

EMERGENCY FIELD FIRST AID STUDY GUIDE 2003



This study guide is designed to provide the law enforcement Explorer with basic principles. The guide is not all inclusive, and does not delineate specific techniques that must be used. The focus of this guide is to provide principals that are flexible and adaptable to various law enforcement situations.

Following the basic principals in this guide should allow the law enforcement Explorer to successfully handle various law enforcement training activities safely and professionally.

The study guide was developed through the cooperation of International Association of Chiefs of Police and the Federal Law Enforcement Training Center.



**LAW ENFORCEMENT EXPLORING
EMERGENCY FIELD FIRST AID
TRAINING KEY**

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INTRODUCTION

Every year, thousands of people in this country die or are permanently injured because they did not receive proper emergency care in time. As a Responder, you can make a difference.

This course will help you gain the knowledge and skills you will need as a Law Enforcement Explorer to effectively identify basic life threatening conditions and render the appropriate level of care.

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ROLE OF THE RESPONDER

As a Responder, you play a vital role in the emergency medical care of patients experiencing an illness or injury. Perhaps the most important reason your role is so crucial is that you are responsible for the first few minutes with the patient. The Emergency Medical Service (EMS) system depends on your action during this time to set the foundation for the remainder of the call.

It is during this time that correcting a breathing problem or stopping bleeding will actually save a life. You will also help patients who are not in critical condition when you prevent further injury, perform the proper assessments, gather a medical history, and prepare for the arrival of the Emergency Medical Technician (EMT) or paramedics.

SCENE SAFETY

Remember that it is always better to prevent danger than it is to deal with it. Observation and awareness are the best ways to accomplish this goal.

Observation begins early in the call. As you approach the scene, observe the neighborhood as you look for house numbers. If possible, do not park directly in front of the call. This provides two benefits. First, you may be able to approach the scene unnoticed, which allows you to size it up without distraction. Second, since many first response units do not transport, the area directly in front of the call is left open for the ambulance.

As you approach the emergency scene, look for the following signs of potential danger:

Violence. Any indication that violence has or may take place is significant. These signs include arguing, threats, or other violent behavior. Also, notice any broken glass, overturned furniture, or anything else that may be out of place.

Weapons of any kind. If a weapon is on the scene, it is a serious potential danger.

Signs of intoxication or drug use. When people are under the influence of alcohol or drugs, their behavior is unpredictable. In addition, even though you may see yourself as there to help, other people may not.

Potential Hazards. Nothing is more important at an emergency situation than your safety. Hazards may include downed power lines or hazardous materials. Do not overlook the dangers at other scenes such as car crashes, unstable vehicles, unstable surfaces (slopes, ice, etc.) and dangerous pets. Place your safety first. If you do not, you may become a patient yourself and quite possibly prevent others from caring for the patient you were sent to help. When there is danger, three words sum up the actions required to respond appropriately: plan, observe, and react.

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PERSONAL PROTECTIVE EQUIPMENT

Universal precautions must be taken on every call. Personal protective equipment includes:

Latex Gloves – Wear latex gloves when there is any chance of coming in contact with a patient’s blood or body fluids.

Eye Protection – Wear eye protection when there is a chance of blood or body fluids splashing into your eyes.

Masks – Wear a mask when there is a chance of blood or body fluids splashing into your nose or mouth.

Barrier Devices – Use barrier devices when performing CPR and/or rescue breathing to prevent disease transmission.

Remember that you should always have personal protective equipment available. When you approach a scene, anticipate which items may be needed. A good time to don personal protective equipment is while you are checking the scene for safety. Waiting too long may cause you to become so involved that you forget to protect yourself.

RECOGNIZING EMERGENCIES

Emergencies are often recognized by unusual sounds, odors, or sights. In some cases, they are recognized as unusual behavior if the person is known to the Responder or bystanders.

After determining that an emergency exists, a Responder must remain calm and follow the Emergency Action Steps: Check – Call – Care.

- Check the scene for safety. Determine what happened, how many victims there are and if any by-standers are present who can assist.
- Call 911 or the local emergency number
- Care for life-threatening conditions, i.e. respiratory emergencies or profuse bleeding.

ACTIVATING THE EMS SYSTEM

An ill or injured patient may need immediate medical care to prevent permanent disability or death. Too often those who arrive first at the scene of the emergency are not trained to give proper care. As a result, patients may have a worse outcome than if action was taken quickly.

