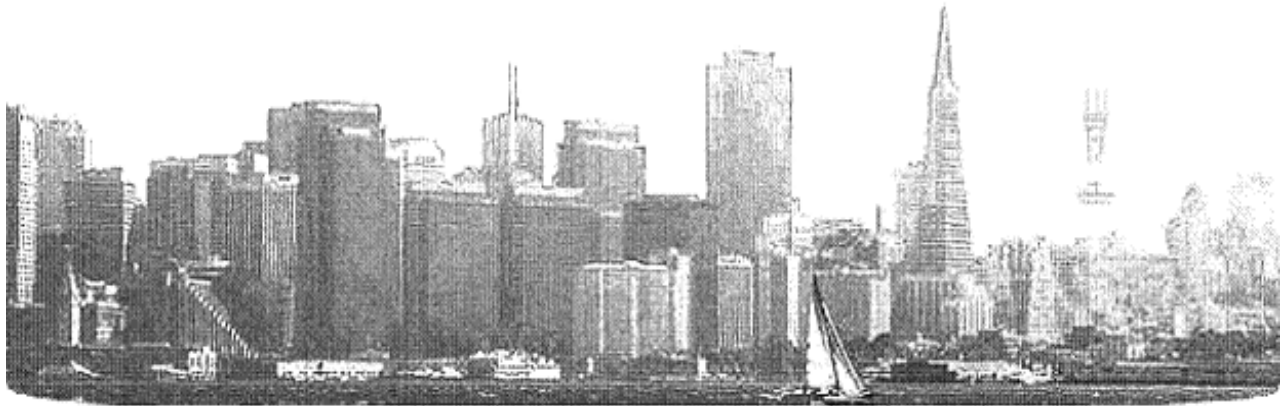


Annual Report of Communicable Diseases in San Francisco

2012



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This annual report summarizes notifiable disease reports received by the Communicable Disease Control Unit (CDCU) of the San Francisco Department of Public Health (SFDPH) during 2012. Seven diseases were selected for demographic profiling on the basis of the annual burden and severity of disease, public health impact, and specific interest to community health programs. Readers can access previous reports at <http://www.sfcdcp.org> for historical context of disease incidence in San Francisco. Notifiable disease reports managed by other SFDPH sections are not represented here, i.e., tuberculosis, human immunodeficiency virus (HIV), acquired immunodeficiency syndrome (AIDS) and sexually transmitted diseases (STDs) which are managed, respectively, by Tuberculosis Control, HIV Surveillance and STD Prevention and Control Sections.

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San Francisco Department of Public Health at 101 Grove Street (1935)

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Methods and Definitions

Data Collection

This report includes confirmed and probable reports of disease among San Francisco residents reported to SFDPH from January 1, 2012 through December 31, 2012*. San Francisco health care providers, laboratories and other mandated reporters are required under Title 17, California Code of Regulations (CCR) (§2500, §2505, §2593, §2641-2643, §2800-2812)¹, to notify the local health authority of the diagnosis, detection or suspicion of certain diseases and conditions. Reports are confidentially received by fax, telephone, postal mail, or secure electronic file transfer. Reports by fax and postal mail are generally submitted using the California Confidential Morbidity Report (CMR) form². Limited case demographic and clinical information is provided on the CMR. Depending on the disease or condition, disease control staff attempt to contact the health care provider, laboratory and/or patient for follow-up and implementation of disease control measures. Clinical and risk factor data are subsequently collected according to departmental and state protocols. Data were managed with locally designed databases.

The chronic hepatitis are managed by the Chronic Viral Hepatitis Registry Project within CDCU. Data from 2010 is summarized in the Chronic Hepatitis B and Hepatitis C Infection Surveillance Report, 2010, and may be accessed at: <http://www.sfdcp.org/publications.html>.

Notifiable diseases managed by other SFDPH sections (HIV Surveillance, Environmental Health, STD Prevention and Control, and Tuberculosis Control) are not presented in this report:

Acquired Immune Deficiency Syndrome (AIDS)	Human Immunodeficiency Virus (HIV)
Chancroid	Lymphogranuloma Venereum (LGV)
<i>Chlamydia trachomatis</i> infections	Pelvic Inflammatory Disease (PID)
Gonococcal Infections	Pesticide-related illness or injury
Hepatitis B, chronic	Syphilis
Hepatitis C infection, past or present	Tuberculosis

*Disease incidents of confirmed and probable diseases were included in this report for all diseases, except rabies (only confirmed cases were reported).

Population Under Surveillance

CDCU reports cases of CCR Title 17 reportable diseases that occur in City and County of San Francisco residents. Cases of reportable disease reported to CDCU occurring in non-residents are considered "out of jurisdiction," referred to their respective jurisdictions of residency for follow-up and not included in this report.

San Francisco population estimates were obtained from the California Department of Finance (DOF) Demographic Research Unit³; DOF estimates are based on the U.S. Census counts. This report uses DOF projections produced in 2007 for the 2012 San Francisco population, which estimates the population count to be 825,387 (Table 5)³.

Racial and Ethnic Categorization

People were classified as one of the following: American Indian/Alaska Native, Asian/Pacific Islander, African American (Black), Hispanic, or White. A person with Hispanic ethnicity, regardless of race, was classified as Hispanic, while Non-Hispanics were categorized by their race designation. Occasionally, patients were classified as Other race. Because the category Other is not clearly defined and no reliable San Francisco population estimate exists for it, race-specific rates were not calculated for this population group. Only the frequency values for the race Other were included in the incidence tables.

In 2000, the United States Census Bureau began allowing multiple race designations for its decennial population census; therefore, the California DOF population estimates also include an additional race category, Multiple Race. Because CDCU only collects a single race designation, a bridging method established by the California DOF was used to



reallocate the population in the Multiple Race category to single race categories⁴. This method provided reproducible denominators for calculating race-stratified incidence rates.

