

# The Quarterly

A Publication of the Communicable Disease Epidemiology & Immunization Section

## 2017-18 Flu Season Update

Pick up just about any newspaper and you're bound to find an article about how brutal this flu season is. But how is King County faring, and what does interim data suggest about flu vaccine effectiveness?

### How does the current flu season compare to recent flu seasons in King County?

The duration, peak, and severity of flu season is notoriously unpredictable, making it difficult to know if the season has peaked locally and how many weeks lie ahead. Ultimately, we will not be able to fully characterize severity until all the data for this flu season is in.

By the week ending February 24<sup>th</sup>, 2018, 26 adults had died of flu-related causes, compared to 67 by the same week last year. Twenty-six deaths are also slightly lower than the 5-year average (26.8). The number of outbreaks at long-term care facilities (LTCF) is also just below the 5-year average (42.2). Forty-one LTCFs had reported outbreaks by the week ending February 24<sup>th</sup>, compared to 87 at the same time last flu season.

Also during the week ending February 24<sup>th</sup>, the percent of visits to King County emergency departments for influenza-like illness was above baseline levels and above the five-year average for this time of year. Just under a fifth of samples submitted to local laboratories tested positive for flu – a reminder of how commonly people experience non-influenza upper respiratory infections during flu season. RSV and RHV were among the most widely circulating respiratory viruses in King County at this time.

### What does vaccine efficacy data show? Is vaccination still recommended?

[Interim estimates](#) from the CDC indicate that this year's flu vaccine cuts a person's risk of needing outpatient influenza-related medical care by about a third (36%). This relatively low overall vaccine effectiveness (VE) is due in large part to the limited protection vaccination offers against H3N2, infamously adept at [changing its genetic composition](#) between the time when the composition of the flu vaccine is recommended and when it is delivered. This year's vaccine protects against just a quarter (25%) of H3N2 strains. Though low, this estimate is more encouraging than experts had feared after reviewing VE data from [Australia](#) and early data from [Canada](#), where the vaccine was reported to protect against just 10% and 17% of H3N2 strains, respectively.

Offering optimism, CDC data suggest that vaccination provides substantially greater protection against H3N2 strains in children younger than age nine, reducing the risk for medically-attended influenza illness by 59%. Moreover, CDC estimates that the vaccine protects against 67% of influenza A H1N1 strains and 42% of influenza B strains, which may become more prevalent during the remainder of the flu season, making a very strong case for vaccination.

Even when VE is relatively low against one or more strains, vaccination can still reduce the severity and duration of symptoms, limit hospitalizations, and prevent deaths.

## Q1/18

Public Health  
Seattle & King County



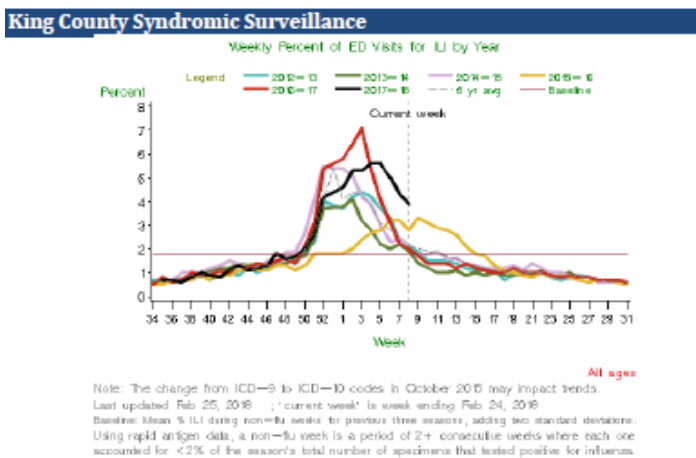
The Quarterly is a publication of  
The Communicable Disease Epidemiology &  
Immunization Section of Public Health.

