

Vibrio Infection

Agent: *Vibrio* (bacteria)

Mode of Transmission: Gastroenteritis caused by *Vibrio* is usually related to the consumption of raw or undercooked seafood, particularly shellfish. Several large foodborne outbreaks of *Vibrio parahaemolyticus* have occurred in the United States in which undercooked seafood was the food vehicle. Wound infections occur when seawater carrying the *Vibrio* bacteria enters the body through a break in the skin, usually from brackish waters or from occupational injuries (e.g., among fishermen).

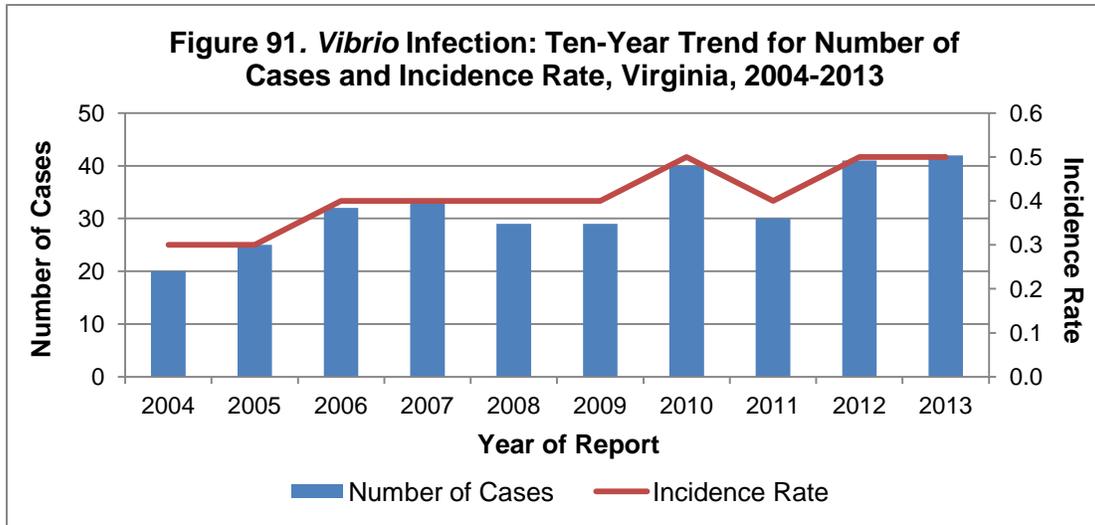
Signs/Symptoms: Symptoms associated with *Vibrio* infection include diarrhea, wound infection, and septicemia (bloodstream infection). Diarrheal illness is most common and includes watery stools, cramping, and abdominal pain. Low-grade fever, headache, and chills are seen in half of those ill with diarrheal illness, while 30% of those with diarrheal illness will experience vomiting. Wound infection is usually severe in those who have liver disease or weakened immune systems. Among those infected with *V. vulnificus*, over 50% of patients with primary septicemia die.

Prevention: Seafood should be cooked adequately and should be refrigerated. Abrasions suffered by those swimming in the ocean should be rinsed with clean, fresh water. Most people are considered susceptible, especially those with liver disease, decreased gastric acidity, diabetes, peptic ulcers, or weakened immune systems. People in high risk groups should refrain from eating raw or undercooked shellfish.

Other Important Information: Marine coastal areas are the natural habitat of *Vibrio*. During the cold season, organisms are found in marine silt; during the warm season, they are found free in coastal waters and in fish and shellfish. Most *Vibrio* infections occur during summer and fall months, when levels of bacteria in brackish waters and estuaries are highest.

<i>Vibrio</i> Infection: 2013 Data Summary	
Number of Cases:	42
5-Year Average Number of Cases:	33.8
% Change from 5-Year Average:	+24%
Incidence Rate per 100,000:	0.5

During 2013, 42 cases of *Vibrio* infection were reported in Virginia. This is similar to the 41 cases reported in 2012, but is higher than the five-year average of 33.8 cases per year (Figure 91). The rate of *Vibrio* infection in the population in 2013 (incidence of 0.5 per 100,000) was the same as the rate in 2012.



