Yakima Health District BULLETIN

Volume 8, Issue 3 July, 2009

West Nile Virus

Summary

West Nile Virus has been demonstrated in Yakima County mosquitoes. Occurrence of human cases is anticipated and health care providers should be familiar with clinical presentation and diagnostic measures. Treatment is supportive; rarely, neuroinvasive disease occurs and warrants hospitalization and intensive care. Prevention focuses on avoidance of mosquitoes and elimination of breeding habitats. Case reporting is vital to evaluating the effectiveness of prevention measures as the WNV season progresses from August through October.

Inside this issue:

Background

Multiple mosquitoes and an unvaccinated horse testing positive for West Nile virus (WNV) have been identified in Yakima County since early June, signaling what has now become an annual threat of human cases. Despite extensive data demonstrating WNV in mosquitoes, birds, and horses, only a handful of confirmed human WNV cases acquired in Washington State have occurred. The reason for this remains elusive, but vigilance and anticipation is warranted.

WNV infection is asymptomatic in about 80% of infected (sero-positive) individuals. The remaining 20% develop a syndrome called **West Nile Fever**. Beginning approximately 2-15 days after acquisition, this presents as a mild-to-moderate illness characterized by fever, headache, and myalgia. Nausea, vomiting, lymphadenopathy and rash can also occur.

Neuroinvasive disease occurs among 1% of symptomatic WNV cases. Symptoms include high fever, severe headache, meningismus, altered mental status, motor deficits (e.g., weakness, Guillan-Barre-like presentation, tremors), extrapyramidal signs, sensory deficits, seizures, and coma. Recovery tends to occur over the course of months and is often incomplete, leaving residual neurologic deficits. Case fatality for neuroinvasive disease is approximately 3-15%. The main identifiable risk factor for neuroinvasive disease is age >50 years.

Laboratory Testing

Laboratory confirmation of human WNV infection is based upon detection of anti-WNV IgM in blood 8-14 days after onset of illness or in CSF collected during days 0-7 after onset. Detection of viral nucleic acid via amplification techniques (e.g., polymerase chain reaction [PCR]) can be considered for immunocompromised individuals, but is not recommended for routine use. Routine clinical testing should be directed through private clinical laboratories. However, in the following limited circumstances, testing is available through the Washington State Public Health Laboratories:

- Patients with suspected WNV neuroinvasive disease (fever and neurological signs) when there is no other likely diagnosis; OR
- Symptomatic pregnant or breastfeeding women and their infants; OR
- Recent blood, tissue, or organ donors or recipients suspected to have WNV infection; OR
- Patients with febrile disease and a positive WNV serology test from a commercial laboratory (to confirm positive clinical laboratory results). This latter class may be dropped once human cases are known to be occurring in the community, thus raising the positive predictive value of a commercial laboratory test result.

To report a suspected case of WNV or to obtain assistance with reference testing of a candidate blood or CSF specimen, please contact YHD Communicable Disease Control at (509) 249-6541.

Clinical Management

Care for WNV cases is supportive. No antiviral or immunotherapy known to be effective against WNV exists. Patients with severe illness (e.g., dehydration, neurological findings) should be considered for hospital admission, as well as neurology and infectious diseases specialty consultation. In such cases, management focuses on respiratory function; fluid, electrolytes, and nutrition; and prevention or treatment of secondary infections. Several clinical trials looking at pharmacologic or immunologic therapy are underway.

Prevention and Control

Prevention of WNV begins with avoidance of mosquitoes, use of appropriate repellants when contact is reasonably anticipated, and elimination of mosquito breeding habitats. Vaccination of horses clearly has a beneficial effect at the level of the individual horse, but it probably does not impact transmission dynamics with respect to humans. No human vaccine is currently available, although clinical trials for such are underway.

Resources

General information on WNV (e.g., for patient education on safe and effective use of repellants) can be found at www.yakimapublichealth.org (click on the red WNV link).

Clinical information on diagnosis and management of WNV can be found at http://www.cdc.gov/ncidod/dvbid/westnile/clinicians/

Novel H1N1 "Swine" Influenza

Summary
Transmission of novel H1N1 influenza A virus (NIV) is now worldwide. It accounts for almost all influenza isolates typed in the United States, although transmission appears to be waning. Disease severity (e.g., hospitalization and mortality) does not appear to be significantly different than that for seasonal influenza; however, population immunity and lack of efficacy of the current vaccine do raise concerns about substantial numbers of cases during the 2009-2010 fall/winter season. For the time being, oseltamivir and zanamivir remain the treatment of choice for this infection, although routine use should be limited to high -risk patients.

