EPIDEMIOLOGY AND IMMUNIZATION SERVICES BRANCH

MONTHLY COMMUNICABLE DISEASE REPORT

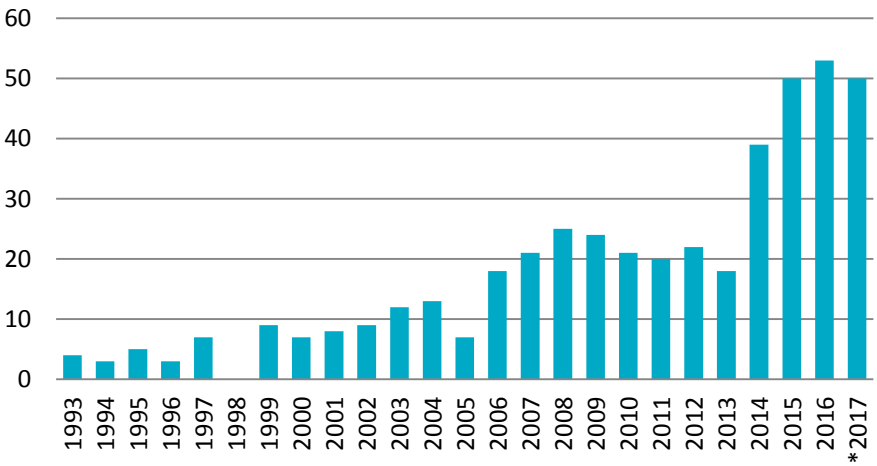
NOVEMBER 2017

Volume 1, Issue 11: December 15, 2017

LEGIONELLOSIS

Legionellosis is a respiratory infection caused by multiple species of *Legionella* bacteria. It manifests as two clinically distinct syndromes. Legionnaires' disease is characterized by pneumonia, with a presentation similar to other types of pneumonia, including cough, shortness of breath, fever, and myalgia. Other symptoms experienced by some patients with Legionnaires' disease include headache, diarrhea, nausea, and confusion. Pontiac fever is a milder infection that is self-limiting, with fever and myalgia, but not pneumonia. Pontiac fever is rarely detected outside of an outbreak and the vast majority of legionellosis cases identified are Legionnaires' disease.

Figure 1. Legionellosis Cases, San Diego County, 1993-2017*

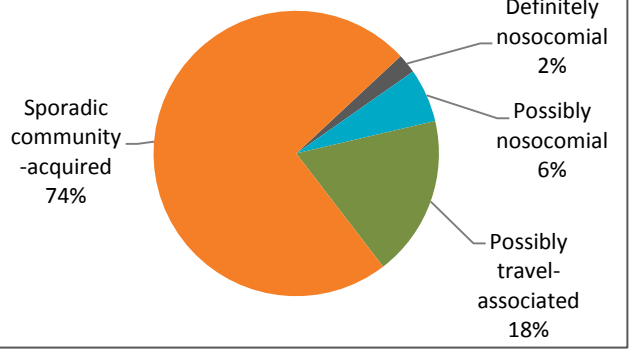


*2017 data are year-to-date; current as of 12/5/2017. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Incidence of legionellosis has increased steadily since 2000, though it is still believed to be underdiagnosed. In 2016, 6,141 cases were reported in the United States, compared to 1,127 cases in 2000. In California, there were 592 reported legionellosis cases in 2016, and in San Diego County, there were 53, the highest annual total to date.

Legionella bacteria are commonly found in natural freshwater environments and soil; they become a health risk when they proliferate in human-made water systems, ranging from home showers to hot tubs and decorative fountains to the large, complex water systems used to heat and cool buildings such as hospitals and hotels. People become infected when they inhale aerosolized water droplets from these sources.

Figure 2. Classification of San Diego County Legionellosis Cases, 2012-2016 (N=181)



Excludes cases (8/189) with missing information. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Only a small proportion of those exposed to *Legionella* get sick. Those at increased risk for illness include: persons 50 years or older (89% of 2012-2016 San Diego County cases); current or former smokers (66% of 2012-1016 San Diego County cases); those with underlying health conditions such as chronic lung disease, diabetes, and kidney or liver failure; and those with compromised immune systems.

