

***Vibrio parahaemolyticus* Surveillance**

*Only a small portion of patients with foodborne illness seek medical care. For this reason, foodborne outbreaks often go unrecognized and can be identified only when individual cases are properly diagnosed and reported by the patients' physicians. Some foodborne illnesses, such as campylobacteriosis and shigellosis, are seasonal in nature. Although only 1 to 5 cases of *Vibrio parahaemolyticus* are reported most years in Texas, more than 250 were reported last summer. As warmer weather approaches, physicians are encouraged to be on the look out for *Vibrio* infections.*

More than 30 species of *Vibrio* bacteria inhabit the marine coastal environment. During the cold season, these organisms are found in marine silt. However, in the warm, summer months they are found free in coastal waters, where they are eaten by shellfish that then may be eaten by humans. *Vibrio parahaemolyticus*, one of 12 *Vibrio* species known to cause enteric disease in humans, is a leading cause of foodborne illness worldwide. Ingestion of raw or undercooked, contaminated shellfish results in gastroenteritis, which is characterized by watery diarrhea and abdominal cramps, sometimes with nausea, vomiting, fever, and headache and lasts from 1 to 7 days.^{1,2}

An outbreak of *V. parahaemolyticus* in the summer of 1998 involved several states, including Texas. In response, shellfish harvesters voluntarily closed Galveston Bay. The outbreak was linked to *V. parahaemolyticus* O3:K6. This strain—which is commonly found in the Southeast Asian waters of Japan, India, and Taiwan—had never been reported in North America. According to Japanese officials, there was a sudden increase in *V. parahaemolyticus* cases last year associated with the O3:K6 strain. Seventy percent of all Japanese cases were associated with the O3:K6 strain. The O3:K6 strain seems to be spreading to many ports of the world with outbreaks in India, Bangladesh, Laos, and Taiwan. Information supplied by the Centers for Disease Control and Prevention indicates that the Galveston Bay outbreak was the first O3:K6 outbreak in the United States.

Timeline of the Outbreak

On June 15 the Galveston County Health Department contacted the Texas Department of Health (TDH) about 7 Houston residents who developed gastroenteritis on June 13 after eating at a local restaurant on June 12. Galveston County staff interviewed sick and well patrons in the group to determine what caused the illness. All the patrons who became sick had eaten raw oysters, while those who did not become sick had not eaten raw oysters. At this time, a voluntary recall was issued for oysters lots originating in sites along Galveston Bay that had supplied the restaurant where the patients had eaten. Three stool specimens, collected by the Houston City Health Department on June 18, tested positive for *Vibrio* spp. and were sent to the TDH Laboratory for speciation on June 20.

On June 23 *V. parahaemolyticus* was isolated from stool samples from 2 Amarillo residents. The patients had eaten raw oysters at 2 different local restaurants. On June 25 TDH issued a press release advising people to thoroughly cook all oysters from Galveston Bay. The 3 Houston cases were culture confirmed on June 28. At that time, the Seafood Safety Division recommended harvesting oysters only for shucking and cooking. However, the oyster industry voluntarily agreed to stop harvesting from Galveston Bay altogether. No further Texas cases were reported.

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Surveillance is the cornerstone of public health.

It is probable that much of the Texas morbidity resulting from this outbreak would have been prevented by reducing delays in the surveillance system. The Seafood Safety Division was unable to recommend closing Galveston Bay until laboratory confirmation of *V. parahaemolyticus* infection had been obtained from submitted stool samples. Had stool samples been collected at the time of illness onset (around June 12 or 13), the laboratory work needed to confirm *V. parahaemolyticus* infection could have been completed by June 19 and Seafood Safety would have been able to recommend earlier bay closure and likely prevent many of the 139 cases which occurred after June 20.

***Vibrio parahaemolyticus* Reports for 1998 and 1999**

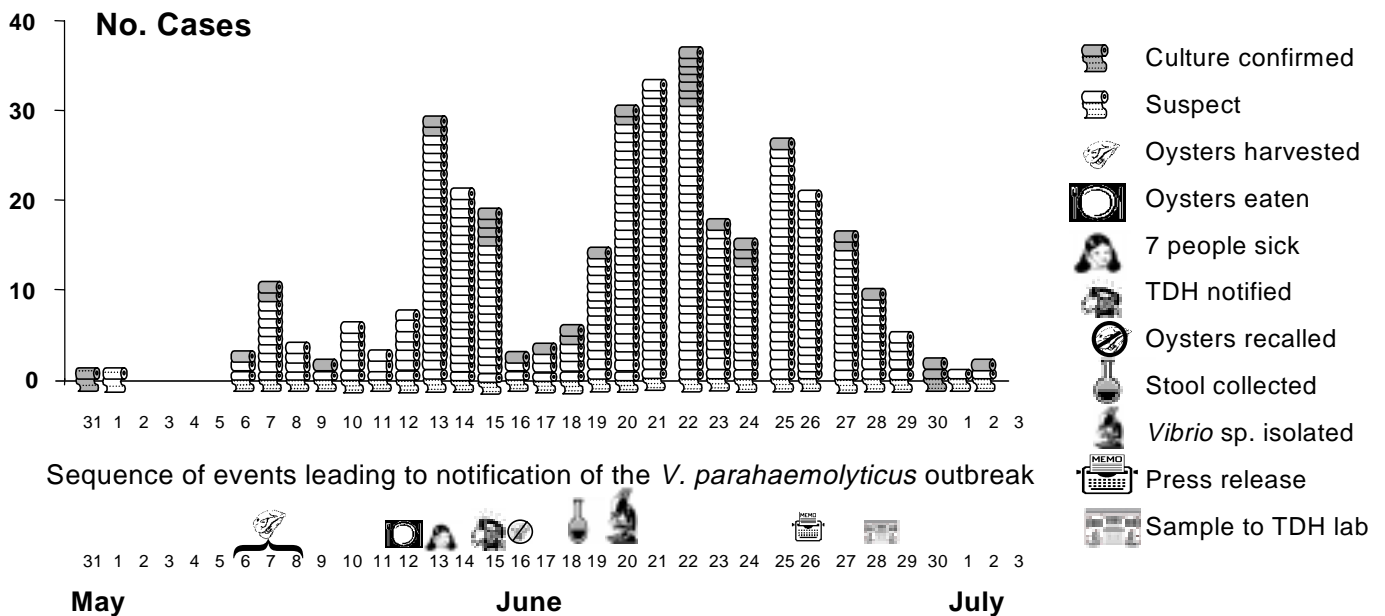
During this outbreak, 364 cases of *V. parahaemolyticus* were reported nationwide; 98 were culture confirmed. The vast majority (95-100%) of cases reported watery diarrhea and abdominal cramps. About half reported headache, fever, and vomiting. From May 31 through July 3, 290 (80%) of the reported cases were from Texas; 34 of these cases were culture confirmed (Figure 1). All 20 of

