

STANDARD:

When pre-hospital care or resuscitation efforts are no longer appropriate it is every EMS provider's responsibility to assist law enforcement by preserving evidence at potential crime scene. Any scene involving a patient that is pulse-less and apneic is to be considered a crime scene and treated accordingly. In such situations Provider's should also maintain a heightened awareness for the presence of weapons.

PURPOSE:

To establish standard guidelines for conducting patient care on a potential crime scene.

APPLICATION:**General principles of crime scene management:**

1. The first arriving Provider on-scene must make patient access to determine whether resuscitative efforts are indicated or not. If law enforcement prevents entry, additional responding units should be reduced to non-emergency response. All law enforcement refusal of access to patients by Providers will be retrospectively reviewed with law enforcement.
2. A Provider should not handle weapons unless necessary to ensure a safe patient care environment. If weapons must be handled, the Provider must wear gloves, clearly document the items original and new location, and inform on-scene Law Enforcement.
3. Never use anything (phones, sink, bathroom, towels, sheets, blankets, pillows, etc.) from an incident scene.
4. Victims of suspected assault should be strongly discouraged against "cleaning up," washing or showering prior to arrival of Law Enforcement or transport.
5. Providers should not touch anything at the crime scene unless required for patient care activities. Patient demographic information should be obtained from law enforcement when possible.
6. Any ligature(s) involved should be left as intact as possible and should be cut rather than untied. All cuts made should be in an area well away from any knots.
7. Containers of any substance, which may have been ingested by the patient/victim, should be left in the position found unless needed for ongoing patient care. If the container must be touched, use gloved hands and limit handling to a minimum in order to preserve any fingerprints that may be present.
8. Disposable items used during resuscitation efforts are to be left in place on the body. Sharps used during the resuscitation should be stored in an appropriate container and taken away by EMS personnel. Any extraneous trash should be taken away as well.
9. Intravenous/IO lines, airways and all other disposable equipment used are to remain in place on the body.
10. Pronouncement should be made in accordance with the standards outlined in the Termination of Resuscitation Standard. The existence of a possible crime scene should not influence the decision to initiate or terminate resuscitative efforts.
11. Providers may cover a body with a clean sheet or sterile drape, if requested to do so by Law Enforcement. All efforts should be made to protect the dignity of the patient and block the public view of the body.
12. Once a pronouncement time is obtained the body falls under the jurisdiction of the Medical Examiner. It may not be touched or altered in any way without authorization from the Medical Examiner's Office.
13. It is acceptable to share Patient Care information with appropriate on-scene law enforcement if the patient has been pronounced dead.

Crime scene management where no resuscitation is initiated:

1. Any responder, who is not properly credentialed to seek pronouncements of an obvious death, should immediately leave the area without touching anything via the path of entry.
2. When only pronouncement of death is required, only one properly credentialed provider should make entry into the area.

Crime scene management with unsuccessful resuscitation:

1. Once resuscitation efforts have ceased and a pronouncement has been obtained providers should immediately vacate the area.
2. The medical examiner must be able to differentiate between punctures originating from resuscitation efforts and those present prior to arrival. All unsuccessful IV/IO or pleural decompression attempts should be marked on the body by circling with a marker or pen.

Crime scene management with patient transport:

1. Clothing, jewelry or other objects removed from the patient should be left on-scene. Clearly document any items left and inform local law enforcement of the items original and current locations
2. When cutting clothes for the purpose of assessment and/or treatment avoid cutting through existing defects in the clothing whenever possible.
3. Notify the receiving facility that all personal effects on the patient are to be considered evidence.

Policy

Whenever patient care be improved by decreasing transport time or by providing expedient advanced care not available from the ground EMS, utilization of medical air transport should be engaged (i.e.; extensive multiple trauma, neurologic trauma, amputation, need for blood, etc.).

Purpose

1. Improve patient care in the pre hospital setting.
2. Allow for expedient transport in serious, mass casualty situations.
3. Provide life-saving treatment such as blood transfusion.
4. Transport to specialty hospital is needed (stroke center, burn center, children's hospital)

Procedure

1. Do not delay ground transportation in order to wait for a helicopter. If the patient is packaged and ready for transport and the helicopter is not on the ground or within a reasonable distance, the transportation will be initiated by ground ambulance/EMS to the local ED
2. Whenever possible and no significant delay would be incurred, transport to KCH-ED helipad is recommended.
3. Identify a potential landing zone for medical helicopters per appropriate aero-medical evacuation Landing Zone criteria.
4. If a potential need for air transport is anticipated, but not yet confirmed, an **air medical transport service** can be placed on **standby**.
5. If the scene conditions or patient situation improves after activation of the air medical transport service and air transport is determined to not be necessary, paramedic or administrative personnel may cancel air transport.

Criteria

1. Multiple Trauma
2. Prolonged extrication (>20 min.) of an anticipated multiple trauma or severe head injury patient.
3. Flail chest injury
4. Two or more long bone fractures (humerus, femur)
5. Amputations proximal to the wrist or ankle.
6. Severe burns (i.e. $\geq 25\%$ body surface) especially when involving the face, airway, hands, feet or when associated with a pre-existing medical condition. (i.e. diabetes mellitus)
7. Visible crush injuries to head, neck or torso.
8. Closed or open head injury associated with or caused by significant energy transfer. (i.e. auto accident, thrown from vehicle, bullet wounds, possible stroke)

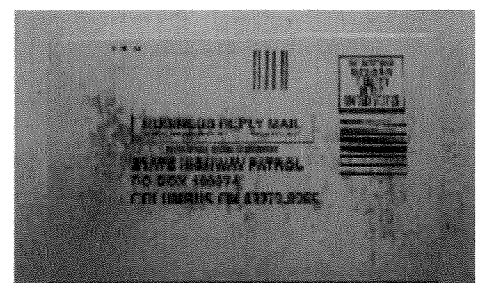
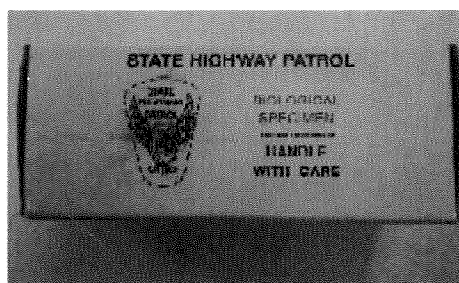
The decision to activate air transport to the scene or to KCH-ED helipad is the decision of the EMS personnel on the ground based on their best clinical judgment.

The PARAMEDIC may obtain Blood withdraw as provided under sections 1547.11, 4506.17 and 4511.19 of the Ohio Revised Code, And in accordance with the Mount Vernon Fire Department EMS protocol As listed below.

1. The Paramedic has been trained in this procedure as approved by the Mount Vernon Fire Department Medical Director.
2. Medical treatment is being provided by Mount Vernon Fire personnel at the time of Request by Law Enforcement
3. Lab Blood kits will be provided by law enforcement.
4. Indwelling central lines, venous ports, or dialysis fistulas should not be accessed For the purpose of evidence collection.

Obtaining Lab Blood for the purpose of evidence collection SHOULD NOT be performed if one or more of the following exist:

1. Obtaining lab blood would cause A DELAY in patient care or treatment and transport of this or any other patients at the scene.
2. The patient refuses blood draw.
3. The patient is a minor whose legal guardian has not granted permission or is not present to provide permission for the paramedic to obtain blood.
4. The patient has poor venous access.
5. The proper equipment to obtain blood is not readily available.
6. The chain of custody cannot be maintained for any reason.



EMS personnel will honor the State of Ohio DNR Comfort Care/DNR Comfort Care-Arrest directives when presented to them. In the absence of these advanced directives, EMS personnel will initiate appropriate care per protocol.

DNR Comfort Care

You will

- Suction the airway
- Administer oxygen
- Position for comfort
- Splint or immobilize
- Control bleeding
- Provide pain management
- Provide emotional support
- Contact physician, hospice, or home health care

You will not

- Administer chest compressions
- Insert artificial airway
- Administer resuscitative drugs
- Defibrillate or cardiovert
- Provide respiratory assistance (other than that listed above)
- Initiate resuscitative IV
- Initiate cardiac monitoring

DNR Comfort Care-Arrest

You will

- Administer current resuscitative care which includes components of CPR
- Terminate CPR and its components immediately after cardiac or respiratory arrest occurs.

Adult age 16 - 69

If an injured person has any of the following indicators, they should be transported directly to a trauma center:

- Glasgow Coma Score of 13 or less.
- Loss of consciousness for greater than 5 minutes.
- Failure to localize pain (GCS motor score 4 or less).
- Respiratory rate less than 10 or greater than 29.
- Need for ventilatory support.
- Requires relief of tension pneumothorax.
- Pulse rate greater than 120 with evidence of hemorrhagic shock.
- Systolic blood pressure less than 90 mm Hg.
- Penetrating injury to head, neck or torso.
- Significant penetrating injury to the extremities proximate to the knee or elbow, with neurovascular compromise.
- Visible crush of head, neck or torso.
- Open skull fracture.
- Abdominal tenderness, distention or seat belt sign.
- Flail chest.
- Pelvic fracture (this does not include isolated hip fractures).
- Injuries to the extremities with visible crush or evidence of neurovascular compromise.
- Amputation proximal to the wrist or ankles
- Fracture of 2 or more proximal long bones (humerus or femur).
- Signs and symptoms of spinal cord injury.
- Serious burns – 2nd or 3rd degree burns over more than 10% of total body surface area OR involving face airway, hands feet genitalia.
- Ejected from a vehicle.
- Vehicle telemetry data consistent with high risk of injury

Geriatric age 70 years and older

If an injured person has any of the following indicators, they should be transported directly to a trauma center:

- ***Glasgow Coma Score 14 or less with a known or suspected traumatic brain injury****.
- Glasgow Coma Score of 13 or less for any reason.
- ***Fall from any height – including standing with evidence of a traumatic brain injury****.
- Loss of consciousness for greater than 5 minutes.
- Failure to localize pain (GCS motor score 4 or less).
- Respiratory rate less than 10 or greater than 29.
- Need for ventilatory support.
- Requires relief of tension pneumothorax.
- Pulse rate greater than 120 with evidence of hemorrhagic shock.
- ***Systolic blood pressure less than 100 mm Hg****.
- Penetrating injury to head, neck or torso.
- Significant penetrating injury to the extremities proximate to the knee or elbow, with neurovascular compromise.
- Visible crush of head, neck or torso.
- Open skull fracture.
- Abdominal tenderness, distention or seat belt sign.
- Flail chest.
- Pelvic fracture (this does not include isolated hip fractures).
- Sustained injury in 2 or more body regions.
- Injuries to the extremities with visible crush or evidence of neurovascular compromise.
- Amputation proximal to the wrist or ankles.
- Fracture of 2 or more proximal long bones (humerus or femur).
- Signs and symptoms of spinal cord injury.
- Serious burns – 2nd or 3rd degree burns over more than 10% of total body surface area OR involving face airway, hands feet genitalia.
- ***Fracture of 1 or more proximal long bones (humerus or femur) sustained in a motor vehicle crash****.
- ***Pedestrian struck****.
- Ejected from a vehicle.
- Vehicle telemetry data consistent with high risk of injury

*Criteria **BOLDED**, Different from criteria for adults age 16-69

Pediatric age 0 - 15

If an injured person has any of the following indicators, they should be transported directly to a trauma center:

- Glasgow Coma Score of 13 or less.
- Loss of consciousness for greater than 5 minutes.
- Failure to localize pain (GCS motor score 4 or less).
- Evidence of poor perfusion: Weak distal pulse, pallor, cyanosis, delayed cap refill, or tachycardia.
- Respiratory rate < 20 in infants < 1 yr old.
- Evidence of respiratory distress or failure: Stridor, grunting, retractions, cyanosis, hoarseness, difficulty speaking.
- Need for ventilatory support.
- Penetrating injury to head, neck or torso.
- Significant penetrating injury to the extremities proximate to the knee or elbow, with neurovascular compromise.
- Visible crush of head, neck or torso.
- Open skull fracture.
- Abdominal tenderness, distention or seat belt sign.
- Flail chest.
- Pelvic fracture.
- Injuries to the extremities with visible crush or evidence of neurovascular compromise.
- Amputation proximal to the wrist or ankles.
- Fracture of 2 or more proximal long bones (humerus or femur).
- Signs and symptoms of spinal cord injury.
- Serious burns – 2nd or 3rd degree burns over more than 10% of total body surface area OR involving face airway, hands feet genitalia.
- Ejected from a vehicle.
- Vehicle telemetry data consistent with high risk of injury.

STANDARD:

Use of restraints is permitted when necessary to:

- Control a patient that is exhibiting violent behavior due to acute medical condition and restraints are necessary to protect patient or EMS crew.
- Prevent a patient from interfering with medical care such as pulling out an endotracheal tube or IV.

PURPOSE:

To identify appropriate means to effectively restrain a violent patient while assuring patient and crew safety.

APPLICATION:

Patient restraint may be necessary for the safety of the patient or EMS crew. Restraint can be chemical (IV or IM midazolam, ketamine) or physical (wrist/ankle straps).

Restraint use by EMS is not permitted if restraint use is solely part of a law enforcement action. This restriction does not apply if the medic is part of tactical EMS crew acting in the "Hot Zone".

Chemical restraint is preferred over physical. Refer to Versed Drug Card for sedation information.

When restraint is used, the patient must be supine with head elevated 30 degrees or on left side in recovery position. Restraining patient face down, with hands behind back or hands and legs behind back (hog-tied) is prohibited.

If the patient is in police custody and in handcuffs then a police officer must ride in the back of the medic vehicle with the patient.

The use of physical or chemical restraint must be documented in the run report. Documentation should include reason for restraint (violent behavior or interruption of medical care) and the position of the patient while in restraints.

