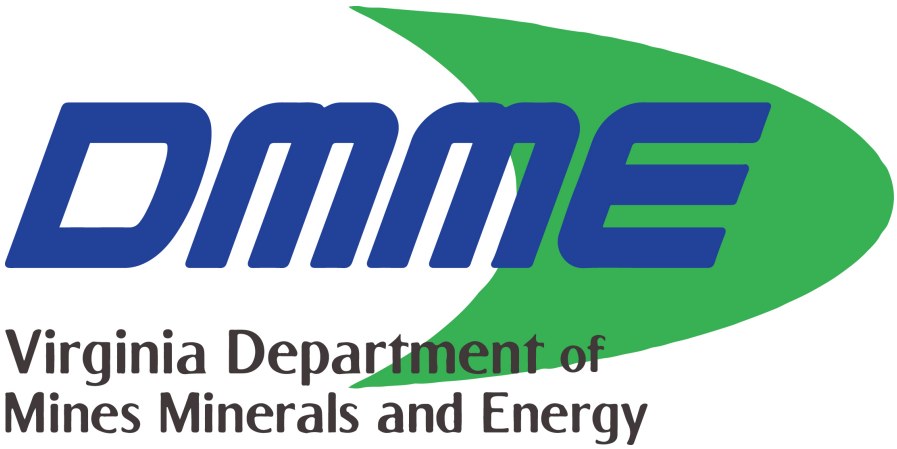
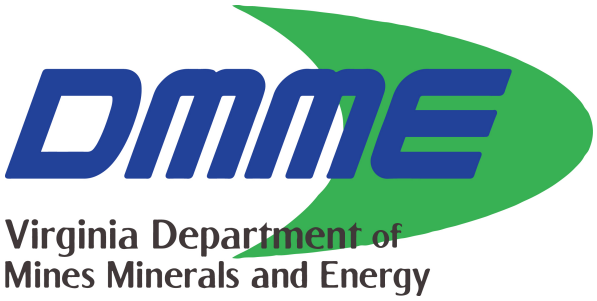
VIRGINIA DEPARTMENT OF MINES, MINERALS & ENERGY
DIVISION OF MINES



FIRST AID FOR MINERS
STUDY GUIDE

June 4, 2007

Commonwealth of Virginia
Department of Mines, Minerals and Energy
Division of Mines
P.O. Drawer 900
Big Stone Gap, VA 24219
(276) 523-8100



DEPARTMENT OF MINES MINERALS AND ENERGY
DIVISION OF MINES
DISCLAIMER

Article 3 of the **Coal Mine Safety Laws of Virginia** establishes requirements for certification of coal mine workers. The certification requirements are included in §45.1-161.24 through §45.1-161.41 in which the Board of Coal Mining Examiners is established for the purpose of administering the certification program. The Board has promulgated certification regulations 4 VAC 25-20, which set the minimum standards and procedures required for Virginia coal miner examinations and certifications.

The Virginia Department of Mines Minerals and Energy, Division of Mines developed this study guide to better train coal miners throughout the mining industry. The study guide material should be used to assist with the knowledge necessary for coal mining certifications. The material is not all-inclusive and should be used only as an aide in obtaining knowledge of the mining practices, conditions, laws and regulations. This material is based upon the Coal Mining Safety Laws of Virginia, Safety and Health Regulations for Coal Mines in Virginia, Title 30 Code of Federal Regulations (30 CFR), State and Federal Program Policy Manuals and other available publications. Nothing herein should be construed as recommending any manufacturer's products.

The study guide and materials are available at the Department of Mines, Minerals and Energy. Any questions concerning the study guide should be addressed to the Regulatory Boards Administrator at the Big Stone Gap Office.

CERTIFICATION-FIRST AID

VI. Musculoskeletal Injuries

SECTION I-FIRST AID

A. INTRODUCTION

First Aid is the immediate and temporary, emergency medical care provided to an injured person or one who suddenly becomes ill. It includes recognizing and evaluating the seriousness of injuries and providing appropriate, effective treatment.

The safety of the rescuer(s) must always be the first and foremost consideration and to the extent possible, preserving safety of the patient(s).

A primary survey is conducted first to evaluate and treat life-threatening problems, including airway, breathing, circulation, and bleeding. A secondary survey is conducted to administer and treat wounds, fractures, shock, dislocations, stabilization, transportation, etc.

This First Aid Study Guide is not intended to take the place of a complete study course manual in first aid principles and practices. All miners, especially foremen and other supervisors, are encouraged to enroll in advanced first aid training courses and to maintain skills current through regular refresher training. Prompt, effective first aid treatment rendered in case of accident or illness may very well make the difference between the life and death of a patient.

This study guide has been developed to assist those miners planning to take various certifications issued by the Board of Coal Mining Examiners.

The information used to develop this First Aid Study Guide was taken from the American Red Cross-Emergency Response textbook.

FIRST AID

B-MANAGING AN EMERGENCY SCENE

I Managing Dangers at an Emergency Scene

A - Some emergency scenes are immediately dangerous.

B - Some emergency scenes may become dangerous while you are providing care.

II Personal Safety

A - Personal safety and the safety of all others assisting in rescue efforts must always be the first and foremost consideration. To the extent possible within rescuer safety, action should be taken to preserve the safety of patients. *Example* - Setting additional roof support in an area where a patient is entrapped by a roof fall to help prevent more roof from falling on the patient.

B - <u>Approach all emergency scenes cautiously until you have fully evaluated the situation for your personal safety and the safety of others helping you.</u>

C - If at any time the scene appears unsafe, retreat to a safe location.

D - Never enter a dangerous scene unless you have qualified personnel, such as a mine foreman or electrician, to assist you.

E - Follow these guidelines when arriving on an emergency scene:

1) Take time to evaluate the scene and recognize existing and potential dangers;
2) <u>Never</u> attempt to do anything you are not trained to do;
3) Get the help you need to ensure your safety, safety of others assisting you, and to the extent possible, the patient.

III Safety of Others

A- Discourage other people from entering an area that appears unsafe.

B - Never move patients until you treat and stabilize <u>unless</u> immediate dangers threaten the patient or yourself. If necessary to move a patient, do so safely and quickly.

FIRST AID

C-LEGAL CONSIDERATIONS

Standard of care: The minimum and quality of care that you are expected to provide based on you level of training.

Negligence: The failure to provide a reasonable standard of care that a person with similar training would provide, thereby causing injury or damage to another person.

Examples: Acting wrongly or failing to act at all. Four factors that must be present to be charged for negligence:

1) **duty** to respond
2) **breach** of duty for failing to respond
3) actions that **cause** an accident or improper care
4) **damage** results to a person

Good Samaritan Laws: Laws that protect people who willingly provide emergency care without accepting anything in return.

Example: Not paid for care provided

Apply when you:

1) Act in good faith
2) Are not negligent
3) Act within the scope of your training

Consent: Permission to provide care, given by an ill or injured person to a rescuer.

Identify yourself, your level of training, what you think may be wrong, what you can do to help.

Actual or informed consent: A person granting you, the rescuer, permission to treat them.

Implied consent: Legal authority to treat all unconscious patients or patients so seriously injured or ill that they cannot respond and minors who need medical care when a parent or guardian is not present.

Refusal of care: The declining or refusal of a patient to allow you to provide medical care.

Assault and battery: Intentional touching of someone without their permission.

A person, in a competent state of mind, has the legal right to refuse medical treatment regardless of how seriously injured or ill that they may be.

Abandonment: Ending care of an ill or injured person without that person's consent or failing to ensure that someone with equal or greater training will provide that care.

Confidentiality: Protecting a patient's privacy by not revealing any personal information you learn about the patient except for information that other medical or law enforcement personnel may need.

Never discuss the patient's condition or the care that you provided to anyone.

VIRGINIA GOOD SAMARITAN LAW
Code of Virginia: 8.01-225

CHAPTER 978 – April 2, 2003

8.01-225. Persons rendering emergency care exempt from liability.

A. Any person who:

FIRST AID - In good faith, renders emergency care or assistance, without compensation, to any ill or injured person at the scene of an accident, fire, or any life-threatening emergency, or en-route there from to any hospital, medical clinic or doctor's office, shall not be liable for any civil damages for acts or omissions resulting from the rendering of such care of assistance.

Any person who in good faith without compensation, administers epinephrine to an individual for whom an insect sting treatment kit has been prescribed shall not be liable for any civil damages for ordinary negligence in acts or omissions resulting from the rendering of such treatment if he has reason to believe that the individual receiving the injection is suffering or is about to suffer a life-threatening anaphylactic reaction.

EMT - Any person who is an emergency medical care attendant or technician possessing a valid certificate issued by authority of the State Board of Health who in good faith renders emergency care or assistance whether in person or by telephone or other means of communication, without compensation, to any injured or ill person, whether at the scene of an accident, fire or any other place, or while transporting such injured or ill person to, from or between any hospital, medical facility, medical clinic, doctor's office or other similar or related medical facility, shall not be liable for any civil damages for acts or omissions resulting from rendering of such emergency care, treatment or assistance, including but in no way limited to acts or omissions which involve violations of State Department of Health regulations or any other state regulations in the rendering of such emergency care or assistance.

CPR - Any person who in good faith and without compensation, renders or administers emergency cardiopulmonary resuscitation, cardiac defibrillation, including, but not limited to, the use of an automated external defibrillator, or other emergency life-sustaining or resuscitative treatments or procedures which have been approved by the State Board of Health to any sick or injured person, whether at the scene of a fire, an accident or any other place, or while transporting such person to or from any hospital, clinic, doctor's office or other medical facility, shall be deemed qualified to administer such emergency treatments an procedures and shall not be liable for acts or omissions resulting from the rendering of such emergency resuscitative treatments or procedures.

AED - Any person who operates an automated external defibrillator at the scene of an emergency, trains individuals to be operators of automated external defibrillators, or orders automated external defibrillators shall be immune from civil liability for any personal injury that results from any act or omission in the use of an automated external defibrillator in an emergency where the person performing the defibrillation acts as an ordinary, reasonably prudent person who have acted under the same or similar circumstances, unless such personal injury results from gross negligence or willful or wanton misconduct of the person rendering such emergency care.

TRANSPORTATING INJURED PERSON IN PERSONAL VEHICLE
Nothing contained in this section shall be construed to provide immunity from liability arising out of the operation of a motor vehicle.

FIRST AID

D-BODY SYSTEMS

A - Body systems depend on each other to operate properly.

Example: Nervous, respiratory and circulatory systems that work together to allow for breathing and consciousness.
Vital organs - Brain, Heart and Lungs.

B - Anatomical terms

Lateral, medial, anterior, posterior, superior, inferior, proximal, distal.

C - Body cavities

Cranial cavity, spinal cavity, thoracic cavity, abdominal cavity, pelvic cavity.

D - Body systems

1) Respiratory system - Responsible for breathing air/oxygen enters the lungs when you inhale and leaves the lungs when you exhale.

- Respiratory arrest - Condition when a person stops breathing
- Cyanosis - Indicates a lack of oxygen in the blood (blue skin color of lips, nailbeds, etc.)
- Rescue breathing - Breathing for a patient

2) Circulatory System - Responsible for circulation of blood and oxygen to all body organs.

- Consists of the heart, blood vessels and blood
- Contraction - pumping action of the heart
- Pulse - Feeling the heart's contractions at an artery that lies near the skin and over a bone
- Cardiac arrest - The heart and breathing have stopped
- CPR - Cardiopulmonary Resuscitation

3) Nervous System - Most complex and delicate of all body organs.

- Consists of the brain, spinal cord and all nerves
- Brain - Master organ of the body
- Brain regulates <u>all</u> body systems including the respiratory and circulatory systems
- Nerves extend from the brain, through the spinal cord to every muscle and every organ in the body
- Brain - Center responsible for consciousness, breathing and heartbeat
- Normal state of consciousness - 3 W's - who, where, what
  A patient knowing <u>who</u> they are, <u>where</u> they are and <u>what</u> is happening around them
- Brain cells cannot regenerate or grow back
  Damaged brain cells are <u>not</u> replaced
- Paralysis - Loss of feeling or movement below (distal) to an injury

4) Musculoskeletal System - Consists of bones, muscles, ligaments and tendons.

- Musculoskeletal System performs the following:
  a - Supports the body
  b - Protects vital organs
  c - Allows body movement
  d - Stores minerals and produces blood cells
  e - Produces heat

5) Integumentary System - Consists of skin, hair and nails.

- Skin is most important because it protects the body from germs and keeps body fluids within

6) Endocrine System - Consists of glands that release fluid into other body systems.

- Most well known - pancreas which produces insulin

7) Digestive System - Called the gastrointestinal system - Consists of organs that work together to break down food and eliminate waste.

- Damaged organs release contents and blood
- Damaged organs cause severe pain and severe infections

8) Genitourinary System - Consists of urinary system and the reproductive organs.

- The kidneys (in lower back) and the urinary bladder are most commonly injured

FIRST AID

E- DISEASE TRANSMISSION AND BLOODBORNE PATHOGENS

I Training

A - Separate face pieces should be issued to each student during CPR training.

B - Manikins should be cleaned and decontaminated according to rigid standards established by the American Red Cross and American Heart Association.

C - Millions of people have been trained and certified in CPR by Red Cross or American Heart Association Trainers, and there has <u>never</u> been a documented case of a bacteria, fungus, or viral infection contracted through CPR training.

D - Specific safety precautions should be taken to reduce risk exposure to other students if a person has any of the following:

1) Cold, sore throat
2) Cuts or sores on the hands or mouth
3) Hepatitis, AIDS, etc.

II Providing First Aid to Patients

A - <u>Bloodborne pathogens</u> - Bacteria and viruses present in human blood and other body fluids that cause disease in humans

B - <u>Pathogens</u> - Hepatitis A and B, AIDS, Herpes, Meningitis, Tuberculosis

Pathogen - A disease-causing agent, such as a germ, virus or bacteria

C - <u>Immune system</u> - A person's body (white blood cells in the blood) attack and attempt to destroy pathogens

D - How diseases spread - 4 conditions must be present for a disease to spread:

1) A pathogen is present;
2) Sufficient pathogen quantity to cause a disease;
3) A person is susceptible to the pathogen;
4) The pathogen is transmitted through the correct entry site.

E - Pathogens enter the body in 4 ways:

1) Direct contact: A person touches an infected person's body fluids.
2) Indirect contact transmission: A person touches objects contaminated by the blood or body fluids of an infected person.
3) Airborne transmission: A person inhales infected droplets that become airborne when an infected person coughs or sneezes. *Example-Tuberculosis*
4) Vector transmission: Occurs when an animal such as a dog or another person bits a person and transmits the pathogen through the bite. *Example - Rabies*

F - Diseases that cause concern:

1 – Herpes (Virus):

A - Transmitted by direct contact with herpes sores;
B - Cause infections of the skin and mucous membranes (mouth, lips, etc.);
C - Commonly called cold sores;
Most serious forms of herpes - Sores form on the face, neck, shoulders and genital area.

2 – Meningitis (Virus or Bacteria):

A - Transmitted by direct, indirect and airborne means;
B - A severe infection of the covering of the brain and spinal cord;
C - Highly contagious, easily spread;
D - Spread through secretions from the mouth or nose, an infected person coughing, indirect contact with an infected person's secretions, unprotected rescue breathing, unprotected CPR, etc.;
E - If treated early, is rarely fatal.

3 – Hepatitis (Virus):

A - A severe infection of the liver;

B - Transmitted through direct and indirect contact;

C - Hepatitis A (Virus):

1) Common in children;
2) Transmitted by contact with food or stool from an infected person;
3) Patient has flu-like symptoms, with yellowing of the skin (jaundice);
4) Usually not serious.

D - Hepatitis B (Virus):

1) Severe infection, can be fatal;
2) Transmitted by blood-to-blood or sexual contact with an infected person;
   Not transmitted by casual contact such as shaking hands, or indirect contact from a drinking fountain, telephone, etc.;
3) Highest risk occurs with unprotected direct or indirect contact with infected blood.

4) Tuberculosis (Bacteria):

A - Infection of the respiratory system (bacteria live in an infected person's lungs);

B - Transmitted by direct contact with saliva, respiratory secretions from coughing, spitting, speaking, singing and inhaling airborne droplets from an infected person.

5) HIV-AIDS (Virus):

A - Virus that attacks and weakens a person's immune system;

B - Causes severe pneumonia, infections of the mouth and esophagus and unusual cancers;

C - Important to remember about AIDS:

1) Cannot be spread through casual contact
2) Virus is easily killed by alcohol, bleach and other common disinfectants
3) Known to be transmitted only through infected blood, semen, vaginal secretions or rarely breast milk

4) Transmitted through:
   a - Unprotected sex with an infected person;
   b - Exposed to blood or equipment contaminated with blood from an infected person that may enter your body through the mouth, nose or broken skin;
   c - Unborn child of an infected mother;
   d - Sharing needles from drug use, ear piercing, etc.

III Protecting Yourself from Disease Transmission Begins with Preparation and Planning - Health Status of Patient is Unknown

A - Protective equipment - prevents you from making direct contact with infected materials

1) Wear disposable, surgical gloves (single use) when you may contact blood or body fluids;
   Remember - Direct and Indirect Contact
2) Remove gloves by turning inside out, peeling off while avoiding direct contact with a contaminated surface;
3) Discard torn or punctured gloves;
4) Never clean or reuse disposable gloves;
5) Change gloves when treating multiple patients;
6) Always use disposable resuscitation masks when providing rescue breathing and/or CPR ventilations.

B - Personal Hygiene - Important in Helping to Prevent Infections

1) Wash your hands thoroughly with soap and water immediately after treating a patient;
2) Avoid eating, drinking, touching your mouth, nose or eyes while treating a patient before washing your hands.

C - Equipment Cleaning and Disinfecting - Very important to clean and disinfect equipment to prevent infections.

Handle all contaminated equipment very carefully until it's cleaned and disinfected.

Wash contaminated equipment with a solution of ¼ cup chlorine bleach per gallon of water.

D - Exposure to Infectious Disease

1) Wash any area of contact as quickly as possible;
2) Document the situation in which the exposure occurred;
3) Notify your superior and any involved medical personnel immediately (The involved medical facility may test the patient to confirm a suspected infectious disease);
4) The medical facility will notify you and you can get exposure care, if a disease is confirmed;
5) If ever in doubt, see your personal doctor.

FIRST AID

BLOODBORNE PATHOGENS

Statistics

A report to the President titled *Youth and HIV/AIDS*: *An American Agenda* contained the following statistics:

- An estimated 60,000 Americans become infected with HIV each year (average of 160 a day).
- One in four new HIV infections in the U.S. are estimated to occur among people between the age of 13 and 21 (average of more than 2 an hour).

Objectives of Bloodborne Pathogens Training

- Nullify the myths by relating the facts about HIV, AIDS and Hepatitis B Virus.
- Identify which body fluids spread disease.
- Review the symptoms of HIV, AIDS, and Hepatitis B Virus.
- Explain the Hepatitis B Virus immunization.
- Review the ways you can and cannot be exposed in the workplace.
- Discuss the methods to prevent/reduce exposure.
- Explain the steps to take if exposure occurs.
- Answer participants' questions.

Bloodborne Pathogens

Bloodborne pathogens are microscopic organisms found in human blood or other body fluids of infected persons that can infect and cause disease in humans.

Dangerous Body Fluids

- The body fluids that have been found to contain bloodborne pathogens are:

  Blood
  Semen
  Vaginal secretions
  Breast milk
  Fluid from spine, lungs and joints
  Urine
  Feces
  Saliva
  Vomit

- However, only the first four have been proven to spread HIV-AIDS virus.

NEVER FORGET- Treat all body fluids as dangerous.

Bloodborne Pathogens

The two-bloodborne pathogens most likely to be encountered in the workplace are:

- HIV, the Human Immunodeficiency Virus which causes AIDS, Acquired Immune Deficiency Syndrome.

- The Hepatitis B virus

HIV - A very fragile virus usually dies by the time that it takes for blood to dry.

Hepatitis B - Can live in dried blood for up to 6 weeks.

HIV Tests - Requires a special blood test.

HIV/AIDS

- Aids affects the immune system of the infected person, limiting the ability of the body to fight off infection, parasites and viruses.

- Aids patients usually die from other infections.

- HIV, the virus that causes AIDS, may be in the body many years before noticeable symptoms develop. Aids is a syndrome.

- It is currently believed that everyone infected with HIV will eventually develop AIDS (the mean time is 8-10 years).

  Some people have been known to have HIV for 15 years and still not develop full-blown AIDS.

HIV/AIDS

- Symptoms of HIV infection include:

  Fever
  Aches
  Swollen Glands
  Sore Throat
  Diarrhea
  Tiredness
  Rashes

- Symptoms of AIDS include:

  Rapid weight loss
  Long-lasting fever
  Swollen Lymph glands
  Frequent diarrhea
  Continuous dry cough
  Brain dysfunction
  Purple or discolored growths on the skin

- There is limited treatment and vaccinations for AIDS, so the emphasis must be on prevention.

Hepatitis B Virus

- Some experts estimate that the Hepatitis B Virus is as much as 100 times more easily spread than HIV.

- Hepatitis can either mean an inflammation or infection of the liver.

- You hear more about Hepatitis B Virus because it is the one you are most likely to encounter in the workplace, and there is an effective and safe vaccine to protect you from exposure to Hepatitis B Virus.

  1 Teaspoon of contaminated blood contains at least one-half million particles that could cause Hepatitis B.

  1 Teaspoon of contaminated blood contains 10 to 15 particles that could cause HIV-AIDS.

- One third of those infected with Hepatitis B do not experience any symptoms.

- One third only have mild flu-like symptoms.

- Two thirds of the people that have Hepatitis do not know they have it.

- One third have these symptoms:

  Abdominal pain
  Nausea
  Fatigue
  Jaundice
  Dark urine
  Joint pain

Ways You **Cannot** Be Exposed In The Workplace

- Shaking hands
- Casual touching
- Working in close conditions with others
- Sharing telephones, office equipment or furniture
- Sharing dishes, utensils or food
- Sharing sinks, toilets or showers
- Drinking from fountains
- Having close contact with someone who sneezes or coughs

As of today, none of the above have been proven to transmit diseases.

Ways You **Can** Be Exposed In The Workplace

- Infectious fluids can enter the body through puncture wounds from contaminated materials such as broken glass, metal, etc.
  Remember, even gloves may not prevent you from being stuck.
- Infectious fluids can enter the body through wounds, cuts, rashes or broken skin. You may not be aware your skin is broken.
- Infectious fluids can enter the body through mucous membranes of the eyes, nose and mouth.

Protecting Yourself

- Understand and follow Universal Safety Precautions, which means that all blood and body fluids should be treated as if known to be infectious for HIV, Hepatitis B Virus, and other bloodborne pathogens.

