Annual Report of Communicable Diseases in San Francisco 2013

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Communicable Disease Control & Prevention
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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 2013. 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)

Methods and Definitions

Data Collection

This report includes confirmed and probable reports of disease among San Francisco residents reported to SFDPH from January 1, 2013 through December 31, 2013*. 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 Viral Hepatitis Surveillance Team.

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 animal 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 Unit[3]; DOF estimates are based on the U.S. Census counts. This report uses DOF projections produced in 2014 for the 2013 San Francisco population; the population count is estimated to be 833,828 (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 investigated 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 two cases of reportable conditions in 2013. Four 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 2012 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 9.3 (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, influenza deaths for people aged 0-64 years, 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 influenza death rate for persons aged 0-64 years, it was persons less than 15 years of age and persons 0-64 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 2013, there were 170 female cases of campylobacteriosis in San Francisco. The estimated number of female residents in 2013 was 410,680. Accordingly, the incidence among females was:

$$IR_{Campy2013_{Females}} = \left(170 \big/ 410{,}680 \right) \times 100{,}000 = 41.4 \text{ cases per 100,000 population.}$$

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 percentages 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 2013, there were 396 cases of campylobacteriosis cases reported in San Francisco and one case of acute typhoid fever. Accordingly, the relative standard errors for campylobacteriosis and acute typhoid fever are:

$$RSE_{Campy2013} = \left(\sqrt{1 \big/ 396} \right) \times 100 = 5.0\%$$

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

$$RSE_{TyphoidFever2013} = \left(\sqrt{1 \big/ 1} \right) \times 100 = 100\%$$

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, using GAMINV function in SAS to calculate the Poisson confidence limits [6]. Confidence limits were rounded to one decimal place.

The confidence interval 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 2013 giardiasis cases as an example, consider the difference between incidence among residents 1-4 years of age (rate=6.2, 95% CI=0.7-22.3) and those aged 35-44 years (rate=29.0, 95% CI=20.0-39.2). The range of possible values among the older age group is less than the range for children 1-4 years of age. 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 with zero cases.

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 age, sex, and race/ethnicity stratification for this report. These diseases were selected due to their public health importance and/or volume of reports.

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 2013). 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 2013. From TABLE 2, it is known that 20 cases were <1 year of age and 31 cases were 1-4 years of age. Similarly, the number of San Francisco residents in 2013 can be found in TABLE 5:
>
> *Female* *Male*

<1 yr	4,428	4,605
1-4 yrs	15,886	16,575

Thus, the total number of cases <5 years of age = $(20 + 31) = 51$ and

the total population <5 years of age = $(4{,}428 + 15{,}886 + 4{,}605 + 16{,}575) = 41{,}494$ and

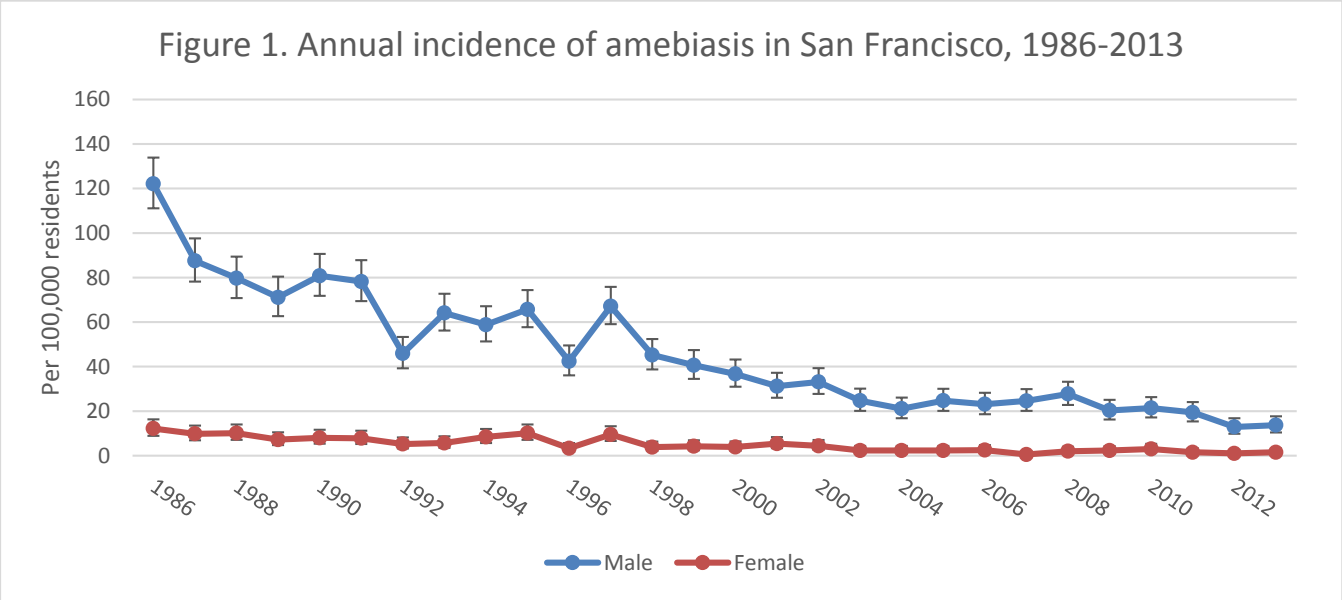
the rate of salmonellosis $= \left({}^{51}\!/_{41{,}494} \right) \times 100{,}000 = 122.9$ cases per 100,000 population.

