The Communicable Disease Epidemiology & Immunization Quarterly

Adventures in Travel Medicine: Responding to Zika Virus in King County

Since being identified in Brazil in 2015, Zika virus has emerged as a major public health issue in the Americas, and beyond. A single-stranded RNA virus in the *Flaviviridae* family, Zika virus is spread by the *Aedes aegypti* and *Aedes albopictus* mosquitos, which circulate in the tropics and parts of the southern United States. Closely related to dengue virus, Zika virus most often results in asymptomatic infection, but can also, in 10 – 30% of cases, cause mild illness similar to chikungunya and dengue, the most common symptoms observed being maculopapular rash (74 – 90%), fever (60 – 65%), arthralgias (47 – 65%), and conjunctivitis (20 – 55%).[1,2,3] Although the illness is generally mild, and rarely results in hospitalizations or deaths, emerging epidemiology has identified unique clinical manifestations (microcephaly and congenital anomalies[4], Guillain-Barré syndrome (GBS)[5], and thrombocytopenia) and transmission concerns that have propelled the Zika virus epidemic to a top public health issue of 2016. **There is no vaccine or medication to prevent Zika virus infection or cure disease. For those at risk, prevention is the best strategy.**

What is the current situation of the Zika virus epidemic? As of early December, 2016, active Zika virus transmission has been reported in 61 countries and territories, including southern Florida and Texas in the U.S. Over 4,500 U.S. cases have been reported, including 185 cases believed to be locally-acquired (Florida-184, Texas-1). New York, Florida and California have reported the largest number of travel-related cases.[6]

In King County, 22 cases of illness and 3 asymptomatic cases with laboratory evidence of Zika virus infection have been reported (4.5% of all patients tested). All cases fully recovered. Nineteen (76%) cases were female, and five were pregnant. All cases reported travel to a Zika-endemic country in the Latin America and Caribbean (LAC) region during their exposure periods; four of the five pregnant women were living in Zika-endemic countries for extended periods during their pregnancies. As of November 16, 2016, no adverse fetal outcomes, cases of GBS, or Zika-associated deaths have been reported.

During this same period, 22 confirmed and probable cases of dengue fever were identified, over three times the number reported in 2015. Additionally, eight confirmed and probable cases of chikungunya were reported. Many of these cases had similar clinical presentations and travel histories to Zika cases; unlike Zika cases, nearly half of dengue cases reported travel to Asia. When evaluating patients for Zika virus disease, providers should also consider dengue and chikungunya virus etiologies.

What is Public Health doing? The response to the Zika virus epidemic is a multi-agency effort involving several disciplines and organizations. In Washington, where Zika virus is limited to international travelers (and potentially their sexual partners), local and state health departments focus on ensuring that the public and providers have the most up-to-date information on Zika

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virus and preventing infection in pregnant women. Public Health is also responsible for coordinating Zika virus testing through public health laboratories and CDC, and ensuring that patients evaluated for Zika virus are provided with appropriate counseling. For some patients testing positive for Zika virus, Public Health helps to connect the patient with current CDC studies collecting data to inform clinical guidance for pregnant women, their partners, and their infants.

Will we have a Zika virus epidemic here in Washington? It's highly unlikely. The range of the mosquitos known to carry and transmit Zika virus, *Aedes aegypti* and *Aedes albopictus* stops short of the Pacific Northwest, based on entomologic monitoring conducted by state and federal agencies throughout the U.S. Additionally, laboratory studies in both the U.S. and Europe have demonstrated that the *Culex* mosquito, which carries West Nile virus and circulates here in the Pacific Northwest, is unable to carry Zika virus.[7,8]

When should providers be thinking about Zika?

1. Travelers with arboviral-like illnesses. Providers should consider Zika virus infection in patients with **two or more** Zika-virus like symptoms (fever, rash, arthralgia, conjunctivitis) **and either**:

- travel in two weeks prior to symptom onset to an area with active Zika transmission or where low-level endemic Zika virus circulation is reported
- unprotected sexual contact in two weeks prior to symptom onset to a partner with travel history to an area with active Zika transmission:
  male partner's travel: past 6 months
  female partner's travel: past 8 weeks

CDC recommends Zika virus testing for these patients. **Providers should also consider dengue and chikungunya viruses in their differential diagnosis, and should order these tests if pursuing Zika virus testing.** Patients should be counseled on prevention of sexual transmission to their partners, particularly if their patient is pregnant.

