Vibrios

Cholera is a Class A Disease and must be reported to the state within 24 hours by calling the phone number listed on the web page.

Non-cholera Vibrio infections are Class B Diseases and must be reported to the state within five business days. All Vibrio cultures should be sent to the State Public Health Laboratory for confirmation.

Epidemiology

All *Vibrio* species infections were added to the list of nationally notifiable diseases in January, 2007. *Vibrios* are Gram-negative, curved, rod-shaped bacteria that are natural inhabitants of the marine environment. In the United States, the transmission of *Vibrio* infection is primarily through the consumption of raw or undercooked shellfish or by exposure of wounds to warm seawater or seafood drippings.

Historically, many cases of *Vibrio*-associated illnesses were under-recognized. This is because most clinical laboratories did not routinely use the selective medium for processing of stool specimens unless they were specifically requested to do so. However, the recent increase in the use of culture-independent diagnostic tests (CIDT) has led to an increase in diagnosed and reported cases.

Common symptoms of *Vibrio* infection include watery diarrhea, stomach cramps, nausea, vomiting, fever and chills. Wound infections and primary septicemia also occur, particularly for *Vibrio vulnificus*. Patients with liver disease and those who are immunocompromised are at a particularly high risk for significant morbidity and mortality associated with these infections. Early detection and initiation of treatment are very important, particularly for cholera and invasive *Vibrio* infections, because these infections may rapidly progress. According to the Centers for Disease Control and Prevention (CDC), 150-200 *V. vulnificus* infections are reported to the CDC a year, and about one in five people with serious *V. vulnificus* infections die, as quickly as within a day or two of illness onset.

Incidence

Until 2017, the number of reported *Vibrio* infections remained fairly stable over 20 years, ranging from 20 to 60 cases per year (Figure 1). However, due to an increase in the use of non-culture tests (culture independent diagnostic tests, or CIDTs), which are much more sensitive than culture tests and provide rapid results, there has been a marked increase in reported cases (Figure 2). These CIDT cases are classified as “probable” cases, as opposed to culture “confirmed” cases.

