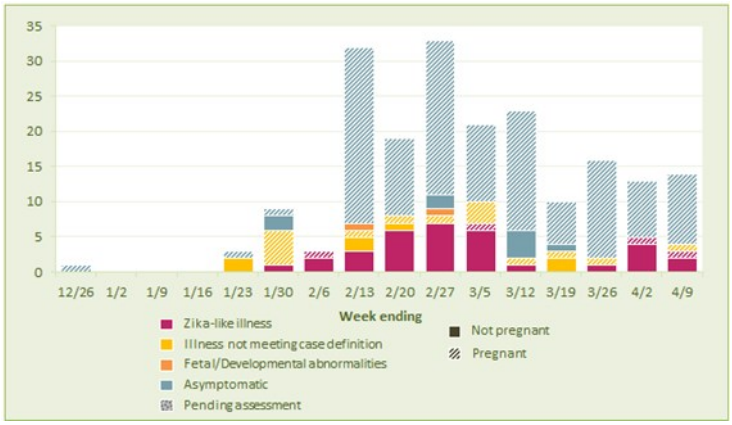
The Communicable Disease Epidemiology & Immunization **Quarterly**

Make Sure Your Pregnant Patients Are Informed About Zika Virus

Zika virus poses a serious health threat to pregnant women and newborns, and yet many people in U.S. households where someone is pregnant or planning to become pregnant in the next year are misinformed about some of the key facts related to the disease, according to a Harvard T.H. Chan School of Public Health poll. Though there is increasing evidence linking Zika infection to microcephaly in newborns, nearly 25% of U.S. households where someone is pregnant or considering getting pregnant were unaware of this association and over 40% were unaware that Zika can be sexually transmitted.



It is important to ask all pregnant patients, those planning to become pregnant, and their partners at every visit about recent travel as well as upcoming travel plans. Male patients with travel to Zika-affected countries should be counseled regarding steps to prevent sexual transmission of infection to pregnant women. Advise all patients on how to minimize their risk of infection, including avoidance of travel to Zika affected areas, mosquito bite prevention, and appropriate sexual contact counseling. CDC has released updated guidelines for health care providers caring for women of reproductive age with possible Zika virus exposure and guidelines for prevention of sexual transmission of Zika.

Though Zika is not circulating in the U.S. at this time, Zika is spreading in Puerto Rico, American Samoa, and the U.S. Virgin Islands. As mosquito season starts in states where the *Aedes* mosquito lives, it's possible for Zika to spread in those areas. However, even if individual cases of local transmission occur in mainland U.S., widespread or sustained transmission is unlikely. At the time of any travel, pregnant women and their partners should be advised to check on the status of Zika both in the United States and internationally by visiting the CDC's Areas with Zika website, talk with their healthcare provider, and avoid travel to areas where Zika transmission is active. Because Zika is NOT circulating in the U.S. at this time, the CDC does not have any advisories for travelers to mainland U.S. states.

To date, Public Health has received nearly 200 inquiries from local health care providers about possible Zika infection among travelers to affected areas (see graph on this page). The majority of reports have been to request testing for exposed asymptomatic pregnant women. Public Health epidemiologists are available 24/7 to help determine whether testing is indicated and facilitate specimen submission to CDC. Report possible cases by calling (206) 296.4774.

Our Public Health website highlights the most relevant information from CDC for patients and providers and includes links to the recent local health advisories that we have sent out related to Zika virus.

Q2/16
Public Health
Seattle & King County

The Quarterly is a publication of The Communicable Disease Epidemiology & Immunization Section of Public Health.

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NEW Varicella Vaccine Requirement for School Year 2016-17

Beginning this fall, all 9th – 12th graders will be required to have two doses of the varicella vaccine before they enter school *OR* have had chickenpox in the past *OR* have had a blood test showing they are immune. Washington State implemented the two-dose requirement in 2008, starting with kindergarteners. The requirement was then applied to successive grades each year. In 2014, the WA State Board of Health made the decision to apply the two-dose requirement through the 12th grade by school year 2016-17 in order to be in compliance with national recommendations.

