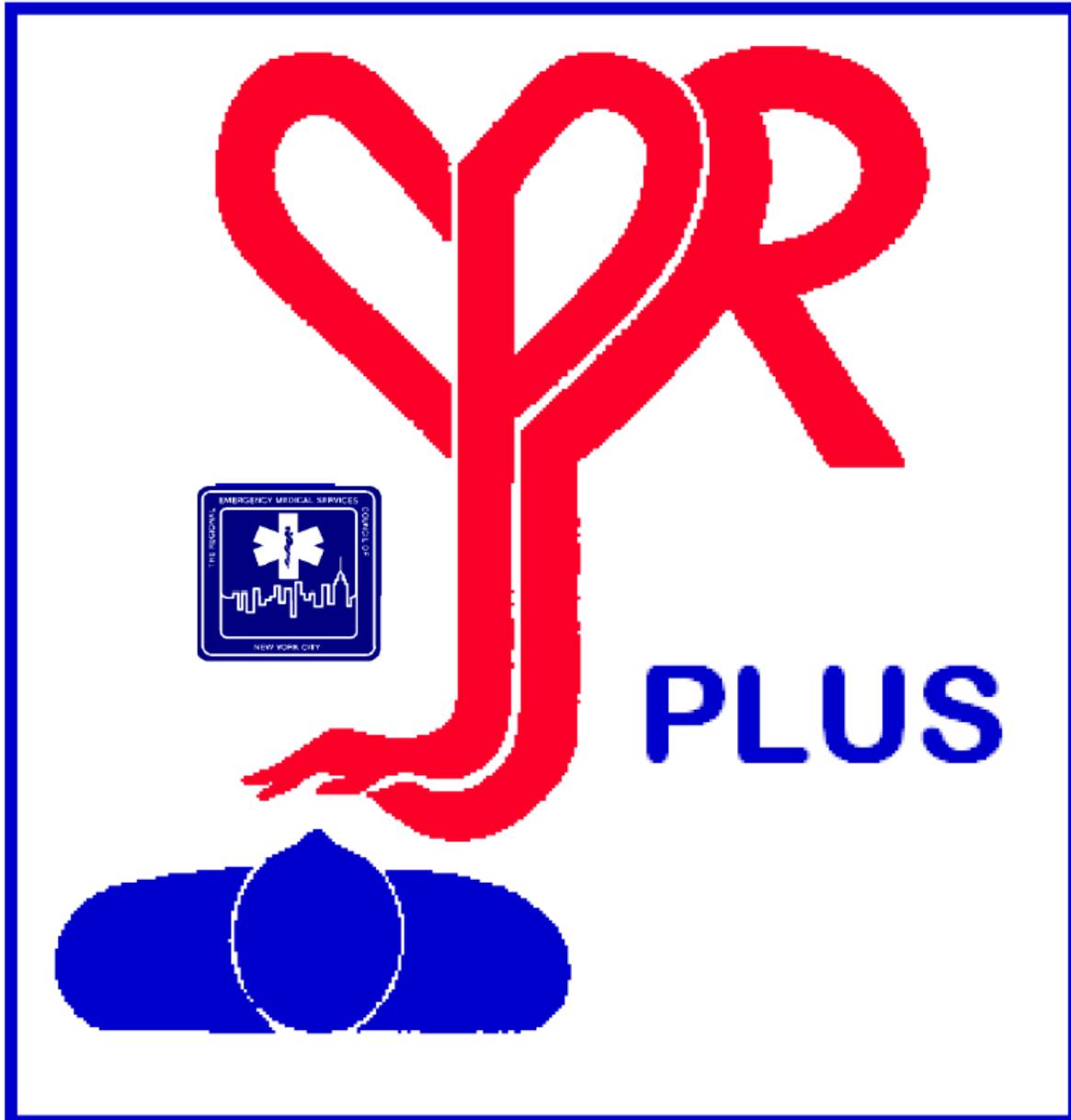


THE REGIONAL EMERGENCY MEDICAL SERVICES COUNCIL OF NEW YORK CITY, INC.



CPR PLUS: RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

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COURSE OUTLINE

CPR PLUS: RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

◆ Learning Objectives

At the conclusion of this training program, the student will be able to:

- differentiate between life threatening and non-life threatening medical emergencies
- manage life threatening and non-life threatening medical emergencies

Medical Emergencies:

- ◇ cardiac/respiratory/stroke emergencies
- ◇ allergic reactions
- ◇ diabetic emergencies
- ◇ seizures
- ◇ syncope (sudden loss of consciousness)
- ◇ shock

Trauma Emergencies:

- ◇ bleeding (control, dressing and bandaging)
 - *scenario-based practice session*
- ◇ soft tissue injuries
- ◇ penetrating trauma
- ◇ internal injuries
- ◇ injuries to bones, muscles and joints
- ◇ ocular injuries

Environmental Emergencies:

- ◇ burns
- ◇ heat and cold exposure
- ◇ poisons/hazardous materials
- ◇ drugs and alcohol related emergencies

PREFACE

CPR PLUS: RECOGNIZING AND MANAGING MEDICAL EMERGENCIES is a training manual developed for individuals who are interested and willing to provide immediate care to the suddenly ill or injured in order to support life and prevent further injury or death. It follows pre-hospital emergency procedures and is based on the premise that individuals can render care at almost any medical emergency, by utilizing common sense, good judgment and by following some basic emergency medical management guidelines. The most critical of these guidelines is the restoration of **Circulation**, the establishment of an **Airway** and the restoration of **Breathing** - more commonly referred to as the **CAB** sequence of Cardiopulmonary Resuscitation (CPR). For this reason, completion of a CPR provider course is an essential prerequisite to this training program.

Through this training program, Emergency Responders will learn to recognize a medical emergency, and to manage the medical emergency to the best of his/her ability by following specific guidelines to gain entry into the EMS System and assist the victim until medical help arrives.

The Chart at the end of the manual [Chart: Recognizing and Managing Medical Emergencies, pages 55-59] outlines specific guidelines for recognition and management of medical emergencies. This training manual provides additional resources for background information regarding each type of medical emergency. The function of the manual is to serve as a resource and supplement; the function of the Chart is to serve as a succinct guide for managing medical emergencies.

Although many organizations refer to an individual who provides first response care as a first responder or first-aider, this training program uses the term *Emergency Responder*.

An *Emergency Responder* is any individual who arrives at a scene of an emergency, accesses the EMS System, and is willing to assist a victim to the best of his/her ability. This *act* of recognizing that an emergency exists, and willingness to assist an individual until medical personnel arrives, creates its own level of recognized professionalism.

We welcome all Emergency Responders as part of our Emergency Medical Services System.

GUIDELINES FOR EMERGENCY RESPONSE PERSONNEL

◆ Topics

Recognizing need for emergency medical management

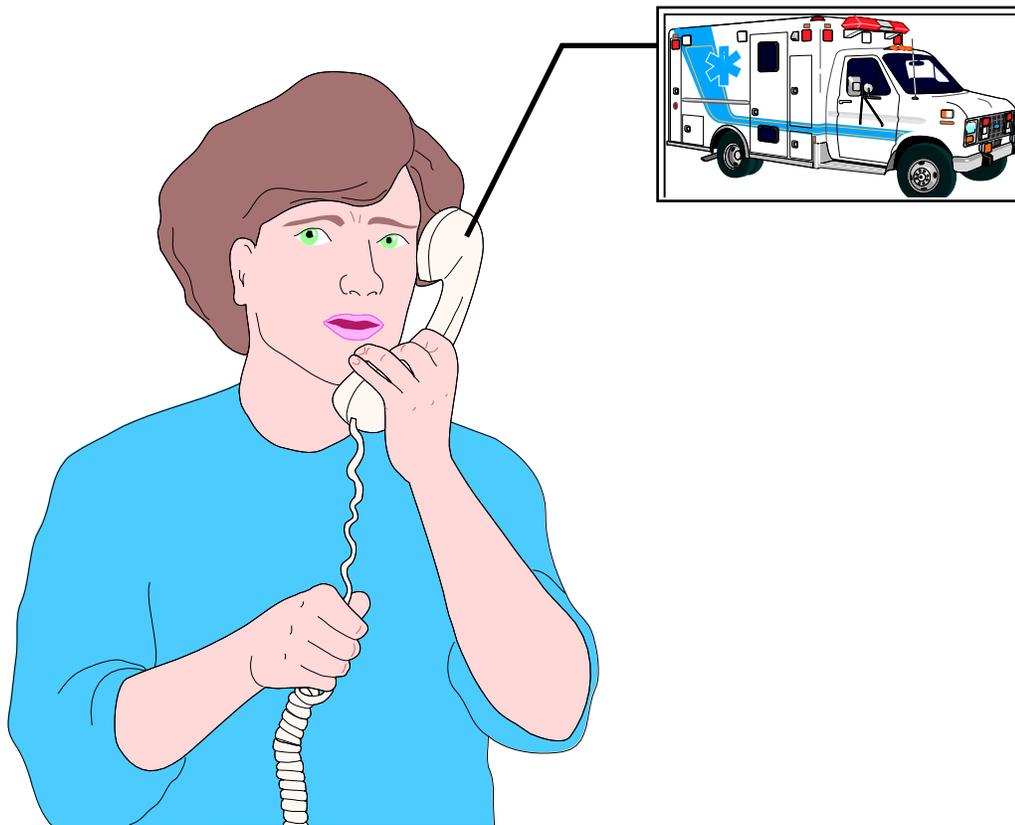
Entry into EMS System

Emergency management of injury

◆ Learning Objectives

At the conclusion of this session, the student will be able to:

- explain the role of an emergency responder
- identify an emergency
- access the EMS System



GUIDELINES FOR EMERGENCY RESPONSE PERSONNEL

Before An Emergency Occurs ...

I. BE AWARE OF BUILDING EMERGENCY PROCEDURES

II. IN CONJUNCTION WITH BUILDING SECURITY/EMERGENCY RESPONSE TEAM

- Identify yourself as an Emergency Responder
 - * to all other employees in the building
- Explain your role as an Emergency Responder to all

EMPHASIZE

- * You are **not** a health care professional
- * Calling 911 is essential
- * You will manage the emergency to the best of your ability until professional help arrives

When You Arrive At the Scene ...

III. ASSESS THE PATIENT (This should take less than one minute)

- Use your best assistant – *Common Sense*
 1. How does the patient look?
 2. What is the patient doing?
 3. Is the patient standing/sitting/laying flat?
 4. Is the patient having difficulty breathing?
 5. Is the patient choking?
 6. Can the patient talk?
 7. Is the patient making sense?
 8. Is the patient crying/yelling?
 9. Is the patient shaking?
 10. Do you see blood/vomit/urine?
- **If the patient is:**
 - **UNRESPONSIVE**
 - **NOT BREATHING/BREATHING ABNORMALLY/GASPING**



ACCESS THE 911 SYSTEM



RETRIEVE AED



START CPR

GUIDELINES FOR EMERGENCY RESPONSE PERSONNEL

IV. ACCESS THE 911 SYSTEM

- Designate and send a *specific* person to call 911 and/or to verify that someone else did
- Tell the *designated* person calling 911 s/he **must**:
 - * give exact location (cross streets) of emergency
 - * give specific location of yourself and patient (floor, apt #, etc.)
 - * **if known** —give *probable* emergency (choking, bleeding, fall, etc.)
—give initial patient information (approximate age, gender, known medical history, etc.)
 - * wait for ambulance personnel
 - * escort ambulance personnel to specific location of yourself and patient

**NOTE: DO NOT DELAY CALLING 911 IN ORDER
TO OBTAIN PATIENT INFORMATION**

- If patient's condition deteriorates, send another designated person to call 911 a second time. This person **must**:
 - * inform 911 this is the *second* call
 - * inform 911 that the patient's condition is worse
 - * indicate what that condition is
- You should **not** leave the patient *unless* you are alone

V. DO NOTHING WHICH MAY CAUSE HARM TO SELF OR OTHERS

- *Ensure the safety* of yourself and others before attempting to assist patient
 - * survey the surroundings
 - * be aware of broken glass, live wires, wet floor, hazardous materials, smoke, etc.
 - * get assistance for crowd control
- Remain calm

VI. DO NOT LEAVE PATIENT

- Manage the emergency to the best of your ability
- Stay with the patient until professional help arrives

Once Professional Help Arrives at the Patient's Side ...

