# Table of Contents

- Rabies: what you need to know 3
- Rabies Statistics 3
- Common Bat Entry Points 4
- Be Food Safe 5
- Enteric Disease/Food borne Illnesses 6
- Communicable Disease Quiz 7
- Public Health Surveillance 8
- Vaccine Preventable Diseases 8-9
- Immunization Waiver Information 9-10
- Hepatitis 10
- Influenza & Influenza like Illness (ILI) 10-11
- Influenza Q&A 11
- Vector Borne Diseases: Lyme, West Nile Virus 12-15
- Sexually Transmitted Infections 16-17
- HIV/AIDS 17
- STIs Q&A, Herpes 18-19
- Tuberculosis (TB) 20
- Positive Tuberculosis Skin Test (TST): What does it mean? 20
- The Many Faces of TB in Ingham 21
- What’s on the Cover 22

## Appendix Links:
- Recommended Immunization Schedule 0-18 years, Recommended Adult Immunization Schedule 2015, Healthcare Personnel Vaccination Recommendations 23-25

## Appendix:
Rabies: what you need to know

Rabies is a deadly zoonotic illness caused by a virus that is transmitted to humans through the saliva of an infected animal, usually during a bite. Last year, there was a total of 480 potential rabies exposure reports made to ICHD, and 89 county residents received preventive treatment for rabies. In 2014 there were 2 rabid bats in Ingham County.

Early symptoms of rabies infection include fever, headache, and weakness, but these may lead to anxiety, confusion, tingling sensation at the site of the bite, excitation, hallucinations, agitation, salivating more than usual, difficulty swallowing, and fear of water. Death usually occurs within days of the onset of symptoms.

The primary goal of ICHD is to prevent human exposure to rabies through education and awareness; however, if exposure (or potential exposure) occurs, the main goal is to prevent the infectious disease through post-exposure treatment.

Because rabies progresses rapidly from symptom onset to death, it is extremely important that all individuals seek medical care as soon as possible after the suspected exposure. However, some potential exposures are difficult to identify. Notably bat bite exposures may go undetected due to their very small teeth that may not leave a mark. As a result, it is important to keep in mind that the following situations involving bats are probable rabies exposures and that they do require post-exposure treatment:

- A sleeping person awakens to find a bat in the room.
- Finding a bat in a room with a small child, intoxicated individual, and/or a cognitive impaired individual.
- A known bit/scratch from a bat, or a lick to an open wound.

If you think that you have had an exposure safely capture the bats by wearing thick gloves, or use kitchen tongs to place the bat in a coffee can/container, and then contact your local Health Department.

If you are an Ingham County resident call 517-887-4308 for recommendations on the course of action after finding a bat.

Ingham County Animal/Rabies Statistics

“During 2014 all of the rabid animals identified in Ingham County were bats.”

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Important Information to Know About Rabies and Bats in Your Home

Bats have the potential to carry rabies and evaluation is necessary to determine if there has been an exposure to humans and/or animals.

The definition of a bat exposure is as follows:

- Waking up to a bat in your sleeping area
- Finding a bat with an unattended child, someone who is cognitively impaired, or intoxicated
- If you are bitten, licked, or scratched by a bat

If you find a bat in your home, you will need to catch it. You will need:

- Leather work gloves
- A piece of cardboard
- A small box or coffee can
- Tape

When the bat lands, approach it slowly. While wearing gloves, place a box or coffee can over the bat. Slide a piece of card board under the container to trap the bat inside. Tape the cardboard to the container.

After catching or killing the bat, DO NOT THROW IT AWAY. Store the bat in a refrigerator or adequately cold cooler. DO NOT FREEZE THE BAT.

The bat is needed to test for the presence of rabies. If you find a bat in your home please contact the Communicable Disease office at 517-887-4308 to determine if there has been an exposure, if the bat should be tested, and/or if treatment is needed for the prevention of rabies.

For more information check out the links below

http://hd.ingham.org/Home/CommunicableDisease/CDFactSheets/AGuidetoBatsinyourHome.aspx (links to ICHD guide to bats in your home)

Common Bat Entry Points

- Under loose shingles
- Under eaves
- Under siding
- Through vents
- Through open, unscreened windows
- Under or through open doors
- Openings around chimney
- Down chimney
The Centers for Disease Control estimates that each year about 1 in 6 Americans or 48 million become ill from food-borne illness or as commonly known, food poisoning resulting in 128,000 annual hospitalizations and 3000 deaths. Most do not think about food safety until they or someone they know gets sick from eating contaminated food. Everyone is at risk for food poisoning. To reduce the risk of becoming ill, knowing the rules of food safety will help prevent germs that can cause food poisoning.

**Be Food Safe: Protect yourself from Food Poisoning**

*(Adapted from FoodSafety.gov)*

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**4 SIMPLE STEPS TO FOOD SAFETY**

- **Clean**
  - Wash your hand and surfaces often. Germs can survive in many places around your kitchen, including your hands, utensils and cutting boards.
  - Rinse fresh fruits and vegetables under running water.

- **Separate**
  - Do not cross-contaminate. Even after you have cleaned your hands and surfaces thoroughly, raw meat, poultry, seafood, and eggs can still spread germs to ready-to-eat foods – unless you keep them separate.

- **Cook**
  - Cook to the right temperature. While many people think they can tell when food is “done” simply by checking its color and texture, there is no way to be sure it is safe without following a few important but simple steps. Use a food thermometer to ensure that foods are cooked to a safe internal temperature: 145°F for whole meats (allowing the meat to rest for 3 minutes before carving or consuming), 160°F for ground meats and 165°F for all poultry.

- **Chill**
  - Keep your refrigerator below 40°F and refrigerate foods properly. Germs can grow in many foods within 2 hours unless you refrigerate them. (During the summer heat, cut that time down to 1 hour.)

For more detailed information on preventing food poisoning, go to FoodSafety.gov
Enteric Disease / Food borne Illnesses

Each year in the various parts of the world about two million deaths in young children are due to contaminated food and water. According to the Centers for Disease Control and Prevention (CDC), in the United States millions of cases of food borne illnesses are reported, thousands are hospitalized and estimated 3,000 die each year due to food borne diseases. Most of the food borne illness peaks in summer and drops down during winter. The high prevalence of food borne illness during summer can be attributed to warmer weather and poor food handling during outdoor activities such as picnics, barbecues, and on camping trips. Similar to other infectious diseases, food borne outbreaks can have serious or fatal consequences on a large scale in a short period of time if not properly handled.

Ingham County does better on the incidence of various food borne diseases compared to the State, except for the Amebiasis, Giardiasis and Norovirus. In 2014, three cases of E. Coli O157:H7 were reported in Ingham County compared to 131 cases in Michigan. Patients with bloody diarrhea should be suspected and tested for Shiga toxin producing E. Coli (STEC). CDC estimates that 46.2% of E. Coli O157:H7 patients develop illness, severe enough to require hospitalizations. Early identification of the specific strain of STEC is essential for public health purposes, such as finding outbreaks. Antibiotics should not be used to treat suspected or known cases of STEC infection as there is no evidence about their effectiveness, instead they may increase the risk of hemolytic uremic syndrome. CDC recommends that the antimicrobial therapy should be avoided in the patients with disease or individuals at higher risk for severe diseases such as immune compromised or infants. Practicing good hygiene and other preventive measures can save an average individual from getting sick with almost every food borne illness.

