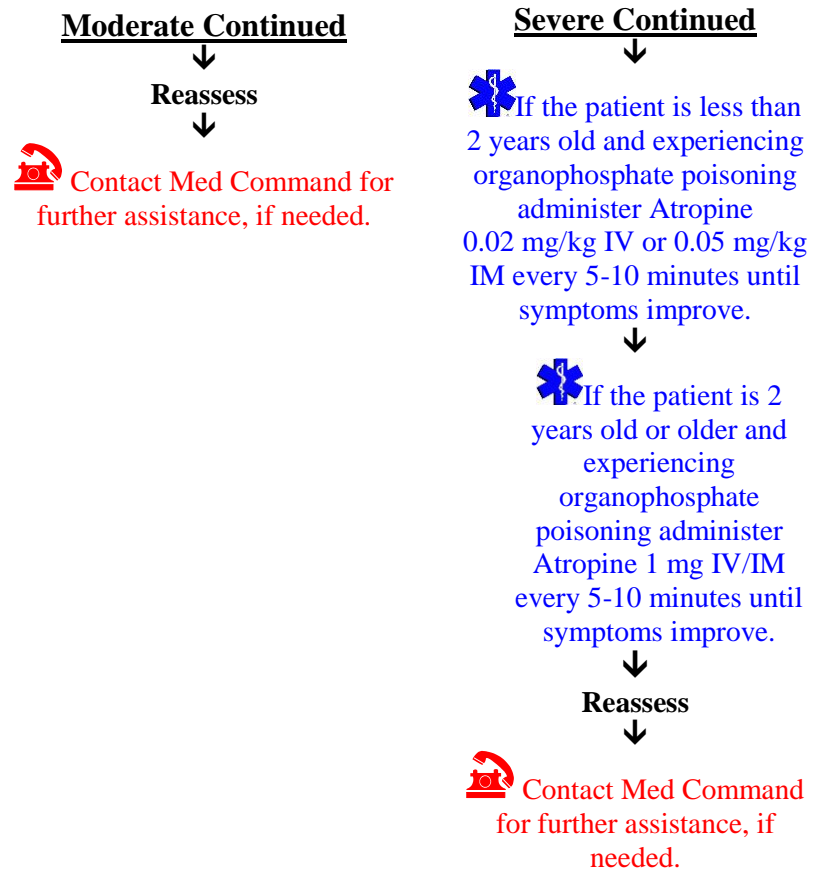
EMT-B Provide supportive care, closely monitor the patient, and transport.

EMT-B If the patient is over the age of 10 or over 40 kg, administer *THREE* Duo Dote Kits. Repeat Duo Dote kits until secretions discontinue.

 If the patient is over the age of 10 or over 40 kg, and is experiencing seizure related to the nerve agent exposure, administer Diazepam 10 mg IM or 5-10 mg IV.

 If the patient is 30 days old up to 10 years old and is experiencing seizures related to a nerve agent exposure administer Diazepam 0.05-0.3 mg/kg IV/IM to a max dose of 10 mg.

 If the patient was exposed to nerve agents and is under the age of 10 or under 40 kg, administer Atropine 0.05 mg/kg IV/IM every 5-10 minutes until the respiratory status improves to a max of 4mg.



Key Points

- Scene safety is the number one priority.
- The scene may be a Hazmat incident. Contact Hazmat as soon as possible and follow their instructions.
- The patient and/or crew must be decontaminated prior to transport. **DO NOT** transport a contaminated patient to a treatment facility.
- If exposed to nerve agents or organophosphates symptoms may include:
 - **Mild** symptoms include: muscle twitching and diaphoresis.
 - **Moderate** symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching.
 - **Severe** symptoms include: unconsciousness, seizures, flaccidity, and apnea.
- **SLUDGEM**: Salivation, Lacrimation, Urination, Defecation, Gastrointestinal upset, Emesis, Muscle twitching.
- Contact Med Command for all patients under the age of 1 month who are experiencing a seizure related to nerve agent exposure.
- A Duo Dote includes 600 mg Pralidoxime (2-PAM Cl) and 2 mg Atropine auto-injector in one prefilled auto-injector. Should be used on the mid anterior lateral thigh.
- If Diazepam (Valium) is not available it is permissible to administer Lorazepam (Ativan) per our normal seizure protocol. Diazepam is the preferred benzodiazepine for seizures from exposures.
- **Nerve agents** include, but are not limited to: Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR.
- **Organophosphate** chemicals are found in many pesticides and bug sprays, chemicals include, but are not limited to, azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithroton, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.
- Reference: Greater Cleveland Poison Control Center 1-800-222-1222.

EMS Provider or Physician Intervener Procedure

Indications:

On any EMS run that an off duty EMS Provider, outside agency EMS provider, or a physician wishes to intervene in the care of the patient.

Identify the intervener's level of training.



EMS Provider



EMT-B Politely decline the offer if no further assistance is needed.



EMT-B If assistance is needed; determine the identity of the EMS Provider.



EMT-B If the EMS Provider is from CEMS or CF, document their name and badge number on the pen base or run sheet.



EMT-B If the EMS Provider is from outside agency, attempt to obtain a valid Ohio EMT/Paramedic card (if time allows). Document their name and certification number on the pen base or run sheet.



EMT-B The EMS Provider (off duty or outside agency) must be in compliance with the protocol, and has to accompany the patient to the hospital if significant patient care was performed by the off duty EMS provider



Contact Med Command for further assistance, if needed.

Physician in Their Office/Clinic/Care Center



EMT-B Perform duties as required by protocol or Med Command.



EMT-B The physician may perform procedures or treatments while in their office, clinic, or care center.



EMT-B Provide assistance to the physician unless it conflicts with the protocol.



Contact Med Command for permission to perform procedures or treatments ordered by the physician if it conflicts with protocol.



EMT-B The patient care decisions fall under Med Command once the patient has been transferred to the squad, or care has been transferred.



Contact Med Command for further assistance, if needed.

Good Samaritan Physician



EMT-B Politely decline the offer if no further assistance is needed.



EMT-B If assistance is needed; determine the identity of the physician. The physician should be able to provide their medical license wallet card or number. Document their name and license numbers on the pen base/run sheet.




If the physician wishes to assume responsibility of the patient with Med Command approval, they **MUST** accompany the patient to the receiving facility in the back of the ambulance and stay with the patient until relieved by another physician.



EMT-B Provide assistance to the physician unless it conflicts with protocol.



 **Contact Med Command**
for permission to perform
procedures or treatments
ordered by the physician if it
conflicts with protocol.



 **Contact Med**
Command for further
assistance, if needed.

Key Points

- Notify the RED Center if the offer to help by an intervener is accepted.
- EMT/Paramedic cards from other states can be accepted if further assistance is needed due to the patient's condition.
- Paramedics from another state (not Ohio certification) can only perform EMT level skills.
- A Good Samaritan Physician is considered any physician that has no prior history with the patient and is offering assistance in caring for the patient.
- Politely decline the assistance of an EMS Provider/Physician if they are not willing to comply with the above requirements.
- Any on-scene provider (EMS/Physician) that appears intoxicated or providing care that is potentially dangerous to the patient should be immediately removed from the scene. If they continue to interfere with care, immediately request police assistance.

End Tidal CO2 (EtCO2) Monitoring


Indications:

- Monitor the physiologic response to airway interventions by monitoring the patients exhaled carbon dioxide levels.
- This includes, but not limited to:
 - Endotracheal intubation
 - King LT-SD
 - CPAP
 - Bag-mask ventilations

Contraindications:

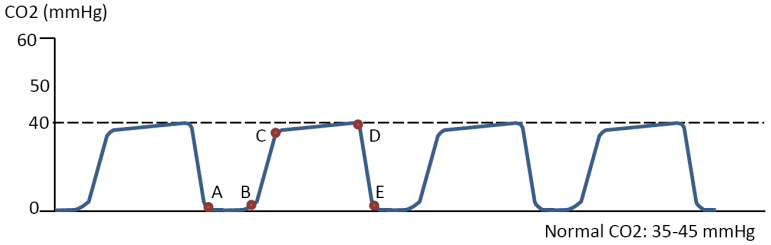
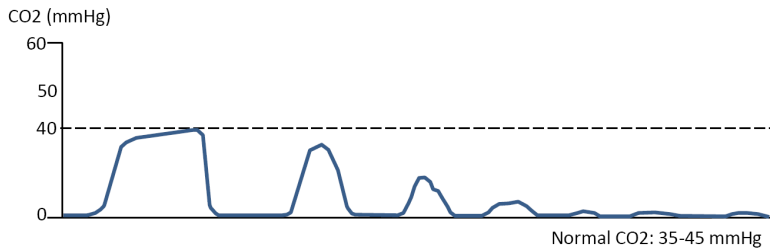
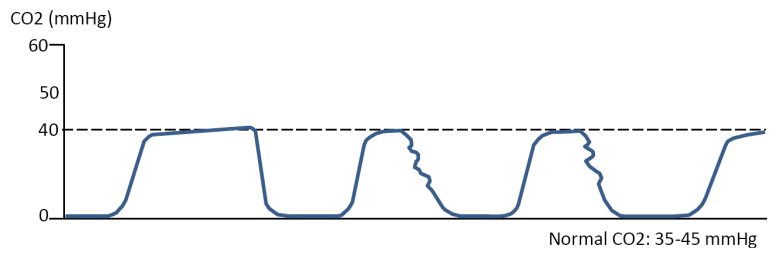
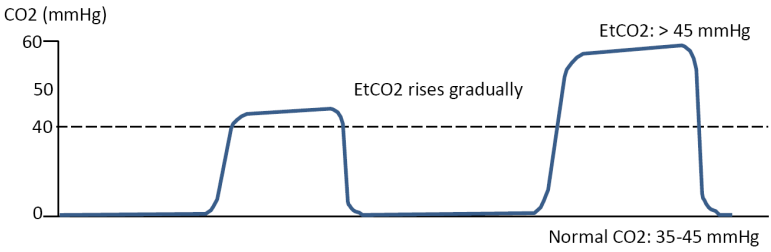
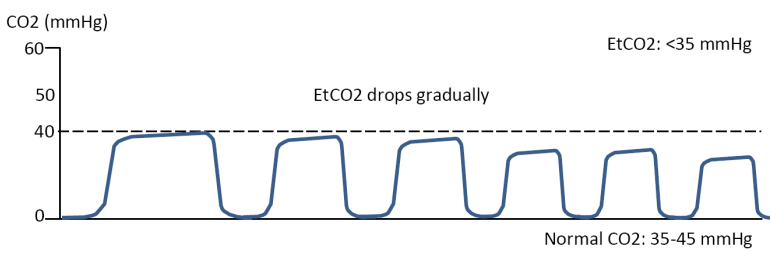
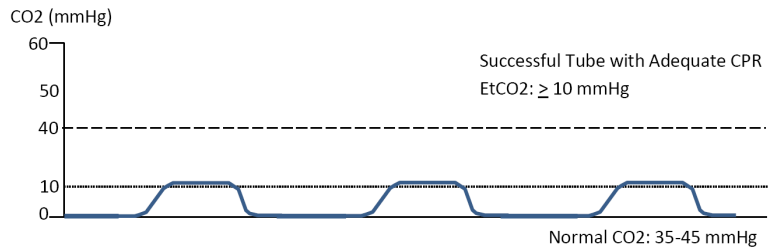
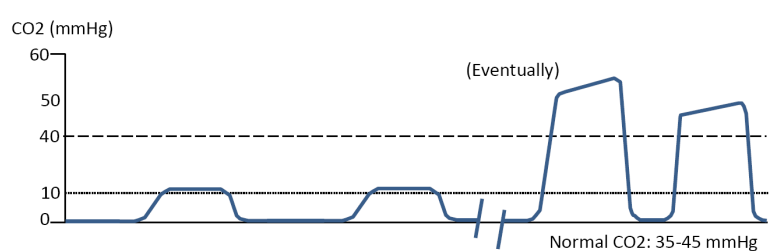
- There are no contraindications for end tidal CO2 monitoring.

Procedure

- 1) Connect the CO2 filter line tubing to the cardiac monitor. Lock the tubing in place by turning it clockwise.
- 2) Push the **CO2** button on the cardiac monitor and verify the EtCO2 display is present. Wait for the EtCO2 to initialize to ambient air prior to connecting it to the airway device. Initializing is complete when the value reads **“0”**
- 3) Connect the EtCO2 filter line tubing to the airway device that is utilized for treatment.
- 4) Confirm that the CO2 wave form is displayed on the monitor. Press snapshot () when waveform is present, prior to printing treatment summary or turning off the monitor.
- 5) Continue to monitor the patient's waveform until the patient has been placed on the ED bed.
 - i. Print a copy of the patient's waveform AFTER the patient has been transferred to the ED bed.
- 6) Document the results of EtCO2 monitoring. An EKG strip with the CO2 wave forms should be turned into Headquarters and the Emergency Department.

Key Points

- The EtCO2 sensor monitors the carbon dioxide that is exhaled by the patient.
- EtCO2 monitoring cannot rule out an ETT that has been placed in the right main stem bronchus.
- Adult/Pediatric filter line tubing should only be used on ET tube sizes 5.0 and larger.
- Infant/Neonate filter line tubing should only be used on ET tube sizes 4.5 and smaller.
- When using the Zoll X series to monitor EtCO2, be sure to press the **Print** button when the waveform is present, prior to code summary or turning off the monitor.
- EtCO2 monitoring does **NOT** relieve the paramedic's responsibility of initially confirming the initial placement of an advanced airway. Confirmation should be performed after every major movement, and before entering the emergency department.

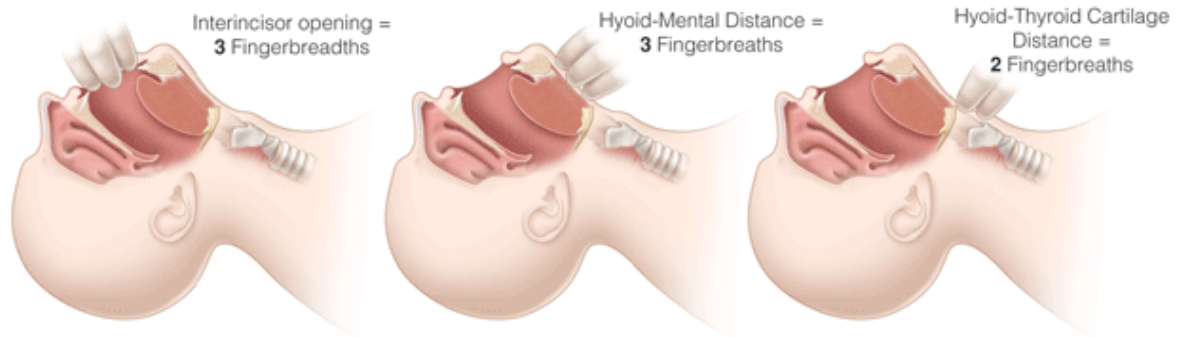
<u>Normal Capnogram</u> A-B: Baseline B-C: Expiratory Upstroke C-D: Expiratory Plateau D: End-Tidal Concentration D-E: Inspiration	 <p>Normal CO₂: 35-45 mmHg</p>
<u>Esophageal Intubation:</u> Initial waveform from potential gastric distension due to BVM ventilations or drinking carbonated beverages prior to arrest. Decrease in EtCO ₂ with every subsequent ventilation.	 <p>Normal CO₂: 35-45 mmHg</p>
<u>Inadequate Seal</u> <u>Possible Causes:</u> <ul style="list-style-type: none"> • ETT tube without a cuff • Leaking or deflated cuff • Artificial airway is too small for the patient 	 <p>Normal CO₂: 35-45 mmHg</p>
<u>Increasing EtCO₂:</u> <u>Possible Causes:</u> <ul style="list-style-type: none"> • Hypoventilation • Decreased tidal volume • Decreased respiratory rate • Increase in metabolic rate • Rapid rise in body temperature 	 <p>EtCO₂ rises gradually EtCO₂: > 45 mmHg Normal CO₂: 35-45 mmHg</p>
<u>Decreasing EtCO₂:</u> <u>Possible causes:</u> <ul style="list-style-type: none"> • Hyperventilation • Increased respiratory rate • Increased tidal volume • Metabolic acidosis • Fall in body temperature 	 <p>EtCO₂ drops gradually EtCO₂: < 35 mmHg Normal CO₂: 35-45 mmHg</p>
<u>Cardiac Arrest:</u> Successful Intubation or successful King LT-SD placement with good chest compressions with adequate rate, depth and proper chest recoil	 <p>Successful Tube with Adequate CPR EtCO₂: ≥ 10 mmHg Normal CO₂: 35-45 mmHg</p>
<u>Return of Spontaneous Circulation (ROSC):</u> You may have achieved ROSC if your patient has an abrupt sustained increase in EtCO ₂ . (Typically ≥ 40 mmHg)	 <p>(Eventually) Normal CO₂: 35-45 mmHg</p>

Endotracheal Introducer

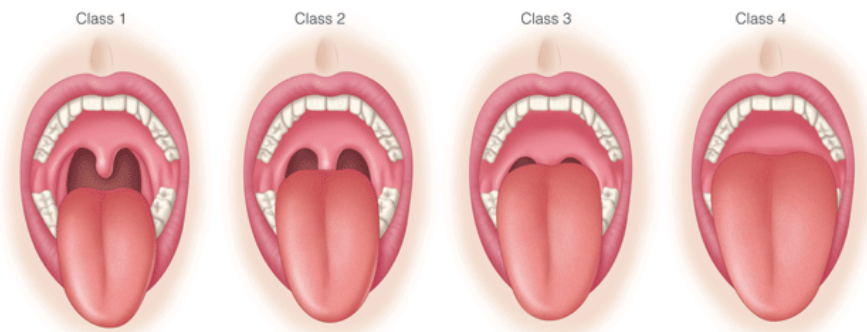
Indications:

To be used in difficult airways such as:

- Unable to visualize the cords
- Supraglottic or laryngeal edema
- Limited neck flexion or possible C-spine injury
- Poor mouth opening
- Poor thyromental (no chin) distance
 - Measurement taken from the thyroid notch to the tip of the jaw with the head extended.
 - If the distance is > 6.5 cm, conventional intubation is usually possible.
 - If less < 6 cm ($<$ approximately 2 finger widths), intubation may be impossible.



- Poor Mallampati Score



- **Class 1:** Entire tonsil clearly visible – No difficulty
- **Class 2:** Upper half of tonsil fossa visible – Little to no difficulty
- **Class 3:** Soft and Hard Palate clearly visible – Some difficulty
- **Class 4:** Only Hard Palate visible – Difficult

The Endotracheal Introducer should be used with Class 3 and 4 airways.

Contraindications:

- Not to be use on endotracheal tubes smaller than 6.0.
- Not to be use in pediatric patients younger than 14 years of age.

Procedure:

1. When indicated, maintain c-spine precautions.
2. Sterility of the endotracheal introducer must be maintained.
3. Open the patient's mouth and insert the laryngoscope to visualize difficult airways, such as in class 3 and 4.
 - a. Enter on the right side of the mouth and use the ridge on the blade to sweep the tongue to the left side of the mouth.
4. Suction the pharynx as needed.
5. Advance the endotracheal introducer (curved end) into the trachea.
 - a. The black line on the endotracheal introducer should be at the teeth prior to tube placement.
 - b. As the endotracheal introducer moves across the tracheal rings, you may feel a vibration (washboard like). This is a positive indicator of placement into the trachea.
 - c. You may also feel resistance as the endotracheal introducer is placed deep into the trachea. Deep placement of the endotracheal introducer into the esophagus will not produce resistance.
 - d. If cords are not visible, identify all landmarks to aid procedure.
6. Once the endotracheal introducer is placed, slide the ET tube over the endotracheal introducer while maintaining direct visualization.
 - a. Slide the ET tube into the trachea while holding the endotracheal introducer.
7. If resistance is felt, pull the ET tube back about one centimeter rotate counter clockwise and attempt to advance again.
8. Once ET tube is at proper depth, remove the endotracheal introducer, inflate cuff, and confirm ET tube placement.

Key Points

- It is essential to have complete and detailed documentation concerning the placement of the endotracheal tube. The documentation **MUST** include:
 - Placement – direct visualization of the tube passing through the vocal cords.
 - Confirmation – equal lung sounds, no sounds over the epigastric area, capnography, and chest wall movement with ventilations. Also, consider changes in the patient's SpO₂, and condensation in the tube.
- Consider the use of the King LT-SD, if unsuccessful with intubation after one attempt. Refer to King LT-SD Airway (Procedure-19).
- The endotracheal introducer is **NOT** to be used as a blind procedure.
- Tube placement must be confirmed;
 - after it was initially placed,
 - after every movement,
 - with any significant change in patient status, and prior to entering the emergency department.
- Continually monitor the patient's SpO₂, ease of ventilation, heart rate, capnography wave, and lung sounds. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters.*
- Ideally, this procedure can be used with a second person loading the ET tube which allows the first person to obtain visualization of the airway.
- The Endotracheal introducer can be used whenever there is difficulty visualizing the vocal cords or passing the ET tube.
- **Only functioning paramedics can use the Endotracheal Introducer.**

Endotracheal Intubation Procedure

Indications:

- Unstable airway
- Respiratory arrest
- Cardiac Arrest
- GCS less than 8 without a treatable cause (for example, hypoglycemia)

Contraindications:

- Patient intolerance is only a relative contraindication to this procedure.

Procedure:

1. When indicated, maintain c-spine precautions.
2. Cervical immobilization should be applied to the patient when indicated by mechanism of injury or when it is deemed necessary.
3. Suction the pharynx as needed.
 - a. Some situations such as copious vomiting or bleeding may require suction attempts longer than 10 seconds. These are the exception, not the norm.
4. Select the method for intubation, Direct Visualization or Video Laryngoscopy.
5. Ventilate the patient (one breath every three seconds) for at least one minute before attempting endotracheal intubation, if possible.

Direct Visualization

- Open the patient's mouth and insert the laryngoscope blade.
 - Enter on the right side of the mouth and use the ridge of the blade to sweep the tongue to the left side of the mouth.
- Continue to advance the blade until the vocal cords are visualized.
- Once the vocal cords are viewed, visualize the cords, and advance the endotracheal tube through the vocal cords.
 - Pass the tube until the cuff is just past the vocal cords.
- Remove the stylet. Use caution when removing the stylet, tube can become dislodged.
- Inflate the cuff of the endotracheal tube with 10 ml of air.
- Attach the bag-valve device to the endotracheal tube and ventilate the patient.

Video Laryngoscopy

- Preassemble the video display and the appropriate video laryngoscope blade.
- Select the appropriate size endotracheal tube.
 - If utilizing the channeled video laryngoscope blade apply water soluble lubricant to the tube and preload the endotracheal tube into the video laryngoscope blade.
- Turn on the video laryngoscope display.
- Open the patient's mouth and insert the video laryngoscope blade.
 - Enter at a 45 degree angle then simultaneously rotate the device vertically to the patient's midline.
- Continue to advance the blade until the vocal cords are visualized.
- Position the vocal cords in the center of the video display.
- Once the vocal cords are viewed, visualize the cords and advance the endotracheal tube through the vocal cords.
 - Pass the tube until the cuff is just past the vocal cords.
- Inflate the cuff of the endotracheal tube with 10 ml of air.
- Hold the endotracheal tube in place and remove the video laryngoscope device from the patient's airway and power down the video display.
- Attach the bag-valve device to the endotracheal tube and ventilate the patient.

6. No more than 30 seconds may be used per attempt.
 - a. Re-ventilate for at least 30 seconds after each unsuccessful attempt
7. Assess for tube placement:
 - a. Absence of epigastric sounds.
 - b. Chest rise with ventilation.
 - c. Confirmation of lung sounds in the apices and bases bilaterally.
 - d. The End Tidal CO₂ filter line **MUST** be used to confirm initial placement of an advanced airway device and monitor airway placement with continuous waveform capnography. Refer to the End Tidal CO₂ Monitoring Protocol (Procedure-12).
8. If placement cannot be confirmed or obtained, the ETT shall be removed, an oral airway placed, and the patient shall be ventilated with a bag-valve-mask.
 - a. If there is any doubt about proper placement, the tube shall be removed.
9. If proper placement is confirmed, the cm numbers on the tube at the level of the teeth shall be noted and secure the tube with a commercial tube holder, tape, rolled gauze, or IV tubing.
10. Consider the use of a cervical collar to limit neck flexion and extension for patients anticipated to have excessive head movement. Cervical collar use is not mandatory for all patients with a secured airway.

11. The adult patient shall be ventilated at a rate of 8-10 breaths per minute (one breath every 6-8 seconds). Refer to the Routine Medical Care Protocol (Routine-1) or the Routine Trauma Care Protocol (Routine-3) for the proper ventilation rates for pediatric patients.
12. Routinely reassess for proper tube placement. The initial tube placement and all reassessments **MUST** be documented.

Endotracheal Intubation Key Points

- Sterility of the ETT must be maintained.
- It is essential to have complete and detailed documentation concerning the placement of the endotracheal tube. The documentation **MUST** include:
 - Placement – Visualization of the tube passing through the vocal cords.
 - Confirmation – equal lung sounds, no sounds over the epigastric area, capnography waveform, and chest wall movement, and ease with ventilations. Also, consider changes in the patient's SpO₂, heart rate, and condensation in the tube.
- Remove the BVM from the ETT when moving the patient, during patient transfers, or when excessive movement is possible.
- It is the paramedic's responsibility to be familiar with the proper technique of using the different laryngoscope blades, including video laryngoscopy.
- Tube placement must be confirmed after: it was initially placed, after every movement, with any significant change in patient status, and prior to entering the emergency department.
- Adult/Pediatric filter line tubing should be used on ETT tube sizes 5.0 or larger.
- Infant filter line tubing should only be used on ETT tube sizes 4.5 or smaller.
- The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters.*
- A common complication of endotracheal intubation and/or manual ventilation is a pneumothorax and tension pneumothorax. Refer to the Chest Decompression (Procedure-7).
- Intubation does **NOT** have to be attempted in pediatric patients if their airway can be effectively managed with BVM ventilations.
- Consider the use of the King LT-SD, if unsuccessful with intubation after one attempt. Refer to King LT-SD Airway (Procedure-19).
- The endotracheal introducer can be used whenever there is difficulty visualizing the vocal cords or passing the ETT tube.
- **Only functioning paramedics can perform endotracheal intubation.**

Video Laryngoscopy Key Points

- The size 3 video laryngoscope blade can be used for any patient that meets the indications of use for a standard size 3 Macintosh laryngoscope blade. This includes average size adults and possibly some adolescents.
- The channeled video laryngoscope blade can accept endotracheal tube sizes 6.0 – 8.0.
- Placing an endotracheal introducer through the endotracheal tube in the channeled blade may assist with passing the endotracheal tube through the vocal cords.
- Stylet use is not recommended when utilizing the channeled video laryngoscope blade.
- The video display and the video laryngoscope blade must be connected first then powered on to produce a live video.
- If the video display shows static, split screen or any other image that is not normal, power the unit down then ensure there is a proper connect between the video display and the video laryngoscope blade and power the unit back on.
- When preloading the endotracheal tube into a channeled video laryngoscope blade be sure **NOT** to advance the endotracheal tube past the camera, potentially blocking the field of vision.
- Deep insertion of the video laryngoscope blade into the airway may prevent advancement of the endotracheal tube, even if the vocal cords are visible.
- The endotracheal tube can be steered left or right by turning the endotracheal tube in the desired direction prior to advancement through the vocal cords.
- The exact sequence of set up and operation of the video laryngoscope device may be altered based on the patient's presentation or the paramedic's judgement.
- The use of direct visualization or video laryngoscopy to obtain a secured airway with an endotracheal tube is based on patient presentation and paramedic's judgement.

**DO NOT DISCARD
CLEAN, DISINFECT, REUSE**



DISCARD SINGLE USE



Hemostatic Dressing

Indications:

- Severe blood loss from traumatic injury
- Severe blood loss when primary means to stop bleeding has been unsuccessful
- Gaping open wounds with massive hemorrhage

Contraindications:

- Avoid contact with eye injuries.

Procedure:

1. Open the package and remove.
2. Sterility of the dressing must be maintained.
3. Open clothing around wound. Remove excess pooled blood from wound with sterile gauze.
 - a. Preserve any clots already in the wound to aid with the clotting process.
 - b. When the source of the bleeding is located, pack the wound tightly and directly into the wound with the hemostatic dressing.
 - c. Use as much of the hemostatic dressing as needed to stop the blood flow. The remainder of dressing can be used to cover top of wound.
4. Quickly apply pressure until the bleeding stops. Estimated time is 3-5 minutes of continuous pressure.
5. Leave the hemostatic dressing in place and wrap area with kerlix or ace bandage to secure wound and dressing.
6. **DO NOT** remove bandage or hemostatic dressing, elevate the injury if need be.
7. Reassess the wound and patient for any changes and document them.
8. Transport patient to appropriate hospital. Refer to the Hospital Transport Guide (Appendix-1) for listings.
9. Make sure that empty package is attached to or sent with patient. Removal instructions are on the package for emergency room staff.

Key Points

- Use extreme caution when packing wounds due to potential exposures from body fluids, bone fragments, or other sharp or penetrating materials.
- Reassess your patient for any changes that may occur and document for report.
- Document the time and location where the hemostatic dressing was applied.
- Avoid leaving the hemostatic dressing in sunlight for extended periods of time.
- **DO NOT** use for vaginal or rectal bleeding.
- **DO NOT** pack into the head.
- **DO NOT** use on eye injuries.
- Contact receiving hospital with the patient information including the status of the patient and wound.

Intranasal Procedure

Indications:

- Opiate Overdose
- Pain Control
- Seizures / Status Epilepticus
- Hypoglycemia
- Combative Patients

Contraindications:

- Nasal Trauma
- Epistaxis
- Nasal/Septal Abnormalities
- Nasal Congestion or Discharge

Precautions:

- Significant amounts of blood or mucous discharge may require suctioning of the nasal passage prior to delivery. If unsuccessful alternate delivery options should be considered.

Procedure

Intranasal Administration (IN)

1. Select the medication:

Opiate Overdose

IN Naloxone (Narcan) is in the scope of practice for Emergency Medical Responders, Emergency Medical Technicians, and Paramedics.

Adults:

Naloxone (Narcan) 2-4 mg IN,

- EMT-B: Repeat every 2 minutes for a total dose of 2-3 doses (6-8 mg)
- Paramedics: Proceed to IV/IO/IM after 1 IN administration.
- If no response after **ONE** dose given by trained medical professional, begin efforts to transport patient to hospital.

Pediatrics:

*Naloxone (Narcan) 0.1 mg/kg IN, may repeat **ONCE** in 2 minutes*

- Each individual dose **SHOULD NOT** exceed 2 mg
- If Intranasal Naloxone (Narcan) is unsuccessful after two administrations contact Med Command for further instructions

Pain Control

- Adults: *Fentanyl Citrate (Sublimaze) 50 mcg IN*
Pediatrics: *Fentanyl Citrate (Sublimaze) 1 mcg/kg IN*
- Pediatric max dose of 50 mcg IN

Seizures / Status Epilepticus

- Adults: *Lorazepam (Ativan)*
Seizure: 2-4 mg IN every 5 minutes
- Max dose 8 mg within a 12-hour period

Seizures from Pre-Eclampsia/Eclampsia: 2-4 mg IN every 5 minutes

- Max dose 8 mg within a 12 hour period

Induced Hypothermia: If the patient is experiencing signs of shivering administer 2-4 mg IN

- Pediatrics: *Lorazepam (Ativan)*
Seizure: 0.1 mg/kg IN every 5 minutes
- Each individual dose **SHOULD NOT** exceed 4 mg
 - Max dose 8 mg within a 12-hour period

Sedation

- Adults: *Lorazepam (Ativan)*
Sedation prior to pacing or cardioversion:
1-2 mg IN
- Pediatrics: **Sedation prior to pacing or cardioversion:**
0.05 mg/kg IN
- Single administration **ONLY**, Max dose 2 mg

Combative Patients

- Adults: *Lorazepam (Ativan)*
Combative patient sedation: 2-4 mg IN
- Pediatrics: *Lorazepam (Ativan)*
Combative patient sedation: **0.05 mg/kg IN**
- Max dose 1 mg

Delirium Tremens

- Adults: *Lorazepam (Ativan)*
Delirium Tremens with severe tremors: 2 mg IN

2. Prepare the medication to be administered.
3. If applicable draw up the medication into 3ml syringe.
4. Remove the needle from the syringe if used to draw up the medication.
5. Attach the IN Atomizer to the filled/prefilled syringe.
6. Using the free hand to hold the occiput of the head, insert the IN Atomizer to the nasal passage, excessive force is not necessary and may lead to epistaxis. Aim slightly up and outward, toward the top of the ear on the same side.
7. Briskly compress the syringe plunger to deliver **HALF** the dose to be administered into the nostril.
8. Move the syringe to the other nostril and repeat steps 6 and 7.

Key Points

- Administration of **Intranasal Narcan** is in the scope of practice for Emergency Medical Responders, Emergency Medical Technicians, and Paramedics.
- Half the total dose of medication should go into each nostril. 1 ml per nostril is the recommended amount of fluid to be administered.
- Make sure to use the atomizer when administering medication, rather than drip it in, to cover a broad surface area.
- Use **BOTH** nostrils regardless of the amount of medication to be administered, doing so will double the absorptive surface area for the drug.
- Aim slightly up and outward, towards the top of the ear on the same side to cover the turbinates and olfactory mucosa.
- Mucous, blood, and vasoconstrictors may reduce absorption.
- If the nostrils are filled with heavy mucous or blood, attempt to suction. If suction is unsuccessful consider alternate drug delivery methods.
- If IN Naloxone (Narcan) is unsuccessful after two IN administrations providers should consider other causes for the patient symptoms, CNS insult, head trauma, etc.
- In the event that intranasal administration has to be utilized for multiple medications there should be a minimum of 3 minutes between each medication administration.
- Intranasal Naloxone (Narcan) is authorized for patients in cardiac arrest from suspected opiate overdose.
- IN is an alternate route of quickly administering medications and does not replace the need to attempt IV access in patients that remain critical or unstable. IN may be the only route required in a straightforward opiate overdose that immediately responds to IN Naloxone.
- If only one nostril is available, it is acceptable to administer the full dose in the single nostril (**THIS IS NOT THE NORM**).
- **Contact Med Command for approval to administer IN Naloxone (Narcan) to pediatric patients younger than 28 days old.**
- A weight based medication dose administered to a pediatric patient should **NOT** exceed the adult dose.
- In the event that the Intranasal Procedure is contraindicated or there is a procedure complication, the use of an alternate route for medication delivery should be considered.
- Naloxone (Narcan) administration may cause the patient to go into acute opiate withdrawal, which includes vomiting, agitation, and/or combative behavior. Always be prepared for combative behavior.
- **NOT** every drug that is given IV/IO can be administered IN.

Project DAWN / Opiate Overdose Refusal

- Narcotic OD patients that receive Naloxone (Narcan) administered by a layperson, law enforcement and/or EMS/CFD may refuse transport if they are:
 - Awake and alert
 - Have normal respirations, normal pulse oximetry, and no respiratory distress
 - Emergency responders **SHALL** provide the patient with a Project DAWN Kit prior to leaving the scene. If there are no Project DAWN Kits available, emergency responders **SHALL** encourage the patient to contact the Project Dawn office to obtain replacement supplies (216-778-5677). Project DAWN Kits are also available at CEMS Headquarters from Monday to Friday during 0900-1600 hours.
 - These patients should be offered transport and informed about the potential risk of recurrent CNS and respiratory depression. These patients follow the Refusal/AMAOD policy and require notification of the RED Center Captain.

Intraosseous Infusion Procedure

Indications:

- Unresponsive
- Cardiopulmonary Arrest
- Decompensated Shock
- Major trauma

Contraindications:

- A patient who is conscious or responsive to pain.
- Gross infection, osteomyelitis, or cellulitis at the intended site (use the other leg if possible).
- Fracture at or above the intended site (use the other leg if possible).
- Osteogenesis Imperfecta (brittle bone disease).
- Previous orthopedic procedure at the site (IO in past 24 hours, prosthetic limb).

Equipment:

- EZ-IO Driver
- EZ-IO Needle Set
- Alcohol and Betadine Swab
- EZ-Connect or Standard Extension Set
- 10ml Syringe
- Normal Saline Bag
- 3 way stop valve

Procedure:

1. Locate landmarks to determine insertion site.
 - Proximal tibia
 - Locate the patella (kneecap) move downward, until you feel the tibial tuberosity (bump), and then move two fingers below. Then move one finger medial.
 - Proximal humerus
 - Place patient's arm against the body with palm down on abdomen (near umbilicus).
 - Palpate for the proximal humeral head with your palm. Place the ulnar aspect of one hand vertically over the axilla.
 - Place the ulnar aspect of the opposite hand along the midline of the upper arm laterally.
 - Place thumbs together, palpate for the greater tubercle.
 - Cleanse with approved skin prep solution.
2. Prepare EZ-IO driver and insert EZ-IO needle set.
3. Stabilize site. Position driver at insertion site with needle set at a 90-degree angle for proximal tibia insertion and 45-degree angle for proximal humerus

- insertion. If skin covers the 5 mm line closest to the hub, move to next larger size needle regardless of age or weight.
4. **Gently** press needle set until needle touches bone. Squeeze the driver's trigger and apply **gentle, steady downward pressure**.
 5. Release driver's trigger and stop insertion when a sudden "give" or "pop" is felt.
 6. Remove EZ-IO driver from needle set while stabilizing catheter hub.
 7. Remove stylet from catheter and confirm placement.
 8. Apply the EZ Stabilizer to secure the EZ-IO.
 9. Prior to flushing, if patient is or becomes conscious, administer Lidocaine 2% 0.5 mg/kg IO. (Lidocaine should not exceed 40 mg IO).
 - a. Use a 10 ml rapid flush of Normal Saline.
 - b. Use the **No Flush = No Flow**.
 10. Discontinue the line if resistance increases, oozing appears at the insertion site, or if there is any swelling or discoloration to the leg.
 11. Attach EZ-Connect and/or 3-way stop valve. Use a 10 ml rapid flush of Normal Saline to clear the line and check for infiltration.
 12. Use the **No Flush = No Flow**.
 13. Begin infusion.
 14. Secure tubing and apply wristband to patient.
 15. Monitor EZ-IO site and patient's condition.