VII. PROVIDE AMBULANCE PERSONNEL WITH

- Probable cause of emergency
- Patient information (age, medical history if known, etc.)
- Steps you took to manage the emergency
- Medication or other substance patient may have ingested

INTRODUCTION TO EMERGENCY RESPONSE CARE

◆ Topics

Scene Safety

Primary Assessment

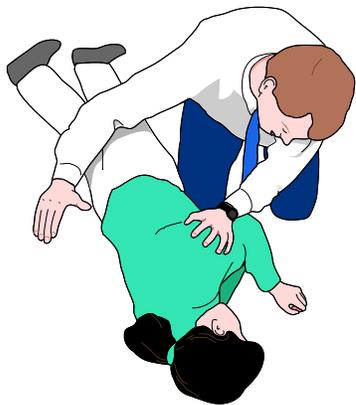
Secondary Assessment

Vital Signs

◆ Learning Objectives

At the conclusion of this session, the student will be able to:

- identify steps for rapid evaluation of the environment
- identify steps of patient assessment
- assess responsiveness
- determine if patient is breathing
- demonstrate how to take a pulse
- establish an adequate airway
- demonstrate adequate ventilation
- determine adequate mental status



INTRODUCTION

In the United States, the death toll from accidents is the fourth leading cause of death after heart disease, cancer and respiratory disease. In its most recent report, the National Highway Safety Administration (NHTSA) reported 35,092 people died in crashes on U.S. roadways. Each week, approximately 700 people die in traffic accidents alone. Many of the deaths and the additional disabilities resulting from these accidents are preventable.

We have the knowledge, skill and equipment to save lives; unfortunately, the ability to deliver these services is seriously lacking. The traffic and congestion in our City adds to the problem. In order to reduce this heavy toll, everyone should learn what to do until medical help is available.

First Response Care is the immediate care given to the injured or suddenly ill to support life and prevent further injury or death. The emergency responder must care for both the patient's physical and emotional condition, as well as manage the whole accident or illness situation. In addition, First Response includes both self-help and home care in cases where medical help is not available or is delayed.

Good judgment is an essential part of First Response Care. It must be administered immediately in order to:

- Restore Circulation
- Establish an Airway
- Restore Breathing
- Recognize and Manage Life Threatening and Non-Life Threatening Emergencies
- Prevent Further Injury to the Victim

Knowing the kind of accident or illness and the number of people hurt will help you decide what to do first and what can wait.

The following chart outlines the approach you should use to assess a medical emergency:

I. ENVIRONMENTAL ANALYSIS/ Scene Survey (This should take less than one minute)	III. VITAL SIGNS A. Pulse B. Respirations C. Blood Pressure D. Skin
II. PRIMARY ASSESSMENT 1. Check for Responsiveness 2. Check for Breathing 3. If UNRESPONSIVE and NOT BREATHING or GASPING a. Access the 911 System b. Begin CPR, beginning with chest compressions c. Retrieve AED 4. If CPR is not needed, Assess the Patient's Level of Consciousness 5. Expose Injured Areas and Treat as needed.	IV. SECONDARY ASSESSMENT A. Patient's Chief Complaint B. Pertinent Medical History C. Other Signs and Symptoms

INTRODUCTION

ENVIRONMENTAL ANALYSIS

(This should take less than one minute)

Keep these factors in mind as you make a rapid evaluation of the environment:

DO NOTHING WHICH MAY CAUSE HARM TO SELF OR OTHERS

- Ensure the safety of yourself and others before attempting to assist patient
 - * **survey** the surroundings
 - * **be aware** of broken glass, live wires, wet floor, hazardous materials, smoke, etc.
 - * **get assistance** for crowd control

- Assess the Patient, using your best assistant – **Common Sense**
 - * How does the patient **look**?
 - * What is the patient **doing**?
 - * Is the patient standing/sitting/laying flat?
 - * Is the patient having **difficulty breathing**?
 - * Is the patient **choking**?
 - * Can the patient talk?
 - * Is the patient making sense?
 - * Is the patient crying/yelling?
 - * Is the patient **shaking**?
 - * Do you see **blood/vomit/urine**?
 - * Do not move a victim of sudden accident or illness unless absolutely necessary

PRIMARY ASSESSMENT

The primary assessment, in many instances, will be conducted at a glance, such as when you encounter the alert, talking patient with a medical problem. Primary assessment is a generalized systematic approach to identify and correct any life-threatening emergencies. Talking with witnesses or family members, quickly looking for the mechanism of injury, or looking for blood or obvious bodily injuries can tell you much in a short time. However, when the patient is unconscious or has a major injury, close examination will be required. If your primary survey shows massive bleeding, respiratory distress, cardiac distress, head or spinal injuries, you must attend to these problems immediately.

INTRODUCTION

PRIMARY ASSESSMENT (continued)

A. CHECK "C - A - B" (CIRCULATION, AIRWAY, BREATHING)

◆ Check for Responsiveness

- When you are sure that you and the victim are out of danger, find out if the victim is conscious or unconscious
- Gently tap his/her shoulder and ask "Are you O.K.?"
- A person who is conscious will be breathing and will have a heartbeat
- An unconscious person may not

• ACCESS THE 911 SYSTEM

- If possible, **designate** and send a *specific* person to call 911 and/or to verify that someone else did
- Tell the **designated** person calling 911 s/he **must**:
 - * give exact location (cross streets) of emergency
 - * give specific location of you and patient (floor, apt. number, etc.)
 - * **if known**, give *probable* emergency (choking, bleeding, fall, etc.)
 - * **if known**, give initial information regarding patient (approximate age, gender, known medical history, etc.)
 - * wait for ambulance personnel
 - * escort ambulance personnel to specific location of yourself and patient

NOTE: DO NOT DELAY CALLING 911 IN ORDER TO OBTAIN PATIENT INFORMATION

- If patient's condition deteriorates, send another designated person to call 911 a second time. This person **must**:
 - * inform 911 this is the *second* call
 - * inform 911 that the patient's condition is worse
 - * indicate what that condition is
- You should **not** leave the patient *unless* you are alone

◆ Establish Need for Basic Life Support by:

- Checking Circulation (Pulse)
- Checking Airway
- Checking Breathing

If the patient is unconscious, scan the body for signs of breathing and check the pulse. If there is no pulse, begin CPR with 30 chest compressions. Then, open the airway and give two slow breaths and continue CPR at a rate of 30 compressions and two breaths.

INTRODUCTION

PRIMARY ASSESSMENT (continued)

B. ASSESS THE PATIENT'S LEVEL OF CONSCIOUSNESS

Consciousness is controlled by the brain and the involuntary nervous system. The normal state of consciousness is alert. The alert victim is aware of what is going on and reacts appropriately to the factors in his/her environment.

An abnormal state of consciousness can range from mild confusion to deep coma.

Talk to the patient to determine whether s/he is alert or confused.

- * Is s/he oriented as to person (who s/he is, name), time (time of day, day of the week, date), place?
- * Note the patient's speech, i.e., slurring of words or vagueness in answering questions, especially when s/he formerly spoke clearly, which indicates a decreasing level of consciousness;
- * If the patient cannot speak, try to discover whether s/he understands simple commands, such as, "Squeeze my hand";
- * Estimate the alertness of young children or infants by observing their interest in their surroundings and their voluntary movements;
- * With unconscious or sleeping patients, determine how they can be aroused, i.e., verbal stimuli or tactile (touch) stimuli;
- * When describing the patient's status, describe it in terms of his/her reaction to stimuli or his/her responses to specific inquiries. For example, "The patient knows his/her name and address, but could not remember the date."

C. EXPOSE INJURED AREAS

Expose injured areas for treatment.

Look for Emergency Medical Identification items that are worn or carried by many people who have special health needs that **MUST NOT** be ignored. These cards or emblems may be found in the form of necklaces or bracelets.

INTRODUCTION

VITAL SIGNS

Vital signs are those measures of body function that indicate how effectively the body is carrying out the essential activities. These measures include:

A. Pulse

The pulse is a pressure wave which is begun when the heart pumps blood into the body. A pulse can be felt anywhere an artery crosses over a bone near the skin (or passes over a bony prominence). The normal pulse rates are as follows:

Adult	60 - 80 regular
Child	80 - 100 regular
Infant	100 - 120 regular

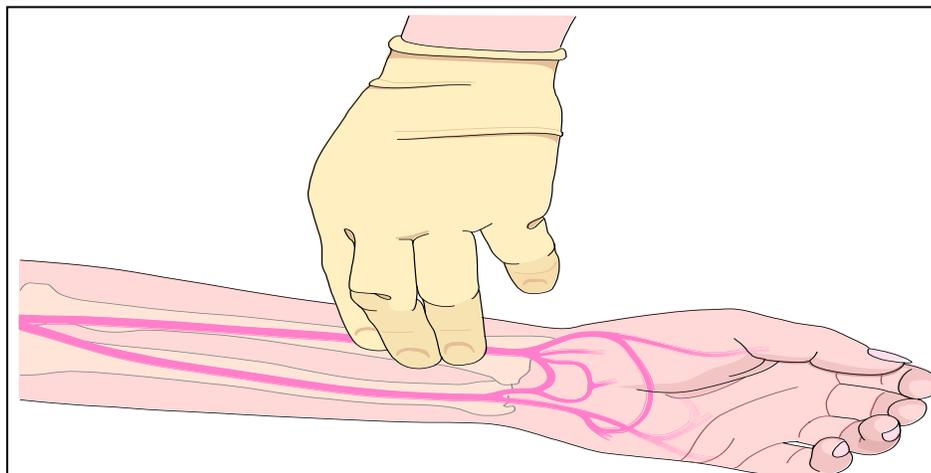
When taking a pulse, you should note the following:

Rate: The number of pulse beats per minute.

Strength: A thready pulse is weak and rapid. A bounding pulse is unusually strong. A normal pulse is full and strong.

Rhythm: The spacing between beats should be even. An irregular pulse is one that is not evenly spaced between beats.

- **Taking a Pulse:**



The pulse is taken most easily at the wrist.

1. Place the middle finger tip over the artery on the thumb side of the patient's wrist.

INTRODUCTION

VITAL SIGNS (continued)

2. Move your finger until the pulse beat is felt, and exert enough pressure to make the pulse distinct, but not disappear.
3. Never use your thumb, since it has a pulse of its own that could be confused with that of the patient.
4. When the pulse is felt distinctly, count the beats for one minute.
5. Record the rate, strength, and rhythm.

The pulse is slower when the patient is at rest, and increases during activity, such as exercise or eating a heavy meal.

B. Respirations

A respiration consists of one inhalation and one exhalation. The number of respirations per minute varies with the age and sex of the patient. The normal respiratory rate for an adult is 12-20 times per minute. (A well-trained athlete can have a normal respiratory rate of 6-8 per minute.) Children breathe on an average of 20-24 times per minute.

Respiration, if abnormal in any way, is a partial indication of disease or injury.

- * Breathing accompanied by frothy blood and coughing indicates lung damage (probably from a penetrating injury or a broken rib);
- * Deep, gasping, labored breathing can be a sign of lung or heart disease;
- * Little air exchange or absence of breathing can signal an obstructed airway, respiratory depression or arrest;
- * Shallow, rapid breathing may indicate a person is in shock;
- * In some cases, you can determine problems by smelling the breath; some disease conditions related to diabetes cause a sweet, fruity odor on the breath.

C. Blood Pressure

Blood pressure is the force or pressure that circulating blood exerts against the walls of the body's blood vessels (arteries) when the heart pumps. It is one clue to the health of the heart and blood vessels. Blood pressure is an index of the efficiency of the complete circulatory system.

The action of "beating" of the heart has two phases:

Contracting: When the heart pumps blood through the arteries to the various parts of the body, and

Relaxing: When the heart relaxes and fills with blood.

INTRODUCTION

VITAL SIGNS (continued)

When you measure a person's blood pressure, you get two numbers:

Systolic:	Pressure in arteries when heart is <u>contracting</u> (Upper Number)	Example: 120 = Systolic
Diastolic:	Pressure in the arteries when heart is <u>relaxing</u> (Lower Number)	80 = Diastolic

The sphygmomanometer (blood pressure cuff) is the instrument used to measure blood pressure.

Blood pressure is measured in millimeters of mercury (mm Hg.), ex: 120/80 mm Hg.

Blood pressure normally varies with the age and sex of the individual. The usual guide for systolic pressure in the male is 100 plus the individual's age, up to 140-150. Normal diastolic pressure in the male is 66-90. Both systolic and diastolic pressures are 8-10 lower in the female than in the male.

Blood pressure varies in the healthy person due to many factors, such as stress and physical activity. Some people have readings as low as 90/40; such a reading can be normal for some people (i.e., a thin, young woman).

Shock and a great loss of blood is marked by a dangerous drop in blood pressure.