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In general, the Emergency Medical Services (EMS) system is a network of resources linked together for one purpose. That purpose is to provide emergency care and transport victims of sudden illness or injury to the hospital. For example, when an emergency occurs, a citizen at the scene recognizes it and calls for help. If the citizen has dialed 911, or another emergency number, he/she will receive patient care instructions from an EMS dispatcher. When Responders arrive, they will assess the situation and take over care. **If you as a Responder have arrived and EMS has not been activated, you are to do so immediately.** When necessary, inform dispatch of the need for additional EMS resources. For example, fire and rescue units with the necessary equipment to gain access to patients involved in automobile accidents or victims in isolated areas. Usually, EMS rescuers with higher levels of training are called to the scene. They continue care, and transport the patient to the hospital.

OBTAINING PERMISSION TO TREAT A PATIENT

By law, you must get a patient's consent, or permission before you can provide emergency care. In order for that consent to be valid, the patient must be competent and the consent must be informed. Therefore, it is your responsibility to fully explain the care you plan to give, as well as the related risks. There are two general types of consent: expressed consent and implied consent.

Expressed Consent - Expressed consent may consist of oral consent, a nod, or an affirming gesture from a competent adult. To obtain consent, you must explain your plan for emergency care in terms that the patient will understand. Be sure to include the risks, too. In other words, the patient needs a clear idea of all the factors that would affect a reasonable person's decision to either accept or refuse treatment.

You must get a responsive, competent adult's expressed consent before you render treatment. To do so, first tell the patient who you are. Identify your level of training, and then carefully explain your plan for emergency care. Make sure you identify both the benefits and the risks. To make sure the patient understands, question him or her briefly.

Implied Consent – In an emergency when an unresponsive patient is at risk of death, disability, or deterioration of condition, the law assumes that he or she would agree to care. This is called implied consent. It applies when you assume that a patient, who cannot consent to life-saving care, would if he or she were able to do so.

Implied consent also applies to a patient who refuses care but who then becomes unresponsive and to a patient who is not competent to refuse care.

Children and Mentally Incompetent Adults – Depending on state law, a minor usually is any person under the age of 18 or 21. A parent or legal guardian must give consent before you can treat a minor. The same is true for a mentally incompetent adult.

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However, if a life-threatening condition exists and the parent or guardian is not available, provide emergency care under the principle of implied consent.

PATIENT ASSESSMENT

Initial Assessment – The initial assessment may be the most important part of the patient assessment process. In it you must identify and treat conditions that cause an immediate threat to the patient’s life. Life threatening conditions usually involve breathing problems or severe bleeding.

The initial assessment includes getting a general impression of the patient; assessing responsiveness, assessing the ABC’s (airway, breathing, circulation); and updating incoming EMS units about the patient’s condition.

General Impression - Form a general impression as you approach the patient. Your impression should include the patient’s chief complaint and quick scan of the immediate environment in which the emergency has taken place.

The general impression is not designated to be the final word in the patient’s condition. Rather, it allows you get started on the right track to patient care. During this phase of your assessment, you should determine the injury complaint or illness complaint. Do these by listening to what the patient or by-standers tell you regarding the injury or illness and the circumstances by which it happened.

Responsiveness – As a Responder, you must determine the patient’s level of responsiveness. This is important for many reasons. One of the most important is the patient who has an **altered mental status**. (A change in his or her normal mental state). The patient will need airway care as well as other life-saving first aid. If the patient is confused, be sure to let him or her know who you are. Always make your identity clear as you approach a patient and that you are here to help.

Airway – The patient’s airway status is the foundation of patient care. No patient can survive without an adequate airway. It is important that you make sure that the patient’s airway is open and clear. The ways you will assess a patient’s airway depend on whether the patient is responsive or not.

- *The responsive patient.* When a patient can respond to your questions, notice if they can speak clearly. Gurgling or other sounds may indicate that something like teeth, blood or other matter is in the airway. Also, make sure the patient can speak full sentences.
- *The unresponsive patient.* A patient who is unresponsive needs aggressive airway maintenance. Immediately make sure the airway is open. If the patient is ill with no sign of trauma, use the head tilt/chin lift maneuver to open the airway. If trauma is suspected, use the jaw-thrust maneuver with great care to avoid tilting the head

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Inspect the airway for blood, vomit or secretions. Also look for loose teeth or other foreign matter that could cause an obstruction. Clear the airway using suction or a gloved finger. Remember that the airway check is not a one-time event. Some patients with serious trauma or unresponsive medical patients who are vomiting will need almost constant suctioning and airway maintenance.

Breathing – After securing an open airway, look, listen and feel for breathing. If there is breathing, determine if respirations are adequate. There will be times when a patient is breathing, but not at a sufficient depth or rate to sustain life. Adequate breathing is characterized by three factors: Adequate rise and fall of the chest ease of breathing, and adequate respiratory rate. If you determine that the patient's respirations are absent or inadequate, you must begin ventilating immediately. Do not stop until you are relieved by another trained rescuer or until the patient regains adequate respirations.

