EPIDEMIOLOGY AND IMMUNIZATION SERVICES BRANCH

MONTHLY COMMUNICABLE DISEASE REPORT

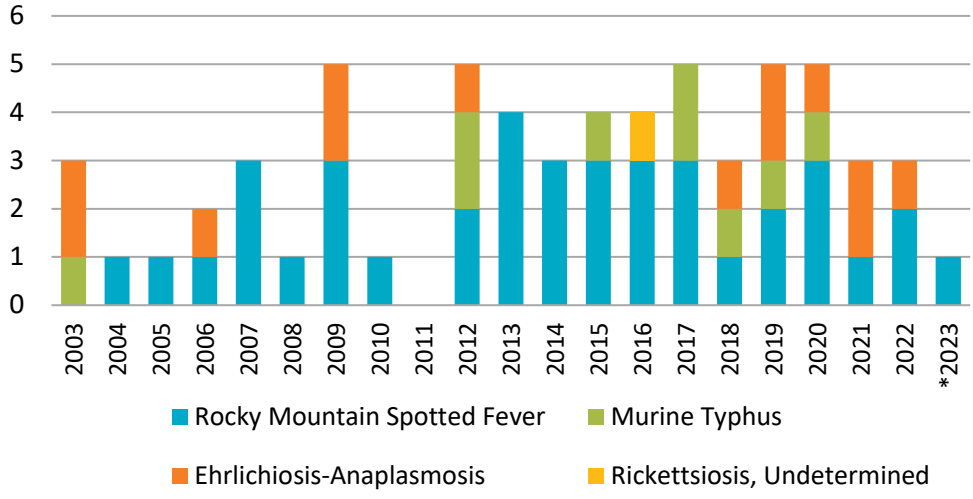
JULY 2023

Volume 7, Issue 7: August 16, 2023

RICKETTSIAL DISEASE

The rickettsioses are a group of infections caused by obligate intracellular bacteria in the order *Rickettsiales* with a worldwide and varied distribution. These include tick-borne spotted fevers (including Rocky Mountain Spotted Fever and Pacific Coast Fever), murine (flea-borne) typhus, epidemic louse-borne typhus, mite-born scrub typhus, and tick-borne ehrlichiosis and anaplasmosis.

Figure 1. Rickettsial Disease Cases, San Diego County, 2003-2023*



*2023 data are year-to-date; current as of 8/16/2023. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Rocky Mountain Spotted Fever (RMSF), caused by *R. rickettsia*, is the most familiar and severe of the spotted fever rickettsioses. In the United States, the principal arthropod vector varies by region, with the American dog tick in the eastern, central, and Pacific coastal United States, the Rocky Mountain wood tick in the northern and central United States (U.S.), and the brown dog tick in the southwestern U.S. and Mexico. Nationally, disease rates have increased steadily since spotted fever rickettsiosis became reportable in the 1920s, peaking in 2017 with a national incidence of 6,248. In California, the American dog tick, brown dog tick, and the lesser-known Pacific Coast tick can transmit the bacteria that cause RMSF to people and dogs. These ticks must be attached to a person's skin for 4-6 hours to cause infection. Locally, in San Diego County, incidence has remained steady from 1-4 cases per year across the last decade. However, there are increasing concerns due to consistent outbreaks in Mexicali since 2009, now considered an epidemic of RMSF. In other areas of Baja California and Mexico, there are reports of RMSF crossing the U.S.-Mexico border in several fatal cases.

The incubation period of RMSF is 2-14 days after inoculation. Common symptoms include abrupt onset of fever and headache followed by, in 90% of cases, a rash that typically appears 2-5 days after initial symptoms. In early stages, maculopapular rashes may appear on the wrists, forearms, and ankles before spreading to the trunk and occasionally palms and soles. Late-stage petechial rashes may occur, typically on or after day 6 of illness, and signify the progression to severe illness. All efforts should be made to treat RMSF before petechiae develop and clinicians should consider treatment for RMSF even if a rash is not yet present. As with other rickettsial diseases, lab findings include thrombocytopenia, hyponatremia, and elevated hepatic transaminases. If not promptly recognized and treated, RMSF can quickly progress to multiorgan disease, which may include altered mental status (coma, cerebral edema), respiratory compromise (pulmonary edema, acute respiratory distress syndrome), necrosis (requiring amputation), and other organ damage (e.g., renal failure). Given the potential severity of disease and high

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.

