

ZOOONOTIC DISEASE NEWSLETTER

The Washington State Department of Health's bulletin on zoonoses and vector-borne diseases

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Newsletter Listserv
www.doh.wa.gov/ehp/ts/zoo/zdnewsletter.html

Submit Comments
zd@doh.wa.gov

Aquarium frogs linked to nationwide *Salmonella* outbreak

By Nicola Marsden-Haug, MPH, Zoonotic Disease Epidemiologist, WA Department of Health, Communicable Disease Epi

At the beginning of December, the CDC announced several recent human *Salmonella* Typhimurium cases associated with exposure to pet African dwarf frogs. The cases identified as part of this outbreak investigation became ill from April through November of 2009. Over 80 cases have been identified from 31 states, and the investigation is still ongoing. Seven Washington State residents have been identified as part of this outbreak as of December 10.

It is well known that other amphibians and reptiles can carry *Salmonella*. Outbreaks of human infection following contact with turtles and lizards have been documented in the past. A ban prohibiting the sale of "baby" turtles, ones with a carapace length of less than 4 inches, has been in effect since 1975.

In the current outbreak investigation, comparison of these *Salmonella* cases with other, non-ill persons indicated that frogs were the likely source of infection. The same strain of *Salmonella* was also found in frog aquariums owned by three of the ill people.

The majority of the cases are younger than 10 years old. In addition to frogs, there is also a potential association with other aquatic pets, such as aquarium fish. It is possible that other aquatic pets could have intermingled with the frogs at some point in the distribution chain. All but one of the cases identified in Washington involve children 6 years old or younger - 3 had pet frogs, 2 had fish tanks with turtles or fish, and the others reported other pets.

There are no federal or state regulations pertaining to small frogs, so the only preventive action at this time is educational. This holiday season, some retail outlets are promoting small pet frogs. Out of concern that the public may not be aware of the risk of *Salmonella* from frogs, as well as other amphibians and reptiles, the CDC is mounting an educational awareness effort. Consumers should be advised to wash their hands thoroughly using soap and water after touching any amphibian or reptile, their housing, their tank water, their food, or anything else that contacts these animals.

More information about the national investigation and advice to consumers, pet store owners, health care providers, and veterinarians is available from the CDC at www.cdc.gov/salmonella/typh1209/index.html.



African dwarf frogs are common additions to fish aquariums. They have been associated with a large nationwide outbreak of *Salmonella*. Nearly 80% of those infected have been children under 10 years old, which highlights the need for proper hand washing after touching any amphibian or their water and housing.



Armed with the knowledge that rat's fleas spread the bacteria that causes plague, the US Public Health Service initiated its war on rats during San Francisco's second plague outbreak in 1907. A bounty was offered on rats, millions were killed, and the epidemic was quickly brought to a halt.

Plague surveillance continues, with focus on wildlife

By Anne Duffy, Public Health Advisor, Zoonotic Disease Program, WA Department of Health

Back in 1907, Washington experienced its first and only outbreak of bubonic plague that resulted in the deaths of five residents. In Seattle, a ripple of cases began to unfold on October 5 when a Chinese policeman became ill. Eight days later on October 13, the policeman died and his death was initially attributed to typhoid fever. Within two days after his death, his sister who had cared for him fell sick. On October 19, she died of pneumonia. Two more relatives became victims, another sister on October 24 and a sister-in-law on October 31. Health officials confirmed that both of these women died of plague pneumonia. The unfortunate undertaker who prepared the policeman's body for burial also died from pneumonia.