Figure 1: *Vibrios* Cases and Incidence Rates - Louisiana, 2010-2023

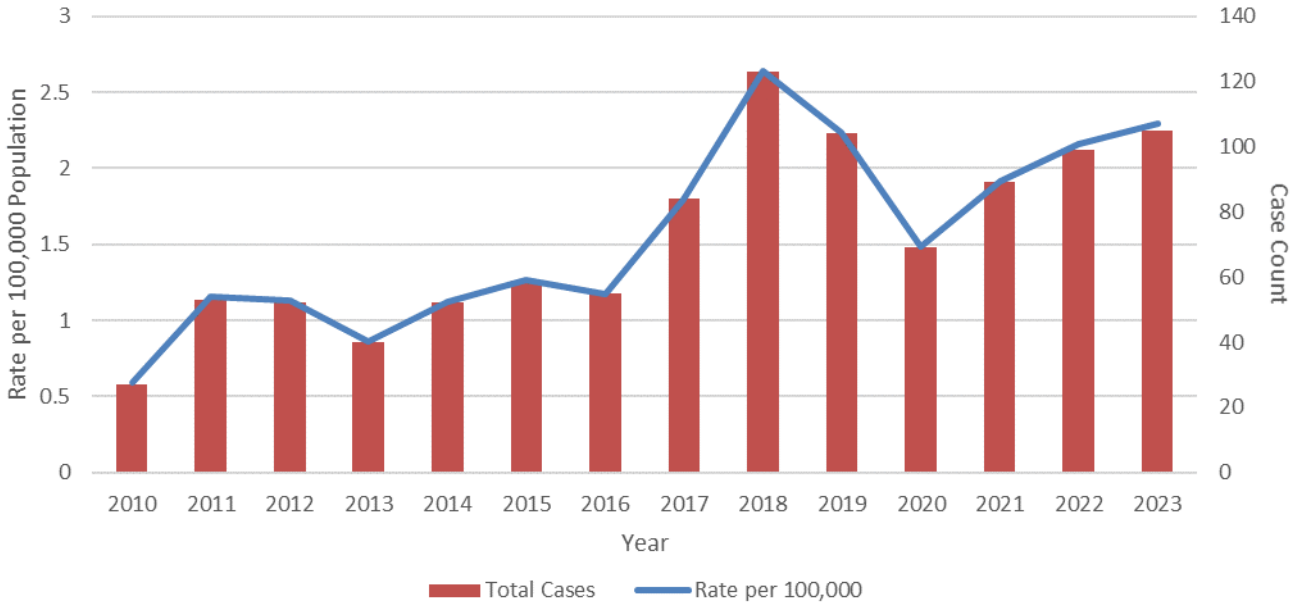
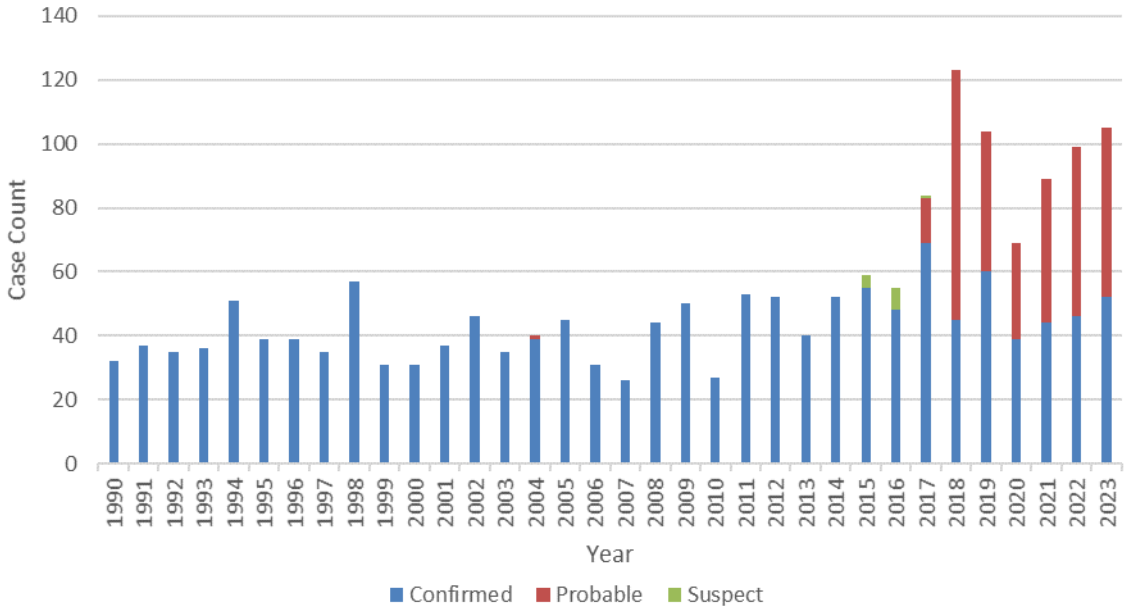


Figure 2: *Vibrios* Cases: Confirmed and Probable – Louisiana, 1990-2023



There are several species of *Vibrios*, some increasing in reported numbers over time and others decreasing in numbers. The most common *Vibrio* species observed in reported cases in Louisiana are *V. vulnificus* (22%), followed by *V. parahaemolyticus* (18%) (Table 1). Species listed as "Vibrio other" in Table 1 include *V. damselae, V. fluvialis, V. furnissii, V. hollisae, V. metschnikovii, V. mimicus, V. navarrensis*, and species that were unidentified.

