NJDOH Communicable Disease Forum

Fall 2016

Kim Cervantes, Manager, Regional Epidemiology Program

Welcome!

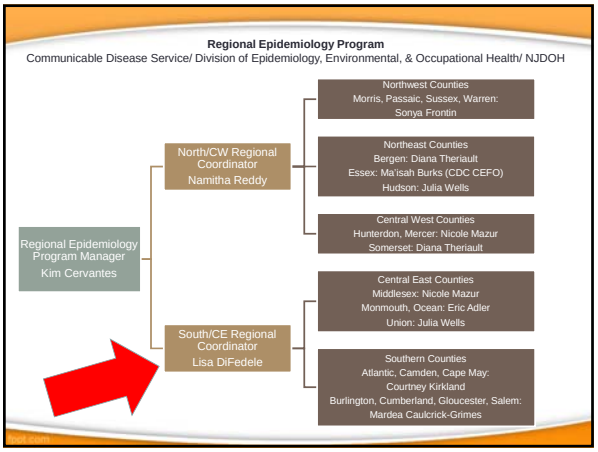
- Housekeeping
- Continuing education credits
  - Approved for 3 PH credits and nursing contact hours
  - Must sign-in and out and complete online evaluation
  - Nurses
    - Mark X in Nurse column on sign-in sheet
    - Certificates provided at end of meeting
  - HO/REHS
    - Credits will appear on NJLMN transcript
- Questions after each session and at end
- Presentation slides posted in advance on NJLMN under Practice Exchange

Online Evaluation

- Link to online evaluation will be sent by e-mail (NJLMN e-mail address) to meeting participants
- Evaluation must be filled out within 1 week
- Continuing education credits will be verified with completed evaluations
  - Attendance/credits will not appear on NJLMN until after the evaluation completion period

Program notes

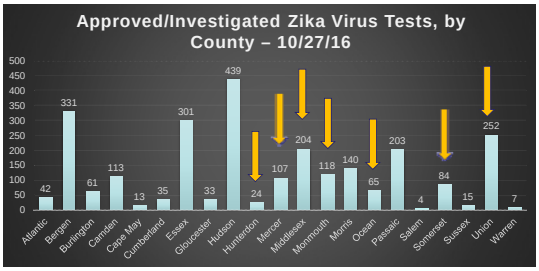
- Launch timeframe updated
  - Training March/April
  - "Live" April/May



New VPDP Staff Members

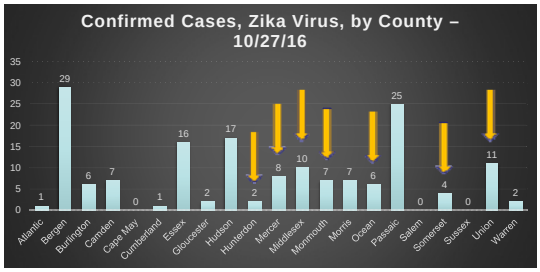
- Susan Hannagan, MS, MPH
  - Surveillance Specialist
  - Acute Flaccid Myelitis (AFM) and Poliomyelitis
    - NJ LINCS message re: AFM sent 10/24
    - Winter CD Forum presentation on AFM
- Corinna Kelley
  - Public Health Representative 2
  - Pertussis and Meningococcal disease
    - Working with Allison and Jill to transition into the role of primary subject matter expert

Zika Virus Testing Update



- 2,620 persons tested through PHEL or at commercial labs
  - 29 out-of-state

Zika Virus Testing Update



- 161 confirmed cases, all travel-related
  - 2 sexually transmitted, 9 congenitally transmitted

Zika Virus Surveillance

- Travel-associated cases not expected to decrease
- Pending deliveries/newborns with suspected Zika virus
  - Inform CDS
  - Specialized testing and assessments
  - Partnership with NJDOH Family Health Services for long-term monitoring

NEW! PHEL SRD-1 Lab Form

- PHEL reported SRD-1errors:
  - 12% are being approved >12 weeks from last exposure
    - **PHEL will CANCEL these requests**
  - 10% have no or insufficient clinical history
    - pregnancy status, symptoms, exposure type/dates, prior arbovirus disease or vaccination
    - Important for determining the type of lab test
  - 8% have miscellaneous errors (DOB 1776, missing onset dates)
  - 1% are name discrepancies
- Updated SRD-1 Form and instructions
  - https://healthapps.state.nj.us/forms/subforms.aspx?pro=phel
  - Coming soon: http://www.nj.gov/health/cd/zika/techinfo.shtml

HAI Investigation #1

- *Burkholderia cepacia* associated with Nurse Assist IV saline flushes
  - Voluntary recall 10/6/16 http://www.fda.gov/Safety/Recalls/ucm523959.htm
  - Clusters of BSIs originally identified with use of PharmScript
    - 43 NJ LTCF
  - 51 confirmed cases (10/31/16)
    - 19 LTCF, 10 counties

HAI Investigation #2

- *Mycobacterium chimaera* associated with LivaNova PLC (formerly Sorin Group Deutschland GmbH) Stöckert 3T heater-cooler devices used during open heart surgeries https://www.cdc.gov/media/releases/2016/p1013-contaminated-devices-.html
- 18 NJ facilities perform open heart surgery
- Machines manufactured prior to 2014 may have been contaminated during manufacturing
  - Bacteria can be aerosolized in OR
- 1 NJ report under investigation
- NJDOH recommends hospitals notify all patients exposed to the 3T Sorin (call with hospitals 10/27)

Agenda

8:30	Registration
9:00	Welcome & overview
9:15	*Regional Highlights*
9:30	*Retracing Rubella: Surveillance and Case Investigations*
10:10	*Tummy Talk: Improving Data Collection from Enteric Disease Interviews*
10:50	Break
11:05	***HOT TOPIC!*** *A-"dressing" Acinetobacter Across the Healthcare Spectrum*
11:35	*Local and State Collaboration on Foodborne Illness Investigations with Restaurant Exposures*
12:20	Feedback and open discussion
12:30	Adjourn

Upcoming Conferences

- November 30, 2016: New Jersey Immunization Conference (NJIC)
  - Renaissance Woodbridge Hotel
  - Registration $55: http://njaap.org/events/new-jersey-immunization-conf/
- May 10, 2017: Healthcare Associated Infections Conference
  - Conference Center @ Mercer, West Windsor
  - $15/pp includes lite breakfast, lunch and credits
- June 1, 2017: 3rd Annual Drug Diversion Conference
  - Rutgers, Busch Campus Center, Piscataway
  - $50/pp includes lite breakfast, lunch and credits

What is your favorite fall activity?