Background

In 2007, the Advisory Committee on Immunization Practices (ACIP) recommended that all children routinely receive two doses of varicella vaccine. The rationale for the second dose of varicella vaccine for children was to further decrease varicella disease and its complications in the United States. Despite the successes of the 1-dose vaccination program in children, vaccine effectiveness of 85% was not sufficient to prevent varicella outbreaks, which, although less than in the pre-vaccine era, had continued to occur in highly vaccinated school populations. The second dose of varicella vaccine was recommended to provide improved protection to the 15% - 20% of children who did not respond adequately to the first dose. Data from a randomized clinical trial conducted post-licensure indicated that vaccine efficacy after two doses of single-antigen varicella vaccine in children (98.3%) was significantly higher than that after a single dose (94.4%). Additionally, the risk for breakthrough disease was 3.3-fold lower among children who received two doses than it was among children who received one dose.[1]

Implementation Tips

To alleviate the "back to school" rush, consider notifying parents/guardians during the spring if their high -schoolers have not completed the two-dose varicella vaccine series. The doses need to be administered *at least* one month apart. (*Note: A three-month interval between doses is recommended for children ages one through 12 years*).

Patients with a history of varicella disease:

Physician verification of disease is required for K – 12th graders. A provider may verify varicella disease based on: 1) clinical diagnosis at the time of illness; 2) an epidemiologic link to another varicella case or laboratory-confirmed case, or 3) lab test for immunity. The provider can then document history of disease by completing "Box 2" on the Certificate of Immunization Status. Vaccination is recommended for patients whose history of disease cannot be verified.

Parent reported history of chickenpox disease is acceptable only for 9th-12th graders if *submitted before or during the 2013-14 school year*. Parents/guardians seeking an exemption for a medical or personal/philosophical reason must meet with their health care provider in order to obtain a signed Certificate of Exemption (COE). Religious exemptions do not require provider signature.

Information geared specifically for health care providers and schools on the new varicella vaccine requirements is here. *All* vaccine requirements for school year 2016-17 can be found here.

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[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5604a1.htm

2016 Recommended Immunization Schedules for Children & Adults

The Advisory Committee on Immunization Practices' (ACIP) 2016 childhood and adult recommended immunization schedules have been published by the CDC. As in previous years, ACIP recommends health care providers review schedules **in conjunction with** their corresponding footnotes when assessing vaccination recommendations for their patients.

The following updates have been made to the 2016 immunization schedule footnotes and figures for persons aged 0 through 18 years:

- The Hepatitis B (HepB) vaccine footnote was revised to more clearly present the timing for post vaccination serologic testing for infants born to hepatitis B surface antigen (HBsAg)-positive mothers. The footnote was also revised to present the new CDC recommended interval for post vaccination serologic testing in this population.
- The diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine footnote was revised to more clearly present recommendations following an inadvertently early administered 4th dose of DTaP vaccine.
- The inactivated polio vaccine (IPV) footnote was updated to provide guidance for vaccination of persons who received only OPV and received all doses before age four years.
- Meningococcal B vaccine: A "clinical discretion" category has been added for the recommendation for vaccination of non-high-risk persons aged 16 through 23 years, subject to individual clinical decision making. Meningococcal B vaccines have been added to the section recommending vaccination of persons with high-risk conditions and other persons at increased risk of disease. A definition of persistent complement deficiency has been added.
- The human papillomavirus (HPV) vaccine footnote has been updated to reflect the new HPV vaccine nomenclature. Guidance has been added for vaccination beginning at age nine years for children with a history of sexual abuse.
- In Figure 1, "Recommended Immunization Schedule for Persons Aged 0 through 18 Years", the order of the vaccines was changed to group vaccines by the recommended age of administration. The order was also changed within the footnotes.
- A purple bar was added for *Haemophilus influenzae* type b (Hib) vaccine for children aged 5–18 years, denoting the recommendation to vaccinate certain high-risk children in this age group who are unimmunized.
- A purple bar was added for human papillomavirus (HPV) vaccine for children aged 9–10 years, denoting the recommendation to vaccinate high-risk children in this age group, including children with a history of sexual abuse.
- A new row has been added for Meningococcal B vaccine. The purple bar denotes the recommendation to vaccinate certain high-risk persons aged 10 years and older and the blue bar denotes the recommendation for administration to non-high-risk groups subject to individual clinical decision making, for persons aged 16 through 23 years (the preferred age range is 16 through 18 years).
- In Figure 2, "Catch-up immunization schedule for persons aged four months through 18 years who start late or who are more than one month behind", Tdap/Td was added to the list of possible previous vaccines in the Tdap line for children aged seven years and older, dose 2 to dose 3 column.

