August

In-service Training

Infection Control

A. The Spread Of Diseases And Prevention

Preventing the spread of disease depends on how the disease is transmitted and the source of the infection. Germs, also called microorganisms, are tiny living particles. They cant be found anywhere; in the air, on the ground, in our bodies. Pathogens – the germs that cause diseases – often live in a specific environment. Some diseases are spread by touching objects that an infected person has touched; other diseases are spread by touching objects that an infected person has touched; other diseases are spread when you come into contact with the body fluids of an infected person, perhaps blood or saliva.

<u>Sources of infection:</u>

Air	Food	Water
Eating and drinking utensils	Personal hygiene equipment	Direct contact
Dressings	Insects	Animals

Healthy individuals with healthy immune systems will stay healthy because their immune system will fight the germs. To help the body fight off diseases there are simple thing you can do every day. You can reduce the spread of infectious microorganisms by:

A. Washing your hands after urinating, having a bowel movement, or changing tampons, or sanitary napkins or pads.
B. Washing your hands after contact with any body fluid or substance, whether it is your own or another person's.
C. Washing your hands before handling, preparing, or eating food.
D. Washing fruits and raw vegetables before eating or serving them.
E. Covering the nose and mouth when coughing, sneezing, or blowing the nose.
F. Bathing, washing hair, and brushing teeth regularly.
G. Washing cooking and eating utensils with soup and water after use.
H. Germs multiply rapidly in warm, dark, moist, environments so keep those areas on a person's body (e.g. groin folds) and living areas (e.g. shower corners) clean.

Risks Factors

People are at greater risk for getting infections:

- If they have weakened immune systems such as very young or elderly persons. Young children have not yet developed a strong immune system. The immune system is more inefficient as a person ages. That is why children (age 6 months to 2 years) and elderly persons should get the flu shots annually.
- If they are on medication that suppresses their immune system (organ transplants).
- If they are on prednisone or similar medications.
- If they have HIV/AIDS.
- If they are not eating healthy foods, not sleeping enough, and under increased stress.

B. Common Bloodborne Pathogens

Bloodborne Pathogens are pathogenic microorganisms present in human blood or OPIM (Other Potentially Infectious Material). They can infect people and cause disease. These pathogens include, but are not limited to, Hepatitis B virus (HBV), Hepatitis C virus (HCV), and the human immunodeficiency virus (HIV). According to the Centers of Disease Control, HCV is the most common chronic bloodborne infection in the United States. Some symptoms are similar for these diseases, but not all.

Symptoms of Hepatitis B and C	**Symptoms of HIV**
Flu-like	Flu-like
Fever	Fever
Lack of energy	Weight loss
Dark urine	Rash
Yellow skin & sclera	Diarrhea
Abdominal discomfort	Night Sweats
	Swollen Lymph nodes

Note:
Hepatitis B: 30% of cases have no Signs & Symptoms
Hepatitis C: 80% of cases have no Signs & Symptoms

1. Hepatitis B

What is Hepatitis B?

Hepatitis B virus (HBV) is a potentially life-threatening bloodborne pathogen. Centers for Disease Control estimates there are approximately 280,000 HBV infections each year in the U.S. Approximately 8,700 health care workers each year contract hepatitis B, and about 200 will die

as a result. In addition, some who contract HBV will become carriers, passing the disease on to others. Carriers also face a significantly higher risk for other liver ailments which can be fatal, including cirrhosis of the liver and primary liver cancer. HBV infection is transmitted through exposure to blood and other infectious body fluids and tissues. Anyone with occupational exposure to blood is at risk of contracting the infection.

Employers must provide engineering controls; workers must use work practices and protective clothing and equipment to prevent exposure to potentially infectious materials. However. He best defense against hepatitis B is vaccination.

Who needs vaccination?

The new OSHA standard covering bloodborne pathogens requires employers to offer the three-injection vaccination series free to all employees who are exposed to blood or other potentially infectious materials as part of their job duties. This includes health care workers, emergency responders, first-aid personnel, law enforcement officers, as well as others.

The vaccination must be offered within 10 days of initial assignment to a job where exposure to blood or other potentially infectious materials can be "reasonably anticipated." The requirements for vaccinations of those already on the job effect July 6, 1992.