- Have a properly equipped first aid kit handy to your worksite. It should contain the barriers needed to perform CPR without exposing yourself to danger from bloodborne pathogens.

- Always place a barrier between you and the blood or body fluids of the injured person.

Barriers

Personal protective equipment, which can act as a barrier to the source of bloodborne pathogens, includes but is not limited to:

- Face shields/masks with one-way valves
- Gloves (disposable)
- Safety glasses
- Mouth pieces
- Resuscitation bags
- Fluid-resistant work clothes

Protecting Yourself

Wash your hands with soap and water for 10-15 seconds as soon as possible after contact with blood or other body fluids (even if gloves were used). Washing your hands and arms up to the elbows has proven to remove 97% of exposed germs.

Clean-up

If equipment, tools and/or the work area become contaminated with blood or other body fluids, use bleach for decontamination because it is inexpensive, it is commonly available, and a 10% solution kills all known bloodborne pathogens. A 10 % solution is obtained by mixing one-fourth cup bleach with one gallon water.

- HIV dies rapidly when exposed to air; it dies shortly after the infected blood dries.

- Hepatitis B Virus, however, lives in dry infected blood for several days.

Clean-Up

Dispose of contaminated materials in sealed containers to prevent leakage. The containers must have a fluorescent orange or orange-red biohazard label and should be handled by individuals who know how to handle hazardous wastes.

Post-Exposure Evaluation and Follow-Up

Immediately following an exposure incident, the following procedure should be followed:

- An authorized person should conduct a follow-up evaluation with the exposed employee documenting:
- The routes of exposure and how the exposure occurred
- The identity of the source individual
- Whether or not the employee has been vaccinated for Hepatitis B Virus
- After obtaining consent, collect the exposed employee's blood as soon as feasible after the exposure incident and test it for Hepatitis B Virus and HIV status.
- If the exposed employee consents to having the blood drawn but does not give consent for the Hepatitis B Virus and HIV testing, the employer must preserve the blood sample for at least 90 days, allowing ample time for the employee to change his or her mind.
- Obtain consent and test the source individual's blood. If consent was not obtained, document the effort to obtain it.
- If available, provide the exposed employee with the source individual's test results and information about applicable disclosure laws and regulations.
- With the consent of the exposed employee, the employer should coordinate post-exposure counseling sessions.

Commonly-Asked Questions

How many people in the U.S. have died from AIDS and is it getting better or worse?

Answer: *Over 500,000 AIDS cases have been reported in the U.S. and about 300,000 of those cases have died. The numbers are getting worse, especially in the young community (13-21 years of age).*

Does anybody ever survive AIDS?

Answer: *According to the records, which have only been kept for about 15 years, no one has completely recovered after being diagnosed with AIDS. About 75% of people with AIDS nationwide have died within five years of diagnosis*.

Is there a test for AIDS?

Answer: *There is a test for detecting antibodies to HIV. There is no test to determine when or if a person will develop AIDS in the future.*

Can a person get infected with HIV from a human bite?

Answer: *While small quantities of HIV have been identified in saliva, there are no cases of HIV infection known to be transmitted through a bite.*

Commonly-Asked Questions

Is there a danger of contracting HIV from donating blood?

Answer: *No. Blood banks and other blood collection centers use only sterile equipment and disposable needles.*

What is the risk of getting HIV from a blood transfusion?

Answer: *The risk is extremely low. All blood donations are screened for antibodies to HIV and all those found infected are discarded. However, because of the "window period" (up to 6 months or longer) it is possible that a unit of infected blood could be missed.*

Is AZT a cure for AIDS?

Answer: *Various drugs are being used to treat AIDS but a known cure has not been developed.*

Can mosquitoes transmit HIV?

Answer: *No. There is no evidence that mosquitoes, other insects, or animals play a role in the transmission of HIV.*

Mosquitoes can carry and transmit Malaria and Yellow Fever.

Mosquitoes have a chemical inside their body that kills the HIV virus.

QUESTIONS FOR REVIEW

Managing An Emergency Scene **Legal Considerations**
Disease Transmission **Bloodborne Pathogens**

Q. Which of the following is the first thing to evaluate at the scene of all types of emergency situations?

A. Rescuer and bystander safety.

Q. A rescuer decides to do something that they are not trained to do. What are they legally liable for?

A. Improper standard of care.

Q. What factors are used to consider "negligence" of a patient?

A. Failing to act when necessary,
Giving incorrect first aid,
Failing to provide first aid when necessary.

Q. When is a rescuer protected by the "Good Samaritan Laws"?

A. Acting in good faith,
Are not negligent,
Acting within the scope of your training.

Q. What is necessary to be considered "informed consent" when treating a patient?

A. Identify yourself and your level of training,
Explain what you think may be wrong,
Explain what you plan to do.

Q. What is necessary to be considered “implied consent” when treating a patient?

A. Unconscious patient,
A seriously ill and confused patient,
A seriously injured patient.

Q. What is necessary to be considered “abandonment”?

A. Failure to continue first aid treatment once you have begun and until relieved by a person with equal or higher training.

Q. What is a general first aid rule concerning patient treatment?

A. Never move a patient until stabilized unless the safety of the rescuer or the patient is threatened.

Q. What is a general first aid rule to always remember at the scene at any emergency?

A. Never attempt to rescue or treat a patient in a location that you are not trained or familiar with.

Q. What is the first thing to do when you think a patient may be in contact with an electrical circuit?

A. Ensure that the electrical circuit is de-energized before touching the patient or entering the immediate area where the patient is located.

Q. Which of the following is “distal” to the elbow?

A. Hand.

Q. What is a major organ located in the upper right abdomen?

A. Liver.

Q. What is a major organ located in the upper left abdomen?

A. Spleen.

Q. What are considered “vital organs”?

A. Brain, heart, lungs.

Q. Which of the following systems is responsible for getting air into the lungs?

A. Respiratory.

Q. Which of the following systems is responsible for getting oxygen from the lungs to all parts of the body?

A. Circulatory system.

Q. How many times does an adult breathe per minute?

A. 10 to 20.

Q. What is respiratory arrest?

A. Absence of breathing.

Q. What is “cyanosis”?

A. A bluish discoloration of the skin, especially the lips and nailbeds.

Q. What may be present in a patient having breathing difficulties?

A. Noisy breathing.

Q. What can be felt in a major artery each time the heart contracts or beats?

A. Pulse.

Q. What is the master organ of the body?

A. Brain.

Q. Which organ controls the “state of consciousness”?

A. Brain.

Q. Which organ regulates all body functions?

A. Brain.

Q. Which of the following is used to evaluate a patient’s state of consciousness?

A. 3 W’s (who, what, where) This means-does the patient know:

1) Who they are,
2) What they’re doing,
3) Where they are.

Q. What type injuries must always be considered as serious?

A. Head injuries causing loss of consciousness.

Q. What is “paralysis”?

A. Permanent loss of feeling and movement below an injury.

Q. What connects “bones to bones”?

A. Ligaments.

Q. What connects “muscles to bones”?

A. Tendons.

Q. What are dislocations associated with?

A. Joints.

Q. Which organ is the “controlling center of the nervous system”?

A. Brain.

Q. What can cause a rescuer to become seriously sick?

A. Germs, bacteria and viruses in a patient’s blood or body fluids.

Q. What is a “sign”?

A. A sign is what a rescuer will see (ex: pale skin, bleeding, vomiting, etc.).

Q. What is a symptom?

A. A symptom is what a patient tells you (ex: I feel sick, I can't move my legs, etc.).

Q. What is always required for a disease to be spread to a rescuer?

A. The presence of germs (pathogen),
Sufficient quantity of germs (pathogens),
A rescuer susceptible to the germs (pathogens),
The germ (pathogen) is transmitted through the correct entry site.

Q. What may occur when a person touches an infected person's body fluids?

A. Direct contact transmission.

Q. What may occur when a person touches an object that has been contaminated with blood or body fluid from an infected person?

A. Indirect contact transmission.

Q. What may occur when a person inhales infected breaths when an infected person coughs or sneezes?

A. Airborne transmission.

Q. What may occur when a person is bitten by an animal, tick or another person?

A. Vector transmission.

Q. Which disease would cause swelling and blister-like sores around the lips and mouth?

A. Herpes.

Q. Which disease causes a severe infection of the brain and spinal cord?

A. Meningitis.

Q. Which disease most commonly affects the “respiratory system”?

A. Tuberculosis.

Q. Which disease causes a severe infection of the liver?

A. Hepatitis B.

Q. Which disease weakens a patient’s immune system and destroys a body’s ability to fight infections?

A. HIV-AIDS.

Q. What is correct concerning “HIV-AIDS”?

A. Cannot be spread by casual contact,
Easily killed by alcohol or chlorine bleach,
Transmitted through exposure to blood and particular body fluids.

Q. How can HIV-AIDS be transmitted?

A. Infected blood,
Infected semen,
Infected vaginal secretions,
Infected breast milk.

Q. What should be worn when a rescuer treats a patient?

A. Protective disposable gloves and safety glasses.

Q. To prevent disease transmission, what must always be used by a rescuer when performing CPR?

A. Resuscitation mask.

Q. What is very important if you think that you have been exposed to an infectious disease?

A. Wash the contact area as quickly as possible and document the exposure details.

Q. What should you do if you think you may have been exposed to an infectious disease?

A. Notify your supervisor and involved medical personnel immediately.

Q. What occurs when a person becomes unconscious?

A. The tongue relaxes, falls to the back of the throat and blocks the airway.

Q. What does the ABC's of first aid represent?

A. Airway, Breathing, Circulation and Bleeding.

Q. What is the correct order of events that a rescuer should take at the scene of an emergency?

A. Survey the scene, check the patient, call for advanced medical help.

Q. A rescuer is treating a patient and the scene suddenly becomes unsafe. What should a rescuer do?

A. Retreat to a safe distance.

Q. What organ is referred to as the “center of consciousness”?

A. Brain.

FIRST AID

SECTION II

A-RESPIRATORY EMERGENCIES

Respiratory emergencies - Treatment begins the same as all other emergency situations

1) Evaluate the scene for safety;
2) Check consciousness;
3) Check airway (A);
4) Check breathing (B);
5) Check circulation (C) and bleeding.

Respiratory distress - A patient who has breathing difficulty.

Respiratory arrest - A patient who has stopped breathing.

BREATHING PROCESS

1) Air enters the mouth and nose
2) Passes through the pharynx (throat)
3) Passes through the larynx (voicebox)
4) Passes through the trachea
5) Passes through bronchi and into the lungs

THE BRAIN IS THE CONTROL CENTER FOR BREATHING.
The brain adjusts the rate and depth of breathing based on the amount of oxygen and carbon dioxide in the blood.

BREATHING EMERGENCIES CAN BE CAUSED BY:

1) Obstructed airway (choking)
2) Illness such as pneumonia
3) Respiratory conditions such as emphysema, asthma, etc.
4) Electrocution
5) Shock
6) Drowning
7) Heart attack or heart disease
8) Injury to the chest or lungs
9) Allergic reactions, such as food, insects, poison ivy, etc.
10) Drugs (penicillin, etc.)
11) Poisoning (such as inhaling or ingesting toxic substances)

Respiratory distress is the most common type of breathing emergency.

The signs and symptoms of respiratory distress are usually obvious.

I SIGNS AND SYMPTOMS OF RESPIRATORY DISTRESS:

1) Patients look like they cannot catch their breath
2) Patient may be gasping for air
3) Unusual breathing patterns: fast, slow, deep, shallow, shortness of breath
4) Unusual breathing noises: wheezing, gurgling or high pitched, shrill sounds
5) Initially, flushed (red) and moist skin
   Later, pale or bluish skin (especially lips, nail beds, toe beds)
6) Patient may feel dizzy or light-headed
7) Pain in the chest
8) Tingling in the hands and feet
9) Patient may be fearful, apprehensive

CYANOSIS - A bluish discoloration of the skin (lips, mouth, nail beds, etc. due to a lack of oxygen in the blood)

II TYPES OF RESPIRATORY DISTRESS

Causes of respiratory distress:

A) Injuries
B) Asthma
C) Emphysema
D) Hyperventilation
E) Anaphylactic shock (allergic reaction)

INJURIES

A) INJURIES

Injuries that affect any parts of the respiratory system may cause breathing problems (*Examples:* mouth, nose, throat, trachea, lungs, etc.)

B) ASTHMA

Asthma is a condition that narrows the air passages and makes breathing difficult; wheezing when patient inhales; asthma attacks cause the air passages to become narrow, swell or become constricted.

Asthma is more common in children and young adults.

Asthma may be triggered by: allergic reaction to food, pollen, a drug, insect sting, emotional or physical stress.

C) EMPHYSEMA

Emphysema is a disease when the lungs lose their ability to exchange oxygen and carbon dioxide effectively.

Usually develops over a number of years and is often caused by smoking.

Patients may have:

1) Shortness of breath
2) Extreme difficulty when inhaling
3) Coughing, cyanosis or fever
4) Restlessness, confusion, weakness
5) Patients usually get worse over time

D) HYPERVENTILATION

Hyperventilation occurs when a patient breathes faster than normal and causes an imbalance of the oxygen and carbon dioxide in the blood.

Usually caused by fear or anxiety.
Can also be caused by: head injuries, severe bleeding, high fever, heart failure, lung disease, diabetic emergencies, asthma, exercise

Patients may have:

1) Rapid, shallow breathing
2) Patient feels they cannot get enough air and have feelings of suffocation
3) Fearful, apprehensive, confused, dizzy
4) Tingling or numbness feelings of the fingers and toes

E) ANAPHYLACTIC SHOCK

Anaphylactic shock is a severe allergic reaction
The air passages swell, restricts a patient's breathing and may cause extreme breathing difficulty.

Anaphylactic shock may be caused by:

1) Insect stings (bees, wasps, etc.)
2) Contact with plants (poison ivy, etc.)
3) Medications (penicillin, etc.)

Known patients may carry an anaphylactic kit

Signs and symptoms of anaphylactic shock:

1) Rash and/or skin irritations
2) Feeling of tightness in the throat and/or chest
3) Swelling of the tongue, face and neck
4) Dizziness, confusion
5) Possible changes in consciousness

ANAPHYLACTIC SHOCK - A life-threatening emergency that requires advanced medical care as soon as possible.

III TREATMENT FOR RESPIRATORY DISTRESS

A) Evaluate and treat the ABC's
Ensure an open airway and adequate breathing
If patient is breathing, the heart is beating
Control severe bleeding

B) Notify advanced medical personnel (rescue squad, hospital, etc.) and begin making arrangements to transport as soon as possible

C) Help the patient rest, reassure and make as comfortable as possible
Sitting position is usually more comfortable than lying down because breathing is easier

D) Conduct a secondary survey after you have treated the ABC's

E) Assist the patient with prescribed medication such as oxygen, inhalant, allergic reaction kit, etc.

F) Maintain normal body temperature (keep the patient warm)

G) **If a patient has signs of an injury or illness, call for advanced medical help immediately**

If a patient's breathing is rapid and caused by excitement, emotions, etc., try to calm and slow the breathing rate. Encourage patient to breathe at a normal rate to prevent hyperventilation, unconsciousness, etc.
Unconscious patients are usually in a worse condition than a conscious patient. Do all you are trained to do to prevent unconsciousness.

IV RESPIRATORY ARREST

The condition when a patient stops breathing.
Can be caused by illness, injury, obstructed airway, etc.

The body can function only for a few minutes without oxygen before body systems begin to fail.

Without oxygen, the heart muscle stops working and in turn, all the other body systems will fail.

FIRST AID

B- (CPR) - CARDIOPULMONARY RESUSCITATION

1 - CPR — Cardiopulmonary Resuscitation occurs when Breathing and Circulation have stopped - pulselessness in large arteries.

2 - Why CPR? — Cases of cardiac arrest, electric shock, drowning, suffocation, drug overdose, automobile accidents, severe trauma that results in death.

3 - Figures on premature deaths:

1,500,000	(1.5 million people suffer heart attacks each year)
650,000	(People die of heart attacks each year)
550,000	(Die outside of hospital within 2 hours after symptoms occur)

4 - How does CPR prevent death?

1. Clinical death - This condition is reversible and occurs when the heartbeat and breathing have stopped. CPR reverses this condition
   Occurs in 6 minutes after breathing and circulation have stopped except in drowning, freezing temperatures, or infant situations (infants can survive longer without brain damage)
2. Biological death - This condition is irreversible and results in permanent brain death due to lack of oxygen. This death is final.

5 - SPEED - In beginning CPR is the key to saving lives and is a vital factor necessary for the success of CPR:

Why is speed so important?

1. May mean the difference between living and dying.
2. May mean the difference between a future, normal, productive life and being a vegetable for the remainder of a lifetime.

A person who receives CPR within four minutes has four times greater chances of surviving than those of a victim who did not receive CPR until after four minutes.

Always give the patient the benefit of the doubt and begin CPR immediately.

Remember: Speed is so very important and greater speed is available through more people trained to perform CPR.

Give the patient the benefit of the doubt as to how long the state of cardiac arrest has been and start CPR immediately.
A rescuer who is qualified and performs CPR within 6 minutes determines whether or not a patient will live.

If enough of the general public are <u>not</u> properly trained to perform CPR, the advanced medical training of EMT's, paramedics, doctor's, etc. are completely useless.

6 - CPR performed properly results in only about one-third of normal blood flow to the brain

7 - Action Plan for Heart Attack signals

1. <u>Unknown Heart Disease</u>
   a. Recognize signals of a heart attack
   b. Stop activity and rest
   c. Wait <u>2</u> minutes to see if pain goes away
   d. If pain does not go away in <u>2</u> minutes, make plans to get to the hospital

2. <u>Known Heart Disease</u>
   a. Recognize signals of a heart attack
   b. Stop activity and rest
   c. Assist patient with oral nitroglycerin
   d. If pain does not go away in 10 minutes, make plans to get to hospital.

8 - Risk Factors and Prudent Heart Living

Risk Factors That Can Be Changed:

1. Cigarette smoking
2. High blood pressure
3. Cholesterol
4. Diabetes
5. Exercise
6. Stress

Risk Factors That Cannot Be Changed:

1. Heredity
2. Sex
3. Race
4. Age

Cigarette smoking, high blood pressure and high cholesterol level increase the risk of heart attack five (5) times greater than those who do not have these risks.

RISK FACTORS

1. Smoking (Effects)

    a. Nicotine constricts blood vessel size resulting in an increased blood pressure;
    b. Nicotine makes the heart beat faster;
    c. Carbon monoxide (inhaled in smoke) cuts down on amount of oxygen in blood;
    d. Smokers are more likely to develop hardening of the arteries than nonsmokers;
    e. Smokers are more than twice as likely to suffer a heart attack than a nonsmoker.

2. High Blood Pressure (Contributing Factors)

    a. Obesity
    b. Smoking
    c. High salt diet
    d. Heredity
    e. Emotions

Also, high blood pressure is caused by kidney disease, amphetamines (uppers), diet pills and oral contraceptives.

Uncontrolled high blood pressure affects:

a. Eyes
b. Nervous system
c. Kidneys
d. Heart (enlargement)

Ways to control high blood pressure:

a. Maintain normal body weight
b. Decrease salty foods
c. Don't smoke or drink
d. Take medication if prescribed

3. High Cholesterol intake

Cholesterol -Manufactured by the body and found in animal fats

Contributes to hardening of the arteries

Ways to control cholesterol intake:

a. Avoid saturated fats;
b. Encourage use of polyunsaturated fats such as corn oil, soybean oil, fish, chicken and white meats, low-fat dairy products and more vegetable products;
c. Discourage use of saturated fat cooking oils, whole milk and dairy products, organ and red meats, egg yolks, shrimp and oysters.

4. Diabetes

Associated with obesity and chain reaction effects from obesity including:

a. Increased heart rate
b. Increased blood pressure
c. Increased risk of heart attack

The risk of heart attack in diabetic men is twice as great (women, three times as great) as for a non-diabetic.

5. Exercise

a. Improves circulation and efficiency of the heart and lungs;
b. The heart needs exercise as does all muscles of the body;
c. Cardiovascular fitness reduces the risk of heart disease;
d. A strong heart does not have to work as hard to circulate the blood demanded by the body;
e. Exercise promotes cardiovascular and body fitness and helps control obesity;
f. Exercise helps to alleviate emotional stress and strain.

Prudent Heart Living
(Live for your heart)

Prudent heart living - Lifestyle that minimizes the risk of heart disease

a) Avoidance of cigarette smoking
b) Control of high blood pressure
c) Sensible nutrition
d) Weight control
e) Reduction of saturated fats and cholesterol
f) Get regular exercise
g) Avoid undue emotional stress and strain, if possible

FIRST AID

C-HEART ATTACKS

KEY TERMS:

1. Cardiac Arrest - A condition in which the heart has stopped or too weak to pump blood effectively

2. CPR - (Cardiopulmonary Resuscitation) A technique that combines rescue breathing and chest compressions to a patient whose breathing and heart have stopped

3. Coronary arteries - Blood vessels that supply the heart with blood

4. Heart attack - A sudden illness involving death of the heart muscle when it does not receive enough oxygen

5. Sternum - Breastbone

FIRST AID PRIORITIES (ABC'S)

1) A - Airway
2) B - Breathing
3) C - Circulation and Bleeding

The heart is located in the middle of the chest, behind the lower half of the sternum (breastbone).

The heart is divided into four chambers separated by valves in each half of the heart.

The coronary arteries supply the heart muscle with blood (oxygen).

Heart attack - Death of heart muscle

Heart attacks are usually caused by cardiovascular disease (cholesterol, hardening of the arteries, high blood pressure, etc.)

Heart attacks are the <u>leading cause of death</u> for adults in the United States.

A. SIGNS/SYMPTOMS OF A HEART ATTACK

1) Chest pain and discomfort (most notable symptom)
2) Unbearable crushing type pain felt in the chest and or back
3) Uncomfortable pressure, squeezing, tightness, aching, constricting or heavy sensation in the chest and or back
4) Pain that may spread to the shoulder, arm, neck or jaw
5) Pain that is constant and usually not relieved by resting, changing position, or taking oral medication
6) Breathing difficulty
7) Pale or bluish skin color around the face
8) Sweating (may be profuse in some patients)
9) Changes in pulse rate
10) Patient denial of the seriousness of the signs/symptoms

Example: I'm too young or healthy to have a heart problem, or its just indigestion, something I ate.

ANGINA PECTORIS - Pain that a patient has that has coronary artery disease.
This pain usually lasts less than 10 minutes.

Patients with angina usually are known to have such disease and have it diagnosed by a doctor.

Nitroglycerin is usually prescribed for these patients. This medication is usually placed under the tongue when these patients have chest pain.

