

Your Zoonosis Connection

Harris County

HCPHES

Public Health & Environmental Services

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Veterinary Public Health Division

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West Nile Virus in Harris County: 2003-2013

According to the Texas Department of State Health Services (1) from 2003 to 2012, the 5 most common human cases of zoonotic diseases were West Nile Virus (WNV, total cases = 4040, including 2013), Murine Typhus (total cases = 1542), Lyme disease (total cases = 1089), Malaria (total cases = 1079) and Rocky Mountain Spotted Fever (total cases = 414). It is interesting to note that all these zoonotic diseases are vector-borne and possibly have a seasonal predisposition. All zoonotic human cases are reported to DSHS through a passive system. These diseases could be underreported.

Out of 254 counties in Texas, Harris County was number one in the number of reported WNV human cases in 2004 (19%), 2005 (17%) and 2011 (56%) as shown in table 1. The number of WNV positive veterinary samples were highest compared to other counties in Texas for horses in: 2011 (17%) followed by 2010 (8%) and 2012 (4%); for birds: 2011 – 2013 (100%); for mosquitoes: 2011 (90%), 2010 (88%); 2004 (75%). In 2011, Harris County had the highest number of positive samples for all species, compared to other counties in Texas.

Table 1: Human cases of positive WNV from 2003 – 2013 (1, 2).

Year	WNV Humans ^a	Human Peak Month ^b	Human Season ^c	Harris County Rank	Total TX	% HC
2013	7	Aug	May-Nov	7th	172	4.07
2012	101	Aug	May-Dec	5th	1868	5.41
2011	15	Aug	May-Oct	1st	27	55.56
2010	23	Aug	June-Nov	2nd	89	25.84
2009	13	Aug	April-Nov	4th	115	11.30
2008	2	Aug	April-Nov	5th	64	3.13
2007	26	Aug/ Sept	April-Nov	2nd	260	10.00
2006	54	July	April-Nov	2nd	354	15.25
2005	34	July/ Aug	May-Nov	1st	195	17.44
2004	34	Aug	April-Oct	1st	176	19.32
2003	46	July	April-Nov	3rd	720	6.39

^a: Includes both WNND (West Nile Neuroinvasive) and WNF (West Nile Fever)

^{b,c}: The month and season is for all WNV human samples in Texas

There is a strong seasonal predisposition to positive WNV cases in Harris County. In humans (table 1) this includes April – December with peak cases mostly in August. For veterinary samples (3) the season most common for horses: starts as early as January and can continue till December with the peak cases occurring commonly in September/October; for birds it is also from January till December with peak cases in July – September; for mosquitoes it is from February to December with peaks in July/August. Horses are the only species where WNV peak cases occur later in the year than in other species. Harris County has an active comprehensive mosquito and bird surveillance program for WNV which may attribute to the differences we see between counties (3). As spring is approaching we need to be more vigilant about protecting ourselves and our animals against West Nile Virus.

REFERENCES: (1) <http://www.dshs.state.tx.us/idcu/health/zoonosis/disease/Cases/>;

(2) http://diseasemaps.usgs.gov/wnv_historical.html; (3) <http://www.hcphe.org/hcmosquitoctrl/>

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Pet Health Awareness Holidays

April	
1-30	Prevention of Lyme Disease in Dogs Month
20-26	Pet ID Week
May	
10	Animal Disaster Preparedness Day
18-24	Dog Bite Prevention Week
June	
1-7	Pet Appreciation Week
27	Take Your Dog to Work Day

Zoonosis Staff

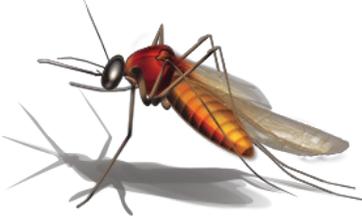
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Zoonosis: any infectious disease that is transmissible from animals to humans.



What is West Nile Virus?

West Nile Virus (WNV) is a potentially serious arbovirus that can cause fever and neurological illness. Mosquitoes spread the virus by feeding primarily on infected birds and other incidental hosts such as humans and horses. WNV was first discovered in the U.S. in 1999 and has been found in Texas since 2002.

How is the WNV spread?

WNV is primarily transmitted through the bite of an infected mosquito. At least 60 species of mosquitoes in North America are susceptible to infection, but the *Culex spp.* appear to be the most common vector in the U.S. Transovarial transmission has occurred in some species of mosquitoes. Dormant mosquitoes that survive the winter could also harbor WNV. Other arthropods may have minor roles in transmission.

Birds are the primary reservoir hosts for WNV. In endemic regions, WNV is maintained in an enzootic cycle between birds and culicine mosquitoes. Female mosquitoes become infected after taking a blood meal from an infected bird. The mosquito then transmits the virus to humans, horses and other incidental hosts.

Although less common, infection may also occur from:

- ◆ direct contact with infected birds or tissues from infected animals
- ◆ contaminated blood products (transfusions)
- ◆ organ transplants from an infected donor
- ◆ mother-to-baby
 - ◇ transplacental
 - ◇ transmammary
- ◆ laboratory accident

How does the disease affect people?

Human illness has been classified into two

West Nile Virus

forms: West Nile Fever and West Nile neuroinvasive Disease. West Nile Fever is a flu-like illness, and West Nile neuroinvasive disease, encompasses all cases with neurological signs. Most infections are asymptomatic.