Health departments investigate reports of legionellosis to attempt to determine a source of infection. Because the bacteria are ubiquitous, the source for the majority of cases cannot be definitively identified. Most cases are considered to be sporadic community-acquired infections (74% of San Diego County cases in 2012-2016). When specific criteria related to continuous hospital stays during their exposure period are

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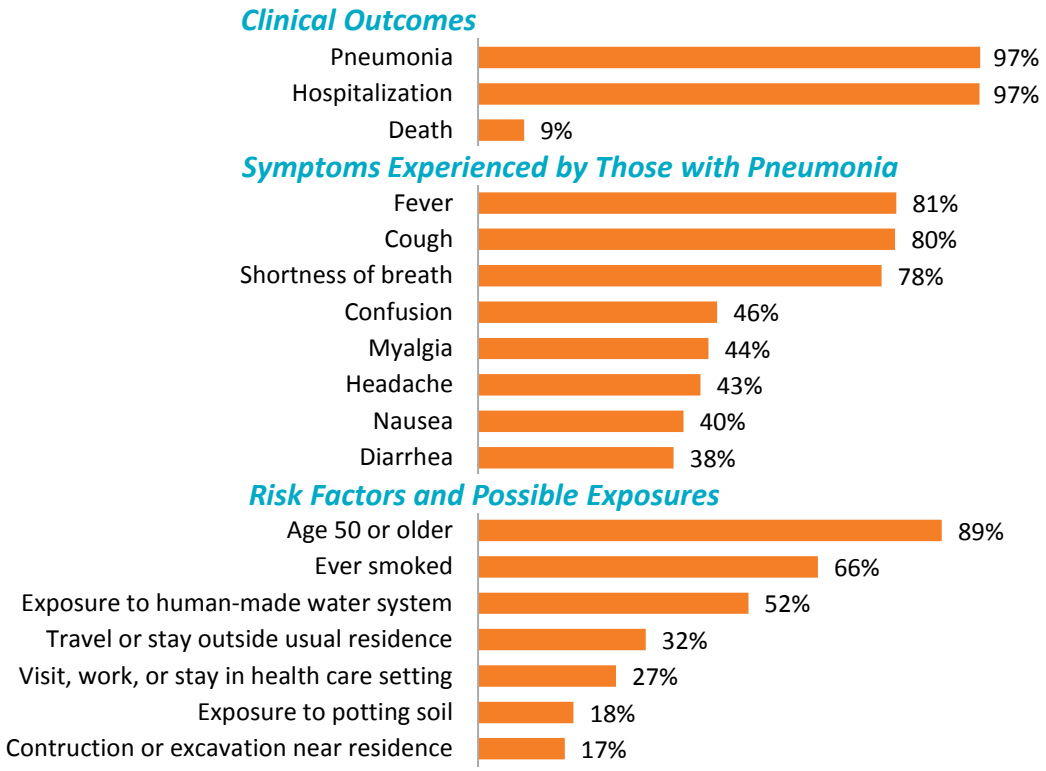
LEGIONELLOSIS, continued

met, cases may be classified as definitely nosocomial. Other cases with healthcare exposures may be considered possibly nosocomial, and cases where persons have spent a night away from their own home are usually considered possible travel-associated cases.

The source of infection is often only determined in the context of an outbreak. In fact, the disease was first identified and named in 1976 after an outbreak of pneumonia among attendees of an American Legion convention in Philadelphia—a meeting that included many older, susceptible persons convening in a hotel with a cooling system later found to harbor the bacteria.

Figure 3. Select Characteristics of San Diego County Legionellosis Cases, 2012-2016 (N=189)



Cases with missing information excluded for each characteristic. Denominators range from 132-186 for all cases and 144-175 for cases with pneumonia. Possible exposures are not confirmed sources of illness. Water systems include: water storage, heating, or cooling systems; hot tubs, saunas, or swimming pools; misters; sprinklers; drinking fountains; decorative fountains; evaporative coolers; and humidifiers. Health care settings include hospitals, dental offices, and long-term care facilities. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Outbreaks, along with greater awareness and testing, may be contributing to the increased reported incidence of legionellosis. New York City has experienced multiple outbreaks associated with cooling towers in recent years, including a large one in 2015. Flint, Michigan experienced an outbreak in 2014-15, and Orange County had an outbreak this year. There have been two outbreaks, each involving two cases, identified in San Diego County in the past three years, both associated with apartment or condo complexes.