the oyster-related isolates that were serotyped were the O3:K6 strain. Ninety-nine percent of ill persons in Texas reported eating oysters from a restaurant or oyster bar in the 24 hours before their illness began. However, to date, *Vibrio parahaemolyticus* strain O3:K6 has never been isolated from environmental (i.e., oyster) samples from growing areas implicated in either the 1998 Texas outbreak or a separate outbreak that occurred earlier in 1998 in New York.

To date in 1999, one case of *V. parahaemolyticus* was reported in Texas. A 36-year-old man from New Jersey was traveling to Texas on company business. He stopped in New Orleans where he ate raw oysters on April 18 and then continued his trip to Texas. On April 19 he developed severe diarrhea and abdominal cramps. At a hospital on the Texas coast, he was diagnosed with infectious gastroenteritis, and a stool culture was collected on April 20. The stool culture, which grew *Vibrio* spp, was shipped to the TDH laboratory for confirmation and speciation on April 27. The case was reported to TDH Infectious Disease Epidemiology and Surveillance Division on May 17.

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Figure 1. *Vibrio parahaemolyticus* Infections in Texas, by Date of Illness: May-July 1998 (n = 296)



Recommendations

Surveillance is the cornerstone of public health. Reporting is especially important when unusual strains of an infectious organisms are found to be responsible for illness outbreaks in an area. All confirmed cases of *Vibrio* infections must be reported to the local health department or the Texas Department of Health within one week of illness onset. Clusters of cases must be reported immediately by calling (800) 705-8868.

Physicians should obtain food histories from patients with watery diarrhea and abdominal cramps. Patients presenting with watery diarrhea and abdominal cramps during the months of May through October should be asked about shellfish consumption in particular. Stool samples should be collected and submitted for *Vibrio* spp. testing (on thiosulfate-citrate-bile salts-sucrose agar)

from all patients who have a history of shellfish consumption. Because of the emergence of a new serotype of *V. parahaemolyticus* last summer in Galveston Bay, the IDEAS Division is requesting that all *Vibrio* isolates be promptly submitted to the TDH laboratory for confirmation.



Prepared by the TDH Infectious Disease Epidemiology and Surveillance Division.

References

1. Benenson AS, editor. Control of Communicable Disease Manual, Sixteenth Edition. Washington, DC: American Public Health Association, 1995.
2. Ballows A, Hausler WJ Jr, Herrmann KL, Isenberg HD, Shadomy HJ, eds. Manual of Clinical Microbiology, Fifth Edition. Washington, DC: American Society for Microbiology, 1992.

Stool samples from all patients with a history of shellfish consumption should be tested for Vibrio spp.

For further information contact Beverly Ray, RN, or Kate Hendricks, MD, at (512) 458-7676 or (800) 705-8868.

***Vibrio parahaemolyticus* Prevention: Shellfish—Fit to be Fried!**

- Cook all shellfish at 158°F or higher for 15 minutes.
- Do not use possibly contaminated seawater for cooking or rinsing shellfish or other foods.
- Do not allow possibly contaminated seawater to remain on cooking or food preparation surfaces.
- Thoroughly wash utensils used for cutting raw shellfish before using them to prepare other food.
- Properly refrigerate all raw or cooked shellfish before they are eaten.



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Public health surveillance involves systematic collection, analysis, and dissemination of data regarding adverse health conditions. This information typically includes the incidence, prevalence, and geographic location of the condition; age, sex, and race/ethnicity of the people affected; means by which the disease is transmitted; and historic trends. Surveillance involves investigating individual cases as well as epidemics.

Surveillance data are used to monitor disease trends; detect, respond to, and study new disease threats, outbreaks, or epidemics; identify risk factors; and plan, implement, and assess intervention and prevention services. Prompt feedback of current, accurate, and complete data is essential so that health professionals can provide the highest quality

of medical care and policy makers can plan, manage, fund, and justify disease control activities and research.

Texas law mandates that specified health professionals report certain diseases and other adverse health conditions that are a threat to public health. The *Epidemiology in Texas Annual Report* is published every year to provide all Texas health professionals with cumulative data collected throughout the year as well as narrative descriptions of outbreak investigations, summaries of the health conditions of primary concern for that year, and descriptions of Texas Department of Health programs initiated to address public health concerns.

The *Epidemiology in Texas 1997 Annual Report*, published in print December 1998, is now available online: <http://www.tdh.state.tx.us/epidemiology/>