West Nile Fever is the most common form of the disease and resembles influenza. Symptoms are typically mild (fever, headache, muscle aches, nausea, vomiting and occasionally swollen lymph glands or a skin rash) and appear 3-14 days after the person was bitten. These symptoms can last for a few days or several weeks. Death can occur.

Some patients with West Nile Fever may develop West Nile neuroinvasive disease. This form can be severe and life-threatening. Encephalitis, meningitis and acute flaccid paralysis are seen. Some may develop serious symptoms that include high fever, headache, neck stiffness, disorientation, stupor, coma, convulsions, tremors, muscle weakness, vision loss and paralysis.

If you have any of these symptoms, you should contact your doctor immediately.

What are the signs of WNV in animals?

In North America, commonly affected birds include crows, jays, ravens, magpies, American robins, eastern bluebirds, chickadees, tufted titmice, house wrens and domestic geese. High mortality is seen in crows, jays and magpies. Affected wild birds are typically found dead and clinical signs have not been well described.

Most horses infected with WNV are asymptomatic. However, in clinical cases, the virus causes neurologic disease. The incubation period in horses appears to be 5-15 days. Clinical signs may include anorexia, ataxia, muscle twitches, convulsions, impaired vision, paralysis, teeth grinding, wandering, circling and the inability to swallow. Attitudinal changes such as depression, listlessness and hyperexcitability may be seen. Weakness in the hind limbs is sometimes followed by paralysis. Coma and death may

occur.

Although overt disease is seen mainly in horses, infections have also been documented in cats, dogs, domestic rabbits, gray squirrels, skunks, chipmunks, sheep, goats, bats, a wolf, a fox squirrel and a mountain goat. Information concerning WNV in non-equine species is limited. Dogs may exhibit fever, depression, spasms, seizures, muscle weakness and paralysis. In one study of experimental infection, two of three dogs infected developed a mild recurrent myopathy. WNV has been recovered from the brain of a cat with neurologic signs, two other fatally ill cats and dead squirrels. The incubation period in species other than the equine is unknown.

How can I prevent WNV?

To decrease your risk of mosquito bites and WNV:

- ◆ Use mosquito repellent when outdoors. Be sure to use according to the label-less than 10% DEET in children under 12 years of age. DEET-based repellents are not approved for veterinary use.
- ◆ Wear long pants and long sleeved shirts when outdoors, particularly at dawn or dusk.
- ◆ Eliminate standing water which can be found in old tires, cans, flower pots or blocked gutters.
- ◆ Maintain swimming pools. Empty or invert children's wading pools when not in use.

- ◆ Keep birdbaths clean. Change the water at least once weekly.
- ◆ Make sure screens on windows and doors are in good condition.
- ◆ Do not sweep lawn clippings into storm sewers or drains.
- ◆ Dead birds should be reported to the local health department. When handling dead birds, wear gloves to double-bag the bird and dispose of the body properly. If the bird is being submitted for testing, place the specimen on ice.
- ◆ Veterinarians should wear personal protective equipment when performing necropsies, especially on birds. Precautions should also be taken when handling live infected birds.

If you develop symptoms of WNV, seek medical attention immediately.

Where can I get more information on WNV?

www.hcphe.org/hcsmosquitoctrl/
www.cdc.gov
www.dshs.state.tx.us
www.cfsph.iastate.edu

Source of Information

Centers for Disease Control and Prevention (CDC)

Zoonotic disease fact sheets are available at <http://www.hcphe.org/vph/Publications/index.html>.

Quarantine & Adoption Information

In order to better serve the citizens of Harris County, we are updating our information concerning services provided by the local veterinary facilities. This information will be provided to pet owners needing rabies quarantine services (240 hour observation period) and citizens that have adopted pets from our facility.

Please take the time to respond with the following questions:

1. Does your facility offer rabies quarantine services for dogs and cats that have bitten or scratched a person?
2. If you answered yes to the question above, do you have any restrictions regarding quarantine? If yes, please explain:
3. Does your facility offer a free exam for pets adopted from our shelter? If you answered yes, would you like to be included on our list of veterinarians that offer a free exam for pets adopted from our shelter?

To provide this information to us and have your clinic listed as offering these services, please email your responses to **Bonnie Gaul** at bgaul@hcphe.org or phone her directly at **713-418-1825**.

FREE Upcoming CE

Are you curious about how the government responds to emergencies? What about how to receive assistance in an emergency such as a hurricane, wildfire, flooding or a bioterrorism attack? If you answered “yes” to the above questions, this conference is for you!

Harris County Public Health & Environmental Services, Veterinary Public Health, TVMA and HCVMA are hosting an “Emergency Management Workshop for Veterinary Professionals”. Topics will include an introduction to emergency management, government responsibilities, the joint information center and a tour of TranStar.

This conference is scheduled for Sunday, June 8, 2014 from 8:30 am-1:30 pm and will be petitioned for 4.5 continuing education hours. You must register to attend in advance and seating is limited.

For more information and to register for the conference, please contact Tiffany Guidry at 713-418-1828 or tguidry@hcphe.org.



Our 5th Annual Zoonotic Disease Conference is scheduled for Sunday, September 14, 2014 at Baylor College of Medicine.

Veterinarians, registered veterinary technicians, certified veterinary assistants and animal control officers are invited to attend.

TSBVME, TVMA and DSHS will be petitioned for continuing education hours. Topics will cover issues involving zoonotic diseases with the “One Health” initiative in mind, such as West Nile Virus, Rabies, Lyme disease and much more.

Keep watching the newsletter or contact the zoonosis staff for more information.

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