If restraint is used then a patient must be transported to an emergency department. When giving the radio report to the ED, the EMS provider should advise the call taker of the use of chemical or physical restraint and request for security to be present upon their arrival.

Application of restraints may become necessary to **protect both the patient and EMS personnel**. It is recommended to utilize at least four (4) personnel to immobilize an uncooperative patient. This may include law enforcement.

To apply restraints, wrap restraint around wrist or ankle, with the buckle side facing out. Attach tails of restraints to rail of cot, backboard, or patient (preferable backboard), using a quick release tie. It is imperative to be able to release the restraint quickly.

Pulse, motor, sensation and circulation distal to the restraint should be assessed and documented before and after applying restraint.

Document reason for restraint application, any marking or bruising of skin present on the patient before or after restraining, and any marking or bruising of EMS personnel as a result of restraining the patient. (In the course of a EMS run, situations may present themselves to require types of restraints not listed in this protocol such as backboard, sheet along with chemical measures the goal remaining to protect the patient and caregiver.

Never restrain (Hog tie) patient with hands and feet together.

When restraining patients remember that excessive weight placed on patient's chest may compromise the patient's ability to breathe, causing increased agitation and hypoxia which in turn causes patient to struggle more. **This could cause a deadly outcome.**

ALLWAYS: watch for signs of hypoxia and airway compromise.

Continue to reassess though out treatment transport.

Guideline:

The medical direction of prehospital care at the scene of an emergency is the responsibility of those most appropriately trained in providing such care. All care should be provided within the rules and regulations of the State of Ohio AND IS OVERSEEN BY THE Mount Vernon Fire Department Medical Director.

Purpose:

- To identify a chain of command to allow field personnel to adequately care for the patient
- To assure the patient receives the maximum benefit from prehospital care
- To minimize the liability of the EMS system as well as the on-scene physician

Procedure:

1. When a physician offers assistance to EMS or the patient is being attended by a physician with whom they do not have an ongoing patient relationship, EMS personnel must request physician license. The physician may **assist** the paramedic in patient care following the protocol of MVFD.
2. When the patient is being attended by a physician with whom they have an ongoing patient relationship, EMS personnel may follow orders given by the physician if the orders conform to current EMS guidelines, and if the physician signs the PCR. Notify EMS coordinator, or the Chief, at the earliest opportunity. Any deviation from local EMS protocols requires the physician to accompany the patient to the hospital.

I. Purpose:

To provide the caregiver with direction in dealing with **the patient who is Ill or Injured and refuses treatment or transport.**

II. Patient Criteria:

- A. This protocol deals with the patient who presents with illness or injury for which the lack of treatment or transport which, in the opinion of the caregiver would be detrimental to their health or well being.
- B. An individual with legal authority to make decisions for an ill or injured patient who refuses treatment or transport.
- C. **THIS PROTOCOL DOES NOT INCLUDE PATIENT'S WHO PRESENT WITH NO INJURY OR ILLNESS.**

III. Procedure:

- A. Assess the patient using the current standards of practice and in accordance with the guidelines presented within the Mount Vernon Fire Department EMS protocol.
- B. If the patient is combative or otherwise poses a potential threat to EMS practitioners, retreat from the immediate area and contact law enforcement.
- C. Attempt to secure consent for treatment or transport.
- D. Assess the patient's ability to make medical decisions and understand consequences. As well as assess the patients mental functions (e.g. Alert and oriented x4, GCS=15, no evidence of suicidal ideation/attempt, no evidence of intoxication with drugs or alcohol, ability to communicate an understanding of the consequences of refusal).
- E. Assess the patient's understanding of the risks to refusing treatment or transport.
- F. Assess the patient for evidence of medical condition that may affect ability to make decisions (e.g. hypoglycemia, hypoxia, hypotension)
- G. If acute illness or injury has altered the patient's ability to make medical decisions and if the patient does not pose a physical threat to the EMS practitioners, treat and transport the patient as per appropriate treatment protocol. Otherwise contact law enforcement, consider if **Restraint protocol (pg:109)** is needed
- H. If patient is capable of making and understanding the consequences of medical decisions and there is no indication to contact law enforcement then:
 - 1. Explain possible consequences of refusing treatment/transport to the patient.
 - 2. Have patient and witness sign the EMS Refusal.
 - 3. Offer assistance in arranging alternative transportation.
 - 4. Complete an EMS refusal sheet checklist to aid in non-transport decisions.

IV. Documentation: Continued next page

IV. Documentation:

The assessment of the patient and details of discussions shall be thoroughly documented on the EMS run report and a completed EMS refusal checklist. As well as:

1. History of event, injury or illness.
2. Appropriate patient assessment.
3. Assessment of patient's ability to make medical decisions and ability to understand the consequences of decisions.
4. Signs and symptoms indicating the need for treatment or transport.
5. Information provided to the patient and or family in attempts to convince the patient to consent to treatment or transport. This may include information concerning the consequences of refusal, alternatives for care that were offered to the patient, and time spent on scene attempting to convince the individual.
6. Names of family members or friends involved in discussions, when applicable.
7. Indication that the patient and or family understand the potential consequences of refusing treatment or transport.
8. Signatures of patient and or witnesses when possible.

Notes:

If the patient lacks the capacity to make medical decisions, EMS shall comply with the decision of another person who has the capacity to make medical decisions, is reasonably available, and who EMS in good faith, believes to have legal authority to make the decision to consent to or refuse treatment or transport of the patient.

1. EMS may contact this person by phone.
This person will often, but not always, be a parent or legal guardian of the patient. EMS should ensure that the person understands why the person is being approached and that person's options, and is willing to make the requested treatment or transport decisions for the patient.

EMS Patient Refusal Checklist

Incident #: _____

Date: _____

*Check marks in shaded areas require additional consult before patient release***Patient Assessment:**

Suspected serious injury or illness based upon patient History, MOI, or physical exam.

___ Yes ___ No

18 years of age or older:

Patient Oriented to:

Person	___ Yes ___ No
Place	___ Yes ___ No
Time	___ Yes ___ No
Event	___ Yes ___ No

Any evidence of:

Suicide attempt?	___ Yes ___ No
Head injury?	___ Yes ___ No
Intoxication?	___ Yes ___ No
Chest Pain?	___ Yes ___ No
Dyspnea?	___ Yes ___ No
Syncopal?	___ Yes ___ No

Vital Signs:

Pulse _____

Sys BP _____

Dia BP _____

Resp _____

Consult Additional Resources if:

<50bpm or >100bpm

<100mmHg or >200mmHg

<50mmHg or >100mmHg

<12rpm or >24rpm

If altered mental status or diabetic (ALS only)

Chemstrip/Glucometer: _____ mg/dl <60mg/dl

If chest pain, S.O.B., or altered mental status-

SpO₂ (if available) _____ % <95%

Risks explained to patient:

Patient understands clinical situation

___ Yes ___ No

Patient verbalizes understanding of risks

___ Yes ___ No

Patient's plan to seek further medical evaluation: _____

Patient Outcome:

___ Patient Refuses treatment or transport against EMS advice

___ Patient accepts transportation to hospital by EMS but refuses any or all treatment

___ Patient does not desire transport to hospital by EMS but believes alternative treatment/transport plan is reasonable

If shaded areas are checked, supporting documentation shall be included in the narrative section of the patient care report. In all instances of refusal, both patient

CAPACITY AND COMPETENCY MUST BE illustrated in the narrative.

Please submit this completed form to the shift officer after you have completed your PCR.

STANDARD:

All diabetic patients who suffer an episode of hypoglycemia should be offered transportation to an emergency department. Patients who have the capacity to refuse transport (see *Refusal of Treatment and/or Transport* standard) may refuse transportation to an emergency department if they meet the additional parameters identified below.

Patients who suffer a second episode of hypoglycemia within 24 hours will be transported to an emergency department.

PURPOSE:

This standard outlines a process for a diabetic patient to safely decline transportation to an emergency department after suffering an episode of hypoglycemia.

APPLICATION:

In order for a diabetic patient with suffering from a hypoglycemic episode to decline transportation to an emergency department he/she must:

1. Have a history of insulin dependent diabetes
2. Return to normal mental state within
 - a. 10 minutes of IV Dextrose administration, or
 - b. 15 minutes of IV/IM Glucagon or oral glucose administration
3. Have pretreatment glucose < 60 mg/dl
4. Have post treatment glucose > 80 mg/dl
5. Tolerate food by mouth
6. Have no other complicating factors or comorbid conditions such as fever, symptoms of stroke
7. Agree to follow up with primary care physician
8. Not currently use sulfonylureas. Examples include:

Generic Name	Brand Name
chlorpropamide	Diabinase
glimepiride	Amaryl
glipizide	Glucotrol, Glucotrol, XL
glyburide	DiaBeta, Glynase, PresTab, Mictonase
tolazamide	
tolbutamide	

9. Have normal vital signs
10. Documentation of the use of these steps.

ABC's and confirm that the patient is clearly DOA. The patient will be pulseless and apneic, and cold to touch. There may be dependent lividity, noted rigor, or injuries obviously incompatible with life. It is not necessary to apply heart monitor. If there is any doubt in the mind of the EMS provider as to the viability of the patient, then they should proceed with aggressive resuscitation according to protocols. Remove those living or unconscious that are injured to hospitals without delay.

After the paramedic determines that no resuscitative measures will be utilized, the person will be considered D.O.A.

The correct law enforcement agency shall be requested to respond to the scene. The Mount Vernon Police Department should be called for any location within the City limits and the Knox County Sheriff's Department should be called for any other address.

The disposition of the body shall be placed into one of the following categories for proper processing:

1. Apparent death by natural causes (non coroner case)
2. Apparent untimely, unnatural or otherwise odd death (coroner case)

When Coroner and/ or the person under his/her direction arrives - the body or bodies at the scene become the responsibility of the coroner's office until released to a funeral director. After contacting patient's physician or Coroner, you may be advised that the body will be released. After documentation of time of death you may assist with contacting funeral home and assist with grieving as needed. After this point unless directed by law enforcement your presence is no longer mandatory.

PLEASE REFER TO MVFD SOG 904.02 for additional information.

Patients with Special Circumstances/Special Health Care Needs

STANDARD:

This standard is established to provide quality patient care and EMS services to patient with special health care needs. It is also important for the EMS providers to understand the need to communicate with the patients, family and caregivers regarding health care needs and devices that EMS may not have experience with.

PURPOSE:

Medical technology, changes in the health care industry, and increased home health capabilities have created a special population of patients that interface with the EMS system. It is important for EMS to understand and provide quality care to patients with special health care needs.

APPLICATION:

Emergencies involving special needs patients may involve equipment (e.g. LVAD or vagus nerve stimulation device, WoundVac etc.) that is unfamiliar to the provider. To familiarize themselves with the equipment providers may:

- Ask the family, caregiver or patient for any documentation or specific information regarding the condition and/or device;
- Utilize just-in-time training aides/information regarding devices where available;
- Contact the patient's physician for assistance with specific conditions or devices or for advice regarding appropriate treatment and/or transport specific to the patient's condition.

Transportation will be to the hospital appropriate for the specific condition of the patient. In some cases this may involve bypassing the closest facility for a more distant yet more medically appropriate destination. In the case of device failure (e.g. LVAD) the patient's family member trained in the device should accompany patient.

STANDARD:

The Surgical Emergency Response Team (SERT) is a resource that may be called upon by EMS personnel when they encounter a person who cannot be extricated and transported to a trauma facility within a reasonable period of time. These may include someone who is trapped and requires an emergency amputation, blood loss from trauma that cannot be controlled by conventional means at the scene, or situations where emergency administration of blood products is required as the patient is being extricated.

If the SERT is in route and the patient is extricated before the SERT's arrival, the on-scene crew will initiate patient transport and not wait for the SERT to arrive.

Once on-scene the SERT is in charge of the patient's care. On-scene Mount Vernon EMS crews should assist in patient care as directed by the SERT surgeon.

PURPOSE:

To identify a process to access on-scene surgical care in the rare instance that a victim of trauma is pinned/trapped and cannot be promptly extricated.

APPLICATION:

1. Patients who might benefit from a SERT response are those that are pinned and have an anticipated extrication time of 60 or more minutes or who cannot be safely extricated unless they undergo a field amputation.
2. Grant Medical Center and Ohio State University Wexner Medical Center maintain SERT teams. They are only available via ground transportation that is coordinated by the Columbus Division of Fire. The anticipated response time for the SERT is 30-60 minutes to mobilize the team plus the drive time to the scene. On-scene crews should consider the time necessary to mobilize and transport the SERT to the scene before requesting a SERT response.
3. If a SERT response is indicated, the on-scene officer in charge should request their dispatcher to contact the Columbus Division of Fire's alarm office (614.462.2399) and request a SERT response.
4. Once on-scene the SERT surgeon is responsible for directing patient care. On-scene crews should provide care as directed by the surgeon.
5. If procedures outside the scope of the Mount Vernon EMS protocol or Ohio's EMS scope of practice are required, the SERT surgeon is responsible for performing them.
6. The SERT surgeon will determine to which trauma center the patient is to be transported.
7. In order to assure a prompt response to a SERT request this standard should be shared with each Mount Vernon EMS agency's dispatching center.

Sustained Operations in Austere Environments

Management of medical and/or traumatic emergencies is best accomplished in a hospital emergency department. Emergency medical service (EMS) providers, however, may find themselves in austere environments where evacuation of a patient to an emergency department for a medical and/or traumatic emergency would entail either significant delays to treatment or compromise the mission.