RICKETTSIAL DISEASE, continued

mortality rate (3-5% with early recognition and treatment, 20-80% when untreated), most, if not all, cases require hospitalization.

Diagnosis of RMSF occurs via polymerase chain reaction or serological studies. Careful history taking, including travel and exposure history, and physical exam are essential for the diagnosis of RMSF, especially in the setting of prolonged fever and rash. Of note, in upwards of 45% of cases, there is no known tick bite in the history, thus neither tick exposure nor rash should not be mandatory for consideration of RMSF.

The antibiotic of choice for treatment of RMSF is doxycycline. When suspected, initiation of empiric doxycycline should not be delayed while awaiting laboratory or microbiological confirmation. Doxycycline is most effective to prevent severe illness and death if administered within 5 days of RMSF symptom onset. Most deaths occur between days 7-9 of illness. Despite historical concerns for the adverse effects of tetracyclines (specifically, discoloration of teeth in children), doxycycline has been deemed by notable authorities, including the American Academy of Pediatrics, as safe to use in children for under 28 days, and is an essential first-line agent in the treatment of RMSF for patients of all ages.

Pacific Coast Tick Fever (PCTF) is another tick-borne spotted fever caused by *R. philipii* (previously *R.* sp. 364D) and transmitted by the Pacific Coast tick, which is common in California from May-September. PCTF is less severe than RMSF; however, it is difficult to differentiate between spotted fevers in the early stages of illness. Unlike RMSF, rashes are uncommon and patients with PCTF often develop necrotic skin lesions called eschars, which typically develop within a few days to a week at the site of the tick bite. Treatment and prevention of PCTF is the same as for RMSF.

Murine typhus is another notifiable rickettsial disease endemic to Southern California, spread by infected fleas that transmit *R. typhi* from their rat reservoir to humans. Early symptoms are, again, non-specific (fever, chills, headache, body aches, abdominal pain, nausea, vomiting, and cough) and usually occur 1-2 weeks post-inoculation. Rash may also occur. Unlike with RMSF, illness is rarely severe and may even be self-limited. Still, treatment with doxycycline should not be delayed while awaiting serological testing as multi-organ disease has been reported.

Ehrlichiosis and anaplasmosis are another group of spring and summer-time tick-borne illnesses. Although found more frequently in the southeastern and northeastern regions of the United States, cases have been reported in Mexico, throughout Latin America, and sporadically in San Diego County. While anaplasmosis is rarely reported in children, Ehrlichiosis can be a severe disease presenting with fever, headache, myalgia, rash (maculopapular or petechial), gastrointestinal symptoms, altered mental status, and lymphadenopathy that may require intensive care. Empiric treatment with doxycycline is justified in the appropriate setting while awaiting serological diagnosis.

Resources

United States

- Centers for Disease Control and Prevention (CDC) Ticks website
- Tickborne Diseases of the United States: A Reference Manual for Healthcare Providers
- Diagnosis and Management of Tickborne Rickettsial Diseases
- CDC RMSF website
- Rocky Mountain Spotted Fever (and other tickborne diseases) Toolkit for Healthcare Providers (CDC)
- CDC Other Spotted Fever Group Rickettsioses website
- CDC Murine (Flea-borne)Typhus Fever website

California

- California Department of Public Health (CDPH) Tickborne Diseases website
- CDPH Spotted Fever Group Rickettsia (Rocky Mountain Spotted Fever and Pacific Coast Tick Fever) website
- CDPH Spotted Fever Rickettsia Fact Sheet
- Spotted Fever Group Rickettsioses Information for Healthcare Professionals
- California Endemic Tickborne Diseases At-a-Glance
- CDPH Flea-borne Typhus website
- Human Flea-Borne Typhus Cases in California, 2014-2023

