EPIDEMIOLOGY AND IMMUNIZATION SERVICES BRANCH

MONTHLY COMMUNICABLE DISEASE REPORT

FEBRUARY 2024

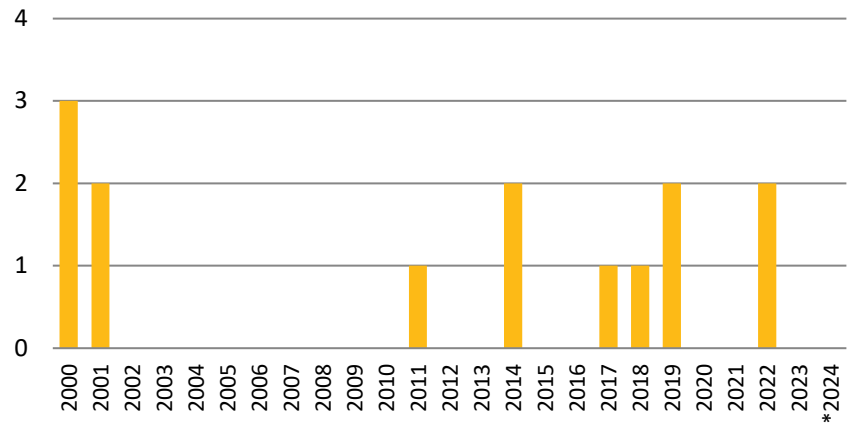
Volume 8, Issue 2: March 15, 2024

LEPTOSPIROSIS

Leptospirosis is caused by the spirochete bacteria *Leptospira* spp. There are 10 pathogenic species and more than 250 pathogenic serovars. Leptospirosis affects both humans and animals.

In humans, the incubation period is 2-30 days; most illnesses occur 5-14 days after exposure. Most infections are thought to be asymptomatic. Of symptomatic infections, 90% present as a nonspecific acute febrile illness, while the remaining 10% progress to severe, potentially fatal illness with multi-organ dysfunction.

Figure 1. Leptospirosis Cases, San Diego County, 2000-2024*



*2024 data are year-to-date; data current as of 3/15/2024. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Illness may be biphasic, with the patient briefly recovering from mild illness, but then developing more severe illness. Symptoms can include fever, headache, myalgia (typically of the calves and lower back), conjunctival suffusion, nausea, vomiting, diarrhea, abdominal pain, cough, and sometimes a skin rash (Figure 2). Severe symptoms can include jaundice, renal failure, hemorrhage (especially pulmonary), aseptic meningitis, cardiac arrhythmias, pulmonary insufficiency, and hemodynamic collapse. Combined renal and liver failure associated with leptospirosis is referred to as Weil's disease. Leptospirosis during pregnancy can cause fetal complications, including fetal death or abortion. The case fatality rate for leptospirosis is approximately 5%-15% among patients with severe illness and can exceed 50% among patients with severe pulmonary hemorrhagic syndrome.

Essentially all mammals, including dogs, cats, horses, and pigs, are susceptible to infection with pathogenic *Leptospira*. Mammalian wildlife species, such as rodents, coyotes, skunks, raccoons, and opossums, are frequently maintenance hosts that can be sources of infection directly or by shedding into the environment. When infected, these animals often have no symptoms. Infected animals may continue to excrete the bacteria into the environment sporadically or continuously for months to years. *Leptospira* organisms shed in the environment can survive in water or soil for weeks to months, but can be killed by freezing, dehydration, or direct sunlight.

In dogs, the incubation period is typically 4-20 days. After this, the organism replicates in numerous body organs (including the liver, kidneys, lungs, genital tract, and brain) for another 7-10 days. It is during this time that acute, systemic clinical signs develop, which include fever, inappetence, vomiting, diarrhea, lethargy, and sometimes death. Leptospirosis has been identified as the most common cause of acute kidney injury in dogs. The diagnosis of leptospirosis is typically made on blood, urine, and/or tissue samples. Both PCR and serology tests are used to aid in diagnosis. Treatment involves aggressive nursing care with intravenous fluids, fever control, and antibiotics. These patients need to be considered highly contagious, and veterinary hospital staff members need to wear appropriate PPE to protect themselves.

Continued on next page

The Monthly Communicable Disease Surveillance Report is a publication of the County of San Diego Public Health Services Epidemiology and Immunization Services Branch (EISB). EISB identifies, investigates, registers, and evaluates communicable, reportable, and emerging diseases and conditions to protect the health of the community. The purpose of this report is to present trends in communicable disease in San Diego County. To subscribe to this report, visit the Data and Reports page on the Epidemiology Program website (www.sdepi.org) and click on the subscribe link.