Key Points

- Intraosseous access can be established without an IV attempt for both adult and pediatric patients who meet the indications for use and if initial assessment does not display clear venous access or the paramedic deems IV attempt will be futile.
- Peripheral IV is still the recommended route of medication administration.
- 45 mm (Yellow) EZ-IO needle is the preferred size needle for proximal humerus insertion for adult patients.
- Even when it is not stated in the protocol, any medication that can be administered IV, can be administered IO.
- **DO NOT** use excessive force.
- **DO NOT** rock or bend the catheter during the procedure.
- Can be used with Adults or Pediatrics.
- Use the **No Flush = No Flow**. Failure to appropriately flush the IO catheter may result in limited or no flow. If the catheter will not flush, the infusion will not flow.
- Only use IO device in critical situations requiring immediate medication administration or IV fluids. IO **should not** be used for routine patients who are stable.
- Can be used with adults 40 kg and over and pediatrics 39 kg and under.
- Reassess patient after each 300 ml and be alert for fluid overload.
- The greater tubercle may be difficult to palpate on patients weighting less < 25kg.
- If pediatric size needle is too small, then move to adult size.

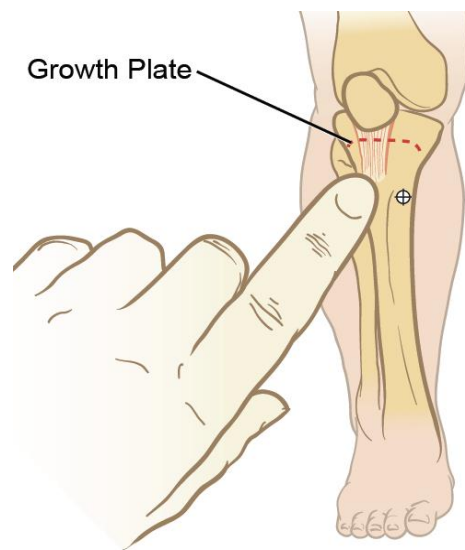
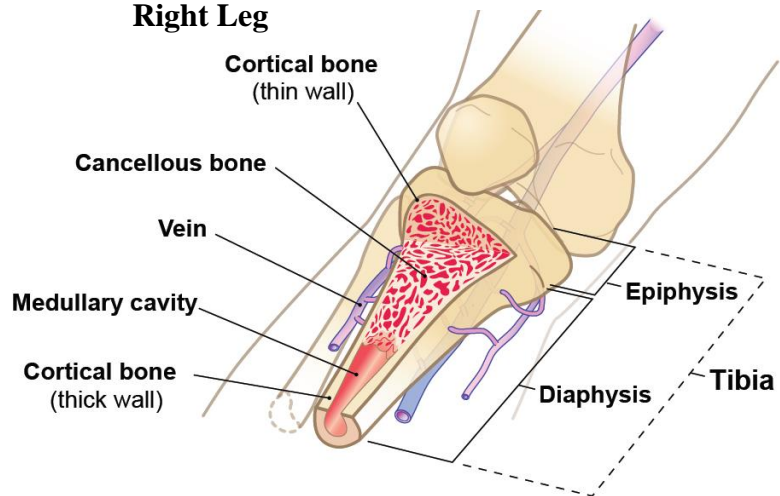
Proximal Tibia

Right Leg



Pediatric Proximal Tibia

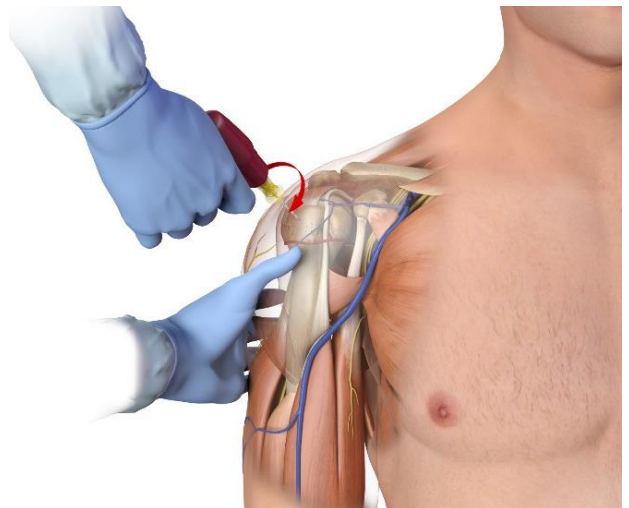
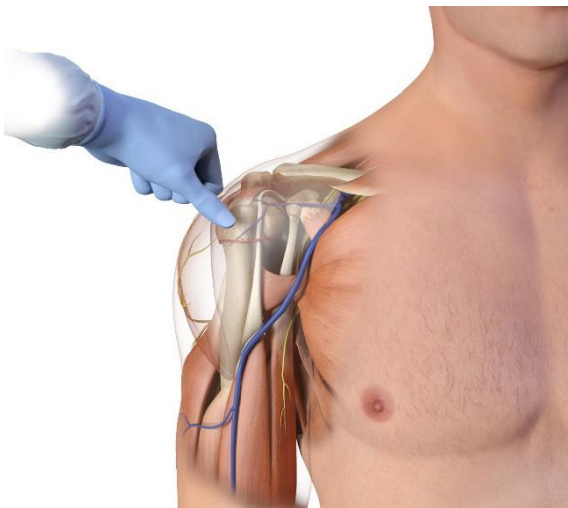
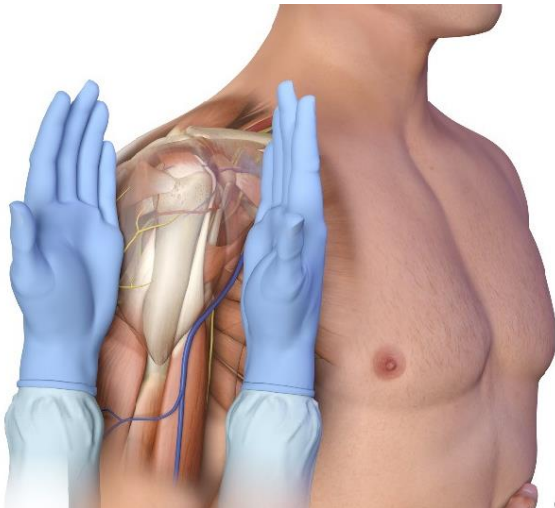
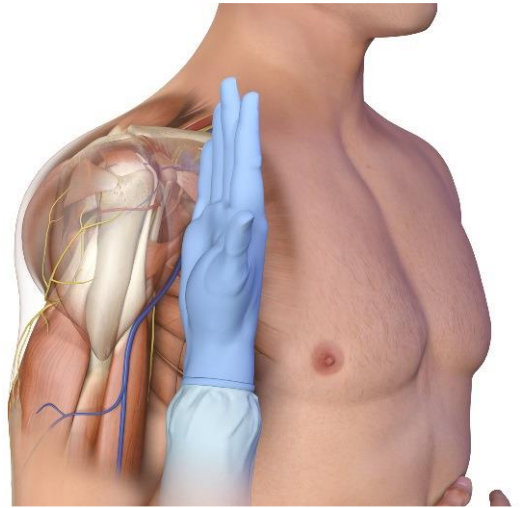
Right Leg



08/06/18

Procedure-17
Intraosseous Infusion

Proximal Humerus



Intravenous Access Procedure

Indications:

- Any patient requiring or may require medication administration and/or fluid administration.
- Any patient with an injury or illness that may warrant an IV being initiated.

Contraindications:

- Hypersensitivity to the IV catheter.

Sites

- Peripheral sites on the patient's arms and hands.
- Peripheral sites on the patient's legs and feet.
- The external jugular.

Procedure

IV Access

1. Prepare the IV bag, IV tubing, or saline lock.
2. Apply a tourniquet (unless accessing the external jugular).
3. Inspect and prep the site with alcohol or betadine.
4. Insert the IV catheter and remove the stylet. Use slight pressure to prevent the spread of blood.
5. Draw blood samples.
6. Remove the tourniquet.
7. Attach the IV tubing or saline lock.
8. Open up the IV to see if it runs and adjust the IV to the proper flow rate. If using a saline lock, administer 3-5 ml saline flush. If the attempt was unsuccessful, remove the catheter and bandage the site. Use a new saline flush for each patient.
9. Secure the IV or saline lock with tape or tegaderm.

Accessing the Saline Lock

- IV Bolus:
 1. Draw up medication as indicated.
 2. In another syringe draw up saline for injection (or use pre filled saline syringe) to flush catheter.
 3. Clean the injection port with antiseptic swab.
 4. Flush port with 3-5 ml of saline.
 5. Carefully insert syringe in port.
 6. Push medication.
 7. Flush with 3-5 ml of saline.
 8. Do not refill syringe. This risks contamination of the vial of saline.
 9. If using needles on syringe, use a new syringe for each flush.

- IV Infusion:
 1. Prepare infusion as indicated.
 2. Attach needle or connector on the end of the administration set.
 3. Clean saline lock hub or extension with an antiseptic wipe.
 4. Flush port with 3-5 ml of saline.
 5. Insert needle or connector into hub or extension.
 6. Set flow rate as indicated.

Key Points

- Macrodrop tubing should be used for all patients requiring normal saline administration.
- When administering Amiodarone, Lidocaine, or Dopamine drips **ONLY** use Microdrop tubing. Pediatric IVs should be started with a microdrop.
- For pediatric patients, IV attempts should be considered if the patient is presenting with signs and symptoms of dehydration, in need of medications, or in critical condition and is age 5 or older.
- Use 1000 ml bags of normal saline for trauma patients and 500 – 1000 ml bags of normal saline for medical patients.
- 100 ml bags of D5W should only be used to administer Amiodarone.
- Saline locks can be used whenever a patient requires an IV primarily for medication administration, or for any patient where the IV would have been ran at a TKO rate (except for major traumas and cardiac arrests).
- IV lines can be directly connected to a saline lock.
- All 16 g IVs with saline lock must be attached to IV tubing and a bag of normal saline.
- If patient fits requirements for IO, refer to the Intraosseous Infusion (Procedure-17).
- Only one attempt can be made in the external jugular. If an attempt in the external jugular was unsuccessful, **DO NOT** attempt to initiate an IV on the opposite side.
- Patients who generally require IV access include (but not limited to):
 - Trauma patients
 - Respiratory distress
 - Chest pain
 - Change in mental status
 - Overdose
 - Active labor
 - Severe pain
 - Dehydration
 - Abnormal vital signs
 - General weakness (especially in the elderly)

King LT-SD Airway Procedure

Indications:

- Unstable airway
- Respiratory arrest
- Cardiac Arrest
- GCS less than 8 without a treatable cause (for example, hypoglycemia)
- Alternative when standard intubation cannot be accomplished

Contraindications:

- Patient under 5 feet tall.
- Patient has a gag reflex.
- Patient with known or suspected esophageal disease.
- Patient has history of ingesting a caustic substance.
- Patient has known or suspected foreign body obstruction of the larynx or trachea.

Procedure:

1. When indicated, maintain c-spine precautions. Cervical immobilization should be applied to the patient when indicated by mechanism of injury or when it is deemed necessary.
2. Check equipment. Ventilate the patient (one breath every three seconds) for at least one minute before attempting King LT-SD, if possible. Apply a water-based lubricant, avoid lubricating the ventilation openings.
3. Sterility of the King LT-SD must be maintained.
4. Choose the correct tube size based on patient's height.

5 to 6 feet tall = Size 4 (red)
> than 6 feet tall = Size 5 (purple)
5. Place the patient's head in neutral (sniffing position), open the patient's mouth and insert the King LT-SD.
 - a. Enter on the right side of the mouth and use a chin lift to sweep the tongue to the left side of the mouth.
 - b. With the King rotated at a 45-90 degree angle so that the blue line is touching the corner of the mouth, introduce tip into the mouth and advance behind the tongue.
 - c. Advance tip under base of tongue, while rotating tube back to midline.
6. Without exerting excessive force, advance tube until base of connector is aligned with teeth or gums. Make sure that the **BLUE** reference lines are facing forward.
7. Inflate the cuff of the King LT-SD to 60 ml first.
8. Attach the bag-valve device. While gently bagging, simultaneously withdraw the airway until ventilation is easy and free flowing.

9. Adjust cuff inflation, if necessary, to obtain an airway seal at peak ventilation pressure.

Size 4	50-70 ml
Size 5	60-80 ml

10. Suction the pharynx as needed. No more than 10 seconds may be used per attempt.
- If more than one attempt is required, immediately provide adequate oxygenation.
 - Some situations such as copious vomiting or bleeding may require suction attempts longer than 10 seconds. These are exceptions; not the norm. Provide re-oxygenation after suctioning the patient.
11. Assess for tube placement:
- Absence of epigastric sounds.
 - Chest rise with ventilation.
 - Confirmation of lung sounds in the apices and bases bilaterally.
 - Good compliance with bag-valve ventilation.
 - The End Tidal CO₂ filter line **MUST** be used to confirm initial placement of an advanced airway device and monitor airway placement with continuous waveform capnography. Refer to the End Tidal CO₂ Monitoring Protocol (Procedure-12).
12. If placement cannot be confirmed or obtained, the King LT-SD shall be removed, an oral airway placed, and the patient shall be ventilated with a bag-valve-mask.
- If there is any doubt about proper placement, the tube shall be removed.
13. If proper placement is confirmed, document the number (level) and secure the tube with a commercial tube holder, tape, rolled gauze, or IV tubing.
14. Consider the use of a cervical collar to limit neck flexion and extension for patients anticipated to have excessive head movement. Cervical collar use is not mandatory for all patients with a secured airway.
15. The adult patient shall be ventilated at a rate of 8-10 breaths per minute (one breath every 6-8 seconds). Refer to the Routine Medical Care Protocol (Routine-1) or the Routine Trauma Care Protocol (Routine-3). Routinely reassess for proper tube placement. The initial tube placement and all reassessments must be documented.



Key Points

- It is essential to have complete and detailed documentation concerning the placement of the King LT-SD airway. The documentation **MUST** include:
 - Confirmation – equal lung sounds, no sounds over the epigastric area, capnography waveform, and chest wall movement and ease with ventilations. Also, consider changes in the patient's SpO₂, heart rate, and condensation in the tube.
- Remove the BVM from the King LT-SD during patient transfers when excessive movement is possible.
- Medications **cannot be administered** through the King LT-SD.
- The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters.*
- Tube placement must be confirmed after it was initially placed, after every movement, with any significant change in patient status, and prior to entering the emergency department.
- The King LT-SD is **NOT** to be used in individuals < than 5 feet. If King LT-SD is not indicated, assist ventilation with BVM.
- Ensure that the cuff is not over inflated.
- This device does **NOT** protect the airway from the effects of regurgitation and aspiration.
- Adult filter line tubing can be used with both King LT-SD sizes 4 and 5.
- **Only functioning paramedics can perform King LT-SD airway.**

Medication Dilution- Epinephrine

Indications:

- When pre-filled cardiac dose Epinephrine 1:10,000 is unavailable.

Contraindications:

- **DO NOT** use 30 ml multi-dose vial Epinephrine 1:1000.
- **DO NOT** administer 1 mg of Epinephrine 1:1000 via IV/IO for any reason **WITHOUT** proper dilution.

Equipment:

- 1 mg/1 ml Epinephrine 1:1000 vial/ampule
 - Use the vials before the ampules
- Hypodermic or blunt needle (for vial use)
- Blunt FILTER needle (for use with ampule only)
- Ampule breaker if available or 2x2 gauze pads
- 10 ml pre-filled 0.9% normal saline flush
- Alcohol swab

Procedure:

1. Discard 1 ml of normal saline from the 10 ml pre-filled syringe.
2. Swab medication top/score using alcohol prep pad.
3. Use the pre-filled syringe after discarding 1 ml, draw 1 ml from the vial/ampule. Drawing 1 ml of fluid should draw all of the medication which contains 1 mg of Epinephrine.
4. Immediately discard hypodermic needle or blunt filter needle into an approved biohazard sharps container.
5. Gently mix solution by inverting the pre-filled syringe several times.
AVOID shaking the syringe rapidly as this can cause additional air bubbles.
6. Administer dilution as cardiac arrest dose Epinephrine 1:10,000 per cardiac arrest protocol.
7. If a 10 ml 0.9% normal saline pre-filled syringe is not available, it is acceptable to use a sterile 10 ml syringe to draw the 1 mg/1ml Epinephrine 1:1000 from a vial or ampule using the appropriate needle. Dilute by drawing 9 ml 0.9% normal saline from the infusion bag.



- When using a vial, swab the top of the vial with alcohol prep pad using aseptic technique after removing the protective cap.
- When using a vial, use a hypodermic needle to draw from the vial and discard after use. An 18 gauge x 1.5 inch hypodermic needle is preferred to draw from the vial. It is **NOT NECESSARY** to use a blunt filter needle to draw from vials.



- When using an ampule, swab the score line of the ampule with an alcohol prep pad using aseptic technique.
- When using an ampule, use an 18 gauge blunt **FILTER** needle to draw from the ampule after using an ampule breaker or 2x2 gauze to break the ampule. Tap all of the fluid to the bottom ampule prior to breaking the ampule at the scored line.

Key Points

- **LABEL** the syringe Epinephrine 1:10,000 to avoid medication errors. It is the best practice for safely administering medications to patients.
- 1mg/1mL epinephrine vial or ampule is the **ONLY** indicated and permitted medication to be diluted to create 1:10,000 concentration.
- You **MUST** use and **DISCARD** the blunt **FILTER** needle for each ampule.
- When available, use the ampule breaker device. Take caution with any shards of glass and dispose immediately into an approved biohazard sharps container.
- A single use 18 gauge hypodermic needle is preferred for drawing from a vial. If an 18 gauge hypodermic needle is not available, you may use a 22 or 25 gauge needle that is supplied in each ambulance.
- It is **NOT NECESSARY** to use a filter needle to draw from a vial.
- Take extra caution when diluting to the proper concentration, be extremely cautious of sharps and broken glass when the ambulance is in motion.
- Epinephrine dilution is single patient use only and should be discarded appropriately after the call is completed. **DO NOT** store or pre-make for later use.

Non-Traumatic Induced Hypothermia

Indications:

- Resuscitated non-traumatic cardiac or respiratory arrest
- GCS < 8
- Return of Spontaneous Circulation (ROSC) with palpable pulse
- Advanced airway in place
- Age ≥ 18
- Unconscious

Contraindications:

- Pregnancy
- Environmental hypothermia
- Major trauma
- Significant head trauma
- Active bleeding or liver failure
- Conscious

Procedure

1. Perform Routine Medical Care Protocol (Routine-1).
2. Follow the appropriate protocol as indicated.
3. Initiate Induced Hypothermia as soon as possible after Return of Spontaneous Circulation (ROSC) with palpable pulse.
4. Support life threatening problems associated with airway, breathing, and circulation. Monitor patient closely for reoccurrence of cardiac arrest. Reassess the patient for five minutes for return of spontaneous circulation with palpable pulse.
5. For patients tolerating an advanced airway:
 - a. If advanced airway is in place, assess the patient for signs of movement (gaspings, shivering, seizure activity, or movement).
 - b. If no advanced airway is in place, support the ABCs and routinely monitor.
6. Reassess the advanced airway with capnography.
7. Initiate a second IV/IO (large bore), if time permits.
8. Expose the patient and apply cold packs to groin, axilla, and posterior neck. Maintain patient's modesty.
9. If the patient is hypotensive and has not received a fluid challenge during the Post-Resuscitation Care Protocol (Medical-23) then administer a fluid bolus of 30 ml/kg (max 2 liters).
10. If patient remains hypotensive after fluid challenge, administer Dopamine 5-20 micrograms/kg/min IV/IO titrated to effect.
11. Infuse saline rapidly. Consider using a pressure bag, blood pressure cuff or manually squeeze the bag.

12. If patient is experiencing signs of shivering administer Lorazepam (Ativan) 1-2 mg IV/IO or 2-4 mg IN.
13. While administering fluid boluses, frequently reassess perfusion for improvement and/or fluid overload respiratory distress. If perfusion improves, slow the IV/IO and monitor patient closely.
14. Perform a 12-Lead EKG and transmit to receiving hospital.
15. Contact Med Command for further assistance, if needed.
16. Patients that have **Return of Spontaneous Circulation** and Induced Hypothermia initiate should be transported to STEMI capable hospitals.

Key Points

- If the patient converts to another rhythm, refer to the appropriate protocol and treat accordingly.
- All Cardiac arrest patients should be placed on backboard or reeves stretcher.
- The IV/IO route of medications administration is preferred over the ETT route.
- The Medications that can be administered ETT are **LEAN**: Lidocaine, Epinephrine, Atropine/Albuterol and Naloxone (Narcan).
- **NO** medication can be administered via King LT-SD.
- Administer Dextrose only if the patient has a BGL less than 80 mg/dl (60 mg/dl in children, or 40 mg/dl in newborns). Dextrose should be administered as soon as hypoglycemia is determined.
- If the patient has an advanced airway (endotracheal tube or supraglottic airway) be sure to routinely reassess correct placement and confirm with capnography. The receiving hospital **MUST** be provided with the patient's capnography strip upon arrival at the hospital. *Integrate the cardiac monitor data electronically to the penbase. If call integration fails, perform a case-push instead. If call integration or a case-push is **NOT** performed, a second strip **MUST** be submitted to Headquarters..* Refer to the End Tidal CO₂ (EtCO₂) (Procedure-12).
- Med Command must be contacted prior to administering antidotes for all poisonings/overdoses except for narcotic overdoses.
- Routinely reassess the patient after all interventions even if they do not produce any changes.
- The hypothermia process can be initiated on the scene. **DO NOT** delay transport to initiate the cooling process.
- Be mindful of your environment and take steps to preserve the patient's modesty. Keep undergarments in place when applying cold packs.
- During the hypothermic process, patient assessment is critical for ongoing care.
- If there is a loss of **Return of Spontaneous Circulation** (ROSC) at any time, discontinue induced hypothermia and go to the appropriate protocol for treatment.
- If the patient converts back to ventricular fibrillation or pulseless ventricular tachycardia after being converted to **ANY** other rhythm, defibrillate at the previous setting used.
- Patients with **Return of Spontaneous Circulation** will benefit from early cardiac angiography and should be transported to STEMI capable hospitals.

Project DAWN Kit Dispensing

Introduction:

This protocol is a guideline for the dispensing of the Project DAWN Kits to:

- An individual who there is reason to believe is experiencing or at risk of experiencing an opioid-related overdose.
- In the name of a family member, friend, or other individual in a position to assist an individual who there is reason to believe is at risk of experiencing an opioid-related overdose.
- Refill/replacement of Project DAWN Kit.

Indications:

Naloxone is indicated for the complete or partial reversal of opioid depression, including respiratory depression, induced by natural and synthetic opioids, including propoxyphene, methadone and certain mixed agonist-antagonist analgesics: nalbuphine, pentazocine, butorphanol, and cyclazocine. Naloxone is also indicated for diagnosis of suspected or known acute opioid overdosage.

Naloxone competes with opioid chemicals and displaces them at receptor sites to completely reverse or partially reverse the effects an opioid-related overdose.

Opioid overdose symptoms may include:

- Constricted pupils
- Central nervous system depression
- Respiratory depression
- Decreased level of consciousness
- Coma

Common Opioids (not a complete list):

- | | |
|--------------------------------|---------------------------------------|
| • Heroin | • Oxycodone (OxyContin, Percodan) |
| • Morphine Sulfate (MS Contin) | • Hydromorphone (Dilaudid) |
| • Methadone (Methadose) | • Fentanyl (Sublimaze) or Analog |
| • Paregoric | • Hydrocodone/acetaminophen (Vicodin) |
| • Codeine | • Oxycodone/acetaminophen (Percocet) |
| • Meperidine (Demerol) | |

Contraindications:

Naloxone is contraindicated in patients known to be hypersensitive to naloxone hydrochloride or to any of the other ingredients in naloxone.

Precautions:

Single administration of naloxone may not be effective for the reversal of all opioid-related overdoses. Multiple naloxone administrations may be required to reverse the effects of an opioid-related overdose, this will depend on the strength, concentration, and amount of the opioid chemical the individual was exposed to.

DO NOT administer naloxone to a person with a known hypersensitivity to naloxone.

Pregnancy:

Naloxone is a category C medication.

Category C medication:

Risk not ruled out: Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant the use of the drug in pregnant women despite potential risks.

Caution should be exercised when administering naloxone to woman who are pregnant. Naloxone crosses the placenta, and may precipitate withdrawal symptoms in both fetus and mother. Patient with mild to moderate hypertension who receives naloxone during labor should be carefully monitored as severe hypertension may occur.

It is currently not known whether naloxone is excreted in breast milk. Because many drugs are excreted in human milk, caution should be exercised when naloxone is administered to a nursing mother.

Pediatric use:

Naloxone is safe and effective to use on most pediatric patients who are experiencing symptoms of opioid-related exposure.

Extreme caution shall be exercised when administering naloxone to any patient under one (1) year of age.

Opioid withdraw symptoms maybe life threatening for any child under 28 days of age who is administered naloxone. Any patient who is under 28 days old and receives naloxone should receive immediate medical attention. Use of naloxone for this age group shall be used with extreme caution.

Procedure to dispense the Project DAWN Kit:

1. Identify the need for naloxone distribution which includes, but not limited to:
 - a. Opioid-related overdose patients.
 - b. Individuals who may be at risk of experiencing an opioid-related overdose.
 - c. Family members, friend, or other person in a position to assist an individual who there is reason to believe is at risk of experiencing an opioid-related overdose.
 - d. Refill/replacement of Project DAWN Kit.
2. The individual receiving the Project DAWN Kit should be able to understand and be willing to learn the essential components of overdose prevention and response and naloxone administration.
 - a. If the individual receiving the Project DAWN Kit is not able to understand or is not willing to learn the essential components of overdose prevention and response and naloxone administration they shall not qualify to receive the Project DAWN Kit.
3. Labeling of the Naloxone:
 - a. On the prescription sticker on each naloxone that is furnished, the prescription sticker will have:
 - i. Place to write in the individual's name.
 - ii. Place to write in the date the naloxone was furnished.
 - iii. Name and dosage of the naloxone will be pre-filled in.

- iv. Name of person prescribing medication, Dr. Thomas Collins, Medical Director City of Cleveland, Department of Public Safety will be pre-filled in.
 - b. A Prescription Card must be filled out and placed inside of the Project DAWN Kit, the Prescription Card will have:
 - i. Place to write in the individual's name.
 - ii. Place to write the date the naloxone was furnished.
 - iii. Place to write in the expiration date of the naloxone.
 - iv. Project DAWN phone number (216) 778-5677.
- 4. Record keeping for dispensing of Naloxone:
 - a. Pen-Base
 - i. When dispensing a Project DAWN Kit, select the item in the intervention section.
 - ii. Enter the individual who is receiving the naloxone:
 - 1. Name (full name)
 - 2. Date of birth
 - 3. Age
 - 4. Gender
 - iii. Naloxone
 - 1. Kit number (bottom right corner of bag)
 - iv. Enter other information as required under current General Orders for Project DAWN Kit dispensing.
 - v. Dispensing at EMS Headquarters Cuyahoga County Project DAWN form will have the following:
 - 1. individual's name and date of birth who is receiving the naloxone indicate the gender of person receiving the naloxone (Male or Female)
 - 2. kit number
 - 3. Phone number if there is a recall
 - 4. signature/badge number of the individual who furnished the naloxone
- 5. Open the Project DAWN Kit and review the contents with the individual receiving the naloxone kit.
- 6. Upon completing the training above, the participant will be assessed by the trainer on their understanding of the information and their comfort with the basic components of overdose response. Naloxone will be dispensed to trained program participants who will carry and use naloxone to treat individuals experiencing an opioid-related overdose.

Describe Use of the Project DAWN Kit:**If you believe a person is experiencing an opioid-related overdose perform the following steps:**

- 1. Stimulate in an attempt to awaken.
- 2. Call 911 if the person is experiencing symptoms of an overdose, or is not responsive, or is acting abnormally.
 - a. Signs and symptoms of an opioid-related overdose:
 - i. Change in mental status
 - ii. Slow respirations or gasping for air
 - iii. Change in skin color (pale, blue, dusky/gray)
 - iv. Unconsciousness

3. Airway and breathing assessment:
 - a. If the breathing is slow, gasping or the patient is not breathing, open their mouth and tilt the head back, clear the airway if necessary, and provide rescue breaths.
 - b. Give two rescue breaths (with face shield provided in bag).
4. Administer Naloxone:
 - a. Intranasal 2mg (in 2ml) route of administration with atomizer:
 - i. Open the medication container
 - ii. Pull or pry off yellow caps
 - iii. Pry off red (may be purple) cap
 - iv. Attach atomizer (cone) to tip of syringe
 - v. Screw capsule of naloxone into barrel of syringe
 - vi. Insert atomizer (cone) into nostril. Give a short vigorous push on end of capsule to spray naloxone into nose: use $\frac{1}{2}$ of the syringe (1ml) into each nostril
 - vii. Perform rescue breathing (1 breath every 6 seconds) until the overdosing person begins to breathe on their own and becomes responsive
 - viii. If no reaction in 2 minutes, give repeat dose with second syringe
 - ix. Resume rescue breathing until help arrives or the person begins breathing on their own and becomes responsive
 - b. Naloxone Nasal Spray 4mg (in 0.1ml) route of administration with preassembled spray cartridge:
 - i. One preassembled 4mg dose comes in a blister pack
 - ii. DO NOT test device or open blister pack before ready to use
 - iii. Open blister pack by pulling package tag in the top right corner labeled (Peel Here)
 - iv. You DO NOT need to prime the Naloxone Nasal Spray
 - v. Hold the Naloxone Nasal Spray with your thumb on the bottom of the plunger and your first and middle fingers on either side of the nozzle
 - vi. Tilt head back, gently insert the tip of the nozzle into one nostril until your fingers on either side of the nozzle are against the bottom of the person's nose
 - vii. Press the plunger firmly to give the 4mg dose of Naloxone Nasal Spray.
 - viii. Remove nasal spray from the nostril after giving the dose
 - ix. Naloxone Nasal Spray may be dosed every 2 minutes
 - x. Each Naloxone Nasal Spray has (1) dose and cannot be reused
 - xi. Throw away the used Naloxone Nasal Spray in a safe place away from children
 - xii. Perform rescue breathing (1 breath every 6 seconds) until the overdosing person begins to breathe on their own and becomes responsive
 - xiii. If no reaction in 2 minutes, give repeat dose with second nasal spray
 - xiv. Resume rescue breathing until help arrives or the person begins breathing on their own and becomes responsive
5. If the unresponsive person is to be left alone for any reason, situate the person in the recovery position by placing him or her on their side making sure to open their airway.
6. Remain with the person and continue to perform rescue breathing until he or she is under the care of a medical professional (such as EMS Paramedics).

Additional Information to Review:

1. Prevention techniques and risk factor to avoid an Opioid-related overdose:
 - b. Prevention:
 - i. DO NOT use illegal drugs
 - ii. DO NOT consume medications that are not prescribed to you
 - iii. If an opioid medication is prescribed to you, follow directions carefully and DO NOT take more than prescribed
 - iv. DO NOT mix medications
 - c. Risk factors for an overdose:
 - i. Pre-existing lung disease
 1. Asthma, COPD, Respiratory infection
 - ii. Pre-existing kidney disease
 - iii. Pre-existing liver disease
 - iv. Starting a new opioid medication
 - v. Switching to a long-acting opioid medication
 - vi. Lowered tolerance
 1. Recent release from detox, treatment or jail
 - vii. Variation in strength and content of street drugs
 1. Example: Heroin cut with fentanyl
 - viii. Mixing drugs
 - ix. Current or recent opioid poisoning
 - x. Maintenance therapy for treatment of opioid disorder
 - xi. High dose opioid use (> 80mg daily)
 - xii. Opioid non-medical use

Key Points

- An individual authorized under this protocol to personally furnish naloxone may do so without having examined the individual to whom it may be administered.
- Naloxone will not reverse the side effects of non-opioid overdose such as cocaine, benzodiazepines, amphetamines, or alcohol.
- Naloxone's effective time frame is 20 to 90 minutes. The effective time frame will vary depending on the opioid substance the individual was exposed to.
- If the opioid-related overdose symptoms subside after the administration of naloxone and the individual returns to normal **DO NOT** allow him/her to reuse any opioid substances.
- Naloxone should be stored away from light. Naloxone should be stored at room temperature, ideally 59 to 86 degrees Fahrenheit.
- Any individual who administers naloxone to a person who is suspected of an opioid-related overdose should contact 911 immediately.
- Any individual that receives naloxone should be evaluated by a medical professional, emergency medical technician, paramedic, nurse, or physician.
- ORC 4731.941: Authority to personally furnish supply of naloxone
- ORC 2925.61: Lawful administration of naloxone
- Refill of Naloxone can be obtained at the following locations:
 - Circle Health Services (FKA The Free Medical Clinic of Greater Cleveland)
 - Tuesday from 12:00 pm – 4:00 pm and Friday from 1:00 pm – 5:00 pm
 - 12201 Euclid Ave, Cleveland, OH, 44106 Ph. (216) 721-4010
 - The Cuyahoga County Board of Health (216) 201-2000
 - Friday from 9:00 am – 12:00 pm
 - 5550 Venture Dr., Parma, OH, 44130
 - Thomas F. McCafferty Health Center (216) 957-4848
 - Thursday from 4:00 pm – 8:00 pm
 - 4242 Lorain Ave., Cleveland, OH, 44113
 - City of Cleveland, Division of Emergency Medical Service (216) 664-2555
 - Monday through Friday 9:00 am – 4:00 pm
 - 1701 Lakeside Avenue, Cleveland, OH 44114
- 24 hotlines:
 - Alcohol, Drug Addiction and Mental Health Services (216) 623-6888
 - First call for help: 211

Key Points

FAQ:

Can I give my naloxone to my friend because they were too afraid or embarrassed to come get it themselves? YES

Can I be held liable if I give the naloxone incorrectly? NO

Can I be held liable if the naloxone does not work and the person dies from an overdose? NO

Can I get more than one naloxone kit at a time? NO

Pulse Oximetry Procedure

Indications:

- All patients who require vital signs to be taken should have oxygen saturation measured and recorded as part of the vital signs.
- Measure oxygen saturation before applying oxygen and repeat the measurement after oxygen has been applied. Do not delay oxygen administration in patients experiencing severe respiratory distress.
- Routine pulse oximetry assessment should be used in the following situations:
 1. All cases of respiratory distress.
 2. For the treatment of primary respiratory or cardiac disease.
 3. All cases of altered or depressed level of consciousness.
 4. Drug overdoses.
 5. Any patient requiring intubation, King LT-SD, or BVM support.
 6. Major trauma.
 7. Smoke Inhalation (may not be accurate due to CO).
 8. Any patient on home oxygen, home ventilator, or BiPAP.

Procedure:

1. Place the finger slip on the patient's index finger with the outline of the finger facing up. Make sure that all dirt and nail polish or any obstructive covering is removed to prevent the unit from giving a false reading.
2. Record the patient's SpO₂. Attempt to obtain a room air reading and a reading with supplemental oxygen.

Treatment Guidelines:

- 100% oxygen should be administered to all patients despite a good SpO₂ if they are hypoxic. Signs and symptoms are not limited to, but may include:
 - dyspnea
 - tachypnea
 - tachycardia
 - bradycardia (late sign in adults)
 - altered mental status
 - pallor
 - cyanosis
 - diaphoresis
 - intercostal muscle retraction or accessory muscle use
 - prolonged capillary refill
 - abnormal breath sounds
- Additional patients who **MUST** receive 100% oxygen include:
 - physiologic or anatomic major trauma
 - short of breath patients
 - shock patients of any etiology
 - patients with abnormal vital signs
 - suspected CO poisoning, regardless of saturation

- If the patient will not tolerate a non rebreather mask, then administer oxygen via nasal cannula at 4-6 liters per minute as tolerated.
- For patients who are hypoxic, the following guide should be applied if they do not have a pre-existing respiratory disease.

SpO2 READING	INTERPRETATION	ACTION
100% TO 95%	Ideal Range	No supplemental oxygen is needed
95% TO 90%	Mild to Moderate Hypoxemia	Check airway, start oxygen therapy via nasal cannula @ 4-6 lpm
90% TO 85%	Severe Hypoxemia	Check airway, start aggressive oxygen therapy, high flow oxygen via nonrebreather mask @ 15 lpm. Consider bag valve mask ventilation with 15-25 LPM 100% oxygen if the patient does not have adequate ventilations.
85% OR LESS	Respiratory Failure	Prepare to intubate, King LT-SD, or assist ventilations with 15-25 LPM 100% oxygen and bag valve mask.

Key Points

- Oxygen saturation measurements must routinely be recorded as part of the run report. Include those measurements taken as part of routine vital signs and those measurements taken before and after oxygen administration.
- Although the pulse oximeter displays the heart rate, the unit should not be used in place of the cardiac monitor and a physical assessment of the heart rate.
- Oxygen saturation readings may be inaccurate in any situation where the flow of blood through the finger is impaired, such as:
 - hypotension or shock with poor peripheral perfusion
 - peripheral vascular disease
 - extremity injury with restriction of peripheral perfusion
 - cold extremities
- Oxygen saturation readings may be incorrectly high in situations such as carbon monoxide poisoning.
- Many patients with COPD have chronic low oxygen readings and may lose their respiratory drive if administered prolonged high oxygen therapy. Routinely assess pulse oximetry as well as respiratory drive when administering oxygen to these patients. Do not withhold oxygen from any patient that requires it.
- The room air pulse oximetry reading is **NOT** required if the patient has been placed on supplemental oxygen prior to EMS arrival.

Suctioning Procedure

Indications:

- Any patient who is having trouble maintaining an airway and fluid is noted in the oropharynx, endotracheal tube, King LT-SD, or tracheostomy.
- Tracheal suctioning should also be performed when rhonchi is heard in the intubated patient or tracheotomy patients.