Demographic Data

Depending on the disease, demographic information was usually ascertained through patient interviews, medical chart abstraction or health care provider interviews. Because not all individual cases of disease are mandated to be followed-up by the local health department (e.g., campylobacteriosis), completeness varied by disease.

Age was calculated by subtracting the date of birth from the date of notification to SFDPH, then dividing the difference by 365.25 (the 0.25 accounts for leap years). Numerical values for age were also routinely collected and entered into the database. If either date used in the age formula was missing but a numerical age was recorded, then this age was used in analyses. This replacement method was required for no cases of reportable conditions in 2011. Two reportable cases were missing age information. The frequency of cases with missing or unknown sex or race/ethnicity information is included in the tables.

Notifiable Disease Definitions

The diseases required to be reported to public health and disease definitions can change over time. Changes in disease definitions can impact the numbers of cases of disease reported to the SFDPH.

Please see this report's appendices for a list of notifiable disease definition changes from 2004 to 2011 and definitions for select notifiable diseases. Changes in notifiable disease definitions from 1986 to 2003 are documented in The San Francisco Communicable Disease Report 1986-2003 (May 2005), accessible at: <http://sfcdcp.org/publications.html>.

Statistical Calculations

SAS version 9.2 (SAS Institute Inc., Cary, NC) was used to calculate crude incidence rates, age-specific rates, three-year moving averages and confidence intervals. For this report, the crude incidence rate (IR) is defined as the number of new cases of disease per 100,000 residents at risk during a given year. The denominator for all diseases, except infant botulism, congenital rubella, pediatric influenza deaths, and invasive *H. influenzae*, was the total San Francisco population. The population at risk for infant botulism and congenital rubella was San Francisco residents less than one year of age, while for the invasive *H. influenzae* rate and pediatric influenza death rate, it was persons less than 15 years of age and persons less than 18 years of age, respectively. Age-adjusted rates were not calculated. Rates and proportions were generally rounded to one decimal place.

Formula 1.

$$IR = \left(\frac{n}{p} \right) \times 100,000$$

where n = Number of Cases and p = Population at Risk, and each is identified for a one-year period.

Example: In 2012, there were 178 female cases of campylobacteriosis in San Francisco. The estimated number of female residents in 2012 was 400,483. Accordingly, the incidence among females was:

$$IR_{Campy\ 2012\ Females} = \left(\frac{178}{400,483} \right) \times 100,000 = 44.4 \text{ cases per } 100,000 \text{ population.}$$

Reliability of Rates

With rare diseases or with diseases where the number of cases for a particular population group is very small, a minor change in the number of incident cases can result in a relatively large shift in the corresponding rate. Rates and percents based on a small number of events may be unreliable and are generally subject to substantial variability over time. Unstable rates should not be statistically compared for differences with the rates for other populations or for



San Francisco over time. Rates with a relative standard error (RSE) of 23% or greater were considered unstable and identified by an asterisk in tables of this report⁵. Equivalently, numerators less than 20 result in unreliable rates.

Formula 2.

$$RSE = \left(\frac{SE_{rate}}{r} \right) \times 100 = \left(\frac{\frac{r}{\sqrt{n}}}{r} \right) \times 100 = \left(\sqrt{\frac{1}{n}} \right) \times 100$$

where r = Rate and SE_{rate} = Standard Error of a Rate and n = Number of Cases

Example: In 2012, there were 444 cases of campylobacteriosis cases reported in San Francisco and two cases of acute typhoid fever. Accordingly, the relative standard errors for campylobacteriosis and acute typhoid fever are:

$$RSE_{Campy2012} = \left(\sqrt{\frac{1}{444}} \right) \times 100 = 4.7\%$$

The rate derived from the frequency of campylobacteriosis is considered stable (RSE < 23%).

$$RSE_{TyphoidFever2012} = \left(\sqrt{\frac{1}{2}} \right) \times 100 = 70.7\%$$

The rate derived from the frequency of acute typhoid fever is not stable and is considered unreliable (RSE > 23%).

Exact Confidence Limits

95% Exact Confidence Intervals (95% CI) for incidence rates were approximated from the gamma distribution⁶. Confidence limits were rounded to one decimal place.

Because the rates presented in this report are estimates of the true incidence of reported communicable diseases in San Francisco, confidence limits are used to describe the uncertainty of an estimate and provide a range in which the true rate occurs. In 2012, the rate of giardiasis in residents 35-44 years of age was 24.8 cases per 100,000 people (95% CI=18.5-32.6). This confidence interval indicates that the true giardiasis rate in residents aged 35-44 years is likely to lie somewhere between 18.5 and 32.6 cases per 100,000 people. The interval therefore provides a useful means for evaluating the precision of a rate calculation. A rate estimate with a wide confidence interval is less precise than a rate with a narrow confidence interval. Using 2012 giardiasis cases as an example, consider the difference between incidence among residents 1-4 years of age (rate=11.7, 95% CI=3.2-30.0) and those aged 35-44 years as described above. The range of possible values among the older age group is approximately half as wide as the range for children 1-4 years. The rate among residents 35-44 years is therefore considered more precise. Rates with very large confidence intervals should be interpreted cautiously. In this report, confidence intervals were not displayed for individual cell counts of zero.

Aggregate Rates: Three-year moving averages

As stated above, with rare diseases or where the number of cases for a particular population group is very small, a minor change in the number of incident cases can result in a relatively large shift in the rate. One approach to minimizing the effect of large rate shifts and allowing detection of overall trends involves the calculation of moving averages. This approach can be used to compare across populations or to compare across time when the two time periods do not overlap. Calculating three-year moving averages involved summing the numerator and denominator over a three year period and dividing by three.



Rules for Data Suppression

If the number of cases for a given time period is small and enough demographic information is given, it may be possible to identify an individual case-patient from tabulated data. Therefore, the total annual incidence was required to be at least 19 cases for information about age, sex, and race/ethnicity data to be included. Of those diseases with an annual incidence of 19 or more cases, seven diseases were selected for inclusion in this report.

