

Enteric Diseases in Alameda County, 2019-2023

Background

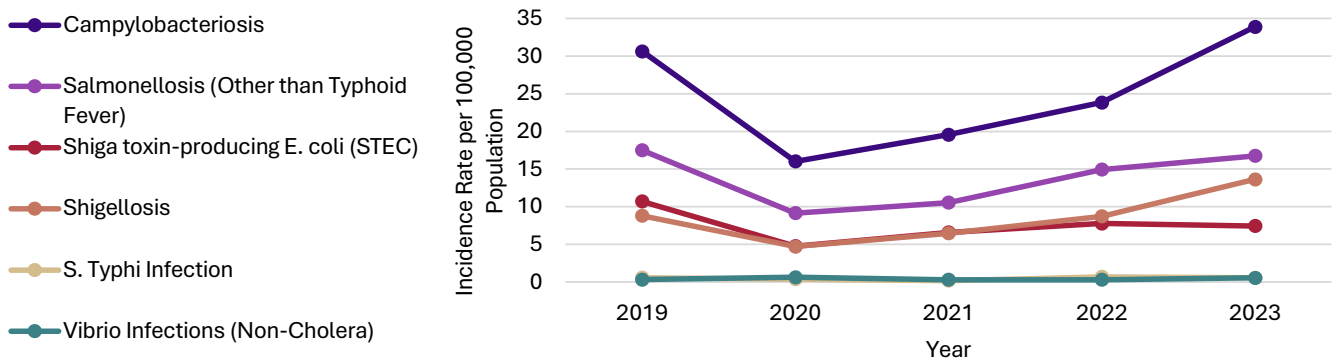
Enteric diseases are gastrointestinal illnesses caused by micro-organisms such as bacteria, viruses, and parasites; most often associated with ingestion of contaminated food or water. In California, cases of many enteric diseases are required to be reported by providers and laboratories to public health. In 2023, the most commonly reported enteric diseases in Alameda County were: Campylobacteriosis, Salmonellosis and Typhoid Fever, Shigellosis, Giardiasis, and Shiga toxin-producing *Escherichia coli* (STEC).

This fact sheet summarizes 2019-2023 probable and confirmed cases of: Campylobacteriosis, Salmonellosis and Typhoid Fever, Shigellosis, non-Cholera Vibriosis; and suspect, probable, and confirmed cases for STEC.

Provider Recommendations:

- Enteric diseases are underreported; we encourage testing when suspected and reporting when identified.
- Educate patients on prevention measures, such as handwashing and no oral/anal sex when symptomatic.
- For healthcare personnel, daycare workers and food handlers, certain infections require evidence of clearance through the public health department laboratory, by state mandate.
- Perform antimicrobial susceptibility testing for Shigellosis due to increasing prevalence of XDR *Shigella*.

Figure 1. Case Rates and Counts of Enteric Diseases among Alameda County Residents, 2019 – 2023



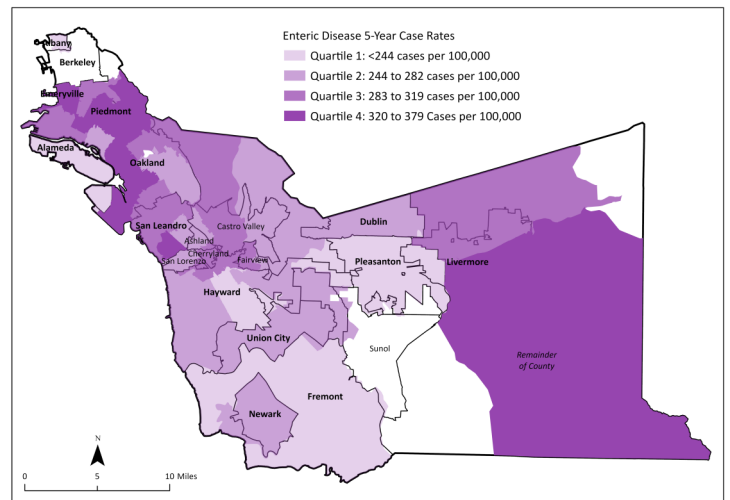
Counts of Disease	2019	2020	2021	2022	2023
Campylobacteriosis	469	245	302	377	532
<i>Salmonella</i> Typhi	9	6	3	11	9
Salmonellosis (Other than Typhoid Fever)	268	140	163	236	263
Shiga toxin-producing <i>Escherichia coli</i> (STEC)	164	73	102	123	117
Shigellosis	135	72	100	138	214
Vibrio Infections (Non-Cholera)	5	10	5	5	9

Case Counts and Rates

During this 5-year period, 4,305 cases of enteric diseases were reported to public health in Alameda County, with a rate of 279 cases per 100,000 residents, but varied by area (Figure 2). Cases decreased during the COVID-19 pandemic before returning to pre-pandemic rates by 2023. Campylobacteriosis was the most commonly reported illness, followed by Salmonellosis, Shigellosis, and STEC (Figure 1).

