



Yakima Health District BULLETIN

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West Nile Virus Surveillance

West Nile virus antibodies have been confirmed from an asymptomatic western Washington blood donor who visited Yakima County and eastern Oregon during the two weeks prior to her donation. Her visit to Yakima County only lasted a day or two, but was in a region of the southern Yakima Valley close to where WNV-infected horses were found last year.

This occurs on the heels of recent detection of WNV in sixteen mosquito pools and ten horses from Yakima County over the past month. While most of these have been near the Benton County border, sites of documented WNV activity run as far north as Union Gap. Although the lower valley appears to be the focus of attention, it seems wise to presume that the virus could be acquired by humans anywhere in the Yakima County region.

WNV is transmitted by the bite of an infected mosquito. Symptoms of WNV infection occur in only about 20% of infected persons. Onset of West Nile fever is sudden and usually occurs within two to 14 days after exposure. The illness can include a constellation of fever, headache, malaise, rash, nausea, vomiting, lymphadenopathy, and myalgia/arthralgia. In about 1% of cases, neuroinvasive disease occurs. This is characterized by aseptic meningitis with CSF pleocytosis or encephalitis with altered mental status, focal motor or sensory deficits, extrapyramidal phenomena, and/or polyradiculitis.

Testing for suspected WNV consists of collection of serum from eight-to-14 days after onset and, if appropriate, CSF within eight days of onset. Virus-specific IgM antibodies are demonstrated by enzyme immunoassay and are confirmed by demonstration of virus-specific serum immunoglobulin G (IgG) antibodies in the same or a later specimen by another serologic method (e.g., plaque reduction neutralization or hemagglutination inhibition). If initial WNV IgM results are negative, but the specimen was collected less than eight days after exposure, re-testing after the eighth day should occur in highly suspected cases. Laboratory confirmation is available through the Washington State Public Health Laboratory (PHL) for all suspected neuroinvasive cases, as well as West Nile fever suspects who have a positive serologic result through a commercial laboratory.

Treatment is supportive. Treatment for severe neuroinvasive infections often involves hospitalization, intravenous fluids, respiratory support, and prevention

of secondary infections. Controlled trials investigating specific treatments are ongoing. Management of asymptomatic close contacts of cases consists of reassurance, education regarding WNV symptoms, and reinforcement of prevention measures. Appropriate prevention measures include:

Avoid the Bite

- Make sure windows and doors are "bug tight." Repair or replace screens.
- Stay indoors at dawn and dusk, if possible, when mosquitoes are the most active.
- Wear a long sleeve shirt, long pants, and a hat when going into mosquito-infested areas, such as wetlands or woods.
- Use mosquito repellent when necessary. Read the label and carefully follow instructions. Take special care when using repellent on children. The most effective mosquito repellents contain the active ingredient of DEET (N, N-diethyl-m-toluamide), Picaridin, oil of lemon eucalyptus, PMD—the synthesized version of oil of lemon eucalyptus, or IR3535. These active ingredients typically offer long-lasting protection against mosquito bites. Repellents come in lotions, creams, gels, sprays, and towelettes.

Eliminate Mosquito Breeding Habitats

- Empty anything that holds standing water at least weekly—old tires, buckets, plastic covers, and toys.
- Change water in your birdbaths, fountains, wading pools and animal troughs at least twice per week.
- Recycle unused containers that may collect water—bottles, cans, and buckets.
- Make sure roof gutters drain properly: and clean clogged gutters in the spring and fall.
- Fix leaky outdoor faucets and sprinklers.

Please report seropositive WNV fever cases and all suspected neuroinvasive WNV cases to YHD at (509) 249-6509. This assists with surveillance, epidemiology, and control efforts; it also permits YHD to assist clinicians in arranging for confirmation of laboratory results through the PHL.