What does vaccination involve?

The hepatitis B vaccination is a noninfectious, yeast-based vaccine given in three injections in the arm. There is no risk of contamination from other bloodborne pathogens nor is there any chance of developing HBV from the vaccine. The second injection should be given on month after the first, the third injection six months after the initial dose. More than 90 percent of those vaccinated will develop immunity to the hepatitis B virus. To ensure immunity, it is important for individuals to receive all three injections. At this point it is unclear how long the immunity lasts, so booster shots may be required at some point in the future.

The vaccine causes no harm to those who already immune or to those who may be HBV carriers. Employees may opt to have their blood tested for antibodies to determine need for the vaccine.

What if I decline vaccination?

Workers who decide to decline vaccination must complete a declination form. Employers must keep these forms on file so that they know about the vaccination status of everyone who is exposed to blood. At any time after a worker initially declines to receive the vaccine, he or she may opt to take it.

2. Hepatitis C

Hepatitis C is a liver disease. It makes the liver swell and stops it from working right.

3. Human Immunodeficiency Virus (HIV)

If you are going to be caring for someone with HIV infection, you need to understand the basic facts about HIV and AIDS. AIDS (Acquired immunodeficiency syndrome) is caused by HIV (Human immunodeficiency virus). People who are infected with HIV can look and feel healthy and may not know for years that they are infected. HIV slowly wipes out parts of the body's immune system; then the HIV-infected person gets sick because the body can't fight off diseases.

Signs of HIV infection are like those of many other common illnesses, such as swollen glands, tiring easily, losing weight, fever, or diarrhea. Different people have different symptoms.

HIV is in people's blood, semen, vaginal fluid, and breast milk. The only way to tell if someone is infected with HIV is with a blood test. There is no vaccine to prevent HIV infection and no cure for AIDS. There are treatments that can keep infected people healthy longer and prevent diseases that people with AIDS often get. Research is ongoing.

HIV slowly makes an infected person sicker and sicker. Someone with AIDS can feel fine in the morning and be very sick in the afternoon. It can seem like riding a roller coaster, slowly climbing up to feeling good, then plunging down into another illness.

How HIV is Spread

The most common ways HIV is spread are:

- By having unprotected anal, vaginal, or oral sex with one who is infected with HIV
- By sharing needles or syringes ("works") with someone who is infected with HIV
- From mothers to their babies before the baby is born, during birth, or through breast-feeding

Earlier in the AIDS epidemic some people became infected through blood transfusions, blood products (such as clotting factors given to people with hemophilia), or organ or tissue transplants. This has been very rare in the United States since 1985, when the test for HIV was licensed. Since then, all donated blood and donors of organs or tissue are tested for HIV.

How HIV is NOT Spread

You don't get HIV from the air, food, water, insects, animals, dishes, knives, forks, spoons, toilet seats, or anything else that doesn't involve blood, semen, vaginal fluids, or breast milk. You don't get HIV from feces, nasal fluid, saliva, sweat, tears, urine, or vomit, unless these have blood mixed in them. You can help people with HIV eat, dress, even bathe, without becoming, infected yourself.

4. Other Bloodborne Pathogen Diseases

There are other diseases that are caused by bloodborne pathogens such as malaria, syphilis, and Eboli but all these are much less common than Hepatitis B and C or HIV.

C. Other Common Conditions

There are many other diseases that are not caused by bloodborne pathogens. These diseases may spread through the air, perhaps when someone sneezes. Other pathogens live on the skin or other surfaces. Some conditions are caused by small parasites, such as lice.

1. Tuberculosis (TB)

Tuberculosis (TB) is still a problem. Eight million new cases occur each year in the world. In the U.S. the 30-year decline in TB cases has ended. Since 1985, the number of U.S. cases reported each year has remained above 22,000. Millions of people have TB infection and have no symptoms of the disease, but they can transmit the disease to others. An estimated 10-15 million persons in the U.S. are infected with TB bacteria. That is why TB screening is needed, especially for those who work in a health care setting.