Most San Diego cases (96% of those with species identified) were due to *L. pneumophila*, the most common of the 48 species of *Legionella*, but also the only one detected by the commonly-used urine antigen test. Other species identified in San Diego County cases between 2012-2016 are *L. bozemanii* and *L. micdadei*.

Resources

- Centers for Disease Control and Prevention (CDC) Legionellosis website
- CDC website on Guidelines, Standards, and Laws related to Legionellosis
- Environmental Protection Agency Legionella website
- California Department of Public Health (CDPH) Legionellosis website

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Table 1. Select Reportable Diseases		2017			Prior Years		
Disease and Case Inclusion Criteria (C,P,S)		Current Month	Prior Month	Year-to-Date (YTD)	2016 YTD	Avg YTD, 2014-2016	2016 Total
Amebiasis	C	1	1	10	5	32.0	5
Botulism (Foodborne, Infant, Wound, Other)	C	0	0	4	5	2.3	5
Brucellosis	C,P	0	0	4	4	1.7	4
Campylobacteriosis	C,P	48	70	842	740	707.0	787
Chickenpox, Hospitalization or Death	C,P	0	0	2	2	2.0	3
Chikungunya	C,P	0	0	2	5	6.7	6
Coccidioidomycosis	C	14	23	210	148	134.7	158
Cryptosporidiosis	C,P	4	8	49	32	30.0	35
Dengue Virus Infection	C,P	0	1	11	21	14.0	23
Encephalitis, All	C	1	1	31	69	64.7	71
Giardiasis	C,P	12	22	287	365	297.0	398
Hepatitis A, Acute	C	17	41	575	22	17.3	26
Hepatitis B, Acute	C	0	1	12	3	7.7	3
Hepatitis B, Chronic	C,P	70	74	807	794	821.3	865
Hepatitis C, Acute	C,P	0	0	3	0	0.7	1
Hepatitis C, Chronic	C,P	271	325	2797	2411	2529.3	2581
Legionellosis	C	6	5	50	48	43.3	53
Listeriosis	C	0	1	14	21	14.7	22
Lyme Disease	C,P	0	0	4	10	10.7	10
Malaria	C	0	1	5	10	8.3	12
Measles (Rubeola)	C	0	0	2	0	4.0	0
Meningitis, Aseptic/Viral	C,P,S	20	21	156	134	220.0	140
Meningitis, Bacterial	C,P,S	2	0	31	49	32.7	54
Meningitis, Other/Unknown	C	0	2	25	29	36.0	29
Meningococcal Infection	C,P	0	0	1	2	4.7	2
Mumps	C,P	1	2	15	21	7.7	23
Pertussis	C,P,S	71	97	968	364	1052.3	412
Rabies, Animal	C	1	1	16	7	6.7	7
Rocky Mountain Spotted Fever	C,P	0	1	3	2	2.3	2
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	58	56	528	507	519.7	535
Shiga toxin-Positive Feces (without culture confirmation)	C,P	0	3	22	15	8.7	15
Shiga toxin-Producing E. coli (including O157)	C,P	19	53	99	53	43.3	60
Shigellosis	C,P	34	48	300	222	202.3	243
Typhoid Fever	C,P	0	0	2	2	4.0	6
Vibriosis	C,P	2	2	46	29	35.0	30
West Nile Virus Infection	C,P	0	1	2	22	26.3	22
Yersiniosis	C,P	0	0	47	11	11.3	15
Zika Virus	C,P	1	1	17	79	27.0	83

Case counts are provisional and subject to change as additional information becomes available. Cases are grouped into calendar months and calendar years on the basis of the earliest of the following dates: onset, lab specimen collection, diagnosis, death, and report received. Counts may differ from previously or subsequently reported counts due to differences in inclusion or grouping criteria, late reporting, or updated case information. Inclusion criteria (C,P,S = Confirmed, Probable, Suspect) based on Council of State and Territorial Epidemiologists/Centers for Disease Control and Prevention (CSTE/CDC) surveillance case criteria.

