

MENINGOCOCCAL DISEASE

Invasive meningococcal disease (IMD) is a severe and frequently deadly, but vaccine-preventable, illness caused by *Neisseria meningitidis* bacteria. The most common clinical syndromes are meningitis, when the bacteria infect the lining of the brain and spinal cord, and meningococemia (septicemia), when the bacteria infect the bloodstream.

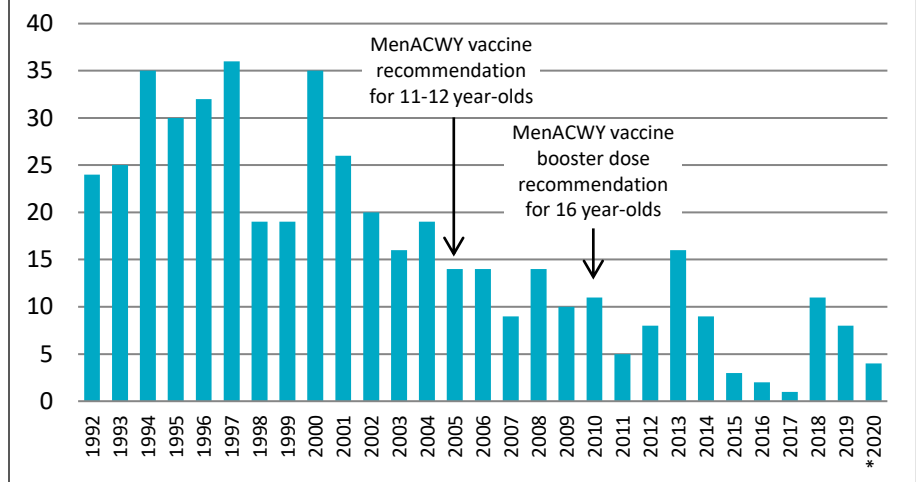
Sudden onset of fever and vomiting are common symptoms of both meningitis and meningococemia. Other symptoms of meningitis include headache, stiff neck, photophobia, and altered mental status. Signs of meningococemia include fatigue, cold hands and feet, muscle or joint pain, and a dark purple rash (purpura).

Since 1995, incidence of IMD has been declining steadily in the United States (U.S.), from 1.2 per 100,000 population to a historic low of 0.1 per 100,000 in 2018. In California, 43 cases of IMD (0.1 per 100,000) were reported in 2018. San Diego County case counts declined from 35 in 2000 (1.2 per 100,000) to eight in 2019 (<0.2 per 100,000).

Rates of IMD are highest among children under five years of age, particularly infants less than one year old, and adolescents and young adults between the ages of 15 and 23 years. Others at increased risk of disease include household and close contacts of case patients; first year college students living in residence halls, military recruits, and others living in close quarters; smokers; persons with certain medical conditions, such as [HIV infection](#), functional or anatomic asplenia, and complement component deficiency; and [persons receiving eculizumab therapy](#).

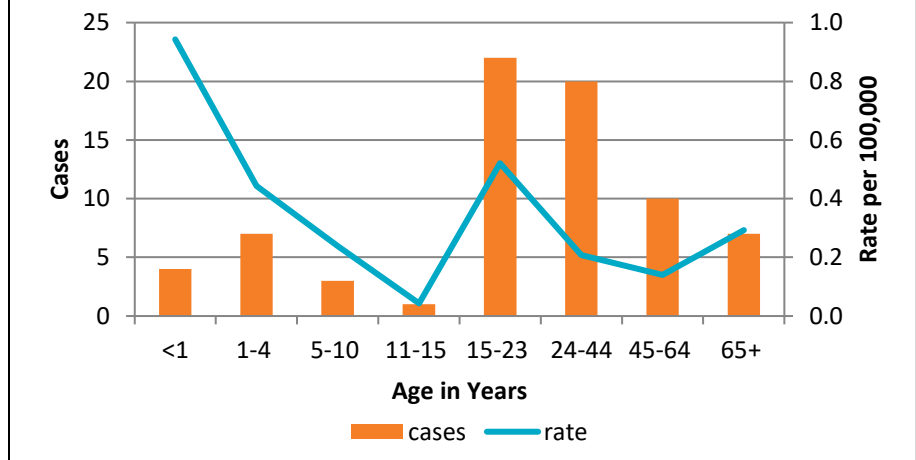
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Figure 1. Meningococcal Disease Cases, San Diego County, 1992-2020*



*2020 data are year-to-date; current as of 10/15/2020. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Figure 2. Meningococcal Disease Cases and Rates by Age, San Diego County, 2010-2019 (N=74)



