

# ANNOUNCEMENT

- To Register for the Monthly Disease Surveillance Trainings:
  1. Contact your Service Surveillance HUB to receive monthly updates and reminders
  2. Log-on or Request log-on ID/password:  
<https://tiny.army.mil/r/zB8A/CME>
  3. Register at: <https://tiny.army.mil/r/7laAB/EpiTechFY16>
  
- Confirm attendance:
  - Please enter your full name/email into the DCS chat box to the right or email your Service HUB
  - You will receive a confirmation email within 48 hours with your attendance record; if you do not receive this email, please contact your Service HUB



**NAVY ENVIRONMENTAL AND PREVENTIVE MEDICINE UNIT FIVE**  
PROTECTION THROUGH PREVENTION

# Case Study: Multistate Outbreak of Salmonella Poona

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# Learning Objectives

- Describe key events in this outbreak
- Understand military involvement and how it contributed to the civilian investigation
- Identify lessons learned and best practices in working with veterinary trace back processes

# Background

- 907 people from 40 states infected with outbreak strains of *S. poona*
- 204 people hospitalized with six deaths
- Illness date range 3 July 2015 – 29 February 2016
- 49% of ill younger than 18 years
- 56% of ill female

# Background

- Epidemiologic, laboratory and traceback investigations identified cucumbers imported from Mexico as the likely source
- Two national product recalls announced for imported cucumbers
- Cluster of cases at Marine Corps Recruit Depot San Diego provided critical information that prompted the distributor Andrew & Williamson Fresh Produce to announce a voluntary product recall

# Navy Involvement

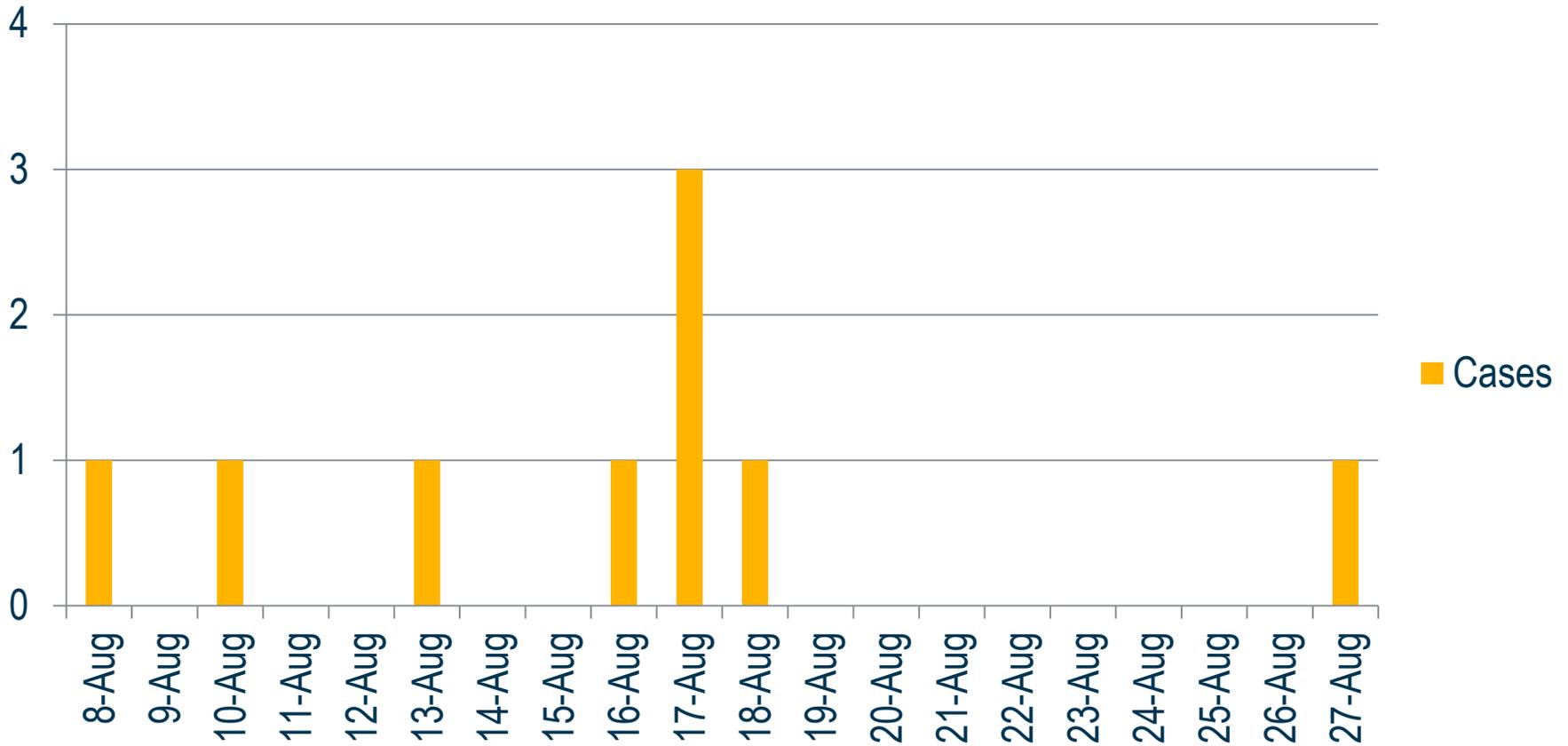
- 27 August 2015: Naval Health Research Center (NHRC) reported a cluster of Salmonella cases at MCRD on Epi Chiefs call.
- 27 August 2015: NHRC reported cluster to Naval Medical Center San Diego (NMCS D) Preventive Medicine
- 28 August 2015: NHRC reported 8 cases of Salmonella in recruits at MCRD San Diego. Cases identified via NHRC's Acute Gastroenteritis Surveillance Program.
- 28 August 2015: Notified by county public health that one recruit admitted to NMCS D for bacteremia had blood cultures positive PFGE matched to outbreak Salmonella

