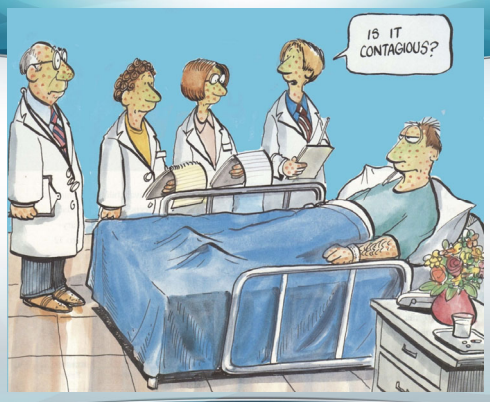
COMMUNICABLE DISEASES

St. Clair County
Community Mental Health
Promoting Discovery & Recovery Opportunities for Healthy Minds & Bodies

FY 2021



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Course Objectives

Upon completion of this course, individuals will:

- Be able to define and identify communicable diseases.
- Be familiar with common Sexually Transmitted Infections (STIs), including: bacterial, viral, parasitic, and fungal infections.
- Know how to prevent contracting each disease.

Data in this module reflects known, reported cases and is from the Centers for Disease Control (national statistics) and Michigan Department of Health and Human Services (state and local) unless otherwise indicated and is the most recent data available.

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Communicable Diseases

Communicable Disease is a disease that is transmitted through direct contact with an infected individual or indirectly. Communicable disease is also called contagious diseases. Communicable Diseases:

- Are prevalent in the State of Michigan
- Come in many varieties
- Can occur again and again
- Can have serious and permanent consequences

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Sexually Transmitted Infections

Communicable Disease can include STIs:

Bacterial
- Chlamydia
- Gonorrhea
- Syphilis
- Bacterial Vaginitis

Viral
- Genital Warts/HPV
- Herpes
- HIV/AIDS
- Hepatitis

Parasitic
- Crabs (Pubic Lice)
- Trichomoniasis

Fungal
- Candidiasis (Yeast)

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Connections Between STIs and Substance Use Disorders

Direct
- Needle Sharing
- Unprotected Sex

Indirect
- Disinhibition and Impaired Judgment
- Immune System Suppression

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Bacterial STIs

The following slides discuss infections which are examples of bacterial STIs. They are caused by bacteria and are treatable and curable.

Bacterial STIs include:

- Chlamydia
- Gonorrhea
- Syphilis

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Chlamydia, Gonorrhea, and Syphilis

Chlamydia is a major infectious cause of human genital and eye disease and is the most common bacterial STI in humans. It is naturally found living only inside human cells.

- Symptoms are often not present, though both men and women can experience painful urination and genital discharge; women may also experience dull pelvic pain and bleeding between menstrual periods.
- Possible problems associated with Chlamydia include infertility, eye and lung infections in newborns. This infection can be cured with antibiotics, often while also treating gonorrhea.

Gonorrhea is a bacterial infection, and is one of the most common STIs in the world.

- Though often there are no symptoms, when there are, both males and females may experience a pus-like discharge and painful urination. Females may also experience abdominal pain.
- Gonorrhea is curable with proper treatment (usually antibiotics). Since gonorrhea often presents with chlamydia, antibiotics for both can be given together. There are some drug-resistant strains.
- Possible problems associated with Gonorrhea include sterility in males (if left untreated), PID, infertility in women, repeated pelvic infection in women, damage to newborns.

Syphilis is transmitted sexually and can also pass from mother to baby during pregnancy if not diagnosed and properly treated.

- In its early stages it can be easily cured with antibiotics including penicillin.
- The signs and symptoms of syphilis are numerous, therefore it can be confused with other diseases, particularly in its late stage. In some cases its effects can be fatal.
- Possible problems include affecting the heart, spine and brain. It can also cause severe threat to developing fetus.
- The following symptoms are the same for men and women and eventually disappear: possible sore throat, fever, swollen glands, a usually painless sore (chancre), later a rash may develop on other parts of the body (usually hands or feet)

Chlamydia Number of US Residents Affected in 2018: 1,758,668; Michigan Cases (2019): 50,374; Regional Cases (2019): 462

Gonorrhea Number of US residents Affected (2018): 583,405; Michigan Cases (2019): 18,264; Regional Cases (2019): 89

Syphilis Number of US Residents affected (2018): 35,063; Michigan cases (2019): 1,900; Regional Cases (2019): 6

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Viral STIs

The following slides discuss infections which are examples of viral STIs. They are caused by viruses and are treatable but not curable.