Anyone can contact TB, but those at high rick include close contacts with:

- People living in substandard housing and the homeless
- Immigrants from areas where TB is common
- Residents of supervised living facilities and group homes (especially nursing homes)
- Prisoners
- People who have immunosuppressant diseases, such as HIV/AIDS or those who have had a recent organ transplant
- IV drug abusers
- **Health care workers**

TB is transmitted via the airborne route. This means that the TB pathogens are in the air and can be inhaled. Repeated, prolonged exposure is usually necessary to contract TB. The disease is not spread through sharing belongings or touching something that a sick person has touched.

Symptoms of the disease include:

- Cough
    - Fatigue
- Weakness
    - Fever
- Weight loss
    - Night sweats
- Blood in Sputum

Screening for the disease is done with a skin test, which is often required of health care workers. If the result of the skin test is positive, it means you have been **exposed to TB bacteria. <u>THIS DOES NOT MEAN YOU HAVE AN ACTIVE CASE OF TB.</u> You will need to seek medical advice to see if you have active TB.** A chest x-ray and possibly a sputum analysis are done to determine if TB disease is present and what kind of treatment is indicated. A referral is made to Maricopa County Health Department if you have active TB since TB is a reportable disease. **Once you have a positive skin test, you will need a chest x-ray to screen for the presence of TB even if you are healthy.**

2. Lice

Lice are tiny insects (one is called a "louse") that live on humans and survive by feeding on blood. When a large number of lice live and reproduce on a person, it is called an infestation. Three different kinds of live infest humans: Head lice, pubic lice ("crabs") and body lice. Infestations are easily spread from one person to another through close bodily contact or through shared clothing or personal items (such as hats or hairbrushes). Lice cannot jump or fly.

What are the symptoms?
The most common symptom of lice infestations (called "pediculosis") is itching in the affected areas. Symptoms vary depending on which type of lice is present.

How is lice infestation diagnosed?
A close visual examination for live lice or their eggs (called "nits") in the hair is usually all that is needed to diagnose an infestation of head lice. A health professional may confirm the diagnosis with microscopic examination of the affected area or the persons clothing. Use a fine tooth dark colored combo and comb the person's hair. Nits are like very small grains of rice.

How is it treated?
Lice and their eggs (nits) must be destroyed to get rid of an infestation. The most common treatment is a topical nonprescription or prescription cream, lotion, or shampoo to kill the lice and eggs. Sometimes a second treatment is needed to make sure that all the eggs are destroyed. When two or more topical treatments have failed to get rid of the lice, a prescription pill called invermectin can be taken.

3. Scabies

Scabies are tiny, eight-legged mites that are hard to see without a magnifying glass. They dig underneath the skin and cause itching so sever it may make it difficult for the person to sleep at night. An early Scabies rash will show up as little red bumps, (looks like hives), tiny bites, or pimples. Later the bumps may become crusty or scaly. Scabies usually starts between fingers, on elbows or wrists, buttocks, or waist. Sometimes the person will have long red marks where the mite has been crawling under the skin and the person has been scratching.

People in group settings such as nursing homes or group homes are more likely to get scabies.

How to know if you have scabies:
Usually a dermatologist will be able to tell if a person has scabies just from looking at the skin. If not, he/she can do a simple diagnostic test.

Treatment for Scabies:

- Scabies is easy to treat with special creams and lotions.
- Wash all of the person's clothes, sheets, and towels in hot water. Dry the clothing and linens completely in the dryer.
- Vacuum the whole house and throw out the vacuum cleaner bag.
- **Treat all family members for scabies at the same time, whether they itch or not. That will keep scabies from spreading**

D. Policies and Guidelines

Direct care workers, like all health professionals, must take precautions to help prevent the spread of diseases and infestations. There are policies and guidelines that describe the actions required or recommended. While the Occupational Health and Safety Administration (OSHA) is concerned with transmission of all bloodborne pathogens, it created guidelines specifically for preventing or minimizing an employee's exposure to hepatitis B (HBV) and HIV. OSHA

regulations mandate the implementation of **Universal Precautions and the Bloodborne Pathogen Standard.**

1. The Bloodborne Pathogen Standard

On December 6, 1991, OSHA issued its final guideline on occupational exposure to bloodborne pathogens (29 CFR 1910.1030). It is called the Bloodborne Pathogen Standard and explains what agencies have to do to help prevent the spread of infections. The Standard covers these topics:

- Exposure Control Plan
- Training
- Maintain Records of Training
- Labels
- Implement and Monitor Compliance with guidelines (e.g. Universal Precautions)
- HBV Vaccination
- Post Exposure Follow-Up
- Personal Protective Equipment (PPE)

Your agency will provide more information about the Bloodborne Pathogen Standard if it is needed for the work you will be doing.