SPECIAL NOTE: **The key symptom of a heart attack is chest pain and or back pain.**

B. TREATMENT FOR A HEART ATTACK

1) Recognize the signals of a heart attack
2) Have the patient stop what they are doing and rest (try to make as comfortable as possible)
3) Help the patient rest comfortably
4) Attempt to obtain information about the patient's condition from other people at the scene
5) Call for advanced medical help (Rescue Squad, etc.)
6) Assist with medication, if prescribed
7) Conduct a secondary survey and monitor vital signs

   Ask the following questions to a conscious patient that has persistent chest pain:

   a) When did the pain start?
   b) What brought the pain on?
   c) Does anything lessen the pain?
   d) What does it feel like?
   e) Where does it hurt?
   f) Have you ever had this pain before?
   g) Have you ever had any type of heart problems?
   h) What type of medication do you take?

   NOTE: Angina patients are often treated by doctors with nitroglycerin. Some patients may not know the name of the medicine but they may only know and have been instructed to place it under their tongue when they have chest pain

8) Be prepared to give CPR if the patient's heart stops beating

CARDIAC ARREST

Cardiac arrest - When the heart stops for whatever reason (heart attack, accident, trauma, electrocution, etc.)
The most common cause of heart attacks is cardiovascular disease.
The primary sign of cardiac arrest is no signs of life (breathing, movement, etc.).

TREATMENT OF CARDIAC ARREST

NOTE: A patient's heart will continue to beat for 3 to 4 minutes when a patient stops breathing. Blood and oxygen will still be getting to the brain.

NOTE: A patient will breathe only a couple times if the heart stops. Blood and oxygen stop flowing to the brain immediately.

CLINICAL DEATH - A patient's breathing and heart have stopped.

The brain and other vital organs will continue to live for a few minutes until the oxygen in the blood is used up.

CPR - Keeps the patient's brain supplied with oxygen until the patient receives advanced medical care (EMT's, paramedics, doctors, hospital).

Without CPR, the brain will begin to die within 4 to 6 minutes, except in some special situations (cold environment, drowning, etc.)

QUESTIONS FOR REVIEW

Respiratory Emergencies

Q. What are signs of respiratory distress?

A. Unusually fast, slow, deep or shallow breathing,
Unusual wheezing or gurgling sounds,
High pitched crowing sound.

Q. What does a pale or bluish skin color indicate?

A. Low oxygen level in blood.

Q. What is the condition called that causes a patient's skin such as the nail beds of the fingers or toes to have a blue color?

A. Cyanosis-a lack of circulating oxygen.

Q. What is the primary concern that a rescuer should have for a patient that has a severe allergic reaction?

A. The airway may swell and restrict a patient's breathing.

Q. Which of the following may cause a breathing emergency?

A. An obstructed airway,
Electrocution,
Heart attack or allergic reaction,
Chest or lung injury.

Q. Why does the tongue cause an airway obstruction in an unconscious patient?

A. The patient's tongue falls backward toward the back of the throat blocking the airway.

Q. What is an oropharyngeal airway used for?

A. To keep the tongue positioned away from the back of the throat.

Q. When can an oropharyngeal airway be inserted in a patient?

A. Only in unconscious patients.

Q. How does a rescuer select the proper size of an oropharyngeal airway?

A. Measure as the same length from the corner of the mouth to the tip of the earlobe.

Q. What should a rescuer do if a patient starts gagging as an oropharyngeal airway is being positioned in the back of the throat?

A. Remove the airway immediately.

QUESTIONS FOR REVIEW

CPR **Heart Attacks**

Q. What is the leading cause of death of adults in the United States?

A. Heart attacks due to cardiovascular disease.

Q. What is the key symptom and usually the most prominent symptom of heart attack?

A. Chest pain and or back pain.

Q. What are symptoms of heart attack pain?

A. Uncomfortable pressure, squeezing sensation in the chest and or back,
Tightness, aching, constricting heavy sensation in the chest and or back,
Pain felt in the center of the chest behind the sternum that may spread to the shoulder, arm, neck or jaw.

Q. What are symptoms of a heart attack?

A. Pain that is constant and usually not relieved by resting or changing positions,
Pain that is usually not relieved by taking oral medication,
Pain that may radiate to the shoulder, arm, neck, jaw or back.

Q. What are signs or symptoms of a heart attack?

A. Difficulty breathing,
Bluish skin color particularly around the face,
Perspiration from the face and body, often profuse sweating.

Q. What is usually associated with angina pain?

A. Pain that usually lasts less than 10 minutes,
Oral medication that usually relieves the pain,
Stopping physical activity to allow the oxygen supply and demand to balance that usually relieves the pain.

Q. What is the first thing that should be done when a rescuer feels a patient may be having a heart attack?

A. Have the patient stop all activities and rest in the position most comfortable.

Q. Which of the following is nitroglycerin usually associated with?

A. Angina.

Q. Which of the following best describes “clinical death”?

A. Condition when the heart stops beating and breathing stops.

Q. What is the most common cause of cardiac arrest in adults?

A. Diseases of the heart and blood vessels.

Q. What is the primary sign of cardiac arrest?

A. Absence of signs of life (breathing, movement, etc.).

Q. What is described as irreversible damage caused by brain death?

A. Biological death.

Q. How does CPR increase a patient's chances of survival?

A. Keeps the brain supplied with oxygen until the patient receives advanced medical help.

Q. How much blood flow to the brain does CPR provide, even when performed to perfection?

A. About one third as much as the heart normally creates.

Q. What are major risk factors that can be controlled to help reduce the risks of heart attacks?

A. Smoking,
High blood pressure,
High blood cholesterol.

FIRST AID

SECTION III

A-WOUNDS-SOFT TISSUE INJURIES AND BURNS

2 TYPES: Open and Closed

Open - Break in the skin
Closed - (Bruise) Skin is not broken

4 types of open wounds:

1. Abrasion - Skin is rubbed or scraped away
2. Laceration - Skin and tissue cut from something that results in a smooth or jagged edge
3. Avulsion - A portion of skin or tissue partially or completely torn away
4. Amputation - A complete severing of a body part

NOTE: Blood vessel ends constrict when completely torn into. Such constriction will not occur when a blood vessel has a tear without being cut completely cut into.

5. Puncture - The skin, tissue, etc. is pierced with a pointed object such as a knife, bullet, piece of metal, etc.

Impaled object - An object remains embedded in an open wound

Puncture - Most dangerous of all open wounds due to risk of infection

DRESSINGS AND BANDAGES

All open wounds need some type of covering to help control bleeding and prevent infection.

DRESSINGS: Sterile to help prevent infection and used to help control bleeding

Example: 2 inch x 2 inch gauze pads, 4 inch x 4 inch gauze pads, and other materials wrapped in individual containers and classified as sterile

Universal dressing - Large dressings, 12 inches x 24 inches, etc.

Occlusive dressing - A special type of dressing that does not allow air to pass through

Example: Aluminum foil, plastic wrap, petroleum jelly soaked gauze.
Used to cover sucking chest wounds, open wounds of the trachea, etc.

BANDAGE: Triangular bandage, etc. used to hold dressings in place, slings and swathes

Bandage compress - A thick gauze dressing attached to a gauze bandage

Roller bandage - Commonly called roller gauze, Kling gauze, etc. that sticks to previous layer

Elastic bandage - Ace bandage or elastic wrap

APPLYING A BANDAGE AND DRESSING

1. Elevate the injured part above the heart, if practicable
2. Completely cover all dressings with a bandage and tie in place
3. Never cover fingers or toes, if possible, in order to evaluate if the bandage has been tied too tight and to evaluate circulation.

NOTE: If the fingers or toes become cold or turn pale or blue, loosen the bandage because it is too tight

4. If blood soaks through a dressing, apply more dressings and bandages

NOTE: Never remove a blood-soaked dressing or bandage

TREATMENT FOR CLOSED WOUNDS:

1. Direct pressure, and elevation help to control bleeding and swelling.
2. Cold (ice packs, cold packs, etc.) can be used to help control pain and swelling

TREATMENT FOR OPEN WOUNDS:

1. Never waste time trying to wash a wound
2. Control bleeding with direct pressure, elevation, pressure point, etc.

NOTE: Completely severed body parts - Wrap in a sterile gauze and place in a plastic bag on ice or cold pack. Try to keep cold but do <u>not</u> freeze. <u>Never</u> place amputated parts directly in water to keep cool.

IMPALED OBJECTS:

1. <u>Never</u> remove impaled objects unless it involves the cheek and interferes with breathing
2. Use bulky dressings to stabilize in place
3. Control bleeding by bandaging dressings in place around the object

BURNS:

The severity of a burn depends on:

1. Temperature of the source of the burn
2. Length of exposure to the source
3. Location of the burn
4. Extent of the burn
5. Patient's age and medical condition

3 CLASSIFICATIONS OF BURNS

1. 1st degree - A burn of the outer skin (sunburn), reddened skin
2. 2nd degree - A partial thickness burn that has blisters and is red
3. 3rd degree - A full thickness burn that destroys both layers of skin, tissue, muscle, nerves, etc.
   Burn area appears brown or black with a charred appearance, tissue may have a white color.

NOTE: 3rd degree burns can be life threatening.
Large amounts of body fluids are lost and shock is most likely to occur

IDENTIFYING CRITICAL BURNS

Critical burns are life threatening.

1. Burns causing breathing difficulty or signs of burns around the mouth and/or nose
2. Burns covering more than one body part
3. Burns to the head, neck, hands, feet or genitals
4. Any 2nd or 3rd degree burn of a child or elderly person
5. Burns resulting from chemicals, explosions or electricity
6. Inhaling hot steam or other hot vapors

NOTE: Electrical burns - usually cause deep tissue damage that show very little surface damage
Electrical burns must always be treated as life-threatening because the heartbeat and/or breathing may be affected, even in a conscious patient who appears to be ok after surviving contact with an electrical circuit.

TREATMENT FOR THERMAL BURNS

1. Evaluate the scene for personal safety
2. Remove the patient from the source of heat contact.
   May include extinguishing flames or remove smoldering or smoking clothing from a patient.
3. Do a primary survey
   Pay particular attention to soot or burns around the mouth, nose or face. These burns must be treated as life-threatening because the airway or lungs may have been burned also.

3 Basic Steps for Treating Thermal Burns

1. Cool the burned area
2. Cover the burned area with sterile material
3. Treat for shock

Cooling a burned area:

1. Be sure to remove the source of heat
2. Cool with large amounts of water

NOTE: Never use ice or ice water to cool a burned area except on small 1st degree burns

3. For large areas of the body or body parts that can not be put in water, apply sheets or other large material and apply water

Covering a burned area:

1. After pain is relieved, apply dry, sterile dressings and bandage loosely
2. Never apply burn ointments, oil, butter, etc.
3. Never break blisters

Treat for shock:

1. Shock is caused by pain and a loss of body fluids
2. Put the patient in a shock position except when breathing or head injuries are present
3. Maintain patient body temperature by keeping patient warm

SPECIAL SITUATIONS:

1. Chemical Burns:
   Caused by acids, alkalis, bleach, drain cleaners, etc.

   Treatment: Remove the chemical from the skin as fast as possible by flushing with large amounts of water. Remove contaminated clothing from the patient.

   Chemical burns of the eyes:

   Flush the affected eye outwards (away from the nose) with large amounts of water.

2. Electrical Burns:
   The body tissue, etc. has resistance and causes heat when electrical current flows through the body.
   Such heat causes electrical burns along the flow of current.

   The severity of an electrical burn depends on:

   1. Type and amount of current
   2. The current path through the body

   REMEMBER: Electrical current that flows across the heart is the most dangerous.

   3. How long the current passed through the body

Treatment:

1. Check and treat possible entrance and exit wounds

REMEMBER: Electrical burns may cause much more severe damage than what appears on the surface of the skin.

2. Cover burn areas with dry, sterile dressings.
   DO NOT COOL AN ELECTRICAL BURN AREA WITH WATER.

Lightning Injuries:

1. Look for and treat life-threatening conditions such as respiratory or cardiac problems
2. Suspect spinal injuries and do not move until stabilized on a spine board

QUESTIONS FOR REVIEW

Wounds-Soft Tissue Injuries and Burns

Q. Which of the following would be the most serious effect of electrical current passing through the body?

A. Effects on the brain and heart that control breathing and heartbeat.

Q. What type patient would be treated as "serious"?

A. An unconscious patient that has received an electrical shock and has an irregular heartbeat and rapid, shallow breathing.

Q. A bruise is classified as what type of wound?

A. Closed wound.

Q. Which of the following is the most common "open wound" that results in skin rubbed or scraped away?

A. Abrasion.

Q. What is a cut from a sharp object that results in smooth or jagged skin edges?

A. Laceration.

Q. What results when skin or tissue is partially or completely torn away and may be hanging like a flap?

A. Avulsion.

Q. What results when a body part is completely torn or cut from the body?

A. Amputation.

Q. What type wound is created when a nail, knife or splinter penetrates the skin and soft tissue and the area closes around the object?

A. Puncture.

Q. Why are puncture wounds dangerous?

A. Because nerves are always damaged in puncture wounds.

Q. What is an “impaled object”?

A. An object that remains embedded in an open wound.

Q. Why do all open wounds need dressings and bandages applied?

A. To help control bleeding and prevent infection.

Q. What is used to absorb blood, prevent infection and must always be sterile?

A. Dressings.

Q. What is the main purpose of a special dressing called an “occlusive dressing”?

A. To prevent air from passing through.

Q. Aluminum foil, plastic wrap or petroleum jelly - soaked gauze are examples of what type dressing?

A. Occlusive dressing.

Q. What are used to hold dressings in place and to apply pressure to help control bleeding?

A. Bandages.

Q. Which are general rules for applying a bandage?

A. Elevate injured body parts above the level of the heart if injuries permit,
Never cover the fingers or toes, if possible to leave exposed,
Bandages help support an injured area.

Q. Why are fingers or toes left exposed, if possible, when applying dressings and bandages?

A. So the rescuer can evaluate as to whether or not a bandage has been tied too tight and to evaluate circulation.

Q. A rescuer has applied a splint with bandages to a suspected, fractured lower leg. The patient's toes turn blue. What has happened and what should the rescuer do?

A. The bandage is too tight and it should be loosened slightly.

Q. What should a rescuer do if blood soaks through dressings and bandages applied to an open thigh wound?

A. Leave the bandages in place and apply additional dressings and bandages.

Q. What precaution should be taken when a rescuer applies ice or a cold pack to a closed wound?

A. Place a gauze pad or other cloth between the skin and ice or cold pack.

Q. A rescuer responds to an accident scene and finds a patient with an amputated (completely severed) hand. The rescuer has treated and stabilized the patient's ABC's. What should the rescuer do with the amputated hand?

A. Place the amputated hand in a plastic bag and keep cool by placing the plastic bag on ice, cold pack, etc.

Q. When is the only time that a rescuer can remove an impaled object?

A. Cheek.

Q. What must be affected before a rescuer is permitted to remove an impaled object?

A. Only from the cheek and that presents breathing problems or problems maintaining an open airway.

Q. What is required when treating an impaled object?

A. Use bulky dressings to stabilize the object in place,
Avoid movement of the object to prevent more tissue damage,
Control bleeding by placing dressings and bandages around the object.

Q. What affects the severity of a burn?

A. Temperature of the source of the burn,
Length of exposure to the burn source,
Location and extent of the burn,
Patient's age and medical condition.

Q. How does the depth of a burn affect the severity of the burn?

A. The deeper the burn, the more severe it is.

Q. Which type of burn involves only the top layer of skin and usually only causes reddened skin (sunburn)?

A. First degree.

Q. Which type burn is a partial thickness burn that causes the skin to be red and has blisters?

A. Second degree.

Q. Which type burn is a full-thickness burn that has a "charred" brown or black appearance and involves muscles, fat tissue, nerves and bones?

A. Third degree.

Q. Which type burns would be classified as serious burns?

A. Burns causing breathing difficulty,
Signs of burns around the mouth or nose,
Burns covering more than one part of the body.

Q. Which type burns would be classified as serious burns?

A. Burns to the head, neck, hands, feet or genitals,
Any partial or full-thickness burn of an elderly person,
Burns caused by chemicals, explosion or electricity.

Q. After evaluating the scene for personal safety, what should a rescuer do next at the scene of a burn patient that is conscious?

A. Remove the patient from the source of heat (extinguish clothes on fire or remove smoking, smoldering clothing).

Q. Which type burn is always serious and may cause a breathing problem?

A. Burns around the mouth, nose, or face.

Q. Why are burns of the mouth, nose or face classified as serious burns?

A. Because the air passages or lungs may have been burned causing swelling or stopped breathing.

Q. How should small first degree (superficial) burns be treated?

A. Cool the burn area with large amounts of cool water.

Q. On what type of burn can ice or ice water be properly applied to?

A. First degree.

Q. What is the treatment for burns?

A. Cover the burned area to keep air out and help reduce pain,
Always use sterile dressings to stabilize a burn area,
Bandages should be applied loosely.

Q. What is very important to help minimize shock in a burn patient?

A. Maintain normal, patient body temperature by keeping the patient warm because burn patients tend to chill and go into shock.

Q. How should chemicals (battery acid, hydraulic oil, brake fluid, etc.) spilled into the eyes of a conscious patient be treated?

A. Flush the affected eye with large amounts of water, from the nose outward to protect the unaffected eye.

Q. What may occur with “electrical burns”?

A. Electrical burns are often deep,
Electrical burns may have an entry and exit wound,
Electrical burns may cause severe tissue damage even though skin burns may be all that are visible.

Q. What should a rescuer always suspect in a patient struck by lightning?

A. Life threatening conditions (respiratory and cardiac arrest) and spinal injuries.

Q. What is considered as “general treatment of open wounds”?

A. Treat and stabilize the ABC’s,
Control bleeding,
Be as sterile as possible to reduce the risk of infection.

FIRST AID

SECTION IV

BLEEDING

Bleeding is either internal or external.

Internal bleeding is often difficult to recognize.

Uncontrolled bleeding, whether internal or external is life-threatening.

Severe bleeding is life-threatening and must be treated during the primary survey. ABC's - Airway, Breathing, Circulation and Bleeding.

Clotting - The process by which blood thickens at a wound site. Normal clotting takes place in about 10 minutes.

BLOOD VESSELS

a - Arteries:	Carry oxygen-rich blood away from the heart (bright red in color and spurts from an open wound);
b - Veins:	Carry blood back to the heart from the organs and tissue (dark, bluish red in color and flows steady from an open wound);
c - Capillaries:	Small blood vessels where the exchange of oxygen and carbon dioxide takes place (oozes from an open wound).

External bleeding - occurs when a blood vessel is opened externally

Most external bleeding will be minor.

Signs of Severe External Bleeding:

1 - Blood spurting from a wound;
2 - Blood that fails to clot after you have taken all measures to control bleeding.

Bleeding from arteries is rapid, profuse and is life-threatening.

Arterial bleeding is under direct pressure from the heart and spurts from an open wound with each heartbeat.

Arterial blood is bright red in color because it contains a high concentration of oxygen.

Arterial bleeding is harder to control than venous bleeding.

Controlling External Bleeding:

1 - Direct pressure: Applying pressure with your hand.
Most external bleeding can be controlled with direct pressure.
2 - Elevation: Elevating the injured area above the level of the heart.
3 - Pressure bandage: A bandage applied to control bleeding.
4 - Pressure points: An area where an artery crosses over a bone and pressure applied at specific sites on the body.
Brachial - Main pressure point used to control bleeding in the arms.
Femoral - Main pressure points used to control bleeding in the legs.
5 - Tourniquet: A tight band placed around the arm or leg to stop blood flow to a wound.
Tourniquets are rarely used because very often they cause more harm than good and will most likely cause loss of limb.

To Control External Bleeding:

1 - Place direct pressure on the wound with a sterile gauze pad or clean cloth. Apply firm pressure over the gauze pad or clean cloth.
2 - Elevate the injured area above the level of the heart if you do not suspect a broken bone (fracture).
3 - Apply a pressure bandage. This bandage will hold the gauze pad or cloth in place while maintaining direct pressure.

NOTE: If blood soaks through, add additional dressings and bandages. Never remove any blood-soaked dressing or bandage, just keep adding more.

4 - Apply pressure at a pressure point if bleeding continues.

Preventing Disease Transmission When Controlling Bleeding:

1 - Avoid contacting a patient's blood, both directly and indirectly by using examination gloves, safety glasses, etc.
2 - Avoid eating, drinking or touching your mouth, nose, or eyes while providing care before washing your hands.
3 - Always wash your hands thoroughly after providing care, even if you wear gloves, etc.

INTERNAL BLEEDING:

Internal bleeding - Bleeding into spaces inside the body.

Severe internal bleeding -Will produce signs and symptoms similar to shock.

Signs and Symptoms:

1 - Discoloration of the skin, bruising in the injured area
2 - Tender, swollen or firm tissues that are normally soft
3 - Anxiety or restlessness
4 - Rapid weak pulse
5 - Rapid breathing
6 - Skin that feels cool or moist or looks pale or bluish
7 - Nausea and vomiting
8 - Excessive thirst
9 - Declining level of consciousness
10 - Drop in blood pressure

Controlling Internal Bleeding:

Minor Internal Bleeding:

a - Apply ice or a chemical cold pack to the injured area to help reduce pain and swelling.
When applying ice, place a gauze between the source of cold and the skin.

Serious Internal Bleeding:

a - Stabilize the patient immediately and make arrangements to transport to the hospital as quickly as possible
b - Protect the patient from further harm
c - Monitor the ABC's and vital signs
d - Help the patient rest in the most comfortable position
e - Maintain normal body temperature by keeping the patient warm
f - Reassure the patient
g - Continue providing care for other conditions

QUESTIONS FOR REVIEW

Bleeding

Q. When is severe bleeding controlled in a patient?

A. After checking for signs of life during the primary survey.

Q. What are signs of severe external bleeding?

A. Bleeding that spurts from an open wound,
Bleeding that spurts from an open wound and is bright red in color,
Bleeding that fails to clot after a rescuer has taken all measures to control it.

Q. Why is bleeding from an artery usually more serious than bleeding from a vein or capillary?

A. Blood in arteries travel faster and is under more pressure that causes loss of blood quickly.

Q. Clotting associated with minor bleeding usually occurs within:

A. 10 minutes.

Q. What are characteristics of bleeding from arteries?

A. Bleeding that spurts from an open wound and is bright red in color,
Bleeding that is often rapid and profuse,
Bleeding that is life threatening.

Q. Why does arterial bleeding from an open wound have a bright red color?

A. Because of the high concentration of oxygen.

Q. What is the first method that should be used to control external bleeding?

A. Direct pressure.

Q. What can be used as a rescuer applies direct pressure to help control external bleeding from an open wound, if a fracture is not suspected?