Viral STIs include:

- Genital warts
- Acute Hepatitis
- Chronic Hepatitis
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Herpes
- HIV

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Genital Warts and Herpes

Genital warts are the most common STI. There are about 150 types of HPV, many of which don't cause visible warts. Genital warts are caused by various strains of Human Papillomavirus (HPV) which are usually not related to cervical cancer. They are highly contagious and spread through direct contact. HPV is so common that most sexually active men and women will get at least one type of HPV at some point in their lives.

- Symptoms are the same for men and women. Warts can be found around genitals or rectum; can grow large and obstruct penis, vagina, or anus; rarely can develop in mouth or throat.
- While treatment removes the warts, it doesn't address HPV. However, two vaccines are available; one prevents genital warts while both protect against cervical cancer.

Herpes is treatable, but not curable. Repeated flare-ups may re-occur, and it can be transmitted even when blisters aren't present. The following symptoms apply to both men and women:

- Flu-like symptoms
- One or more blister-like sores on, in, or around the genitals, may look like a rash, not always painful, symptoms eventually vanish
- Possible Problems: Can cause severe damage (seizures, brain infection, intellectual and developmental disabilities, prolonged hospitalization, and death) to infants of mothers with active infections at time of delivery.

Genital Warts: According to the CDC, about 79 million Americans are currently infected with HPV, and another 14 million people become newly infected each year. Michigan Cases: Unknown; this is not tracked by the State or local Health Departments.

Herpes: Number of US Residents Affected Every Year: Approximately 776,000 new cases of Herpes are reported each year. Michigan Cases: Unknown; this is not tracked by State or local Health Departments.

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Human Immunodeficiency Virus and Transmission

Human Immunodeficiency Virus (HIV) is the virus that causes AIDS (*Acquired Immune Deficiency Syndrome* or *Acquired Immunodeficiency Syndrome*). While the symptoms are treatable, there is no cure.

HIV is different from most other viruses because it attacks the immune system. The immune system gives our bodies the ability to fight infections. HIV finds and destroys a type of white blood cell (T cells or CD4 cells) that the immune system must have to fight disease.

HIV is a fragile virus and cannot live long outside the body. As a result, it is **not transmitted** through day-to-day activities such as shaking hands, hugging, or a casual kiss. You cannot become infected from a toilet seat, drinking fountain, doorknob, dishes, drinking glasses, food, or pets. You also cannot get HIV from mosquitoes.

HIV is primarily found in the blood, semen, or vaginal fluid of a person with HIV and is primarily transmitted by:

- Having sex (anal, vaginal, or oral) with someone infected with HIV
- Sharing needles and syringes with someone infected with HIV
- Being exposed (fetus or infant) to HIV before or during birth or through breast feeding

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HIV Risk of Infection

People are at increased risk for infection if they:

- Inject drugs or steroids, during which equipment (needles, cotton, syringes, water) and blood were shared with others
- Have unprotected vaginal, anal, or oral sex (without condoms) with men who have sex with men, anonymous partners, or multiple partners
- Exchange sex for drugs or money
- Are given a diagnosis of, or been treated for hepatitis, an STI or tuberculosis (TB)
- Received a blood transfusion or clotting factor during 1978–1985
- Had unprotected sex with someone who has any of the above risk factors

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AIDS

- AIDS is the final stage of HIV infection. It can take years for a person infected with HIV, even without treatment, to reach this stage.
- Having AIDS means that the virus has weakened the immune system to the point at which the body has a difficult time fighting opportunistic infections. When someone tests positive for HIV and either contracts one or more of these infections or a T cell count of 200 or less, he or she has AIDS.
- During the early 1980s, as many as 150,000 people annually became infected with HIV. In 2011, an estimated 49,273 people were diagnosed with HIV infection in the U.S.
- AIDS cases began to fall dramatically in 1996, as new drugs became available.
- Today, more people than ever before are living with HIV/AIDS. In a February 2013 report, the CDC estimates that more than 1.1 million people in the United States are living with HIV or AIDS; about 18% are unaware of their infection.
- While symptoms are treatable, there is no cure.
- The symptoms of AIDS are primarily the result of conditions that do not normally develop in individuals with healthy immune systems (see following pages). Once HIV damages the immune system, infections may be caused by bacteria, viruses, fungi and parasites.

