



H82 A Review of Shellfish Illnesses and Deaths in Mississippi

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Learning Overview: After attending this presentation, attendees will better understand the epidemiology and spectrum of illnesses and deaths caused by the consumption of, or direct contact with, shellfish from the Gulf Coast region of Mississippi.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing the results of clinical reviews and autopsy findings of shellfish disease and death over a period of five years. Risk factors, history of exposure, source and types of organisms, and autopsy findings will be discussed.

The family *Vibrionaceae* consists of eight genera of bacteria, not all of which are pathogenic to humans. Infection caused by pathogenic species of *Vibrionaceae* result in two separate types of illness (i.e., cholera and vibriosis) in humans. Cholera was first reported in the United States in 1832. Of the more than 200 serotypes, only types 01 and 139 are referred to as the cause of cholera. On average, seven cases are reported annually in the United States. Vibriosis is caused by infection with any of the remaining serotypes representing pathogenic species of *Vibrionaceae*. There are approximately 80,000 cases reported annually in the United States with 300 deaths.

Vibrios were recognized as an important pathogen in the 1970s. The Cholera and other Vibrio Illness Surveillance System (COVIS) was initiated in 1988 by the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), and the states of Florida, Alabama, Mississippi, Louisiana, and Texas. Over the past five years, 46 cases of Vibrio infection have been reported in the state of Mississippi by the State Health Department and State Medical Examiner's Office. Fifteen of these cases were caused by *Vibrio vulnificus*; four were fatal.

Vibrio vulnificus is a halophilic (salt-requiring), gram-negative, and naturally occurring bacterium commonly found in warm marine environments. It causes disease in humans via consumption of contaminated shellfish or by contamination of an open skin wound by seawater. Ingestion results in vomiting, diarrhea, and abdominal pain. Skin infection results in ulceration, hemorrhagic bullae, and necrosis. In both types of contamination, the infection can progress to bacteremia and result in sepsis and death. Persons with pre-existing medical conditions are 80 times more likely to develop bacteremia. Patients who develop bacteremia have a mortality rate of approximately 50%.

Case Study: A 57-year-old male was reportedly stuck by the barbed fin of a salt water catfish while on a fishing boat out in the Gulf. When the decedent reported feeling ill, the Coast Guard was summoned, and the decedent was transported to the hospital. His condition declined; resuscitation efforts were unsuccessful. At autopsy, evidence of systemic epidemolysis was present. Petechiae and purpura were present on the torso and extremities. Based on the decedent's case history, postmortem examination, and microbiology cultures, the death was ruled accidental due to complications of *Vibrio vulnificus*.

Vibrionaceae, Vibriosis, Gulf Coast