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HIV AIDS 7 UNIT: HIV AWARENESS IN THE WORKPLACE

7.0 Contact Hours

0.7 Continuing Education Units

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Objectives

After completing HIV Awareness in the Workplace, you will be able to:

1. Define HIV/AIDS including origin, etiology and epidemiology of HIV.
2. Understand how HIV/AIDS is transmitted and effective methods of infection control and prevention.
3. Discuss contamination myths and practice safe workplace habits to minimize workplace exposure.
4. Identify legal/ethical issues and patient rights surrounding HIV/AIDS.
5. Support patients with HIV/AIDS by providing accurate information and counseling when necessary.
6. Identify tuberculosis and how it impacts immune compromised patients.
7. Understand how medical facilities are taking steps to prevent tuberculosis in the workplace.
8. Understand how the World Health Organization is helping HIV patients with tuberculosis around the world, and how it impacts new defensive medicine techniques.



COURSE OUTLINE

- I. Etiology and epidemiology of HIV
 1. Etiology
 2. Reported AIDS cases in the United States and Washington State
 3. Risk populations/behaviors
- II. Transmission and infection control
 1. Transmission of HIV
 2. Infection Control Precautions
 3. Factors affecting risk for transmission
 4. Risks for transmission to health care worker
- III. Testing and counseling
 1. HIV test information
 2. Pre-test counseling
 3. Post-test counseling
- IV. Clinical manifestations and treatment
 1. Clinical manifestations of HIV infection
 2. Case management
 3. Physical care
 4. Psychosocial care
 5. Home care
 6. Resources
- V. Legal and ethical issues
 1. Confidentiality as defined in the AIDS omnibus bill (RCW and WAC)
 2. Informed consent
 3. Legal reporting requirements
 4. Ethical issues
 5. Civil rights
- VI. Psychosocial issues
 1. Personal impact of HIV continuum
 2. The human response to death and dying
 3. Issues for care providers
 4. Family issues
 5. Special populations

CHAPTER 1: HIV AIDS DEFINED

HIGHLIGHTS

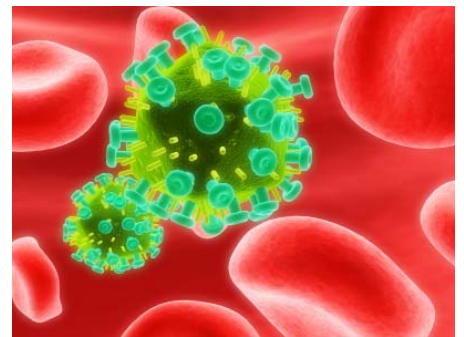
In this chapter you will learn what HIV and AIDS is, how it impacts people, how it is transmitted and the chances of infection in the workplace. You will also learn the debunked myths of contamination, the possible origin of HIV, and what is being done to reduce infection rates.

“It is bad enough that people are dying of AIDS, but no one should die of ignorance.”

– Elizabeth Taylor

WHAT IS HIV?

The Human Immunodeficiency Virus (HIV) is a blood borne pathogen that attacks the human immune system. It is spread through bodily fluids that come into contact with wounds and mucous membranes. Once the virus is present it reproduces itself within the host's CD4 cells (a type of white blood cell). White blood cells are essential for our body to fight off sickness. As the white cell count decreases, the disease progresses into AIDS, a condition that increases opportunistic infections. It is important to remember that white blood cell production does not stop when someone acquires HIV.



WHAT IS AIDS?

Acquired Immunodeficiency Syndrome is a chronic, potentially life-threatening condition caused by the HIV virus. It is characterized by a CD4 count of less than 200 cubic millimeters of blood. In asymptomatic cases, it can take ten years or more to fully develop in the average HIV adult (Know Curriculum, 2007 revision). It's notably dangerous because it increases opportunistic infections and causes rare complications.

HOW IS HIV DIAGNOSED?

HIV can be easily overlooked; as a result patients may not know they are infected. In the first few months victims will have flu like symptoms, such as headaches, fever, and fatigue. Swollen lymph glands can occur as well, but they go away after a month or two. The patient will seem fine but progressively get sicker as the immune system becomes weaker. HIV antibodies are detected within six to twelve weeks of infection, so multiple blood tests may be needed.

IV antibodies are detected within six to twelve weeks of infection. This is called a window period, a period of time that a test cannot detect antibodies or the HIV virus because levels are not high enough. Depending on last exposure, it may be recommended that a person test again after the window period has finished.

Also, tests can rarely have false positive, false negative or inconclusive results. A licensed clinical provider should interpret results and recommend further testing if necessary.

TESTING OPTIONS

Diagnostic tests sample blood or saliva to test for HIV antibodies or the virus itself. While most tests focus on blood there are other testing methods available, such as home kits, rapid testing, enzyme-linked immuno assay, oral fluid and urine testing, and lastly the Western blot.

Home kits are available at any local pharmacy, and can be used in private. Home kits allow testers to collect blood samples (which are applied to a special card) so they can send them to a private lab. Users are given a private reference number they can use when trying to obtain results with the lab later. Those who test positive will be given access to pamphlets and information, and encouraged to follow up with an official HIV test (HIVTest.CDC).

Rapid test uses oral fluids, or blood to test for HIV antibodies. It is a low-tech method that doesn't require machinery to produce results (Point-of-Care Rapid Tests for HIV Antibody), instead, relying on reactions of fluids. Screening is usually completed in twenty minutes, and is done twice (spaced apart) to provide a better reading. It is remarkably cheaper than an enzyme immunoassay, and is widely used in Africa (Point-of-Care Rapid Tests for HIV Antibody).

Enzyme-linked immuno assay is a test that compares blood samples against particular antigens and antibodies. The color changes (enzyme reactions) from the test determine the result (ELISA, MedlinePlus Medical Encyclopedia). A follow up Western blot test is administered later to prevent false readings (ELISA, MedlinePlus Medical Encyclopedia). Enzyme-linked immuno assay tests normally report negatives if the test is sought too early. Blood is obtained by venipuncture.

Oral fluid and urine tests are usually screened through enzyme immunoassay, and confirmed later with a western blot. The test focuses on detecting antibodies in the content of the samples. Urine is reportedly less accurate than oral fluid (HIVTest.CDC).

Western blot is a test that looks for specific antibodies in samples, isolates them, and compares them to other stored samples. If they match, it can indicate a positive HIV test. Like the enzyme-linked immune assay, readings are normally false if the patient is tested too early. This is mainly used as an assistive diagnostic tool (Human Immunodeficiency Virus HIV-1 Western Blot).

❖ **Note:** RNA screening tests for HIV are available but are not widely used. These types of tests attempt to detect HIV genetic material.

HOW IS AIDS DIAGNOSED?

As HIV progresses to AIDS the body's CD4 lymphocyte (white blood cell) count decreases. When the CD4 count falls below 200 cubic millimeters per blood, the patient can be diagnosed with AIDS. This process can take as much as ten years or more. The average CD4 count is 800-1500. Rare complications, such as AIDS associated dementia and reoccurring TB, can also be used to diagnose AIDS, since these illnesses wouldn't normally infect someone with a healthy immune system (the biggest concern being tuberculosis). HIV testing is now being standardized with TB, and vice versa per World Health Organization (WHO) recommendations.

HIV METHODOLOGY

As HIV enters the body it travels through the bloodstream, patiently waiting for white blood cells to attract its receptors. When it detects a cell, it attaches itself to it and manipulates the RNA structure of the cell. The virion replicates using the cell's RNA and protein building blocks creating a new virus, after which the virus "buds" from the cell and is released into circulation, where it penetrates other CD4 cells. The

majority of the CD4 cells that do retain information on previous infections are killed off, making it harder to fight reexposure later. The immune system is still capable of killing HIV in its naked form (pre white blood cell phase). HIV medications suppress HIV by hindering its ability to attach to white blood cells and/or use the cells RNA and protein to replicate itself. With immediate prophylaxis, HIV has a reduced chance of sustaining itself within the body.

HOW IS HIV TRANSMITTED?

HIV is transmitted through body fluids, such as semen, blood and breast milk; common methods for infection include: sex, direct blood exposure, and mother to children exposure. Unprotected sex exposes sexual partners to HIV, through either semen or vaginal fluids. The most common sexual delivery methods are the anal, oral and vaginal mucous linings. Intravenous drug use accounts for up to one third of all transmissions.