Background
As you are probably aware through your professional work and various media outlets, transmission of the novel H1N1 influenza A virus (NIV) continues throughout the region, the country, and the globe. Following the waning of the annual influenza A and B season in spring, NIV now accounts for virtually all influenza isolates typed in the United States. Findings from laboratory-based surveillance in Yakima County suggest that NIV is currently the only circulating influenza virus and that numbers of cases are dwindling as July progresses. In the short run, the burden of transmission and concern shifts to the southern hemisphere, where winter influenza season is underway and is dominated by concern over NIV.

To date, over 40,000 cases of NIV have been reported across the United States, with 263 (0.6%) deaths. About one-third of these deaths have been in children 0-4 years of age. Neither this case-fatality rate (0.6%), nor influenza-associated mortality, nor influenza-associated hospitalization rates have exceeded yearly average trends. However, physician visits for influenza-like illness have indeed exceeded annual trends both nationally and regionally as NIV transmission lingers on through the early part of the summer. This is an unusual temporal pattern for influenza and probably reflects the immunologic naïveté of the population to NIV and the ineffectiveness of the current vaccine against it, rather than any particular feature of the NIV virus itself (see insert).

Antiviral Therapy
Despite a handful of reported cases of oseltamivir resistance from around the world, national laboratory surveillance data indicate that NIV remains sensitive to the neuraminidase inhibitors, oseltamivir and zanamivir, and resistant to the adamantanes, rimantadine and amantadine. Meanwhile, seasonal (non-NIV) influenza A H1N1 viruses have the opposite antiviral susceptibility profile (oseltamivir resistance and adamantine sensitivity). Until surveillance data indicates a return to a more heterogeneous representation of influenza viruses next fall, influenza-like illness is best assumed to be NIV-related.

	Isolates tested (n)	Resistant Viruses, Number (%)		Isolates tested (n)	Resistant Viruses, Number (%)
		Oseltamivir	Zanamivir		Adamantanes
Seasonal Influenza A (H1N1)	1,066	1,061 (99.5%)	0 (0)	1,068	6 (0.6%)
Influenza A (H3N2)	198	0 (0)	0 (0)	206	206 (100%)
Influenza B	585	0 (0)	0 (0)	N/A*	N/A*
Novel Influenza A (H1N1)	264	0 (0)	0 (0)	242	242 (100%)

*The adamantanes (amantadine and rimantadine) are not effective against influenza B viruses.

Most cases of influenza-like illness in healthy adolescents and young adults may not warrant antiviral therapy. Routine use of these agents for treatment of disease and prophylaxis of exposure should be focused upon very young children and the elderly (i.e., <5 or >65 years of age), as well as pregnant women, immunocompromised patients, and patient with underlying cardiac, pulmonary, neurologic, or metabolic diseases that place them at increased risk of influenza-related hospitalization and mortality. Finally, treatment with antivirals should also be considered for individuals whose work or residence puts them at high risk for transmission (e.g., health care workers, long term care facility staff and residents).

Preparedness for 2009-2010 Influenza Season
The relative lack of population immunity to NIV has led to concerns that transmission and morbidity could be substantially higher upon return of the influenza season next fall. Efforts are underway to develop a vaccine for NIV, but it is uncertain whether such would be available in time for the 2009-2010 season. Substantial planning is underway at the federal and state levels to establish laboratory capacity, surveillance systems, vaccination, access to antivirals for priority groups, and community-based measures to coordinate health care services and mitigate transmission. YHD will be an active participant in these preparedness efforts as the planning and resources emanate from the state level in coming months. For more information on what you can do to prepare yourself and your patients during the coming influenza season, visit www.yakimapublichealth.org, http://www.cdc.gov/h1n1flu/ and http://www.pandemicflu.gov/index.html. For more information on YHD's local surveillance and preparedness efforts, please call 509-249-6541.

Reinstatement of the Booster Dose of Hib Vaccine at Age 12–15 Months

Summary
Effective immediately, CDC, in consultation with ACIP, AAFP, and AAP, is recommending reinstatement of the booster dose of Hib vaccine for children aged 12–15 months who have completed the primary 3-dose series.