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Source: Michigan Diseases Surveillance System 2010-2014. (Confirmed Cases), Rates for the cases less than 5 events are not calculated (nc)
How Much Do You know About Communicable Diseases?

1. Most germs enter the body this way:
   a) By insect bites
   b) Through the nose
   c) Through the mouth
   d) Through a cut in the skin

2. What helps disease spread with amazing speed?
   a) Trade and travel
   b) Vaccines
   c) Antibiotics
   d) Some diseases are airborne

3. Hepatitis is:
   a) An inflammation of the liver
   b) An upper respiratory infection
   c) The leading cause of death worldwide
   d) Easily cured

4. What is the single most effective way to prevent disease?
   a) Get vaccinated
   b) Drink plenty of water
   c) Perform regular hand washing
   d) Wash food properly

5. Persons with latent TB pose no threat to others, while persons with active TB can infect others with TB
   a) True
   b) False

6. Hepatitis A is spread through consuming food or water that has been contaminated with infected feces. Hepatitis B and C are spread through blood and body fluids.
   a) True
   b) False

Answers: 1=C, 2=A, 3=A, 4=C, 5=A, 6=A, 7=B, 8=C

Immunization Importance: Prevent & Protect!

Immunizations are considered one of the top ten greatest public health achievements of the 20th century. Before vaccinations were developed and licensed for use, infectious diseases were the number one cause of death among the population, killing tens of thousands of people each year. After the introduction of immunizations, communicable disease rates have dropped significantly, and the global eradication of smallpox and the elimination of poliomyelitis (wild-types) have resulted.

The Advisory Committee on Immunization Practices (ACIP), comprised of 15 clinical and public health experts, publishes recommended vaccination schedules each year for children, adolescents, and adults. Following the vaccine schedules is strongly encouraged and substantially decreases one’s risk of contracting a deadly disease that could have been prevented.

In addition to the normal vaccination recommendations, there are also special recommendations for healthcare personnel and travelers who may be at a higher risk of infection of certain diseases than the general population.

While some may think that large scale outbreaks of infectious diseases are a thing of the past; in reality, there is always the potential of major outbreaks.

Vaccinations are still required to maintain the low number of infectious diseases seen today. Only the recommended immunizations given at the correct times can prevent infection and protect you and your loved ones.
Public Health Surveillance

Public health surveillance is one of the most effective and efficient ways of monitoring population health on a daily basis. The main purpose of the communicable disease surveillance is to identify potential threats to public health due to communicable disease and to provide guidance to prevention and control programs. Most people do not recognize the critical role public health surveillance plays in their daily lives. The reason is that potential threats to people’s are either being eliminated or eradicated before they start appearing in large populations. At the local level, surveillance of communicable disease serves various functions including monitoring trends of infectious diseases, assessment of communicable disease risks, and to provide information which may be used to track the progress of disease prevention and control programs. Communicable disease surveillance plays a major role in local, state and national health security through early detection of outbreaks and effective public health response to prevent dangerous large scale health impact.

Public health surveillance system mainly relies on the data collection on local, state and federal level. Health care providers play very important role in disease surveillance. Healthcare providers and laboratories are required by law to report certain notifiable diseases to local health departments. The health department analyses, identifies and investigates any unusual increase in the number of cases of a condition above the normal to interrupt further transmission. In the majority of situations affected individuals primarily contact healthcare provider. When the cases are reported to the health department, they may not adequately represent all of the people affected. However, they can help clue investigators into an outbreak. Information gathered from the cases can facilitate identify a potential exposure source and/or cause of the out-break, which eventually can lead to initiate appropriate prevention and control measures. Therefore, every reported case is important and unique in its own way and can provide valuable information during outbreak investigations.

Ingham County health department makes every effort to provide the public and healthcare professionals updated information regarding the activity and the risks of illnesses within our jurisdiction. ICHD strives to improve the disease surveillance in our community through collaboration, information and education founded on the scientific inquiry and evidences. Strengthening cooperation between the various organizations involved in public health surveillance can further facilitate early detection and response to a potential public health emergency. More efforts are needed to facilitate health information exchange by improving interoperability between the systems. As soon as the information starts flowing more easily between the organizations, it can improve surveillance, data collection and reduce resource requirements.

Vaccine Preventable Diseases

Surveillance of vaccine preventable diseases not only informs the effectiveness of immunization programs and vaccines, but also allows assessing progress towards preventable disease elimination. It is also helpful in the rapid identification of an outbreak and early administration of prophylactic measures. There have been no cases of Measles and Rubella between 2010 and 2014 in Ingham County.

However, five cases of measles were reported from Michigan during 2014. Although endemic measles and rubella have been eliminated from the United States, nevertheless cases from overseas travel do occur sporadically. CDC recommends a dose of MMR vaccine in addition to the regular vaccination for infant’s age 6-12 months that are planning to travel outside the United States. CDC also recommends that anyone planning travel to a country with active wild polio virus circulation be fully vaccinated against polio virus and adults 18 years and older should receive a one time booster dose of inactivated poliovirus (IPV) vaccine.

**Haemophilus influenzae Invasive Disease:**

There were no cases of H. influenzae reported in 2014 in Ingham County. Invasive disease caused by H. influenzae can produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, pneumonia, septic arthritis, cellulitis, or purulent pericarditis. Vaccination is the best way to protect against H. influenzae type B. Since 1988, widespread vaccination against H. influenzae type B given in infancy has resulted in the rapid decline in the overall incidence rates. However, in recent years, several studies have reported other types of H. influenzae are potentially responsible for the new cases of H. influenzae. According to the CDC epidemiology of H. influenzae diseases has changed in the post immunization era in the United States. Non-type able H. influenza has been found to be the most common cause of invasive H. influenzae disease in all age groups.
Vaccine Preventable Diseases (cont.)

Pertussis (Whooping Cough): Pertussis is a highly infectious respiratory disease, causing attacks of uncontrolled coughing and difficulty to breathe. Young children, particularly infants are at higher risk of pertussis and can have deadly consequences in infants less than 3 months. During 2014, the incidence of pertussis in Ingham County was higher than Michigan. For the past five years the incidence of pertussis in Ingham County was highest in 2014. Pertussis is naturally cyclic in nature, with peaks in disease every 3-5 years. Available vaccination is the most effective method of preventing pertussis and other vaccine preventable diseases. Appropriate antibiotic prophylaxis is recommended by CDC for the household contacts and high risk contacts. This includes young infants, pregnant women within three weeks of delivery and healthcare workers. Regardless of previous immunization, vaccination is now recommended for every pregnant woman between the 27th and 36th weeks of gestation.

Chickenpox (Varicella): Chickenpox is a very contagious viral disease causing blister like itchy rash and fever. It is spread by direct contact and can have serious complications, especially in infants, adults and those with a weakened immune system. The contagious period for chickenpox begins approximately 2 days before the rash appears and lasts until all the blisters are crusted over. During 2014, the incidence of chickenpox in Ingham County was higher than Michigan. Since 2010, the incidence of chickenpox has been intermittent with the lowest incidence recorded during 2013.

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</table>

Source: Michigan Diseases Surveillance System 2010-2014. (Confirmed Cases). Rates for the cases less than 5 events are not calculated (nc)

Immunization Waiver Information

Michigan recently modified the administrative rules that change how nonmedical immunization waivers will be processed for school and childcare programs. This rule change is important because Michigan has one of the highest waiver rates in the country. Some counties in Michigan have waiver rates as high as 20%. High waiver rates leave communities vulnerable to vaccine preventable diseases such as measles, pertussis, and chickenpox.