OTHER HIV TRANSMISSION METHODS

- Sexually transmitted infections, such as herpes and syphilis, cause skin breaks, which HIV can enter. Chlamydia causes inflammation, which increases the HIV viral load in secretions and sheddings. Sores caused by genital ulcers also offer a route for infection.
- Contaminated blood can enter the body through open wounds, direct skin penetration or exposure to mucous linings, such as in the eyes. This can be achieved through contaminated needles, such as those used by drug users, tattoo parlors with unsterile needles, incidental exposure to blood in the medical field as a result of failed protocol, and “blood brother pacts,” a bonding act which places wounds together.
- In mothers, HIV can be transmitted two ways: through breast milk, and unmanaged pregnancy and delivery. Anti-retroviral medication decreases delivery transfer odds significantly, if taken early.
- In 1985, blood screening was started at donor banks and organ transplant centers for HIV. However, before 1985, blood donations were not as heavily scrutinized as they are today for HIV. Without a proper HIV test in place, tainted donor blood continued to infect people up until 1992, and temporarily again in 1999 when the Red Cross used stored blood that dated back to 1985, causing up to 1% of the total US HIV infections for the year (Know Curriculum, 2007 Revision). Reused, unsterile equipment also caused problems in some circumstances.
- In a small number of cases, razors and toothbrushes have led to infection as a result of being shared. This was due in part to blood coming in contact with the items, via bleeding gums, sores or shaving. In some rarer cases, biting and French kissing has led to HIV transmission, due to sores and blood (Know Curriculum, 2007 Revision).

STAGES OF HIV

- Acute Phase - 1-2 weeks, no symptoms or antibodies are detectable.
- Window Phase - 6-12 weeks, flu like symptoms occur and antibodies start to form. Antibody levels may not be sufficient enough to detect, so multiple HIV detection tests may be necessary if infection is suspected. This is the point when the virus becomes infectious.
- Asymptomatic Phase - After 6-12 weeks, the body reverts back to “normal.” The virus has established a foothold in the body. Though antibodies are detectable, HIV is free to replicate itself. Most people feel healthy and fit at this point.

HIV TYPES AND COMPLICATIONS

There are two strains of HIV: HIV-1 and HIV-2. Most people have the HIV-1 virus, whereas some parts of Africa have the rarer HIV-2 type. However, because of HIV's ability to mutate there are numerous subtypes of HIV. For instance, some HIV strains are resistant to modern medication. It is possible to have HIV-1 and HIV-2. Repeated exposures increase the viral load in the body.

Medication resistance has increased the number of premature deaths in the HIV community, as well as coinfections. Worldwide, tuberculosis is the leading killer of HIV infected people. HIV patients, according to the WHO, are 20-30 times more likely to develop an active TB infection (WHO Policy on Collaborative TB/HIV activities, Tuberculosis, 2012). While most healthy people with TB suppress it and in fact avoid a second reoccurrence, HIV patients experience them more often (though they can be spaced years apart) until proper treatment is given (Know Curriculum, 2007 Revision). Hoarse coughs, night sweats, fever and weight loss are primary symptoms to look out for (WHO Policy on Collaborative TB/HIV activities, Tuberculosis, 2012).



ORIGINS OF HIV

Researchers found that chimpanzees carried a strain of the HIV-1 virus in West Africa. It is theorized that hunters made contact with infected chimpanzees and were contaminated by blood as they cut it for meat. From here the virus was spread via normal human channels, such as sex, travel, drugs, unsanitary medical practices, and war (Know Curriculum, 2007 Revision).

A separate HIV-2 virus was identified from this group, and is largely known to be isolated in western Africa, but conclusions about HIV-1 origins are still missing. New discoveries are being made as time goes on. For instance, a small number of northern Europeans have been found to have genetic resistance to HIV infection, interestingly with no differences found in risk groups (J Urban, Resistance to HIV Infection, 2006).

A gene mutation linked to northern Europeans helps prevent HIV by inhibiting its abilities to detect CD4 and CCR5 co-receptors, the two conditions necessary for HIV to attach itself to a white blood cell.

WHY HIV IS WIDESPREAD

HIV is an equal opportunity infection. Anyone can contract it, just as they can transmit it. Nearly a quarter in fact do not know they have it (Know Curriculum, 2007 Revision). The only thing that can be done about HIV transmission is to influence how society lowers the infection rate. Here is a common list of

reasons why countries with weak infrastructure have higher rates of infection in comparison to countries with better infrastructure.

UNDERFUNDED COUNTRY FACTORS

- Poorer countries have limited access to birth control methods, such as condoms.
- Have limited diagnostic options and accessibility to doctors.
- Poorer medical facility standards, such as blood transfusions.
- HIV awareness is usually low as a result of poorer education.

DEVELOPED COUNTRY FACTORS

- Modern countries have easier access to condoms.
- Modern facilities have accessible diagnostic tests.
- Government regulations require stricter medical standards.
- Education standards spread preventative awareness, especially in regards to sex education and risks of transmission.

HIV RELATED STATISTICS FROM THE CDC

Prevalence is the number of people living with HIV infection at a given time, such as at the end of a given year. At the end of 2015, an estimated HIV prevalence of 1.1 million persons aged 13 and older were living with HIV infection in the United States, including an estimated 162,500 (15%) persons whose infections had not been diagnosed (Dailey et al., 2017).

Incidence is the number of new HIV infections that occur during a given time period. In 2014, the estimated number of new HIV infections in the United States was 37,600. Estimated annual HIV infections in the United States declined 10% from 2010 to 2014 (Singh et al., 2017).

In 2016, the number of new HIV diagnoses in the United States was 39,782. There were 32,131 diagnoses among adult and adolescent males (13 years or older), 7,529 among adult and adolescent females, and 122 among children younger than 13 years.

In 2016, the number of new HIV diagnoses in the United States was 39,782. There were 32,131 diagnoses among adult and adolescent males (13 years or older), 7,529 among adult and adolescent females, and 122 among children younger than 13 years.

At the end of 2015, there were 973,846 persons living with diagnosed HIV infection in the United States.

The number of persons in the United States whose diagnosed HIV infection was classified as stage 3 (AIDS) in 2016 was 18,160. Of these, 13,851 stage 3 (AIDS) classifications were among adult and adolescent males, 4,271 were among adult and adolescent females, and 38 were among children younger than 13.

In 2015, the number of deaths of persons with diagnosed HIV infection ever classified as stage 3 (AIDS) in the United States was 12,497. The cumulative number of deaths of persons with diagnosed HIV infection ever classified as stage 3 (AIDS) in the United States, through 2015, was 692,789.

Note: Because of delays in reporting of deaths, data are only available through the end of 2015. The exclusion of data from the most recent year allows at least 18 months for deaths of persons with an AIDS diagnosis to be reported.

HIV RISK GROUPS

These following groups are at the highest risk for HIV:

- STI (Sexually Transmitted Infections) patients
- Drug users
- People with multiple sex partners
- Cultural groups who shun females for getting sexual education and birth control.
- Cultures which encourage multiple wives for each husband (if one of the men or women is infected it is expected that the others will eventually become infected in time).
- Females in abusive relationships who have no control over contraception.
- Intoxicated people are more likely to make bad decisions, especially in regards to wearing a condom.
- HIV patients with medication resistance.

REDUCTION IN HIV RELATED DEATHS

AIDS deaths have been progressively halted since the introduction of HIV drug therapy in 1994. Drug therapy medication halted HIV growth by inhibiting its ability to attach to white blood cells and from using the cell's RNA and proteins to replicate. This did not cure HIV patients, but it increased the lifespan of HIV victims because they were now able to maintain normal CD4 levels. Medication does have side-effects however, such as nausea and fatigue. Government resources were able to reduce deaths further by implementing national HIV reporting standards in 1985. This gave local officials the ability to coordinate HIV prevention efforts with the federal government.

DOWNSIDE OF MEDICATION ADVANCES

Despite the existence of medication many underdeveloped countries cannot afford to supply their people with HIV medication without loans, subsidy cuts and donations. Modern countries are better off now in regards to HIV programs, but initially they weren't. People had to pay for HIV medication out of pocket in the beginning because insurance would not cover the costs; costs often exceeded two thousand dollars a month (insurance companies can no longer discriminate against HIV patients now). Sadly, despite the cost, medication was not effective for everybody, as it caused great discomfort for some and no change in others. HIV medication has since become cheaper, but countries, developed or not, have had to deal with patent laws (company control over costs), currency valuation (likelihood of a country being charged a higher or lower price), and customs regulators (which add costs due to import taxes) when dealing with medication prices and availability.

ADVANCES IN MEDICATION AVAILABILITY

Worldwide availability of cost effective drugs has increased, due in part to universal healthcare systems and government efforts. Brazil managed to cut the price tag of generic HIV medication by 76% in its country in 2003. This was made possible by government subsidies and negotiated price cuts. Governments realized that it was cheaper to provide medication, than to treat an advanced case of HIV (BBC News, New Anti-HIV Drug Deal, 2003).

TRANSMISSION STATISTICS

Before 1986, blood transfusions had a 95% chance of infecting someone with HIV if the donor's blood source was contaminated. In the US, reform limited this to 0%. Technically, the chance is 1 in 465,000. In 1999, 1% of the total AIDs population was a blood transfusion victim, due in part to stored blood from the early 1980's.

