

## 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.

In 2018, 60,999 salmonellosis cases were reported in the United States.

However, not all cases are diagnosed or reported, so the true incidence is likely higher.

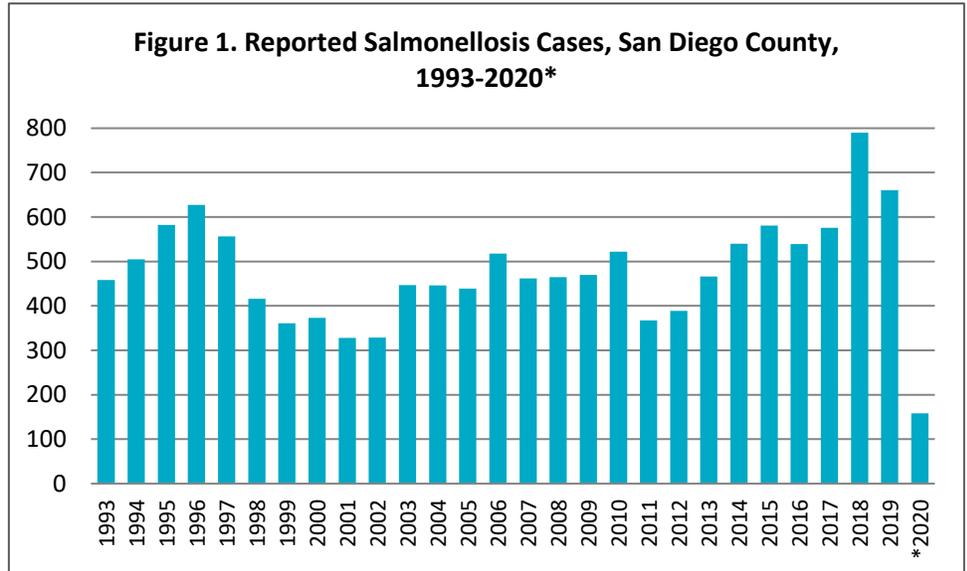
The Centers for Disease Control and Prevention (CDC) estimates that over one million illnesses and 420 deaths in the United States (U.S.) are caused by salmonellosis each year. In San Diego County, an average of 629 cases of salmonellosis have been reported annually to the Epidemiology Program over the past five years. Fifteen 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.

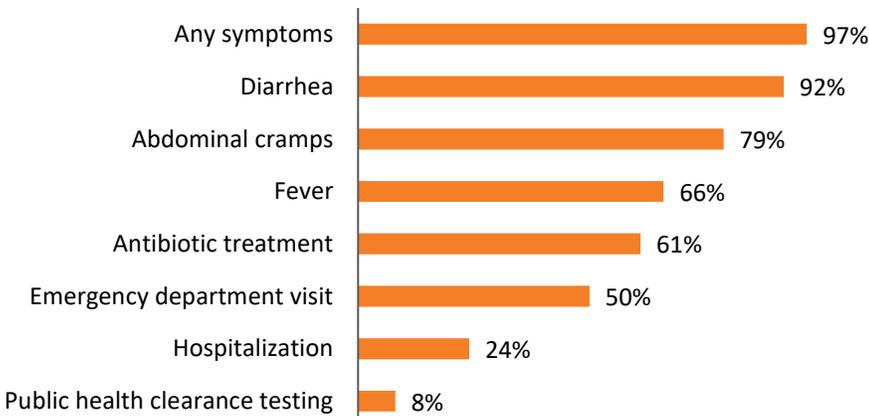
When persons infected with *Salmonella* work in an occupation that provides opportunity to transmit the bacteria to others (e.g., food handling, direct patient health care, or child care), they are required to undergo public health clearance testing. These individuals must be excluded from work until their symptoms have resolved and stool tests done at the Public Health Laboratory show that they are no longer infected. Between 2015 and 2019, 8% of those infected with *Salmonella* in San Diego County underwent clearance testing.

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\*2020 data are year-to-date; data current as of 6/15/2020. Data are provisional and subject to change as additional information becomes available. Grouped by CDC disease years.