Table 1: *Vibrios* species distribution - Louisiana, 1988-2023

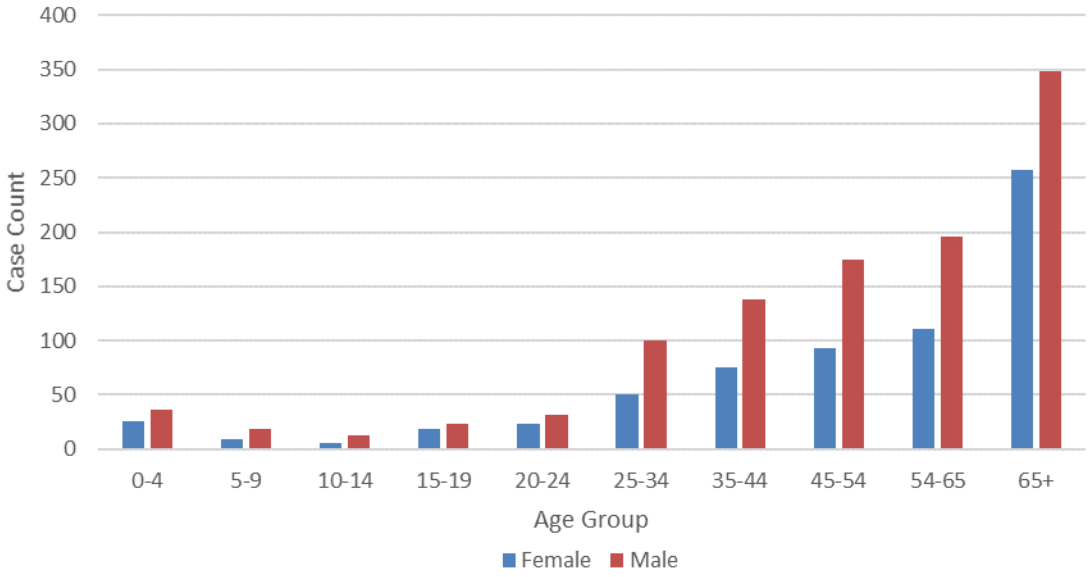
Species	Total 1988-1997	Total 1998-2007	Total 2008-2017	Total 2018-2022	Total 2023
Vibrio *parahaemolyticus*	80	109	100	50	8
Vibrio *vulnificus*	77	135	128	66	19
Vibrio *alginolyticus*	14	10	12	16	5
***cholerae* non-O1 non-O139**	71	58	87	98	5
Vibrio other	130	64	159	165	67
Vibrio cholerae	8	20	12	10	4
• cholera O1	8	19	6	9	3
• cholera O139	0	0	1	1	0
• cholera O141	0	1	2	0	0
• cholera O75	0	0	5	0	1

Since the distribution is similar for all *Vibrio* cases, the following discussion describes all *Vibrio* species combined.

Age, Gender, and Race Distribution

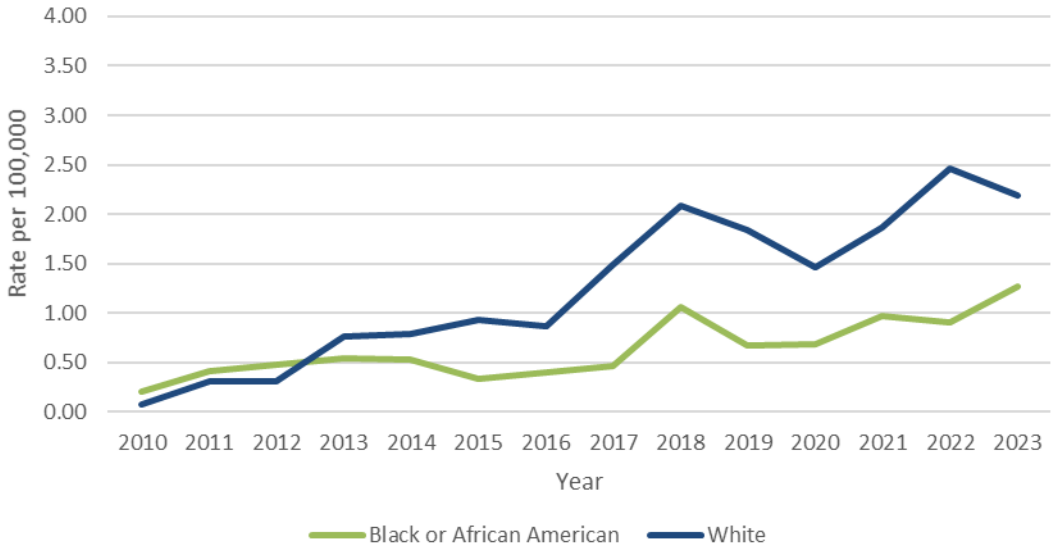
The age group distribution shows an increase in *Vibrio* cases in older age groups. This is an expected finding since adults and older people are more often in contact with seawater, and are the most common consumers of raw seafood (Figure 2).