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Opportunistic Infections

People with advanced HIV infection are vulnerable to infections and malignancies that are called **Opportunistic Infections** because they take advantage of the opportunity offered by a weakened immune system. A partial list of some common ones includes:

- Bacterial diseases (tuberculosis, bacterial pneumonia and blood poisoning)
- Protozoal diseases (toxoplasmosis)
- Fungal diseases (candidiasis and penicilliosis)
- Viral diseases (caused by cytomegalovirus, herpes simplex and herpes zoster virus)
- HIV-associated malignancies (Kaposi's sarcoma, lymphoma and squamous cell carcinoma)

Different conditions typically occur at different stages of HIV infection. In early HIV, people can develop malaria, bacterial pneumonia, herpes zoster, septicemia, and staphylococcal skin infections. People with normal immune systems can also get these, but with HIV they occur at a much higher rate. It also takes longer for a person with HIV to recover than it takes for someone with a healthy immune system.

As the course progresses, opportunistic infections such as toxoplasmosis and cryptococcosis develop. Some infections can spread to a number of different organs, this is known as 'disseminated' or 'systemic' disease. Many of the opportunistic infections that occur at this late stage can be fatal.

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What is Viral Hepatitis?

- Hepatitis is inflammation of the liver.
- It can be caused by viruses, alcohol or substance abuse, exposure to toxins, and certain diseases.
- Viral hepatitis refers to liver inflammation caused by one of several types of viruses that attack the liver. In the U.S. these are primarily Hepatitis A, Hepatitis B, and Hepatitis C.
- Hepatitis can be *acute* which means that the infection does not last longer than 6 months, or *chronic* which means the infection has lasted longer than 6 months.

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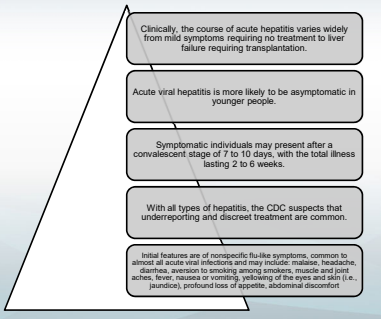
Acute Hepatitis



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Chronic Hepatitis

An estimated 3.5 – 5.3 million people in the U.S. live with chronic viral hepatitis.

The majority of patients will remain asymptomatic or mildly symptomatic, abnormal blood tests being the only indicator.

Features may be related to the extent of liver damage or the cause of hepatitis. Many experience return of symptoms related to acute hepatitis. Other features include:

- Abdominal fullness from enlarged liver or spleen
- Low grade fever and fluid retention
- Extensive damage to and scarring of the liver
- Acne, abnormal menstruation, inflammation of the thyroid gland and kidneys may be present in women with autoimmune hepatitis
- Jaundice can be a late feature

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Hepatitis A (HAV)

HAV is only acute and never chronic. Once recovered, the person is no longer contagious and is immune to reinfection.

Spread through drinking water or eating food (especially raw shellfish) contaminated with fecal material harboring the virus. It is extremely contagious.

One-third of U.S. residents have had HAV infection.

Since 2016, there have been increased confirmed cases of Hepatitis A in Southeast Michigan.

Treatment: No specific treatment. Sufferers are advised to rest, avoid fatty foods and alcohol, eat a well-balanced diet, and stay hydrated. HAV infection is rarely life threatening.

People who use drugs are at risk for acquiring HAV.

The most effective way to prevent HAV infection is vaccination.

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Hepatitis B (HBV)

HAB can be acute or chronic. Approximately 90% of adults with HAB infection alone (without co-infection) recover completely and do not become chronically infected.

HBV is very contagious and is spread through infected blood and other bodily fluids. Modes of transmission include unprotected sex, exposure to infected blood, or sharing contaminated needles.

Between 800,000 and 1.4 million people in the U.S. live with chronic HBV.

Three to eleven percent of people who inject drugs have chronic HBV. Rates of asymptomatic HBV infection among clients on methadone maintenance may be as high as 25 percent.

Treatment: Usually none because most adults clear the infection spontaneously.

Vaccination is the most effective way to prevent HBV.

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Hepatitis C (HCV)

HCV is spread through direct contact with human blood and is highly contagious.

It can be acute or chronic. The infection becomes chronic in 75-85% of people who contract HCV.

People who have hepatitis C and clear the virus do not develop immunity; they can become reinfected. Injection drug use remains the primary mode of transmission for HCV with an estimated two-thirds of all new cases being transmitted through the sharing of needles/syringes and other drug injection paraphernalia.

HCV infection is the most prevalent chronic blood-borne infection in the U.S.

HCV can only be prevented by avoiding contact with contaminated blood.

