

Vibrio National Case Surveillance

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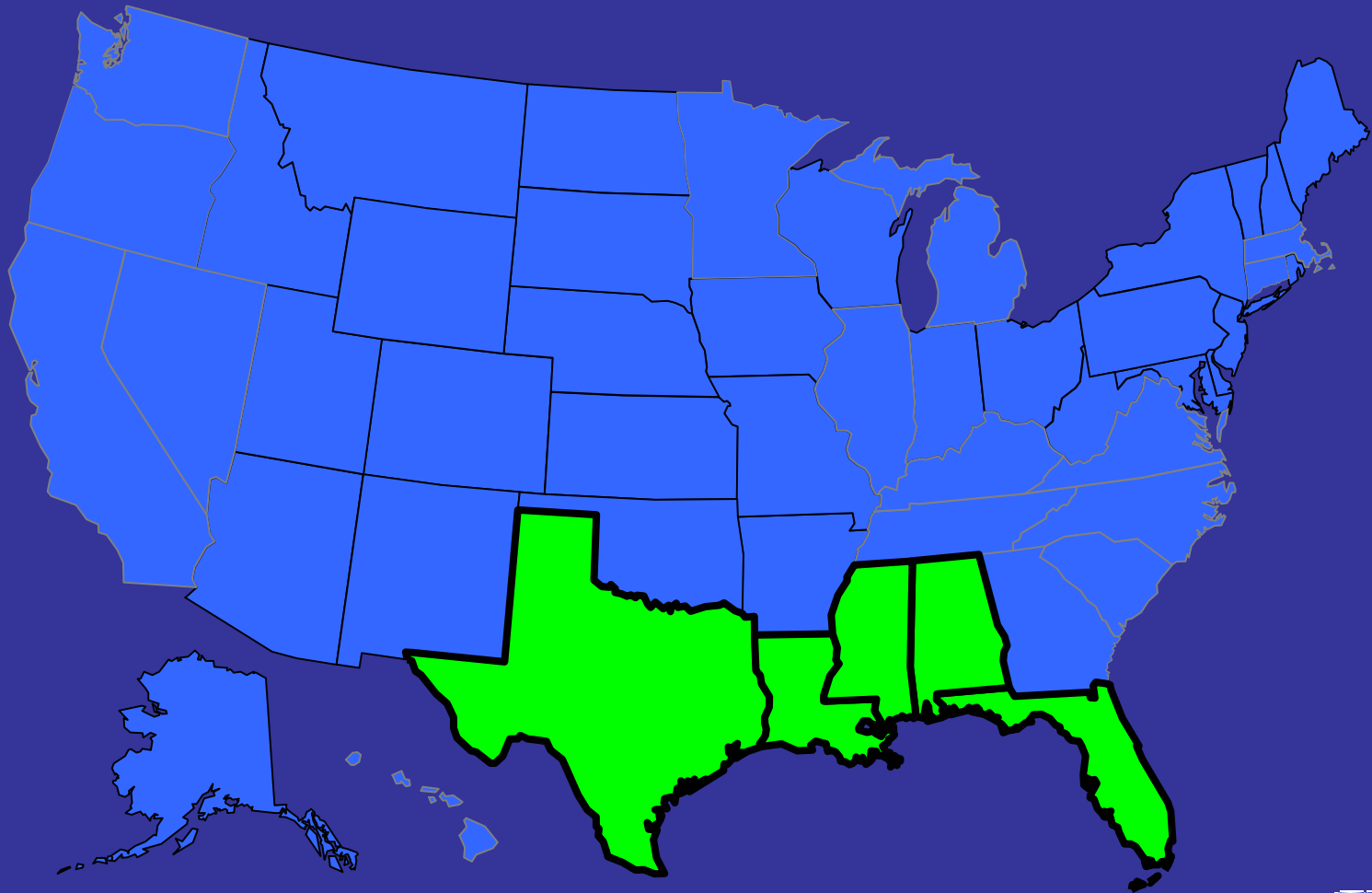
Cholera and Other *Vibrios* Surveillance System (COVISS)

- **Maintained at CDC since 1988**
 - began in Gulf Coast states but developed into a national surveillance system.
- **Data from:**
 - Gulf Coast *Vibrio* Surveillance System
 - Voluntary reports from other states
 - FoodNet
- **All data collected using a standardized form available at http://www.cdc.gov/foodborneoutbreaks/reporting_outbreak.htm**
- **Form includes**
 - Clinical information
 - Epidemiologic information
 - Traceback information