# Cluster Investigation

- NMCSD Preventive Medicine performed a cluster investigation for a food-borne outbreak
  - Galley inspection
  - Questionnaire provided to cases and controls
  - Comparison of foods commonly eaten
  - Identification of cucumbers as the likely source
- Navy Environmental and Preventive Medicine Unit utilized Army Public Health Lab for food testing.

# Cluster Investigation EpiCurve

Number of Salmonella Cases at MCRD San Diego by Date of Symptom Onset



# Cluster Investigation

- 28 August: Cases (7) and Controls (14) interviewed\*
  - Odds ratio suggestive of salad, fresh fruit bar, lettuce, and apples
  - “Recruit only” dining facility mixed fresh cut cucumbers with lettuce
  - Staff dining facility did not mix fresh cut cucumbers with lettuce and did not have an increase in diarrhea surveillance
- A second hospitalized recruit grew Salmonella in stool culture that was PFGE matched to the outbreak strain.
- 31 August: all cucumbers discarded from MCRD San Diego dining facility

\*Unpublished data obtained from LT Eva Reed, USN, Environmental Health Officer

# Navy Involvement

- 1 September 2015: Navy participates in first CDC telecon regarding multistate outbreak
- 2 September 2015: Notified by SDCPH about additional PFGE matched cases from Naval Hospital (NH) Camp Pendleton

# Army and Navy Collaboration

- 2 September 2015: US Army Food Inspectors conduct traceback investigation at MCRD San Diego and Camp Pendleton
- 3 September 2015: US Army Food Inspectors issue a medical hold on all cucumbers from distributors of concern for ships and bases in western United States

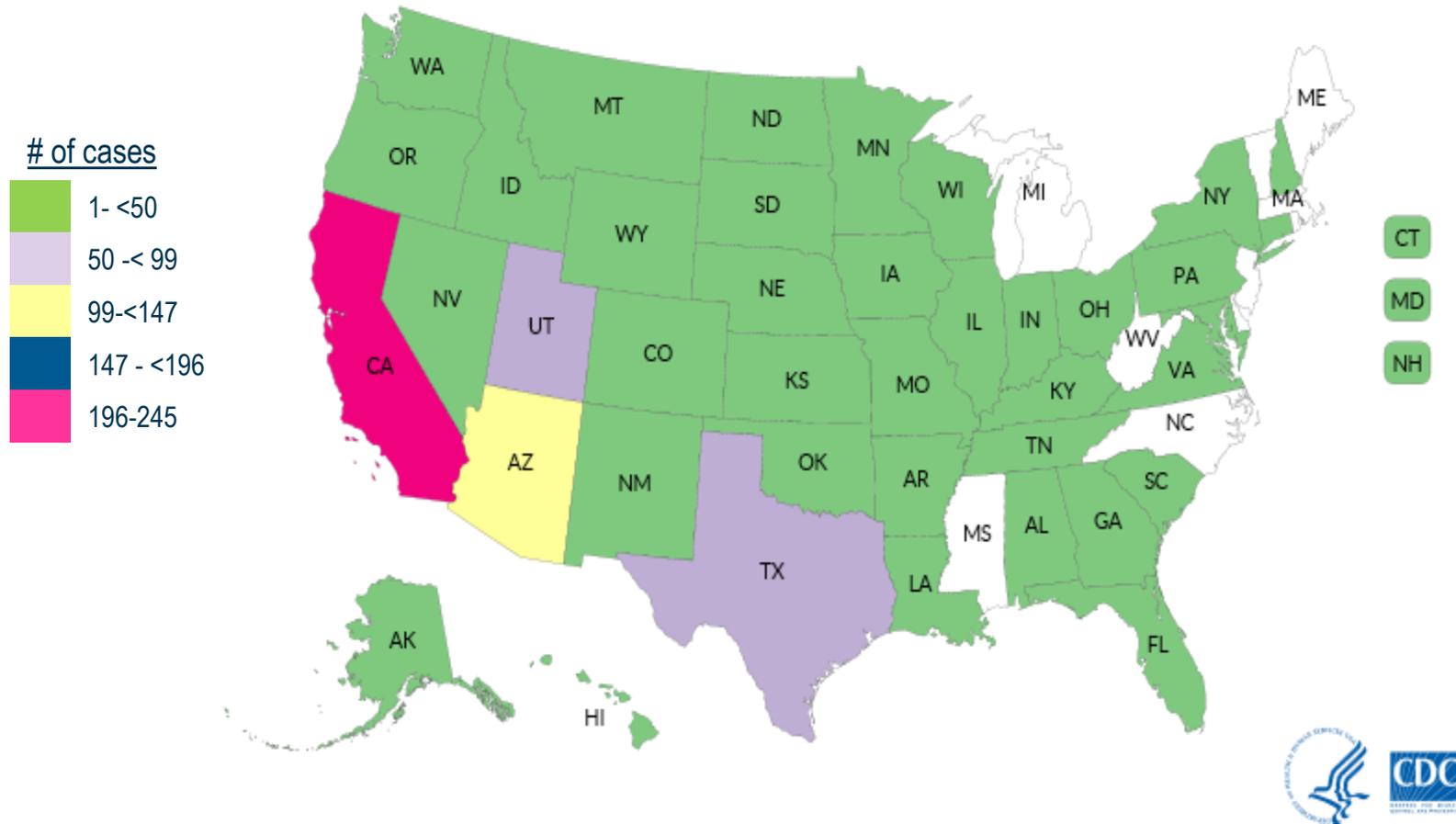
# Multistate Outbreak Investigation Progress

