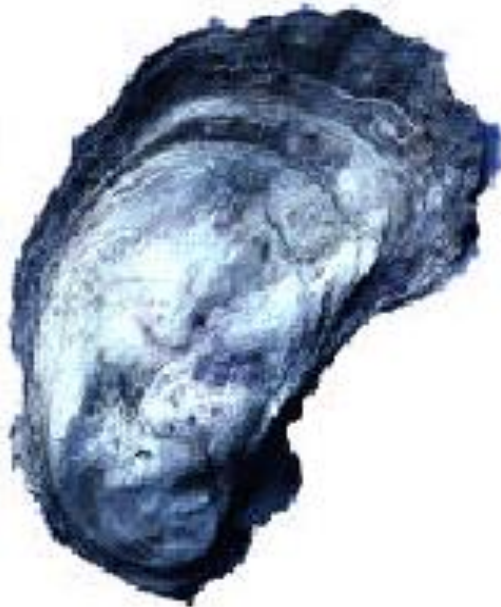


# **Gulf Coast Oysters: A Raw Deal**

## **(The Villainy of *Vibrio vulnificus*)**

---



**County of San Diego  
Department of Environmental  
Health**

# Overview of *Vibrio vulnificus*

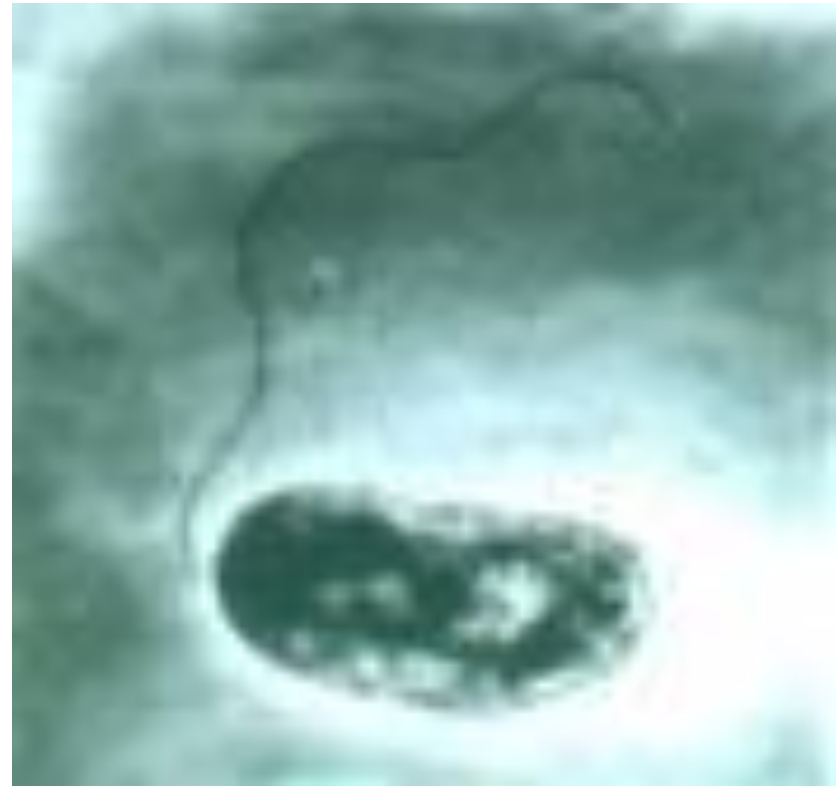
- What is *Vibrio vulnificus*?
- Who is at Risk
- Symptoms
- Resulting Illnesses
- Incidence
- Diagnosis and Treatment

# Overview of Gulf Coast Oysters

- Background
- Oysters in the Retail Setting
- Oyster Regulations
- Cooking Times
- Post-harvest Treatments of Oysters
- Prevention
- Recommendations

## *Vibrio vulnificus* (Vv)

- Commonly found in the Gulf of Mexico
- Occurs naturally, rather than as a result of pollution
- Accumulates in oysters and other shellfish
- Presence is highly correlated with water temperature



## *Vibrio vulnificus*

- Infections generally occur from March to December. Peaks from May through October depending on water temperature
- Does not alter the appearance, taste, or odor of oysters

## *Vibrio vulnificus*

- 95% of all seafood-related deaths due to Vv
- Most healthy people are resistant to infection
- Infection in high-risk individuals can lead to death in 2 to 3 days
- People with pre-existing medical conditions are 80 times more likely to develop Vv bloodstream infections than are healthy people

# Who is at risk?

- People with liver disorders such as cirrhosis, liver cancer, hepatitis
- Hemochromatosis
- Diabetes mellitus
- HIV/AIDS
- Cancer
- Individuals who take prescribed medication to lower stomach acid levels

# Symptoms of *Vibrio vulnificus*

**Symptoms can start from 12 to 72 hours after eating infected food.**

- Vomiting
- Diarrhea
- Stomach pains
- Skin rashes and blisters
- Shaking chills
- High fever



# *Vibrio vulnificus* Infections

**Vibrio can infect the body in 2 ways:**

- Ingestion- exposure to contaminated seafood such as raw Gulf Coast oysters
- Dermal- through an open wound exposed to contaminated seawater

# Resulting Illnesses

- **Primary septicemia**-fevers and chills often with vomiting, nausea, and diarrhea. Painful skin lesions may develop.
- **Gastroenteritis**-associated with ingestion. Vomiting, diarrhea and abdominal cramps can occur.