Data Limitations

The surveillance data was reported by laboratorians, clinicians and other mandated reporters to the local health authority in compliance with public health laws¹. Reports may be incomplete and/or important demographic, clinical or risk information may not be available upon active follow-up. Because not all cases of disease were detected by the health care system and not all detected cases were reported to the public health department, the information presented in this report may underestimate the true incidence of disease.

Note to Users of this Report

Occasionally, users of this report would like to see incidence rates for specific population parameters (e.g., rate of salmonellosis in children <5 years of age in 2012). Simple calculations can be accomplished by inserting the desired incidence data provided in the tables of this report and the San Francisco population estimates from TABLE 5 into *Formula 1* above. When such calculations are used for grants or technical papers, the citation of this report must explicitly indicate that SFDPH did not perform the calculation.

Example: A grant writer wishes to know the rate of salmonellosis in San Francisco residents younger than 5 years of age in 2012. From TABLE 2, it is known that 14 cases were <1 year of age and 23 cases were 1-4 years of age. Similarly, the number of San Francisco residents in 2012 can be found in TABLE 5:

	<u>Female</u>	<u>Male</u>
<1 yr	4,106	4,264
1-4 yrs	16,741	17,380

Thus, the total number of cases <5 years of age = (14 + 23) = 37 and

the total population <5 years of age = (4,106 + 16,741 + 4,264 + 17,380) = 42,491 and

the rate of salmonellosis = $\left(\frac{37}{42,491}\right) \times 100,000 = 87.07$ cases per 100,000 population.



Notes on 2012 Surveillance Data

The following notes are intended to aid in the interpretation of reported cases of selected diseases.

- ***Amebiasis***: Amebiasis is one of the most frequently reported diseases in San Francisco. In the last 25 years, amebiasis rates were highest in 1986 (67.3 cases per 100,000 residents, 95% CI 61.5-73.4) and generally declined until 2003. From 2003 to 2011, rates have remained between 10 to 15 cases per 100,000 residents. The lowest rate observed to date was in 2012 (7.1 cases per 100,000 residents, 95% CI 5.4-9.2); the 2011 rate (10.7 cases per 100,000 residents, 95% CI 9.3-14.1) was significantly higher than the 2012 rate.
- ***Arboviruses***: Arboviruses are viruses transmitted to vertebrate animals by arthropods. e.g., mosquitoes, ticks, and biting flies. In California, the most important viruses transmitted to humans and other vertebrates are mosquito-borne.
 - ***Anaplasmosis/Ehrlichiosis***: Three cases of anaplasmosis/ehrlichiosis were reported in 2012. All three cases reported travel outside of San Francisco: two cases reported hiking in rural San Mateo County areas one week prior to disease onset, while one patient reported extensive hiking through Point Reyes National Seashore in Marin County prior to disease onset.
 - ***Dengue***: In San Francisco, no cases of dengue reported in 2012 met the current case definition, similar to 2011; the decrease in the number of cases may reflect a reporting artifact since the case definition for dengue fever changed in 2010 and outlined stricter laboratory criteria. Among US citizens, most dengue cases occur in those inhabitants of Puerto Rico, the U.S. Virgin Islands, Samoa and Guam, which are endemic for the virus. Nearly all dengue cases reported in the 48 continental states were acquired elsewhere by travelers or immigrants, and this is true for cases reported among San Francisco residents in past years.
 - ***Malaria***: Since the early 1950s, malaria has been eliminated in the United States; however, approximately 1,500 cases of malaria are reported every year, most of which are related to travel in endemic areas. Some locally transmitted mosquito-borne malaria outbreaks have occurred, but in such outbreaks, local mosquitoes became infected by biting persons carrying malaria parasites acquired in endemic areas and then transmitted malaria to local residents. In 2012 in San Francisco, three cases of malaria were reported. All three were known to have travelled to foreign countries.
 - ***West Nile Disease***: One case of West Nile disease was reported in San Francisco in 2012. The case had no known travel history and was likely exposed in San Francisco. Only one other case of West Nile Disease has ever been reported in San Francisco, and this was related to an organ transplant.
- ***Campylobacteriosis***: *Campylobacter* infections remained the most frequently reported enteric disease in San Francisco (n=444, rate=53.8 per 100,000 residents, 95% CI: 48.9-59.0). The overall incidence rate of campylobacteriosis in 2012 was slightly higher than it has been in the past four years (2011: n=422, rate=51.3 per 100,000 residents, 95% CI: 46.6-56.5; 2010: n=396, rate 48.4 cases per 100,000 residents, 95% CI: 43.8-53.4; 2009: n=331, rate = 40.7 cases per 100,000 residents, 95% CI: 36.4-45.3; 2008: n=375, rate=46.3 cases per 100,000 residents, 95% CI: 41.7-51.2); the rate in 2012 was statistically significantly higher than in 2009.
- ***Lyme Disease (LD)***: Since 1989, LD has been a clinician-reported disease, and in June 2005, laboratories became legally required to report cases of LD to SFDPH. Laboratory testing for LD has been and continues to be problematic, because some commercial labs use assays whose accuracy and usefulness has not been adequately established⁷. With the implementation of laboratory reporting in 2005, the number of LD cases increased and continued increasing in 2006 (n=14, rate = 1.7 cases per 100,000 residents) and 2007 (n=18, rate=2.2 cases per 100,000 residents). In 2008, SFDPH applied the 2008 Council of State and Territorial Epidemiologists/Centers for Disease Control and Prevention (CDC) LD case definition; subsequently, the number of LD cases decreased (2008: n=7, rate=0.9 cases per 100,000 residents; 2009: n=4, rate=0.5 cases per 100,000 residents). The LD rate increased in 2010 (n=9, rate=1.1 cases per 100,000 residents) and decreased



again in 2011 (n=2, rate=0.2 per 100,000 residents); however, these rates are unstable due to small numbers and should be interpreted with caution. In 2012, five cases of Lyme Disease were reported (rate=0.6 per 100,000 residents). One of the five cases in 2012 had information on travel history; this case had traveled domestically and had a history of a tick bite.