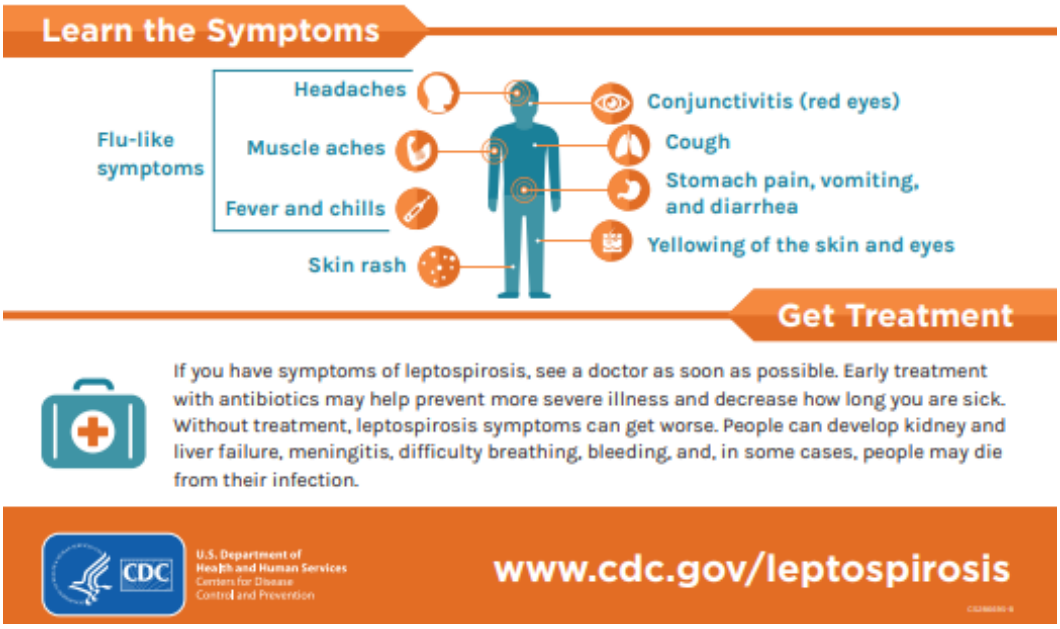
LEPTOSPIROSIS, continued

Humans can become infected through contact with urine (or other body fluids, except saliva) from infected animals. Person to person transmission is rare. Contact with water, soil, or food contaminated with the urine of infected animals can also lead to infection. The bacteria enter the body through skin or mucous membranes (eyes, nose, or mouth), especially if the skin is broken from a cut or scratch. Drinking contaminated water can also cause infection. Swimming, wading, kayaking, and rafting in contaminated lakes and rivers is likewise a risk factor. As such, it is a recreational hazard for campers or those who participate in outdoor sports. The risk is likely greater for those who participate in these activities in tropical or temperate climates. It is an occupational hazard for many people who work outdoors or with animals, such as farm workers, veterinarians and animal caretakers, dairy farmers, sewer workers, mine workers, slaughterhouse workers, fish workers, and military personnel.

While leptospirosis occurs worldwide, it is more common in tropical or sub-tropical climates. In the United States, 100-150 leptospirosis cases are reported annually to the Centers for Disease Control and Prevention (CDC). Puerto Rico reports the majority of human leptospirosis cases, followed by Hawaii. Positive canine leptospirosis tests were more likely to occur in the midwestern, eastern, and southwestern United States.

Human cases of leptospirosis are rare in San Diego County (Figure 1). Since 2011, all cases have been in males (median age of 25) who were exposed during recreational activities outside the county.

Figure 2. Infographic: Learn the Symptoms and Get Treatment



Source: https://www.cdc.gov/leptospirosis/pdf/protect-yourself-leptospirosis-P.pdf

Resources

- Centers for Disease Control and Prevention (CDC) Leptospirosis website
- CDC Yellow Book Travelers' Health: Leptospirosis
- CDC: Adventure Racing and Leptospirosis
- CDC: Leptospirosis in Pets
- California Department of Public Health Leptospirosis website
- American Veterinary Medical Association: Leptospirosis in Dogs
- County of San Diego One Health Epidemiology Program website

A leptospirosis outbreak in dogs occurred in San Diego County in 2020, during which 34 confirmed or presumptive cases in dogs were identified and reported. Leptospirosis is not a required reportable disease in animals, so the baseline incidence is unknown. No human cases were associated with this outbreak in dogs.

Zoonotic transmission is reduced by vaccination of dogs. There is no vaccine for cats at this time. The vaccine protocol is typically two vaccinations 2-4 weeks apart followed by yearly boosters. The decision to vaccinate should be based on the dog's potential for exposure to certain environments and the owner's comfort with vs. aversion to risk.

Suggested citation: Beatty M, Breher J, Trumbull E, Nelson JA. Leptospirosis. County of San Diego Monthly Communicable Disease Report 2024; 8(2):1-2.