EMS providers and/or tactical emergency medical services (TEMS) paramedics that practice in an austere environment where a medical treatment facility is not readily available will follow the Mount Vernon Fire Department EMS protocol based on the following criteria:

- To be covered by this guideline the provider must be on-duty for the Mount Vernon Fire Department.
- This guideline is only in effect in the “HOT” and “WARM” zones during an organized tactical or mass casualty event.
- Standard protocols and guidelines will be followed whenever feasible.
- It is not possible to identify all possible circumstances under which the provider may practice. The provider may have to make clinical decisions based upon prudent clinical practice and experience. In addition, due to the austere circumstances of prehospital care, it is understood that the provider may not have immediately available all equipment or medications called for in the Mount Vernon Fire Department EMS protocol resulting in protocol variance.
- The individual to be treated is a tactical team member, a bystander, or a suspect. Immediate evacuation may not be possible or will entail significant delay to definitive treatment and the medical and/or traumatic problem is of a nature that any delay will pose significant risk of permanent disability or death.
- Prolonged operations dictate that the provider operate in a capacity to ensure team health and integrity.
- The nature of the operations environment limits the amount of resources available to accomplish what would otherwise be covered by the standard EMS protocols.
- Appropriate documentation of diagnosis and treatment rendered in the patient’s medical record along with any protocol deviation will be accomplished when the unit returns.
- All baseline vital signs will be obtained and documented as soon as the situation allows.
- This guideline is not designed to be followed by the provider independently outside of austere environments.

Tracy Schermer, MD

Medical Director

Indications: For unresponsive pulseless patients who are not breathing.

Contraindications: Not for use in less than 8 years of age

EMT

Provide **CPR** until AED arrives. Minimize interruptions in CPR

Steps	Was performed ?	
	YES	NO
1. Operation Turn on power and continue CPR.	☐	☐
2. Attach device to patient • Attach device to patient via adhesive defibrillator pads and patient cable • Analyze. If shock is advised • Defibrillate 1 time • If at any time shock not advised; check for pulse, refer to appropriate protocol based on findings	☐	☐
3. CPR for two minutes (5 cycles) • Analyze. If shock is advised • Defibrillate 1 time • CPR for two minutes (5 cycles) • Analyze. If shock is advised • Defibrillate 1 time • CPR for two minutes (5 cycles)	☐	☐
* Change person doing chest compressions every 2 minutes or 5 cycles		

Clinical Indications:

- Patients with suspected hypoglycemia (diabetic emergencies, change in mental status, bizarre behavior, syncope, seizures etc.)

EMT

Steps

Was performed ?

	YES	NO
1. Gather and prepare equipment.	☐	☐
2. Blood samples for performing glucose analysis should be obtained simultaneously with intravenous access or by finger stick.	☐	☐
3. Place correct amount of blood on reagent strip or site on glucometer per the manufacturer's instructions.	☐	☐
4. Time the analysis as instructed by the manufacturer.	☐	☐
5. Document the glucometer reading (ex. 100 mg / dL) and treat the patient as indicated by the analysis and protocol.	☐	☐
6. Repeat glucose analysis as indicated for reassessment after treatment and as per protocol.	☐	☐

Clinical Indications

- Capnography shall be used when available with all endotracheal airways.

EMT

Steps

Was performed ?

	YES	NO
1. Attach capnography sensor to endotracheal tube.	☐	☐
2. Note CO ₂ level and waveform changes. These should be documented on each respiratory failure or cardiac arrest patient.	☐	☐
3. The capnometer shall remain in place with the airway and be monitored throughout the prehospital care and transport.	☐	☐
4. Any loss of CO ₂ detection or waveform indicates an airway problem and should be documented	☐	☐
5. The capnogram should be monitored as procedures are performed to verify or correct the airway problem.	☐	☐
6. Document the procedure and results on/with the Patient Care Report (PCR).	☐	☐

Components of the capnogram:

A capnogram consists of 4 phases and plots CO₂ concentration over time.

Phase I, respiratory baseline, is shown as A-B. It measures the CO₂-free gas in the deadspace of the conducting airways (so named because they conduct gas to the alveoli where gas exchange can occur). The A-B value is normally zero.

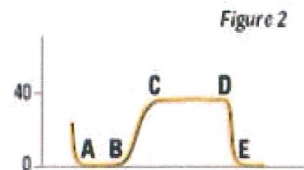
Phase II—also known as the expiratory upstroke—is shown as B-C.

The rapid rise seen in the capnogram represents mixing of dead space (CO₂-free) and alveolar air (contains CO₂). The expiratory upstroke should be steep.

Phase III, the expiratory plateau, represents exhalation of mostly alveolar gas; this is shown as C-D. Point D is the EtCO₂ level at the end of a normal exhaled breath; normally 38 mmHg or 5%.

Phase IV, or the inspiratory downstroke, shown as D-E, reflects the inhalation of CO₂-free gas. The capnogram quickly returns to its baseline.^{3, 4} Changes in the capnogram or EtCO₂ values reflect changes in metabolism, circulation, ventilation or equipment function.

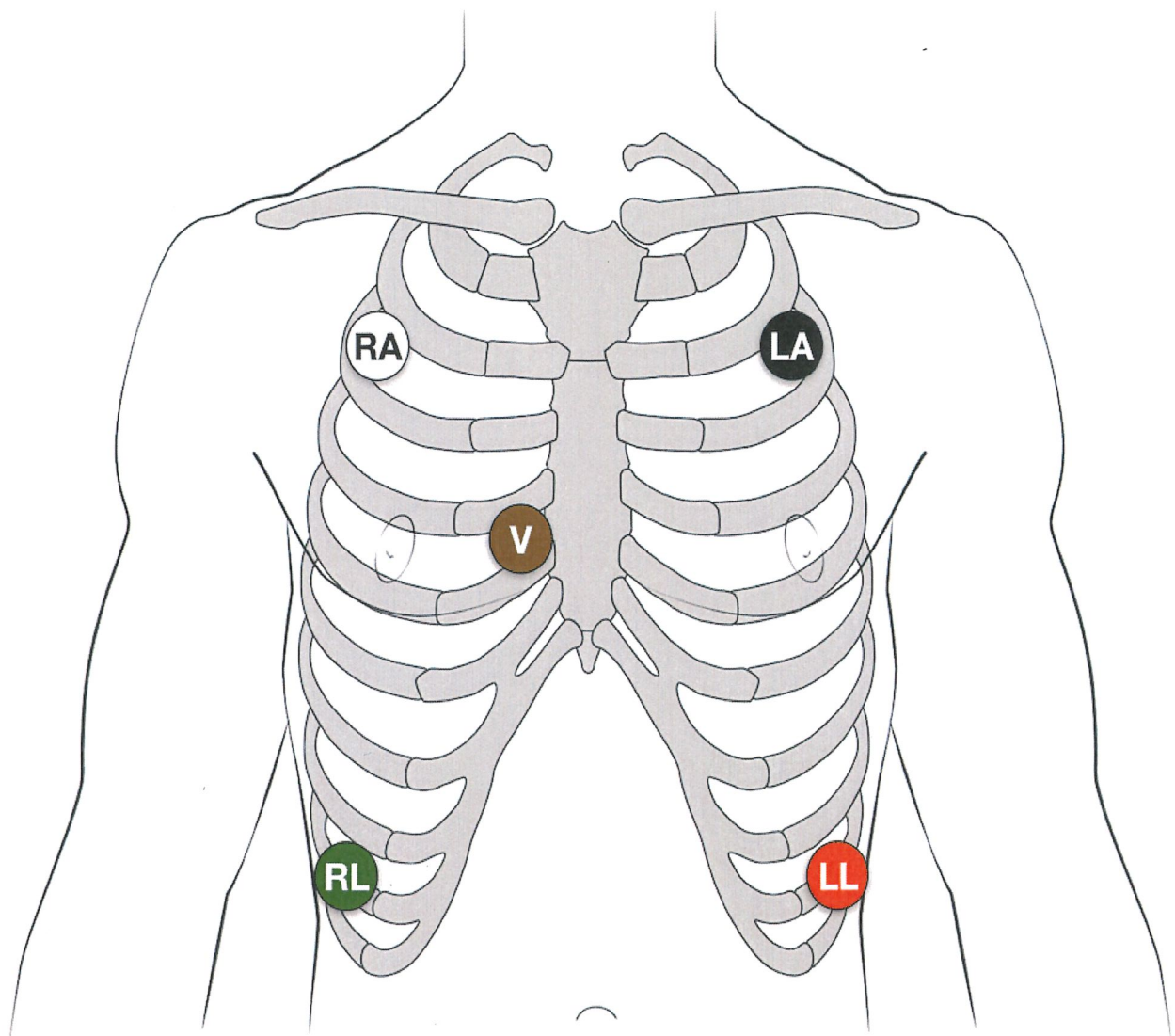
In summary: An elevated EtCO₂ indicates compromised ventilation or alveolar hypoventilation. A below-normal EtCO₂ indicates an increase in ventilation or possible alveolar hyperventilation.



Additional Information

See: [Capnography-Basic](#)
[Capnography-Information](#)
[Capnography-Information/Waveform](#)

4/5 LEAD ECG PLACEMENT



Steps

EMT

Set-Up and Transmit Only

Was performed ?

YES

NO

1. Prepare ECG monitor and connect patient cable with electrodes.

☐☐

2. Enter the required patient information into the 12 lead ECG device.

☐☐

3. Expose chest (modesty of the patient should be respected) and prep as necessary.

☐☐

Poor tracings are usually caused by lack of skin preparation. Use gauze pad to vigorously rub site. Using alcohol preps will remove skin lotions and creams. Allow alcohol to dry before applying electrode. Remove any excess hair as needed to also improve tracing.

4. Attach limb leads on or near the limbs. **Avoid attaching limb leads to the torso.**

☐☐

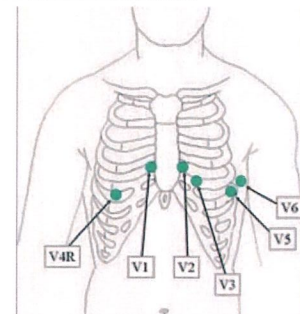
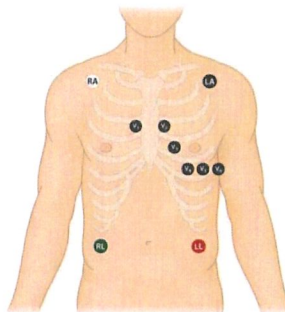
Attaching leads to the torso produces a cleaner rhythm, but may limit evaluation of ECG. Some of the changes that can occur are:

- * A shift in the cardiac axis towards the right
- * R wave becomes smaller in lead I
- * Less prominent Q waves in inferior leads

5. Apply chest leads and extremity leads using the following landmarks: It is important to realize that once a 12 lead ECG has been performed, that any further 12 lead ECG's, lead placement must be the same for true ECG comparison. This also includes Hospital vs EMS 12 lead ECG comparison.

☐☐

- RA -Right arm
- LA -Left arm
- RL -Right leg
- LL -Left leg
- V1 -4th intercostal space at right sternal border
- V2 -4th intercostal space at left sternal border
- V3 -Directly between V2 and V4
- V4 -5th intercostal space at midclavicular line
- V5 -Level with V4 at left anterior axillary line
- V6 -Level with V5 at left midaxillary line



Modified Right Sided ECG

6. Instruct patient to remain still.

☐☐

7. Press the appropriate button to acquire the 12 Lead ECG. Transmit ECG to hospital if resources are available.

☐☐

8. If the monitor detects signal noise (such as patient motion or a disconnected electrode), the 12 Lead acquisition will be interrupted until the noise is removed. Suggestions to trouble shoot are:

1. Are cables connected?
2. Is equipment functioning properly?
3. Is an external electrical equipment interfering?
4. Was skin prepared properly?
5. Are Electrodes dry?
6. Poor adhesion?

☐☐

9. **Right sided ECG** (see illustration) lead V4 moved over to the right side of the chest named V4R.

☐☐

General

EMT

AEMT

Paramedic

Clinical Indications:

Patients who present with non trauma related chest pain on which a 12 lead EKG has been performed and any or all of the following findings have been identified.

- ST segment elevation over 1 mm of the baseline in any EKG lead.
- ST segment depression over 1mm of the baseline in any EKG lead.
- Any evidence of Left Bundle Branch Block (LBBB).
- Any clinical situation that is highly suggestive of a potentially serious cardiac event.
- Any cardiac rhythm that may impact care of the patient at the receiving hospital.

EMT**CONSIDERATIONS:**

- A 12 lead EKG should be obtained as soon as it is recognized to be indicated.
- Do not delay patient care for the transmission of the 12 lead EKG, the 12 lead can be transmitted while Enroute to the hospital.
- Transmission of the 12 lead EKG may not be feasible if transport time is less than 5 minutes.

PRECAUTIONS:

- Ensure the transmit location designated on the monitor is the correct site for transmission.

Steps**Was performed ?**

YES NO

- Take the following steps to enter the patients name into the LifePak 12. The information that you put into the monitor will help the hospital match the EKG to the patient upon arrival at the hospital.
 - Press **OPTION**
 - Select **PATIENT**
 - Using the selector knob, enter the patients **LAST NAME & FIRST NAME**.
 - Select **END** when the information is complete.

☐ YES ☐ NO

- Press **TRANSMIT**, select **DATA**

☐ YES ☐ NO

- Select the desired **REPORT** to be sent to the hospital, in most cases this will be the 12 lead EKG tracing that was obtained.

☐ YES ☐ NO

- Select the desired **SITE**. This will be the hospital that you are transporting the patient to.

☐ YES ☐ NO

- Select **SEND** to transmit the report to the receiving hospital.

☐ YES ☐ NO

- While encoding the hospital, verify their receipt of the 12 lead EKG.

☐ YES ☐ NO

Clinical Indications:

- Tachycardia with serious signs and symptoms related to the tachycardia
- If ventricular rate > 150 beats/min, prepare for immediate cardioversion

Paramedic

Steps

Was performed ?