Goals

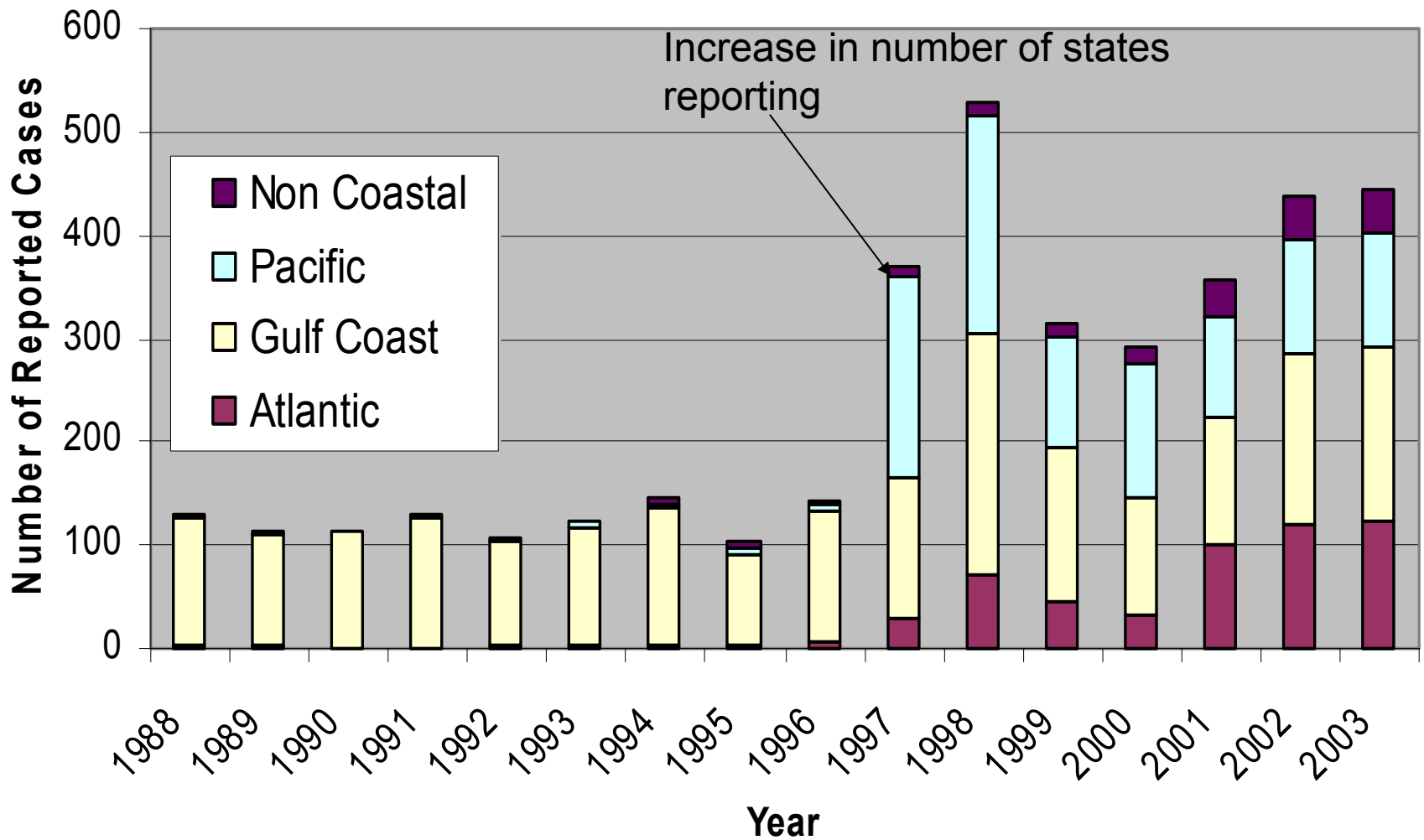
- Define *Vibrio*-related syndromes
- Describe epidemiology
- Identify vehicles of infection
- Guide disease prevention efforts

