Volume 4, Issue 1

Spring 2007

OHIO DEPARTMENT OF HEALTH

Infectious Diseases Quarterly

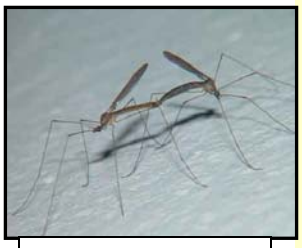
Common Misconceptions about Mosquitoes—by Steve W. Chordas III, Ph.D., Entomologist, Zoonotic Disease Program

It is almost that time of year again. Although spring seemed like it was never going to actually arrive, it has finally sprung and summer will be here soon with outside activities and that horrible high-pitched sound (Ezzezzezezezzzz) from our lovely neighborhood mosquito friends looking for your blood. Each year, we receive many questions about mosquitoes from the public and local health departments. Here are a few of the more common questions, with brief responses, we have encountered.

Those very large mosquitoes with the long legs that you see near lights or on the side of buildings and near windows are the male mosquitoes, right?

This is a myth that has been perpetuated through the generations. We entomologists have likely heard this from our parents as well as from fellow colleagues and friends. The truth is that male and female mosquitoes are very similar in appearance to the unaided eye. Both males and females of a species are approximately the same size, color and general shape. The males are *not* larger with longer legs. In fact, often the males of the species are slightly smaller than the females whose job it is to produce, carry and lay all those eggs!

Crane Fly



Male and Female

So then what are those things with the long legs? Undoubtedly what individuals are observing are *Crane flies*. These are related to mosquitoes as both mosquitoes and Crane flies are "true flies" and belong to the family "Diptera" (meaning two wings). Crane flies belong to a different fly family (Tipulidae) than the mosquitoes (Culicidae). As is the case with mosquitoes, male and female Crane flies are very similar in size, shape and general appearance (see photo). Crane flies do not bite. Some species are very large and may look scary, but are completely harmless. And no, they do not kill mosquitoes (another popular myth).

If a mosquito has white marks on it or bands on the legs, does that mean it is the Asian Tiger Mosquito?

It is surprising the number of calls we get about Asian Tiger Mosquitoes (*Aedes albopictus*). While they are important pests and continue spreading throughout Ohio, they are not our worst disease vectors by a long shot. Still, we get this question (and the next) more often than any other. In most cases, it is not the Asian Tiger Mosquito the caller has seen.

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Although it is true that Asian Tiger Mosquitoes have bands on their legs, they are not the only mosquitoes in Ohio matching this description. In fact, many of the common mosquitoes in Ohio have bands or noticeable rings on their legs. In addition to the Asian Tiger Mosquito, the following nine species (just to list some) ***all*** have bands on their legs: *Aedes atropalpus, Aedes canadensis, Aedes japonicus, Aedes sollicitans, Aedes stimulans, Aedes vexans* (see photo below)*, Psorophora columbiae, Orthopodomyia signifera, Coquillettidia perturbans.* The Asian Tiger Mosquito also has a noticeable and distinctive white mark on it. This mark appears as a "racing stripe" that runs down the middle of its back behind its head (see photo).

Asian Tiger Mosquito (*Aedes albopictus*)
Photo Credit: Susan Ellis,
http://www.forestryimages.org

***Aedes vexans*: Most common pest mosquito in Ohio**

The Asian Tiger Mosquito does occur in Ohio, but typically is found in more isolated pockets scattered throughout the state.

I was just bitten by a HUGE mosquito with stripes. Was it an Asian Tiger Mosquito ?

This is a variation of the previous question and one we get several times every summer. The caller is usually quite alarmed by the size of the mosquito and will send it carefully preserved so we can test for diseases. In most cases, the mosquito is identified as *Psorophora ciliata*, one of several closely related mosquitoes commonly known as gallinippers. They are quite large, scary looking and sometimes painful biters. But they are not Asian Tiger Mosquitoes and they aren't known to carry diseases of human health importance. Gallinippers are commonly found in natural areas and vacant lots where they breed in temporary pools of water. They can be particularly numerous after heavy summer rains.

Since we had a mild winter, will the mosquitoes be bad this summer?