Circulation – When you assess circulation, you are checking to see that the heart is pumping blood to all parts of the body.

The responsive patient – If the patient is a verbally responsive adult, use the radial pulse to assess circulation. Always use the brachial pulse for an infant. Use either the radial or brachial pulse point for the responsive child.

The unresponsive patient – Check the pulse of an unresponsive adult at the carotid artery. Check the pulse of unresponsive children at the carotid or femoral arteries. Remember, the pulse check for all infants is done at the brachial artery. If the pulse is absent, begin CPR.

CARDIAC AND RESPIRATORY EMERGENCIES

Clinical death occurs when a patient is in respiratory arrest (not breathing) or cardiac arrest (the heart is not beating). Immediate CPR may reverse that state and restore a patient without damage. However, if a patient is clinically dead for 4 to 6 minutes, brain cells begin to die. After 8 to 10 minutes without a pulse, irreversible damage occurs to the brain.

Cardio Pulmonary Resuscitation – To provide CPR, you must obtain an open airway, provide artificial ventilation, and provide artificial circulation by means of chest compressions. CPR must begin as soon as possible and continue until:

- The Responder is exhausted and is unable to continue.
- Another trained rescuer or hospital staff assumes care.
- The patient is resuscitated.
- The patient has been declared dead by a proper authority.
- The scene becomes unsafe.

Before providing CPR, you must first:

- Determine unresponsiveness

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- Determine absence of breathing
- Determine absence of pulse

To determine unresponsiveness, tap or gently shake the patient and shout “Are you okay?” If the patient does not respond, immediately activate the EMS system. Open the patient’s airway using the head tilt/chin lift maneuver. Place your hand on the patient’s forehead. Use the hand that is closest to the patient’s head. Apply firm, backward pressure with the palm of your hand to tilt the head back. Place the fingertips of your other hand under the bony part of the patient’s lower jaw. Lift the chin forward. At the same time, support the jaw and tilt the head back as far as possible. Remember not to over extend the head. Continue to press the other hand on the patient’s forehead to keep the head tilted back. A modified jaw thrust maneuver may be used instead of the head tilt/chin lift if you suspect a head, neck or spinal injury. To perform the modified jaw thrust maneuver, kneel above the patient’s head. Place your elbows on the surface where the patient is lying. Place one hand on each side of the head. Grasp the angles of the patient’s lower jaw on both sides. Use a lifting motion to move the jaw forward with both hands. This pulls the tongue away from the back of the throat. Turn your head in the direction of the patient’s chest and place your cheek above the patient’s mouth. This enables you to look for the rise and fall of the patient’s chest, listen for the sound of breathing and feel for breath on your cheek. If breathing is absent, begin artificial ventilation by giving two slow, initial breaths. Be sure to use personal protective equipment when administering artificial ventilations.

To determine the absence of a pulse, gently place your index and middle finger on the larynx (Adam’s apple). Slide your fingers toward you to the groove on the side of the neck, between the larynx and large neck muscle, feeling for the carotid pulse. Check for 5 to 10 seconds. If there is no pulse (circulation), begin chest compressions.

Chest compressions consist of rhythmic, repeated pressure over the lower half of the sternum. They cause blood to circulate as a result of the the build-up of pressure in the chest cavity. To perform chest compressions, follow these steps:

- *Position the patient* – The patient must be placed on their back on a flat, firm surface such as the floor.
- *Get in position* – Kneel close to the patient’s side. Have your knees about as wide as your shoulders.
- *Locate the xiphoid process* – First feel the lower margin of the rib cage on the side nearest to you. Use the middle and index fingers of your hand, the one closest to the patient’s feet. Then run your fingers along the rib cage to the notch where the ribs meet the sternum in the center of the lower chest.
- *Locate the compression site* – Place your middle finger on the xiphoid process (the notch). Put your index finger of the same hand on the lower end of the patient’s sternum. Then place the heel of your other hand alongside your fingers. There should be two finger widths between the tip of the sternum and the place where you rest the heel of your hand. Put your free hand on top of the hand that is

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- on the sternum. Your hands should be parallel. Extend or interlace your fingers to hold them off the chest wall during compressions.
- *Position your shoulders* – Square your shoulders directly over your hands.
 - *Perform chest compressions* – Keeping your arms straight and your elbows locked, thrust from your shoulders. Apply firm, heavy pressure. Depress the sternum 1.5 to 2 inches on an adult. Be sure the thrust is straight down into the sternum. Use the weight of your body as you deliver the compressions. If necessary, add force to the thrusts with your shoulders. Never add force with your arms. This could fracture the sternum. Compressions should be about 50% of the cycle. That is, compression and release time should be about equal. Completely release pressure after each compression, letting the sternum return to its normal position. Do not lift or move your hands in any way. You could lose proper positioning.
 - *Count as you administer compressions* – You should be able to say and do the following in less than 2 seconds:
One – push down
And – let up
Two – push down
And – let up.
This procedure should let you administer 80 to 100 compressions per minute to an adult. The ratio of compressions to ventilations for an adult when performing one-rescuer CPR is 15 -2.

