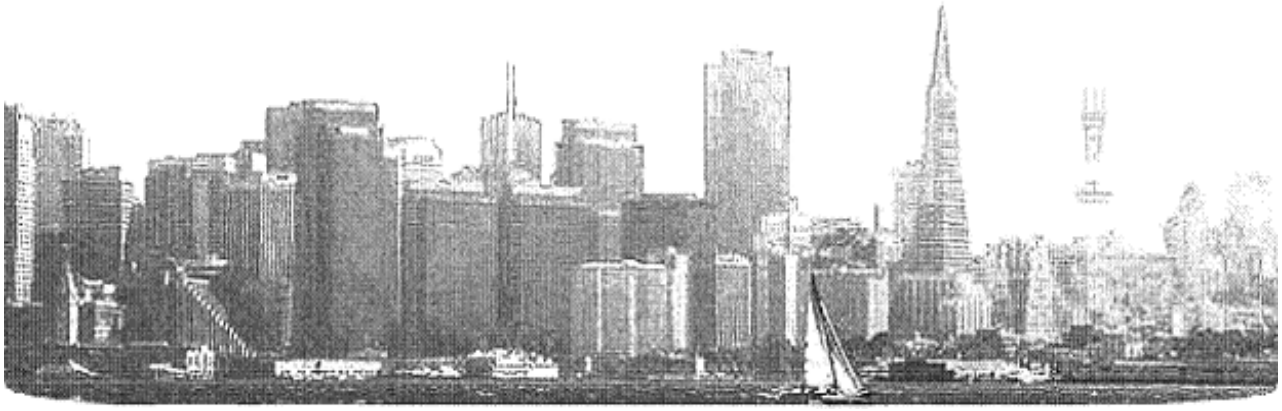
Annual Report of Communicable Diseases in San Francisco

2011



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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 2011. 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.

Contents

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

Methods and Definitions

Data Collection

This report includes confirmed and probable reports of disease among San Francisco residents reported to SFDPH from January 1, 2011 through December 31, 2011*. 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) form[2]. 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 hepatitides 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.sfcdcp.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)
- Chancroid
- *Chlamydia trachomatis* infections
- Gonococcal Infections
- Hepatitis B, chronic
- Hepatitis C infection, past or present
- Human Immunodeficiency Virus (HIV)
- Lymphogranuloma Venereum (LGV)
- Pelvic Inflammatory Disease (PID)
- Pesticide-related illness or injury
- Syphilis
- 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 reporting and not included in this report.

San Francisco population estimates were obtained from the California Department of Finance (DOF) Demographic Research Unit[3]; DOF estimates are based on the U.S. Census counts. This report uses DOF projections produced in 2007 for the 2011 San Francisco population, which estimates the population count to be 821,877 (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 categories[4]. 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 2010. Three 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. The following changes to the diseases required to be reported occurred in July 2011:

Diseases Added:

- Anthrax, animal
- Brucellosis, animal (except infections due to *Brucella canis*)
- Influenza, deaths in laboratory-confirmed cases for ages 0-64 years
- Influenza, novel strains (human)
- Rickettsial Diseases (non-Rocky Mountain Spotted Fever), including Typhus and Typhus-like Illnesses
- Tularemia, animal
- Viral Hemorrhagic Fevers, animal (e.g., Crimean-Congo, Ebola, Lassa and Marburg viruses)

Diseases Removed:

- Avian Influenza (human)
- Colorado Tick Fever
- Hepatitis, Viral
- Hepatitis, other, acute
- Influenza, (report an incident of less than 18 years of age)
- Kawasaki Syndrome (Mucocutaneous Lymph Node Syndrome)
- Rheumatic Fever, Acute
- Typhus Fever
- Water-Associated Disease (e.g., Swimmer's Itch and Hot Tub Rash)

Please see this report's appendices for a list of notifiable disease definition changes from 2004 to 2010 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.

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

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

Example: In 2011, there were 164 female cases of campylobacteriosis in San Francisco. The estimated number of female residents in 2011 was 399,065. Accordingly, the incidence among females was:

$$IR_{Campy\,2011_{Females}} = \left(164 \big/ 399{,}065 \right) \times 100{,}000 = 41.1 \text{ cases per 100,000 population.}$$

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 report[5]. Equivalently, numerators less than 20 result in unreliable rates.

Formula 2.