The short answer is the winter has almost no affect on mosquito populations in the summer. Now for the long answer:

Most pest mosquitoes, such as *Aedes* and *Psorophora*, over-winter as eggs. Their eggs can survive the harshest of conditions in the soil, ready to hatch as soon as ideal conditions are met. Some of the most pesky mosquito species in Ohio hatch in the spring when water pools form in low wooded areas. Most are very aggressive biters. They must take blood to produce their eggs, which are deposited in the drying pools to hatch next spring.

Some mosquitoes, such as *Culex* and *Anopheles*, over-winter as adults in culverts, caves and abandoned buildings. There they rest with reduced metabolisms until the days start growing longer and warmer. They are protected from the harshest conditions outside and are able to move further in if conditions get too bad. During warm

Common Misconceptions about Mosquitoes—continued

spells, their metabolism rises and they may venture out to seek sugar meals from a variety of available sources such as sap or rotting vegetation. This will help to maintain them until spring arrives.

Ohio's mosquitoes are well adapted to our climate and, when the conditions are right, their populations can increase very rapidly over a very short period of time, no matter how cold the winter was.

What will authorities do to protect me and my family from mosquito-borne diseases?

Local health departments and mosquito abatement districts, in cooperation with the Ohio Department of Health, have a statewide surveillance system in place to monitor mosquito and bird populations for mosquito-borne diseases such as West Nile virus. While all available resources are used to protect the public from these diseases, the most important steps must be taken by you.

As mosquito season approaches, please remember that the best way to protect yourself and your family from mosquito-transmitted diseases is to use these personal protection measures:

- Eliminate water-holding containers around your home, such as tires and other man-made containers (including cans, buckets, barrels, toys, etc.). Cavities in trees that hold water should be drained or filled, so they no longer hold standing water.
- Keep screens on doors and windows in good repair so mosquitoes cannot enter your home.
- Limit time outdoors at dusk and dawn when mosquitoes are most active.
- Wear light clothing and cover as much skin as possible.
- Apply mosquito repellants to exposed skin according to the label instructions.

Questions about mosquitoes and other vector-borne disease problems can be directed to the Zoonotic Disease Program at 614-752-1029.

Strategic National Stockpile—by the Strategic National Stockpile Program Staff

If a bioterrorism attack, natural disaster or technological accident occurred today, the medical supplies of hospitals, manufacturers and medical supply distributors would deplete quickly. .For this reason, in 1999, the United States Congress charged the Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) with the establishment of the National Pharmaceutical Stockpile (NPS). In 2003, NPS was renamed the Strategic National Stockpile (SNS). The SNS program for Ohio is housed within the Ohio Department of Health (ODH).

The SNS is the program that manages the federal repository of pharmaceuticals, vaccines, chemical antidotes, antitoxins, medical equipment and other medical supplies. This repository is designed to supplement and re-supply state and local public health agencies, as well as facilities such as hospitals and long-term care facilities, in the event of a national emergency anywhere and at any time within the United States or its territories. Hospitals, manufacturers and medical supply distributors have enough inventory to satisfy routine daily requirements, but not enough for a large public health emergency. If an emergency would occur, the CDC federal repository would be deployed.

For Ohio to receive CDC federal assets, the Governor's office or an ODH designee would directly request the deployment of the federal assets from CDC. The decision to deploy CDC federal assets will be based on evidence from ODH indicating an event requiring medical material beyond local resources. ODH will discuss with the CDC and other federal government leaders, scientists and local representatives to make a situational assessment before deploying any part of the SNS.

The first line of support in the CDC's SNS federal inventory is the 12-hour Push Packages. Push Packages contain caches of pharmaceuticals, antidotes and medical supplies for any event.

The CDC SNS program is committed to delivering Push Packages to any state in the United States or its territories within 12 hours of a federal decision to deploy. Push Packages have been configured to be immediately loaded onto either commercial cargo aircraft or trucks for rapid transportation.

These Push Packages are positioned strategically across the United States in secure warehouses managed by CDC.