BLEEDING AND SOFT TISSUE INJURIES

It is imperative that as a Responder, you understand the basic steps for stopping bleeding and be able to recognize when an injury needs advanced care. Since the circulatory system is responsible for transporting the oxygenated blood to all cells of the body, any bleeding must be controlled quickly.

Bleeding and soft tissue injuries are classified into two different categories, open and closed. A closed wound is a where the skin has not been broken. Whether open or closed, the injury may either be minor or severe.

Care for a closed wound would include elevating the wound above the heart and applying ice to reduce blood flow to the area. If the patient experiences any of the following signs or symptoms, EMS should be notified immediately:

- Change in Level of Consciousness
- Restlessness or irritability
- Rigid abdomen
- Excessive Thirst
- Cool, pale, clammy skin
- Difficulty breathing
- Vomiting or passing blood

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The first step in caring for an open wound is to stop the bleeding. This is accomplished by applying direct pressure to the wound. Using a gloved hand or having the patient follow your directions; apply pressure directly on the wound. Place gauze over the wound, elevate it above the heart, unless you suspect a fracture, and continue to apply pressure. If the gauze becomes soaked with blood, apply additional gauze. **DO NOT** remove any gauze that is direct contact with the wound. If the wound continues to bleed utilize a pressure point. These points are only used for extremities. The two that will be used are the Brachial and Femoral. The Brachial is located on the inside of the arm between the Bicep and Tricep; apply the pressure directly into the arm. The Femoral is located on the front of the body. To locate this point, find the midpoint between the top of the hip and the naval. Follow this point to the crease between the thigh and the pelvic girdle. Apply pressure directly into the hip joint.

Minor wounds should be cleaned with soap and water. Apply an anti-bacterial ointment and cover with a band aid. **DO NOT** attempt to clean severe wounds. Any severe wound should be cared for by medical professionals.

Amputations and Evolutions (Partial or Complete)

These wound are not typically the types of injuries that you will come across. These injuries are when the body part is either partially or completely removed from the person. The difference between amputations and evolutions is amputations involve the bone. Care guidelines follow the guidelines for controlling bleeding. In addition to this, the Responder should attempt to locate the missing body part. Once it is located, wrap it in a sterile cloth, place it in a plastic bag, put it on ice and transport it to the hospital with the patient.

Impaled objects

These wounds are any injury where an object is stuck into the body. The Responder should control bleeding as in the general guideline; however, DO NOT apply direct pressure on the object or remove the object. Secure the object in place with a bulky dressing and ensure that it does not move.

If the object is in the cheek, it can be removed if it is interfering with breathing. Apply gauze to both the internal and external portion of the cheek. Be cautious of placing your fingers in the patient's mouth.

If the object is in the eye, DO NOT remove it. Stabilize it in place. Cover one the effected eye. This will allow the person to see with other eye, thus cutting down on eye movement. Studies have shown that by covering both eyes, the mind will subconsciously move the eye in the direction of sounds. This will cause unnecessary movement.

Sucking Chest Wounds (and Neck)

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Breathing is the result of a negative pressure system. This means that when we inhale, the muscles of the respiratory system expand the chest cavity, thus creating less pressure in the chest than in the outside environment. This causes air to enter the nose and mouth to fill the lungs. When we exhale, the muscles contract making the cavity small causing the pressure to increase. Because of this fact, open wounds to the chest or neck is life threatening. Either the chest or neck will allow air to enter the chest cavity without going into the lungs. This will cause the lungs to not inflate properly and eventually lead to respiratory arrest and death.

Care for this injury is time critical. The Responder needs to control any external bleeding. Along with this, the Responder needs to stop air from entering the chest cavity. This is accomplished by applying an occlusive dressing (airtight) over the wound. Once the dressing is in place, tape the dressing to the victim. Tape all sides of the dressing except the lower outside corner. This will create a one way valve. Roll the victim onto the effected side and monitor for breathing difficulties. ***DO NOT*** elevate the feet to treat for shock. If the patient experiences breathing difficulties, release the pressure by lifting up on the dressing and then reapply.