Contraindications:

There are no contraindications for suctioning.

Precautions

The patient must be well oxygenated before attempting this procedure.

Procedure

Oral Suctioning

1. Body substance isolation procedures must be used.
2. Assess the need for suctioning.
3. Ensure suction device is in proper working order.
4. If the patient requires artificial ventilations, ventilate the patient for 1 minute prior to suctioning (one breath every three seconds), if possible.
5. Select an appropriate size suction catheter.
 - a. A soft flexible suction catheter or a “whistle tip” can be used if only fluids need to be removed.
 - b. A Yankauer or “Tonsil Tip” should be used for thick fluids, small particles, or large volumes.
6. Prepare sterile water or saline to flush the catheter after suctioning and in between attempts.
7. While maintaining aseptic technique, quickly insert the catheter into the patient’s mouth until it is at the desired depth.
8. Apply suction and withdraw the catheter. Suction no more than 10 seconds per attempt.
9. Immediately after each suction attempt, ventilate the patient (one breath every three seconds) for at least 30 seconds with 100% oxygen if the patient’s ventilations require assistance.
10. Repeat this procedure as needed until the airway is clear.
11. Document the time and the result in the patient care report.

Tracheal/Advance Suctioning

1. Body substance isolation procedures must be used.
2. Assess the need for suctioning.
3. Ensure suction device is in proper working order.

4. Ventilate the patient for 1 minute prior to suctioning (one breath every three seconds), if possible.
5. Select an appropriate size suction catheter:
 - a. A soft flexible suction catheter or a “whistle tip” should be used.
 - b. A Yankauer or “Tonsil Tip” should **NOT** be used.
6. Prepare sterile water or saline to flush the catheter after suctioning and in between attempts.
7. While maintaining aseptic technique, with the catheter port uncovered, insert the catheter into the endotracheal, cricothyrotomy, and tracheostomy tubes until it is at the desired depth.
8. Occlude the catheter port and withdraw the catheter using a gentle rotating motion slowly. Suction no more than 10 seconds per attempt.
9. Immediately after each suction attempt, ventilate the patient (one breath every three seconds) or reattach ventilation device for at least 30 seconds with 100% oxygen.
10. Repeat this procedure as needed until the airway is clear.
11. Document the time and the result in the patient care report.

Key Points

General

- In order to maintain aseptic technique, keep the distal end of the catheter in the wrapper when not being used.
- If the suction catheter needs to be set down between suction attempts, place it back inside its wrapper.
- Patients who require assisted ventilations should be ventilated before and after every suction attempt.
- **DO NOT** suction for more than 10 seconds per attempt.
- **DO NOT** insert farther than the desired depth.
- If a backboarded patient vomits, turn the board on its side and then suction.
- Continually monitor the patient’s SpO₂, ease of ventilation, heart rate, and lung sounds.

Oral Suctioning

- If using a soft flexible suction catheter, determine the length by holding it against the patient’s face. Measure from the edge of the patient’s mouth to the tip of the ear lobe.

Tracheal/Advanced Suctioning

- Even though endotracheal tubes isolate the trachea, if there is fluid present in the lower airway, oxygenation will be reduced.
- There are many patients at home with tracheotomy tubes. These tubes have a tendency to become obstructed because the patient cannot cough normally. EMS is often called when these tubes become obstructed.
- This procedure should be performed with aseptic technique. Use an unopened sterile catheter for every patient.
- Use the largest sized suction catheter that will fit down the endotracheal tube.
- Estimate the length by looking at the distance between the end of the tube and the sternal notch. This approximates the level of the carina.
- If tracheal secretions are extremely thick and unable to be removed, administer 2-3 ml of sterile saline followed by 2 BVM ventilations and then perform suctioning.

Synchronized Cardioversion Procedure

Indications:

- Symptomatic Narrow Complex Tachycardia
- Symptomatic Wide Complex Tachycardia

Contraindications:

- None, if indicated.

Procedure:

1. **Contact Med Command for approval.**
2. Consider sedation:

Adult:	Lorazepam (Ativan)	0.5-1 mg IV or 1-2 mg IM/IN or
	Diazepam (Valium)	2.5-5 mg IV
Pediatric:	Lorazepam (Ativan)	0.05 mg/kg IV (max dose 1 mg) or
		0.05 mg/kg IN (max dose 2 mg)
	Diazepam (Valium)	0.2 mg/kg IV (max dose 5 mg) or
		0.5 mg/kg rectal (max dose 10 mg)
3. Attach the “Combo pads” to the patient and monitor.
 - a. Select PADS on the monitor to view the patient’s rhythm through the “Combo pads.”
4. Push the **SYNC** button. Confirm that the Sync LED blinks with each detected QRS complex.
 - a. Observe the EKG rhythm. Confirm the sync marker appears near the middle of each QRS complex.
 - b. If the sync markers do not appear or if they are displayed in the wrong location (i.e. The “T” wave) adjust the EKG size or select another lead.
 - c. The location of the sense marker may vary slightly with each QRS complex.
5. Utilizing the **ENERGY SELECT** set the monitor to the appropriate joule setting as required by protocol.
6. Push the **CHARGE** button.
7. Make sure that everyone is clear of the patient,
8. After confirming that the monitor is still in “SYNC” mode, push and hold the **SHOCK** button until it discharges.
9. Reassess the patient and the cardiac rhythm after each shock. Repeat steps 4-9 as indicated by protocol.

Key Points

- When attempting to cardiovert a patient, double check to make sure that the **SYNC** button is **SELECTED** prior to cardioversion.
- Monitor the patient, if the patient converts into ventricular fibrillation or pulseless ventricular tachycardia, reassess the patient. Immediately defibrillate the patient at the initial joule setting outlined in Ventricular Fibrillation/Pulseless Ventricular Tachycardia Protocol (Medical-33) for an adult patient or Pediatric Ventricular Fibrillation/Pulseless Ventricular Tachycardia (Pediatric 26) for a pediatric patient, and treat accordingly.
- When using the “Combo pads” apply in the anterior-lateral position.
- When using the Zoll monitors, if the **SHOCK** button is not pushed within 60 seconds, the energy will be internally removed. It will be necessary to recharge to the indicated energy setting.
- When synchronized cardioverting a patient, there may be a delay from when the button is depressed to when the shock is delivered, be cautious that a shock may be delivered during the delay.
- The paramedic should not delay synchronized cardioversion waiting for the sedative to take effect.
- If you cannot select the exact joule setting when synchronize cardioverting a pediatric patient, select the energy setting closest to the indicated joules and transport to the nearest appropriate facility.

Synchronized Cardioversion - Joule Setting Chart

Protocol	Initial Attempt	Second Attempt	Third Attempt	Fourth Attempt	Fifth + Attempt
Adult NCT/WCT	Zoll 70 J	Zoll 120 J	Zoll 150 J	Zoll 200 J	Zoll 200 J
Pediatric NCT/WCT	Zoll 0.5 J/kg	Zoll 1.0 J/kg	Zoll 2.0 J/kg	Zoll 2.0 J/kg	Zoll 2.0 J/kg

Transcutaneous Pacing Procedure

Indications:

- Adult bradycardia with severe hemodynamic compromise.
- Symptomatic bradycardia that is refractory to pharmacological intervention.
- Symptomatic 2nd Type II or 3rd degree heart block

Contraindications:

- Hypothermia
- Pediatric bradycardia

Procedure:

Zoll X Series

1. **Contact Med Command for approval.**
2. Consider sedation:
Adult: Lorazepam (Ativan) 0.5-1 mg IV or 1-2 mg IM/IN or
Diazepam (Valium) 2.5-5 mg IV
3. Attach pacing cables to the monitor and apply the combo pads to the patient.
 - a. Place the pacing patches anterior-posterior or anterior-lateral.
 - b. Do not place the pacing patches over the sternum, spine or nipple.
4. Push the **PACER** button.
5. Confirm **RATE** is set at 80 bpm.
6. Select the **START PACER** field to begin pacing.
7. Select the **OUTPUT** field and increase the milliamps until you obtain electrical and mechanical capture (assess the carotid or femoral pulses to confirm mechanical capture).

Key Points


- Follow these steps when pacing with the Zoll X Series
 - Push: Pacer button
 - Confirm: **Mode DEMAND Rate 80 Output 30**
 - Select: **START PACER**
 - Select and Push: Current button and increase the milliamps until you obtain electrical and mechanical capture.
- Monitor the patient, if the patient converts into ventricular fibrillation or pulseless ventricular tachycardia, reassess the patient. Immediately defibrillate the patient at the initial joule setting outlined in Ventricular Fibrillation/Pulseless Ventricular Tachycardia Protocol (Medical-34) for an adult patient.
- However, the paramedic should not delay transcutaneous pacing waiting for the sedative to take effect.

Medications Section


Adenosine (Adenocard)

Actions:	<ul style="list-style-type: none"> • Slows conduction time and can interrupt AV reentry. • Slows the sinus rate
Indications:	<ul style="list-style-type: none"> • Supra Ventricular Tachycardia • Paroxysmal Supra Ventricular Tachycardia • Regular Monomorphic Wide Complex Tachycardia
Contraindications:	<ul style="list-style-type: none"> • Atrial fibrillation • Atrial flutter • Wolf Parkinson's White • Unstable Irregular Wide Complex Tachycardia
Precautions:	<ul style="list-style-type: none"> • It is helpful to inform the patient of likely side effects prior to medication administration.
Side Effects:	<ul style="list-style-type: none"> • Facial flushing • Shortness of breath/dyspnea • Chest discomfort • Brief period of sinus arrest • Headache • Dizziness • Hypotension
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> • 6 mg rapid IV, repeat every 2 minutes at 12 mg rapid IV (max dose 30 mg). • Each administration should be quickly followed by rapid 20 ml Normal Saline bolus.
Pediatric Dose:	<ul style="list-style-type: none"> • 0.1 mg/kg rapid IV/IO (max dose 6 mg), repeat once in 2 minutes at 0.2 mg/kg rapid IV (max dose 12 mg). • Each administration should be quickly followed by rapid Normal Saline 5-10 ml bolus.
Key Points:	<ul style="list-style-type: none"> • Adenosine has a short half life, and should be administered rapidly followed by a rapid IV flush • Reassess after each medication administration and refer to the appropriate protocol and treat accordingly. • Record a 3-Lead EKG tracing during Adenosine administration. • Perform a 12-Lead EKG prior to the administration of Adenosine and after the rhythm converts.

Albuterol Sulfate (Proventil) (Ventolin)

Actions:	<ul style="list-style-type: none"> Acts directly on the beta 2 adrenergic receptors to relax bronchial smooth muscle, resulting in reduced airway resistance and relief of bronchospasm.
Indications:	<ul style="list-style-type: none"> To reverse bronchospasm To reverse bronchoconstriction
Contraindications:	<ul style="list-style-type: none"> Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> Use precaution when administering to pregnant women or patients with cardiac history.
Side Effects:	<ul style="list-style-type: none"> headache drowsiness dizziness restlessness nausea/vomiting tachycardia palpitations peripheral vasodilatation tremors PVCs
Medical Command: 	<ul style="list-style-type: none"> Medical Command authorization is required for patients requiring more than 3 albuterol treatments.
Adult Dose:	<ul style="list-style-type: none"> 2.5 mg in 3 ml via unit dose nebulizer and 6 lpm oxygen. (10 lpm if using a face mask). Albuterol can be repeated every 10 minutes to a max of 3 treatments. Albuterol can be administered via ETT by doubling the dose.
Pediatric Dose:	<ul style="list-style-type: none"> 2.5 mg in 3 ml via unit dose nebulizer and 6 lpm oxygen. (10 lpm if using a face mask). Albuterol can be repeated every 10 minutes to a max of 3 treatments. Albuterol can be administered via ETT by doubling the dose.
Key Points:	<ul style="list-style-type: none"> Monitor the patient's cardiac rhythm and frequently reassess the patient's vital signs while administering Albuterol.

Amiodarone

Actions:	<ul style="list-style-type: none"> • Prolongs the refractory period and action potential duration.
Indications:	<ul style="list-style-type: none"> • Ventricular fibrillation • Pulseless Ventricular Tachycardia • Wide Complex Tachycardia with a pulse • More than 6 multifocal PVCs per minute with ST elevation • Runs of Ventricular Tachycardia with a pulse
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Renal failure • AV blocks • Idioventricular escape rhythms • Accelerated idioventricular rhythm • Sinus bradycardia or sinus arrest or sinus block • Hypotension • Shock • If Lidocaine is used, DO NOT use Amiodarone
Precautions:	<ul style="list-style-type: none"> • Second and Third degree AV block
Side Effects:	<ul style="list-style-type: none"> • Vasodilation • Hypotension • Prolonged QT interval
Medical Command: 	<ul style="list-style-type: none"> • Medical command authorization is required for patient with chest discomfort.
Adult Dose:	<ul style="list-style-type: none"> • Ventricular Fibrillation and Pulseless Ventricular Tachycardia: Amiodarone 300 mg IV/IO diluted in 20-30 ml of Normal Saline. May be repeated one time after 5 minutes at 150 mg IV/IO diluted in 20-30 ml of Normal Saline. • Wide Complex Tachycardia: 150 mg IV diluted in 100 ml of D5W administered over 10 minutes, may repeat once in 10 minutes. • Runs of Ventricular Tachycardia with a pulse: 150 mg IV diluted in 100 ml of D5W administered over 10 minutes, may repeat once in 10 minutes. • Post Arrest: 150 mg IV diluted in 100 ml of D5W administered over 10 minutes, may repeat once in 10 minutes if available. • Chest Discomfort: experiencing more than 6 multifocal PVC's a minute WITH ST segment elevation on the 12 Lead or has runs of ventricular tachycardia and NOT bradycardic: 150 mg IV diluted in 100 ml of D5W administered over 10 minutes, may repeat once in 10 minutes.
Pediatric Dose:	<ul style="list-style-type: none"> • Ventricular Fibrillation and Pulseless Ventricular Tachycardia: 5 mg/kg IV/IO diluted in 20-30 ml of Normal Saline over 2-3 minutes, repeat every 5 minutes for a total of 3 administrations (max 15 mg/kg/day). • If the rhythm converts to a perfusing rhythm, administer 2.5 mg/kg IV/IO diluted in 20-30 ml of Normal Saline over 2-3 minutes. • Wide Complex Tachycardia: 5 mg/kg IV/IO in 100 ml of D5W administered over 20-60 minutes (max dose 150 mg).
Key Points:	<ul style="list-style-type: none"> • Amiodarone is the preferred anti-arrhythmic medication to treat ventricular arrhythmias. • When administering Amiodarone diluted in 100 ml of D5W, use the "piggy back" method with a microdrip administration set. • Avoid excessive movement and shaking of the medication.

Aspirin

Actions:	<ul style="list-style-type: none"> • Blocks platelet aggregation
Indications:	<ul style="list-style-type: none"> • Chest pain • 12-Lead EKG indicating a possible MI
Contraindications:	<ul style="list-style-type: none"> • Hypersensitivity • Active ulcer disease • Took A 324-325 mg dose of Aspirin within the last 24 hours • GI bleeding
Precautions:	<ul style="list-style-type: none"> • Upset stomach
Side Effects:	<ul style="list-style-type: none"> • Heartburn • Nausea and vomiting
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> • Total dose of 324 mg baby aspirin OR 325 mg adult aspirin by mouth (PO).
Pediatric Dose:	<ul style="list-style-type: none"> • Aspirin is not recommended for pediatric patients in the pre-hospital setting.
Key Points	<ul style="list-style-type: none"> • Aspirin can be administered to a patient who currently takes Coumadin, unless they were advised to avoid it by their physician. • 4-81 mg baby Aspirin tablets equals 324 mg. • If the patient took a dose of Aspirin that was less than 324-325 mg in the last 24 hours, then additional Aspirin can be administered to achieve a therapeutic dose of 324-325 mg. For example, if a patient took an 81 mg dose of Aspirin 12 hours ago, then the paramedic can administer 3 baby Aspirin (243 mg) to achieve a total dose of 324 mg. • Aspirin administration is in the scope of practice for Emergency Medical Technicians.

Atropine

Actions:	<ul style="list-style-type: none"> Increases sinus node firing and cardiac output Increases conduction through the AV node by blocking vagal activities Decreases ectopic beats or fibrillation of the ventricles
Indications:	<ul style="list-style-type: none"> Symptomatic sinus bradycardia Junctional escape and indioventricular beats Organophosphate poisoning/Nerve agent exposure
Contraindications:	<ul style="list-style-type: none"> Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> Avoid use in atrial flutter or atrial fibrillation with a rapid response May increase myocardial oxygen demand May trigger tachy-dysrhythmias
Side Effects:	<ul style="list-style-type: none"> Dry mouth Blurred Vision Flushed skin Urinary retention Headache Tachycardia Pupillary dilation
Medical Command:	<ul style="list-style-type: none"> Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> Bradycardia: 0.5-1.0 mg IV (2.0 mg ETT) every 3-5 minutes (max dose 3 mg). Organophosphate Poisoning: 1 mg IV/IM every 5-10 minutes until symptoms improve. Nerve Agent Exposure: Refer to Duo Dote and Diazepam.
Pediatric Dose:	<ul style="list-style-type: none"> Bradycardia: 0.02 mg/kg IV/IO, repeated once in 5 minutes. Organophosphate Poisoning: If the patient is less than 2 years, 0.02 mg/kg IV or 0.05 mg/kg IM every 5-10 minutes or until symptoms improve. If the patient is 2 years old or older, 1 mg IV or IM every 5-10 minutes until symptoms improve. Nerve Agent Exposure: If the patient is under the age of 10 or 40 kg, administer 0.05 mg/kg IV/IM every 5-10 minutes until the respiratory status improves (max dose 4 mg). Nerve Agent Exposure: over the age of 10 or 40 kg, refer to Duo Dote and Diazepam.
Key Points:	<ul style="list-style-type: none"> Refer to the Key Points in the Duo Dote Procedure for more information on Atropine administration. Nerve agents include, but are not limited to: Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF), VX, VE, VG, VM, VR. Organophosphate chemicals are found in many pesticides and bug sprays, chemicals include, but are not limited to: azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithroton, chlorpyrifos, malathion, methyl parathion, ethion, chlorfenvinphos. Atropine can be administered via ETT. However, the dose must be doubled. In the adult patient, the max dose would be 6 mg ETT.


5% Dextrose In Water D5W

Actions:	<ul style="list-style-type: none"> Dilutes Amiodarone
Indications:	<ul style="list-style-type: none"> To dilute Amiodarone in Wide Complex Tachycardia with a pulse To dilute Amiodarone in patients with more than 6 multifocal PVCs per minute WITH ST elevation To dilute Amiodarone in patients with runs of Ventricular Tachycardia with a pulse
Contraindications:	<ul style="list-style-type: none"> Known hypersensitivity Hypovolemia CVA (Stroke)
Precautions:	<ul style="list-style-type: none"> Tissue necrosis from extravasation
Side Effects:	<ul style="list-style-type: none"> Rare
Medical Command:	<ul style="list-style-type: none"> Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> Dilute the required dose of Amiodarone in 100 ml of D5W and administer over 10 minutes, if the patient is experiencing wide complex tachycardia with a pulse, more than 6 multifocal PVCs per minute with ST elevation, or run of ventricular tachycardia with a pulse.
Pediatric Dose:	<ul style="list-style-type: none"> Dilute the required dose of Amiodarone in 100 ml of D5W and administer the medication over the desired time dictated in respective protocols.
Key Points:	<ul style="list-style-type: none"> D5W should NOT be used to dilute Amiodarone in patients who are in ventricular fibrillation or pulseless ventricular tachycardia. If the patient is in cardiac arrest, DO NOT use D5W to dilute Amiodarone. When administering Amiodarone diluted in 100 ml of D5W, use the “piggy back” method with a microdrip administration set.

Dextrose (D10, D25, and D50)

Actions:	<ul style="list-style-type: none"> Restores circulating blood sugar
Indications:	<ul style="list-style-type: none"> Correction of altered mental status due to hypoglycemia Adult BGL less than 80 mg/dl, Child BGL less than 60 mg/dl, Newborn BGL less than 40 mg/dl Coma with associated hypoglycemia Delirium tremens associated with hypoglycemia Seizure or status epilepticus with associated hypoglycemia
Contraindications:	<ul style="list-style-type: none"> Known hyperglycemia No contraindications for hypoglycemic patients with altered mental status
Precautions:	<ul style="list-style-type: none"> Use with caution for stroke patients When possible collect a blood sample prior to dextrose administration Use a large vein to administer D50/D25
Side Effects:	<ul style="list-style-type: none"> Extravasation of D50/D25 may cause tissue necrosis Hyperglycemia
Medical Command:	<ul style="list-style-type: none"> Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> Dextrose 50% (D50) 25 g in 50 ml IV, OR Dextrose 10% (D10) 25 g in 250 ml IV, may repeat one time in 10 minutes.
Pediatric Dose:	<ul style="list-style-type: none"> 0 – 2 months old: Dextrose 10% (D10) 5 ml/kg IV/IO, may repeat once in 10 minutes. 2 months – 2 years old: Dextrose 25% (D25) 2 ml/kg IV/IO, may repeat one time in 10 minutes. 2 years old or older: Dextrose 50% (D50) 2 ml/kg IV/IO, may repeat one time in 10 minutes.
Key Points:	<ul style="list-style-type: none"> If D10 is not available for pediatric use: Take stock D50 (25g of dextrose) discard 40 ml's from the original 50 ml's, leaving 10 ml's (5g of dextrose). Draw up 40 ml's of normal saline in stock D50 syringe. Total amount of solution is 50 ml's with 10% of dextrose (5g of dextrose in 50 ml's = 10% dextrose). If D25 is not available for pediatric use: Take stock D50 (25g of dextrose) discard 25 ml's from the original 50 ml's, leaving 25 ml's (12.5g of dextrose). Draw up 25 ml's of normal saline in stock D50 syringe. Total amount of solution is 50 ml's with 25% of dextrose (12.5g of dextrose in 50 ml's = 25% dextrose).

Diazepam (Valium)


Actions:	<ul style="list-style-type: none"> • Sedation • Anticonvulsant
Indications:	<ul style="list-style-type: none"> • Status epilepticus or actively seizing • Sedation prior to transcutaneous pacing and synchronized cardioversion in the conscious patient • Seizures from Pre-Eclampsia and Eclampsia • Chest Discomfort due to cocaine induce STEMI
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Altered mental status of unknown origin • Head injury unless actively seizing
Precautions:	<ul style="list-style-type: none"> • Should be used with caution for hypotensive patients and patients with altered mental status • Diazepam potentiates alcohol or other CNS depressants • May cause respiratory depression, respiratory effort must be routinely monitored
Side Effects:	<ul style="list-style-type: none"> • Light headed • Motor impairment • Impaired mental and psychomotor function • Confusion • Slurred speech • Amnesia • Irritability • Respiratory depression
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for: <ul style="list-style-type: none"> ○ sedation prior to transcutaneous pacing ○ sedation prior to synchronized cardioversion
Adult Dose:	<ul style="list-style-type: none"> • Seizure: 5 mg slow IV push, may repeated once in 10 minutes (max dose 10 mg). • Seizures from Pre-Eclampsia/Eclampsia: 5-10 mg slow IV push, may be repeated once in 10 minutes (max does of 10 mg). • Sedation prior to pacing and cardioversion: 2.5-5 mg slow IV push. • Toxic Ingestion/Exposure (Severe): If the patient is over the age of 10 or over 40 kg, and is experiencing a seizure related to the nerve agent exposure, administer 10 mg IM or 5-10 mg IV, may be repeated once in 10 minutes (max dose of 10 mg). • Chest Discomfort: 2.5-5 mg IV <ul style="list-style-type: none"> ○ Only to be utilized for patients experiencing a STEMI after the use of cocaine/cocaine based drugs. ○ Can be administered after Aspirin. ○ Nitroglycerin can be administered after Diazepam use if patient has adequate blood pressure.

Pediatric Dose:	<ul style="list-style-type: none">• Seizure: 0.2 mg/kg slow IV/IO (max dose 5 mg), or 0.5 mg/kg rectal (max dose 10 mg).• Sedation prior to cardioversion: 0.2 mg/kg slow IV/IO push (max dose 5 mg), or 0.5 mg/kg rectal (max dose 10 mg).• Toxic Ingestion/Exposure (Severe): If the patient is 30 days-10 years old, and is experiencing seizure related to the nerve agent exposure, administer 0.05-0.3 mg/kg IV/IO to a max dose of 10 mg.• Toxic Ingestion/Exposure (Severe): If the patient is over the age of 10 or over 40 kg, and is experiencing a seizure related to the nerve agent exposure, administer 10 mg IM or 5-10 mg IV, may be repeated once in 10 minutes (max dose of 10 mg).
Key Points:	<ul style="list-style-type: none">• Use a lubed syringe without a needle when administering medications rectally.• Frequently reassess the patient's vital signs and monitor their EKG after Diazepam (Valium) administration.• If patient is experiencing seizures from nerve agents or organophosphate exposure and Diazepam is not available it is permissible to administer Lorazepam (Ativan) per our normal seizure protocol. Diazepam is the preferred benzodiazepine for seizures from exposures.


Diphenhydramine Hydrochloride (Benadryl)

Actions:	<ul style="list-style-type: none"> • Antihistamine
Indications:	<ul style="list-style-type: none"> • Allergic reaction/Anaphylaxis • Dystonic reaction (Extrapyramidal symptoms)
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • If the patient is experiencing an asthma attack
Precautions:	<ul style="list-style-type: none"> • Avoid the use of Diphenhydramine in nursing mothers • May induce vomiting • Carefully monitor patient while awaiting for medication to take effect (effect of medication begins approximately 15 minutes after administration) • Acute asthma not associated with anaphylaxis
Side Effects:	<ul style="list-style-type: none"> • Sedation • Dries secretions • May exacerbate asthma • Blurred vision • Headache • Hypotension • Tachycardia • Thickening of bronchial secretions
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> • Mild Allergic Reaction: 25 mg IV/IM. • Moderate to Severe Anaphylaxis: 25-50 mg IV/IM. • Dystonic Reaction: 25 mg IV/IM.
Pediatric Dose:	<ul style="list-style-type: none"> • Mild Allergic Reaction: 1 mg/kg IV/IO/IM (max 25 mg). • Moderate to Severe Anaphylaxis: 1 mg/kg IV/IO/IM (max 25 mg). • Dystonic Reaction: 1 mg/kg IV/IO/IM (max 25 mg).
Key Points:	<ul style="list-style-type: none"> • Symptoms of a Dystonic reactions (Extrapyramidal symptoms) include; eye deviation, difficulty speaking due to a “thick” tongue, and involuntary twitching/jerking of the patient’s arms or legs.


Dopamine Hydrochloride

Actions:	<ul style="list-style-type: none"> • Alpha and beta adrenergic receptor stimulator • Dopaminergic receptor stimulator • Dilates renal and mesenteric blood vessels • Vasoconstriction • Arterial resistance • Increase cardiac output • Increase preload
Indications:	<ul style="list-style-type: none"> • Bradycardia • Cardiogenic shock • Septic shock • Anaphylactic shock • Pharmacological substitute for pacing, when indicated • Hypovolemic shock (refractory to volume replacement therapy)
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Hypovolemia without fluid replacement therapy • External hemorrhage, or possible internal hemorrhage • Pheochromocytoma
Precautions:	<ul style="list-style-type: none"> • Extravasation may cause tissue necrosis
Side Effects:	<ul style="list-style-type: none"> • Ectopic beats • Nausea/Vomiting • Tachycardia • Palpitations • Dyspnea • Headache • Angina
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for pediatric administration.
Adult Dose:	<ul style="list-style-type: none"> • Dopamine 5-20 micrograms/kg/minute IV/IO infusion titrated to effect.
Pediatric Dose:	<ul style="list-style-type: none"> • Dopamine 5-20 micrograms/kg/minute IV/IO infusion titrated to effect.
Key Points:	<ul style="list-style-type: none"> • There are two ways to mix Dopamine, if there is not a pre-filled bag: <ol style="list-style-type: none"> 1) Mix 400 mg of Dopamine into a 250 ml bag of Normal Saline. 2) Mix 800 mg of Dopamine into a 500 ml bag of Normal Saline.


Epinephrine

Actions:	<ul style="list-style-type: none"> • Alpha and Beta adrenergic agonist • Bronchodilation • Increase heart rate and automaticity • Increases cardiac contractility • Increases myocardial electrical activity • Increases systemic vascular resistance • Increases blood pressure
Indications:	<ul style="list-style-type: none"> • Cardiac arrest • Allergic reaction/Anaphylaxis • Respiratory distress
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> • Blood pressure, pulse, and EKG must be routinely monitored for all patients receiving Epinephrine • Use caution when using epinephrine for patients with a heart rate greater than 120 bpm
Side Effects:	<ul style="list-style-type: none"> • Palpitations • Anxiousness • Headache • Tremor • Nausea/Vomiting
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for the repeat dose of Epinephrine for severe anaphylaxis in pediatrics.
Adult Dose:	<ul style="list-style-type: none"> • Cardiac arrest: 1:10,000; 1 mg IV every 3-5 minutes (1:1000; 2 mg diluted in 10 ml of Normal Saline ETT every 3-5 minutes). • Anaphylaxis: 1:1000; 0.3-0.5 mg IM, May Repeat every 5 minutes for a total of 3 doses for a severe reaction. • Respiratory distress due to status asthmaticus: 1:1000; 0.3-0.5 mg IM.
Pediatric Dose:	<ul style="list-style-type: none"> • Cardiac arrest: 1:10,000; 0.01 mg/kg (0.1 ml/kg) IV/IO every 3-5 minutes (1:1000; 0.1 mg/kg every 3-5 minutes ETT). • Neonatal Resuscitation: 1:10,000; 0.01 mg/kg (0.1 ml/kg) IV/IO every 3-5 minutes until heart rate is above 60 bpm (1:1000; 0.1 mg/kg ETT). • Bradycardia: 1:10,000; 0.01 mg/kg (0.1 ml/kg) IV/IO every 3-5 minutes (1:1000; 0.1 mg/kg every 3-5 minutes ETT). • Anaphylaxis: 1:1000; 0.01 mg/kg IM (max dose 0.5 mg). • Severe Anaphylaxis: 1:10,000; 0.01 mg/kg (0.1 ml/kg) IV/IO (max dose is 1 mg). • Respiratory distress due to status asthmaticus: 1:1000, 0.01 mg/kg IM (max dose 0.5 mg).
Key Points:	<ul style="list-style-type: none"> • If the patient develops chest discomfort after Epinephrine administration, refer to the <u>Chest Discomfort Protocol</u> (Medical-9). • Epinephrine 1:1000 can be diluted to 1:10,000 when Epinephrine pre-filled cardiac dose is not available. <ul style="list-style-type: none"> ○ Discard 1 ml from 10 ml pre-filled normal saline and draw 1 ml of Epinephrine 1:1000 from vials. Use 1:1000 ampule as last resort. DO NOT draw from 30 ml multi-dose 1:1000.

Fentanyl Citrate (Sublimaze)

Actions:	<ul style="list-style-type: none"> • Central nervous system depressant • Decreases sensitivity to pain
Indications:	<ul style="list-style-type: none"> • Pain management • Sickle Cell Crisis • Chest Discomfort • Post-Resuscitation Care (Adult)
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Head injury or head trauma • Shock • Severe hemorrhage • Undiagnosed abdominal pain
Precautions:	<ul style="list-style-type: none"> • Routinely monitor the patient's respiratory effort • All patients MUST have supplemental oxygen administration
Side Effects:	<ul style="list-style-type: none"> • Dizziness • Altered LOC/coma • Bradycardia
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for: <ul style="list-style-type: none"> ○ Doses exceeding 50 mcg. ○ Morphine substitute for inferior wall MI or right sided MI. ○ Adult Post Resuscitation protocol.
Adult Dose:	<ul style="list-style-type: none"> • Pain Management/Sickle Cell: IV/IO: 25 – 50 mcg IV over 2 minutes, (may repeat in 10 minutes to a max of 50 mcg). IN: 50 mcg • Chest Discomfort: 25 mcg IV or 50 mcg IN <ul style="list-style-type: none"> ○ Maybe used as a morphine substitute for patients experiencing an inferior wall MI or suspected right sided MI ○ Med Command Permission must be obtained. • Post Resuscitation Care: IV/IO: 50 mcg <ul style="list-style-type: none"> ○ Only to be utilized for patients who have an advanced airway established and becomes responsive and is actively resisting the advanced airway. ○ Use with Lorazepam (Ativan) 2mg IV. ○ Med Command permission must be obtained.
Pediatric Dose:	<ul style="list-style-type: none"> • Pain Management/Sickle Cell: • IV/IO/IN: 1 mcg/kg IV over 2 minutes (may repeat in 10 minutes to a max of 2 mcg/kg not to exceed 50 mcg).
Key Points:	<ul style="list-style-type: none"> • A 100 mcg dose of Fentanyl (Sublimaze) is equivalent to a 10 mg dose of Morphine. • A dose of Fentanyl should NOT exceed 100 mcg.


Furosemide (Lasix)

Actions:	<ul style="list-style-type: none"> • Potent diuretic • Inhibits renal sodium re-absorption • Vasodilation, especially of the pulmonary veins
Indications:	<ul style="list-style-type: none"> • Acute pulmonary edema secondary to CHF • Acute pulmonary edema secondary to hypertension
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Known allergy to sulfa • Dehydrated patient • Pregnant patient • Hypotension • Renal failure patient who does not produce urine
Precautions:	<ul style="list-style-type: none"> • May cause dehydration • May cause hypovolemia • May cause hypotension • May cause hypokalemia
Side Effects:	<ul style="list-style-type: none"> • Urination • Hypotension • Nausea and vomiting • Dehydration • Depletion of potassium
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for pediatric administration.
Adult Dose:	<ul style="list-style-type: none"> • 20-80 mg slow IVP. • The IV dose of Furosemide (Lasix) should be the same mg amount as their total daily dose, minimum of 20 mg up to 80 mg max. A patient taking a total dose Furosemide (Lasix) of 40 mg PO daily, should receive a 40 mg IV dose.
Pediatric Dose:	<ul style="list-style-type: none"> • 1mg/kg slow IV/IO (max dose 50 mg).
Key Points:	<ul style="list-style-type: none"> • Furosemide (Lasix) can take 5-20 minutes to take effect. • The IV form of Furosemide (Lasix) is generally considered to be twice as potent as the PO form. • Prior to administration patient's BP must be above 100 mmHg and above 120 mmHg for patients over the age of 70 years old.

Glucagon


Actions:	<ul style="list-style-type: none"> • Causes breakdown of glycogen to glucose • Inhibits glycogen synthesis • Elevates blood glucose level
Indications:	<ul style="list-style-type: none"> • Correction of hypoglycemia when an IV/IO is not able to be established and oral glucose is contraindicated
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> • Glucagon is only effective in patients with sufficient stores of glycogen • Use caution in patients with renal or cardiovascular disease. • Glucagon can be administered on scene, but do not wait for it to take effect
Side Effects:	<ul style="list-style-type: none"> • Few in emergency situations • Nausea and vomiting
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> • IM: 1 mg IM, can be repeated once in 20 minutes.
Pediatric Dose:	<ul style="list-style-type: none"> • IM: 0.01 mg/kg IM, can repeat 0.01 mg/kg dose once in 20 minutes.
Key Points:	<ul style="list-style-type: none"> • Check the patient's BGL before and after the administration Glucagon. • Glucagon can be administered on scene, but do not wait on scene for the medication to take effect. • If an IV is established after administering Glucagon, and the patient is still symptomatic, then administer Dextrose 50% 25 g in 50 ml OR Dextrose 10% 25 g in 250 ml IV for adults. <ul style="list-style-type: none"> ○ Refer to D10, D25, D50 for pediatrics.

Lidocaine (Xylocaine)

Actions:	<ul style="list-style-type: none"> • Suppresses ventricular ectopy • Elevates ventricular tachycardia and ventricular fibrillation threshold
Indications:	<ul style="list-style-type: none"> • Ventricular tachycardia • Ventricular fibrillation • Reduction of premature ventricular contractions (PVCs) • EZ-IO for conscious patients
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • AV blocks • Idioventricular escape rhythms • Accelerated idioventricular rhythm • Sinus bradycardia or arrest or block • Hypotension • Shock
Precautions:	<ul style="list-style-type: none"> • A reduced dose should be administered if the patient has a history of liver failure, or CHF • DO NOT use Lidocaine if Amiodarone has already been administered
Side Effects:	<ul style="list-style-type: none"> • There may be a reduction in the force of ventricular contraction leading to decreased peripheral vascular resistance, cardiac output and blood pressure. • Dizziness • Numbness • Drowsiness • Confusion • Seizure • Respiratory depression
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for patient with chest discomfort.
Adult Dose:	<ul style="list-style-type: none"> • Wide Complex Tachycardia With a pulse: 1-1.5 mg/kg IV/IO Repeat at 0.5-0.75 mg/kg every 5 minutes to a max dose of 3 mg/kg. • If the patient converts due to Lidocaine administration to a non-bradycardic perfusing rhythm, initiate a Lidocaine drip at 2-4 mg/min. • If the patient converts due to cardioversion, administer a loading dose of Lidocaine at 1-1.5 mg/kg and initiate a Lidocaine Drip at 2-4 mg/min. • If the patient has history of liver failure, or CHF give Lidocaine 0.5-0.75 mg/kg IV/IO as initial dose. Repeat 0.5-0.75 mg/kg every 5 minutes to max dose 3mg/kg and initiate a Lidocaine Drip at 2-4 mg/min. • Ventricular Fibrillation or Ventricular Tachycardia without a pulse: Lidocaine 1-1.5 mg/kg every 5 minutes to max dose 3 mg/kg. If the patient converts to a non-bradycardic perfusing rhythm, initiate a Lidocaine Drip at 2-4 mg/min. • If the patient has history of liver failure, or CHF give Lidocaine 0.5-0.75 mg/kg IV/IO as initial dose. Repeat 0.5-0.75 mg/kg every 5 minutes to max dose 3mg/kg and initiate a Lidocaine Drip at 2-4 mg/min.