The CDC estimates that there were approximately 50,3008 actual acute cases of Hepatitis C in 2018. In 2016, 154 cases of acute Hepatitis C along with 11,883 lifelong carriers were reported in Michigan.

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Symptoms Of HCV Infection

Chronic HCV infection progresses slowly with few or no symptoms for the first 20-30 years after infection. Symptoms of Hepatitis C Virus include:

- Extreme fatigue
- Sleep disturbance
- Mental 'fuzziness' or 'brain fog' (cognitive impairment sometimes including short-term memory loss and trouble concentrating)
- Abdominal pain
- Irritability
- Headache
- Nausea
- Depression
- Muscular and joint pain
- Loss of appetite/food intolerance
- Loss of weight
- Skin rash

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Parasitic STIs

The following slides discuss infections which are examples of parasitic STIs. They are caused by parasites and are treatable and curable.

Parasitic STIs include:

- Crab Lice
- Trichomoniasis

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Crab Lice and Trichomoniasis

Crab lice is a parasite, not a disease. Symptoms are the same for males and females - intense itching and tiny blood spots in underwear. While curable, though only if both partners are treated, it can lead to skin infections.

Trichomoniasis is the most common STI in young, sexually active women. It may also be contracted by contact with damp or moist objects such as towels, wet clothing, or a toilet seat, if the genital area contacts those objects.

- It is curable, but both partners must be treated as they may pass it back and forth frequently, leading to repeat infections.
- Women can acquire the disease from infected men or women, but men usually contract it only from infected women.
- The genital inflammation caused by trichomoniasis can increase a woman's susceptibility to HIV infection if she is exposed to the virus.

Female Symptoms include often none though occasionally a heavy vaginal discharge; often green/yellow with strong smell; Vaginal itching, often severe

Male Symptoms include frequently none though occasionally a discharge from the penis.

Crab Lice: Number of US Residents Affected Every Year: Millions; Michigan Cases: Unknown; this is not tracked by the State or local Health Departments.

Trichomoniasis: Number of US Residents Affected Every Year: Approximately 3.7 million people have the trichomoniasis infection, but only about 30% develop any symptoms. Michigan cases: Unknown; this is not tracked by State or local Health Departments

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Fungal STI

The following slides discuss STIs caused by a fungal infection. These infections are treatable and curable.

Fungal STIs include:

- Candidiasis
- Invasive Candidiasis

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Candidiasis

Candidiasis, also known as a "yeast infection" or VVC, is a common fungal infection that occurs when there is overgrowth of the fungus called Candida.

- Candida is always present in the body (mouth, vagina, and gastrointestinal tract) in small amounts. However, when an imbalance occurs, such as when the normal acidity of the vagina changes or when hormonal balance changes, *candida* can multiply. When that happens, symptoms of candidiasis appear.
- Most cases of candida infection are caused by the person's own *candida* organisms.
- Rarely, Candida can be passed from person to person, such as through sexual intercourse.
- Women with VVC usually experience genital itching or burning, with or without a vaginal discharge. Males with genital candidiasis may experience an itchy rash on the penis.
- Symptoms, which may be uncomfortable, may persist. In rare cases, invasive candidiasis may occur.
- Several antifungal drugs are available to treat VVC. Antifungal vaginal suppositories or creams are commonly used. The duration of the treatment course of suppositories and creams ranges from a single dose to 7 days. Uncomplicated VVC may also be treated with single-dose, oral fluconazole; it should, however, be avoided in pregnancy.
- These drugs usually work to cure the infection (80%-90% success rate), but some people will have recurrent or resistant infections. Short-course treatments should be avoided in recurrent or resistant infection.

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Invasive Candidiasis

Invasive Candidiasis the fourth most common bloodstream infection among hospitalized patients in the United States.

- It is a fungal infection that occurs when *Candida* species enter the blood, causing bloodstream infection (candidemia) and then spreading throughout the body.
- In the general population, the incidence is 8 to 10 cases per 100,000 people.
- Persons at high risk for candidemia include very-low-birth-weight babies, hospitalized patients, surgical patients or patients with a central venous catheter, and those whose immune systems are weakened.

The symptoms of invasive candidiasis are not specific.

- Fever and chills that do not improve after antibiotic therapy are the most common symptoms.
- If the infection spreads to deep organs such as eyes, kidneys, liver, bones, muscles, joints, or spleen, additional specific symptoms may develop, which vary depending on the site of infection.
- If the infection does not respond to treatment, the patient's organs may fail and cause death.

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Tuberculosis... Back From the Past

Tuberculosis is a common and deadly infectious, airborne, bacterial disease.