In Michigan there are two types of waivers: medical and nonmedical.

A medical waiver is a signed statement from the physician that the child cannot receive a certain vaccine due to a true contraindication or precaution to the vaccine or a vaccine component. A nonmedical waiver is a parent/guardian’s written statement indicating they have a religious or philosophical (other) objection to particular vaccines.
Immunization Waiver Information (cont.)

Effective January 1, 2015, parents seeking a nonmedical waiver are required to receive education regarding the benefits of vaccination and the risk of disease from a county health department before the certified nonmedical waiver form will be issued. This nonmedical waiver must be on the current State of Michigan Immunization Waiver form. Waivers are required for all children enrolled in a public or private licensed childcare, preschool, Head Start Program, Kindergarten, 7th grade, and any newly enrolled student into a school district. If a child has a medical reason (a true contraindication or precaution) for not receiving a vaccine, a physician must sign the State of Michigan Contraindication form, which is available at the provider’s office (not the county health department). Parents need to take the signed waiver; they obtained from the local health department or provider’s office, to the school or daycare their child will be attending.

For more information or for a parent to schedule a waiver education session contact Ingham County Immunization Department at 887-4350 or visit www.michigan.gov/immunize > then click on Local Health Departments > then click on Immunization Waiver Information.

Hepatitis

Chronic Hepatitis B: During 2014, no changes were recorded in the incidence of Chronic Hepatitis B from previous year in Ingham County. Although the acute hepatitis B is a short term and mild illness, however 90% of infected infants, 30% of children less than 5years of age and 2-6% of adults can develop chronic infection. Prenatal transmission is the most common cause of chronic hepatitis B. Reporting pregnant women with positive HBsAg to your local health department can ensure the effective management and follow up of newborn.

Chronic Hepatitis C: The rate of Chronic Hepatitis C is greater in Michigan than Ingham County. In 2014, 5 cases of acute Hepatitis C were reported in Ingham County. Before 1992, chronic hepatitis C was primarily spread through blood transfusion and organ transplant. Today, injection drug users sharing needles and other tools to inject drugs are at higher risk of getting infected with hepatitis C virus. Individuals diagnosed with chronic hepatitis mostly belong to the age group born between 1945 and 1965. Therefore, CDC recommends that all persons in this age group should be screened once and the positive antibody tests should be confirmed by PCR. The only way to prevent hepatitis C is to avoid risky behaviors such as injection drug use.

<table>
<thead>
<tr>
<th>Hepatitis</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
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<tr>
<td></td>
<td>Cases</td>
<td>Rate per 100,000</td>
<td>Cases</td>
<td>Rate per 100,000</td>
<td>Cases</td>
</tr>
<tr>
<td><strong>Hepatitis A (enteric transmission)</strong></td>
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<tr>
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<td>7019</td>
<td>71</td>
<td>6461</td>
</tr>
</tbody>
</table>

Source: Michigan Diseases Surveillance System 2009-2013. (Confirmed Cases), Rates for the cases less than 5 events are not calculated (nc)

Influenza & Influenza like Illness (ILI)

In 2014 the rate of Influenza dropped from the previous year in Ingham County. The rates of both Influenza and Influenza Like Illness are higher in Michigan than Ingham County. Any clinical diagnosis of Influenza is a diagnosis of Influenza Like Illness, not of Influenza. Influenza is a more severe disease and caused by a different virus. Flu seasons are difficult to predict and can constantly vary in its timing and severity from one season to another. During 2013-2014, flu activity began late November 2013 and continued to occur as late as May 2014. Flu activity peaked in the middle of January 2014 and began a downward trend by the end of January 2014. CDC estimated that the seasonal Influenza vaccine can reduce the chance of getting sick by almost 60%
Influenza & Influenza like Illness (ILI) (cont.)

across all ages. In cases where a vaccinated person got ill, influenza symptoms would be less severe and less likely to result in serious complications. Based on the symptoms alone, it is often hard to make a distinction between the Seasonal Influenza, Avian Influenza A (H1N1) and MERS CoV, due to similarities in clinical manifestations. However, patient history, severity of symptoms and test results can lead to differential diagnosis.

<table>
<thead>
<tr>
<th>Influenza, Influenza Like Illness(ILI)</th>
<th>2010 Cases</th>
<th>Rate per 100,000</th>
<th>2011 Cases</th>
<th>Rate per 100,000</th>
<th>2012 Cases</th>
<th>Rate per 100,000</th>
<th>2013 Cases</th>
<th>Rate per 100,000</th>
<th>2014 Cases</th>
<th>Rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td></td>
<td></td>
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<tr>
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<td>19</td>
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<td>32</td>
<td>3010</td>
<td>30</td>
<td>5034</td>
<td>50</td>
<td>5181</td>
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<tr>
<td>Influenza Like Illness (ILI)</td>
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<td>249803</td>
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</table>

Source: Michigan Diseases Surveillance System 2009-2013. (Confirmed Cases), Rates for the cases less than 5 events are not calculated (nc)

Influenza Q & A

- Q What is influenza (flu)?

It is a severe contagious respiratory illness that infects the nose, throat, and lungs. It is easily spread and can lead to severe complications, even death.

Q What are the signs and symptoms of flu?

Fever
Cough
Sore Throat
Runny or stuff nose
Headaches
Fatigue (very tired)
Muscle or body aches
Some people have vomiting and Diarrhea

Q How long am I contagious if I get the flu?

You can pass the flu to someone else before you know you are sick, as well as while you are sick. You can infect someone 1 day before symptoms develop and up to 5 to 7 days after becoming sick. Some people, especially young children and people with weakened immune systems, might be able to infect others for an even longer time.

Q How many people get the flu each year?

Each year in the US, on average, influenza and its related complications result in approximately 225,000 hospitalizations. Depending on virus severity during the influenza season, deaths can range from 3,000 to a high of about 49,000 people. Combined with pneumonia, influenza is the nation’s eighth leading cause of death.

Q Can I get influenza (flu) from the flu shot?

The flu shot does not contain the live virus so it is impossible to get influenza from the vaccine. Side effects may occur in some people, such as mild soreness, redness, or swelling at the injection site, headache or a low-grade fever.

Q If I am not elderly am I at risk for developing complications from the influenza virus?

Influenza impacts people of all ages. People of all ages are at risk for developing complications due to influenza. Children typically experience the highest rates of influenza infection each year. About 90% of deaths caused by influenza and its complications occur among people 65 years of age and older.

Q If I missed the chance to get an influenza vaccination in the fall, do I have to wait until next year?

You can get vaccinated at any point during the influenza season. You should be immunized as soon as vaccine is available in the late summer or early fall, but it is never too late to be vaccinated.
Vector Borne Diseases

In 2014, a single case of Lyme Disease was recorded and there have been no cases of West Nile Virus (WNV) in Ingham County. Statewide, however, West Nile Virus was responsible for 25 illnesses and 2 deaths in 2013. In 2012 like much of the country, Michigan experienced a most significant outbreak of West Nile Virus since 2002. During 2012 WNV outbreak in Michigan, case illness onset dates ranged from July 6th to October 6th. The majority of cases, 71% cases were neuroinvasive. The case fatality rate for patients with neuroinvasive disease 12%. Healthcare providers should be vigilant for suspected cases and report cases promptly to local health department. Mosquito and tick-borne disease prevention largely depends on individual protection. Taking precautions to prevent mosquito and tick bites when engaging in outdoor activities can significantly reduce the likelihood of getting vector borne infections.