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

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

Example: In 2012, there were 422 cases of campylobacteriosis cases reported in San Francisco and four cases of acute typhoid fever. Accordingly, the relative standard errors for campylobacteriosis and acute typhoid fever are:

$$RSE_{Campy\,2011} = \left(\sqrt{1 \big/ 422} \right) \times 100 = 4.9\%$$

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

$$RSE_{TyphoidFever\,2011} = \left(\sqrt{1 \big/ 4} \right) \times 100 = 50.0\%$$

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 distribution[6]. 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 2011, the rate of giardiasis in residents 25-34 years of age was 35.3 cases per 100,000 people (95% CI=25.7-47.2). This confidence interval indicates that the true giardiasis rate in residents aged 25-34 years is likely to lie somewhere between 25.7 and 47.2 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 2011 giardiasis cases as an example, consider the difference between incidence among residents 1-4 years of age (rate=17.4, 95% CI=6.4-37.8) and those aged 25-34 years as described above. The range of possible values among the older age group is approximately one-third as wide as the range for children 1-4 years. The rate among residents 25-34 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 laws[1]. 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 2011). 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 2011. From TABLE 2, it is known that 5 cases were <1 year of age and 20 cases were 1-4 years of age. Similarly, the number of San Francisco residents in 2011 can be found in TABLE 5:

	Female	*Male*
<1 yr	4,189	4,350
1-4 yrs	16,936	17,588

Thus, the total number of cases <5 years of age = $(5 + 20) = 25$ and

the total population <5 years of age = (4,189 + 16,936 + 4,350 + 17,588) = 43,063 and

the rate of salmonellosis $= \left({}^{25}\!\!\diagup\!\!{}_{43{,}036} \right) \times 100{,}000 = 58.09$ cases per 100,000 population.

Notes on 2011 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 2011 (10.7 cases per 100,000 residents, 95% CI 9.3-14.1); the 2010 rate was slightly higher (12.5 cases per 100,000 residents, 95% CI 8.6-13.2), though this increase was not statistically significant.

- *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.

    - *Dengue*: In San Francisco, no cases of dengue reported in 2011 met the current case definition; 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 2011 in San Francisco, six cases of malaria were reported. Four were known to have lived in or travelled to foreign countries; for two cases, travel information was not available.
    - *West Nile Disease:* No cases of West Nile disease were reported in San Francisco in 2011. West Nile virus (WNV) is transmitted by mosquitoes. Mosquitoes function best at 80^{o} F, become lethargic at 60^{o} F and cannot function below 50^{o} F. In temperate climates, adult mosquitoes become inactive with the onset of cool weather and enter hibernation to live through the winter. In San Francisco, the average temperature ranges between 51^{o} F and 65^{o} F, with September being the warmest month of the year.

- *Campylobacteriosis: Campylobacter* infections remained the most frequently reported enteric disease in San Francisco (n=422, rate=51.3 per 100,000 residents, 95% CI: 46.6-56.5). The overall incidence rate of campylobacteriosis in 2011 was slightly higher than it has been in the past three years (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 2011 was statistically significantly higher than in 2009, but not than in 2010. A large outbreak, which may have been associated with a festival, was investigated during 2011.

- *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 established[7]. 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 2011, both had traveled domestically.

- *Measles*: Measles (also known as rubeola) is a highly contagious vaccine-preventable disease caused by the measles virus. Worldwide, the number of reported cases was 359,000 in 2011, with a number of large outbreaks in countries including, but not limited to India, France, Spain, Italy, and the Democratic Republic of Congo[8,9]. Due to a successful vaccination program, measles is rare in the US. However, since 2008, there has been a significant rise in cases due to importation of disease and subsequent outbreaks in several states, particularly among unvaccinated populations[10]. Approximately 90% of cases in the US in the 2011 were internationally imported or U.S-acquired, import-linked cases[11].

  In San Francisco in 2007, no measles cases were reported; one case was reported in 2008. Five cases were reported in 2009: two were internationally imported, two were US-acquired, import-linked cases, and the source of exposure was unknown for one case. One of the 2009 imported cases caused an outbreak, which resulted in two additional cases. In 2010, a US-acquired case without any documented travel history occurred .In 2011, one case was reported and the exposure occurred on an international flight in a person unable to be vaccinated. No additional spread occurred in San Francisco.

Year	Total	Source		
		Internationally imported	US acquired, import-linked	Unknown Source
2007	0	0	0	0
2008	1	1	0	0
2009	5	2	2	1
2010	1	0	0	1
2011	1	1	0	0

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

  In 2011, CDCU identified and investigated a total of 28 communicable disease outbreaks, similar to the number identified and investigated in 2010 (n=29). This is fewer than the number of outbreaks identified and investigated in previous years (2009: n=32; 2008: n=42; 2007: n=41; 2006: n=65). It is unclear whether this decrease is a result of changes in reporting practices, outbreak definition changes, or a true decrease in the number of outbreaks.