Notes on 2013 Surveillance Data

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

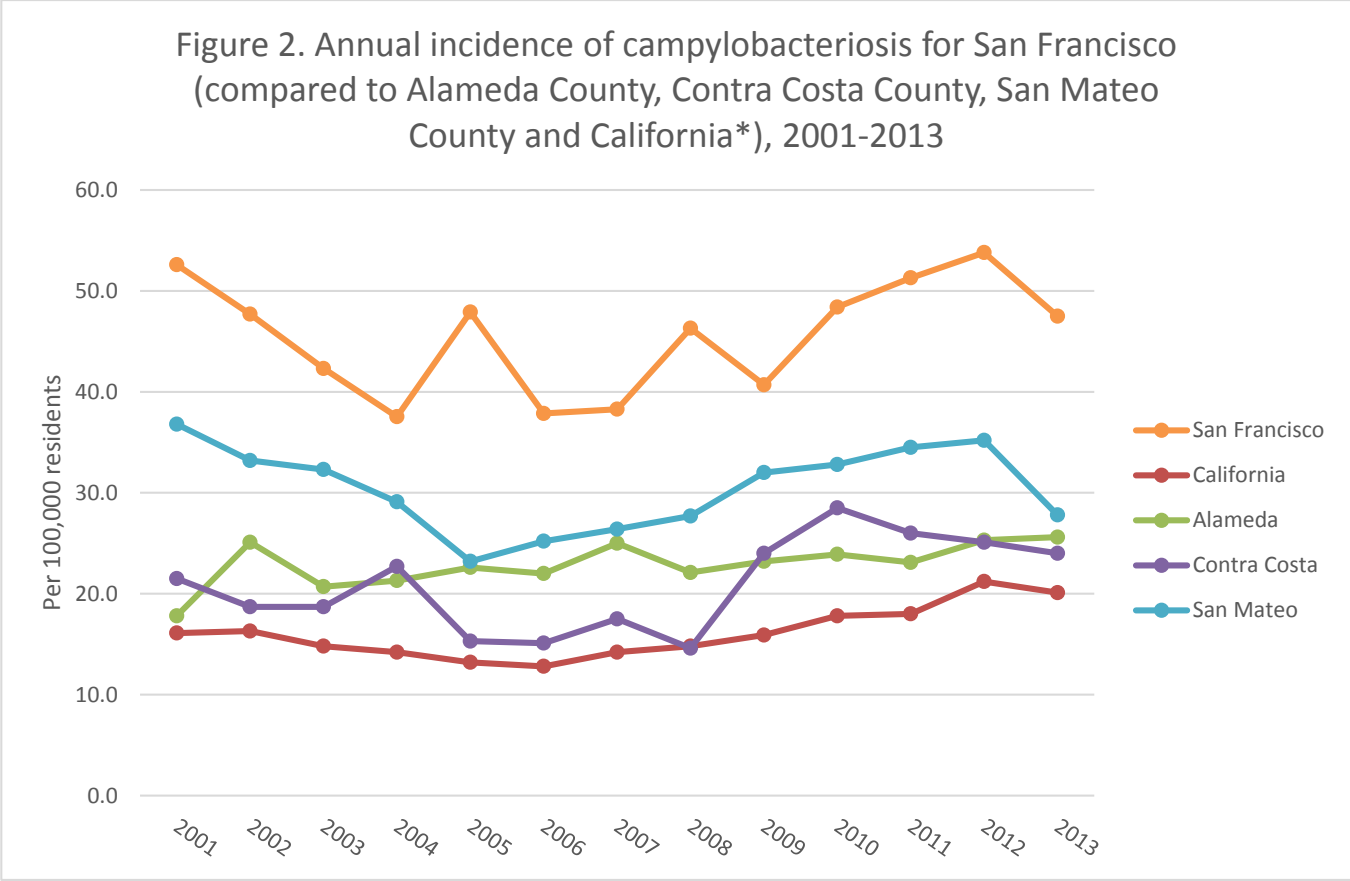
AMEBIASIS

Rates of amebiasis have declined for both men and women since 1986, but rates of amebiasis were significantly higher in males than females for all years of existing data (1986-2013). However, the disparity between the rates of disease in males and females has decreased.



CAMPYLOBACTERIOSIS

Campylobacter infections remained the most frequently reported enteric disease in San Francisco (n=396, rate=47.5 per 100,000 residents, 95% CI: 42.9-52.4), with rates higher than any other California jurisdiction (see Figure 2 for comparison to select CA jurisdictions). Rates declined from 1990 (n=782, rate=108.1 per 100,000 residents, 95% CI: 100.7-116.0) until 2004 (n=297, rate=37.5 per 100,000 residents, 95% CI: 33.4-42.1). Since 2004, rates have been increasing, with some year to year fluctuations; the rate in 2013 was statistically significantly higher than in 2004.