# Wound Infections from *V. vulnificus*

- Results when skin lacerations or abrasions come into direct contact with seawater that contains Vv
- Infections usually begin with redness, swelling and intense pain around the infected site
- Often fluid-filled blisters develop and progress to tissue necrosis. Can resemble gas gangrene
- About 50% of patients with Vv wounds will require surgery or amputation

# *Vibrio vulnificus* Infections

- Most *Vv* infections are acute but with no long-term consequences
- In patients who develop septic shock from infection with *Vv*, the mortality rate is 50%
- In rare instances, skin infection can result in necrotizing fasciitis.



# Incidence of *V. vulnificus*

- Approximately 50 culture-confirmed cases, 45 hospitalizations, and 16 deaths reported each year from the Gulf Coast region
- Nationwide, there are about 95 cases (half are culture confirmed), 85 hospitalizations, and 35 deaths per year

# Diagnosis and treatment of *V. vulnificus* infection

- Routine stool, wound, or blood cultures
- The diagnostic laboratory should be notified when this infection is suspected by the physician. (special growth medium can increase yields)
- Treated with antibiotics such as Doxycycline or a third-generation cephalosporin (e.g., ceftazidime)

# Gulf Coast Oysters



- Found in five Gulf Coast States (MS, AL, LA, TX, FL)
- Can filter 50 gallons of water per day
- Can accumulate bacteria and viruses in their body
- Excellent source of zinc. Some consider it an aphrodisiac
- Concern with oysters harvested during warm months

# Oyster Regulations

- Retailers selling Gulf oysters must notify consumers that the “consumption of raw oysters can cause illness and death among people with liver disease, chronic illnesses, or weakened immune systems”
- Regulations require oyster lot tagging, labeling, and record retention



# Gulf Coast Oyster Warning

## (English and Spanish)

### WARNING

This facility offers raw oysters from the Gulf of Mexico. Eating these oysters may cause severe illness and even death in persons with liver disease (for example) cirrhosis, cancer or other chronic illnesses that weaken the immune system.

If you eat raw oysters and become ill you should seek immediate medical attention.

If you are unsure you are at risk, you should consult your physician.

### AVISO IMPORTANTE

Las ostras crudas del Golfo de México implican ciertos riesgos.

Comer estas ostras crudas puede causar una enfermedad grave, y hasta la muerte en personas que padecen de enfermedades del hígado, (por ejemplo) Cirrosis hepática, cáncer u otras enfermedades crónicas que debilitan el sistema inmunológico.

Si Usted come ostras crudas y se enferma, debe buscar atención médica inmediatamente. Si Usted está en peligro debe consultar a un médico.

# Recommended cooking times for Oysters

## Guidelines for Cooking Oysters

<b>Steaming shellstock*</b>	<b>4-9 minutes</b>
<b>Boiling shellstock*</b>	<b>3-5 minutes at full boil after they open</b>
<b>Frying shucked oysters</b>	<b>3 minutes in oil at 375°F</b>
<b>Boiling shucked oysters</b>	<b>3 minutes boiling or simmering or until the edges curl</b>
<b>Broiling shucked oysters</b>	<b>3 inches from heat for 3 minutes</b>
<b>Baked oysters</b>	<b>10 minutes at 450°F</b>
<b>Food Code requires raw animal food to be cooked to the equivalent of 145°F for 15 seconds</b>	
<b>Use small pots to boil or steam oysters or shellstock to assure those in the middle will be thoroughly cooked. Discard any oysters that do not open during cooking, as they may not have received adequate heat treatment.</b>	

**SOURCE: US FOOD and DRUG ADMINISTRATION (FDA)**

# Oyster Consumption



Oysters are served on the half shell or pre-packaged

# Post-harvest Treatments for Oysters

Post-harvest treatments are the only sure way to eliminate the naturally occurring pathogens from raw shellfish

- Cool-pasteurization, high pressure processing, mild heat or irradiation of oysters

# Prevention of *V. vulnificus* infections

- Eat oysters that have been cooked properly
- Eat oysters that have been post-harvest treated
- Do not let raw seafood touch cooked seafood
- If eating raw oysters, ask the origin of the oysters
- Avoid eating raw oysters
- Do not swim/wade in seawater with open sores or wounds

# Summary of *V. vulnificus*

---

- Most healthy individuals are not at risk
- Serious illness or death can occur in persons with preexisting liver disease or compromised immune systems
- Infection of open wounds can be serious

# Conclusion

---

Individuals with chronic illnesses of the liver, stomach, blood, diabetes or other immune disorders, are at greater risk of serious illness from raw oysters. If unsure of risk, consult a health care provider.

# Recommendations

- Consumers have a choice and can request treated or cooked oysters
- Encourage at risk individuals to consult with their health provider



# Sites for further information

- [www.issc.org](http://www.issc.org)
- [www.cdc.gov](http://www.cdc.gov)
- [www.fda.gov](http://www.fda.gov)

# Contact Information

## **Reportable Illness**

Health and Human Services Agency  
(619) 515-6620

## **Suspect Food borne Illness**

Dept of Environmental Health  
(619) 338-2356 or [fh dutyeh@sdcounty.ca.gov](mailto:fh dutyeh@sdcounty.ca.gov)

Presentation prepared by Beck Goldberg, MPH  
Graduate School of Public Health  
April 2003