Yakima Health District
BULLETIN

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PERTUSSIS PERSISTS

With over 130 cases reported this year to date, Yakima County continues to experience pertussis transmission at a rate comparable to or in excess of other counties in the state. The incidence rate in 2004 in Washington State was over twice the national rate. The annualized case rate observed thus far this year in Yakima County is approximately **87 per 100,000 residents** compared to 29 cases per 100,000 residents during 2004**.** To prevent pertussis, YHD continues its long-standing efforts toward coordinating low-cost/low-barrier childhood immunization through primary care providers. In addition, considerable staff time at YHD goes into investigating cases, providing consultation and education to clinicians, and ensuring appropriate follow-up and chemoprophylaxis of close contacts (over 850 to date in 2005). Nevertheless, consistent with historical observations here and elsewhere, cyclic outbreaks continue to occur every several years (Figure 1, see page 2).

Our current situation with pertussis appears to be disproportionately affecting the lower Yakima Valley. From January through July, Yakima Valley Farmworkers Clinic in Toppenish reported 36% of cases. During August, cases have increased in Sunnyside and Grandview. Whether or not some of this regional concentration may reflect surveillance artifact (i.e., better provider awareness, laboratory testing, and case reporting), the problem appears to at least be well documented here. Three infants have required transfer to Children's Hospital and Regional Medical Center in Seattle for care; one developed encephalopathy and none died.

Approximately 20% of cases have occurred in unvaccinated or incompletely vaccinated infants (Figure 2). The majority of cases occur among adolescents and young adults in whom vaccine-derived immunity has waned. Recently two pertussis booster products, Boostrix and Adacel (Table 1), have been approved by the Food and Drug Administration. These vaccines provide one-month post-dose increases in anti-epitope titres that are comparable-to-several-fold-higher than those observed among 7-month old infants who received DTaP at 2, 4 and 6 months. These vaccines offer the likely potential to protect adolescents and adults against exposure in the face of waning antibodies with increased age. This, in turn, provides a hopeful long-term strategy for reducing the susceptible population and controlling serial transmission.

In order to be effective as a disease control measure, however, a substantial proportion of the population needs to undergo booster immunizations in order to create sufficient herd immunity to interrupt transmission. Public funding and commitment to adolescent and adult vaccination is limited and the economics and logistics of implementing booster immunization argue against any short-term impact with a program of sustainable scale. A one-time catch up vaccination program for Yakima County's estimated 35,000 10-18 year-olds would cost approximately $1.2M in vaccine alone. Thereafter, vaccine costs would be approximately 10% of that figure for annual boosting of each new cohort entering adolescence. Because an investment of this magnitude is far beyond the reach of local government, YHD is working with state immunization officials to advocate for public funding of this vaccine for adolescents and, possibly, adults.

Meanwhile, childhood immunization, identification and treatment of cases and close contacts, respiratory etiquette, and good handwashing remain our available tools for controlling pertussis. If you have a case to report or would like to obtain more information on pertussis, please call YHD's Communicable Disease Control Program at (509) 249-6541.

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Figure 1. Pertussis Cases, Yakima County 1994-2005

