

National *Vibrio* Case Surveillance

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Vibrio spp.

- Gram negative, halophilic, motile marine bacillus
- Cholera
 - *V. cholerae* serotypes O1 and O139 (CT+)
 - Known to cause epidemics of cholera
 - Nationally notifiable
- Noncholeraogenic *Vibrio*
 - *V. cholerae* O1 and O139 (CT-)
 - All other serotypes of *V. cholerae* (CT+ or CT-)
 - All other *Vibrio* species
 - Do not cause cholera, but can cause serious illness
 - Voluntary reporting



Vibrio illnesses

- Gastroenteritis typically via ingestion of raw or undercooked shellfish
- Wound or soft tissue infection via exposure to seawater or raw seafood drippings



Noncholeraogenic *Vibrio* surveillance

- Reports from:
 - Cholera and other *Vibrio* Illness Surveillance System (COVIS)
 - Average of 458 reports/year
 - NETSS/NEDSS
 - National Electronic Telecommunications System for Surveillance / National Electronic Disease Surveillance System
 - Average of 315 reports/year
 - PHLIS
 - Public Health Laboratory Information System
 - Average of 196 reports/year

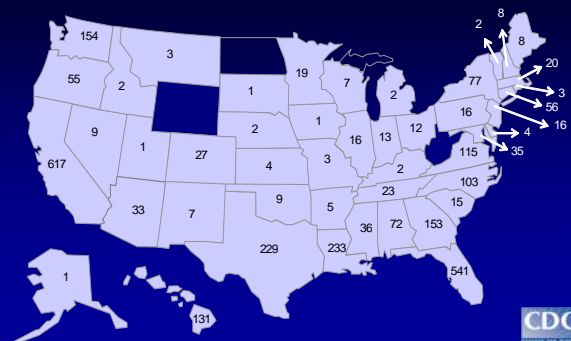


Cholera and other *Vibrio* Illness Surveillance (COVIS) System

- National database of *Vibrio* infections reported to CDC
 - Began in Gulf Coast states in 1988
 - Nearly all states reporting by 1997
- Vibriosis is reportable by law in 18 states and territories; most other states collect reports voluntarily
- COVIS report form includes
 - Clinical information
 - Exposure history
 - Seafood traceback information



Vibrio Cases Nationwide 1998-2004 (N=3,028 in 48 States and Territories)



Vibrio spp. 1998-2004

Vibrio Species	Ill	Hospitalized	Deaths
<i>V. parahaemolyticus</i>	1276 (42%)	251 (21%)	13 (5%)
<i>V. vulnificus</i>	646 (21%)	563 (47%)	212 (84%)
<i>V. cholerae</i> non-O1, non-O139	311 (10%)	113 (10%)	10 (4%)
Other <i>Vibrio</i> spp.	795 (26%)	260 (22%)	18 (7%)
Total	3028 (100%)	1187 (100%)	253 (100%)

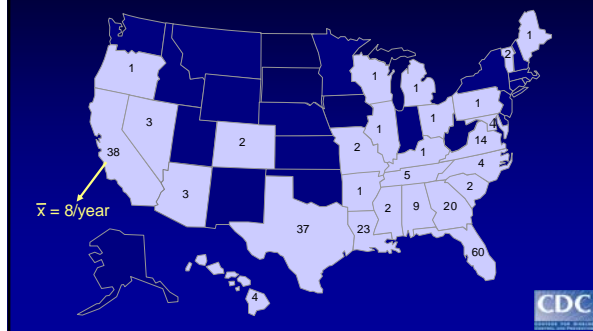


V. vulnificus

- Found primarily along Gulf Coast
- Causes primary septicemia and wound infection; causes gastroenteritis less frequently
 - Foodborne cases of *V. vulnificus* are frequently associated with raw Gulf Coast oysters
- Infection is a serious health threat, causing hospitalization in 90% of cases, and death in 40%
- Can cause serious sequelae (e.g., amputations)
- Average of 93 reports/year
 - CDC estimates that there are at least 2 cases of *V. vulnificus* for every 1 reported to CDC