A. Elevating the injured area.

Q. What is a "pressure point" as related to the control of external bleeding?

A. Specific areas on the body where an artery lies close to the surface over a bone where pressure can be applied to control bleeding.

Q. What are the main pressure points used to control bleeding in the arms and legs?

A. Brachial in the arms and femoral arteries in the legs.

Q. What is described as a tight band placed around an arm or leg to control bleeding and is rarely used because it can cause damage and loss of a limb?

A. Tourniquet.

Q. When can a rescuer “elevate” an injured area above the level of the heart?

A. Only when you do not suspect a broken bone (fracture).

Q. What should a rescuer do if blood soaks through dressings and bandages that have been applied to an open wound?

A. Add additional dressings and bandages on top of the blood soaked ones.

Q. What helps a rescuer reduce the risk of disease transmissions when controlling bleeding?

A. Avoiding contacting a patient’s blood if possible,
Avoiding eating or drinking or touching your mouth, nose or eyes while providing patient care,
Always wash your hands thoroughly after treating a patient, even if protective gloves were worn.

Q. What type of bleeding is the most difficult to recognize?

A. Internal bleeding.

Q. What type injuries will eventually produce signs and symptoms similar to shock?

A. Severe internal bleeding.

Q. What is very often the first indication that an injured patient with severe chest injuries may have severe internal bleeding?

A. Restlessness and anxiety.

Q. What are signs or symptoms of severe internal bleeding?

A. Anxiety and restlessness,
Rapid, weak pulse,
Rapid breathing,
Moist, pale, cool skin,
Nausea and vomiting,
Swollen, tender or firm tissues associated with injuries of the abdomen,
Excessive thirst,
Declining level of consciousness,
Bruising discoloration of the skin.

FIRST AID

SECTION V

SHOCK

Shock: A life-threatening condition that occurs when the circulatory system fails to provide adequate oxygenated blood to all parts of the body.

VITAL ORGANS: Heart, Lungs and Brain

The signs and symptoms of shock are a series of responses by the body to maintain adequate blood flow to the vital organs.

Three conditions are necessary to maintain adequate blood to all body parts:

1 - The heart must be working well
2 - An adequate amount of blood must be circulating in the body through blood vessels
3 - The blood vessels must be intact and able to adjust blood flow

When either one of the three is not in proper working condition, shock develops because the body cannot meet its demands for oxygen through the failure of adequate circulation.

REMEMBER: Shock is a life-threatening condition

Signs and Symptoms of Shock:

1 - Restlessness or irritability (usually occurs first)
2 - Rapid and weak pulse
3 - Rapid breathing
4 - Pale or bluish, cool, moist skin
5 - Excessive thirst
6 - Nausea and vomiting
7 - Drowsiness and loss of consciousness
8 - Drop in blood pressure

Types of Shock:

Anaphylactic Shock - Life threatening allergic reaction to a substance, food, bee sting, etc.

Cardiogenic Shock - Failure of the heart to pump effectively, heart attack, cardiac arrest, etc.

Hemorrhagic Shock - Severe loss of blood associated with serious bleeding or loss of blood plasma associated with burns; occurs with internal or external wounds or burns.

Metabolic Shock - Loss of body fluids through vomiting, diarrhea or a heat illness.

Neurogenic Shock - Failure of the nervous system to control the size of blood vessels causing them to dilate; occurs with brain, spinal cord or nerve injuries.

Psychogenic Shock - Fainting, temporary loss of adequate blood to the brain

Respiratory Shock - Failure of the lungs to transfer oxygen into the blood; occurs with respiratory distress, obstructed airway, collapsed trachea, respiratory arrest, etc.

When Shock Occurs:

1 - The body will prioritize its needs for blood by ensuring adequate blood flow to the vital organs.
The body (nervous system) does this by reducing the amount of blood circulating to the less important body parts such as the arms, legs and skin.
Blood from these less important organs are diverted to the vital organs - Heart, Brain and Lungs

The body attempts to compensate for inadequate blood flow to the vital organs by speeding up the heart and breathing rates.

NOTE: Anticipate that shock will be present in some degree with all injuries to the body. Always anticipate and start treating for shock before signs and symptoms develop.

NOTE: Remember, the key to managing shock effectively begins with recognizing a situation in which shock may develop and start giving proper treatment.

Treatment for Shock:

1 - Evaluate and treat the ABC's (Airway, Breathing, Circulation, and Bleeding) in the primary survey
2 - Perform a secondary survey and start treatment for shock

General Shock Treatment:

1 - Protect the patient from further injury
2 - Monitor the ABC's and provide treatment for any airway, breathing, circulation or bleeding problems
3 - Help the patient rest comfortably. Pain increases stress on the body and accelerates the effects of shock
4 - Help the patient maintain normal body temperature by keeping the patient warm
5 - Reassure the patient
6 - Provide care for specific injuries or conditions

Further Treatment to Help Manage Shock:

1 - Control external bleeding as soon as possible to minimize blood loss
2 - Elevate the legs about 12 inches to keep blood circulating to the vital organs, unless you suspect head, neck or back injuries or possible broken bones involving the hips or legs

NOTE: If you are unsure of the patient's condition or extent of injuries, leave them lying flat.

3 - Never give the patient anything to eat or drink, even though they may be extremely thirsty.

Two reasons: The patient may vomit and aspirate into the lungs causing pneumonia and vomiting may result in an obstructed airway. Also, surgery may be necessary which usually requires the stomach to be empty.

4 - Stabilize the patient on a backboard and transport as quickly and safely as possible.

NOTE: Shock cannot be managed effectively by first aid alone. Advanced medical care is usually required to effectively treat shock.

Never wait for shock to develop before beginning to make preparations to treat.

Anticipate that shock will develop with all injuries and plan to treat after life-threatening conditions (primary survey) and a secondary survey have been completed.

NOTE: Shock is the final stage before death with serious injuries or illnesses.

You can't always prevent shock by giving proper treatment, but you can slow its progress.

Stabilize a shocky patient as quickly as possible and transport as rapidly and safely as you can to the hospital.

QUESTIONS FOR REVIEW

SHOCK

Q. A rescuer is treating a semi-conscious patient that you think has severe internal bleeding. The patient wakes up every couple minutes and is begging for something to drink. What should the rescuer do?

A. Never give such injured patients anything to drink.

Q. Which of the following is very important while treating severe internal bleeding?

A. Maintain normal body temperature by keeping the patient warm with blankets, etc.

Q. What describes shock?

A. A condition in which the circulatory system fails to circulate oxygen-rich blood to all parts of the body.

Q. What are the conditions necessary to maintain adequate blood flow?

A. A patient's heart must be working well,
An adequate amount of blood must be circulating in the body,
The blood vessels must be intact and able to adjust blood flow.

Q. Which type shock is associated with a severe allergic reaction to a substance, food, medication, etc.?

A. Anaphylactic shock.

Q. Which type shock is associated with severe bleeding or loss of blood plasma?

A. Hemorrhagic shock.

Q. Which type shock is associated with obstructed airway, respiratory distress or respiratory arrest?

A. Respiratory shock.

Q. Which type shock is associated with failure of the nervous system to control blood vessel size (brain or spinal cord injuries)?

A. Neurogenic shock (nerve shock).

Q. Which type shock is associated with a heart attack or cardiac arrest?

A. Cardiogenic shock.

Q. Why does the skin of a patient in shock appear pale, cool and moist?

A. Because the body reduces the blood circulating to the arms, legs and skin and increases blood flow to the vital organs (heart, lungs, brain).

Q. What does prolonged shock usually cause in a patient?

A. Cyanosis (bluish discoloration of the skin, lips, nailbeds, etc.).

Q. What is associated with shock?

A. Shock is a life-threatening condition,
The first sign of shock is usually patient restlessness,
Nausea and vomiting.

Q. What are signs or symptoms of shock?

A. Pale, bluish, cool, moist skin,
Rapid breathing,
Rapid heart rate,
Excessive thirst,
Drowsiness or loss of consciousness,
Nausea and vomiting.

Q. When should shock treatment begin for a patient?

A. After treating the ABC's.

Q. What is general treatment for treating a patient in shock?

A. Monitor and treat the ABC's,
Help the patient rest comfortably to help minimize pain,
Maintain normal, patient body temperature (keep the patient warm).

Q. What would help a rescuer manage the effects of patient shock?

A. Control any external bleeding as soon as possible,
Never give a patient anything to eat or drink, regardless of thirst or hunger,
Reassure the patient and keep the patient talking if possible.

Q. For a patient in shock when elevation of the legs and feet are appropriate, how high should the legs-feet be elevated?

A. 12 inches.

Q. When should the legs and feet of a patient in shock never be elevated?

A. When a patient has head injuries,
When a patient has neck injuries,
When a patient has back injuries,
When a patient has possible broken bones involving the hips or legs.

Q. A patient has signs and symptoms of shock but has other injuries. The rescuer is unsure of whether or not to elevate the feet and legs. What should the rescuer do?

A. If in doubt, leave the patient lying flat.

Q. What is very important to remember about shock?

A. Never wait for shock to develop before beginning to treat for shock,
Anticipate that some degree of shock will develop with all types of injuries or illness,
Always begin treating for shock before signs and symptoms develop,
The key to managing shock effectively is recognizing when shock may develop and give proper treatment.

Q. What conditions may cause serious shock?

A. When the vital organs (heart, lungs, brain do not receive adequate oxygen rich blood),
Uncontrollable external bleeding,
Internal bleeding usually associated with serious chest and abdominal injuries.

Q. How does the heart react when a patient suffers a severe injury or sudden illness that affects the flow of blood to all body parts?

A. The heart beats faster and stronger at first.

Q. What effect does injuries or illnesses, especially those that affect the brain and spinal cord, have on blood vessels?

A. The blood vessels lose their ability to change in size, (usually dilate) causing a drop in blood volume circulated.

Q. A rescuer responds to the scene of an emergency where an unconscious patient is observed to be in shock. What should a rescuer do after surveying the scene and checking the patient?

A. Call for advanced medical help (rescue squad, etc.).

FIRST AID

SECTION VI

A-MUSCULOSKELETAL INJURIES-BONE AND JOINT INJURIES

Key Terms:

1. Dislocation - Displacement of a bone end from its normal position at a joint.
2. Fracture - A break in a bone.
3. Joint - A location where two or more bones are joined.
4. Ligament - A fibrous band that connects bone to bone.
5. Sprain - Excessive stretching and tearing of ligaments, cartilage, and other soft tissue.
6. Strain - Excessive stretching and tearing of muscles and tendons.
7. Sign - Something that a rescuer sees or feels (cyanosis, deformity of a joint, etc.).
8. Symptom - Something that a patient tells you (my arm hurts, I can't feel my fingers and toes).
9. Tendon - A fibrous band that connects muscle to bone.
10. Angulated - Bent at an abnormal or odd angle.

MUSCLES:

Muscles are soft tissue that attach to bones, which shorten and lengthen that are responsible for bodily movement.

Muscles are anchored to bones by tendons.

Each muscle is controlled by nerves that originate in the brain, travel through the spinal cord and end at each muscle.

NOTE: Injuries to the brain, spinal cord or nerves can affect muscle control.

Paralysis - A loss of muscle control, loss of sensation and ability to feel.

SKELETON:

The skeleton is formed by over 200 bones.
The skeleton gives form and shape to the body and protects vital organs.
The skull protects the brain.
The ribs protect the heart and lungs.
The spinal cord is protected by the bones of the spinal column.

Ligaments - Connect and hold bones together at joints

Bones are hard, dense tissues that support the weight of the body.
Bones store and produce red blood cells.
Bone injuries are painful and do bleed.

JOINTS:

A joint is a location where 2 bones come together.

Ligaments - Strong, tough, fibrous tissue that connect bone-to-bone at a joint.

Joints are surrounded by ligaments and some joints allow for more movement than others.

TYPES OF MUSCULOSKELETAL INJURIES:

1) Fracture - A break in a bone

Open Fracture - A fracture associated with an open wound
Open fractures are more serious than closed fractures due to external bleeding and infection risks

Closed Fracture - A fracture associated with a closed wound

NOTE: Few fractures are life-threatening, although a fracture of a large bone may cause shock because bones and tissue, muscle, etc. can bleed heavily.

2) Dislocation - A separation of a bone end from its normal position at a joint
Common Dislocations: Fingers, shoulders, elbow

NOTE: Dislocations are generally more obvious than fractures because the joint appears deformed (deformity is a tell-tale sign of a dislocation with an injury located at a joint)

NOTE: Dislocations are extremely painful.
An injured person cannot move a joint that is dislocated because the bone ends are out of place.

3) Sprain - Stretching and tearing of ligaments, cartilage and other soft tissue
Sprains are associated with a joint injury.

Mild sprains that only stretch ligaments are not serious and usually heal quickly.

4) Strain - Stretching and tearing of muscles and tendons, usually called a "pulled muscle".

Strains most commonly affect the neck, lower back and thigh muscles.

SIGNS AND SYMPTOMS OF MUSCULOSKELETAL INJURIES:

NOTE: A rescuer can always compare the injured side or limb to an uninjured side or limb to help evaluate an injury.

NOTE: The cause of an injury (mechanism of the accident) will always help a rescuer identify the area injured and seriousness of the accident.

Common Signs and Symptoms of Musculoskeletal Injuries:

1 - Pain
2 - Swelling
3 - Deformity
4 - Discoloration of the skin (caused by blood leaking into tissue)
5 - Inability to use the affected part, normally

Pain, swelling and discoloration commonly occur with any significant injury.

Pain is the body's sign that something is wrong.

DEFORMITY:

Marked deformity is a sign of a fracture or dislocation.

Examples: Deformity associated with a joint is usually caused by a dislocation.

Deformity associated with an injury located along the length of a long bone such as the radius (forearm) is usually caused by a fracture.

SPECIFIC SIGNS/SYMPTOMS OF SERIOUS MUSCULOSKELETAL INJURIES:

NOTE: Sprains and strains are fairly easy to tell apart.
Sprains are associated with a joint.
Strains are associated with muscles.

A rescuer cannot positively tell the difference between a fracture and a dislocation, if such fracture is located real close to the joint.
(An x-ray is the only true way to distinguish a fracture from a dislocation when the injury is near a joint.)

SIGNS/SYMPTOMS OF A SERIOUS INJURY:

1) Significant deformity
2) Moderate or severe swelling and discoloration
3) Inability to move or use the affected body part
4) Bone ends extending through an open wound
5) Patient feels bone ends rubbing together (grating) or a patient felt or heard a snap or pop at the time of the injury
6) Loss of circulation or feeling in an extremity
7) Cause of the injury suggests the injury may be serious

STABILIZE AND TRANSPORT QUICKLY AND SAFELY TO THE HOSPITAL IF THE FOLLOWING ARE PRESENT:

1) The injury involves severe bleeding
2) The injury involves the head, neck or back
3) The injury impairs walking or breathing
4) You see or suspect multiple musculoskeletal injuries

GENERAL CARE FOR MUSCULOSKELETAL INJURIES:

1) Rest
2) Ice
3) Elevation

1) Rest - Avoid any movements or activities that cause pain (pain causes shock). Help the patient find the most comfortable position and stabilize in that position, if possible.

NOTE: If you suspect head or spinal injuries, leave the patient lying flat.

2) Ice - Applications of cold (ice packs, cold packs, etc.) should be applied to sprains, strains, dislocations or closed fractures.

NOTE: Always place a layer of gauze or cloth between the skin and source of cold to prevent skin damage.

Never place cold applications directly over or on an open fracture. Cold applications can be placed around an open fracture site.

3) Elevation - Elevating an injured area above the level of the heart helps control bleeding and reduces swelling.

Elevation is particularly effective in treating injuries of the extremities

NOTE: Never attempt to elevate a seriously injured extremity unless it has been adequately immobilized.

IMMOBILIZATION OF MUSCULOSKELETAL INJURIES:

A rescuer must always immobilize an injured area before giving additional care such as applications of cold or elevation.

IMMOBILIZE - Splinting or securing a patient to prevent movement of injured parts.

PURPOSES OF IMMOBILIZING:

1) Reduce pain
2) Prevent further damage to soft tissues
   (Splinting and securing may help prevent a closed fracture from becoming an open fracture)
3) Reduce the risk of serious bleeding
4) Reduce the possibility of loss of circulation or loss of feeling to an injured area
5) Prevent closed fractures from becoming open fractures

SPLINT - A device that maintains an injured part in place

SPECIAL NOTE: **Always Remember**
To effectively immobilize an injured part,
a splint must extend above and below the injury site.

Follow these 4 basic principles when splinting:

1) **Splint without causing more pain and discomfort to the patient.**
2) **Splint an injury in the position you find it.**
3) **Splint the injured area and joints above and below the injury site.**
4) **Check for proper circulation and sensation before and after splinting**
   (circulation - capillary refill)
   (sensation - feeling, movement)

SPECIAL NOTE: **If splinting of a part causes circulation or sensation impairment, loosen the splint.**

TYPES OF SPLINTS:

3 General Types:

1) Soft splints - Folded blanket, pillow, towel, folded clothing, sling, swathe, (all are soft material)
2) Rigid splints -Spineboards (backboards), wire ladder splints, plastic boards, cardboard, etc. (all are firm, rigid like material)
3) Anatomic splint - Using the body to secure another part of the body.
   Example: Securing an injured arm to the chest with a sling and swathe. Securing an injured leg with the uninjured leg on a backboard.

HOW TO SPLINT: General Guidelines

1) Check the ABC's (Airway, Breathing, Circulation) and vital signs
2) Support the injured part. Have someone support the injured part, both above and below the injured area.
3) Cover open wounds with dressings and bandages.
4) If an injury involves an extremity, <u>check for circulation and sensation</u> at a site below (distal to) the injury, <u>both before and after splinting</u>.
   Check for a distal pulse, feel for hand or foot warmth and capillary refill in the fingers or toes.
   Evaluate and maintain feeling in the fingers or toes.

5) Pad rigid splints for comfort.
6) Secure splints with triangular bandages.
7) Recheck circulation below the injury site, after splinting, to ensure circulation has not been restricted by applying a splint too tightly.

SPECIAL NOTE: Loosen the splint if the patient complains of numbness or if the fingers or toes discolor (turn blue) or become cold.

8) Elevate the splinted part, if possible.
9) Recheck the ABC's (Airway, Breathing, Circulation) and vital signs.
10) Treat for shock

GENERAL SPLINTING RULES:

1) When in doubt, always splint
2) Stabilize and splint in the location found if safe and practical to do so.
3) Continue patient care while transporting, if possible.

QUESTIONS FOR REVIEW

Musculoskeletal Injuries-Bone and Joint Injuries

Q. What is common to most musculoskeletal injuries?

A. Such injuries are usually painful,
Such injuries are rarely life-threatening,
Such injuries can result in permanent disability or death if not recognized and treated properly.

Q. What affects the "control of muscles"?

A. Injuries to the brain,
Injuries of spinal cord,
Injuries of nerves.

Q. What is associated with "paralysis"?

A. Loss of muscle control,
Loss of ability to feel,
Sensation absent or affected.

Q. What type tissue holds bone ends in place at joints and connects bone to bone?

A. Ligaments.

Q. What is a fracture?

A. A break in a bone.

Q. What are common factors associated with an “open fracture”?

A. Open fractures are more serious than closed fractures,
Open fractures always involve an open wound,
Open fractures are more serious than closed fractures because of blood loss and infection risks.

Q. What is correct as related to fractures?

A. Few fractures are life-threatening.

Q. What will usually be present with fractures?

A. Absent feeling distal to the injury,
Open wound,
Pain.

Q. What will usually be associated with a fracture?

A. Bleeding from an open fracture,
Pain,
Shock.

Q. What is a general guideline for splinting fractures?

A. Splint the injured area and immobilize the joints above and below the injury site.

Q. What describes a “dislocation”?

A. A displacement or separation of a bone from its normal position at a joint.

Q. Why is a “dislocation” usually more obvious than other types of injuries?

A. Deformity of the joint and/or limb.

Q. Why is a patient unable to move a dislocated joint?

A. The bone ends are out of place and usually the joint “locks” in a deformed position.

Q. What is a general rule for splinting dislocations?

A. Splint in the position found.

Q. What are the reasons for splinting a fracture or dislocation?

A. To lessen pain,
To prevent damage to soft tissues, including muscle, nerves and blood vessels,
To reduce the risk of serious bleeding.

Q. What is described as the stretching or tearing of ligaments and other soft tissues at a joint?

A. Sprain.

Q. What type injuries may result in deformity?

A. Dislocated elbow,
Compound femur fracture,
Dislocated shoulder.

Q. What is usually associated with a “strain”?

A. Sometimes called a “muscle pull”,
Usually involves the neck, thigh or lower back,
Usually the result of overexertion or heavy lifting.

Q. When are musculoskeletal injuries identified and treated?

A. During the secondary survey.

Q. What can a rescuer do to help evaluate an injury?

A. Compare the injured side or limb to an uninjured side or limb.

Q. What are common signs and symptoms of a musculoskeletal injury?

A. Pain,
Swelling,
Deformity and discoloration of the skin,
Inability to use the affected part normally.

Q. What causes “swelling”?

A. Bleeding from damaged blood vessels and tissue.

Q. What would usually cause deformity of the arm?

A. Dislocated or fractured elbow.

Q. When should a rescuer suspect a serious injury?

A. When significant deformity is present,
When a patient cannot use or move the affected body part,
When bone ends are protruding from an open wound or a patient feels bones ends rubbing together (grating),
When a patient loses circulation or feeling in an extremity.

Q. If a rescuer suspects a patient has head or spine injuries, how should the patient be positioned?

A. Leave the patient lying flat, log roll onto a spineboard and stabilize.

Q. How does elevation relate to an injured area?

A. Elevation above the level of the heart slows bleeding and helps reduce swelling,
Elevation is effective in helping to control swelling in extremity injuries,
Never attempt to elevate an injured limb unless it has been adequately immobilized.

Q. What are the reasons for immobilizing (splinting) an injury?

A. To prevent closed fractures from becoming open fractures,
To help reduce the possibility of loss of circulation to an injured part,
To reduce the risk of serious bleeding,
To reduce pain and prevent further damage to soft tissue, blood vessels, nerves, etc.

Q. What is associated with a splint?

A. A splint maintains an injured part in place,
A splint is used to immobilize an injured part,
To effectively immobilize an injured part, a splint must extend, beyond the joints both above and below a fracture site.

Q. What are the general rules of splinting?

A. Splint without causing more pain or discomfort to the patient,
Splint injuries (fractures, dislocations, etc.) in the position found,
Splint the injured area and the joints above and below the injury site, if possible,
Check for proper circulation and sensation, both before and after splinting.