- **Taking a Blood Pressure:**

1. When taking a manual blood pressure, the patient should lie or sit.
2. Fasten the cuff on either arm above the elbow. Check to see that the valve on the bulb has been fully closed.
3. Find the arterial pulse on the inner bend of the elbow.
4. Keeping the fingers on the pulse, inflate the cuff with the rubber bulb until the column of mercury or the gauge stops moving with the pulse (usually between 150-200).
5. Place the stethoscope over the artery on the inside of the elbow.
6. Let the air SLOWLY out of the cuff by loosening the valve on the bulb slightly, watching the mercury column or needle indicator fall.
7. The point on the column where you hear the first pulse sounds is the systolic pressure.
8. Continue releasing air SLOWLY from the bulb.
9. The point at which the pulse sounds disappear is the diastolic pressure.
 - If using an automatic blood pressure monitor, follow the manufacturer's instructions.

INTRODUCTION

VITAL SIGNS (continued)

Blood Pressure Stages

Blood Pressure Category	Systolic mm Hg (upper #)		Diastolic mm Hg (lower #)
Low blood pressure (Hypotension)	less than 80	or	less than 60
Normal	80-120	and	60-80
Prehypertension	120-139	or	80-89
High Blood Pressure (Hypertension Stage 1)	140-159	or	90-99
High Blood Pressure (Hypertension Stage 2)	160 or higher	or	100 or higher
High Blood Pressure Crisis (Seek Emergency Care)	higher than 180	or	higher than 110

Source: American Heart Association

D. Skin

- * **Temperature:** Temperature is the balance between the heat produced and heat lost by the body. The skin is largely responsible for regulating temperature. Skin should be warm.
- * **Color:**

Skin Color	Possible Cause
Red (Flushed)	High Blood Pressure (reddish-purple) Sun Stroke, Fever, Allergic Reaction or end-stage Carbon Monoxide Poisoning)
White, Ashen or Grayish (Pallor)	Shock, Excessive Blood Loss, Heart Attack, Heart Failure, Airway Obstruction, Poisoning, Exposure to Cold, or Fright
Blue (Cyanosis)	Shock, Heart Failure, Airway Obstruction, Poisoning, or Exposure to Cold
Mottled	Shock
Yellow (Jaundice)	Chronic Illness

INTRODUCTION

VITAL SIGNS (continued)

- * **Condition:** To determine skin condition and temperature, use the back of your hand

Skin Condition	Possible Cause
Hot &, Dry	Excessive Body Heat (Fever, Sun Stroke, Heat Stroke)
Hot & Wet	Reaction to Increased internal or external Temperature
Cool & Dry	Exposure to Cold
Cool & Damp (Clammy)	Shock, Heat Exhaustion

SECONDARY ASSESSMENT

A **sign** is something the emergency responder sees, hears, or feels. For example: no respirations, bluish color of-the face, cold skin.

A **symptom** is something the victim tells about himself, such as: he feels nauseated, his leg hurts, or he has no feeling in his arm.

All signs and symptoms are used together with other information (what the patient says, what bystanders say, what the rescuer observes from the scene, and the mechanism of injury) in evaluating the nature of a given illness or injury.

A. Patient's Chief Complaint

If the victim is conscious and you have taken care of any life-threatening emergencies, the next information that you need to obtain is the victim's chief complaint. Many times, this will be obvious. It is helpful to ask the victim what is bothering him/her most. Most complaints are characterized by pain, or some change from a normal state.

Obviously, you cannot elicit responses from an unconscious person. However, you may be able to obtain much of the information needed from the patient's family or bystanders. Interview others one at a time to avoid confusion.

INTRODUCTION

SECONDARY ASSESSMENT (continued)

B. Pertinent Medical History

After listening to the victim's complaint, determine what further information would help you provide assistance. When questioning the victim, do not suggest answers. For example, you should ask, "When does the pain begin?" rather than, "Does the pain begin when you move your arm?" Avoid yes or no questions. If you are questioning the victim while checking for injuries, ask your questions about a given area of the body before you check it. This prevents the victim from thinking that you may have located a serious injury and prevents unnecessary anxiety.

The following is a list of suggested questions you might find useful:

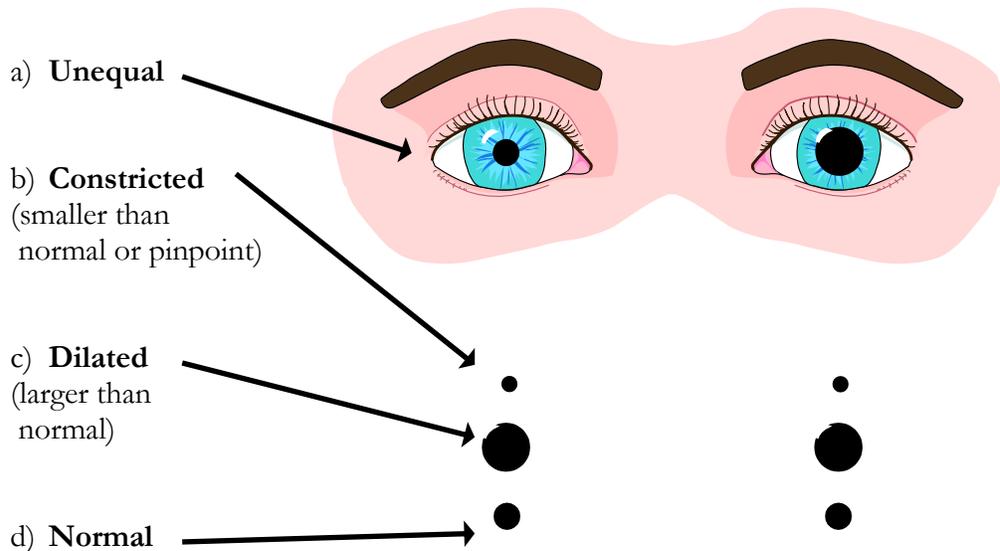
- 1) **Location:** Where do you hurt? If pain is present, does it move? Where? Under what circumstances?
- 2) **Type:** If pain is present, what does it feel like? Dull? Sharp? Cutting? Throbbing? Crushing? Radiating (i.e., does it travel from elbow to wrist?)
- 3) **Intensity:** How bad is the pain? Is this the worst pain you have ever felt? (Determine using a scale of 1 to 10, 1 being the least and 10 being the worst).
- 4) **Amount:** How many? How often? How long? How much?
- 5) **Time:** When did it start? How long does it last? How often does it occur?
- 6) **Setting:** How did it happen? What happened? What happened first? Under what conditions did it happen? Is there any relationship between what the victim was doing and/or his surroundings when it occurred (such as chest pains after climbing four flights of stairs)?
- 7) **Aggravation or Relief:** Does anything make it worse? Does anything make it better?
- 8) **Medications:** Have you taken any medicine? How long ago? How many times? Do you feel better/worse/same? Are you allergic to anything?
- 9) **Previous Experience:** Have you experienced this type of illness or injury before? Are you currently under a physician's care? For what?

INTRODUCTION

SECONDARY ASSESSMENT (continued)

C. Other Signs and Symptoms

1. Observe the patient's pupils and determine if the pupils are:



Observe the environment: If it is a bright day, the patient's pupils should be constricted. If you are in a dimly lit room, the patient's pupils should be dilated.

2. **To determine the ability to move:**

- Ask the victim if s/he can move his/her extremities (arms or legs). Have him/her move one extremity at a time. Note the following:
 - a) Limited use of any or all extremities;
 - b) Paralysis on one side;
 - c) Inability to move arms and hands;
 - d) Inability to move legs and feet;
 - e) Symmetry of movement.

INTRODUCTION

SECONDARY ASSESSMENT (continued)

3. Patient Examination

If you have time before emergency personnel arrive, check the patient for any additional injuries that you may have overlooked (i.e., possible fractures or wounds). Observe for wound and/or deformity, and question the patient regarding motion, tenderness and/or increase in pain.

MEDICAL EMERGENCIES

◆ Topics

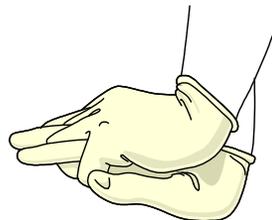
Cardiac/Respiratory/Stroke Emergencies
Allergic Reactions
Diabetic Emergencies
Seizures
Syncope
Shock



◆ Learning Objectives

At the conclusion of this session, the student will be able to:

- identify at least two (2) signs and symptoms of a heart attack
- identify technique used to manage respiratory difficulties
- identify at least two (2) signs and symptoms of stroke
- identify technique used to manage allergic reactions
- identify at least two (2) signs and symptoms of diabetes
- describe technique used to manage a victim experiencing a diabetic emergency
- identify at least two (2) conditions which may exist for a victim experiencing a seizure
- describe technique used to manage a victim experiencing a seizure
- define syncope
- identify how to manage a victim experiencing syncope
- list at least four (4) signs and symptoms of shock
- list the four (4) most important steps to be utilized in the management of shock



MEDICAL EMERGENCIES

You may come across a patient who has not been involved in an accident, but who may be suffering from a medical emergency. In some cases, the medical emergency will be associated with an injury, but in many cases, you will need to be able to recognize a medical problem that is not accompanied by an injury. Some of these emergencies will be life-threatening and you must be able to quickly determine what type of medical emergency it is, and to provide the proper care.

CARDIAC EMERGENCIES

It is well documented that heart attacks and associated heart disease are the primary causes of death in America. Men are more prone to a heart attack; however, the following risk factors increase the risk of heart attack for both men and women:

1. History of high blood pressure
2. History of heart disease in the family
3. Diabetes
4. Smoking
5. Stress
6. Lack of exercise
7. Elevated blood cholesterol levels

A heart attack may come on suddenly, or the body may warn the person that problems could be on the way, in the form of angina pectoris (chest pain).

Angina pectoris occurs when the oxygen supply to the heart (delivered by the blood) is not sufficient to meet the heart's demands. The chest pain that is a result of an inadequate oxygen supply is usually the first sign of advanced coronary artery (heart) disease. This chest pain, usually described as a pressure or tightness, may radiate to the jaw, or left or right arm. The pain, with rest, rarely will last for more than ten minutes (with rest, the oxygen supply meets the heart's demands). A person who has a prior history of angina pectoris may also, on advice from his doctor, take a medication called nitroglycerin, which will help open coronary vessels and decrease the workload of the heart.

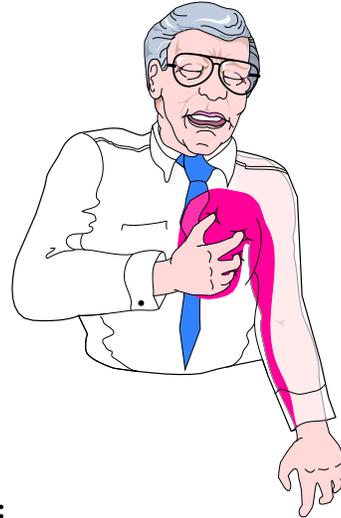
Angina pectoris, by itself, does not lead to permanent damage to the heart. However, if the oxygen supply to the heart is decreased or cut off for an extended period of time, a heart attack (or myocardial ischemia) occurs.

MEDICAL EMERGENCIES

CARDIAC EMERGENCIES (continued)

Signs and symptoms of a heart attack can include the following:

1. Pain in the chest, shoulders, arms, neck, and/or jaw
2. Difficulty breathing
3. Unexplained sweating
4. Cool, pale skin
5. Nausea and/or vomiting
6. Feeling of impending death



Heart Attack Signs in Women may be different, and include:

1. Uncomfortable pressure, squeezing, fullness or pain in the center of the chest. It lasts more than a few minutes, or goes away and comes back.
2. Pain or discomfort in one or both arms, the back, neck, jaw or stomach.
3. Shortness of breath with or without chest discomfort.
4. Other signs such as breaking out in a cold sweat, nausea or lightheadedness.
5. As with men, women's most common heart attack symptom is chest pain or discomfort. But women are somewhat more likely than men to experience some of the other common symptoms, particularly shortness of breath, nausea/vomiting and back or jaw pain.

Another situation may arise whereby damage to the heart, even though it may not cause chest pain or a heart attack, can cause the heart to pump inefficiently. This causes increased pressure in the blood vessels in the lungs and can lead to a condition known as **pulmonary edema**. Signs and symptoms of pulmonary edema can include the following:

1. Signs and symptoms of a heart attack;
2. Noisy respirations;
3. Air hunger (the victim feels as though he is drowning);
4. Pink, frothy sputum.

RESPIRATORY EMERGENCIES

Respiratory Emergencies occur during respiratory arrest (absence of breathing) and respiratory insufficiency (breathing is present, but inadequate). If it is determined that the victim is in **respiratory arrest**, it is vital that you, as an emergency responder, **perform rescue breathing** without delay. Respiratory insufficiency may indicate that **airway obstruction** is present. **Opening the airway**, using the techniques learned in your CPR class, is of utmost importance to prevent respiratory arrest.