1. Apple picking
2. Raking leaves
3. Visiting a haunted attraction
4. Viewing fall foliage
5. Wine or craft beer festival

Nurses…

- Participants must attend the entire session in order to earn contact hour credits
- Attendees must participate in all learning activities
- Verification of participation will be noted by the signature on the registration form and completion of the online evaluation
- Participants cannot miss more than 5 minutes from a 30 minute session; 10 minutes from a 60 minute session

Nurses…

- No commercial support has influenced the planning of the educational objectives and content of this event
- No influential relationships have been disclosed by planners or presenters which would influence the planning of this activity. If any arise, an announcement will be made at the beginning of the session
- There is no endorsement of any product by the NJSNA or the ANCC associated with this session

EPIDEMIOLOGY SURVEILLANCE REPORT
Central Region

Namitha Reddy
Regional Epidemiology Program
NJDOH

Purpose/Objectives

Purpose

- To provide regional information and updates to public health partners on communicable disease activity and trends within their region

Objectives

- Provide an overview of communicable disease activity.
- Describe quarterly trends in select communicable diseases
- Highlight interesting and/or notable outbreaks/clusters and/or investigations.

Please Note : This report is for use by Public Health Officials only and is not for public distribution

All data are provisional and are subject to change

Select Disease Trends and Activity

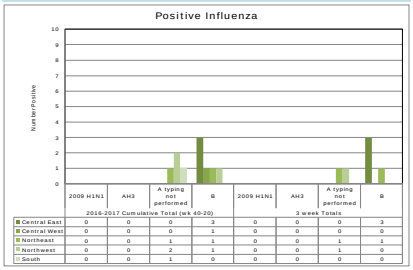
Influenza Activity

Week Ending October 22, 2016 (MMWR week 42)	
State Activity: LOW	
Current Week Last Year: LOW	
Regional Data	
Northwest	LOW
Northeast	LOW
Central West	LOW
Central East	LOW
South	LOW

Low Influenza Activity level seen Statewide and Central Region.

Influenza Activity

Influenza Positive Specimens (PCR)- Result by Region
Week ending October 15, 2016 (MMWR week 41)



Select Enteric Diseases Central East

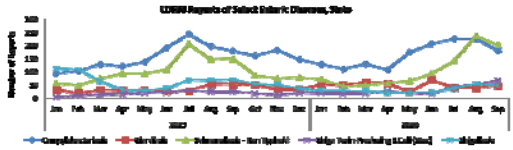
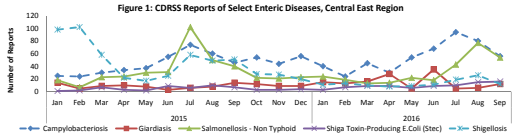
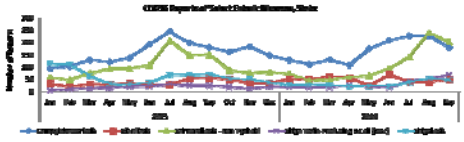


Figure 1: CDRSS Reports of Select Enteric Diseases, Central East Region



Select Enteric Diseases Central West



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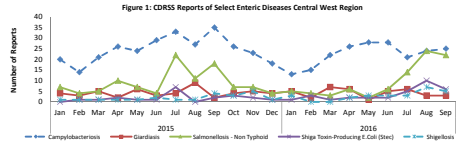


Select Vaccine Preventable Diseases Central East

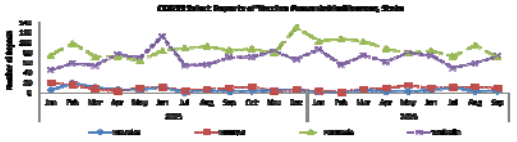
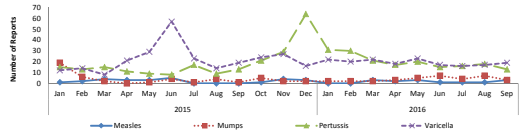
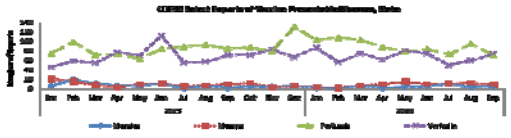


Figure 2: CDRSS Select Reports of Vaccine Preventable Diseases, Central East Region



Select Vaccine Preventable Diseases Central West



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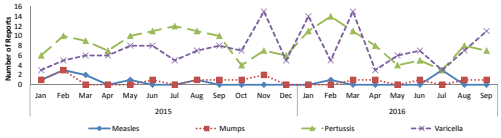
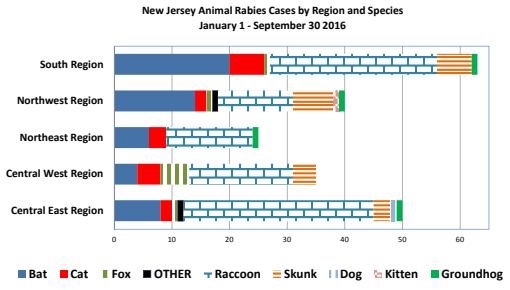
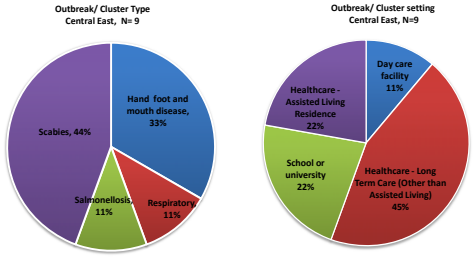


Vectorborne and Zoonotic Diseases- Rabies

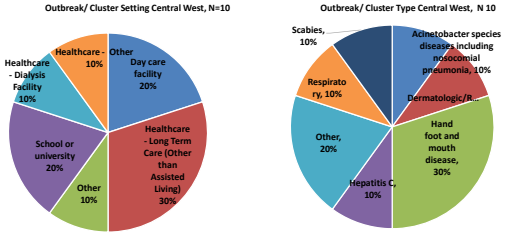


OUTBREAK/CLUSTER REPORTING

Central East Region Outbreaks



Central West Region Outbreaks



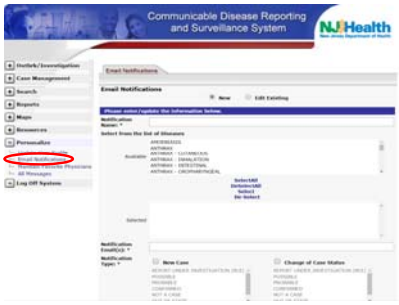
RETRACING RUBELLA:
SURVEILLANCE AND CASE INVESTIGATIONS

Noelle Bessette, MPH
Surveillance Specialist
New Jersey Department of Health
Vaccine Preventable Disease Program

Question 1: If you work at a local health department, do you have CDRSS disease email notifications turned on?