YES

NO

1. May try brief trial of medications based on specific

☐
☐

2. Immediate cardioversion is generally not needed for rates < 150 beats/min

☐
☐

3. Check: Oxygen saturation, IV line, suction device, intubation equipment

☐
☐

 4. Pre-medicate whenever possible. **See notes below**
☐
☐

 5. Synchronized cardioversion: **Irregular Narrow Complex or Regular Wide Complex Tachycardia**

100 J, 200 J, 300 J, 360 J,

Regular Narrow-Complex Tachycardias

50 J, 100 J, 150 J, 200 J, 250 J, 300 J

☐
☐

NOTES:

1. Effective regimens have included sedation (e.g., **Midazolam**) with or without and analgesic (e.g., **Morphine**). Both monophasic and biphasic waveforms are acceptable.
2. Note possible need to resynchronize after each cardioversion.
3. If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.
4. Treat polymorphic ventricular tachycardia (irregular form and rate) like ventricular fibrillation: see ventricular fibrillation / pulseless ventricular tachycardia algorithm.

General

EMT

AEMT

Paramedic

EMT

Clinical Indications:

- Imminent delivery with crowning

Steps

Was performed ?

YES

NO

General

EMT

AEMT

Paramedic

1. Have mother lie in preferred birthing position.

☐☐

2. Monitor fetal heart tones by Doppler, if available, every 5 minutes until delivery.

☐☐

3. Elevate buttocks with blanket or pillow. If available, place sterile towels or sheets around vaginal opening.

☐☐

4. When infant's head appears, place one hand on top of head and exert gentle counter-pressure to prevent explosive delivery.

☐☐

5. If amniotic sac has not broken after head delivered, use clamp to puncture or your fingers to tear the sac open and pull it away from the baby's face.

☐☐

6. As head is delivered, check to see if the cord is around the neck; slip it over the head or clamp twice and cut between, then unwrap (this is in extreme cases).

☐☐

7. Suction the baby's mouth then nares, with bulb syringe as soon as the head is delivered.

☐☐

8. Support the head and body with both hands as the baby is delivered. Wipe fluids from mouth and nose and suction again.

☐☐

9. Wrap baby in warm blanket, put newborn cap on head and keep baby level with vagina until cord is cut. If no partner available, complete initial care of the newborn.

☐☐10. Assess baby for **Apgar Score**☐☐

11. Clamp or tie cord twice and cut between as pulsations cease; about 4 fingers width from the infant.

☐☐

12. If placenta delivers (usually about 20 minutes after infant), place in plastic bag and transport to hospital with the mother. bleeding can be controlled by massaging the fundus.

☐☐

13. Place sterile pad over vaginal opening, lower mother's legs.

☐☐

14. Record time of delivery and transport mother, infant and placenta to hospital.

☐☐

15. Recheck Apgar Scores at 5 minutes.

☐☐

Clinical Indications: Any patient who is complaining of shortness of breath for reasons other than pneumothorax and:

- Is awake and oriented
- Is over 12 years old and is able to properly fit the CPAP mask over their face
- Has the ability to maintain an open airway (GSC>10)
- Has a systolic blood pressure above 90mmHg
- Uses accessory muscles during respirations
- Has signs and symptoms consistent with asthma, COPD, CHF, pulmonary edema, or pneumonia

EMT

Contraindications:

- Pneumothorax
- Respiratory arrest
- Agonal respirations
- Unconsciousness
- Shock associated with cardiac insufficiency
- Penetrating chest trauma
- Persistent nausea and vomiting
- Has active upper GI bleeding or history of recent gastric
- Patient has a tracheotomy
- Children under 12 years of age

Continuous Positive Airway Pressure (CPAP) has been shown to rapidly improve vital signs, gas exchange, and the work of breathing, decrease the need for endotracheal intubation, and decrease the sense of dyspnea. CPAP is beneficial for patients that suffer from shortness of breath from congestive heart failure and acute cardiogenic pulmonary edema. In patients with CHF, the CPAP improves hemodynamics by reducing preload and afterload.

IF Patients condition shows signs of impending respiratory failure, then secure airway and assist ventilations.

Steps	Was performed ?	
	YES	NO
1. Verify that the patient does not have a pneumothorax	☐	☐
2. Place the patient in a sitting position, then place patient on cardiac monitor	☐	☐
3. Assess vital signs and pulse oximeter every 5 minutes	☐	☐
4. If blood pressure is <90 systolic, contact Medical Control prior to placing the patient on the CPAP	☐	☐
5. Verbally explain the procedure and instruct the patient of the following: Patient requires effective "verbal sedation" to calm and reassure them. Coach the patient on what to expect, and tell them this procedure should help you breathe easier.	☐	☐
6. Connect the O2-MAX to a 50 PSI oxygen source, and ensure the Peep valve is set to 5 cmH2O.	☐	☐
7. Connect the T adapter to the mask and then connect the tubing to the adapter, and turn on oxygen supply.	☐	☐
8. Place the mask over the patient's nose and mouth, and hold it there, as you instruct the patient to breathe in through their nose slowly and exhale through their mouth as long as possible. You may also consider having the patient hold the mask to his/her face.	☐	☐
9. Check for any air leaks. NOTE: The mask does not need to be fitted tightly against the patient's face. Over tightening can cause air leaks. Secure the mask loosely to the patient's face by adjusting the bottom and top head straps.	☐	☐

General

EMT

AEMT

Paramedic

Steps

EMT

Was performed ?

10. If necessary a nebulized breathing treatment can be administered by connecting a nebulizer with T piece in-line.

☐ YES
☐ NO

☐ YES
☐ NO

General

11. Sublingual nitro may be administered by releasing the bottom straps and lifting the mask away from the face.

☐ YES
☐ NO

☐ YES
☐ NO

12. Monitor the patient's vital signs and work of breathing, if necessary Peep can be adjusted to 7.5 then to 10 cm if no improvement in patient condition is noted.

☐ YES
☐ NO

☐ YES
☐ NO

EMT

13. Continue treatment throughout transport to the emergency department.

☐ YES
☐ NO

☐ YES
☐ NO

14. If respiratory rate and/or level of consciousness deteriorate, remove device and consider bag valve mask ventilation and/or endo/nasotracheal intubation. Refer to intubation protocol.

☐ YES
☐ NO

☐ YES
☐ NO

AEMT

15. Recheck vitals every 5 minutes.

☐ YES
☐ NO

☐ YES
☐ NO

O2-MAX system delivers 30% FiO2. If a higher FiO2 is desired, supplemental oxygen may be administered via nasal cannula, in conjunction with CPAP.

In cases of worsening symptoms and signs of impending respiratory failure, despite CPAP, intubate the patient.

Documentation on the patient care record should include:

- Peep setting
- Patient response to treatment

Special Notes:

- CPAP should NOT be used in children under 12 years old.
- Advise the receiving hospital of your ETA as soon as possible, so they can prepare for the patient.
- DO NOT REMOVE CPAP until the hospital staff is ready for the patient.
- Monitor the patient for any gastric distention, which may lead to vomiting.
- Be sure that you have adequate oxygen available.
- In the event of patient vomiting, remove the mask as quickly as possible.

Paramedic:

May consider medication administration to assist with anxiety resulting from the mask being applied to the patient's face.

Midazolam (Versed): 1 mg – 2 mg IVP, IO titrated to desired effect. Monitor for respiratory depression.

Paramedic

Indications:

EMT

- Summary of High-Quality CPR Components for BLS Providers 2015 Guidelines

Component	Adults and Adolescents	Children (Age 1 year to puberty)	Infants (Age less than 1 year, excluding newborns)	Was performed ?		General	EMT	AEMT	Paramedic
				YES	NO				
Scene safety	Make sure the environment is safe for rescuers and victim			☐	☐				
Recognition of Cardiac arrest	Check for responsiveness No breathing or only gasping (ie, no normal breathing) No definite pulse felt within 10 seconds (Breathing and pulse check can be performed simultaneously in less than 10 seconds)			☐	☐				
Activation of emergency response system	If you are alone with no mobile phone, leave the victim to activate the emergency response system and get the AED before beginning CPR. Otherwise, send someone and begin CPR immediately; use the AED as soon as it is available.	Witnessed collapse Follow steps for adults and adolescents on the left Unwitnessed collapse Give 2 minutes of CPR Leave the victim to activate the emergency response system and get the AED Return to the child or infant and resume CPR; Use the AED as soon as it is available.		☐	☐				
Compression-ventilation ratio without advanced airway	1 or 2 rescuers 30:2	1 rescuer 30:2 2 or more rescuers 15:2		☐	☐				
Compression-ventilation ratio with advanced airway	Continuous compressions at a rate of 100 – 120/minute Give 1 breath every 6 seconds (10 breaths/minute)			☐	☐				
Compression rate	100 – 120/minute			☐	☐				
Compression depth	At least 2 inches (5 cm)	At least 1/3 AP diameter of chest About 2 inches (5 cm)	At least 1/3 AP diameter of chest About 1 ½ inches (4 cm)	☐	☐				
Hand placement	2 hands on the lower half of the breastbone (sternum)	2 hands or 1 hand (optional for very small child) on the lower half of the breastbone (sternum)	1 rescuer 2 fingers in the center of the chest, just below the nipple line 2 or more rescuers 2 thumb-encircling hands in the center of the chest, just below the nipple line.	☐	☐				
Chest recoil	Allow full recoil of chest after each compression; do not lean on the chest after each compression			☐	☐				
Minimizing Interruptions	Limit interruptions in chest compressions to less than 10 seconds			☐	☐				

*Compression depth should be no more than 2.4 inches (6 cm).

Abbreviations: AED automated external defibrillator; AP, anteroposter; CPR, cardiopulmonary resuscitation.

Clinical Indications:

Note: In most situations, a cricothyrotomy should only be performed after all other less invasive methods of airway management have failed

Paramedic

General

A. Indications for needle cricothyrotomy

1. Suspected cervical spine fracture with inability to control the airway by other methods
2. Pharyngeal hematomas, usually secondary to cervical spine fractures
3. Impacted foreign body
4. Severe facial trauma, laryngeal trauma or oropharyngeal hemorrhage
5. Laryngeal spasms (epiglottitis)
6. Obstructing tumors
7. Burns of the face and/or upper airway precluding intubation

EMT

B. Procedure for needle cricothyrotomy

Note: needle cricothyrotomy is to be used as a temporary ventilation method in pediatric patients who are < 10 years of age

Steps

Was performed ?

YES

NO

AEMT

Paramedic

1. Palpate cricothyroid membrane anteriorly between thyroid cartilage and cricoid cartilage

☐☐

2. If time permits, prep area with alcohol swab

☐☐

3. Use a 14 gauge angiocath with syringe and puncture skin midline, directly over the cricothyroid membrane while directing angiocath at a 45 degree angle caudally. Withdraw stylet while advancing catheter

☐☐

4. Insert angiocath through lower half of cricothyroid membrane. Aspiration of air signifies entry into the tracheal lumen

☐☐

5. Attach catheter hub to a 3.5 mm pediatric ET tube adapter

☐☐

6. Some technicians prefer to utilize a short IV extension tubing between the catheter hub and 3.5 mm ET tube adapter to prevent accidental removal of catheter and facilitate use of bag-valve device

☐☐

7. Secure apparatus to the neck with tape

☐☐

8. Ventilate with bag-valve device at a rate of one – second inspiration and four seconds expiration

☐☐

Clinical Indications:

Note: in most situations, a Cricothyrotomy should only be performed after all other less invasive methods of airway management have failed.

Paramedic

A. Indications for surgical Cricothyrotomy :

1. Suspected cervical spine fracture with inability to control the airway by other methods
2. Pharyngeal hematomas, usually secondary to cervical spine fractures
3. Impacted foreign body
4. Severe facial trauma, laryngeal trauma or oropharyngeal hemorrhage
5. Laryngeal spasms (Epiglottitis)
6. Obstructing tumors
7. Burns of the face and/or upper airway precluding intubation

B. Procedure for surgical Cricothyrotomy :**Steps**

Was performed ?