- **Outbreaks:** In 2011, CDCU changed the way outbreak information was stored and processed; therefore, outbreak data from years before 2011 may not be comparable.

In 2012, CDCU identified and investigated a total of 44 communicable disease outbreaks, many more than the number identified and investigated in 2011 (n=28). It is unclear what factors contribute to the fluctuation in the number of outbreaks identified and reported, but this increase could be as a result of changes in reporting practices, outbreak definition changes, or a true change in the number of outbreaks.

- Etiology: 23/44 (52%) outbreaks were of unknown etiology, 8/44 (18%) were caused by norovirus (5 confirmed, 3 suspected), 6/44 (14%) by influenza (1 of H1N1 swine influenza, 3 of influenza A, 1 of influenza B, and 1 of unspecified influenza; all confirmed), and one each by *Campylobacter spp.* (confirmed), *Clostridium difficile* (confirmed), *Enterovirus* (confirmed), Group A Streptococcus (confirmed), human parainfluenza virus (confirmed), varicella zoster (confirmed), and 1 other outbreak that was associated with both norovirus and *C. difficile*.
 - Gastrointestinal Illness Outbreaks: Thirty-one of the 44 (70%) outbreaks caused gastrointestinal illness. Four were suspected to be foodborne.
 - Location – 18/44 (41%) of outbreaks were associated with a long-term care facility, a skilled nursing facility, or elderly care; 15 (34%) were associated with childcare, daycare, preschool or schools; 2 (5%) were associated with a clinical care setting; 1 (2%) was associated with a restaurant, and 8 (18%) were associated with other types of settings.
- **Pertussis:** In San Francisco, as in California⁸ and the United States⁹, pertussis is endemic with epidemic cycles every three to four years. In San Francisco, the incidence of pertussis in 2012 (3.5 cases per 100,000 residents, 95% CI 2.4-5.0) decreased significantly from 2011 (6.8 cases per 100,000 residents, 95% CI 5.1-8.8). Both years' rates decreased significantly from the epidemic year in 2010 (17.0 cases per 100,000 residents, 95% CI 14.3-20.1). Rates of pertussis in 2012 are still slightly elevated from normal endemic rates. In 2010 the incidence increased almost seven-fold compared to 2009 (2010: 17.0 cases per 100,000 residents, 95% CI 14.3-20.1; 2009: 2.5 cases per 100,000 residents, 95% CI 1.5-3.8).

No pertussis deaths occurred in San Francisco in 2012.

- **Rabies, Bat:** Seven rabid bats were detected in San Francisco in 2012. Bats present a risk of rabies exposure to humans and pets, especially when they are handled or enter homes where they can have contact with people or their pets¹⁰. Rabies was not detected in any other animals in 2012, and no cases of rabies have been reported in humans or terrestrial animals (e.g. dogs, cats, skunks, raccoons, foxes, coyotes) in San Francisco for over 60 years¹⁰.
- **Salmonellosis:** Rates of salmonellosis have decreased from 30.2 per 100,000 residents (95% CI: 26.4-34.5) in 1992 to a low of 13.2 per 100,000 residents (95% CI: 10.6-16.0) in 2005. Rates have been modestly increasing since 2005. Between 2011 and 2012, the rate of salmonellosis decreased slightly from 15.2 per 100,000 residents (95% CI: 12.7-18.1) to 14.5 per 100,000 residents (95% CI: 12.1-17.4), but this difference was not statistically significant.

The most frequently reported *Salmonella* serotypes in 2012, which together accounted for 71.7% of the 120 cases with complete serotype information were as follows: *S. enteritidis* (20.0%), *S. typhimurium* (15.0%), *S. infantis* (5.8%), *S. braenderup* (5.0%), *S. heidelberg* (5.0%), *S. berta* (4.2%), *S. newport* (4.2%), *S. adelaide*



(3.3%), *S. I 4,5,12:i-* (3.3%), *S. Saint-Paul* (3.3%), and *S. Hadar* (2.5%). The proportion of *S. enteritidis* cases in 2012 (20%) was similar to 2011 (21.8%), but much less than when compared to 2010 (45.2%).

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TABLE 1: Frequency of Reportable Diseases in San Francisco, 2012

Disease	n	Rate
Amebiasis	59	7.1
Anaplasmosis/Ehrlichiosis	3	0.4 *
Anthrax	0	0.0
Babesiosis	0	0.0
Botulism, Foodborne	0	0.0
Botulism, Infant (1)	0	0.0
Botulism, Unspecified	0	0.0
Botulism, Wound	0	0.0
Brucellosis	0	0.0
Campylobacteriosis	444	53.8
Chickenpox, Severe (Death or Hosp) (2)	2	0.2 *
Cholera (3)	0	0.0
Ciguatera Fish Poisoning	0	0.0
Coccidioidomycosis	6	0.7 *
Creutzfeldt-Jakob Dis. or Other TSE (4,5)	0	0.0
Cryptosporidiosis	19	2.3 *
Cysticercosis or Taeniasis (6)	0	0.0
Dengue	0	0.0
Diphtheria	0	0.0
Domoic Acid Poisoning	0	0.0
Encephalitis, Arboviral	0	0.0
Encephalitis, Bacterial	0	0.0
Encephalitis, Fungal	0	0.0
Encephalitis, Other Viral	0	0.0
Encephalitis, Parasitic	0	0.0
Encephalitis, Unspecified	4	0.5 *
Encephalitis, Total	4	0.5 *
Giardiasis	178	21.6
Haemophilus influenzae, Invasive (8)	0	0.0
Hantavirus Infection	0	0.0
Hemolytic Uremic Syndrome	0	0.0
Hepatitis A	5	0.6 *
Hepatitis B, Acute (9)	3	0.4 *
Hepatitis C, Acute	1	0.1 *
Hepatitis Delta	0	0.0
Hepatitis E	0	0.0
Influenza, Deaths, 0-64 years of age (4,10)	1	0.1 *
Legionellosis	4	0.5 *
Leprosy	0	0.0
Leptospirosis	0	0.0
Listeriosis	11	1.3 *
Lyme Disease (11)	5	0.6 *
Malaria	3	0.4 *
Measles	0	0.0