One time exposure:

- Direct needle exposure (0.67%)
- Needle stick (0.4%)
- One time anal intercourse (0.1%-0.3%)
- One time vaginal intercourse (0.1%-0.2%)
- Penile insertion (0.03%-0.09%)

One percent represented 1 case out of a 100, and .10% represented 1 in a 1000. Each repeated encounter substantially increased the chances of infection occurring (Know Curriculum, 2007 Revision).

DELIVERIES

Twenty-five percent of HIV infected mothers passed HIV onto their children. With antiretroviral medication, and careful planning, this drops to 2%. C-sections can reduce these odds as well. This can increase the longer the mother has been an HIV host (Know Curriculum, 2007 Revision).

WHAT DETERMINES THE STRENGTH OF HIV TRANSMISSION?

HIV is heavily concentrated a few weeks after initial infection, and during AIDS. The levels in between are slightly lower for up to 12 years. The largest concentrations are in blood, semen, and vaginal fluids (during menstruation), while medium levels are detected in normal vaginal and anal secretions. Changes in the body can also compound risk, such as hormonal contraceptives (increases endocervix vulnerability), age (thymus gland shrinks), and uncircumcised penises. If antiretroviral medication is taken, the concentration of HIV in plasma loads is often lower.

HOW CAN HIV BE PREVENTED?

HIV infection can be stopped by educating people in infection control. Once infected, HIV cannot be cured by modern means. Here are common ways to prevent HIV progression:

- Male condoms can limit the exposure of semen and vaginal fluids. Female condoms are to be used only when there are no other condoms available, as there are limited HIV protection studies for female condoms. Abstinence (no sex) is the only 100% guarantee against HIV.

❖ **Note:** Animal skin condoms do not reliably protect people against HIV. They do prevent pregnancy and some STIs which increase the likelihood of HIV infection. Spermicide, which prevents pregnancy, should be used sparingly as it can increase HIV risk through irritation in the vagina. Birth control pills can be used for contraception, but because of allegations looked into by the WHO (oral contraception was argued to alter the vaginal environment thereby increasing HIV risk) it was considered better to use condoms, and other contraception methods (like birth control pills) as secondary forms of protection (WHO, Hormonal Contraception and HIV, 2012).

- Clean and sterilize sex toys, and avoid sharing them.
- Two HIV infected people should not have unprotected sex. Consistent exposure to sexual fluids will increase viral loads, making each person sicker in the process, and it can lead to a coinfection of HIV-1 and HIV-2. Condoms are a suggested alternative to unprotected sex.
- If a needle is used, discard it. Reused needles shared or otherwise, can deliver HIV through a puncture in the skin if there are contaminants on the tip.
- Cover wounds, sores, rashes, bruises, scratches or skin breaks with bandages. Wear gloves if you must touch an open wound, and remove them correctly. Wash your hands before and after all contact with patients in the standard fashion.
- Obtain STI vaccines. Hepatitis B can increase the odds of STI infection.

WHAT DOESN'T CAUSE HIV?

Sweat, tears, feces, food handling and casual surface contact does not transmit HIV. HIV is a weak virus when exposed to the outside world, and usually dies within moments of being exposed to an outside environment. This means that people with HIV are virtually no risk to others, so long as attention is paid to cuts, protection (such as a condom), and risky behavior, such as drugs and heavy alcohol use (can lead to impaired judgment and unsafe sex).

Risks still exist if sores, cuts or other wounds are exposed to HIV. HIV is not passed by air, toilet seats or mosquitoes.

- ❖ **Note:** Coincidentally, mosquitoes have all of the delivery methods necessary, but the virus cannot survive long enough within the mosquito to matter.

Saliva has detectable traces of HIV; however, due to a harsh environment, HIV cannot infect someone without a significant amount of saliva. Even at a person's peak they will be unable to produce enough saliva to cause infection this way. Blood from sores and weak gums are more likely to allow transmission. Avoid sharing tooth brushes and razors, as these have been documented to transfer HIV.



CHAPTER 2: WORKPLACE PROTECTION

HIGHLIGHTS

As you work with clients you must be able to react to situations, such as proper infection control, and workplace exposure. This section will give you practical workplace advice, legal leverage and what you should expect from your supervisors. Sources of contamination are also touched on.

“Investment in AIDS will be repaid a thousand-fold in lives saved and communities held together.”

–Dr. Peter Piot, Executive Director, UNAIDS

In order to safely protect employees, OSHA requires that employers follow certain policies. These policies explain who is in charge when an accident occurs, what must be done to help the employee and what is required ahead of time to safeguard their welfare. Here is a summary of standard workplace protocol.

ELEMENTS OF AN EXPOSURE CONTROL PLAN

Every medical establishment has a control plan that distributes responsibilities in the event of a contamination breach. Each control plan usually consists of these following OSHA standards:

- Defined infectious material employees are exposed to.
- Designated first aid attendant (can be a supervisor or a trained staff member). First aid and blood borne certification is required to avoid legal complications.
- Documented injury report log.
- Documentation regarding the types of devices used to prevent infection.
- A minimal yearly update policy, which includes reviewing the exposure control plan and changing it as developments arise. This must be accessible to all staff members.



EXPOSURE CONTROL PLAN TERMS

Universal precautions - all contaminants are considered dangerous.

Standard precautions - equipment such as masks, gloves, gowns and facemasks must be used when treating patients. Equipment use varies on the risks. For example, blood sprays can contaminate eyes, hence a face mask; open wounds with gloves; protective gowns when there is an unpredictable chance of

being contaminated. Gloves are used most often in day to day patient treatment because they provide an adequate skin barrier for the hands.

EXPOSURE CONTROL PRECAUTIONS FOR HEALTH CARE WORKERS

Employers are required by law to implement safety policies which meet or exceed OSHA expectations. Employees who work around blood must have training to protect themselves from incidental exposure. If this is not accounted for, employment facilities are typically cited and fined.

EMPLOYEE JOB DEFINITION

Employers must define the scopes of each person's job. This is to prevent untrained people from contaminating themselves. For example, medical workers use gloves when they are handling bodily fluids. Alternatively, if bio products spill, it may not be the job of the healthcare worker to clean and neutralize the threat. This task may be delegated to a professionally trained janitor. The same can be said of employees who are responsible for disposing and sterilizing equipment. These procedures prevent blood borne pathogens from infecting people. Policies differ; you may just as easily be responsible for cleaning the mess, so refer to your medical facility guidelines.

EMPLOYEE POLICY UPDATES AND CHANGES

Once a year employers are required to update and review safety policies with their staff. This may mean training people in safer methods, as opposed to using equipment. Protective equipment is usually added protection; however, if medical procedures can be safely done without it, it is preferred.

- All plans must include a hand washing procedure, as it is a surefire way to prevent disease.
- All plans must take into account uniforms standards. The CDC prefers that health workers wear minimal amounts of jewelry, to avoid fake nails, and to keep nails short. Bacteria and other pathogens can be a threat if the area under jewelry is missed during washing.

❖ **Note:** If allergic to latex, employers are required to provide non-latex gloves.

HOW IT IMPACTS THE WORKPLACE

- Exposure control plans explain how to handle personnel clean equipment, bio hazardous waste removal, laundry services, and specimen collection.
- When cleaning contaminants, medical workers must wear gloves. Any waste (such as gloves or briefs) must be disposed of in a red puncture-proof biohazard bag. State laws differ, so refer to your facilities trash policy.
- Bed pan waste should be placed in the toilet.
- A 1:10 ratio of bleach and water is a widely accepted cleaning solution when other cleaning solutions are not available.
- The EPA has an approved list of disinfectant sprays which are effective against the HIV and hepatitis B virus. In addition, anti-microbial soaps, used for hand washing, must have approved pathogen destruction guarantee (99.9% bacteria guarantee for example.)
- Specimens must be clearly labeled and placed in the middle to avoid confusion.

- Instruments, blades and needles must be disposed in a sharp container. This prevents blades from cutting people, which in turn infects people.
- Laundry workers must wear gloves and protective equipment when they do laundry. They are exposed to bodily fluids and sharp objects. Laundry must never be done near patients, and there must be a color code system to distinguish bio hazard material from clean clothes. This is usually a red colored bio-hazard sign. Furtherly, clothes must be held away from your uniform, whether the clothes are clean or not.

WASHING HANDS

Run lukewarm water and let it get it through your hands and wrists. Apply soap and lather it through your hands, fingers and wrists without touching the sink; do this for a minimum of 20 seconds. With the palm of your hand rub your nails downward in the opposite hand and repeat for the other (after cleaning nails). Rinse with your hands pointed downward. Grab a dry towel and pat dry. Throw away your wet towel, grab a new one, and turn off the faucet. It helps to have two dry towel lengths ready to avoid recontamination by touching the lever.

BLOOD BORNE PATHOGENS AND SOURCES OF INFECTION

Opportunistic infection material includes:

- Semen
- Vaginal secretions
- Blood
- Blood products
- Gut fluid
- Spinal fluid
- Heart fluid
- Lung fluid
- Amniotic fluid
- Saliva

Urine, feces and vomit is not considered a HIV threat unless blood is present. However, other infections can occur if handled improperly.