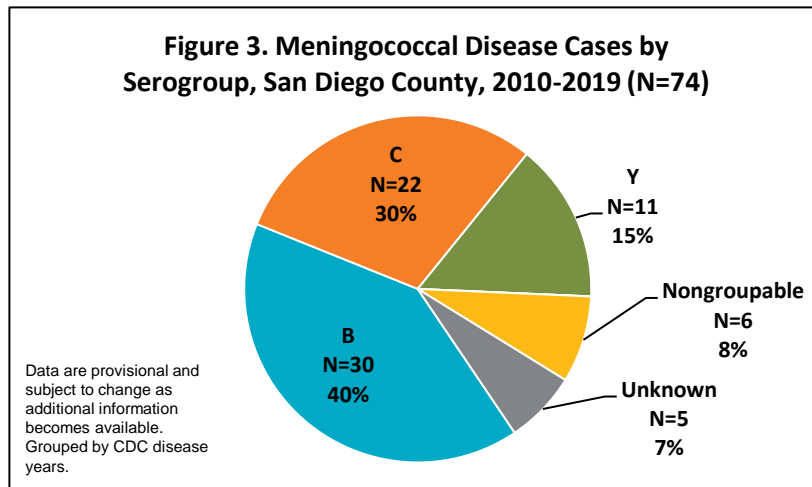
Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years. Rates calculated based on low case counts should be interpreted with caution.

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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 works to identify, investigate, register, and evaluate 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, send an email to EpiDiv.HHSA@sdcounty.ca.gov.

MENINGOCOCCAL DISEASE, continued

The decline in IMD incidence in the U.S. preceded the 2005 Advisory Committee on Immunization Practices (ACIP) recommendation that all 11-12 year-olds be vaccinated with a meningococcal conjugate vaccine. This vaccine protects against serogroups A, C, W, and Y. A booster dose is recommended for 16 year-olds. In addition, serogroup B vaccine has been licensed for use in the U.S. since 2014 and may also be given to those at risk.



Serogroups B, C, and Y are responsible for most IMD in the U.S., whereas serogroup A has historically been associated with disease in the “meningitis belt” of sub-Saharan Africa. In San Diego County over the past 10 years, serogroups B and C have been responsible for 70% of cases, with 15% caused by serogroup Y. There were no cases of serogroup W135.

Although outbreaks of IMD are relatively rare in the U.S., there have been serogroup B outbreaks at colleges in recent years. Between September 2018 and April 2019, three cases of serogroup B meningococcal disease occurred in students at [San Diego State University](#).

In response, mass vaccination events were held on campus, resulting in 37% of undergraduates age 23 and under receiving at least one dose of meningococcal serogroup B vaccine by the end of the school year. In San Diego County, the number of meningococcal vaccinations administered and documented in the local immunization registry peaked in 2018-2019 with 34,469 vaccinations, up from 5,656 in 2015-2016.

IMD outcomes are often severe, even with prompt antibiotic treatment. The case fatality ratio is 10-15%, and up to 40% in cases of meningococemia. Those who survive may have serious sequelae; 11-19% of survivors suffer long-term disabilities such as loss of limbs, hearing loss, or brain damage. Six of 54 San Diego County cases (nearly 15%) since 2013 have been fatal; four of those had meningococemia. In the same time period, 33 of 54 cases had evidence of blood stream infection and 30 were diagnosed with meningitis.

Meningococcal bacteria are transmitted person to person via respiratory and throat secretions shared during close contact. About one in ten people carry the bacteria in their nasal passages with no symptoms of disease. In a small percentage of people, the bacteria invade a normally sterile site (e.g., blood, cerebral spinal fluid) and cause illness. A preceding upper respiratory infection may be a contributing factor. Although IMD is not as infectious as other respiratory infections, close contacts of persons with IMD are at increased risk and should receive post-exposure prophylaxis (PEP). Sometimes, especially in college or military settings, there may be large numbers of contacts to a single case. In San Diego County, among 26 cases with available information since 2016, PEP was recommended to over 3,000 people, a median of 9 contacts per case (range 1-1,800+).

While *Neisseria meningitidis* is largely susceptible to antibiotics such as ciprofloxacin or ceftriaxone, some [penicillin- and ciprofloxacin-resistant serogroup Y isolates](#) have been found in the U.S. in recent years. It is recommended that healthcare providers conduct tests of antimicrobial susceptibility of meningococcal isolates to inform treatment and prophylaxis decisions, but that such testing not delay initiation of treatment or prophylaxis.