**Figure 2. Select Characteristics of Salmonellosis Cases, San Diego County, 2015-2019**



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.

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](mailto: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 2015-2019 San Diego County cases, nearly 100 different serotypes were identified; the three most common, responsible for over 40% of cases, were Enteritidis, Newport, and Montevideo.

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 2015-2019, 390 San Diego County cases were part of 80 cluster investigations, involving 7,972 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 [cut fruit](#), [ground beef](#), [papayas](#), [backyard poultry](#), [pet turtles](#), [pig ear dog treats](#), [shell eggs](#), and [kratom](#).

In 2018-2019, San Diego County contributed 31 cases to an [outbreak of multi-drug resistant S. Newport](#). The outbreak was linked to beef from the U.S. and Mexican-style cheese brought into the U.S. from Mexico. The investigation suggested that the outbreak strain was present in cattle in both countries. The outbreak strain was resistant to two commonly-prescribed antibiotics: azithromycin and ciprofloxacin. By August 2019, over 350 persons from at least 38 states were infected with the outbreak strain of *S. Newport*.

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 1. Most Frequently Reported *Salmonella* Serotypes, San Diego County, 2015-2019**

	Serotype	N	%
1	<i>S. Enteritidis</i>	652	25.3
2	<i>S. Newport</i>	281	10.9
3	<i>S. Montevideo</i>	153	5.9
4	<i>S. Typhimurium</i>	125	4.8
5	<i>S. Muenchen</i>	119	4.6

Among cases with known serotype. Data are provisional and subject to change. Grouped by CDC disease years.

**Table 2. Top *Salmonella* Serotypes by Year, San Diego County, 2015-2019**

2015		2016		2017		2018		2019	
<i>S. Enteritidis</i>	162	<i>S. Enteritidis</i>	151	<i>S. Enteritidis</i>	127	<i>S. Enteritidis</i>	126	<i>S. Enteritidis</i>	86
<i>S. Poona</i>	68	<i>S. Newport</i>	39	<i>S. Newport</i>	66	<i>S. Newport</i>	65	<i>S. Newport</i>	71
<i>S. Newport</i>	40	<i>S. Lomalinda</i>	29	<i>S. Muenchen</i>	27	<i>S. Infantis</i>	49	<i>S. Montevideo</i>	42

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](#)

# MONTHLY COMMUNICABLE DISEASE REPORT

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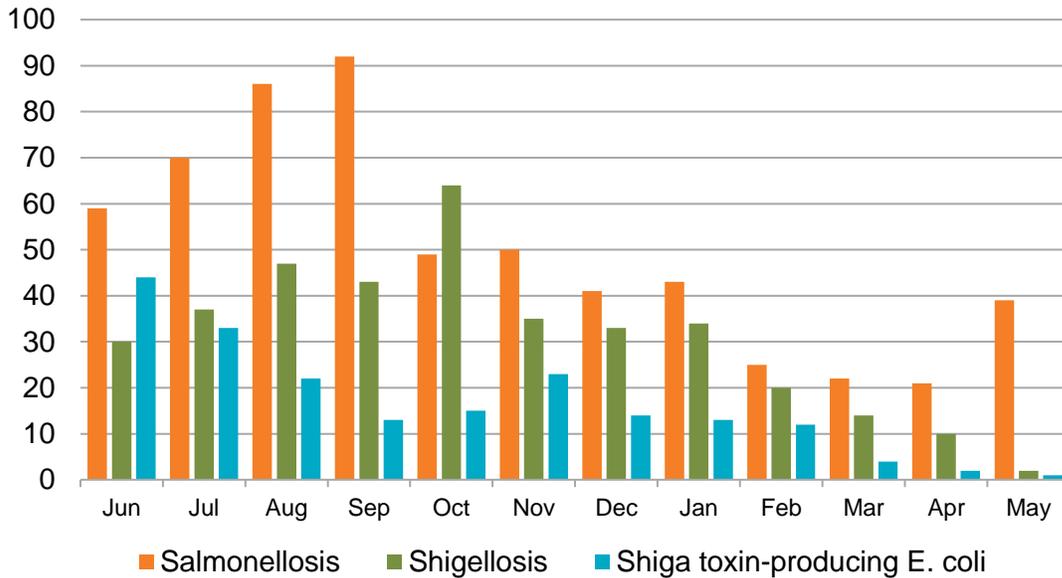