For more information about WNV surveillance, prevention and diagnosis, visit the following websites: <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/WNVQA2.html>, <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>

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Immunization Refusal and Transmission of Vaccine Preventable Diseases

The recent measles outbreaks in Grant County (19 cases during April-May 2008) and the rest of the United States (131 cases in U.S. residents to-date) testify to the importance of high vaccine coverage in measles elimination (*Update: Measles--United States, January-July 2008*; <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5733a1.htm>). Furthermore, the recent problems with measles highlight a trend toward increasing vaccine refusal and the negative consequences of that trend for control of vaccine preventable diseases. This becomes increasingly important with travel and globalization leading to importation and subsequent transmission of communicable diseases. Eighty-nine percent of measles cases in the U.S. during 2008 have been linked to an imported case either directly or via a chain of transmission associated with an imported case. The source of exposure for the Grant County outbreak remains unconfirmed, although that case did attend a large international event in King County during the incubation period prior to onset.

In the Grant County outbreak, which is estimated to have consumed 200 hours of staff time and generated direct costs of \$140,000 to the local health department, 18 (95%) of the cases were unvaccinated. Nationwide, 112 (91%) of 123 U.S.-resident cases in 2008 have been unvaccinated. Of these, 95 (85%) were eligible for vaccination, and 63 (66%) of those were unvaccinated because of philosophical or religious beliefs. While measles vaccination rates are sufficiently high to prevent sustained transmission in the United States, the ongoing transmission of measles in other parts of the world, including wealthy European and Asian nations with falling vaccination rates, ensures that importation will continue to occur and will disproportionately affect communities or social networks with high rates of unimmunized children.

Many providers report increasing parent concerns about vaccines and others who want to delay or defer vaccinations. The Washington State Department of Health has found that philosophical exemptions to immunization requirements among K-12 students increased from 2% to 5% since 1997. Meanwhile, true medical and religious exemptions have remained stable at <0.5%. Washington is one of 21 states that permit philosophical exemptions to school entry immunization requirements. Another 27 states require a documented medical or religious explanation for refusal, and two states (Mississippi and West Virginia) permit only medical exemptions.

Among 39 Washington State counties, Yakima County K-12 students have the 3rd lowest rate of school entry immunization exemptions (1.5%; statewide range, 1.2-17%). This speaks well to the effectiveness of Yakima County clinicians' efforts to immunize and parents' willingness to participate in this personal and societal benefit. YHD thanks you for contributing to the favorable childhood immunization status of our community.

A recent CDC training session, *Effectively Addressing Parents' Concerns about Immunization*, addressed the basis for mounting popular concern about vaccine safety and how to best enlist the participation of reticent parents. The audiocast, slides and transcript can be downloaded from <http://www.cdc.gov/vaccines/ed/ciinc/2008June.htm>.

The program indicated that unbalanced, and often inaccurate, media coverage about alleged vaccine risks (e.g., association of measles vaccine or thimerosal with autism) and personal knowledge of or experience with episodes of mild-to-moderate adverse effects (e.g., fever, irritability, crying) can give pause to even the most educated and well-intended parents. Furthermore, the sheer number of injections to which a child must submit at routine well-child visit is troubling for most parents and can generate painful memories and anticipatory anxiety about the next round of immunizations. Given the relatively low incidence of vaccine preventable diseases in the U.S., it is not surprising that many parents express ambivalence about childhood immunizations.

Honest and empathic communication with parents about their concerns can help to alleviate anxiety and empower parents to make informed decisions. Providing anticipatory education about vaccines and asking reticent parents about the specific nature of their concerns establishes a good foundation for ensuring that children are fully immunized. Listening with empathy and maintaining good eye contact and other non-verbal communication can promote a reassuring dialogue that gives parents a sense of partnership in vaccination decisions. It also should limit the degree to which ambivalent parents might retreat into frank refusals in the face of controlling or dismissive communication. Also helpful is the practice of sensitively (but confidently) communicating the strong safety monitoring system underlying our immunization system, the overwhelmingly high benefit-to-risk ratio of routine childhood immunization, and the suffering and mortality which these diseases cause in settings where vaccination does not occur. This can be a time-consuming task in the context of a challenging parent in a busy clinical setting, but the long-term yield should pay off in aggregate, even if there is not universal success with each child.

For more information on childhood immunization, please contact Tess White, Immunization Consultant for YHD at 509-249-6514.

YHD acknowledges Alex Brzezny MD/MPH, Health Officer, Grant County Health Department, and his staff for their successful control efforts and information sharing regarding the measles outbreak.