Eviscerations (Open Abdominal Wound)

This is when the abdomen has been cut causing the organs to be exposed. ***DO NOT*** touch the organs or try to replace them into the abdomen. Treatment will include controlling bleeding. Cover the organs with a moist sterile dressing. An occlusive bandage can be used to prevent air from drying out the dressing. ***DO NOT*** elevate the feet to treat for shock. The patient's knees can be bent to reduce the blood flow to the lower extremities.

INJURIES TO THE HEAD, NECK AND SPINAL COLUMN

These types of injuries are not as frequent as other injuries, however, they account for about 70 percent of fatalities in vehicular accidents. When treating these injuries, the patients movement should be reduced especially the head, neck or spine. Inform the patient not to move and provide in-line stabilization to reduce the chance of additional injuries. In-line stabilization is accomplished by placing your hand on the top of the head. This will prevent the patient from moving easily.

Signs and symptoms of head, neck, or spinal injuries may vary depending on the nature of the injury. The following are some signs to look for:

- Altered Level of Consciousness
- Deformity of the skull, neck of spinal column
- Loss of body functions
- Severe lacerations to the head, or spinal column
- Severe bruising of the eyes or behind the ears

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Some additional things that may lead the Responder to believe that one of the injuries has occurred are:

- Falls from greater height than the victim
- Vehicle accidents where seatbelts were not worn
- Blunt trauma to the head or torso
- Ejection from a moving vehicle
- Cracked helmets

Treatment will include basic life support. This is supporting respiratory and circulation. The airway will be opened with a Modified Jaw Thrust rather than a Head Tilt/ Chin Lift. If the patient has these, control any external bleeding. Care should be taken as to not push directly on a depression or any area that a fracture is suspected. ***DO NOT*** elevate the feet to treat for shock. This will increase the amount of blood flow to the brain and may worsen the condition. Once In-Line Stabilization has been applied, it will not be released until you are told do so by EMS personnel.

INJURIES TO MUSCLES AND BONES

The Musculoskeletal system is made up of tendons, ligaments, bone, cartilage, and muscle. Tendons connect muscle to bone. Ligaments connect bone to bone. Bone is the supporting and protective structure of the body. Cartilage is semi-hard substance similar to bone. Its purpose is to allow bone to move in areas of protection. Muscle is the supportive tissue that allows the body to move. It also helps protect vital organs.

The soft tissues of the musculoskeletal system are the tendons, ligaments and muscle. The types of injuries to these tissues are sprains and strains. Sprains happen to ligaments at a joint. Sprains are usually the result of a twisting force at a joint location. Strains happen to muscles and tendons, usually the result of over extension.

The treatment for sprains and strains are the same. The treatment is usually remembered by a simple acronym of RICE. R is for Rest. I is for Ice. The application of ice helps reduce the swelling. C is for compression. Compression is to help support the injury site and reduce swelling. E is for elevation. Elevation should be above the heart. This reduces the amount of blood sent to the injury site.

Injuries to the bones are either fractures or dislocations. Fractures are either open or closed. An open fracture is one that has bone fragments visible out of the skin. Dislocations are when the bone is moved from its normal location. The best way to tell an injury to an area is to compare one side to the other. The signs and symptoms of a severe injury are:

- Felt or heard a snap or pop

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- Loss of function
- Instability
- Deformity
- Loss of movement below the injury site

The treatment for these fractures and dislocations are similar for all types. The only difference is on an open fracture, and that would be to control any external bleeding. The rest of the treatment is the same. Comfort the patient and place them in a position of comfort. Splint the injury only if you need to move them, and you can do so without causing additional harm. Splints are in a three different categories, soft, rigid, and anatomical. Soft splints are blankets, pillows, etc. They are used in areas where a rigid splint would not fit properly such as ankles, ribs, etc. Rigid splints are items that are hard such as boards, magazines, etc. These are used on longer portions of the body such as legs, and arms. Anatomical splints are using one body part to stabilize another. An example of this is finger to finger. If you need to splint the area follow the steps below:

- Splint in the position that you find it
- Check for circulation below the injury, if no circulation note and continue
- Pad the splint
- Apply the splint, to include the joint above and below the injury site
- Pad any gaps between the splint and the limb
- Secure the splint, but not over the suspected injury site
- Check for circulation below the injury
- Elevate if possible

SHOCK

Shock is the condition where the body is not supplying oxygen to the cells of the body. This is a life threatening condition and needs to be stopped immediately. There are three different levels of shock that the human body will go through. The first is Compensating shock, where the body can maintain the blood flow by shunting different areas of the body. The next step is Decompensating shock; this is when the body is no longer able to maintain itself. The last stage is known as Irreversible shock. Just as the name implies, this level has a very poor chance of surviving. Shock is always present at any injury. The severity depends on the nature and extent of injury. Therefore it is imperative for the Responder to understand this and start treating for it before physical signs are present. Once you notice signs of shock the patient is already entering the decompensating phase.