Adult Dose Cont:	<ul style="list-style-type: none"> • Post Arrest: If the patient was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has NOT received any prior antiarrhythmic medications during the arrest, administer Lidocaine 1-1.5 mg/kg and initiate a Lidocaine Drip at 2-4 mg/min. • If the patient has a history of liver failure, or CHF and was in ventricular fibrillation or ventricular tachycardia at any time during the arrest and has NOT received any prior antiarrhythmic medications OR received Lidocaine more than 10 minutes ago during the arrest, administer Lidocaine 0.5-0.75 mg/kg IV/IO. Initiate a Lidocaine Drip at 2-4 mg/min. • Chest Discomfort: Patient having chest discomfort and experiencing more than 6 multifocal PVCs a minute WITH ST segment elevation on the 12 lead or has runs of ventricular tachycardia and is NOT bradycardic administer Lidocaine 1-1.5 mg/kg IV and initiate a Lidocaine drip at 2-4 mg/min. • EZ-IO: If patient is or becomes conscious. Administer Lidocaine 2% 0.5 mg/kg (not to exceed 40 mg) slowly through the IO site. Infusing Lidocaine 2% rapidly may cause systemic cardiac responses. Wait approximately 30-60 seconds before flushing with normal saline.
Pediatric Dose:	<ul style="list-style-type: none"> • Wide Complex Tachycardia With a pulse: 1 mg/kg IV/IO, if no change may repeat once at 0.5 mg/kg in 10-15 minutes (max 3mg/kg). • Ventricular Fibrillation or Ventricular Tachycardia without a pulse: 1 mg/kg IV/IO, if no change may repeat once at 0.5 mg/kg IV/IO in 10-15 minutes (max dose 3 mg/kg). • If the patient converts due to Lidocaine administration to a non-bradycardic perfusing rhythm, initiate a Lidocaine drip at 20-50 mcg/kg/min. • If the patient converts due to cardioversion, administer a loading dose of Lidocaine at 1 mg/kg and initiate a Lidocaine Drip at 20-50 mcg/kg/min. • EZ-IO: If patient is or becomes conscious. Administer Lidocaine 2% 0.5 mg/kg (not to exceed 40 mg) slowly through the IO site. Infusing Lidocaine 2% rapidly may cause systemic cardiac responses. Wait approximately 30-60 seconds before flushing with 10ml normal saline.
Key Points:	<ul style="list-style-type: none"> • Lidocaine can be administered via ETT. If administered via ETT, double the dose.

Lorazepam (Ativan)



Actions:	<ul style="list-style-type: none"> • Suppresses the spread of seizure activity through the motor cortex of the brain • Sedative
Indications:	<ul style="list-style-type: none"> • Status epilepticus • Sedation prior to transcutaneous pacing and synchronized cardioversion in the conscious patient • Sedation for combative patient • Tremors from DT's or Induced Hypothermia • Chest Discomfort for cocaine induced STEMI • Post-Resuscitation Care (Adult)
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Suspected head injury (unless actively seizing)
Precautions:	<ul style="list-style-type: none"> • Seizure activity may recur, because Lorazepam (Ativan) is short acting. • Lorazepam (Ativan) potentiates alcohol or other CNS depressants • Respiratory effort MUST be routinely monitored
Side Effects:	<ul style="list-style-type: none"> • Respiratory depression • Hypotension • Drowsiness • Headache • Amnesia • Blurred vision • Nausea and Vomiting
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for: <ul style="list-style-type: none"> ○ Sedation prior to transcutaneous pacing ○ Sedation prior to synchronized cardioversion ○ Pediatric combative patients ○ Post-resuscitation care (Adult)
Adult Dose:	<ul style="list-style-type: none"> • Seizures/Seizures from Pre-Eclampsia/Eclampsia: 1-2 mg IV or 2-4 mg IM/IN (If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period). • Sedation prior to pacing or cardioversion: 0.5-1 mg IV or 1-2 mg IM/IN. • Combative patient sedation: 1-2 mg IV or 2-4 mg IM/IN. • Delirium Tremens with severe tremors: 1 mg IV/IM or 2 mg IN. • Induced Hypothermia: 1-2 mg IV or 2-4 mg IN. • Post-Resuscitation Care: 2 mg IV. <ul style="list-style-type: none"> ○ Only to be utilized for patients who have an advanced airway established and becomes responsive and is actively resisting the advanced airway. ○ Use with Fentanyl (Sublimaze) 50 mg IV. ○ Med Command permission must be obtained. • Chest Discomfort: 1-2 mg IV. <ul style="list-style-type: none"> ○ Only to be utilized for patients experiencing a STEMI after the use of cocaine/cocaine based drugs. ○ Can be administered after Aspirin. ○ Nitroglycerin can be administered after Lorazepam use if patient has adequate blood pressure.

Pediatric Dose:	<ul style="list-style-type: none"> • Seizure: 0.1 mg/kg IV/IO over 2-5 minutes (If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period) OR 0.1 mg/kg IN (individual max dose 4 mg). (If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period) OR 0.1 mg/kg IM (individual max dose 2 mg). (If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period) OR 0.2 mg/kg rectally (If needed repeat every 5 minutes, max dose 8 mg within a 12 hour period). • Sedation prior to cardioversion: 0.05 mg/kg IV/IO (max dose 1 mg). 0.05 mg/kg IN (max dose 2 mg). • Combative patient sedation over 10 years old: 0.05 mg/kg IV/IO/IM/IN (max dose 1 mg).
Key Points:	<ul style="list-style-type: none"> • Frequently reassess the patient's vital signs and monitor their EKG after Lorazepam (Ativan) administration. • If patient is experiencing seizures from nerve agents or organophosphate exposure it is permissible to administer Lorazepam (Ativan) per our normal seizure protocol if Diazepam is not available. Diazepam is the preferred benzodiazepine for seizures from exposures.

Morphine Sulfate

Actions:	<ul style="list-style-type: none"> Increases venous capacity reducing venous return Mild vasodilatation Decreases sensitivity to pain
Indications:	<ul style="list-style-type: none"> Cardiac chest discomfort and acute MI Pain management Sickle Cell Crisis
Contraindications:	<ul style="list-style-type: none"> Known hypersensitivity Head injury or head trauma Seizure Altered LOC Undiagnosed abdominal pain Patients with hypotension secondary to volume depletion
Precautions:	<ul style="list-style-type: none"> If the patient responds with respiratory depression or hypotension, then administer Naloxone (Narcan) to reverse the effects Routinely monitor the patient's respiratory effort All patients MUST have supplemental oxygen administration. Morphine may mask pain, so conduct a complete assessment prior to administration Routinely monitor oxygen saturation Morphine Sulfate should be used in caution with patients experiencing unstable angina, hypotension, and/or hypovolemia
Side Effects:	<ul style="list-style-type: none"> Respiratory depression Altered LOC Bradycardia Nausea and vomiting Constricted pupils
Medical Command: 	<ul style="list-style-type: none"> Medical Command authorization is required for: <ul style="list-style-type: none"> Pain management doses exceeding 4 mg in adults. Pain management doses exceeding 2 mg in pediatrics. Patients experiencing cardiac chest discomfort or acute MI.
Adult Dose:	<ul style="list-style-type: none"> Cardiac chest discomfort and acute MI: 2-4 mg IV Pain Management: 2-4mg IV/IM, may repeat every 10 minutes (max dose 10 mg). Sickle Cell Crisis: 2-4mg IV/IM, may repeat every 10 minutes (max dose 10 mg).
Pediatric Dose:	<ul style="list-style-type: none"> Pain Management: 0.05-0.1 mg/kg slow IV (max dose 2 mg). Sickle Cell Crisis: 0.05-0.1 mg/kg slow IV (max dose 2 mg).
Key Points:	<ul style="list-style-type: none"> Routinely monitor the patient's EKG and vital signs after Morphine administration. For pain management, additional doses of Morphine maybe administered every 10 minutes with Med Command approval. Morphine Sulfate is no longer indicated to treat Pulmonary Edema.

Naloxone (Narcan)

Actions:	<ul style="list-style-type: none"> Reverses all effects from opioid agents such as respiratory depression and all central and peripheral nervous system effects.
Indications:	<ul style="list-style-type: none"> Respiratory depression due to opioids Overdose from opioids Patients in cardiac arrest from a suspected opioid overdose Altered mental status of unknown origin
Contraindications:	<ul style="list-style-type: none"> Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> Naloxone may induce acute opiate withdrawal in patients who are physically dependent. Be prepared for a potentially combative patient. Titrate intravenous administration to desired respiratory effect, not intended to restore full consciousness. The effects of Naloxone may not last as long as the effects of opiates, therefore subsequent doses may need to be administered.
Side Effects:	<ul style="list-style-type: none"> Opioid withdrawal Tachycardia Pulmonary edema Nausea Vomiting Seizures
Medical Command: 	<ul style="list-style-type: none"> Medical Command authorization is required for additional Naloxone doses exceeding (12 mg). Total dosages are including administrations from trained medical professionals (CFD/CPD).
Opioid Overdose Adult Dose:	<ul style="list-style-type: none"> IV/IO: 2-4mg (4-8 mg ETT), may repeat every 2 minutes as needed for a max dose of (12 mg). IM: 4 mg, may repeat every 5 minutes as needed for a total of 3 doses (12 mg). IN: 2- 4mg, EMT-B may repeat every 2 minutes for total of (8 mg)  Paramedics proceed to IV/IO/IM routes after 1 IN administration.
Iatrogenic Overdose Adult Dose:	<ul style="list-style-type: none"> IV/IO/IM: 0.4-2 mg (0.8-4 mg ETT), may repeat every 2 minutes as needed. IN: 2 mg.

Pediatric Dose:	<ul style="list-style-type: none">• DO NOT EXCEED ADULT DOSES• IV/IO: 0.1 mg/kg (0.2 mg/kg ETT), may repeat every 2 minutes as needed.• IM: 0.2 mg/kg may repeat every 5 minutes as needed.• IN: 0.1 mg/kg, may repeat ONCE time in 2 minutes• DO NOT USE 4 MG PRE-FILLED AUTO- INJECTOR UNLESS INDICATED
Key Points:	<ul style="list-style-type: none">• If no response after ONE dose given by a trained medical professional, begin efforts to transport patient to the hospital.• Administration of <u>Intranasal Narcan</u> is in the scope of practice for Emergency Medical Responders, Emergency Medical Technicians, and Paramedics• Naloxone (Narcan) administration is authorized for patients in cardiac arrest from suspected opioid overdose• Titrate the dose of intravenous Naloxone (Narcan) to effect.• If intranasal route is being utilized to administer Naloxone (Narcan) to adult patients, they should receive a full 2 mg dose via the atomizer (Mucosal Atomizer Device M.A.D) OR 4 mg via the intranasal auto-injector. Refer to the <u>Intranasal Procedure (IN)</u> (Procedure-16).• Naloxone (Narcan) can be administered via ETT. However, the dose must be doubled.• Wear appropriate PPE (including but not limited to face mask and gloves) due to risk of inadvertent opioid exposure. Avoid touching any opioid related materials unless necessary for patient care.

Nitroglycerin/GoNitro

Actions:	<ul style="list-style-type: none"> • Vasodilation • Coronary artery dilation • Decreases myocardial oxygen demand • Decreases vascular resistance
Indications:	<ul style="list-style-type: none"> • Cardiac chest discomfort, angina and acute MI • Pulmonary edema
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity • Hypotension • Took an erectile dysfunction medication within 48 hours. Erectile dysfunction medications include Sildenafil (Viagra), Vardenafil HCL (Levitra), and Tadalafil (Cialis)
Precautions:	<ul style="list-style-type: none"> • Avoid use in patients with increased intracranial pressure • Avoid use in patients with glaucoma • If the patient becomes hypotensive after Nitro administration, then place the patient in a semi-reclined position with legs elevated (Trendelenburg)
Side Effects:	<ul style="list-style-type: none"> • Throbbing headache • Hypotension • Dizzy • Weakness
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required. • Nitroglycerin is no longer indicated for hypertensive emergencies.
Adult Dose:	<ul style="list-style-type: none"> • Cardiac chest discomfort: 1 packet of 400 mcg SL every 5 minutes to a max of 3 doses/packets (1200 mcg). • Pulmonary edema: 1 packet of 400 mcg SL every 5 minutes to a max of 3 doses/packets (1200 mcg).
Pediatric Dose:	<ul style="list-style-type: none"> • The administration of Nitroglycerin is not recommended for pediatric patients.

Key Points:	<ul style="list-style-type: none">• Nitroglycerin can still be administered if IV attempts were unsuccessful and the patient has a BP greater than 120 mmHg or BP greater than 150 mmHg if over 70 years old.• DO NOT administer Nitroglycerin to a patient who took an erectile dysfunction medication (Viagra, Cialis, Levitra, etc.) within the last 48 hours.• If the patient is 70 years old or older and their systolic blood pressure is less than 120 mmHg with or without an IV, DO NOT administer Nitroglycerin.• Administration of GoNitro should be done while the patient is sitting in an upright position. Gather all of the powder to the bottom of the packet before opening the packet. Place under the powder under the tongue and allow to dissolve without swallowing.• Prevent GoNitro powder from dispersing by removing CPAP mask completely.
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Ondansetron (Zofran)

Actions:	<ul style="list-style-type: none"> • Antiemetic • Prevents nausea by blocking serotonin
Indications:	<ul style="list-style-type: none"> • Nausea • Vomiting
Contraindications:	<ul style="list-style-type: none"> • Known Hypersensitivity • Apomorphine use • Prolong QT interval ($QTc \geq 460$ ms) • Hypokalemia • Hypomagnesemia
Precautions:	<ul style="list-style-type: none"> • Pregnancy • Hepatic Impairment
Side Effects:	<ul style="list-style-type: none"> • Arrhythmias • QT/QTc interval prolongation • Headache • Temporary blindness • Dizziness • Dystonic reaction • Allergic reaction
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is required for administration to neonates.
Adult Dose:	<ul style="list-style-type: none"> • IV: 4 mg over 2-4 minutes, may repeat every 15 minutes (max 8 mg). • IM/PO: 4mg, may repeat every 15 minutes (max 8 mg).
Pediatric Dose:	<ul style="list-style-type: none"> • The administration of Ondansetron is not recommended for pediatric patients.
Key Points	<ul style="list-style-type: none"> • Ondansetron should only be administered to women who are pregnant if it is clearly indicated. • Apomorphine (Apokyn) is commonly prescribed for the treatment of Parkinson's disease. • Hepatic impairment patient's total daily dose should not exceed 8mg. • Reference the patients QTc ($QTc = QT$ interval corrected for rate) when assessing for prolonged QT interval.

Oral Glucose

Actions:	<ul style="list-style-type: none">• Elevates blood glucose level
Indications:	<ul style="list-style-type: none">• Symptomatic hypoglycemia
Contraindications:	<ul style="list-style-type: none">• Known hypersensitivity
Precautions:	<ul style="list-style-type: none">• Be alert for difficulty swallowing or choking due to the thick consistency
Side Effects:	<ul style="list-style-type: none">• Few in emergency situations• Nausea and vomiting
Medical Command:	<ul style="list-style-type: none">• Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none">• One complete tube (15-25 g).
Pediatric Dose:	<ul style="list-style-type: none">• Half a tube (Approximately 7.5-12.5 g).
Key Points:	<ul style="list-style-type: none">• Patient must be alert and oriented, able to follow commands and able to swallow.• To avoid aspiration, slowly place the Oral Glucose between the patient's cheek and gum.• Oral Glucose administration is in the scope of practice for Emergency Medical Technicians.• If the patient prefers, they can self-administer the Oral Glucose.• Caution with patients with known allergies to naturally flavored Oral Glucose.

Oxygen

Actions:	<ul style="list-style-type: none"> Increases oxygen content of blood Improves tissue oxygenation Decreases energy expended for respirations
Indications:	<ul style="list-style-type: none"> Cardiac chest discomfort Hypoxemia Cardiopulmonary arrest Trauma Shortness of breath/dyspnea Sedative drug administrations
Contraindications:	<ul style="list-style-type: none"> None in the pre-hospital setting
Precautions:	<ul style="list-style-type: none"> Never withhold oxygen from those who need it. Be aware for respiratory depression in COPD patients on prolonged high flow oxygen. All sedative medication administration must have oxygen administration.
Side Effects:	<ul style="list-style-type: none"> High concentrations of oxygen may reduce the respiratory drive in some COPD patients; these patients should be carefully monitored.
Medical Command:	<ul style="list-style-type: none"> Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> Nasal Cannula: 4-6 lpm Simple or Partial Rebreather Mask: 10-15 lpm Non-Rebreather Mask: 12-15 lpm T-Piece Nebulizer: 6 lpm Nebulizer with Face Mask: 10 lpm BVM: 15-25 lpm
Pediatric Dose:	<ul style="list-style-type: none"> Nasal Cannula: 4-6 lpm Simple or Partial Rebreather Mask: 10-15 lpm Non-Rebreather Mask: 12-15 lpm T-Piece Nebulizer: 6 lpm Nebulizer with Face Mask: 10 lpm BVM: 15-25 lpm
Key Points:	<ul style="list-style-type: none"> DO NOT let the patient smoke while administering Oxygen.


Pralidoxime (2-PAM Cl) (Duo Dote)

Actions:	<ul style="list-style-type: none"> • Reactivates cholinesterase • Slows the process of “aging” of phosphorylated cholinesterase to a non-reactivatable form • Deactivates certain organophosphates and nerve agents by direct chemical reaction
Indications:	<ul style="list-style-type: none"> • Organophosphate exposure • Nerve agent exposure
Contraindications:	<ul style="list-style-type: none"> • Hypersensitivity
Precautions:	<ul style="list-style-type: none"> • Do not let other rescuers become contaminated. • Do not transport a contaminated patient until they have been decontaminated.
Side Effects:	<ul style="list-style-type: none"> • Pain at the site of injection • Various visual impairments • Dizziness • Hypertension • Tachycardia • Muscular weakness • Manic behavior
Medical Command:	<ul style="list-style-type: none"> • Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none"> • Mild Reaction: One Duo Dote Auto-Injector (600 mg). • Moderate Reaction: One - Two Duo Dote Auto-Injector (600 mg - 1200 mg). • Severe Reaction: Three Duo Dote Auto-Injector (1800 mg).
Pediatric Dose:	<ul style="list-style-type: none"> • The administration of Duo Dote is not recommended for pediatric patients.
Key Points:	<ul style="list-style-type: none"> • Administration of Pralidoxime (2-PAM Cl) (Duo Dote) is in the scope of practice for Emergency Medical Responders, Emergency Medical Technicians, and Paramedics. • When administering Duo Dote, an adult is considered to be anyone over the age of 10, or over 40 kg. • A Duo Dote Auto-Injector includes 600 mg Pralidoxime (2-PAM Cl), 2 mg Atropine in one pre-filled auto injector. Injection given in medial lateral thigh. • If exposed to nerve agents or organophosphates symptoms may include: • Mild symptoms include: muscle twitching and diaphoresis. • Moderate symptoms include: miosis, rhinorrhea, headache, wheezing, GI effects, muscle weakness, diaphoresis, and muscle twitching. • Severe symptoms include: unconsciousness, seizures, flaccidity, and apnea. • SLUDGEM: <u>S</u>alivation, <u>L</u>acrimation, <u>U</u>rination, <u>D</u>efecation, <u>G</u>astrointestinal upset, <u>E</u>mesis, <u>M</u>uscle twitching. • Nerve agents include, but are not limited to: Sarin (GB), Soman (GD), Tabun (GA), Cyclosarin, (GF) VX, VE, VG, VM, VR. • Organophosphate chemicals are found in many pesticides and bug sprays, chemicals include, but are not limited to: azamethipos, pirimiphos-methyl, fenthion, diazinon, dichlorvos, fenithrotrion, chlorpyrifos, malathion, methyl parathion, ethion, chlorpyrifos, chlorfenvinphos.

Promethazine (Phenergan)

Actions:	<ul style="list-style-type: none">• Mild anticholinergic activity• Antiemetic• Potentiates actions of analgesics
Indications:	<ul style="list-style-type: none">• Persistent vomiting• Administration after pain medications
Contraindications:	<ul style="list-style-type: none">• Coma• Under the influence of depressants (including alcohol) with CNS depression
Precautions:	<ul style="list-style-type: none">• Can cause serious complications if accidentally injected into an artery
Side Effects:	<ul style="list-style-type: none">• Drowsiness• Impaired mental and physical ability• Dystonic Reactions (Extrapyramidal Symptoms)
Medical Command:	<ul style="list-style-type: none">• Medical Command authorization is not required.
Adult Dose:	<ul style="list-style-type: none">• 12.5 mg IV or 25 mg IM.
Pediatric Dose:	<ul style="list-style-type: none">• The administration of Promethazine (Phenergan) is not recommended for pediatric patients.
Key Points:	<ul style="list-style-type: none">• Always have Diphenhydramine (Benadryl) on hand when administering Promethazine (Phenergan).• Promethazine (Phenergan) may be administered after pain medications if the patient does not have an altered mental status after the administration of pain medications.• Promethazine will potentiate the effects of analgesics.

Sodium Bicarbonate

Actions:	<ul style="list-style-type: none"> • Corrects acidosis
Indications:	<ul style="list-style-type: none"> • Used in cardiac arrest after a long down time • Hyperkalemia • Tricyclic antidepressant overdoses • Hemodialysis patients in cardiac arrest
Contraindications:	<ul style="list-style-type: none"> • Known hypersensitivity
Precautions:	<ul style="list-style-type: none"> • Should be administered only after airway has been secured • May precipitate CHF
Side Effects:	<ul style="list-style-type: none"> • Hyperosmolality • Alkalosis
Medical Command: 	<ul style="list-style-type: none"> • Medical Command authorization is required for its use in all poisonings and for use as an antidote.
Adult Dose:	<ul style="list-style-type: none"> • Cardiac Arrest: 1 mEq/kg IV. • Tricyclic Antidepressant Overdose: 1 mEq/kg IV/IO.
Pediatric Dose:	<ul style="list-style-type: none"> • Cardiac Arrest: 1 mEq/kg IV/IO (dilute solution 1:1 with Normal Saline). • Tricyclic Antidepressant Overdose: 1 mEq/kg IV/IO (dilute solution 1:1 with Normal Saline).
Key Points:	<ul style="list-style-type: none"> • A long down time is considered a down time of 15-20 minutes. • Sodium Bicarbonate can be given earlier in patients with known dialysis treatment. • Tricyclic Anti-depressants include (but not limited to): Amitriptyline, Amoxapine, Clomipramine, Desipramine, Doxepin, Imipramine, Nortriptyline, Protriptyline, and Trimipramine.

Appendix

Transport Guide

Hospital	Adult Medical Care	Comprehensive Stroke Center	STEMI Care	Adult Major Trauma	Burns	Combat Pt	Hand Injury	OB Service	SANE	PED Critical Medical	PED Major Trauma	PED Stable Medical
Cleveland Clinic Health System Affiliated Hospitals												
Cleveland Clinic Main Campus	Y	Y	Y			Y	Y	Y Only OB Emergency		Y		Y
Euclid Hospital	Y					Y						Y
Fairview Hospital	Y		Y	Y		Y	Y	Y	Both			Y
Hillcrest Hospital	Y		Y	Y		Y	Y	Y	Both			Y
Lutheran Hospital	Y					Y						Y
Marymount Hospital	Y					Y						Y
South Pointe Hospital	Y					Y	Y					Y
Lakewood Hospital (<i>Free Standing</i>)*	Y					Y						Y
University Hospitals Health System Affiliated Hospitals												
University Hospitals Cleveland	Y	Y	Y	Y		Y	Y	Y Adlt				
Rainbow Babies & Children's Hospital						Y	Y	Y	Peds	Y	Y	Y
Ahuja Medical Center	Y		Y			Y						Y
Bedford Medical Center*	Y					Y						Y
Parma Medical Center	Y		Y			Y		Y				Y
Richmond Heights Medical Center*	Y					Y						Y
St. John Medical Center* (Partnered with UH & Sisters of Charity Health System)	Y		Y			Y	Y	Y				Y
MetroHealth Health System Affiliated Hospitals												
MetroHealth System Main Campus	Y	Y	Y	Y	Y	Y	Y	Y	Both	Y	Y	Y
MetroHealth-Cle Hts. (<i>Free Standing</i>)*	Y								Both			Y
MetroHealth-Parma (<i>Free Standing</i>)*	Y								Both			Y
Independent Hospitals												
St. Vincent Charity Medical Center	Y		Y			Y	Y					Y
Southwest General Health Center	Y		Y			Y	Y	Y	Adlt			Y
VA Medical Center*	Y											

* Permission must be obtained from the RED Center Captain prior to transporting to this facility.

Key Points

- Patients are to be transported to their requested hospital unless a medical condition requires that they be transported to an alternate hospital (i.e. trauma, unstable airway, stroke, STEMI, burn, etc.).
 - This is a patient safety issue. This allows the patient's care team to have immediate access to the patient's full medical record, test/EKG/imaging history, and physician specialists. Hospitals in the same network have limited but **NOT** full access to the patient's medical records.
 - This is a financial issue. Many patients' insurance plans now include Narrow Networks. If the patient obtains care outside their specific hospital or network, both the patient and the patient's primary hospital can incur increase costs.
- All stroke patients are now to be transported to a Comprehensive Stroke hospital (MetroHealth, Cleveland Clinic Main, University Hospitals Cleveland Medical).
- OB patients experiencing an obstetrical emergency with imminent delivery (complex high risk, no previous obstetrical care or abnormal birth presentations as examples) shall be transported to the closest OB hospital regardless of affiliation.
 - Cleveland Clinic Main Campus has ability to handle emergency obstetrical cases – *RED Center Captain* shall call Emergency Department to ensure capability.
 - All other OB patients shall be transported to their requested hospital.
- A pediatric patient is age 15 years old or younger, including trauma and sexual assault patients.
- For SANE Care, always contact the receiving hospital prior to transport to ensure a SANE Unit Nurse is available for treatment.
 - If the hospital does not have an available SANE Nurse, contact another hospital for SANE Nurse availability. Regardless of transport time, transport the patient to a hospital with an available SANE Nurse.
- If a VA patient is requesting to be transported to the Louis Stokes Cleveland VA Medical Center, contact the *RED Center Captain*, who will contact the VA.
 - The VA Medical Center cannot accept critical patients; Stroke and STEMI patients shall be transported to other appropriate hospitals.
- Transport is only authorized to standard EDs or FSEDs. Transport is not authorized to Urgent Care, Express Care, Tele-Medicine sites, or other non-ED sites.
- Alternative destinations may be authorized during Mass Casualty Incidents per Incident Command.

- **Free standing ED's (FSED) are required to provide the same services as a standard, hospital based ED. These centers provide basic level ED care and can be the appropriate destination for the certain patients. Patients transported to a FSED should only need routine emergency department care, similar to patients transported to a hospital on a "Treat and Release" EMS restriction. Many FSEDs have observation units to allow prolonged ED monitoring for patients (Ex. stable chest pain and normal EKGs)**

If a patient clearly has a critical illness or complex medical condition that will require admission, then transport to a standard appropriate hospital based ED.

<u>Free Standing ED EXCLUSIONS</u>

- | | |
|---|---|
| <ul style="list-style-type: none"> • Trauma patients (NOTS 1,2) • Cardiac Arrest • STEMI/Stroke patients • Moderate/severe respiratory distress • Altered mental status • Combative • Suicidal | <ul style="list-style-type: none"> • OB emergency >18wks • Infant < 1 year • Patient on dialysis • Vascular compromise • Open or other significant fractures • Eye Trauma |
|---|---|

- These guidelines pertain to City of Cleveland Department of Public Safety. Outside agencies using this guide will need to review your local hospital capabilities and transport times.

Glasgow Coma Score

Adult/Child

<u>Eye Opening</u>	<u>Verbal Response</u>	<u>Motor Response</u>
4-Spontaneous	5-Oriented and converses	6-Obeys verbal commands
3-To speech	4-Disoriented and converses	5-Localizes pain
2-To pain	3-Inappropriate words	4-Withdraws from pain
1-No Response	2-Incomprehensible sounds	3-Decorticate to pain
	1-No response	2-Decerebrate to pain
		1-No response

Infant

<u>Eye Opening</u>	<u>Verbal Response</u>	<u>Motor Response</u>
4-Spontaneous	5-Coos, babbles	6-Spontaneous
3-To speech	4-Irritable cries	5-Localizes pain
2-To pain	3-Cries to pain	4-Withdraws from pain
1-No Response	2-Moans, grunts	3-Flexion
	1-No response	2-Extension
		1-No response

APGAR

<u>Sign</u>	<u>0</u>	<u>1</u>	<u>2</u>
Activity/Muscle Tone	Limp	Some Flexion	Active, Good Activity
Pulse	Absent	Less Than 100	Greater Than 100
Grimace/Reflex Irritability	No Response	Some /Avoidance	Cough, Cry, Sneeze
Appearance/Color	Blue, Pale	Acrocyanosis	Pink
Respirations	Absent	Slow, Irregular, Ineffective	Crying, Effective

Pediatric Vitals

<u>AGE</u>	<u>Systolic BP</u>	<u>Respirations</u>	<u>Heart Rate</u>
Infant	> 60	30 – 60	100 – 160
Toddler	> 70	24 – 40	90 – 150
Preschooler	> 75	22 – 34	80 – 140
School-aged Child	> 80	18 – 30	70 – 120
Adolescent	> 90	12 – 16	60 - 100

Medication	Dose	3 kg ~ 6lbs.	4 kg ~ 9lbs.	5 kg ~ 11lbs.	6 kg ~ 13lbs.	7 kg ~ 15lbs.
Adenosine (Initial)	0.1 mg/kg	0.3 mg	0.4 mg	0.5 mg	0.6 mg	0.7 mg
Adenosine (Repeat)	0.2 mg/kg	0.6 mg	0.8 mg	1 mg	1.2 mg	1.4 mg
Amiodarone (VFIB/VTACH/WCT)	5 mg/kg	15 mg	20 mg	25 mg	30 mg	35 mg
Amiodarone (Converted)	2.5 mg/kg	7.5 mg	10 mg	12.5 mg	15 mg	17.5 mg
Atropine (Bradycardia)	0.02 mg/kg	0.1 mg	0.1 mg	0.1 mg	0.12 mg	0.14 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	0.15 mg	0.2 mg	0.25 mg	0.3 mg	0.35 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.1 mg	0.1 mg	0.1 mg	0.12 mg	0.14 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	0.15 mg	0.2 mg	0.25 mg	0.3 mg	0.35 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	15 ml	20 ml	25 ml	30 ml	35 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	6 ml	8 ml	10 ml	12 ml	14 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	0.15-0.9 mg	0.2-1.2 mg	0.25-1.5 mg	0.3-1.8 mg	0.35-2.1 mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	0.6 mg	0.8 mg	1 mg	1.2 mg	1.4 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	1.5 mg	2 mg	2.5 mg	3 mg	3.5 mg
Diphenhydramine	1 mg/kg	3 mg	4 mg	5 mg	6 mg	7 mg
Dopamine	5-20 mcg/kg/min	15-60 mcg/min	20-80 mcg/min	25-100 mcg/min	30-120 mcg/min	35-140 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.03 mg	0.04 mg	0.05 mg	0.06 mg	0.07 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	0.3 mg	0.4 mg	0.5 mg	0.6 mg	0.7 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.03 mg	0.04 mg	0.05 mg	0.06 mg	0.07 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.03 mg	0.04 mg	0.05 mg	0.06 mg	0.07 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	3 mcg	4 mcg	5 mcg	6 mcg	7 mcg
Furosemide	1 mg/kg	3 mg	4 mg	5 mg	6 mg	7 mg
Glucagon	0.01 mg/kg	0.03 mg	0.04 mg	0.05 mg	0.06 mg	0.07 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	3 mg	4 mg	5 mg	6 mg	7 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	1.5 mg	2 mg	2.5 mg	3 mg	3.5 mg
Lidocaine (Converted)	20-50 mcg/kg/min	60-150 mcg/min	80-200 mcg/min	100-250 mcg/min	120-300 mcg/min	140-350 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	1.5 mg	2 mg	2.5 mg	3 mg	3.5 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	0.3 mg	0.4 mg	0.5 mg	0.6 mg	0.7 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	0.6 mg	0.8 mg	1 mg	1.2 mg	1.4 mg
Lorazepam (Sedation)	0.05 mg/kg	0.15 mg	0.2 mg	0.25 mg	0.3 mg	0.35 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	0.15-0.3 mg	0.2-0.4 mg	0.25-0.5 mg	0.3-0.6 mg	0.35-0.7 mg
Naloxone	0.1 mg/kg	0.3 mg	0.4 mg	0.5 mg	0.6 mg	0.7 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	3 mEq	4 mEq	5 mEq	6 mEq	7 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.

Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	8 kg~18lbs.	9 kg~20lbs.	10 kg~22lbs.	11 kg~24lbs.	12 kg~26lbs.
Adenosine (Initial)	0.1 mg/kg	0.8 mg	0.9 mg	1 mg	1.1 mg	1.2 mg
Adenosine (Repeat)	0.2 mg/kg	1.6 mg	1.8 mg	2 mg	2.2 mg	2.4 mg
Amiodarone (VFIB/VTACH/WCT)	5 mg/kg	40 mg	45 mg	50 mg	55 mg	60 mg
Amiodarone (Converted)	2.5 mg/kg	20 mg	22.5 mg	25 mg	27.5 mg	30 mg
Atropine (Bradycardia)	0.02 mg/kg	0.16 mg	0.18 mg	0.2 mg	0.22 mg	0.24 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	0.40 mg	0.45 mg	0.50 mg	0.55 mg	0.60 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.16 mg	0.18 mg	0.2 mg	0.22 mg	0.24 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	0.40 mg	0.45 mg	0.50 mg	0.55 mg	0.60 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	40 ml	45 ml	50 ml	55 ml	60 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	16 ml	18 ml	20 ml	22 ml	24 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	0.40-2.4 mg	0.45-2.7 mg	0.50-3 mg	0.55-3.3 mg	0.60-3.6 mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	1.6 mg	1.8 mg	2 mg	2.2 mg	2.4 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	4 mg	4.5 mg	5 mg	5.5 mg	6 mg
Diphenhydramine	1 mg/kg	8 mg	9 mg	10 mg	11 mg	12 mg
Dopamine	5-20 mcg/kg/min	40-160 mcg/min	45-180 mcg/min	50-200 mcg/min	55-220 mcg/min	60-240 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.08 mg	0.09 mg	0.1 mg	0.11 mg	0.12 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	0.8 mg	0.9 mg	1 mg	1.1 mg	1.2 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.08 mg	0.09 mg	0.1 mg	0.11 mg	0.12 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.08 mg	0.09 mg	0.1 mg	0.11 mg	0.12 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	8 mcg	9 mcg	10 mcg	11 mcg	12 mcg
Furosemide	1 mg/kg	8 mg	9 mg	10 mg	11 mg	12 mg
Glucagon	0.01 mg/kg	0.08 mg	0.09 mg	0.1 mg	0.11 mg	0.12 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	8 mg	9 mg	10 mg	11 mg	12 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	4 mg	4.5 mg	5 mg	5.5 mg	6 mg
Lidocaine (Converted)	20-50 mcg/kg/min	160-400 mcg/min	180-450 mcg/min	200-500 mcg/min	220-550 mcg/min	240-600 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	4 mg	4.5 mg	5 mg	5.5 mg	6 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	0.8 mg	0.9 mg	1 mg	1.1 mg	1.2 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	1.6 mg	1.8 mg	2 mg	2.2 mg	2.4 mg
Lorazepam (Sedation)	0.05 mg/kg	0.4 mg	0.45 mg	0.5 mg	0.55 mg	0.60 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	0.4-0.8 mg	0.45-0.9 mg	0.50-1 mg	0.55-1.1 mg	0.60-1.2 mg
Naloxone	0.1 mg/kg	0.8 mg	0.9 mg	1 mg	1.1 mg	1.2 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	8 mEq	9 mEq	10 mEq	11 mEq	12 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.

Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	13 kg~29lbs.	14 kg~31lbs.	15 kg~33lbs.	16 kg~35lbs.	17 kg~37lbs.
Adenosine (Initial)	0.1 mg/kg	1.3 mg	1.4 mg	1.5 mg	1.6 mg	1.7 mg
Adenosine (Repeat)	0.2 mg/kg	2.6 mg	2.8 mg	<u>3 mg</u>	<u>3.2 mg</u>	<u>3.4 mg</u>
Amiodarone (VFIB/VTACH/WCT)	5 mg/kg	65 mg	70 mg	75 mg	80 mg	85 mg
Amiodarone (Converted)	2.5 mg/kg	32.5 mg	35 mg	<u>37.5 mg</u>	<u>40 mg</u>	<u>42.5 mg</u>
Atropine (Bradycardia)	0.02 mg/kg	0.26 mg	0.28 mg	0.30 mg	0.32 mg	0.34 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	0.65 mg	0.70 mg	<u>0.75 mg</u>	<u>0.80 mg</u>	<u>0.85 mg</u>
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.26 mg	0.28 mg	0.30 mg	0.32 mg	0.34 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	0.65 mg	0.70 mg	<u>0.75 mg</u>	<u>0.80 mg</u>	<u>0.85 mg</u>
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	65 ml	70 ml	<u>75 ml</u>	<u>80 ml</u>	<u>85 ml</u>
Dextrose 25% or Dextrose 50%	2 ml/kg	26 ml	28 ml	30 ml	32 ml	34 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	0.65-3.9 mg	0.70-4.2 mg	<u>0.75-4.5 mg</u>	<u>0.80-4.8 mg</u>	<u>0.85-5.1 mg</u>
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	0.26 mg	0.28 mg	0.30 mg	0.32 mg	0.34 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	6.5 mg	7 mg	<u>7.5 mg</u>	<u>8 mg</u>	<u>8.5 mg</u>
Diphenhydramine	1 mg/kg	13 mg	14 mg	15 mg	16 mg	17 mg
Dopamine	5-20 mcg/kg/min	65-260 mcg/min	70-280 mcg/min	<u>75-300 mcg/min</u>	<u>80-320 mcg/min</u>	<u>85-340 mcg/min</u>
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.13 mg	0.14 mg	0.15 mg	0.16 mg	0.17 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	1.3 mg	1.4 mg	<u>1.5 mg</u>	<u>1.6 mg</u>	<u>1.7 mg</u>
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.13 mg	0.14 mg	0.15 mg	0.16 mg	0.17 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.13 mg	0.14 mg	<u>0.15 mg</u>	<u>0.16 mg</u>	<u>0.17 mg</u>
Fentanyl (IV/IO/IN)	1 mcg/kg	13 mcg	14 mcg	15 mcg	16 mcg	17 mcg
Furosemide	1 mg/kg	13 mg	14 mg	<u>15 mg</u>	<u>16 mg</u>	<u>17 mg</u>
Glucagon	0.01 mg/kg	0.13 mg	0.14 mg	0.15 mg	0.16 mg	0.17 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	13 mg	14 mg	<u>15 mg</u>	<u>16 mg</u>	<u>17 mg</u>
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	6.5 mg	7 mg	7.5 mg	8 mg	8.5 mg
Lidocaine (Converted)	20-50 mcg/kg/min	260-650 mcg/min	280-700 mcg/min	<u>300-750 mcg/min</u>	<u>320-800 mcg/min</u>	<u>340-850 mcg/min</u>
Lidocaine (EZ-IO)	0.5 mg/kg	6.5 mg	7 mg	7.5 mg	8 mg	8.5 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	1.3 mg	1.4 mg	<u>1.5 mg</u>	<u>1.6 mg</u>	<u>1.7 mg</u>
Lorazepam (Seizure Rectal)	0.2 mg/kg	2.6 mg	2.8 mg	3 mg	3.2 mg	3.4 mg
Lorazepam (Sedation)	0.05 mg/kg	0.65 mg	0.70 mg	<u>0.75 mg</u>	<u>0.80 mg</u>	<u>0.85 mg</u>
Morphine (IV/IM)	0.05-0.1 mg/kg	0.65-1.3 mg	0.70-1.4 mg	0.75-1.5 mg	0.80-1.6 mg	0.85-1.7 mg
Naloxone	0.1 mg/kg	1.3 mg	1.4 mg	<u>1.5 mg</u>	<u>1.6 mg</u>	<u>1.7 mg</u>
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	13 mEq	14 mEq	15 mEq	16 mEq	17 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.
Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	18 kg~40lbs.	19 kg~42lbs.	20 kg~44lbs.	21 kg~46lbs.	22 kg~48lbs.
Adenosine (Initial)	0.1 mg/kg	1.8 mg	1.9 mg	2 mg	2.1 mg	2.2 mg
Adenosine (Repeat)	0.2 mg/kg	3.6 mg	3.8 mg	4 mg	4.2 mg	4.4 mg
Amiodarone (VFIB/VTACH/WCT)	5 mg/kg	90 mg	95 mg	100 mg	105 mg	110 mg
Amiodarone (Converted)	2.5 mg/kg	45 mg	47.5 mg	50 mg	52.5 mg	55 mg
Atropine (Bradycardia)	0.02 mg/kg	0.36 mg	0.38 mg	0.40 mg	0.42 mg	0.44 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	0.90 mg	0.95 mg	1 mg	1.05 mg	1.10 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.36 mg	0.38 mg	0.40 mg	0.45 mg	0.50 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	0.90 mg	0.95 mg	1 mg	1.05 mg	1.10 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	90 ml	95 ml	100 ml	105 ml	110 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	36 ml	38 ml	40 ml	42 ml	44 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	0.90-5.4 mg	0.95-5.7 mg	1-6 mg	1.05-6.3 mg	1.10-6.6 mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	3.6 mg	3.8 mg	4 mg	4.2 mg	4.4 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	9 mg	9.5 mg	10 mg	10 mg	10 mg
Diphenhydramine	1 mg/kg	18 mg	19 mg	20 mg	21 mg	22 mg
Dopamine	5-20 mcg/kg/min	90-360 mcg/min	95-380 mcg/min	100-400 mcg/min	105-420 mcg/min	110-440 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.18 mg	0.19 mg	0.20 mg	0.21 mg	0.22 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	1.8 mg	1.9 mg	2 mg	2.1 mg	2.2 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.18 mg	0.19 mg	0.20 mg	0.21 mg	0.22 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.18 mg	0.19 mg	0.20 mg	0.21 mg	0.22 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	18 mcg	19 mcg	20 mcg	21 mcg	22 mcg
Furosemide	1 mg/kg	18 mg	19 mg	20 mg	21 mg	22 mg
Glucagon	0.01 mg/kg	0.18 mg	0.19 mg	0.20 mg	0.21 mg	0.22 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	18 mg	19 mg	20 mg	21 mg	22 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	9 mg	9.5 mg	10 mg	10.5 mg	11 mg
Lidocaine (Converted)	20-50 mcg/kg/min	360-900 mcg/min	380-950 mcg/min	400-1000 mcg/min	420-1050 mcg/min	440-1100 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	9 mg	9.5 mg	10 mg	10.5 mg	11 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	1.8 mg	1.9 mg	2 mg	2.1 mg	2.2 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	3.6 mg	3.8 mg	4 mg	4 mg	4 mg
Lorazepam (Sedation)	0.05 mg/kg	0.90 mg	0.95 mg	1 mg	1.05 mg	1.10 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	0.90-1.8 mg	0.95-1.9 mg	1-2 mg	1.05-2 mg	1.10-2 mg
Naloxone	0.1 mg/kg	1.8 mg	1.9 mg	2 mg	2.1 mg	2.2 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	18 mEq	19 mEq	20 mEq	21 mEq	22 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.
Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	23 kg~51lbs.	24 kg~53lbs.	25 kg~55lbs.	26 kg~57lbs.	27 kg~59lbs.
Adenosine (Initial)	0.1 mg/kg	2.3 mg	2.4 mg	2.5 mg	2.6 mg	2.7 mg
Adenosine (Repeat)	0.2 mg/kg	4.6 mg	4.8 mg	5 mg	5.2 mg	5.4 mg
Amiodarone (VFIB/VTACH/WCT)	5 mg/kg	115 mg	120 mg	125 mg	130 mg	135 mg
Amiodarone (Converted)	2.5 mg/kg	57.5 mg	60 mg	62.5 mg	65 mg	67.5 mg
Atropine (Bradycardia)	0.02 mg/kg	0.46 mg	0.48 mg	0.50 mg	0.52 mg	0.54 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	1.15 mg	1.20 mg	1.25 mg	1.30 mg	1.35 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.46 mg	0.48 mg	0.50 mg	0.52 mg	0.54 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	1.15 mg	1.20 mg	1.25 mg	1.30 mg	1.35 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	115 ml	120 ml	125 ml	130 ml	135 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	46 ml	48 ml	50 ml	52 ml	54 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	1.15-6.9 mg	1.20-7.2 mg	1.25-7.5 mg	1.30-7.8 mg	1.35-8.1 mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	4.6 mg	4.8 mg	5 mg	5 mg	5 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	10 mg	10 mg	10 mg	10 mg	10 mg
Diphenhydramine	1 mg/kg	23 mg	24 mg	25 mg	25 mg	25 mg
Dopamine	5-20 mcg/kg/min	115-460 mcg/min	120-480 mcg/min	125-500 mcg/min	130-520 mcg/min	135-540 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.23 mg	0.24 mg	0.25 mg	0.26 mg	0.27 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	2.3 mg	2.4 mg	2.5 mg	2.6 mg	2.7 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.23 mg	0.24 mg	0.25 mg	0.26 mg	0.27 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.23 mg	0.24 mg	0.25 mg	0.26 mg	0.27 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	23 mcg	24 mcg	25 mcg	26 mcg	27 mcg
Furosemide	1 mg/kg	23 mg	24 mg	25 mg	26 mg	27 mg
Glucagon	0.01 mg/kg	0.23 mg	0.24 mg	0.25 mg	0.26 mg	0.27 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	23 mg	24 mg	25 mg	26 mg	27 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	11.5 mg	12 mg	12.5 mg	13 mg	13.5 mg
Lidocaine (Converted)	20-50 mcg/kg/min	460-1150 mcg/min	480-1200 mcg/min	500-1250 mcg/min	520-1300 mcg/min	540-1350 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	11.5 mg	12 mg	12.5 mg	13 mg	13.5 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	2.3 mg	2.4 mg	2.5 mg	2.6 mg	2.7 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	4 mg	4 mg	4 mg	4 mg	4mg
Lorazepam (Sedation)	0.05 mg/kg	1.15 mg	1.20 mg	1.25 mg	1.30 mg	1.35 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	1.15-2 mg	1.20-2 mg	1.25-2 mg	1.30-2 mg	1.35-2 mg
Naloxone	0.1 mg/kg	2.3 mg	2.4 mg	2.5 mg	2.6 mg	2.7 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	23 mEq	24 mEq	25 mEq	26 mEq	27 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.
Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	28 kg~62lbs.	29 kg~64lbs.	30 kg~66lbs.	31 kg~68lbs.	32 kg~70lbs.
Adenosine (Initial)	0.1 mg/kg	2.8 mg	2.9 mg	3 mg	3.1 mg	3.2 mg
Adenosine (Repeat)	0.2 mg/kg	5.6 mg	5.8 mg	6 mg	6.2 mg	6.4 mg
Amiodarone (VFIB/VTACH) (WCT max dose 150 mg)	5 mg/kg	140 mg	145 mg	150 mg	155 mg	160 mg
Amiodarone (Converted)	2.5 mg/kg	70 mg	72.5 mg	75 mg	77.5 mg	80 mg
Atropine (Bradycardia)	0.02 mg/kg	0.56 mg	0.58 mg	0.60 mg	0.62 mg	0.64 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	1.4 mg	1.45 mg	1.50 mg	1.55 mg	1.60 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.56 mg	0.58 mg	0.60 mg	0.62 mg	0.64 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	1.4 mg	1.45 mg	1.50 mg	1.55 mg	1.60 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	140 ml	145 ml	150 ml	155 ml	160 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	56 ml	58 ml	60 ml	62 ml	64 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	1.4-8.4 mg	1.45-8.7 mg	1.50-9 mg	1.55-9.3 mg	1.60-9.6 mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	5 mg	5 mg	5 mg	5 mg	5 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	10 mg	10 mg	10 mg	10 mg	10 mg
Diphenhydramine	1 mg/kg	25 mg	25 mg	25 mg	25 mg	25 mg
Dopamine	5-20 mcg/kg/min	140-560 mcg/min	145-580 mcg/min	150-600 mcg/min	155-620 mcg/min	160-640 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.28 mg	0.29 mg	0.30 mg	0.31 mg	0.32 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	2.8 mg	2.9 mg	3 mg	3.1 mg	3.2 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.28 mg	0.29 mg	0.30 mg	0.31 mg	0.32 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.28 mg	0.29 mg	0.30 mg	0.31 mg	0.32 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	28 mcg	29 mcg	30 mcg	31 mcg	32 mcg
Furosemide	1 mg/kg	28 mg	29 mg	30 mg	31 mg	32 mg
Glucagon	0.01 mg/kg	0.28 mg	0.29 mg	0.30 mg	0.31 mg	0.32 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	28 mg	29 mg	30 mg	31 mg	32 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	14 mg	14.5 mg	15 mg	15.5 mg	16 mg
Lidocaine (Converted)	20-50 mcg/kg/min	560-1400 mcg/min	580-1450 mcg/min	600-1500 mcg/min	620-1550 mcg/min	640-1600 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	14 mg	14.5 mg	15 mg	15.5 mg	16 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	2.8 mg	2.9 mg	3 mg	3.1 mg	3.2 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	4 mg	4 mg	4 mg	4 mg	4mg
Lorazepam (Sedation)	0.05 mg/kg	1.4 mg	1.45 mg	1.50 mg	1.55 mg	1.60 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	1.4-2 mg	1.45-2 mg	1.5-2 mg	1.55-2 mg	1.6-2 mg
Naloxone	0.1 mg/kg	2.8 mg	2.9 mg	3 mg	3.1 mg	3.2 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	28 mEq	29 mEq	30 mEq	31 mEq	32 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.

Dopamine and Lidocaine Drips are based on a per minute administration.

Medication	Dose	33 kg~73lbs.	34 kg~75lbs.	35 kg~77lbs.	36 kg~79lbs.	37 kg~81lbs.
Adenosine (Initial)	0.1 mg/kg	0.33 mg	0.34 mg	0.35 mg	0.36 mg	0.37 mg
Adenosine (Repeat)	0.2 mg/kg	6.6 mg	6.8 mg	7 mg	7.2 mg	7.4 mg
Amiodarone (VFIB/VTACH) (WCT max dose 150 mg)	5 mg/kg	165 mg	170 mg	175 mg	180 mg	185 mg
Amiodarone (Converted)	2.5 mg/kg	82.5 mg	85 mg	87.5 mg	90 mg	92.5 mg
Atropine (Bradycardia)	0.02 mg/kg	0.66 mg	0.68 mg	0.70 mg	0.72 mg	0.74 mg
Atropine (Nerve Agent IV/IO) < 10 Years Old or < 40 kg	0.05 mg/kg	1.65 mg	1.70 mg	1.75 mg	1.80 mg	1.85 mg
Atropine (Organophosphate IV/IO) < 2 Years Old	0.02 mg/kg	0.66 mg	0.68 mg	0.70 mg	0.72 mg	0.74 mg
Atropine (Organophosphate IM) < 2 Years Old	0.05 mg/kg	1.65 mg	1.70 mg	1.75 mg	1.80 mg	1.85 mg
Atropine (Organophosphate IV/IO/IM) > 2 Years Old	1 mg	Organophosphate Poisoning ONLY . 2 years old or older 1 mg IV/IM q 5-10 min				
Dextrose 10%	5 ml/kg	165 ml	170 ml	175 ml	180 ml	185 ml
Dextrose 25% or Dextrose 50%	2 ml/kg	66 ml	68 ml	70 ml	72 ml	74 ml
Diazepam (Seizure from Nerve Agent/Organophosphate) >10 Years Old or > 40 kg	10 mg IM 5-10 mg IV	Peds ONLY 10 years old or older or OVER 40 kg 10 mg IM or 5-10 mg IV				
Diazepam (Seizure from Nerve Agent/Organophosphate IV/IM) 30 Days Old to 10 Years Old	0.05-0.3 mg/kg	1.65-9.9 mg	1.70-10 mg	1.75-10 mg	1.80-10 mg	1.85-10mg
Diazepam (Seizure IV/IO, Sedation IV/IO)	0.2 mg/kg	5 mg	5 mg	5 mg	5 mg	5 mg
Diazepam (Seizure Rectal or Sedation Rectal)	0.5 mg/kg	10 mg	10 mg	10 mg	10 mg	10 mg
Diphenhydramine	1 mg/kg	25 mg	25 mg	25 mg	25 mg	25 mg
Dopamine	5-20 mcg/kg/min	165-660 mcg/min	170-680 mcg/min	175-700 mcg/min	180-720 mcg/min	185-740 mcg/min
Epinephrine(Cardiac Arrest/Newborn Resuscitation/Bradycardia IV/IO)	0.01 mg/kg 1:10,000	0.33 mg	0.34 mg	0.35 mg	0.36 mg	0.37 mg
Epinephrine (Cardiac Arrest/Newborn Resuscitation/Bradycardia ETT)	0.1 mg/kg 1:1000	3.3 mg	3.4 mg	3.5 mg	3.6 mg	3.7 mg
Epinephrine (SOB/Anaphylaxis)	0.01 mg/kg 1:1000	0.33 mg	0.34 mg	0.35 mg	0.36 mg	0.37 mg
Epinephrine (Severe Anaphylaxis)	0.01 mg/kg 1:10,000	0.33 mg	0.34 mg	0.35 mg	0.36 mg	0.37 mg
Fentanyl (IV/IO/IN)	1 mcg/kg	33 mcg	34 mcg	35 mcg	36 mcg	37 mcg
Furosemide	1 mg/kg	33 mg	34 mg	35 mg	36 mg	37 mg
Glucagon	0.01 mg/kg	0.33 mg	0.34 mg	0.35 mg	0.36 mg	0.37 mg
Lidocaine (WCT/VFIB/VTACH) (Initial)	1 mg/kg	33 mg	34 mg	35 mg	36 mg	37 mg
Lidocaine (WCT/VFIB/VTACH) (Repeat)	0.5 mg/kg	16.5 mg	17 mg	17.5 mg	18 mg	18.5 mg
Lidocaine (Converted)	20-50 mcg/kg/min	660-1650 mcg/min	680-1700 mcg/min	700-1750 mcg/min	720-1800 mcg/min	740-1850 mcg/min
Lidocaine (EZ-IO)	0.5 mg/kg	16.5 mg	17 mg	17.5 mg	18 mg	18.5 mg
Lorazepam (Seizure IV/IO/IM/IN)	0.1 mg/kg	3.3 mg	3.4 mg	3.5 mg	3.6 mg	3.7 mg
Lorazepam (Seizure Rectal)	0.2 mg/kg	4 mg	4 mg	4 mg	4 mg	4mg
Lorazepam (Sedation)	0.05 mg/kg	1.65 mg	1.70 mg	1.75 mg	1.80 mg	1.85 mg
Morphine (IV/IM)	0.05-0.1 mg/kg	1.65-2 mg	1.70-2 mg	1.75-2 mg	1.80-2 mg	1.85-2 mg
Naloxone	0.1 mg/kg	3.3 mg	3.4 mg	3.5 mg	3.6 mg	3.7 mg
Sodium Bicarb (Dilute 1:1 with normal saline)	1 mEq/kg	33 mEq	34 mEq	35 mEq	36 mEq	37 mEq

These medications are based on approximate conversions. For exact conversions to kilograms divide the patient's weight in pounds by 2.2. See the medication section or protocol for additional dosages and time intervals.
Dopamine and Lidocaine Drips are based on a per minute administration.

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Stages of Pregnancy

Stages of Pregnancy	1st Trimester	2nd Trimester	3rd Trimester
	Conception – 12 weeks	13 weeks – 28 weeks	29 weeks – birth
Mother	Nausea Dizziness Fatigue Tenderness in Breast- around nipple Frequent Urination Heartburn Food Cravings Mood Swings	Growing Belly Cravings Stretch Marks Change in Skin Color Energy Boost Shortness of Breath Body Aches Swelling to ankles, fingers, and face	Fatigue Increased Urination Backaches Heartburn Breast Growth Shortness of Breath Swelling to ankles, fingers, and face Hemorrhoids Tender Breast-may leak watery pre-milk
Baby Development	Placenta Will Form Heart Begin to Beat Organs Develop	Fingerprints Develop Baby Breathes Amniotic Fluid Skin Develops Mother Will Feel Movement Baby Gender	Eyes Open Senses Develop (Hearing, Smelling, and Taste) Respond to Sound
Complications	High Risk for Miscarriage Spotting Bleeding Ectopic Pregnancy, Hyperemesis Gravidarum-severe morning sickness	Gestational Diabetes Pre-Eclampsia Placenta Abruption	Toxemia-Hypertension Malpresentation- Breech, Footling Breech, Face First

Appendix-5

Drug Name	Other brand or generic name	Drug Type	Use/Condition
acarbose	Precose	oral hypoglycemic	diabetes mellitus
Accolate	zafirlukast	bronchospasm inhibitor	asthma
Accupril	quinapril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
accutane	isotretinoin		Severe cystic acne
acebutolol	Sectral	beta blocker	hypertension, angina, arrhythmias
Aceon	perindopril	angiotensin-converting enzyme inhibitor	hypertension, angina, arrhythmias
acetaminophen	Tylenol	non-narcotic analgesic	pain medication
acetazolamide	Diamox	diuretic/anticonvulsant	glaucoma, congestive heart failure, epilepsy mountain sickness
acetylcysteine	Mucosil	mucolytic	asthma
Achromycin V	tetracycline	antibiotic	infection
Aciphex	rabeprazole	inhibits gastric acid secretions	ulcers
Aclovate	alclometasone	steroid anti-inflammatory	
acrivastine	Semprex-D	antihistamine/decongestant	allergies
Actifed	triprolidine+pseudoephedrine	antihistamine/decongestant	allergies
Actigall	ursodiol	bile acid which dissolves gall stones	gall stones
Actos	pioglitazone	oral hypoglycemic	diabetics
acyclovir	Zovirax	antiviral	herpes, shingles, chickenpox
Adalat, Adalat CC	nifedipine	CA++blocker	Angina, hypertension
adapalene	Differin	anti-acne	acne vulgaris
Adderall	amphetamines	central nervous system stimulant	ADD
Aidpex-P	Phentermine	appetite suppressant/stimulant	weight loss medication
Adrenalin	Epinephrine	bronchodilator	asthma
Advil	Ibuprofen	non-steroidal anti-inflammatory analgesic	pain medication
Aerobid	flunisolide	steroid anti-inflammatory inhaler	asthma, bronchitis

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Aerolate, Aerolate III, Aerolate Jr.	theophylline	xanthine bronchodilator	asthma, chronic obstructive pulmonary disease
Agenerase	amprenavir	antiretroviral agent	AIDS, HIV
Agrylin	anagrelide	platelet reducer	thrombocytopenia
Ah-Chew	chlorpheniramine, phenylephrine, methscopolamine	antihistamine/decongestant	cold and sinus medication
Akineton	biperden	antiparkinsonian	prophylaxis of extrapyramidal symptom (dystonias)
Akne-Mycin	erythromycin	antibiotic	infection
albendazole	Albenza	anthelmintic	tapeworm
Albenza	albendazole	anthelmintic	tapeworm
albuterol	Proventil	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Aldactazide	hydrochlorothiazide, spironolactone	diuretics	hypertension
Aldactone	spironolactone	potassium-sparing diuretic	
Aldochlor	methyldopa+ chlorothiazide	antihypertensive/diuretic compound	hypertension
Aldomet	methyldopa	antihypertensive	hypertension
Aldoril	methyldopa+ hydrochlorothiazide	antihypertensive compound	hypertension
Alesse21, Alesse 28	levonorgestrel, estradiol	oral contraceptive	birth control
Aleve	Naproxen	non-steroidal anti-inflammatory	pain medication
Alfenta	alfentanil	analgesic narcotic analgesic/ anesthetic	pain medication
Alkeran	melphanlan	anticancer agent	multiple myeloma, ovarian cancer
Allegra	fexofenadine	antihistamine	allergies
allopurinol	Zyloprim	reduces serum uric acid	gout
Alora	estradiol	hormone	menopause
alosetron	Lotronex	antidiarrheal	irritable bowel syndrome
alprazolam	Xanax	benzodiazepine hypnotic	anxiety
Altace	ramipril	angiotensin-converting enzyme inhibitor	hypertension

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Alupent	metaproterenol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Amaryl	glimepiride	oral hypoglycemic	diabetes mellitus
Ambien	zolpidem	hypnotic	insomnia
Amen	medroxyprogesterone	hormone	endometriosis, amenorrhea, uterine bleeding
Amikin	amikacin	antibiotic	infection
amiloride	Midamor	potassium-sparing diuretic	congestive heart failure, hypertension
aminophylline	Mudrane	bronchodilator	asthma, chronic obstructive pulmonary disease
aminosalicylic acid	Paser Granules	antibacterial	tuberculosis
amitriptyline	Elavil	tricyclic antidepressant	depression
amoxapine	Asendin	tricyclic antidepressant	depression
amoxicillin	Amoxil	an antibiotic	infection
Amoxil	amoxicillin	an antibiotic	infection
amphetamine	Adderall	stimulant	attention deficit disorder
amphojel	aluminum hydroxide	antacid	indigestion
Amphotericin B	Fungizone	antifungal agent	fungus
ampicillin	omnipen	antibiotic	infection
Anafranil	clomipramine	tricyclic antidepressant	depression
Anaplex HD	Hydrocodone, phenylephrine, chlorpheniramine	narcotic antitussive/decongestant/ antihistamine	colds, allergies
Anaprox, Anprox DS	naproxen	non-steroidal anti-inflammatory analgesic/anti-inflammatory agent	
Anatuss DM	guaifenesin, pseudoephedrine, dextromethorphan	expectorant/decongestant/ antitussive	cough
Anatuss LA	guaifenesin, pseudoephedrine,	expectorant/decongestant	cough
Anacodon	flucytosine	antifungal agent	fungus
Android	methyltestosterone	androgen/ steroid/ masculinizing hormone	hypogonadism
Anolor 300	butalbital, acetaminophen, caffeine	sedative/ analgesic	Pain relief

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Antabuse	disulfiram	inhibits metabolism of alcohol	alcohol addiction
Antivert	meclizine	antinauseant	vertigo
Anusol HC	hydrocortisone	steroid anti- inflammatory	hemorrhoids
Apap	acetaminophen	non-narcotic analgesic	pain medication
Aphrodyne	yohimbine	alpha blocker	impotence
APL	chorionic gonadotropin	growth hormone	
Aquatensen	methyclothiazide	antihypertensive/diuretic	hypertension
Aralen	digestive enzymes		poor digestion
Acro-Lase	digestive enzymes		poor digestion
Arco-Lase Plus	digestive enzymes, hyoscyamine, atropine, phenobarbital		poor digestion
Aricept	donepezil	Cholinergic enhancer	Alzheimer's
Arimidex	anastrozole	anticancer agent	Breast cancer
Aristocort	triamcinolone	Steroid anti-inflammatory	
Artane	trihexyphenidyl	antiparkinsonian	prophylaxis of extrapyramidal symptom (dystonias)
ASA	acetylsalicylic acid	aspirin, a non-steroidal anti-inflammatory analgesic	
Asacol	mesalamine	anti-inflammatory agent	colitis
Astelin	azelastine	antihistamine	allergic rhinitis
Astramorph PF	morphine	narcotic analgesic	pain medication
Atamet	carbidopa, levodopa	antiparkinsonian	Parkinson's disease
Atapryl	selegiline	monoamine oxidase inhibitor	Parkinson's disease
Atarax	hydroxyzine	sedative/ tranquilizer/antihistamine	urticaria, anxiety
atenolol & chlorthalidone		beta blocker, diuretic	hypertension
atenolol		beta blocker	hypertension, arrhythmias
Ativan	lorazepam	benzodiazepine hypnotic	
atovaquone	Mepron	antiprotozoal	pneumonia

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Atrohist Plus	phenylephrine, phenylpropanolamine, chlorpheniramine, hyoscyamine, atropine	decongestant, antihistamine	allergies, cold
Atromid-S	clofibrate	antilipiddemic	hyperlipidemia
atropine		antispasmodic/anitsecretory	colds, gastrointestinal (GI) irritation
Atrorvent	ipratropium	anticholinergic bronchodilator	chronic obstructive pulmonary disease
Augmentin	amoxicillin, clavulanate, potassium	antibiotic	infection
Auralgan	antipyrine, benzocaine	ear drop analgesic	ear ache
Avandia	rosiglitazone	oral hypoglycemic	diabetes mellitus
Avonex	interferon	antiviral	multiple sclerosis
Axid	nizatidine	histamine-2 antagonist, which inhibits gastric acid secretion	ulcers
Axocet	butalbital, acetaminophen	sedative/analgesic	tension headache
Aygestin	norethindrone	hormone	amenorrhea, endometriosis
azatadine	Rynatan	antihistamine/decongestant	cold and sinus medication
azathioprine	Imuran	immunosuppressant	organ transplants, arthritis
Azelex	Azelaic Acid	antiacne cream	acne
azithromycin	Zithromax	antibiotic	infection
Azmacort	triamcinolone	steroid anti-inflammatory	asthma, bronchitis
AZT	zidovudine	antiviral agent	AIDS, HIV
aztreonam	Azactam	antibiotic	respiratory tract infections
Azulfidine-EN	sulfasalazine	anti-infective, anti-inflammatory	colitis, arthritis

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
baclofen		muscle relaxant	multiple sclerosis, spinal cord disease
Bactrim, Bactrim DS	trimethoprim, sulfamethoxazole	antibacterials	urinary tract infection, ear infection, bronchitis
Bactroban	mupirocin	topical antibacterial	skin infections
balsam peru	Granulex	necrotic tissue debrider	decubitus and varicose ulcers, sunburn
Basaljel	aluminum carbonate	antacid	heartburn, indigestion
Baycol	cerivastatin	cholesterol inhibitor	high cholesterol
beclomethasone	Beconase	steroid anti-inflammatory	
Beclovent	beclomethasone	steroid anti-inflammatory	asthma, chronic obstructive pulmonary disease
Beconase, Beconase AQ	beclomethasone	steroid anti-inflammatory	asthma, chronic obstructive pulmonary disease
Beelith	magnesium, pyridoxine	magnesium/vitamin B6 supplement	magnesium/vitamin B6 deficiency
belladonna	Belladenal	antispasmodic	irritable bowel syndrome
Benadryl	diphenhydramine	antihistamine	allergies
Benemid	probenecid	uricosuric	gout, also prolong effect of penicillin
Bentyl	Dicyclomine	gastrointestinal (GI) tract antispasmodic	gastrointestinal (GI) irritation
Benylin	diphenhydramine	antihistamine	allergies
Benzac AC	benzoyl peroxide	antibacterial	acne vulgaris
Benzamycin	erythromycin, benzoyl, peroxide	topical antibiotic/keratolytic compound	acne
benzocaine		topical anesthetic	topical pain medication
benzonatate	Tessalon	non-narcotic antitussive	cough
benztropine	Cogentin	anticholinergic	Parkinson's disease
bepidil	Vascor	calcium channel blocker	angina
Berocca	multivitamins	nutritional supplement	vitamin deficiency
Berocca Plus	multivitamins, minerals	nutritional supplement	vitamin deficiency
Betalin	thiamine	Vitamin B-1	vitamin deficiency
betamethasone	Celestone	steroid anti-inflammatory	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Betapace	sotalol	beta blocker	angina, hypertension, arrhythmias
Betaseron	interferon	immunologic	Multiple Sclerosis
betaxolol	Kerlone	beta blocker	hypertension
bethanechol	Urecholine	vagomimetic agent which increases bladder tone	urinary retention
Betoptic	betaxolol	beta-1 blocker eye drops	glaucoma
Biaxin	clarithromycin	antibiotic	infection
Bicillin	penicillin	antibiotic	infection
Bicitra	sodium citrate, citric acid	urinary alkalizer	acidosis
Biltricide	praziquantel	anthelmintic	Schistosomiasis flukes
Biohist-LA	Carbinoxamine, pseudoephedrine	antihistamine	cold and sinus medication
biperiden	Akineton	anticholinergic	Parkinson's disease, extrapyramidal symptom (dystonias)
bisacodyl	Dulcolax	laxative	constipation
bismuth subsalicylate	Pepto-Bismol	antidiarrheal/antinauseant	diarrhea
bisoprolol	Zebeta	beta blocker	hypertension
bitolterol	Tornalate	beta bronchodilator	asthma
Blephamide	sulfacetamide, prednisolone	antibacterial, steroid anti-inflammatory	ocular infections
Blocadren	timolol	beta blocker	angina, hypertension, arrhythmias
Bonine	meclizine	antiemetic	nausea and vomiting, vertigo
Bontril PDM, Bontril Slow Release	phendimetrazine	stimulant, appetite suppressant	obesity
botulinum toxin type A	Botox	paralytic	strabismus, eyelid spasms
Brethine	terbutaline	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Brevicon		oral contraception	birth control
brimonidine	Alphagan	Alpha stimulant	glaucoma
Bromfed Capsules, PD Capsules	brompheniramine, pseudoephedrine	antihistamine, decongestant	Allergic rhinitis, nasal congestion
brompheniramine	Bromfed	antihistamine	allergies

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Broncholate Syrup	ephedrine, guaifenesin	bronchodilator, expectorant	colds, bronchitis
budesonide	Rhinocort	corticosteroid	corticosteroid
bumetanide	Bumex	diuretic	edema, congestive heart failure
Bupap	butalbital, acetaminophen	sedative / analgesic	headache
Buprenex	buprenorphine	narcotic analgesic	pain medication
buprenorphine	Buprenex	narcotic analgesic	pain medication
bupropion	Wellbutrin	an antidepressant	depression
buspar	buspirone	anxiety agent	anxiety disorders
butabarbital	Pyridium	barbiturate sedative / antispasmodic	
butalbital	Fiorinal	barbiturate muscle relaxant / sedative	
butalbital, acetaminophen, caffeine		sedative / analgesic	headache
butorphanol	Stadol NS	narcotic analgesic	pain medication

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
cabergoline	Dostinex	dopaminergic	hyperprolactinemia
caffeine		stimulant	headache
Calan, Calan SR	verapamil	calcium blocker	angina, hypertension, paroxysmal supraventricular tachycardia prophylaxis, headache
Calcet, Calcet Plus		calcium supplement	calcium deficiency
Calcibind	cellulose sodium phosphate	binds calcium	
Capital w/ Codeine	acetaminophen, codeine	narcotic analgesic	pain medication
captopril	Capoten	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Carafate	sucralfate	an anti ulcer agent	ulcers

Drug Name	Other brand or generic name	Drug Type	Use/Condition
carbamazepine	Tegretol	an anticonvulsant	epilepsy
carbidopa & levodopa	Sinemet	dopamine precursors	Parkinson's disease
Cardene	nicardipine	calcium blocker	angina, hypertension
Cardioquin	quinidine	antiarrhythmic	cardiac dysrhythmias
Cardizem, Cardizem CD	diltiazem	calcium blocker	angina, hypertension, paroxysmal supraventricular tachycardia
Cardura	doxazosin	alpha blocker	hypertension, prostatic hypertrophy
carisoprodol	Soma	muscle relaxant / analgesic	
Carnitor	levocarnitine		carnitine deficiency
carteolol	Cartrol	beta blocker	hypertension, angina
Cartrol	carteolol	nonselective beta blocker	hypertension, angina
Casodex	bicalutamide	antiandrogen / anticancer	prostate cancer
Cataflam	diclofenac	non-steroidal anti-inflammatory analgesic	
Catapres	clonidine	an antihypertensive agent	hypertension
Catapres TTS	transdermal clonidine	an antihypertensive	hypertension
Ceclor, Ceclor CD	cefaclor	an antibiotic	infection
Cedax	ceftibuten	an antibiotic	infection
ceenu	lomustine	anticancer agent	brain cancer, Hodgkin's disease
cefaclor	Ceclor	an antibiotic	infection
cefadroxil	Duricef	an antibiotic	infection
cefazolin	Ancef	an antibiotic	infection
cefixime	Suprax	an antibiotic	infection
cefotetan	Cefotan	an antibiotic	infection
cefprozil	Cefzil	an antibiotic	infection
ceftibuten	Cedax	an antibiotic	infection
Ceftin	cefuroxime	an antibiotic	infection
Cefzil	cefprozil	an antibiotic	infection
Celestone	betamethasone	steroid anti-inflammatory	
cellcept	mycophenolate	immunosuppressant	organ transplants
Celontin	methsuximide	anticonvulsant	absence seizure
cephalexin	Keflex	an antibiotic	infection
Cerezyme	imiglucerase	enzyme	Gauchers disease

Appendix-5

Drug Name	Other brand or generic name	Drug Type	Use/Condition
cetirizine	Zyrtec	antihistamine	allergic rhinitis, urticaria
Chemet		lead chelator	lead poisoning
chloral hydrate		a sedative	
chlordiazepoxide		a benzodiazepine hypnotic	
chlorothiazide	Diuril	an antihypertensive / diuretic	hypertension
chlorpheniramine		an antihistamine	allergies
chlorpromazine	Thorazine	a major tranquilizer	
chlorpropamide	Diabinese	oral hypoglycemic	diabetes
chlorthalidone	Hygroton	antihypertensive / diuretic	hypertension
chlorzoxazone	Parafon Forte	sedative / muscle relaxant	
Chromagen	iron, vitamin C, folic acid		anemias
cimetidine	Tagamet	histamine-2 blocker which inhibits gastric acid secretion	ulcers
Cipro	ciprofloxacin	an antimicrobial agent	infection
Claforan	cefotaxime	an antibiotic	infection
Claritin	loratadine	non-sedating antihistamine	allergies
Claritin-D	loratadine, pseudoephedrine	antihistamine / decongestant	allergic rhinitis
clarithromycin	Biaxin	antibiotic	infection
clemastine	Tavist	antihistamine	allergy
Cleocin	clindamycin	an antibiotic	infection
Climara	estradiol	hormone	menopause
clindamycin	Cleocin	an antibiotic	infection
Clinoril	sulindac	non-steroidal anti-inflammatory analgesic	arthritis
clobetasol	Temovate	steroid anti-inflammatory	dermatoses
clofibrate	Atromid-S	reduces serum lipids	
Clomid	clomiphene	ovulatory stimulant, fertility drug	infertility

Drug Name	Other brand or generic name	Drug Type	Use/Condition
clomiphene	Clomid	ovulatory stimulant, fertility drug	infertility
clomipramine	Anafranil	a tricyclic antidepressant	depression
clonazepam	Klonopin	anticonvulsant	seizures, panic disorders
clonidine	Catapres	an antihypertensive agent	hypertension
clorazepate	Tranxene	antianxiety / anticonvulsant	anxiety disorders
clotrimazole	Mycelex	antifungal	candida
clozapine	Clozaril	antipsychotic	schizophrenia
Clozaril	clozapine	psychotropic	schizophrenia
Cocaine		mucous membrane anesthetic	
codeine		a narcotic analgesic / antitussive	pain medication
Codclear DH	hydrocodone, guaifenesin	narcotic antitussive / expectorant	coughs
Codimal DH	hydrocodone, phenylephrine, pyrilamine	narcotic antitussive / decongestant	colds, allergies
Codimal DM	dextromethorphan, phenylephrine, pyrilamine	non-narcotic antitussive / decongestant	colds, allergies
Codimal PH	codeine, phenylephrine, pyrilamine	narcotic antitussive / decongestant compound	colds, allergies
Cogentin	benztropine	an antiparkinsonian	extrapyramidal symptom (dystonias)
Cognex	tacrine	cholinomimetic / Ach-ase inhibitor	Alzheimer's Disease
Colace	docusate	a stool softener	constipation
ColBenemid	probenecid, colchicine	uricosuric	gout
colchicine	ColBenemid	reduces incidence of gout attacks	gout
Colestid	colestipol	reduces serum cholesterol	high cholesterol
colestipol	Colestid	reduces serum cholesterol	high cholesterol
colistin	Cortisporin-TC	antibiotic	ear infections
Combipatch	estradiol, norethindrone	estrogens	menopause symptoms
Combipres	clonidine, chlorthalidone	antihypertensive / diuretic	hypertension