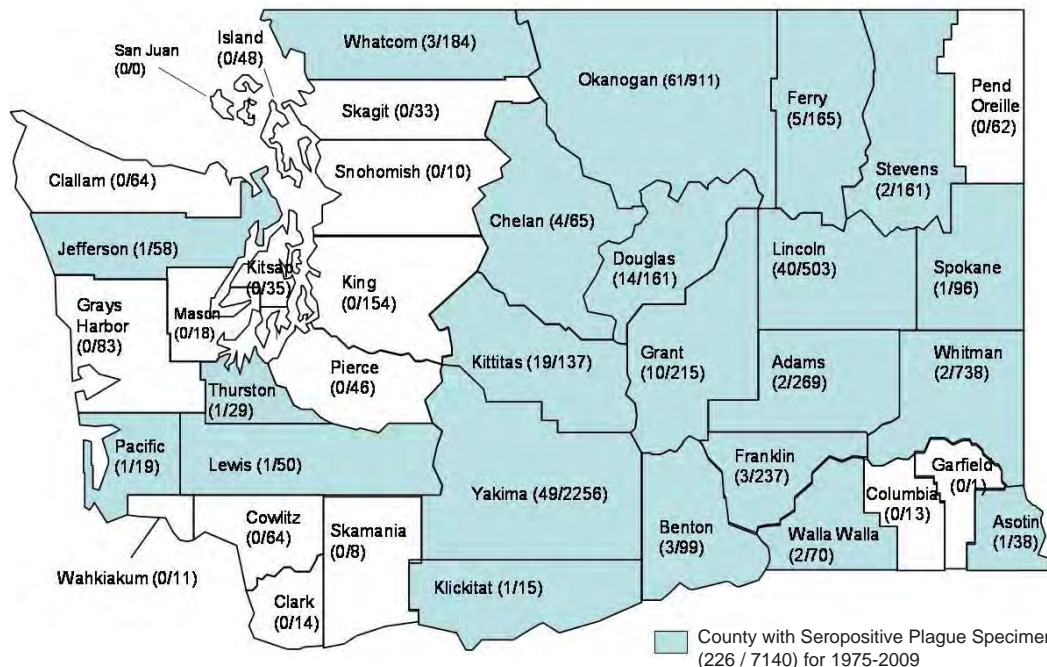
Infected rats aboard ships spread plague from Asia to San Francisco to Seattle. The US Public Health Service reportedly got involved, trapped thousands of rats, and helped police sanitation along Seattle's waterfront. Seattle then passed ordinances to improve sanitation. Even after Seattle's initial plague outbreak, infected rats continued to be found over the next ten years.

Not until 1984 was another Washington resident infected with plague. On January 2, a young trapper from Zillah had cut his wrist while skinning animals. Ten days later he was hospitalized with fever, muscle pains, and painfully swollen lymph nodes. His illness was confirmed as plague. With treatment, the trapper recovered. Bones from the wildlife he trapped, two bobcats and three coyotes at Rim Rock near White Pass in Yakima County, were tested. One of the bobcats tested positive for plague.

Today, wildlife plague surveillance continues in Washington and has recently wrapped up its 23rd year. The recent surveillance year, July 2008-June 2009, Washington State Department of Health collaborated with Yakama Nation, Confederated Tribes of Colville Reservation, and Washington State Department of Fish and Wildlife to collect 360 specimens for plague serology analysis. This included 359 coyote specimens from Yakima County and 1 striped skunk specimen from Spokane County. All serology test results were negative for *Yersinia pestis*, the bacteria that causes plague. See the summary report at www.doh.wa.gov/ehp/ts/Zoo/plague2008-2009.pdf.

The last positive specimens were collected from two coyotes from Grant County during the 2001-2002 plague surveillance year. The map below shows the number of animals tested and positive for plague by county from 1975 through 2009. For a historical overview of plague and summary of wildlife plague surveillance in our state, see the Plague Surveillance in Washington State Summary Report, 1975-2008 at www.doh.wa.gov/ehp/ts/Zoo/plague1975-2008.pdf.

**Wildlife Plague Serology
Washington State 1975-2009**



Note: 1 specimen - unknown county (1981-1982), total tested = 7141

Washington State
COMMUNICABLE DISEASE REPORT 2008

Department of
Health



The Department of Health works to protect and improve the health of people in Washington State.

Definition Review

zoonosis (pronounced: zoh-uh-noh-sis or zoh-on-uh-sis)

noun, plural zoonoses (pronounced zoh-uh-noh-seez)

Any disease of animals that can be transmitted, or is communicable, to humans.

New communicable disease report includes zoonoses

By Nicola Marsden-Haug, MPH, Zoonoses Epidemiologist, WA Department of Health, Communicable Disease Epidemiology

The annual communicable disease surveillance report for 2008 is now available. This report summarizes human cases reported by local health jurisdictions, including zoonotic diseases.

Zoonoses reported during 2008 include:

- Tick-borne relapsing fever: 4 cases (2 endemically acquired, 1 exposed in Idaho, and 1 exposed in Belize)
- Rocky Mountain spotted fever: 3 cases (1 potentially exposed in Washington)
- Lyme disease: 23 cases (only 2 acquired in-state)
- Tick paralysis: 1 case (exposed in eastern Washington)
- Hantavirus pulmonary syndrome: 2 cases (both in-state exposures, 1 was fatal)
- Leptospirosis: 1 case reported (likely exposed while working with cattle in Washington)
- West Nile virus: 3 symptomatic cases and 1 asymptomatic blood donor (all exposed in-state)
- Other arboviral diseases: 14 cases of dengue fever following travel to El Salvador, Guatemala, Honduras, India, Mexico, and the Philippines; 1 case of Japanese encephalitis occurring after travel to Cambodia and Vietnam; and 1 case of Colorado tick fever after travel to Montana.

Additionally, several rare diseases were reported with out-of-state or international exposures, included 1 case each of African tick bite fever, babesiosis, coccidioidomycosis, and *Cryptococcus gattii*.