A. Yes
B. No
C. I don't know what those are

CDRSS Email Notifications



Question 2: What category does rubella fall into (not including congenital rubella syndrome)?

A. Immediately reportable
B. Reportable within 24 hours
C. Reportable next business day
D. Reportable within 72 hours

WHAT TO DO WHEN YOU GET A POSITIVE RUBELLA LAB REPORT

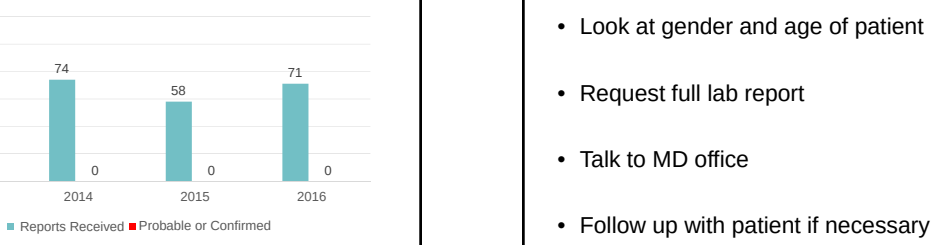
Question 3: What test should be ordered by a provider to check a patient's immunity to rubella?

A. Rubella IgM and IgG

B. Rubella IgM

C. Rubella IgG

D. None of the above



When You Get a Positive Lab Report

- Look at gender and age of patient
- Request full lab report
- Talk to MD office
- Follow up with patient if necessary

When You Get a Positive Lab Report

- **Look at gender and age of patient**
- Request full lab report
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Look at Gender and Age of Patient

- 2015 reports: 58 cases reported, all 58 were closed as "Not a Case"
  - 36/58 reports were women of childbearing age, 1 additional woman pregnant outside of identified childbearing age
- Care should be taken when IgM + in a pregnant woman with no travel or exposure history- most likely an incorrectly ordered test, but important to determine because of risk of congenital rubella syndrome
- While most rubella IgM labs were incorrectly ordered to check immunity, it is necessary to act immediately in case it is a real case or suspected case

When You Get a Positive Lab Report

- Look at gender and age of patient
- **Request full lab report**
- Talk to MD office
- Follow up with patient if necessary

Rubella Testing

- Available Testing
  - Reverse transcriptase polymerase chain reaction (RT-PCR)*
  - Culture* (labor intensive, not routinely used)
  - Immunoglobulin M (IgM)*
  - Immunoglobulin G (IgG)
  - IgG avidity (done at CDC if disease is being suspected)*
- IgM:
  - The presence of IgM antibodies indicates a recent infection with the rubella virus
- IgG:
  - The presence of IgG antibodies indicates immunity to rubella (either through vaccination or history of past exposure to the virus)

* Diagnostic tests

Challenges in Interpretation of Rubella IgM

- False positives due to:
  - Cross-reacting IgM
  - Infection with other viruses (parvovirus, mononucleosis, etc.)
  - Presence of rheumatoid factors (indicating rheumatologic disease)
- Differences in rubella IgM assays used by different commercial labs
- In many cases, rubella IgMs are ordered inappropriately to check immunity when rubella is not being suspected
  - Most common reasons for testing:
    - Incorrectly ordered rubella IgM to check immunity during prenatal screening
    - Incorrectly ordered rubella IgM to check immunity during pre-employment testing
    - Incorrectly ordered rubella IgM to check immunity for enrollment in new school program
- Lab entry error

Request Full Lab Report

- Call testing lab to get a copy of the full lab report for the patient
  - If an IgM was the test reported into CDRSS, inquire if IgG was done (usually done if MD was testing for immunity)
- If IgG is positive, the likelihood of an acute infection is lower
- If no IgG was ordered, the MD office can call the commercial lab to add on the test
  - IgM does not help establish immunity, so if that was the reason for test, MD should add
  - Most commercial labs hold on to the blood for at least 7 days

When You Get a Positive Lab Report

- Look at gender and age of patient
- Request full lab report
- **Talk to MD office**
- **Follow up with patient if necessary**

Follow Up with Ordering MD Office

- Call MD office to:
  - Determine if patient was asymptomatic
  - Inquire as to why the test was ordered
  - If pt of childbearing age, determine pregnancy status
  - Known exposures
  - Vaccination dates (if known)
  - Educate provider on not ordering IgMs unless suspecting acute illness
  - Obtain IgG if unable to get it from commercial lab
- If MD office can confirm information above, a patient interview is not necessary
- If the information cannot be obtained (unresponsive MD office), LHD can interview patient
- When calling the MD office, you do NOT need to speak with the ordering provider
  - Generally, it's easier to see if the receptionist or a nurse who is currently in the office would be able to provide additional information

Pregnant Woman with Concerned MD

- There is a difference between a doctor who is surprised by a positive rubella IgM and an MD who is concerned about the possibility of disease
  - If MD is surprised, the LHD can educate the MD office on reasons for false positives and importance of not ordering IgM unless suspecting acute illness
- If an MD is concerned that the woman may have acute rubella (there are symptoms, etc.), there are additional tests that can be done at CDC
  - If blood sent to commercial lab is still available, we can request it come to the state laboratory for forwarding to CDC. Otherwise, new blood will need to be collected
  - Additional test requests will need to be approved by NJDOH prior to being sent to CDC
  - Serologic testing will confirm the IgM, and IgG with avidity will help determine whether the patient was recently infected

Information Needed to Close a CDRSS Case Where Test was Ordered Incorrectly

- Refer back to EpiGram newsletter sent in May 2016 by Regional Epi Program
- LHDs should close the case as "Not a Case, Asymptomatic" and document in CDRSS:

  - Pregnancy status
  - Positive IgG test result
  - "Asymptomatic" in signs/symptoms tab
  - Reason for why the test was ordered (e.g. prenatal screening, pre-employment screening, titers for school entry, etc.)
  - No known exposures (e.g. no recent travel, no known exposure to persons with rash)
  - Rubella vaccination dates (if known)

SUSPECT CASES OF RUBELLA

If Rubella Disease is Being Suspected

- Obtain clinical information
- Ensure proper specimens are collected
- Identify contacts/ establish proof of immunity
- Public health response

If Rubella Disease is Being Suspected

- **Obtain clinical information**
- Ensure proper specimens are collected
- Identify contacts/ establish proof of immunity
- Public health response

Characteristics of Rubella Illness

- A rubella illness will be characterized by:
  - Acute onset of generalized maculopapular rash; **and**
  - Temperature greater than 99.0ºF, if measured; **and**
  - Arthralgia, arthritis, lymphadenopathy, or conjunctivitis
- Generally a mild illness, but can cause miscarriage or serious birth defects if a woman is infected during pregnancy

If Rubella Disease is Being Suspected

- Obtain clinical information
- **Ensure proper specimens are collected**
- Identify contacts/ establish proof of immunity
- Public health response

Question 4: Which specimen(s) should be collected for a suspect rubella case?