TYPES OF BLOOD BORNE PATHOGENS

Blood borne pathogens include: HCV, hepatitis A, B, C, and D, malaria, syphilis, babesiosis, brucellosis, leptospirosis, arboviral infections, Creutzfeldt-Jakob disease, and adult T-cell leukemia. Hepatitis in particular thrives in blood, blood laced feces, and sexual fluids.

UNIVERSAL POLICY FOR BLOOD BORNE PATHOGENS

Instead of having a procedure for each disease, procedures treat all blood borne pathogens the same. So gloves, masks, and gowns must be worn when appropriate, such as when you are dealing with blood

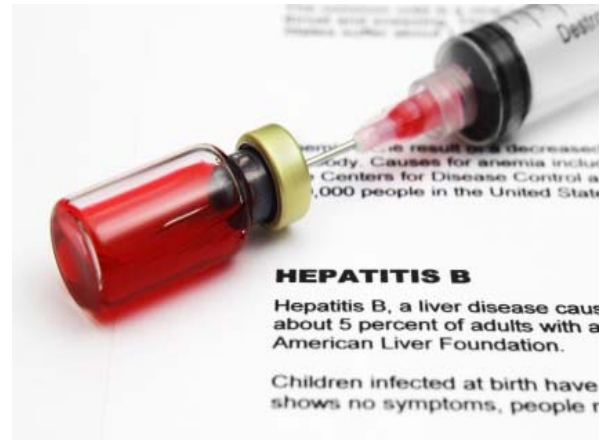
splatters to the face and body. Gloves are used most often because they provide a skin barrier for most common procedures.

EMPLOYEE INFORMATION AND CONSENT

Employees must be informed about the hazards of their job, how to protect themselves and what to do if an exposure occurs. Employees must be retrained annually by law. If employees are trained on the job, they must have a qualified teacher to answer any questions. Otherwise, employees may be referred to other qualifying training sites.

HEPATITIS B

If employees can contract an infection, they must, at minimum, be offered the hepatitis B vaccine. Employees are free to pursue their own vaccine; however, employers are required by OSHA to provide them free of charge when asked. If the vaccination is denied by the employee they are entitled to exposure counseling. Either option must be done within 10 days of completed training. Employees must sign a disinclination form if they don't want to take it. Employees may go back for the vaccine at any time.



IN THE EVENT OF CONTAMINATION

If you believe you have come into contact with a blood borne pathogen, it is best to contact a nearby employee, if possible (help! can someone come to the “named room”). Medical facilities are required to have a designated supervisor or first aid attendant in the event of an exposure. Once this is done, immediately use soap and water around the potentially infected site, then rinse and dry, doing your best to avoid spreading the contaminant, and applying pressure to the wound (as necessary). The person that helps you should put on gloves to protect themselves while they help bandage the wound (or direct you to rinse your wound). The supervisor must be contacted in order to document everything as it happened. Keep a cool head and explain what happened when the time comes. If you end up contaminating the sink, or other areas, make sure to explain so a cleaning solution can be applied to it. This is usually for the benefit of everyone else.

SUPERVISOR FOLLOW UP

Supervisors will usually follow up with testing and counseling within 7-10 days of the incident. Afterwards, they will offer to draw your blood and have it tested. You may elect to turn down blood testing with a disinclination form. If you proceed, your blood will be tested and stored for 90 days. You will also have the option to receive prophylaxis, gamma globulin or a HBV vaccine to reduce transmission risks. You again have the option to decline. In any event, the point of counseling is to teach you how to avoid possible transmission, to get care and what to look out for symptom wise to cut the chances of infection. The results of the incident will be reported on an OSHA 200 form.

In time you will receive a summary of the results. Your summary includes your social security number, test results, your hepatitis B vaccination and disinclination records, a written medical opinion and a copy of the incident report your employer took. This file is confidential; it must be held by your employer for 30 years, plus the duration of your employment.

WHO CAN ACCESS YOUR FILE?

- Yourself
- Representatives of OSHA
- People with your written permission
- State health agencies

Employers are legally not allowed to view your record for any reason, unless you give them permission in writing. Their job is to make sure you are tested, counseled, offered treatment, and that the incident information was compiled. It is illegal to fire employees when confirmation is known. High risk fields may decline hiring infected individuals, but only if there are no practical means to prevent exposure to people. A medical worker, or food handler, for example, would have access to gloves and soap and water. Results may be delivered by another employee, so long as confidentiality is upheld (Information provided by *Delmar's Clinical Medical Assisting*, 3rd Edition, 2006).



CHAPTER 3: PATIENT CARE AND RIGHTS

HIGHLIGHTS

In this chapter you will discover information and tips for helping out a HIV patient. You may never know if a client has HIV, but in the event that you learn you will be one step ahead. We will discuss particular laws that affect HIV patients, what the client may do or not do, and how you can ease the transition if HIV discovery is made.

“It takes a variety of strategies and initiatives to address this pandemic. It’s about life and death and the survival of humanity.”

– US Representative Barbara Lee (D-CA)

HIV PATIENT REACTIONS VARY

HIV patients usually don’t know they are infected until it is too late. The sudden surprise of this will be shocking. Patients will question what they did, who they trusted, if they will be ok and who will accept them. Anger and sadness can occur, but patients vary. As a health care worker you are not legally allowed to inform others about the patient’s condition, unless they consent to it. So, until permission is given, your job is to educate and answer questions for your patient. Implied consent should be treated carefully.

HOW TO HANDLE AN HIV PATIENT

It is not good to say, "It will be okay." HIV is manageable, but it will take a lot for the patient to get used to, if they do at all. Your best approach is to offer information to help the patient cope, and to leave doors open for questions. It is possible that they have given or received the virus from someone. Loved ones may need to be tested. Time may also be needed to take this revelation in. Stay calm and ask the patient if they would like to know more. If they do not want information remind your patient that you are here to provide that to them. It keeps the door open for the patient, and helps avoid unnecessary conflict.

QUESTIONS AN HIV PATIENT MAY ASK

HIV patients will want to know what resources are available to them when the time comes. Be ready to answer questions such as:

- Who is legally allowed to know about their condition?
- How will it affect my life?
- Will I be able to do normal things?
- Can I be intimate?
- Are there support groups?
- How did I get the virus?
- How should I tell my family?
- What are my top concerns?
- Is HIV covered as a disability for medication assistance?

WITH PERMISSION

With permission from the patient you may discuss your patient's HIV status with family members or friends. This can be done in order to help ease the transition. If you have not been permitted, you are liable for any unnecessary disclosures. It is important to teach HIV acceptance, that HIV is not easily spread and that the patient can still express love safely through hugs and kisses.

RESIDENT RIGHTS

Patients have the same rights as any other person. They can make legal decisions for themselves, they can travel where they want to and they can be around whoever they want to. They may still have consensual sex (as long as the client acknowledges their status to avoid legal/criminal complications), and they may still have children. They can work anywhere, so long as there is not a heavy occupational risk of transferring HIV. This does not stop someone from making food or working in the medical industry for example. These jobs require gloves, which helps prevent HIV and hepatitis.



OTHER RIGHTS

- Residents must be taught HIV prevention. If they persistently infect others with the virus it is legal for them to be held for 90 days. This period includes court and a counseling session.

- Pregnant women will be encouraged to take an HIV test prior to delivery. This is optional. Clients will sign a disinclination form.
- At the discretion of the person, HIV patients may inform their sexual partners through a professional health care worker. Professional care workers do not state the name of the infected.
- Victims of sexual assault are entitled to the HIV status of their convicted assailant.

HELP

Help can be found through local health departments. Case managers will provide this if requested.

National HIV/AIDS and STD Information (English & Spanish):

- 1-800-CDC-INFO
- 1-800-232-4636
- 1-888-232-6348 (TTY)

HIV patients are protected by two primary laws:

- State Discrimination Laws: prevents discrimination based on HIV and hepatitis.
 - Americans with Disabilities Act of 1990: requires reasonable accommodation in the workplace, and it prevents penalties in pay and unreasonable layoffs. This prevents employers, and people from discriminating against HIV individuals. HIV is a legal disability, so state services can help HIV patients afford medication. Damages can be sought in court. Note: This sets the framework for most state guidelines, as the ADA Act is a federal law.
- ❖ **Note:** Patients cannot be denied a promotion on the grounds of HIV and they cannot be denied legal services. Restaurant workers cannot refuse to serve a patient on the grounds of HIV; patients may not have an apartment application rejected and they cannot have their insurance coverage dropped solely because of HIV. Most importantly, they can never be denied health care.

IN THE EVENT OF DISCRIMINATION

Employers are required by law to provide a discrimination-free workplace. If discrimination exists, you must inform your employer. If no action is taken, you may report your claim to the Office for Civil Rights or your state's Human Rights Commission within 180 days of your alleged encounter, regardless of a work setting.

