Outbreak of *Vibrio* in imported lump crab meat: Maryland’s investigation

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Division of Outbreak Investigation

PulseNet/OutbreakNet East Coast Regional Meeting
January 16, 2019
**Vibrio parahaemolyticus**

- Gram negative bacteria
- Found world-wide
  - Temperate grower (>15°C)
  - Prevalent in coastal waters
- Source of:
  - Wound infections
  - Foodborne illness
    - Eating raw or undercooked shellfish
    - Other seafood (less commonly)
  - Bacteremia

[Image: Public Health Image Library (PHIL)]

Maryland Vibrio Surveillance Process

- Every Vibrio (+) lab result investigated
- LHDs attempt interview with COVIS
- Reported shellfish exposures trigger MD Office of Food Protection investigation
  - LHD EH conducts inspections, collects tags & invoices
- Regulations require submission of isolate to SPHL for confirmation, PFGE, WGS
- COVIS sent to MDH for validation, completion, transmission to CDC
Reported Vibrio Cases, Maryland, 1998-2018

*preliminary data
Maryland Initial Investigation Timeline

June 4
- LHD notifies MDH of 2 Vibrio cases with crab exposure from Store A
- LHD EH inspects Store A

June 8
- FDA notifies MDH of Vibrio in LA resident with crab meat exposure in DC (Restaurant C)

June 18
- Lab reports 3 cases match by PFGE:
  - 2 from Store A
  - Case that ate crab cake at Baltimore restaurant (Restaurant A)

June 21
- LHD reports Vp case ate crabs benedict at Restaurant B
- MDH links PCR+ case that ate at Restaurant B on same day as confirmed Vp
Early SMaRRT Traceback Diagram

Store A
Restaurant A
Restaurant B
Restaurant C
Distributor L
Distributor M
Distributor N
Supplier Y
Supplier Z
Venezuela
Maryland Investigation Timeline, cont.

June 26
- Lab uploads 3 sequences to NCBI: all ST3, highly related

June 29
- LHD reports Vp case with crab at Restaurant D
- PA notifies MDH of case from March with crab exposure in MD
- Call COVIS team
- Call with FDA

July 2
- CDC assigns cluster code 1806MDK16-1
- FDA transfers to CORE Response Team

July 3
- Request goes out to state COVIS coordinators asking for any Vibrio cases with lump crabmeat exposures
Communications Timeline

**July 6**
- MDH puts out press release

**July 9**
- MDH sends out Health Officer Memo
- MDH posts notice on Epi-X

**July 13**
- CDC releases outbreak notice
- FDA releases media alert
Maryland Lump Crabmeat Testing

- July 9: SMarRRT collected 6 unopened samples of lump crabmeat from local distributors
- 4 samples presumptive positive for pathogenic *V. parahaemolyticus*
  - 7 of 22 isolates forwarded for PFGE and WGS
  - All 7 had unique PFGE and novel MLST patterns
- Performed most probable number (MPN) enumeration analysis

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<th>PFGE Pattern</th>
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Thank you

MDH Division of Outbreak Investigation
MDH EIP FoodNet
MDH Rapid Response Team (SMarRRT)
Maryland Laboratories Administration:
  WGS and PFGE Labs
CDC COVIS Team
FDA Core Response Team

Maryland Department of Health
Prevention and Health Promotion Administration
https://phpa.health.maryland.gov