A. Serology (IgM and IgG)

B. Serology (IgG only)

C. Viral specimen (throat, nasal swab, urine)

D. A & C

E. None of the above

Proper Specimens for Rubella Testing

- CDC recommends collecting throat (best source), nasal, or urine specimens (if throat or nasal not possible) for PCR testing, and blood for serologic testing
- Viral specimens for PCR: Specimens should be collected ASAP after onset of rash
  - Most successful when samples are collected within 3 days of rash onset, but may be successful as late as 7-10 days post- rash
- Serology: Optimum time for collection is 5 days after onset of rash
  - If collected less than 5 days after onset is negative, a second sample may be requested to confirm/rule out rubella

If Rubella Disease is Being Suspected

- Obtain clinical information
- Ensure proper specimens are collected
- **Identify contacts/ establish proof of immunity**
- Public health response

Identification of Contacts

- Rubella is transmitted through direct or droplet contact from nasopharyngeal secretions
- Any direct contact with a patient with rubella during the infectious period (7 days before rash onset through 7 days after rash onset) should be considered exposed
- Extra effort should be made to identify exposed pregnant women (and women of childbearing age to assess pregnancy status) and recommend serologic evaluation

Rubella Proof of Immunity

- Acceptable presumptive evidence of immunity against rubella includes at least **one** of the following:
  - Documentation* of one dose of rubella-containing vaccine on or after the first birthday
  - Serologic evidence of immunity
  - Laboratory confirmation of disease
  - Birth before 1957 (except women of childbearing age and healthcare personnel)

* Healthcare providers should not accept verbal reports of vaccination without written documentation as presumptive evidence of immunity.

If Rubella Disease is Being Suspected

- Obtain clinical information
- Ensure proper specimens are collected
- Identify contacts/ establish proof of immunity
- **Public health response**

Public Health Response

- Patients with rubella should be isolated for 7 days after rash onset
- It is essential that exposed pregnant women be identified, evaluated, and counseled
  - Blood specimen should be taken/ tested, and held for possible retesting
  - If a woman lacks laboratory evidence of rubella immunity, precautions should be taken to prevent exposure to individuals with rubella
- All exposed persons who cannot provide proof of immunity should be vaccinated (passive vaccination, not as post-exposure prophylaxis)

Public Health Response

- Healthcare personnel without adequate presumptive evidence of immunity should be excluded from day 7 through day 23
  - Healthcare personnel who are vaccinated as part of control measures may NOT return to work until the incubation period is over
- Additional exclusions (for example, in an outbreak setting) should only be recommended in consultation with NJDOH
- Active surveillance of contacts should continue through the incubation period

Recent Suspect Case Investigation #1

- **Initial Report**: 1 month old baby with rubella IgM positive, electronically entered
- Per MD, baby born with microcephaly to a mother with unknown rubella immune status
- Negative for CMV/ toxoplasmosis, and HSV
- Baby put on contact precautions

Recent Suspect Case Investigation #1

- **Initial Report**: 1 month old baby with rubella IgM positive, electronically entered
- Recommended viral specimens (urine, throat/nasal swab) for testing at CDC
- Follow up rubella IgM negative- one week later
- All viral specimens tested negative
- Mother had proof of immunity to rubella upon admission to hospital
- Questionable microcephaly
- **Not a case- false positive IgM**

Recent Suspect Case Investigation #2

- **Initial Report**: 15 year old with very high rubella IgM positive, electronically entered
- Per MD, patient had a rash for approx. a month, as well as arthralgia (joint pain)
- No rubella IgG was ordered (too late to call lab to add IgG), but 2 rubella-containing vaccinations were documented in NJIIS
- Pt was referred to an ID doctor, diagnosis was **viral rubella**
- ID doctor did not examine patient because of "viral nature of diagnosis"
- Per guardian, pt attended a camp with international staff members and was treated for poison ivy with oral and topical steroids, rash changed during this time

Recent Suspect Case Investigation #2

- **Initial Report**: 15 year old with very high rubella IgM positive, electronically entered
- Call to MD- request for additional serology for testing at CDC (blood for IgM and IgG confirmation plus avidity)
  - MD collected new specimens, REP helped facilitate getting specimens from MD office to a courier pick up site, and then PHEL forwarded to CDC
- CDC results: IgM negative, IgG positive, avidity high
  - Low avidity index strongly indicates a primary rubella infection within 3 months of the serum collection date for wild-type infections, or within 3 months for vaccinated individuals
  - High avidity indicated that infection or vaccination with rubella virus was remote (occurred 3 months or more prior to serum collection date)
- **Not a case- alternate diagnosis and non-supportive labs**

Thank you!

Noelle Bessette
Noelle.Bessette@doh.nj.gov
(609) 826-5964

Extra Slides- Testing of Exposed Pregnant Woman

- If the IgM is positive regardless of the IgG response, this may indicate recent or acute infection or a false-positive IgM.
  - The next step is testing with a serum collected in 5-10 days. Testing will include IgM, IgG, and avidity (if IgG is present). If the repeat IgM is positive with low avidity or a significant rise in IgG titers, acute infection is likely. If the IgM and IgG are positive and the avidity is high, this may indicate either a false-positive result or a reinfection. Reinfection with rubella occurs more frequently with vaccine-induced immunity than with natural disease; however, the risk of fetal infection is extremely low.
- If the IgM is negative and the IgG is positive at the time of exposure (the first specimen), this most likely indicates immunity.
- If the IgM and IgG are negative in the first specimen, a second specimen should be taken 3-4 weeks after exposure and tested concurrently with the first specimen for IgM, IgG, and avidity (if IgG is present).
  - A negative IgG response with the first specimen and a positive IgG response with the second specimen indicate that infection has occurred.
  - If the IgG and IgM remain negative and there are no additional exposures, an IgG-negative result at 4 weeks indicates that infection has not occurred. As long as the exposure to rubella continues, it is important to continue testing for IgG and IgM responses.

