EPIDEMIOLOGY AND IMMUNIZATION SERVICES BRANCH

MONTHLY COMMUNICABLE DISEASE REPORT

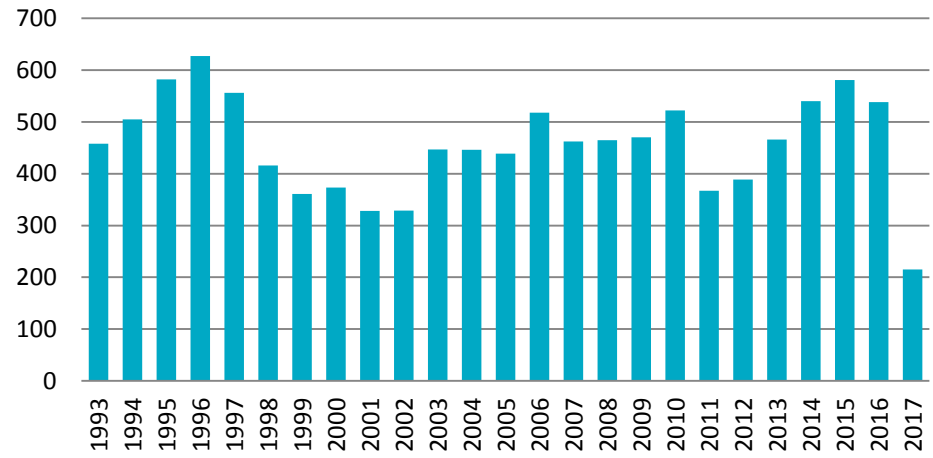
JUNE 2017

Volume 1, Issue 6: July 18, 2017

SALMONELLOSIS

Salmonellosis is an enteric illness caused by bacteria of the species *Salmonella enterica*. The most common symptoms are diarrhea, fever, and abdominal cramps, usually starting 12-72 hours after infection. Most people recover within a week. However, extra-intestinal and invasive infections are possible, as is severe illness requiring hospitalization, particularly in infants, the elderly, and those with compromised immune systems.

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

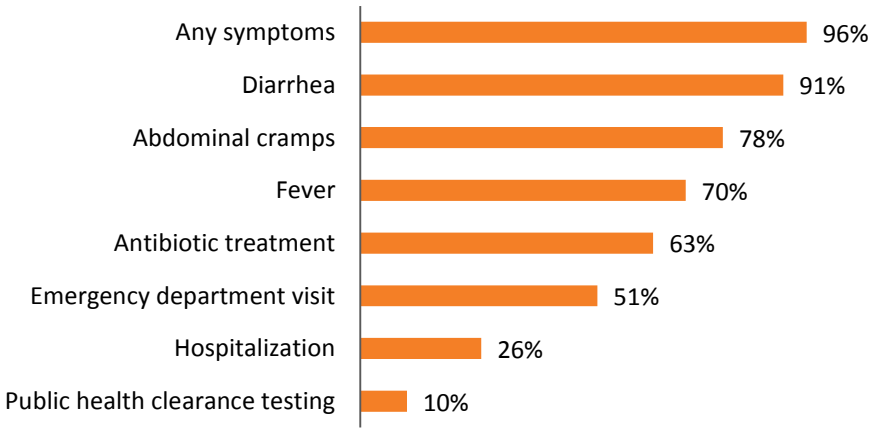


*2017 data are year-to-date; data current as of 7/17/2017. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

In 2016, over 47,000 salmonellosis cases were reported in the United States. However, not all cases are diagnosed or reported, so the true incidence is likely higher. The Centers for Disease Control and Prevention (CDC) estimates that over one million illnesses and 450 deaths in the United States are caused by salmonellosis each year. In San Diego County, an average of 500 cases of salmonellosis have been reported annually to the Epidemiology Program over the past five years. Ten deaths were reported among those infected with *Salmonella* in San Diego County during this period.

People usually become infected with *Salmonella* by ingesting contaminated food or water or having contact with infected animals, most often birds, amphibians, and reptiles.

Figure 2. Select Characteristics of Salmonellosis Cases, San Diego County, 2012-2016



Data current as of 7/10/2017. Data are provisional and subject to change as additional information becomes available. Denominators are cases with complete information for the question. Grouped by CDC disease years.