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Combivent	albuterol, ipratropium	bronchodilators	asthma
Combivir	lamivudine, zidovudine	antivirals	HIV, AIDS
Compazine	prochlorperazine	a phenothiazine antiemetic	
Compro	prochlorperazine	a phenothiazine antiemetic	
Concerta	methylphenidate	stimulant	attention deficit hyperactivity disorder in children, narcolepsy
Condylox	podofilox	antimitotic	anogenital warts
conjugated estrogens	Premarin		menopause
Copaxone	glatiramer	neurologic agent	Multiple Sclerosis
Cordarone	amiodarone	antiarrhythmic	ventricular fibrillation, ventricular tachycardia
Cordran	flurandrenolide	steroid anti-inflammatory	
Coreg	carvedilol	beta and alpha blocker	hypertension, congestive heart failure, angina
Cormax	clobetasol	steroid anti-inflammatory	dermatoses
Cortenema	hydrocortisone	steroid anti-inflammatory	colitis
Cortic Ear Drops	chloroxylonol, pramoxine, hydrocortisone	antiseptic, antifungal, steroid anti-inflammatory	
Cortifoam	hydrocortisone	steroid anti-inflammatory	proctitis
Cortisol	hydrocortisone	steroid anti-inflammatory	proctitis
cortisone	Cortone	steroid anti-inflammatory	
Cortisporin	neomycin, polymyxin, hydrocortisone	antibiotic / steroid anti-inflammatory	
Cortone	cortisone	steroid anti-inflammatory	
Corzide	bendroflumethiazide, nadolol	beta blocker, diuretic	hypertension
Cosopt	timolol, dorzolamide	beta blocker, decreases intraocular pressure	glaucoma
Cotazym, Cotazym-S	pancrelipase	digestive enzyme	pancreatitis, cystic fibrosis
Coumadin	warfarin	an anticoagulant	thrombosis prophylaxis
Covera HS	verapamil	calcium blocker	hypertension, angina

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Cozaar	losartan	an antihypertensive	hypertension
Creon	pancrelipase	pancreatic enzyme replacement	
Crixivan	indinavir	protease inhibitor antiviral	AIDS
cromolyn	Intal	antiallergenic	asthma prophylaxis
Cuprimine	penicillamine	chelating agent, anti-inflammatory	Wilson's disease, arthritis, heavy metal toxicity
Cutivate	fluticasone	topical steroid anti-inflammatory	dermatoses
cyanocobalamin	vitamin B-12		anemia
cyclobenzaprine	Felxeril	skeletal muscle relaxant	
cyclosporine	Sandimmune	immunosuppressant agent	prophylaxis of rejection of transplanted organs
cyclophosphamide	Cytosan	anticancer agent	Hodgkin's disease, lymphomas
Cytrin	medroxyprogesterone	hormone	uterine bleeding
Cylert	pemoline	a stimulant	attention deficit disorder in children
cycloheptadine	Periactin	an antihistamine	cold, sinus, and allergies
Cystospaz, Cystospaz-M	hyoscyamine	urinary tract antispasmodic	
Cytomel	liothyronine	thyroid hormone	hypothyroidism
Cytotec	misoprostol	prevents gastric ulcers caused by non-steroidal anti-inflammatories	
Cytovene	ganciclovir	antiviral	AIDS-Related Complex, AIDS
Cytosan	cyclophosphamide	anticancer agent	Hodgkin's disease, lymphomas

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Dallergy	chlorpheniramine, phenylephrine, methscopolamine	antihistamine / decongestant	allergies
danazol	Danocrine	gonadotropin inhibitor	endometriosis, fibrocystic breast disease
Danocrine	danazol	gonadotropin inhibitor	endometriosis, fibrocystic breast disease
Dantrium	dantrolene	skeletal muscle antispasmodic	Multiple Sclerosis, cerebral palsy
dapsone		antibacterial drug	leprosy, dermatitis herpetiformis
Daranide	dichlorphenamide	carbonic anhydrase inhibitor, lowers intraocular pressure	glaucoma
Daraprim	pyrimethamine	antiparasitic	malaria, toxoplasmosis
Darvocet-N	propoxyphene, acetaminophen	narcotic analgesic	pain medication
Darvon	propoxyphene	narcotic analgesic	pain medication
Darvon Compound	propoxyphene, acetylsalicylic acid (aspirin), caffeine	narcotic analgesic compound	pain medication
Daypro	oxaprozin	non-steroidal anti-inflammatory	arthritis
DDAVP	desmopressin	antidiuretic hormone	nocturia, diabetes insipidus
ddC	HIVID, zalcitabine	antiviral	AIDS
Decadron	dexamethasone	steroid anti-inflammatory	
Decadron L.A.	dexamethasone	steroid anti-inflammatory	
Declomycin	demeclocycline	an antibiotic	infection
Deconsal II	pseudoephedrine, guaifenesin	decongestant / expectorant	colds
Defen-LA	pseudoephedrine, guaifenesin	decongestant / expectorant	the common cold
deferoxamine	Desferal	iron-chelator	iron toxicity
dehydroepiandrosterone	Vitamist	vitamins, minerals	vitamin deficiency
delavirudine	Rescriptor	antiviral	HIV

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Demadex	torsemide	diuretic	hypertension, edema, congestive heart failure, kidney disease, liver disease
Demerol	meperidine	narcotic analgesic	pain medication
Demser	metyrosine	antihypertensive	pheochromocytoma
Demulen		oral contraceptive	birth control
Depakene	valproic acid	antiepileptic	epilepsy
Depakote	divalproex	antiepileptic	absence seizures
Depacon	divalproex	antiepileptic	absence seizures
Depen	penicillamine	disease-modifying antirheumatic	arthritis pain
Deponit	nitroglycerin	transdermal nitrate	angina
Depo-Medrol	methylprednisolone	steroid anti-inflammatory	
Depo-Provera	medroxyprogesterone	contraceptive / anticancer agent	endometrial or renal cancer
Deprenyl	selegiline	monoamine oxidase inhibitor	Parkinson's disease
Derifil	chlorophyllin copper	internal deodorant	colostomy, incontinence
Desferal	deferoxamine	iron-chelator	iron toxicity
desflurane	Suprane	inhaled general anesthetic agent	pain medication
desipramine	Norpramin	tricyclic antidepressant	depression
desmopressin	DDAVP	antidiuretic	bed-wetting, diabetes insipidus
Desogen	desogestrel, estradiol	oral contraceptive	birth control
desonide	Desowen	steroid anti-inflammatory	
Desowen	desonide	steroid anti-inflammatory	
Desoxyn	methamphetamine	a stimulant	
Detrol	tolterodine	cholinergic	urinary agent
dexamethasone	Decadron	steroid anti-inflammatory agent	
Dexedrine	dextroamphetamine	a stimulant	
dextroamphetamine	Dexedrine	a stimulant	attention deficit hyperactivity disorder, narcolepsy

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Dextrostat	dextroamphetamine	stimulant	attention deficit hyperactivity disorder, narcolepsy
dextromethorphan	Delsym	a cough suppressant	cough
d4T stavudine	Zerit	antiviral	HIV
Diabeta	glyburide	oral hypoglycemic	diabetes
Diabe-Tuss DM	dextromethorphan	antitussive	cough
Diabinese	chlorpropamide	oral hypoglycemic	diabetes
Diamox	acetazolamide	diuretic / anticonvulsant	glaucoma, congestive heart failure, epilepsy, mountain sickness
Diastat	diazepam	anxiolytic	anxiety, seizure, panic disorder
diazepam	Valium	anxiolytic	anxiety, seizure, panic disorder
diazoxide	Hyperstat	antihypertensive / antihypoglycemic	hypertension
Dibenzyliline	phenoxybenzamine	alpha blocker	hypertension, sweating
diclofenac	Voltaren	non-steroidal anti-inflammatory analgesic	arthritis
dicyclomine	Bentyl	anticholinergic	colitis
didanosine	Videx	antiviral	AIDS, HIV
Didronel	etidronate	bone metabolism regulator	Paget's disease, total hip replacement
Differin	adapalene	topical retinoid	acne
Diflucan	fluconazole	an antifungal agent	fungus
diflunisal	Dolobid	non-steroidal anti-inflammatory analgesic	
digoxin	Lanoxin	cardiac glycoside	congestive heart failure, supraventricular dysrhythmias
dihydrocodeine	Synalgos-DC	narcotic analgesic	pain medication
Dilacor XR	diltiazem	calcium blocker	hypertension, angina
Dilantin	phenytoin	an anticonvulsant	
Dilatrate SR	isosorbide	long-acting nitrate	angina
Dilaudid, Dilaudid HP	hydromorphone	narcotic analgesic	pain medication
Dilor, Dilor-200, Dilor-400, Dilor Elixir	dyphylline	xanthine bronchodilator	asthma, chronic obstructive pulmonary disease

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Dilor-G	dyphylline, guaifenesin	bronchodilator / expectorant	cough / congestion
diltiazem, diltiazem CD	Cardizem	calcium blocker	angina, hypertension, paroxysmal supraventricular tachycardia
dimenhydrinate	Dramamine	antihistamine	allergies
Dimetane-DX	brompheniramine, pseudoephedrine, dextromethorphan	antihistamine / decongestant / antitussive	
diocytl	docusate	stool softener	constipation
Diovan	valsartan	angiotensin II inhibitor	hypertension
Dipentum	olsalazine	anti-inflammatory agent	ulcerative colitis
diphenhydramine	Benadryl	an antihistamine	cough / congestion
diphenoxylate	Lomotil	narcotic	diarrhea
diphenoxylate & atropine	Lomotil	narcotic, antispasmodic	diarrhea
Diprivan	propofol	general anesthetic agent	
dipyridamole	Persantine	vasodilator	angina
dirithromycin	Dynabac	an antibiotic	infection
Disalcid	salsalate	non-steroidal anti-inflammatory	arthritis
disopyramide	Norpace	antiarrhythmic	premature ventricular contractions
disulfiram	Antabuse	inhibits metabolism of alcohol	alcohol addiction
Ditropan, Ditropan XL	oxybutynin	anticholinergic / antispasmodic	urinary frequency, incontinence, dysuria
Diucardin	hydroflumethiazide	antihypertensive / diuretic	hypertension
Diuril	chlorothiazide	antihypertensive / diuretic	hypertension
Diutensen-R	methyclothiazide, reserpine	an antihypertensive / diuretic compound	hypertension
docusate	Dialose	stool softener	constipation
Dolobid	diflunisal	non-steroidal anti-inflammatory analgesic	
Dolophine	methadone	narcotic analgesic	pain medication
donepezil	Aricept	cholinergic	Alzheimer's Disease
Donnagel	kaolin, pectin, belladonna alkaloids	antispasmodic / stool binder	diarrhea

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Donnatal	phenobarbital, belladonna alkaloids	barbiturate sedative, antispasmodic	ulcers
Donnazyme	pancreatic enzymes		pancreatic insufficiency
Dopram	doxapram	respiratory stimulant	obstructive pulmonary disease, surgery
Doryx	doxycycline	an antibiotic	infection
dorzolamide	Trusopt		glaucoma, reduces IOP
Dostinex	cabergoline	dopaminergic	hyperprolactinemia
Dovonex	calcipotriene	topical agent	psoriasis
doxapram	Dopram	respiratory stimulant	chronic obstructive pulmonary disease, surgery
doxazosin	Cardura	alpha blocker	hypertension, prostatic hypertrophy
doxepin	Sinequan	tricyclic antidepressant	depression
Doxil	doxorubicin	antineoplastic	AIDS-related tumors
doxorubicin	Doxil	antineoplastic	AIDS-related tumors
doxycycline	Vibramycin	an antibiotic	infection
Dramamine	dimenhydrinate	an antinauseant	nausea, motion sickness
Dulcolax	bisacodyl	a laxative	constipation
Duramorph	morphine	a narcotic analgesic	pain medication
Duratuss	hydrocodone, pseudoephedrine, guaifenesin	antitussive / decongestant / expectorant	colds, allergies
Duratuss DM	dextromethorphan, guaifenesin	antitussive, expectorant	colds, allergies
Duratuss G	guaifenesin	expectorant	colds, allergies
Dura-Vent	phenylpropanolamine, guaifenesin	decongestant, expectorant	cough / congestion
Duricef	cefadroxil	an antibiotic	infection
Dyazide	hydrochlorothiazide, triamterene	antihypertensive / diuretic	hypertension
Dylix	dyphyllin	xanthine bronchodilator	asthma
Dynabac	dirithromycin	an antibiotic	infection
Dynacin	minocycline	an antibiotic	infection
Dynacirc CR	isradipine	calcium blocker	hypertension, angina
dyphylline	Lufyllin	bronchodilator	chronic obstructive pulmonary disease, asthma
Dyrenium	triamterene	potassium-sparing diuretic	congestive heart failure
Dytuss	diphenhydramine, alcohol	antihistamine	cold, sinus, and allergies

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
E-mycin	erythromycin	an antibiotic	infection
Easprin	acetylsalicylic acid (aspirin)	non-steroidal anti-inflammatory analgesic	arthritis
Ecotrin		enteric coated aspirin, a non-steroidal anti-inflammatory analgesic	
Edecrin	ethacrynic acid	a diuretic	congestive heart failure
EES	erythromycin	an antibiotic	infection
Effexor, Effexor XR	venlafaxine	antidepressant	depression
Elavil	amitriptyline	tricyclic antidepressant	depression
Eldepryl	selegiline	monoamine oxidase inhibitor	Parkinson's disease
Elimite	permethrin	topical scabicide agent	scabies, lice
Elmiron	pentosan	urinary tract analgesic	cystitis
Elocon	mometasone	topical steroid anti-inflammatory	
Elspar	asparaginase	antineoplastic	leukemia, sarcoma
Emcyt	estramustine	anticancer agent	prostate cancer
Emla	lidocaine, prilocaine	topical anesthetic	sunburn, rash
enalapril	Vasotec	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
enalaprilat	Vasotec	IV angiotensin-converting enzyme inhibitor	hypertension
Endal-HD	hydrocodone, phenylephrine, chlorpheniramine	narcotic antitussive / decongestant / antihistamine	
Enduron	methyclothiazide	antihypertensive / diuretic	hypertension
enflurane	Ethrane	general anesthetic	surgery
Entex	phenylephrine, phenylpropan-olamine, guaifenesin	decongestant, expectorant	cough / congestion
Entex LA	phenylpropanolamine, guaifenesin	decongestant, expectorant compound	cough / congestion
Entex PSE	pseudoephedrine, guaifenesin	decongestant, expectorant	cough / congestion
ephedrine	Mudrane	a bronchodilator	asthma, chronic obstructive pulmonary disease
Epi-Pen	epinephrine	bronchodilator / vasoconstrictor	allergic reaction
epinephrine	Primatene Mist	bronchodilator	asthma

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Epivir 3tC	lamivudine	antiviral	HIV
epoetin alfa	Epogen	increases RBC production	anemia
Epogen	epoetin alfa	increases RBC production	anemia
epoprostenol	Flolan	antihypertensive	pulmonary hypertension
Equagesic	meprobamate, acetylsalicylic acid (aspirin)	tranquilizer / analgesic	
Equanil	meprobamate	a tranquilizer	
Ercaf	ergotamine, caffeine	vasoconstrictors	migraine headache
Ergamisol	levamisole	immunomodulator	colon cancer
Ergomar	ergotamine	antimigraine	vascular headache
Eryc	erythromycin	an antibiotic	infection
Eryped	erythromycin	an antibiotic	infection
Ery-Tab	erythromycin	an antibiotic	infection
Erythrocin	erythromycin	an antibiotic	infection
erythromycin	EES	an antibiotic	infection
erythromycin with sulfisoxazole		antibiotics	urinary tract infection
erythropoetin	Epogen	increases RBC production	anemia
Esgic	acetaminophen, caffeine, butalbital	analgesic / muscle relaxant / antianxiety compound	headache
Esgic-Plus	butalbital, acetaminophen, caffeine	sedative / analgesic	
Eskalith	lithium	a tranquilizer	mania, depression
esmolol	Brevibloc	beta blocker	supraventricular tachycardia (SVT)
estazolam	Prosom	sedative / hypnotic	insomnia
Estrace	estradiol	estrogen	menopause
Estraderm	estradiol	topical estrogen	menopause
estradiol	Climara	estrogen	menopause
Estratest	estrogens, methyltestosterone		menopause
Estrostep	norethindrone, estradiol	oral contraceptive	birth control

Drug Name	Other brand or generic name	Drug Type	Use/Condition
estropipate	Ogen	estrogens	menopause
ethinyl estradiol	Ortho-Novum	oral contraceptive	birth control
Ethmozine	moricizine		severe ventricular dysrhythmias
etodolac	Lodine	non-steroidal anti-inflammatory analgesic	headache, arthritis, gout
Etrafon	perphenazine, amitriptyline	major tranquilizer, tricyclic antidepressant	anxiety with depression
Eulexin	flutamide	anticancer agent	prostate cancer
Evista	raloxifene		osteoporosis prevention
Exgest LA	phenylpropanolamine, guaifenesin	decongestant / expectorant	cough / congestion
Extendryl	phenylephrine, methscopolamine, chlorpheniramine	antihistamine, decongestant	allergies

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
famciclovir	Famvir	antiviral	herpes
famotidine	Pepcid	H-2 blocker, inhibits gastric acid	ulcers
Famvir	famciclovir	antiviral	herpes zoster, genital herpes
Fastin	phentermine	a stimulant	appetite suppression
FE-50	iron	an iron supplement	iron deficiency
felbamate	Felbatol	antiepileptic	seizures
Felbatol	felbamate	antiepileptic	seizures
Feldene	piroxicam	a non-steroidal anti-inflammatory analgesic	
felodipine	Plendil	calcium blocker	hypertension, angina
Femara	letrozole	estrogen inhibitor	breast cancer
Fenesin	guaifenesin	an expectorant	colds
Fenesin DM	dextromethorphan, guaifenesin	antitussive, expectorant	colds
fenoprofen	Nalfon	non-steroidal anti-inflammatory analgesic	
fentanyl	Duragesic	narcotic analgesic	pain medication
Feosol		an iron supplement	iron deficiency
Fero-Folic-500	iron, folic acid, vitamin C	vitamins	vitamin deficiency
Fero-Grad-500	iron, vitamin C	vitamin / mineral	vitamin deficiency

Drug Name	Other brand or generic name	Drug Type	Use/Condition
ferrous gluconate		an iron supplement	iron deficiency
ferrous sulfate		an iron supplement	iron deficiency
Fetrin	iron, vitamin C, cyanocobalamin	vitamins	vitamin deficiency
fexofenadine	Allegra	antihistamine	allergies
Fioricet	butalbital, acetaminophen, caffeine, codeine	analgesic	headache
Fioricet with codeine	butalbital, acetaminophen, caffeine, codeine	sedative / narcotic analgesic	pain medication
Fiorinal	butalbital, acetylsalicylic acid (aspirin), caffeine	a non-narcotic analgesic	pain medication
Fiorinal with codeine	butalbital, acetylsalicylic acid (aspirin), caffeine, codeine	narcotic analgesic compound	pain medication
Flagyl	metronidazole	an antimicrobial agent	
flavoxate	Urispas	urinary tract antispasmodic	urinary incontinence
Flexeril	cyclobenzaprine	skeletal muscle relaxant	
Flonase	fluticasone	steroid	allergic rhinitis
Florical	fluoride, calcium	mineral supplement	mineral deficiency
Flomax	tamsulosin	alpha-1 blocker	enlarged prostate
Flovent	fluticasone	steroid anti-inflammatory	asthma
Floxin	ofloxacin	an antibiotic	infection
floxuridine	Fudr	antineoplastic	liver, gastrointestinal (GI) cancer
fluconazole	Diflucan	an antifungal agent	fungus
Flumadine	rimantadine	antiviral	influenza A
fluoxetine	Prozac	a heterocyclic antidepressant	depression
fluphenazine		antipsychotic	schizophrenia, delusions, hallucinations
flurazepam	Dalmane	sedative-hypnotic	insomnia
flurbiprofen		non-steroidal anti-inflammatory analgesic	arthritis
fluvastatin	Lescol	cholesterol reducer	high cholesterol
fluvoxamine	Luvox	antidepressant	depression
folic acid B9	Cefol	vitamin coenzyme	anemia
Fortaz	ceftazidime	an antibiotic	infection
Fosamax	alendronate	reduces bone loss	osteoporosis, Paget's disease

Drug Name	Other brand or generic name	Drug Type	Use/Condition
fosinopril	Monopril	angiotensin-converting enzyme inhibitor	hypertension
Fulvicin	griseofulvin	an antifungal agent	fungus
Fumatinic	iron, vitamins	vitamin / mineral supplement	vitamin deficiency
Furadantin	nitrofurantoin	antibacterial agent	urinary tract infection
furosemide	Lasix	diuretic	congestive heart failure, hypertension
Furoxone	furazolidone	antimicrobial	diarrhea

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Garamycin	gentamicin	an antibiotic	infection
Gastrocrom	cromolyn	antiasthmatic, antiallergic	diarrhea, headache, urticaria, nausea
Gaviscon	magnesium, aluminum	antacid, laxative	constipation, acid reflux
gemfibrozil	Lopid	lowers serum lipids	high cholesterol
Gemzar	gemcitabine	antineoplastic	lung, pancreatic cancer
gentamicin	Garamycin	an antibiotic	infection
Genotropin	somatropin	growth stimulator	AIDS, wasting syndrome, growth disorders
Geocillin	carbenicillin	an antibiotic	infection
glimepiride	Amaryl	oral hypoglycemic	diabetes
glipizide	Glucotrol	oral hypoglycemic	diabetes
glucagon		hormone, mobilizes glucose	hypoglycemia
Glucophage	metformin	oral hypoglycemic	diabetes
glucosamine	Cosamin-DS	cartilage growth stimulator	
Glucotrol	glipizide	oral hypoglycemic	diabetes
Glucovance	glyburide, metformin	oral hypoglycemic	
Glutofac-MX	vitamins, minerals		dietary supplement
glyburide	Diabeta	oral hypoglycemic	diabetes
glycopyrrolate	Robinul	anticholinergic	peptic ulcers
Glynase	glyburide	oral hypoglycemic	diabetes
Glyset	miglitol	oral hypoglycemic	diabetes
Golytely	polyethylene glycol, electrolytes	bowel evacuant	
goserelin	Zoladex	antineoplastic	prostate cancer, endometriosis
granisetron	Kytril	antiemetic	chemotherapy, nausea

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Grifulvin V	griseofulvin	antifungal	ringworm
grepafloxacin	Raxar	antibiotic	bronchitis, gonorrhea
Grisactin	griseofulvin	antifungal agent	fungus
griseofulvin	Fulvicin	antifungal	ringworm
gris-PEG	griseofulvin	antifungal	ringworm
Guaifed, Guaifed-PD	guaifenesin, pseudoephedrine	expectorant / decongestant	cough / congestion
guaifenesin	Robitussin	expectorant	colds, bronchitis
guaifenesin with codeine	Robitussin	expectorant / narcotic antitussive	cough / congestion
Guai-Vent	pseudoephedrine, guaifenesin	decongestant, expectorant	colds, bronchitis
guanabenz	Wyntensin	antihypertensive	hypertension
guanfacine	Tenex	antihypertensive	hypertension
Gynazole-I	butoconazole	antifungal	yeast infections

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Habitrol	nicotine		relief of nicotine withdrawal symptoms
Halcion	triazolam	a benzodiazepine hypnotic	insomnia
Haldol	haloperidol	a major tranquilizer	
Halfprin	aspirin		acute myocardial infarction prophylaxis
haloperidol	Haldol	antipsychotic	psychotic disorders, hyperactivity
hydrochlorothiazide	hydrochlorothiazide	antihypertensive / diuretic	hypertension
Healthy Heart	vitamins	vitamin supplement	vitamin deficiency
Hemocyte	iron	iron supplement	iron deficiency
Hemocyte Plus	iron, vitamins, minerals	vitamin / mineral supplement	vitamin deficiency
Hemocyte F Elixir	iron, vitamins, alcohol	vitamin / mineral supplement	vitamin deficiency
Hemocyte F tablets	iron, folic acid	iron supplement	hepatic dysfunction
HEP-Forte	protein, vitamins, mineral	nutritional supplement	vitamin deficiency
Hexalen	altretamine	anticancer agent	ovarian cancer
Histussin D	hydrocodone, pseudoephedrine	narcotic antitussive / decongestant	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Histussin HC	hydrocodone, phenylephrine, chlorpheniramine	narcotic antitussive / decongestant / antihistamine	
HIVID	zalcitabine	antiviral	AIDS
homosalate	Solbar	sunscreen	UVA, UVB protection
Humalog	insulin	hypoglycemic	diabetes mellitus
Humate-P	antihemophilic factor IV		hemophilia
Humatrope	somatropin	human growth hormone	
Humegon	mentropins	gonadotropin hormone	infertility
Humibid LA	guaifenesin	expectorant	colds
Humorsol	demecarium	topical miotic	glaucoma
Humulin N, Humulin R	insulin	hypoglycemic	diabetes
Hyalgan	sodium hyaluronate	intra-articular polymer injection	osteoarthritis
hyaluronate	Hyalgan	intra-articular polymer injection	osteoarthritis
Hycamtin	topotecan	antineoplastic	ovarian, hepatic cancer
Hycodan	hydrocodone, homatropine	narcotic antitussive	
Hycomine Compound	hydrocodone, chlorpheniramine, acetaminophen, caffeine, phenylephrine	narcotic antitussive / decongestant / antihistamine	colds, upper respiratory infection
Hycomine Syrup	hydrocodone, phenylpropanolamine	narcotic antitussive / decongestant	cough, nasal congestion
Hycotuss	hydrocodone, guaifenesin	narcotic antitussive / expectorant	
hydralazine	Apresoline	antihypertensive agent	hypertension
Hydra-Zide	hydralazine, hydrochlorothiazide	antihypertensive / diuretic	hypertension
Hydrea	hydroxyurea	anticancer agent	melanoma, leukemia, ovarian cancer
Hydrocet	hydrocodone, acetaminophen	narcotic analgesic compound	pain medication
hydrochlorothiazide	hydrochlorothiazide	antihypertensive / diuretic	hypertension
hydrocodone		narcotic analgesic / antitussive	pain medication
hydrocodone with acetaminophen	T-Gesic	narcotic analgesic	pain medication
hydrocortisone	Cortef	steroid anti-inflammatory agent	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Hydrocortone	hydrocortisone	steroid anti-inflammatory	
Hydrodiuril	hydrochlorothiazide	antihypertensive / diuretic	hypertension
hydroflumethiazide	Salutensin	an antihypertensive / diuretic	hypertension
hydromorphone	Dilaudid	narcotic analgesic / antitussive	pain medication
hydroquinone	Melanex		pigmentation disorders
hydroxypropyl	Lacrisert	ophthalmic lubricant	dry eyes
hydroxyurea	Hydrea	anticancer agent	melanoma, leukemia, ovarian cancer
hydroxyzine	Atarax	sedative / tranquilizer / antihistamine	
Hygroton	chlorthalidone	antihypertensive / diuretic	hypertension
Hylorel	guanadrel	a sympatholytic antihypertensive	hypertension
hyoscyamine	Cystospas	an antispasmodic	lower urinary tract and gastrointestinal (GI) tract spasm
hypericum	St John's wort	mood elevator, dietary supplement	depression
Hyperstat	diazoxide	antihypertensive	hypertension
Hytone	hydrocortisone	steroid anti-inflammatory	hypertension
Hytrin	terazosin	an antihypertensive agent	hypertension
Hyzaar	losartan, hydrochlorothiazide	antihypertensive compound	hypertension

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Iberet	iron, vitamins, mineral	vitamin / mineral supplement	vitamin deficiency
IBU	ibuprofen	non-steroidal anti-inflammatory analgesic	
ibuprofen	Advil	non-steroidal anti-inflammatory analgesic	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
ibutilide	Corvert	antiarrhythmic	A Fib, A FL
Iletin	insulin preparations		diabetes mellitus
Imdur	isosorbide mononitrate	long-acting nitrate	angina
imipramine	Tofranil	a tricyclic antidepressant	depression
Imitrex	sumatriptan		migraine headache
Imodium	loperamide	slows peristalsis	diarrhea
Imodium A-D	loperamide	anti-diarrhea agent	diarrhea
Imuran	azathioprine	immunosuppressant	organ transplants, ulcerative colitis, lupus, severe arthritis
indapamide	Lozol	an antihypertensive / diuretic	hypertension
Inderal, Inderal LA	propranolol	beta blocker	hypertension, angina, cardiac dysrhythmias, acute myocardial infarction, and migraine headache
Inderide	propranolol, hydrochlorothiazide	beta blocker, antihypertensive / diuretic compound	hypertension
Indocin, Indocin SR	indomethacin	non-steroidal anti-inflammatory	arthritis
indomethacin	Indocin	non-steroidal anti-inflammatory analgesic	arthritis
Infergen	interferon alfacon-1	antiviral	hepatitis C
INH	isoniazid	antibiotic	tuberculosis
insulin	Humulin	hypoglycemic	diabetes mellitus
Intal	cromolyn	antiallergic	asthma prophylaxis
interferon alfa-2a	Roferon-A	antitumor / antiviral	hepatitis C, leukemia, AIDS-related Kaposi's sarcoma
interferon alfa-2b	Intron-A	antitumor / antiviral	leukemia, melanoma, lymphoma, genital warts
interferon alfacon-1	Infergen	antiviral	hepatitis C
interferon beta 1a	Avonex	immunologic	multiple sclerosis
interferon beta 1b	Betaseron	immunologic	multiple sclerosis
interferon gamma 1b	Actimmune	immunologic	Chronic Granulomatous Disease
Inversine	mecamylamine	an antihypertensive agent	hypertension
Invirase	saquinavir	protease inhibitor antiviral	HIV
Ionamin	phentermine	stimulant	appetite suppression

Drug Name	Other brand or generic name	Drug Type	Use/Condition
ipratropium	Atrovent	bronchodilator	
ISMO	isosorbide mononitrate	vasodilator	angina
isoetharine	Bronkometer	beta bronchodilator	chronic obstructive pulmonary disease, asthma
isoniazid	INH	antibiotic	tuberculosis
isoproterenol		beta bronchodilator	chronic obstructive pulmonary disease, asthma
Isoptin SR	verapamil	calcium blocker	angina, hypertension, paroxysmal supraventricular tachycardia prophylaxis, headache
Isordil	isosorbide dinitrate	long-acting nitrate	angina
isosorbide dinitrate	Isordil	long-acting nitrate	angina

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Je-Vax	Japanese encephalitis virus vaccine inactivated		

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
K-Dur	potassium chloride	a potassium supplement	potassium deficiency
K-Lor	potassium chloride	a potassium supplement	potassium deficiency
K-Phos	potassium phosphate	potassium iron	
K-Tab	potassium chloride	a potassium supplement	potassium deficiency
Kadian	morphine	narcotic analgesic	pain medication
kaolin-pectin	Kaopectate	stool binder	diarrhea
Kaopectate	kaolin, pectin	stool binder	diarrhea
Kayexalate	sodium polystyrene	ion exchange resin	hyperkalemia
Keflex	cephalexin	an antibiotic	infection
Keftab	cephalexin	an antibiotic	infection
Kefurox	cefuroxime	an antibiotic	infection

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Kefzol	cefazolin	an antibiotic	infection
Kerlone	betaxolol	beta-1 blocker	hypertension
ketoconazole	Nizoral	an antifungal agent	fungus
ketoprofen	Orudis	non-steroidal anti-inflammatory	arthritis
ketorolac	Toradol	non-steroidal anti-inflammatory analgesic	
KIE Syrup	potassium iodide, ephedrine	expectorant / bronchodilator	asthma
Kionex	sodium polystyrene	ion exchange resin	hyperkalemia
Klaron	sulfacetamide	an antibacterial	infection
Klonopin	clonazepam	a benzodiazepine hypnotic	seizures
Klor-Con	potassium chloride	a potassium supplement	potassium deficiency
Kogenate	antihemophilic factor VIII		hemophilia
Kristalose	lactulose	stool softener	constipation
Kronofed-A	pseudoephedrine, chlorpheniramine	decongestant, antihistamine	colds allergies
Kutrase	digestive enzymes, hyoscyamine, phenyltoloxamine	antispasmodic / sedative	indigestion
Ku-Zyme	digestive enzymes		indigestion
Kwell	lindane	parasiticide	lice, scabies
Kytril	granisetron	antinauseant / antiemetic	

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
labetalol	Normodyne	beta blocker	hypertension, angina
Lactocal-F		multivitamin / mineral supplement	vitamin deficiency
lactulose	Duphalac	laxative	constipation
Lamictal	lamotrigine	anticonvulsant	seizures
Lamisil	terbinafine	antifungal	fungal infections
lamivudine	Epivir	antiviral	HIV
lamotrigine	Lamictal	anticonvulsant	seizures

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Lanoxicaps	digoxin	cardiac glycoside	congestive heart failure, supraventricular dysrhythmias
Lanoxin	digoxin	cardiac glycoside	congestive heart failure, dysrhythmias
lansoprazole	Prevacid	suppresses gastric acid	ulcers
Lantus	insulin	hypoglycemic agent	diabetes
Lariam	mefloquine	antimalarial agent	malaria
Lescol	fluvastatin	cholesterol reducer	high cholesterol
Leukeran	chlorambucil	anticancer agent	leukemia, lymphoma, Hodgkin's Disease
Leukine	sargramostim	white blood cell mobilizer	chemotherapy, bone marrow transplant
leuprolide	Lupron	hormone	endometriosis
levalbuterol	Xopenex	beta-2 bronchodilator	chronic obstructive pulmonary disease, asthma
levamisole	Ergamisole	immunostimulant	colon cancer
Levaquin	levofloxacin	antibacterial	pneumonia
levetiracetam	Keppra	antiepileptic	seizures
Levatol	penbutolol	beta blocker	hypertension
Levbid	hyoscyamine	antispasmodic	ulcers
Levlen 21, 28	levonorgestrel, estradiol	oral contraceptive	birth control
levodopa	Atamet	dopamine precursor	Parkinson's Disease
Levo-Dromoran	levorphanol	a narcotic analgesic	pain medication
levofloxacin	Levaquin	antibacterial	pneumonia
levonorgestrel	Norplant	implanted contraceptive	
Levora	levonorgestrel, estradiol	oral contraceptive	birth control
levorphanol	Levo-Dromoran	a narcotic analgesic	pain medication
Levothroid	levothyroxine	thyroid hormone	thyroid
levothyroxine	Synthroid	thyroid hormone	thyroid
Levoxyl	levothyroxine	thyroid hormone	thyroid
Levsin, Levsinex	hyoscyamine	antispasmodic	ulcers
Lexxel	enalapril, felodipine	angiotensin-converting enzyme inhibitor, calcium blocker	hypertension
Librium	chlordiazepoxide	benzodiazepine hypnotic	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Lidex, Lidex E	fluocinolone	steroid anti-inflammatory agent	
Limbitrol, Limbitrol DS	chlordiazepoxide, amitriptyline	benzodiazepine hypnotic / tricyclic antidepressant	depression with anxiety
lindane	Kwell	parasiticide	scabies
liothyronine	Cytomel	thyroid hormone	thyroid
liotrix	Thyrolar	thyroid hormone	thyroid
Lipitor	atorvastatin	antihyperlipidemic	high cholesterol
lisinopril	Zestril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure, acute myocardial infarction
lisinopril, hydrochlorothiazide	Zestoretic	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure, acute myocardial infarction
lithium	Lithobid	antimanic	depression, mania
Lithobid	lithium	antimanic	depression, mania
Locoid	hydrocortisone	steroid anti-inflammatory	
Lodine, Lodine XL	etodolac	non-steroidal anti-inflammatory analgesic	
Lodrane allergy capsules	brompheniramine	antihistamine	allergies
Lodrane LD capsules	brompheniramine, pseudoephedrine	antihistamine / decongestant	colds, allergies
Lodrane liquid	brompheniramine, pseudoephedrine	antihistamine / decongestant	colds, allergies
Loestrin 21 FE	norethindrone, estradiol	oral contraceptive	birth control
Lomotil	diphenoxylate, atropine	narcotic antidiarrheal / antispasmodic compound	
Lonox	diphenoxylate, atropine	narcotic antidiarrheal / antispasmodic compound	
LO/Ovral, LO/Ovral 28		an oral contraceptive	birth control
loperamide	Imodium	antidiarrheal agent	diarrhea
Lopid	gemfibrozil	lowers serum lipids	
Lopressor	metoprolol	beta-1 blocker	hypertension
Lopressor HCT	metoprolol, hydrochlorothiazide	beta-1 blocker, diuretic	hypertension
Loprox	ciclopirox	antifungal	ringworm, candida
Lorabid	loracarbef	antibiotic	sinusitis

Drug Name	Other brand or generic name	Drug Type	Use/Condition
loratadine	Claritin	non-sedating antihistamine	allergies
lorazepam	Ativan	a benzodiazepine hypnotic	
Lorcet 10/650, Lorcet HD, Lorcet Plus	hydrocodone, acetaminophen	narcotic analgesic compound	pain medication
Lortab	hydrocodone, acetaminophen	narcotic analgesic	pain medication
losartan	Cozaar	antihypertensive	hypertension
Lotensin	benazepril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Lotrel	amlodipine, benazepril	calcium blocker / angiotensin-converting enzyme inhibitor	hypertension
Lotrimin	clotrimazole	an antifungal agent	fungus
Lotrisone	clotrimazole, betamethasone	topical antifungal / steroid anti-inflammatory compound	
Lotronex	alosetron	antidiarrheal	irritable bowel syndrome
lovastatin	Mevacor	lowers serum cholesterol	high cholesterol
loxapine	Loxitane	an antipsychotic	schizophrenia
Loxitane	loxapine	a tranquilizer	
Lozol	indapamide	an antihypertensive / diuretic	hypertension
Lufyllin	dyphylline	bronchodilator	chronic obstructive pulmonary disease, asthma
Lupron Depot	leuprolide	hormone	endometriosis
Luvox	fluvoxamine	antidepressant	Obsessive Compulsive Disorder
Lysodren	mitotane	chemotherapy agent	adrenal cancer

