

DELAWARE STATE FIRE SCHOOL
For your instruction: In-service drill

Communicable Diseases

PURPOSE

The purpose of this drill is to review proper procedures in handling patients/victims and to avoid contamination with communicable diseases.

OBJECTIVES

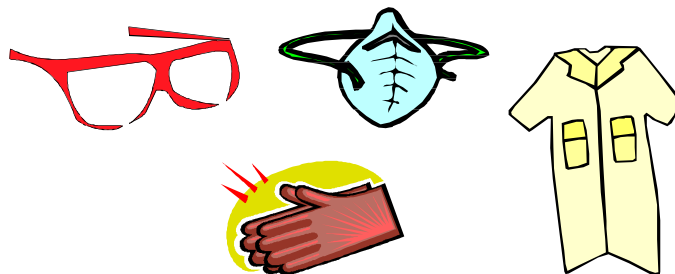


At the conclusion of this drill, the member(s) shall be able to:

1. Name six (6) different types of communicable diseases.
2. Name personal protective gear to be worn while handling high-risk or known carriers of a communicable disease.
3. List the (9) essential parts of an exposure control plan
4. Explain proper handling procedures of high-risk or known carriers of a communicable disease.
5. Explain decontamination procedures for equipment, apparatus and personnel.
6. Explain known means of contamination to equipment, apparatus and personnel.
7. Demonstrate proper donning of personal protective gear used during the handling of high risk or known carriers of a communicable disease.

EQUIPMENT

Surgical gloves
Disposable face masks
Plastic eye shields
Disposable gowns



SAFETY

Company S.O.P.'s should be followed at all times.

REFERENCE

A.A.O.S. Emergency Care Book – 7th edition

W.F.D. Policy Manual

Bensenson AS (ed) Control of communicable diseases in man-15th edition

OSHA Bloodborne pathogens and Tuberculosis by Katherine West 1992

VOCABULARY

Normal Flora-Microorganisms in man that assist the body in maintaining health equilibrium by preventing overgrowth of harmful bacteria.

Bacteria-Organisms that need certain conditions for growth, reproduction and maintenance of life.

Virus-A packet of genetic material surrounded by a protein covering. Unable to grow or reproduce outside the living host.

Infectious-illness resulting from the invasion of the body by a bacteria, virus, fungi, or parasite. The term infectious only means caused by a pathogen

Communicable-is a disease that can be readily spread from one person to another under certain conditions. A disease can be infectious but not communicable.

Note: The member conducting the drill shall review the most commonly encountered communicable diseases.

INFECTIONS DISEASES MOST COMMONLY ENCOUNTERED

Note: *Duty to care:* you cannot deny care to a patient who you suspect has a communicable disease, even if you believe that the patient poses a risk to your safety.

A. Meningitis

Meningitis is difficult to determine in the prehospital environment. This infection can be due to a virus, bacteria, or tuberculosis, and involves an inflammation of the cover linings of the brain. Signs and symptoms can be fever, headache, stiff neck, and/or altered mental status. Most forms of meningitis are not contagious, however meningococcus meningitis is highly contagious and can be lethal.

B. Tuberculosis (TB)

In most states TB has decreased since 1992. TB is bacteria not a virus and is spread by droplets in the air that are expelled by an infected individual. Risk for exposure is dependent on the following: amount of time spent with the infected individual, the ventilation present at the time of exposure, and prevention measures used. All healthcare workers should receive a TB skin test (PPD) on an annual basis. Signs and symptoms of TB include: weight loss, night sweats, swollen lymph glands, and a cough that may be productive or nonproductive and persistent for 2-3 weeks. When transporting a patient with TB, mask the patient. If exposed, and you test positive following the exposure, then you may be offered INH as a drug to prevent disease development. This would be taken for six to twelve months. Multi-drug resistant TB does not readily respond to the drugs we currently use to treat TB. There is currently, however, treatment for this type of TB.