MEDICAL EMERGENCIES

STROKE

Stroke, also known as cerebrovascular accident (CVA), occurs when the blood supply to the brain is interrupted either by a blood clot or by disruption of a blood vessel supplying the brain.

People with high blood pressure, a cardiac history and/or those who smoke heavily are high-risk candidates for a. Recent studies have indicated that individuals who experience **TIA**s (transient ischemic attack) are at high risk for stroke. TIA's are brief episodes of neurological dysfunction (e.g. temporary speech slur, temporary face droop, etc.). A **TIA** is temporary, lasting less than 24 hours, and sometimes only a few minutes. If a TIA occurs, it is of utmost importance that EMS be activated and transport to a hospital occurs, since prompt medical attention can prevent a stroke.

Signs and symptoms of a stroke include a sudden weakness or paralysis of one or both sides of the body; inability to speak or communicate; loss of vision or double vision; unequal pupils; and loss of bladder control.

ALLERGIC REACTIONS

Allergic reactions can have many causes.

Common causes:

1. injection (insect bites, medication)
2. ingestion (certain foods and medication)
3. absorption (soaps, contaminants, chemicals)
4. inhalation (animal hairs, dust)

Signs and symptoms of serious allergic reactions include:

1. swallowing difficulties
2. breathing difficulties
3. coughing
4. burning, scratchy throat
5. hives
6. wheezing
7. swelling

Management of serious allergic reactions include:

1. immediate 911 access
2. respiratory/airway management
3. transport to a medical facility should occur without delay



MEDICAL EMERGENCIES

DIABETIC EMERGENCIES

Body cells need glucose (sugar) for normal functioning and energy. In order to utilize the glucose in the body, a substance called insulin is required. Diabetes seriously interferes with the ability of the body to utilize sugar due to deficiencies in insulin.

When glucose increases to abnormal levels in the blood supply, **hyperglycemia** develops. Signs and symptoms of hyperglycemia include: frequent urination; increased thirst; and sugar found in the urine. Hyperglycemia is caused by diabetics failing to take their prescribed amounts of insulin; stress; or infection that is left untreated. This condition can gradually lead to diabetic coma. Diabetic coma is a life-threatening condition.

Signs and symptoms of hyperglycemia may include the following:

1. Gradual onset
2. Rapid, deep breathing with a sweet or acetone breath odor
3. Rapid, weak pulse
4. Red, dry skin
5. Abdominal pain
6. Fever

In contrast, **hypoglycemia** results when a diabetic has too much insulin, usually caused by insufficient food, stress or exercise, exposure to cold, taking more than the prescribed dose of insulin, or vomiting food after insulin has been taken.

The signs and symptoms of hypoglycemia can include the following:

1. Sudden onset
2. Extreme weakness
3. Pale, moist skin
4. Shallow breathing
5. Rapid pulse
6. Altered mental state

Management of hypoglycemia includes:

1. Give patients who are alert and able to swallow sugar dissolved in juice, non-diet soda or milk.
2. Monitor vital signs and wait for EMS for those patients who are unconscious and/or who cannot safely swallow.

MEDICAL EMERGENCIES

SEIZURE

Most people who witness a seizure will say it was one of the most frightening or embarrassing sights they have ever seen. However, neither of these feelings should be applicable to the person who understands the cause and knows the care for a person who goes through a seizure.

Seizures present as sudden changes in muscle activity or behavior due to an electrical storm in the brain. A person having a seizure has no control over his or her actions.

Causes of seizures can include fever (especially in small children), head injury, alcohol, and a host of other physical problems. When the problem cannot be pinpointed, the person is classified as having epilepsy.

The type of seizure can range from brief periods of staring, usually occurring in children (called absence or petit mal seizures), to alternating contraction and relaxation of all extremities (called generalized tonic-clonic seizure or grand mal seizure).

Signs and symptoms of a seizure include the following:

1. **Aura** - a-sensation that precedes and sometimes warns the victim that a seizure is imminent;
2. Loss of consciousness;
3. Continuous muscle contraction;
4. Rhythmic contraction and relaxation of muscles;
5. A drowsy or "sleep-like" state;
6. Confused, disoriented, thrashing, combative state.

Management of seizures include the following:

1. Protect the patient by placing him/her on floor, removing furniture if possible, and protecting patient's head;
2. Do not try to stop the seizure;
3. Do not place anything in the patient's mouth;
4. Observe Airway Management.

MEDICAL EMERGENCIES

SYNCOPE

Syncope is defined as a sudden loss of consciousness due to unknown reasons. Some causes of syncope include:

- fainting spells
- low blood pressure
- pregnancy
- low blood sugar
- cardiac disease
- excessive heat
- severe pain

Management of individuals who have experienced a sudden loss of consciousness is as follows:

- lie victim flat on floor
- check CAB
- remove from environment, if environment is the cause (i.e., heat or cold)
- loosen constrictive clothing
- assess for injuries from the fall
- observe airway management

SHOCK

The basic feature of shock, regardless of its origin, is the failure of the circulatory system to adequately oxygenate the tissues of the body. In a shock state, the tissues are deprived of their normal supply of oxygen and nutrients, and the ability to eliminate waste materials is diminished.

The average adult has between ten and twelve pints of blood. A five to ten percent loss can cause a *mild* form of shock. A 15% loss can cause a *moderate* form of shock. A 30% loss can cause *severe* shock. A 45% or greater loss will almost certainly lead to death.

The circulation of adequate amounts of blood throughout the tissues requires that the following three mechanisms remain intact:

1. A functional pump - **the heart**;
2. An adequate circulating volume of liquid - **the blood**;
3. An intact system of piping - **the blood vessels**, capable of adjusting to changes in the pumping action or delivered volume by dilating or constricting.

MEDICAL EMERGENCIES

SHOCK (continued)

Shock is a **TRUE MEDICAL EMERGENCY**. If the precipitating causes are not treated, death soon ensues. Shock may be seen in cases of severe injury and serious illness. In some cases, prolonged and untreated less serious conditions may manifest the characteristics of shock. As untreated shock progresses, there is a gradual and steady fall in blood pressure, which may eventually be unobtainable. Some people have normally low blood pressure, i.e., systolic blood pressure of 90-100 mm Hg. It may be assumed that shock is developing in an injured adult with a systolic blood pressure of 100 mm Hg. or less;

The management of shock takes precedence over other emergencies, exclusive of respiratory and/or cardiac arrest and severe or uncontrolled bleeding. Patients displaying the signs and symptoms of shock can rapidly deteriorate and require immediate transport to an Emergency Department.

General Causes of Shock:

1. Damage to Cardiac Muscle (i.e., heart attack)
2. Internal/External Bleeding (i.e., blunt or penetrating injuries)
3. Dilation of Blood Vessels (i.e., damage to central nervous system or extreme fright)

General Signs and Symptoms of Shock:

1. Restlessness and anxiety which may precede all other signs;
2. A feeling of impending doom or disaster;
3. The pulse becomes weak and rapid, indicating decreased circulating blood volume and cardiac output;
4. The skin becomes pale, cold and wet, often described as "clammy"; in the advanced stages of shock, the skin may appear blue, especially around the lips and nail beds (this is known as cyanosis);
5. Respirations may be shallow, irregular, labored, rapid or even gasping in nature. These fast, shallow respirations place a great demand on the respiratory muscles;
6. The eyes become dull and lackluster; the pupils may be dilated;
7. Extreme thirst;
8. Nausea and possible vomiting;
9. Dizziness and weakness;
10. Change in mental status
11. Loss of consciousness

MEDICAL EMERGENCIES

SHOCK (continued)

Management of Shock:

The treatment of shock is based primarily on prevention and early recognition. The "whole" victim must be considered, not just one or two problems. Priority of treatment is:

1. Secure and maintain a **patent airway**:
 - a. If the victim is breathing, properly position the head in order to maintain an airway;
 - b. If the victim is not breathing, perform rescue breathing.
2. **Control bleeding** with direct pressure and application of dry sterile dressings.
3. **Elevate the lower extremities** approximately 12-18 inches. Do not tilt the entire body down, as this may interfere with respirations. This maneuver is not done in cases of head and chest injury, or profound injuries to the legs. If there is doubt as to whether to elevate the extremities, the victim may be placed flat without adverse effect.
4. **Prevent loss of body heat.** Place a blanket under and over the victim in order to maintain body temperature. The goal is to keep the person warm, not overheated.
5. Avoid rough and excessive handling of the victim in shock. Shock can be aggravated by body motion.
6. Keep the victim lying down in order to give the circulatory system a rest. For victims of a heart attack or breathing problem, a semi-sitting position will usually be more comfortable. The victim will usually communicate what position is most comfortable for him/her.
7. Do not give anything by mouth.
8. Record the victim's initial vital signs (blood pressure, pulse, respirations, temperature, etc.). Continue to monitor and record vital signs at five-minute intervals until you are relieved by medical assistance.

TRAUMA EMERGENCIES

◆ Topics

Soft Tissue Injuries
Bleeding
Internal Injuries
Injuries to Bones, Muscles,
and Joints
Ocular Injuries



◆ Learning Objectives

At the conclusion of this session, the student will be able to:

- identify two (2) major categories of soft tissue injuries
- list three procedures used to control bleeding
- demonstrate three procedures used to control bleeding
- describe the general rules to follow when treating open wounds
- demonstrate general procedures used to treat open wounds
- describe the general rules to be considered when bandaging victims
- demonstrate general procedures for bandaging victims
- describe the general principles of management for bone and joint injuries
- describe the general procedures to follow when treating ocular injuries

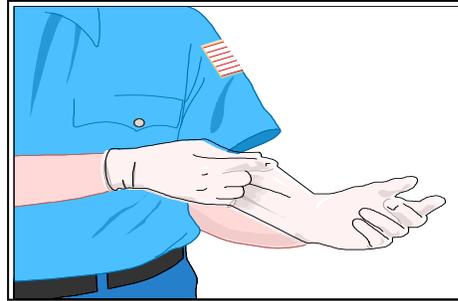


TRAUMA EMERGENCIES

BLEEDING

There are two categories of bleeding: **external** and **internal**. These two categories can be further subdivided as to the origin of the bleeding: **arterial** (from the **high-pressure** vessels leading away from the heart); **venous** (from the **low-pressure** vessels leading to the heart and away from the body); and **capillary** (small blood vessels where oxygen and nutrient exchange between the blood and the body occurs).

NOTE:
**UNIVERSAL PRECAUTIONS
MUST BE FOLLOWED
WHENEVER THERE IS A
POTENTIAL FOR CONTACT
WITH BODY FLUIDS**



Internal Bleeding: Since there is no way for the emergency responder to stop internal bleeding, emergency care for all types of internal bleeding consists of treatment for shock and rapid access to the EMS system.

External Bleeding: External bleeding from an open wound can be treated immediately by the emergency responder and rapid treatment may make the difference between life and death for the patient. The most serious type of external bleeding is arterial bleeding. It is quite possible for a patient to lose a large percentage of his blood volume in a short time, causing death in a matter of minutes.

Arterial Bleeding: Arterial bleeding can be easily recognized by the rhythmic flow of blood from the wound and the bright red coloration of the blood. Blood is forced from the wound by the blood pressure exerted within the artery during contraction of the heart muscle (ventricular systole). During relaxation of the heart (ventricular diastole) the arterial pressure is reduced and blood flow slows; this causes a spurting of blood with each heartbeat.

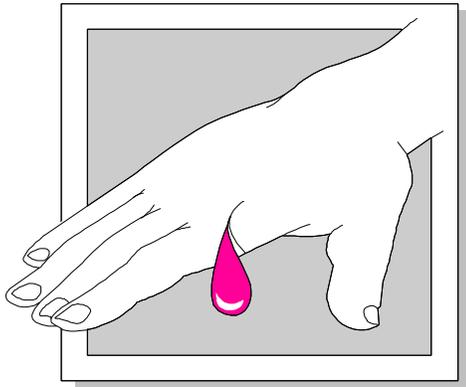
Venous Bleeding: Venous bleeding is recognized by a constant flow of dark red blood from the wound. It may be massive, and emergency treatment must be started.

Capillary Bleeding: Capillary bleeding is the least severe type of bleeding. It is usually seen with abrasions and small lacerations. Blood loss is minimal and immediate emergency care is not usually necessary. Capillary bleeding is recognized by a slow oozing of blood from a wound; the blood is red, but not usually a bright red as in arterial bleeding. The flow of blood during capillary bleeding is slow and clotting of blood usually occurs in a short time.

