EPIDEMIOLOGY AND IMMUNIZATION SERVICES BRANCH

MONTHLY COMMUNICABLE DISEASE REPORT

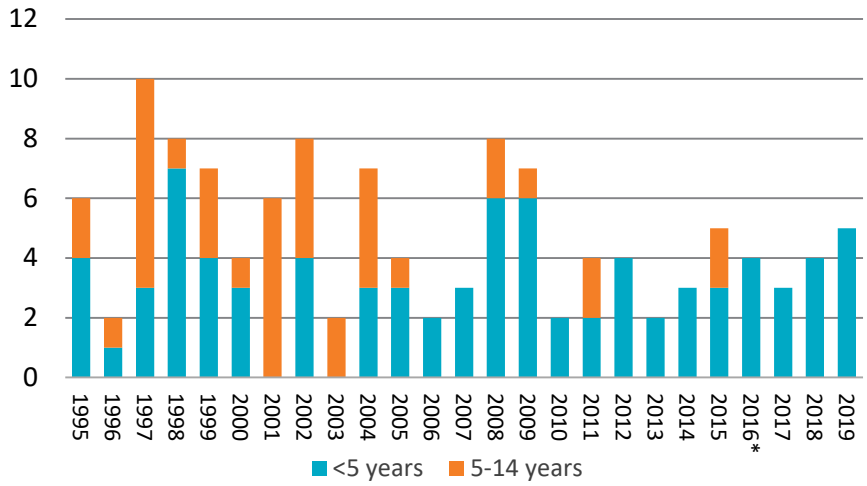
FEBRUARY 2020

Volume 4, Issue 2: March 16, 2020

Haemophilus influenzae Disease

Haemophilus influenzae disease is any illness caused by *H. influenzae* bacteria. *H. influenzae* are spread when someone who has the bacteria in their nose or throat coughs or sneezes. The bacteria usually cause no harm in the nose and throat, but can sometimes infect other parts of the body. These infections range from mild ear infections in children and bronchitis in adults to severe invasive illnesses like meningitis. Other invasive diseases caused by *H. influenzae* include pneumonia, bacteremia, epiglottitis, cellulitis, and infectious arthritis.

Figure 1. Invasive *Haemophilus influenzae* Disease Cases, San Diego County, 1995-2019



*In 2016, the reportable age for *Haemophilus influenzae* changed from <15 years of age to <5 years of age. Cases are <5 years of age from 2016-2019, and <15 years of age prior to 2016.
Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

H. influenzae has six encapsulated types (types a through f) with a polysaccharide capsule or coat, as well as unencapsulated types (nontypeable). Young children are more susceptible to infection with the encapsulated types than nontypeable strains because they cannot make antibodies to polysaccharide. In young children, *Haemophilus influenzae* type b (Hib) primarily causes pneumonia and meningitis. Nontypeable strains are a common cause of ear infections and sinusitis in children (30% to 52% of episodes) and bronchitis in adults. Although nontypeable strains may cause invasive disease, the disease is usually less virulent than that caused by encapsulated strains. People diagnosed with *H. influenzae* may be prescribed antibiotics to treat the infection and to prevent complications. Some people with *H. influenzae* disease may require hospitalization. While complications are rare, *H. influenzae* infections may result in loss of limbs, brain damage, hearing loss, and even death.

Hib disease is preventable with a vaccine. In the prevaccine era, type b was responsible for 95% of invasive disease, and nearly all Hib infections occurred among children younger than five years of age. More than 95% of infants develop immunity to Hib bacteria after receiving the primary vaccination series (≥2 or ≥3 doses, depending on product type). The Centers for Disease Control and Prevention (CDC) recommends all children younger than two years old in the United States (U.S.) receive the full series of Hib conjugate vaccine starting at two months of age, and a booster shot between 12 and 15 months. Hib vaccination is also recommended for people at increased risk of *H. influenzae* disease, specifically persons with sickle cell disease, asplenia (no spleen), HIV infection, antibody deficiency syndromes, and cancer being treated with chemotherapy, radiation therapy, or bone marrow stem cell transplant. In 2017, Hib vaccination coverage among children aged 19 to 35 months in the U.S. was 92.8% for the primary series, and 80.7% for the full series (primary series and booster dose). The full immunization schedule for children and adults is available from CDC.

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 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.