Free subscription & updates online:  
[kingcounty.gov/communicable](http://kingcounty.gov/communicable)

## Flu Season, cont'd.

Clinicians should consider antiviral treatment for anyone with suspected or confirmed influenza who is hospitalized, has severe or progressive illness, or is at high risk for complications, regardless of vaccination status or the results of rapid diagnostic tests. Since influenza activity is widespread in Washington and throughout most of the U.S., clinicians should consider influenza as a possible diagnosis in all patients with acute respiratory illness.

*For the most up-to-date local information, view the [King County weekly flu surveillance report](#).*



cians ([ACP](#)), the American Academy of Family Physicians ([AAFP](#)), the American College of Obstetricians and Gynecologists ([ACOG](#)), and the American College of Nurse-Midwives ([ACNM](#)).

Do you have questions about the immunization schedules? Write to [immunenurses@doh.wa.gov](mailto:immunenurses@doh.wa.gov).

## 2018 Revised Immunization Schedules

The CDC and its Advisory Committee on Immunization Practices (ACIP) recently released the 2018 [updated immunization schedules for children/adolescents](#) and for [adults](#). A complete summary of changes can be found in the [MMWR for the child/adolescent schedule](#) and the [MMWR for the adult schedule](#).

Of particular note, the 2018 adult immunization schedule includes new ACIP recommendations for the use of the [new zoster \(shingles\) vaccine \(Shingrix\)](#) for adults aged 50 years or older and the use of an [additional dose of MMR](#) in a mumps outbreak setting.

Recommended schedules are revised annually by ACIP to reflect current recommendations for vaccines licensed by the US Food and Drug Administration. Schedules are also approved by the American College of Physi-

## Table of Contents

<a href="#">Flu Season</a>	1
<a href="#">2018 Revised Immunization Schedules</a>	2
<a href="#">Oyster-Related Illness</a>	3
<a href="#">Zika Vaccine Development</a>	4
<a href="#">Caring For Infants Born to Hep B-Infected Women</a>	5
<a href="#">Vaccinating Adults: A Step-By-Step Guide</a>	6
<a href="#">Preventing Hep A Outbreak</a>	6

## Public Health's Response To Oyster-Related Illness



Each year Public Health - Seattle and King County (PHSKC) investigates an average of 33 oyster-related illness complaints. 2017 broke records, with 85 complaints in total. More than 150 people became ill with either norovirus-like illness or *Vibrio*-like illness primarily from consuming raw oysters served at King County restaurants. The majority of the oysters were likely contaminated at the shellfish growing beds before harvest.

Oysters are filter feeders and can accumulate bio-toxins (like those produced by algae blooms), bacteria (like *Vibrio* spp., *Campylobacter*), and viruses (like norovirus) in the meat prior to harvest. The Washington State Department of Health (DOH) Shellfish Program has conducted sanitary surveys of approximately 100 commercial growing areas that evaluate water quality and pollution sources to determine their suitability for shellfish harvest. The DOH Shellfish Program has the authority to close harvest areas due to the presence of bio-toxins in the water. The program can also limit or conditionally close a harvest area if multiple illnesses are linked to the area. Each WA County is responsible for investigating illness reports that are potentially associated with consumption of raw oysters in their respective county.

In King County, most oyster-related illnesses reported in 2017 were either due to vibriosis or norovirus. Vibriosis is caused by a bacterium that is found naturally in warmer, salty water such as the Pacific Ocean and the Puget Sound. Levels of *Vibrio* spp. in the oceans increase

during summer months. Norovirus is typically seen in the winter months, but can be present at any time of year. Both infections cause watery diarrhea, cramping, nausea, vomiting, and, sometimes, body aches and fever. Symptoms due to vibriosis typically last one to seven days, whereas symptoms from norovirus last one to two days.

When PHSKC receives an illness complaint related to consuming raw oysters, public health nurses and disease investigators interview complainants about their symptoms and possible exposures. Our first goal is to determine whether the illness fits with the restaurant meal the complainant consumed. Without laboratory testing, we can only guess what pathogen is causing illness based on the incubation period, the duration of illness, and the symptoms. We rule out any other potential sources of the illness (e.g., other restaurant meals, contact with other ill individuals, and any other shared activities between the ill) before investigating the restaurant and oyster sources.