<table>
<thead>
<tr>
<th>Vector Borne Diseases</th>
<th>2010 Cases</th>
<th>2010 Rate per 100,000</th>
<th>2011 Cases</th>
<th>2011 Rate per 100,000</th>
<th>2012 Cases</th>
<th>2012 Rate per 100,000</th>
<th>2013 Cases</th>
<th>2013 Rate per 100,000</th>
<th>2014 Cases</th>
<th>2014 Rate per 100,000</th>
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<tr>
<td><strong>Lyme Disease</strong></td>
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<td>1.2</td>
<td>25</td>
<td>0.25</td>
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</table>

Source: Michigan Diseases Surveillance System 2009-2013. (Confirmed Cases). Rates for the cases less than 5 events are not calculated (nc)
Lyme disease

Lyme disease is caused by a bacterium called *Borrelia Burgdorferi*. It is spread by tick bite. Many types of ticks bite people in the U.S., but only blacklegged ticks transmit the bacteria that cause Lyme disease.

In most cases, the tick needs to be attached for greater than 24 hours for Lyme disease to be transmitted. There is no evidence that Lyme disease is spread person to person. Antibiotics commonly used to treat Lyme disease include doxycycline and amoxicillin.

Symptoms of Lyme disease include: Bulls eye skin rash (erythema migrans), fever, h/a and fatigue.

Lyme disease prevention

- When in a wooded or brushy area wear light-colored long-sleeve shirt, light-colored long pants, and closed toed shoes
- Avoiding tick-infested areas. This is especially important in May, June, and July. If you are in tick infested areas, walk in the center of trails to avoid contact with overgrown grass, brush, and leaf litter at trail edges
- Use insect repellent that contains 20-30% DEET
- Clear areas around your home that high grass, brush and leaves
- After being outside in an area where there is a known or potential risk of Lyme disease, check skin, hair, scalp, neck, under the arms and behind the ears for ticks
- Bathe or shower as soon as possible after coming indoors (preferably within 2 hours) to wash off and more easily find ticks that are crawling on you. Ticks can get a ride indoors on your clothes. After being outdoors, wash and dry clothing at a high temperature to kill any ticks that may remain on clothing.

**Tick removal**

1. Use tweezers to grasp tick as close to the skin as possible
2. Pull tick straight up and out. Don't twist or jerk the tick. This can cause the mouth parts to break off and stay in the skin.
3. Clean the bite and your hands with soap and water

Most Lyme disease exposures in Michigan occur in the Upper Peninsula and along Michigan’s western shoreline.

The first official reported human case of Lyme disease was in 1985. Cases have now been reported in both the upper and lower peninsula although most cases are still acquired out-of-stat. It is anticipated, however, that the number of cases reported will continue to increase due to public and medical personnel education, and expanding tick ranges.

**Tick submission to MSU**

If the tick is alive, place it in a small container with a small piece of paper towel moistened with drop of water

Complete the Tick Identification and Testing Form completely, and indicate whether or not you would like the tick forwarded to Michigan State University for testing. If you choose to have the tick forwarded for testing, enclose a personal check for $55 (payable to MSU-DCPAH). Print the form.

Send the container with the tick along with the submission form in a padded envelope to the below address:

Michigan Department of Agriculture and Rural Development
Pesticide and Plant Pest Management Division
Insect and Rodent Management Program
P.O. Box 30017, Lansing, MI, 48909
(517) 284-5658

On the outside of the envelope write “FRAGILE” or “HANDLE WITH CARE” to help prevent damage to the tick when shipped.

Links:

**Tick Identification and Testing in Michigan**

**Tick Identification and Testing Form**
West Nile Virus (WNV) Fact Sheet

What Is West Nile Virus?
West Nile virus infection can cause serious disease. WNV is established as a seasonal epidemic in North America that flares up in the summer and continues into the fall. This fact sheet contains important information that can help you recognize and prevent West Nile virus.

What Can I Do to Prevent WNV?
The easiest and best way to avoid WNV is to prevent mosquito bites.
- When outdoors, use repellents containing DEET, picaridin, IR3535, some oil of lemon eucalyptus or para-methane-diol. Follow the directions on the package.
- Many mosquitoes are most active from dusk to dawn. Be sure to use insect repellent and wear long sleeves and pants at these times or consider staying indoors during these hours.
- Make sure you have good screens on your windows and doors to keep mosquitoes out.
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

What Are the Symptoms of WNV?
- **Serious Symptoms in a Few People.** About 1 in 150 people infected with WNV will develop severe illness. The severe symptoms can include high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness and paralysis. These symptoms may last several weeks, and neurological effects may be permanent.
- **Milder Symptoms in Some People.** Up to 20 percent of the people who become infected will have symptoms which can include fever, headache, body aches, nausea, vomiting, and sometimes swollen lymph glands or a skin rash on the chest, stomach and back. Symptoms can last for as short as a few days to as long as several weeks.
- **No Symptoms in Most People.** Approximately 80 percent of people who are infected with WNV will not show any symptoms at all, but there is no way to know in advance if you will develop an illness or not.

How Does West Nile Virus Spread?
- **Infected Mosquitoes.** WNV is spread by the bite of an infected mosquito. Mosquitoes become infected when they feed on infected birds. Infected mosquitoes can then spread WNV to humans and other animals when they bite.
- **Transfusions, Transplants, and Mother-to-Child.** In a very small number of cases, WNV also has been spread directly from an infected person through blood transfusions, organ transplants, breastfeeding and during pregnancy from mother to baby.
- **Not through touching.** WNV is not spread through casual contact such as touching or kissing a person with the virus.

How Soon Do Infected People Get Sick?
People typically develop symptoms between 3 and 14 days after they are bitten by the infected mosquito.

How Is WNV Infection Treated?
There is no specific treatment for WNV infection. In cases with milder symptoms, people experience symptoms such as fever and aches that pass on their own, although illness may last weeks to months. In more severe cases, people usually need to go to the hospital where they can receive supportive treatment including intravenous fluids, help with breathing, and nursing care.

What Should I Do if I Think I Have WNV?
Milder WNV illness improves on its own, and people do not need to seek medical attention for this infection though they may choose to do so. If you develop symptoms of severe WNV illness, such as unusually severe headaches or confusion, seek medical attention immediately. Severe WNV illness usually requires hospitalization. Pregnant women and nursing mothers are encouraged to talk to their doctor if they develop symptoms that could be WNV.
What is influenza (flu)?

It is a severe contagious respiratory illness that infects the nose, throat, and lungs. It is easily spread and can lead to severe complications, even death.

What are the signs and symptoms of flu?

- Fever
- Headaches
- Cough
- Fatigue (very tired)
- Sore Throat
- Muscle or body aches
- Runny or stuffy nose
- Some people have vomiting and diarrhea

How long am I contagious if I get the flu?

You can pass the flu to someone else before you know you are sick, as well as while you are sick. You can infect others 1 day before symptoms develop and up to 5 to 7 days after becoming sick. Some people, especially young children and people with weakened immune systems, might be able to infect others for an even longer time.

How many people get the flu each year?

Each year in the US, on average, influenza and its related complications result in approximately 225,000 hospitalizations. Depending on virus severity during the influenza season, deaths can range from 3000 to a high of about 49,000 people. Combined with pneumonia, influenza is the nation’s eighth leading cause of death.