Table 3. Select Reportable Diseases		2020			Prior Years		
		Current Month	Prior Month	Year-to-Date (YTD)	2019 YTD	Avg YTD, Prior 3 Years	2019 Total
Disease and Case Inclusion Criteria (C,P,S)							
Botulism (Foodborne, Infant, Wound, Other)	C,P	0	0	0	0	4.0	2
Brucellosis	C,P	0	0	0	1	2.0	1
Campylobacteriosis	C,P	33	34	203	377	336.7	997
Chickenpox, Hospitalization or Death	C,P	0	0	0	1	0.7	2
Chikungunya	C,P	0	0	0	0	1.0	6
Coccidioidomycosis	C	0	0	14	168	124.3	460
Cryptosporidiosis	C,P	2	2	18	20	19.0	99
Dengue Virus Infection	C,P	1	0	3	4	4.3	31
Encephalitis, All	C	1	0	9	21	21.7	45
Giardiasis	C,P	14	12	61	102	120.3	219
Hepatitis A, Acute	C	0	1	12	10	67.3	15
Hepatitis B, Acute	C	0	0	2	3	5.0	7
Hepatitis B, Chronic	C,P	42	27	273	392	377.7	904
Hepatitis C, Acute	C,P	0	0	23	28	10.0	76
Hepatitis C, Chronic	C,P	169	125	1,304	1,805	1,565.3	4,293
Legionellosis	C	2	3	13	29	29.0	65
Listeriosis	C	2	0	2	4	3.7	11
Lyme Disease	C,P	0	0	1	1	4.3	4
Malaria	C	1	0	6	2	2.7	7
Measles (Rubeola)	C	0	0	0	0	0.7	2
Meningitis, Aseptic/Viral	C,P,S	1	3	20	56	49.3	188
Meningitis, Bacterial	C,P,S	1	1	10	15	17.7	35
Meningitis, Other/Unknown	C	0	0	1	15	13.0	29
Meningococcal Disease	C,P	0	0	4	6	3.0	8
Mumps	C,P	0	1	16	11	6.7	66
Pertussis	C,P,S	3	10	204	261	366.3	822
Rabies, Animal	C	1	0	2	0	4.0	7
Rocky Mountain Spotted Fever	C,P	0	0	1	0	0.3	2
Salmonellosis (Non-Typhoid/Non-Paratyphoid)	C,P	39	21	150	210	194.3	656
Shiga toxin-Producing <i>E. coli</i> (including O157)	C,P	1	2	32	91	49.3	255
Shigellosis	C,P	2	10	80	143	111.0	429
Typhoid Fever	C,P	0	1	2	6	2.7	7
Vibriosis	C,P	2	0	8	14	13.0	58
West Nile Virus Infection	C,P	0	0	0	0	0.0	3
Yersiniosis	C,P	2	4	12	25	19.7	53
Zika Virus	C,P	0	0	0	3	4.3	9