Once other potential sources of illness have been rejected, we work with PHSKC Environmental Health restaurant investigators to prevent further illness. They go to the restaurant to collect shellfish identification tags (an FDA requirement that tell us where the oysters were harvested), collect any leftover oysters for testing for pathogens, and identify any food safety violations that could contribute to the spread of illness or proliferation of any pathogens. Some of the common violations that Environmental Health investigators look out for include improper storage and handling temperatures, food handlers working while ill, inadequate hand washing, and improper glove use by restaurant employees. If no violations are found at the restaurant, chances are the oysters were contaminated at the growing bed. All information that is gathered in the field by the Environmental Health investigators is sent to the DOH Shellfish Program.

Next, the DOH Shellfish Program, which receives oyster-related illness reports from counties throughout Washington State, compares the reports to see if other counties had illnesses related to oysters grown in a specific harvest area. Based on illness reports and lab testing, the state can shut down the implicated harvest area and recall any oysters related to the cluster of illness.

Next time you are eating out at a restaurant, pay attention to consumer advisories on the menu. These advisories will tell you which animal foods are served raw or

## Oysters, cont'd.

undercooked. There is an increased risk of becoming ill from consuming raw or undercooked meat and seafood. People with compromised or weakened immune systems, pregnant women, and those with chronic health conditions are more likely to become ill with complications, sometimes requiring hospitalization, and should consider avoiding raw or undercooked shellfish.

### Resources:

#### [DOH Shellfish Program website](#)

##### **Norovirus**

[Norovirus facts](#), Public Health – Seattle & King County

[Norovirus facts](#), Foodsafety.gov

[Love oysters? Be warned](#), *Public Health Insider*

##### **Vibriosis**

[Vibrio facts](#), Public Health – Seattle & King County

[Vibrio facts](#), Foodsafety.gov

[Why undercooked oysters make you sick](#), *Public Health Insider*

[Oyster-related Outbreak Disclosure website](#)

## Optimistic Outlook For Zika Vaccine Development

King County is typically spared from local transmission of mosquito-borne diseases. Nevertheless, public health and medical professionals saw the effects of the Zika virus firsthand. Between December 2015 and January 2018, a total of 1590 suspect Zika cases were reported to Public Health Seattle King County. Like the rest of the world, King County has recently seen a substantial drop in the number of travel-associated confirmed Zika cases, with 21 cases in 2016 down to just eight cases in 2017. Now that transmission of the virus in Latin America is on the decline, what remains of the global effort to develop new interventions to protect people from the severe conse-

quences of Zika virus infection, such as congenital Zika syndrome and Guillain-Barré syndrome?

In February, 2016, the [World Health Organization](#) released a statement naming Zika virus as a Public Health Emergency of International Concern. At that time, no Zika vaccine had entered a clinical trial. But in response to a [global call for vaccine development](#), public research agencies and product developers began a push to develop a vaccine. Within a matter of months, dozens of vaccine candidates were in pre-clinical studies, and by July, 2016, the first Zika vaccine candidate entered Phase 1 trials. As we enter 2018, an impressive [seven vaccine candidates are being tested](#) in several Phase 1 clinical trials. The candidates are based on tried and trusted technology, such as purified inactivated vaccines (PIV) like those in use against polio, influenza, and hepatitis A, as well as new technologies for which there has not yet been a licensed human vaccine, such as DNA and mRNA platforms. One candidate uses the measles vaccine virus as a vector for the structural genes of the Zika virus, and another candidate even aims to protect against multiple mosquito-borne infections.

Results of some of these clinical trials are now starting to come in, and the candidates look promising. A U.S. Government-developed [PIV](#) elicited detectable neutralizing antibodies in 48/52 (92%) of vaccine recipients after two doses. For one [DNA vaccine candidate](#) developed by the U.S. National Institutes of Health and given using a needle-free device, 14/14 (100%) of vaccine recipients developed neutralizing antibodies. [Interim results were published](#) for another DNA vaccine, for which 62% of vaccine recipients developed neutralizing antibodies. However, caution is needed when interpreting immunogenicity results since all studies measured neutralizing antibodies differently. All of these candidate vaccines were well tolerated. To date, no vaccine-related serious adverse events have been reported during the course of the trials' follow-up.