Can I get influenza (flu) from the flu shot?

The flu shot does not contain the live virus so it is impossible to get influenza from the vaccine. Side effects may occur in some people, such as mild soreness, redness, or swelling at the injection site, headache or a low-grade fever.

If I am not elderly am I at risk for developing complications from the influenza virus?

Influenza impacts people of all ages. People of all ages are at risk for developing complications due to influenza. Children typically experience the highest rates of influenza infection each year. About 90% of deaths caused by influenza and its complications occur among people 65 years of age and older.

If I missed the chance to get an influenza vaccination in the fall, do I have to wait until next year?

You can get vaccinated at any point during the influenza season. You should be immunized as soon as vaccine is available in the late summer or early fall, but it is never too late to be vaccinated.

What Else Should I Know?

West Nile virus infects birds. In nature, West Nile virus cycles between mosquitoes and birds. Some infected birds can develop high levels of the virus in their bloodstream and mosquitoes can become infected by biting these infected birds. Some, but not all infected birds get sick and die of disease. One way health officials conduct surveillance for West Nile virus is by testing local birds. Finding dead birds may be a sign that West Nile virus is circulating between birds and the mosquitoes in an area. By reporting dead birds to state and local health departments, you can play an important role in monitoring West Nile virus. State and local agencies have different policies for collecting and testing birds, so check with your county or state health department to find information about reporting dead birds in your area.

If you find a dead bird: Don’t handle the body with your bare hands. Contact your local health department for instructions on reporting and disposing of the body. They may tell you to dispose of the bird after they log your report.

For more information, visit www.cdc.gov/westnile, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).
STIs & HIV Prevention

HIV/AIDS and STIs are preventable if the individual is educated on how to appropriately protect themselves from these infections. First, get the facts. Utilize ICHD's STI Fact Sheets located on our website (hd.ingham.org) to arm yourself with a basic understanding of STIs regarding their transmission, signs and symptoms, and treatment methods. Once you are informed, follow the prevention tips below to ensure a life free of HIV/AIDS and STIs!

PREVENTION TECHNIQUES

• **Always use condoms:** The proper and consistent use of condoms is extremely effective in decreasing the transmission of all STIs. Use a condom every time you have anal, vaginal, or oral sex.

• **Immunization:** Vaccines are available, safe, and recommended for the prevention of hepatitis B and some of the most common forms of human papilloma virus (HPV).

• **Mutual Monogamy:** Being in a mutually monogamous relationship means that you and your partner are only having sex with one another. Being part of a long-term mutually monogamous relationship is one of the most effective ways to prevent HIV and STI transmission, but both people must be sure they

• **Reduced number of sex partners:** Limiting your number of sex partners can significantly decrease your risk of HIV and STIs. However, it is important that you and each partner get tested and that you share these results with one another.

• **Abstinence:** The most effective way to prevent HIV/AIDS and STIs is to abstain from sex (anal, vaginal, and oral).

• **Get tested!** If you are sexually active, knowing your STI status is crucial for preventing the spread of these diseases. Contact your primary care physician to make an appointment for testing, or contact your local health department.

For Ingham County, call:
HIV/STI Program
(517) 887-4424

**Youth bear disproportionate share of STIs**

Americans ages 15-24 make up just **27%** of the sexually active population

But account for **50%** of the **20M** new STIs in the U.S. each year

<table>
<thead>
<tr>
<th>STI</th>
<th>Total Infections (all ages)</th>
<th>Ages 15-24</th>
<th>Ages 25+</th>
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<td>820,000</td>
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<td>30%</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>2.9 million</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td>HPV</td>
<td>14.1 million</td>
<td>49%</td>
<td>51%</td>
</tr>
<tr>
<td>Genital Herpes</td>
<td>776,000</td>
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<td>55%</td>
</tr>
<tr>
<td>HIV</td>
<td>47,500</td>
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</tr>
<tr>
<td>Syphilis</td>
<td>55,400</td>
<td>20%</td>
<td>80%</td>
</tr>
</tbody>
</table>

*Estimates are based on National Health and Social Life Survey (HNSLS) data.
Sexually Transmitted Diseases (STDs)

Chlamydia and Gonorrhea: Chlamydia is the most common STI in Ingham County, Michigan and the United States. The incidence of both Chlamydia and gonorrhea is higher in Ingham County than Michigan. Individuals who have unprotected sex, multiple sex partners, and sexual intercourse with an infected person are at high-risk for infection and often have no symptoms. Both conditions can be cured with the right treatment, but if left undiagnosed or untreated can cause serious and permanent health problems in both women and men. Since the beginning of antimicrobial therapy prescribed to treat gonorrhea, it has developed resistance to antibiotics. The multi-drug resistant strains of gonorrhea are increasing, which is an urgent public health threat, specifically because gonorrhea control strategy relies on effective antibiotic therapy. About 10% of those diagnosed with gonorrhea are likely to be infected with HIV. Generally, STIs in an individual increase two to five times the risk of acquiring HIV infection and also transmitting it to his or her partners. Therefore, it is recommended to screen any patient or suspect with STIs for HIV.

Avoiding high-risk sexual behavior, protected sex with the use of latex condoms can prevent infection. Regular screenings for sexually transmitted diseases are advised when unprotected sex is practiced, especially for those under the age of 25.

### Sexually Transmitted Diseases

<table>
<thead>
<tr>
<th>Year</th>
<th>Ingham County</th>
<th>Michigan</th>
<th>Ingham County</th>
<th>Michigan</th>
<th>Ingham County</th>
<th>Michigan</th>
<th>Ingham County</th>
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<td>2011</td>
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<tr>
<td>2012</td>
<td>113</td>
<td>4.62</td>
<td>8</td>
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<td>7</td>
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<td>11</td>
<td>3.9</td>
<td>9</td>
<td>3.2</td>
<td>251</td>
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<tr>
<td>2013</td>
<td>134</td>
<td>5.06</td>
<td>8</td>
<td>2.91</td>
<td>314</td>
<td>3.16</td>
<td>501</td>
<td>5.06</td>
<td>425</td>
<td>4.28</td>
<td>251</td>
<td>2.88</td>
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<td>425</td>
<td>4.28</td>
<td>251</td>
<td>2.88</td>
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</tbody>
</table>

Source: Michigan Diseases Surveillance System 2009-2013. (Confirmed Cases). Rates for the cases less than 5 events are not calculated (nc)

### HIV/AIDS

In Ingham County, most of the people living with HIV/AIDS are white men who have sex with men (MSM), however a number of heterosexual men and women are also HIV-positive. African Americans and Hispanics have higher rates of HIV/AIDS than Whites. A significant proportion of HIV positive individuals can be unaware of their infection because of the long asymptomatic period starting from the time a person gets infected to full blown AIDS. Therefore, undiagnosed individuals can impose a serious threat to their own health and health of their partners. CDC recommends that primary care providers perform HIV screening at least once for all of their patients and annually for the patients who are known to be at risk (especially MSM). Also, women living with HIV should be screened for cervical cancer twice within the first year after initial HIV diagnosis, and if the results are normal, annually thereafter. The clinical setting offers an opportunity for providers to talk with patients about ways to prevent HIV transmission. These opportunities should not be missed by healthcare providers to engage patients in HIV risk reduction discussions and to refer patients for additional preventive services such as STD screening and partner notification.
HIV/STIs Q & A

Are sexually transmitted diseases curable?