Species were identified for all but two of the *Vibrio* infections. As in previous years, *V. parahaemolyticus* was the most commonly identified strain (45%). The species that predominated in 2013 were the same as those usually identified. Illnesses included 16 wound infections, 16 gastrointestinal infections, 4 ear infections, 7 bloodstream infections, 1 urinary tract infection, and 1 tissue infection (Table 13).

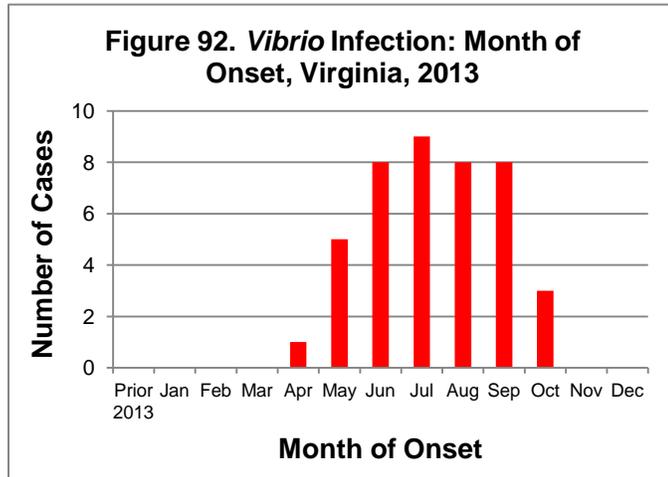
Table 13. *Vibrio* Infections by Species and Specimen Source, 2013

<i>Vibrio</i> Species	<i>Vibrio</i> Specimen Source*						
	Wound	Stool	Ear	Blood	Urine	Tissue	Total
<i>V. parahaemolyticus</i>	7	12	0	0	0	0	19
<i>V. vulnificus</i>	4	0	0	6	0	1	11
<i>V. alginolyticus</i>	3	0	3	0	0	0	6
<i>V. cholera</i> non O1, non O139	0	1	0	1	1	0	3
<i>V. fluvialis</i>	0	2	0	0	0	0	2
<i>Vibrio</i> , unspciated	1	0	1	0	0	0	2
<i>V. furnissii</i>	1	0	0	0	0	0	1
<i>V. mimicus</i>	0	1	0	0	0	0	1

*The total number of positive specimens is larger than the total number of *Vibrio* cases because multiple specimen types may have been collected from a single case-patient.

The largest number of *Vibrio* infections occurred in the 60 year and older age group (14 cases), with a rate of 0.9 per 100,000 population. The 40-49 and 50-59 year age groups both had rates of 0.6 per 100,000 (7 cases in each age group). No cases were reported among children less than one year of age, and two to five cases were reported in each of the remaining age groups. Among the 45% of cases for whom race information was available, incidence rates were similar for whites and blacks (0.3 and 0.2 per 100,000, respectively). In Virginia, *Vibrio* infections typically affect males more often than females, and this was true in 2013; 60% of cases were male.

Geographically, the eastern region had the highest number of cases and the highest incidence rate (17, 0.9 per 100,000), followed by the northern region (13, 0.6 per 100,000). Cases were clustered from late spring to early fall, with onset of illness for 90% of cases occurring from May through September (Figure 92).



Hospitalization information was available for 41 patients (98%), with 18 cases (44%) reported as having been hospitalized. During 2013, four case-patients were known to have died after testing positive for vibriosis. All four were male; one was in the 20-29 year age group, two were in the 50-59 year age group, and one was in the 60 year and older age group.

Two outbreaks of *V. parahaemolyticus* were identified in 2013. In the first outbreak, three cases (two Massachusetts residents and one Maryland resident) all reported eating oysters harvested from the same growing region in Virginia prior to becoming ill. As a result, the growing area was closed for oyster harvesting for one year. This was the first time ever a growing area in Virginia was closed due to an outbreak of *Vibrio* infections.

The second outbreak of *V. parahaemolyticus* was linked to an out-of-state growing area that had also been implicated as the source of a 2012 outbreak. The growing area was temporarily closed to shellfish harvesting in 2013 after cases were identified with an infection with *V. parahaemolyticus* that had the same genetic pattern as the strain responsible for the 2012 outbreak. Case-patients resided in Connecticut, New York, Massachusetts, Ohio and Virginia.