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Macrobid	nitrofurantoin	antibacterial	urinary tract infection
Macrodantin	nitrofurantoin	antibacterial	urinary tract infection
Mag-Carb	magnesium carbonate	nutritional supplement	magnesium deficiency
Magonate	magnesium gluconate	electrolyte sedative	alcoholism, hypertension, asthma
Mag-OX	magnesium	mineral dietary supplement	magnesium deficiency
Magsal	magnesium, phenyltoloxamine	a sedative compound	
Magtab SR	magnesium	nutritional supplement	magnesium deficiency
Malarone	atovaquone, proguanil	antimalarial agents	malaria
malathion	Ovide	organophosphate insecticide	head lice
maprotiline	Ludiomil	cyclic antidepressant	depression
Marax	ephedrine, theophylline, hydroxyzine	bronchodilator compound	asthma
Marinol	dronabinol	appetite stimulant	weight loss in AIDS, chemotherapy
Materna		vitamin supplement	vitamin deficiency
Matulane	procarbazine	anticancer drug	Hodgkin's Disease
Mavik	trandolapril	angiotensin-converting enzyme inhibitor	hypertension
Maxair	pirbuterol	beta-2 stimulant	asthma, chronic obstructive pulmonary disease
Maxaquin	lomefloxacin	an antibiotic	infection
Maxzide	triamterene, hydrochlorothiazide	antihypertensive / diuretic	hypertension
Mebaral	mephobarbital	barbiturate sedative / anticonvulsant	
meclizine	Antivert	antinauseant	vertigo
meclofenamate		non-steroidal anti-inflammatory	arthritis, pain, dysmenorrhea, heavy menstrual blood loss
Medigesic	butalbital, acetaminophen, caffeine	analgesic compound	headache
Mediplex		vitamin/mineral complex	
medroxyprogesterone		hormone	endometriosis, amenorrhea, uterine bleeding, contraception

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Mefoxin	cefoxitin	an antibiotic	infection
	megestrol	appetite stimulant, an antineoplastic	anorexia with AIDS, breast and endometrial cancer
megestrol	Megace	antineoplastic	breast, endometrial cancer
Megadose		vitamin/mineral complex	
melatonin		hormone	jet lag, S.A.D., depression
Menest	estrogens	hormones	menopause, breast cancer, prostatic cancer
Mentax	butenafine	antifungal	ringworm
Mepergan	meperidine, promethazine	phenothiazine sedative / antiemetic	
meperidine	Demerol	narcotic analgesic	pain medication
mephobarbital	Mebaral	barbiturate sedative / anticonvulsant	
Mephyton	vitamin K-1		coagulation disorders
meprobamate	Miltown	a tranquilizer	
Mepron	atovaquone	antibiotic	pneumocystis carinii pneumonia in AIDS
Mestinon	pyridostigmine	anticholinesterase	myasthenia gravis
metaproterenol	Alupent	beta-2 bronchodilator	chronic obstructive pulmonary disease, asthma
metformin	Glucophage	oral hypoglycemic	diabetes
methadone	Dolophine	narcotic analgesic	pain medication
methamphetamine	Desoxyn	stimulant appetite suppressant	ADD, obesity
methazolamide		reduces intraocular pressure	glaucoma
methenamine	Urised	antiseptic	urinary tract infection, cystitis
Methergine	methylergonovine	uterotonic	postpartum hemorrhage
methimazole	Tapazole	antithyroid	hyperthyroidism
methocarbamol	Robaxin	skeletal muscle antispasmodic	
methotrexate		anticancer agent	psoriasis, arthritis
methsuximide	Celontin	anticonvulsant	absence seizures
methyclothiazide	Aquatensen	antihypertensive/ diuretic	hypertension

Drug Name	Other brand or generic name	Drug Type	Use/Condition
methyldopa	Aldomet	an antihypertensive	hypertension
methylphenidate	Ritalin	stimulant	attention deficit disorder, narcolepsy
methylprednisolone	Medrol	steroid anti-inflammatory	
metoclopramide	Reglan	improves gastric emptying	heartburn, ulcers
metolazone	Zaroxolyn	antihypertensive/diuretic	hypertension
metoprolol	Lopressor	cardioselective beta blocker	hypertension, angina, arrhythmias
metronidazole	Flagyl	an antimicrobial agent	
Mevacor	lovastatin	lowers serum cholesterol	high cholesterol
mexiletine	Mexitil	an antiarrhythmic	abnormal heart rhythm
Mexitil	mexiletine	an antiarrhythmic	abnormal heart rhythm
Mezlin	mezlocillin	broad spectrum antibiotic	infection
Micardis	telmisartan	angiotensin-converting enzyme inhibitor	hypertension
miconazole	Monistat	antifungal	candidiasis
Micronase	glyburide	oral hypoglycemic	diabetes
Micronor	norethindrone	oral contraceptive	birth control
Microzide	hydrochlorothiazide	thiazide antihypertensive/diuretic	hypertension
Midamor	amiloride	a potassium-sparing diuretic	
midazolam	Versed Syrup	sedative / anxiolytic	
Midrin	isometheptene, dichloralphenazone, acetaminophen	vasoconstrictor/sedative/analgesic	headache
miglitol	Glycet	oral hypoglycemic	diabetes
Miltown	meprobamate	a tranquilizer	
Minipress	prazosin	alpha-1 blocker	hypertension
Minitran	transdermal nitroglycerin	nitrate	angina
Minizide	prazosin, polythiazide	an antihypertensive	hypertension
Minocin	minocycline	an antibiotic	infection
minocycline	Minocin	an antibiotic	infection

Drug Name	Other brand or generic name	Drug Type	Use/Condition
minoxidil		vasodilator/ antihypertensive/ topical hair growing agent	hypertension, baldness
Miralax	polyethylene glycol	a laxative	
mirtazapine	Remeron	antidepressant	depression
Moban	molindone	a tranquilizer	
Mobic	meloxicam	non-steroidal anti-inflammatory analgesic	
Moderil	rescinnamine	an antihypertensive	hypertension
Modicon 21, 28		an oral contraceptive	birth control
Moduretic	amiloride, hydrochlorothiazide	antihypertensive/ diuretic	hypertension
moexipril	Univasc	angiotensin-converting enzyme inhibitor	hypertension
mometasone	Elocon	topical steroid anti-inflammatory	
Monistat, Monistat Dual-Pak, Monistat 3	miconazole	an antifungal agent	candidiasis
Monocal	fluoride, calcium	mineral supplement	mineral deficiency
Monoclote-P	Factor VIII	antihemophilic factor	
Monodox	doxycycline	an antibiotic	infection
Monoket	isosorbide mononitrate	nitrate	angina
Monopril	fosinopril	angiotensin-converting enzyme inhibitor	hypertension
Monurol	fosfomycin	antibiotic	urinary tract infection
morphine sulfate		a narcotic analgesic	pain medication
motofen	difenoxin, atropine	narcotic antidiarrheal agent	diarrhea
moxifloxacin	Avelox	antibiotic	bronchitis, pneumonia
Muco-Fen DM	dextromethorphan, guaifenesin	antitussive/ expectorant	colds
Muco-Fen LA	guaifenesin	expectorant	colds
mupirocin	Bactroban	topical antibacterial	skin infections
Myambutol	ethambutol	chemotherapeutic	tuberculosis
Mycelex, Mycelex G	clotrimazole	antifungal	candidiasis
Mycobutin	rifabutin	antibiotic	AIDS
Mycostatin	nystatin	antifungal	candidiasis
mycophenolate	Cellcept	immunosuppressant	organ transplants
Mykrox	metolazone	an antihypertensive/ diuretic	hypertension
Myleran	busulfan	anticancer agent	leukemia
Mylicon	simethicone	antiflatulent	flatulence
Mysoline	primidone	anticonvulsant	epilepsy

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
nabumetone	Relafen	non-steroidal anti-inflammatory	arthritis
nadolol	Corgard	beta blocker	hypertension, angina, arrhythmias
Naftin	naftifine	topical antifungal agent	fungus
Nalex-A	chlorpheniramine, phenyltoloxamine, phenylephrine	antihistamine/sedative /decongestant	colds
Nalex DH	hydrocodone, phenylephrine, alcohol	narcotic antitussive/ decongestant	colds
Nalfon	fenoprofen	non-steroidal anti-inflammatory analgesic	
nalmefene	Revex	narcotic antidote	narcotic overdose
naltrexone	Revia	opioid antagonist; alcohol deterrent	
naphazoline	Naphcon	steroid anti-inflammatory	itching eyes, ocular congestion
Naphcon	naphazoline	steroid anti-inflammatory	itching eyes, ocular congestion
Naprelan	naproxen	non-steroidal anti-inflammatory analgesic	
Naprosyn	naproxen	non-steroidal anti-inflammatory analgesic	
naproxen	Anaprox	non-steroidal anti-inflammatory analgesic	
naratriptan	Amerge		migraine headache
Nardil	phenelzine	monoamine oxidase inhibitor	depression, bulimia
Nasacort, Nasacort AQ	triamcinolone	steroid anti-inflammatory	allergies
Nasalide	flunisolide	a steroid anti-inflammatory agent	
Nasarel	flunisolide	a steroid anti-inflammatory agent	rhinitis
Nascobal	cyanocobalamin	vitamin B-12	anemia
Navane	thiothixene	a major tranquilizer	
Navelbine	vinorelbine	antineoplastic	breast and ovarian cancer, Hodgkin's disease
nedocromil	Tilade	anti-inflammatory	asthma
nefazodone	Serzone	antidepressant	depression
neggram	nalidixic acid	antibacterial	urinary tract infection

Drug Name	Other brand or generic name	Drug Type	Use/Condition
nelfinavir	Viracept	protease inhibitor antiviral	HIV
Nembutal	pentobarbital	barbiturate sedative/ hypnotic	
Neodecadron	neomycin, dexamethasone	antibiotic/steroid anti- inflammatory	
neomycin	Neosporin	antibiotic	infection
Neoral	cyclosporine	immunosuppressant	organ transplant
Neosporin Ointment	polymyxin, bacitracin, neomycin	an antibiotic compound	infection
Neo-Synephrine	phenylephrine	vasoconstrictor, decongestant	
Nesacaine	chloroprocaine	local anesthetic	
Neptazane	methazolamide	reduces aqueous humor production	glaucoma
Nestabs CBF	multivitamins	vitamin supplement	vitamin deficiency
netilmicin	Netromycin	antibiotic	infection
Netromycin	netilmicin	antibiotic	infection
Neupogen	filgrastim	nutrient	chemotherapy
Neurontin	gabapentin	an antiepileptic	
Neutrexin	trimetrexate	an antineoplastic	cancer and pneumocystis pneumonia in AIDS
nevirapine	Viramune	antiviral	HIV, AIDS
Nexium	esomeprazole	suppresses gastric acid pump	ulcers, esophagitis
niacin	vitamin B-3	reduces serum cholesterol	high cholesterol
Niacor	niacin	vitamin B-3	lowers serum cholesterol
nicardipine	Cardene	calcium blocker	angina, hypertension
Nicorette	nicotine chewing gum		cigarette withdraw
nicotine	Nicotrol NS		relief of nicotine withdraw symptoms
Nicotrol NS, Nicotrol Transdermal	nicotine		relief of nicotine withdraw symptoms
nifedipine, nifedipine CC, nifedipine XL	Procardia	calcium blocker	angina, hypertension
Niferex, Niferex-150	iron	mineral	anemia
Niferex-150 Forte	iron, vitamins	iron/vitamin supplement	iron/vitamin deficiency
Niferex-PN, Niferex-PN Forte	iron, multivitamins	iron / vitamin supplement	iron / vitamin deficiency

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Nilandron	nilutamide	antiandrogen	prostate cancer
Nimotop	nimodipine	calcium channel blocker, improves neurological deficits after subarachnoid hemorrhage	
nisoldipine	Sular	calcium channel blocker	hypertension
Nitro-Dur	nitroglycerin	long-acting nitrate	angina prophylaxis
nitrofurantoin	Furadantin	antibacterial agent	urinary tract infection
nitroglycerin	Nitrostat	vasodilator	angina
Nitrol	nitroglycerin	nitrate ointment	angina
Nitrolingual Spray	nitroglycerin	nitrate	angina
Nitrostat	nitroglycerin	vasodilator	angina
Nix	permethrin	parasiticide	head lice
nizatidine	Axid	histamine-2 antagonist	ulcers
Nizoral	ketoconazole	antifungal agent	yeast infections
Nolahist	phenindamine	antihistamine	allergies
Nolamine	phenindamine, chlorpheniramine, phenylpropanolamine	an antihistamine/decongestant	colds, allergies
Nolvadex	tamoxifen	anticancer agent	breast cancer
Norco CIII	hydrocodone, acetaminophen	narcotic analgesic compound	pain medication
Nordette		an oral contraceptive	birth control
Norel	guaifenesin, phenylpropanolamine, phenylephrine	expectorant/decongestant	colds
Norel Plus	acetaminophen, phenyltoloxamine, chlorpheniramine	analgesic/decongestant /antihistamine	colds
norethindrone	Ortho-Novum	oral contraceptive	birth control
Norflex	orphenadrine	non-narcotic analgesic	pain medication
Norgesic	orphenadrine	non-narcotic analgesic	pain medication
Norinyl		an oral contraceptive	birth control
Normodyne	labetalol	beta blocker	hypertension, angina
Noroxin	norfloxacin	urinary tract antibiotic	urinary tract infection
Norpac, Norpac CR	disopyramide	antiarrhythmic	premature ventricular contractions
Norplant	levonorgestrel	contraceptive	birth control
Norpramin	desipramine	a tricyclic antidepressant	depression
Nor-QD	norethindrone	oral contraceptive	birth control

Drug Name	Other brand or generic name	Drug Type	Use/Condition
nortriptyline	Pamelor	a tricyclic antidepressant	depression
Norvasc	amlodipine	calcium blocker	hypertension, angina
Norvir	ritonavir	protease inhibitor antiviral	HIV
Novolin	insulin		diabetes mellitus
Nubain	nalbuphine	a narcotic analgesic	pain medication
Nucofed	codeine, pseudoephedrine	narcotic antitussive/ decongestant compound	
Nucofed Expectorant	codeine, pseudoephedrine, guaifenesin	narcotic antitussive/ decongestant/ expectorant	
Nu-Iron	iron		anemia
Nu-Iron Plus	iron, vitamins	iron/vitamin supplement	iron/vitamin deficiency
Nu-Iron V	iron, vitamins	iron/vitamin supplement	iron/vitamin deficiency
Numorphan	oxymorphone	a narcotic analgesic	pain medication
Nuprin	ibuprofen	a non-steroidal anti- inflammatory analgesic	
nystatin	Mycostatin	an antifungal agent	infection
Nystop	nystatin	antifungal	candida

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Obegyn		vitamins and minerals	vitamin/mineral deficiency
Ocuflox	ofloxacin	ophthalmic anti- infective	conjunctivitis, corneal ulcers
ofloxacin	Floxin	an antibiotic	infection
Ogen	estropipate	estrogen	menopause
olanzapine	Zyprexa	antipsychotic	psychosis
olsalazine	Dipentum	salicylate	ulcerative colitis
omeprazole	Prilosec	suppresses gastric acid secretion	ulcers, esophagitis, GERD
Omnicef	cefdinir	antibiotic	pneumonia, bronchitis
Omnihist LA	chlorpheniramine, phenylephrine, methscopolamine	antihistamine/ decongestant	colds, allergies
opium alkaloids		narcotic analgesic/ antidiarrheal	diarrhea

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Oramorph	morphine sulfate	narcotic analgesic	pain medication
Orap	pimozide	antipsychotic	motor and phonic tics
Organidin NR	guaifenesin	expectorant	bronchitis
Orlaam	levomethadyl	opiate agonist	narcotic addiction
orlistat	Zenical	lipase inhibitor	obesity
Ornade	chlorpheniramine, phenylpropanolamine	antihistamine/ decongestant compound	colds, allergies
orphenadrine	Norflex	non-narcotic analgesic	
Ortho-Cept 21, 28		an oral contraceptive	birth control
Ortho-Cyclen-21, 28		an oral contraceptive	birth control
Ortho-EST	estropipate	estrogen	menopause, osteoporosis
Ortho-Novum		an oral contraceptive	birth control
Ortho Tri-Cyclen-21, 28		an oral contraceptive	birth control
Orudis	ketoprofen	non-steroidal anti- inflammatory	arthritis
Oruvail	ketoprofen	non-steroidal anti- inflammatory analgesic	
Os-Cal		calcium and vitamin D supplement	calcium and vitamin D deficiency
Ovcon		an oral contraceptive	birth control
Ovral		an oral contraceptive	birth control
Ovrette	norgestrel	an oral contraceptive	birth control
Oxandrin	oxandrolone	anabolic steroid	osteoporosis, weight loss
oxaprozin	Daypro	non-steroidal anti- inflammatory	arthritis
oxazepam	Serax	a benzodiazepine hypnotic	
Oxistat	oxiconazole	topical antifungal agent	fungus
oxycodone	Percodan	a narcotic analgesic	pain medication
oxycodone with acetaminophen	Tylox	narcotic analgesic compound	pain medication
Oxycontin	oxycodone	narcotic analgesic	pain medication
Oxyir	oxycodone	narcotic analgesic	pain medication

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Pacaps	butalbital, caffeine, acetaminophen	sedative/analgesic	headache
Pamelor	nortriptyline	a tricyclic antidepressant	depression
Pancrease, Pancrease MT	pancreatic enzymes		cystic fibrosis, pancreatitis
pantoprazole	Protonix	suppresses gastric acid	ulcers
Parafon Forte	chlorzoxazone, acetaminophen	muscle relaxant/analgesic compound	
Paraplatin	carboplatin	anti-cancer agent	ovarian cancer
paricalcitol	Zemplar	vitamin D	hyperparathyroidism
Parlodel	bromocriptine	ergot	Parkinson's disease, hypogonadism, infertility, amenorrhea
Parnate	tranylcypromine	monoamine oxidase inhibitor	depression
paroxetine	Paxil	antidepressant	depression
Paser	aminosalicylic acid	bacteriostatic	tuberculosis
Patanol	olopatadine		allergic conjunctivitis
Pavulon	pancuronium	paralytic	surgery, endotracheal intubation
Paxil	paroxetine	antidepressant	depression
PCE	erythromycin	an antibiotic	infection
Pediacof	codeine, phenylephrine, chlorpheniramine, potassium iodide	narcotic antitussive/decongestant/antihistamine	
Pediaflor	fluoride	mineral	osteoporosis, dental caries
Pediapred	prednisolone	steroid	allergies, arthritis, multiple sclerosis
Pediazole		an antibiotic compound	infection
Pediotic	neomycin, polymyxin, hydrocortisone	antibiotic/steroid	ear infections
pemoline	Cylert	stimulant	ADHD, narcolepsy
penbutolol	Levatol	beta blocker	hypertension, angina
penciclovir	Denavir	antiviral	herpes
Penecort	hydrocortisone	steroid anti-inflammatory	
Penetrex	enoxacin	antibacterial	STDs, urinary tract infection
penicillamine	Cuprimine	chelator, antirheumatic	heavy metal poisoning, Wilson's disease, arthritis, cystinuria

Drug Name	Other brand or generic name	Drug Type	Use/Condition
penicillin		an antibiotic	infection
Pentasa	mesalamine	for ulcerative colitis	ulcerative colitis
pentazocine	Talwin	narcotic analgesic	pain medication
pentazocine & naloxone	Talwin NX	narcotic analgesic	pain medication
pentobarbital	Nembutal	sedative/hypnotic	insomnia
pentosan	Elmiron	urinary tract analgesic	bladder pain
pentostatin	Nipent	oncologic, antibiotic	leukemia
pentoxifylline	Trental	reduces blood viscosity, improves circulation in peripheral vascular disease	
Pentoxil	pentoxifylline	reduces blood viscosity, improves circulation in peripheral vascular disease	
Pentritol	pentaerythritol tetranitrate	long-acting nitrate	angina prophylaxis
Pepcid	famotidine	histamine-2 blocker which inhibits gastric acid production	ulcers
Percocet	oxycodone, acetaminophen	narcotic analgesic	pain medication
Percodan	oxycodone, aspirin	narcotic analgesic	pain medication
Percodan-Demi	oxycodone, aspirin	narcotic analgesic	pain medication
percolone	oxycodone	narcotic analgesic	pain medication
Perdiem	psyllium	a bulk-forming laxative	
Peridin C	vitamins, antioxidants	dietary supplement	vitamin/antioxidant deficiency
Perigard	chlorhexidine	oral rinse	
pergolide	Permax	dopamine receptor stimulator	Parkinson's disease
Pergonal	menotropins	gonadotropin hormone	stimulates ovulation, spermatogenesis
Periactin	cyproheptadine	an antihistamine	allergies
Peri-Colace	casanthranol, docusate	laxative/stool softener	constipation
Periostat	doxycycline	an antibiotic	infection
perindopril	Aceon	angiotensin-converting enzyme inhibitor	hypertension
Permax	pergolide	dopamine receptor stimulator	Parkinson's disease
permethrin lotion	Nix	parasiticide	head lice
perphenazine	Trilafon	phenothiazine major tranquilizer	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Persantine	dipyridamole	cerebral and coronary vasodilator	cerebrovascular accident (stroke), angina
Pfizerpen	penicillin	an antibiotic	infection
Phenaphen with codeine	acetaminophen, codeine	narcotic analgesic	pain medication
phenelzine	Nardil	monoamine oxidase inhibitor	depression, bulimia
phenazopyridine	Pyridium	urinary tract analgesic	
Phenergan	promethazine	phenothiazine sedative /antiemetic	
pheniramine	Poly-Histine	antihistamine	allergies
phenobarbital		barbiturate sedative/ anticonvulsant	
phentermine	Adipex-P	amphetamine	obesity
phenylephrine	Neo-Synephrine	decongestant	colds
phenylpropanolamine	Entex	decongestant	colds
phenylpropanolamine with guaifenesin	Entex LA	decongestant/ expectorant compound	
phenytoin	Dilantin	anticonvulsant	epilepsy
phoslo	calcium	phosphate reducer	renal failure
phosphatidylcholine	Phoschol	lecithin	nutritional supplement, synthesizes acetylcholine
Photofrin	porfimer	antineoplastic	esophageal cancer, lung cancer
Phrenilin	butalbital, acetaminophen	analgesic compound	
phytonadione	Aquamephyton	vitamin K1	coagulation disorders
pilocarpine	Salagen	cholinergic	dry mouth, Sjogren's syndrome
Pima	potassium iodide	expectorant	asthma, bronchitis
pimozide	Orap	antipsychotic	Tourette's syndrome
pindolol	Visken	beta blocker	hypertension, angina
pioglitazone	Actos	oral hypoglycemic	diabetes
piperacillin	Pipracil	antibiotic	infection
Pipracil	piperacillin	antibiotic	infection
pirbuterol	Maxair	beta bronchodilator	asthma, chronic obstructive pulmonary disease
piroxicam	Feldene	non-steroidal anti-inflammatory analgesic	arthritis
Placidyl	ethchlorvynol	hypnotic	insomnia
Plaquenil	hydroxychloroquine	an antimalarial agent	malaria

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Plendil	felodipine	calcium blocker	hypertension, angina
Pneumomist	guaifenesin	expectorant	asthma, bronchitis
Pneumotussin HC	guaifenesin, hydrocodone	expectorant/narcotic antitussive	
Podocon-25	podophyllin	cytotoxic	venereal warts
Poly-Histine, Poly-Histine D, Poly-Histine Ped Caps	phenylpropanolamine, phenyltoloxamine, pyrilamine, pheniramine	decongestant/antihistamine	colds, allergies
Poly-Histine CS	codeine, phenylpropanolamine, brompheniramine	narcotic antitussive/decongestant/antihistamine	
Poly-Histine Elixir	phenyltoloxamine, pyrilamine, pheniramine, alcohol	decongestant/antihistamine	colds, allergies
Poly-Histine D Elixir	phenyltoloxamine, pyrilamine, pheniramine, alcohol	decongestant/antihistamine	colds, allergies
Poly-Histine DM	dextromethorphan, phenylpropanolamine, brompheniramine	antitussive/decongestant/antihistamine	
polymyxin	Neosporin	an antibiotic	infection
polythiazide	Renese	antihypertensive/diuretic	congestive heart failure, hypertension
Polytrim	trimethoprim, polymyxin	antibacterial	eye infections
Ponstel	mefenamic acid	non-steroidal anti-inflammatory analgesic	
Potaba	aminobenzoate		fibrosis, scleroderma
potassium chloride	K-Tab	potassium supplement	potassium deficiency
Prandin	repaglinide	increases insulin release	diabetes
Pramosone	hydrocortisone, pramoxine	steroid anti-inflammatory/anesthetic	dermatoses
Pravachol	pravastatin	cholesterol reducer	high cholesterol
pravastatin	Pravachol	cholesterol reducer	high cholesterol
prazosin	Minipress	alpha-1 blocker, vasodilator	hypertension
Precose	acarbose	delays carbohydrate digestion	diabetes mellitus
prednisolone	Prelone	a steroid anti-inflammatory agent	
prednisone		a steroid anti-inflammatory agent	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Prempro	estrogens	hormone	menopause
Prelone Syrup	prednisolone	steroid anti-inflammatory	
Prelu-2	phendimetrazine	amphetamine appetite suppressant	obesity
Premarin		estrogens	menopause
Premphase	estrogens, medroxyprogesterone	hormones	menopause, osteoporosis
Prevacid	lansoprazole	gastric acid pump inhibitor	ulcers, esophagitis
Prevalite	cholestyramine	cholesterol reducer	high cholesterol
Prilosec	omeprazole	gastric acid pump inhibitor	ulcers, esophagitis
Primatene Mist	epinephrine	bronchodilator	asthma
Primatene tablets	theophylline, ephedrine, phenobarbital	xanthine bronchodilator	asthma
primidone	Mysoline	anticonvulsant	epilepsy
Prinivil	lisinopril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Prinzide	lisinopril, hydrochlorothiazide	antihypertensive compound	hypertension
probenecid	Benemid	increases uric acid secretion in gout; also slows the elimination of penicillin from the body	
procainamide	Procanbid	antiarrhythmic	premature ventricular contractions
Procanbid	procainamide	antiarrhythmic	premature ventricular contractions
Procardia, Procardia XL	nifedipine	calcium channel blocker	angina, hypertension
prochlorperazine	Compazine	phenothiazine antiemetic	
Prodiur	phenazopyridine	urinary tract analgesic	urinary tract infection
Profen-LA, Profen II	phenylpropanolamine, guaifenesin	decongestant/expectorant	colds
Proglycem	diazoxide	increases blood glucose	hypoglycemia
promethazine	Phenergan	sedative / antiemetic	
Propagest	phenylpropanolamine	nasal decongestant	colds, allergies
Propecia	finasteride		hair loss prevention
propantheline	Pro-Banthine	anticholinergic, inhibits gastric acid secretion	peptic ulcers
propoxyphene	Darvon	narcotic analgesic	pain medication

Drug Name	Other brand or generic name	Drug Type	Use/Condition
propranolol	Inderal	beta blocker	hypertension, prophylaxis of: angina, cardiac dysrhythmias, acute myocardial infarction, and migraine headache
Propulsid	cisapride	increases gastric emptying	
propylthiouracil		antithyroid agent	hyperthyroidism
Proscar	finasteride		prostatic hypertrophy
Prosom	estazolam	hypnotic	insomnia
Prostigmin	neostigmine	anticholinesterase	myasthenia gravis
Protid	acetaminophen, chlorpheniramine, phenylephrine	analgesic/ antihistamine/ decongestant	colds
Protonix	pantoprazole	proton pump inhibitor	ulcers
Protropin	somatrem	human growth hormone	
Proventil HFA	albuterol	beta-2 bronchodilator	asthma
Provera	medroxyprogesterone	hormone	amenorrhea
Prozac	fluoxetine	a heterocyclic antidepressant	depression
pseudoephedrine	Sudafed	decongestant	colds
Pulmicort turbuhaler	budesonide	steroid anti-inflammatory	asthma
Pulmozyme	domase alfa or DNase	lytic enzyme which dissolves infected lung secretions	cystic fibrosis
Purinethol	mercaptopurine	antileukemia agent	leukemia
pyrazinamide	Rifater	antibacterial	tuberculosis
Pyridium	phenazopyridine	urinary tract analgesic	

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Q-BID	coenzyme Q-10	helps maintain healthy muscle, increases ATP production	
quetiapine	Seroquel	antipsychotic	psychosis
Quinaglute	quinidine	antiarrhythmic	supraventricular and ventricular dysrhythmias

Drug Name	Other brand or generic name	Drug Type	Use/Condition
quinapril	Accupril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Quinidex	quinidine	antiarrhythmic	supraventricular and ventricular dysrhythmias
quinidine gluconate	quinidine	antiarrhythmic	supraventricular and ventricular dysrhythmias
quinidine sulfate	quinidine	antiarrhythmic	supraventricular and ventricular dysrhythmias
quinine		antimalarial	malaria
quinupristin / dalfopristin	Synercid	antimicrobials	
Quixin	levofloxacin	ocular anti-infective	conjunctivitis

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
rabies vaccine		vaccine for pre- and post-rabies exposure	rabies
raloxifene	Evista		osteoporosis prevention
ramipril	Altace	angiotensin-converting enzyme inhibitor	hypertension
ranitidine	Zantac	histamine-2 blocker	ulcers
Rebetron	interferon alfa, ribavirin	antivirals	Hepatitis C
Recombinate	Factor VIII	clotting agent	hemophilia
Recombivax HB	hepatitis B vaccine	vaccine	hepatitis B
Reglan	metoclopramide	improves gastric emptying	heartburn, ulcers
Regonol	pyridostigmine	anticholinesterase	Myasthenia Gravis
Regranex	becaplermin	cellular growth agent	ulcers, diabetes
Relafen	nabumetone	non-steroidal anti-inflammatory	arthritis
Remeron	mirtazapine	antidepressant	depression
remifentanyl	Ultiva	narcotic analgesic	pain medication
Renese	polythiazide	antihypertensive/diuretic	congestive heart failure, hypertension
Renova	tretinoin	an anti-acne, anti-wrinkle agent	acne, wrinkles
repaglinide	Prandin	stimulates insulin release	diabetes

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Repronex	mentropins	fertility drug, induces ovulation	infertility
Requip	ropinirole	dopaminergic	Parkinson's disease
rescinnamine	Moderil	an antihypertensive	hypertension
Rescriptor	delavirdine	antiviral	HIV
Rescula	unoprostone	lowers intraocular pressure	glaucoma
reserpine	Salutensin	antihypertensive / tranquilizer	hypertension
Respa-1st	pseudoephedrine, guaifenesin	decongestant / expectorant	colds
Respa-DM	dextromethorphan, guaifenesin	antitussive / expectorant	colds, allergies
Respa-GF	guaifenesin	expectorant	colds
Respahist	brompheniramine, pseudoephedrine	antihistamine / decongestant	colds, allergies
Respire-SR	pseudoephedrine, guaifenesin	decongestant / expectorant	colds
Restoril	temazepam	a benzodiazepine hypnotic	
Retin-A	tretinoin	an anti-acne, anti-wrinkle agent	acne, wrinkles
Retrovir	zidovudine	antiviral agent	HIV (AIDS) virus
Revia	naltrexone	opioid antagonist, alcohol deterrent	
Rezulin	troglitazone	oral hypoglycemic	diabetes
Rhinocort	budesonide	corticosteroid	allergic rhinitis
riboflavin	vitamin B-2	vitamin supplement	vitamin deficiency
Rifadin	rifampin	antibiotic	tuberculosis, meningitis
Rifamate	rifampin, isoniazid	antibiotics	tuberculosis
Rifater	isoniazid, rifampin, pyrazinamide	antibiotic	tuberculosis
Rilutek	riluzole		amyotrophic lateral sclerosis (ALS)
Rimactane	rifampin	antibiotic	tuberculosis, meningitis
Risperdal	risperidone	antipsychotic	schizophrenia
Ritalin, Ritalin-SR	methylphenidate	a stimulant	attention deficit disorder in children, narcolepsy
ritonavir	Norvir	antiviral	HIV
Robaxin	methocarbamol	sedative	painful musculoskeletal conditions
Robaxin 750	methocarbamol	sedative	painful musculoskeletal conditions

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Robaxisal	methocarbamol, aspirin	sedative/analgesic	painful musculoskeletal conditions
Robinul, Robinul Forte	glycopyrrolate	anticholinergic	peptic ulcers
Robitussin	guaifenesin	expectorant	colds
Robitussin A-C	guaifenesin, codeine, alcohol	expectorant, cough suppressant	colds
Robitussin-DAC	guaifenesin, codeine, alcohol, pseudoephedrine	expectorant, cough suppressant, decongestant	colds
Rocaltrol	calcitrol	vitamin D analog	hypocalcemia, bone disease
Rocephin	ceftriaxone	an antibiotic	infection
Roferon-A	interferon	immunoadjuvant	hairy cell leukemia, AIDS-related Kaposi's sarcoma
Rogaine	minoxidil	topical hair growing agent	baldness, hypertension
Rondec chewable tablet	brompheniramine, pseudoephedrine	antihistamine / decongestant	colds, allergies
Rondec oral drops, Rondec syrup, Rondec tablet, Rondec TR tablet	carbinoxamine, pseudoephedrine	antihistamine / decongestant	colds, allergies
Rondec DM	carbinoxamine, pseudoephedrine, dextromethorphan	antihistamine/ decongestant/ antitussive	colds, allergies
ropinirole	Requip	dopaminergic	Parkinson's disease
rosiglitazone	Avandia	oral hypoglycemic	diabetes
Rowasa	mesalamine	anti-inflammatory	colitis, proctitis
Roxanol 100	morphine	narcotic analgesic	pain medication
Roxicodone	oxycodone	narcotic analgesic	pain medication
Roxilox	oxycodone, acetaminophen	narcotic analgesic compound	pain medication
Roxiprin	oxycodone, acetylsalicylic acid (aspirin)	narcotic analgesic compound	pain medication
Rum-K	potassium	potassium supplement	potassium deficiency
Rynatan	phenylephrine, chlorpheniramine, pyrilamine	antihistamine / decongestant compound	colds, allergies
Rynatuss		antitussive / decongestant / antihistamine	colds, allergies
Rythmol	propafenone	antiarrhythmic	severe ventricular dysrhythmias such as ventricular tachycardia

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Safe Tussin 30	guaifenesin, dextromethorphan	expectorant/ antitussive	colds
Saizen	somatropin	growth hormone	
Sal-Acid	salicylic acid		removes warts
Salactic film	salicylic acid		removes warts
Salagen	pilocarpine	parasympathomimetic	glaucoma
Salbutamol	albuterol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Salflex	salsalate	non-steroidal anti-inflammatory analgesic	arthritis
salicylic acid	Sal-Acid		removes warts
salmeterol	Serevent	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Salplant gel	salicylic acid	for removal of common warts	common warts
salsalate	Salflex	non-steroidal anti-inflammatory analgesic	arthritis
Sandimmune	cyclosporine	immunosuppressant agent	prophylaxis of rejection of transplanted organs
Sandostatin	octreotide	antidiarrheal, growth inhibitor	carcinoid tumor, acromegaly, intestinal tumors, diarrhea
Sangcya	cyclosporine	immunosuppressant agent	prophylaxis of rejection of transplanted organs
saquinavir	Invirase	antiviral	HIV
Sarapin	Pitcher Plant extract	analgesic	nerve block for sciatic pain, neuritis, neuralgia
sargramostim	Leukine	bone marrow stimulant	bone marrow transplant, leukemia
scopolamine		antispasmodic/ sedative	
Sectral	acebutolol	beta blocker	hypertension, cardiac dysrhythmias
Sedapap	butbalbital, acetaminophen	sedative/analgesic	tension headache
selenium	Selsun Blue	trace mineral	seborrhea, dandruff
Semprex-D	acrivastine, pseudoephedrine	antihistamine/ decongestant	colds, allergies
senna extract	Senokot	laxative	constipation
Senokot	senna fruit extract	laxative	constipation
Senokot Xtra	senna extract	laxative	constipation
Senokot-S	senna, docusate	laxative/stool softener	constipation

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Sensorcaine, Sensorcaine-MPF	bupivacaine	local anesthetic	
Sensorcaine with Epi	bupivacaine, epinephrine	local anesthetic with vasoconstrictor	
Septra, Septra DS	trimethoprim, sulfamethoxazole	antibacterial compound	urinary tract infection, ear infection, bronchitis
Serentil	mesoridazine	a major tranquilizer	
Serevent	salmeterol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
sermorelin	Geref	growth hormone	
Seromycin	cycloserine	antibiotic	tuberculosis, urinary tract infection
Serophene	clomiphene	induces ovulation	
Seroquel	quetiapine	antipsychotic	schizophrenia
Serostim	somatropin	hormone	AIDS wasting
sertraline	Zoloft	antidepressant	depression, panic disorder, obsessive-compulsive disorder
Serzone	nefazodone	antidepressant	depression
Silvadene	silver sulfadiazine	topical antimicrobial agent	infection prophylaxis for burns of the skin
Sinemet, Sinemet CR	carbidopa, levodopa	dopamine precursors	Parkinson's disease
Sinequan	doxepin	a tricyclic antidepressant	depression
Singulair	montelukast		asthma
Sinulin	acetaminophen, phenylpropanolamine, chlorpheniramine	analgesic/ decongestant / antihistamine	colds, allergies
Sinutab	phenylephrine, guaifenesin	decongestant/ expectorant	colds
Sinutab Sinus	acetaminophen, pseudoephedrine	analgesic/ decongestant	colds, allergies
Sinutab Sinus Allergy	acetaminophen, pseudoephedrine, chlorpheniramine	analgesic/decongestant /antihistamine	colds
Sinuvent	phenylpropanolamine, guaifenesin	decongestant/ expectorant	colds
Skelaxin	metaxalone	sedative/analgesic	
Slo-Bid	theophylline	bronchodilator	chronic obstructive pulmonary disease, asthma
Slo-Niacin	niacin	reduces serum cholesterol	high cholesterol

