

# Hawaii Epi Bulletin

HAWAII STATE DEPARTMENT OF HEALTH  
DISEASE OUTBREAK CONTROL DIVISION

**Summer 2018**

## Legionellosis (*Legionnaires' Disease, Pontiac Fever*)



Legionellosis refers to both Legionnaires' disease and Pontiac fever, both caused by bacteria from the *Legionella* genus. There are over 60 species in this genus, the majority of which are considered pathogenic. However, in many regions, cases of legionellosis are often reported to be caused by *Legionella pneumophila* serogroup 1. *Legionella* bacteria can be found frequently in natural, freshwater environments but often not in levels to produce disease. *Legionella* spp. become a health threat when they grow and spread in man-made water systems.

*Legionella* can be found in many types of water systems, including cooling towers, hot water tanks and heaters, large plumbing systems, decorative fountains, hot tubs, and even showerheads and sink faucets. People become infected when they inhale droplets of water that have been aerosolized from these sources that contain the bacteria (infection can occur by aspirating drinking water that contains *Legionella*, but this is rare). Generally, legionellosis is not spread from person-to-person. Some groups of people are at higher risk for infection, including those who: are 50 years or older, are smokers (current or historical), have chronic lung disease, have immune system disorders caused by disease or medication, have systemic malignancy, have an underlying illness such as diabetes, have recent travel including an overnight stay including a stay in a healthcare facility, or have exposure to hot tubs.

Individuals exposed to *Legionella* can develop two types of disease, Legionnaires' disease or Pontiac fever. Pontiac fever is the milder illness and is what most healthy persons would develop if infected. Symptoms most commonly include fever and muscle aches, starting from several hours to three days after exposure and usually lasting less than a week. Most people recover from Pontiac fever with no specific treatment provided. Legionnaires' disease is a severe lung infection that is more likely to occur in high risk individuals. It has a longer incubation time, 2–10 days, and its symptoms are similar to other types of pneumonia which includes cough, shortness of breath, fever, muscle aches, headaches, and may sometimes include diarrhea, nausea, and confusion. Treatment of Legionnaires' disease requires antibiotics. Otherwise healthy individuals can often recover from infection, although many

require hospitalization. Approximately 10% of infected individuals die from complications associated with the infection, although, for those infected while at a healthcare facility this percentage increases to 25%.

To diagnose legionellosis, laboratory testing must be performed. For Legionnaires' disease, the presence of lung infection in an individual can be confirmed by means of an x-ray. However, to determine if the infection is caused by *Legionella*, further testing is required. The preferred tests are a combination of a urinary antigen test and a lower respiratory specimen culture specifically for *Legionella*. A urine test can be used to detect only the most common cause of Legionnaires' disease, *Legionella pneumophila* serogroup 1; whereas, culturing should be used to detect other species or serogroups. Molecular tests can then be used to compare clinical isolates to environmental isolates (if available) to identify the potential source. For Pontiac fever, urine and blood tests are available, although cases are often only recognized and diagnosed when persons who have laboratory-confirmed Legionnaires' disease are identified as having common exposure.

There are no vaccines available for legionellosis. The best way to prevent infection is to make sure water systems in all buildings and cooling towers for facilities are properly maintained to prevent *Legionella* from growing and spreading within them. At home, you can reduce the risk of *Legionella* growth by making sure water heaters are maintained and operating properly, periodically flushing water heaters and hot water pipe lines to prevent stagnation (especially after vacations or extended periods of non-use), and routinely cleaning showerheads.

<b>Legionellosis</b>	<b>1</b>
<b>GIS Tools to Track Arboviral Diseases in Hawaii</b>	<b>2</b>
<b>Herpes Zoster Vaccine</b>	<b>2</b>
<b>Updates from the Pacific</b>	<b>3</b>
<b>Disease Reporting Categories</b>	<b>4</b>

For more information on legionellosis, go [here](#).

## GIS Tools to Track Arboviral Diseases in Hawaii

Working in infectious disease surveillance requires an understanding of the factors that could potentially cause a disease outbreak. A common framework used by epidemiologists to evaluate these factors is called the epidemiologic triad. The triad consists of an agent, which is typically an infectious microorganism or pathogen; the host, which is the human, animal, or plant that can get the disease; and the environment, which can include geology, climate, socioeconomic factors, biologic factors (like the presence or absence of mosquitoes or other insect vectors), and many other factors that can impact the transmission of a disease.