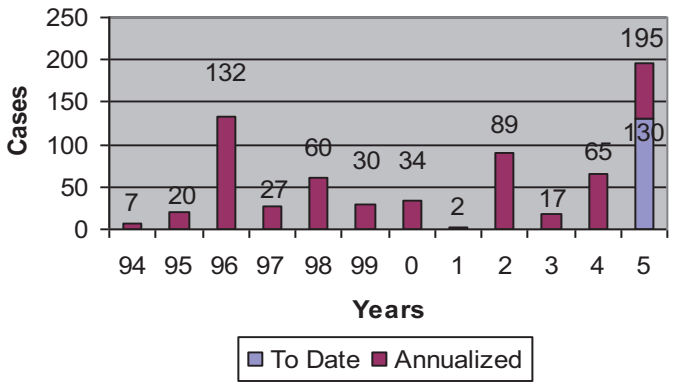

Figure 2. Pertussis Cases by Age Yakima County, Jan-Aug 2005

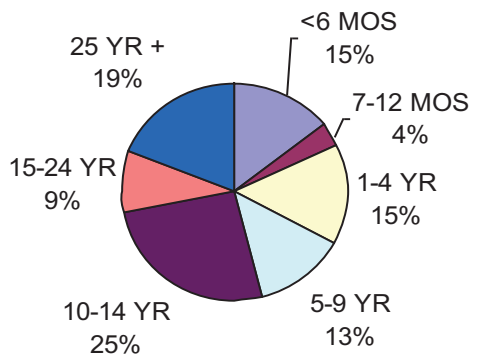

Table 1. Pertussis Booster Products

Feature or component	Boostrix (GlaxoSmithK)	Adacel (Aventis)
Pertussis toxin	8.0	2.5 mcg
FHA	8.0	5.0 mcg
Pertactin	2.5	3.0 mcg
Fimbriae 2&3	--	5.0 mcg
T toxoid	5.0 Lf	5.0 Lf
d toxoid	2.5 Lf	2.0 Lf
Ages	**10-18**	**11-64 years**
Wholesale Cost	**$33/dose**	**$33.75/dose**

Influenza Prevention and Control

The Centers for Disease Prevention and Control has released its updated 2005 guidelines for influenza prevention and control. On average during 1990-99, influenza killed approximately 36,000 people in the United States. Efficacy of immunization in preventing culture-confirmed and influenza-like illness varies according to the age and health status of vaccinees (30-90%), but it has clearly been shown to reduce deaths, hospitalizations, and interruption of essential community services. Only two-thirds of persons >65 years with medical risk factors for severe illness or complications are vaccinated annually, and fewer than one-third of younger people with such conditions are vaccinated. Complicating efforts to improve these low coverage rates is the fact that vaccine supply and distribution has been in some degree of disarray during three of the past five annual immunization campaigns. Current information suggests that about 100 million doses of inactivated vaccine and 3 million doses of live attenuated vaccine will be available for the 2005-06 season. However, given the uncertainties in doses and distribution based on recent years' experience, CDC recommends that only high risk patients receive inactivated vaccine prior to October 24, 2005 (see list below). *Immunization among healthy children and adults ages 2-64 years should be deferred pending updated information regarding vaccine availability at the end of October.*

The 2005-06 trivalent vaccine virus strains are A/California/7/2004 (H3N2)-like, A/New Caledonia/20/99 (H1N1)-like, and B/Shanghai/361/2002-like antigens. For the A/California/7/2004 (H3N2)-like antigen, manufacturers may use the antigenically equivalent A/New York/55/2004 virus, and for the B/Shanghai/361/2002-like antigen, manufacturers may use the antigenically equivalent B/Jilin/20/2003 virus or B/Jiangsu/10/2003 virus (see Influenza Vaccine Composition).

YHD continues to advocate for the personal health and community-wide benefits to be derived from immunizing the following groups against influenza, beginning when supplies become available this fall:

- persons aged ≥65 years;
- residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions;
- adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including asthma (hypertension is not considered a high-risk condition);
- adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by HIV);
- adults and children who have any condition (e.g., cognitive dysfunction, spinal cord injuries, seizure disorders, or other neuromuscular disorders) that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration;

- children and adolescents (aged 6 months-18 years) who are receiving long-term aspirin therapy and, therefore, might be at risk for experiencing Reye syndrome after influenza infection;
- women who will be pregnant during the influenza season;
- children aged 6-23 months;
- persons who can transmit influenza to those at high risk;
- health-care workers

defer vaccination pending updates on vaccine availability for:

- other essential public service providers ,and
- other persons aged 50-64 years

Use of both available vaccines (inactivated and live attenuated influenza vaccine-LAIV) is encouraged for eligible persons every influenza season, especially persons in recommended target groups. During periods when inactivated vaccine is in short supply, use of LAIV is especially encouraged when feasible for eligible persons (including health-care workers) because use of LAIV by these persons might considerably increase availability of inactivated vaccine for persons in groups at high risk. *Remember that use of LAIV does need to be restricted to healthy persons 5-49 years of age who are NOT close contacts or care providers of immunocompromised persons requiring protective environments.*

Antivirals

Amantadine, rimantidine, zanamivir and oseltemavir are all useful anti-influenza agents for treatment of disease when started early in the course of illness (e.g., <24-48 hours after onset). All but zanamivir are approved for chemoprophylaxis, as well. Chemoprophylaxis is most commonly used among high risk persons who live in congregate settings where an influenza outbreak is occurring, who are vaccinated while influenza is already circulating in the community, or for whom vaccination is contraindicated. The neuraminidase inhibitors (oseltamavir and zanamivir) offer advantages over amantadine and rimantadine in that they are active against influenza B, appear to be better tolerated, provide comparable efficacy against influenza A, and appear less likely to induce rapid resistance (which commonly emerges in infected patients receiving amantadine after 5-7 days).

