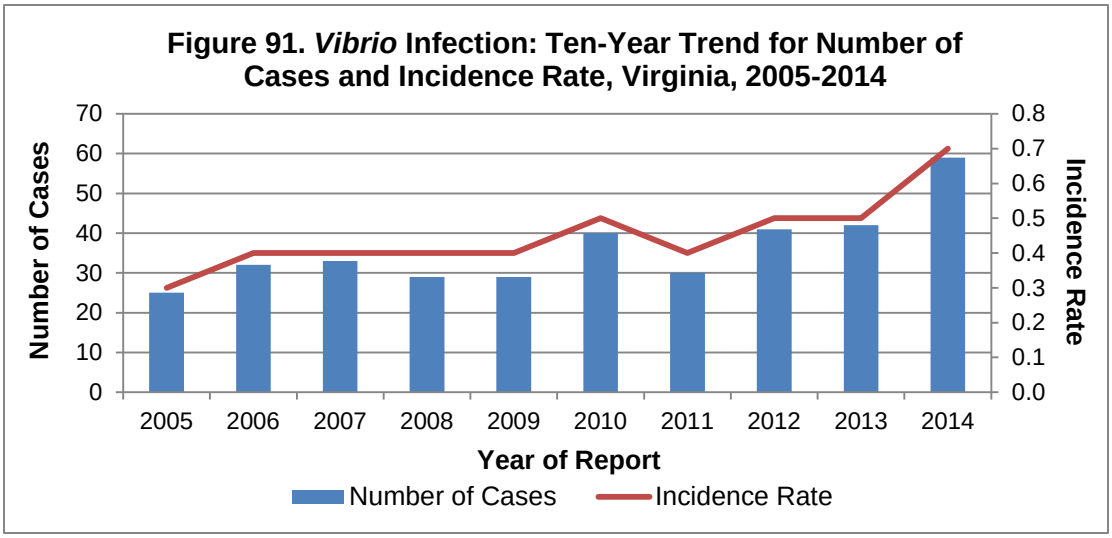
Vibrio Infection

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 (i.e., somewhat salty) waters or from occupational injuries (e.g., among fishermen).
Signs/Symptoms: Symptoms associated with *Vibrio* infection include diarrhea (gastrointestinal infection), wound infection, and septicemia (bloodstream infection). Diarrheal illness is most common and includes watery stools and abdominal cramping. 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*, approximately 50% of patients with primary septicemia die.
Prevention: Seafood should be cooked adequately and should be refrigerated. Avoid exposing open wounds to sea or brackish water. Abrasions suffered by those swimming in sea or brackish water should be washed with soap and clean 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 seafood.
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.

***Vibrio* Infection: 2014 Data Summary**	
Number of Cases:	59
5-Year Average Number of Cases:	36.4
% Change from 5-Year Average:	+62%
Incidence Rate per 100,000:	0.7

During 2014, 59 cases of *Vibrio* infection were reported in Virginia. This is higher than the 42 cases reported in 2013, and a 62% increase from the 5-year average of 36.4 cases per year (Figure 91). The incidence rate of *Vibrio* infection in the population in 2014 (0.7 per 100,000) was higher than the incidence rate in 2013 (0.5 per 100,000).



Species were identified for all but four of the *Vibrio* infections in 2014; specimen source was recorded for all but one case. As in previous years, *V. parahaemolyticus* was the most commonly identified strain (44%). Illnesses included 19 wound infections, 17 gastrointestinal infections, 8 ear infections, 7 bloodstream infections, 1 urinary tract infection, and 4 cases with wound and bloodstream co-infections (Table 14).

Table 14. *Vibrio* Infections by Species and Specimen Source, 2014

***Vibrio* species (number of cases)**	***Vibrio* Specimen Source***					
	Wound	**Stool**	**Ear**	**Blood**	**Urine**	**Other‡**
V. parahaemolyticus (26)	10	13	0	3	0	1
V. vulnificus (11)	8	0	0	5	1	0
V. alginolyticus (10)	2	0	7	0	0	1
V. fluvialis (5)	1	2	0	1	0	1
Vibrio, unspeciated (4)	2	0	1	1	0	0
V. parahaemolyticus/ *V. fluvialis* coinfection (2)	0	2	0	0	0	0
V. mimicus (1)	0	0	0	1	0	0

*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 patient.
‡ Includes sinus aspirate, biliary tube gallbladder fluid, and an unknown specimen source.

The largest number of *Vibrio* infections occurred in the 60 year and older age group (22 cases), with an incidence rate of 1.4 per 100,000 population. The 10-19 and 50-59 year age groups followed, both having rates of 0.9 per 100,000 (9 and 10 cases, respectively). No cases were reported among children less than one year of age.

Among the 85% of cases for which race information was available, the incidence rate was highest for the white population (0.7 per 100,000) as compared to the black and the "other" race populations (0.3 per 100,000 each, respectively). In Virginia, *Vibrio* infections typically affect males more often than females, which was unchanged in 2014 with 78% of cases reported to have occurred in males.

As in previous years, the eastern region had the highest number of cases and the highest incidence rate (29, 1.6 per 100,000), followed by the northern (15, 0.6 per 100,000) and northwest (9, 0.7 per 100,000) regions. The central region had five cases, and the southwest region had one case in 2014. Cases were clustered from late spring through fall, with onset of illness for 81% of cases occurring from June through October, with a peak in July (Figure 92).

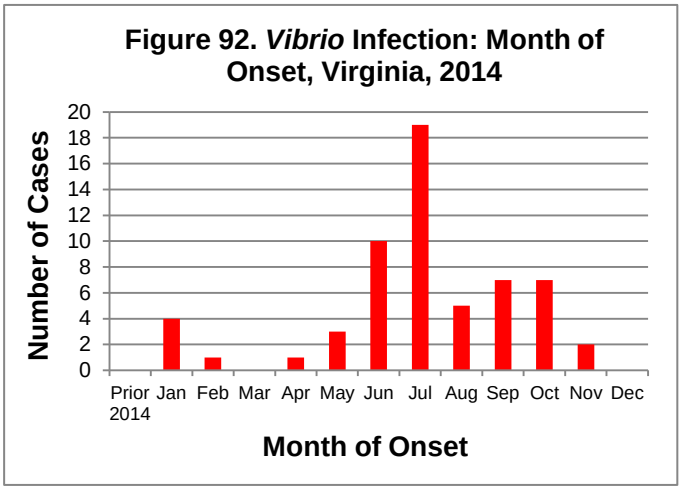


Figure 92. *Vibrio* Infection: Month of Onset, Virginia, 2014

Nineteen (32%) vibriosis patients required hospitalization during 2014. No deaths or outbreaks attributed to *Vibrio* infection were reported in Virginia in 2014.