For arboviral diseases (like dengue, Zika, and chikungunya), it is critically important we understand the geographic and biological setting in which transmission may occur. Here in Hawaii, our tropical environment allows the mosquitoes that can transmit these diseases, specifically *Aedes albopictus* and *Aedes aegypti*, to flourish. Therefore, the risk of an arboviral disease being introduced to our state is ever present. To help prevent outbreaks of these diseases, the Hawaii Department of Health (HDOH) uses a variety of tools to help better understand our communities. One such tool is the geographic information system (GIS).

While GIS and mapping tools are commonly used by everyday citizens to navigate across our islands, HDOH hopes to identify potential local disease transmission through mapping and case cluster identification. An example of our efforts can be seen in **Figure 1**. In this *hypothetical* example, a person with an imported or travel-associated arboviral disease is identified and resides within our HDOH office building. We then use GIS tools to map where the case is located (the red point and name), the flight range of the mosquito species that could potentially transmit the disease (the red circle), and any other potential arboviral disease cases who have been reported to our department (the black point and name). In our hypothetical example, we would be able to identify another individual reported to our department and located at the Hawaii State Capitol as a person of high epidemiologic interest. Now that this case is identified, we can expedite our laboratory testing request for the case, and we would perform additional mosquito control activities in this area.

In addition to mapping cases, HDOH is also using GIS tools to determine specific areas within the state at higher risk for the introduction of an arboviral disease. This is being done through the use of our data on previous travel related arboviral disease cases and data on the demographics of our communities. HDOH is also working on projects to model the distribution of the mosquito species of public health importance in the state to determine areas of higher risk for disease transmission. These types of GIS projects can help us more effectively plan our mosquito control and community education programs.

### The Coordinator's Corner Arboviral Diseases



Figure 1 - Hypothetical Case Mapping

For more information on mosquito-borne diseases, go [here](#)

## Herpes Zoster Vaccine – Shingrix®



Herpes zoster, also known as zoster or shingles, is a localized, usually painful, cutaneous eruption resulting from reactivation of latent varicella zoster virus (etiologic agent of chickenpox). Approximately one million cases occur each year in the United States with incidence increasing with age. Postherpetic neuralgia (PHN), commonly defined as persistent pain for at least 90 days following resolution of the herpes zoster rash, is the most common complication and occurs in 10–13% of cases in persons aged >50 years. PHN can last for weeks, months, and occasionally for many years.

Zoster Vaccine Recombinant, Adjuvanted (Shingrix®) was approved in October 2017 for the prevention of herpes zoster in adults aged 50 years and older. Two doses of Shingrix® should be administered intramuscularly; the second dose should be given 2–6 months after the first. **The vaccine series does not need to be restarted if more than 6 months have elapsed since the first dose.** Two doses of Shingrix® should be administered to persons even if they have already had shingles, previously received zoster vaccine live (Zostavax®), or are unsure if they had chickenpox.

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Shingrix® is the preferred vaccine, over Zostavax®. Two doses of Shingrix® are more than 90% effective at preventing shingles and PHN. Protection remains above 85% for at least the first four years after vaccination.

For more information, see "Recommendations of the Advisory Committee on Immunization Practices for Use of Herpes Zoster Vaccines" at <https://www.cdc.gov/mmwr/volumes/67/wr/pdfs/mm6703a5-H.pdf>

Due to high demand for Shingrix®, the manufacturer has implemented order limits and providers have experienced shipping delays. It is anticipated these order limits and shipping delays will continue through 2018.

**PLEASE NOTE:**

Shingrix® and Zostavax® differ with regard to vaccine type, dose, schedule, ACIP recommendation, route of administration, and storage requirements; as a result, vaccine administration errors have occurred. A table comparing the recommended storage, use, and administration of the shingles vaccines may be found in "[Notes from the Field: Vaccine Administration Errors Involving Recombinant Zoster Vaccine – United States, 2017-2018](#)"

## Updates from the Pacific

### Dengue

- There is an ongoing dengue serotype-2 outbreak in **Kiribati**, with 1,707 cases (including 211 hospitalizations and two deaths) as of July 16, 2018. The weekly number of cases has been decreasing.
- In **Wallis and Futuna** there is an ongoing dengue serotype-1 outbreak with 203 cases and 23 hospitalizations as of July 17, 2018.
- An outbreak of dengue serotype-2 has been ongoing in **American Samoa** since March 2017.
- The dengue serotype-2 outbreak in **Fiji** has been declared over. From January 1 to May 31, 2018, there were 3,437 confirmed cases reported.