Figure 4. Select Enteric Infections by Month
December 2016 – November 2017

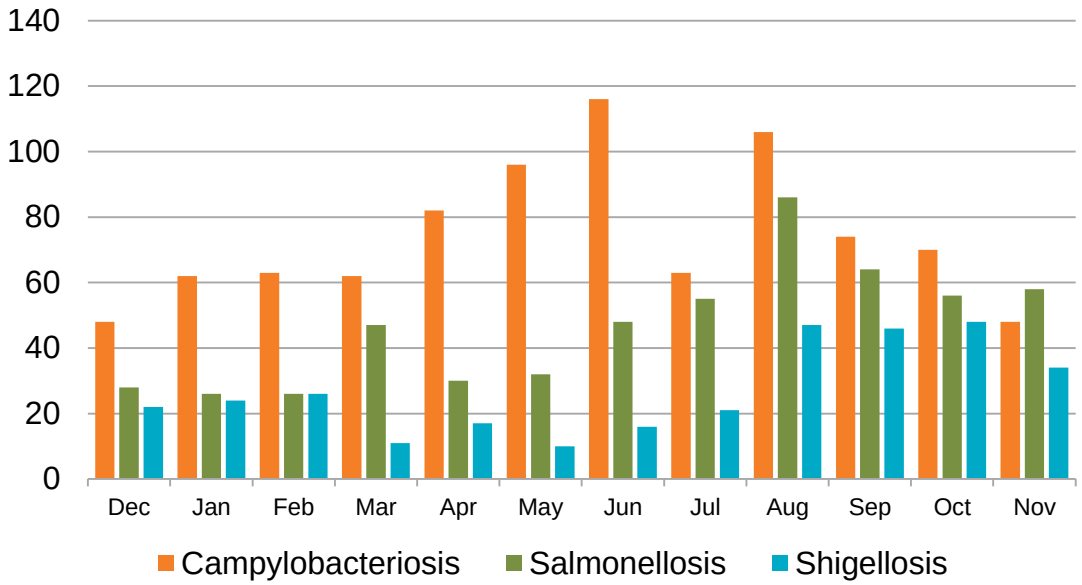

Figure 5. Select Vaccine-Preventable Infections by Month
December 2016 – November 2017