Gulf Coast *Vibrio* Surveillance System



*active surveillance

Vibrio Cases Reported by Region, 1988-2003



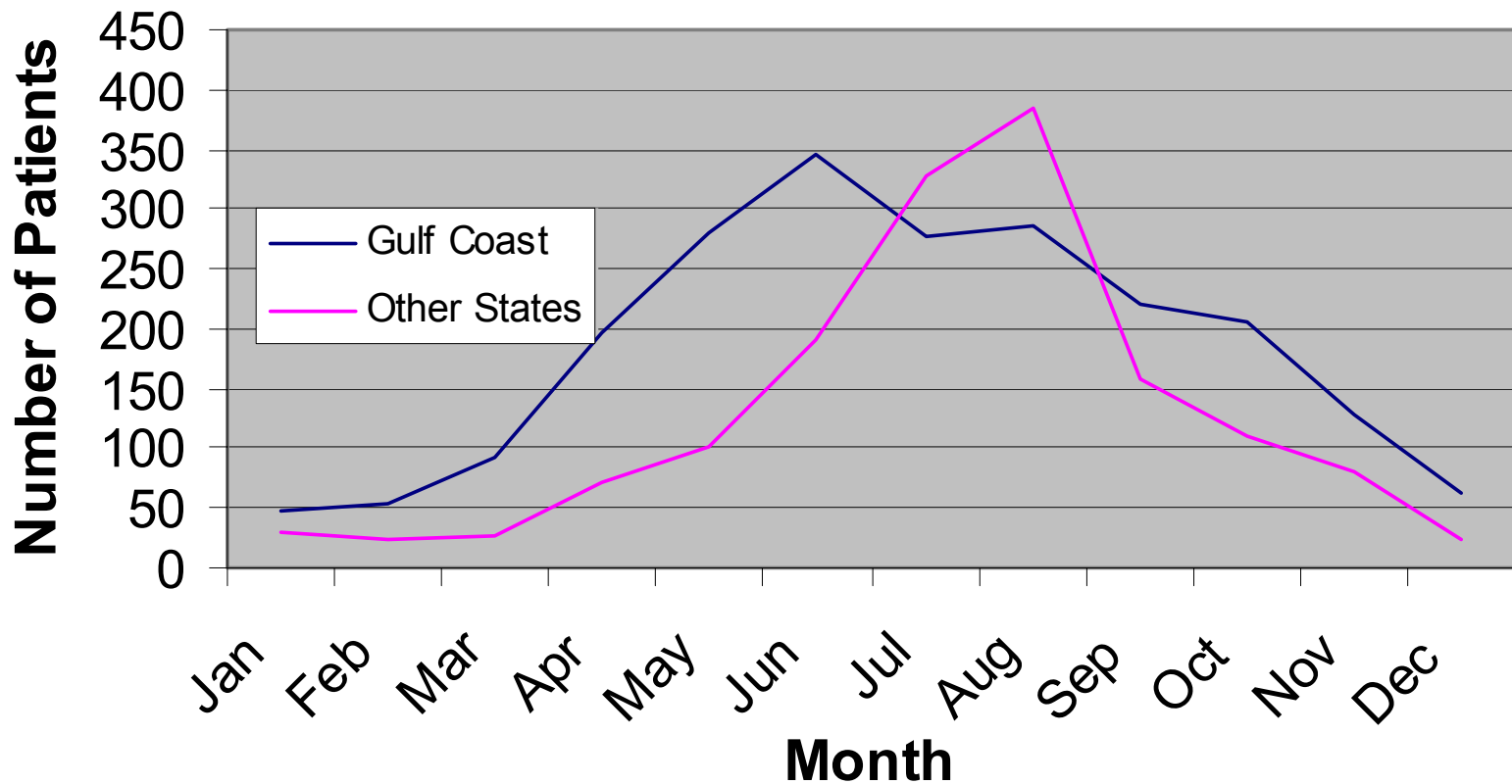
FoodNet Data

- **Since 1998, FoodNet sites in 10 states have tried to report all *Vibrios* isolated by clinical laboratories**
- **Most clinical laboratories do not use TCBS agar routinely**
- **Infections and laboratory isolations not reportable in most states**

Characteristics of *Vibrio* Infections, 1988-2003

- *V. vulnificus* most common infection in Gulf Coast (31%), *V. parahaemolyticus* most common in other regions, particularly Pacific (64%)
- Majority of *Vibrio* isolates obtained from stool
- Approx 59% of all infections are foodborne-related
 - 64% of foodborne *Vibrio* infections linked to consumption of both raw and cooked oysters