The following updates have been made to the 2016 immunization schedule footnotes and figures for adults aged 19 years and older:

- Interval change for 13-valent pneumococcal conjugate vaccine (PCV13) followed by 23-valent pneumococcal polysaccharide vaccine (PPSV23) from "6 to 12 months" to "at least 1 year" for immunocompetent adults aged ≥65 year who do not have immunocompromising conditions, anatomical or functional asplenia, cerebrospinal fluid leak, or cochlear implants. The interval for adults aged ≥19 years with any of these conditions is at least eight weeks.

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- Serogroup B meningococcal (MenB) vaccine series should be administered to persons aged ≥10 years who are at increased risk for serogroup B meningococcal disease.
- MenB vaccine series may be administered to adolescents and young adults aged 16 through 23 years (preferred age is 16 through 18 years) to provide short-term protection against most strains of serogroup B meningococcal disease.
- Nine-valent human papillomavirus (HPV) vaccine (9vHPV) has been added to the schedule and can be used for routine vaccination of females and males against HPV.

Resources:

2016 Laminated Pocket-Sized Childhood Immunization Schedules (IACW)*

*To order laminated schedules, email orders@withinreachwa.org with your desired quantity and mailing address. The cards are provided at no cost through the generous support of the Group Health Foundation. ***Schedules are intended solely for use by health care providers.***

Immunization Schedules For Health Care Professionals (CDC)

ACIP Vaccine Recommendations (CDC)

VET NEWS!

Public Health's Zoonotic Disease Program will integrate periodic communications with The Quarterly by the end of 2016. To receive important updates from the Zoonotic Disease Program, you need to opt-in by checking the "Public health-related veterinary updates (occasional)" checkbox under Subscriber Preferences in the email you received notifying you that The Quarterly was published.

Write us at communicable@kingcounty.gov with any questions.

The Results Are In! Announcing King County's 2015 VFC Program Award Recipients

One of the potential elements of Vaccines for Children (VFC) Program compliance visits is an immunization assessment review. We download patients' immunization data (for either 24 to 35 month-olds or 13 to 18 year-olds) from the Washington Immunization Information System into CDC's software program (CoCASA) and analyze the up-to-date coverage rate for the provider office being visited. The results are then shared with clinic staff as part of the site visit. Generally, these analyses are done for providers with 50 or more children in the designated age group, for the results to be relevant.

King County site visits from 2015 are complete and we'd like to congratulate the following practices for achieving 85% or higher completion* rates for their patients ages 24 to 35 months! Each of the awardees will receive a framed Certificate of Excellence from Public Health—Seattle & King County, in recognition of their achievement!

- Children First Pediatrics in Renton
- International Community Health Services in Downtown Seattle
- The Polyclinic Pediatrics at Madison Center
- The Polyclinic at Sand Point Family Medicine
- Sea Mar Community Health Clinic at South Park
- Swedish Queen Anne Primary Care
- Swedish Snoqualmie Primary Care
- Virginia Mason at University Village

Only providers who participated in a VFC Program compliance site visit in 2015 were eligible for the award. Any provider can run an assessment report for his/her clinic site. The CoCASA software is free: http://www.cdc.gov/vaccines/programs/cocasa/index.html.