Tummy Talk

Improving data collection from enteric disease interviews

Eric Adler, MPH
Sonya Franks, MPH
Julia Walk, MPH

Regional Epidemiology Program
NJDOH Communicable Disease Service

OVERVIEW

- Quick recap of Session #1 interviewing skills
- Preparing for an enteric interview
- Essential elements
- Required case reporting forms
- Interactive analysis of interviews

Interviewer Training Session: Recap from Spring 2016 Forum

- Interviewing methods & techniques
- Anatomy of an interview
  - Pre-interview
  - During interview
  - Post-interview
- Standardizing interviews
- Interviewer training
- Ten Cardinal Rules for Conducting Interviews

Unique and challenging aspects of conducting enteric case interviews

- Cases being interviewed are **not volunteers**; they did not volunteer to become ill
- Investigators play **conflicting roles**:
  - Must elicit accurate information, be empathetic, and act as an enforcer if the case has to be excluded from work as well as serve as an educator.
- Challenge of probing for information where the person may be **perceived to be at fault** (i.e. A food handler) for causing a foodborne illness at an event or establishment.

High quality information needed

- High quality information = **complete** and **accurate**
- Consequences of knowledge gained through interview:
  - Excluding a person from work, school or daycare
- Remember: these decisions must withstand legal scrutiny, so documentation of case findings must be recorded in CDRSS and keep notes

Getting ready: The Situation

- Be familiar with the disease in question
- Review NJDOH CD Manual Chapter
  - Incubation period
  - Routes of transmissions
  - Signs and symptoms
  - Common exposures
  - Exclusion criteria for daycare, school, HCWs, food handlers, etc.
  - **Required reporting forms**

Case Investigation Requirements

CDC Case report form to be completed; exposures entered to CDRSS. Case report form to be FAXED TO NJDOH

- Cyclosporiasis
- Typhoid and Paratyphoid fever
- Cholera and other *Vibriosis* illnesses
- *Listeriosis*
- *Escherichia coli*, shiga toxin producing strains (STEC)-including 0157:H7

Disease worksheets to be completed; exposures entered into CDRSS

- Campylobacteriosis
- Salmonellosis (Non-typhoid)
- Shigellosis
- Giardiasis
- Cryptosporodisis

Review clinical information

- Review clinical information in CDRSS
- Circumstances of outbreak/likely exposure period
  - *If you do not yet know onset date, prep yourself based on specimen collection date*
  - Confirm onset date during the interview
  - Events in the area
  - Food recalls or media coverage – more on these later

A new STEC case appears on your CDRSS Pending Screen. Which of the following is **NOT** an appropriate step in investigating this case?

a) Review CD Manual Chapter (STEC)
b) Review CDRSS for pertinent clinical and lab information
c) Fax NJDOH STEC Case Report Form to provider to collect additional information
d) Contact medical provider's office to collect info and notify them the LHD will be interviewing their patient

Timeliness of interview

- Interview should be attempted ASAP (don't wait for subtyping)
- Prompt interviewing is critical to improve recall (food history)
- Prompt prevention education to limit transmission
- Prompt exclusion of high risk individuals (food handler, daycare etc)
- Courtesy call to provider **(DO NOT FAX FORMS)**
- Make at **least 3 attempts** to interview case (different times)

Interview Content

- Demographics
- Clinical History
- Food Sources/Diet Information (food history)
- Other Exposures (animal, water, environmental etc)
- Travel
- Risks to others
- Local Clusters or Events (finding additional cases)

Collecting Food Histories

- Complete food history important including
  - Foods eaten in 5 days before onset of illness (if unknown etiology)
  - If illness suggestive of Norovirus, focus on 24-48 hours before illness
- ALL foods eaten (at home or at a restaurant) during time period of interest (unless focusing on shared food/meals)
- Details of named events, food establishments or suspect food products
- Information on non-food exposures
- **DO NOT RELY ON MEDICAL RECORDS OR ICP NOTES IN CDRSS ALONE---**

  INVESTIGATION REQUIRES INTERVIEW BY PUBLIC HEALTH

Interviewers should NOT ask about the following:

a) Foods eaten in the homes of friends and family
b) Toppings and condiments added to meals
c) Whether they took a bite of someone else's food
d) The color of the shirt they wore yesterday
e) The date and time of food consumption and any suspicious observations

Improving food histories

Have case-patient:

- Look at a calendar
- Describe each meal in time period
- Identify key events to jog memory
- Review receipts or menus
- Think about food preferences/ dietary restrictions
- Rule in/out specific food items

Wrapping up the interview

- Have you asked all the questions on the form?
- Clarify inconsistencies
- Willing to provide a stool specimen?
- Inform interviewee that you may need to call back to
  - Ask additional questions
  - Share new findings
  - …or that another agency may call back (NJDOH)
- Provide agency contact phone number for additional questions and close with offering to answer any questions

Which of the following enteric diseases REQUIRES completion of a CDC or NJDOH Case Report Form?

a) Listeriosis
b) Typhoid and Paratyphoid fever
c) Salmonellosis
d) A and B
e) All of the above

Evidence-based best practices-

- A number of techniques have been described as facilitating successful interviews with enteric cases including
  - Building rapport with cases,
  - Ensuring confidentiality of information provided to public health,
  - Using effective communication skills,
  - Remaining objective, providing empathy, and
  - Using open-ended, probing and close-ended questions

Interactive portion:

- The following training video developed by the Oregon State Health Department and is designed to provide both inexperienced and seasoned investigators with practical examples of how to incorporate interviewing best practices into everyday enteric disease interviews
- After the video we will be discussing the scenario and lessons learned

Oregon Health Authority, Foodborne Outbreak Investigation Tools:
Outbreak Investigation Training - Sample Interviews

References

- Centers for Disease Control and Prevention: *FoodCORE Model Practice: Initial Case-patient Interviewing.* (accessed 10-20-16 http://www.cdc.gov/foodcore/pdfs/foodcore-initial-interviews-508c.pdf)
- Oregon Health Authority, Foodborne Outbreak InvestigationTools: *Outbreak Investigation Training - Sample Interviews*. (accessed 10-24-16 https://www.youtube.com/watch?v=8oigheuq0L4&feature=youtu.be)
- Ing S., et. al: *A focus group study of enteric disease case investigation: successful techniques utilized and barriers experienced from the perspective of expert disease investigators.* BMC Public Health 2014 14:1302
- National Environmental Health Association: *Epi Ready, Foodborne Disease and Outbreaks.* (accessed 10-19-16 http://www.neha.org/professional-development/education-and-training/epi-ready-team-training-foodborne-illness-response)
- Oregon Health Authority*: Disaster Epidemiology Interviewing Training Guide.* (accessed 10-20-16 *https://public.health.oregon.gov/DiseasesConditions/CommunicableDisease/outbreaks/Documents/interview_guide.pdf*