2. Standard (Universal) Precautions

Standard precautions, sometimes called universal precautions, are infection control procedures. They are designed to prevent health care workers from transferring infections to patients and to prevent health care workers from infecting themselves. As a direct care worker, you use precautions by washing your hands and keeping your environment clean. It also means using personal protective equipment (PPE), such as gloves. Disease causing agents may be present in body substances, even when the individual does not look or act sick. Therefore, standard precautions should be used whenever you come in contact with body fluids from any other person.

1. The purpose of Standard Precautions is to prevent or minimize exposure to bloodborne pathogens. To be safe, standard precautions applies to **any fluid** emitted from the body.
2. Approach **all** consumers as if they were HIV or HBV infectious.
3. Standard precautions apply to tissues, blood, and other body fluids containing visible bloods.
4. Blood is the single most important source of HIV, HBV, and other bloodborne pathogens in the workplace.
5. Plan ahead when you are working with a consumer and use the appropriate personal protective equipment (PPE).
6. Know the limitations of the PPE you are using, when the equipment can protect you and when it cannot.
7. Do not recap needles. Do not break or otherwise manipulate needles.
8. Place contaminated sharps in puncture-resistant containers.
9. Wash hands immediately after contamination or removing gloves.

E. Procedures

1. Hand Washing

Hand washing is one of the easiest and most effective ways to prevent the spread of infection. Wash your hands:

a. Immediately if contaminated with blood or other body fluids
b. Before and after contact with a consumer
c. Before and after gloving
d. After handling soiled linen or waste
e. Before and after touching wounds or waste

The removal of infectious organisms is the most important function of hand washing. Soap breaks the surface tension, but friction caused by vigorous rubbing mechanically loosens bacteria and dirt. Water washes it away. Chemicals such as alcohol or bleach should not be used to wash the hands as they may damage the skin. Frequent hand washing may cause dry chapped skin. Lotion should be used to replace the skin's natural oils lost in the hand washing and to prevent chapping. **Use of a nail brush is <u>not</u> recommended** because it may scrape the skin. The brush is also a source of contamination. Also, avoid bar soap as it provides a good medium for bacterial growth. Proper hand washing requires that a vigorous rubbing and circular motion be used on hands (palms, sides, and backs), fingers, knuckles, and in between each finger for at least 20 seconds.

<u>Procedure: Hand Washing</u>

1. Collect the items needed for hand washing.
2. Use a clean paper towel to turn on water and adjust temperature. Wet hands with fingertips pointed down.
3. Apply soap—liquid soap in a pump is best
4. With fingertips pointing down, lather well. Rub your hands together in a circular motion to generate friction. Wash carefully between your fingers, palms, and back of hands,

and rub fingernails against the palm of the other hand to force soap under the nails. Keep washing for 20 seconds (Sing “Happy Birthday” 2 times).

5. With fingertips pointed down rinse off all the soap.
6. With clean paper towel or clean hand towel dry hands. Use a clean paper towel and turn off the faucet.

! Remember: Intact skin is your best defense against bacteria. Treat your hands well!

2. Gloves and Other Personal Protective Equipment (PPE)

Personal protective equipment (PPE) creates a barrier between you and germs. Barrier methods, such as wearing gloves or masks, block the transmission of any infectious agent, prevent the spread of infection, and ensure the protection of you and the person you are caring for. Gloves are the most important barrier method to prevent the spread of infection.