- It most commonly attacks the lungs.
- One-third of the world's current population has been infected by TB.
- Drug users are from 2-6 times more likely to contract TB than non-users.
- Routine testing is a good idea. If left untreated, TB kills more than half of its victims. Once someone has tested positive, that person always will do so.
- Not everyone infected develops all symptoms of the disease; asymptomatic, latent infection is most common. General symptoms include feelings of sickness or weakness, weight loss, fever, and night sweats, coughing, chest pain, and the coughing up of blood.

Number affected every year: 1.7 billion new cases in 2018 (worldwide); About 1.3 million deaths per year (worldwide); 8,916 cases in 2019 (U.S.); 131 cases in 2019 (Michigan); 0 cases in St. Clair County in 2019.

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Latent Infection vs. Disease

Characteristics	Latent Tuberculosis Infection	Tuberculosis Disease
Symptoms	None	• Bad cough that lasts 3+ weeks • Pain in the chest - Coughing up blood/sputum - Weakness or fatigue - Weight loss - No appetite - Chills - Fever - Sweating at night
Feel Sick?	No	Usually
Contagious?	No	Possibly

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Latent Infection vs. Disease

Characteristics	Latent Tuberculosis Infection	Tuberculosis Disease
Skin Test Results	Usually indicates TB infection	Usually indicates TB infection
X-ray Results	Usually a normal chest x-ray and a negative sputum smear	May have an abnormal chest x-ray, or positive sputum smear or culture
Needs Treatment?	Yes, for latent TB infection to prevent active TB disease	Yes, to treat active TB disease

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Educating Individuals who Receive Services

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Education for Individuals Served

Staff should provide training for individuals receiving services based on individual needs, such as:

- Risk-taking behavior
- Drug use
- Long-term involvement in services
- Greater potential risk of exposure

Education for the persons served regarding the prevention and control of infection or communicable diseases can occur during orientation, in individual and group sessions, and through provision of written materials.

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Starting the Conversation

- Display posters, literature or other information related to communicable disease that could help prompt an individual to ask questions.
- Raise the subject in a way that avoids making the person feel defensive or afraid.
- Be patient and allow time for multiple, short conversations about the subject.
- Draw attention to the person's behaviors that put him or her at risk.
- Discuss the benefits of screening, such as the possibly for early diagnosis and treatment.
- Advise a person with a history of intravenous drug use that the blood draw might be difficult if his or her veins are damaged.
- Make a plan with the individual to get to and from the appointment.
- Ensure that the person has emotional support during the waiting period.

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Standard Precautions

Understanding how diseases are spread can help prevent illness. The most common routes of transmission include:

- Fecal-oral: Contact with human stool; usually ingestion after contact with contaminated food or objects
- Respiratory: Contact with respiratory particles or droplets from the nose, throat, and mouth
- Direct skin-to-skin contact: Contact with infected skin
- Indirect contact: Contact with contaminated objects or surfaces

- Bloodborne: Contact with blood or body fluids
- Assume all blood and body fluid is infected. If it's wet and it's not yours…don't touch it!
- Wash hands properly and frequently
- Get vaccinated
- Cover your coughs and sneezes

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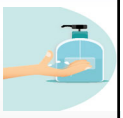
Hand Washing Techniques

Washing your hands is one of the easiest and best ways to prevent the spread of disease.



1. Wet hands under warm running water.
2. Apply soap.
3. Vigorously rub hands together for at least
4. 20 seconds to lather all surfaces of the hands.
   Pay special attention to cleaning under fingernails and thumbs.
5. Thoroughly rinse hands under warm running water.
6. Dry hands using a single-use disposable towel or an air dryer.
7. Turn off the faucet with the disposable towel, your wrists, or the backs of your hands.

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STI Testing / Information

Consider screening as an opportunity to educate a person about communicable diseases, their effects on health, and prevention strategies. Be aware that many people may not know whether they have been screened for the various diseases/infections.

The local Health Department offers STI testing that is:

- Anonymous (HIV) & Confidential
- Available to anyone 13 & older
- Cost is based on sliding fee scale
- FollowS recommend-ations carefully
- Take ALL medication as directed
- Parental consent is not required

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Educational Resources

Visit the following web site for additional information about communicable diseases:

- Centers for Disease Control, www.cdc.gov
- Association for Professionals in Infection Control and Epidemiology, www.apic.org
- Michigan Department of Community Health, Communicable Disease Information & Resources, www.michigan.gov

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The End

You have reached the end of this course. Please click the “EXIT” tab in right hand corner of this slide to exit course and take exam.