San Diego County

- San Diego County Vector Control Program website

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Table 1. Select Reportable Diseases		2023			Prior Years		
Disease and Case Inclusion Criteria (C,P,S)		July	June	January – July (YTD)	2022 YTD	Avg YTD, 2020-2022	2022 Total
Botulism (Foodborne, Infant, Wound, Other)	C,P	0	0	0	0	0.7	5
Brucellosis	C,P	0	0	1	3	1.7	5
Campylobacteriosis	C,P	125	116	625	514	472.7	955
Chickenpox, Hospitalization or Death	C,P	1	2	4	0	1.0	1
Chikungunya	C,P	0	0	1	2	0.7	2
Coccidioidomycosis	C	25	30	251	262	264.0	426
Cryptosporidiosis	C,P	14	12	67	42	29.0	93
Dengue Virus Infection	C,P	2	0	3	5	2.7	14
Encephalitis, All	C	1	2	12	14	20.3	27
Giardiasis	C,P	23	17	120	121	98.3	191
Hepatitis A, Acute	C	0	2	32	17	12.7	30
Hepatitis B, Acute	C	0	2	6	10	8.7	12
Hepatitis B, Chronic	C,P	66	53	454	538	451.0	904
Hepatitis C, Acute	C,P	0	0	39	55	43.7	88
Hepatitis C, Chronic	C,P	166	167	1,257	1,843	2,086.7	2,943
Legionellosis	C	5	6	59	40	33.0	84
Listeriosis	C	2	1	8	12	8.0	18
Lyme Disease	C,P	4	1	7	5	6.0	7
Malaria	C	0	0	3	7	6.0	11
Measles (Rubeola)	C	0	0	0	0	0.0	0
Meningitis, Aseptic/Viral	C,P,S	5	6	33	41	40.7	75
Meningitis, Bacterial	C,P,S	1	3	19	21	17.0	33
Meningitis, Other/Unknown	C	2	0	10	14	16.7	23
Meningococcal Disease	C,P	1	0	4	1	2.0	2
Mumps	C,P	0	0	0	3	6.7	3
Pertussis	C,P	2	4	50	39	93.3	102
Rabies, Animal	C	0	0	2	2	3.0	3
Rocky Mountain Spotted Fever	C,P	1	0	1	3	2.0	3
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	64	59	318	334	286.7	680
Shiga toxin-Producing *E. coli* (including O157)	C,P	11	17	98	122	89.7	208
Shigellosis	C,P	28	27	223	221	151.0	527
Typhoid Fever	C,P	0	1	3	12	7.3	13
Vibriosis	C,P	6	3	16	9	16.0	38
West Nile Virus Infection	C,P	0	0	0	1	0.7	3
Yersiniosis	C,P	1	4	26	23	17.3	46
Zika Virus	C,P	0	0	0	1	0.3	1

