EPI Update for Friday, August 4, 2006
Center for Acute Disease Epidemiology
Iowa Department of Public Health (IDPH)

Items for this week's EPI Update include:

- **Iowa West Nile update and mosquito dynamics**
- **It's a small worm after all…**
- **Yes it's hot, but the ticks (and the diseases they carry) are still out there**
- **World Breastfeeding Week: August 1-7**
- **Meeting announcements and training opportunities**

Iowa West Nile update and mosquito dynamics

Three humans cases of with West Nile virus (WNV) have been reported to the Center for Acute Disease Epidemiology (CADE) so far this summer. Twenty-three counties in the state have reported confirmed WNV activity either through positive dead birds, mosquito pools, sentinel chickens, horse or human cases. Two asymptomatic blood donors who were identified through routine blood screening have also been reported.

Iowa typically sees the majority of human cases in August and September, with activity usually peaking around the second week in September. This is due to the mosquito population dynamics in the state. ISU's Department of Entomology leads the mosquito component of WNV surveillance in Iowa. Dr. Lyric Bartholomay an entomologist with ISU reports the general trend in mosquito dynamics in Iowa is that the pest mosquito (generally genus *Aedes*) populations are higher in the early spring -to the middle of the summer, and populations of mosquitoes (generally genus *Culex*) that transmit disease agents (like WNV) thrive as summer fades into fall and conditions are more dry. This corresponds to the time when we normally see most of the West Nile exposures and cases in people.

Mosquito population dynamics and disease transmission are, of course, dependent upon climate and weather, because mosquito activity and breeding are dictated by temperature and the availability of standing water (in which eggs are laid and immature mosquitoes develop). Therefore, Iowans are advised to continue to "fight the bite," even when it is hot and dry and the mosquitoes don't seem to be particularly numerous or bothersome.

It's a small worm after all

An unusual disease report came into CADE this past week. A person saw their healthcare provider for an inflamed area on their forearm they were concerned about. The doctor removed the lesion and discovered it had a small (~2 cm) white worm present. The patient also presented with several additional lesions on his legs. Initially it was thought the worm might be a guinea worm, also known as dracunculiasis, since the size and appearance of the worm seemed compatiblesimilar. This was particularly unusual because the species of *Dracunculus* that usually causes disease in humans is currently

endemic only in Ghana and the Sudan. There are other species that do infect mammals in North America, but no human cases have ever been reported.

Guinea worm larvae typically infect a copepod, which in Africa is a tiny water-borne snail. Then the snails are ingested, the stomach dissolves the snail and the larvae are released. The worms tend to congregate in the extremities, particularly the legs. When vesicles formed on the skin rupture during exposure to water, new larvae may be released by the female worm. Male guinea worms are ~2cm, but females may grow as long as 10 feet! The only treatment of guinea worm is removal of the worm; that - which means winding the long females on a stick until they are removed.

Upon further investigation and interview of the patient though, and evaluation of the worm by experts at the Centers for Disease Control (CDC) in Atlanta, Georgia, it was determined that the worm is was a *Dirofilaria* species, most likely *Dirofilaria tenuis*.

The species of *Dirofilaria* that most people are familiar with in the U.S. is the "dog heartworm," *D. immitis*. Other species of *Dirofilaria* that occur in animals are *D. tenuis* in raccoons, *D. ursi* in bears, *D. subdermata* in porcupines, and *D. lutrae* in otters. *Dirofilaria* is spread when mosquitoes infected with the worm bite an animal or human.

Fortunately, disease rarely develops in humans infected with *Dirofilaria.* However, cases are sporadically reported to CDC.

The patient described above has a long history of camping, hiking, and canoeing and must have been bitten by mosquitoes that carry *Dirofilaria*. So the moral of this story, once again, is to use an insect repellant that contains DEET to protect you from mosquitoes.

Yes it's hot, but the ticks (and the diseases they carry) are still out there
As summer continues and fall approaches, the number of ticks increases. So does the possibility of being bitten by them. It is important to follow basic prevention and protection measures to decrease the chance of exposure to ticks, and the diseases they can carry. More information on prevention and protection from tick bites can be found on the CDC's Web site at www.cdc.gov/ncidod/ticktips2005/

Lyme disease is the most common tick-borne disease reported in Iowa, with 49 confirmed cases reported in 2004, 91 cases in 2005, and 23 cases so far for 2006. Fortunately, Lyme disease is still not a "common" disease in Iowa; however, it is common in our border states like Minnesota and Wisconsin, where people often go hiking and camping.