  - Etiology: 13/28 (46%) outbreaks were of unknown etiology, 6/28 (21%) were caused by norovirus (2 confirmed, 4 suspected), 3/28 (11%) by influenza (1 of H1N1 swine influenza, 2 by unspecified influenza; all confirmed), and one each by *Campylobacter spp*. (confirmed), *Salmonella spp.* (confirmed), *Staphylococcus spp.* (suspected), *Streptococcus pyogenes* (suspected), human parainfluenza virus (confirmed) and toxic roe poisoning (suspected).
  - Gastrointestinal Illness Outbreaks: Twenty-five of the 28 (89%) outbreaks caused gastrointestinal illness. 7/25 (28%) were suspected to be foodborne.
  - Location – 13/28 (46%) of outbreaks were associated with a long-term care facility, a skilled nursing facility, or elderly care; 4 (14%) were associated with a restaurant, 3 (11%) were associated with childcare, daycare, preschool or schools; 3 (11%) were associated with a clinical care setting; and 5 (18%) were associated with other types of settings.

- *Pertussis:* In San Francisco, as in California[12] and the United States[13], pertussis is endemic with epidemic cycles every three to four years. In San Francisco, the incidence of pertussis in 2011 (6.8 cases per 100,000 residents,

95% CI 5.1-8.8) decreased significantly, falling from the epidemic year in 2010 (17.0 cases per 100,000 residents, 95% CI 14.3-20.1). Rates of pertussis in 2011 were still somewhat 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 2011.

Pertussis has been increasing in San Francisco, California, and the United States since the mid 1970's, especially among adolescents and adults. Theories for this trend include increased recognition and diagnosis, increased access to laboratory tests, introduction of new laboratory tests such as nucleic acid amplification tests, increased surveillance and reporting, and waning immunity following vaccination[12,13,14]. In September 2010, the California legislature passed AB 354 which required all students entering 7th through 12th grade for the 2011-2012 school year to be immunized against pertussis with a Tdap booster. Even though the law took effect in July 2011, many public health agencies, including SFDPH, encouraged eligible children to be immunized and held vaccination campaigns before July 2011[15].

- *Rabies, Bat:* Two rabid bats were detected in San Francisco in 2011. 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 pets[16]. Rabies was not detected in any other animals in 2011, 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 years[16].

- *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 2010 and 2011, the rate of salmonellosis decreased from 20.3 per 100,000 residents (95% CI: 17.3-23.6) to 15.2 per 100,000 residents (95% CI: 12.7-18.1), but this difference was not statistically significant.

  The most frequently reported *Salmonella* serotypes in 2011, which together accounted for 76.5% of the 119 cases with complete serotype information were as follows: *S. enteriditis* (21.8%), *S. typhimurium* (11.8%), *S. heidelberg* (7.6%), *S. adelaide* (5.0%), *S. braenderup* (4.2%), *S. muenchen* (4.2%), *S. newport* (4.2%), *S. berta* (2.5%), *S. derby* (2.5%), *S. hvittingfoss* (2.5%), *S. infantis* (2.5%), *S. javiana* (2.5%), *S. mbandaka* (2.5%), and *S. paratyphi-A* (2.5%).. There was a much smaller proportion of *S. enteriditis* cases in 2011 (21.8%) compared to 2010 (45.2%).

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TABLE 1: Frequency of Reportable Diseases in San Francisco, 2011