Local and state health investigators evaluate all reports of suspected or confirmed human cases of notifiable conditions. Disease reports may come from healthcare providers, hospitals, laboratories, or veterinarians. Investigations include an assessment of symptoms, clinical findings, laboratory evidence, and a thorough review of potential risk factors for the specific disease, such as travel, mosquito bites, outdoor activities, blood donation, vaccination status, animal contact, and/or foods eaten. Cases are reported by county of residence, though investigations attempt to identify location of exposure and provide this detail when known.

Annual disease reporting is not closed out until spring of the following year because some investigations are still ongoing. For 2009, as of December 4, zoonotic diseases reported include: 36 West Nile virus cases and 2 asymptomatic blood donors, 17 Lyme disease cases (only 4 exposed in-state), 5 tick-borne relapsing fever cases (2 endemic), 3 hantavirus cases (2 endemic), and 1 case of Q fever. Two cases of *C. gattii* with likely in-state exposure have also been confirmed. These 2009 case counts may change as pending investigations rule-out cases or additional cases are identified.

For more information about the diseases and recent trends, see the full 2008 report online at www.doh.wa.gov/notify/other/2008cdr/cdr2008.pdf. Historical data for individual conditions are available in the incidence and mortality rate tables.

Tick Alert for Western Washington

Mild winter temperatures, combined with Washington's typical wet weather, provide ideal conditions for *Ixodes* adult tick activity. A mid-December walk with my dog resulted in the discovery of a female *Ixodes pacificus*. The tick was clinging to my dog's hair and hadn't yet become attached.

Ixodes ticks are particularly susceptible to dry conditions, so they're commonly active in cooler, wetter areas, which is a primary reason they are not found in Eastern Washington. *Ixodes pacificus* can transmit the causative agent of anaplasmosis, *Anaplasma phagocytophilum*, which can be fatal for dogs if not treated promptly.

So even though winter has only just officially begun, be sure to examine your dog following a walk in the park or woods. If you don't have your pet on a tick preventative product, consider doing so. Your veterinarian can advise you on what works well in Washington. Enjoy your dog walking rambles, but be aware of ticks searching for a meal!



- Dr. Liz Dykstra, Public Health Entomologist



People pass H1N1 flu to their pets

By Ron Wohrle, DVM, Environmental Health Veterinarian, Zoonotic Disease Program, WA Department of Health

Until recently, there was little reason to believe pets could be infected with the 2009 H1N1 flu virus, because it is very uncommon for flu viruses to jump between species. However, in October, a USDA laboratory confirmed H1N1 infection in a ferret. The ferret's owner had recently been ill with the flu.

There have been a number of pets across the country that have gotten ill as a result of being infected with the H1N1 flu virus. So far, all the identified pets that have had an H1N1 illness have had exposure to family members who experienced influenza-like-illness within the previous one to two weeks. Currently, there have been no reports of H1N1-infected pets transmitting the virus to people.

Numbers of pet H1N1 infections are changing, but there have been 8 cats infected - 1 each from Iowa, Utah, Pennsylvania, California, and 2 each from Oregon and Colorado. One dog from New York was reported in mid-December. There have been reports of 8 pet ferrets diagnosed with H1N1 - 4 from Oregon, 3 from Washington, and 1 from Nebraska. Unlike dogs and cats, ferrets are more susceptible to infection with influenza A viruses that infect humans. A small number of the cats and at least 1 ferret reportedly died as a result of H1N1 disease.

Pets that live indoors tend to have close contact with their owners, and that not only increases our chances of getting diseases from our pets, it increases the chances of us giving diseases to them.

The best advice is to always follow common health precautions, such as washing your hands or coughing and sneezing into your sleeve. Pet owners should keep a close eye on their pet's health and consult a veterinarian if their pet is showing any signs of illness. Until we know more about the risks of spreading the virus from person to pet, pet to pet, or pet to person, it's a good idea to limit contact between an ill family member and other family members and pets.

We know poultry can be infected with H1N1, but we don't know if it is affecting pet birds.

The virus hasn't yet been reported in pet pot-bellied pigs. The possibility of human-to-pig transmission of the virus warrants extra caution by pig owners, because pigs would be susceptible to the virus.

The first known-exotic animal, a cheetah from California, tested positive for H1N1 while experiencing respiratory illness. The cheetah made a full recovery.

On a global note, France recently reported a cat and China's press reported 2 dogs with H1N1 infection. Based on what's been reported in China, and what was seen in the New York dog case, symptoms in dogs diagnosed with H1N1 have included lethargy, loss of appetite, fever, coughing, or other symptoms related to respiratory illness.