EXCEPTIONS

HIV/AIDS patients may not apply for the Peace Corp, Job Corp, or the army. HIV information can be transmitted to insurance agencies (only when it is necessary), the local health department, in life or death emergencies, and between other healthcare workers. An intentional



disclosure is a misdemeanor and carries fines up to \$10,000. Medical workers must report HIV status to the local health department, like other STIs. This is for public health benefit purposes. Names are not publicly made available. Refer to your employer policy.

CHANGES

In 2010, the US redefined its view on national HIV policy. It no longer considered HIV a nationwide communicable threat. As a result, the travel ban was lifted for incoming and outgoing visitors with HIV. There are several key changes that occurred from this definition change.

- Visitors no longer had to take a test to declare their HIV status, however, they must still report it on applicable forms.
- HIV tests are no longer necessary for visa applications
- Immigrants can no longer be denied citizenship for HIV

REASONING BEHIND CHANGE

Worldwide there are unnecessary isolationist policies regarding HIV migrants, especially in places such as China. HIV is not as communicable as the flu and is relatively easy to treat and prevent. While this change in the US is a great step forward, many countries do not necessarily embrace this same policy. It is currently being pursued by the UN.

HIV MANIFESTATION AND AIDS INDICATORS

HIV and AIDS can be detected through routine blood work, but the indications of it aren't apparent until a condition occurs. Doctors can use some diseases to suspect AIDS since they rarely appear in people unless their immune system is compromised.

- Invasive cervical cancer
- Tuberculosis
- Nocardiosis
- Cryptococcosis (extrapulmonary)
- HIV associated dementia
- Kaposi's sarcoma
- Histoplasmosis (expulmonary)
- Toxoplasmosis (internal organs)
- Recurrent-bacterial pneumonia (2 times a year)
- Herpes Simplex with mucocutaneous ulcer lasting for one month or bronchitis, pneumonitis or esopagitis.

AIDS is diagnosed by a T-cell count that is less than 200 cells/mm³, or when less than 14% of blood volume is white blood cells. These diseases are only one of many opportunistic infections that can occur. If a person experiences fatigue and sickness often, then it is wise to get it checked out.



OLDER PATIENTS

Older patients need greater care than their younger counterparts. Older people have weaker immune systems as their thymus gland shrinks; on top of the human immunodeficiency virus, this means that they have a compounded susceptibility to disease. In some cases, this can bring back suppressed childhood illnesses, such as chicken pox. This can increase even more when diabetes is involved.

PRACTICAL NURSING TIPS

Here are some practical nursing tips to help any HIV patient:

1. Wash your hands before and after you care for your patient.
2. Wear gloves if you are treating an open wound (beneficial for both parties.)
3. Disinfect areas, such as surfaces, bathrooms, food stands and hands often.
4. If someone is sick limit contact with the patient.
5. Prepare clean sheets for the clients regularly.
6. Make sure the client is clean and dry.
7. Promote good hygiene by caring for the patient's hands, feet and fingernails.
8. Use toothbrushes that are soft so you don't create sores in the mouth. The mouth is usually teeming with bacteria.
9. Move the patient every two hours to avoid bed sores, which can lead to deadly infections.
10. Avoid diets that can complicate present illnesses. A high fiber diet will exacerbate diarrhea; big meals can increase nausea and vomiting. Patients will benefit from receiving several smaller meals throughout the day, but may be on a special care plan, so check often.
11. Drink water as much as possible. Use either filtered water or tap water. Both are treated for viruses and bacteria. Natural sources of water, such as rivers and wells, are not treated.
12. Offer bathroom trips as much as possible.
13. Be sure to keep your patients hygiene products in their possession.
14. TB patients should be kept away from HIV patients if an active infection is taking place.
15. Most importantly, get your patient involved in their own personal health.

(Information provided by Hartman Publishing, *Successful Nursing Assistant Care*, 2nd Edition, 2008.)

ADDITIONAL TIPS

Don't pretend to know nothing, do not hate HIV patients and don't get careless with care. If you can't answer questions, provide the means for the patient to find it, or find out the information yourself and teach your patient.

If you are stressed or burned out, make sure the patient is cared for and inform your supervisor about your immediate concerns. Your employer may have high expectations of you, but they are also legally responsible for preventing incidents. Burnout and abuse are connected.

- One of your most stressful situations will be maintaining a clean environment. It is important that you do not get carried away. The best advice is to keep things simple. Wash your hands and apply sanitizer as necessary.
- Sterilize your patient's hands with a sanitizing wipe before and after they eat. Otherwise, encourage independent hand washing and sanitation.
- Keep your area clean with spray bottles and disinfectant, as approved by your employer.
- Make sure your patient's clothes are clean and neat.

So long as there are reasonable precautions to prevent disease transmission you are not considered liable for any damage. Even the best circumstances can't totally prevent opportunistic infections. By wearing gloves you will prevent most infectious opportunities. Luckily, helping an HIV patient is not much different than working with any other patient. The only exception is that they are just more susceptible to disease. Your hardest task will be trying to help them cope with the disease.

HIV PHYSICAL AND PSYCHOLOGICAL SIDE EFFECTS

HIV patients suffer physically, as well as emotionally. They become depressed, lose income, housing, emotional support and work. They can also suffer from progressive mental side effects, which may make HIV patients confused and irritable.

HIV patients may experience one or more of the following things:

- Helplessness
- Vulnerability
- Isolation
- Inability to face facts
- Rejection
- Guilt
- Stigma (especially if the person gets HIV from as a stereotyped group, e.g. homosexuals or drug users)



Be alert. HIV patients, if left on their own, may turn to destructive behaviors, such as drugs and alcohol. This may provide temporary relief but it exacerbates depression symptoms. Stress can diminish the HIV patient's immune system.

OTHER THINGS TO KEEP IN MIND

In 90% of cases HIV patients get confirmation of their illness in their peak years. This can create a downhill effect. Support is the best way to keep up hope. Unfortunately, most HIV patients, even with medication, die before their time.

UPLIFTING THINGS TO NOTE ABOUT HIV FAMILY LIFE

Earlier we talked about how women have low percentage odds of transferring HIV to their children when they use anti-retroviral medication and c-section delivery, however, we did not explain if men can still safely sire children. Currently, HIV infected men can have children by using sperm washing and artificial insemination.

SPERM WASHING

Sperm washing takes the males sperm and processes it to eliminate the majority of HIV presence in the specimen. This is in turn deposited in the female through an application device. Done correctly, the odds of HIV transference should be 0.09%, marginally higher than a 0% chance, according to the International AIDs society. However, this can differ depending on how long the virus has stayed in the host's body.

In 1990, the CDC issued warnings against using sperm washing in light of a patient receiving the virus. Documented cases are scarce. This stance has not changed, but it is not illegal to do this procedure. It is important to have sperm washing done by medically trained personnel.

ARTIFICIAL CONCEPTION

In vitro fertilization combines sperm and eggs in a Petri dish and is later implanted in the woman's womb. This is an outside procedure which requires no sex. Sperm washing is used to decrease the odds of HIV transference.

CONTROVERSY ABOUT BIRTH CONTROL AND SPERMICIDE

In recent years, there were allegations that HIV risk could increase through the use of birth control pills and spermicide.

The allegation: spermicide and birth control pills altered vaginal environments enough to raise the chances of HIV infection.

In order to get to the bottom of the allegation, the WHO did trial scenarios in Africa (particularly among African sex workers who use spermicide gels, and birth control users from various African countries to avoid bias).

SPERMICIDE

Worldwide, the consensus is that the frequent use of spermicide can cause inflammation in the vaginal area, improving chances for HIV infection. In limited use, it can still be used as a backup method to prevent pregnancies that lead to children with HIV. Spermicide condoms were found to be better than nothing, but

not optimal in comparison to a regular male condom, in terms of shelf life, cost and nonoxynol-9 exposure. Spermicide cannot kill HIV in a normal human environment.

Currently, spermicide should never be used alone, and if used, only with a condom. It is not recommended by the FDA to prevent HIV.

BIRTH CONTROL PILLS

Birth control pills are still risky, but are ideally preferred to spermicide by the WHO. The consensus is that a condom should be paired up with birth control, if the goal is to prevent transmission to a child. The main problem today is that birth control pills can be less effective if the patient is taking HIV medication (WHO, Hormonal Contraception and HIV, 2012).

CHAPTER 4: TUBERCULOSIS

HIGHLIGHTS

In this chapter you will learn more about tuberculosis patients, and how it impacts HIV patients in the workplace. This section will help you prepare, and minimize the coinfection capabilities of TB. Additionally, you will learn symptoms, common complications, and updates from the WHO regarding treatment prioritization.