2. Pregnant patients and their partners. There is no vaccine or medication to prevent Zika virus infection or cure disease. For pregnant women and their partners, prevention is the best strategy. At every clinical encounter, providers should assess both travel history and future travel plans that may occur during the pregnancy. Pregnant patients and their partners should be counseled against non-essential travel to areas where Zika transmission occurs; testing afterwards can NOT prevent harm to the baby.

Testing is indicated for all pregnant women who were potentially exposed to Zika virus at any point during their pregnancy or within eight weeks of conception. This includes travel to areas with active Zika transmission or unprotected sex with a partner who traveled to an area with active Zika transmission up to six months prior to sexual contact. Note that testing >12 weeks after possible exposure may not be definitive in ruling out Zika virus infection during the pregnancy. Testing is NOT indicated for non-symptomatic sexual partners of pregnant women. Testing is also not indicated for asymptomatic pregnant women with travel to Zika-

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endemic areas, particularly Asia (exception: Singapore and some Pacific Islands), as transmission, though present, is believed to be low.

Travelers to areas with active Zika transmission should abstain from unprotected sexual contact with pregnant partners throughout the duration of pregnancy, regardless of symptoms, as Zika virus has been observed to persist in semen up to six months after illness or exposure.

3. Babies born to women with a history of laboratory-demonstrated Zika virus infection. Providers should contact Public Health to discuss testing and follow-up for these patients.

4. Babies with abnormal clinical or neurological findings suggestive of Zika virus syndrome whose mother had possible Zika virus exposure during her pregnancy. Providers should contact Public Health to discuss testing and follow-up for these patients.

What if my patient does not fit into one of these categories? For patients not meeting the criteria outlined above, Zika virus testing is not recommended and specimens from these patients will not be tested by Public Health or CDC (regardless of commercial test result). Patients planning pregnancy are advised to postpone pregnancy until at least eight weeks following last possible Zika exposure (female) or until at least six months following last possible Zika exposure (male), regardless of Zika virus result. Asymptomatic males with possible Zika virus exposure are advised to avoid unprotected sex with pregnant partners throughout the duration of pregnancy, regardless of Zika virus result.

It looks like Zika virus testing is indicated for my patient. Which test should I order? There are two types of test available: polymerase chain reaction (PCR) and antibody testing (MAC-ELISA, IgM). The test indicated is based on the time since symptom onset (symptomatic patients) or time since last possible travel or sexual exposure (asymptomatic pregnant women). It is important to order the correct test; otherwise a negative result cannot rule out infection. Current testing recommendations can be found here. For pregnant patients, a diagram of current testing recommendations can be found here.

Instructions for ordering testing through Public Health can be found on the DOH website. Providers will also need to complete and submit the following:

Complete:	Submission Instructions:
Zika Virus Intake Form	For King County residents, fax to: 206.296.4803
Specimen Submission Form	Include with clinical specimen when submitting to WA DOH Public Health Laboratory

What is the best way to access the most current information? Sign up for updates to clinical guidance from Public Health.Sign up to receive epidemiologic updates from CDC.

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October Updates From the Advisory Committee on Immunization Practices

During their last meeting of the year, the Advisory Committee on Immunization Practices (ACIP) approved the child, adolescent and adult immunization schedules in addition to vaccine recommendations for hepatitis B (HepB), pertussis, human papillomavirus (HPV) and meningococcal B (MenB) vaccines.

Hepatitis B vaccine

The recommended first dose of the three-dose hepatitis B vaccine series, often referred to as the "birth dose", is typically administered to infants in the hospital after birth, however permissive language included in the current ACIP hepatitis B vaccine recommendations allows for a delay of the birth dose until after hospital discharge. Since delaying hepatitis B vaccination can interfere with the prevention of hepatitis B and data suggests that administering the birth dose in the hospital leads to timely completion of the vaccine series, the ACIP voted to remove the reference to delaying vaccination and added language to emphasize that the birth dose should be administered **within 24 hours of birth**.