When persons infected with *Salmonella* work in an occupation that provides opportunity to transmit the bacteria to others (e.g., food handling, direct patient health care, or child care), they are required to undergo public health clearance testing. These individuals must be excluded from work until their symptoms have resolved and stool tests done at the Public Health Laboratory show that they are no longer infected. Between 2012 and 2016, 10% of those infected with *Salmonella* in San Diego County underwent clearance testing.

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.

SALMONELLOSIS, continued

Salmonella bacteria are grouped into serotypes based on their surface structures. Many different *Salmonella* serotypes cause disease, though most human infections are caused by fewer than 100 serotypes. Among 2012-2016 San Diego County cases, nearly 100 different serotypes were identified; the three most common, responsible for over 40% of cases, were Enteritidis, Newport, and Typhimurium.

Table 1. Most Frequently Reported *Salmonella* Serotypes, San Diego County, 2012-2016

	Serotype	N	%
1	*S.* Enteritidis	597	28.8
2	*S.* Newport	163	7.9
3	*S.* Typhimurium	118	5.7
4	*S.* Montevideo	90	4.3
5	*S.* Heidelberg	89	4.3
5	*S.* Muenchen	89	4.3
5	*S.* Poona	89	4.3
5	*S.* Senftenberg	89	4.3

Data current as of 7/10/2017. Among cases with known serotype. Data are provisional and subject to change. Grouped by CDC disease years.

For many years, public health professionals have used serotypes to help detect outbreaks. In recent years, DNA testing methods (e.g., pulsed-field gel electrophoresis, whole genome sequencing) have been used to further characterize the bacteria, allowing for the refinement of outbreak detection and investigation. Many case clusters or outbreaks detected in this way are multistate outbreaks with the investigation coordinated by CDC, but they may also be investigated at the state or local level.

From 2012-2016, 416 San Diego County cases were part of 106 cluster investigations, involving more than 8,000 cases nationwide. Although the sources of infection in these outbreaks cannot always be determined, recent outbreaks have been linked to a diverse array of sources, including shell eggs, chicken, live poultry, small turtles, alfalfa sprouts, pistachios, nut butter, and cucumbers.

In 2015, San Diego County contributed 59 cases and a large number of investigative hours by epidemiology, laboratory, and environmental health staff to an outbreak of *S.* Poona. The outbreak was traced to cucumbers imported from Mexico and distributed by a San Diego County company, resulting in two product recalls. By the end of the outbreak, 907 persons from 40 states had been infected with the outbreak strains of *S.* Poona.

This type of outbreak detection and the public health actions that follow rely on the availability of isolates for DNA testing. The use of culture-independent diagnostic testing (CIDT) is increasing. CIDT allows providers to quickly diagnose a patient's illness, but does not produce the necessary bacterial isolate. While researchers are studying new methods to solve this problem, it remains important for laboratories to attempt to isolate the *Salmonella* bacteria following a positive *Salmonella* CIDT detection and submit isolates to the Public Health Laboratory.

Table 2. Top *Salmonella* Serotypes by Year, San Diego County, 2012-2016

2012		2013		2014		2015		2016	
S. Enteritidis	49	*S.* Enteritidis	93	*S.* Enteritidis	146	*S.* Enteritidis	160	*S.* Enteritidis	149
S. Newport	30	*S.* Heidelberg	33	*S.* Heidelberg	32	*S.* Poona	67	*S.* Newport	37
S. Senftenberg	17	*S.* Typhimurium	31	*S.* Newport	29	*S.* Newport	40	*S.* Lomalinda	29

Data current as of 7/10/2017. Among cases with known serotype. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

Federal Resources

- Centers for Disease Control and Prevention (CDC) Salmonella website
- CDC Salmonella Surveillance website
- CDC List of Selected Multistate Foodborne Outbreak Investigations
- CDC: An Atlas of *Salmonella* in the United States, 1968-2011
- United States Department of Agriculture Food Safety and Inspection Service Salmonella website

State and Local Resources

- California Department of Public Health (CDPH) Salmonellosis website
- CDPH Food and Drug Branch Food Safety Program website
- County of San Diego Department of Environmental Health Food Program website