OVERVIEW

Tuberculosis is currently the number one killer of HIV patients around the world. It is estimated to be in 4.3% of the US population, irrespective to HIV patients. It's primarily passed through moisture droplets, which are contaminated with mycobacterium expelled from the lung; laughing, sneezing, talking, and coughing are common transmission devices. TB can be present in other spaces in the body, such as the spine, but it is primarily found in the lungs.

TB has two stages: latent and active. In the latent phase people infected with TB harbor the bacterium while it grows into an uncontrollable level in the host's lungs. In the active stage patients become violently sick and are able to pass the disease.



SYMPTOMS

In the active stage, patients begin to exhibit a range of symptoms, such as:

- Wheezing
- Blood from the mouth
- Fatigue
- Heavy coughing
- Heavy sweating
- Difficulty breathing

VULNERABLE PATIENTS

TB has an easier chance to infect immunocompromised patients, such as those with HIV, and the elderly, patients with an underdeveloped immune system (such as a baby), people with chronic stress, fatigue and malnutrition, or those at risk of complications, like cancer and diabetes patients.

Those with HIV often end up dying from conditions such as TB, pneumonia, bacteremia, cerebral toxoplasmosis, and *pneumocystis jirovecii* pneumonia, as well as fungal infections and meningitis.

HIV AND TUBERCULOSIS STATS IN THE US

Here is a brief overview of why HIV and TB co-infection statistics are encouraging broad changes to diagnosing policy.

- In 2016 374,000 people who had both TB and HIV are estimated to have died.
- Deaths from TB alone: 1,300,000
- Deaths from HIV alone: 826,000
- So more people now die from TB than from HIV related infections.
- In 2016 there were an estimated 10.4 million new cases of active TB worldwide. Globally 10% of the incident TB cases in 2016 are estimated to have been among people living with HIV.

AROUND THE WORLD

Over 34 million people are believed to be HIV infected, and a third of that infected with TB. Most cases of TB come from impoverished countries where HIV and TB are common, and treatment for it is scarce. HIV patients are 21-34 times more likely to develop active TB if they are co-infected (WHO, WHO Policy on Collaborative TB/HIV Activities, 2012).



WHO ART INTRO

The CDC and the WHO have taken proactive steps in order to curtail the death rates of TB co-infections. For instance, cooperation among different health agencies is being used to develop correlations between risk groups and testing results. Policies are shifting in favor of testing most people with TB for HIV, and vice versa.

In 2012, the WHO released a summary highlighting resource policies they would be using for future TB outbreaks. Examples of this include treating and counseling patients with the earliest signs of symptoms (coughing).

HIV mothers, children, drug users, and prisoners are currently priority targets. A unique strategy that has shown remarkable results is the implementation of the ART system.

WHO FINDINGS

Anti-retroviral therapy (ART) is a system that distinguishes the need to test patients, based on the health, and likelihood of TB, and TB co-infections. With preventative antiretroviral medication for example, HIV patients can reduce the odds of getting a TB coinfection as a result of their compromised immune system. Other parts of the system use standard precautions for facilities (proper ventilation for TB, limited contact with other high risk patients), proposed diagnostic criteria, and types of treatment and preventative programs for TB and HIV (HIV awareness, protected sex, identifying symptom signs of TB, and when to seek treatment).

Therapy planning effectiveness is heavily dependent upon HIV and TB factors within a country, the identification of patients, the availability of evidence based TB reduction programs, and the availability of testing and health care resources.

In short, by understanding the population, and the rate of infection, you can decisively plan and adjust resources to reduce the rate of TB and HIV infections. Surveys find that government programs have a higher rate of success when their programs focus on harm reduction services, better prison care management, maternal/child care, and how they introduce routine HIV and TB test screening.

POLICY PROPOSALS BY THE WHO

THREE I SYSTEM

To decrease co-infections you can use the following criteria in your own medical facility:

- Intensified TB case-finding followed by high-quality anti-tuberculosis treatment
- Isoniazid preventative therapy
- Infection control for TB and HIV



TREATMENT BASED ON PRESENCE OR ABSENCE OF SYMPTOMS

Clinical facilities should base their priority treatment criteria on the presence or absence of four major symptoms: cough, fever, weight loss, and night sweats.

ADMINISTRATION CHANGES

One agency should oversee the implementation and results of the TB and HIV co-infection effort, as opposed to individual action (larger scale actions prompt more uniform action to keep results consistent).

Organizations should implement new policies in favor of relocating HIV healthcare workers away from TB patients.

CURRENT PROGRESS

Over 170 countries now use the ART system to decrease the number of TB and HIV cases around the world. Use of the system has become commonplace since 2010. The policy is expected to be reviewed in 2017 in respects to progress and changes.

The WHO implementation of the ART system has achieved remarkable coinfection prevention results:

- 55%-92% success rate at the individual patient level.
- 27%-80% success rate at country wide patient levels.
- Up to a 90% success rate in Brazil and South Africa, while using the ART and isoniazid preventive therapy regime to prevent TB in HIV patients.

Right now it is believed that TB infection in HIV patients can be reduced by 50% when ART and ISP systems are used on patients with CD4 counts greater than 350 cells/mm³. This is currently being debated for the next policy update (Statistics provided by the WHO, WHO Policy on Collaborative TB/HIV Activities, 2012).

WHO RECOMMENDATIONS

HEALTH CARE FACILITIES

- HIV and TB programs should provide a direction for all managers to help them reduce TB infections in health care facilities, and similar settings.
- Every healthcare setting should have a TB infection control plan for the facility to reduce the chance of TB infection being passed environmentally (ventilation for example). TB testing resources, and equipment to avoid transmission between patients and health care workers.
- ART and IPT should be applied to health care workers and care providers as necessary. Employees should not be working in TB rooms and high risk patient areas if co-infection is likely. Immunocompromised health care workers should not work in TB patient rooms.



PROVIDE TESTING FOR SUSPECTED TB CASES

- Routine HIV testing should be offered in assumed and non-assumed TB cases
- Partners of HIV positive TB patients should be offered mutual HIV testing and counseling
- TB control programs should be streamlined for the purposes of HIV testing and counseling, including routine services

PREVENTION EFFORTS

- Provide information on HIV and TB through information through pamphlets and other media.
- Encourage confidential counseling and testing services to motivate people to seek help, as well as reduction of workers and TB patient interaction.
- Teach sexual disease prevention, as well as TB transmission methods.
- Provide wider access to diagnosis tools, treatment, as well as care for people who use drugs, preferably using a holistic method (step by step).
- HIV pregnant mothers should be referred to care facilities for anti-retroviral medication, and prophylaxis treatment as needed.
- Follow up care after TB treatment should always be suggested.

The full 34 page summary can be found at:

http://whqlibdoc.who.int/publications/2012/9789241503006_eng.pdf

COMMON COURSE OF TREATMENT FOR TB PATIENTS

Normally, healthy immune systems can suppress and outright kill TB, but TB has a special quality to it that allows it to resist our defenses once it flourishes: it can mutate. This makes treating TB time consuming.

Isoniazid and Rifampin, Ethambutol, and Pyrazinamide are commonly used TB antibiotics. They are used in 6-9 month course regimens. Twelve month regimens are not unheard of in patients that are dealing with a drug resistant strain of the disease. HIV patients must undergo course regimens for a year or more.

If improperly dosed any regular TB strain can develop a resistance to future antibiotic efforts. Treatment must be aggressive early on or it can work against the patient.

- ❖ **Note:** Antibiotics do not necessarily kill all TB bacterium in the body; its purpose is to kill growth long enough for the immune system to remove it naturally. This takes longer in HIV patients due to the lack of white blood cells available to kill TB bacteria.

CARE TIPS FOR TB

TB is dangerous, but can be circumvented by precaution and knowledge of the disease. It can only be passed through moisture droplets in the active state; **latent infections do not pass the condition.** You

cannot get TB from sharing food, toilet seats, shaking hands, utensils or plates. That said the latent state can still be very concerning.

TB doesn't present any symptoms in its dormant state, and in healthy people treatment may not be sought because the disease may be suppressed by the immune system. To find out if you have TB get a Mantoux skin reaction test.

MANTOUX SKIN TEST

The Mantoux skin test involves injecting 0.1ml of tuberculin purified protein derivative (PPD) in the inner surface of the forearm. Within 48-72 hours you will be asked to come back to have your skin elevation read. If you have a positive reaction (usually an elevation of 15mms or more) you are infected with TB. In high risk patients, such as those with HIV, infection is indicated on a reading of 5mm-10mms. For assurance purposes, two visits are necessary to read the skin in the event of a false reading.

In some cases TB diagnosis may rely on a chest x-ray. X-rays are able to do this because the body naturally heals as TB impacts the body, leaving calcified buildups, or scars, which can be read on a chest reading.

Health care facilities find that it is convenient to have medical workers get TB skin tests approximately every 6 months (preferably before starting work). High risk patients may have themselves tested 1-2 times a year in order to prevent latent TB infection from progressing to the active state.