Push Packages would probably not arrive in time for many victims of a chemical agent release. In 2004, the CDC expanded SNS resources to include the CHEMPACK program. Under this system, caches of nerve agent antidotes to treat victims of exposure to chemical nerve agents were regionally placed within states or major metropolitan areas. If the incident requires additional pharmaceuticals and/or medical supplies, CDC-managed inventory supplies will be shipped to arrive within 24 to 36 hours. The inventory is tailor-made to manage the specific needs of the public health emergency. The CHEMPACK containers are configured in two ways. A hospital container is designed to support patients presenting at the hospital and the EMS container is designed to treat patients at the scene.

In 2004, the CDC expanded the SNS to focus on the needs of large metropolitan cities. This program is called the Cities Readiness Initiative (CRI). This initiative requires prophylaxis to a very large population within 24 to 48 hours after exposure to anthrax. Cincinnati, Cleveland and Columbus currently participate in the CRI program.

While no one ever wants a public health emergency to occur, the SNS program is here to protect Ohio's citizens with medical supplies. SNS is a collaboration of federal, state and local community planners working together to ensure medical materials will be delivered to the affected area(s).

Quarterly Summary of Selected Reportable Infectious Diseases, Ohio

First Quarter, 2007*

December 31, 2006 - March 31, 2007

REPORTABLE CONDITION	QUARTER	YEAR
AMEBIASIS	3	3
CAMPYLOBACTERIOSIS	181	181
COCCIDIOIDOMYCOSIS	2	2
CREUTZFELDT-JAKOB DISEASE	2	2
CRYPTOSPORIDIOSIS	48	48
CYTOMEGALOVIRUS, CONGENITAL	5	5
E COLI O157:H7	19	19
E COLI, SHIGA TOXIN PRODUCING, (NOT O157:H7)	3	3
E COLI, SHIGA TOXIN PRODUCING, (UNKNOWN SEROTYPE)	8	8
ENCEPHALITIS, POST OTHER INFECTION	4	4
ENCEPHALITIS, PRIMARY VIRAL	4	4
GIARDIASIS	174	174
HAEMOPHILUS INFLUENZAE, INVASIVE	36	36
HEMOLYTIC UREMIC SYNDROME (HUS)	3	3
HEPATITIS A	20	20
HEPATITIS E	1	1
KAWASAKI DISEASE	14	14
LEGIONELLOSIS	37	37
LISTERIOSIS	8	8
MENINGITIS, ASEPTIC	98	98
MENINGITIS, BACTERIAL	17	17
MENINGOCOCCAL DISEASE	12	12
MUMPS	5	5
PERTUSSIS	155	155
SALMONELLOSIS	206	206
SHIGELLOSIS	56	56
STAPHYLOCOCCUS AUREUS, VANCOMYCIN INTERMEDIATE RESISTANT	2	2
STREPTOCOCCAL DISEASE, INVASIVE, GROUP A	79	79
STREPTOCOCCAL DISEASE, GROUP B (NEWBORN)	11	11
STREPTOCOCCAL TOXIC SHOCK SYNDROME (STSS)	1	1
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG RESISTANT/INTERMEDIATE (ALL AGES)	173	173
STREPTOCOCCUS PNEUMONIAE, INVASIVE, DRUG SUSCEPTIBLE/UNKNOWN (CHILDREN < 5 YEARS)	22	22
VARICELLA	1651	1651
VIBRIOSIS (NOT CHOLERA)	1	1
YERSINIOSIS	24	24
TOTAL	3085	3085

* 2007 data include confirmed, probable and suspected cases reported to the Centers for Disease Control and Prevention (CDC). This report includes both quarter-specific and year-through-quarter cumulative frequencies for each disease. Quarter is determined by the Morbidity and Mortality Weekly Report (MMWR) week the case was sent to the CDC. This report includes only Class A reportable diseases. Data were reported to the Ohio Department of Health via the Ohio Disease Reporting System. Some reportable conditions may be under investigation. Therefore, all data in this report are provisional, but current as of April 9, 2007.

Source: Ohio Department of Health, Infectious Disease Surveillance

ODH Infectious Diseases Quarterly is published by the Bureau of Infectious Disease Control of the Ohio Department of Health.

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