Background
In December 2007, certain lots of *Haemophilus influenzae* type b (Hib) vaccine marketed as PedvaxHIB (monovalent Hib vaccine) and Comvax (Hib-HepB vaccine) and manufactured by Merck & Co., Inc., were recalled voluntarily. The company temporarily suspended production of these vaccines. To conserve the limited supply of Hib-containing vaccines, we recommended that vaccination providers temporarily defer the routine Hib vaccine booster dose administered to most healthy children at age 12--15 months. Production of Merck Hib vaccine products is still suspended. However, beginning in July 2009, Sanofi Pasteur is increasing its production and distribution of monovalent Hib vaccine (ActHIB) and DTaP-IPV/Hib (Pentacel). This will result in the supply being sufficient to reinstate the Hib vaccine booster dose. Although supply is sufficient to reinstate the booster dose and begin catch-up vaccination, the supply is not sufficient to support a systematic mass recall for all children with deferred Hib booster doses.

Recommendations
Infants should continue to receive the primary Hib vaccine series at ages 2, 4, and 6 months. Children aged 12–15 months should receive the booster dose on time. Older children for whom the booster dose was deferred should receive their Hib booster dose at the next routinely scheduled visit or medical encounter.

Use of Combination Vaccines
Children who need the Hib booster and who already have received 4

doses of DTaP should receive monovalent Hib vaccine (ActHIB) as their Hib booster dose. However, if DTaP-IPV/Hib is the only Hib-containing vaccine available, this combination product can be used to complete the series of Hib vaccination, even if the child already has received all the necessary doses of DTaP and IPV. Providers using DTaP-IPV/Hib (Pentacel) vaccine should monitor their monovalent HepB vaccine to ensure adequate supply is available to complete the HepB vaccine series.

Adapted from: Updated Recommendations for Use of Haemophilus influenzae Type b (Hib) Vaccine: Reinstatement of the Booster Dose at Ages 12--15 Months (CDC); http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5824a5.htm

Updated Rabies Immunoprophylaxis Guidelines Summary

Summary

Four post-exposure doses of rabies vaccine administered on days 0, 3, 7, and 14 (in combination with use of rabies immune globulin on day 0) is now considered adequate for post-exposure immunoprophylaxis in the management of confirmed or possible rabies exposures. Other recommendations with respect to pre- and post-exposure prophylaxis remain unchanged.

Background

In a June 24, 2009, meeting, CDC's Advisory Council on Immunization Practices (ACIP) reviewed data on and approved new recommendations for post-exposure prophylaxis (PEP) of previously unvaccinated persons in the prevention of rabies in humans. The recommendation will change the number of rabies vaccine doses from five to a total of four (days 0, 3, 7 and 14). Immunocompromised patients should receive the full five-dose course previously recommended (days 0, 3, 7, 14, and 28). Post-vaccination testing in the setting of PEP is not routinely warranted, but should be conducted in immunocompromised individuals, as well as among those rare individuals at increased risk for ongoing exposure.

Source: http://www.cdc.gov/vaccines/recs/provisional/downloads/rabies-July2009-508.pdf. The 2008 ACIP recommendations for the prevention of human rabies are otherwise unchanged, and are available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr57e507a1.htm

Additional Considerations regarding Rabies PEP

While this change addresses some of the financial and logistic burden of rabies post-exposure prophylaxis, it does not update the more troublesome aspect of clinical decision making in settings where rabies exposure is highly unlikely but not definitively excluded (e.g., dogs not available for observation, bats not available for testing following a non-contact indoor sighting). The following information may be of assistance to clinicians facing such dilemmas.

Laboratory-confirmed dog rabies has not been demonstrated in Washington State for many decades. No positive results have been obtained from the approximately 1,700 dogs tested by the Washington State Public Health Laboratories since 1988. In 1987, a Pierce County dog yielded a positive result after a bat exposure; however, this case could not be confirmed upon further testing by CDC.

Terrestrial rabies is rarely detected in Washington State, but it does occur. Three laboratory-confirmed cases have occurred in Washington State in the current era: a cat (Walla Walla County 2002), a llama (bat variant, King County, 1994), and a horse (Franklin County, 1992). On the other hand, Washington's rabies surveillance system is passive and considered relatively un-robust. Based upon findings from other states where institution of active rabies surveillance among terrestrial animalshas yielded findings of previously undetected sylvatic rabies reservoirs, some experts suspect that Washington may also have occult reservoirs of rabies in terrestrial animals. Consequently, YHD recommends that clinicians exercise caution in conducting risk assessments for rabies exposures by terrestrial animals. The exceedingly low probability of exposure from terrestrial animals, even in unprovoked attacks, must be balanced with prudent risk management and individual patient preferences regarding both the avoidance of rabies, as well as cost and potential adverse effects of immunoprophylaxis. CDC estimates that several hundred million dollars in PEP-related materials and services must be expended for each case of dog-bite victim rabies that would be prevented in settings where the biting dog cannot be located for observation or testing.

