West Nile Virus: A Continuing Public Health Threat

The arrival of warmer weather in Michigan goes hand in hand with the presence of mosquitoes, and the presence of mosquitoes serves to remind us about mosquito borne disease threats. Michigan’s surveillance, prevention and response activities regarding West Nile Virus (WNV) are a partnership involving the Michigan Departments of Agriculture (MDA), Community Health (MDCH), Environmental Quality (DEQ), and Natural Resources (DNR), local health departments and Michigan State University (MSU). This cooperative relationship dates back to before WNV was detected in Michigan and continues with the disease established in both humans and animals.

Michigan first experienced WNV activity in 2001, when 65 positive birds were identified in 10 counties in the Lower Peninsula. No human or equine cases were detected in 2001. In 2002, Michigan, along with other states, saw a dramatic increase in WNV activity in birds, equines, and humans. Michigan suffered the second highest number of WNV human cases in the nation with 644 laboratory positive cases detected by the MDCH Bureau of Laboratories. Fifty-one of these cases were fatal. In addition, there were 341 equine cases of WNV identified, and WNV positive birds were identified in 73 of 83 Michigan counties. Locally, a WNV positive bird was identified in Dickinson County in 2002. No cases of human WNV infection have been identified in Dickinson or Iron County. One possible case of human WNV was diagnosed in the UP (Marquette County) in a person who spent time camping in Alger County last year.

While no one can definitively predict how intense it will be, Michigan will again experience WNV activity in 2003. To prepare for this activity, several initiatives to protect the citizens of Michigan and minimize transmission are planned. Michigan’s approach focuses on communication, education, outreach activities, surveillance, personal protection and mosquito control recommendations.

**Bird Surveillance.** Early bird surveillance experience with the virus in New York demonstrated that crows and blue jays are more sensitive to the virus than other birds, and more likely to die as a result of infection. Monitoring death amongst these birds can be an early indicator of virus activity. For 2003, a system for web-based reporting of dead birds has been developed at [www.michigan.gov/westnilevirus](http://www.michigan.gov/westnilevirus). This will allow for rapid reporting of dead bird sightings and provide a means of collecting appropriate birds for WNV testing. Individuals who do not have access to the Internet can report dead bird sightings directly to the Dickinson-Iron District Health Department. In order to provide community-based information about WNV activity in birds, testing will be conducted by zip code.

*(Continued on page 3)*
Schools Required to Access Immunization Status of 6th Grade Students

Beginning with the 2002/2003 school year, the immunization status of each 6th grade student in Michigan has been assessed. This will assure that they are adequately immunized against preventable diseases before they reach adolescence. Public Act 89 of 2000 mandates that an immunization be done on each student enrolled in 6th grade for the first time, beginning with the 2002/2003 school year. Schools have been required by Public Act 368 of 1978 to collect and report the immunization records of all new enterers to their school district each year in November and February. The assessment of the immunization status of the 6th grade student is a new requirement for schools.

Some of the reasons to be concerned about the immunization status of these children are:

- Vaccine-preventable diseases are still with us. In many cases, they may cause disability or death.
- Hepatitis B is the most common cause of liver cancer in the U.S. Approximately 90% of the newly reported cases of hepatitis B are in adolescents and young adults.
- Varicella vaccine is recommended for children and adolescents who have not yet had the chickenpox (varicella) disease. Complications from chickenpox are much higher in persons over 13 years of age.
- According to a 1999 report, only 52% of U.S. adolescents enrolled in health plans are fully immunized.

All schools in the state of Michigan, in which 6th grade students are enrolled, will submit the immunization records of 6th grade students in November and February of each year (in addition to the records of all kindergartners and new enterers to their school district).

6th grade students are required to have received the following vaccines:

- Complete series of diphtheria/pertussis/tetanus vaccine (DTaP, DTP, DT, or Td), with one dose in the last 10 years
- 3 doses of polio vaccine
- 3 doses of hepatitis B vaccine
- 2 doses of MMR vaccine
- 1 dose of varicella vaccine (unless child received the 1st dose on or after 13th birthday, when 2 doses are needed) or has a history of varicella (chickenpox) disease.

Fighting Allergies

Allergic rhinitis, commonly known as hay fever, affects an estimated 40 million Americans and causes 10 million lost work and school days a year. Individuals with rhinitis suffer from sensitivity to substances that ordinarily don’t cause problems or reactions in other individuals.