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

Figure 2. Select Enteric Infections by Month
August 2022 – July 2023

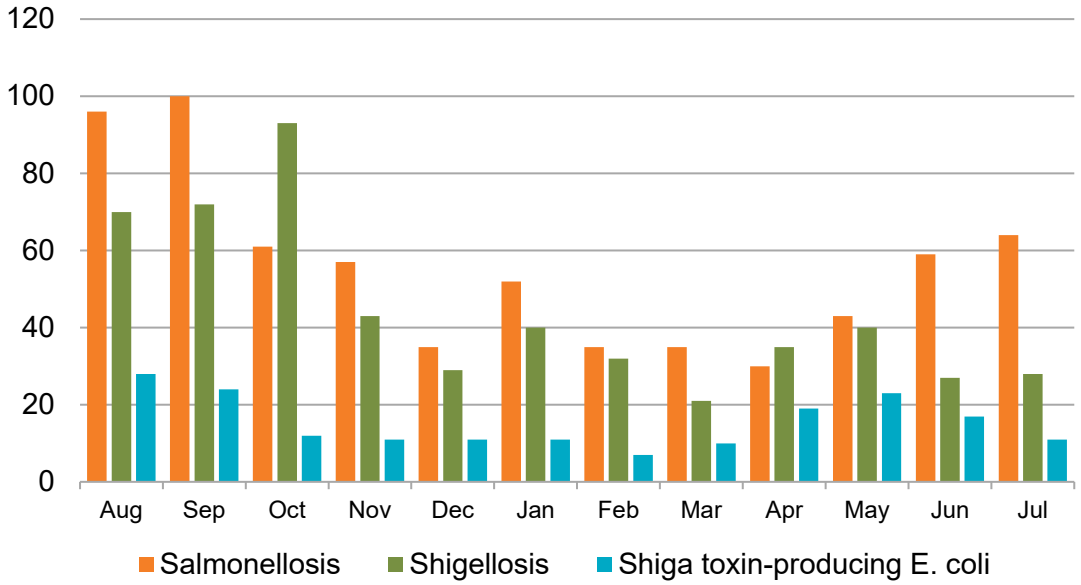

Figure 3. Select Vaccine-Preventable Infections by Month
August 2022 – July 2023

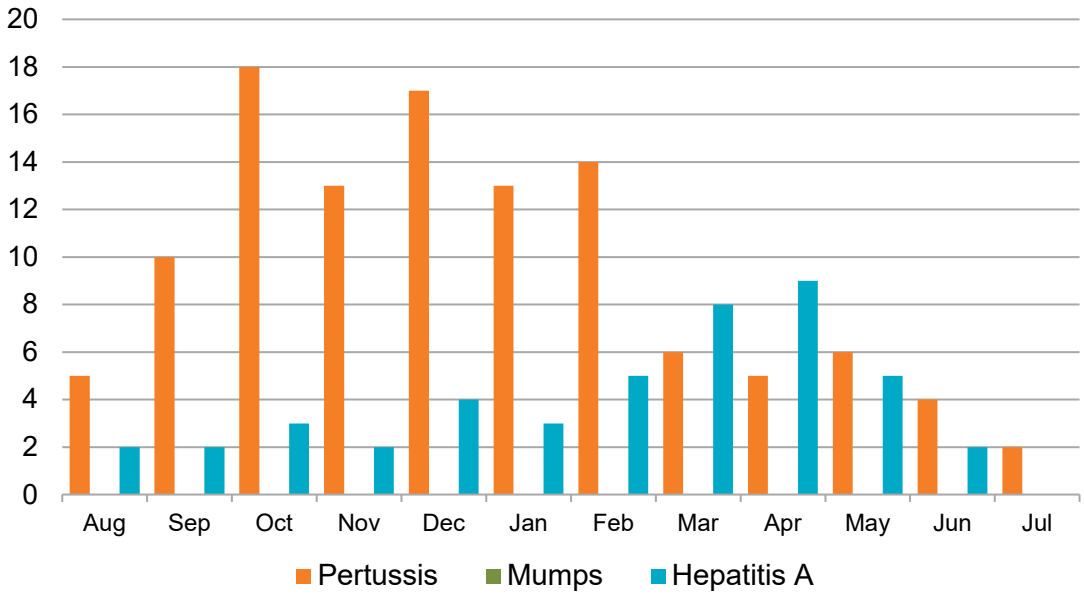

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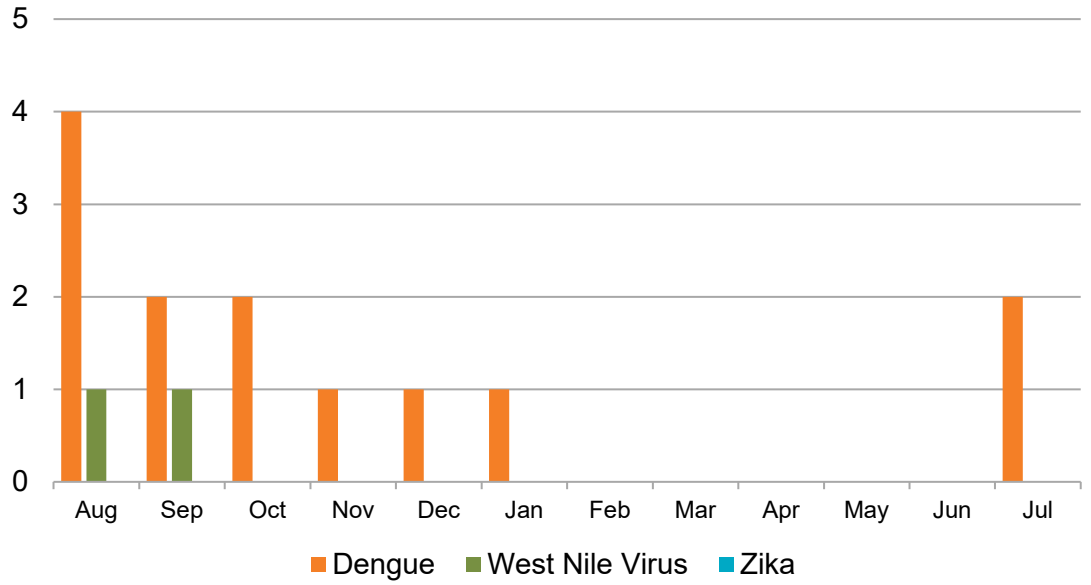
Figure 4. Select Vector-Borne Infections by Month
August 2022 – July 2023



All of the dengue and Zika virus cases are travel-associated. For additional information on Zika cases, see the HHSA Zika Virus webpage. 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.