Bacterial infections are curable, when treated with the appropriate antibiotic (i.e. chlamydia, gonorrhea, and syphilis). Viral infections are not curable, but outbreaks can be managed with medication and close monitoring by your health care provider (i.e. Herpes and HIV).

Can a sexually transmitted disease be passed from one partner to another through oral sex?

Yes, all sexually transmitted diseases (i.e. HIV and STI) can be passed through oral sex. Unseen cuts and sores within the mouth or on the genitalia allow for transmission of disease.

If symptoms are not present for a sexually transmitted disease, can I still be infected?

Yes. 50% of men and 75% of women are asymptomatic for chlamydial infections. For gonorrhea, 80% of women and 30% of men have no symptoms.

Are condoms 100% effective in stopping the spread of HIV/STI infections?

No. If used correctly, condoms are 98% effective. When used inconsistently and improperly, condoms are between 75%-82% effective in stopping the spread of HIV/STI.

How is HIV transmitted from one person to another?

HIV is transmitted through sex, sharing of needles, mother-to-fetus and blood-to-blood contact. The virus is not found in/on: saliva, tears, sweat, in the air or on unbroken skin.

Can someone have gonorrhea and chlamydia for years and not know they have a sexually transmitted disease?

No. Within weeks, these bacterial sexually transmitted diseases eat away at the lining of the penis or vagina and can travel to the fallopian tubes of a woman, or the scrotum of a man and cause severe damage and infection. This can lead to hospitalization, and the need for stronger medication.

Are all condoms effective in stopping the transmission of HIV/STI infections?

No. The most effective condoms are made of latex and or polyurethane. These materials do not allow disease to pass through the barrier. Condoms made of lamb skin, are made of natural fibers and allow disease to pass through.
Genital herpes is a chronic, life-long viral infection. There are two different types of herpes, which affect the genital area, HSV-1 and HSV-2. HSV-2 account for most of the cases of recurrent genital herpes outbreaks.

50 million people in the United States are infected with HSV-2. (CDC Website) There has also been an increase in the spread of HSV-1 (in young women and MSM population), due to the use of oral stimulation during sex.

Managing one’s genital herpes infection is most effective when antiviral medication (i.e. Acyclovir or Valacyclovir) are used in combination with counseling and education about methods most effective in reducing the transmission of this disease. Medication must be taken daily to suppress the recurrence of this infection.

Patient counseling is essential in helping the patient manage their diagnosis of herpes. Assisting patients in understanding their infection and preventing sexual and perinatal transmission is essential to managing their disease. It is important for the counseling session to include the following:

- information about the history of the disease; how recurrent episodes and asymptomatic viral shedding affect the client
- the effectiveness of suppressive therapy
- the use of effective therapy to address recurrent outbreaks
- the importance of notifying sex partners, or informing potential sex partners
- the potential for sexual transmission of herpes to sex partners
- the importance of abstaining from sexual activity with uninfected partners when lesions are present
- risk for neonatal HSV infection
- increased risk for HIV acquisition among HSV-2 seropositive persons

A herpes diagnosis can be controlled with the right medication and education of disease management. It is essential that a patient understands their role in stopping the spread of this infection to others. This begins with obtaining the knowledge necessary to improve one’s well-being and protect others.
Tuberculosis (TB)

Tuberculosis (TB) is a serious bacterial disease caused by Mycobacterium tuberculosis, which usually infects the lungs, but can also infect the kidneys, the spine, and the brain. TB is spread through the air when an infected individual coughs, sneezes, speaks, or sings, sending out droplets of infectious bacteria. An uninfected person may breathe in these bacteria and become infected.

Not everyone who is infected with TB presents symptoms or becomes sick. In fact, most people who are infected with TB have strong enough immune systems that protect them from illness. This type of TB is called Latent TB Infection.

However, if the TB bacteria become active and multiply, the patient will develop signs and symptoms of TB, and are then said to have TB Disease. Common manifestations of TB Disease include:

- Severe cough lasting 3 or more weeks
- Coughing up blood or sputum
- Chest pain
- Weight loss
- Fatigue
- Fever
- Night sweats

**Distinguishing characteristics of Latent TB Infection and TB Disease are located in the chart below.**

Early detection and prevention are key for this disease. Those who are at the highest risk of infection, such as health care workers and those with HIV, should be skin tested for TB.

**Details on TB skin testing are located below.**

At ICHD, the TB Program aims to prevent TB infection, treat existing cases of TB, and perform skin testing and reading at little or no cost to county residents.

For further questions or concerns about TB, contact your primary care physician or your local health department.

### Positive Tuberculosis Skin Test (TST): What does it mean?

Once a TST is conducted, several scenarios are possible. If the result is negative, Latent TB Infection and TB Disease are unlikely. In this situation, no treatment is necessary. (Although it should be noted that TB Disease is possible with a negative test result in the case of overwhelming diagnosis due to other factors.) In contrast, a positive test result indicates infection with TB bacteria; however, it does not determine whether the person has Latent TB Infection or TB Disease. As such, further laboratory tests must be completed to differentiate between the two conditions. Commonly used methods are examination of medical history, symptom manifestation, and chest x-rays. The following chart provides a brief overview of Latent TB Infection and TB Disease and their differences in regards to symptoms, infectivity, isolation and treatment requirements, and whether or not the case will be handled by the local health department.

**For questions and/or concerns about TB and/or TSTs, contact your local health department.**

For Ingham County residents, call: Communicable Disease Control (517) 887-4308

<table>
<thead>
<tr>
<th>TST Result</th>
<th>Latent TB Infection</th>
<th>TB Disease</th>
<th>Important Info</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative OR Positive</td>
<td>Can be negative if patient has another illness overwhelming the immune system.</td>
</tr>
<tr>
<td>Signs/Symptoms</td>
<td>None</td>
<td>Present</td>
<td>Symptoms include severe cough, weight loss, fatigue, productive cough with blood or sputum, fever, night sweats.</td>
</tr>
<tr>
<td>Chest X-Ray</td>
<td>Normal</td>
<td>Abnormal</td>
<td>Typical abnormalities in lung apices—can be atypical with HIV.</td>
</tr>
<tr>
<td>Infectious?</td>
<td>No</td>
<td>Yes</td>
<td>Infectious when positive sputum smears.</td>
</tr>
<tr>
<td>Isolation?</td>
<td>No</td>
<td>Yes</td>
<td>Isolation until patient meets clearance criteria, but must continue treatment regimen.</td>
</tr>
<tr>
<td>Treatment?</td>
<td>Recommended—Not Mandatory</td>
<td>Yes—Mandatory</td>
<td>Call primary care physician or local health department for treatment options.</td>
</tr>
<tr>
<td>Health Dept Case Management?</td>
<td>Available through health department or provider.</td>
<td>Yes—For All Cases</td>
<td>N/A</td>
</tr>
</tbody>
</table>
The Many Faces of TB in Ingham County

In the United States, the number of TB cases has been declining since 1993; however, TB is still a life-threatening disease in this country. Anyone can get TB. The following stories have been developed from actual TB cases here in Ingham County. Personal details have been changed to protect patient privacy.

All of these cases illustrate the importance of continued TB awareness and prevention no matter your age, race, or residence.