C. Syphilis

Syphilis is a bloodborne disease caused by bacteria. Syphilis is a sexually transmitted disease, but may also be bloodborne. This disease has been on a decline since 1990. Signs and symptoms include a primary lesion or chancre may appear 3 weeks after exposure. 4-6 weeks later other symptoms may appear such as rash on soles of feet and palms of the hands. This may progress into a latent phase if not treated. Testing for the exposure would include a blood test. Exposure medical follow-up would be treatment with long-acting penicillin G.

D. Hepatitis B

Hepatitis is a term which means inflammation of the liver. This disease is transmitted by blood to blood contact, sexual contact, or indirect contact with a contaminated object. Needle stick injuries present the greatest risk for infection with hepatitis B (6-30%). In 1995 about 800 health care workers acquired this disease. The incubation period for this disease is up to six months. Signs and symptoms begin with flu-like illness and then may or may not progress into common signs of yellow skin and itching, dark urine, which colored stools. There are two vaccines available to prevent Hepatitis B (Recombivax HB and Engerix-HB). The vaccine is given in a series of three doses. A titer test should be performed 1-2 months after completion of the vaccine series.

E. Hepatitis C

Hepatitis C is another bloodborne disease and can be transmitted via blood-to-blood, sexual contact, or indirect contact with a contaminated object. This disease begins with signs and symptoms of fatigue, loss of appetite, malaise, headache, and nausea. 3,289 cases of Hepatitis C were reported in 1999. The time frame from exposure to development of the disease can be as long as 200 days. There is no vaccine to protect against hepatitis C and there is no cure for this disease. Approximately 60-85% of infected persons develop long-term chronic liver disease.

F. HIV(Human Immunodeficiency Virus)/AIDS (Acquired Immune Deficiency Syndrome)

HIV is a virus, which attacks the immune system and destroys its ability to fight infection. Persons infected with HIV are considered to be communicable from the time of infection. HIV that progresses to the later stage is termed AIDS. HIV is transmitted blood-to-blood contact, sexual contact, sharing IV drug needles, and infected mother to her infant. The time of infection to the time of development of this disease is two to ten years. Currently, there is no vaccine or cure for this disease. Common signs and symptoms of HIV are *initial infection*-fever, general malaise, flu-like symptoms, swollen lymph glands followed by a phase in which no symptoms are present. *Symptomatic phase*-continued fatigue, chronic diarrhea, fever with night sweats, and swollen lymph glands. *Progression into AIDS*-pneumocystis carinii pneumonia, kaposi's sarcoma, CMV infection, and dementia. Most HIV infected persons are at high risk for TB.

Note: The member conducting the drill shall review the parts of an exposure control plan.

PARTS OF AN EXPOSURE CONTROL PLAN

1. ***Determination of the Exposure:*** Who is at risk, task that pose a risk, and personal protective equipment (PPE) required by OSHA
2. ***Education and Training:*** Qualified individual required to answer questions, availability of an instructor to train EMT's, and ensures that instructors provide appropriate education
3. ***Hepatitis B vaccine program:*** spells out vaccine offered, record keeping, and who needs postvaccine antibody titers
4. ***Personal Protective Equipment (PPE):*** list PPE and when to use it, and list how much equipment is available and where to obtain additional PPE
5. ***Cleaning and Disinfection Practices:*** how to care for and maintain vehicles and equipment, how, where and when cleaning should take place, and collection, storage, and disposal of medical waste
6. ***(TB)Tuberculin skin testing/Fit testing:*** how often a skin test and fit test are needed,

and all issues dealing with HEPA respirator masks

7. **Postexposure management:** who to notify, forms to be filled out, where to go for treatment, and what treatment is to be given
8. **Compliance monitoring:** how the department evaluates employee compliance with the plan, ensure employee understanding, noncompliance should be documentation, and disciplinary action taken in noncompliance issues
9. **Record Keeping:** outlines all records that will be kept, confidentiality, and how records can be assessed and by whom

Note: The member conducting the drill shall review patient handling procedures.