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Slo-Phyllin	theophylline	bronchodilator	chronic obstructive pulmonary disease, asthma
Soma	carisoprodol	sedative/ antispasmodic	
Soma compound	carisoprodol, aspirin	sedative/antispasmodic /analgesic	muscle spasm
Sorbitrate	isosorbide dinitrate	nitrate	angina
Soriatane	acitretin	retinoid	psoriasis
sotalol	Betapace	beta blocker	hypertension, angina, arrhythmias
Spectazole	econazole	antifungal agent	fungus
Spectrobid	bacampicillin	an antibiotic	infection
spironolactone	Aldactone	potassium-sparing diuretic	
spironolactone, triamterene, hydrochlorothiazide		diuretics	hypertension
Sporanox	itraconazole	an antifungal	fungus
SSKI	potassium iodide	an expectorant	colds
Stadol NS	butorphanol	a narcotic analgesic	pain medication
stavudine d4T	Zerit	antiviral	HIV
Stelazine	trifluoperazine	a major tranquilizer	
Sterapred, Sterapred DS	prednisone	steroid anti-inflammatory	
Stimate	desmopressin	pituitary hormone	hemophilia
Stromectol	ivermectin	anti-parasite	intestinal nematodes
sucralfate	Carafate	anti-ulcer agent	duodenal ulcers
Sudafed	pseudoephedrine	nasal decongestant	colds, allergies
Sudafed Cold & Allergy	pseudoephedrine, chlorpheniramine	decongestant/ antihistamine	colds, allergies
Sufenta	sufentanil	narcotic analgesic/ anesthetic	pain medication
Sular	nisoldipine	calcium channel blocker	hypertension
sulfamethoxazole	Gantanol	a bacteriostatic agent	urinary tract infection
sulfanilamide	AVC	anti-infective	candida
sulfisoxazole	Gantrisin	a bacteriostatic agent	urinary tract infection
sulindac	Clinoril	non-steroidal anti-inflammatory analgesic	arthritis
sumatriptan	Imitrex		migraine headache
Suprax	cefixime	broad spectrum antibiotic	
Surmontil	trimipramine	a tricyclic antidepressant	depression

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Sustiva	efavirenz	antiviral	HIV, AIDS
Symmetrel	amantadine	an antiparkinsonian/ antiviral	Parkinson's disease
Synalar	fluocinolone	topical steroid anti-inflammatory	
Synalgos-DC	dihydrocodeine, aspirin, caffeine	narcotic analgesic compound	pain medication
Synemol	fluocinolone	topical steroid anti-inflammatory	
Synthroid	levothyroxine	thyroid hormone	thyroid

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Tagamet	cimetidine	histamine-2 blocker which inhibits gastric acid secretion	ulcers
Talacen	pentazocine + acetaminophen	narcotic analgesic	pain medication
Talwin compound	pentazocine, acetylsalicylic acid (aspirin)	narcotic analgesic	pain medication
Talwin NX	pentazocine, naloxone	narcotic analgesic	pain medication
Tambocor	flecainide	ventricular antiarrhythmic	
tamoxifen	Nolvadex	anticancer agent	breast cancer
Tao	troleandomycin	antibiotic	pneumonia, upper respiratory infection
Tapazole	methimazole	antithyroid	hyperthyroidism
Tarka	trandolapril, verapamil	angiotensin-converting enzyme inhibitor/ calcium blocker	hypertension
Tavist	clemastine	an antihistamine	allergies
Tavist-D	clemastine, phenylpropanolamine	an antihistamine/ decongestant	allergies
Tazicef	ceftazidime	an antibiotic	infection
Tazidime	ceftazidime	an antibiotic	infection
Tedral	theophylline, ephedrine, phenobarbital	bronchodilator compound	asthma, bronchitis
Tegretol, Tegretol XR	carbamazepine	anticonvulsant	epilepsy
temazepam	Restoril	benzodiazepine hypnotic	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
telmisartan	Micardis	angiotensin-converting enzyme inhibitor	hypertension
Temovate	clobetasol	steroid anti-inflammatory	
Tenex	guanfacine	an antihypertensive agent	hypertension
teniposide	Vumon	antineoplastic	leukemia
Tenoretic	atenolol, chlorthalidone	beta-1 blocker/diuretic	hypertension
Tenormin	atenolol	beta-1 blocker	dysrhythmias, hypertension, angina, myocardial infarction prophylaxis
Tensilon	edrophonium	cholinergic	Myasthenia Gravis
Terazol	terconazole	antimicrobial	candidiasis
terazosin	Hytrin	alpha-1 blocker antihypertensive	hypertension
terbinafine	Lamisil	antifungal	nail fungus, ringworm
terbutaline	Brethine	beta bronchodilator	chronic obstructive pulmonary disease, asthma
terconazole	Terazol	antimicrobial	candidiasis
Terra-Cortril	hydrocortisone, oxytetracycline	steroid anti-inflammatory, antibiotic	ocular infections
Terramycin	oxytetracycline	an antibiotic	infection
Terramycin with polymyxin B	oxytetracycline	antibiotics	infection
Teslac	testolactone	antineoplastic	breast cancer
Tessalon	benzonatate	a non-narcotic cough suppressant	cough
Testred	methlytestosterone	androgenizing hormone	
Testoderm	testosterone	androgen	hypogonadism
testosterone	Androderm	androgenizing hormone	
tetracaine	Cetacaine	topical anesthetic	
tetracycline	Achromycin	an antibiotic	infection
Tetramune	diphtheria & tetanus toxoids	vaccine	
thalidomide	Thalomid	immunosuppressant	HIV, leprosy
Thalitone	chlorthalidone	antihypertensive/diuretic	hypertension, congestive heart failure
Thalomid	thalidomide	immunosuppressant	HIV, leprosy
Theo-24	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Theo-Dur	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease
Theolair	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease
theophylline	Theo-Dur	bronchodilator	asthma, chronic obstructive pulmonary disease
Theo-X	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease
Thera-Gesic	salicylate	topical non-steroidal anti-inflammatory analgesic	arthritis
Theramycin Z	erythromycin	antibiotic	infection
thiabendazole	Mintezol	antiparasitic	pinworm, roundworm, trichinosis
thiamine	vitamin B-1	vitamin supplement	vitamin deficiency
Thiola	tiopronin	cysteine-depleting agent	kidney stone prevention
thioguanine	Tabloid	anticancer agent	leukemia
Thiopental	pentothal	general anesthetic	
Thioplex	thiotepa	antineoplastic	breast, ovarian, and urinary cancer
thioridazine		major tranquilizer	
thiotepa	Thioplex	antineoplastic	breast, ovarian, and urinary cancer
thiothixene	Navane	major tranquilizer	
Thorazine	chlorpromazine	a major tranquilizer	
Thyrel TRH	protirelin	increases release of thyroid stimulating hormone	thyroid
thyroid		thyroid	thyroid
Thyrolar	liotrix	thyroid hormone	thyroid
tiagabine	Gabitril	antiepileptic	partial seizures
Tiazac	diltiazem	calcium blocker	hypertension, angina, paroxysmal supraventricular tachycardia
Ticar	ticarcillin	an antibiotic	infection
Ticlid	ticlopidine	platelet inhibitor	stroke prophylaxis
Tigan	trimethobenzamide	an antiemetic	
Tilade	nedocromil	anti-inflammatory	asthma
Timentin	ticarcillin/clavulanate	antibiotic compound	infection

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Timolide	timolol, hydrochlorothiazide	beta blocker/ antihypertensive/ diuretic	glaucoma
timolol	Blocadren	beta blocker	hypertension, angina, arrhythmias
Timoptic	timolol	beta blocker	glaucoma
tizanidine	Zanaflex	alpha blocker	spasticity
Tobradex	tobramycin, dexamethasone	antibiotic/steroid	eye infection/ inflammation
Tofranil	imipramine	a tricyclic antidepressant	depression
tolazamide		oral hypoglycemic	diabetes
tolbutamide		oral hypoglycemic	diabetes
Tolectin	tolmetin	non-steroidal anti- inflammatory analgesic	
tolmetin	Tolectin	non-steroidal anti- inflammatory analgesic	
Tonocard	tocainide	ventricular antiarrhythmic	
Topamax	topiramate	anticonvulsant	seizures
Toprol-XL	metoprolol	cardioselective beta blocker	hypertension, angina, arrhythmias
Toradol	ketorolac	non-steroidal anti- inflammatory analgesic	
Tornalate	bitolterol	beta bronchodilator	asthma
tramadol	Ultram	analgesic	
Trandate	labetalol	beta blocker	hypertension
Transderm Nitro	nitroglycerin	nitrate vasodilator	angina prophylaxis
Transderm-Scop	scopolamine	anticholinergic antiemetic	motion sickness prophylaxis
Tranxene T - Tab, Tranxene-SD	clorazepate	benzodiazepine hypnotic	anxiety seizures
Traumeel		anti-inflammatory	arthritis
trazodone	Desyrel	an antidepressant	depression
Trecator-SC	ethionamide	bacteriostatic	tuberculosis
Trental	pentoxifylline	reduces blood viscosity, improves circulation in peripheral vascular disease	
tretinoin	Retin-A	an anti-acne, anti- wrinkle agent	acne, wrinkles
triamcinolone	Azmacort	steroid anti- inflammatory	

Drug Name	Other brand or generic name	Drug Type	Use/Condition
triamterene c hydrochlorothiazide	Dyazide	antihypertensive/ diuretic	hypertension
Triavil	amitriptyline, perphenazine	a tricyclic antidepressant/major tranquilizer combination	
triazolam	Halcion	benzodiazepine hypnotic	insomnia
trifluoperazine	Stelazine	a major tranquilizer	
trihexyphenidyl	Artane	antispasmodic	Parkinson's disease
Trilafon	perphenazine	a major tranquilizer	
Tri-Levlen		an oral contraceptive	birth control
Trilisate	salicylate	anti-inflammatory/ analgesic	
trimethoprim	Bactrim	an antibiotic	infection
trimethoprim- sulfamethoxazole	Bactrim	antibacterials	urinary tract infection, ear infection, bronchitis
Trinalin	azatadine, pseudoephedrine	an antihistamine/ decongestant compound	colds, allergies
Tri-Norinyl 21, 28		an oral contraceptive	birth control
Trinsicon	vitamins	anti-anemia compound	anemia
Triphasil		an oral contraceptive	birth control
triprolidine	Actidil	antihistamine	allergies
Tritec	ranitidine	histamine-2 blocker	ulcers
troglitazone	Rezulin	oral hypoglycemic	diabetes
Trusopt	dorzolamide		glaucoma, reduction of IOP
Tuss-DA Rx	dextromethorphan, pseudoephedrine	antitussive/ decongestant	
Tussafed HC	hydrocodone, phenylephrine, guaifenesin	narcotic antitussive/ decongestant/ expectorant	colds, allergies
Tussend expectorant	hydrocodone, pseudoephedrine, guaifenesin	narcotic antitussive/ decongestant/ expectorant	colds, allergies
Tussend syrup, Tussend tablets	hydrocodone, pseudoephedrine, chlorpheniramine	narcotic antitussive / decongestant / antihistamine	colds, allergies
Tussionex	hydrocodone, chlorpheniramine	narcotic antitussive/ antihistamine	coughs, allergies, cold
Tussi-Organidin	glycerol, codeine	a narcotic antitussive / expectorant compound	colds

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Tussi-Organidin DM	dextromethorphan, iodinated glycerol	antitussive/mucolytic, expectorant	chronic obstructive pulmonary disease, asthma, colds
Tylenol w/codeine	acetaminophen, codeine	narcotic analgesic	pain medication
Tylox	oxycodone, acetaminophen	narcotic analgesic	pain medication

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Ubi-Qgel	coenzyme Q-10	helps maintain healthy muscle, increases ATP production	mitochondrial cytopathy
Ultrabrom, Ultrabrom PD	brompheniramine, pseudoephedrine	antihistamine/decongestant	colds, allergies
Ultram	tramadol	analgesic	pain relief
Ultrase, Ultrase MT	pancreatic enzymes		cystic fibrosis, pancreatitis
Uni-Dur	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease
Uniphyll	theophylline	bronchodilator	asthma, chronic obstructive pulmonary disease
Uniretic	moexepiril, hydrochlorothiazide	angiotensin-converting enzyme inhibitor/diuretic	hypertension
Unisom	doxylamine	antihistamine sedative	insomnia
Univasc	moexepiril	angiotensin-converting enzyme inhibitor	hypertension
urea	Accuzyme	debriding ointment	pressure ulcers
Urecholine	bethanechol	increases bladder tone	urinary retention
Urex	methenamine	antiseptic	urinary tract infection
Urised	methenamine, methylene blue, salicylate, atropine, hyoscyamine	antiseptic/analgesic/antispasmodic	urinary tract infection
Urispas	flavoxate	urinary tract antispasmodic	urinary tract incontinence
Urobiotic	oxytetracycline, sulfamethizole, phenazopyridine	antibiotic/analgesic	urinary tract infection

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Urocit-K	potassium citrate	urinary alkalinizer	kidney stones
Uro-Mag	magnesium	magnesium supplement	magnesium deficiency
Uro-Qid Acid No.2	methenamine	bactericide	urinary tract infection
ursodiol	Actigall	bile acid which dissolves gall stones	gall stones

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
valacyclovir	Valtrex	antiviral	herpes, shingles
Valium	diazepam	a benzodiazepine hypnotic	
valproex	Depacon	anticonvulsant	seizures
valproic acid	Depakene	anticonvulsant	seizures
valrubicin	Valstar	anticancer agent	bladder cancer
valsartan	Diovan	angiotensin II inhibitor	hypertension
Valtrex	valaciclovir	antiviral	herpes, shingles
Vancenase, Vancenase AQ	beclomethasone	steroid anti-inflammatory agent	allergic rhinitis, nasal polyps
Vanceril Inhaler	beclomethasone	steroid	asthma
Vancocin	vancomycin	an antibiotic	infection
vancomycin	Vancocin	antibiotic	colitis
Vanoxide HC	benzoyl peroxide, hydrocortisone	skin cleanser, steroid anti-inflammatory	acne
Vantin	cefepodoxime	an antibiotic	infection
Vaqta	hepatitis A vaccine	inactivated virus vaccine	
Vascor	bepidil	calcium blocker	angina prophylaxis
Vaseretic	enalapril, hydrochlorothiazide	antihypertensive/diuretic	hypertension
Vasotec	enalaprilat	an angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Vasoxyl	methoxamine	vasoconstrictor	increases BP
Vectrin	minocycline	an antibiotic	infection
Velban	vinblastine	antineoplastic	Hodgkin's disease, lymphoma, Kaposi's sarcoma
Velosulin	insulin	hypoglycemic	diabetes mellitus
venlafaxine	Effexor	an antidepressant	depression
Ventolin	albuterol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease

Drug Name	Other brand or generic name	Drug Type	Use/Condition
vepesid	etoposide	anticancer agent	lung, testicular cancer
verapamil	Calan	calcium blocker	angina, paroxysmal supraventricular tachycardia, hypertension, headache
Verelan, Verelan PM	verapamil	calcium blocker	angina, hypertension, paroxysmal supraventricular tachycardia prophylaxis, headache
Vermox	mebendazole	anthelmintic	intestinal worms
Versed	midazolam	a benzodiazepine hypnotic	
Vesanoid	tretinoin	anticancer agent	leukemia
Viagra	sildenafil		male erectile dysfunction
Vibramycin	doxycycline	an antibiotic	infection
Vibra-Tabs	doxycycline	an antibiotic	infection
Vicodin HP, Vicodin ES	hydrocodone, acetaminophen	narcotic analgesic/ antitussive compound	pain medication
Vicodin Tuss	hydrocodone, guaifenesin	narcotic analgesic / antitussive expectorant compound	pain medication
Vicon Forte	vitamins		
Vicoprofen	hydrocodone, ibuprofen	narcotic analgesic compound	pain medication
Videx	didanosine	an antiviral	AIDS
Viokase	pancreatic enzymes		cystic fibrosis, pancreatitis
Vioxx	rofecoxib	non-steroidal anti-inflammatory analgesic	
Viracept	nelfinavir	protease inhibitor antiviral	HIV
Viramune	nevirapine	antiviral	HIV
Virazole	ribavirin	an antiviral	chronic Hepatitis C
Virilon	methyltestosterone	androgen / masculinizing hormone	
Vistaril	hydroxyzine	antiemetic/ antihistamine/sedative	
Vitafof, Vitafof Syrup, Vitafof-PN		multivitamins and minerals	vitamin/mineral deficiency
Vivactil	protriptyline	tricyclic antidepressant	depression
Vivelle	estradiol		osteoporosis, menopausal symptoms

Drug Name	Other brand or generic name	Drug Type	Use/Condition
Volmax	albuterol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease
Voltaren	diclofenac	non-steroidal anti-inflammatory analgesic	arthritis
Voltaren XR	diclofenac	non-steroidal anti-inflammatory analgesic	arthritis

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
warfarin	Coumadin	anticoagulant	A-Fib, myocardial infarction, venous thrombosis
Wellbutrin	bupropion	an antidepressant	depression
Wigraine	ergotamine, caffeine	alpha blocker / cranial vasoconstrictor	migraine headache
Winrho SD	immune globulin	immunizing agent	prevents isoimmunization in pregnant Rh- women given Rh+ blood
Winstrol	stanozolol	anabolic steroid/ androgen	hereditary angioedema
Wycillin	penicillin	an antibiotic	infection
Wygesic	propoxyphene, acetaminophen	narcotic analgesic	pain medication
Wytensin	guanabenz	an antihypertensive	hypertension

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Drug Name	Other brand or generic name	Drug Type	Use/Condition
Xanax	alprazolam	a benzodiazepine hypnotic	
Xeloda	capecitabine	oral anticancer agent	breast cancer
Xenical	orlistat	lipase inhibitor	obesity
Xopenex	levallbuterol	beta-2 bronchodilator	asthma, chronic obstructive pulmonary disease

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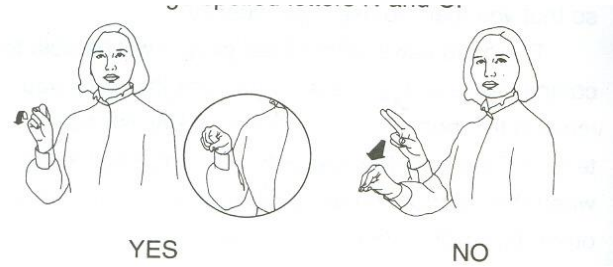
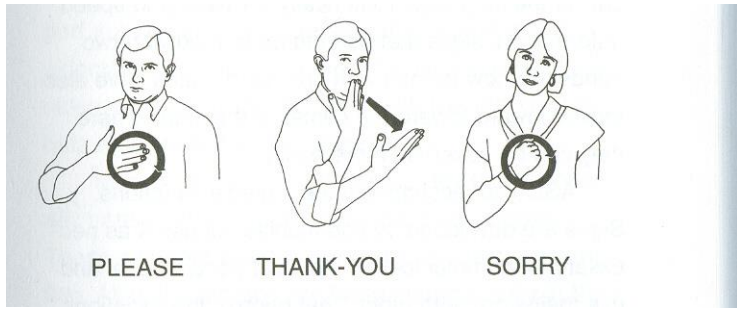
Drug Name	Other brand or generic name	Drug Type	Use/Condition
yellow fever vaccine	YF-VAX	vaccine	
YF-VAX	yellow fever vaccine	vaccine	
Yodoxin	iodoquinol	amebicide	intestinal amebiasis
yohimbine	Aphrodyne	alpha blocker	impotence
Yohimex	yohimbine	alpha blocker	impotence

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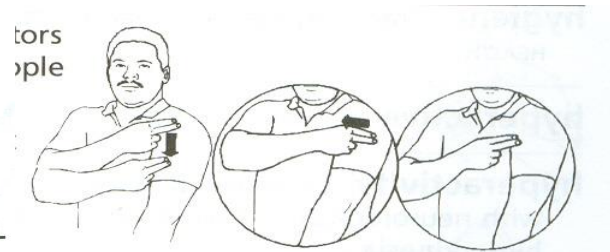
Drug Name	Other brand or generic name	Drug Type	Use/Condition
Zagam	sparfloxacin	antibiotic	pneumonia, bronchitis
zalcitabine	Hivid	antiviral	HIV, AIDS
zaleplon	Sonata	anxiolytic, hypnotic	insomnia
Zanaflex	tizanidine	muscle relaxant	muscle spasticity
Zanosar	streptozocin	antineoplastic	pancreatic cancer
Zantac	ranitidine	histamine-2 blocker, inhibits gastric acid secretion	ulcers
Zarontin	ethosuximide	anticonvulsant	absence seizure
Zaroxolyn	metolazone	antihypertensive/ diuretic	hypertension
Zebeta	bisoprolol	beta blocker antihypertensive	hypertension
Zephrex, Zephrex LA	pseudoephedrine, guaifenesin	decongestant/ expectorant	colds
Zerit	stavudine d4T	antiviral	HIV
Zestoretic	lisinopril, hydrochlorothiazide	angiotensin-converting enzyme inhibitor / diuretic	hypertension
Zestril	lisinopril	angiotensin-converting enzyme inhibitor	hypertension, congestive heart failure
Ziac	bisoprolol, hydrochlorothiazide	antihypertensive/ diuretic	hypertension
zidovudine	AZT	an antiviral agent	HIV (AIDS) virus
Zithromax	azithromycin	an antibiotic	infection
Zocor	simvastatin	cholesterol reducer	high cholesterol
Zofran	ondansetron	antinauseant	chemotherapy
Zoladex	goserelin	gonadotropin-releasing hormone agonist	endometriosis
Zoloft	sertraline	antidepressant	depression
zolpidem	Ambiem	hypnotic	insomnia
Zomig	zolmitriptan		migraine headache

Appendix-5

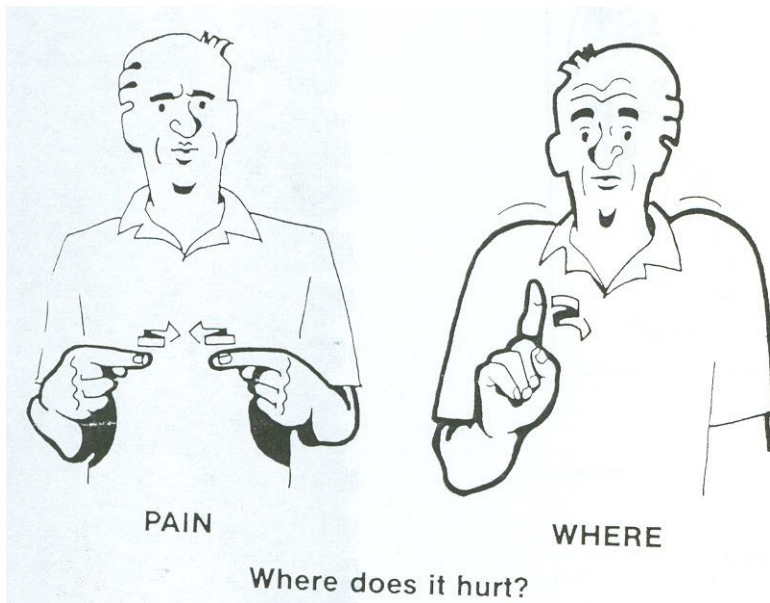
Zovirax	acyclovir	an antiviral agent	herpes, shingles
Zydone	acetaminophen, hydrocodone	a narcotic analgesic	pain medication
Zyflo	zileuton	bronchospasm inhibitor	asthma
Zyloprim	allopurinol	reduces serum uric acid	gout
Zymase	pancreatic enzymes		cystic fibrosis, pancreatitis
Zyrtec, Zyrtec Syrup	cetirizine	antihistamine	allergy, hives, asthma



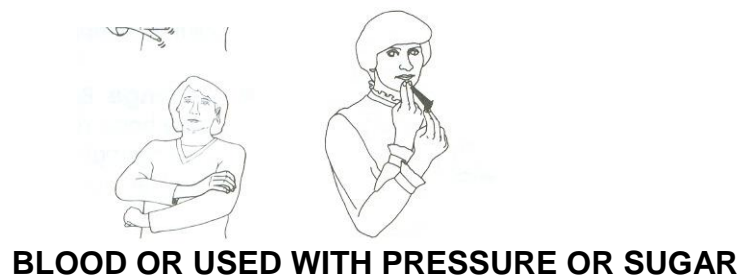
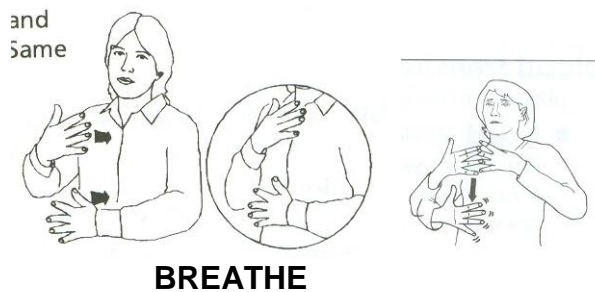
MEDICINE



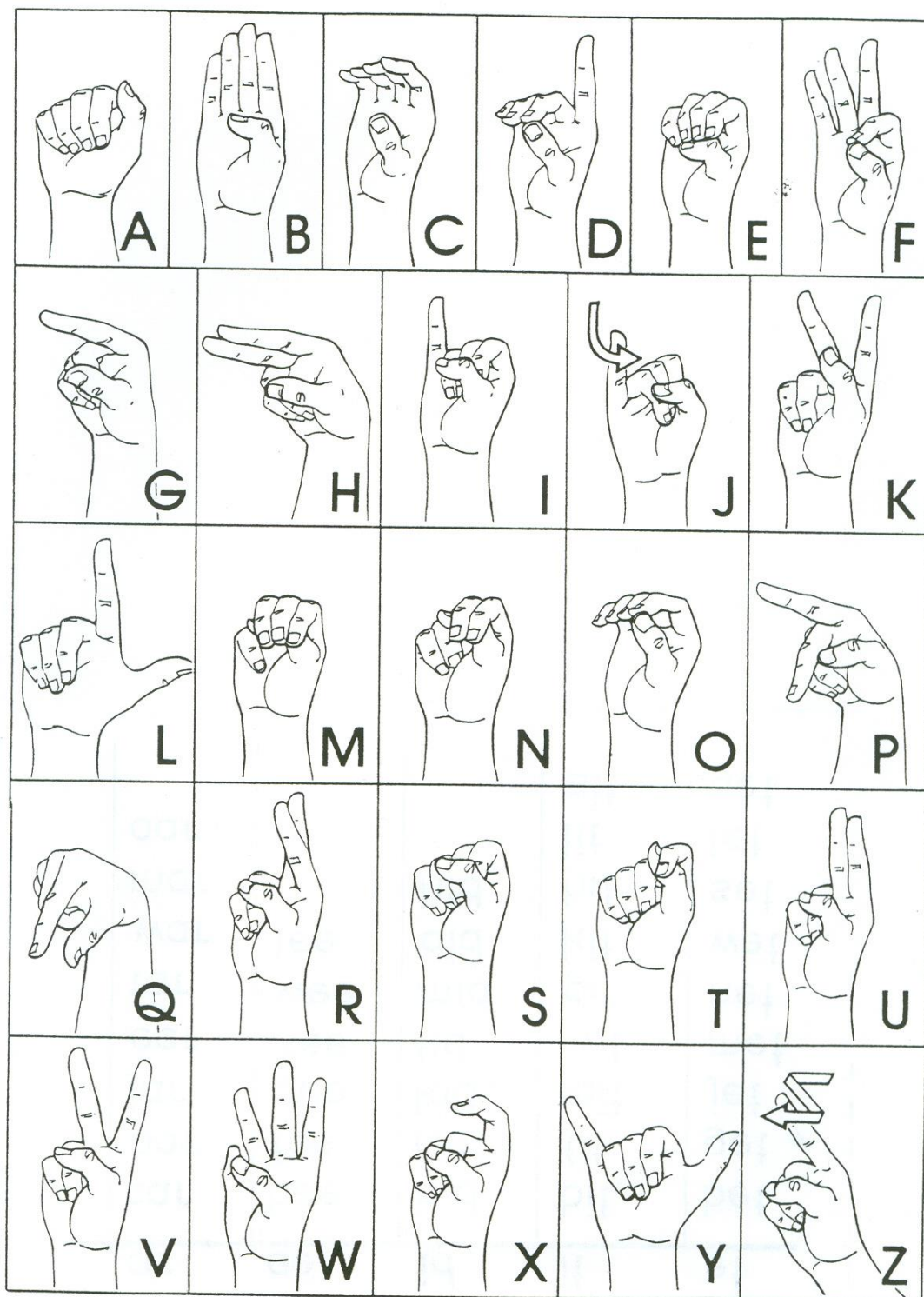
HOSPITAL



PAIN SIGN CAN BE USED FOR ANY BODY PART FOR EXAMPLE HEADACHE



THE MANUAL ALPHABET



English-Spanish Field Reference Guide

This field guide was prepared to allow field operators to adequately perform a patient assessment and obtain vital information from Spanish speaking patients. It should not be considered a complete reference. Employees should exercise good judgment while utilizing this document. Should a problem arise employees should contact Medical Control.

COMMON STATEMENTS	
I am a paramedic (EMT)	Soy un paramédico(a) (Emergencia Técnico Médico)
I am here to help you	Estoy aquí para ayudarle.
I speak very little Spanish	Hablo muy poco Español.
I do not speak Spanish	No hablo Español.
Is there someone here that speaks English	¿Está alguien aquí que habla inglés?
I will be asking you questions using this sheet	Yo estará preguntando preguntas de esta papel.
My name is _____	Mi nombre es _____.
What is your name?	¿ Qué es su nombre?
I do not understand.	No comprendo.
How are you feeling?	¿ Como se siente?
Please speak more slowly.	Por favor habla más lentamente.
What's your problem today?	¿Qué es su problema hoy?

COMMON COMMANDS	
Please do not move.	Por favor, no te muevas
Sit here please.	Siéntese aquí por favor.
Lie down please.	Acuéstese por favor.
Breathe deeply through your mouth.	Respire hondo por su boca.
Breathe slowly.	Respire lentamente.
You will be OK.	Todo estará bien.
It is not serious.	No es serio.
It is serious.	Es serio.
Do you want to go to the hospital?	¿Quieres ir al hospital?
Which hospital do you want to go to?	¿A cuál hospital?
We are going to take you to the hospital.	Te vamos a llevar al hospital.
We are going to give you oxygen.	Te vamos a dar oxígeno.
I am going to take your blood pressure.	Tomaré su presión.
We are going to apply a C-Collar to your neck.	Te vamos a poner un collarin al cuello.
We are going to start an IV.	Te vamos a poner un suero.
I need to put you on a heart monitor.	Necesito ponerle un monitor de corazón.
I am going to give you some medicine.	Yo le daré alguna medicina.
I need to examine your _____	Necesito examinar su <u>SEE ANATOMY CHART.</u>

PATIENT ASSESSMENT	
Wake up Sir/Ma'am.	Despiértese Señor (Señora).
Sit up.	Incorpórese.
Listen please.	Esuchame por favor.
Were you unconscious?	¿Estaba inconsciente?
What day is today?	¿Que día es hoy?
What year is this?	¿Que año es?
What month is this?	¿Que mes es?
Is it difficult to breathe?	¿Es difícil a respirar?
Move you fingers and toes.	Muéva los dedos de las manos y los pies.
Do you have neck pain or back pain?	¿Te duelle el cuello o la espalda?
Are you in pain?	¿Tiene usted dolor?
Where does it hurt?	¿Dónde le duele?
Show me where you hurt.	Muéstrame dónde te duele.
Do you have weakness?	¿Tiene usted debilidad?
Do you have dizziness?	¿Tiene usted mareos?
Do you have nausea?	¿Tiene usted náusea?
Have you been vomiting?	¿Ha estado vomitando usted?
Do you need to vomit?	¿Necesitas vomitar?
Have you been drinking alcohol?	¿Has estado tomado alcohol?
Have you taken any illegal drugs?	¿Ha tomado usted alguna drogas ilegal?
Do you have any chest pain?	¿Tiene usted dolor de pecho?
Have you had this pain before?	¿Ha tenido usted este dolor antes?
How long ago?	¿Hace cuanto tiempo?
Do you have heart problems?	¿Tiene usted problemas de corazón?
Do you have diabetes?	¿Tiene usted diabetes?
Do you have asthma?	¿Tiene usted asma?
Have you ever had a stroke?	¿Ha tenido jamás usted un derrame?
Do you have seizures?	¿Tiene usted ataques?
Do you have high blood pressure?	¿Tiene usted presión alta?
Are you pregnant?	¿Está embarazada?
Do you have any allergies?	¿Tiene usted alergias?
What medicines do you take?	¿Que medicinas toma?
Show me your medicines please.	Muéstreme su medicinas por favor.

Personal Information	
What is your address?	¿Qué es su dirección?
What is your birthday?	¿Qué es su cumpleaños?
What is your telephone number?	¿Qué es su número de teléfono?
Do you have any insurance?	¿Tiene usted algún seguro?
Do you have a social security number?	¿Tiene usted un número de seguridad social?
Do you have a family doctor?	¿Tiene usted a un médico?
What is the name of your doctor?	¿Qué es el nombre su doctor?





Months of the Year

January / Enero	February / Febrero	March / Marzo	April / Abril
May / Mayo	June / Junio	July / Julio	August / Agosto
September / Septiembre	October / Octubre	November / Noviembre	December / Diciembre

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Pain Scale

Translations of Wong-Baker FACES™ Pain Rating Scale

						
	0	2	4	6	8	10
English	No Hurt	Hurts Little Bit	Hurts Little More	Hurts Even More	Hurts Whole Lot	Hurts Worst
Spanish	No Duele	Duele Un Poco	Duele Un Poco Más	Duele Mucho	Duele Mucho Más	Duele El Máximo
French	Pas Mal	Un Petit Peu Mal	Un Peu Plus Mal	Encore Plus Mal	Très Mal	Très Très Mal
Italian	Nessun Dolore	Dolore Lieve	Dolore Moderato	Dolore Forte	Dolore Molto Forte	Il Più Forte Dolore Immaginabile
Portuguese	Não Doi	Doi Um Pouco	Doi Um Pouco Mais	Doi Muito	Doi Muito Mais	Doi O Máximo
Bosnian	Ne Boli	Boli Samo Malo	Boli Malo Više	Boli Još Više	Boli Puno	Boli Najviše
Vietnamese	Không Đau	Hơi Đau	Đau Hôn Chút	Đau Nhiều Hơn	Đau Thất Nhiều	Đau Quá Đớn
Chinese	無痛	微痛	較痛	更痛	很痛	劇痛
Greek	Δεν Πονάι	Πονάι Λίγο	Πονάι Λίγο Πιο Πολύ	Πονάι Πολύ	Πονάι Πιο Πολύ	Πονάι Παρα Πολύ
Romania	No Doare	Doare Puțin	Doare Un Pic Mai Mult	Doare Și Mai Mult	Doare Foarte Tare	Doare Cel Mai Mult
Mongolian	Зовиургүй байна	Бага зэрэг өвдөж байна	Өвчин нэмэгдэж байна	Их өвдөж байна	Маш их өвдөж байна	Тэсэхийн аргагүй өвдөж байна
Japanese	痛みはない	わずかに痛い	少し痛い	かなり痛い	ひどく痛い	耐えられないほど痛い
Bahasa Malaysia	Tidak Sakit	Sangat Sedikit Sakit	Sedikit Sakit	Sakit	Sangat Sakit	Teramat Sakit

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Routes of Administration	Onset of Action	Locations	Considerations
Intravenous	30-60 seconds	-Peripheral Veins (upper extremities preferred) -External Jugular -Advanced IV (Per Protocol)	-Higher risk for infection -Use aseptic techniques -Use caution when establishing an IV in lower extremities for those with diabetes or peripheral vascular disease
Intraosseous	30-60 seconds	-Proximal Tibia -Proximal Humerus	-Any medication that is administered IV can be administered IO -Proper sight identification -Selecting appropriate size IO needle
Endotracheal	2-3 minutes	-Lungs	-Medication dose must be doubled -Most medications will require dilution with 10 mL of saline
Inhalation	2-3 minutes	-Respiratory system	-Proper flow rate for oxygen administration -Ideally patient should inhale aerosolized medication and hold their breath for 3-5 seconds to aid with absorption
Intranasal	3-5 minutes	-Nasal Mucosa	-Half dose to be administered in each nostril -Fluid administration up to 1 mL per nostril
Sublingual	3-5 minutes	-Oral Mucosa	-Lack of moisture or saliva may delay absorption
Intramuscular Injection	10-20 minutes	-Deltoid -Gluteus Maximus -Rectus Femoris (anterior thigh) -Vastus Lateralis (lateral thigh)	-Deltoid fluid administration up to 2 mL Adult / 1 mL Pediatric -Gluteus Maximus fluid administration up to 3 mL -Rectus Femoris/Vastus Lateralis fluid administration up to 5 mL Adult / 3 mL Pediatric -Absorption effected by perfusion -Longer duration of action
Subcutaneous Injection	15-30 minutes	-Upper arms -Anterior thigh(s) -Abdomen	-Amount of fluid administered 1 mL or less -Absorption effected by perfusion
Rectal	5-30 minutes	-Rectum	-Lubed small diameter syringe (without needle) -Syringe insertion of 1 – 1 ½ inches into rectum
Oral	30-90 minutes	-GI System -Buccal (between cheek and gum)	-Liver and/or Renal disease can effect therapeutic index -Lack of moisture or saliva may delay absorption

Six Rights of Medication Administration

- | | | |
|---------------------|----------------|--------------------------------------|
| 1. Right Patient | 3. Right Dose | 5. Right Time |
| 2. Right Medication | 4. Right Route | 6. Right Documentation and Reporting |