As stated previously shock is the body's inability to supply oxygen to the cell level of the body. There are many different kinds of shock. Some different examples are Cardiogenic Shock, Neurogenic Shock, Hypovolemic Shock, Hemorrhagic Shock and Anaphylaxis Shock. Cardiogenic Shock is when the heart fails to do a sufficient job pumping the blood. This may be the result of a Heart Attack, Cardiac Arrest or Congenital Heart Failure. Neurogenic Shock is when the nervous system does not

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respond to the demand level for blood. This may be caused by head trauma, spinal cord damage or cervical spine damage. Hypovolemic Shock is when there is not enough fluid in the body. This fluid may be blood or water. If the cause is blood, it is usually called Hemorrhagic Shock. Anaphylaxis Shock is a type of respiratory shock that is associated with allergic reactions. The signs and symptoms of shock are generally the same for all shock.

The signs and symptoms of shock generally include:

- Restlessness and irritability (usually the first sign)
- Pale, cool, clammy skin
- Nausea and vomiting
- Pulse Increase
- Breathing increase
- Excessive thirst
- Dilated pupils
- Blue around the lips and nail beds

Anaphylaxis has all of the above signs and symptoms plus the following:

- Hives
- Red blotchy skins
- Difficulty breathing (audible wheeze or whistle)

The treatment is the same for all of the shocks except Anaphylaxis.

- Notify EMS
- Monitor the ABC
- Comfort the victim
- Maintain normal body temperature
- Elevate the legs 8 -12 inches unless you suspect a head, chest or back injury

Anaphylaxis treatment can be cared for in the same manner, however these efforts will not stop the shocks progress. The only way to stop the process is to administer specific types of medicine. Most people who suffer from this disorder carry an Epi-Pen with them. The only thing that you can do additionally at your level is to retrieve the Epi-Pen so that THEY can administer it. Notification of EMS and rapid transport to a hospital is the only and biggest difference in this emergency.

Remember that any injury can result in shock; therefore, the Responder must be ready to handle the care effectively. It is best to treat for shock, even though the patient is showing no outward signs.

MOVING AND TRANSPORTING VICTIMS

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Gaining access to the victim is time when emergency responders are most likely to become a victim themselves. Due to the excitement of the situation and the rush of adrenalin, we as emergency responders often overlook our own safety. The following are some steps to minimize danger to ourselves as emergency responders.

- Be aware of dangerous conditions at the scene.
- Is help available?
- What is the size of the victim?
- What is your physical ability?
- What is the victim's condition?

By taking these factors into consideration we can greatly reduce the risk to ourselves and the victim. Here are more items that will help reduce the risk of injury to ourselves and the victim.

- Only attempt to move a victim you are sure you can comfortably handle.
- Bend your body at the knees and hips.
- Lift with your legs, not your back.
- When possible move forward rather than backward.
- Always look where you are going.
- Support the victim's spine and head, if necessary.
- Avoid bending or twisting a victim with possible spine or head injury.

You can move a person to safety in many different ways, but no one way is best for every situation. The objective is to move the victim without causing further injury to them, and to not injure yourself. The following are four common types of emergency moves.

- Walking assist
- Pack-strap carry
- Two-person seat carry
- Clothes drag

All of these emergency moves can be done by one or two people and without any equipment, which is important because with most rescues, limited resources are available.

Walking Assist

This is one of the most basic emergency moves. One or two rescuers can perform this method with a conscious victim. To perform the walking assist, place the victims arm across your shoulders and hold it in place with one hand. Support the victim with the other hand around the victim's waist. By doing this your body acts as a crutch for the

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victim. If a second rescuer is present they can support the victim the same way on the other side. This assist is not appropriate to use if you suspect the victim has a spinal or head injury.

Pack-Strap Carry

The pack-strap carry can be used on a conscious or unconscious victim. To use this carry with an unconscious victim requires a second person to assist you in positioning the victim on your back. To perform the pack-strap carry, have the victim stand or have a second person support the victim. Position yourself with your back to the victim, back straight, knees bent, so that your shoulders fit into the victim's armpits. Cross the victim's arms in front of you, and grasp the victim's wrist. Lean forward slightly and pull the victim up onto your back. Stand up and walk to safety. This carry is not appropriate to use if you suspect a spinal or head injury.

Two-Person Seat Carry

The two person seat carry requires a second person. This carry can be used for any conscious or not otherwise seriously injured person. Each of the rescuers place one hand behind the back and one hand behind the victim's thighs and clasp each others wrist. Lift the victim in the seat formed by the interlocked wrists.