Disease	n	Rate
Meningitis, Bacterial (12)	1	0.1 *
Meningitis, Fungal	2	0.2 *
Meningitis, Parasitic	0	0.0
Meningitis, Unspecified	0	0.0
Meningitis, Viral	4	0.5 *
Meningitis, Total	7	0.8 *
Meningococcal Infection (13)	4	0.5 *
Mumps	1	0.1 *
Outbreaks, Foodborne (14)	4	N/A
Outbreaks, Non-Foodborne (14)	40	N/A
Paralytic Shellfish Poisoning	0	0.0
Pertussis	29	3.5
Plague	0	0.0
Poliovirus Infection (23)	0	0.0
Psittacosis	0	0.0
Q Fever	0	0.0
Rabies, Animal (15)	7	N/A
Rabies, Human	0	0.0
Relapsing Fever	0	0.0
Rickettsial Diseases (not RMSF or Typhus)	0	0.0
Rocky Mountain Spotted Fever	0	0.0
Rubella	0	0.0
Rubella, Congenital (1)	0	0.0
STEC including <i>E. coli</i> O157:H7 (7,22)	12	1.5 *
Salmonellosis (16)	120	14.5
Scombroid Fish Poisoning	2	0.2 *
Severe Acute Respiratory Syndrome	0	0.0
Severe <i>Staph. aureus</i> infection (17)	0	0.0
Shiga toxin feces (7)	2	0.2 *
Shigellosis, Group B: <i>S. flexneri</i>	65	7.9
Shigellosis, Group D: <i>S. sonnei</i>	74	9.0
Shigellosis, Other Group	3	0.4 *
Shigellosis, Total	142	17.2
Smallpox (18)	0	0.0
Streptococcal Infection (19)	0	0.0
Tetanus	0	0.0
Toxic Shock Syndrome	0	0.0
Trichinosis	0	0.0
Tularemia	0	0.0
Typhoid Carrier (20)	0	0.0
Typhoid Fever, Acute (20)	2	0.2 *
Typhus Fever	0	0.0
Vibriosis, Non-Cholera (3)	14	1.7 *
Viral Hemorrhagic Fever (21)	0	0.0
West Nile Disease	1	0.1 *
Yellow Fever	0	0.0
Yersiniosis	0	0.0

Source: SFPDPH Communicable Disease Control Unit. Data shown by year cases reported to SFPDPH. Rates are cases per 100,000 population. *=Unstable Rates (where n<20) should not be compared statistically. Population estimates from the California Department of Finance. This report uses 2007 estimates for the 2012 San Francisco population. (1) Rate among residents age <1 yr. (2) Since June 2007, only chickenpox (not varicella) deaths reportable; chickenpox hospitalizations became reportable in June 2007. For year 2012, both cases were hospitalizations (3) Cholera caused by *Vibrio cholerae* serogroup O1/O139. Vibriosis caused by other *V. cholerae* serogroups (non-O1/O139) and other *Vibrio* spp. (4) Reportable since June 2007. (5) TSE = transmissible spongiform encephalopathies (e.g., vCJD, kuru). (6) Taeniasis reportable since June 2007. (7) Non-O157:H7 STEC infections and Shiga toxin feces reportable since Oct 2006. (8) Reportable in <15 yrs; rate for residents aged <15 yrs. (9) Includes perinatal cases. (10) Reportable among <18 yrs; rate for residents <18 yrs. (11) Lyme Disease has been clinician-reportable since 1989 and lab-reportable since June 2005; (12) Excludes meningitis caused by *Neisseria meningitidis*, which is listed separately as Meningococcal Infections. (13) Caused by *Neisseria meningitidis* and includes meningitis and meningococemia. (14) Foodborne OB is >=4 illnesses with common exposure; other OBs defined by increase in cases above expected number. (15) Rabid bat only; no documented rabid terrestrial animal in SF for >60 yrs. (16) Excludes *S. Typhi*, which causes typhoid fever. (17) Reportable since February 2008. (18) Eradicated in 1979; reportable again since 2001 for bioterror surveillance. (19) Individual foodhandlers and dairy workers only. (20) Caused by *S. Typhi*. (21) Includes filoviruses (e.g., Ebola, Marburg), arenaviruses (e.g., Lassa fever), bunyaviruses (e.g., Crimean-Congo), and flaviruses (e.g., Omsk). (22) Reportable since Dec 2009. (23) Changed from Poliomyelitis infection as of Dec 2009.