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Table 1. Select Reportable Diseases

Disease and Case Inclusion Criteria (C,P,S)		2024 February	2024 January	2024 YTD	Prior Years 2023 YTD	Prior Years Avg YTD, 2021-2023	Prior Years 2023 Total
Botulism (Foodborne, Infant, Wound, Other)	C,P	0	0	0	0	0.3	2
Brucellosis	C,P	0	0	0	0	0.7	3
Campylobacteriosis	C,P	96	66	162	141	103.7	1,127
Candida auris	C	12	13	25	10	4.0	99
Chickenpox, Hospitalization or Death	C,P	0	1	1	1	1.0	7
Chikungunya	C,P	0	0	0	0	0.3	0
Coccidioidomycosis	C	9	23	32	63	75.0	458
Cryptosporidiosis	C,P	7	9	16	8	5.3	129
Dengue Virus Infection	C,P	2	1	3	1	0.3	25
Encephalitis, All	C	4	0	4	4	5.0	31
Giardiasis	C,P	18	18	36	28	26.0	232
Hepatitis A, Acute	C	1	4	5	8	3.0	45
Hepatitis B, Acute	C	0	0	0	3	2.7	12
Hepatitis B, Chronic	C,P	44	64	108	123	130.7	771
Hepatitis C, Acute	C,P	6	8	14	20	19.3	104
Hepatitis C, Chronic	C,P	183	175	358	397	539.7	2,223
Legionellosis	C	8	4	12	24	17.3	94
Listeriosis	C	1	0	1	1	0.3	11
Lyme Disease	C,P	0	1	1	0	1.0	14
Malaria	C	0	4	4	0	0.3	15
Measles (Rubeola)	C	1	0	1	0	0.0	0
Meningitis, Aseptic/Viral	C,P,S	3	2	5	7	10.0	61
Meningitis, Bacterial	C,P,S	2	5	7	9	6.7	39
Meningitis, Other/Unknown	C	1	1	2	4	4.7	25
Meningococcal Disease	C,P	1	1	2	0	0.0	4
Mumps	C,P	0	1	1	0	0.3	0
Pertussis	C,P	19	37	56	27	13.7	324
Rabies, Animal	C	0	0	0	0	0.7	8
Rocky Mountain Spotted Fever	C,P	0	0	0	0	0.3	4
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	36	41	77	87	62.0	685
Shiga toxin-Producing *E. coli* (including O157)	C,P	15	17	32	18	17.0	249
Shigellosis	C,P	42	32	74	72	48.7	523
Typhoid Fever	C,P	1	0	1	0	1.7	7
Vibriosis	C,P	0	3	3	2	2.0	45
West Nile Virus Infection	C,P	0	0	0	0	0.0	0
Yersiniosis	C,P	12	7	19	14	6.3	79
Zika Virus	C,P	0	0	0	0	0.0	0

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. Includes San Diego County resident cases only.

San Diego County Sexually Transmitted Infection Data | San Diego County Tuberculosis Data

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Figure 2. Select Enteric Infections by Month
March 2023 – February 2024

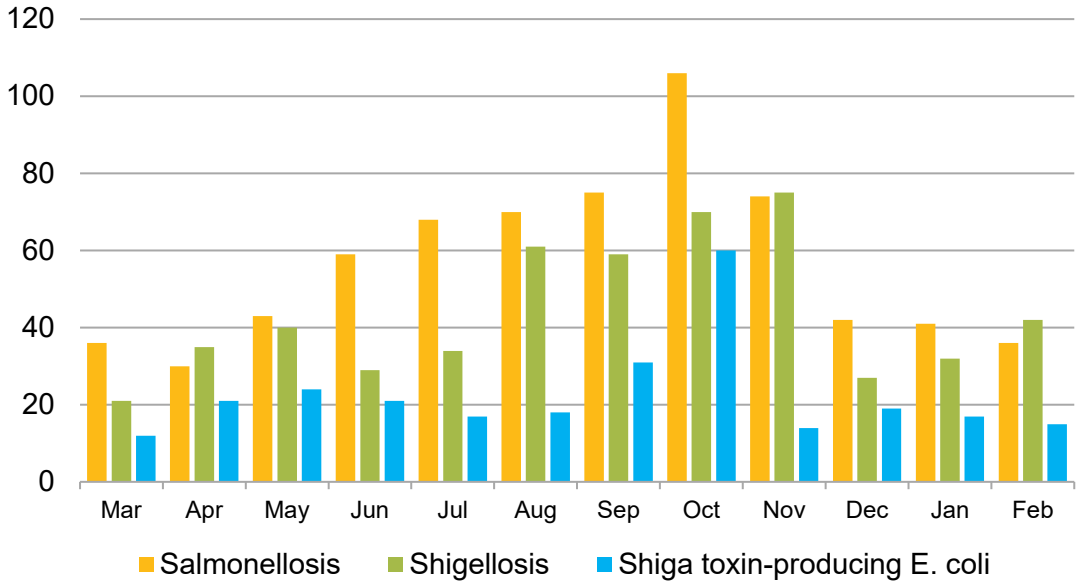

Figure 3. Select Vaccine-Preventable Infections by Month
March 2023 – February 2024