Lead Screening in Yakima County

Lead exposure in childhood, even at relatively low levels, has been associated with the potential for cognitive and behavioral developmental deficits. Laboratories must report all blood lead test results on children to the Washington State Department of Health (WAC 246-101-201). This supports surveillance efforts to track the incidence of suspected lead exposure, as well as to alert the public health system so that appropriate evaluation and follow-up of lead-exposed children occurs. This follow-up may include investigation of possible sources of lead exposure, education of parents about reducing lead risks, mitigation of possible ongoing sources for exposure, and re-testing at appropriate intervals.

Statewide, <1% of tested children have elevated levels (>10 µg/dL). However, a population-based survey in 1999 showed elevated levels in 3-4% of central Washington children. Subsequent population-based surveys have not been conducted to-date to further explore those findings.

From January-June 2008, 266 children under age seven were

tested for lead exposure by health care providers in Yakima County. Of those children tested, none had a blood level over 10 µg/dL. Statewide, 4,747 children in this age group were tested for lead exposure, and 20 (0.4%) had a blood level over 10 µg/dL.

Several childhood lead exposures identified in Yakima County in the recent past have been associated with traditional medical remedies. YHD urges primary care clinicians to ask about the use of traditional remedies, warn about the risk of lead exposure, and conduct blood lead screening in those children exposed to these remedies. Some common names of traditional remedies associated with lead exposure include: Azarcon, Rueda, Maria Luisa, Greta, Liga, Coral Alarcon, Pay-loo-ah, Bali Goli, Ghasard, Kandu, Estomaquil, and Alkohol (kohl).

Due to the overall low prevalence of blood lead elevations in Washington, Department of Health (DOH) guidelines do not recommend universal blood lead testing of all children. However, the department does encourage the testing of children who may be at increased risk for lead poisoning, including those who:

- Live in or regularly visit a home or childcare facility built before 1978.
- Live in or regularly visit a home built before 1978 that is being repainted or remodeled.
- Have a brother, sister, or playmate with lead poisoning.
- Live with an adult who is exposed to lead through work or hobbies.
- Were recently adopted or have recently immigrated from another country.
- Have licked, chewed or mouthed old painted surfaces, vinyl mini-blinds or metal jewelry.
- May have been given traditional remedies such as those listed above.
- Use toys or jewelry potentially contaminated with lead.

In addition, as part of a diagnostic workup, primary care providers might consider a blood lead test when a child presents with developmental or behavioral problems and no obvious cause.

For more information on lead exposure prevention and childhood lead screening, visit:

<http://www.doh.wa.gov/ehp/lead/default.htm>

<http://www.cdc.gov/lead/>

YHD acknowledges the gracious support of Lauren Jenks (DOH Childhood Lead Program) in the drafting of this article.

Medical Errors in the Outpatient Setting

A recent study sponsored by the American Academy of Family Practice provides useful information about causes and consequences of errors in the outpatient setting (*Quality and Safety in Health Care*, 2008; 17:194). The study prospectively collected anonymous reports from 243 clinicians and office staff in eight diverse family practice settings from seven states during a seven-month period in 2004. A total of 590 reported events identified 966 process errors. About half of the reports were made by office staff and half by clinicians. Half of the reports contained more than one error, and 90% of these reports involved cascades in which one error led directly to the next. One-third of the errors stemmed from problems in ordering or implementing tests (e.g., wrong test ordered, wrong test done, test not done). Half arose from process or

communications errors (e.g., failing to file the results in the patient's chart, clinician not seeing or not responding to the results, patient not notified of results). Only a few (3%) involved failures in clinical elements of care (e.g., skills, treatments).

A quarter of the errors resulted in delays in care, and 13% caused pain, suffering, or a definite adverse clinical consequence. Harm resulted from 18% of the events, and investigators could not determine if there was patient harm in 28%. Racial and ethnic minorities were almost twice as likely to experience errors and were three times more likely to experience harm as a result of errors. Errors in test implementation were the factor most closely associated with adverse consequences (as opposed to other types of errors, OR 4.2).