Table 3. 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	4	3	14.3	5
Botulism (Foodborne, Infant, Wound)	C	0	1	2	4	1.7	5
Brucellosis	C	0	0	3	2	0.7	4
Campylobacteriosis	C	116	95	481	347	323.3	787
Chickenpox, Hospitalization or Death	C,P	0	1	1	1	1.0	3
Chikungunya	C,P	0	0	1	0	1.0	6
Coccidioidomycosis	C,P	15	10	52	64	69.0	158
Cryptosporidiosis	C,P	4	5	14	10	11.0	35
Dengue Virus Infection	C	0	2	6	6	3.7	23
Encephalitis, All	C,P	1	3	15	32	31.7	71
Giardiasis	C,P	27	43	168	153	124.0	398
Hepatitis A, Acute	C	62	73	223	12	8.0	26
Hepatitis B, Acute	C,P	0	1	6	3	5.0	3
Hepatitis B, Chronic	C	51	94	434	430	440.7	865
Hepatitis C, Acute	C,P	1	1	4	0	0.3	1
Hepatitis C, Chronic	C,P	213	210	1185	1441	1469.7	2581
Legionellosis	C	3	4	27	20	22.0	53
Listeriosis	C,P	2	0	6	10	5.7	22
Lyme Disease	C	0	0	4	1	2.3	10
Malaria	C	1	0	2	4	3.0	12
Measles (Rubeola)	C,P	0	0	2	0	4.0	0
Meningitis, Aseptic/Viral	C	5	10	41	58	80.7	140
Meningitis, Bacterial	C	2	0	8	26	18.7	54
Meningitis, Other/Unknown	C,P,S	1	1	6	16	19.3	29
Meningococcal Infection	C,P	0	0	1	0	2.3	2
Mumps	C,P	2	0	8	13	4.7	23
Pertussis	C,P,S	61	145	528	172	618.7	412
Rabies, Animal	C	2	3	10	2	3.0	7
Rocky Mountain Spotted Fever	C,P	0	0	1	0	0.7	2
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	44	32	204	197	219.7	535
Shiga toxin-Positive Feces (without culture confirmation)	C,P	0	0	3	6	3.3	15
Shiga toxin-Producing E. coli (including O157)	C,P	0	0	4	21	18.3	60
Shigellosis	C,P	15	8	99	80	55.0	243
Typhoid Fever	C,P	0	0	2	2	2.3	6
Vibriosis	C,P	1	1	7	12	11.3	30
West Nile Virus Infection	C,P	0	0	0	0	0.0	22
Yersiniosis	C,P	8	6	32	6	7.0	15
Zika Virus	C,P	1	3	8	19	7.0	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 3. Select Enteric Infections by Month
July 2016 – June 2017