Q. What should a rescuer do if a splint applied to the leg causes a loss of circulation and sensation in the toes?

A - Loosen the splint because it has been applied too tight.

Q. What are classified as soft splints?

A. Folded blanket.
Pillow.
A sling.

Q. What should be done when splinting an injured body part?

A. Support the injured part while splinting, if possible,
Cover open wounds with dressings and bandages to help control bleeding and prevent infection,
In extremity injuries, check for circulation and sensation distal to the injury,
Check for a distal pulse, feel the hand or foot for warmth or check for capillary refill in the fingers or toes.

Q. A rescuer has applied a splint to the forearm and the patient starts complaining of numbness and tingling in the fingers. What should the rescuer do?

A. Loosen the splint.

Q. What are good general guidelines as related to musculoskeletal injuries?

A. When in doubt, splint,
Always treat all injuries as serious,
Treat and stabilize patients at the location found unless the safety of the rescuer or patient is threatened.

Q. What would be associated with fractures of large bones?

A. Severe bleeding,
Shock,
Severe pain.

FIRST AID

B-INJURIES OF THE HEAD AND SPINE

NOTE: For suspected head or spine injuries, always treat for a serious injury.

Head Injuries:

- Head injuries can affect the brain.
- Head injuries that damage the brain may cause changes in consciousness.

SPECIAL NOTES:

1) The brain is the center of consciousness
2) An altered level of consciousness is often the first and most important sign of a serious head injury.
3) The brain is the "control center" for breathing and heartbeat.

Spine Injuries:

- The spine is a strong column that supports the head and trunk.
- The spinal cord and (network of nerves leading to all parts of the body from the brain) extends from the base of the brain through the spinal column.
- The spinal column consists of vertebrae with disks between each vertebrae which have a space where nerves branch out to all parts of the body.

The spine is divided into 5 regions:

1) Cervical region (neck)
2) Thoracic region (chest)
3) Lumbar region (lower back)
4) Sacrum region (pelvis)
5) Coccyx region (tailbone)

Injuries to the spine may fracture vertebrae, sprain ligaments, compress or cut the spinal cord.
Spinal cord damage may cause temporary or permanent paralysis or even death.

CAUSES OF THE INJURY - MECHANISM OF THE ACCIDENT

SPECIAL NOTE: Always consider the cause of the injury (mechanism of the accident) to help evaluate whether a head or spinal injury is suspected.

Secure the scene and evaluate the forces that caused the injury. Strong forces are likely to cause severe injury to the head and spine.

Example: An unconscious patient that is removed from underneath falling material.
A conscious patient hit in the head with a hammer who is complaining of numbness, tingling or loss of sensation in the arms and/or legs.

SERIOUS HEAD AND/OR SPINE INJURY SITUATIONS:

1) A fall
2) A person found unconscious for unknown reasons and all unconscious patients with trauma
3) Any injury involving severe blunt force to the head and/or trunk
4) Gunshot wounds
5) Any accident that involves a lightning strike

SIGNS/SYMPTOMS OF HEAD AND SPINE INJURIES:

These signs and symptoms may be immediately obvious or may develop later:

1) Changes in the level of consciousness
2) Severe pain or pressure in the head or spine
3) Tingling, numbness or loss of sensation in the extremities
4) Partial or complete loss of movement of any body part
5) Unusual bumps or depressions on the head or spine
6) Blood or clear, oily looking fluid draining from the ears, nose or head wound)
7) Profuse external bleeding of the head or spine
8) Seizures
9) Impaired breathing or vision as a result of injury

10) Nausea or vomiting (Head injury patients tend to vomit)
11) Persistent headache
12) Loss of balance
13) Bruising of the head, especially around the eyes and behind the ears
(Raccoon eyes - Bruising around the eyes)
(Battle signs - Bruising of the bone behind the ears)

NOTE: Raccoon eyes and/or battle signs indicate a fracture of the base of the skull

TREATMENT OF SERIOUS HEAD AND SPINE INJURIES:

SPECIAL NOTES:

1) Head and spine injuries can become serious, life-threatening emergencies.
2) Serious head or spine injuries can cause a patient to stop breathing.
3) The treatment for serious and spine injuries must always include supporting the respiratory, circulatory and nervous systems (ABC's of first aid).

TREATMENT OF HEAD/SPINE INJURIES:

1) Minimize movement of the head and spine
2) Maintain an open airway (use the jaw thrust)
3) Control external bleeding
4) Monitor vital signs
5) Maintain normal body temperature
(keep the patient warm but do not overheat - head injured patients tend to develop an elevated temperature)

<u>Minimizing movement of the head and spine</u>

- Be very careful - Movement of an injured head or spine can cause irreversible damage to the spinal cord.
- Stabilize patient and secure to a backboard in the area found, if at all possible (safe scene, etc.)

a. Maintain <u>in-line stabilization of the head and neck to minimize</u> movement.

SITUATIONS WHEN YOU WOULD NOT MOVE A PATIENT'S HEAD IN-LINE WITH THE BODY:

1. When the patient's head is severely angled to one side.
2. When the patient complains of pain, pressure, or muscle spasms in the neck when you begin to align the head with the body.
3. When the rescuer feels resistance when attempting to move the head in line with the body.

SPECIAL NOTE: In these situations, support the patient's head in the position in which you found it.

a. Apply a rigid cervical collar after the patient's head is stabilized

b. Secure and immobilize the patient to a backboard
A patient should be "log-rolled" to place on a backboard - while using at least three people (one to stabilize the head and at least two, preferably to roll. Secure the patient to the backboard using 12 to 15 triangular bandages, secured sufficiently so as to able to turn the spineboard, with patient, on it's side if the patient vomits.
(Remember, head injured patients tend to vomit)

c. Secure the patient's head to the backboard using a folded or rolled blanket, securing the forehead with a folded triangular bandage.

d. Recheck the ABC's
   - Insure an open airway
   - Monitor the vital signs after immobilizing
   - Pay close attention to the patient's level of consciousness and breathing
   - A serious head injury will often cause changes in consciousness. Does the patient respond to the 3W's (Who, Where, What-<u>Who</u> they are, <u>where</u> they are, <u>what</u> they were doing when the accident occurred).

NOTE: Head or spine injuries can cause paralysis of the diaphragm and/or chest muscle nerves that control breathing muscles - thus breathing may be affected or stop.

e. Maintain normal body temperature by keeping the patient warm.
Do not overheat - Monitor the patient closely.

CARE FOR SPECIFIC HEAD INJURIES

I - Concussion

Concussion - a temporary impairment of brain function.
Concussions usually only cause loss of consciousness for a brief period of time, if unconscious at all

II - Scalp Injury

Scalp bleeding can be minor or severe. Never put direct pressure on a scalp injury if you feel a depression, spongy area or bone fragments

III - Cheek Injury

Control bleeding as other types of bleeding, although you may have to control on the outside as well as the inside of the cheek.

SPECIAL NOTE: Impaled objects in the check - Remove only to control bleeding and to maintain an open airway.

NOTE: If removal is painful to the patient, leave the impaled object in place and stabilize with bulky dressings and bandages.

Be careful not to obstruct the airway if dressings are placed inside the mouth to control bleeding.

When possible, place the patient in a seated position, leaning slightly forward to prevent blood from draining into the throat.

IV - Nose Injury

Nose injuries are usually caused by a blow from a blunt object.
Treating bleeding from the nose - Have the patient lean forward, pinch the nostrils together and apply cold applications to the bridge of the nose and/or applying pressure on the upper lip just beneath the nose.

NOSE INJURY PRECAUTIONS:

1. After controlling bleeding - Tell the patient to avoid rubbing, blowing or picking the nose.
2. Never attempt to completely stop bleeding from the nose if a serious head injury (skull fracture is suspected).
   Completely stopping the above type bleeding will cause pressure to build up in the brain.

NOTE: Bleeding or fluid draining from the nose associated with a head injury - should be controlled by applying a loose dressing

V - Eye Injury

Eye injuries may involve the eyeball, bone or soft tissue surrounding the eye.
Injuries that penetrate the eyeball or cause the eye to be removed from its socket are very serious and can cause blindness.

NOTE: Never put direct pressure on the eyeball

TREATMENT FOR IMPALED OBJECTS OF THE EYE

1) Place the patient on their back, if they feel comfortable (Remember to make the patient as comfortable as possible)
2) Never attempt to remove any impaled object (stuck) in the eye
3) Place a sterile dressing around the object
4) Stabilize any impaled object in place as best you can. Stabilize with a paper cup to support the object.
5) Apply a bandage around the cup to stabilize
6) Apply bandages to both eyes to prevent sympathetic eye movement (both eyes open and close together-this prevents pain when the injured eye blinks and contacts the impaled object).

TREATMENT OF FOREIGN BODIES IN THE EYE

Dirt, sand, metal slivers, etc. on the surface of the eyeball are very irritating. The eye produces tears while attempting to flush out such objects.

Treatment of such objects in the eye - Flushing the eye with water or eye wash solution (away from the bridge of the nose) will usually remove such objects.

If such objects cannot be removed by flushing, transport to a medical facility.

VI - Ear Injury

Ear injuries may involve the outer tissue of the ear or the eardrum.

SPECIAL NOTE: Blood or other oily-like, fluid draining from the ear may be present with a serious head or spine injury
Never attempt to stop this drainage with direct pressure
Cover the ear lightly with a sterile dressing.

VII- Mouth, Jaw and Neck Injuries

SPECIAL NOTE: Your primary and most important concern for any injury to the mouth, jaw or neck is to ensure an open airway.

Injuries in these areas may cause breathing problems, airway obstruction due to bleeding, broken teeth, swollen or fractured trachea.

a. Mouth injuries with no serious head injury - place the patient in a seated position and tilt the head slightly forward.

   If knocked out teeth are involved, save for possible reinsertion.

b. Jaw injuries - Evaluate whether seriousness may indicate a possible serious head or spine injury.

   - Maintain an open airway, check the mouth for bleeding, etc.
   - Minimize movement of the head and neck (possible spine injuries if the situation appears serious)

c. Neck injuries

Be cautious - The following critical body parts are located in the neck area - trachea (windpipe), carotid arteries, cervical (neck) part of the spine.

- Neck injuries may cause severe bleeding and swelling that may obstruct the airway.
- Treat all neck injuries as if a serious spine injury is present.
- Neck injuries can fracture the trachea, causing airway obstruction. This situation requires immediate stabilization and transportation.
- Neck injuries may involve bleeding from the carotid arteries

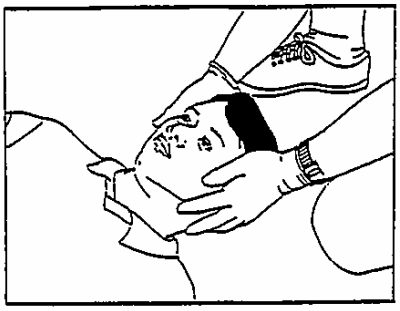
SPECIAL NOTES:

1) Never apply direct pressure to both carotid arteries (These two vessels supply the brain with oxygen enriched blood)
2) Never apply direct pressure that interferes with breathing

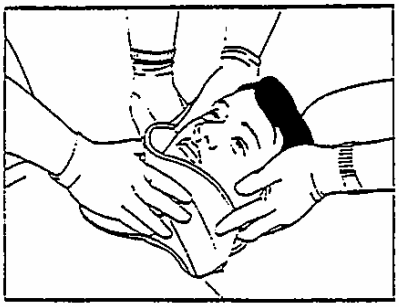
SUMMARY: HEAD/SPINE INJURIES

1. Always consider the cause of the injury (mechanism of the accident) to decide whether an injury is serious.
2. The cause is usually the best indicator of whether an injury to the head or spine should be considered serious.
3. Stabilize as if you suspect a serious head or spine injury, if you have any doubts about the seriousness.
4. Minimize movement of the injured area if you suspect a serious head or spine injury.
5. Stabilize and secure the patient to a backboard at the location found if possible and the area is safe to do so.

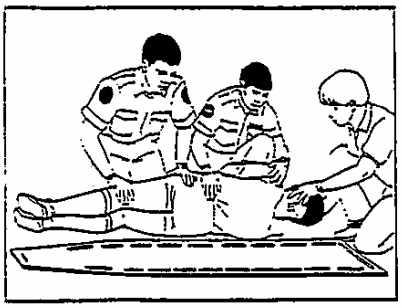
Immobilizing a Spinal Injury



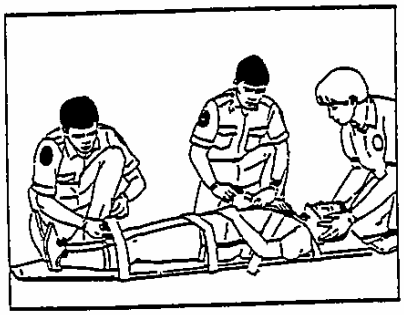
- **Apply in-line stabilization**
  - Place your hands on both sides of victim's head.
  - Gently position head in line with body, if necessary.
  - Support head in that position



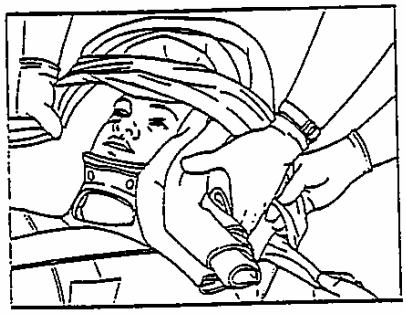
- **Apply cervical collar**
  - One rescuer maintains in-line stabilization.
  - Second rescuer applies appropriately sized cervical collar.



- **Log-roll victim onto backboard**
  - One rescuer maintains in-line stabilization of head.
  - Additional rescuers support victim's shoulders, hips, and legs.
  - Roll victim in unison, keeping head and spine in alignment until victim is resting on side.
  - Position backboard.
  - Log-roll the victim onto backboard.



- **Secure victim's body**
  - Secure victim's chest.
  - Secure victim's arms, hips, thighs, and legs with remaining straps or cravats.
  - If necessary, secure the hands in front of the body.



- **Secure victim's head**
  - Place padding beneath head if head is not resting in-line with body.
  - If commercial head immobilizer is not available, place folded or rolled blanket around head and neck.
  - Secure forehead.

QUESTIONS FOR REVIEW

Head and Spine Injuries

Q. What are correct statements as related to head or spine injuries?

A. Brain tissue, bones or the spinal cord may be damaged,
It is usually difficult to determine the extent of damage in head and spine injuries,
A possible change in the level of consciousness,
Always provide initial care as if the injury is serious and spinal cord is unstable.

Q. What is the first and most important sign of a serious head injury?

A. An altered or change in the level of consciousness.

Q. What should be used by a rescuer to evaluate whether a patient has received a head or spine injury?

A. Consider the cause of the injury (mechanism of the accident),
Survey the scene and evaluate the forces involved in the injury,
Strong forces are likely to cause injury to the head or spine.

Q. What is most important for a patient with a head injury?

A. Supporting the respiratory and circulation problems (breathing and circulation).

Q. An unconscious patient was hit in the head with a sledgehammer. How should a rescuer open the airway?

A. Modified jaw thrust.

Q. Two equipment operators have rammed into each other. One operator is complaining of tingling and loss of sensation in the legs. How should the patient be treated?

A. Stabilize for a spinal injury (backboard).

Q. What may be present with a serious head injury?

A. Blood or other fluids draining from the ears or nose,
Serious external bleeding from the head,
Severe pain or pressure in the head or spine.

Q. What type injury results in bruising and discoloration around the eyes and/or behind the ears?

A. A serious head injury.

Q. An unconscious patient injured in a slip and fall accident has blood and greasy/oily-like fluid draining from the ears and nose. What is the correct treatment?

A. Apply a loose sterile dressing and stabilize for a spine injury.

Q. A patient fell 10 feet from on top of a surface building and is complaining of loss of sensation and loss of ability to move the legs. What is the correct treatment?

A. Stabilize on a backboard and monitor the ABC's.

Q. A piece of metal, 10 feet in length, fell and struck a person in the head and neck area. The patient is unconscious. How should a rescuer open the airway?

A. Modified jaw thrust.

Q. An unconscious patient has a suspected spinal injury. After insuring the patient has an open airway and is breathing, what should the rescuer do next?

A. Maintain in-line stabilization of the head to minimize movement.

Q. What would be signs or symptoms of a head or spine injury?

A. Pain in the neck,
Pain in the spine,
Seizures.

Q. What should a rescuer do if ever in doubt as to whether or not a spinal injury may have been caused by the accident?

A. Stabilize on a backboard, even when in doubt.

Q. An unconscious patient has head injuries. The ABC's have been treated and stabilized. What should the rescuer do next?

A. Stabilize on a backboard and elevate the head end of the backboard.

Q. What is the correct treatment for immobilizing a patient with a suspected spinal injury?

A. The application of a rigid cervical collar,
The application of a blanket roll (horseshoe shape) around the head, secured to the backboard,
Immobilized on a backboard.

Q. A patient has a scalp wound with external bleeding. The rescuer sees bone fragments at the injury site. What should be done by a rescuer?

A. Examine the injured area very carefully,
Apply only slight pressure with a sterile gauze around the wound,
Be careful not to apply direct pressure too close to the wound area.

Q. When is the only time that a rescuer is allowed to remove an impaled object?

A. In the cheek, only when necessary to control bleeding and to keep the airway open.

Q. A patient has an impaled object in the cheek. The rescuer attempts to remove the impaled object to keep the airway open but this attempted removal results in extreme pain for the patient. What should the rescuer do?

A. Leave the object in place and stabilize in place with bulky dressings and bandages.

Q. What is the proper treatment for a nosebleed?

A. Have the patient sit with the head leaning slightly forward while pinching the nostrils together.

Q. What should be avoided after a nosebleed has been controlled?

A. Rubbing the nose,
Blowing through the nose,
Picking the nose.

Q. What is the proper treatment for a patient that has a piece of wood impaled in the eye?

A. Place a sterile dressing around the object and stabilize as best you can with a paper cup and bandage both eyes to prevent sympathetic eye movement.

Q. What is the proper treatment for a patient that has chemicals, acids, etc. splashed in the eyes?

A. Flush with large amounts of water or eye wash solution (away from the unaffected eye, if applicable).

Q. A patient has a small piece of metal lying on the surface of the eyeball. A rescuer attempts to wash out the metal but is unsuccessful. What should the rescuer do now?

A. Dress the injured eye and uninjured eye as well and transport to the doctor.

Q. A patient has injuries to both eyes. How should a rescuer treat?

A. Cover both eyes with sterile dressings and transport.

Q. What is the proper treatment for a patient that has dirt in the eye?

A. Rinse the eye with water and if not removed, transport to the doctor.

Q. What should be a rescuer's primary concern when a patient has an injury to the mouth, jaw or neck?

A. Ensuring an open airway and adequate breathing.

Q. What may be related to injuries of the front part of the neck?

A. Suspected possible spine injury,
Suspected fractured trachea (windpipe),
Suspected bleeding and swelling that may obstruct the airway.

Q. When would a rescuer suspect a spinal injury?

A. An unconscious patient involved in a fall accident,
A strong blunt force that struck the head,
An unconscious patient that fell off a building.

Q. How should a rescuer give rescue breaths to a non-breathing patient with head injuries but does not have visible bleeding around the mouth or nose?

A. Use a resuscitation mask.

FIRST AID

C-INJURIES OF THE CHEST, ABDOMEN AND PELVIS

The chest, abdomen and pelvis contain important organs and injury to these areas may be fatal.

I. INJURIES TO THE CHEST

The chest contains the heart, major blood vessels and lungs.
The 12 pairs of ribs help protect the vital organs.

Chest injuries are the second leading cause of trauma deaths each year.

Chest wounds may be open or closed.

SIGNS AND SYMPTOMS OF SERIOUS CHEST INJURIES

1) Difficulty breathing
2) Pain at the site of injury that increases with deep breathing or movement
3) Deformity, such as that caused by a fracture
4) Flushed, pale or bluish discoloration of the skin
5) Coughing up blood

RIB FRACTURES

A simple rib fracture is rarely life-threatening.
A patient with a rib fracture may have shallow breathing because normal or deep breathing is painful.

A patient with a rib fracture will usually lean toward the side of the fracture and press a hand or arm over the injured area.

Serious rib fractures can be life-threatening.

FLAIL CHEST - Fractured ribs that do not move normally with the rest of the chest during breathing.

The flail segment moves in the opposite direction as the rest of the chest during breathing.

TREATMENT FOR RIB FRACTURES:

1) Have the patient rest in a position that will make breathing easier.
2) Binding the patient's arm to the chest on the injured side will help support the injured area and make breathing more comfortable
3) A pillow or rolled blanket applied against the injured area can be used to help support and immobilize the injured area.

CHEST PUNCTURE INJURIES:

Puncture wounds to the chest may be life-threatening.

A puncture wound that penetrates the lung or chest cavity surrounding the lung may allow air to enter the chest. This prevents the lungs from functioning properly.

TREATMENT FOR CHEST PUNCTURE INJURIES:

Sucking chest wound - A penetrating chest injury that allows air to enter the chest cavity and a sucking sound can be heard coming from the wound each time the patient breathes. This is a very serious injury.

NOTE: The primary concern for a sucking chest wound is breathing problems.

To treat a sucking chest wound - Cover the wound with an occlusive dressing and leave one corner loose.

Occlusive dressings - Aluminum foil, plastic wrap, petroleum gauze

NOTE: Tape the occlusive dressing over the wound and leave one corner loose.

II. INJURIES TO THE ABDOMEN

The abdomen is the area immediately under the chest and above the pelvis.

Note: The liver, spleen and stomach are organs in the abdomen that are easily injured and bleed profusely when injured.

The abdomen has 4 quadrants with the navel serving as the reference point: Quadrants - Upper left, Upper right, Lower left, Lower right

NOTE: The liver is located in the upper right quadrant, is rich in blood and injuries to the liver can quickly be fatal.

NOTE: The spleen, which stores blood, located in the upper left quadrant, is easily damaged and also, like the liver, bleeds profusely when injured.

NOTE: The stomach, located mostly in the upper left quadrant, can bleed severely when injured.

B. SIGNS AND SYMPTOMS OF ABDOMINAL INJURIES:

1) Severe pain
2) Bruising
3) External and/or internal bleeding
4) Nausea and vomiting (sometimes vomit containing blood)
5) Pale, moist skin
6) Weakness
7) Thirst
8) Pain, tenderness or a tight feeling in the abdomen
9) Organs, possibly protruding from the abdomen

B. TREATMENT FOR OPEN ABDOMINAL INJURIES

(Abdominal injuries can cause severe external or internal bleeding and can quickly result in shock.)