VACCINATION

Vaccines for TB exist, but offer mixed results for most patients. They are often used specifically for special risk populations, such as HIV and TB patients, and within reason some health workers dealing with TB patients. This vaccine is called Bacille Calmette-Guérin or BCG for short. This is highly recommended when patients have both isoniazid and rifampin drug resistance (two of the most common medications used for TB strains). Positive TB tests can occur from a vaccination, as skin tests are typically measured by the injected substances reaction (vaccines use trace elements of a bacteria or virus to spur antibodies).

MEDICATION REACTION

TB patients have to deal with medications that are less ideal as a result of a co-infection, and side effects can cause discomfort. For instance, Rifampin turns urine, saliva and tears orange (soft contact lenses may not be advised as they can get stained), and can lessen the capability of contraceptives, such as birth control pills and implants.

Major side effects include:

- Nausea
- Lack of appetite
- Vomiting
- Yellowish skin
- Skin rashes

- Aching joints
- Enhanced bruising
- Hearing loss
- Fever
- Abdominal pain

PATIENT DIFFICULTIES

Information on how TB will impact your patient's life is crucial as there may be a time when active TB forces them to be separated from family members. Your patient may also be irritated by the amount of medication it takes to eliminate TB. If this is the patient's first time with TB, it is ideal to tell them that taking medication correctly within the first 6 months is often the fastest route to get better, but as TB is stubbornly resistant, it can take as much as 9-12 months if not followed correctly. They can help themselves by eating better, staying active, practicing good hygiene and doing things they love. Care must be taken that the patient's items don't leave their room without a procedure to accommodate it.

Particular care must be considered for HIV patients, as their complication treatments can cause them to feel helpless, and nauseous. TB treatments can last a year or more in this group.

IN THE EVENT OF ACTIVE STATE INFECTION

Isolation is not unheard of for TB patients, as the disease is very communicable. Legally, health departments need to know that patients have TB, and a proper isolation policy must be enforced. Patients, as a result, may end up isolated at home, or in an appropriately equipped medical facility. It takes about 2-4 weeks with proper antibiotic treatment to downgrade TB to its harmless dormant state. The patient may end up being separated from friends and family.

The CDC recommends particular respirators such as the N95, N99, or N100 particulate respirators. This provides a barrier for the nose and mouth. At home, it is appropriate to open windows, as it will move air stagnated with TB elsewhere.

PERSONAL PROTECTIVE EQUIPMENT CONSIDERATIONS

Equipment standards should address HIV and TB equally, like any other opportunistic infection.

- Use a 60% alcohol sanitizer or better if you're not washing hands.
- Prevent yourself from touching items with contaminated gloves. The patient can harbor trace infectious material on their hands, and body.
- Hold clothes away from you.
- Rules and procedures should address endoscope isolation; otherwise trace TB bacteria may be passed from patient to patient. One endoscope should be designated, left and sterilized before and after use in the patient's isolated room. TB is treated differently than HIV in this regard because TB is more communicable than HIV (TB can remain in the air), and only requires speaking, as opposed to blood and bodily fluid exposure which a worker can prepare for.
- You can sterilize endoscopes by cleaning and sterilizing them with a 2% glutaraldehyde solution for 20 minutes (test studies found no trace of Hep C using this method). This is an acceptable method for removing TB.

- Basic facemasks were once thought effective, but they only provide a degree of protection (bacterium can slip through still).
- Cleaners, such as Lysol, with 99.9% guarantees, can be used to combat TB in commonly used surface spaces.

CONCLUSION

HIV is a virus that reproduces with CD4 white blood cells. In time, HIV can cause a decreased white blood cell count, leading to AIDS, an advanced state of HIV. This state can increase the odds of sickness and health complications.

HIV can be destroyed by the body; however, the white blood cells that learn how to destroy HIV are often lost with the HIV reproduction process, as well as any other disease information the white blood cells retain. White blood cells improve our immune system by telling our body how to produce antibodies for particular pathogens.

Patients with HIV normally take antiretrovirals, which decrease the virus's ability to detect and assimilate CD4 cells. It gives patients a longer lifespan, but it does not offer a cure. HIV, even when undetectable, can hold itself in special reservoirs in the body (growing back once more if medication is stopped). Medication will be a lifetime routine.

Special care must be taken to avoid bodily fluids, such as semen, blood, and other biomaterial. Cover your wounds and avoid objects that penetrate your skin. Luckily, transmission rates are often low (0.67% in cases of direct skin penetration) and HIV is weak when exposed to air. If you find yourself exposed to blood or other fluids wash the area with soap and water and seek prophylaxis treatment (done within 7-10 days and you'll reduce the odds of infection greatly).

Treat HIV patients as normally as possible, and give them information to help ease their life transition. They are protected as disabled individuals per the ADA Act of 1990, and they are free to travel from state to state without reporting their condition (exceptions are made when coming in or leaving the country). Teach healthy sex practices such as condom use, abstinence, or alternative forms of affection. Also be aware that HIV patients benefit greatly from getting tested for TB (at least once a year). In the end, be an HIV patient's best advocate.

REFERENCES

- A.D.A.M Medical Encyclopedia, Pulmonary Tuberculosis. December 6, 2011. <http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0001141/>
- AIDS.gov, Having Children. January 25, 2012. <http://aids.gov/hiv-aids-basics/staying-healthy-with-hiv-aids/friends-and-family/having-children/>
- BBC News, New Anti-HIV Drug Deal. January 18, 2003. <http://news.bbc.co.uk/2/hi/americas/3281683.stm>
- Cain KP, Anekthananon T, Burapat C, Akksilp S, Mankhatitham W, Srinak C, et al. Causes of death in HIV-infected persons who have tuberculosis, Thailand. *Emerg Infect Dis*. February 2009. <http://wwwnc.cdc.gov/eid/article/15/2/08-0942.htm>
- CDC, Clinical Prevention Guidance. 2010. <http://www.cdc.gov/std/treatment/2010/clinical.htm>
- CDC, Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings. <http://www.cdc.gov/hai/pdfs/ppe/ppeslides6-29-04.pdf>
- CDC, HIV and TB. June 13, 2011. <http://www.cdc.gov/hiv/resources/factsheets/hivtb.htm>
- CDC, HIV AIDs Overview. March 25, 2010. <http://www.cdc.gov/hiv/resources/qa/transmission.htm>
- CDC, *HIV Surveillance Report, 2016*; vol. 28. <http://www.cdc.gov/hiv/library/reports/hiv-surveillance.html>. Published November 2017. Accessed April, 11, 2018.
- CDC, Tuberculosis: A Guide for Adults and Adolescents with HIV. June 21, 2007. <http://www.cdc.gov/hiv/resources/brochures/tb.htm>
- CDC, Staying on Track with TB Medicine. http://www.cdc.gov/tb/publications/pamphlets/TB_trtmnt.pdf
- Dailey AF, Hoots BE, Hall HI, Song R, Hayes D, Fulton P, Prejean J, Hernandez AL, Koenig LJ, Valleroy LA. Vital Signs: Human Immunodeficiency Virus testing and diagnosis delays — United States. *MMWR* 2017; 66:1-7.
- Delmar, Clinical Medical Assisting, 3rd Edition, 2006. ISBN-10 1-4018-8132-7, Wilburta Q. Lindh, Marilyn S. Pooler, Carol D. Tamparo, Barbara M. Dahl.
- Hartman Publishing, Successful Nursing Assistant Care, 2nd Edition, 2008. ISBN-10 1-888343-97-4, Diane Dugan, RN.
- Healthcare Infection Control Practices Advisory Committee, Guideline for Disinfection and Sterilization in Healthcare Facilities. 2008. http://www.cdc.gov/hicpac/disinfection_sterilization/3_2contaminateddevices.html
- Henry J Kaiser Family Foundation, HIV/AIDS Policy: Fact Sheet, 2012. <http://www.kff.org/hivaids/upload/3029-13.pdf>
- International AIDS Society, Effectiveness of Sperm Washing. 2007. http://journals.lww.com/aidsonline/Fulltext/2007/09120/Safety_and_efficacy_of_sperm_washing_in.10.aspx

- J Urban Health*. 2006 January; 83(1): 5–17. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1539443/>
- Kanabus, Annabel. *Information about Tuberculosis*. GHE, 2017. <https://www.tbfacts.org/tb-hiv/>
- KNOW, HIV Prevention Guide. 2007 revision. <http://www.doh.wa.gov/Portals/1/Documents/Pubs/410-007-KNOWCurriculum.pdf>
- MDPH Bureau of Infectious Disease, HIV Travel Ban Repeal. 2010. <http://www.mass.gov/eohhs/docs/dph/aids/hiv-travel-ban-repeal.pdf>
- MedlinePlus, Tuberculosis. July 2012. <http://www.nlm.nih.gov/medlineplus/tuberculosis.html>
- Science Insider, HIV Infections and AIDS Deaths Dropping, But Epidemic Still Daunting. 2012. <http://news.sciencemag.org/scienceinsider/2012/11/hiv-infections-and-aids-deaths-d.html>
- Singh S, Song R, Johnson AS, McCray E, Hall HI. *HIV incidence, prevalence, and undiagnosed infections in men who have sex with men*. Presented at Conference on Retroviruses and Opportunistic Infections; February 14, 2017; Seattle, WA.
- WHO, Hormonal Contraception and HIV. 2012. http://whqlibdoc.who.int/hq/2012/WHO_RHR_12.08_eng.pdf
- WHO, Tuberculosis. October 2012. <http://www.who.int/mediacentre/factsheets/fs104/en/>
- WHO, Tuberculosis Care with TB-HIV Co-management. April 2007. http://www.who.int/hiv/pub/imai/TB_HIVModule23.05.07.pdf
- WHO, WHO Policy on Collaborative TB/HIV Activities. 2012. http://whqlibdoc.who.int/publications/2012/9789241503006_eng.pdf

**CE EXAM****HIV AWARENESS IN THE WORKPLACE****MULTIPLE CHOICE**

You will be provided a question. From a list of four choices you must decide which one is the best answer. There are 28 questions. We expect a score of 80% or better (23 out of 28). Study hard, do your best, and only submit the test when you are ready.