*Rates for California, Alameda, Contra Costa County, and San Mateo County from California Department of Public Health Report, *Yearly Summary Reports of Selected General Communicable Diseases in California*[7,8].

LYME DISEASE

Since 1989, Lyme Disease (LD) has been a clinician-reported disease, and in June 2005, laboratories became legally required to report cases of LD to SFDPH. Interpretation of laboratory testing for LD has been and continues to be a challenge, because some commercial labs use assays whose accuracy and usefulness has not been adequately established[9]. In 2013, 12 cases of LD were reported (rate=1.4 per 100,000); of the ten cases with exposure information, nine had travelled to LD endemic areas.

MENINGOCOCCAL INFECTION

In 2012, New York identified a cluster of meningococcal infection among men who have sex with men. Subsequently, Los Angeles and Chicago also identified clusters among men who have sex with men. In 2012 and 2013, San Francisco issued several advisories regarding vaccination for men who have sex with men who were travelling to those areas. No outbreak occurred in San Francisco. In 2013, none of the four meningococcal disease cases were found among men who have sex with men.

MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS

In 2012, a novel coronavirus was identified, later named Middle East Respiratory Syndrome Coronavirus (MERS-CoV), in an individual in Saudi Arabia who died with an acute respiratory distress syndrome. While San Francisco did investigate several potential cases, upon investigation, MERS-CoV was ruled out.

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 2013, CDCU identified and investigated a total of 36 communicable disease outbreaks, fewer than the number identified and investigated in 2012 (n=44). Two outbreaks mentioned in other sections of this report are not counted in the total number of San Francisco outbreaks, because San Francisco was not the lead investigative or reporting agency.

It is unclear what factors contribute to the fluctuation in the number of outbreaks identified and reported, but fluctuations could result from changes in reporting practices, outbreak definition changes, or a true change in the number of outbreaks.

- Etiology: 16/36 (44%) of the outbreaks were of unknown etiology (13/16 were outbreaks of acute gastroenteritis without laboratory confirmation of a specific infectious agent and 3/16 were outbreaks of respiratory illness without laboratory confirmation of a specific infectious agent); 8/36 (22%) were caused by norovirus (3 confirmed, 5 suspected), 8/36 (22%) by influenza (all confirmed), and one each by pertussis (confirmed), rotavirus (confirmed), scabies (confirmed), and shigatoxin-producing *E.*coli (confirmed).
- Gastrointestinal Illness Outbreaks: Twenty four of the 36 (67%) outbreaks involved gastrointestinal illness. Four were suspected to be foodborne.
- Location – 23/36 (64%) of the outbreaks were associated with a long-term care facility, a skilled nursing facility, or elderly care; 4 (11%) were associated with childcare, daycare, preschool or schools; 2 (6%) were associated with a health care setting; 2 (6%) were associated with a restaurant, and 5 (14%) were associated with other types of settings.

PERTUSSIS

The incidence of pertussis in San Francisco in 2013 was 5.4 cases per 100,000 residents (95% CI: 3.9-7.2), which was an insignificant increase from the prior year (3.5 cases per 100,000 residents, 95% CI 2.4-5.0). In 2013, rates of pertussis were highest among those under 15 years of age, with the highest rate among infants (77.5 cases per 100,000 residents, 95% CI: 31.2-159.6). The incidence of pertussis among children aged 5-14 years increased significantly between 2013 (34.3 cases per 100,000 residents, 95% CI: 21.0-53.0) and 2012 (7.3 cases per 100,000 residents, 95% CI: 2.4-17.1). The United States switched from whole-cell to acellular pertussis vaccines during the 1990s; the acellular pertussis vaccine has been found to produce less durable immunity than the whole-cell pertussis vaccine[10].

The Advisory Committee on Immunization Practices (ACIP) in October 2012 recommended pertussis immunization during every pregnancy to help prevent morbidity and mortality in infants[11]. The previous

2011 recommendations did not include vaccinating pregnant women who had been previously vaccinated for pertussis.

No pertussis deaths occurred in San Francisco in 2013.

RABIES

Two rabid bats were detected in San Francisco in 2013. 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[13]. Rabies was not detected in any animals aside from bats in 2013, and no cases of rabies have been reported in terrestrial animals (e.g. dogs, cats, skunks, raccoons, foxes, coyotes) in San Francisco for over 60 years[13]. The last human rabies case in San Francisco occurred in 1987, and the presumed source was a dog bite that occurred while the patient was in the Philippines. During 2013, of the 198 cases of non-human rabies reported in California, 95% were found in bats: 188 (95%) bats, 7 (4%) skunks, 1 fox, 1 cat and 1 dog[12].