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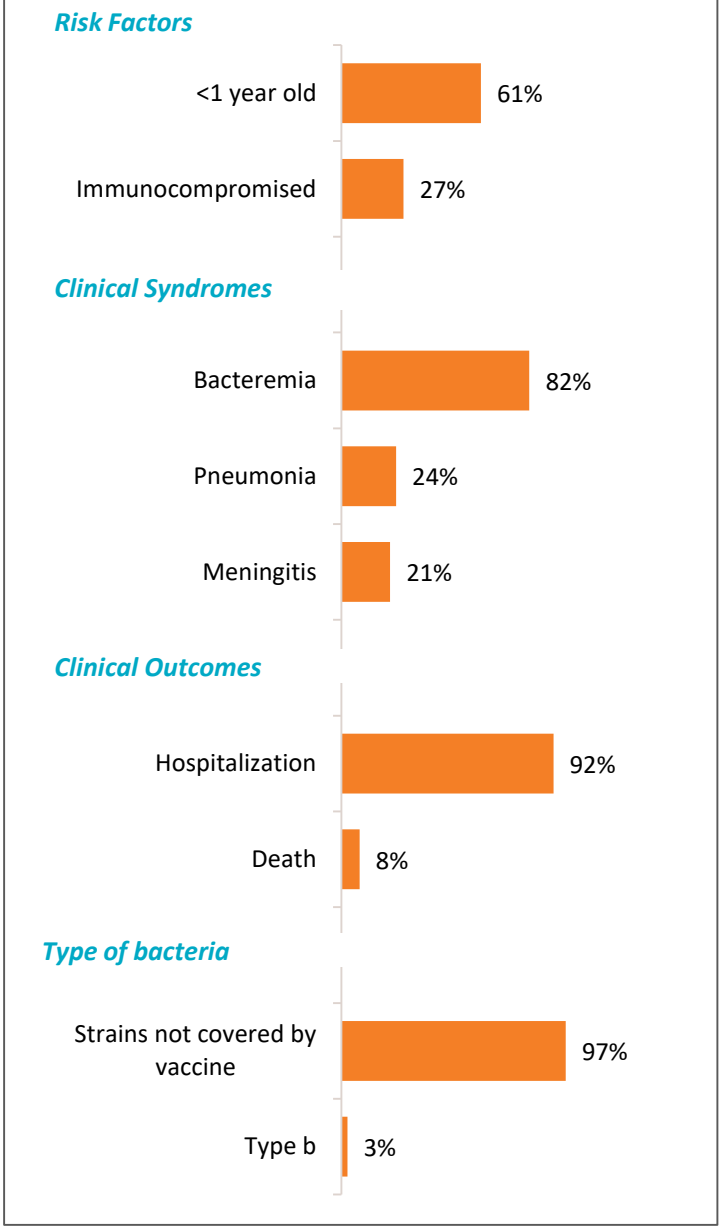
Haemophilus influenzae Disease, continued

Since the U.S. began using the Hib conjugate vaccines in 1987, the annual incidence of invasive Hib disease in children younger than five years of age has declined by 99%, to less than one case per 100,000. Hib was previously the most common cause of bacterial meningitis in this age group. Most invasive disease among all age groups is now due to nontypeable strains. In children younger than five years of age, invasive Hib disease now occurs primarily in under-immunized children and in infants too young to have completed the primary vaccination series. Household contacts and daycare classmates of persons with Hib disease are at increased risk of Hib disease.

Nationally, invasive *H. influenzae* disease is reportable among all ages; in California, only cases in children under age five are reportable. In 2018, there were 5,573 cases of invasive *H. influenzae* disease among all ages in the U.S., and 626 cases among children younger than five years of age. Nontypeable strains or other strains not covered by the vaccine caused 66% of invasive *H. influenzae* disease. From 2002-2015, the overall incidence of *H. influenzae* disease increased by 2% annually, and the incidence of serotype a disease increased by 13% annually. In California, there were 31 cases of invasive *H. influenzae* disease reported in 2018 in children younger than five years old. All were of unknown type.

In San Diego County, there were 38 cases of invasive *H. influenzae* disease among children under five from 2009-2019. Over 60% of cases were under one year old, and 27% (7/26) were immunocompromised. Bacteremia was the primary clinical syndrome. Over 90% of cases were hospitalized, and 8% died. All deaths occurred in children less than one year of age and were caused by nontypeable strains. Most cases were caused by strains not covered by the vaccine; 11% were type a. There was only one case of type b, in an infant too young to be immunized.

Figure 2. Select Characteristics of Invasive *H. influenzae* Disease Cases <5 Years of Age, San Diego County, 2009-2019 (N=38)



Grouped by CDC disease years. Denominators are cases with available information for each variable. Data are provisional and subject to change.