The ISU Entomology department, in collaboration with IDPH and University Hygienic Laboratory, has conducted a Lyme disease surveillance project for over 15 years (www.ent.iastate.edu/lds/lds.html). This project has been and continues to be very valuable for knowing what species of ticks occur in Iowa, and where they occur. The project has demonstrated that the percentage of deer ticks in Iowa infected with the

organism that causes Lyme disease (*Borrelia burgdorferi*) has remained steady at approximately eight to 10 percent over the years. The chance of being infected with the Lyme disease organism though is actually much lower - less than 3 percent.

Research has shown the deer tick must be attached for more than 24 hours (typically 48 to 72 hours) to transmit the Lyme disease organism. Additionally, the nymph stage (pre-adults) of deer ticks is more likely to transmit the organism than adult deer ticks because feeding nymphs are rarely noticed due to their small size, so they are more likely to feed for at least 48 to 72 hours. Other diseases transmitted by ticks however, do not necessarily require that the tick feed for a specific time frame. This is why it is so important to perform daily tick checks and properly remove ticks as soon as you find them.

The Infectious Disease Society of America (IDSA) **does not** recommend a person receive antibiotics just because a tick has bitten them or due to the type of what species of tick was attached. Treatment by a medical provider should be based on history, clinical signs and symptoms, and evaluation of the patient, in addition to appropriate laboratory tests. The current recommendations by CDC, IDSA and IDPH for persons who find ticks attached to them is to monitor themselves for 30 days for fever, and/or a rash at the site where the tick was attached for 30 days. If these symptoms occur, the person should see their medical provider to be assessed for Lyme disease or one of the other diseases that can be transmitted by ticks, such as, human granulocytic ehrlichiosis [HGE], Rocky Mountain spotted fever [RMSF], or babesiosis. HGE and RMSF have also been reported in Iowa.
The IDSA's guidelines for treatment of Lyme disease are available at:
http://www.journals.uchicago.edu/CID/journal/issues/v31nS1/000342/000342.web.pdf

World Breastfeeding Week: August 1-7
World Breastfeeding Week is celebrated in the U.S. this week, with August Aug. 1 marking the anniversary of an agreement in 1990 by 32 governments and 10 United Nations agencies to promote the practice.

Extensive research has shown that breastfeeding is more beneficial than formula feeding in many ways. Breastfed infants experience fewer cases of infectious and noninfectious diseases as well as less severe cases of diarrhea, respiratory infections, and ear infections. Human milk contains an abundance of factors that are active against infection. Specifically, human milk contains immunologic agents and other compounds, such as secretory antibodies, leukocytes, and carbohydrates that act against viruses, bacteria and parasites. Breast fed infants produce enhanced immune responses to polio, tetanus, diphtheria, and other immunizations, as well as respiratory syncytial virus (RSV) infection, among others.

The American Academy of Pediatrics (AAP) recommends that an infant be breastfed without supplemental foods or liquids for the first 6 months of age. However, Americans seem oddly resistant to this well-understood health practice with only one U.S. state – Oregon – achieving a rate of 25 percent or greater for infants through 6 months of age.

For more information on the benefits of breastfeeding and how to promote it, visit www.cdc.gov/breastfeeding/spotlight.htm

Meeting announcements and training opportunities:
SAVE THE DATE: Center for Acute Disease Epidemiology Fall Update dates:
Sept. 8 (full day) Sept. 15 (half day) is Region 5 in Ottumwa
Sept. 20 and 21 is Region 3 in Cherokee
Oct. 3 and 4 is Region 1 in Marshalltown
Oct. 17 and 18 is Region 4 in Creston
Oct. 31 and Nov. 1 is Region 6 at Kirkwood
Nov. 13th and 14 is Region 2 in Mason City
Look for more information in next week's Friday Update!

Influenza Update for Physician Office Laboratories
Sept. 26, 12:00 p.m. - 1:00 p.m. CST.
Audience: Laboratory staff, nurses, physician assistants, and physicians working in Physician Office Laboratories and Medical Clinics.
Sponsor: Association of Public Health Laboratories
Objectives:

- Describe the characteristics and symptoms of influenza.
- Explain how the performance characteristics of the rapid test kits can be used to determine the most appropriate kit for the setting and the bio-safety precautions that should be taken when performing the tests.
- Discuss the role of the physician office laboratory in seasonal influenza outbreaks and pandemic planning.

For more information and to register visit www.nltn.org/courses.
Registration Deadline: September 12. $50.00 per site registration, payable to the Association of Public Health Laboratories (APHL)

Have a healthy and happy week!

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Iowa Department of Public Health

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