Clothes Drag

The clothes drag can be used to move a victim with suspected spine or head injury. This type of move helps to stabilize the victims head and neck and back while moving to a safe environment. Grasp the victim's clothing behind the neck, gathering enough to secure a firm grip. Using the clothing, pull the victim headfirst to safety. During the move the victims head and neck are supported by the clothing and the rescuers arms. This type of emergency move is physically exhausting and may cause back strain for the rescuer, even when done properly.

HEAT AND COLD EXPOSURE

Preventing heat and cold emergencies

Generally, illnesses caused by overexposure to extreme temperatures are preventable. To prevent heat or cold emergencies from happening to you or someone you know, follow these guidelines:

- Avoid being outdoors during the hottest or coldest part of the day
- Change your activity level according to the temperature
- Take frequent breaks

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- Dress for your environment
- Drink large amounts of fluids (water is preferred) before, during, and after activity

Although everyone is at risk for possible heat and cold related illness, some people are more at risk than others. People at risk include:

- Those who work or exercise strenuously
- Elderly people
- Young children
- Those with predisposing health problems, such as diabetes or heart disease
- Those who have had heat or cold related illness in the past
- Those who have cardiovascular disease or other conditions that cause poor circulation.
- Those who take medications to eliminate water from the body(diuretics)

Heat Emergencies

Heat cramps, heat exhaustion, and heat stroke are conditions that are caused by overexposure to heat. Heat cramps are the least severe but if not cared for may be followed by heat exhaustion and or heat stroke.

Heat Cramps

Heat cramps are painful spasms of skeletal muscles. The exact cause of heat cramps is not known, although it is believed to be a combination of loss of fluid and salt from heavy sweating. Heat cramps develop fairly rapidly and usually occur after heavy exercise or work in warm or moderate temperatures. Most cramps occur in the legs and abdomen, but can occur in any voluntary muscle. Body temperature is usually normal and the skin is moist. However, heat cramps may also indicate that a person is in the early stages of a more severe heat related illness.

To care for heat cramps, have the victim rest comfortably in a cool place. Lightly stretch the muscle and gently massage the effected area. Provide the victim with water or a sports drink that contains nutrients such as carbohydrates, electrolytes, and simple sugars to replace those lost during heavy sweating. Usually rest and fluid replacement are all that are needed for the victim to recover. Do not give the victim salt tablets or salt water to drink. Ingesting high concentrations of salt can hasten the onset of heat related illness. Once the cramps stop, a person can usually resume activity. The person should be observed for signs and symptoms of other heat related illness. He or she should also continue to drink plenty of fluids during and after activity.

Heat Exhaustion

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Heat exhaustion is the early stage and most common form of heat related illness. It typically occurs after long periods of work or strenuous exercise in a hot environment. Although heat exhaustion is commonly associated with athletes, it can affect anyone who is very active and or works in a hot, humid environment. Strenuous activity is not a prerequisite for heat exhaustion—it can happen when a person is relaxed and standing still in the heat.

Heat exhaustion is an early indication that the body's temperature regulating system is being overwhelmed and is not always preceded by heat cramps. Over time the body loses fluid through sweating and blood volume decreases. Blood flow to the skin then increases, reducing blood flow to vital organs. Because the circulatory system is affected, the person goes into a form of shock.

The signs and symptoms of heat exhaustion include:

- Normal or below normal body temperature
- Cool, moist, pale skin
- Headache
- Nausea
- Dizziness and weakness
- Exhaustion

Heat exhaustion in its early stages can usually be reversed with prompt care. Often the victim feels better when they rest in a cool place and drink cool fluids. If the heat exhaustion progresses, however, the victim's condition worsens. Body temperature climbs, the victim may vomit and show changes in levels of consciousness. Without prompt care, heat exhaustion can quickly advance to a more serious, life threatening stage of heat related illness- heat stroke.

Heat Stroke

Heat stroke is the least common and most severe form of heat related illness. Heat stroke most often occurs when people ignore the signs and symptoms of heat exhaustion or do not act quickly enough to provide care. Heat stroke develops when the body systems are overwhelmed by heat and begin to stop functioning. Sweating often stops because body fluid levels are low. When sweating stops, the body cannot cool itself effectively through evaporation and the body's temperature rapidly rises. If the body is not cooled, the brain and other vital organs begin to fail. Once vital organs begin to fail, convulsions, coma, and death may soon occur. You must recognize the signs and symptoms of this heat related illness and provide care quickly and immediately.