These counts are just the tip of the iceberg; the burden of disease is much larger. Only about 1 in 26 to 1 in 33 cases of Campylobacteriosis, Salmonellosis, Shigellosis, and STEC O157 are laboratory-confirmed, and only 1 in 13 Typhoid cases are laboratory-confirmed¹, meaning the vast majority of cases go unreported.

Figure 2. Enteric Disease Case Rates by Zip Code, 2019 – 2023



Source: ACPHD DCCDP, with data from CalREDIE, 2019 - 2023. Zip codes with less than 10 cases and Berkeley excluded.

Case Demographics

The majority of cases were in adults, however, case rates were highest among children <5 years (Table 1). Children <18 years consisted of 26% of all cases. Case rates were highest among Hispanic/Latino/x and White residents, and slightly over half of cases were among male residents. Enteric disease case rates were highest among parts of Oakland, Emeryville, and Piedmont (Figure 2).

Clinical Characteristics and Epidemiology

Among cases that provided food history, 75% reported eating food prepared outside of the home before becoming ill. Of those interviewed, 28% had travelled internationally before onset. One-third of cases with Shigellosis reported sexual activity before becoming ill. Extremely drug-resistant (XDR) Shigellosis is emerging in Alameda County. From 2019 — 2023 there were 8 cases identified, with 5 of those cases (62%) in 2023. Among STEC cases, the average yearly incidence rate of Hemolytic Uremic Syndrome (HUS) was 0.7 per 100,000 children, slightly higher than the US rate of 0.6 per 100,000 children.

Almost all cases (>98%) were symptomatic, and 18% were hospitalized. Ten out of 32 asymptomatic cases were identified as contacts of a known case. Only three deaths were reported over the 5-year period; all had bacteremia.

Individuals who work with young children or in food or healthcare settings are considered to be in a sensitive occupation and require testing for pathogen clearance in a public health laboratory for certain enteric infections before returning to regular work duties in order to prevent ongoing transmission; 13% of cases fell into this group. Many of these individuals require work modifications and/or disability pay while clearing.

Summary

Like many other infectious diseases, the number of reported enteric illnesses decreased during the COVID-19 pandemic. Campylobacteriosis was the most commonly reported illness, followed by Salmonellosis. Almost all cases reported symptoms and only a small number identified were not tested, indicating that many cases of enteric disease go undetected if patients do not see a provider for their symptoms and get tested. Case rates were highest among children <5 years old, White and Hispanic/Latinx residents, and persons living in Oakland, Emeryville and Piedmont. Alameda County Public Health Department works to decrease transmission through case investigations, and clearance testing with work modifications/restrictions of those working in sensitive occupations.

Table 1. Demographic Characteristics of Enteric Disease Cases in Alameda County, 2019 — 2023

Characteristic	Cases	Percent	5-Year Case Rate per 100,000
Age Group			
<1 yrs	87	2.0%	491.4
1-5 yrs	497	12%	535.7
6-17 yrs	497	12%	213.9
18-59 yrs	2375	55%	271.4
60+ yrs	842	20%	258
Unknown	7	—	—
Race/Ethnicity			
African American or Black	278	6.5%	183.7
Asian	734	17%	145.8
Hispanic or Latino/x	946	22%	266.7
Multiracial	60	1.4%	92.1
Native American	6	0.1%	—
Pacific Islander	20	0.5%	161.8
White	1129	26%	251.3
Other/Unknown	1132	26%	—
Gender			
Female	1959	46%	249.3
Male	2337	54%	308.2
Other/Unknown	9	0.2%	—

Table 2. Epidemiologic and Clinical Characteristics of Enteric Cases, Alameda County, 2019 — 2023

Characteristic, Denominator*	Case Count, (%**)
Epidemiologic Factors	
Travelled internationally, N = 1910	534 (28%)
Ate food from outside house, N = 1723	1269 (73.7%)
Part of known outbreak, N = 1516	82 (5.4%)
Sexual activity prior to diagnosis, N = 448 (Shigella only)	156 (34.8%)
Unhoused, N = 2380	30 (1.3%)
Clinical Characteristics	
Symptomatic, N = 2083	2051 (98.5%)
Hospitalized, N = 1972	353 (17.9%)
Patient died, N = 457	3 (0.7%)
Hemolytic Uremic Syndrome (HUS), N = 579 (STEC only)	13 (2.2%)
Diagnostic and Clearance Testing	
Required clearance testing, N = 1401	187 (13.3%)
No diagnostic test, N = 2380	43 (1.8%)

*Denominators given represent number of cases with data for that field. Campylobacteriosis cases were not included since they are interviewed by the California Emerging Infections Program (CEIP), and not Alameda County
 **Percent is based on denominator for specific field

References: 1. Scallan, E. et al. Foodborne Illness Acquired in the United States — Major Pathogens - Volume 17, Number 1— January 2011 - Emerging Infectious Diseases journal - CDC. doi:10.3201/eid1701.p11101.

For questions or additional information, contact:
 Alameda County Public Health Department
 Acute Communicable Diseases Section

1100 San Leandro Blvd,
 San Leandro, CA 94577
 Phone: 510-267-3250

Website: <https://acphd.org/communicable-disease/disease-reporting-and-control/>
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