TABLE 2: Frequency and Unadjusted Rates for 7 Selected Diseases by Age, San Francisco, 2012

Year	Age	Amebiasis				Campylobacteriosis				Cryptosporidiosis			
		n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2012	<1 yr	0	0.0*			3	35.8*	7.4	104.7	1	11.9*	0.3	66.6
	1-4 yrs	0	0.0*			36	105.5	73.9	146.1	0	0.0*		
	5-14 yrs	1	1.5*	0.0	8.2	29	42.6	28.5	61.1	1	1.5*	0.0	8.2
	15-24 yrs	3	5.5*	1.1	16.0	35	63.9	44.5	88.8	3	5.5*	1.1	16.0
	25-34 yrs	13	10.8*	5.7	18.4	127	105.3	87.8	125.3	6	5.0*	1.8	10.8
	35-44 yrs	14	6.8*	3.7	11.4	72	35.0	27.4	44.1	4	1.9*	0.5	5.0
	45-54 yrs	17	14.4*	8.4	23.0	66	55.9	43.2	71.1	2	1.7*	0.2	6.1
	55-64 yrs	10	10.5*	5.1	19.4	41	43.2	31.0	58.6	1	1.1*	0.0	5.9
	65+ yrs	1	0.8*	0.0	4.6	34	28.2	19.5	39.4	1	0.8*	0.0	4.6
	Total	59	7.1	5.4	9.2	444	53.8	48.9	59.0	19	2.3*	1.4	3.6

Year	Age	Giardiasis				Pertussis				Salmonellosis			
		n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2012	<1 yr	0	0.0*			6	71.7*	26.3	156.0	14	167.3*	91.4	280.6
	1-4 yrs	4	11.7*	3.2	30.0	7	20.5*	8.2	42.3	23	67.4	42.7	101.1
	5-14 yrs	4	5.9*	1.6	15.0	5	7.3*	2.4	17.1	15	22.0*	12.3	36.3
	15-24 yrs	12	21.9*	11.3	38.2	1	1.8*	0.0	10.2	13	23.7*	12.6	40.6
	25-34 yrs	36	29.9	20.9	41.3	4	3.3*	0.9	8.5	21	17.4	10.8	26.6
	35-44 yrs	51	24.8	18.5	32.6	2	1.0*	0.1	3.5	8	3.9*	1.7	7.7
	45-54 yrs	42	35.5	25.6	48.0	2	1.7*	0.2	6.1	9	7.6*	3.5	14.5
	55-64 yrs	18	19.0*	11.2	30.0	2	2.1*	0.3	7.6	7	7.4*	3.0	15.2
	65+ yrs	10	8.3*	4.0	15.2	0	0.0*			10	8.3*	4.0	15.2
	Total	178	21.6	18.5	25.0	29	3.5	2.4	5.0	120	14.5	12.1	17.4

Year	Age	Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
		n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2012	<1 yr	0	0.0*			0	0.0*			0	0.0*		
	1-4 yrs	1	2.9*	0.1	16.3	0	0.0*			1	2.9*	0.1	16.3
	5-14 yrs	3	4.4*	0.9	12.9	1	1.5*	0.0	8.2	2	2.9*	0.4	10.6
	15-24 yrs	6	10.9*	4.0	23.8	0	0.0*			5	9.1*	3.0	21.3
	25-34 yrs	31	25.7	17.5	36.5	19	15.8*	9.5	24.6	12	10.0*	5.1	17.4
	35-44 yrs	38	18.5	13.1	25.4	18	8.8*	5.2	13.8	19	9.2*	5.6	14.4
	45-54 yrs	40	33.9	24.2	46.1	19	16.1*	9.7	25.1	20	16.9	10.3	26.1
	55-64 yrs	15	15.8*	8.8	26.1	4	4.2*	1.1	10.8	11	11.6*	5.8	20.7
	65+ yrs	8	6.6*	2.9	13.1	4	3.3*	0.9	8.5	4	3.3*	0.9	8.5
	Total	142	17.2	14.5	20.3	65	7.9	6.1	10.0	74	9.0	7.0	11.3

Source: SFDPH Communicable Disease Control Unit. Data shown by year cases reported to SFDPH. Rates are cases per 100,000 population.

*=Unstable Rate (n<20). Unstable rates should not be compared statistically. 95%LCL=Exact Lower Confidence Limit, 95%UCL=Exact Upper Confidence Limit; 95% Exact Confidence Limits not displayed for counts of zero.

Cases with missing age are represented in total column counts only. Thus, the sum of individual age groups for these diseases does not match the total column count shown.

Population estimates obtained from the California Department of Finance. This report uses 2007 estimates for the 2012 San Francisco population.



TABLE 3: Frequency and Unadjusted Rates for 7 Selected Diseases by Sex, San Francisco, 2012

Year	Sex	Amebiasis				Campylobacteriosis				Cryptosporidiosis			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	Male	55	12.9	9.8	16.8	257	60.5	53.3	68.3	14	3.3*	1.8	5.5
	Female	4	1.0*	0.3	2.6	178	44.4	38.2	51.5	5	1.2*	0.4	2.9
	Unk	0				9				0			
	Total	59	7.1	5.4	9.2	444	53.8	48.9	59.0	19	2.3*	1.4	3.6

Year	Sex	Giardiasis				Pertussis				Salmonellosis			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	Male	122	28.7	23.8	34.3	14	3.3*	1.8	5.5	61	14.4	11.0	18.4
	Female	56	14.0	10.6	18.2	15	3.7*	2.1	6.2	59	14.7	11.2	19.0
	Unk	0				0				0			
	Total	178	21.6	18.5	25.0	29	3.5	2.4	5.0	120	14.5	12.1	17.4

Year	Sex	Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	Male	124	29.2	24.3	34.8	61	14.4	11.0	18.4	60	14.1	10.8	18.2
	Female	18	4.5*	2.7	7.1	4	1.0*	0.3	2.6	14	3.5*	1.9	5.9
	Unk	0				0				0			
	Total	142	17.2	14.5	20.3	65	7.9	6.1	10.0	74	9.0	7.0	11.3

Source: SFPDPH Communicable Disease Control Unit. Data shown by year cases reported to SFPDPH.

Rates are cases per 100,000 population; Rates not calculated for the sex category Unknown; *=Unstable Rate (n<20); Unstable rates should not be compared statistically.

95%LCL=Exact Lower Confidence Limit, 95%UCL=Exact Upper Confidence Limit; 95% Exact Confidence Limits not displayed for counts of zero.

Population estimates obtained from the California Department of Finance. This report uses 2007 estimates of the 2012 population.