Resources

- Centers for Disease Control and Prevention Haemophius influenzae Disease website
- Epidemiology and Prevention of Vaccine-Preventable Diseases – Haemophilus influenzae (the Pink Book)
- California Department of Public Health *Haemophilus influenzae* type b website
- San Diego Immunization Program

Table 1. Select Reportable Diseases		2020			Prior Years		
Disease and Case Inclusion Criteria (C,P,S)		Current Month	Prior Month	Year-to-Date (YTD)	2019 YTD	Avg YTD, Prior 3 Years	2019 Total
Botulism (Foodborne, Infant, Wound, Other)	C,P	0	0	0	0	1.0	2
Brucellosis	C,P	0	0	0	1	1.0	1
Campylobacteriosis	C,P	33	69	102	118	111.7	996
Chickenpox, Hospitalization or Death	C,P	0	0	0	1	0.3	2
Chikungunya	C,P	0	0	0	0	0.3	3
Coccidioidomycosis	C	5	7	12	76	56.0	389
Cryptosporidiosis	C,P	4	3	7	9	7.0	98
Dengue Virus Infection	C,P	0	1	1	0	1.7	29
Encephalitis, All	C	1	5	6	7	8.0	41
Giardiasis	C,P	10	10	20	47	48.3	218
Hepatitis A, Acute	C	3	5	8	1	8.3	15
Hepatitis B, Acute	C	1	1	2	2	2.0	7
Hepatitis B, Chronic	C,P	56	42	98	151	147.0	904
Hepatitis C, Acute	C,P	7	11	18	9	3.3	76
Hepatitis C, Chronic	C,P	352	386	738	632	576.3	4,175
Legionellosis	C	1	3	4	10	10.0	61
Listeriosis	C	0	0	0	1	1.7	9
Lyme Disease	C,P	0	0	0	0	1.3	4
Malaria	C	2	2	4	0	0.7	7
Measles (Rubeola)	C	0	0	0	0	0.0	2
Meningitis, Aseptic/Viral	C,P,S	1	6	7	19	14.3	182
Meningitis, Bacterial	C,P,S	3	3	6	8	9.0	34
Meningitis, Other/Unknown	C	0	1	1	7	4.7	26
Meningococcal Disease	C,P	1	1	2	3	2.0	8
Mumps	C,P	7	2	9	6	4.3	66
Pertussis	C,P,S	40	80	120	103	119.3	815
Rabies, Animal	C	0	1	1	0	1.3	7
Rocky Mountain Spotted Fever	C,P	0	0	0	0	0.3	1
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	20	43	63	58	62.7	654
Shiga toxin-Producing *E. coli* (including O157)	C,P	7	7	14	16	10.7	244
Shigellosis	C,P	19	30	49	67	52.7	427
Typhoid Fever	C,P	0	1	1	5	2.0	7
Vibriosis	C,P	2	1	3	6	4.3	58
West Nile Virus Infection	C,P	0	0	0	0	0.0	3
Yersiniosis	C,P	3	1	4	7	3.7	53
Zika Virus	C,P	0	0	0	1	1.7	8

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 3. Select Enteric Infections by Month
March 2019 – February 2020

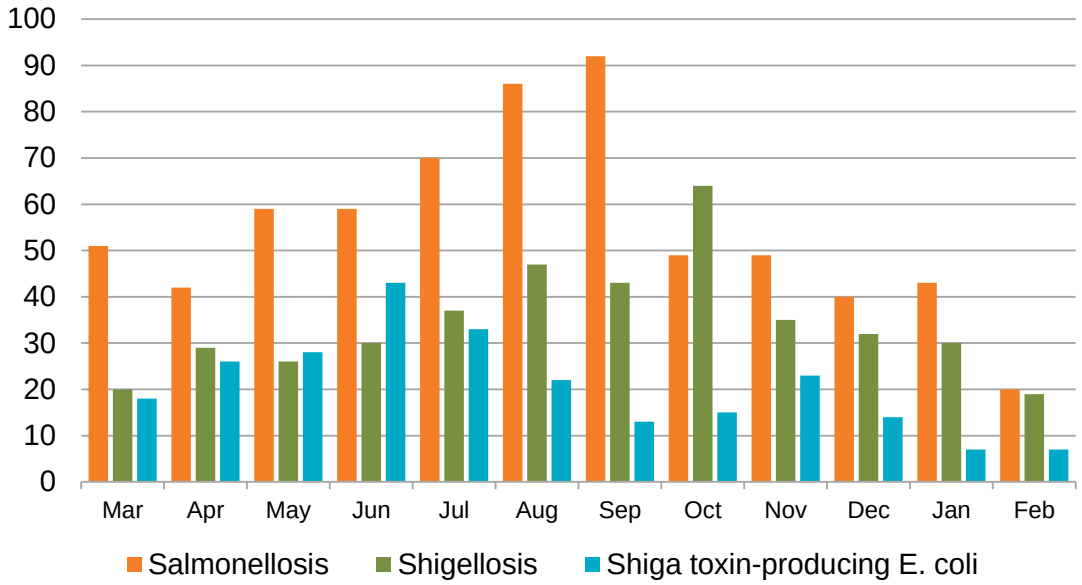


Figure 4. Select Vaccine-Preventable Infections by Month
March 2019 – February 2020