The Root Causes

Allergic rhinitis is most commonly caused by the spread of pollens from trees, grass, and weeds. And although hay fever typically subsides with fall and winter, perennial allergic rhinitis occurs year round and is usually caused by indoor substances such as dust mites, mold spores, and animal dander.

Symptoms Include:

- Eyes: watery, red, irritated, and itchy
- Nose: runny, stuffy, and sneezing
- Sinuses: pressure and headache
- Throat: scratchy, sore, with postnasal drip
- Lungs: tightness, wheezes, or cough
- Skin: itchy, inflamed, with rashes

Breathing Easier

If you’re suffering from the symptoms of allergic rhinitis, your healthcare provider or an allergist can help you determine what’s triggering your reaction. He or she will examine your history and then use allergy skin testing to determine if you have allergies and which specific allergies may be a problem for you. Your healthcare provider can then determine the proper treatment.

Tips that may help you breathe a little easier:

- If you have a pet, wash your furry friend once a week, and try keeping him out of the bedroom and off the furniture.
- Keep windows closed. Use an air conditioner and run a dehumidifier. This helps keep pollens outside.
- Wash your sheets, comforter, pillowcases, and blankets in hot water once a week. Hot water kills dust mites.
Meningococcal disease is a serious bacterial infection. It can cause meningitis and also lead to sepsis. It is very difficult to diagnose and treat, because it often begins with symptoms that can be mistaken for the flu or another respiratory infection. Meningococcal disease can worsen very rapidly and can kill a healthy young adult in 48 hours or less. In fact, up to 1 out of 5 people who develop meningococcal disease will die. Of those who survive, 1 in 5 will suffer permanent disabilities such as amputation, severe scarring, brain damage, and hearing loss.

Recognizing the characteristic signs and symptoms of meningococcal disease is critical and potentially lifesaving. The most common early symptoms of meningitis are similar to the flu. Many people complain about having a headache, fever, stiff neck, extreme fatigue, nausea, vomiting, and sensitivity to light. Some people also develop petechiae, mainly on their arms and legs.

Meningococcal disease is uncommon but the risk for acquiring the disease is higher for young people living on campus. College freshman living in dormitories have a 6-times greater chance of meningococcal disease than other college students, according to data from the Center for Disease Control and Prevention (CDC).

Vaccination is recommended to reduce the risk of acquiring this disease. Fortunately, 68%-83% of meningococcal disease in college students is caused by strains of bacteria that are potentially vaccine-preventable. Meningococcal vaccination can greatly reduce the risk of getting a very serious infection. It helps protect against the most common forms of the bacteria (N meningitidis strains A, C, Y, and W-135). Meningococcal vaccination has been mandatory in the United States military since the 1970s, and has been associated with a 95% reduction in meningococcal disease among new army recruits. The vaccine does not protect against infection by strains other than A, C, Y, and W-135, and no vaccine is guaranteed to protect 100% of susceptible individuals.

The vaccine is well tolerated. Soreness or redness at the injection site is the most common side effect. It can be administered at the same time as other immunizations. Protective antibody levels may be achieved within 7 to 10 days after vaccination. Guidelines advising physicians to inform college students about meningococcal disease and to provide vaccination for those who wish to reduce their risk have been issued by the CDC Advisory Committee on Immunization Practices (ACIP), The American Academy of Pediatrics (AAP), and the American College Health Association (ACHA). For more information on meningococcal disease, visit www.nmaus.org.

“Our real problem, then, is not our strength today; it is rather the vital necessity of action today to ensure our strength tomorrow.”
-- Dwight D. Eisenhower
Parents and Guardians of SENIOR STUDENTS

Take the time to review your child’s immunization record. He or she may need to receive immunizations before they leave home.

Make sure they are protected against:

- Td (tetanus/diphtheria) – a dose within the last 10 years
- MMR (measles/mumps/rubella) – 2 doses
- Hepatitis B – 3 doses
- Varicella – 2 doses or have had the chickenpox disease

**College Bound Students**

* Meningococcal Vaccine – 1 dose
* College students, particularly freshmen living on campus, are at increased risk for meningococcal disease a serious and potentially life-threatening bacterial infection.

For more information call the Dickinson-Iron District Health Department at (906) 774-1868 or (906) 265-9913, or your health care provider.
When WNV is detected in a zip code, testing of birds will stop in that area, however dead bird sightings should continue to be reported online. Calculations of the number of dead birds per square mile in a county can be used to estimate the level of risk for human infection in that area. This information can be used to target intervention and prevention strategies to areas where WNV activity has been detected.