TRAUMA EMERGENCIES

BLEEDING (continued)

BLEEDING CONTROL



Use Direct Pressure to Control Bleeding

Direct Pressure: The primary technique used to control bleeding is the application of pressure directly over the site of the wound. If a sterile dressing is immediately available, it should be placed over the wound and firm steady pressure applied to the wound. If bleeding is severe, taking extra time to find a sterile dressing may result in massive blood loss.

Therefore, direct pressure applied with a clean cloth may save a patient's life. By applying direct pressure, the flow of blood from the wound is slowed and the body's own clotting mechanisms are allowed to work.

Dressings should not be removed once applied. If blood from the wound soaks through the dressing, add additional layers of dressing and increase pressure on the wound. Be prepared to accurately describe the wound to medical personnel when they arrive at the scene.

TRAUMA EMERGENCIES

SOFT TISSUE INJURIES

The recognition of the different types of soft tissue injuries and knowledge of their correct treatment is of utmost importance to the emergency responder. In the case of severe bleeding, **immediate action** is required to **control the bleeding** or the patient may perish in minutes. Minor soft tissue injuries with minimal bleeding still require care to **prevent contamination of the wound** and resulting infection. Prompt and efficient treatment of specific types of wounds may prevent the necessity of hospitalization or significantly reduce the length of the patient's hospital stay.

There are two major categories of soft tissue injuries: **open wounds and closed wounds**.

Open Wounds: Any time there is a break in the surface of the skin, an open wound is present. These can range from a minor scrape, which may require little, if any, emergency treatment, to a complete loss of an extremity, which may require immediate emergency treatment to save life and limb.

Open wounds are usually divided into the following categories:

Abrasions: Consist of minor injury to the skin surface with little or no bleeding. Common examples of abrasions are "skinned" elbows and knees. There is usually very little force involved, and the chance of severe underlying injury is slight. *The most serious complication of these injuries is usually contamination of the wound site.*

Lacerations: Jagged-edged wounds usually caused by skin being cut by an object with a dull edge, but can be caused by blunt trauma.

Incisions: Wounds caused by cutting of skin with a very sharp object, i.e., knife, glass or scalpel. Edges of the wound are smooth with no tearing or jagged edges.

Punctures: Wounds or stab wounds caused by objects such as nails or ice picks. The object is driven straight in and damages tissue in its path. There are two types of puncture wounds - *perforating wounds* and *penetrating wounds*. Perforating wounds have both entry and exit wounds and are usually seen as gunshot wounds. Penetrating wounds are wounds in which only entry wounds are found.

Avulsions: Injuries involving tearing loose of tissue or body part which is partially attached to the body by a flap of skin.

Amputations: Severing of a limb or protruding structure from the body.

TRAUMA EMERGENCIES

SOFT TISSUE INJURIES (continued)

Crush Injuries: When a part of the body is wedged between two objects and pressure is applied, a crush injury occurs. Soft tissue and internal organs can sustain massive amounts of damage. Internal and external bleeding can be a major problem.

NOTE: Open wounds are often associated with injury to underlying structures such as blood vessels, internal organs, nerves, or muscles. Damage to the blood vessels or internal organs can cause shock from massive bleeding.

Closed Wounds: The severity of closed wounds may not be obvious. Many times, the only indication of a closed wound will be bruising (ecchymosis) and tenderness at the site of injury. A bruise is caused by the rupture of the tiny blood vessels called capillaries which web themselves under the skin. When capillaries are broken, they leak blood that appears superficially as bruises.

Closed wounds may initially appear to be minor, but can signify underlying fractures and/or internal organ injury, especially when associated with other signs and symptoms.

Management of Open Wounds: The general rules to follow when treating open wounds are as follows:

1. **Uncover wound surface** - cut away clothing from wound site and remove material from wound surface. Do not try to clean the wound or remove small particles within the wound itself.
2. **Stop the bleeding** - use direct pressure to control bleeding.
3. **Cover the wound** - apply a sterile dressing or clean cloth to prevent further contamination of the wound.
4. **Treat for shock** - lay the person down and elevate lower extremities, keep the patient still, maintain patient's body heat through use of blankets, protect the patient from the environment and keep the patient calm.

Dressings and Bandages: A **dressing** is any material placed directly over a wound. The major function of a dressing is to help control bleeding, by providing a surface for clotting to take place, and to prevent additional contamination of the wound site. Dressings should be sterile if possible, but in an emergency any clean piece of cloth will suffice.

TRAUMA EMERGENCIES

SOFT TISSUE INJURIES (continued)

Select a dressing that extends an inch or more beyond the edges of the wound and place it directly over the wound site. Do not slide it into place, as this will cause additional contamination of the wound from the surrounding areas. ***Dressings should not be removed once applied.*** If blood from the wound soaks through the dressing, add additional layers of dressing and increase pressure on the wound. Be prepared to accurately describe the wound to medical personnel when they arrive at the scene.

A **bandage** is any material used to hold a dressing or splint in place. Bandage material should be clean, but because it does not come into direct contact with the wound, it need not be sterile. There are many types of commercially available bandage materials. The easiest to use of these is a conforming type of bandage. These bandages are loosely woven and conform easily to most body surface areas.

If no prepackaged bandage material is available when needed, any woven material cut into strips two to four inches wide can be used.

The general rules to be considered when bandaging victims are:

1. Bandage from narrowest to widest body area (i.e., start at wrist and wrap toward the upper arm).
2. Maintain even pressure when bandaging and avoid undue tightness. Bandage should be applied just tightly enough to hold the dressing firmly in place.
3. Tips of the toes and fingers should be left exposed (unless they are injured or require dressings) so that the color and temperature of the extremity can be monitored. A cold, blue extremity indicates that the bandage is too tight and should be loosened.
4. Overlap one-half to two-thirds the preceding turn when bandaging.
5. When bandaging joints, keep extremity bent. Bandaging while the limb is straight may lead to a tightening of the bandage if the patient bends the extremity, causing impaired circulation to the limb.
6. Inspect bandages frequently; if swelling occurs in injured areas, bandage may become constrictive.

TRAUMA EMERGENCIES

PENETRATING TRAUMA

Impaled Objects: When a patient is stabbed by an object, i.e., pick, knife, etc., and the object is not removed from the wound, it is said to be impaled. ***Never remove an impaled object.*** Movement of an impaled object may cause additional damage to underlying structures, such as arteries, veins, and nerves, thereby increasing bleeding or causing loss of nerve function.

Management of an impaled object:

1. **secure the object in place** by building up layers of bulky dressings (multi-trauma dressings, strips of blankets) on the two sides of the object to prevent its movement;
2. secure the dressings in place with a bandage or tape;
3. **control bleeding** by placing direct pressure on the wound site. This is done by placing your fingers around the object and pressing on the wound, being careful not to move the impaled object or push it further in.

Abdominal Evisceration: Occasionally when treating patients with lacerations in the abdominal area, internal organs (usually the intestines) may be seen protruding through the wound. It is important to dress these wounds with a dressing which will not stick or admit air to the wound (occlusive dressing). There are many brands of occlusive dressings available, but in an emergency situation when a sterile occlusive dressing is not readily available, aluminum foil or plastic food wrap can be substituted. Once the occlusive dressing is placed upon the wound, additional dressings or clean material (towel, blanket) should be placed over the occlusive dressing.

Management of abdominal evisceration:

1. patient should be placed lying on his/her back (supine position) with the legs bent to relieve stress on the wound site;
2. abdominal trauma is often accompanied by internal bleeding; therefore, **treat for shock.**

Penetrating Chest Wound: A penetrating chest wound is any wound which goes through the chest wall and into the chest cavity. Any chest wound where the chest wall is torn or punctured, or where a sucking sound can be heard at the wound site, is considered a penetrating chest wound.

TRAUMA EMERGENCIES

PENETRATING TRAUMA (continued)

Management of penetrating chest wound:

Treatment of this type of wound is aimed at preventing air from being drawn into the chest cavity through the wound.

1. Seal the wound with an occlusive (air-tight) dressing and firmly tape all sides of the dressing in place;
2. the dressing should be applied while the patient is exhaling; this will allow for the minimum amount of air to be trapped in the chest cavity by the dressing;
3. if, after applying the occlusive dressing, the patient's condition worsens, (patient complains of greater difficulty breathing), one of the taped sides of the dressing should be released during exhalation. This procedure should be repeated as necessary;
4. prompt transportation to the hospital should be carried out as soon as possible.

INTERNAL INJURIES

Internal Injuries may result from traumatic or medical conditions. Both penetrating trauma (i.e., a knife or bullet wound) and blunt trauma (i.e., fall or motor vehicle accident) can cause injuries to internal organs. Internal injuries may not be obvious, **but can be life threatening**.

Medical conditions such as gastrointestinal (GI) disease can result in bleeding from the lower or upper GI tract. Generally, medical conditions causing internal damage have warning signs and a gradual onset. The patient, if s/he is able to speak, may also be able to give you pertinent medical information regarding his/her current condition. Gradual onset, however, is not always present. The onset of a sudden leak or tear of a major blood vessel, such as the aorta (aortic aneurysm) can be sudden and immediately life threatening. Minutes may make a difference.

For non-medical injuries, the Emergency Responder must keep in mind the “**Mechanism of Injury**”, that is, the *nature of the accident*. A motor vehicle accident may appear to have been a simple “fender bender” with no one truly injured, but even these apparently minor accidents can result in life threatening conditions. Patients involved in minor automobile accidents have been known to walk from the scene of an accident with no apparent injuries, only to be rushed later to an emergency department suffering from spinal injuries, head trauma and other abdominal and thoracic injuries associated with the dynamics of speed and sudden stops (deceleration injuries).

TRAUMA EMERGENCIES

INTERNAL INJURIES (continued)

The management of internal injuries varies based on the following:

Assessment of the patient

- * what does the patient look like?
- * is the patient complaining of pain?
- * is the patient complaining of tingling/paralysis of any part of his/her body?
- * is the patient in shock?
- * does the patient state that s/he is feeling fine?

Assessment of the probable cause of injury

- * is the windshield broken, from the inside?
- * is the steering wheel bent?
- * if accident involved another vehicle, what is the condition of those patients?
- * if patient fell, how high was the drop?

The best way to manage victims who are not complaining of injuries is to have them go to the nearest hospital for examination. The saying, “*better safe than sorry*”, has real meaning in these cases. Use your best assistant, “*Common Sense*”.

INJURIES TO BONES, MUSCLES, AND JOINTS

Injuries to bones, joints, and muscles result most often from falls and motor vehicle accidents. These injuries are rarely emergencies requiring great speed in transportation, but great harm can be done if the victim is moved too hastily or handled too roughly.

There are several types of injury that can be sustained:

1. **FRACTURE** or broken bone is a break or crack in a bone;
2. **DISLOCATION** is the displacement of a bone end from another;
3. **SPRAIN** is the injury of the soft tissues surrounding a joint;
4. **STRAIN** is the stretching or tearing of a muscle.

TRAUMA EMERGENCIES

INJURIES TO BONES, MUSCLES, AND JOINTS (continued)

Fractures, dislocations, and sprains exhibit many of the same signs and symptoms. It is impossible to determine at the scene of an accident the type of injury the victim may have sustained; therefore, any suspected injury to bones and joints should be treated in a similar manner.

Suspect Injury To Bones And Joints If:

1. The victim reports a history of a fall or other accident;
2. The victim cannot move the injured part;
3. The body part is deformed or discolored;
4. The body part is swollen or painful;
5. There is abnormal movement in the area;
6. The victim may have heard or felt the bone break.

General Principles Of Management For Bone And Joint Injuries

1. **DO NOT MOVE THE VICTIM** unless essential for safety. If the victim must be moved, pull or drag the victim to safety by the legs or the armpits along the long axis of the body.
2. Keep the airway open.
3. Control severe bleeding by direct pressure.
4. Keep the victim lying down.
5. Maintain the victim's body temperature.
6. Prevent movement of the injured part and adjacent joints.

Since the majority of bone and joint injuries require ambulance transportation to a hospital, it is usually best not to attempt to splint or immobilize an injury but to wait for professional assistance.

NOTE: DO NOT ATTEMPT TO MOVE OR SPLINT ANY VICTIM WITH AN INJURY TO THE HEAD, NECK, OR BACK. IT IS ALWAYS BETTER TO WAIT FOR HELP.

TRAUMA EMERGENCIES

OCULAR INJURIES

There are many incidences in which eye injury can occur. Measures to prevent or minimize eye injuries are simple:

- Wear protective eye-ware in workshops, laboratories and during sports activities
- Observe workshop, laboratory and sport safety guidelines

Signs and Symptoms of Ocular Injuries:

Patients may complain of pain, tearing and visual problems, and may be rubbing their eyes.