Disease	n	Rate
Amebiasis	88	10.7
Anaplasmosis/Ehrlichiosis	0	0.0
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	1	0.1 *
Brucellosis	1	0.1 *
Campylobacteriosis	422	51.3
Chickenpox, Severe (Death or Hosp) (2)	3	0.4 *
Cholera (3)	0	0.0
Ciguatera Fish Poisoning	0	0.0
Coccidioidomycosis	8	1.0 *
Creutzfeldt-Jakob Dis. or Other TSE (4,5)	0	0.0
Cryptosporidiosis	22	2.7
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	1	0.1 *
Encephalitis, Fungal	0	0.0
Encephalitis, Other Viral	1	0.1 *
Encephalitis, Parasitic	0	0.0
Encephalitis, Unspecified	10	1.2 *
Encephalitis,Total	12	1.5 *
Giardiasis	181	22.0
Haemophilus influenzae, Invasive (8)	0	0.0
Hantavirus Infection	0	0.0
Hemolytic Uremic Syndrome	0	0.0
Hepatitis A	6	0.7 *
Hepatitis B, Acute (9)	7	0.9 *
Hepatitis C, Acute	1	0.1 *
Hepatitis Delta	0	0.0
Influenza, Pediatric Deaths (4,10)	0	0.0
Legionellosis	2	0.2 *
Leprosy	0	0.0
Leptospirosis	0	0.0
Listeriosis	9	1.1 *
Lyme Disease (11)	2	0.2 *
Malaria	6	0.7 *
Measles	1	0.1 *
Meningitis, Bacterial (12)	4	0.5 *
Meningitis, Fungal	2	0.2 *
Meningitis, Parasitic	0	0.0
Meningitis, Unspecified	1	0.1 *
Meningitis, Viral	4	0.5 *
Meningitis,Total	11	1.3 *
Meningococcal Infection (13)	8	1.0 *
Mumps	2	0.2 *
Outbreaks, Foodborne (14)	7	N/A
Outbreaks, Non-Foodborne (14)	21	N/A
Paralytic Shellfish Poisoning	0	0.0
Pertussis	56	6.8
Plague	0	0.0
Poliovirus Infection (23)	0	0.0
Psittacosis	0	0.0
Q Fever	0	0.0
Rabies, Animal (15)	2	N/A
Rabies, Human	0	0.0
Relapsing Fever	0	0.0
Rocky Mountain Spotted Fever	0	0.0
Rubella	0	0.0
Rubella, Congenital (1)	0	0.0
STEC including E. coli O157:H7 (7,22)	15	1.8 *
Salmonellosis (16)	125	15.2
Scombroid Fish Poisoning	3	0.4 *
Severe Acute Respiratory Syndrome	0	0.0
Severe Staph. aureus infection (17)	2	0.2 *
Shiga toxin in feces (7)	0	0.0
Shigellosis, Group B: *S. flexneri*	36	4.4
Shigellosis, Group D: *S. sonnei*	73	8.9
Shigellosis, Other Group	1	0.1 *
Shigellosis, Total	110	13.4
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)	4	0.5 *
Typhus Fever	0	0.0
Vibriosis, Non-Cholera (3)	7	0.9 *
Viral Hemorrhagic Fever (21)	0	0.0
West Nile Disease	0	0.0
Yellow Fever	0	0.0
Yersiniosis	0	0.0

Source: SFDPH Communicable Disease Control Unit. Data shown by year cases reported to SFDPH. 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 2010 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 2011, all cases were hospitalizations (3) Cholera caused by Vibrio cholerae serogroup O1/O139. Vibriosis non cholera 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 in 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 meningococcemia. (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, 2011

		Amebiasis				Campylobacteriosis				Cryptosporidiosis			
Year	Age	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2011	<1 yr	0	0.0*			4	46.8*	12.8	120.0	0	0.0*		
	1-4 yrs	0	0.0*			24	69.5	44.5	103.4	1	2.9*	0.1	16.1
	5-14 yrs	1	1.5*	0.0	8.5	26	39.8	26.0	58.3	0	0.0*		
	15-24 yrs	5	9.0*	2.9	20.9	35	62.7	43.6	87.1	2	3.6*	0.4	12.9
	25-34 yrs	12	9.4*	4.9	16.4	107	83.9	68.7	101.4	10	7.8*	3.8	14.4
	35-44 yrs	20	9.9	6.0	15.2	83	41.0	32.6	50.8	3	1.5*	0.3	4.3
	45-54 yrs	31	27.0	18.3	38.3	53	46.1	34.5	60.3	5	4.3*	1.4	10.1
	55-64 yrs	15	15.8*	8.9	26.1	39	41.1	29.2	56.2	1	1.1*	0.0	5.9
	65+ yrs	3	2.6*	0.5	7.5	49	41.7	30.8	55.1	0	0.0*		
	Total	88	10.7	8.6	13.2	422	51.3	46.6	56.5	22	2.7	1.7	4.1