Other key updates to the hepatitis B vaccine recommendations included:

- Recommending HepB vaccine for persons with hepatitis C virus (HCV) infection and chronic liver disease
- Post vaccination serologic testing for infants whose mothers' HBsAg status remains unknown indefinitely
- Testing HBsAg-positive pregnant women for hepatitis B virus (HBV) DNA
- HPV vaccination of persons in correctional facilities

Pertussis (Tdap) vaccine

The ACIP began recommending Tdap vaccine during every pregnancy in 2012, and while the vaccine can be administered at any time, the CDC considers 27-36 weeks gestation to be optimal. During the October meeting, the Committee reviewed new data that showed higher concentrations of anti-pertussis antibodies in infant cord blood when Tdap vaccine was administered at 28 to 32 weeks gestation compared to 33 to 36 weeks gestation. Given this finding, ACIP members voted to modify the recommended language for maternal Tdap vaccination to emphasize vaccination in the early part of the 27-36 weeks gestation window to maximize passive antibody transfer to the infant.

Human papillamovirus (HPV) vaccine

On October 7, 2016, the FDA approved a change in the dosing schedule of the 9vHPV (Gardasil – Merck) label to allow for both a two-dose schedule (0 and 6-12 months) and a three-dose schedule (0, 2, and 6 months) for individuals aged 9-14 years. At the October ACIP meeting, members reviewed a summary of the evidence from previous meetings on the two-dose schedule. These studies show that the antibody response after two doses of 9VHPV vaccine (0, 6 months or 0, 12 months) in 9-14 year olds is non-inferior to the response after three doses in the groups in which efficacy was demonstrated. Data from the follow-up immunogenicity trials suggest duration of protection will be the same after a two-dose schedule as is expected for a three-dose schedule. Based on a thorough review of all the available data, a vote was taken to approve the following dosing schedule:

- For persons initiating vaccination before the 15th birthday, the recommended immunization schedule is two doses of HPV vaccine. The second dose should be administered 6-12 months after the first dose (0, 6-12 month schedule).
- For persons initiating vaccination on or after the 15th birthday, the recommended immunization schedule is three doses of HPV vaccine. The second dose should be administered 1-2 months after the first dose and the third dose should be administered 6 months after the first dose (0, 1-2, 6 month schedule).
- Persons who initiated vaccination with 9vHPV, 4vHPV or 2vHPV before the 15th birthday, and received two doses at the recommended dosing schedule, or three doses at the recommended dosing schedule, are considered adequately vaccinated.
- Persons who initiated vaccination with 9vHPV, 4vHPV or 2vHPV on or after the 15th birthday, and received 3 doses at the recommended dosing schedule, are considered adequately vaccinated.
- 9vHPV will be the only vaccine available after 2016 and may be used to continue or complete a series started with 4vHPV or 2vHPV.

ACIP, cont'd.

- For persons who have been adequately vaccinated with 2vHPV or 4vHPV, there is no ACIP recommendation for additional vaccination with 9vHPV.
- If the vaccine schedule is interrupted, the vaccination series does not need to be restarted.
- Number of recommended doses is based on age at administration of the first dose.
- Three doses are recommended for people with weakened immune systems aged 9-26 years.

CDC encourages clinicians to begin implementing these new recommendations as soon as their practice is able. Visit http://www.cdc.gov/vaccines/ed/ciinc/2016-10-26.html for a review of the new HPV vaccine recommendations.

Meningococcal B (MenB) vaccine

Currently, ACIP recommends routine MenB vaccination for those aged 10 years and older who are at increased risk of serogroup B meningococcal disease, including those with persistent complement component deficiencies, anatomic or functional asplenia, and people living in an outbreak area. ACIP and CDC do not express a preference for the two licensed vaccines, MenB-4C (Bexsero – GlaxoSmithKline) and MenB-FHbp (Trumenba – Pfizer), but the same product must be used for the entire series. MenB-4C is administered in two doses and MenB-FHbp is administered in three doses.