Management of Ocular Injuries:

1. Have user remove contact lenses, if possible
2. Do not apply pressure to eye

Chemicals

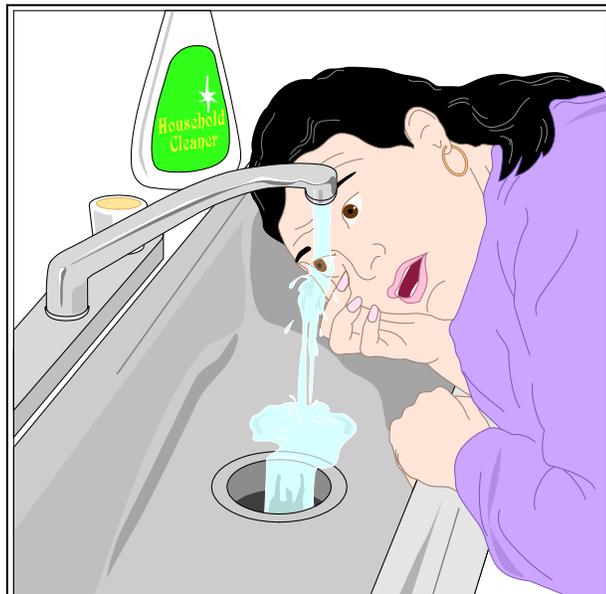
1. **Flush eyes** (away from unaffected eye) for a minimum of 20 minutes
2. Cover both eyes with dressing

Flash Burns

1. Cover both eyes

Foreign Body Objects

1. Do not remove
2. Stabilize object
3. May use paper cup to prevent movement
4. Patch (cover) unaffected eye
5. Raise head if possible to reduce pressure



ENVIRONMENTAL EMERGENCIES

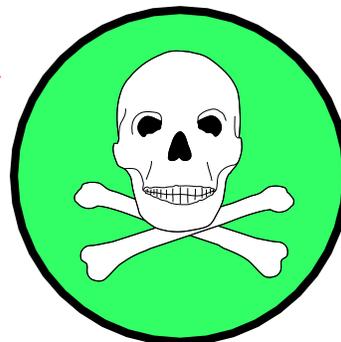
◆ Topics

Burns
Heat Exposure
Cold Exposure
Poisons
Hazardous Materials
Drugs and Alcohol Related Emergencies

◆ Learning Objectives

At the conclusion of this session, student will be able to:

- describe general procedures to follow for management of burns
- list three categories of heat emergencies
- identify three (3) symptoms of heat stroke
- describe procedure for management of a victim experiencing heat stroke
- describe emergency response care for frostbite
- list three (3) symptoms of hypothermia
- identify general principles to follow for victims of poisoning
- describe management of victims of substance abuse



ENVIRONMENTAL EMERGENCIES

BURN EMERGENCIES

Burn injuries are a major health problem in the United States. Over two million people suffer burn injuries each year. More than 70,000 people who are burned require hospitalization and 10,000 people die each year as a result of burn injuries. An additional 1.9 million people suffer small burns that need some sort of emergency care. Burn injuries can be very severe and painful, and require months of costly care. Burns are especially life-threatening to young children, the elderly, and people with chronic medical problems like diabetes.

Burns are tissue injuries caused by heat, chemicals, electrical energy, and radiation. Almost all burn injuries are preventable and are a result of some type of carelessness. Some of the most common causes of burns are:

1. Carelessness with matches and cigarettes;
2. Scalds from hot liquids or immersion in hot bath water;
3. Defective heating, cooking and electrical equipment;
4. Use of strong chemicals;
5. Open fires in combination with flammable clothing;
6. Overexposure to the sun.

All burn injuries require prompt emergency care. Severe burn injuries require medical care by a hospital equipped to care specifically for the burn patient. The immediate hazards of burns are: shock; swelling of tissues; swelling of tissues in the breathing passages; loss of body fluids; disfigurement; loss of an eye, limb or other part of the body; and death. Other hazards from fire include: inhaling very hot poisonous gases; smothering from too little oxygen in the air; and injuries from falls or collapsing parts of buildings.

Management of Burn Injuries:

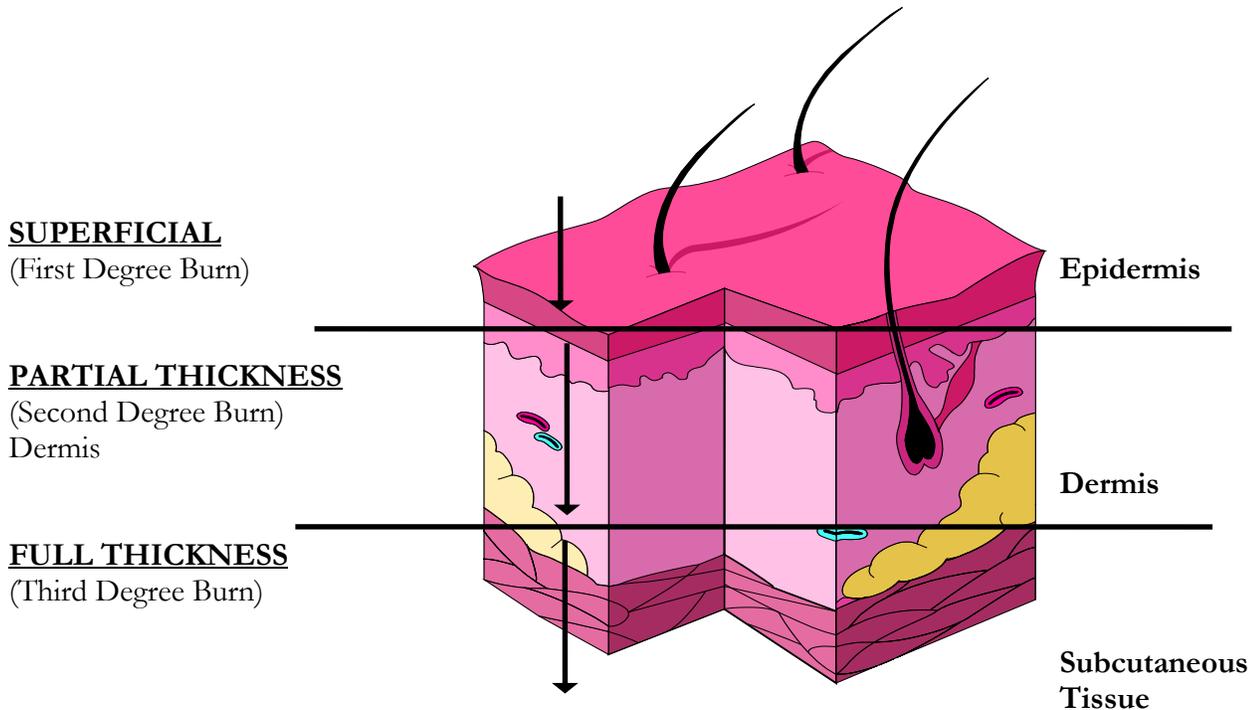
1. Monitor airway (burns to airway passages may cause breathing problems)
2. Cool down small burn area with tap water
3. No ointments
4. Don't break blisters
5. Cover with clean dressing

ENVIRONMENTAL EMERGENCIES

BURN EMERGENCIES (continued)

Depth Of The Burn

Burns are grouped into three categories or degrees, but often it is difficult to tell how deep a burn is immediately, as swelling and blistering may appear 2 or 3 hours later.



SUPERFICIAL [or first degree] burns are not very deep and involve only the surface area of the skin. The skin will be red; some swelling and pain will be present.

PARTIAL THICKNESS [or second degree] burns go deeper into the under layers of the skin. In superficial moderate degree burns, the skin will be red, swollen, blistered and painful. These burns usually take ten to fourteen days to heal. Deep moderate burns take longer to heal - more than three weeks - and the healed skin is frequently hypertrophic and raised up; therefore, the victim usually needs skin grafts.

FULL THICKNESS [or third degree] burns go deeper into the under layers of the skin and may involve bone, muscles, nerves and other tissues beneath the skin. The skin will appear dry, white or charred (black). These burns are usually **not** painful because the nerve tissue is destroyed. These burns will not heal without medical care. Critical burns larger than one and a half inches in diameter will never heal without skin grafts and may become infected without medical attention.

ENVIRONMENTAL EMERGENCIES

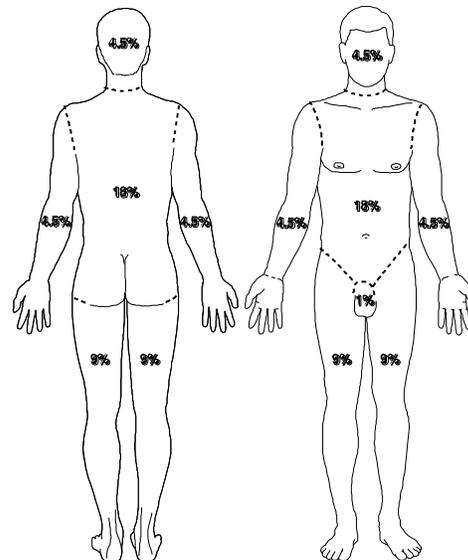
BURN EMERGENCIES (continued)

NOTE: ANYONE WHO IS BURNED MAY HAVE A COMBINATION OF VARIOUS DEGREES OF BURNS. TREAT FOR THE WORST BURN YOU SUSPECT.

Size Of Burns

The size or extent of a burn is classified according to the percentage of skin surface area involved. This is done by the use of the "Rule of Nines" as follows:

	ADULT	SMALL CHILDREN
Head	9%	18%
Arms	9% (each)	9% (each)
Anterior Trunk	18%	18%
Posterior Trunk	18%	18%
Legs	18% (each)	14% (each)
Groin	1%	



You may estimate the size of a burn by thinking of the normal adult hand as being 1% of the total Burn Surface Area (BSA).

Location Of Burns

Burns on the four critical areas of the body - FEET, FACE, HANDS AND GENITAL AREA - are especially dangerous. **Any moderate burn or deeper burn on a critical area of the body, no matter how small, requires immediate medical attention.** Burns of the face, nose or mouth may indicate injury to the breathing passages. Injury of the breathing passages can result in swelling that causes severe difficulty breathing, or may block the breathing passages. Get medical help immediately and watch to make sure the person continues to breathe. If breathing stops, give mouth-to-mouth resuscitation.

In addition to the depth, size and location, the age and physical condition of the patient can contribute to the seriousness of burns.

ENVIRONMENTAL EMERGENCIES

ELECTRICAL EMERGENCIES

Electric shock may cause cardiac and respiratory arrest along with extensive burns. Do not approach or touch the person suffering from electric shock until you know it is safe to do so. Turn off the electrical current. If you cannot shut off the current, you may be able to roll the person away with one or two wooden poles, such as broom handles. Ropes or other materials that do not conduct electricity may be used. As soon as you rescue the person: check to see if there is a need to provide Basic Life Support; check for other injuries; treat for shock; and **get medical help**.

HEAT AND COLD EMERGENCIES

The environment we live in is a delicate balance of many factors that allow human life to exist as we know it. Occasionally the human organism is exposed to extremes of these factors, the result of which is a disruption of the organism's internal workings. We can anticipate some of the possible effects of these extremes and learn how to react to them.

HEAT EXPOSURE

In a previous section, you learned the recognition and treatment of various burns. We usually relate burns to the effect of heat on the body. In a similar manner, the exposure of the body to extremes of heat may be manifested in ways aside from burns. Heat-related emergencies are divided into three categories: heat cramps; heat exhaustion; and heat stroke.

Heat cramps may occur in the healthiest of individuals. They usually affect people who are working in a hot environment and are perspiring profusely. Usually characterized by severe muscle cramps in the legs and/or abdomen, they are often accompanied by exhaustion to the point of collapse with some dizziness and possible fainting.

Over 70% of the human body is water in which various substances are dissolved. One of these substances, salt, is in critical balance with water, and normal muscular action depends on this balance. Salt, not just water, must be taken in, or an imbalance will occur in the muscle tissues causing the involuntary spasms of heat cramps. Therefore, the most effective treatment for the relief of heat cramps is to give the patient sips of salted water (one teaspoon of salt to one quart of water). In conjunction with this, remove the patient to a cool place and massage the cramped muscle. Although apparently not serious, the victim of heat cramps should be given **immediate follow-up medical attention**.

ENVIRONMENTAL EMERGENCIES

HEAT EXPOSURE (continued)

Heat Exhaustion: The effects of physical exertion in a hot environment can be more generalized and severe. In an attempt to maintain the normal temperature, the body reacts to heat by transporting it from its interior core to the skin by circulating blood. There the heat escapes to cooler surroundings by radiation and conduction. This movement of blood to the skin, in addition to the pooling of blood in the lower extremities if the individual is standing for long periods, may lead to an inadequate return of blood to the heart and brain, resulting in physical collapse. Such a condition is called heat exhaustion (prostration), and essentially is another form of shock.