Resources

- [Centers for Disease Control and Prevention \(CDC\) Meningococcal Disease website](#)
- [Epidemiology and Prevention of Vaccine-Preventable Diseases \(the Pink Book\)](#)
- [California Department of Public Health \(CDPH\) Meningococcal Disease website](#)
- [County of San Diego Meningococcal Disease fact sheet](#)

MONTHLY COMMUNICABLE DISEASE REPORT

SEPTEMBER 2020

Volume 4, Issue 9: October 15, 2020

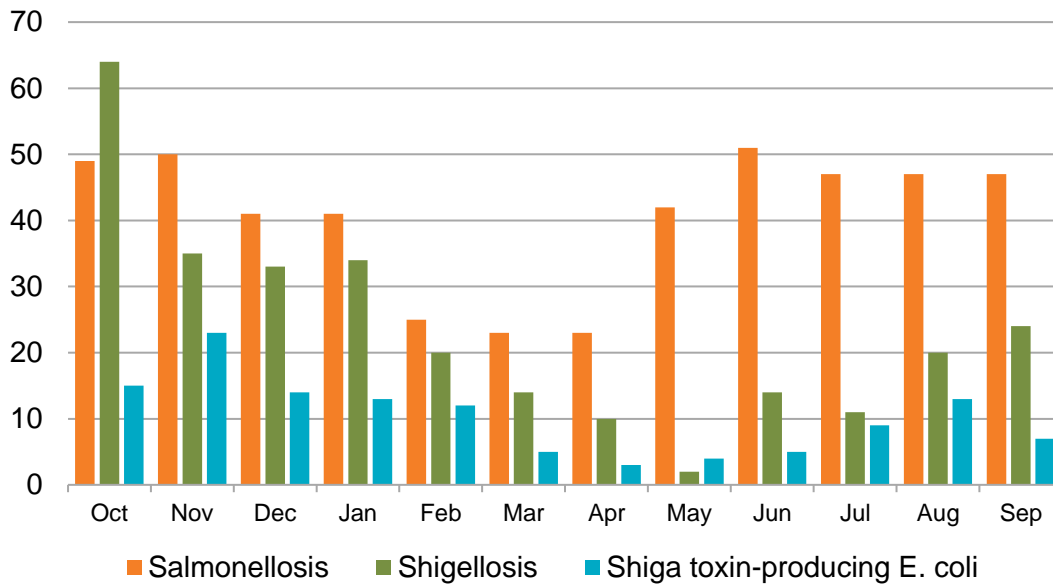


Table 1. Select Reportable Diseases		2020			Prior Years		
		Current Month	Prior Month	Year-to-Date (YTD)	2019 YTD	Avg YTD, Prior 3 Years	2019 Total
Disease and Case Inclusion Criteria (C,P,S)							
Botulism (Foodborne, Infant, Wound, Other)	C,P	0	0	0	0	5.0	2
Brucellosis	C,P	0	0	0	1	2.7	1
Campylobacteriosis	C,P	51	55	460	803	731.3	997
Chickenpox, Hospitalization or Death	C,P	0	0	0	2	1.0	2
Chikungunya	C,P	0	0	1	3	3.3	6
Coccidioidomycosis	C	1	1	16	325	242.7	460
Cryptosporidiosis	C,P	4	4	27	73	61.0	99
Dengue Virus Infection	C,P	0	0	2	18	11.0	31
Encephalitis, All	C	1	1	13	37	36.3	45
Giardiasis	C,P	10	15	114	176	208.3	219
Hepatitis A, Acute	C	0	0	13	11	180.7	15
Hepatitis B, Acute	C	1	0	6	6	8.0	7
Hepatitis B, Chronic	C,P	50	54	493	708	667.0	904
Hepatitis C, Acute	C,P	1	0	24	63	22.7	76
Hepatitis C, Chronic	C,P	224	221	2,129	3,288	2,950.7	4,293
Legionellosis	C	1	2	20	51	45.7	65
Listeriosis	C	0	3	10	10	12.3	11
Lyme Disease	C,P	0	0	1	4	11.3	4
Malaria	C	0	0	6	6	6.0	7
Measles (Rubeola)	C	0	0	0	2	1.3	2
Meningitis, Aseptic/Viral	C,P,S	1	4	41	143	128.0	188
Meningitis, Bacterial	C,P,S	0	3	17	26	29.7	35
Meningitis, Other/Unknown	C	0	1	5	26	22.0	29
Meningococcal Disease	C,P	0	0	4	6	5.7	8
Mumps	C,P	0	0	16	42	20.3	66
Pertussis	C,P,S	1	1	213	541	620.7	822
Rabies, Animal	C	2	0	6	6	8.7	7
Rocky Mountain Spotted Fever	C,P	0	1	3	1	1.0	2
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	47	47	346	517	518.0	656
Shiga toxin-Producing <i>E. coli</i> (including O157)	C,P	7	13	71	203	122.3	255
Shigellosis	C,P	24	20	149	300	261.7	429
Typhoid Fever	C,P	3	0	5	6	3.3	7
Vibriosis	C,P	2	10	24	45	46.7	58
West Nile Virus Infection	C,P	0	0	1	3	2.0	3
Yersiniosis	C,P	1	6	22	39	34.0	53
Zika Virus	C,P	0	0	0	7	9.7	9