		Giardiasis				Pertussis				Salmonellosis			
Year	Age	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2011	<1 yr	0	0.0*			13	152.3*	81.1	260.4	5	58.6*	19.0	136.7
	1-4 yrs	6	17.4*	6.4	37.8	9	26.1*	11.9	49.5	20	57.9	35.4	89.5
	5-14 yrs	7	10.7*	4.3	22.1	16	24.5*	14.0	39.7	14	21.4*	11.7	35.9
	15-24 yrs	9	16.1*	7.4	30.6	6	10.7*	3.9	23.4	17	30.4*	17.7	48.7
	25-34 yrs	45	35.3	25.7	47.2	2	1.6*	0.2	5.7	22	17.2	10.8	26.1
	35-44 yrs	55	27.1	20.5	35.3	2	1.0*	0.1	3.6	15	7.4*	4.1	12.2
	45-54 yrs	33	28.7	19.8	40.3	6	5.2*	1.9	11.4	12	10.4*	5.4	18.2
	55-64 yrs	15	15.8*	8.9	26.1	1	1.1*	0.0	5.9	7	7.4*	3.0	15.2
	65+ yrs	11	9.4*	4.7	16.7	1	0.9*	0.0	4.7	13	11.1*	5.9	18.9
	Total	181	22.0	18.9	25.5	56	6.8	5.1	8.8	125	15.2	12.7	18.1

		Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
Year	Age	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL	n	Rate	95%LCL	95%UCL
2011	<1 yr	0	0.0*			0	0.0*			0	0.0*		
	1-4 yrs	6	17.4*	6.4	37.8	3	8.7*	1.8	25.4	3	8.7*	1.8	25.4
	5-14 yrs	0	0.0*			0	0.0*			0	0.0*		
	15-24 yrs	6	10.7*	3.9	23.4	2	3.6*	0.4	12.9	4	7.2*	2.0	18.3
	25-34 yrs	20	15.7	9.6	24.2	6	4.7*	1.7	10.2	14	11.0*	6.0	18.4
	35-44 yrs	25	12.3	8.0	18.2	10	4.9*	2.4	9.1	15	7.4*	4.1	12.2
	45-54 yrs	42	36.5	26.3	49.4	12	10.4*	5.4	18.2	29	25.2	16.9	36.2
	55-64 yrs	10	10.5*	5.1	19.4	3	3.2*	0.7	9.2	7	7.4*	3.0	15.2
	65+ yrs	1	0.9*	0.0	4.7	0	0.0*			1	0.9*	0.0	4.7
	Total	110	13.4	11.0	16.1	36	4.4	3.1	6.1	73	8.9	7.0	11.2

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 2010 San Francisco population.

TABLE 3: Frequency and Unadjusted Rates for 7 Selected Diseases by Sex, San Francisco, 2011

		Amebiasis				Campylobacteriosis				Cryptosporidiosis			
Year	Sex	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	Male	82	19.4	15.4	24.1	253	59.8	52.7	67.7	19	4.5*	2.7	7.0
	Female	6	1.5*	0.6	3.3	164	41.1	35.0	47.9	3	0.8*	0.2	2.2
	Unk	0				5				0			
	Total	88	10.7	8.6	13.2	422	51.3	46.6	56.5	22	2.7	1.7	4.1

		Giardiasis				Pertussis				Salmonellosis			
Year	Sex	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	Male	142	33.6	28.3	39.6	28	6.6	4.4	9.6	66	15.6	12.1	19.9
	Female	38	9.5	6.7	13.1	28	7.0	4.7	10.1	59	14.8	11.3	19.1
	Unk	1				0				0			
	Total	181	22.0	18.9	25.5	56	6.8	5.1	8.8	125	15.2	12.7	18.1

		Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
Year	Sex	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	Male	99	23.4	19.0	28.5	35	8.3	5.8	11.5	63	14.9	11.4	19.1
	Female	11	2.8*	1.4	4.9	1	0.3*	0.0	1.4	10	2.5*	1.2	4.6
	Unk	0				0				0			
	Total	110	13.4	11.0	16.1	36	4.4	3.1	6.1	73	8.9	7.0	11.2

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

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 2010 population.

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

		Amebiasis				Campylobacteriosis**				Cryptosporidiosis***			
Year	Race/ Ethnicity	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	White	49	13.1	9.7	17.3	63				12			
	Black	5	8.6*	2.8	20.1	4				4			
	Asian/PI	2	0.7*	0.1	2.7	18				2			
	Hispanic	17	15.4*	9.0	24.7	13				3			
	Am Indian	.				.				.			
	Other	2				5				0			
	Unknown	13				319				1			
	Total	88	10.7	8.6	13.2	422				22			