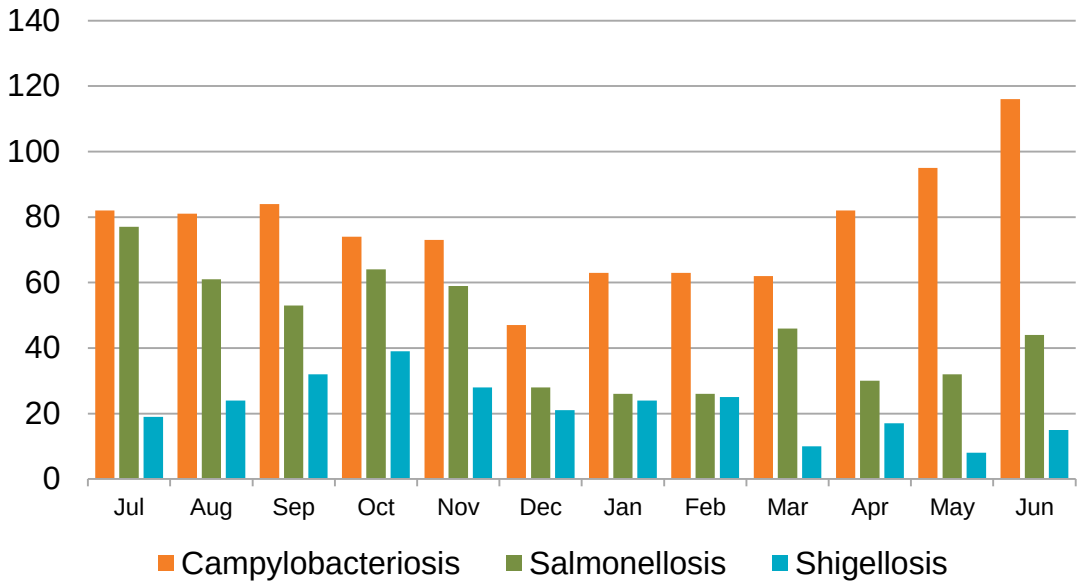
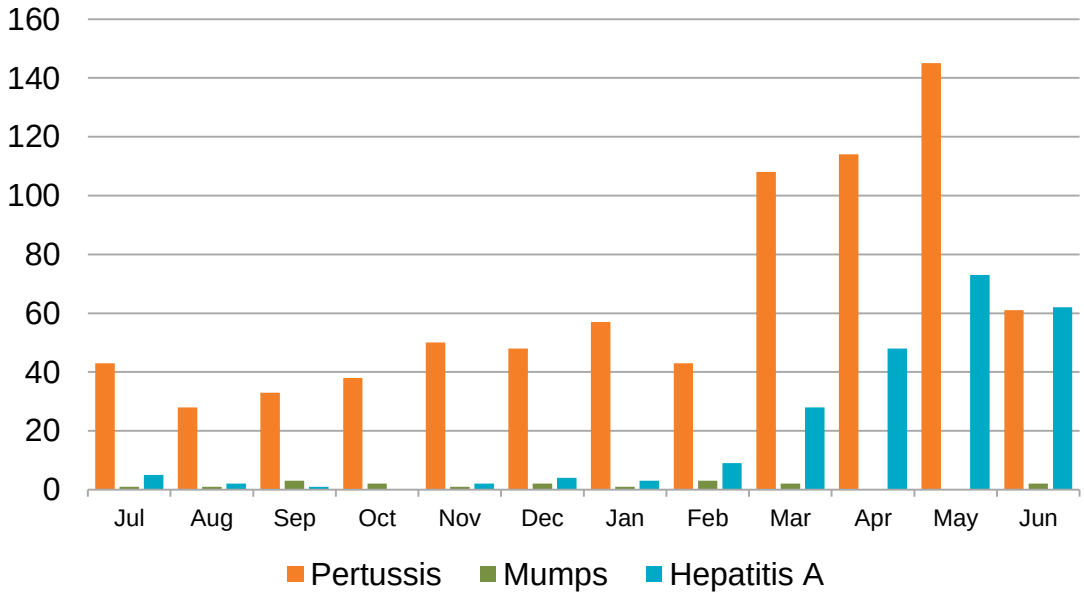
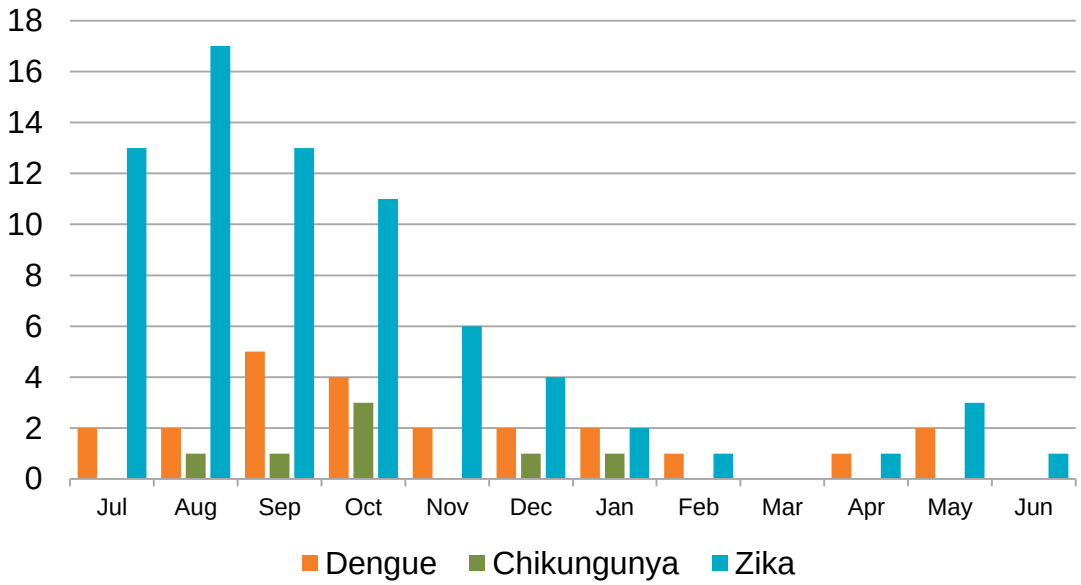


Figure 4. Select Vaccine-Preventable Infections by Month
July 2016 – June 2017



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 5. Select Vector-Borne Infections by Month
July 2016 – June 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.