PATIENT HANDLING PROCEDURE

Communicable diseases can be transmitted in several ways (Direct, Indirect, and airborne):

- A. Body fluids in the form of saliva, sputum, blood, urine, vomit, and fecal matter. EMT's must limit exposure to these fluids and minimize risk of infection by wearing PPE.
- B. Open sores, wounds, or any unnatural opening of the skin is a transmission point. Members must note these high-risk areas on both the patient and themselves and not allow any direct contact. Consider proper PPE.
- C. Airborne particles of diseased materials may be encountered. A proper protective mask should be placed on them as well as attending EMT's. Consider other indicated PPE.
- D. Transmission can also occur through food, water, houseflies, ticks and mosquitoes.
- E. The provider's eyes can be an area prone to the receipt of foreign matter. Using the provided eye shield at all times during patient contact should protect them.

Note: Providers should wear the proper facemask covering both the mouth and nose, eye shields, disposable gowns and medical gloves. All open sores or wounds should be properly dressed at the start of the shift; and at any time that patient contact may be suspected, should be redressed.

DECONTAMINATION PROCEDURE

Note: The member conducting the drill shall review current decontamination procedures.

If the patient was not transported, all personal protective equipment will be properly disposed of. Soap should be provided for additional scrubbing to insure proper decontamination.

When patient is transported, the following procedure will be performed. The vehicle should remain in an unavailable status until personal equipment is disposed of and ambulance equipment is scrubbed using procedure outlined below:

A. Application of a disinfectant and gloves should be worn for all cleaning and decontamination procedures.

1. Bleach (1:10 Dilution)

Contact time is between 10-30 minutes for high level disinfection. Bleach is a powerful germ-killing agent and is therefore recommended to clean up fresh (undried) blood spills. Caution should be exercised when using this solution around metal, electronic and electric equipment due to its corrosive behavior. A bleach solution can also decolorize fabrics.

2. Alcohol (70% Isopropyl)

Contact time is between 5-30 minutes for high level disinfection. It is a good skin antiseptic and does not corrode metal, but should be used with caution around electric and electronic equipment since it is flammable. It evaporates quickly.

3. Hydrogen Peroxide (3% Solution)

This solution is good for dissolving dried blood and body fluids from the surfaces of equipment. However, if this is used on heavily soiled equipment, cleaning and decontamination are still required.

4. Iodine Based Solutions

These are not recommended for the disinfection of equipment, but are excellent skin antiseptics.

B. Upon completion of each response, any disposable equipment should be discarded in the proper disposal containers. Filled portable suction containers should be emptied into flush hoppers located in the utility rooms of each hospital.

C. Emptied suction containers, laryngoscopes, etc., should be disassembled, cleaned with disinfectant solutions, rinsed with water, then rinsed with 70% alcohol. All equipment should be dried completely prior to returning to service.

- D. Stretchers, splints, backboards, and chairs should be cleaned with laundered cloths or paper towels wet with the properly diluted disinfectant solution after each patient use. The inside of the ambulance, particularly all inside washable surfaces, should be cleaned on a regular basis - no less than once weekly.

Skill

Note: Member conducting the drill shall review and demonstrate proper donning of the personal protective equipment worn when handling high risk or known communicable disease carriers.

Company S.O.P.'s to be followed based on equipment carried.

EVOLUTION #1: Member conducting the drill will have each participant verbally or in written form list six (6) communicable diseases and how they are transmitted.

EVOLUTION #2: Participants will demonstrate protective equipment to be worn and demonstrate proper donning of it.

EVOLUTION #3: Participants shall explain proper procedures for handling high-risk or known carriers of communicable diseases.

EVOLUTION #4: Participants shall explain decontamination procedures used for:

1. Themselves
2. Equipment
3. Apparatus

EVOLUTION #5: Member conducting the drill will have each participant verbally or in written form list the nine (9) steps in an infectious control plan.

Date of Original: 9/00