1) Carefully position the patient on the back
2) Do not apply direct pressure
3) Do not push organs back in
4) Remove clothing from around the wound
5) Apply moist, sterile dressings loosely over the wound
6) Cover dressings loosely with plastic wrap
7) Cover dressings with a folded towel or large trauma dressing to maintain warmth
8) Maintain normal body temperature (keep the patient warm)
9) Stabilize and secure to a backboard and transport as quickly and safely as possible

C. TREATMENT FOR CLOSED ABDOMINAL INJURIES

1) Carefully position the patient on the back
2) Do not apply direct pressure
3) Bend the patient's knees slightly. This releases the abdominal muscles to relax. Place rolled-up blanket under the patient's knees. If movement of the patient's legs causes pain, leave the legs straight
4) Treat for shock. Maintain normal body temperature by keeping the patient warm
5) Stabilize and secure to a backboard and transport as quickly and safely as possible

III. INJURIES TO THE PELVIS

The pelvis contains the urinary bladder, sex organs, and lower portion of the large intestines.

Arteries and nerves pass through the pelvis.

The organs within the pelvis are well protected on the sides and back but not in the front.

A. SIGNS AND SYMPTOMS OF PELVIC INJURIES

1) Similar to those of abdominal injuries
2) Loss of sensation in the legs
3) Loss of ability to move the legs
   (Both #2 and #3 may indicate an injury of the lower spine)

B. TREATMENT OF PELVIC INJURIES

1) Treat for the same way as abdominal injuries
2) Never move the victim until stabilized and secured to a backboard, if possible. The situation dictates if you can treat in the location found and if the area is safe
3) Keep the patient lying flat on their back
4) Keep the patient as comfortable as possible
5) Control external bleeding
6) Cover any protruding organs
7) Maintain normal body temperature (keep the patient warm)
8) Stabilize and secure to a backboard and transport as quickly and safely as possible.

NOTE: Stabilize and secure on a backboard because always suspect a spinal injury when a pelvis injury is suspected.

C. GENITAL AREA INJURIES

- These injuries are extremely painful.
- Treat as for other wounds.
- Be careful to avoid embarrassment to the patient.

D. SUMMARY OF CHEST, ABDOMEN AND PELVIS INJURIES

1) These injuries can be serious and life-threatening
2) Treat all life-threatening conditions, first, as always, ABC's (airway, breathing, circulation)
3) Treat specific injuries
4) Stabilize, secure and transport as quickly and safely as possible

QUESTIONS FOR REVIEW

Chest, Abdomen, Pelvis Injuries

Q. What would be signs or symptoms of a serious chest injury?

A. Difficulty breathing,
Pain at the site of the injury,
Pain that increases with deep breathing or movement,
Coughing up blood,
Flushed, pale or bluish discoloration of the skin,
Pain that increases with deep breathing.

Q. What would be associated with rib fractures?

A. Shallow breathing,
Pain in the rib area,
Patient leaning forward and pressing a hand or arm over the injured area.

Q. How should rib fractures be treated?

A. Place a blanket against the injured area, secure with two triangular bandages, and bind the patient's arm to the chest with a sling and swathe to help support the injured area.

Q. What should be a rescuer's main concern for a patient that has a serious chest injury?

A. Treat breathing problems, insure an open airway, and stabilize breathing.

Q. How should a rescuer treat a "sucking chest wound"?

A. Cover the wound with an occlusive dressing, tape in place and leave one corner loose to allow air to escape.

Q. Where is the liver located in the abdomen?

A. Upper right quadrant.

Q. Where is the spleen located in the abdomen?

A. Upper left quadrant.

Q. As related to abdominal injuries, what does the liver, spleen and stomach have in common?

A. All three organs are rich in blood, bleed seriously when injured causing shock signs and symptoms.

Q. What are signs or symptoms of a serious abdominal injury?

A. Severe pain,
Bruising,
External bleeding,
Nausea and vomiting (vomit may contain blood),
Pale, moist skin,
Thirst,
Pain, tenderness or a tight feeling in the abdomen,
Organs possibly protruding from the abdomen,
Nausea and vomiting (vomit may contain blood).

Q. What is the proper treatment for an open abdominal wound with protruding organs?

A. Carefully position the patient on their back,
Remove clothing from around the wound,
Apply moist, sterile dressings loosely over the wound.

Q. What is the proper treatment for an open abdominal wound with protruding organs?

A. Cover moist sterile dressings loosely with plastic wrap or aluminum foil,
Cover plastic wrap or aluminum foil with a large dressing, towel, etc. to maintain warmth,
Maintain normal body temperature by keeping the patient warm.

Q. What is the proper treatment for a "closed abdominal injury"?

A. Carefully position the patient on their back,
Bend the patient's knees slightly, place rolled up blankets under the knees to allow the abdomen muscles to relax (If leg movement causes pain, leave legs straight),
Treat for shock (keep the patient warm).

Q. How should "impaled objects" in the chest or abdomen be treated?

A. Stabilize the impaled object in place with bulky dressings, bandages, etc.

Q. How should a patient with a pelvis injury be stabilized?

A. On a backboard.

Q. A patient was hit in the pelvis when a steel belt rope broke and whip lashed toward the patient. The patient has lost feeling and sensation in the legs and cannot move the legs. What is the proper treatment?

A. Stabilize and secure to a backboard where found if the scene is safe.

Q. What should a rescuer also suspect if a patient has a pelvis injury?

A. Possible injury to the lower spine.

Q. Which organs are located in the “chest cavity”?

A. Heart,
Lungs,
Major blood vessels.

FIRST AID

D-INJURIES OF THE EXTREMITIES

Injuries to the extremities are common.

Prompt treatment can help prevent further damage and pain.

GENERAL TREATMENT:

1) Insure adequate breathing and ABC's
2) Control bleeding
3) Support and immobilize the injured extremity
4) Elevate, if practicable, after splinting if such elevation does not cause pain
5) Monitor vital signs
6) Treat for shock - Maintain normal body temperature by keeping patient warm. Help make the patient as comfortable as possible.
7) Transport in a safe manner

SIGNS AND SYMPTOMS OF SERIOUS EXTREMITY INJURIES:

1) Pain
2) Tenderness
3) Moderate or severe swelling
4) Discoloration
5) Significant deformity of a limb
6) Inability to move or use an injured limb
7) Severe external bleeding

UPPER EXTREMITY INJURIES

The upper extremities include the arms, hands, collarbone, shoulder blade and shoulder.

The upper extremities are the most commonly injured areas of the body.

Minimize movement of any seriously injured upper extremity.

NOTE: Never change the position if a patient is holding an injured arm against the chest. Holding the arm in this position is an effective immobilization.

ALWAYS REMEMBER: **A conscious patient will be holding an injured arm in the most comfortable position and usually you will have to splint in this position found.**

ALWAYS REMEMBER: **Check for circulation and sensation below the injury site, both before and after splinting.**
(Circulation - capillary refill and pulse below the injury)
(Sensation - feeling, movement, etc below the injury)

Caution: **Always make sure you check after splinting to make certain that you have not tied a splint too tight.**

A. SHOULDER INJURIES

The shoulder consists of the collarbone, shoulder blade and upper arm (humerus), and shoulder joint.

1 - Collarbone

The most common injured bone of the shoulder is the collarbone, usually the result of a fall.

A patient with a fractured collarbone will usually hold the arm against the chest.

A sling and swathe on the injured side can be used to splint a collarbone injury.

2 - Shoulder blade

Shoulder blade injuries are not common.

The patient may have extreme pain and may not be able to move the arm.

Splint the arm in position found, usually with a sling and swathe on the injured side.

3 - Shoulder joint

Dislocations are common shoulder injuries.

Shoulder dislocations are painful and can be identified by the deformity present. These patients will try to minimize the pain by holding the arm in the most comfortable position.

TREATMENT FOR SHOULDER INJURIES:

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Check for circulation and sensation in the hands and fingers.
4) Splint in the position found (The patient will be holding the arm in the most comfortable position. Splint in this position.)

NOTE: If a patient is holding the arm away from the body, use a rolled blanket, or similar material to fill the gap between the arm and chest.

5) Splint with a sling and swathe.
6) Recheck for circulation and sensation

CAUTION: Make absolutely certain that you have not tied a splint too tight.

7) Apply cold applications (cold packs, etc.) to help reduce swelling and pain.
8) Treat for shock (keep the patient warm)
9) Monitor ABC's.

B. UPPER ARM INJURIES

The upper arm contains the bone that extends from the elbow to the shoulder.

A fracture of the upper arm may damage blood vessels and/or nerves.

Upper arm fractures are very painful and a patient usually cannot use that arm.

TREATMENT FOR UPPER ARM INJURIES

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Check for circulation and sensation in the hand and fingers
4) Immobilize the upper arm from the shoulder to the elbow
5) Splint with a sling and swathe
6) Recheck for circulation and sensation

CAUTION: Make absolutely certain that you have not tied or applied a splint too tight.

7) Apply cold applications
8) Treat for shock (keep the patient warm)
9) Monitor ABC's

C. ELBOW INJURIES

The elbow can be sprained, fractured or dislocated.

Injuries to the elbow can cause permanent disability because nerves and blood vessels go through the elbow.

Treat all elbow injuries as very serious.

Elbow injuries can be made worse by movement.

TREATMENT FOR ELBOW INJURIES

ALWAYS REMEMBER: Never move the arm or elbow if a patient says that they cannot move their elbow.

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Check for circulation and sensation in the hand and fingers
4) Immobilize the arm from the shoulder to the wrist
5) Splint in the position found
6) Recheck for circulation and sensation

CAUTION: Make absolutely certain that you have not tied or applied a splint too tight.

D. FOREARM, WRIST AND HAND INJURIES

The forearm is the area from the elbow to the wrist and contains two forearm bones.

A forearm fracture may cause severe bleeding and/or loss of movement in the wrist and hand.

The hands are commonly injured because of everyday use. Serious injuries may damage nerves, blood vessels and bones.

TREATMENT OF FOREARM, WRIST AND HAND INJURIES

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Check for circulation and sensation in the hand and fingers

AIR SPLINTS

Air splints are also an effective way to immobilize the hand and forearm.

Be very careful when applying an air splint so as not to increase pain for the patient.

SPECIAL NOTE: Be careful not to over inflate an air splint. Over inflation may cut off circulation and serve as a tourniquet.

PROPER INFLATION OF AN AIR SPLINT

- A rescuer should be able to make a slight dent in the splint surface with your thumb.
- A change in air temperature affects the air and splint tightness of an air splint.
- Moving from a cold area to a warm area will cause an air splint to expand and get tighter.
- Moving from a warm area to a cold area will cause an air splint to loosen.
- Continuously check inflation of an air splint.
- Continuously monitor and recheck circulation and sensation in the fingers if you apply an air splint.

4) Immobilize the injured part with a sling and swathe if moving the arm to a (sling-swathe) position does not cause pain.

FOREARM INJURIES TREATMENT

1) Check and treat ABC's
2) Control external bleeding
3) Check for circulation and sensation in the hands and fingers
4) Place a rigid splint underneath the forearm, extending beyond the hand and elbow.
5) Place a roll of gauze or similar material in the palm of the hand to maintain fingers in a normal position.
6) Apply a triangular bandage both above and below the injury site.
7) Recheck circulation and sensation.
8) Apply a sling and swathe.
9) Elevate the injured area if possible
10) Apply cold applications
11) Treat for shock
12) Monitor ABC's

WRIST, HAND AND FINGER INJURIES TREATMENT

1) Check and treat ABC's
2) Control external bleeding
3) Check for circulation and sensation in the hands and fingers
4) Immobilize wrist, hand and finger injuries with a soft splint (gauze and triangular bandages)
5) Splint injured fingers to an adjacent finger with tape
6) Recheck circulation and sensation
7) Apply a sling and swathe to the injured hand side
8) Elevate the injured area if possible
9) Apply cold applications
10) Treat for shock
11) Monitor ABC's

NOTE: NEVER ATTEMPT TO PUT A DISPLACED OR DISLOCATED FINGER OR THUMB BONES BACK INTO PLACE.

CAUTION: Make absolutely certain that you have <u>not</u> tied or applied a splint too tight.

II LOWER EXTREMITY INJURIES

The lower extremities consist of the thigh, knee, lower leg and foot.

THE FEMORAL ARTERY IS THE MAJOR VESSEL THAT PROVIDES BLOOD TO THE LEGS AND FEET. (LOCATED ON INSIDE OF THE THIGH)

Damage to the femoral artery, which can occur with a fracture of the bone in the thigh, can be life-threatening due to severe blood loss.

A. THIGH, KNEE AND LOWER LEG INJURIES

1) Thigh Injuries

The bone in the thigh (femur) is the largest bone in the body.

A femur fracture usually produces a deformity.

SPECIAL NOTE: A femur fracture will usually be turned <u>outward</u> and the injured leg will appear <u>shorter</u> than the other leg.

TREATMENT OF A THIGH (FEMUR BONE) INJURY

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Check for circulation and sensation in the foot and toes
4) Immobilize in the position found
5) Splints:

   a) Tie legs together, pad with blanket or other bulky material between legs
   b) Secure injured leg with a padded board on the outside and inside of the leg (Outside - Splint beyond foot and thigh. Inside - Crotch to beyond foot.)
   c) Secure to a backboard after stabilizing using a or b, above

6) Recheck for circulation and sensation

CAUTION: Make absolutely certain that you have not tied a splint too tight.

7) Apply cold applications (cold pack, etc.) to help reduce swelling and pain
8) Treat for shock (keep the patient warm)
9) Monitor ABC's

2) KNEE INJURIES

The knee joint is very vulnerable to injury and consists of the lower end of the thigh (bone), upper ends of the lower leg bones, and the kneecap.

Knee injuries range from cuts, bruises, sprains, fractures and dislocations.

TREATMENT FOR KNEE INJURIES

1) Check and treat ABC's
2) Control external bleeding (direct pressure, etc.)
3) Immobilize with the following considerations:
   a - If the knee is bent and cannot be straightened without pain, splint as found.
   b - If the knee is straight or can be straightened without pain, splint as found with available material.
4) Splint with long leg rigid splinting material. (Long wooden board on outside - short wooden board on inside) Secure on a backboard. A long leg air splint or blanket (pillow) material can be used to stabilize an injured knee depending on position of the leg, knee and patient position.
5) Recheck for circulation and sensation.

CAUTION: Make absolutely certain that you have not tied a splint too tight.

6) Apply cold applications (cold pak, etc.)
7) Treat for shock (keep the patient warm)
8) Monitor ABC's

3) ANKLE AND FOOT INJURIES

Ankle and foot injuries are common and range from sprains and dislocations.

Treat all ankle and foot injuries as serious.

TREATMENT FOR ANKLE AND FOOT INJURIES

1) Check and treat ABC's
2) Control external bleeding
3) Check for circulation and sensation
4) Immobilize with available splints
5) Splint, using a or b (below):

    a -A soft splint such as a folded blanket and secure to the foot
    b -Air splint
    c -Elevate the injured foot to help reduce swelling
    d -Stabilize on a backboard

6) Recheck for circulation and sensation

CAUTION: Make absolutely certain that you have <u>not</u> tied the splint too tight.

7) Apply cold applications (cold pak, etc.) to help reduce swelling and pain.
8) Treat for shock (keep the patient warm)
9) Monitor ABC's

FIRST AID

TRANSPORTATION OF PATIENTS

I STABILIZING FOR TRANSPORTATION

SPECIAL NOTE: Always remember:
Stabilize patients before moving unless necessary to move for your or the patient's safety. When in doubt, always splint before moving.

NOTE: Always evaluate the cause of the accident and determine if a patient may have a suspected neck or spinal injury.

Always treat patients with serious head injuries as though they have a neck (spinal) injury. Open and maintain the airway in these patients using the jaw thrust.

Always apply a cervical collar and blanket-roll around the head for patients with a suspected spinal injury.

Patients with any type of serious head, chest, abdomen, pelvis or leg injuries should be secured on a backboard. Other patients that have signs and symptoms of shock should also be secured to a backboard.

Always secure a patient to a backboard with a sufficient number of triangular bandages (usually 15 to 20) such that the backboard and patient can be turned on its side to allow for drainage, if a patient vomits.

Remember, vomiting is normal with shock.
Shocky patients tend to vomit, and especially patients with head injuries.

A patient with a suspected spinal injury must be adequately secured to a backboard such that if the backboard is turned on its side, that the patient will remain in a neutral in-line, secure position.

II PREVENTING INJURY DURING TRANSPORTATION

Be sure you have adequately secured and stabilized a patient before you begin transportation.

Never get in too big a hurry while transporting a patient.

Your objective is to safely transport a patient without causing further injuries. The worst thing that can happen is to cause more patient injuries.

QUESTIONS FOR REVIEW

Upper Extremity Injuries

Q. What is important information as related to splinting upper and lower extremity injuries?

A. Splint in the position found,
Injuries may damage blood vessels, tissues, nerves, muscle, etc.
Very few extremity injuries are life-threatening.

Q. How can a rescuer splint for a suspected collarbone injury?

A. Apply a sling and swathe on the injured arm side to support the arm and hold it against the chest.

Q. A patient has a suspected dislocated shoulder and is holding the arm away from the chest. How should a rescuer stabilize?

A. Splint in the position found. Place a rolled blanket in the space between the arm and chest and apply a sling and swathe.

Q. A patient has a shoulder injury. When should circulation and sensation in the hand and fingers be checked?

A. Both, before and after splinting.

Q. What is important information as related to elbow injuries?

A. Injuries to the elbow can cause permanent disability,
All nerves and blood vessels to the forearm and hand go through the elbow,
Injuries to the elbow can be made worse by movement.

Q. What is important information as related to elbow injuries?

A. When a patient says that they cannot move the elbow, never attempt to move in any manner,
Splint in the position you find it,
Check for circulation and sensation in the hand and fingers both before and after splinting.

Q. What is important information as related to a fracture of the forearm?

A. Check for circulation and sensation in the fingers both before and after splinting,
Apply a rigid, wooden board splint or an air splint and leave the fingers exposed,
Apply a sling and swathe after applying an air splint or wooden board splint.

Q. What is correct treatment for a suspected fractured or dislocated finger?

A. Splint to an adjacent finger.

Q. When applied, how much air is required to properly inflate an air splint?

A. Inflate until you can make a slight dent in the surface of the splint with your thumb.

Q. In July, an air splint has been applied to a patient's forearm while underground. The patient starts complaining that they cannot feel their fingers after arriving on the surface. What should the rescuer do?

A. Release part of the air in the splint because the air has expanded in the splint due to moving from a cold temperature area to a hot temperature area.

QUESTIONS FOR REVIEW

Lower Extremity Injuries

Q. What would be associated with a fracture of the femur (thigh bone)?

A. The leg will be turned outward,
The injured leg will be noticeably shorter than the other leg,
The patient will not be able to move the injured leg and severe pain and swelling will be present.

Q. What is important information as related to an injury of the femur (thigh bone)?

A. Check circulation and sensation, both before and after splinting,
If long leg wooden splints are used to stabilize, place one splint on the outside of the leg and one splint on the inside of the leg,
Treat for shock by keeping the patient warm.

Q. Which of the following is a general rule for splinting knee injuries?

A. Splint as you find it.

Q. Which of the following is not correct as related to splinting a knee injury?

A. A pillow splint can be used,
A long leg air splint can be used,
Rigid wooden board splints can be used.

Q. What will usually cause the most deformity?

A. Dislocations of the knee, hip, shoulder, or elbow.

Q. A patient has an injury in the knee area and you can not determine if the injury has caused a fracture or dislocation. How should you treat?

A. Splint in the position found.

Q. What is the main concern that a rescuer should have while treating a knee injury?

A. Treat and stabilize to reduce the risk of loss of sensation and circulation below the knee.

Q. What is important information as related to ankle and foot injuries?

A. Such injuries are commonly caused by twisting forces,
You should initially care for such injuries as if they are serious,
A rescuer usually cannot distinguish between minor or severe Injuries.

Q. What is important information as related to splinting an ankle or foot injury?

A. An air splint can be used,
A rolled blanket splint can be used,
Elevate the injured ankle after splinting to help reduce swelling and apply a cold pack.

Q. A person became off balance and fell seven (7) feet off a ladder and landed on both feet. The patient is complaining of pain in both ankles and back. What should a rescuer treat for in addition to ankle injuries?

A. Suspect a spine injury and stabilize on a backboard.

FIRST AID

SECTION VII

HEAT AND COLD EMERGENCIES

I BODY TEMPERATURE

The body temperature must remain constant for the body to work efficiently.

Normal body temperature is 98.6 degrees Fahrenheit.

Body heat is generated primarily through the conversion of food to energy.

Body heat is also produced by muscle contractions such as exercise, shaking and shivering.

Heat always moves from warm areas to cooler areas.

NOTE: This is the reason that patients exposed to a cold environment must be re-warmed and kept warm.

The body removes heat from the body through the skin. Blood vessels near the skin dilate (get larger) to bring more blood near the surface. Heat escapes through the skin and through sweating.

The body reacts to a cold environment by constricting (get smaller) blood vessels near the skin to avoid losing body heat.

Air temperature, humidity and wind are three external factors that affect how the body maintains its temperature.

The clothing you wear also affects how well the body manages extreme temperatures, both hot and cold.

II COLD EMERGENCIES

Cold emergencies are divided into 2 types:

1) Frostbite
2) Hypothermia

Frostbite occurs when the body is exposed to cold.

Hypothermia occurs when the body can no longer generate sufficient heat to maintain normal body temperature.

A. FROSTBITE

Frostbite is the freezing of body tissues.
Frostbite can affect the skin or deep tissues.

NOTE: In frostbite, the water between and in the cells freeze and swell, causing damage or destruction of the cells.

Frostbite can cause loss of fingers, hands, arms, toes, feet and legs.

SIGNS AND SYMPTOMS OF FROSTBITE

1) Lack of feeling in the affected area.
2) Skin that appears waxy.
3) Skin that is cold to the touch.
4) Skin that is discolored (flushed, white, yellow or blue)

TREATMENT FOR FROSTBITE

1) Check and treat ABC's
2) Handle the area gently and cover the affected area to re-warm if you don't have warm water immediately available to re-warm the body part.

SPECIAL NOTE: Never rub a frostbitten area. The water in the body and cells freeze and form ice crystals. Rubbing will cause the ice crystals to cut and damage body tissue.

3) If available, place the frostbitten part in warm water that is 100 to 105 degrees Fahrenheit.

GENRAL RULE ON WATER TEMPERATURE:
Test the water to make sure the water is comfortable. If the water temperature is uncomfortable for you, it is too hot.

4) Keep the frostbitten body part in the warm water until it appears red (normal) and feels warm.
5) After re-warming, bandage the area with a dry, sterile dressing.