Addressing Acinetobacter across the Healthcare Spectrum

Patricia Barrett, MSD, Antimicrobial Resistance Coordinador
Courtney Kirkland, MPH, Regional Epidemiologist

Outline

- Basic *Acinetobacter* information
- Case investigation: *A. baumannii* in long-term care patients with wounds
- Findings
- Prevention opportunities

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Acinetobacter Basics

- Genus of bacteria
- Can cause pneumonia, wound or blood stream infections
- ~63% are resistant to three or more classes of antibiotics
- Resilient 'bug' that can survive in different environments
- *A. baumannii* is a common cause of human infection, usually associated with healthcare facilities
- Named a 'Serious Threat' in CDC's 2013 Antibiotic Resistance Threat Report

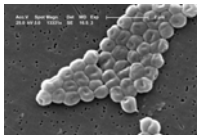

Photo Credit: Janice Carr, U.S. Centers for Disease Control and Prevention

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Outbreak Investigation: Initial Report

- Hospital Infection Preventionist reports increase in *A. baumannii* infections
- NJDOH initiated public health investigation with LHDs, implicated facilities and hospitals in the area

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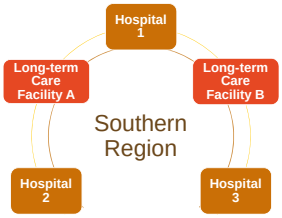
Call for Cases

- Confirmed *A. baumannii* infections with LTCFs
- Call for *A. baumannii* infections in regional hospitals
  - Hospital 1: 9 infections
  - Hospital 2: 12 infections
  - Hospital 3: 14 infections
- Requested antimicrobial susceptibility reports from all three hospitals



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Clicker Question

Why should public health review antimicrobial susceptibility reports as part of an MDRO outbreak investigation?

1. To confirm what organism caused the outbreak
2. To determine which antibiotics to use
3. To compare antibiotic susceptibility patterns of suspected cases
4. You should not look at them, only doctors need susceptibility information

Susceptibility Reports

- Review of susceptibility reports revealed two common resistance patterns

Antibiotic	Pattern 1	Pattern 2
Ciprofloxacin	R	R
Doripenem	R	S
Gentamicin	R	R
Levofloxacin	R	I
Nitrofurantoin	R	R
Tobramycin	R	I
Amikacin	S	R

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Case Definitions

All confirmed *A. baumannii* infection or colonization, regardless of specimen type, identified in residents of long-term care facility A or long-term care facility B between January 1, 2016 and September 30, 2016 .

Identifying Hospital	Cases at LTCF A	Cases at LTCF B	Total # per hospital
Hospital 1	4	3	7
Hospital 2	1	0	1
Hospital 3	0	2	2
Total # of Cases	**5**	**5**	**10**

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Possible Modes of Transmission

Possible Link	LTCF A	LTCF B
Shared wound care providers	X	X
Caregiver overlap	X	X
Shared equipment		X
Shared staff*	X	X
Common shower areas	X	X
Outpatient dialysis treatment		X

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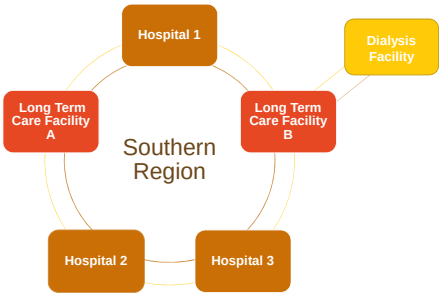
Healthcare Facilities Involved



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Control Measures

- Facilities were contacted and the following control measures were recommended:
  - **Contact precautions**
  - **Cleaning and disinfection**
  - **Review procedures**
  - **Surveillance cultures**

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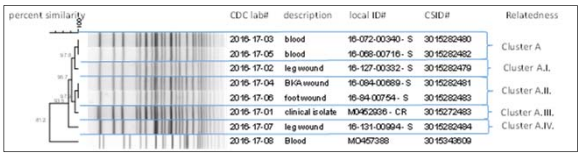
PFGE Results

- Isolates from seven of the 10 cases were saved and sent to CDC for PFGE testing



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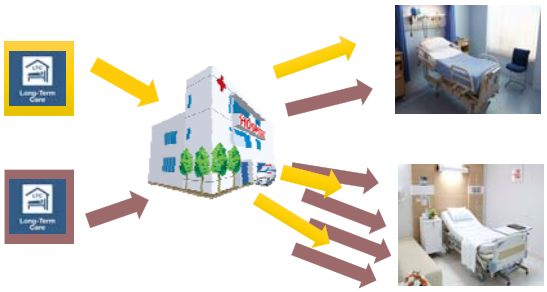
Possible Interfacility Transmission



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Possible Interfacility Transmission

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Additional Response Actions

- CDS and the LHD requested and **reviewed the written nursing home policies** on wound care and environmental cleaning
- **APIC and CDC toolkits** on the prevention and response of A. baumannii and CRE were given to each facility
- **Infection Control Assessment and Response (ICAR) assessments** were offered to all facilities to review Infection Control programs
- **CDC and CMS wound care checklists** and audit tools were shared with nursing homes

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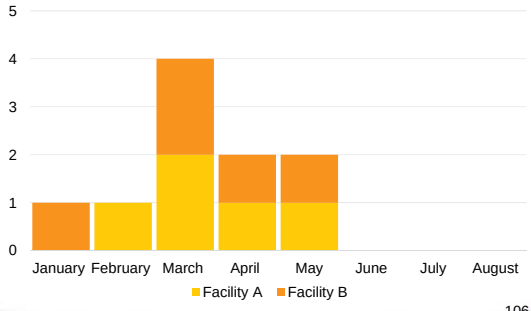
Epi Curve: Case Count by Culture Date



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Other possible control measures

- Active surveillance testing
- Cohorting staff
- Visitor restrictions
- Site visits by LHD or CDS
- Environmental culturing to identify possible reservoirs
- Presumptive contact precautions for all hospital admissions

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Investigation Takeaways

- “What happens in a facility doesn’t always stay in the facility”
- It is important to get ahead of the outbreak
- There is not always a clear cause of transmission
- MDRO outbreaks require patience and diligence

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Prevention Opportunities

- Sustained MDRO surveillance
- Antibiotic stewardship program
- Improving interfacility communication
  - Making strides in the region!
- Infection control policy review
  - ICAR assessment

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QUESTIONS??