		Giardiasis**				Pertussis				Salmonellosis			
Year	Race/ Ethnicity	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	White	43				20	5.3	3.3	8.3	45	12.0	8.8	16.1
	Black	7				3	5.2*	1.1	15.1	4	6.9*	1.9	17.6
	Asian/PI	5				13	4.8*	2.5	8.2	42	15.4	11.1	20.8
	Hispanic	25				10	9.1*	4.4	16.7	16	14.5*	8.3	23.6
	Am Indian	.				.				.			
	Other	2				5				4			
	Unknown	99				5				14			
	Total	181				56	6.8	5.1	8.8	125	15.2	12.7	18.1

		Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
Year	Race/ Ethnicity	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL	n	Rate	95% LCL	95% UCL
2011	White	79	21.1	16.7	26.3	23	6.2	3.9	9.2	55	14.7	11.1	19.2
	Black	4	6.9*	1.9	17.6	4	6.9*	1.9	17.6	0	0.0*		
	Asian/PI	1	0.4*	0.0	2.0	0	0.0*			1	0.4*	0.0	2.0
	Hispanic	13	11.8*	6.3	20.2	6	5.5*	2.0	11.9	7	6.4*	2.6	13.1
	Am Indian	.				.				.			
	Other	0				0				0			
	Unknown	13				3				10			
	Total	110	13.4	11.0	16.1	36	4.4	3.1	6.1	73	8.9	7.0	11.2

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 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, 2011

Year	Sex	Age	White	Hispanic	Black	Asian/PI	Am Indian	Total
2011	F	<1 yr	1,955	653	305	1,246	30	4,189
		1-4 yrs	7,500	2,814	1,237	5,263	122	16,936
		5-14 yrs	8,122	7,572	3,227	12,437	729	32,087
		15-24 yrs	5,243	5,384	3,702	13,056	389	27,774
		25-34 yrs	35,749	6,160	3,707	17,104	427	63,147
		35-44 yrs	53,349	9,657	3,943	24,539	629	92,117
		45-54 yrs	17,013	7,186	4,188	20,891	512	49,790
		55-64 yrs	17,569	5,294	3,822	19,658	365	46,708
		65+ yrs	24,713	7,073	5,009	29,119	403	66,317
		Subtotal	***171,213***	***51,793***	***29,140***	***143,313***	***3,606***	***399,065***
	M	<1 yr	2,030	678	318	1,293	31	4,350
		1-4 yrs	7,794	2,925	1,299	5,443	127	17,588
		5-14 yrs	8,500	7,932	3,383	12,734	752	33,301
		15-24 yrs	5,033	5,502	3,601	13,585	367	28,088
		25-34 yrs	36,449	7,615	3,368	16,558	413	64,403
		35-44 yrs	69,704	13,455	4,105	22,466	737	110,467
		45-54 yrs	30,478	9,857	4,974	19,189	710	65,208
		55-64 yrs	20,931	5,607	4,237	16,922	455	48,152
		65+ yrs	21,705	4,704	3,672	20,790	384	51,255
		Subtotal	***202,624***	***58,275***	***28,957***	***128,980***	***3,976***	***422,812***
2011		***Total***	***373,837***	***110,068***	***58,097***	***272,293***	***7,582***	***821,877***

Source: California Department of Finance, Demographic Research Unit. This report uses 2007 estimates for the 2010 San Francisco population
Note: Am Indian=American Indian/Alaska Native; Asian/PI=Asian/Pacific Islander.

Appendix: Notifiable Disease - Historical Changes (2004 - 2010)

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 – 2010 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.

Date of change	Disease	Description
2005	**Acute hepatitis B**	Include 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 *Escherichia coli* (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 *Haemophilus influenzae* 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 *Escherichia coli* (STEC) infections**	All *E. coli* O157 STEC (regardless of presence of H7 antigen) became notifiable in California in June 2007. Case counts and rates for STEC, *E. coli* O157:H7 and *E. coli* 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 *Staphylococcus aureus* infection**	Severe *Staphylococcus aureus* 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.

Appendix: Definitions for Select Notifiable Diseases

Bacterial Meningitis	Excludes meningitis caused by *Neisseria meningitidis*, which is listed separately as Meningococcal Infections.
Cholera	Is caused by *Vibrio cholerae* serogroup O1 or O139.
Meningococcal Infection	Are *N. meningitidis* infections that result in meningitis, meningococcemia 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 *Salmonella* spp., excluding *S.* Typhi, 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 *S.* Typhi.
Vibriosis	Is caused by other *Vibrio cholerae* serogroups (non-O1, non-O139) and other *Vibrio* spp., including *V. parahaemolyticus* and *V. vulnificus*.
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.