**The immunization series assessed is: 4DTaP, 3Polio, 1MMR, 3Hib, 3HepB, 1Var, 4PCV.*

A Case of Foxglove Poisoning

A previously healthy Asian female resident of Snohomish County was transported to a King County emergency department at the end of June after becoming acutely ill with severe vomiting and diarrhea. At the emergency department, the patient reported consuming smoothies that she had prepared herself for several days using what she believed to be comfrey leaves (*Symphytum officinale*, see Figure 1) from her backyard. The patient had a history of foraging leaves for use in tea and smoothies. Her husband reported that after the first smoothie made him feel dizzy, he had not consumed any with her in the following days and his symptoms had resolved.

The patient's condition rapidly deteriorated in the emergency department, where she was observed to have high blood potassium levels. The Washington Poison Center was consulted for treatment of the patient. Comfrey poisoning was considered but did not fit the patient's clinical presentation. Coincidentally, a nurse caring for this patient remembered that comfrey and foxglove (*Digitalis purpurea*, see Figure 2) can be confused. A serum digoxin concentration was also very high (55.5 ng/mL). Despite efforts to treat the patient, she expired within hours of arriving at the emergency department.

To assist in the diagnosis and treatment, the patient's family members collected botanical samples that had been discarded in the kitchen garbage and leftover liquid samples from beverages made with the foraged leaves. After the patient expired, the King County Medical Examiner's office conducted an investigation at the decedent's home. Investigators determined that the botanical samples that were collected by the patient's husband matched a foxglove specimen that was collected elsewhere.

Comfrey is used in ointments for treating swelling and skin conditions and reportedly is often taken as tea or added to smoothies for general health benefits. Although comfrey is not as poisonous as foxglove, it can damage the liver when consumed on a regular basis.

Figure 1. *Symphytum officinale*, or Comfrey. Photo source: https://commons.wikimedia.org/wiki/File:Symphytum_officinale_1a.JPG

Figure 2. *Digitalis purpurea*, or Foxglove. Photo source: https://commons.wikimedia.org/wiki/Digitalis_purpurea#/media/

Foxglove leaves can be confused with those of comfrey when not in bloom, and if ingested, can result in cardiac glycoside poisoning. **Symptoms include neurologic (confusion or disorientation, depression, drowsiness), cardiac (irregular heartbeat, low blood pressure, lethargy), gastrointestinal (loss of appetite, vomiting, nausea, diarrhea, abdominal pain) or visual abnormalities (blurred vision, halos).** Hyperkalemia is common, as are ECG changes including a number of

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dysrhythmias, especially those with ventricular ectopy and AV conduction delay. Outbreaks of foxglove leaf poisoning associated with misidentification of herbs have been reported in the scientific literature[1] and toxicity from foxglove should be considered in patients presenting with consistent clinical symptoms and a history of consuming backyard plants. The Public Health – Seattle & King County Communications team conducted outreach to local Asian communities, including provision of translated materials with photographs, to reduce the risk of misidentification and subsequent poisonings.

The Quarterly wishes to acknowledge the Snohomish Health District for permission to publish this case report.

[1] Lin CC, Yang CC, Phua DH, Deng JF, Lu LH. An outbreak of foxglove leaf poisoning. J Chin *Med Assoc.* 2010;73(2): 97-100.

From The Literature: Prevalence of HPV after Introduction of the Vaccination Program in the United States

Markowitz LE, Liu G, Hariri S, et al. Pediatrics. 2016: 137(2): e20151968

Virtually all cases of cervical cancer are caused by human papillomavirus (HPV), and just two HPV types, 16 and 18, are responsible for approximately two-thirds of them. The quadrivalent HPV vaccine (4vHPV, Gardasil by Merck) offers protection against these oncogenic strains, as well as types 6 and 11 which are responsible for 90% of genital warts. Despite HPV vaccine's proven effectiveness, immunization coverage remains low with only 60% of females age 13 to 17 in the United States initiating the three-dose vaccine series and a significantly smaller proportion (40%) completing it.[1]