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Thank you!

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Local and State Collaboration on Foodborne Outbreak Investigations Associated with Restaurant Exposures

Deepam Thomas, Communicable Disease Service
Loel Muetter and William Manley
Public Health and Food Protection Program

What constitutes an outbreak?

- Two or more persons experiencing a similar illness after ingestion of a common food or different food from a common source, OR
- Reporting of cases of a disease in excess of what is normally expected.

  Note: exception- household clusters

Who is responsible for investigation?

- Local Health Departments
  - ❖Local point source outbreak (wedding, restaurant)
- NJDOH (CDS and PHFPP)
  - ❖Coordinate multi-jurisdictional efforts within NJ
  - ❖NJDOH may be the lead agency in a multi-state outbreak
- CDC (FDA or USDA)
  - ❖Usually the lead in multi-state investigation

Primary Goals of an Outbreak Investigation

- Stop the current outbreak as soon as possible by implementing effective control measures
- Prevent similar outbreaks in future
- Contribute to food safety and public health policy

Ways to detect an outbreak

	Complaint-call *(via phone)*	**Pathogen-specific** *(CDRSS)*
Illnesses detected	All types	Only reportable diseases
Initiating event	Consumer complaint call *(most restaurant outbreaks)*	Positive lab results *(cases in CDRSS)*
Linking cases	Common exposures *(attended a party, restaurant)*	Same pathogen *(Salmonella)*
Detection speed	Faster *(quick)*	Slower *(care, testing, reporting)*
Types of outbreaks best detected	Localized; short incubation *(norovirus at an office party)*	Widespread; long incubation *(Salmonella in a commercial product)*

Is this an outbreak?

Jim calls to report an outbreak at McDonald's. He dined alone, ate 3 Big Macs®, and developed abdominal cramps and explosive diarrhea within 15 minutes of completing his meal. Your health department has not received other complaints about this facility. Is this an outbreak?

1. Yes
2. No
3. I don't know

Is this an outbreak?

A conference organizer calls you to report that she hosted a teacher's conference in your jurisdiction two weeks ago. She received complaints from 20% of attendees that they developed gastrointestinal symptoms within 24 hours of returning home. One person saw a doctor and was diagnosed with Salmonella. Is this an outbreak?

1. Yes
2. No
3. Don't know
4. Need more info

10 Step approach

- Notify NJDOH
- Establish the existence of an outbreak
- Identify investigation team and resources
- Define cases and develop line-lists
- Describe the epidemiology
- Develop and evaluate the hypotheses
- Analyze information collected
- Implement control measures
- Communicate and summarize findings
- Maintain surveillance

Notification

- Notify NJDOH, Communicable Disease Service. During business hours at 609-826-5964, after hours at 609-392-2020
  - ❖Obtain an E number
  - ❖Outbreaks occurring at the same time
  - ❖Specimen collection and submission

Establish the existence of a foodborne outbreak

- Gather additional information
  - ❖Who, what, where, when?
  - ❖Confirm reports of illness
- Determine if outbreak
  - ❖foodborne
  - ❖person-to-person

Known Causative Agent

- Review what is known about the agent
  - ❖Typical signs and symptoms
  - ❖Modes of transmission
  - ❖Foods in past outbreaks
- Is this situation similar to other reported incidents?

When the Causative Agent is Unknown

- Review what is known about cases
  - ❖Symptoms, severity of disease
  - ❖Illness duration
  - ❖Events attended or anything unusual
  - ❖Foods consumed
  - ❖Methods of food preparation
- Identify most likely agent(s)
  - ❖Review references
  - ❖Consultation

Identify investigation team and resources

- If an outbreak occurs in a single town the LHD is responsible for investigation
- If cases reside in other jurisdictions the leading LHD can enlist help of other HDs to interview cases
- If restaurant/caterer is located in one jurisdiction and the event took place in another
- If an outbreak occurs at restaurants in multiple jurisdictions NJDOH would act as the lead agency

Case Definition

- Develop a case definition
  - ❖Cast a “wide net” at first
- Begin general - become increasingly specific as information is gathered
  - ❖Person, place and time association
  - ❖Clinical criteria
  - ❖Classify cases based on certainty

Case Definition

For Example: A case could be defined as an individual experiencing diarrhea (defined as at least three loose stools in a 24-hour period) and dined at “Restaurant X” between January 15 and January 25.”

Develop line-lists

- Enhanced surveillance
  - ❖Notification of healthcare community
  - ❖Contact event participants
- Develop line-lists
  - ❖Gather case details
  - ❖Each row would represent one case
  - ❖Demographics, onset, signs & symptoms

Descriptive Epidemiology

- Identify cases – what do they have in common
- Develop a standard questionnaire
- The 4 W's
  - ❖**Who** is affected?
  - ❖**What** do they have in common?
  - ❖**When** did they eat the food?
  - ❖**Where** did they eat the food?

Develop and Evaluate Hypothesis

- Look at case-specific information to develop a hypothesis
  - ❖A hypothesis is an unproven theory used to tentatively explain certain facts or to provide a basis for further investigation
  - ❖Multiple hypotheses may be compatible with data

Develop and Evaluate Hypothesis

- Potato salad consumed at the Smith wedding reception caused illnesses.
- Data needed to test information
  - ❖Who ate potato salad? (and who didn't)
  - ❖Who was ill? (and who wasn't)
  - ❖How much did each eat?
  - ❖Illness onset (date and time)?
  - ❖Symptom duration

Analysis of Data

- Graphical representation of cases
  - ❖Source of the outbreak
  - ❖Progression of the outbreak
  - ❖End of the outbreak
- Cohort study uses "Relative Risk"
- Case control study uses "Odds Ratio"
- Analyze information from questionnaires

Which study design would you use?

A local health department receives reports of gastrointestinal illness from attendees of a wedding in Cape May county with approximately 45 ill. Which study design would you use?

1. Cohort
2. Case-Control

Which study design would you use?

An estimated 1,200 people attended a conference. Food trucks served food during the event, none of which were licensed, and many people became ill. The conference is now over, and most attendees have returned home. Which study design would you use?