Small Phase 1 trials are a first step on the vaccine development trajectory. Much larger studies are needed to better assess the potential of these candidates to protect the public and, perhaps most importantly, fetuses against Zika. All vaccine candidates are [rigorously tested](#) before they are licensed by the U.S. Food and Drug Administration. The timeframe for a Zika vaccine to be licensed using traditional pathways will depend on the feasibility of



## Zika, cont'd.

conducting field efficacy trials, which is becoming increasingly difficult given the unpredictable geographic spread of Zika and the waning epidemic. Another important question is who can and should receive a Zika vaccine. This depends on many factors, including the current epidemiology of the disease and the vaccine platform that progresses to licensure. For example, an inactivated vaccine may be acceptable for use in pregnant women, while a live vaccine typically would not.

Public health recommendations for use, such as those developed by the [Advisory Committee on Immunization Practices](#), always must balance risk of disease with the benefits and risks of a medical intervention in the target population. Unfortunately, the severity of Zika disease is becoming increasingly clear. [A recent report from the CDC](#) described developmental abnormalities of several children born with microcephaly in Brazil, highlighting the sustained and co-occurring severe complications for children with Zika-related microcephaly.

There are several reasons to be optimistic about the future of Zika vaccines. First, vaccines have been successfully developed for other flaviviruses, such as Yellow fever and Japanese encephalitis. Additionally, the Zika virus appears to represent a [single serotype](#), allowing for a monovalent vaccine. Furthermore, evidence suggests that immunity conferred by natural infection is long-lasting. Thus, the greatest impediment will be sustaining interest and financing by global governments and product developers, as well as finding new approaches to advance vaccine candidates in the context of decreasing cases. But few doubt that Zika virus will be back – the extent of endemic transmission in Asia is still not well understood and, eventually, population immunity is predicted to fall to a level that can sustain outbreaks. Hopefully next time we will be better prepared as a county, nation, and global community.

## A Pediatric Guide: Caring For Infants Born To Hepatitis-B Infected Women

About 25,000 women with hepatitis B virus (HBV) give birth each year in the United States. On January 12, 2018, the CDC published a new Morbidity and Mortality Weekly Report (MMWR) with [updated recommendations](#) to prevent HBV Infection in the US. Anticipating these updates, Public Health-Seattle & King County's *Perinatal Hepatitis B Prevention Program* (PHBPP) recently released a [new guide](#) to help clinicians who care for infants exposed to HBV during delivery from an HBV-infected woman.

Our [new guide](#), *Caring for Infants Born to Hepatitis B -Infected Women*:

- Answers common questions about perinatal hepatitis B prevention.
- Simplifies the hepatitis B vaccine immunization schedule.
- Reviews the blood tests needed to determine immunity to HBV, commonly known as post-vaccination serologic testing (PVST).

PVST is recommended for infants and children born to women with HBV or if the birth mother's status is unknown. Serologic testing confirms whether the infant developed immunity or was infected with HBV. PVST should include both hepatitis B surface antigen (HBsAg) and hepatitis B surface antibody (anti-HBs). Testing is recommended between nine and 12 months of age or one to two months after the last dose of hepatitis B vaccine if the dose was delayed, or if additional doses were needed.

In 2017, our PHBPP helped ensure PVST was completed for 110 infants. However, testing and reporting laboratory results remain challenges. Forty-four of the infants tested did not complete their PVST during the recommended timeframe. In addition, lab results for 37 infants who should have been tested in 2017 have not been reported to Public Health despite follow-up by PHBPP staff. These infants may not have had the recommended PVST to ensure they are immune and not infected, leaving them at risk. The PHBPP is here to help you and your patients. Please report PVST results by calling (206) 296-4774 or by fax at (206) 296-4803. You may also contact us with questions or [visit us on the web](#).