This study, conducted by the National Center for Health Statistics, Centers for Disease Control and Prevention, analyzed survey data comparing the prevalence of the HPV virus in females during the pre-vaccine era (2003-2006) and four years of the vaccine era (2009-2012). *Despite modest uptake of the Gardasil vaccine, the 4vHPV type prevalence among 14 to 19 year-old females in the US declined by almost two-thirds (from 11.5 % to 4.3%) since the vaccine's introduction. A 34% decrease in prevalence of the four HPV types was noted among those aged 20 to 24 years, however the rates of HPV infection in women 25 and older were unchanged.*

Additional findings:

The greatest decline in 4vHPV type prevalence seen in 14 to 19 year-olds is consistent with the highest reported vaccine coverage in this age group. Over 51% of girls aged 14 to 19 years reported having received at least one vaccine dose, similar to data from national coverage surveys with provider-verified records.

The prevalence of HPV types 16 and 18 declined by >60% among females age 14 to 19 years, compared to a 31% decline among women age 20 to 24 years since introduction of the quadrivalent vaccine.

There were no statistically significant differences in the vaccine era compared with the pre-vaccine era in the prevalence of non-4vHPV high-risk types or the five additional 9vHPV types.

The quadrivalent vaccine was found to be highly efficacious for prevention of the 4vHPV types (89%) and there was a significant decline in prevalence among those vaccinated compared with the overall prevalence in the pre-vaccine era (18.6% to 2.1%).

Within the vaccine era, a similar percentage of vaccinated and unvaccinated females reported ≥3 lifetime sex partners.

[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6429a3.htm

Key Messages for Health Care Providers To Promote HPV Vaccination:

- ***Strongly recommend routine HPV vaccination for adolescents*:** Current research demonstrates the effectiveness of HPV vaccine in preventing HPV-associated cancers.
- ***Educate families, dispel potential misperceptions:*** There is no evidence of an association between HPV vaccination and increased sexual activity for adolescent girls. The vaccine is safe and effective against preventing HPV-related cancers.
- ***Seattle-based health care providers:*** Encourage adolescents to complete the HPV vaccine series at their school-based health center (SBHC). Public Health – Seattle & King County is partnering with SBHCs to promote awareness of HPV and to increase adolescent HPV vaccination coverage. Help your patients complete the HPV vaccine series by referring them to their school-based health center.

  Visit http://kingcounty.gov/depts/health/child-teen-health/school-health.aspx for more information about SBHC services.

2015-16 Influenza Season Summary and Vaccine Updates

In comparison to the past two influenza seasons, the 2015-2016 season has been relatively mild, with most indicators registering fairly low levels of influenza activity, similar to national patterns observed by the CDC. Laboratory data from King County Public Health Laboratory, UW Virology Laboratory, and multiple local hospital laboratories showed influenza B and influenza A 2009 (H1N1) to be the predominant circulating strains; the high proportion of influenza B infections differed from most other U.S. regions where influenza B was not a predominant circulating strain. As of April 12, 2016, twelve laboratory-confirmed influenza-associated deaths have been reported to Public Health (See Figure 1). Patients' ages ranged from 35 to 95 years (median = 66 years); 50% were over age 65 years. Less than half (42%) had evidence of recent influenza vaccination. Five (42%) were infected with influenza B and seven (58%) were infected with influenza A (5 H1N1, 2 untyped).

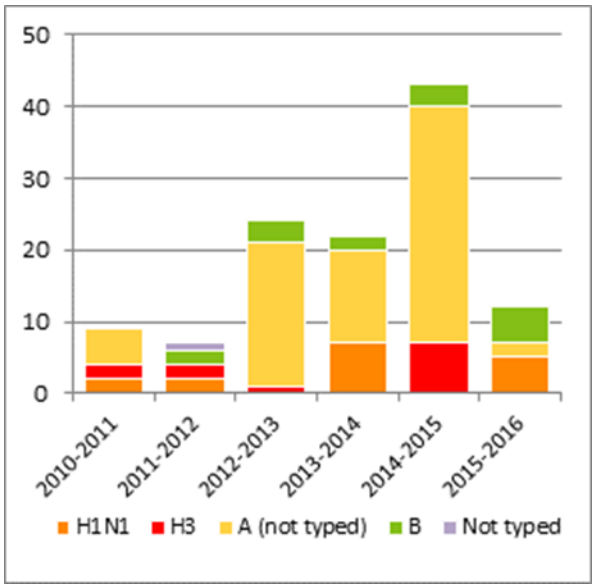

Figure 1. Laboratory-confirmed influenza deaths, by type and year.