### Mumps

- As of July 19, 2018 there have been 6,641 cases of mumps reported from **Vanuatu** since September 2017. The number of reported cases has been decreasing.

### Rotavirus

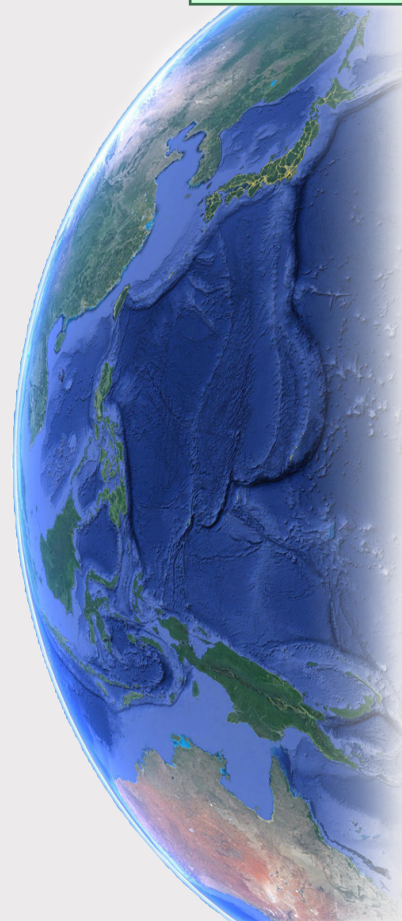
- A rotavirus outbreak has been confirmed in **Yap State, Federated States of Micronesia**. There have been 383 cases of diarrhea, including eight hospitalizations and no deaths, reported as of July 12, 2018.

### Meningococcal Disease

- An outbreak of meningococcal disease is ongoing in **Fiji**. As of June 25, 2018 85 cases have been reported since January 1, 2018 with five confirmed deaths.

### Pertussis

- There have been 3 laboratory-confirmed and 10–15 suspect cases of pertussis reported from **Vanuatu** as of July 27, 2018.



### HDOH Hawaii Health Care Provider Disease Reporting Categories

#### Confidential

Infections/diseases which may carry a social stigma are to be reported with extra precautions to assure patient confidentiality. Reports are to be submitted within three working days of diagnosis.

#### Urgent

Diseases or conditions that are suspicious or presenting with novel symptoms that may or may not be part of a known disease or disease complex, labeled "urgent" shall be reported by telephone as soon as a provisional diagnosis is established.

The telephone report shall be followed by a written report submitted by mail or fax within three days to the Disease Outbreak Control Division, Disease Investigation Branch on Oahu or to the District Health Office on the neighbor islands.

#### Routine

Diseases labelled "routine" shall be reported by mail, by telephone, or fax to the Disease Outbreak Control Division, Disease Investigation Branch on Oahu or to the District Health Office on the neighbor islands.

#### Routine/Enteric (enteric prevention priority)

Diseases labeled "routine—enteric prevention priority" shall be reported by telephone as soon as a working diagnosis is established if the individual case is a food handler, direct care provider, or pre-school-aged child. Otherwise, routine reports may be submitted.

#### Outbreak Reports

Any disease shall be reported by telephone when observed to occur clearly in excess of normal expectancy as determined by the healthcare provider or the Director of Health. The telephone report shall be followed by a written report submitted by mail or fax within three days to the Disease Outbreak Control Division, on Oahu, or to the District Health Office on the neighbor islands.

### HDOH Telephone Numbers

**Oahu (Disease Investigation Branch)**  
(808) 586-4586

**Maui District Health Office**  
(808) 984-8213

**Kauai District Health Office**  
(808) 241-3563

**Big Island DHO (Hilo)**  
(808) 933-0912

**Big Island DHO (Kona)**  
(808) 322-4877

**After hours (Oahu)**  
(808) 600-3625

**After hours (Neighbor islands)**  
(808) 360-2575



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DEPARTMENT  
OF HEALTH