Abstract
An average of 95 cases of V. vulnificus infection annually occurs in the U.S.; approximately 50% result from consuming raw or undercooked shellfish, primarily oysters. Although these numbers are small compared with annual estimates and reported cases of other foodborne illnesses, the mortality rate for foodborne V. vulnificus infection is much higher – approximately 50%.

V. vulnificus bacteria naturally occur in marine waters and may be dangerous to susceptible high-risk audiences – people with diabetes, liver disorders, alcoholism, cancer, hemochromatosis, HIV/AIDS, gastric disorders, weakened immunity, and/or chronic kidney disease. High-risk groups can become infected after eating raw or undercooked seafood, especially oysters (50% of U.S. cases) or exposing wounds to seawater containing V. vulnificus bacteria (50% of U.S. cases).

V. vulnificus infection in high-risk audiences progresses rapidly and may result in death in as few as 24 - 48 hours. Because infections are uncommon, especially in non-coastal states, and diagnosis and appropriate treatment may be delayed, educating food and health care professionals and high-risk patients/consumers about preventing infection is important.

Online resources to aid V. vulnificus educational efforts are available via http://SafeOysters.org, a website launched in May 2005 to educate food and health care professionals about this dangerous infection. http://SafeOysters.org currently ranks in the top 10 to 20 websites when searching the Internet for V. vulnificus infection information and averages 44 page view/day. This website, in addition to other Internet-based educational resources, are described.

Modes of Infection
Seafood
According to the Centers for Disease Control and Prevention (CDC), from 2000 through 2004, 50% (242) of U.S. cases resulted from eating raw or undercooked seafood, with a corresponding fatality rate of 50%. Most of these cases reported eating several species of seafood. However, of the 105 cases that reported only one species consumed, 88% implicated raw oysters (see pie chart upper right).

Wounds
During the same 5-year period, the CDC reported 242 cases (50% of total) from wound infections which had a 22% fatality rate. V. vulnificus infection can occur from exposing pre-existing open wounds or sores to seawater (i.e., by swimming, wading, or fishing) or from wounds obtained during commercial or recreational marine-related activities like shucking oysters, gutting fish with a knife, setting crab traps, etc.

Characteristics of Illness
Illness onset can occur in a few hours to one week. Infection may progress rapidly and cause death in only one or two days after exposure.

Symptoms may quickly become severe and include:
- Nausea, vomiting, stomach pain, and/or diarrhea
- Fever/chills
- Painful skin lesions that develop into blisters, sometimes blood-filled, which erode into necrotic ulcers that may require debridement or amputation
- Septicemia
- Shock
- Death

Preventing Infection
Food and health care professionals can play a crucial interventional role in educating consumers and high-risk patients about V. vulnificus infection.

A. Inform consumers and high-risk patients about their risk of infection
   1. Distribute consumer brochures available free from Interstate Shellfish Sanitation Conference (http://www.issc.org)
   2. Refer consumers and patients to http://SafeOysters.org website

B. Encourage preventive measures
   1. Eat thoroughly cooked seafood; avoid raw, especially oysters
   2. Protect open wounds and sores from exposure to seawater and raw seafood

C. Recognize symptoms and importance of immediate medical treatment

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Vibrio vulnificus Infection: A Deadly Illness in At-Risk Audiences
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