SPECIAL NOTE: For frostbitten feet, never allow the patient to walk on the injured part. Stabilize and transport on a spine board.

SPECIAL NOTE: If the fingers or toes are frostbitten, place gauze or dressing material between them.

6) Avoid breaking any blisters
7) Recheck and monitor ABC's
8) Transport to the hospital safely

B. HYPOTHERMIA

Hypothermia occurs when the entire body cools after the warming mechanisms have failed.

NOTE: HYPOTHERMIA affects the whole body while FROSTBITE may only affect a body part such as the hands, fingers, feet, toes, face or ears. The face <u>cannot</u> be placed in water.

Hypothermia patients will die if not treated.

In hypothermia, the body temperature drops below 95 degrees Fahrenheit.

The heart begins to beat irregular and eventually will stop as the body temperature cools in this situation. Death will then occur.

SIGNS AND SYMPTOMS OF HYPOTHERMIA

1) Shivering
2) Slow, irregular pulse
3) Numbness
4) Glassy stare
5) Apathy and decreasing levels of consciousness

TREATMENT FOR HYPOTHERMIA

1) Check and treat the ABC's. Treat life threatening problems immediately.
2) Notify and make arrangements to transport to a medical facility (hospital) as quickly and safely as possible.
3) Remove any wet or damp clothing.

NOTE: These materials will continue to absorb heat from the body.

4) Dry the patient, if wet.
5) Wrap the patient in blankets, put on dry clothing, etc.
6) Move the patient to a warm area.
7) If available, hot water bottles, heating pads, etc. can be applied to help re-warming the body.

NOTE: Place a dressing, bandage, etc. between the skin and source of heat while re-warming.

8) Give patient warm liquids to drink if conscious and fully alert.

SPECIAL NOTE: Never give a patient anything to drink if the patient is not conscious and fully alert (otherwise it may cause choking or aspiration from vomiting.)

9) Never re-warm the patient too quickly because too rapid re-warming can cause dangerous heart rhythms.
10) Handle the patient very gently.
11) Recheck and monitor ABC's
12) Transport the patient to the hospital as quickly and safely as possible.

NOTE: A patient exposed to a cold environment is not dead until they are warm and dead. This means that the brain and vital organs can survive longer without damage in a cold environment as compared to a normal air temperature environment.

These type patients will have their blood re-warmed in a hospital, life saving measures will be continued until after the body and blood have been re-warmed.

After re-warming has occurred, and resuscitation efforts have failed, then and only then will a patient be declared dead.

FIRST AID

HEAT EMERGENCIES

Illnesses caused by exposure to extreme temperatures are progressive and can become life-threatening.

When symptoms of a heat-related illness begin to appear, a patient's condition can get worse and can lead to death.

Immediate treatment can prevent the illness from becoming life-threatening.

The body releases heat through the skin and by sweating.
Blood vessels near the skin dilate (get larger) and help bring excessive heat to the surface of the skin.

HIGH RISK PEOPLE FOR HEAT RELATED ILLNESSES

1) Those who work strenuously outdoors
2) Elderly people
3) Those with health problems
4) Those who have had a heat-related illness in the past
5) Those who have a respiratory or cardiovascular disease (heart problem) or other conditions that cause poor circulation (diabetes)
6) Those who take medications to eliminate water from the body

HEAT - RELATED EMERGENCIES

1) Heat cramps
2) Heat exhaustion
3) Heat stroke

I HEAT CRAMPS

Heat cramps are painful spasms of muscles.

Believed to be caused by a combination of fluid and salt loss caused by heavy sweating.

Heat cramps develop rapidly and usually occur after heavy exercise or work outdoors in warm temperatures.

Heat cramps usually affect the leg or abdomen muscles.

TREATMENT FOR HEAT CRAMPS

1) Have the patient move to a cool place and rest comfortably.
2) Provide cool water or a commercial sports drink (Gatorade) Usually rest and fluids are all that the body needs.

CAUTION: Never give the patient salt tablets or salt water. A <u>public misconception</u> is that heat cramps should be treated with salt, but this is absolutely <u>not</u> true. Salt will actually make the condition worse.

3) The patient should not resume any activity until the cramps stop.
4) Inform the patient to drink plenty of fluids during physical activities.

II HEAT EXHAUSTION

Heat exhaustion is the most common form of heat-related illness.

Heat exhaustion occurs after long periods of strenuous exercise or work in a hot environment.

Heat exhaustion is an early sign that the body's temperature - regulating mechanism is becoming overwhelmed. The patient loses fluid through sweating which decreases the blood volume. Blood flow to the skin increases, which reduces blood flow to the vital organs. The patient goes into mild shock because the circulatory system is affected.

SIGNS AND SYMPTOMS OF HEAT EXHAUSTION

1) Normal or below-normal body temperature
2) Cool, moist, pale skin
   (The skin may be red in early stages immediately following exercise or physical activity.)
3) Headache
4) Nausea and/or vomiting
5) Dizziness and weakness
6) Exhaustion
7) Possible change in the level of consciousness
8) Increasing level of body temperature, if not treated promptly

HEAT EXHAUSTION HAS SIGNS AND SYMPTOMS SIMILAR TO SHOCK BECAUSE THE BODY IS IN A STATE OF MILD SHOCK.

TREATMENT FOR HEAT EXHAUSTION

1) Have the patient move to a cool place and provide comfortable patient rest.
2) Provide cool water to drink, as long as the patient is conscious and fully alert.

SPECIAL NOTE: If heat exhaustion is not treated promptly, it will quickly advance to heat stroke, which is more serious.

III HEAT STROKE

Heat stroke is the <u>most serious</u> heat-related illness but is the least common.

Heat stroke usually occurs when patients ignore the signs and symptoms of heat exhaustion.

Heat stroke develops when the body heat regulating mechanism begins to stop functioning.
Heat stroke causes the body to stop sweating because the body fluids have become low.

When sweating stops, the body cannot cool itself effectively and the body temperature rises rapidly.

The body temperature will rise to such a high level that the brain, heart and kidneys will begin to fail.
If the body is not cooled, convulsions, coma and death will result.

NOTE: HEAT STROKE IS A SERIOUS MEDICAL EMERGENCY AND IS THE MOST SERIOUS HEAT-RELATED ILLNESS.

SIGNS OF A HEAT STROKE

1) High body temperature (may go as high as 106 degrees Fahrenheit)
2) Red, hot, dry skin
3) Rapid, weak or irregular pulse
4) Rapid, shallow breathing
5) Progressive loss of consciousness

TREATMENT OF A HEAT STROKE

1) Move the patient to a cool place and provide comfortable patient rest.
2) Evaluate and treat ABC's
3) Remove any tight or heavy clothing
4) Cool the body by applying cool, wet cloths, towels, sheets, etc. to the skin (If ice packs are available, place on the neck, armpits, ankles, wrists, etc. to cool large blood vessels.)

SPECIAL NOTE: Never apply rubbing alcohol. Alcohol closes the skin pores and prevents heat loss which worsens the effects of heat stroke.

5) Have the patient drink cool water slowly, if conscious and fully alert. Don't let the patient drink too quickly. Give the patient about one-half glass of water every 15 minutes.
If the patient vomits, stop giving water and place the pateint on their side such that vomitus will drain away from their throat to help prevent a possible airway obstruction and/or aspiration of vomitus into the lungs.

SPECIAL NOTE: Never give a patient anything to drink unless they are conscious, fully alert and are not vomiting.

6) Monitor the patient closely and watch for changes in their condition.

SPECIAL NOTE: A patient's condition is getting worse if they refuse to drink water, vomit or have a change in their level of consciousness.

7) Keep the patient lying down and continue to cool the body.
8) Recheck and treat ABC's

Always be prepared to perform rescue breathing and/or CPR because this is a very serious condition that could affect breathing or the heart at any time.

QUESTIONS FOR REVIEW

Heat and Cold Emergencies

Q. What are important facts as related to body temperature heat?

A. Heat is generated primarily through the conversion of food to Energy,
Heat is also produced by muscle contractions such as exercise, shivering, etc.,
Heat always moves from warm areas to cooler areas,
The body maintains its temperature by constantly balancing heat loss.

Q. What are important facts as related to body temperature heat and cold?

A. When body heat increases, the body removes heat through the skin,
Blood vessels near the skin dilate (get larger) to bring more blood and heat near the surface where it escapes from the body,
The body reacts to cold by constricting (narrow) blood vessels near the skin to conserve body heat,
When exposed to cold and constriction of blood vessels fail to keep the body warm, shivering results.

Q. Who would be classified as a person at risk for a heat or cold related illness?

A. Those who work or exercise strenuously outdoors or in unheated or poorly cooled areas,
Elderly people,
Those with health problems such as heart problems, diabetes, etc.,
Those who have a respiratory or cardiovascular disease or other poor circulation illness.

Q. What is the correct treatment for “heat cramps”?

A. Have the patient rest comfortably in a cool place,
Provide cool water or commercial sports drink (Gatorade, etc.) to drink (about 1 half glass every 15 minutes,
Gently massage the cramp area.

Q. Which of the following is the “most common” heat related illness?

A. Heat exhaustion.

Q. What are signs or symptoms of “heat exhaustion”?

A. Cool, moist pale skin,
Headache,
Nausea and vomiting,
Dizziness.

Q. What are important facts as related to the treatment of “heat exhaustion”?

A. Can usually be reversed with prompt care,
Have the patient rest comfortably in a cool place,
Give the patient cool water to drink when conscious and alert.

Q. What is the least common but “most serious” heat related illness?

A. Heat stroke.

Q. What are important facts as related to “heat stroke”?

A. Occurs often when a patient ignores the signs and symptoms of heat exhaustion,
Develops when body systems are overcome by the effects of heat and begin to stop functioning,
Sweating stops because body fluids are low,
The body temperature rises rapidly.

Q. What are signs of “heat stroke”?

A. Red, hot, dry skin,
High body temperature,
Progressive loss of consciousness,
Rapid, weak pulse and rapid, shallow breathing.

Q. What is important information as related to the treatment of a “heat related illness”?

A. Never apply rubbing alcohol to the skin,
Have the patient drink cool water or Gatorade slowly (one half glass every 15 minutes), if conscious and alert,
Have the patient rest comfortably in a cool place and not to resume normal activities that day.

Q. A patient is showing signs and symptoms of a heat-related illness. What may be signs that the patient’s condition is getting worse?

A. The patient refuses to drink water,
The patient starts vomiting,
The patient’s level of consciousness starts changing for the worse.

Q. A patient is suffering from a heat related illness. The rescuer is giving the patient water to drink and the patient starts vomiting. What should the rescuer do?

A. Stop giving water, position the patient on one side, treat and stabilize airway and breathing.

Q. What are important facts as related to frostbite and cold emergencies?

A. Frostbite is the freezing of body tissues,
Frostbite usually occurs in exposed areas of the body,
Frostbite causes water in and between body cells to freeze and swell.

Q. What does the seriousness of frostbite and the cold emergencies depend on?

A. Air temperature,
Length of exposure,
The wind.

Q. What should be the temperature of water that frostbitten areas are re-warmed with?

A. 100 to 105 degrees Fahrenheit.

Q. What are important facts as related to treating frostbite areas?

A. Handle the affected area very gently,
Cover the affected area before and after re-warming in water,
Never rub the affected area.

Q. How long should a frostbitten area remain in water used to re-warm?

A. Until the area appears red and feels warm.

Q. What are signs or symptoms of hypothermia?

A. Decreasing level of consciousness,
Numbness,
Slow, irregular pulse,
Glassy stare.

Q. What are important facts as related to the treatment of hypothermia?

A. Do a primary survey and treat life-threatening problems,
Call for advanced medical help (rescue squad, etc),
Remove wet clothing, keep the patient dry and cover the body with blankets, etc.

Q. What are signs or symptoms of "frostbite"?

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

FIRST AID

SECTION VIII

SUDDEN ILLNESS-DIABETES, EPILEPSY, STROKE, POISONING

Sudden illnesses have a variety of signs and symptoms.
A patient's level of consciousness may change.
A patient may complain of feeling lightheaded, dizzy, weak, nauseated and/or vomit.
Breathing, pulse and skin characteristics may change.

Sudden illnesses such as fainting, diabetes, epilepsy, stroke and shock can cause a change in consciousness.

I FAINTING

Fainting is the most common sudden illness.

Fainting is a partial or complete loss of consciousness.

Fainting is caused by a temporary reduction of blood flow to the brain as blood pools in the legs and lower body.

Fainting can be triggered by an emotional shock such as the sight of blood, pain, medical conditions, standing for a long time, overexertion, etc.

SIGNS AND SYMPTOMS OF FAINTING

1) Lightheaded or dizzy feeling
2) Signs of shock, including pale, cool, moist skin
3) Nausea feeling
4) Numbness and tingling of the fingers or toes
5) Increase in breathing and/or pulse rate

TREATMENT FOR FAINTING

Fainting usually resolves itself.

When a patient is moved from an upright position to a horizontal position (lying down), normal circulation is restored to the brain.

The patient usually regains consciousness within a couple of minutes.

NOTE: BE CAUTIOUS AND TREAT FOR A POSSIBLE SPINE INJURY IF THE PATIENT FELL WHILE FAINTING.

TREATMENT:

1) Evaluate and treat ABC's
2) Lower the patient to the ground or a flat surface
3) Elevate the patient's feet 8 to 12 inches
4) Loosen any tight clothing
5) Recheck the ABC's

SPECIAL NOTES:

1) **Do <u>not</u> give the patient anything to eat or drink**
2) **Do <u>not</u> splash water on the patient's face**

II DIABETIC EMERGENCIES

Body cells need sugar as a source of energy.

The body breaks down food into sugar.

Sugars cannot pass freely into the body cells.

Insulin is necessary to help sugars pass into the body cells.
Insulin is produced by the pancreas.

A condition in which the body does not produce enough insulin is called sugar diabetes.

A person who has this condition is called a diabetic.

Any person who is a diabetic must carefully monitor their diet and exercise.

When a diabetic fails to control these factors, either of two problems can occur - too much or too little sugar in the blood. Either imbalance can become a diabetic emergency.

HYPERGLYCEMIA (Hyper-High Sugar Level)

- The sugar level in the blood is high
- The insulin level in the blood is low
- Sugar is present in the blood but cannot be transported into cells due to low insulin
- Diabetic coma results if the hyperglycemia condition is not treated promptly

HYPOGLYCEMIA (Hypo-low Sugar Level)

- The insulin level in the blood is too high
- The sugar level in the blood is low
- The sugar level can become too low if the diabetic:

    1) Takes too much insulin
    2) Fails to eat adequately
    3) Over-exercises and burns off sugar faster than normal
    4) Experiences great emotional stress

- An insulin reaction - insulin shock results if the hypoglycemia condition is not treated promptly

SPECIAL NOTE: Insulin reaction - Insulin Shock can be life-threatening, occurs more quickly than Diabetic Coma and can be life-threatening if not treated.

SIGNS AND SYMPTOMS OF DIABETIC EMERGENCIES

1) Changes in the level of consciousness, including dizziness, drowsiness and confusion
2) Rapid breathing
3) Rapid pulse
4) Feeling and looking ill

TREATMENT FOR DIABETIC EMERGENCIES

1) Conduct primary survey
2) Evaluate and treat ABC's
3) Conduct a second survey
   If conscious, ask the patient if they are diabetic
   If unconscious, look for a medic-alert tag on the neck, wrists and ankles
4) If conscious, give sugar in some form, such as candy, fruit juices, non-diet soft drinks
   Common table sugar, either dry or dissolved in a glass of water can be given.

SPECIAL NOTE: A conscious diabetic will be able to tell you what is wrong and will ask for something with sugar in it.

If the patient's problem is low blood sugar (hypoglycemia), the sugar will help the patient quickly.

If the patient's problem is high blood sugar (hyperglycemia), the excess sugar will not harm the patient.

SPECIAL NOTE: NEVER GIVE ANYTHING BY MOUTH UNLESS THE PATIENT IS FULLY CONSCIOUS AND ALERT.

5) Maintain normal body temperature (keep the patient warm)
6) Recheck and treat ABC's
7) Transport to the hospital, if the patient does not feel better within 5 minutes after taking sugar.

III EPILEPSY

An acute or chronic condition that may cause seizures.

A seizure is a loss of body control caused by an electrical irregularity of the brain.

The electrical activity of the brain becomes irregular when normal functions of the brain are disrupted by injury, disease, fever, infection or epilepsy.

SIGNS AND SYMPTOMS OF A SEIZURE

1) Patient may have an unusual sensation or feeling such as a visual hallucination, a strange sound, taste, smell or urgent need to get to safety
2) Uncontrolled muscular contractions (convulsions)
3) Irregular or possibly stoppage of breathing

TREATMENT FOR A SEIZURE

1) Check and manage the airway
2) Protect the patient from injury

SPECIAL NOTE: Never try to stop a seizure.
Never attempt to restrain a patient who is having a seizure.

3) Position the patient on one side for drainage, if saliva or vomitus is present in the mouth
4) Never place anything in the patient's mouth, including your fingers
5) Perform a secondary after the seizure has run it's course

- Treat any injuries that may have occurred during the seizure
- Offer comfort and reassure the patient
- Ask bystanders not to crowd around the patient

6) Stay with the patient until they are fully conscious and aware of their surroundings. Seizure patients usually recover in a few minutes.

TRANSPORT THE FOLLOWING SEIZURE PATIENTS TO THE HOSPITAL

1) If the seizure lasts more than a few minutes
2) If the patient has repeated seizures
3) If the patient appears to be injured
4) If you are uncertain about the cause of the seizure
5) If the patient is a known diabetic
6) If the seizure takes place in water
7) If the patient fails to regain consciousness after the seizure

IV STROKE

A stroke is caused by a disruption of blood to the brain, serious enough to damage brain tissue.

A stroke is caused by one of the following:

1) A clot that forms in the brain and restricts or stops blood flow
2) A clot that forms elsewhere in the body, travels to the brain and restricts or stops blood flow
3) A blood vessel that bursts in the brain

A head injury, high blood pressure, a weak area in a blood vessel, fat deposits in a blood vessel or a tumor may cause a stroke.

SIGNS AND SYMPTOMS OF A STROKE

1) A patient looking or feeling ill
2) Changes in consciousness or abnormal behavior
3) Weakness and numbness of the face, arm, or legs usually on one side of the body
4) Difficulty in talking or understanding verbal communications
5) Blurred or dimmed vision
6) Unequal pupils
7) Sudden, severe headache
8) Dizziness, confusion, changes in behavior/mood
9) Ringing in ears
10) Loss of bladder or bowel control

TREATMENT FOR A STROKE

1) Check and treat ABC's
   (Treat all life-threatening conditions)
2) Position the patient on one side if fluid or vomitus is present in the mouth. A finger sweep may be necessary to remove material from the mouth
3) Secure to a backboard and transport quickly and safely to the hospital

   If the patient is conscious:

   A - Conduct a secondary survey
   B - Comfort and reassure the patient
   C - Never give anything to eat or drink
   D - Place the patient on one side if any type material is present in the mouth

4) Recheck ABC's while transporting

V ANAPHYLAXIS - ANAPHYLACTIC SHOCK – SEVERE ALLERGIC REACTION

Severe allergic reactions are rare but are life-threatening if they occur.

Anaphylaxis is a form of shock.

Anaphylaxis (severe allergic reaction) can be caused by an insect bite, sting or by contact with drugs (penicillin), medications, food, chemicals, etc.

SIGNS AND SYMPTOMS OF ANAPHYLAXIS

1) Usually occurs suddenly
2) Skin or area of the body affected usually turns red and swells
3) Hives, rash and itching
4) Weakness
5) Nausea and vomiting
6) Dizziness
7) Breathing difficulty, including coughing and wheezing

SPECIAL NOTE: Breathing difficulty can progress to an obstructed airway as the tongue and throat swell.

Death from anaphylaxis (severe allergic reaction) usually occurs because the patient's breathing is severely affected.

TREATMENT OF ANAPHYLAXIS

1) Check and treat the ABC's
   Always treat life-threatening emergencies immediately

Example: A patient that suddenly develops a breathing problem is much worse than a patient that only develops a rash when stung by a yellow jacket, bee, etc.

SPECIAL NOTE: If a patient has a breathing difficulty or complains that their throat is closing, make arrangements to transport to the hospital immediately.

This is a top priority patient that must receive medical care by a doctor as soon as possible.

2) Assist the patient to make as comfortable as possible.
3) Keep the patient as calm as possible.
4) Monitor and treat the ABC's.

NOTE: If a patient is known to have severe allergic reactions and carries an anaphylaxis kit, you can assist the patient with the injection of epinephrine.

VI. POISONING

A poison is any substance that causes injury or illness when introduced into the body.

Poisons include solids, liquids, fumes, gases and vapors.

I Poisons can enter the body in 4 ways:

1) Ingestion
2) Inhalation
3) Absorption
4) Injection

1) <u>INGESTION</u> - Swallowing a poison (alcohol, medications, spoiled food, drinking unidentified liquids, etc.)
2) <u>INHALATION</u> - A patient inhales toxic fumes (Gases such as carbon monoxide, carbon dioxide, glues, paints, etc.)
3) <u>ABSORPTION</u> - A poison enters the body after coming in contact with the skin (poison ivy, poison oak, fertilizers, pesticides, drugs, etc.)
4) <u>INJECTION</u> - Poisons that enter the body through bites or stings of insects, spiders, ticks, animals, snakes, drugs, etc.

II SIGNS AND SYMPTOMS OF POISONING

SPECIAL NOTE: The most important thing to remember about a possible poison situation is to recognize that a poisoning may have occurred and regard all poison situations as serious.

SPECIAL NOTE: Seek medical help (hospital) immediately, even if you have a slight suspicion that the patient has been poisoned.

Be cautious of odors, flames, smoke, or other signs of possible Poisoning

SIGNS/SYMPTOMS

1) Burn injuries around the mouth and nose
2) Nausea and vomiting
3) Diarrhea
4) Chest or abdominal pain
5) Breathing difficulty
6) Sweating
7) Altered level of consciousness
8) Seizures

Try to get the following information if you suspect a poisoning:

1) What was taken
2) How much was taken
3) When it was taken

POISON CONTROL CENTERS

SPECIAL NOTE: The severity of a poisoning depends on the type and amount of the substance, how it entered the body and the patient's size, weight and age.

Some poisons act fast, some act slow and sometimes you may not be able to identify the poison.

POISON CONTROL CENTERS are agencies, some located in hospitals, that you can call to get treatment information on poisonings.

SPECIAL NOTE: Call a poison control center (PCC) immediately if you have a conscious patient suspected of poisoning. The PCC will tell you what treatment to give and whether the patient should be transported to the hospital.

Transport immediately to the hospital, if a suspected poisoned patient is unconscious.