Gloves: Use care when putting gloves on as rings and fingernails may cause them to tear. Heavy or prolonged use may also cause them to tear. Torn gloves are ineffective protection and should be replaced as soon as safely possible. You may also wear gloves on top of each other so that when one gets very soiled you can remove it and still have another one underneath (“double gloving”). Gloves should be worn when:

A. Touching blood, body fluids, body substances or mucous membranes
B. There are cuts, breaks, or other openings on the skin
C. There is possible contact with feces, urine, vomit, dressings, wound drainage soiled linen or soiled clothing
D. Handling oral care items, if contact with oral lesion or blood is likely
E. Cleaning, especially in the bathroom

Gloves are not requited with bathing a consumer without skin lesions, when assisting a consumer with ambulation and transfers, when feeding a consumer or when talking with or counseling a consumer.

<u>Procedure: Removing and Disposing of Gloves</u>

a. General rule: Touch the outside of a glove only with a glove.
b. To remove the first glove: Pinch and grasp a glove just below the cuff near the wrist. Then pull the glove down over your hand. The glove is now inside out. Continue to hold that glove with the other gloved hand.

c. To remove the second glove: With your bare fingers, reach inside the cuff of the second glove, on the inside of your arm. Push the glove down- inside out- over the hand and over the first glove you are still holding.
d. You can now hold the two gloves- touching only the insides- and then throw them away. Follow agency policy for disposal.
e. Wash your hands following proper procedure.

3. Handling and Disposal of Infectious Wastes

Home Medical Sharps Disposal:

The handling and disposal of used home-generated medical sharps such as needles, syringes, and lancets, are exempted from regulation in Arizona's Medical Waste Regulations. However, these materials still need to be handled safely. The Arizona Department of Environmental Quality needs help in ensuring that medical sharps are disposed of in a manner that helps minimize health risks to garbage haulers, landfill personnel and the community.

Medical sharps should be placed in either a purchased medical sharps container (from a pharmacy or health care provider) or a heavy-plastic or metal container. Do not use clear or glass container. The containers should be puncture-proof with a tight-fitting lid. Household containers such as plastic detergent bottles can be used if the following precautions are observed:

- Use heavy-duty tape such as electrical or duct tape to secure the lid to the container.
- Write the words "Not Recyclable" on the container with a black indelible marker. This helps to ensure the container will not be inadvertently mingled with recyclable materials.
- Do not over-stuff the containers with medical sharps (fill to approximately ¾ full). This can increase pressure on the lid and cause a release of the medical sharps.

While waiting for a full container, keep out of reach of children and pets. Always wash your hands after handling or touching medical sharps. Once you have followed these precautions, the container may be placed in your regular trash for disposal.

Handling of wastes other than sharps:

- Body wastes such as urine need to be flushed down the toilet

- Soiled incontinent pads or disposable gloves need to be placed in plastic bags, tied, and taken out to the trash immediately so that they do not create odors in the home or grow bacteria.
- Mop Water needs to be flushed down the toile or thrown outside- **Never put it down the kitchen sink.**

4. Linens

If feces or vomit is present in laundry, put on gloves. Put linens or clothes in a plastic bag- Don't put them on the floor- and take it to the toilet. Rinse off the "chunky stuff" in the toilet and put the items back into the plastic bag. Wash linens and clothes immediately separately from the rest of the household laundry. Add bleach if clothes can be bleached. Otherwise, just dry them completely in the dryer; the heat of the dryer will kill the bacteria. Hanging clothes out on a clothesline will also kill the bacteria.

5. Cleaning the Environment

Universal cleaning and disinfection solution—bleach 1:10

1 part bleach to 10 parts water (1:10) means that whatever measuring device you use (1/3 cup, 1 cup, a tablespoon), you mix 1 measure of bleach and 10 measures of water. For example you could pour ¼ cup of bleach and (ten) ¼ cups of water into a spray bottle and label the bottle.

Contact time (the amount of time needed for the bleach to work) is the amount of time it takes the surface to air dry after you have sprayed it with the bleach solution. Bleach can act as a sanitizer in stronger solutions or a disinfectant in a weaker solution. However, remember that fragile skin can be very sensitive to bleach and water solution. If a consumer gets the solution on his/her skin, flush the area with water.

Bleach solution needs to be put into a spray bottle, labeled, and a fresh supply made every 24 hours.

Note: The section on Home Maintenance has more information on cleaning the home. The section on Nutrition talks about food safety.

Now that you've read through the

August In-Service review, please return to

the previous page, and complete the

In-Service Training "Infection Control"

online form for submission.