TABLE 4: Frequency and Unadjusted Rates for 7 Selected Diseases by Race/Ethnicity, San Francisco, 2011

Year	Race/ Ethnicity	Amebiasis				Campylobacteriosis**				Cryptosporidiosis***			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	White	39	10.4	7.4	14.2	86				11			
	Black	2	3.5*	0.4	12.5	4				1			
	Asian/PI	0	0.0*			43				1			
	Hispanic	13	11.8*	6.3	20.2	20				1			
	Am Indian	0	0.0*			0				0			
	Other	0				6				3			
	Unknown	5				285				2			
	Total	59	7.1	5.4	9.2	444				19			

Year	Race/ Ethnicity	Giardiasis**				Pertussis				Salmonellosis			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	White	49				11	2.9*	1.5	5.2	39	10.4	7.4	14.2
	Black	7				1	1.7*	0.0	9.6	0	0.0*		
	Asian/PI	4				1	0.4*	0.0	2.0	52	19.0	14.2	25.0
	Hispanic	7				12	10.9*	5.6	19.1	16	14.5*	8.3	23.6
	Am Indian	0				0	0.0*			0	0.0*		
	Other	1				1				2			
	Unknown	110				3				11			
	Total	178				29	3.5	2.4	5.0	120	14.5	12.1	17.4

Year	Race/ Ethnicity	Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
		n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2012	White	95	25.2	20.4	30.8	45	11.9	8.7	16.0	48	12.7	9.4	16.9
	Black	4	6.9*	1.9	17.7	2	3.5*	0.4	12.5	1	1.7*	0.0	9.6
	Asian/PI	2	0.7*	0.1	2.6	1	0.4*	0.0	2.0	1	0.4*	0.0	2.0
	Hispanic	24	21.8	14.0	32.5	11	10.0*	5.0	17.9	13	11.8*	6.3	20.2
	Am Indian	1	13.0*	0.3	72.3	0	0.0*			1	13.0*	0.3	72.3
	Other	1				0				1			
	Unknown	15				6				9			
	Total	142	17.2	14.5	20.3	65	7.9	6.1	10.0	74	9.0	7.0	11.3

Source: SFDPH Communicable Disease Control Unit. Data shown by year cases reported to SFDPH. Am Indian = American Indian or Alaska Native; Asian/PI = Asian or Pacific Islander
 Rates are cases per 100,000 population; Rates not calculated for the race/ethnicity categories Other & Unknown. *=Unstable Rate (n<20). Unstable rates should not be compared statistically.
 95%LCL=Exact Lower Confidence Limit, 95%UCL=Exact Upper Confidence Limit; 95% Exact Confidence Limits not displayed for counts of zero.
 **Rates were not calculated for Campylobacteriosis, Cryptosporidiosis, and Giardiasis, because of the high percentage of missing race and ethnicity information.
 ***Rates were not calculated for Cryptosporidiosis according to CDCU rules for data suppression (N=15).
 Population estimates obtained from the California Department of Finance. This report uses 2007 estimates of the 2010 population.



TABLE 5: San Francisco Population Estimates by Sex, Age and Race/Ethnicity, 2012

Year	Sex	Age	White	Hispanic	Black	Asian/PI	Am Indian	Total
2012	F	<1 yr	1,926	635	302	1,213	30	4,106
		1-4 yrs	7,514	2,728	1,229	5,148	122	16,741
		5-14 yrs	9,245	7,615	3,228	12,686	710	33,484
		15-24 yrs	4,788	5,438	3,609	12,949	403	27,187
		25-34 yrs	33,364	5,705	3,663	16,341	422	59,495
		35-44 yrs	55,520	9,619	3,949	24,722	634	94,444
		45-54 yrs	17,898	7,336	4,086	20,979	534	50,833
		55-64 yrs	16,683	5,489	3,879	19,989	377	46,417
		65+ yrs	25,313	7,196	5,055	29,782	430	67,776
	Subtotal	172,251	51,761	29,000	143,809	3,662	400,483	
	M	<1 yr	2,000	659	315	1,259	31	4,264
		1-4 yrs	7,808	2,834	1,290	5,322	126	17,380
		5-14 yrs	9,632	7,978	3,369	12,921	739	34,639
		15-24 yrs	4,667	5,600	3,516	13,459	381	27,623
		25-34 yrs	34,374	6,820	3,403	16,053	407	61,057
		35-44 yrs	70,578	13,353	3,971	22,615	726	111,243
		45-54 yrs	32,327	10,182	4,866	19,231	728	67,334
		55-64 yrs	20,443	5,925	4,320	17,337	483	48,508
		65+ yrs	22,517	4,903	3,780	21,234	422	52,856
Subtotal	204,346	58,254	28,830	129,431	4,043	424,904		
2012	Total	376,597	110,015	57,830	273,240	7,705	825,387	

Source: California Department of Finance, Demographic Research Unit. This report uses 2007 estimates for the 2012 San Francisco population
 Note: Am Indian=American Indian/Alaska Native; Asian/PI=Asian/Pacific Islander.



Appendix: Notifiable Disease - Historical Changes (2004 - 2011)

The diseases required to be reported to public health and disease definitions can change over time. Changes in disease definitions can impact the numbers of cases of disease reported to the SFDPH. Documentation of changes in definitions from 2004 – 2011 are outlined below.

For documentation of changes from 1986 to 2003, please refer to The San Francisco Communicable Disease Report 1986-2003 (May 2005), accessible at: <http://sfcdcp.org/publications.html>.