Note: surgical Cricothyrotomy is not to be performed in pediatric patients < 10 years of age

	YES	NO	
1. Palpate cricothyroid membrane anteriorly between thyroid cartilage and cricoid cartilage	☐	☐	General
2. If time permits, prep area with alcohol swabs	☐	☐	EMT
3. Stabilize thyroid cartilage and make vertical skin incision approximately 2.5 cm over the cricothyroid membrane. Carefully incise through the membrane transversely	☐	☐	AEMT
4. Some technicians prefer a horizontal incision over the cricothyroid membrane. In that case, extreme care must be taken not to extend the incision to far and risk incision of the thyroid	☐	☐	Paramedic
5. Insert scalpel handle into the incision and rotate 90 degrees or use hemostats to open the airway	☐	☐	
6. Insert a cuffed endotracheal tube through the incision. A 6.0 mm ET tube is generally sufficient	☐	☐	
7. Inflate cuff and ventilate the patient Confirm tube placement by auscultation of the chest and place end-tidal CO2 detector and pulse oximeter probe. Stabilize the ET tube	☐	☐	

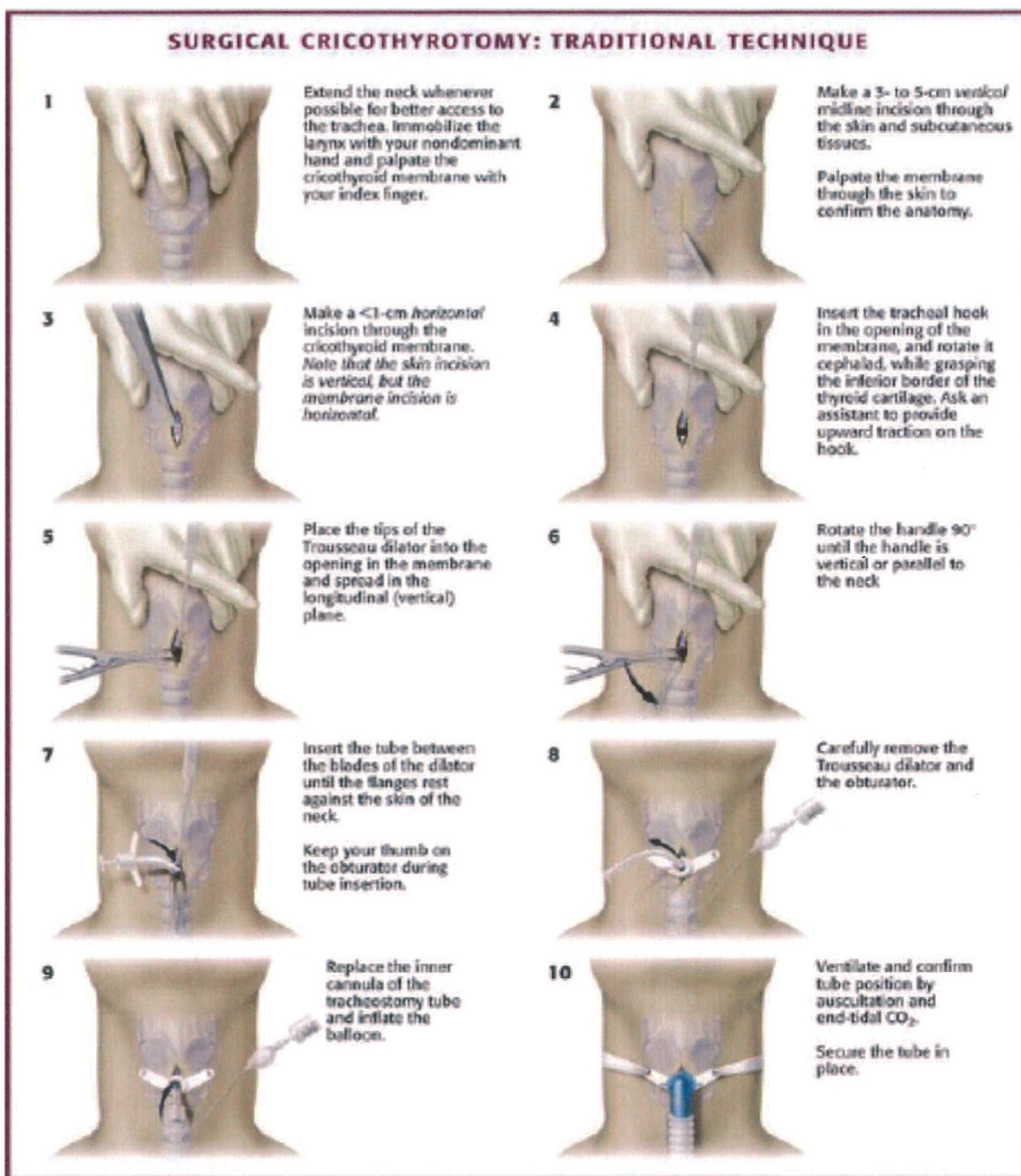


Figure 6-6 Surgical cricothyrotomy: traditional technique. (Adapted from Custalow CB. *Color Atlas of Emergency Department Procedures*. Philadelphia: Saunders; 2005.)

Clinical Indications:

- Cardiac arrest with V-Fib / Pulseless V-Tach

AEMT

Steps

Was performed ?

YES

NO

General

1. Verifies that the patient is in cardiopulmonary arrest.

☐☐2. Press **ON**.☐☐

EMT

3. Prepares patient's skin:

☐☐

- Bares patient's chest
- Removes excessive chest hair
- Wipes skin clean and dry
- Briskly wipes the skin with towel or gauze
- Ensures alcohol, benzoin and antiperspirant are not used on skin sites

4. Connects the therapy electrodes to the therapy cable and confirms cable connection to the defibrillator.

☐☐

AEMT

5. Applies defibrillation pads or standard paddles to patient in the anterior-lateral position:

☐☐

Paramedic

- Place the ♥ therapy electrode or **APEX** paddle lateral to the patient's left nipple in the midaxillary line, with the center of the electrode in the midaxillary line. If using standard paddles, applies conductive gel prior to placing on skin.
- Place the other therapy electrode or **STERNUM** paddle on the patient's upper right torso, lateral to the sternum and below the clavicle.

6. Confirms desired energy is selected, or presses **ENERGY SELECT** or rotates the **SPEED DIAL** to select the desired energy. On the standard paddles, rotates the **ENERGY SELECT** dial.☐☐7. Press **CHARGE**.☐☐

8. Makes certain all personnel, including the operator, stand clear of the patient, stretcher, bed, and any equipment connected to the patient.

☐☐

9. Confirms ECG rhythm requires defibrillation. Confirms available energy.

☐☐10. Presses the ⚡ **HOCK** button on the defibrillator or the (S ⚡ :K) buttons on the standard paddles.☐☐11. Cancel (Optional): Presses **SPEED DIAL** to cancel charge. Start CPR☐☐

Clinical Indications: EMT, AEMT, Paramedic

Patients who are prescribed an **Epinephrine** auto-injector for the treatment of allergic reaction.

Cautions

EMT: Patient Assisted.

This device is for use by those patients for whom they are prescribed. The EMT-Basic is only assisting the patient by administering their medication for them. If the EMS carries an **Epinephrine** auto-injector, the medication may not be used by the EMT-Basic, unless the patient does not have their device with them, or is having trouble with their own device.

Steps**Was performed ?**

	YES	NO
1. Use body substance precautions.	☐	☐
2. Contact medical control for authorization if possible.	☐	☐
3. Assure medication is prescribed for patient.	☐	☐
4. Check expiration date, if medication outdated cloudy, or discolored, do not use.	☐	☐
5. Remove cap and select an injection site. (thigh or shoulder)	☐	☐
6. Push firmly against the site.	☐	☐
7. Hold the injector against the site for at least 10 seconds.	☐	☐
8. Properly discard injector.	☐	☐
9. Monitor the patient while transporting.	☐	☐

General

EMT

AEMT

Paramedic

Clinical Indications: EMT-Paramedic

1. Emergency treatment of bradycardia or asystole until a transvenous pacing or other definitive therapy can be initiated.
2. Standby use for anticipated or suspected conduction disturbances.
3. Refer to specific protocol for indications. Note: during cardiac arrest, follow usual protocols for airway, breathing, circulation and drug therapy.

Contraindications:

1. When an internal pacer is already capturing.

Paramedic

General

EMT

AEMT

Paramedic

Steps	Was performed ?	
	YES	NO
1. Obtain baseline vital signs.	☐	☐
2. Connect patient to monitor and obtain a rhythm strip.	☐	☐
3. Explain procedure to patient.	☐	☐
4. Apply adhesive pacing electrodes to clean, dry skin.	☐	☐
5. Apply Negative electrode on the Left Anterior Chest, halfway between the xiphoid process and the left nipple, with the upper edge of the electrode below the nipple line.	☐	☐
6. Apply the Positive Electrode on the Left Posterior Chest beneath the scapula and lateral to the spine.	☐	☐
7. Note: If anterior/posterior placement is contraindicated (C-spine injury suspected etc.) the anterior/anterior position may be used. Placement is as follows:	☐	☐
8. Negative electrode is placed on the left chest mid-axillary over the fourth intercostal space. Positive electrode is placed on the anterior right chest in the subclavicular area. This placement is less desirable because it interferes with placement of defibrillation paddles and tends to cause pectoral muscle stimulation.	☐	☐
9. Check for sensing of intrinsic QRS complexes. (Done by adjusting ECG gain.)	☐	☐
10. Set pacing rate at 70 beats per minutes. Set current at minimum.	☐	☐
11. Turn on Pacemaker and increase current as follows until capture is present: a. Conscious patient: 5 ma. Intervals b. Unconscious patient: 20 ma. Intervals Electrical capture is usually evidenced by a wide QRS and a tall broad T wave. In some patients it may be less obvious, noted only as a change in QRS configuration. Mechanical capture may be evidenced by a palpable pulse, rise in blood pressure. Improved level of consciousness and improved skin color/temperature.	☐	☐
12. Obtain a rhythm strip. Assess patients comfort level. (Conscious patients may require sedation). Consider sedation with <u>Midazolam (Versed)</u> IVP in 1 mg increments, not to exceed 5 mg.	☐	☐
13. Document the following information: a. Time pacing was initiated; baseline and pacing rhythm strip b. Current required to capture. c. Pacing rate. d. Medications utilized for sedation.	☐	☐

EMT

Adolescent (puberty) and older

Steps

Was performed ?

YES

NO

General

1. Ask "Are you choking?"

☐☐

2. Give abdominal thrusts / Heimlich maneuver or chest thrusts for pregnant or obese victims.

☐☐

3. Repeat abdominal thrusts until effective or victim becomes unresponsive.

☐☐

EMT

Victim becomes unresponsive

4. Activate EMS. If second rescuer is present, send that person to activate EMS system.

☐☐

5. Begin CPR.

☐☐

AEMT

6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.

☐☐

7. Continue CPR until ALS arrives.

☐☐

8. If unable to ventilate, repeat 6 - 10 abdominal thrusts and/or visualization (have suction available) attempt with laryngoscope and removal if possible with Magill Forceps™.

☐☐

Paramedic

a. Intubation of patient

b. Perform cricothyrotomy and attempt positive pressure ventilation

During ventilation attempts, use appropriate size masks of bag mask as soon as available.
 Supplementary oxygen delivery equipment should be immediately available.

Steps

1 year to adolescent (puberty)

EMT

Was performed ?

YES

NO

1. Ask "Are you choking?"

☐☐

2. Give abdominal thrusts / Heimlich maneuver.

☐☐

3. Repeat abdominal thrusts until effective or victim becomes unresponsive.

☐☐

Victim becomes unresponsive

4. If second rescuer is present, send that person to activate EMS system.

☐☐

5. Begin CPR.

☐☐

6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.

☐☐

7. Continue CPR for 5 cycles or 2 minutes and then activate EMS system. Return to child and continue CPR until ALS arrives.

☐☐

Infant

YES

NO

1. Confirm severe airway obstruction. Check for the sudden onset of severe breathing difficulty, ineffective or silent cough, weak or silent cry.

☐☐

2. Give up to 5 back slaps and up to 5 chest thrusts.

☐☐

3. Repeat step 2 until effective or victim becomes unresponsive.

☐☐

Victim becomes unresponsive

4. If second rescuer is present, send that person to activate EMS system.

☐☐

5. Begin CPR.

☐☐

6. Look into mouth when opening the airway during CPR. Use finger sweep only to remove visible foreign body in unresponsive victim.

☐☐

7. Continue CPR for 5 cycles or 2 minutes and then activate EMS system. Return to infant and continue CPR until ALS arrives.

☐☐

8. If unable to ventilate, repeat 6 - 10 abdominal thrusts and/or visualization (have suction available) attempt with laryngoscope and removal if possible with Magill Forceps™.

☐☐

a. Intubation of patient

b. Perform cricothyrotomy and attempt positive pressure ventilation

During ventilation attempts, use appropriate size masks of bag mask as soon as available. Supplementary oxygen delivery equipment should be immediately available.

General

EMT

AEMT

Paramedic

Clinical Indications:

Helmet removal kit (Suggested List)

2 screwdrivers (flat and Phillips head)

2 trauma shears

trainer angel, snips or other cutting tool pin for deflating air pads in helmet

EMT**Steps****Was performed ?**

YES

NO

General

EMT

AEMT

Paramedic

1. Three to four personnel are needed to safely remove the helmet and pads from the patient.

☐☐

2. One EMT goes to the head, while two others go to each side.

☐☐

3. Take manual C-spine control by holding helmet from the top of head. This EMT is also able to assess patient's LOC and airway patency.

☐☐

4. Cut jersey away. Cut laces or fasteners along front of shoulder pads.

☐☐

5. Separate pads along sternum and lay sides flat along each side. From a side position, cut or unsnap chinstrap.

☐☐

6. If necessary, unscrew or cut facemask fasteners on each side to allow facemask to flip back, creating access to patient's airway. Most helmets can be quickly and safely removed without first removing facemask.

☐☐

7. Unsnap cheek pad on each side (usually 3 snaps) but do not remove. Take over C-spine control from the front, with EMT on one side of patient, or by straddling patient.

☐☐

8. Take the cheek pads out as person assuming C-spine slides fingers in further around sides of jaw to support head and neck.

☐☐

9. From the top of the head, remove helmet by gently spreading sides of helmet and following the contour of the head by pulling down then up and off. Make sure that C-spine alignment is maintained – do not allow head position to drop.

☐☐

10. Remove shoulder pads by pulling pads straight back from each side over head, along long axis. Downward pressure should be maintained on the posterior pads with one hand while removing to prevent movement of body

☐☐

11. Regain C-spine control from the top of head, gently lowering head to an inline position. Proceed with immobilization according to protocol.

☐☐

Clinical Indications:

For establishing a patent airway during resuscitation of the unconscious patient in the pre-hospital setting

Contraindications:

- Patients with intact gag reflexes
- Patients with unknown esophageal pathology
- Patients after ingestion of caustic substances
- Central-airway obstruction

**AEMT****General**

http://www.youtube.com/watch?feature=player_embedded&v=ijAeVvgh7sg

YES

NO

EMT

1. Select an appropriately sized I-gel according to patient weight.

☐☐

2. Apply lubrication by placing a small bolus of a water-based lubricant, such as K-Y Jelly, onto the middle of the smooth surface of the protective cradle in preparation for lubrication. Grasp the i-gel with the opposite (free) hand along the integral bite block and lubricate the back, sides and front of the cuff with a thin layer of lubricant.