Mai

Mai left Vietnam as a refugee after the 1975 “Fall of Saigon”. She worked as a cook in several local restaurants before opening her own successful catering business. Soon after Halloween of 2013 she developed a persistent cough. She lost her appetite and began to lose weight. Her energy was waning. She found it more and more difficult to keep up with her busy catering business heading into the Holiday season. When she developed a fever with her cough and weight loss, she went to a local urgent care center. Mai believed that she had pneumonia. Because of a positive TB skin test and a chest x-ray that suspicious for tuberculosis, Mai was sent to a local hospital Emergency Department for follow-up care. Sputum specimens confirmed that Mai had pulmonary tuberculosis. Mai was started on TB treatment shortly before Thanksgiving and placed in home isolation. She remained in home isolation through the holidays. She was able to turn her catering bookings over to a colleague but that meant lost revenues for her. By January, she was out of home isolation and starting to regain her appetite and her energy. She completed her treatment in May and was thankfully able to resume her catering business just in time for graduation and summer weddings. Mai most likely was exposed to tuberculosis in Vietnam and had a latent tuberculosis infection (LTBI) when she came to the United States in the late 70s. Because she was never treated for LTBI, she developed tuberculosis as she aged.

Kendra

Kendra, a Desert Storm veteran, loved to travel and volunteer. She developed rheumatoid arthritis (RA) after an Agent Orange exposure during her military tour. She received a full disability from the Army which enabled her to travel regularly. Two years ago after testing negative for tuberculosis, she had started Enbrel for her RA. She had been living in Costa Rica for the last ten years, returning regularly to the United States to visit her mother in Lansing and receive medical care from the Veteran’s Administration (VA) in Ann Arbor. During the winter of 2013, she developed shortness of breath and a productive cough that would not resolve. She thought possibly that she had pneumonia. She came back to the States and saw her primary care provider. Because of a positive TB skin test, she had a “TB work-up”. She was seen by an Infectious Disease Specialist in Ann Arbor who did a chest x-ray which “looked like TB”, but sputum specimens were AFB negative. One week later a specimen culture grew m-TB. Kendra was placed in home isolation at her mother’s home and started on TB treatment. She completed a six month course of treatment. At the end of treatment she moved her mother and herself to Arizona because “the desert was better for her arthritis than the rain forests of Costa Rica”. She established herself with the VA in Arizona and did not plan to return to Michigan because “I never really liked winters in Michigan”.

Sam

Sam emigrated from India 30 years ago. Lately his health was failing, so he was contemplating retiring from local university and returning to India. He had a history of diabetes, pulmonary hypertension and renal disease. His breathing was never optimal but it seemed to be getting worse and worse. He went to his doctor complaining of his increased difficulty breathing. He had also developed fevers, night sweats and weight loss with a frequent non-productive cough. He had always tested positive on TB skin tests (TST) which both he and his physician discounted because of a BCG vaccination as a child. This time his doctor ordered a Quantiferon blood test which is an Interferon Gamma Release Assays or IGRA. The antigens used in the Quantiferon testing are not found in the BCG vaccine, so it does not react to the BCG vaccine as the TST does. He tested positive on the Quantiferon blood test. A chest x-ray showed chronic changes due to the pulmonary hypertension along with a possible cavity lesion in left upper lobe. A bronchoscopy was performed with a bronchial lavage. The lavage was AFB positive. Thomas was not convinced that he had tuberculosis after all he had lived in the United States for years and rarely returned to India. He reluctantly started on TB treatment. It was challenging to keep him in home isolation. After a week of treatment, mycobacterium tuberculosis was detected on culture. Thomas was a little more convinced that he had TB with the positive cultures, but he continued to question staff on why he needed to be treated with so much medication and for so long. It was a challenge but he completed nine months of treatment. After treatment was completed, he reluctantly acknowledged that his breathing was much better; his cough had almost disappeared and his energy level had improved. He continued working at local university and given up all thoughts of an early retirement.
Under a high magnification of 12000X, this colorized scanning electron micrograph (SEM) revealed the presence of numbers of clustered Gram-negative Salmonella typhimurium bacteria, which had been grown in a pure culture. Salmonella, discovered by an American scientist named Salmon, is actually a

This illustration depicts a three-dimensional (3D) computer-generated image of a cluster of rod-shaped drug-resistant Mycobacterium tuberculosis bacteria, the pathogen responsible for causing the disease tuberculosis (TB). The artistic recreation was based upon scanning electron micrographic imagery.

TB is among the most common infectious dis-

Communicable Disease Report
Summer - Fall 2015

The Aedes aegypti mosquito is known as one of the many arthropodal vectors responsible for spreading the arboviral encephalitis, West Nile virus (WNV) to human beings through their bite when obtaining a blood meal.

WNV has emerged in recent years in temperate regions of Europe and North America, presenting a threat to public and animal health. The most serious manifestation of WNV infection is fatal
Appendix
How vaccines work
By mimicking the diseases they’re working to prevent, vaccines teach the body’s immune system to attack the real deal if it enters the body in the future. The point is that a standing force will be ready to dispatch the invader, reacting much faster than if the body was encountering it for the first time.

A vaccine enters the body. Its contents have similar antigens—the pattern on the exterior of the cell — as the targeted virus or bacteria that causes illness, called a pathogen. Therefore, the body is exposed to an invader masquerading as the pathogen.

A variety of cells make up the body’s immune system forces. Here are their reactions.

**Antigen-presenting cell**
Antigen-presenting cells, or APCs, consume the vaccine antigens. They now present — have on their exterior — the vaccine antigens. The APCs travel to places like the lymph nodes, where immune cells cluster.

**T-cells**
T-cells recognize the antigens brought by the APCs as foreign and become activated. Certain T-cells, called T helper cells, alert other cells to the presence of the invader. Others, called killer T-cells, also go on alert. For certain vaccines, the vaccine viruses enter cells. That triggers the killer T-cells to find and destroy the affected cells.

**B-cells**
B-cells also recognize the antigens and become activated. They start dividing, creating more B-cells specifically produced to combat the antigen. Some of the B-cells develop into plasma B-cells tasked with producing antibodies specific to the antigen. The antibodies attach onto the pathogen, which may mark it for destruction or prevent it from entering a cell.

**Memory cells**
All this activity spurs the response desired from vaccines: the creation of memory T-cells and B-cells. These cells will know the real pathogen in the future and will react much more swiftly and strongly than when they encountered the vaccine. Memory cells can remain in the body for decades.

Sources: The College of Physicians of Philadelphia, www.hisdrugofvaccines.org, National Institutes of Allergy and Infectious Diseases

Vaccine Schedules Web Links

**Vaccine Schedule 0-6 years old**

**Vaccine Schedule 7-18 year old**

**Vaccine Schedule for Adults**
PROTOCOL
FOR DOGS, CATS, FERRETS, OR LIVESTOCK
POSSIBLY EXPOSED TO RABIES

Dog, cat, ferret or livestock exposed 
 to
bat or other wild animal (mammal)

Exposed dog/cat/ferret/livestock has current rabies vaccination 2, 3

1. Revaccinate immediately, and
2. Have owner observe for 45 days

Exposed dog/cat/ferret/livestock does NOT have current rabies vaccination

Test bat or other wild animal. If animal is NOT available, must proceed as if positive

Results Positive

+ Immediately euthanize exposed dog/cat/ferret/livestock

Results Negative

− Vaccinate dog/cat/ferret/livestock against rabies

If owner refuses euthanasia of animal:

1. Advise owner of potential health risks
2. Strict quarantine for 6 months
3. Euthanize and test dog/cat/ferret/livestock for rabies if it becomes ill, with signs suggestive of rabies, or dies during confinement period
4. Vaccination may be administered at beginning of confinement, or at month 5 of confinement

[1] If questions of exposure:
1. First call your local health department and animal control offices.
2. If they are unavailable, during business hours, call the Michigan Department of Agriculture and Rural Development (MDARD) at (800) 293-3939 or the Michigan Department of Community Health (MDCH) at (517) 335-8165.
3. After 5:00 PM and weekends, call MDARD at (517) 373-0440 or MDCH at (517) 335-9030.