<u>Date of change</u>	<u>Disease</u>	<u>Description</u>
2005	Acute hepatitis B	Includes perinatal cases starting in 2005.
June 2005	Lyme disease	Clinician reportable since 1989, and also became laboratory-reportable in June 2005.
June 2005	Severe Acute Respiratory Syndrome (SARS)	Became reportable in June 2005.
June 2005	West Nile Disease	Includes West Nile Fever, West Nile Meningitis, & West Nile Encephalitis, and became reportable in June 2005.
October 2006	Non-O157:H7 Shiga toxin producing <i>Escherichia coli</i> (STEC) infections	Non-O157:H7 STEC infections became notifiable in California in October 2006.
June 2007	Anisakiasis	Removed from the list of notifiable diseases in California in June 2007.
June 2007	Avian Influenza (H5N1)	Human infection with the influenza A H5N1 virus was added to the list of notifiable diseases in California in June 2007.
June 2007	Chickenpox	Previously all varicella hospitalizations and deaths (including shingles) were reportable, but as of June 2007, only chickenpox hospitalizations and deaths are reportable.
June 2007	Creutzfeldt-Jakob. Disease (CJD) and other Transmissible Spongiform Encephalopathies	Added to the list of notifiable diseases in California in June 2007.
June 2007	Echinococcosis	Removed from the list of notifiable diseases in California in June 2007.
June 2007	Influenza Deaths, Pediatric	Deaths associated with infection with an influenza virus are reportable in patients <18 years of age and were added to the list of notifiable diseases in California in June 2007.
June 2007	Invasive <i>Haemophilus influenzae</i> Disease	Reportable only in patients <15 years of age as of June 2007. Prior to June 2007, it was reportable in patients <30 years of age.
June 2007	Lymphocytic Choriomeningitis	Removed from the list of notifiable diseases in California in June 2007.
June 2007	Reye Syndrome	Removed from the list of notifiable diseases in California in June 2007.
June 2007	Shiga toxin producing <i>Escherichia coli</i> (STEC) infections	All <i>E. coli</i> O157 STEC (regardless of presence of H7 antigen) became notifiable in California in June 2007. Case counts and rates for STEC, <i>E. coli</i> O157:H7 and <i>E. coli</i> O157 non-H7 infections are presented together.
June 2007	Taeniasis	Added to the list of notifiable diseases in California in June 2007.
February 2008	Severe <i>Staphylococcus aureus</i> infection	Severe <i>Staphylococcus aureus</i> infection in a “previously healthy person” has been a reportable condition in California since February 13, 2008.



For the purposes of surveillance, a severe infection is defined as one resulting in death or admission to an intensive care unit, and a previously healthy person is defined as one who has not been hospitalized or had surgery, dialysis, or residency in a long-term care facility in the past year and did not have an indwelling catheter or percutaneous medical device at the onset of illness. A *S. aureus* infection in a person without these healthcare-associated risk factors would be considered community-associated.

2009	Anaplasmosis/Ehrlichiosis	Add Anaplasmosis to Ehrlichiosis
2009	Poliovirus infection	Change poliomyelitis to poliovirus infection.
July 2011	Anthrax, animal	Added to the list of notifiable diseases in California in July 2011.
July 2011	Brucellosis, animal	Added to the list of notifiable diseases in California in July 2011. Excludes infections due to <i>Brucella canis</i>
July 2011	Hepatitis D	Added to the list of notifiable diseases in California in July 2011.
July 2011	Hepatitis E	Added to the list of notifiable diseases in California in July 2011.
July 2011	Influenza, deaths	Added to the list of notifiable diseases in California in July 2011. Only deaths of laboratory-confirmed cases of patients ages 0-64 years.
July 2011	Influenza, novel strains	Added to the list of notifiable diseases in California in July 2011.
July 2011	Rickettsial Diseases	Added to the list of notifiable diseases in California in July 2011. Does not include Rocky Mountain Spotted Fever or Typhus.
July 2011	Tularemia, animal	Added to the list of notifiable diseases in California in July 2011.
July 2011	Viral Hemorrhagic Fevers, animal	Added to the list of notifiable diseases in California in July 2011.
July 2011	Avian influenza (human)	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Colorado Tick Fever	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Hepatitis, Viral	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Hepatitis, other, acute	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Influenza (report in a person less than 18 years of age)	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Kawasaki Syndrome	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Rheumatic Fever, acute	Removed from the list of notifiable diseases in California in July 2011.
July 2011	Water-associated disease	Removed from the list of notifiable diseases in California in July 2011. Includes Swimmer's Itch and Hot Tub Rash.

Appendix: Definitions for Select Notifiable Diseases

Bacterial Meningitis	Excludes meningitis caused by <i>Neisseria meningitidis</i> , which is listed separately as Meningococcal Infections.
Cholera	Is caused by <i>Vibrio cholerae</i> serogroup O1 or O139.
Meningococcal Infection	Are <i>N. meningitidis</i> infections that result in meningitis, meningococemia or other infections.
Outbreaks	Foodborne outbreaks are defined by 4 or more illnesses with a common food exposure. Other outbreaks of any disease, including those not reportable per CCR Title 17, are defined by an increase in cases above the expected number for a given time period. Additionally, cases may be



subjectively classified as an outbreak based on common exposures or other epidemiologic information.

Salmonellosis	Includes the more than 2,500 recognized serotypes of <i>Salmonella</i> spp., excluding <i>S. Typhi</i> , which causes typhoid fever.
Streptococcal Infection	Individual cases of streptococcal infection are reportable only if diagnosed in foodhandlers or dairy workers.
Typhoid Fever	Is caused by infection with <i>S. Typhi</i> .
Vibriosis	Is caused by other <i>Vibrio cholerae</i> serogroups (non-O1, non-O139) and other <i>Vibrio</i> spp., including <i>V. parahaemolyticus</i> and <i>V. vulnificus</i> .
Viral Hemorrhagic Fever	Includes hemorrhagic fevers caused by filoviruses (e.g., Ebola, Marburg), arenaviruses (e.g., Lassa fever, Machupo), bunyaviruses (e.g., Crimean-Congo), and flaviviruses (e.g., Omsk). Yellow fever and dengue are listed separately and not included in this category.