The main vector of rabies in Washington State (and the rest of the United States) is the bat. Both human rabies cases detected in Washington in the current era (1995, 1997) were due to bat-associated strains. About 5-10% of tested bats in Washington State are positive for rabies. Prior to those two human cases, the last cases of human rabies in Washington State occurred in the 1930s. When any physical contact with a bat occurs, the bat (if available) should be placed in a jar and put in the freezer until testing can be arranged. If the test is positive for rabies or if the bat is not available for testing, PEP is indicated. CDC also recommends PEP for situations in which a person awakes to find a bat in the room (or finds a bat in the room of a sleeping child) and the bat is not available for testing. However, a recent cost analysis of this scenario determined that "The incidence of human rabies due to bedroom bat exposure without recognized contact was 1 case per 2.7 billion person-years. The number needed to treat to prevent a single case of human rabies in that context ranges from 314,000 to 2.7 million persons. A total of 293 to 2500 health care professionals working full-time for a full year would be required to prevent a single human case of bat rabies due to bedroom exposure without recognized contact. Amounts of $228 million to $2.0 billion (Canadian) are additionally required for associated material costs." Source: G De Serres, et. al. Bats in the bedroom, bats in the belfry: reanalysis of the rationale for rabies postexposure prophylaxis. Clin Infect Dis 2009;48(11):1493-9.

Despite these impressive and troubling results, ACIP has made no recommendations to cease recommending PEP in these contexts.

YHD remains available to consult on immunoprophylaxis decisions, but the final determination is a patient- and clinician-based decision based upon an individualized assessment of the risks, benefits, and costs involved. YHD recommends that clinicians routinely involve patients in these decisions.

For information on obtaining rabies immune globulin and rabies vaccine call the YHD communicable disease reporting lin at 249-6541. Please note that rabies PEP is neither provided nor subsidized by YHD. Responsibility for acquisition, administration, and financing of rabies PEP is left to the patient and the clinician.

YHD Now On Twitter and Facebook!

You can now follow YHD in 3 different places on Twitter. Go to www.twitter.com and search for:

- yhd_food – to get the latest food recalls and health issues.
- yakimahealth – to get the latest general public health updates for Yakima County. (includes updates on Swine Flu)
- yhd_wnv – to get the latest on West Nile Virus activity in Yakima County and around the state.

The YHD Facebook page shares information about YHD and public health partner programs and allows users to ask questions!

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*, MS, RS, Environmental Health Director*
Wendy Doescher*, Region 2 AIDSNET Coordinator*
Denny Flodin-Hursh, RN, *Public Health Nurse*
Lela Hansen, RN, *Tuberculosis Consultant*
Jessica Brown, BS, CHES*, Assessment Specialist*
Laura Charters, BS, *Environmental Health Specialist*
Tess White, RN, *Immunization Consultant*

	Cases			Total Cases by Year	
Condition *(includes confirmed and probable cases)*	**Jan-June**	**Jan-June**	**Jan-June**	**Total Cases by Year**	**Total Cases by Year**
	2009	**2008**	**2007**	**2008**	**2007**
Campylobacteriosis	36	48	73	120	124
Cryptosporidiosis	1	1	7	7	19
Enterohemorrhagic E. coli	7	4	3	11	5
Giardiasis	12	13	21	22	47
Salmonellosis	20	24	15	49	34
Shigellosis	2	2	8	8	26
Hepatitis A acute	2	1	0	2	0
Hepatitis B acute	1	1	1	2	1
Hepatitis B chronic	4	5	4	9	12
Hepatitis C acute	1	0	1	0	1
Hepatitis C chronic	74	77	106	183	228
Meningococcal	0	1	1	1	2
Pertussis	22	8	14	29	37
Tuberculosis	4	8	7	10	12
HIV New	4	5	14	9	10
HIV Deaths	4	3	1	6	1
HIV Cumulative Living	158	157	148	159	142
Chlamydia	575	593	559	1163	1168
Genital Herpes—Initial	23	39	24	65	46
Gonorrhea	16	55	61	86	119
Primary and Secondary Syphilis	2	1	0	1	0

Notifiable Conditions Summary Jan– June, 2009