III GENERAL TREATMENT FOR POISONING

1) Survey the scene to make sure it is safe to enter to get clues about what happened.
2) Remove the patient from the source of the poison
3) The first treatment is to perform a primary survey to assess the patient's airway, breathing and circulation (ABC's).
4) Treat all life-threatening conditions
   Do a secondary survey if the patient is conscious
5) Contact the poison control center (PCC) and prepare for transportation to the hospital.

SPECIAL NOTES:

A) **Never give the patient anything by mouth unless advised by the PCC or other medical professionals**
B) **If the poison is unknown and the patient vomits, save some of the vomitus which can be used to identify the poison.**

TREATMENT FOR INGESTED POISONS

1) Provide the "general treatment" for poisoning.
2) Induce vomiting if so directed by the PCC.
   Syrup of Ipecac is used to induce vomiting.
   Dosage of syrup of ipecac – Give two (2) tablespoons followed by 2 glasses of water. Vomiting usually occurs in about 20 minutes.

SPECIAL NOTE: Vomiting should not be induced in the following situations:

A) If the patient is unconscious
B) If the patient is having seizures
C) If the patient has swallowed a corrosive substance such as acids, alkalis, or petroleum products such as kerosene, gasoline, etc.
D) If the patient has a heart problem

3) Give activated charcoal to help absorb the poison if directed by the PCC.
4) Always provide treatment as directed by the PCC.

TREATMENT FOR INHALED POISONS

Toxic fumes come from a variety of sources. Toxic fumes may or may not have an odor. Gases like carbon dioxide and carbon monoxide do not have an odor.

SPECIAL NOTE: A pale or bluish skin color indicates a lack of oxygen and may alert you to carbon monoxide poisoning. The skin may later turn red, usually after death in cases of carbon monoxide poisoning.

TREATMENT:

1) Survey the scene to make sure it is safe to enter.
2) If possible and safe to do, remove the patient from the poison as soon as possible.
3) Notify advanced medical personnel (Rescue squad, hospital, etc.)
4) Conduct a primary survey. Treat the ABC's.
5) Stabilize and secure the patient to a backboard, if necessary.
6) Transport to a medical facility (hospital).

TREATMENT FOR ABSORBED POISONS

Many different types of poisons are absorbed through the skin (poison ivy, etc.)

1) Flush the affected area with large amounts of water, including dry or wet chemicals that contact the skin.
2) Monitor and treat the ABC's.
3) Notify advanced medical personnel (rescue squad, etc.)
4) Continue to flush while transporting and while waiting for advanced medical personnel.
5) Recheck and treat the ABC's.

TREATMENT FOR INJECTED POISONS

The most common sources of injected poisons are caused by insect stings and animal bites.

TREATMENT FOR INSECT STINGS

1) Be cautious of severe allergic reaction and treat ABC's.
2) Examine sting area to see if the stinger and venom sac are still present. Remove stinger by scraping from the skin with a fingernail, plastic card, etc.

SPECIAL NOTE: Never remove a stinger with tweezers or anything else that may squeeze more venom into the skin.

3) Wash the sting site with water.
4) Apply cold applications (cold pack, etc.) to the sting area to help reduce pain and swelling.
5) Recheck and treat ABC's

SPIDERS

Two types of spiders (black widow, brown recluse) have venom whose bites are serious and can be fatal.

Both spiders prefer dark, out of the way places such as wood, rock or brush piles and in dark storage areas.

A patient may <u>not</u> know they have been stung until signs/symptoms develop.

A patient stung by either type should be transported to the hospital immediately.

SIGNS AND SYMPTOMS OF SPIDER STINGS

1) Nausea and vomiting
2) Difficulty breathing or swallowing
3) Sweating and profuse saliva in the mouth
4) Irregular heart rhythms that may lead to cardiac arrest
5) Severe pain in the sting area
6) Swelling on or around the site
7) A mark indicating a bite or sting area

TREATMENT OF SPIDER BITES

1) Check and treat the ABC's
2) Make arrangements for immediate transportation to the hospital

SNAKES

Much controversy has been discussed on how to treat snakebites. Approximately 8000 people are snake bitten each year and less than 12 die. Most deaths from a snakebite occur because the patient has an allergic reaction, weak body system or a long time delay before reaching the hospital.
Most snake bitten patients can get to a hospital within 30 minutes.

TREATMENT OF SNAKE BITES

1) Check and treat the ABC's
2) Wash the wound
3) Immobilize the affected area
4) Keep the affected part lower than the heart, if possible
5) Transport to the hospital immediately

SPECIAL NOTES:

A. If a patient <u>cannot</u> get to the hospital within 30 minutes, you may apply a constricting bandage to slow the flow of venom throughout the body.
B. You may also use a commercial kit to suction the bite area.
C. <u>Absolutely, do not do any of the following:</u>

1) Application of ice
2) Cutting and suctioning of the bite area with your mouth
3) Application of a tourniquet

ANIMAL BITES

The bite of an animal carries a risk of infection, the most serious of which is rabies. Rabies is transmitted through the saliva of diseased animals such as dogs, cats, skunks, raccoons, bats, foxes, etc. Rabid animals may salivate (foam at the mouth), appear partially paralyzed, act aggressive, irritable or act abnormal.

<u>If not treated, rabies is fatal.</u>
A patient bitten by a rabid animal must receive medical attention.

TREATMENT OF ANIMAL BITES

1) Try to get the patient away from the animal without endangering yourself. Get a description of the animal and where it was last seen

SPECIAL NOTE: NEVER TRY TO CAPTURE OR RESTRAIN THE ANIMAL

2) Check and treat the ABC's
3) Control bleeding
4) Wash the wounds with water and then control bleeding, if the wound is minor.
5) Transport to the hospital.

TICKS

Ticks can carry and transmit Rocky Mountain spotted fever and Lyme disease.

The first sign of infection from a tick bite may appear a few days or a few weeks after the bite.
A rash starts as a small red area and may spread 5 to 7 inches.

SIGNS AND SYMPTOMS (S/S) OF A TICK BITE

1) Rash, as described above
2) Fever
3) Headache
4) Weakness
5) "Flu" like pains in the joints and muscles

ADVANCED STAGES S/S, IF NOT TREATED

6) Arthritis
7) Numbness
8) Memory loss
9) Problems in seeing or hearing
10) High fever
11) Stiff neck
12) Irregular or rapid heartbeat

REMOVING A TICK

1) Remove by pulling steadily and firmly
2) Grasp the tick with fine-tipped tweezers, as close to the skin as possible and pull slowly.

NOTE: If you don't have tweezers, you can use fingers but wear gloves to protect yourself.

SPECIAL NOTES:

1) Never try to burn a tick off with a hot match or burning cigarette.
2) Do not use other home remedies like coating with nail polish, Vaseline, etc.
3) Wash the bite area.
4) Apply antibiotic ointment, if available
5) Inform the patient to observe the bite area and see a doctor if a rash or flu-like symptoms develop.

QUESTIONS FOR REVIEW

Sudden Illness Diabetes, Epilepsy, Stroke, Poisoning

Q. Which of the following hormones must be present in order for the body to use sugar?

A. Insulin.

Q. What is important information as related to diabetic emergencies?

A. When the insulin in the body is too low, the sugar level in the blood is high,
When the insulin in the body is too high, the sugar level is low,
Sugar given in various forms can restore a diabetic patient's condition to normal.

Q. What type illness results when too much or too little sugar is present in the body?

A. Diabetic emergency.

Q. A known diabetic patient becomes dizzy and feels ill. How should a rescuer treat?

A. If conscious and alert, give sugar in some form (candy, fruit juice, non-diet soft drinks, etc.).

Q. What are important facts as related to diabetic emergencies?

A. Never give anything by mouth unless the patient is fully Conscious and alert,
Sugar given to a patient that has low blood sugar will help the patient quickly,
Sugar given to a patient that has high blood sugar will not cause any more significant problems.

Q. What may cause seizures?

A. Disease or high fever,
Injuries,
Infections.

Q. What are important facts about seizures?

A. A seizure is a loss of body control due to irregular electrical activity of the brain,
A rescuer's main objectives in treating a patient having seizures are to manage the airway and protect the patient from injury,
Never try to place anything between the patient's teeth.

Q. Which seizure patients should see a doctor:

A. The patient has repeated seizures,
The patient is a known diabetic,
The seizure lasts longer than a few minutes,
The patient fails to regain consciousness after the seizure,
You are uncertain about the cause of the seizure,
The patient appears to be injured.

Q. What are accurate facts as related to a stroke?

A. A blood clot forms on the brain and blocks the supply of blood to a particular part of the brain,
A blood clot forms elsewhere in the body, travels to the brain and blocks a blood vessel in the brain,
A blood vessel in the brain ruptures,
A tumor or swelling from a head injury may compress an artery and cause a stroke.

Q. What are signs or symptoms of a stroke?

A. Looking or feeling ill,
Changes in consciousness or behavior,
Weakness and numbness of the face, arm or leg that usually occurs only on one side of the body,
Difficulty in talking or understanding speech,
Blurred or dimmed vision with possible unequal pupil size,
Sudden severe headache or dizziness,
Confusion or sudden change in mood,
Ringing in the ears,
The patient may become unconscious or lose bowel or bladder Control.

Q. What is the main concern that a rescuer should have in treating a patient suspected of having a stroke?

A. Insure the patient has an open airway, is breathing and treat other life-threatening conditions.

Q. Which of the following may occur during a seizure that a rescuer can expect and have very serious concerns about?

A. Breathing may become irregular and even stop temporarily.

Q. What is correct as related to “mini-strokes”?

A. Signs and symptoms usually disappear within a few minutes or hours,
Mini-strokes are caused by reduced blood flow to part of the brain,
Mini-strokes are a temporary episode that is like a stroke.

Q. How do poisons usually enter the body?

A. Ingestion (through the mouth and swallow),
Inhalation (through the mouth and/or nose),
Absorption (through the skin),
Injection (stings and bites injected through the skin).

Q. What is the most important thing to remember about the signs and symptoms of a suspected poisoning?

A. Recognize that a poisoning may have occurred.

Q. What are common signs or symptoms of poisoning?

A. Nausea, vomiting and diarrhea,
Chest or abdominal pain,
Sweating and difficult breathing,
Altered level of consciousness and/or seizures.

Q. What is important information that a rescuer should try to get in suspected poison cases?

A. What type of poison was taken,
How much poison was taken,
When the poison was taken.

Q. What are the factors in determining the severity of a poisoning incident?

A. Type and amount of poison,
How the poison entered the body,
The patient's age and weight.

Q. What is the first thing that a rescuer should do at the scene of a suspected poisoning incident?

A. Survey the scene to make sure it is safe to approach the patient.

Q. After securing the scene at a poisoning incident, what should a rescuer do next?

A. Perform a primary survey, treat and stabilize airway, breathing and circulation.

Q. What are critical factors as related to a suspected poisoning incident?

A. If the patient is conscious, call the poison control center Immediately,
If the patient is unconscious, call for advanced medical help rescue squad, etc.),
Always survey the scene to make sure that it is safe to approach the patient.

Q. When would a rescuer <u>not</u> induce vomiting?

A. An unconscious patient,
A patient having a seizure,
A patient that has swallowed a corrosive substance such as an acid, alkali or a petroleum product such as gasoline, kerosene, etc.

Q. What is the treatment for insect stings such as a honeybee, yellow jacket, etc.?

A. Scrape the stinger away from the skin with your fingernail, plastic card, etc.,
Apply ice or a cold pack to the sting area to reduce pain and Swelling,
Examine the sting area to see if the stinger and venom sac are attached to the skin.

Q. A rescuer arrives at the scene of a possible inhalation poisoning incident. After surveying the scene to ensure the accident area is safe to enter, what should you do next?

A. Remove the patient from the poison area as soon as possible and safe to do.

Q. What is the treatment for a patient that has a dry or wet chemical spilled on the skin?

A. Flush the affected area with large amounts of water until rescue personnel arrive.

Q. What is correct as related to a snakebite?

A. Suction the bite area only with a commercial snakebite kit suction device.

Q. What are important facts as related to a patient that was bitten by an animal?

A. Try to get the patient away from the animal without endangering yourself,
Try to get a good description of the animal and the area where it was seen last,
Never try to restrain or capture the animal.

Q. What are signs or symptoms of "Lyme's Disease" that is associated with a tick bite?

A. Joint and muscle pain, similar to the flu,
Fever and headache,
Weakness,
A rash at the bite area.

Q. What may cause a severe allergic reaction (anaphylaxis)?

A. Insect bite or sting,
Medications and chemicals,
Food.

Q. What is the most important factor that a rescuer should consider when managing an allergic reaction incident?

A. Breathing difficulty may result and progress to an obstructed airway as the tongue and throat (airway) swell.

Q. Which of the following would most likely cause death in a patient that had a severe allergic reaction?

A. The airway swells; breathing is severely impaired as the airway becomes obstructed.

Q. What should a rescuer do when the poison control center gives you directions concerning a poisoning incident?

A. Do exactly what the directions are.

Q. What is correct as related to the treatment for poisoning?

A. Survey the scene, make sure it is safe to enter,
Do a primary survey, treat and stabilize the ABC's,
Contact the Poison Control Center and/or call for advanced medical help (rescue squad),
Never give anything by mouth unless so advised by medical professionals,
Save vomitus for later analysis if the poison is unknown and the patient vomits.

FIRST AID

SECTION IX

PRIMARY AND SECONDARY SURVEY

Must be conducted in the following order to ensure your safety, patient safety and the safety of others who may be assisting you:

I SURVEY THE SCENE

Take adequate time to evaluate the scene to ensure the area is safe to enter.

You must always be able to answer these questions:

A - Is the scene safe?
B - What happened?
C - How many patients are there?
D - Are other people available to help you?

As a general rule, never move a patient until treated and stabilized unless there is an immediate danger to you or the patient

II PRIMARY SURVEY

A primary survey is used to evaluate and determine if a patient has any <u>life threatening conditions.</u>

The following must be checked during a primary survey:

A - State of consciousness
(conscious or unconscious)

B - Airway
Does the patient have an open airway?
(Head tilt chin lift if a spinal injury is <u>not</u> suspected)
(Modified jaw thrust if a spinal injury <u>is</u> suspected)

C - Breathing and signs of life
(Is the patient showing any signs of life-movement, etc.?)
(Is the patient breathing? Look, listen and feel)

D - Circulation
(Does the patient have any severe bleeding?
If so, must be controlled at this time)

III SECONDARY SURVEY

A secondary survey is started only after all life-threatening conditions as evaluated in the primary survey have been treated

A - Interview the patient and witnesses, if available

1 - If conscious - ask 3 W's - Who, Where, What
(Does the patient know who they are, where they are, what they were doing when the accident occurred?)

Interview witnesses, if applicable
The scene will usually provide evidence indicating what has happened.

2 - Determine if the patient's condition is due to trauma or circumstances from the accident, medical condition or allergic reaction

B - Check vital signs

Vital signs include level of consciousness, breathing and skin characteristics

1 - Level of consciousness
Does the patient respond to the AVPU scale -?
AVPU refers to stage of awareness

A - Alert - Is the patient alert and aware of what is going on? (3 W's - Who, Where, What)
V - Verbal -Does the patient respond when you talk to them? (verbal stimulus)
P - Pain - Does the patient respond when you pinch the earlobe, skin at the collarbone, etc.? (painful stimulus)
U - Unresponsive - Does the patient not respond to anything?(unresponsive, unconscious, etc.)

2 - Vital Signs

A - Breathing

Look, listen and feel again to insure patient is breathing (Look at the chest rise and fall, listen and feel for air exchange at the mouth and nose)
Normal adult rate - 12 to 20 per minute
Check rate and quality, (rhythm and depth)
Rhythm - regular, irregular
Depth - normal, shallow, deep, etc.

B - Skin appearance and temperature

1 - Skin appearance

Pale or white skin indicates a lack of circulation
Blue color skin indicates a lack of oxygen in the blood

"Capillary refill" is used to evaluate circulation

Capillary refill - Squeeze fingernail for 2 seconds and release. Normal color should return by the time you say "capillary refill".

2 - Skin temperature

Normal skin is warm and dry
Flushed (red) or pale, cold skin indicates abnormal skin

C - Head to toe examination

Reveals more information about a patient's condition
If conscious, tell patient what you are going to do
Avoid touching "painful areas" and do not have a patient move any area in which there is pain.
Look for "medical alert" tags or bracelets, necklace, etc.

HEAD TO TOE SURVEY

Examine the entire body, starting at the head.
If any life threatening problems develop, stop whatever you are doing and treat immediately.

Check the head.

- Check level of consciousness
- Check for blood or clear fluid in or around the ears, nose and mouth. These indicate a serious head injury.
- Check for bruising around the eyes and behind the ears.
- This indicates a serious head injury.
- Check the pupils.
- Pupils that are unequal, fully dilated or fully constricted or unresponsive to light indicate a serious injury or illness

Check the neck.

- Check for medic-alert necklace.
- Look and feel for any neck abnormality. When head or neck injuries are present or patient has pain of the head, neck or back - manage as if a spinal injury is present.
- Be cautious of all accidents when the mechanism of the accident could have caused a spinal cord injury.

Check the shoulders.

- Check the shoulders and collarbone by feeling for deformity.

Check the chest.

- Feel the ribs for deformity and ask the patient to take a deep breath and exhale.
- Look and feel for equal movement of both sides of the rib cage.
- Look and listen for signs of breathing difficulty.

Check the abdomen.

- Feel and apply slight pressure on each side of the abdomen, high and low (all 4 quadrants of the abdomen).
- A normal abdomen is soft and a rigid abdomen indicates a problem.

Check the hips.

- Examine the hips and ask the patient if they have pain in this area.
- Place you hands on both sides of the pelvis and push down and in. When pushing down and in, ask conscious patients if they feel any pain. If unconscious, observe for nervous system reaction such as flinching, etc.

Check the arms.

- Check one arm at a time.
- Check each wrist for medic-alert bracelet.
- Feel the arms for any deformity.
- Check for adequate circulation and sensation before and after splinting (circulation - capillary refill) (sensation - feeling, movement and flinching, if unconscious)
- Ask the patient to move the fingers and hand on each arm, if conscious.

Check the back.

- Feel the back by reaching under the patient.

Check the legs.

- Check one leg at a time.
- Check each ankle for medic-alert tag.
- Feel the legs for any deformity.
- Check for adequate circulation and sensation before and after splinting (circulation - capillary refill) (sensation - feeling, movement and flinching, if unconscious)
- Ask the patient to move the foot and toes on each leg, if conscious.

Questions for Review

Primary-Secondary Survey

Q. What type of conditions are identified and treated during a primary survey?

A. Life threatening conditions (ABC's)-Airway, Breathing, Circulation, and Bleeding.

Q. What would be checked during a primary survey?

A. Consciousness,
Open airway,
Breathing,
Circulation,
Check for paralysis.

Q. What should be checked first in a patient?

A. Airway, Breathing, Circulation and Bleeding.

Q. What is the first evaluation that must be done during a patient survey?

A. State of consciousness, responsiveness, unresponsiveness, etc.

Q. What may fall backwards against the throat and block the airway if a patient becomes unconscious?

A. Tongue.

Q. How do you open the airway in a patient with no suspected spinal injury?

A. Head-tilt chin lift.

Q. How do you open the airway in a patient with suspected spinal injury?

A. Modified jaw thrust.

Q. How does a rescuer ensure that a patient's airway is open?

A. By proper positioning of the head and lower jaw.

Q. How do you evaluate breathing in a patient?

A. Look at the chest, listen and feel for air exchange at the patient's mouth and nose.

Q. How do you evaluate for "signs of life" in a patient?

A. Look for movement of the patient and evaluate if breathing.

Q. How long should a rescuer take to evaluate breathing?

A. About 10 seconds.

Q. What does the "C" represent in checking the ABC's of first aid?

A. Checking circulation and bleeding.

Q. If a rescuer has to leave a patient to go get help with no one else present, what should the rescuer do?

A. Place the patient in a recovery position to help keep the airway open.

Q. Which of the following would best describe an "unresponsive patient"?

A. A patient that is unconscious and does not respond to any actions by the rescuer.

Q. What should a rescuer do after surveying the scene and checking a patient?

A. Call for advanced medical help (rescue squad, etc).

Q. What should a rescuer do if severe bleeding is observed during a primary survey?

A. Treat/control the severe bleeding immediately before proceeding to the secondary survey.

Q. In what position should a rescuer place a conscious insured patient?

A. The position most comfortable for the patient.

Q. What is important information to know about a patient's level of consciousness?

A. An alert patient responds accurately to the 3 W's,
A patient that responds when you talk to them is responsive to verbal stimulus,
A patient that responds when you pinch the skin is responsive to painful stimulus,
A patient that is unresponsive to any stimulus is classified as unconscious.

Q. What type of stimulus does a patient have if they respond when you talk to them?

A. Verbal stimulus.

Q. What type of stimulus does a patient have if they respond when you pinch the skin?

A. Painful stimulus.

Q. What type of stimulus does a patient have if they are unresponsive?

A. Unconscious.

Q. What are signs or symptoms of abnormal breathing?

A. Painful breathing,
Noisy breathing (crowing or gurgling sound),
Excessively fast or slow breathing,
Gasping for air.

Q. Which organ controls breathing?

A. Brain.

Q. What can be used to evaluate whether blood is circulating properly in the extremities?

A. Capillary refill.

Q. How long should be used to evaluate “capillary refill”?

A. 2 seconds.

Q. What is the problem if a rescuer does not get a return of blood when checking "capillary refill" in a patient's injured arm?

A. Insufficient circulation.

Q. During a secondary survey, what should a rescuer look for at the neck, at both ankles and at both wrists?

A. Medical alert tags (necklace, bracelet, etc.).

Q. When doing a head to toe survey, what should be checked while observing the head?

A. Presence of blood or clear fluid coming from the ears or head injury,
Presence of blood or clear fluid coming from the nose and/or mouth,
Equal pupils and reaction to light.

Q. What would indicate a serious injury or illness?

A. Unequal pupils,
Fully dilated pupils,
Fully constricted pupils,
Unresponsive pupils.

Q. What does a "rigid abdomen" indicate?

A. An injury or problem in the abdomen.

Q. During a secondary survey, how do you check the chest?

A. Feel the ribs for deformity and ask the patient to breath and exhale, if conscious and observe for equal movement of both sides of the rib cage.

Q. During a secondary survey, how do you check the abdomen?

A. Apply slight pressure to each side of the abdomen - high and low (all 4 quadrants) to evaluate if the abdomen is soft (normal).

Q. During a secondary survey, how do you check the hips and pelvis?

A. Push down and in on both sides of the pelvis (ask a conscious patient if this causes pain and observe for a reaction in an unconscious patient).