[2] An animal is considered “currently” vaccinated against rabies if a licensed veterinarian has administered a vaccine product approved for use in that species within 12 months if it was the animal’s FIRST vaccination (First vaccination is by 4 months of age for dogs; 12 weeks for ferrets; cats are not required to be vaccinated by Michigan law, but is strongly recommended due to the predatory nature of cats). For SUBSEQUENT rabies vaccinations, current means administered by a veterinarian within 1 or 3 years from previous vaccination, depending on vaccine used.

[3] Livestock: Consideration should be given to vaccinating livestock that are particularly valuable. Animals that have frequent contact with humans (e.g., in petting zoos, fairs and other public exhibitions) and horses traveling interstate should be currently vaccinated.
HUMAN RABIES POST-EXPOSURE PROPHYLAXIS (PEP) PROTOCOL

Michigan law requires that animal bites be immediately reported to the local health department.

Do the person have contact with the saliva or brain tissue of a mammal via fresh open wound or mucous membrane, or was the person exposed to a bat? NO

YES

Was the exposure to a wild animal, such as a bat, fox, raccoon, or skunk? NO

YES

Was the animal a rodent, such as a squirrel, hamster, mouse, rabbit, or rat? NO

YES

Was the animal a dog, cat, or ferret? NO

YES

Did consultation with the local or state health department indicate an animal at-risk for rabies? NO

YES

Was the animal captured - or can it be located - for 10-day observation? NO

YES

Was the animal brain available for rabies testing at the state laboratory? NO

YES

Was the direct fluorescent antibody test positive? NO

NO

DO NOT ADMINISTER PEP

YES

PEP MAY BE CONSIDERED

ADMINISTER PEP

DO NOT ADMINISTER PEP

YES

Did the animal exhibit abnormal behavior or bite unprovoked? NO

YES

PEP MAY BE CONSIDERED

ADMINISTER PEP

DO NOT ADMINISTER PEP

YES

Was the animal captured - or can it be located - for 10-day observation? NO

YES

Did the animal exhibit abnormal behavior or die within 10-day observation period? NO

YES

DO NOT ADMINISTER PEP

NO

DO NOT ADMINISTER PEP

NO

DO NOT ADMINISTER PEP

NO

DO NOT ADMINISTER PEP

NO

DO NOT ADMINISTER PEP


Rabies PEP is a medical urgency, not an emergency. The decision to initiate rabies PEP can normally wait 48-72 hours to determine whether an animal is available for testing or observation, and for test results to become available.

SEE IMPORTANT INFORMATION ON REVERSE SIDE
<table>
<thead>
<tr>
<th>Services</th>
<th>Place</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Bites</td>
<td>Disease Control</td>
<td>(517) 887-4308</td>
</tr>
<tr>
<td>Bathing Beach Results</td>
<td>Environmental Health</td>
<td>(517) 887-4312</td>
</tr>
<tr>
<td>Blood Pressure Checks</td>
<td>Immunizations</td>
<td>(517) 887-4316</td>
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<tr>
<td>Body Art Facility Inspection</td>
<td>Environmental Health</td>
<td>(517) 887-4312</td>
</tr>
<tr>
<td>Breast &amp; Cervical Cancer Screening</td>
<td>Breast &amp; Cervical Cancer Control Program</td>
<td>(517) 887-4364</td>
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<td>Childcare Referrals for Parents via greatstartconnect.org, Early Learning and Development Consultations, Provider Professional Development Training, Childcare Financial Assistance Information, Child Development Associate Advisors and Assistance, Connections to DHS Services</td>
<td>Office for Young Children</td>
<td>(517) 887-4319</td>
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<tr>
<td>Children’s Health Services</td>
<td>Child Health</td>
<td>(517) 887-4305</td>
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<td></td>
<td>Sexton Health Center</td>
<td>(517) 755-1076</td>
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<tr>
<td></td>
<td>Well Child Center</td>
<td>(517) 267-3400</td>
</tr>
<tr>
<td></td>
<td>Willow Health Center</td>
<td>(517) 702-3500</td>
</tr>
<tr>
<td>Children’s Special Health Care Services</td>
<td>Children’s Special Health Care Services</td>
<td>(517) 887-4309</td>
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<tr>
<td>Specialty health care needs for children and some adults over age 21</td>
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<tr>
<td>Communicable Disease Control</td>
<td>Disease Control</td>
<td>(517) 887-4308</td>
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<tr>
<td>Tuberculosis (TB) Follow-Up</td>
<td>Willow Health Center</td>
<td>(517) 702-3500</td>
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<tr>
<td>Counseling - 10 to 21 years of age</td>
<td>Willow Health Center</td>
<td>(517) 702-3500</td>
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<td>Dental Services—Ingham County Residents ONLY</td>
<td>Adult Dental</td>
<td>(517) 887-887-4423</td>
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<td></td>
<td>Healthy Smiles (under 18 years old)</td>
<td>(517) 272-4150</td>
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<tr>
<td>Disease Outbreaks</td>
<td>Disease Control</td>
<td>(517) 887-4308</td>
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<tr>
<td>Emergency Preparedness</td>
<td>Public Health Emergency Preparedness</td>
<td>(517) 887-4631</td>
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<tr>
<td>Family Outreach Services</td>
<td>Public Health Services</td>
<td>(517) 887-4322</td>
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<td>Family Planning Services</td>
<td>Willow Health Center</td>
<td>(517) 702-3500</td>
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<td></td>
<td>Women’s Health</td>
<td>(517) 887-4320</td>
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<tr>
<td>Flu Shots</td>
<td>Immunizations</td>
<td>(517) 887-4316</td>
</tr>
<tr>
<td>Food Bank (Emergency Food—NO walk-ins—Phone interviews only)</td>
<td>Food Bank</td>
<td>(517) 887-4357</td>
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<td>Foodborne Illness</td>
<td>Environmental Health</td>
<td>(517) 887-4312</td>
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<td>Services</td>
<td>Place</td>
<td>Phone</td>
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<td>Food Licenses</td>
<td>Environmental Health</td>
<td>(517) 887-4312</td>
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<td>General Health Care</td>
<td>Adults Health</td>
<td>(517) 887-4302</td>
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<td>Birch</td>
<td>(517) 244-8030</td>
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<td>Child Health</td>
<td>(517) 887-4305</td>
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<td></td>
<td>Eastern</td>
<td>(517) 755-1050</td>
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<td>Sexton</td>
<td>(517) 755-1076</td>
</tr>
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<td></td>
<td>St. Lawrence</td>
<td>(517) 364-7440</td>
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<tr>
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<td>Sparrow</td>
<td>(517) 364-3074</td>
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<tr>
<td></td>
<td>Well Child</td>
<td>(517) 267-3400</td>
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<td></td>
<td>Willow Health Center</td>
<td>(517) 702-3500</td>
</tr>
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