Reported Cases of Foodborne *V. vulnificus*, 1998-2002 (N=237, 27 states)

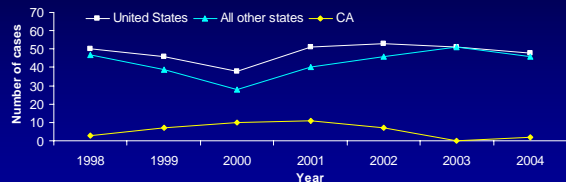


California's Emergency Regulations on Gulf Coast Oysters

- Beginning in 1996, a primary prevention strategy has been to educate high risk consumers about risk of raw oysters
- Beginning in 2003, California restricted the sale of oysters harvested from the Gulf of Mexico during April through October to those that have received post harvest treatment process
 - Goal to reduce *V. vulnificus* to non-detectable levels



Reported Cases of Foodborne *V. vulnificus* in the United States, California, and other states excluding California 1998-2004



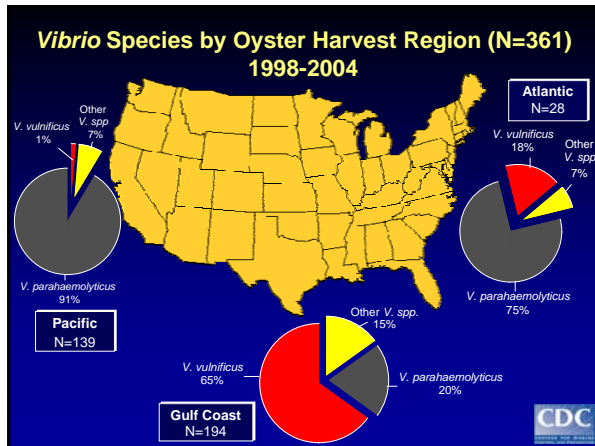
Source: Cholera and Other Vibrio Illness Surveillance System



V. parahaemolyticus (Vp)

- Found naturally in marine and estuarine environments on all coasts of U.S.
- Causes hospitalization in 20% of cases
- 1% of cases are fatal
- Average 182 reports/year
 - CDC estimates that 1 in 20 *V. parahaemolyticus* cases are reported





Hurricane Katrina

- Increases in the number of illnesses from infectious diseases after a natural disaster are usually caused by infectious agents normally present in the community or local environment
- Hurricane Katrina made landfall on 8/29/2005
- Expected increase in illnesses as a result of wounds exposed to flood waters

Hurricane Katrina

- 35 *Vibrio* infections were reported through post-hurricane surveillance
 - 23 reports of *V. vulnificus*
 - 5 reports of *V. parahaemolyticus*
 - 6 reports of non-cholera *V. cholerae*
 - Onset dates or isolation dates ranged from 8/30/2005 to 9/9/2005
- 24/35 were reported through COVIS
 - Reporting states: AR-2, GA-2, LA-10, MS-3, NC-1, OK-1, and TX-5

Vibrio infections reported to COVIS associated with Hurricane Katrina

Species	Cases	Hospitalized	Deaths	Sequelae
Vulnificus	19 (79%)	17 (85%)	4 (80%)	5 (100%)*
Parahaemolyticus	1 (4%)	1 (5%)	1 (20%)	0 (0%)
Cholera nonO1, nonO139	3 (13%)	1 (5%)	0 (0%)	0 (0%)
Cholera O1 (CT-)	1 (4%)	1 (5%)	0 (0%)	0 (0%)
Total	24 (100%)	20 (100%)	5 (100%)	5 (100%)

*Reported sequelae: debridement, amputation, lesions, respiratory arrest & septic shock

Conclusions

- COVIS reporting useful for documenting important trends in *Vibrio* illnesses
- No evidence of decreases in overall *Vibrio* illnesses or death nationwide
- Further mitigation strategies, such as post-harvest treatment, of oysters are needed to reduce the incidence of foodborne *Vibrio vulnificus* infections
- Because illnesses are an important public health concern, recommend that noncholera *Vibrio* be classified as nationally notifiable
- Recommend NEDSS incorporate link to COVIS reporting form