## Vaccinating Adults: A Step-By-Step Guide

A new, comprehensive, and practical adult immunization resource is available from the Immunization Action Coalition (IAC): *Vaccinating Adults: A Step-by-Step Guide*. This is the long-awaited update to IAC's 2004 adult vaccination guide.

This completely updated *Guide* provides easy-to-use, practical information covering important “how to” activities to help you enhance your existing adult immunization services or introduce them into any clinical setting, including:

- Setting up for vaccination services
- Storing and handling vaccines
- Deciding which people should receive which vaccines
- Administering vaccines
- Documenting vaccinations (including legal issues)
- Understanding financial considerations and billing information

In addition, the *Guide* is filled with hundreds of web addresses and references to help you stay up to date on the latest immunization information, both now and in the future.

Two options are available to obtain a copy of the updated *Guide*:

- **Purchase a copy**

A limited number of printed editions of this 142-page book are available for purchase at [www.immunize.org/shop](http://www.immunize.org/shop). The *Guide*'s lie-flat binding and 10 tabbed sections make it easy to locate the information being sought. Purchased copies are delivered in a box that includes *Immunization Techniques: Best Practices with Infants, Children, and Adults*, a 25-minute training DVD developed by the California Department of Public Health. Also included are several selected IAC print materials, such as the *Skills Checklist for Vaccine Administration*, an assessment tool to assist in evaluating the skill level of staff who administer vaccines.

- **Download it free and print it yourself**

The entire *Guide* is available to download/print free

of charge at [www.immunize.org/guide](http://www.immunize.org/guide). The downloaded version is suitable for double-sided printing. Options are available online to download the entire book or selected chapters.

The development of the *Guide* was supported by the National Vaccine Program Office (NVPO) and the Centers for Disease Control and Prevention (CDC). Expert staff from both agencies also provided early technical review of the content.

## Preventing a Hepatitis A Outbreak: One Relationship At A Time

It's a crisp Thursday morning in Seattle and Aaron Goddu is on his way to coordinate an immunization clinic – his third in as many days. But unlike most vaccine clinics, this one has no waiting room stocked with magazines, no formal registration desk, no receptionist taking copays. In fact, this clinic has no permanent roof. It's a pop-up operation made possible with supplies that fit in the trunk of a compact car. Aaron, Outreach Worker with Public Health's [Health Care for the Homeless Network](#) (HCHN), and his three-person team of medical professionals, set up shop in parks, tent encampments, churches, and food banks across the city in hopes of reaching people who might not have another opportunity to be vaccinated.

In past years, the HCHN immunization efforts have entirely centered on flu vaccinations. After all, influenza is one of the leading causes of hospitalization, and people living homeless are particularly at risk. Tight quarters in shelters and encampments create optimal conditions for the spread of infection, and unstable housing can introduce obstacles to receiving medical care, recuperating, and storing medication. But over the past year, a new threat has emerged: the prospect of a hepatitis A outbreak. Numerous counties across the U.S. have been battling the largest and deadliest outbreaks of person-to-person hepatitis A since a vaccine became available in 1996. Hepatitis A most commonly spreads when virus is ingested after contact with hands, objects, food, or drinks that are contaminated by the feces of an infected person. For people experiencing homelessness, the risk is especially acute: crowded conditions, lack of access to clean toilets, and limited hand washing facilities often combine to create multiple routes for transmission. Our coastal neighbor,

## Hepatitis A, cont'd.

[California](#), has been hard hit, with 443 hospitalizations and 21 deaths in 2017, almost all among people living homeless and/or using illicit drugs.

Here in Washington, an outbreak is only a bus ride away. To ward off that possibility, Aaron and the HCHN team have offered hepatitis A vaccine at every one of the 19 immunization clinics they've hosted in Seattle since October 2017, visiting five of Seattle's sanctioned encampments and partnering with organizations like [DESC](#) and its newly opened [Navigation Center](#) and [Bread of Life Mission](#). Each person they reach carries a personal set of experiences with the health care system, and trust levels vary. Vaccines can be uniquely triggering for some people who find it counterintuitive that exposure to an infection can [keep them healthy](#). "Every encounter is different," says Aaron, and a one-size-fits-all approach to outreach doesn't suffice. "I push myself to approach every person as a unique individual whom I can learn about and have meaningful conversations with. I think that translates to the person being comfortable and genuine and receptive to health care services."