1. Cohort
2. Case-Control

Implement Control Measures

- Prophylaxis (hepatitis A)
- Exclusion for ill food handlers
- Contributing factors (Contamination, Survival, Proliferation and Amplification)
- Change in food handling processes
- Removal of product from food supply
- Restriction/closure of facility
- Cleaning/Disinfection

Communicating Findings and Maintaining Surveillance

- Decide an outbreak is over
- Document effectiveness of control measures
- Maintain open communication
- Prevent similar outbreaks from occurring in the future
- LHD required to submit a final report to NJDOH-Communicable Disease Service (CDS)
- CDS required to report to CDC via NORS

Conducting the Environmental Investigation

NJDOH
Public Health & Food Protection Program
Loel Muetter@doh.nj.gov William.Manley@doh.nj.gov
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Prepare for the Environmental Investigation

- Follow the Basic Rules
- "Think" Foodborne Illness Risk Factors
- Know the Characteristics of the Pathogen
- Follow the Procedures for Investigation

RULE #1*:"Call Before You Dig"!*

- Contact: NJDOH
  - Communicable Disease Service
  - Regional Epidemiologist E#
  - Public Health & Food Protection Program
- Technical Assistance Available
  - (Both Epidemiological & Environmental)
- Lab Support

RULE #2: Forget "Inspectional Territories"

- Don't Assign an Investigation by Inspection Territory
- Not Every REHS is Equally Experienced with conducting an Outbreak Investigation
- Form an **"Investigation Team"**
- ***"Swarm the Outbreak'*** with the most capable Investigators

RULE #3: Do *NOT* Conduct a *"Routine Chapter 24"* Inspection

- There is nothing *Routine* about an Outbreak!
  - Stay focused on the situation at hand
  - NO: trash control, rodent control, floors/ walls/ ceilings, etc...
- Don't Delay the Investigation for Other Work Assmts
- ***NEVER Issue a "SATISFACTORY" Rating***

RULE #4: *Keep An "Open" Mind*

Remember: ***"Once You've Seen 1 Outbreak", "You've Seen 1 Outbreak"***

- Avoid Preconceived Notions or Conclusions
- *"Salmonella? It must be the Chicken!"/ or the Peanut Butter"*
- Every investigation is different
- Let the Investigation *Lead You*




THINK Foodborne Illness Risk Factors"

1. **Poor Personal Hygiene**
   - Failure to wash hands in timely manner;
   - Handling RTE Foods with Bare hands
2. **Inadequate Cooking**
   - Egg containing foods; Ground beef; Poultry
3. **Holding TCS Foods @ Improper Temperatures**
   - Improper Cooling; Inadequate Refrigeration; Hot holding units; Leaving TCS foods at room temperature
4. **Contaminated Equipment**
   - Cross-contamination
   - Equipment not cleaned & sanitized after use (Slicers)
5. **Foods from Unsafe Source**
   - Produce: (Cantaloupe, Tomatoes, Lettuce, Spinach, etc), Contaminated Peanut Butter, Shellfish

Risk-based Inspection form is helpful

Preparation:

"Before You Visit the Establishment"

- Assemble materials/personnel
  - Pre-meetings w/Lab and Epi
- Review the available Epi info (*if available*):
  - Dates of onset;
  - Incubation period;
  - Likely Exposure dates/Meals
- Review etiology of the Pathogen, (if known)
  - Reservoir; Mode of transmission
- Be sure your Equipment Kit is stocked
- Review previous inspections, complaints

Knowing the Pathogen

"Helps to Focus the Investigation"

For Example:

- Don't look for improper cooling practices if it is ***Shigella.***
- Don't be concerned about Refrigeration Temperatures if it is ***Norovirus***.
- Don't Overlook Hand Hygiene or Egg use if it is ***Salmonella.***

Outbreak Investigation Procedures

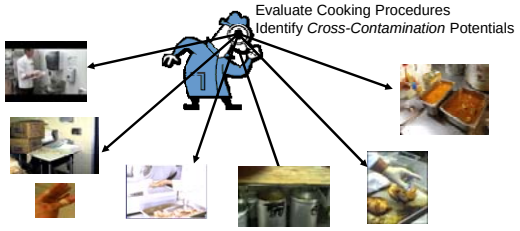
- Meet with Management
- Conduct a "Walk-thru"
- Review the Menu
- Conduct a Food Prep Review
  - Interview & Observations
- Traceback?
- Other Possible Actions
  - Sampling/ Embargo/Voluntary Destruction?
- Education
- Write Report

Meet with Management
The Person-in Charge (PIC)

- Explain reason for the Investigation
  - Outline Investigation objectives
- Try to create a cooperative relationship
- Assess the PIC's food safety knowledge
- Ask pertinent "Open-ended Questions
  - Were there any ill food workers?
  - Their Job Responsibilities?
  - Are there any other affected groups?

Conduct a "Walk-thru"

Evaluate Hand Hygiene
Check *Walk-In* Refrigerators
Evaluate Cooking Procedures
Identify *Cross-Contamination* Potentials



Evaluate Hand Hygiene

- *Wash Your Hands*!
  - Identify location & accessibility of handwashing sinks
  - *Are food workers able to readily wash their hands?*
  - Warm water? Soap? and towels? Supplied?

- Do workers touch ready-to-eat foods with their bare hands?

- Glove Use:
  - Are gloves used?
  - Do workers know when to change their gloves?

Conduct a Food Prep Review
Interview & Observation

- Develop a detailed description of the Food Prep Procedures for **all Suspect Foods**
- Key in on each suspected food item
- Interview the Manager & ***person who makes the food***
- Physically walk around; Observe prep procedures &
- *Ask "Open Ended"* questions about each step, including:
  - Ingredients, Quantities
  - Approximate Time frames for each Prep Step
  - The Equipment used for each Prep Step

"THINK" : Food Product Traceback
Common Source/ Multi-State Outbreaks

- Ready-to-eat foods
- Exact Product Name & Description
- Specific Lot/Code Information

- Name(s) of Supplier(s)
- Purchase date/time
- Collect Invoices
- Provide Info to NJDOH/ FDA or USDA

Other Possible Actions

- Food Sampling
- Embargo Suspect Foods
- Voluntary Destruction of Suspect Foods?
- Modify Food Prep Procedures
- Restrict Menu
- ***Chapter 24*** Evaluation/ Rating?

On Site Education

- Be sure that the contributory factor(s) have been corrected!
- Let the Management (PIC) know:
  - Identified Suspected Factors
  - Improper Food handling Practices
  - Possible Corrective Measures
- ***"Don't Walk Away"***

Write the Investigation Report

- Purpose of Investigation
- Food Prep Procedures
  - For Suspect Foods
- Observed Deficiencies
- Corrective Actions
- Samples Collected/ Results
- Discussion with Management

Final Notes…

- Return clickers
- Sign-out
- Nurses: pick-up certificates
- Check e-mail and complete evaluation
- Slides are posted on NJLMN under Practice Exchange

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