On April 14, 2016, the FDA approved a label change to the dosing and administration of MenB-FHbp, prompting the ACIP to consider updating its dosing language. The final language approved by ACIP reads: "For patients at increased risk for meningococcal disease and for use during serogroup B outbreaks, three doses of MenB-FHbp should be administered at ages 0, 1-2 months and 6 months. When given to healthy adolescents who are not at increased risk for meningococcal disease, two doses of MenB-FHbp should be administered at 0 and 6 months. If the second dose is given at an interval of less than 6 months, a third dose should be given at least 6 months after the first dose."

After approval by the CDC director, the updates from ACIP's October meeting are expected to be published early in 2017 in the CDC's *Morbidity and Mortality Weekly Report*.

Are You Ready to Say "WE'RE IN" To Prevent HPV-Related Cancer?

Add your organization's voice to the growing national movement to use the HPV Cancer Prevention Symbol to promote HPV vaccination. Join the 70+ members of the national HPV Vaccination Roundtable plus partner organizations in showing your support for preventing cancer with HPV vaccination.

Visit https://www.surveymonkey.com/r/WereInAgreement to commit to use the HPV Cancer Prevention Symbol for your organization.

Influenza Update

- Flu activity is being observed at low but rising levels in King County; levels are comparable to those observed in the past three seasons.
- Hospital labs are reporting low numbers of positive influenza results, most of which have been influenza A.
- 3 influenza-related deaths have been reported this season, all in unimmunized adults.
- Six long-term care facilities (LTCF) have reported outbreaks of influenza this season.
- The proportion of emergency department visits attributable to influenza-like illness (ILI) is below baseline levels, but rising, particularly among children.

For weekly influenza updates, visit: http://www.kingcounty.gov/healthservices/health/communicable/diseases/Influenza/fluactivity.aspx

NAPCP Approves Position Paper On Immunizations

This past summer, the membership of the Naturopathic Academy of Primary Care Physicians (NAPCP) voted to approve an immunization position paper in support of the Centers for Disease Control and Prevention (CDC) Advisory Committee on Immunization Practices (ACIP) childhood immunization schedule. We sat down with Seattle-based naturopathic physician, Dr. Jonathan Bell to learn more about the NAPCP's position paper and implications for the naturopathic profession.

Dr. Bell, you co-authored the position paper. Can you tell us a little bit about the Academy and how the position paper came about?

The NAPCP is a peer group of naturopathic primary care providers (PCPs) committed to evidence-based adoption of best primary care medical practices. The NAPCP Board of Directors addressed the need for a modernized naturopathic position that is pro-immunization because the American Association of Naturopathic Physicians (AANP), the national professional organization of licensed naturopathic physicians (NDs), failed to come to a consensus opinion. The AANP doesn't, however, represent the voice of all ND specialty groups, most especially those of us that specialize in primary care medicine in the states that grant NDs the rights - and corresponding responsibility - to provide primary care consistent with best science and consistent with our peer allied health professionals.

This position paper follows the 1991 AANP vaccine position paper which is too ambivalent about advocacy for vaccines, questions the safety of vaccines, and undervalues the benefits of immunization. As more and more credible scientific evidence had surfaced that supports the success of childhood immunization, I and some supportive ND colleagues started the long and arduous process of advocating for the revision of this antiquated stance to a more clearly declared evidence-based, pro-vaccine position. This took a decade or so of work! The hope is that the NAPCP vaccination position paper will spur the AANP likewise to adopt a position paper promoting the ACIP childhood immunization schedule.

In the position paper, the NAPCP takes a clear pro-immunization stance, yet the authors also acknowledge that there may be differences of opinion and dissent in both the naturopathic and conventional medical communities. Given that there is neither uniform support nor acceptance amongst naturopathic physicians in regard to vaccinations, how do you engage with colleagues who do not support the ACIP immunization schedule?