☐☐

3. Remove the i-gel from the protective cradle. Grasp the lubricated i-gel firmly along the integral bite block. Position the device so that the i-gel cuff outlet is facing towards the chin of the patient. The patient should be in the 'sniffing the morning air' position with head extended and neck flexed. The chin should be gently pressed down before proceeding. Introduce the leading soft tip into the mouth of the patient in a direction towards the hard palate.

☐☐**AEMT**

4. Glide the device downwards and backwards along the hard palate with a continuous but gentle push until a definitive resistance is felt .

☐☐

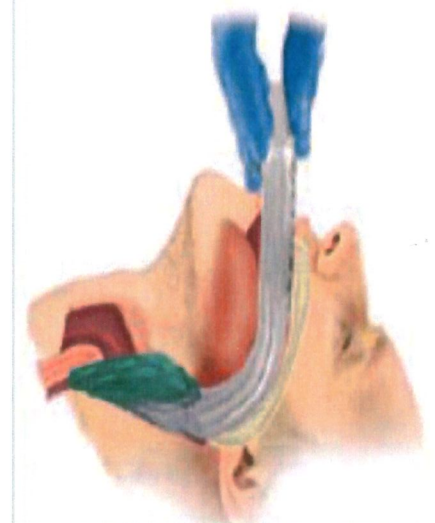
5. The tip of the airway should be located into the upper esophageal opening (a) and the cuff should be located against the laryngeal framework (b). The incisors should be resting on the integral bite-block.

☐☐**Paramedic**

6. I-gel should be strapped by sliding the strap under the patient's neck and securing it in place to the hook ring on the collar of the I-gel O2. If there is early resistance during insertion a 'jaw thrust' (above) or 'Insertion with Deep Rotation' (right) is recommended.

☐☐

I-Gel Size	Patient Size	Patient weight guidance (kg)
Size 1.0	Neonates	2 - 5 kg (5 - 11 lbs.)
Size 1.5	Infants	5 - 12 kg (11 - 25 lbs.)
Size 2.0	Small Pediatrics	10 - 25 kg 22 - 55 lbs.
Size 2.5	Large Pediatrics	25 - 35 kg (55 - 77 lbs.)
Size 3	Small Adults	30 - 60 kg (65 - 130 lbs.)
Size 4	Medium Adults	50 - 90 kg (110 - 200 lbs.)
Size 5	Large Adults	90+ kg (200+ lbs.)



Intraosseous (IO) infusion should be employed when there is a need for cardiotropic agents, fluids, volume expanders, or crucial medications to sustain life and/or treat life-threatening problems (e.g. trauma, hemorrhage, severe burns, drowning, DKA, cardiac arrest, etc.)

AEMT

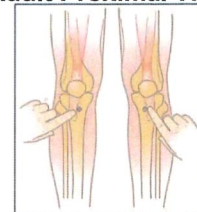
Site Selection

Preferential site: Proximal humerus (humeral head)

Alternative site: Anterior, medial surface of the tibia, 2 cm below the tibial tuberosity.

Indications:

- In Cardiac Arrest, humeral head IO should be considered as the primary and initial approach to vascular access.
- In unresponsive patients, or patients who are critical and immediate vascular access is necessary, personnel may consider humeral head IO as the initial means of vascular access.
- In conscious patients that are unstable, or require fluids or medications intravenously, personnel may attempt IV access first, or proceed directly to humeral head IO access.

Adult Proximal Tibia**Contraindications:**

- Fractured bones cannot be used as intraosseous sites.
- Areas of cellulitis or infected burns.
- Osteogenesis imperfecta or osteoporosis.
- Inability to locate landmarks.
- Previous orthopedic procedures.

Steps

Was performed ?

	YES	NO
1. Locate the proper landmarks for the IO site.	☐	☐
2. An appropriate Intraosseous needle device is inserted through the skin and fascia	☐	☐
3. Use aseptic technique.	☐	☐
4. Sudden lack of resistance indicates proper placement into the bone marrow cavity.	☐	☐
5. Secure needle, remove stylet and flush with saline syringe. administer fluids or medications	☐	☐
6. Observe site closely for extravasation of fluid.	☐	☐
7. Pressure infusion device must be used	☐	☐

Pain Control:

Infusion of medications or fluid through the IO of a conscious patient will cause them pain and discomfort. Administer 2% **Lidocaine** HCL as follows:

- Prime extension set with Lidocaine
- Administer 40 mg Lidocaine slowly over 120 seconds
- Give 10 ml fluid flush
- Administer additional 20 mg Lidocaine slowly over 60 seconds.

General

EMT

AEMT

Paramedic

Intraosseous infusions are to be considered **alternative** approaches to vascular access in children less. Therefore, they may be utilized when initial attempts at intravenous cannulizations have failed. Intraosseous infusion should be employed when there is a need for cardiotropic agents, volume expanders or crucial drugs to sustain life and/or treat life-threatening problems (e.g., hemorrhage, severe burns, near SIDS, drowning, DKA, cardiac arrest, etc.).

AEMT

General

Site Selection

Preferential site: Anterior medial surface of the tibia 2 cms. Below the tibial tuberosity.

Alternative site: Anterior midline of the femur.
2 to 3 cm above the condyles.
Insertion: 60 to 90 degrees cephalad.

Pediatric Proximal Tibia



EMT

Contraindications

Fractured bones cannot be used as intraosseous sites.
Areas of cellulitis or infected burns.
Osteogenesis imperfecta or osteopetrosis.
Inability to locate landmarks.
Previous orthopedic procedures.

AEMT

Was performed ?

YES NO

1. Aseptic technique.

☐ YES ☐ NO

2. An appropriate Intraosseous needle device is inserted through the skin and fascia

☐ YES ☐ NO

3. Advance through the cortex of the bones

☐ YES ☐ NO

4. Sudden lack of resistance indicates proper placement into the bone marrow cavity.

☐ YES ☐ NO

5. Secure needle, remove stylet and flush with saline syringe and administer fluids or Medications

☐ YES ☐ NO

6. Observe site closely for extravasation of fluid.

☐ YES ☐ NO

7. Pressure infusion device must be used

☐ YES ☐ NO
If pain becomes an issue such as in the conscious patient,

Lidocaine Initial dose is 0.5 mg/kg, not to exceed 40 mg, Slowly infuse lidocaine IO over

120 seconds. Flush with 2 - 5 ml of normal saline. Slowly infuse additional lidocaine (half the initial dose) IO over 60 seconds

☐ YES ☐ NO

Paramedic

Clinical Indications:

- Midazolam – Seizures, Sedation
- Glucagon – Hypoglycemia
- Naloxone – Narcotic Overdose

AEMT

EMT can administer Narcan via IN only

General

EMT

AEMT

Paramedic

Steps

Was performed ?

YES NO

1. Load syringe with appropriate ml volume of medication
- Recommended:**

Glucagon

Adult: 1 mg

Pediatric: 25 mcg/kg (Maximum 1 mg)

Naloxone (Narcan):

Adult: 2 mg

Pediatric 0.2 mg/kg (Maximum 2 mg)

Add 0.12 ml volume for dead space of device and round up to next higher 0.1 ml.

2. Load syringe with appropriate
- Midazolam (Versed)**
- 5 mg/ml volume of medication Recommended:

Midazolam (Versed):Adult 10 mg, 5 mg/per nostril (Seizure) IN is **preferred** over IVP, IO5 mg, 2.5 mg/per nostril (Sedation) IN is **preferred** over IVP, IO**Midazolam (Versed):** Pediatric (5 mg/ml)**Step 1:** Select weight-based dose (see below)**Step 2:** Attach mucosal atomizer device to syringe**Step 3:** Briskly plunge the syringe to give the appropriate dose

Patient Weight		Total Amount
Kilograms (kg)	Pounds (lbs.)	
3 – 5 kg	6.6 – 11 lbs.	0.2 ml (1 mg) waste midazolam to this dose; give in 1 nostril
6 kg	13.2 lbs.	0.3 ml (1.5 mg) waste midazolam to this dose; give in 1 nostril
7 – 12 kg	15.4 – 26.4 lbs.	0.5 ml (2.5 mg) waste midazolam to this dose; give in 1 nostril
13 – 24 kg	28.6 – 52.8 lbs.	1 ml (5 mg) give ½ syringe (0.5 ml) in one nostril and give ½ syringe (0.5 ml) into other nostril
≥ 25 kg	≥ 55 lbs.	2 ml (10 mg) give whole syringe (1 ml) in one nostril and 2nd whole syringe (1 ml) into other nostril

3. Attach the Mucosal Atomizer Device (MAD).

4. Place the MAD tip within nostril approximately 1.5 cm.

5. Briskly compress syringe to administer ½ of the volume as atomized spray. No more than 1 ml total in each nostril

6. Remove and repeat in other nostril, so all medication is administered, half in each nostril.

Clinical Indications:

The treatment of tension Pneumothorax involves decompression of the affected chest cavity to release the pressure that has developed. Decompression can be achieved, with minimal risk, by the insertion of a 14 or 16 gauge needle into the second inter-costal space at the midclavicular line. The needle must be inserted on the top side of the rib due to nerves, intercostal artery, and veins follow the bottom of the rib.

Assessment:

- Diminished or absent lung sounds
- Cyanosis and difficulty breathing
- Distended neck veins
- Tachycardia, tachypnea, hypotension, narrow pulse pressure
- Tracheal shift to the unaffected side (may not always be present)

AEMT

General

EMT

AEMT

Paramedic

Steps**Was performed ?**

YES NO

1. Prepare the equipment: 14 gauge 3" needle & antiseptic

☐ YES ☐ NO

2. Locate the site: 2nd or 3rd intercostal space, midclavicular

☐ YES ☐ NO

3. Prep the site

☐ YES ☐ NO

4. Insert the needle just superior to the rib until a rush of air is felt and / or heard.

☐ YES ☐ NO

5. Secure the needle in place.

☐ YES ☐ NO

6. Support patient with 100% oxygen and transport without delay.

☐ YES ☐ NO

Clinical Indications: EMTA, Paramedic

- Intravenous cannulation is indicated for the administration of drugs or fluids in any critically ill or potentially critically ill patient.

AEMT**Clinical Indications:**

Although there are no true absolute contraindications, peripheral intravenous cannulation should not significantly delay scene times.

Steps**Was performed ?**

YES NO

1. Explain to the patient the need for intravenous cannulation and describe what you will be doing.

☐☐

2. Observe body substance isolation precautions

☐☐

3. Place a commercial tourniquet or inflate a blood pressure cuff just above the elbow and place the arm in a straight position. If using a blood pressure cuff, inflate until 20 mm/HG below the systolic pressure.

☐☐

4. Select a prominent vein by feel more than sight. Choose the most distal prominent vein on the hand, forearm, or antecubital space that is straight, on a flat surface, and not rolling. If possible, avoid veins over joints, using the antecubital veins as a last resort.

☐☐

5. A vein may be distended for easier cannulation by gently tapping on it with your fingers.

☐☐

6. Prep the venipuncture sight with povidine-iodine or alcohol, using a firm circular motion from the vein outward.

☐☐

7. With traction on the skin below the venipuncture sight, stabilize the vein.

☐☐

8. With the bevel of the needle upward, puncture the skin using a 30 to 45 degree angle. Enter the vein directly from above or from the side.

☐☐

9. When the vein is entered, you should feel a pop and see blood return through the catheter.

☐☐

10. Carefully lower the catheter and advance the needle and catheter approximately 2 mm to stabilize the needle in the vein.

☐☐

11. Slide the catheter off of the needle into the vein then remove the needle. Dispose of the needle into a puncture proof (sharps) container. Do not attempt to recap the needle.

☐☐

12. Release the tourniquet and attach the infusion tubing into the hub of the catheter.

☐☐

13. Open the flow regulator on the IV tubing. The fluid should run freely.

☐☐

14. Cover the venipuncture site with a sterile dressing, then tape the catheter to the skin using any acceptable technique. Make a loop with the IV tubing and tape the loop to the arm. This will allow a little extra tubing in case the IV bag is accidentally pulled away from the patient. If the vein is near or over a joint, immobilize it with an arm board to prevent dislodgment of the catheter.

☐☐

General

EMT

AEMT

Paramedic

Clinical Indications:

- Patients with suspected hypoxemia or to obtain baseline reading.

EMT**Steps****Was performed ?**

YES

NO

General

EMT

AEMT

Paramedic

1. Turn the machine on and allow for self-tests.

☐☐

2. Apply probe to patient's finger or any other digit as recommended by the device manufacturer. The thumb is not recommended for use.

☐☐

3. Allow machine to register saturation level.

☐☐

4. Record time and initial saturation percent on room air if possible on/with the patient care report (PCR).

☐☐

5. Verify pulse rate on machine with actual pulse of the patient.

☐☐

6. Monitor critical patients continuously until arrival at the hospital. If recording a one-time reading, monitor patients 30-60 seconds minimum.

☐☐

7. Document percent of oxygen saturation in response to therapy to correct hypoxemia and initial vital signs when appropriate.

☐☐

8. Normal saturation is 95-100%. Below 92%, suspect a respiratory compromise.

☐☐

9. Use the pulse oximetry as an added tool for patient evaluation. Treat the patient, not the data provided by the device.

☐☐

10. The pulse oximeter reading should never be used to withhold oxygen from a patient in respiratory distress or when it is the standard of care to apply oxygen despite good pulse oximetry readings, such as chest pain.