Taken together, these findings suggest that clinicians can significantly reduce errors by focusing quality improvements on appropriate test ordering. Patients must be educated about what test is being ordered, encouraged to ensure that the right test is done and reminded that they should call the office back if they do not hear about the results within an appropriate time frame. Office practices could reduce the total number of errors by one-half if they could eliminate process errors such as lost results, mis-filed results, and failures to notify the clinician or patient. Special efforts should be taken to ensure that patient language or cultural barriers do not impede the successful communication of information vital to patient safety.

To hear a well-done audiocast summarizing this important study and its implications for patient safety and clinical risk management, please visit <http://www.npr.org/templates/story/story.php?storyId=93801439>.

Hantavirus Pulmonary Syndrome

You may have heard about two hantavirus pulmonary syndrome (HPS) cases under investigation in Washington State.

A central Washington resident developed fever and respiratory symptoms beginning August 11 and was hospitalized on August 14. His condition deteriorated, he was transferred to a hospital in Yakima, and he died on August 15. HPS was suspected and on August 27, 2008 the Centers for Disease Control (CDC) confirmed this diagnosis by immunohistochemistry.

A confirmed case of HPS from northern Puget Sound was hospitalized with hantavirus pulmonary syndrome-like symptoms beginning July 25 and survived the illness. Commercial laboratory testing suggested HPS and the WSPHL confirmed these results on August 18.

Washington State typically has ≤ 5 reports of HPS each year. Cases can occur any time of year. The mode of transmission is inhalation of aerosolized excrement from rodents (particularly the deer mouse) which typically occurs when people are inhabiting, disturbing or cleaning rodent infested areas. It is unusual to have any clustering with this disease. Even when there are multiple people cleaning the same area, it is unusual to have more than one develop disease.

For more information about HPS, visit

- <http://www.cdc.gov/ncidod/diseases/hanta/hps/>
- <http://www.doh.wa.gov/EHSPHL/factsheet/hanta.htm>

Courtesy of Rebecca Baer, MPH, Communicable Disease Epidemiology, Washington State Department of Health

YAKIMA HEALTH DISTRICT

**1210 Ahtanum Ridge Drive
Union Gap, WA 98903**



Reporting Line: (509) 249-6541
After hours Emergency: (509) 575-4040 #1
Toll Free: (800) 535-5016 x 541



Confidential Fax: (509) 249-6628



<http://www.yakimapublichealth.org>

Dennis Klukan, MSEPH, Administrator
Christopher Spitters, MD, MPH, Health Officer
Marianne Patnode, RN, Communicable Disease Services Program Coordinator
Gordon Kelly, Environmental Health Director
Wendy Doescher, Region 2 AIDSNET Coordinator
Denny Flodin-Hursh, RN, Public Health Nurse
Perla Benitez, RN, Public Health Nurse
Lela Hansen, RN, Tuberculosis Consultant
Jessica Brown, BS, CHES, Assessment Specialist
Laura Kramer, BS, Environmental Health Specialist
Tess White, RN, Immunization Consultant



Condition (includes confirmed and probable cases)	Cases			Total Cases by Year	
	Jan-July	Jan-July	Jan-July	Total Cases by Year	Total Cases by Year
	2008	2007	2006	2007	2006
Campylobacteriosis	64	73	128	124	202
Cryptosporidiosis	2	7	2	19	7
Enterohemorrhagic E. coli	6	3	2	7	5
Giardiasis	7	21	15	48	31
Salmonellosis	28	15	14	34	34
Shigellosis	1	8	13	26	32
Hepatitis A acute	1	0	1	0	1
Hepatitis B acute	0	1	4	1	5
Hepatitis B chronic	6	4	8	11	11
Hepatitis C acute	0	1	1	1	1
Hepatitis C chronic	88	118	122	226	176
Meningococcal	1	1	1	2	1
Pertussis	10	14	18	37	21
Tuberculosis	8	10	6	11	16
HIV New	5*	10*	10*	10	10
HIV Deaths	3*	1*	2*	1	2
HIV Cumulative Living	157*	152*	142*	142	142
Chlamydia	684	710	625	1168	1120
Genital Herpes—Initial	47	31	47	46	70
Gonorrhea	63	71	102	119	166
Primary and Secondary Syphilis	1	0	3	0	3

Notifiable Conditions Summary Jan– July, 2008

* January-June