



Yakima Health District BULLETIN

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Update on 2009 H1N1

Given the widespread impact of Novel 2009 H1N1 across the globe this year, this update provides some perspective on some of the remote context of influenza in the U.S. and more recent reporting from the region.

plagued by delays. Aggressive containment efforts confined the newly discovered Swine origin, H1N1 strain of Influenza A at the base and resulted in only one fatality despite one dozen or so soldiers becoming severely ill. The vaccination effort from that period was stymied by a greater than expected incidence of Guillain-Barre Syndrome in vaccine recipients. This episode prompted vaccine development to involve rigorous scrutiny from molecular sequencing and immunologic evaluation in the human hosts. Clinical trials have become the cornerstone to assessing and measuring both vaccine efficacy and safety.

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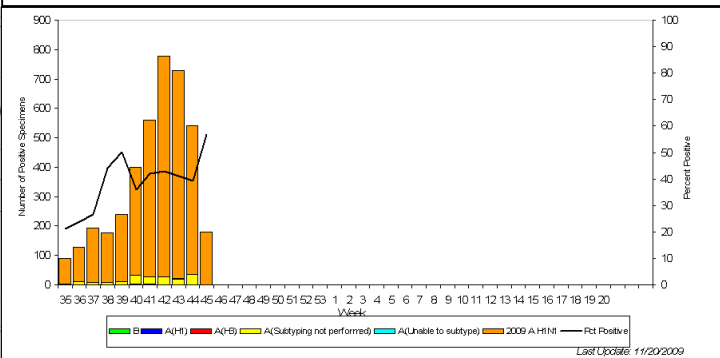
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Background

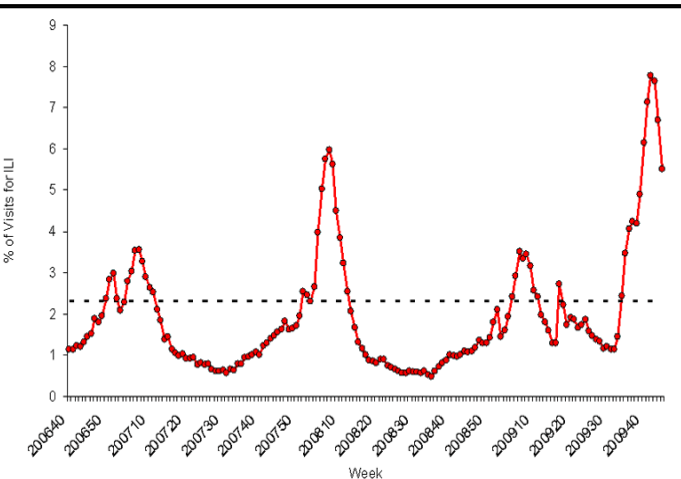
The history of influenza from a global perspective is a dramatic one. In 1918, a circulating strain subtype H1N1 of Influenza A affected approximately one third of the world's population. There were upwards of 500,000 deaths in the U.S. alone with a case mortality of 2.5%. The 1918 virus is the likely ancestor of all four of the human and swine influenza lineages that we now see today. Approximately forty years later, 70,000 deaths were attributed to a re-assorted "Asian" H2N2. Ten years later, in 1968, the "Hong Kong" flu, H3N2 killed close to one million. Those born after 1918 and prior to the late 1950s are thought to have gained some potential protective immunity from the circulating strains of the virus.

The current egg-based technology for producing influenza vaccine was created in the 1950s. In the wave of concentrated influenza cases in 1976 on a military base in Fort Dix, New Jersey, President Gerald Ford was confronted with another potential influenza pandemic. The vaccination program was rushed, yet

INFLUENZA ISOLATES FROM HHS REGION 10
Reported By WHO/NREVSS Collaborating Laboratories
2009 - 2010 Season



Percentage of Visits for Influenza-like Illness (ILI) Reported by the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), National Summary 2008-2009 and Previous Two Seasons (Posted November 20, 2009, 2:30 PM ET, for Week Ending November 14, 2009)



Epidemiology

Since first recognized and reported in April 2009, Novel 2009 H1N1 continues to beckon clinician and public health attention at both local and state-wide levels. The beginning or middle of "flu season" for this year remains hard to characterize, given the ongoing upswing of reported cases of influenza-like illness (ILI) since the early summer.