Patients with *Vibrio* isolates by month, Gulf Coast States vs. other states, 1988-2003 (N=3728)



Toxigenic Cholera

- Toxigenic *V. cholerae*
 - typically O1 and O139
 - emerging O141 in US
- Rare - average of 4 to 5 cases per year
- Nationally notifiable
- All *V. cholerae* isolates should be sent to CDC for toxin testing

Annual *Vibrio* Summary

- Annual data summary
 - geographic distribution
 - seasonality
 - exposures
- Mailed to CSTE and all 50 states
- Published on website
 - http://www.cdc.gov/foodborneoutbreaks/vibrio_sum.htm

Data Requests

- Respond to data requests from other federal agencies and state and local health departments
 - FDA *V. parahaemolyticus* risk assessment project
- Aid outbreak and individual case investigation

Data Source for Publications

- Multiple publications describing *Vibrio* epidemiology
 - Helpful in guiding disease prevention efforts
 - Can assess impact of regulatory changes
 - Impact of 2003 CA ban on Gulf Coast oysters

Some Publications

- Altekruise SF, Bishop RD, Baldy LM, et al. *Vibrio* gastroenteritis in the U S Gulf of Mexico region: the role of raw oysters. *Epidemiology and Infection* 2000;124:489-495.
- Bean NH, Maloney EK, Potter ME, et al. Crayfish: A newly recognized vehicle for vibrio infections. *Epidemiology and Infection* 1998;121:269-273.
- Daniels N, MacKinnon L, Bishop R, et al. *Vibrio parahaemolyticus* Infections in the United States, 1973-1998. *The Journal of Infectious Diseases* 2000;181:1661-1666.
- Levine WC, Griffin PM, Group GCVW. *Vibrio* infections on the Gulf coast: Results of first year of regional surveillance. *Journal of Infectious Diseases* 1993;167:479-483.
- Shapiro RL, Altekruise S, Hutwagner L, et al. The role of Gulf Coast oysters harvested in warmer months in *Vibrio vulnificus* infections in the United States, 1988-1996. *Journal of Infectious Diseases* 1998;178:752-759.
- Tauxe R, Barrett T. Cholera and *Vibrio cholerae*: New Challenges from a Once and Future Pathogen. In: Scheld WM, Craig WA, Hughes JM, eds. *Emerging Infections Disease*. Washington, DC: ASM Press, 1998:125-144.

Summary

- CDC conducts national surveillance for *Vibrio* infections and collects information on potential risk factors using the COVISS data collection form
- Information obtained from COVISS is instrumental in determining national and geographic trends of *Vibrio* infections, which help guide prevention programs

Reporting Distribution

- 57% reports from Gulf Coast, 24% from Pacific, 14% from Atlantic, 5% from non coastal areas

Characteristics of Vibrio Infections, 1988-2003

- 50% of all Vibrio cases hospitalized
 - 93% of *V. vulnificus* cases hospitalized
- 12% of all Vibrio cases died
 - 38% of *V. vulnificus* died

Multistate *V. parahaemolyticus* outbreaks

n **Pacific Northwest: July-August 1997**

- outbreak linked to consumption of shellfish harvested from waters of CA, OR, WA and BC
- over 200 illnesses in 7 states and Canada (serotype O4:K12 and O1:K56)

n **Galveston Bay, Texas: May-July 1998**

- 416 persons in 13 states reported gastroenteritis after eating oysters harvested from Galveston Bay (serotype O3:K6)

n **Oyster Bay, Long Island: August 1998**

- 23 culture-confirmed infections reported from New York, New Jersey, and Connecticut (serotype O3:K6)
- infections linked to raw oysters and clams

Foodborne *Vibrio* Infections

- Predominant species among *Vibrio* infections
 - *V. parahaemolyticus*
 - *V. vulnificus*
- *V. vulnificus* >50% fatal

Prevention Strategies

- n **Cook oysters**
- n **Ice or refrigerate oysters immediately after harvesting**
- n **Develop technologies (e.g., pasteurization, irradiation) to eliminate *Vibrio* contamination of shellfish**
- n **Limit shellfish harvesting during the warmer months**