SALMONELLOSIS

Rates of salmonellosis in San Francisco increased by 61 percent between 2012 (14.5 per 100,000 residents, 95% CI: 12.1-17.4) and 2013 (23.4 per 100,000 residents, 95% CI: 20.2-26.9). Part of this increase was due to a multistate outbreak of *Salmonella* Heidelberg associated with Foster Farms chickens. Fifteen San Francisco cases were associated with cooked rotisserie chicken sold at the South San Francisco El Camino Real Costco store. The raw chickens, which were cooked on site, originated from one of the Foster Farms facilities implicated in the ongoing multistate outbreak. Two samples of leftover rotisserie chicken were collected by public health officials from the home of ill persons. Laboratory testing conducted by the California Food and Drug Laboratory Branch identified the outbreak strain in both samples of leftover rotisserie chicken. The source or mechanism of contamination of the cooked chickens was not definitively determined, despite an extensive environmental investigation. Rotisserie chickens sold at the South San Francisco El Camino Real store between 9/24/13 and 10/15/13 were recalled, with recalls being issued on 10/12/13 and 10/17/13[14].

This outbreak does not completely explain the increase in salmonellosis incidence in 2013, since increases were seen in serotypes other than Heidelberg. Other Bay Area counties, except Napa, also saw increases, although none were as significant as the San Francisco increase (see Figure 3).

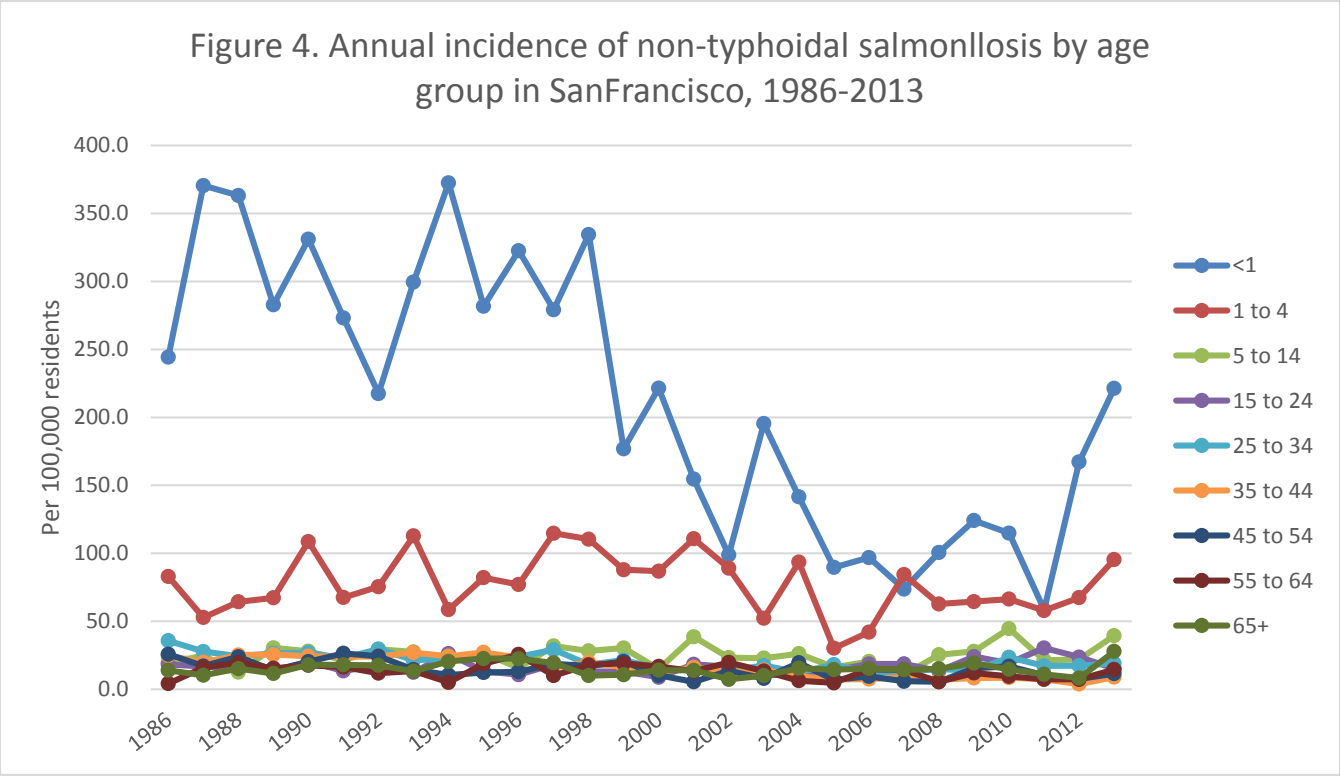
Figure 3. Annual incidence per 100,000 population of salmonellosis, non-typhoidal in San Francisco Bay Area Counties*, 2012-2013

County	2012 Rate	2013 Rate
Alameda	14.5	15.7
Contra Costa	11.8	12.8
Marin	11.0	14.4
Napa	19.4	16.4
San Francisco	14.5	23.4
San Mateo	19.0	22.5

Santa Clara	15.2	19.2
Solano	11.2	13.0
Sonoma	13.1	13.2

*Rates for Alameda County, Contra Costa County, Marin County, Napa County, San Mateo County, Santa Clara County, Solano County, and Sonoma County from California Department of Public Health Report, *Yearly Summary Reports of Selected General Communicable Diseases in California*[8].