Signs and symptoms of heat exhaustion may include:

- rapid shallow breathing;
- general weakness;
- pale clammy skin;
- profuse perspiration;
- dizziness, and;
- unconsciousness.

Management of heat exhaustion includes:

- move the patient to a cooler environment
- remove as much clothing as possible
- fan the patient

NOTE: Be careful to avoid overcooling; remember, you want to restore normal body temperature (98.6°).

- activate the EMS system

NOTE: Associated changes in body chemistry will need to be evaluated and corrected immediately.

Heat Stroke: If the conditions described for heat exhaustion persist, either in the environment or in the body, the body's mechanism for dissipating excess heat may be overwhelmed. If the body's ability to perspire shuts down and heat continues to build up in the body to a point where cells, particularly in the brain, are permanently damaged, this condition is defined as heat stroke. Because of its lethal potential, it is considered a **TRUE EMERGENCY** and requires immediate attention at a medical facility. When calling for an ambulance, be sure to tell this to the person with whom you are speaking.

ENVIRONMENTAL EMERGENCIES

HEAT EXPOSURE (continued)

Signs and symptoms of heat stroke are clearly distinctive from other heat emergencies:

- deep breathing deteriorating to shallow respirations;
- rapid strong pulse deteriorating to rapid weak pulse;
- dry, hot skin;
- dilated pupils;
- convulsions; and
- loss of consciousness.

Management of heat stroke includes:

- begin treatment as soon as you recognize the patient's condition
- cool the patient in any manner possible and do it rapidly in the following ways:
 1. Remove the patient from the source of heat. If s/he was in the sun, bring him or her into the shade.
 2. Remove as much clothing as possible.
 3. Wrap in towels dampened with cool water.
 4. If available, place ice packs under the arms, on the wrists and ankles, on either side of the neck, and at the groin.
 5. If transportation to a medical facility is going to be delayed, place the patient in a cold-water bath. Never leave patient alone in this bath. **REMEMBER, HEAT STROKE IS A LIFE-THREATENING EMERGENCY.**

COLD EXPOSURE

The ill effects of cold on the human body are classified into two categories - local and generalized. Local cooling occurs in particular parts of the body, usually those inadequately protected from the environment. Most commonly, these include the ears, nose, hands and feet. "Frostbite" is the common term used when localized cooling takes place. Frostbite is progressive and, depending on the duration and degree of exposure, will cause progressive degrees of injury. As an emergency responder, treat any frostbite the same.

ENVIRONMENTAL EMERGENCIES

COLD EXPOSURE (continued)

Frostbite: The symptoms of frostbite will start off with a reddening of the exposed skin. As exposure continues, the skin becomes gray or blotchy with associated numbness. Be aware, though, that tendons are resistant to freezing and the patient will still be able to move the part. Discourage such movement. When freezing eventually occurs, all sensation is lost, and the skin becomes dead white.

Treatment for frostbite should be done in the hospital. Emergency Response Care for frostbite should be as follows:

1. Remove any wet clothing;
2. Cover the affected area with dry clothing and keep the whole body warm and dry;
3. Give small amounts of warm fluids EXCEPT COFFEE or other stimulants. These cause further constriction of the blood vessels in the skin;
4. **DO NOT** massage or rub the affected area. Minimize all movement.

If medical attention will be delayed, as may be the case in extreme weather conditions, the area may be re-warmed. This is done by submerging in warm (100 to 105° F) water. Never use other sources of heat such as open flame or electric heaters. As the water temperature cools, remove some and replace with more warm water. When the area thaws, regains color and sensation, and becomes warm, cover with a clean dressing, keeping fingers and toes separated with gauze. Protect the area from re-freezing while transporting or waiting for assistance.

Hypothermia: Generalized exposure to cold may cause body temperature to decrease, leading to a state called hypothermia. As in heat stroke, the inability of the body to control its temperature constitutes a **TRUE EMERGENCY**. The patient must be transported to a medical facility without delay.

Hypothermia may be recognized by shivering, feelings of numbness, drowsiness, slow breathing and decreased pulse rates, and eventually unconsciousness. The patient's mental state is the best measure of hypothermia, since body temperatures, even between 95° - 96° F, may be manifested by confused or withdrawn behavior.

ENVIRONMENTAL EMERGENCIES

COLD EXPOSURE (continued)

Re-warming of the hypothermia patient should **not** be started until the patient is in the hospital. If done improperly, the re-warming process itself can produce *life-threatening* conditions which, in this state, are not easily corrected. During the waiting or transporting time, you can protect the patient by removing wet clothing and keeping him/her in a warm, dry environment. Since the body's mechanism for heat control is not functioning, simply wrapping in blankets will be of significant use. Get the patient into a warm environment, which the blankets will then help to maintain. Usually this will mean using external sources such as well-wrapped hot packs, hot water bottles, heating pads, or even a rescuer's body heat.

Never assume that a victim of prolonged hypothermia is dead. Many cases of revival have been reported; therefore, every attempt at resuscitation should be made. The determination of death, by a physician, will only be made after the body temperature has been raised to a normal level consistent with life.

POISONS

A poison is any liquid, solid, or gas that impairs health or causes death when ingested (swallowed), inhaled (breathed in), absorbed (through the skin), or injected.

In the case of any poisoning, the Poison Control Center should be contacted. In New York City, the Poison Control Center can be reached by calling (212) P-0-I-S-0-N-S. Even if there are instructions on the container, you should call (212) P-0-I-S-0-N-S because they have the most up-to-date information on the poison and can give more specific instructions based on the condition of the victim and available antidotes or treatments.

When calling the Poison Control Center or a physician, be prepared to give the following information:

1. age of victim
2. name of poison and route of poisoning (ingestion, absorption, injection, or inhalation)
3. approximate amount of poison involved
4. current condition of the victim
5. any care that has been initiated
6. where you are, and how long it will take to get to the hospital

Always remember to take the container and any samples of vomitus to the hospital with you.

ENVIRONMENTAL EMERGENCIES

POISONS (continued)

Ingested poisons: An ingested poison is any poison that has been swallowed. Common types of ingested poisons are medications, food, corrosive agents (e.g., rust removers, lye, ammonia, bleach), petroleum products (e.g., kerosene or gasoline), poisonous plants, and lead poisoning.

General principles to remember:

1. Check "C, A, B"
2. Call (212) **P-0-I-S-0-N-S** and follow all instructions
3. Transport to hospital with container and sample of vomitus

Inhaled poisons: An inhaled poison is a poison that is breathed in. Common types of inhaled poisons are carbon monoxide, gases from refrigerators, ice-making machines, stoves, household products, cosmetics, chlorine, and industrial by-products.

Carbon monoxide is one of the most commonly inhaled poisons. It is a tasteless, colorless, odorless gas present in exhaust fumes of cars, lanterns, and sewer gases to name a few. Cherry red skin color is a distinctive sign of carbon monoxide poisoning, and symptoms can include headache, weakness, dizziness, shortness of breath, coma, and death.

General principles to remember:

1. Remove the victim from the source of the poison, open windows, turn off source
2. Check "C, A, B"
3. Call (212) **P-0-I-S-0-N-S** and follow instructions

Absorbed poisons: An absorbed poison is one that comes in contact with the skin. Common absorbed poisons are harsh chemicals like corrosives, pesticides, and plants.

General principles to remember:

1. Call (212) **P-0-I-S-0-N-S** and follow instructions
2. Remove contaminated clothing
3. Flush area with large amounts of water for at least 15 to 20 minutes
4. Do not touch contaminated area

ENVIRONMENTAL EMERGENCIES

POISONS (continued)

CHART: POISONS - SIGNS AND SYMPTOMS

POISON	SYMPTOMS
Food	Sudden illness, nausea, vomiting, abdominal cramps, diarrhea
Strong Acid: Toilet bowl cleaners, Rust removers, Phenol, Hydrochloric acid	Burning pain in mouth, throat and stomach; nausea and vomiting; shallow respirations; difficulty swallowing
Strong Alkalis: Drain cleaner, Ammonia, Bleach	Burning pain in mouth, throat and stomach; shallow respirations; cold, clammy skin; nausea; difficulty swallowing
Petroleum Products: Kerosene, Gasoline; Lighter fluid, Turpentine	Abdominal pain; nausea; vomiting; visual disturbances, coughing and difficulty breathing
Methyl Alcohol, Wood Alcohol	Headache; vomiting; nausea; abdominal pain; visual disturbances
Aspirin	Rapid breathing; difficulty breathing; fever; sweating; vomiting; dehydration; seizures; coma
Plants: <ul style="list-style-type: none"> • Mountain Laurel • Rhododendron • Fox-Glove • Oleander • Some Wild Cherries, etc. 	Dilated pupils, rapid pulse, flushed dry, hot skin
Injected Poisons: <i>Poisoning by Insects:</i> <ul style="list-style-type: none"> • Ant • Bee • Wasp • Hornets • Yellow Jackets 	Swelling, pain in area of sting, redness Difficulty breathing; choking sensation; loss of consciousness

ENVIRONMENTAL EMERGENCIES

HAZARDOUS ENVIRONMENTS

Hazardous environments are any surroundings that are not compatible with normal existence. This includes noxious gases, fire, and unstable structures. *The inexperienced, unequipped individual cannot handle such situations and should not attempt to.* **Access the EMS system immediately.** It may have been that very environment that caused the illness or injury of the person you are attempting to assist. If, however, you find yourself already inside such surroundings, there are certain rules to keep in mind:

1. Make your way to the nearest visible exit, particularly a window, where rescuers will see you. Let them know that you are in there somehow, such as by hanging a sheet out of the window.
2. In a building on fire, hug the floor. That is where the most oxygen and lowest temperature is. Never stand up. Open doors only after you have felt them from floor up, and have found them cool. If you do open a cool door, do so a little at a time, very slowly and always ready to close it if you encounter smoke or flame.
3. In rooms with noxious gas, if the source of leakage is known, try to stem the flow, but not if it would be easier to leave. Every extra minute spent breathing the gas is a minute that is endangering the existence of life.
4. In unstable buildings or vehicles, the very movement toward safety may be your greatest danger. Keep yourself and those around you as still as possible. Let those persons best trained to deal with the situation coach you out or secure the instability for you. They can move around and assess the proper method of escape.
5. Electricity is conducted through many objects –metal, water, even the human body. Even a wire that looks dormant can be alive with high levels of dangerous electricity. If a victim is in contact with an electrical source, directly or perhaps in a car that has struck a utility pole, **DO NOT MAKE CONTACT.** You will suffer the impact of the electrical current. Even low voltage household current is potentially lethal. You must de-activate the electric current by pulling out the cord, throwing the switch, removing a fuse, or shutting down a circuit breaker. Then, and only then, can you touch the victim. If the electricity is from a source you cannot shut down, stay away and call for help.

ENVIRONMENTAL EMERGENCIES

ALCOHOL ABUSE

Alcohol is a depressant, initially creating a feeling of relaxation or exhilaration and later causing disruption of motor activity, motor skills, and coordination. Respirations may decrease; the patient may lose consciousness, resulting in coma or death. The emergency care for alcohol abuse is as follows:

1. If the victim is sleeping, and coloring, breathing, and pulse are normal, no emergency care is necessary;
2. If signs of shock are present, immediate care is necessary;
3. Check "C, A, B";
4. Maintain an open airway;
5. Treat for shock and get medical help.

DRUG ABUSE

A drug is a substance that affects body functions or the mind when taken into the body or applied to the surface. Drug abuse is a persistent use of a drug without regard to accepted medical practice. For specific information regarding the types of drugs and the signs and symptoms of drug abuse, refer to the chart at the end of this chapter. In cases of drug abuse, emergency care should be:

Conscious Patient:

1. Check "C, A, B";
2. Reassure and protect the patient;
3. Protect yourself and others in the area;
4. Get medical assistance;
5. If the drug is a hallucinogen, "talk the patient down".



Unconscious Patient:

1. Check "C,A,B";
2. Maintain an open airway;
3. Access EMS system;
4. Treat for shock;
5. For narcotics, depressants or tranquilizers, try to arouse the patient.

MEDICAL EMERGENCIES

ENVIRONMENTAL EMERGENCIES

DRUG ABUSE (continued)

In cases of drug abuse emergencies, try to determine the type, amount and time the substance was taken. Clues to the type of substance are often present (i.e., hypodermic needles, vials, needle marks, etc.).