For comprehensive prescribing guidelines on these agents, consult CDC's Influenza Antiviral Guidelines Table (on our website at http://www.co.yakima.wa.us/health/commhealth/immflutable.htm).

Laboratory Testing and Respiratory Diseases Surveillance

Public health surveillance for influenza includes a major laboratory component for identifying when and which types of influenza are circulating in the community. This function is largely conducted by the Washington State Department of Health Public Health Laboratory, with reference laboratory assistance from CDC, using viral culture and antigen detection techniques. The majority of specimens for influenza testing, however, are handled on-site or through private reference laboratories. Reliable, *rapid* on-site test kits for detecting influenza are also available and encouraged for use wherever feasible. YHD will continue its efforts to maintain voluntary laboratory reporting of specimen submissions and positive results for influenza and respiratory syncitial virus through sentinel providers in the county. Findings will be posted on our website at : http://www.yakimapublichealth.org.

PANDEMIC INFLUENZA PLANNING

While extensive local planning for an influenza pandemic is beyond the scope of YHD's communicable disease control resources, we remain a partner with regional, state, and federal agencies which are leading these efforts. The expanding zone of Asia affected by influenza H5N1, episodes of occasional human-to-human transmission of H5N1, and the proximity of billions of humans to billions of poultry and pigs for antigenic recombination events affording greater transmissibility all raise concern that this strain (or another strain under similar circumstances) may bring on an influenza pandemic comparable in magnitude and severity to that of 1918. While there is no cause for panic, our state and national public health leadership are trying to prepare for such an event. Key challenges to address in such a scenario would include:

- ensuring vaccine production, distribution, and prioritization
- ensuring adequate vaccination supplies (syringes, etc.)
- ensuring adequate antiviral production, stockpiling, allocation, and distribution
- stockpiling and distributing antibiotics for treatment of secondary infections
- maintaining adequate laboratory services
- maintaining an adequate and healthy medical workforce
- maintaining essential community services
- instituting isolation, quarantine, and other restrictions when appropriate
- dealing with large numbers of dead bodies
- mitigating secondary impacts on food supply and commerce

A key in long-term prevention and control of year-to-year influenza morbidity, pandemics, and vaccine shortages is the movement from egg- to cell culture- based vaccine production, ideally targeting stable antigenic epitopes, and developing surge capacity for vaccine production.

Obviously, this is a tremendous challenge on a global scale. YHD looks forward to working with our state partners for leadership and guidance and working to keep you informed and involved as this agenda moves forward. Meanwhile, for more information on influenza control and prevention see the references listed below.

CDC. Influenza Prevention and Control. MMWR 2005;54(RR-08):1-40. http://www.cdc.gov/ncidod/EID/vol9no12/03-0289.htm

Osterholm MT. Preparing for the next pandemic. NEJM 2005; 352(18):1839-42. http://content.nejm.org/cgi/content/full/352/18/1839

http://healthlinks.washington.edu/nwcphp/htip/20041021/

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Notifiable Conditions Summary May-July, 2005

Condition	Cases May-July			Year-to-date January-July		Total Cases by Year	
	2005	2004	2003	2005	2004	2004	2003
Campylobacteriosis	36	32	45	54	66	103	116
Cryptosporidiosis	2	0	0	2	1	2	3
Enterohemorrhagic E. coli	1	1	1	1	2	3	4
Giardiasis	6	14	8	12	20	31	29
Salmonellosis	20	12	11	34	21	36	55
Shigellosis	1	3	3	5	5	7	20
Hepatitis A acute	0	1	0	1	2	2	1
Hepatitis B acute	1	1	0	1	3	4	0
Hepatitis B chronic	3	6	7	8	11	22	22
Hepatitis C acute	1	0	1	1	2	2	2
Hepatitis C chronic	48	54	72	130	123	218	254
Meningococcal	0	0	0	0	1	3	4
Pertussis	62	1	0	97	24	65	17
HIV New	Not Available at time of publication					13	13
HIV Deaths						0	1
HIV Cumulative Living						134	122
Chlamydia	227	240	237	556	546	1002	953
Genital Herpes—Initial	27	33	23	54	50	125	82
Gonorrhea	38	55	36	81	58	198	107
Primary and Secondary Syphilis	0	0	1	0	2	0	2