**Human Surveillance.** West Nile Virus is transmitted to humans primarily through the bite of a mosquito. Most people (80%) who are bitten by an infected mosquito do not get sick. Studies of other areas with WNV have shown that less than 1% of the mosquitoes are infected and that less than 1% of the people who do get bitten and infected will become severely ill. For those who do become ill, they suffer with flu-like symptoms of fever, headache, body aches, fatigue, and on occasion, swollen lymph nodes and a rash. Approximately one in 150 people who are bitten by an infected mosquito develop a more serious form of the illness, including meningitis and encephalitis.

The elderly and immuno-compromised are more susceptible to the more serious forms of illness, and possible death from WNV infection. Although they are quite rare, additional means of WNV transmission were documented in 2002 in organ transplantation, blood transfusion, breast-milk, transplacental, and occupational exposure in laboratory personnel conducting autopsies on birds. No vaccine currently exists yet.

Michigan will continue its laboratory testing for human cases of WNV illness. This strategy involves working with health care providers to alert them to the signs and symptoms of serious WNV disease and to ensure proper collection and handling of specimens. Last year more than 2,900 human specimens were tested for WNV at MDCH. Suspected or confirmed human cases of WNV are required to be reported to local health departments.

**Equine (horse) Surveillance.** The MDA Animal Industry Division maintains an active surveillance and communication system with private veterinarians in Michigan for detection of equine WNV cases. Equine veterinarians are contacted by telephone regularly to provide updates and to discuss potential cases. Testing for WNV infection in live equine is done at the MSU Diagnostic Center for Population and Animal Health (DCPAH) on samples submitted directly from veterinarians. Horses and other equine with acute neurological signs that die or are euthanized are tested for WNV, and other diseases. MDA provides for transportation and testing costs. A licensed equine WNV vaccine is available. MDA encourages vaccination of all horses, in consultation with private veterinary practitioners, as the most effective protection against infection. Other measures horse/equine owners can take to reduce risk of mosquito exposure include:

- decreasing mosquito breeding by draining puddles or repairing eave troughs, gutters and clearing any containers, tarps or rubbish that may hold pools of water;
- draining water tanks, troughs or buckets at least weekly or more often;
- using approved insect repellants to protect horses;
- placing horses in stables, stalls or barns under fans during the prime mosquito exposure hours.

(Continued on page 4)
Other Domestic Animal Surveillance: Other domestic animals may be tested as part of a general diagnostic laboratory evaluation. While WNV is not routinely considered as a cause of disease or death in dogs and cats, reports of canine WNV infection and illness during the 2002 season raised concerns. In response, DCPAH may introduce and offer canine testing for the 2003 season.

Mosquito Surveillance: The best surveillance indicator of WNV activity is dead birds, particularly crows and blue jays. However mosquito surveillance can be a tool to help determine the potential for WNV disease transmission. Mosquito surveillance information such as species identification, mosquito densities, and possible breeding source locations are part of a comprehensive abatement program. An active mosquito surveillance program is not planned at this time in Dickinson or Iron County due to the absence of any human, equine, or animal cases of WNV and low numbers of dead birds testing positive for WNV.

Reducing The Threat of WNV. WNV is spread to humans almost exclusively through the bite of an infected mosquito. In 2003, we will continue to focus on educating the public on the many ways to reduce the risk of becoming infected by minimizing exposure to mosquitoes. Take the following precautions:

- Apply insect repellent that contains the active ingredient DEET to exposed skin or clothing, always following the manufacturer’s direction for use on the label.
- Avoid applying repellent to children under 2 years of age, and to the hands of older children because repellents may be transferred to the eyes or mouth potentially causing irritation or adverse health effects.
- Maintain window and door screening to help keep mosquitoes out of buildings.
- Reduce mosquito breeding sites. Drain puddles in the yard. Empty water from mosquito breeding sites such as buckets, barrels, cans, tires or similar sites in which mosquitoes can lay eggs.
- Avoiding being outdoors when mosquitoes are most active (dusk and dawn) and wearing light colored long-sleeved shirts and long pants when you have to be outdoors.

Further Information: The state will launch a comprehensive website, [www.michigan.gov/westnilevirus](http://www.michigan.gov/westnilevirus), to focus on all WNV-related areas. For 2003, the toll free WNV hotline (1-888-668-0869) will provide updated general, recorded information to callers. Individuals who call the hotline will be directed to the state website on WNV for more detailed information. Written materials providing information about West Nile Virus, its symptoms and measures that individuals can take to reduce their risk of exposure to the virus are available at the Dickinson-Iron District Health Department offices in Iron River and Kingsford.