For me, I will admit that it is often quite challenging to deal with medical dogma in general, whether from an alternative or conventional medical colleague. Some NDs, and even some conventional providers that are alternative medicine oriented, have deep-seated fear and, sometimes, animosity towards vaccination. I feel that I am only trying to evolve naturopathic medicine to reflect the most modern scientific advances and I see immunization as a "natural" process, and congruent with the naturopathic philosophical concepts of "Prevention", "Treat the Cause", and "Wellness".

Regardless of philosophy, the scientific evidence has clearly demonstrated that the ACIP immunization schedule has effectively decreased mortality and morbidity, and the National Academy of Medicine has determined that alternative schedules do not offer any better outcomes. Events such as the Wakefield-MMR autism fraud, and measles and pertussis epidemics have provided good examples to the naturopathic community of the importance of an evidence-based approach to vaccination. More and more, naturopathic students and physicians are embracing an evidence-informed approach, including immunization science. The NAPCP Position Paper is meant to give guidance to ND PCPs and alternative health providers who respect scientific research and understand the need for evidence-based guidelines.

What are some lessons you've learned based on your experience counseling families who have concerns about specific vaccines or the ACIP childhood immunization schedule?

The greatest lesson I have learned is not to be dogmatic in presenting vaccination and to be patient. Generally it is not a good idea to "push" the vaccine hesitant, nor is it effective to avoid the conversation either. Although it can be time-consuming, I do make additional appointments to discuss, provide additional resources like Vax Northwest

or Voices for Vaccines and - although I recognize it is not recommended by ACIP - I will spread out the vaccine schedule if needed in order to gain trust and ultimately to get my patients and community vaccinated. When I have earned the trust of prior hesitant patients, I then encourage them to talk with their friends and family about the benefits of a vaccinated community.

Can you speak to the significance of this opinion paper? Do you feel this represents a watershed moment for the naturopathic profession?

I cannot overemphasize the importance of this paper as an evolutionary step in naturopathic medicine. It represents the acceptance by the naturopathic community that individual and population health are intrinsically linked and highlights the importance of evidence in medical decision making. As public distrust of government and the pharmaceutical/vaccine business seems to increase, I see an even greater need for physicians - most especially NDs - to reach those who fear immunization and to set an example for other alternative health providers.

In addition to the position paper, what are other ways in which the naturopathic community supports immunizations?

What it really comes down to is getting more of the general population vaccinated and NDs - on the merit of being "alternative medicine experts" - have a unique opportunity to reach alternative medicine seeking communities with this powerful tool. Along with other NDs in Washington State, I have offered my perspective regarding working with vaccine hesitant patients as a member of the Washington State Department of Health's Vaccine Advisory Committee. Dr. Mary Alison Koenke is currently serving on the Vaccine Advisory Committee and has provided her naturopathic perspective to vaccine advocacy in a variety of ways, including a guest post on Seattle Mama Doc's blog. Dr. Setareh Tais has created a forum for NDs to discuss vaccinology called NDs for Vaccines. Dr. Elias Kass is an ND midwife who practices at one of the largest alternative health centers in the country and has helped many new NDs with evidence supporting the ACIP schedule.

As naturopathic medical schools continue to expand their domestic and global health programs, it is natural that vaccine advocacy is integrated into the success of other preventative medicine programming championed by naturopathic medicine such as nutrition, lifestyle improvement and environmental health. Dr. Matt Brignall, as a faculty member at Bastyr University, continues to be outspoken with ND students to promote the ACIP immunization schedule. And there are so many other NDs working to promote vaccination! I envision that the naturopathic profession will continue to grow to be a force in vaccine advocacy, because vaccines are consistent with naturopathic medicine and most importantly, because they are effective in increasing the health of individuals and their communities!

Vet News!

Public Health's Zoonotic Disease Program is moving their communications online to better serve subscribers. The program typically sends out a biannual Vet Update newsletter and occasional public health vet alerts. If you chose to receive 'occasional veterinary updates' from your Communicable Disease Quarterly subscription, you will automatically receive the newly electronic vet updates. If you are not sure if you are on the delivery list, you may sign up or update your subscription preferences. We welcome your feedback or suggestions for future newsletter topics — email Beth Lipton, Public Health Veterinarian at beth.lipton@kingcounty.gov.

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Immunization Section, Prevention Division
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