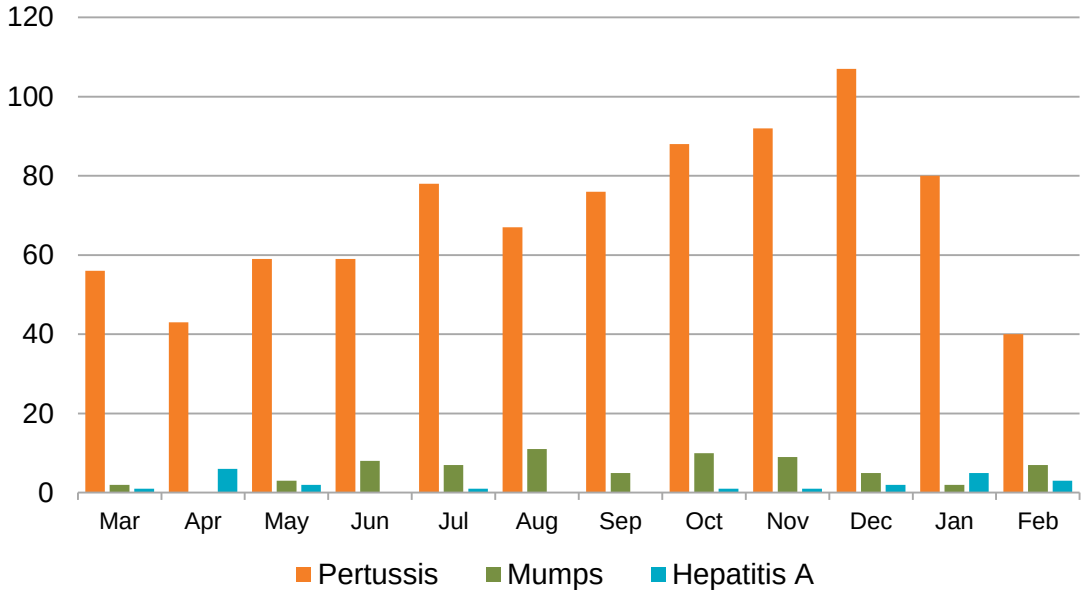


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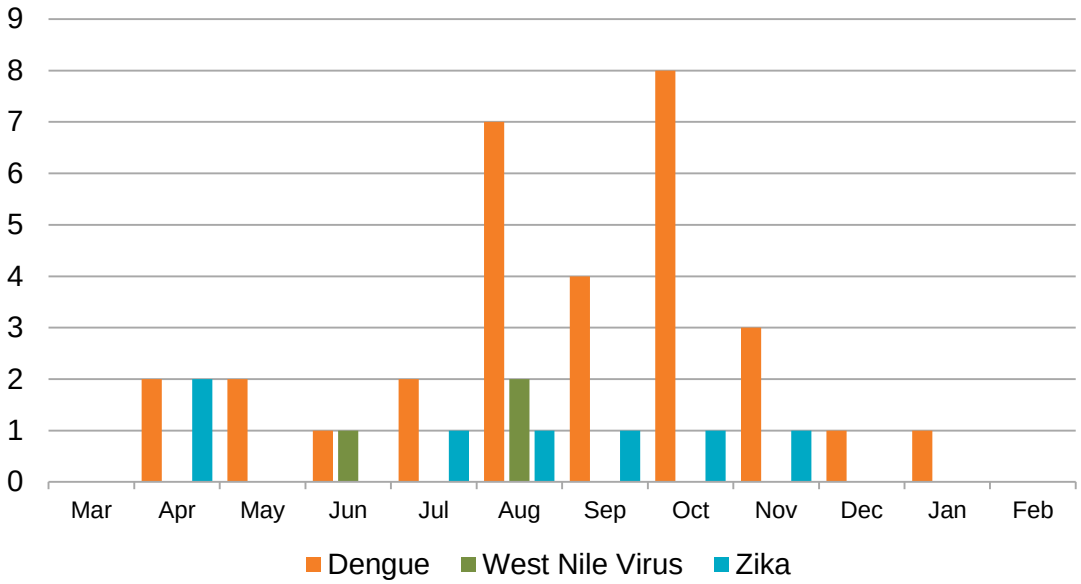
Figure 5. Select Vector-Borne Infections by Month
March 2019 – February 2020



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.