The Pan-American Health Organization (PAHO) held a meeting in mid-October in Washington, D.C. to discuss and address global and local responses to this pandemic. The number of cases is smaller and overall fatality of Novel

2009 H1N1 lower than seasonal influenza with 35,000-40,000 deaths per year on average with seasonal flu versus 4,735 deaths reported to the WHO as of October 11, 2009. Despite this, severity of illness is dramatic with Novel 2009 H1N1 with populations of generally young healthy individuals often sustaining the greatest pulmonary complications. Experts agree that the risk of severe or fatal illness is highest in three groups: pregnant women, children younger than 2 years of age, and people with chronic lung disease, including asthma. These groups are also the targets of first line vaccination efforts for Novel 2009 H1N1.

The Centers for Disease Control and Prevention (CDC) remains vigilant and prompt in their daily surveillance of the pandemic. Particular populations remain at risk for infectious complications.

Since April 2009, CDC has received reports of 156 laboratory-confirmed pediatric Novel 2009 H1N1 deaths across the U.S. including 35 who died the week ending November 7, the most recent week for which numbers were available. A considerable number of deaths occurring in the pediatric population are occurring in early adolescence. According to Anne Schuchat, the CDC's director of National Center for Immunization and Respiratory Diseases, as of October 2009, about half of the deaths in children between the beginning of September and into October 2009 were in patients ages 12 to 17.

In the Pacific Northwest, there is mounting evidence that influenza has affected most parts of the state. As of September 18, 2009, Washington's Department of Health (DOH) issued an emergency mandate requiring all healthcare providers to report influenza cases, ILI and including all deceased cases from either influenza or ILI to their local health jurisdictions. Reporting from April 25, 2009 through November 7, 2009 revealed 44 fatalities in the state of Washington with three from Yakima County during this time period. Despite earlier evidence in the summer and fall of greater activity in the eastern part of the state, of the 191 hospitalized and fatal cases reported during November 1-7 (week 44), 68 reside east and 123 reside west of the Cascade Mountains.

Reassuringly, there is some evidence, though preliminary, that influenza activity may be on the decline. Since the last week of October to the first week of November, the number of hospitalized and fatal cases presumed or confirmed due to Novel 2009 H1N1 reported to DOH decreased slightly, from 202 cases to 191 cases reported per week.

Vaccination

As of early November, most counties in Washington, have concentrated vaccination efforts to those individuals in high priority groups including healthcare providers, pregnant women, household contacts and caregivers of children under 6 months of age, children and young adults (6 months through 24 years of age) and those over age 24 who have certain chronic medical conditions.

Updates on Treatment

A considerable proportion of hospitalized individuals suffering with influenza or ILI who are deemed eligible for therapy are critically ill and often on some form of respiratory support. Treatment options for probable influenza A strain included, until very recently, only two options within the class of neuraminidase inhibitors: an oral medicine (oseltamivir or Tamiflu) or an inhaled therapy (zanamivir or Relenza). These options require that the patient have a functioning gastrointestinal system, and in the case of oseltamivir

inhalation therapy with, many health professionals argue, a somewhat complicated inhalation device (Rotadisk). On October 23, 2009, the U.S. Food and Drug Administration (FDA), in response to a request by the CDC, authorized emergency use of a new therapy within the neuraminidase inhibitor family, intravenous peramivir. This treatment allows clinicians the opportunity to treat presumed or probable 2009 H1N1 influenza in patients who are either not responding or possibly not absorbing either the oral or inhaled therapy. Physicians can also exercise clinical judgment on a case-by-case basis and request peramivir for patients whom they anticipate would benefit from intravenous therapy.