- 11 September 2015: Supported by results of MCRD cluster investigation and PFGE matching of cucumber samples, San Diego County Public Health prompted an Andrew & Williamson, national distributor, to issue a voluntary product recall.
- Andrew & Williamson Fresh Produce reported that the Limited Edition cucumbers were distributed to 22 states (Alaska, Arkansas, Arizona, California, Colorado, Florida, Idaho, Illinois, Kansas, Kentucky, Louisiana, Mississippi, Minnesota, Montana, New Jersey, New Mexico, Nevada, Oklahoma, Oregon, South Carolina, Texas, and Utah and reached customers through retail, food service companies, wholesalers, and brokers)

# Multistate Outbreak Investigation Progress

- The FDA traceback investigation determined that the firm Rancho Don Juanito de R.L. de C.V. located in Baja, Mexico was the primary source of cucumbers shipped to Andrew & Williamson.
- 17 September 2015: An FDA investigator completed an inspection of Rancho Don Juanito de R.L. de C.V. The FDA investigator was accompanied by the Mexican authorities. Among the observations of the FDA investigators were concerns with waste water management, equipment design of the pre-wash area, and storage of packing material.
- The root cause of the contamination was not identified during the FDA's inspection.

# States affected by outbreak strains of Salmonella Poona as of March 16, 2016 (n = 40)



Accessed at <http://www.cdc.gov/salmonella/poona-09-15/map.html> on 14 July 2016

# Lessons Learned

## Epidemiologic Investigation:

- Results of cluster investigation in MCRD's closed population supported San Diego County Environmental Health's hypothesis of the food item of interest.
- Coupling epidemiologic data with food samples provided necessary information for microbiologists and epidemiologists.
- Close coordination with Army Food Inspectors supported quick action and led to a medical hold on cucumbers for all ships and bases in western United States.

# Lessons Learned

## Laboratory Investigation:

- Pre-existing relationships between NMCSD laboratory and local public health laboratory linked Navy cases to the outbreak strain.
- NHRC developed relationship and process of forwarding positive cultures for reportable organisms with the local public health laboratory
- Pulse Field Gel Electrophoresis was vital to identifying causative agents.
- Both clinical and environmental testing were required to support this outbreak

# Lessons Learned

## Traceback Investigation

- Food distribution in the United States is wider than prior assumptions by the Navy team.
- FDA began a surveillance sampling program that includes the collection and analysis of 1,600 cucumbers domestic and import samples from packing houses, manufacturers and distributors within the US during FY16.
- Traceback information from MCRD cluster indicated that cucumbers eaten by ill people were imported from Mexico.
- Collaboration with Army Food Inspectors increased awareness of evolving situation.

# List of Key Collaborators

- 40 States
- CDC
- USDA
- FDA
- FBI
- NMCS D
- NH Camp Pendleton
- Army Food Inspectors
- NHRC
- NEPMU FIVE
- DoD/CDC Liaison

# Contact Information

- Army: APHC – Disease Epidemiology Program  
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- Navy: Contact your cognizant NEPMU  
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Questions?