Rates of salmonellosis in 2013 were highest among those under age one year (221.4 per 100,000 residents, 95% CI: 135.2-341.9) and among 1-4 year olds (95.5 per 100,000 residents, 95% CI: 64.9-135.5). Increases between 2012 and 2013 occurred in both age groups, but these increases were not significant. Salmonellosis incidence in those aged 65 years and older increased significantly between 2012 (8.3, 95%CI: 4.0-15.2) and 2013 (27.9, 95% CI: 19.3-38.9).



The most frequently reported *Salmonella* serotypes in 2013, which together accounted for 67.2% of the 195 cases with serotype information, were as follows: *S.* Enteriditis (15.9%), *S.* Heidelberg (12.8%) – 4 were probable cases associated with an *S.* Heidelberg outbreak , *S.* Infantis (8.7%), *S.* Typhimurium (6.7%), *S.* Meunchen (5.6%), *S.* I 4,5,12:i:- (5.6%), *S.* Adelaide (3.1%), *S.* Thompson (3.1%), *S.* Uganda (3.1%), and *S.* Newport (2.6%).

SHIGA TOXIN-PRODUCING *ESCHIRICHIA COLI* and HEMOLYTIC UREMIC SYNDROME

The number of Shiga toxin-producing *Escherichia coli* (STEC) cases doubled between 2012 (n=12) and 2013 (n=26), and six cases of hemolytic uremic syndrome (HUS) were reported. Eighteen of the 26

STEC cases and five of the six HUS cases were associated with two outbreaks: an outbreak associated with a San Francisco restaurant and a multijurisdictional outbreak associated with prepackaged salads. Details regarding these two outbreaks are as follows:

1) Thirteen of the 26 cases in 2013 were part of an *E. coli* O157 outbreak with illness onsets in August 2013; 4 of these cases developed HUS. In this outbreak, a total of 22 confirmed and probable cases were identified (13 of which were San Francisco residents). Epidemiologic investigation revealed the point source of the outbreak to be a specific restaurant, with 20 out of 22 case-patients dining in the restaurant on either August 16 or 17. A case-control study and a dining group level cohort study were initiated to identify suspect food items. A garlic noodle dish was associated with illness, but a potential mechanism (such as food ingredient, food handling, or food handler) was not identified. A traceback of produce items did not reveal a conclusive source of infection/contamination. Also, no employees reported illness, and testing did not reveal any employees infected with *E. Coli* O157. Restaurant owners and staff fully cooperated in the investigation.

2) Five of the 26 STEC cases reported in 2013 were a part of a multi-state foodborne cluster of *E. coli* O157:H7 (PulseNet cluster ID 1310CAEXH-1); one of these cases also developed HUS. This cluster was epidemiologically linked to the consumption of pre-packaged salads. The California Department of Public Health conducted an extensive environmental investigation, including trace-back of food items and environmental testing[15]. For more information regarding the environmental investigation, see https://www.cdph.ca.gov/HealthInfo/Documents/fdbEIRRB2014.pdf

WEST NILE DISEASE

Since West Nile Virus disease became reportable in June 2005, seven cases have been reported, including one in 2013. Of those seven cases, four had known travel outside San Francisco; one case was related to an organ transplant; and two cases had no known travel history and were likely exposed in San Francisco.

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TABLE 1: Frequency of Reportable Diseases in San Francisco, 2013

Disease	N	Rate
Amebiasis	64	7.7
Anaplasmosis/Ehrlichiosis	1	0.1 *
Anthrax	0	0.0
Babesiosis	0	0.0
Botulism, Foodborne	0	0.0
Botulism, Infant (1)	2	22.1 *
Botulism, Unspecified	0	0.0
Botulism, Wound	1	0.1 *
Brucellosis	1	0.1 *
Campylobacteriosis	396	47.5
Chickenpox, Severe (Death or Hosp)	2	0.2 *
Cholera	0	0.0
Ciguatera Fish Poisoning	0	0.0
Coccidioidomycosis	16	1.9 *
Creutzfeldt-Jakob Dis. or Other TSE (2)	1	0.1 *
Cryptosporidiosis	17	2.0 *
Cysticercosis or Taeniasis	1	0.1 *
Dengue	3	0.4 *
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, Total	0	0.0
Encephalitis, Unspecified	0	0.0
Giardiasis	193	23.1
Haemophilus influenzae, Invasive(3)	1	1.0 *
Hantavirus Infection	0	0.0
Hemolytic Uremic Syndrome (4)	6	0.7 *
Hepatitis A	4	0.5 *
Hepatitis B, Acute (5)	3	0.4 *
Hepatitis C, Acute	0	0.0
Hepatitis Delta	0	0.0
Hepatitis E	0	0.0
Influenza, Deaths, 0-64 years of age	1	0.1 *
Legionellosis	2	0.2 *
Leprosy	0	0.0
Leptospirosis	0	0.0
Listeriosis	8	1.0 *
Lyme Disease	12	1.4 *
Malaria	3	0.4 *
Measles	1	0.1 *