Sixteen laboratory-confirmed influenza outbreaks in twelve King County long-term care facilities (LTCFs) have been reported this influenza season; tallies from the past five years range from six to 65 outbreaks per season (median = 21; See Figure 2). Nine outbreaks were attributable to influenza A and seven to influenza B.

Midway through the 2015-2016 influenza season, CDC reported preliminary a vaccine effectiveness estimate of 59%, which is comparable to previous seasons where the circulating flu strains were well-matched to those contained in the influenza vaccine. Effectiveness estimates ranged from 51% for influenza A (H1N1) to 76-79% for influenza B strains. Estimates are not yet available for influenza A (H3N2), or available by specific age group.

As always, you can find the latest influenza surveillance data for King County, updated weekly, on our website.

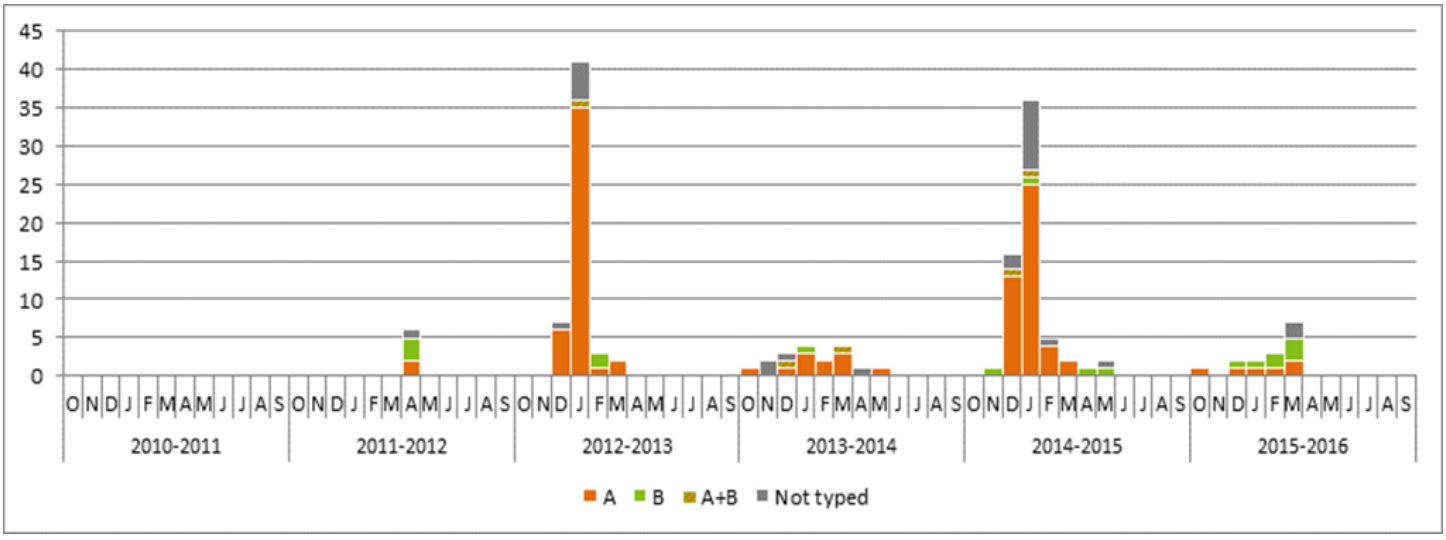

Figure 2. Reported laboratory-confirmed influenza outbreaks in LTCFs, by month of report.

The Quarterly

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TB ..... (206) 744.4579

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