1. Which bodily fluid transmits HIV?
 - A. Urine
 - B. Feces
 - C. Saliva
 - D. Semen

2. How does HIV survive in humans?
 - A. HIV cannot be killed by the body
 - B. HIV is a virus that uses CD4 cells to reproduce
 - C. HIV has a special envelope that makes it resilient against our immune system
 - D. HIV has an easier time competing with other microorganisms

3. In order to acquire AIDS what must first happen?
 - A. CD4 cell counts are < 800 cells/mm³
 - B. CD4 cell counts are < 220 cells/mm³
 - C. CD4 cell counts are < 210 cells/mm³
 - D. CD4 cell counts are < 200 cells/mm³

4. Which of the following is not true about HIV detection?
 - A. HIV patients are sicker more often than regular patients
 - B. HIV antibodies aren't detected until at least six-twelve weeks
 - C. HIV can cause symptoms, such as lymph node swelling
 - D. HIV cannot be detected until AIDS occurs

5. Which of the following is not true about HIV transmission?
 - A. HIV is transmitted through needle pricks and needle injections
 - B. HIV is transmitted by blood entering sores
 - C. HIV is transmitted through sexual fluids which come into contact with epithelial tissue
 - D. HIV is transmitted by mosquitoes, air and casual contact

6. What is the surest way to prevent HIV?
 - A. Have sex with a trusted, tested partner
 - B. Use condoms
 - C. Abstinence
 - D. Use birth control

7. How does spermicide help when it comes to sex with an HIV infected partner?
 - A. Kills HIV
 - B. Stops pregnancies that can lead to transmission in a child
 - C. Makes sexual environments less hospitable to HIV
 - D. The FDA recommends it

8. What is a universal precaution that is always safe to use?
 - A. Assume all bodily fluids are contagious
 - B. Assume all people are healthy
 - C. Assume all people are sick and isolate them
 - D. Assume you can test everyone for HIV before treatment

9. You've been contaminated by blood, what should be one of your first reactions?
 - A. Call for help, and wash the affected site with soap and water
 - B. To clean the blood spill
 - C. To sit still and wait for a supervisor
 - D. To open the door and seek help

10. What percent of the AIDS population was a blood transfusion victim in 1999?
- A. 0.03%
 - B. 0.1%
 - C. 0.8%
 - D. 1%
11. Why is HIV particularly dangerous for older people?
- A. Older people have impaired judgment
 - B. Older people may have a weaker immune system as they age
 - C. Older people don't use sexual protection
 - D. Older people are unaware of their hygiene
12. Are employees required to take Hepatitis B vaccinations?
- A. Yes, as it is part of the job
 - B. Yes, because it is expected by OSHA
 - C. No, because you have the choice to accept or decline
 - D. No, because it is unnecessary
13. Your employer looks at your HIV incident records, is that ok?
- A. Yes, as long as they don't discriminate
 - B. Yes, as it is part of their job.
 - C. No, because it can lead to unwarranted discrimination and fines
 - D. No, because if you don't have HIV, it doesn't matter
14. What is the point of counseling after a contamination incident?
- A. To help you get immediate treatment and advice
 - B. To help employers avoid fines
 - C. To prevent the spread of the disease
 - D. To reduce transmission statistics in the US

15. To qualify as a first aid respondent in the workplace, what does OSHA expect?
- A. For a trained, qualified individual, to assign roles
 - B. No expectation, other than good intention
 - C. That the first aid respondent have first aid and blood borne training
 - D. To have an accreditation or title
16. Are HIV patients allowed to travel freely in or out of the US?
- A. Yes, there are no stipulations
 - B. Yes, but they are still required to declare their illness if they enter the US
 - C. No, they must reside in their state
 - D. No, as other countries do not want HIV entering their country
17. What is the primary federal law that helps HIV patients with their disability in the US?
- A. The Americans with Disabilities Act of 1990
 - B. State discrimination laws
 - C. Federal anti-discrimination laws
 - D. Civil Rights Act
18. If an HIV patient is discriminated against, which of these should not be contacted?
- A. Human Rights Commission
 - B. Office of Civil Rights
 - C. CDC
 - D. Employer
19. To avoid legal/criminal complications, how should sex be handled for an HIV patient?
- A. Partner must be told so they can look out for their well-being
 - B. Doesn't have to be revealed
 - C. Only some sex acts can be performed
 - D. HIV patients may not have sex

20. How long should you wash your hands?
- A. Minimum 10 seconds
 - B. Minimum 20 seconds
 - C. Minimum 30 seconds
 - D. Minimum 40 seconds
21. What does the CDC recommend in regards to accessories and nails?
- A. That it is ok to wear false nails and jewelry
 - B. That nails should be cut short and minimal jewelry worn
 - C. Ok to wear jewelry so long as surrounding area is washed
 - D. Gloves must be worn over jewelry
22. Why are vaccines recommended for health workers?
- A. Vaccines can help reduce opportunistic infection chances
 - B. Vaccines can protect against all opportunistic infections
 - C. They are not harmful
 - D. Because it is the law
23. Which of these is not recommended if you have HIV and want children?
- A. To have sperm washing done
 - B. Have unprotected sex
 - C. Take anti-retroviral medication
 - D. Have a C-section
24. Tuberculosis is a disease that is primarily found in the
- A. Liver
 - B. Lung
 - C. Spine
 - D. Brain

25. When is tuberculosis contagious?
- A. When the patient is in his/her latent phase
 - B. TB is contagious regardless of phase
 - C. When the patient is in his/her active phase
 - D. When the patient shares utensils with others
26. The WHO proposed four symptoms that medical facilities should prioritize for TB. Which one of these is not one of them?
- A. Night sweats
 - B. Fever
 - C. Coughs
 - D. Nausea
27. The WHO is currently prioritizing four risk groups in their fight to control TB. Which one of these is not one of them?
- A. Prisoners
 - B. Children
 - C. Mothers
 - D. Homosexuals
28. When a high risk patient, such as one with HIV, receives a Mantoux skin elevation measurement, what is the positive indication for TB?
- A. 5-10 mms
 - B. 15 mms
 - C. 20 mms
 - D. 25 mms



EVALUATION

HIV AWARENESS IN THE WORKPLACE

Your opinion is important to us. Please answer the following questions by circling the response that best represents your experience.		Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
COURSE OBJECTIVES & CONTENT						
1.	The activity was valuable in helping me achieve the stated learning objectives.	5	4	3	2	1
2.	The content was up to date.	5	4	3	2	1
2.	The number of credit hours was appropriate for the content.	5	4	3	2	1
TEACHING/LEARNING METHODS						
4.	The teaching/learning methods, strategies, and slides were effective in helping me learn.	5	4	3	2	1
5.	The material was clearly explained.	5	4	3	2	1
6.	The answers to the post-test questions were appropriately covered in the activity.	5	4	3	2	1
OVERALL ACTIVITY						
7.	The online course/download supported the achievement of the stated learning objectives.	5	4	3	2	1
8.	The material was relevant to my professional development.	5	4	3	2	1
9.	Overall, I am pleased with this activity and would recommend it to others.	Yes	No			
10.	The content was presented free of commercial bias. *	Yes	No			
11.	Did the material presented increase your knowledge and/or understanding of this topic? *	Yes	No	NA		

Continued on Next Page

* If you responded “No” to question 10, please explain why:

* If you answered “Yes” to question 11, what change do you intend to make?

What barrier, if any, may prevent you from implementing what you learned?

Cite one new piece of information you learned from this activity:

Additional comments/suggestions:

With my signature I confirm that I am the person who completed this independent educational activity by reading the material and completing this self evaluation.

Signature _____ Date: _____



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