Disease	N	Rate
Meningitis, Bacterial	2	0.2 *
Meningitis, Fungal	3	0.4 *
Meningitis, Parasitic	0	0.0
Meningitis, Unspecified	0	0.0
Meningitis, Viral	1	0.1 *
Meningitis,Total	6	0.7 *
Meningococcal Infection	4	0.5 *
Mumps	2	0.2 *
Outbreaks, Foodborne	4	N/A
Outbreaks, Non-Foodborne	32	N/A
Paralytic Shellfish Poisoning	0	0.0
Pertussis	45	5.4
Plague	0	0.0
Poliovirus Infection	0	0.0
Psittacosis	0	0.0
Q Fever	0	0.0
Rabies, Animal	2	N/A
Rabies, Human	0	0.0
Relapsing Fever	0	0.0
Rickettsial Diseases (not RMSF or Typhus)	2	0.2 *
Rocky Mountain Spotted Fever	1	0.1 *
Rubella	0	0.0
Rubella, Congenital (1)	0	0.0
STEC including E. coli O157:H7	26	3.1
Salmonellosis	195	23.4
Scombroid Fish Poisoning	2	0.2 *
Severe Acute Respiratory Syndrome	0	0.0
Severe Staph. aureus infection	0	0.0
Shiga toxin feces	1	0.1 *
Shigellosis, Group B: S. flexneri	58	7.0
Shigellosis, Group D: S. sonnei	56	6.7
Shigellosis, Other Group	5	0.6 *
Shigellosis, Total	119	14.3
Smallpox	0	0.0
Streptococcal Infection	0	0.0
Tetanus	0	0.0
Toxic Shock Syndrome	0	0.0
Trichinosis	0	0.0
Tularemia	0	0.0
Typhoid Carrier	0	0.0
Typhoid Fever, Acute	1	0.1 *
Typhus Fever	1	0.1 *
Vibriosis, Non-Cholera	17	2.0 *
Viral Hemorrhagic Fever	0	0.0
West Nile Disease	1	0.1 *
Yellow Fever	0	0.0
Yersiniosis	4	0.5 *

=Unstable Rates (where n<20) should not be compared statistically. See report appendix for disease reporting changes and selected disease definitions. (1) Rate among residents age <1 yr. (2) TSE = transmissible spongiform encephalopathies (e.g., vCJD, kuru). (3) Reportable in <15 yrs; rate for residents aged <15 yrs. (4) Includes HUS only and E. coli STEC cases with HUS (5) Includes perinatal cases.

Source: SFDPH Communicable Disease Control Unit. Data were shown by the year cases were reported to SFDPH. Rates are cases per 100,000 population. Population estimates were obtained from the California Department of Finance[3] (http://www.dof.ca.gov/Forecasting/Demographics/Projections/).

TABLE 2: Frequency and Unadjusted Rates for 7 Selected Diseases by Age, San Francisco, 2013

		Amebiasis				Campylobacteriosis				Cryptosporidiosis			
Year	Age	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	<1 yr	0	0.0*			6	66.4*	24.4	144.6	0	0.0*		
	1-4 yrs	0	0.0*			25	77.0	49.8	113.7	1	3.1*	0.1	17.2
	5-14 yrs	0	0.0*			27	46.3	30.5	67.4	1	1.7*	0.0	9.6
	15-24 yrs	1	1.3*	0.0	7.1	43	54.6	39.5	73.5	2	2.5*	0.3	9.2
	25-34 yrs	13	7.5*	4.0	12.9	121	70.1	58.2	83.8	5	2.9*	0.9	6.8
	35-44 yrs	16	11.0*	6.3	17.9	58	40.0	30.4	51.7	4	2.8*	0.8	7.1
	45-54 yrs	20	17.7	10.8	27.4	48	42.5	31.4	56.4	2	1.8*	0.2	6.4
	55-64 yrs	10	9.7*	4.7	17.9	31	30.1	20.5	42.8	1	1.0*	0.0	5.4
	65+ yrs	4	3.3*	0.9	8.4	37	30.3	21.4	41.8	1	0.8*	0.0	4.6
	Total	64	7.7	5.9	9.8	396	47.5	42.9	52.4	17	2.0*	1.2	3.3