☐☐

11. Factors which may reduce the reliability of the pulse oximetry reading include:

- Poor peripheral circulation (blood volume, hypotension, hypothermia)
- Excessive pulse oximeter sensor motion
- Fingernail polish (may be removed with acetone pad)
- Artificial nails
- Carboxyhemoglobin
- Methemoglobin
- Moisture in the sensor
- Excessive ambient light
- Arterial catheters, BP cuffs, infusion lines, etc.
- Poor pulse quality
- Incorrect sensor type
- Venous pulsations
- Sensor not at heart level

☐☐**See manufactures Instructions for use for additional cautions and proper cleaning instructions.**

Purpose:

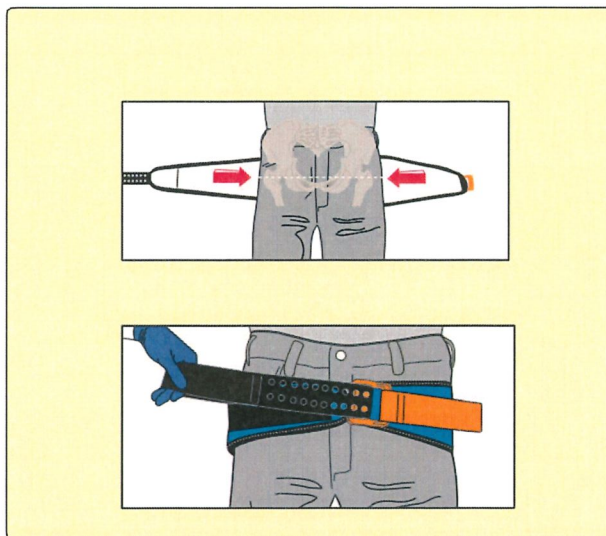
The initial reduction of an unstable pelvic fracture (to lessen ongoing internal bleeding and to ease the pain by splinting the fracture) using the SAM Pelvic Sling II™

Clinical Indications:

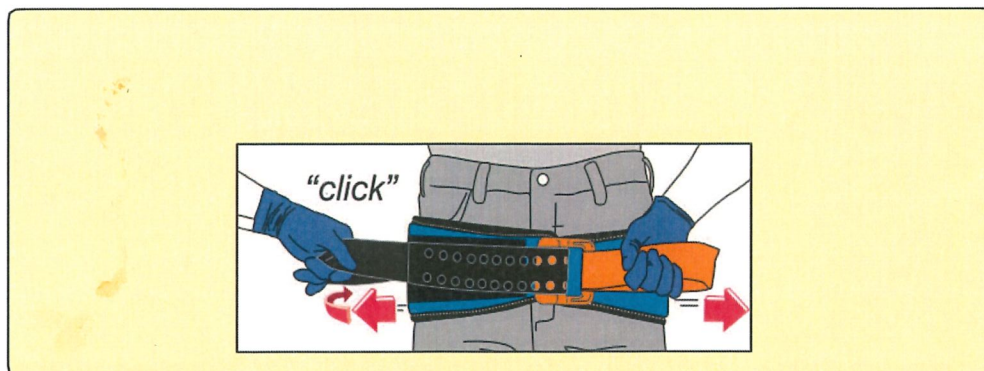
- A.** To be applied in trauma patients who have appropriate mechanism(s) of injury and who present with either pelvic pain or pelvic instability.
- B.** Consider pelvic wrap in unconscious trauma patients who have appropriate mechanism(s) of injury, have pelvic instability, and who are in shock.

Steps

1. Remove objects from patient's pocket or pelvic area. Place SAM Pelvic Sling white side up beneath patient at level of trochanters (hips).
2. Place BLACK STRAP through buckle and pull completely through.



3. Hold ORANGE STRAP and pull BLACK STRAP in opposite direction until you hear and feel the buckle click. Maintain tension and immediately press BLACK STRAP onto surface of SAM Pelvic Sling to secure.



EMT

General

EMT

AEMT

Paramedic

Was performed ?

YES

NO

☐☐☐☐☐☐

Clinical Indications:

- Immobilization of an extremity for transport, either due to suspected fracture, sprain, or injury.
- Immobilization of an extremity for transport to secure medically necessary devices such as intravenous catheters

EMT

Steps

Was performed ?

YES

NO

General

1. Assess and document pulses, sensation, and motor function prior to placement of the splint. If no pulses are present and a fracture is suspected, consider reduction of the fracture prior to placement of the splint.

☐☐

2. Remove all clothing from the extremity.

☐☐

EMT

3. Select a site to secure the splint both proximal and distal to the area of suspected injury, or the area where the medical device will be placed. **Do not** straighten fractures of the elbow, wrist, knee or ankle. Straighten all fractures involving the long bones at near normal position, if possible before splinting, using slight traction. Immobilize the adjacent joints above and below all fractures.

☐☐

4. Do not secure the splint directly over the injury or device. Elevate and apply ice packs, as needed.

☐☐

AEMT

5. Place the splint and secure with Velcro, straps, or bandage material (e.g., kling, kerlex, cloth bandage, etc.) depending on the splint manufacturer and design.

☐☐

6. Document pulses, sensation, and motor function after placement of the splint. distal to injury, before and after splinting and en route. If there has been a deterioration in any of these 3 parameters, remove the splint and reassess.

☐☐

Paramedic

7. If a femur fracture is suspected and there is no evidence of pelvic fracture or instability, the following procedure may be followed for placement of a femoral traction splint:

- Assess neurovascular function as in #1 above.
- Place the ankle device over the ankle.
- Place the proximal end of the traction splint on the affected extremity, being careful to avoid placing too much pressure on genitalia or open wounds. Make certain the splint extends proximal to the suspected fracture. If the splint will not extend in such a manner, reassess possible involvement of the pelvis
- Extend the distal end of the splint at least 6 inches beyond the foot.
- Attach the ankle device to the traction crank.
- Twist until moderate resistance is met.
- Reassess alignment, pulses, sensation, and motor function. If there has been deterioration in any of these 3 parameters, release traction and reassess.

☐☐

8. Document the time, type of splint, and the pre and post assessment of pulse, sensation, and motor function in the patient care report (PCR).

☐☐

9. Splinting Suggestions:

Long bone fractures: Board Splint, Vacuum Splint,
Femur Fracture: Traction Splint, Long board Splint
Pelvic Fracture: SAM Pelvic Sling
Shoulder, Humerus, Clavicle Fracture: Sling & Swathe
Supracondylar Humeral Fracture: Carefully Immobilize

☐☐

Clinical Indications:

Before touching any patient who has been subdued by use of a Taser unit, ensure that Law Enforcement has disconnected the wires from the handheld unit.

Steps**EMT****Was performed ?**

YES

NO

General

1. Assure the scene is secure. Use of this type of weapon to subdue a violent person implies he/she was at risk to him/herself or others.

☐☐

2. Perform airway, breathing, and circulation assessment and take corrective measures according to medical protocol.

☐☐

3. Evaluate and treat for secondary injuries/altered level of consciousness according to protocols.

- Identify the location of the probes on the patient's body. If any of the probes are embedded in the face (including eyes), neck, groin, or spinal column, do not remove the probes in the field; it is acceptable to cut the wiring away from the barbs to facilitate movement and patient care as needed. These patients should be transported to an Emergency Department.

☐☐

EMT

4. Removal of Probe:

- Wear gloves
- Place one hand on the patient in the area where the probe is embedded and stabilize the skin surrounding the puncture site.
- Place your other hand firmly around the probe. In one fluid motion, pull the probe straight out from the puncture site.
- Repeat procedure with the second probe.
- Removed probes should be handled and disposed of like contaminated sharps in a designated sharps container unless the Sheriff requires them to be kept as evidence.

☐☐

AEMT

5. Confer with Law Enforcement and determine the patients condition from the time of Taser discharge until EMS arrival.

☐☐

6. Obtain history of present injury and any past medical history, including CAD, HTN, MD, Asthma, COPD, and seizure disorder if possible.

☐☐

Paramedic

7. Obtain a history of allergies to medications and a list of current medications if possible.

☐☐

8. Treatment and follow-up:

- Cleanse puncture site with alcohol swab and bandage as appropriate.
- If the patient has not received a tetanus shot in the last 5 years, they should be advised to get one.

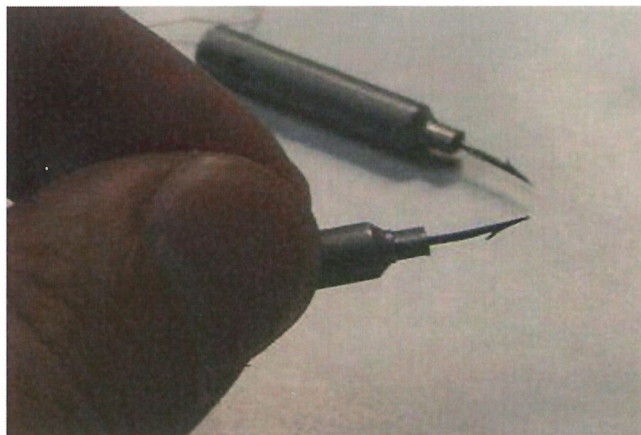
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A patient should be transported to the Emergency Department if there are signs of trauma, medical problems, (i.e. chest pain, dyspnea, etc) or altered mental status)

Typical Taser Probes

Medical Research
Reports

[http://www.taser.com/
pages/pr/medical.html](http://www.taser.com/pages/pr/medical.html)



Indications:

To stop bleeding when:

- A. Life-threatening limb hemorrhage is not controlled with direct pressure or other simple measures, as may occur with a managed extremity.
- b. Traumatic amputation has occurred.

Combat Application Tourniquet®**Placement**

1. Expose the extremity by removing clothing in proximity to the injury.
2. Place directly over exposed skin 5 – 6 cm proximal to the injury.
3. Route the self-adhering band around the extremity.
4. Pass the band through the outside slit of the buckle.
5. Pull the self-adhering band tight.
6. Twist the rod until bright red bleeding stops.
7. Lock the rod in place with the clip.
8. Record the date/time of application on the tourniquet

Evaluation

1. The tourniquet is effectively applied when there is cessation of bleeding from the injured extremity, indicating total occlusion of arterial blood flow.
2. Any preexisting distal pulse should be absent at that time as well.

Placement

1. Tourniquets should be removed as soon as possible under conditions where the hemorrhage can be directly controlled.
2. Tourniquet placement must be communicated in patient reports for all pre-hospital and inter-hospital transfers.
3. Tourniquet time > 6 hours is associated with distal tissue loss.

YES NO

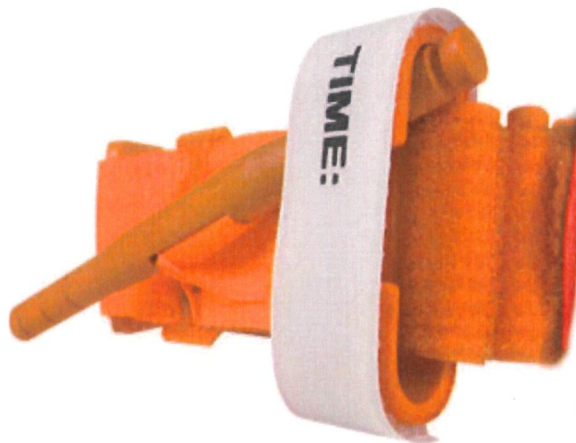
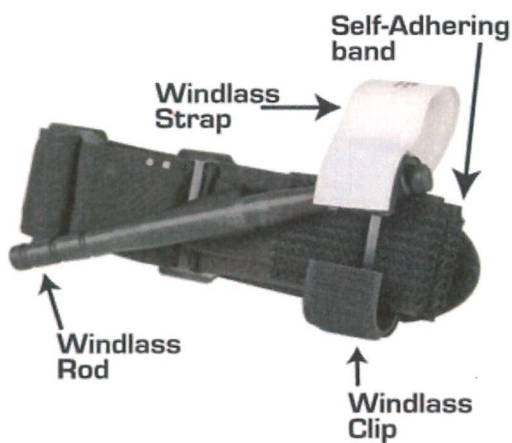
☐ ☐
☐ ☐
☐ ☐

General

EMT

AEMT

Paramedic



Clinical Indications:

- Treatment of supraventricular tachycardia dysrhythmias.

Paramedic

Steps

Was performed ?

YES

NO

General

1. Place patient in sitting or semi-sitting position.

☐☐

2. Position head tilting down.

☐☐

3. Instruct the patient to take a deep breath and bear down or strain, as if to have a bowel movement. Have the patient hold this position for 20-30 seconds.

☐☐

4. Continue monitoring the patient throughout the procedure. Stop the maneuver if the patient heart rate drops below 100 or asystole occurs.

☐☐

5. The maneuver works by the Increase of intrathoracic pressure by forcible exhalation against the closed (or significantly closed) glottis. The maneuver causes a trapping of blood in the great veins, preventing it from entering the chest and right atrium. When the breath is released, the intrathoracic pressure drops and the trapped blood is quickly propelled through the heart, producing an increase in the heart rate (tachycardia) and the blood pressure. Immediately after this event a reflex bradycardia ensues. (<http://www.breathing.com/articles/valsalvas-maneuver.htm>)

☐☐

EMT

AEMT

Paramedic

Clinical Indications:

- Active bleeding

EMT

Steps

Was performed ?

YES

NO

General

1. Use personal protective equipment, including gloves, gown, and mask as indicated.

☐☐

2. Observe for and control obvious bleeding. Evaluate and treat all life threatening injuries first.

☐☐

3. Bleeding control by:

- Direct Pressure
- Elevation
- Pressure Point
- Immobilize by Splinting
- Tourniquet

☐☐

EMT

4. Uncontrolled bleeding: Assess for life threatening injuries and resuscitate if necessary. -
If tourniquet necessary see:

Tourniquet Application

Watch for signs and symptoms of hypoperfusion

☐☐

AEMT

5. Obtain history:

- Time of Injury
- Area of occurrence (risk of infection)
- Mechanism of injury (associated injuries)
- Amount of blood loss
- Severity of pain
- Patient's medical history
- Tetanus immunization

☐☐

Paramedic

6. Wound Care:

- Assess for size, depth, location, contamination and type of wound:
Abrasion, Avulsion, Contusion, Incised, Laceration, Puncture
- Irrigate wound if necessary
- Apply appropriate dressing
- Secure dressing

☐☐

7. Further Evaluation & Care: Many times open wounds need further evaluation and care by a physician.
Including the following:

- Neural, muscular, or vascular
- Tendon or ligament compromise
- Contamination
- Foreign bodies
- Medical history-especially patients with diabetes and other vascular problems

☐☐

Capnography

Considered the ventilation vital sign

Capnography gives a true accurate picture of ventilation status frequently before patient symptoms are recognized by health care providers.