Treatment Challenges

Almost all of the influenza viruses identified in current circulation are Novel 2009 H1N1 influenza A viruses. For the most part, influenza A subtypes including Novel 2009 H1N1 influenza can be treated with either oseltamivir or zanamivir. Of significant concern, however, are reports from the University of Washington and the CDC of the emergence of oseltamivir-resistant 2009 H1N1 viruses. These cases have typically been among persons who develop illness while receiving oseltamivir for chemoprophylaxis or immunocompromised patients with influenza who were being treated. **Of note, these resistant strains of virus are not expected to respond to intravenous peramivir, since this antiviral is also within the class of neuraminidase inhibitors.** These findings and concerns, underscore the importance of careful and limited use of antiviral medications for chemoprophylaxis and the need for persons taking antiviral medications to continue to follow recommendations for hand and respiratory hygiene to prevent the spread of antiviral resistant viruses.

Prevention

This pandemic as well as the prior ones are robust reminders in the most basic means for preventing spread of infectious diseases. Take everyday actions to stay healthy:

- Stay home from work or school if you are feeling sick
- Cover your nose and mouth when you cough, sneeze or blow your nose
- Wash your hands often with soap and water or alcohol-based hand liquid gel

Resources

- NEJM Volume 352:1839-1842 May 5, 2005 Number 18 article Preparing for the Next Pandemic by Michael T. Osterholm
- <http://www.cdc.gov/flu/weekly/regions2009-2010/whoreg10.htm>
- <http://www.cdc.gov/h1n1flu/updates/us/#totalcases>

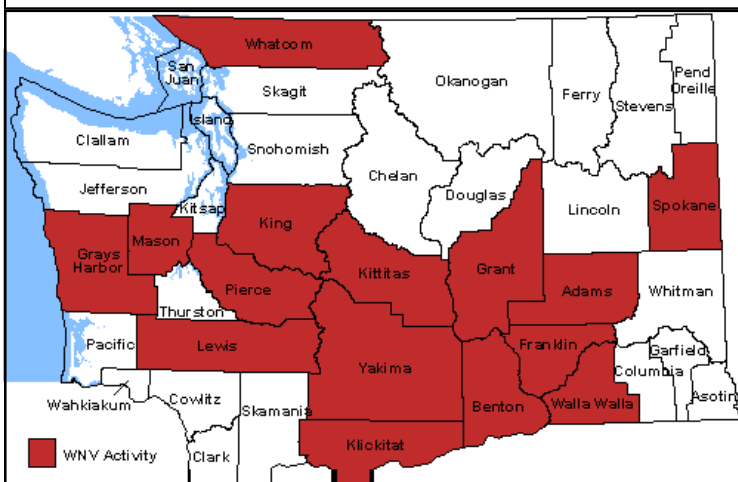
West Nile Virus Update

Epidemiology

One year ago, in October of 2008, a 50 years old woman became Yakima County's first confirmed human case of West Nile virus (WNV). Approximately one year later, in mid-September, the state of Washington experienced its first fatality from the WNV in a resident from Sunnyside. This 71 years old woman had traveled between Washington and Colorado and succumbed to critical illness, including enduring neurological symptoms and sequelae from the more severe form of disease.

It is useful to assess the trends of WNV over the past four years. The spread of WNV across the state has occurred dramatically. The efforts of YHD's departments of Environmental Health and Communicable Diseases have allowed for rigorous scrutiny of the patterns of bird, horse and mosquito infections and the resultant anticipation of transmission and disease in human hosts. Yakima County became the first county in the state to confirm virus in animal and insect hosts back in 2005. Human cases were first recognized in 2008 and there was a tenfold increase in cases between that year and 2009. According to the Washington Department of Health as of October 23, 2009 341 mosquito samples, 68 horses, 22 birds and 34 cases of humans have tested positive for WNV. The vast majority of human cases, 20, have occurred among residents from Yakima County.

*West Nile Virus Activity 2009,
Washington State Department of Health*



Clinical Challenges

As discussed in the last YHD Bulletin from July 2009, treatment of less severe manifestations of infection, including West Nile Fever is largely supportive, including hospitalization with close monitoring and intravenous fluids. Unfortunately, management is the same for the 1% or so of individuals that develop neuroinvasive disease, West Nile meningitis/encephalitis. There is, to date, no particular antiviral treatment available for WNV. Complications from this level of infection are often quite morbid and include profound weakness, paralysis, seizures, coma and, in upwards of 15% death.