Figure 2: *Vibrio* annual incidence rates by gender and age - Louisiana, 1990-2023



The race distribution shows a predominance of *Vibrio* infection among White individuals, however race is not always included in reported cases (Figure 3).

Figure 3: *Vibrio* Incidence Rates by Race - Louisiana, 2010-2023



Exposure

In 2023, seafood consumption (raw or cooked) is reported in 40% of total cases; exposure of the skin to surface waters, particularly seawater, is reported in 20% of cases (Table 4). The *Vibrio* species identified depends on the exposure. Most *Vibrio* infections are foodborne with the exception of *Vibrio vulnificus* for which exposure to seawater is a major exposure factor.

While seafood and seawater exposure appear to be primary risk factors for *Vibrio* infections, many reported cases cannot be reached for interview.

Table 4: Exposure Type by *Vibrio* Group - Louisiana, 2023

Row Labels	CIDT Cholerae unspecified	fluvialis	Vulnificus	Cholerae non-O1, non-O139, toxin -	Parahae-molyticus	mimicus	alginolyticus	Cholera O1 servovarinaba toxin+	cholera O75, toxin+	Navarrensis	hollisae	Grand Total
Confirmed			19	5	8	2	5	3	1	1	1	55
cooked seafood				3	2				1			9
seawater/cooked seafood			1					1				2
unknown			2		2	2	1	1			1	14
raw oysters			2		2					1		6
seawater			14	1	2		4					22
raw seafood				1				1				2
Probable	11	41										53
cooked seafood	2	17										19
unknown	8	20										29
raw oysters	1	4										5
Grand Total	**11**	**41**	**19**	**5**	**8**	**2**	**5**	**3**	**1**	**1**	**1**	**108**

Geographical Distribution

The geographical distribution of *Vibrio* cases shows the highest concentrations in southern Louisiana and among large cities. This may be due to greater access to fresh seafood, proximity to beaches, and water-related activities. This distribution reflects the cultural patterns of raw seafood consumption. The parishes with the five highest rates are highlighted below (Table 2).

Table 2: *Vibrio* 10-Year Incidence Rate by Parish - Louisiana, 2014-2023

Parish	Incidence Rate 2014-2023	Parish	Incidence Rate 2014-2023
Acadia	2.49	Madison	0.00
Allen	0.41	Morehouse	0.39
Ascension	1.52	Natchitoches	0.26
Assumption	2.29	Orleans	1.38
Avoyelles	0.25	Ouachita	0.77
Beauregard	0.54	Plaquemines	4.75
Bienville	0.76	Pointe Coupee	5.62
Bossier	0.47	Rapides	0.85
Caddo	0.08	Red River	0.00
Calcasieu	2.56	Richland	0.50
Caldwell	0.00	Sabine	0.86
Cameron	3.24	Saint Bernard	2.65
Catahoula	0.00	Saint Charles	2.29
Claiborne	0.00	Saint Helena	0.95
Concordia	0.52	Saint James	1.94
De Soto	0.74	Saint Landry	1.33
East Baton Rouge	2.24	Saint Martin	2.27
East Carroll	1.40	Saint Mary	1.00
East Feliciana	9.29	Saint Tammany	4.34
Evangeline	1.21	St John the Baptist	1.89
Franklin	0.00	Tangipahoa	2.10
Grant	0.00	Tensas	0.00
Iberia	1.13	Terrebonne	3.82
Iberville	2.84	Union	0.92
Jackson	0.00	Vermilion	3.41
Jefferson	1.66	Vernon	0.61
Jefferson Davis	3.16	Washington	3.49
La Salle	0.08	Webster	0.26
Lafayette	3.80	West Baton Rouge	3.37
Lafourche	18.83	West Carroll	0.95
Lincoln	0.63	West Feliciana	3.89
Livingston	1.98	Winn	0.00

Seasonal Distribution

Cases reported by month of illness onset show a seasonal pattern, with more cases occurring during warmer months (Figure 5).

Figure 5: *Vibrio* Cases by Month of Occurrence - Louisiana, 1990-2023