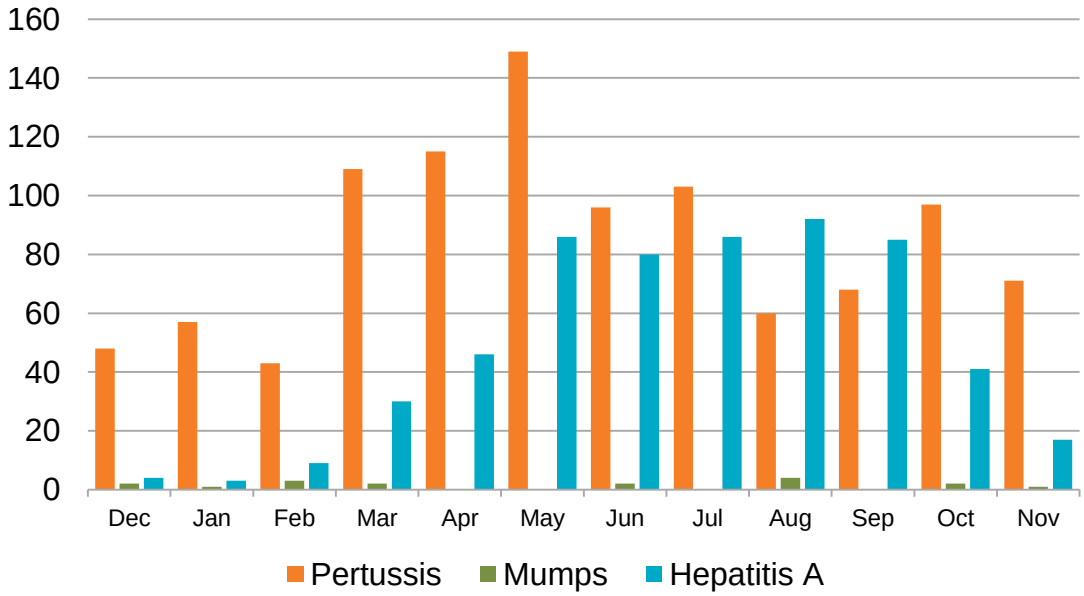

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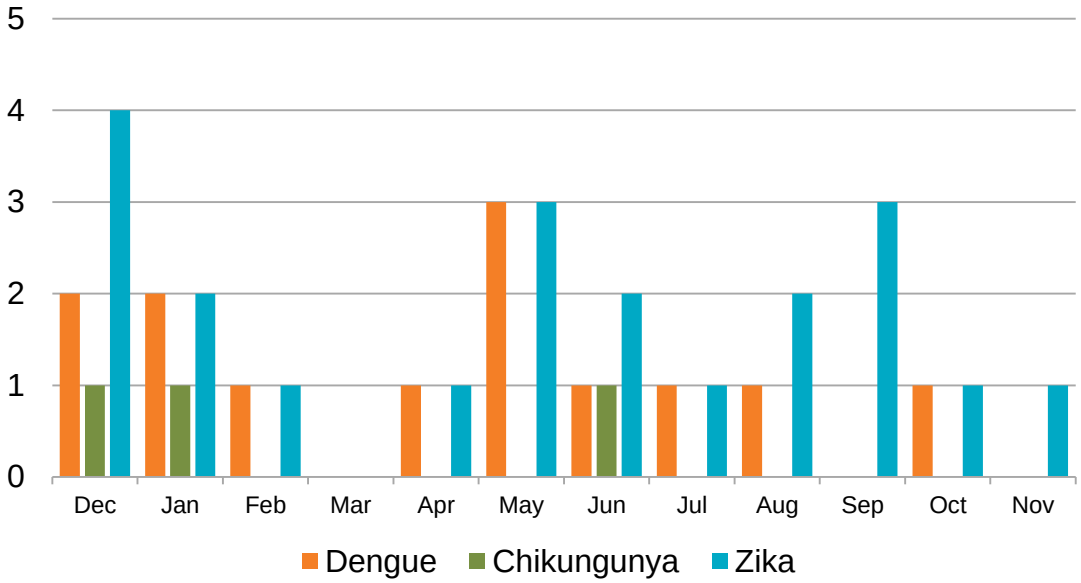
Figure 6. Select Vector-Borne Infections by Month
December 2016 – November 2017



All of these dengue, chikungunya, and Zika virus cases are travel-associated. For additional information on Zika cases, see the HHSA Zika Virus webpage. ***Case counts are provisional and subject to change as additional information becomes available.*** Cases are grouped into calendar months and calendar years on the basis of the earliest of the following dates: onset, lab specimen collection, diagnosis, death, and report received. Counts may differ from previously or subsequently reported counts due to differences in inclusion or grouping criteria, late reporting, or updated case information. Inclusion criteria (C,P,S = Confirmed, Probable, Suspect) based on Council of State and Territorial Epidemiologists/Centers for Disease Control and Prevention (CSTE/CDC) surveillance case criteria.

Disease Reporting in San Diego County

San Diego County communicable disease surveillance is a collaborative effort among Public Health Services, hospitals, medical providers, laboratories, and the San Diego Health Connect Health Information Exchange (HIE). The data presented in this report are the result of those efforts.

Reporting is crucial for disease surveillance and detection of disease outbreaks. Under the California Code of Regulations, Title 17 (Sections 2500, 2505, and 2508), public health professionals, medical providers, laboratories, schools, and others are mandated to report more than 80 diseases or conditions to San Diego County Health and Human Services Agency.

To report a communicable disease, contact the Epidemiology Program by phone at (619) 692-8499 or download and print a Confidential Morbidity Report form and fax it to (858) 715-6458. For urgent matters on evenings, weekends or holidays, dial (858) 565-5255 and ask for the Epidemiology Program duty officer. For more information, including a complete list of reportable diseases and conditions in California, visit the Epidemiology Program website, www.sdepi.org.

Tuberculosis, sexually transmitted infections, and HIV disease are covered by other programs within Public Health Services. For information about reporting and data related to these conditions, search for the relevant program on the Public Health Services website, http://www.sandiegocounty.gov/content/sdc/hhsa/programs/phs.html.