With this in mind, Aaron visits every site before hosting a vaccine clinic for the first time. His mission is purely social, and he begins by identifying a "connector" – an informal camp leader. "When you're in with the connector, that's when you know you're in with the community. They're introducing you rather than you introducing yourself. You lose the outsider effect." By the time the clinic rolls around, he's a known entity, even a friend.

On the day of the clinic, Aaron often begins his conversations with two simple, non-intrusive questions: "Have you heard of hepatitis A? Do you have any questions?" Most people he speaks with are vaguely familiar with the virus and may even know about the outbreaks occurring in other states, but confusion reigns about how hepatitis A differs from B and C, how it's transmitted, and how to protect oneself – all topics for a rich, patient-driven conversation. Aaron always works in some information about proper hand washing techniques, offering the hack, "Hum the 'Happy Birthday' song while you wash." This often evolves into a conversation about mindfulness. "And before the person knows it, we're transitioning to talking about their daily routine, and then there are jokes and laughter and trust and confidence. And it becomes such an



easy transition to, 'Let's go ahead and get you vaccinated.'"

You won't find a long line at the HCHN vaccine clinics. That's because Aaron and his team do everything in their power to remove barriers. Instead, they encourage community members to go about their business; when slots open up with nurses, Aaron seeks clients out. The team also removed the roadblock of an onerous registration process. They simply ask patients for a name, date of birth, and signature. With national hepatitis A vaccination coverage at just 9% for adults over the age of 19, chances are a given individual is unvaccinated, eliminating the need to look clients up in the state's immunization registry.

For clients that remain hesitant, offering a seat, a glass of hot chocolate, and a low-key opportunity to chat with a volunteer nurse can be the best approach. "That's a chance for the person to develop a relationship with a clinician that they may never have had before." Even if the conversation doesn't result in a vaccination, it might inspire a visit to one of HCHN's two [Mobile Medical vans](#) – a free, walk-in primary care service for acute and chronic conditions that Aaron describes as the "lowest barrier to health care access in King County" – or a referral to a range of services, like mental health care or substance abuse treatment.

"The flu and hepatitis vaccines (we're administering) are directly responsible for keeping people out of the ER. They offer such powerful opportunities to engage people in systems of care," says Aaron. "I want to see an end to homelessness in my lifetime. You can't end homelessness without health care."

# The Quarterly

## Public Health

Seattle & King County

Communicable Disease Epidemiology &  
Immunization Section, Prevention Division  
401 5<sup>th</sup> Avenue, Suite 1250  
Seattle, WA 98104-2333

### Public Health Resources:

**Communicable Disease Epidemiology &  
Immunization Section:** [kingcounty.gov/health/cd](http://kingcounty.gov/health/cd)

Our monthly **reportable cases table** has moved  
online. Visit: [kingcounty.gov/communicable](http://kingcounty.gov/communicable)

Program-related questions..... (206) 296.4774

### Communicable Disease Reporting:

AIDS/HIV ..... (206) 263.2000  
STDs ..... (206) 744.3954  
TB ..... (206) 744.4579

### **All Other Notifiable**

**Communicable Diseases** ..... (206) 296.4774

Automated reporting for conditions  
not immediately notifiable (24/7) .. (206) 296.4782

Communicable Disease Hotline ..... (206) 296.4949

## Subscribe!

Free subscription to The Communicable  
Disease Epidemiology & Immunization  
Quarterly is available at [kingcounty.gov/  
communicable](http://kingcounty.gov/communicable). The publication is available in  
online PDF and print editions.

## Current Subscribers:

Update your address and subscription options  
by clicking on the **update link in your email**.

For assistance, contact Olivia Cardenas at  
(206) 263.8236.

## We welcome your feedback.

Have ideas or suggestions for future issues?

Write us: [communicable@kingcounty.gov](mailto:communicable@kingcounty.gov)