Information that will be helpful to a physician or drug abuse treatment center include:

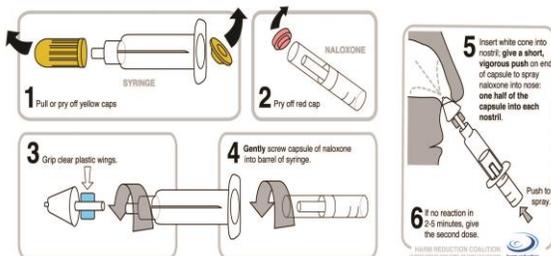
1. Type of drug and how much taken;
2. Age and size of patient;
3. General condition of the patient.

Keep in mind that more than one drug may have been taken, and apply the general principles for emergency treatment.

Naloxone Administration for Suspected Overdose:

Administer intra-nasal (IN) Naloxone, via mucosal atomizer device (MAD). 1mg/ml in each nostril. Total of 2 mg/2ml

How to Give Nasal Spray Naloxone



Administer intra-nasal Naloxone, via a metered nasal spray. 4mg/0.1ml in ONE nostril. Total of 4mg/.01ml



KEY STEPS TO ADMINISTERING NARCAN® NASAL SPRAY:

PEEL



Peel back the package to remove the device. Hold the device with your thumb on the bottom of the plunger and 2 fingers on the nozzle.

PLACE



Place and hold the tip of the nozzle in either nostril until your fingers touch the bottom of the patient's nose.

PRESS



Press the plunger firmly to release the dose into the patient's nose.

ENVIRONMENTAL EMERGENCIES

DRUG ABUSE (continued)

CHART: DRUG ABUSE - SIGNS AND SYMPTOMS

(Signs and symptoms are dependent upon the amount of active material.)

DRUG	SIGNS AND SYMPTOMS
Marijuana: (<i>Cannabis Hashish</i>)	Throat irritation; increased heart rate; reddening of eyes; dizziness; lack of coordination; sleepiness; increased appetite; distortion of psychomotor activity; exhilaration; euphoria; paranoia
Depressants: “Downers”, Sedatives, Hypnotics, Tranquilizers	Sleepy; slurred speech; dilated pupils; shallow respiration; weak, rapid pulse; cold, clammy skin; unconsciousness
Hallucinogens: LSD	Increased heart rate, blood pressure, body temperature; dilated pupils; disturbances of sensations, thought, emotion, self-awareness; alteration of time/space perception; hallucinations; bizarre/violent behavior; intense fear; tremors; loss of emotional control; paranoid delusions; profound depression; tension/anxiety; disordered social behavior
Stimulants: “Uppers”, Amphetamines, Dexedrine, Methedrine (meth, speed, crystal), Cocaine, etc.	Initially: <ul style="list-style-type: none"> • Energetic, euphoria Then: <ul style="list-style-type: none"> • Confusion; disorientation; rapid heart rate, breathing; increased blood pressure; headache; chest pain; sweating; dilated pupils; tremors; fear; delusions; anti-social behavior; irritability After drug burns itself out: <ul style="list-style-type: none"> • Prolonged sleep; hunger; depression
Inhalants: Glue sniffing, Petroleum products, nail polish remover	Excitement; irritation of nasal passages; drunkenness followed by depression; unconsciousness
Narcotics: Heroin, Other opium derivatives	Lethargy; decrease in activity and awareness; sleep followed by coma; respiratory depression leading to respiratory failure; profuse sweating; decreased temperature; muscle relaxation; pinpoint pupils

THE REGIONAL EMERGENCY MEDICAL SERVICES COUNCIL OF NEW YORK CITY, INC.

RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

CHART: MEDICAL EMERGENCIES

	PREVENTION	RECOGNITION	MANAGEMENT
<p>FOREIGN BODY OBSTRUCTION</p> <p>Example:</p> <ul style="list-style-type: none"> • Hot Dogs • Peanuts • Hard Candies • Popcorn • Grapes • Gum, etc. 	<p>Avoid Talking/ Walking/Running with:</p> <ul style="list-style-type: none"> • Oral/Nasal Objects (body jewelry, pencils, etc.) • Food • Sharp Objects • “Heimlich” posters placed conspicuously, especially in cafeteria areas 	<ul style="list-style-type: none"> • Choking • Inability to speak • Universal Sign (holding neck) • Refer to “Heimlich” poster 	<ul style="list-style-type: none"> • Respiratory/ Airway Management • Refer to “Heimlich” poster
<p>ASTHMA</p> <p>Causes:</p> <ul style="list-style-type: none"> • Viral illnesses • Exercise induced • Cold air induced • Environmental pollutants (Smoke, etc.) 	<ul style="list-style-type: none"> • Compliance with medication • Be aware of allergies and assist in avoiding precipitating cause(s), if known 	<ul style="list-style-type: none"> • Breathing difficulties • Coughing • Wheezing • Frequent use of inhaler 	<ul style="list-style-type: none"> • Respiratory/ Airway Management • Does patient have Inhaler Pump?
<p>ALLERGIC REACTIONS</p> <p>Causes:</p> <ul style="list-style-type: none"> • Ingestion - Food, Medicine • Injection - Insect bites • Absorption - Soaps, Contaminants, Chemicals, Latex products • Inhalation - Animal hairs, Dust 	<ul style="list-style-type: none"> • Medical Alert for those who suffer serious allergies • Prevention mechanisms for work related hazards in buildings (heating, paint, asbestos, etc.) 	<ul style="list-style-type: none"> • Swallowing difficulties • Breathing difficulties • Coughing, Burning, Scratchy throats • Hives • Wheezing 	<ul style="list-style-type: none"> • Respiratory/ Airway Management • Encourage patient to self-administer medication - EPI-PENS

RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

CHART: MEDICAL EMERGENCIES (continued)

	PREVENTION	RECOGNITION	MANAGEMENT
DIABETES	<ul style="list-style-type: none"> • Medical Alert • Ensuring Meals/Snacks 	<ul style="list-style-type: none"> • Sweating • Change in Behavior <ul style="list-style-type: none"> -confusion -lack of verbal response -shakes/tremors -may exhibit substance abuse behavior -may become unconscious • Increased thirst and/or frequent urination • Weight loss 	Give patient dissolvable sugar items: <ul style="list-style-type: none"> • Add sugar packet to orange juice • Soda (not Diet) • Add sugar packet to milk If unconscious, check C,A,B and wait for EMS
SEIZURES Causes: <ul style="list-style-type: none"> • Fever • Epilepsy • Head injuries • High/Low blood sugar 	<ul style="list-style-type: none"> • Medical Alert • Compliance with medication • Medical history 	<ul style="list-style-type: none"> • Daydreaming • Patient senses impending seizure • Uncontrolled shaking of parts of body or total body • Loss of consciousness • Urination • Foaming at mouth • May appear sleepy afterwards 	<ul style="list-style-type: none"> • Protect patient and ensure safety: <ul style="list-style-type: none"> -Place on floor in area of least likelihood of injury -Remove furniture -Put nothing in mouth -If possible, place patient in recovery position -Protect patient's head, if possible • Do not try to stop (usually lasts less than 2 minutes) Observe Airway Management
SYNCOPE (Sudden loss of consciousness) <ul style="list-style-type: none"> • Fainting spells • Pregnancy • Cardiac disease • Low blood pressure • Excessive heat • Severe pain • Low blood sugar • Shock 	<ul style="list-style-type: none"> • Medical Alert • Knowledge of patient's medical history 	<ul style="list-style-type: none"> • Not responding to voice or touch • Sudden loss of consciousness 	<ul style="list-style-type: none"> • Lie patient flat on floor • Check CAB • Remove from environment, if environment is the cause (i.e. heat or cold) • Loosen constrictive clothing • Assess for injuries from the fall

RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

CHART: TRAUMA EMERGENCIES

	PREVENTION	RECOGNITION	MANAGEMENT
<p>BLEEDING CONTROL Strongly recommend a First Aid Kit which should contain:</p> <ul style="list-style-type: none"> • gloves • goggles • mask • apron • sterile dressing • bandages • ice pack 	<ul style="list-style-type: none"> • Follow Safety Rules 	<ul style="list-style-type: none"> • Lacerations • Cuts • Puncture or penetrating wounds • Gunshot wounds • Stab wounds 	<p>External Bleeding</p> <ul style="list-style-type: none"> • Clean wound thoroughly • Apply direct pressure • Bandage once bleeding is controlled
<p>CRUSH/AMPUTATED INJURIES</p>	<ul style="list-style-type: none"> • Observe shop safety guidelines • Doors-routine maintenance • General safety guidelines 	<ul style="list-style-type: none"> • Bleeding • Deformity • Swelling • Pain 	<ul style="list-style-type: none"> • Bleeding control • Remove jewelry on affected part of patient's body <p>If amputated:</p> <ul style="list-style-type: none"> • Pick up, wrap in clean cloth • Keep cool, but no direct contact with ice • Give amputated part(s) to ambulance personnel
<p>FALLS AND ASSOCIATED INJURIES</p> <ul style="list-style-type: none"> • Bruises • Contusions • Sprains • Strains • Fractures • Spinal Injuries 	<ul style="list-style-type: none"> • Maintain general safety rules • Avoid pushing/running on stairs • Avoid spills 	<ul style="list-style-type: none"> • Verbal report • Note position of patient <p>If conscious, is patient:</p> <ul style="list-style-type: none"> • holding part of body? • Indicating pain? <p>For both conscious and unconscious patient, <i>check</i>:</p> <ul style="list-style-type: none"> • Bleeding • Deformity • Swelling • Discoloration • Torn clothes 	<p><i>If conscious:</i></p> <ul style="list-style-type: none"> • Bleeding control • Minimize movement • Place ice pack on injured extremity <p><i>If unconscious:</i></p> <ul style="list-style-type: none"> • Do not move head • Check C, A, B • Bleeding control • Minimize movement

RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

CHART: TRAUMA EMERGENCIES (continued)

	PREVENTION	RECOGNITION	MANAGEMENT
OCULAR INJURIES	<ul style="list-style-type: none"> • Protective eye-ware in shops/labs/sports activities • Observe Shop/Lab/ and Sports' safety guidelines 	<ul style="list-style-type: none"> • Verbal Report • Pain • Tearing • Visual problems • Foreign Bodies (e.g., Contact lenses, Dust, Glass) • Rubbing Eyes 	<ul style="list-style-type: none"> • Have user remove contact lenses, if possible • Do not apply pressure to eye <p>Chemicals</p> <ul style="list-style-type: none"> • Flush eyes (away from unaffected eye) for a minimum of 20 minutes • Cover both eyes with dressing <p>Flash Burns</p> <ul style="list-style-type: none"> • Cover both eyes <p>Foreign Body Objects</p> <ul style="list-style-type: none"> • Do not remove • Stabilize object • May use paper cup to prevent movement

RECOGNIZING AND MANAGING MEDICAL EMERGENCIES

ENVIRONMENTAL EMERGENCIES

	PREVENTION	RECOGNITION	MANAGEMENT
POISONS/HAZARDOUS MATERIALS	<ul style="list-style-type: none"> • Locked cabinets • Labeled bottles • Post Poison Control Telephone Number (212-POISONS) (212) 764-7667 • Compliance with safety rules for dangerous materials (i.e., chemicals in labs, electrical/musical equipment, paints, pepper spray) 	<ul style="list-style-type: none"> • Verbal report • Eyewitness • Read label, if available 	<ul style="list-style-type: none"> • Call 911 • Call Poison Control • Check “C, A, B” • Possession of poison/pill bottle, if possible • Give container to Ambulance Crew, if possible, with out causing additional harm and/or • Identify source to Ambulance Personnel • Do not touch contaminated area
BURNS <ul style="list-style-type: none"> • Chemical • Thermal • Electrical 	Follow safety guidelines	<ul style="list-style-type: none"> • Verbal Report • Survey Scene • 1st, 2nd, 3rd Degree Burns • Ocular Burns from noxious sprays (i.e., hair spray, spray paints, pepper spray, etc.) 	<ul style="list-style-type: none"> • Airway / Respiratory management • Cool down small burn area with tap water • No ointments • Don’t break blisters • Cover with clean dressing • Ointment cloth for pepper spray (commercially prepared product)
SUBSTANCE ABUSE <ul style="list-style-type: none"> • Marijuana • Cocaine • Crack • Alcohol • Heroin • Designer Drugs (Ecstasy, etc.) • Hallucinogenics (LSD, etc.) 		Stimulants: <ul style="list-style-type: none"> • Excitation • Pupils dilated (<i>large</i>) • Nervous movement • Hyperactivity Depressants: <ul style="list-style-type: none"> • Sluggish • Pupils constricted (<i>small</i>) • Sleepy • Slow motor movements 	<ul style="list-style-type: none"> • <i>If in Cardiac Arrest</i>, start CPR • <i>If in Respiratory Arrest</i>, use Airway/ Respiratory Management • <i>If convulsing</i>, treat as seizures • Give nothing by mouth • Reassure (emotional first aid)

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