Washington has the sixth highest number of WNV cases in the country. Interestingly, according to the Centers for Disease Control (CDC), the majority of the cases, 21 out of 34, manifest as meningitis/encephalitis. Well acknowledged by the CDC, there certainly is a significant potential for reporting bias with more severe cases, given that individuals with minor symptoms may neither present for medical care nor be aggressively worked up and reported to public health authorities.

Prevention

Measures to prevent human exposure to potentially infected mosquitoes remain the cornerstone to prevention of WNV:

- When outdoors, use insect repellent containing an EPA-registered active ingredient.

- Wear long sleeves and pants at these times or consider staying indoors at dusk and dawn
- Ensure adequacy of screens on your windows and doors to keep mosquitoes out
- Get rid of mosquito breeding sites by emptying standing water from flower pots, buckets and barrels. Change the water in pet dishes and replace the water in bird baths weekly. Drill holes in tire swings so water drains out. Keep children's wading pools empty and on their sides when they aren't being used.

Surveillance at the federal level by the CDC, occurs annually between January 1 and December 31. This level of continuous monitoring is certainly warranted in some geographic areas of the country, including parts of Texas and California, the two states with the greatest number of human cases of WNV in the country. In Washington, however, as cooler temperature months set in, residents can expect a reprieve from worries surrounding WNV transmission and infection. Surveillance, incidence and reporting are expected to decline during the late Fall and Winter months.

Resources:

- <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Surveillance08.html>
- <http://www.doh.wa.gov/ehp/ts/Zoo/WNV/Surveillance09.html>
- <http://www.cdc.gov/ncidod/dvbid/westnile>
- http://www.cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm

Influenza Resources

There are many resources available for healthcare providers and the general public regarding influenza, both seasonal and Novel 2009 H1N1. The Yakima Health District's website is updated daily to include the most up-to-date information on influenza. Specific information includes:

- Information on flu vaccine clinics for both Novel 2009 H1N1 and seasonal influenza.
- CDC recommendations for healthcare providers, businesses, parents and schools.
- Brochures, posters, and fact sheets.

YHD has also set up a phone line for the community to call with questions regarding Novel 2009 H1N1:

- English: 509-249-6533
- Spanish: 509-249-6511

When community members call these numbers, a recorded message with the latest Novel 2009 H1N1 information is played. At the end of the message, callers are provided a phone number that will connect them with a YHD staff person who can assist them with any further questions that were not answered on the recording.

During this busy flu season, please do not hesitate to direct clients to our website and/or phone lines for general questions and concerns. Thank you for all your hard work!

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>

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Notifiable Conditions Summary Jan– Oct, 2009

Condition (includes confirmed and probable cases)	Cases			Total Cases by Year	
	Jan-Oct	Jan-Oct	Jan-Oct	Total Cases by Year	Total Cases by Year
	2009	2008	2007	2008	2007
Campylobacteriosis	80	104	109	120	124
Cryptosporidiosis	2	5	16	7	19
Enterohemorrhagic E. coli	9	10	5	11	5
Giardiasis	26	27	38	22	47
Salmonellosis	34	40	27	49	34
Shigellosis	5	9	20	8	26
Hepatitis A acute	3	1	0	2	0
Hepatitis B acute	2	1	1	2	1
Hepatitis B chronic	5	7	9	9	12
Hepatitis C acute	1	0	1	0	1
Hepatitis C chronic	150	149	192	183	228
Meningococcal	2	1	2	1	2
Pertussis	38	21	26	29	37
Tuberculosis	5	10	12	10	12
HIV New	13	9	8	9	10
HIV Deaths	4	3	0	6	1
HIV Cumulative Living	172	162	151	159	142
Chlamydia	959	995	999	1163	1168
Genital Herpes—Initial	47	60	38	65	46
Gonorrhea	33	78	103	86	119
Primary and Secondary Syphilis	2	1	0	1	0