Gives objective data regarding clinical course of management and treatment

Arterial blood gas CO₂ has a normal range of 35 – 45.

EtCO₂ will normally be within 0 – 5 mm of ABG CO₂ value

ETCO₂ can be used to estimate ABG PaCO₂

Elevated ETCO₂ = Hypoventilation / ROSC / increased metabolism

Decreases ETCO₂ = Hyperventilation / decreased metabolism

Prehospital Airway

- *Intubated Patients*
 - Maintains Airway Presence during transport and patient movement
 - Quality of Ventilation
 - Early notification of problems or ROSC
 - Advantages to head trauma patients by maintaining ventilation rates in head injured patients
- *Non Intubated Patients*
 - Assesses ventilation status in patients with respiratory distress
 - Shows bronchodilator effectiveness
 - Indicates patients ventilation rate
 - Diabetics patients
- *The diagnostic element of CO₂ is in the waveform not in the numeric value!!!*

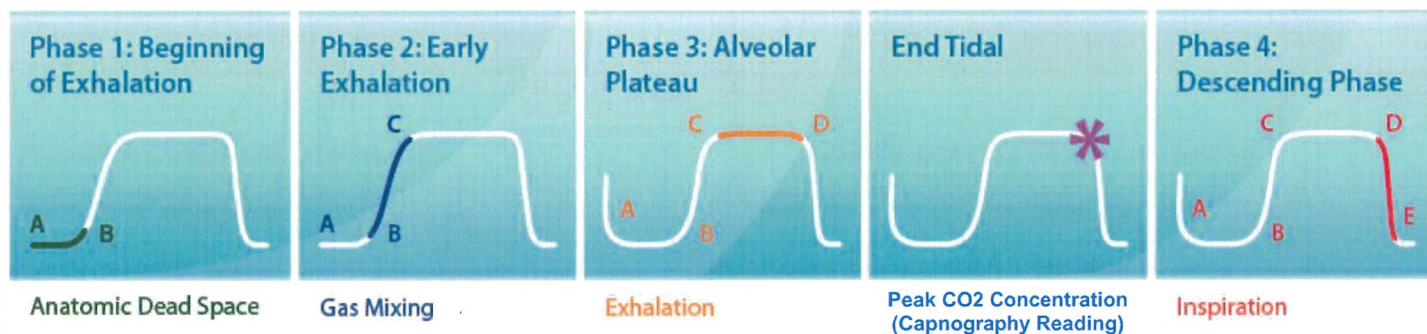
False Positives Possible?

After recent ingestions of a carbon beverages or alcohol, this can give a false positive EtCO₂ for 2 – 3 ventilated breaths.

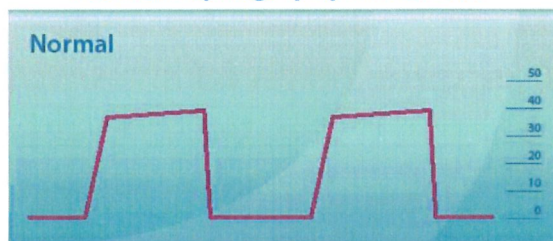
Several ventilations should wash out stomach CO₂ content.

Displacement of ETT against the lateral tracheal wall can cause flat wave

Phases of the Capnogram



Normal Capnography Waveform



Capnography Uses

Increased ICP - You can use capnography to maintain ventilation rates to obtain EtCO₂ at the low end of normal

Use in Ventilation Rates - useful in the pre-hospital setting to help maintain appropriate manual and mechanical ventilation –

Inadvertent Hyperventilation - Inadvertent hyperventilation is common following paramedic Drug Assisted Intubation despite EtCO₂ monitoring and target parameters.(1)

Cardiac Arrest - Reductions in EtCO₂ during CPR are associated with comparable reductions in cardiac output making EtCO₂ more reliable than radial pulses. (2)

Return of Spontaneous Circulation - The use of CO₂ is able to be used in the determination of ROSC often the first indicator. Increase occurs due to the excess CO₂ being washed out of the previously hypoperfused tissue.(3)

Use in Death Confirmation - Studies indicate that patients that have been intubated and have a CO₂ less than 10 which does not increase are clinically dead.(4)

ACLS Medication - You will see an initial increase in the EtCO₂ after administration of Sodium Bicarbonate. This will come back down after several ventilations. This demonstrates the reason ACLS suggest no NaHCO₃ unless adequate ventilation present

Paralytics - You may see a “curare cleft” Caused by the stronger thoracic muscles that are more paralyzed than the weaker diaphragm, This is an indicator that the patient is coming up from medication, Consider further sedation and/or paralyzation.

Pacemaker - Can be used to help determine when a patient has captured during pacing as you will see an increase in CO₂ prior to feeling a pulse. The increase is due to the increase in cardiac output that should accompany capture.

Trauma Patients - Decrease levels when determined to be not from other causes should lead you to suspect hypovolemia as severe shock will have low CO₂ due to poor perfusion. You will see an increase in CO₂ as perfusion status improves during resuscitation.

Nasotracheal Intubation - In NTI capnography can be used to guide the ET tube into proper position You will see an increase in CO₂ as the tube passes into the hypopharynx and decrease if you remove it from the hypopharynx and move toward the esophagus.(5)

Diabetic – In DKA patients, Kussmaul respiration helps correct acidosis. Patients with an EtCO₂ of less than 29 were found to be in acidosis 95% of the time, whereas no patients with EtCO₂ of 36 or higher were in acidosis.(6)

Seizure Patients - Capnography is a very valuable and reliable assessment tool to assure airway patency in seizure patients or those medicated with Valium, Versed, or Ativan for seizure activity.

- Can be used in actively seizing patients
- Increases in CO₂ are common in the seizure patient due to the exaggerated muscular activity
- Continued increases or very high EtCO₂ can indicate hypoventilation, commonly associated with benzodiazepine use.

Pain Management - Patients that are given sedatives or narcotics for pain are at risk for hypoventilation, Capnography can assure continued airway presence during extrication and/or transport with just a glance at the monitor.

Asthma - EtCO₂ is specifically good for assessing the severity of asthma or the presence of bronchospasm
Bronchospasm can give the appearance of a “shark fin” on the waveform.
Diagnosis of asthma versus panic attack

Patients experiencing bronchoconstriction will develop a shark fin appearance to the waveform. This sharkfin will resolve as the patient responds to treatment. In the event the patient fails treatment the shark fin will not resolve and increases in EtCO₂ may be seen as the patient gets tired.

CPAP - You can use the cannula with CPAP as long as you can good get a good seal.
It is a good idea to place it on the patient to monitor respiratory status of your patient during CPAP use. Prevents missing apnea in CPAP patients

Pulmonary Embolus (PE) - Typical presentation of SOB, tachycardia, risk factors. EtCO₂ can present with normal waveform appearance and a lower numeric value due to respiratory rate and decrease perfusion to lungs. **If the PE is small you may see no change.** Small PE may demonstrate no change in EtCO₂ values and should not be used as a single assessment tool for assessment of a PE

Pregnant Patients - compression of the vena cava restricts blood flow back to the heart and lungs which can cause decreases in EtCO₂ due to decrease perfusion.

Note: Shark-fin waveform appearance in pregnant patients can be a normal finding and does not specifically indicate bronchoconstriction.

Rescue Airway Device – Rescue Airway Devices - Used to confirm adequate ventilation. without other evidence of bronchoconstriction as this may be a normal finding.

Remember

Capnography assesses ventilation

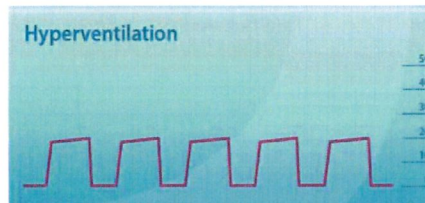
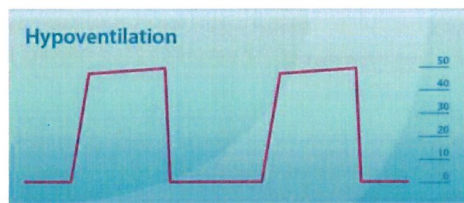
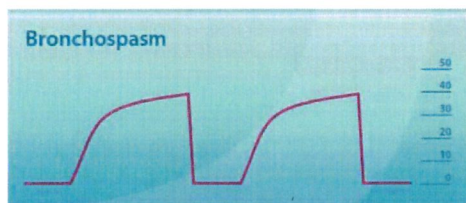
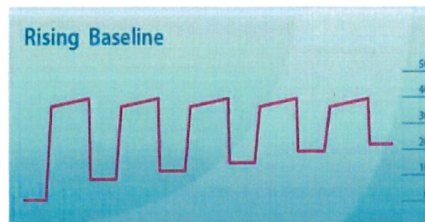
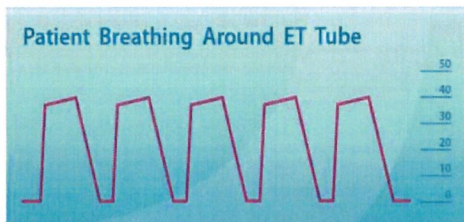
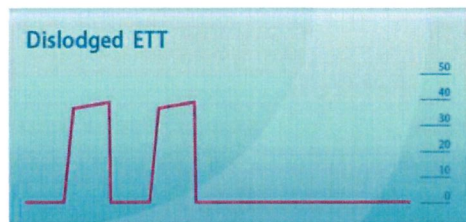
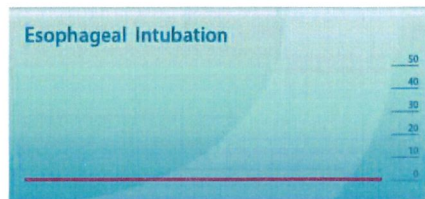
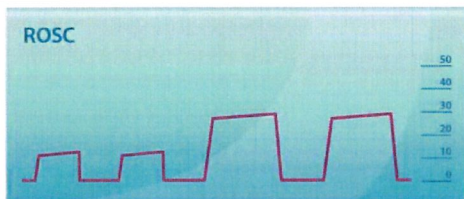
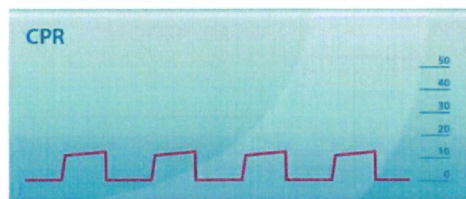
It confirms adequate ventilation – not a confirmed secured airway!!!!

You have to have adequate perfusion

Changes are immediate long before pulse oximetry

You need to use it to be comfortable with it

Capnography Wave Forms



References

- (1) Davis, DP.,Dunford,JV. Inadvertent Hyperventilation following Paramedic RSI of Severely Head-injured Patients. Acad Emerg Med. Vol. 10, No. 5 446. 2003
- (2) Weil, M. Cardiac Output and End-Tidal Carbon Dioxide. Critical Care Medicine, November 1985
- (3) Singh Amar. Comparing the Ability of Colorimetric and Digital Waveform End Tidal Capnography to Verify ET tube placement. Academic Emergency Medicine Vol. 10 No. 5 466-467
- (4) Levine R. End-tidal Co₂ and outcome of out-of-hospital cardiac arrest. New England Journal of Medicine. July 1997;337:301-306
- (5) Phillips 2003
- (6) Fearon D., Steele D. End-tidal CO₂ predicts the presence and severity of Acidosis in Children. Academic Emergency Medicine Vol 9 No. 12 1373-1378

Common Beta Blockers

Acebutolol	Carvedilol	Labetolol	Propranolol
Atenolol	Coreg	Levatol	Sectral
Betapace	Corgard	Lopressor	Sotalol
Betoxolol	Esmolol	Metoprolol	Tenormin
Bisoprolol	Inderal	Nadolol	Timolol
Brevibloc	Innopran XL	Nebivolol	Trandate
Bystolic	Kerlone	Pindolol	Zabeta

Faces Legs Activity Cry Consolability Revised Scale (FLACC-R)

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested, sad, appears worried	Frequent to constant quivering chin, clenched jaw, distressed looking face, expression of fright/panic
Legs	Normal position or relaxed, usual tone & motion to limbs	Uneasy, restless, tense, occasional tremors	Kicking, or legs drawn up, marked increased in spasticity, constant tremors, jerking
Activity	Lying quietly, normal position, moves easily, regular, rhythmic respirations	Squirming, shifting back and forth, tense, tense/guarded movements, mildly agitated, shallow/splinting respirations, intermittent signs	Arched, rigid or jerking, severe agitation, head banging, shivering, breath holding, gasping, severe splinting
Cry	No cry (awake or asleep)	Moans or whimpers; occasional complaint, occasional verbal outbursts, constant grunting	Crying steadily, screams or sobs, frequent complaints, repeated outbursts, constant grunting
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distractible	Difficult to console or comfort, pushing caregiver away, resisting care or comfort measures

Epinephrine Drip

Epinephrine 1:1,000	
1 mg / 100 ml in NS (Use 60 gtts administration set)	
mcg / min.	gtts / min.
1	6
2	12
3	18
4	24
5	30
6	36
7	42
8	48
9	54
10	60

Heparin Bolus (60 mcg/kg)

Pounds	KG	Units
80	36	2,200 units
88	40	2,400 units
100	45	2,700 units
110	50	3,000 units
121	55	3,300 units
132	60	3,600 units
143	65	3,900 units
>145	>66	4,000 units