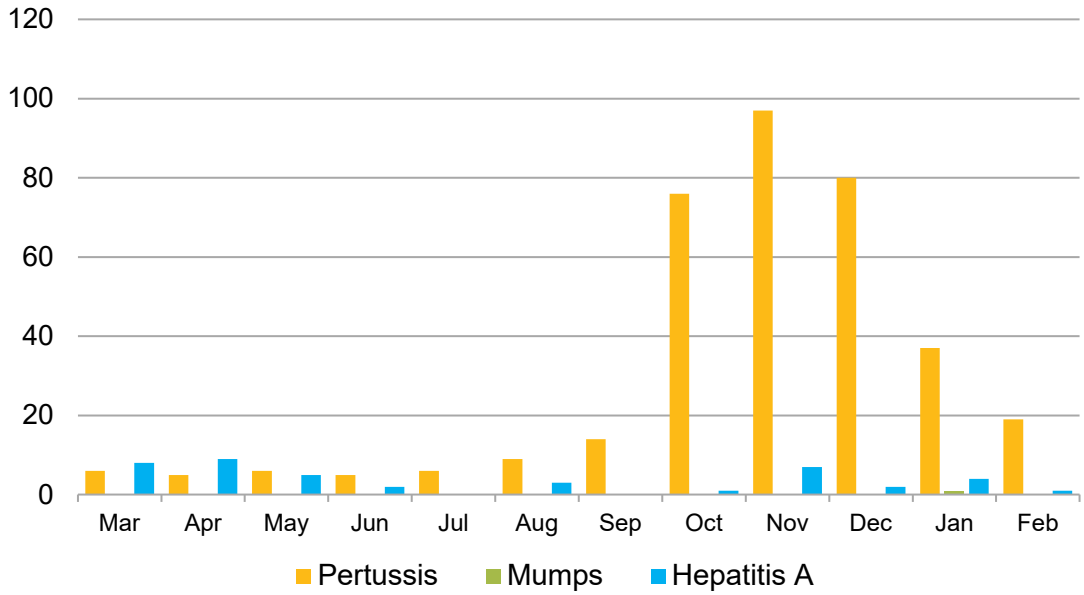

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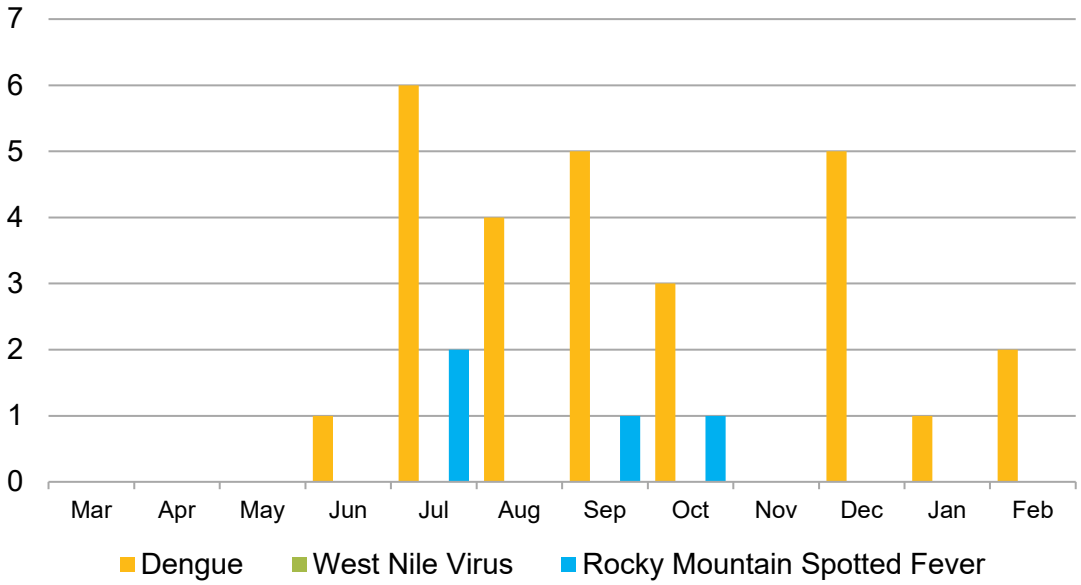
Figure 4. Select Vector-Borne Infections by Month
March 2023 – February 2024



All of the dengue cases are travel-associated. For more information on West Nile virus, see the County West Nile 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 this effort.

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.