In the US, dogs currently have their own flu virus, H3N8 canine influenza virus, going around. So far, this flu virus has only been spread from dog to dog. Dogs infected with the canine influenza virus show the same symptoms as dogs with kennel cough and H1N1 – fever, lethargy, loss of appetite, coughing, and maybe a runny nose.

The American Veterinary Medical Association offers frequently asked questions about the 2009 H1N1 flu virus and pets at www.avma.org/public_health/influenza/new_virus/new_flu_virus_faq_pet_owners.asp.

“Although there haven't been any reports yet of H1N1 flu being spread from pets to people, there have been several reports of pets that have become sick with H1N1 influenza virus after being exposed to it by family members during their illness. It is therefore very important that common flu prevention measures be extended to our pets.”

*- Dr. Ron Wohrle,
Environmental Health
Veterinarian*

Submit comments on the draft zoonotic disease rules

Owners of dogs, cats, and ferrets will need to have their pets vaccinated for rabies. Animal venue operators and exhibitors will need to follow specific guidelines to help prevent spreading animal diseases to visitors. These are some of the newly proposed zoonotic disease prevention and control rule updates. Interested stakeholders are encouraged to review these informal rules at www.doh.wa.gov/ehp/ts/Zoo/rulerrevision.html and submit comments.

These draft informal rules were presented at two stakeholder meetings in Moses Lake and Olympia in November. The goal is to finalize the draft rules in February 2010, conduct public hearings in June, and have the rules become effective in August.

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A look back at our 2009 West Nile virus season

By Wayne Clifford, Manager, Zoonotic Disease Program, WA Department of Health

"The farther backward you can look, the farther forward you are likely to see," is a quote ascribed to Winston Churchill. The 2009 West Nile virus season proves worthy of looking back and contemplating what worked and what didn't. Surpassing the previous eight years, the season's West Nile virus activity resulted in 36 infected people (1 fatality), and positive test results for 344 mosquito samples, 22 birds, 72 horses, and 1 dog. The virus spread more broadly across the state and was detected in 15 counties, from Grays Harbor to Spokane. It concentrated more strongly in the central eastern counties, Benton, Grant, Kittitas, and Yakima. Though the worst experienced, the 2009 season is not the anticipated peak of West Nile virus activity for our state.

The West Nile virus de-brief meeting held in Moses Lake provided us the opportunity to evaluate our successes and challenges of 2009. I'm continually impressed with the great work our partners and staff accomplish in protecting the public's health. It is amazing what small groups can do, and it underscores how important partnerships are in the larger public health picture. This season, partners' collaboration on two innovated projects, the Online Dead Bird Reporting System and the Washington Arbovirus Surveillance Portal, exemplified such work. Both projects mark advancements on automating how surveillance data is collected and test results released. The end result, we enhanced our local and statewide West Nile virus surveillance, particularly in counties with limited support.

At the de-brief meeting, I also heard, and since shared, many of the concerns voiced by our partners. How do we meet the increasing challenges of West Nile virus when resources to combat this public health threat are becoming more limited? We have already lost some local capacity to participate in mosquito and bird surveillance, as well as outreach prevention activities - both of which are now needed more than ever. Although the state economy shows signs of improvement, state and local governments are still facing even greater shortfalls in revenues.

While these are challenging times for all of us, our program continues to be committed to protecting public health. In the spring, a west and east side West Nile virus prevention planning meeting will be held to help partners prepare for the upcoming season. Looking forward, I know that we'll continue to work smarter, more efficiently, and collaboratively as we face the challenge of West Nile virus.

Upcoming events

Zoonotic and Vector-borne Disease Spring Workshop

March 16, Big Bend Community College, Moses Lake

March 19, Washington State Department of Labor and Industries, Tumwater

Sponsored by the state health department's Zoonotic Disease Program, topics will include environmental and epidemiological zoonotic disease updates, animal hoarding, plague, raw milk, and emergency preparedness.

West Nile Virus Prevention Spring Workshop

Spring 2010, dates and locations to be determined.

Prior to or following the Department of Ecology's public hearings on the mosquito control permit will be a workshop to discuss West Nile virus prevention plans for 2010.

Epi Road Show

Spring 2010, dates and locations to be determined.

Sponsored by the state health department's Communicable Disease Epidemiology Section, topics typically include a selection of communicable diseases, including zoonoses.

American Mosquito Control Association 76th Annual Meeting

March 28 - April 1, Lexington, Kentucky

www.mosquito.org/meetings/index-new.aspx

Council of State and Territorial Epidemiologists Annual Conference

June 6-10, Portland, Oregon

www.cste.org/conference

International Conference on Emerging Infectious Diseases

July 11-14, Atlanta, Georgia

www.iceid.org

American Veterinary Medical Association Annual Convention

July 31 - August 3, Atlanta, Georgia

www.avmaconvention.org/avma10/public/enter.aspx