		Giardiasis				Pertussis				Salmonellosis			
Year	Age	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	<1 yr	0	0.0*			7	77.5*	31.2	159.6	20	221.4	135.2	341.9
	1-4 yrs	2	6.2*	0.7	22.3	4	12.3*	3.4	31.5	31	95.5	64.9	135.5
	5-14 yrs	3	5.1*	1.1	15.0	20	34.3	21.0	53.0	23	39.5	25.0	59.2
	15-24 yrs	11	14.0*	7.0	25.0	7	8.9*	3.6	18.3	12	15.2*	7.9	26.6
	25-34 yrs	66	38.3	29.6	48.7	2	1.2*	0.1	4.2	33	19.1	13.2	26.9
	35-44 yrs	42	29.0	20.9	39.2	0	0.0*			13	9.0*	4.8	15.3
	45-54 yrs	42	37.2	26.8	50.3	3	2.7*	0.5	7.8	13	11.5*	6.1	19.7
	55-64 yrs	16	15.6*	8.9	25.3	2	1.9*	0.2	7.0	15	14.6*	8.2	24.0
	65+ yrs	10	8.2*	3.9	15.1	0	0.0*			34	27.9	19.3	38.9
	Total	193	23.1	20.0	26.7	45	5.4	3.9	7.2	195	23.4	20.2	26.9

		Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
Year	Age	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	<1 yr	0	0.0*			0	0.0*			0	0.0*		
	1-4 yrs	3	9.2*	1.9	27.0	0	0.0*			3	9.2*	1.9	27.0
	5-14 yrs	4	6.9*	1.9	17.6	1	1.7*	0.0	9.6	3	5.1*	1.1	15.0
	15-24 yrs	4	5.1*	1.4	13.0	3	3.8*	0.8	11.1	1	1.3*	0.0	7.1
	25-34 yrs	19	11.0*	6.6	17.2	7	4.1*	1.6	8.4	11	6.4*	3.2	11.4
	35-44 yrs	26	17.9	11.7	26.3	12	8.3*	4.3	14.5	14	9.7*	5.3	16.2
	45-54 yrs	37	32.8	23.1	45.2	22	19.5	12.2	29.5	12	10.6*	5.5	18.6
	55-64 yrs	21	20.4	12.6	31.2	12	11.7*	6.0	20.4	8	7.8*	3.4	15.3
	65+ yrs	4	3.3*	0.9	8.4	1	0.8*	0.0	4.6	3	2.5*	0.5	7.2
	Total	119	14.3	11.8	17.1	58	7.0	5.3	9.0	56	6.7	5.1	8.7

=Unstable Rate (n<20). Unstable rates should not be compared statistically. 95% CI=95% Confidence Interval. Confidence Interval 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.

Source: SFDPH Communicable Disease Control Unit. Data were shown by the year cases were reported to SFDPH. Rates are cases per 100,000 population. Population estimates were obtained from the California Department of Finance[3] (http://www.dof.ca.gov/Forecasting/Demographics/Projections/).

TABLE 3: Frequency and Unadjusted Rates for 7 Selected Diseases by Sex, San Francisco, 2013

		Amebiasis				Campylobacteriosis				Cryptosporidiosis			
Year	Sex	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	Male	58	13.7	10.4	17.7	224	52.9	46.2	60.3	17	4.0*	2.3	6.4
	Female	6	1.5*	0.5	3.2	170	41.4	35.4	48.1	0	0.0		
	Unk	0				2				0			
	Total	64	7.7	5.9	9.8	396	47.5	42.9	52.4	17	2.0*	1.2	3.3

		Giardiasis				Pertussis				Salmonellosis			
Year	Sex	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	Male	147	34.7	29.4	40.8	18	4.3*	2.5	6.7	99	23.4	19.0	28.5
	Female	43	10.5	7.6	14.1	27	6.6	4.3	9.6	95	23.1	18.7	28.3
	Unk	3				0				1			
	Total	193	23.1	20.0	26.7	45	5.4	3.9	7.2	195	23.4	20.2	26.9

		Shigellosis (Total)				Shigellosis (flexneri)				Shigellosis (sonnei)			
Year	Sex	N	Rate	95% CI		N	Rate	95% CI		N	Rate	95% CI	
2013	Male	108	25.5	20.9	30.8	56	13.2	10.0	17.2	48	11.3	8.4	15.0
	Female	11	2.7*	1.3	4.8	2	0.5*	0.1	1.8	8	1.9*	0.8	3.8
	Unk	0				0				0			
	Total	119	14.3	11.8	17.1	58	7.0	5.3	9.0	56	6.7	5.1	8.7

=Unstable Rate (n<20); Unstable rates should not be compared statistically. 95% CI=95% Confidence Interval. Confidence Interval not displayed for counts of zero.

Source: SFDPH Communicable Disease Control Unit. Data were shown by the year cases were reported to SFDPH. Rates are cases per 100,000 population; rates not calculated for the sex category Unknown. Population estimates were obtained from the California Department of Finance[3] (http://www.dof.ca.gov/Forecasting/Demographics/Projections/).