The signs and symptoms of heat stroke include:

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- High body temperature, often as high as 106 degrees F
- Red, hot skin, which may be dry or moist
- Change in level of consciousness
- Rapid, weak pulse
- Rapid, shallow breathing

Someone in heat stroke may at first have a strong, rapid pulse, while the heart works hard to rid the body of excess heat by dilating blood vessels and sending more blood to the skin. As consciousness deteriorates, the circulatory system begins to fail and the pulse becomes weak and irregular. Without prompt care, the victim will die.

Care for Heat Related Illness

When you recognize heat related illness, it must be determined if the victim is in early or late stage of the illness. Steps for care are different for early and late stage heat illness.

Care in the Early Stage

When a victim is suspected to be in the early stage of heat illness, follow these steps immediately:

- Cool the body
- Loosen tight, restrictive clothing
- Give fluids if victim is conscious
- Minimize shock
- Remove clothing soaked with perspiration
- Place wet cloths on wrists, ankles, armpits, groin, and back of neck
- Fan the victim to increase evaporation
- Do not let the victim drink too quickly, give ½ glass of water every 15 minutes (water is preferred, because it is least likely to cause vomiting and is more quickly absorbed into the body)
- DO NOT ALLOW THE VICTIM TO RESUME ACTIVITY THE SAME DAY

Care in the Late Stage

Refusing water, vomiting, and changes in the victim's level of consciousness are indications that the victim's conditioning is getting worse. Call EMS immediately if you have not already done so. If the person feels nauseated or vomits, stop giving fluids and position the victim on their side. Make sure the airway is clear and monitor breathing and consciousness. Cool the victim by any means available, preferably using ice. Pack the ice on wrists, armpits, groin, and neck to cool the body's large blood vessels and more

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effectively cool the blood. A person in heat stroke may experience respiratory or cardiac arrest, so be prepared to do rescue breathing and/or CPR.

Cold Emergencies

Frostbite and hypothermia are two types of cold related emergencies. Frostbite occurs in body parts exposed to the cold. Hypothermia develops when the body can no longer generate sufficient heat to maintain normal body temperature.

Frostbite

Frostbite is the freezing of body tissues. It usually occurs in exposed areas of the body, depending on the air temperature, the length of exposure, and the wind. Frostbite can be superficial or deep. In superficial frostbite, the skin is frozen but the tissue below is not. In deep frostbite, both the skin and the underlying tissue are frozen. Both types of frostbite are serious. The water in and between the cells freeze and cause ice crystals which swell and cause damage to and/or destroy cells. Frostbite can cause the eventual loss of fingers, toes, hands, feet, arms, and legs. The signs and symptoms of frostbite are:

- Lack of feeling in the affected area
- Skin that appears waxy
- Skin that is cold to the touch
- Skin that is discolored (flushed, white, yellow, blue)

When caring for frostbite, handle the affected area gently. Never rub the affected area. Rubbing can cause further damage because of the ice crystals in the skin. If there is no chance that the affected area will refreeze you may begin rewarming the area gently by soaking the affected area in water no warmer than 100 to 105 degrees F. Do not allow the affected area to come in contact with the side or bottom of the container. This will minimize further tissue damage. After the affected area looks red and feels warm. Then gently dry and bandage the area with a sterile dressing. Place cotton or gauze between affected fingers and toes. Do not break blisters that may form. Seek professional medical attention as soon as possible.

Hypothermia

In hypothermia, the entire body cools when its warming mechanisms fail. The victim will die if not given care. In hypothermia the body's temperature falls below 95 degrees F. As the body cools, an abnormal heart rhythm may develop (ventricular fibrillation). The heart may eventually stop and death occurs. The signs and symptoms of hypothermia are

- Shivering
- Slow, irregular pulse

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- Numbness
- Glassy stare
- Apathy or change in level of consciousness

The air temperature does not have to be below freezing for people to develop hypothermia. Elderly people in poorly heated homes, people with poor nutritional practices who get little exercise, the homeless and ill can get hypothermia at higher temperatures. People who abuse certain substances such as alcohol and barbiturates are also at risk. There are many other problems such as infection, insulin reaction, stroke, and brain tumors that may cause a person to be more susceptible to hypothermia.

To treat hypothermia, move the victim to a warm area and slowly and gradually warm them by wrapping the victim in a blanket and warm dry clothing. Hot water bottles and electric blankets may also be used. Be sure to place a barrier between the victim and the hot water bottle or electric blanket to prevent burns. In severe cases of hypothermia, the victim may lose consciousness, breathing may be slowed or stop completely. Be prepared to perform rescue breathing. If the victim is rewarmed too rapidly, dangerous heart rhythms may occur and CPR may be called for. Keep a close eye on the victim until EMS arrives.