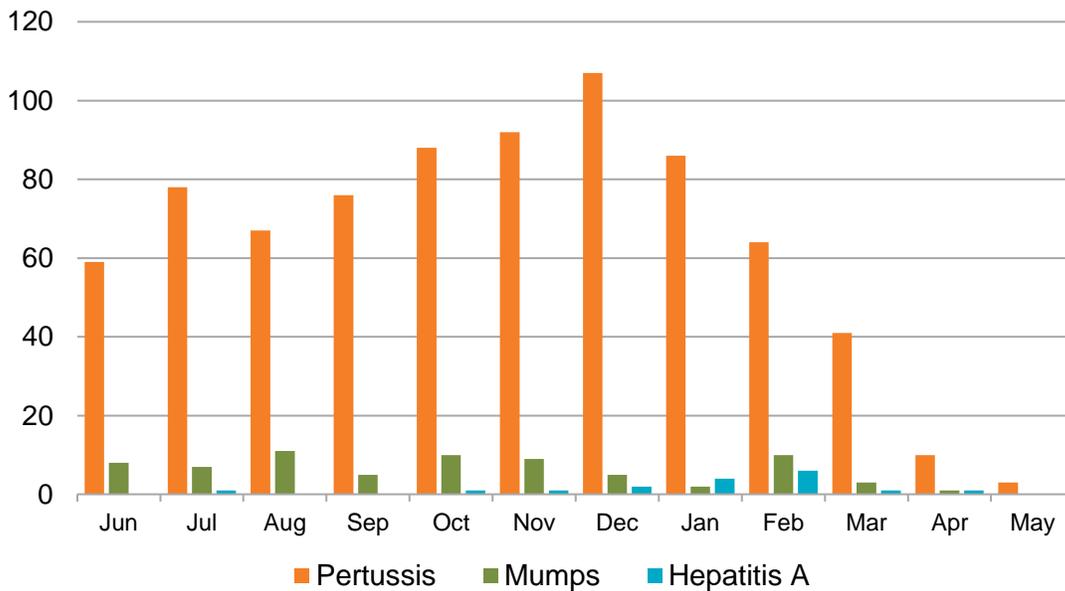
**Case counts are provisional and subject to change as additional information becomes available.** Cases are grouped into calendar months and calendar years on the basis of the earliest of the following dates: onset, lab specimen collection, diagnosis, death, and report received. Counts may differ from 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 3. Select Enteric Infections by Month  
June 2019 – May 2020**

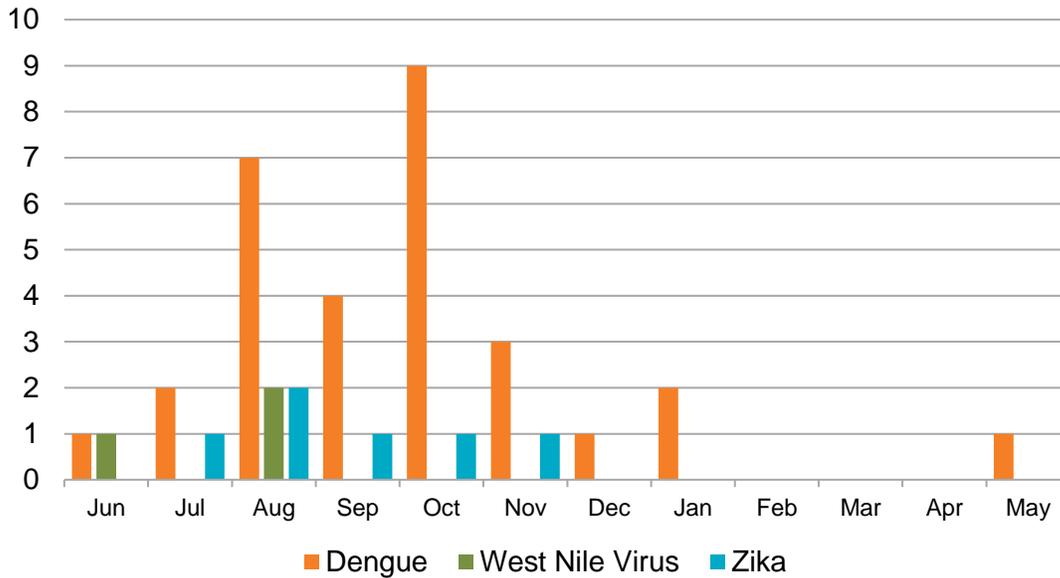


**Figure 4. Select Vaccine-Preventable Infections by Month  
June 2019 – May 2020**



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**Figure 5. Select Vector-Borne Infections by Month  
Jun 2019 – May 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](http://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>.