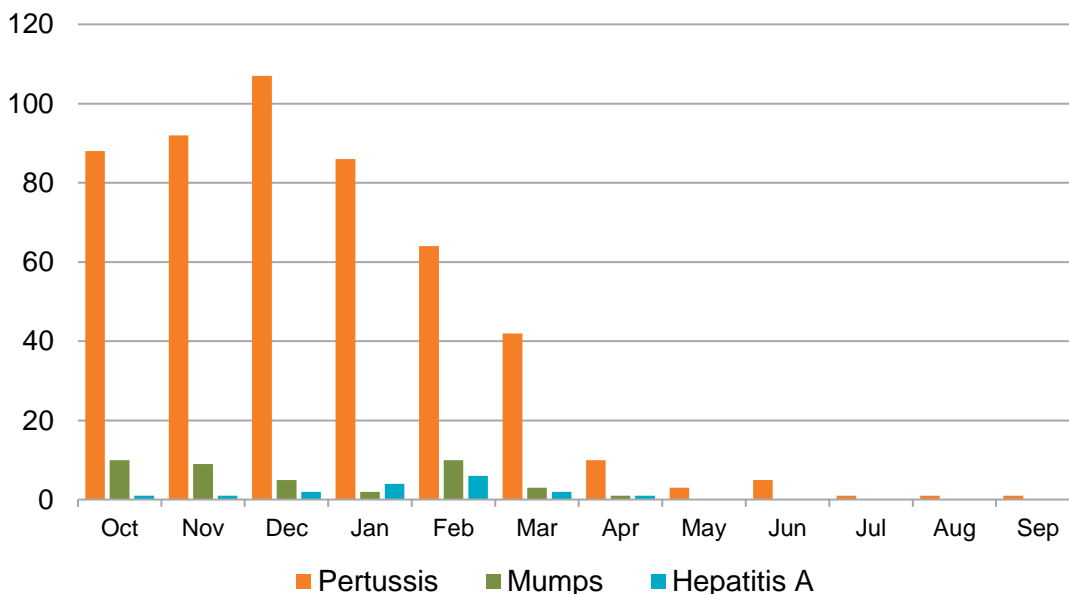
Case counts are provisional and subject to change as additional information becomes available. Cases are grouped into calendar months and calendar years on the basis of the earliest of the following dates: onset, lab specimen collection, diagnosis, death, and report received. Counts may differ from previously 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
October 2019 – September 2020**

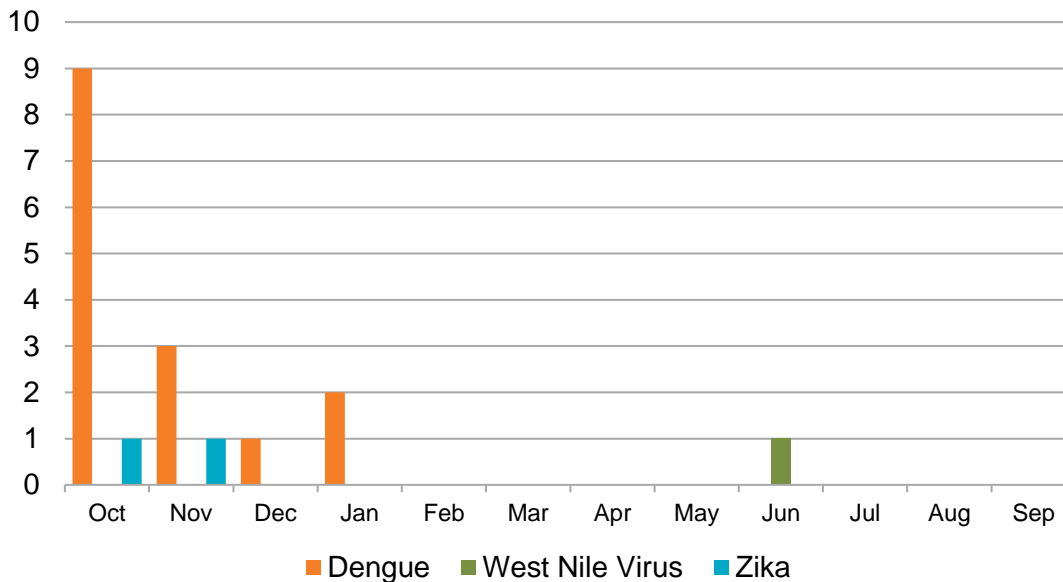


**Figure 5. Select Vaccine-Preventable Infections by Month
October 2019 – September 2020**



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**Figure 6. Select Vector-Borne Infections by Month
October 2019 – September 2020**



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>.