TABLE 4: Frequency and Unadjusted Rates for 7 Selected Diseases by Race/Ethnicity, San Francisco, 2013

Year	Race/ Ethnicity	Amebiasis N	Amebiasis Rate	Amebiasis 95% CI		Campylobacteriosis** N	Campylobacteriosis** Rate	Campylobacteriosis** 95% CI		Cryptosporidiosis*** N	Cryptosporidiosis*** Rate	Cryptosporidiosis*** 95% CI	
2013	White	38	10.9	7.7	15.0	46				9			
	Black	1	1.9*	0.0	10.7	4				0			
	Asian/PI	1	0.3*	0.0	1.9	33				0			
	Hispanic	17	13.1*	7.6	21.0	16				6			
	Am Indian	0	0.0*			1				0			
	Other	1				5				0			
	Unknown	6				291				2			
	Total	64	7.7	5.9	9.8	396				17			

Year	Race/ Ethnicity	Giardiasis** N	Giardiasis** Rate	Giardiasis** 95% CI		Pertussis N	Pertussis Rate	Pertussis 95% CI		Salmonellosis N	Salmonellosis Rate	Salmonellosis 95% CI	
2013	White	51				9	2.6*	1.2	4.9	50	14.4	10.7	19.0
	Black	1				0	0.0*			5	9.6*	3.1	22.4
	Asian/PI	2				6	2.0*	0.7	4.4	91	30.7	24.7	37.7
	Hispanic	16				20	15.4	9.4	23.8	21	16.2	10.0	24.7
	Am Indian	0				0	0.0*			0	0.0*		
	Other	1				2				1			
	Unknown	122				8				27			
	Total	193				45	5.4	3.9	7.2	195	23.4	20.2	26.9

Year	Race/ Ethnicity	Shigellosis (Total) N	Shigellosis (Total) Rate	Shigellosis (Total) 95% CI		Shigellosis (flexneri) N	Shigellosis (flexneri) Rate	Shigellosis (flexneri) 95% CI		Shigellosis (sonnei) N	Shigellosis (sonnei) Rate	Shigellosis (sonnei) 95% CI	
2013	White	70	20.1	15.7	25.5	33	9.5	6.5	13.3	33	9.5	6.5	13.3
	Black	1	1.9*	0.0	10.7	0	0.0*			1	1.9*	0.0	10.7
	Asian/PI	6	2.0*	0.7	4.4	2	0.7*	0.1	2.4	4	1.3*	0.4	3.5
	Hispanic	21	16.2	10.0	24.7	13	10.0*	5.3	17.1	7	5.4*	2.2	11.1
	Am Indian	0	0.0*			0	0.0*			0	0.0*		
	Other	4				2				2			
	Unknown	17				8				9			
	Total	119	14.3	11.8	17.1	58	7.0	5.3	9.0	56	6.7	5.1	8.7

**=Unstable Rate (n<20). Unstable rates should not be compared statistically. 95% CI=95% Confidence Interval. Confidence Interval 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).*

Source: SFDPH Communicable Disease Control Unit. Data were shown by the year cases were 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. Population estimates were obtained from the California Department of Finance[3] (http://www.dof.ca.gov/Forecasting/Demographics/Projections/).

TABLE 5: San Francisco Population Estimates by Sex, Age and Race/Ethnicity, 2013

Year	Sex	Age	White	Hispanic	Black	Asian/PI	Am Indian	Total
2013	FEMALE	<1 yr	1,738	811	279	1,505	95	4,428
		1-4 yrs	6,176	3,347	1,069	4,953	341	15,886
		5-14 yrs	7,866	7,096	2,553	10,679	539	28,733
		15-24 yrs	11,616	8,150	3,526	15,844	477	39,613
		25-34 yrs	41,719	12,374	3,741	27,570	824	86,228
		35-44 yrs	31,217	9,982	3,176	22,423	539	67,337
		45-54 yrs	18,447	6,916	3,396	21,772	367	50,898
		55-64 yrs	17,798	5,527	3,399	22,880	267	49,871
		65+ yrs	25,515	6,889	4,436	30,574	272	67,686
			162,092	***61,092***	***25,575***	***158,200***	***3,721***	***410,680***
	MALE	<1 yr	1,808	844	290	1,564	99	4,605
		1-4 yrs	6,402	3,426	1,151	5,217	379	16,575
		5-14 yrs	7,826	7,518	2,557	11,086	582	29,569
		15-24 yrs	9,692	8,782	3,309	16,988	428	39,199
		25-34 yrs	42,456	15,304	3,445	24,345	728	86,278
		35-44 yrs	41,026	13,165	3,513	19,336	613	77,653
		45-54 yrs	29,120	9,250	4,490	18,530	528	61,918
		55-64 yrs	23,180	5,773	4,338	19,425	306	53,022
		65+ yrs	23,867	4,674	3,525	22,012	251	54,329
			185,377	***68,736***	***26,618***	***138,503***	***3,914***	***423,148***
2013			***347,469***	***129,828***	***52,193***	***296,703***	***7,635***	***833,828***

Note: Am Indian=American Indian/Alaska Native; Asian/PI=Asian/Pacific Islander.

Source: California Department of Finance[3] (http://www.dof.ca.gov/Forecasting/Demographics/Projections/).

Appendix: Notifiable Disease - Historical Changes (2004 - 2012)

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 – 2012 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**	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 *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.
February 2008	**Smallpox**	Eradicated in 1979; reportable again since 2001 for bioterror surveillance.
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 *Brucella canis*
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 *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.