



Outbreak Management and Investigation

Talar Kamali, RN, BSN, PHN, CIC
Assistant Program Specialist, PHN
Acute Communicable Disease Control Program





How Hospitals, Nursing Homes Keep Lethal "Superbug" Outbreaks Secret

Vague rules and patchy requirements often keep this information from the public



A REUTERS INVESTIGATION

By [Deborah J. Nelson](#), [David Rhode](#), [Benjamin Lesser](#), [Ryan McNeil](#)
December 23, 2016

Emails suggest linens to be 'likely' source in deadly mold outbreak at Pittsburgh hospitals

By Lauren del Valle, [CNN](#) Updated 5:24 PM ET, Mon April 3, 2017

After 3 NICU babies die, Pennsylvania hospital says a waterborne bacteria may be to blame

[Jordan Culver](#), USA TODAY Published 7:20 p.m. ET Oct. 7, 2019 | Updated 5:57 a.m. ET Oct. 8, 2019

Los Angeles Times

A veil of secrecy shields hospitals where outbreaks occur

By Melody Peterson- April 18, 2015

Los Angeles Times

State to step up inspections at hospitals with high infection rates

By Melody Peterson- March 1, 2017



Objectives

- Recognize unusual infections or disease occurrences that require action
- List steps to begin an outbreak investigation
- Discuss development of line lists and epi curves for investigating, confirming, and managing an outbreak
- Describe internal and external communication
- Describe outbreak reporting and collaboration between Public Health and hospitals



LOCAL PUBLIC HEALTH



LAC FACTS

- Covers 4300 square miles
- Over 10 million residents
- 94 acute care hospitals
- Over 350 sub-acute/long-term care facilities





ACUTE COMMUNICABLE DISEASE CONTROL (ACDC) PROGRAM

Mission

To reduce communicable diseases in Los Angeles County
(other than tuberculosis, sexually transmitted diseases and HIV)

ACDC Units

**Hepatitis, Antimicrobial
Resistance, & Influenza Unit**

**Healthcare Outreach
Unit**

Foodborne Diseases Unit

Vector-borne diseases Unit

Hospital Outbreak and Biothreat Response Unit



Most Common Outbreaks in Acute Care Facilities

- Acinetobacter baumannii
- MRSA
- C. difficile
- Carbapenem-resistant Enterobacteriaceae
- Waterborne diseases
- Norovirus
- Scabies
- Surgical Site Infection Outbreaks



REGULATIONS / REPORTING REQUIREMENTS





CALIFORNIA HEALTH REGULATIONS

- **California Code of Regulations (CCR)**
 - **Title 17:** Public Health
 - Reportable Diseases & Conditions List
 - **Title 22:** Social Security
 - GACH, Acute Psych, SNF, Intermediate Care, etc.
- **California Health & Safety Code**



What Is Reportable?

It is the duty of every health care provider to report to the local medicine practitioner control profession

It is the duty of every health care provider to report to the local medicine practitioner control profession

- Report by telephone
- Report by letter
- Report by electronic
- Mandated by statute
- Report electronic
- CRE Case
- For TB report
- For HIV/STD
- www.publichealth.lacounty.gov

For laboratory results

- Amebiasis
- Anaplasmosis
- Anthrax, human
- Babesiosis
- Botulism: infant
- Brucellosis, animal
- Brucellosis, human
- Brucella canis
- Brucellosis, human
- Campylobacteriosis
- Carbapenem-Resistant Enterobacteriaceae (CRE)
- Chancroid
- Chikungunya
- Chlamydia trachomatis infection
- Cholera
- Ciguatera Fish Poisoning
- Coccidioidomycosis
- Creutzfeldt-Jakob Disease (CJD) and other Transmissible Spongiform Encephalopathies (TSE)
- Cryptosporidiosis
- Cysticercosis
- Cysticercosis or Taeniasis
- Dengue Virus Infection
- Diphtheria
- Domestic Acid (Amnesic Shellfish) Poisoning
- Ehrlichiosis
- Encephalitis, specify etiology: viral, bacterial, fungal or parasitic
- Escherichia coli, Shiga toxin-producing (STEC) including E. coli O157
- Flavivirus infection of undetermined species
- Foodborne Disease
- Foodborne Outbreak: 2 or more suspect cases from separate households with same assumed source

- Rep
- Rep
- Rep
- Rep
- Rep
- Mar
- Rep
- Rep
- For
- For
- WW
- For lat

- ☎ Anthrax, human or animal**
- ✉ Babesiosis**
- ☎ Botulism: infant, foodborne, or wound**
- ⑦ Brucellosis, animal; except infections due to *Brucella canis***
- ☎ Brucellosis, human**
- ✉ Campylobacteriosis**
- ⑦ Carbapenem-Resistant *Enterobacteriaceae* (CRE), including *Klebsiella sp.*, *E. coli*, and *Enterobacter sp.*, in acute care hospitals or skilled nursing facilities ★ ±**
- ⑦ Chancroid ■**
- ☎ Chickenpox (Varicella), only hospitalizations, deaths, and outbreaks (≥3 cases, or one case in a high-risk setting)**
- ✉ Chikungunya Virus Infection**
- ⑦ *Chlamydia trachomatis* infection, including lymphogranuloma venereum (LGV) ■**
- ☎ Cholera**
- ☎ Ciguatera Fish Poisoning**
- ⑦ Coccidioidomycosis**
- ⑦ Creutzfeldt-Jakob Disease (CJD) and other Transmissible Spongiform Encephalopathies (TSE)**
- ✉ Cryptosporidiosis**
- ⑦ Cyclosporiasis**

- ✉ *Haemophilus influenzae*, invasive disease only, all serotypes, less than 5 years of age**
- ✉ Hantavirus Infection**
- ☎ Hemolytic Uremic Syndrome**
- ✉ Hepatitis A, acute infection**
- ⑦ Hepatitis B, specify acute or chronic**
- ⑦ Hepatitis C, specify acute or chronic**
- ⑦ Hepatitis D (Delta), specify acute or chronic**
- ⑦ Hepatitis E, acute infection**
- ⑦ Human Immunodeficiency Virus (HIV) infection, stage 3 (AIDS) ■ (§2641.30-2643.20)**
- ① Human Immunodeficiency Virus (HIV), acute infection ■ (§2641.30-2643.20)**
- ⑦ Influenza deaths, confirmed cases only, all ages ★**
- ☎ Influenza, novel strains, human**
- ⑦ Legionellosis**
- ⑦ Leprosy (Hansen's Disease)**
- ⑦ Leptospirosis**
- ✉ Listeriosis**
- ⑦ Lyme Disease**
- ✉ Malaria**
- ☎ Measles (Rubeola)**
- ✉ Meningitis, specify etiology: viral, bacterial, fungal, or parasitic**

to ital ion e.

'H

REPORTABLE NON-COMMUNICABLE DISEASES OR CONDITIONS

- Alzheimer's Disease and Related Conditions (CCR § 2802, § 2808, § 2810)
- Disorders Characterized by Losses of Consciousness (CCR § 2808, § 2810)
- Pesticide-Related Illnesses (Health and Safety Code § 105200)

To report a case or outbreak of any disease, contact the Communicable Disease Reporting System

Tel: (888) 397-3993 or (213) 240-7821 • Fax: (888) 397-3778 or (213) 482-5508

Health Professionals Reporting Webpage: www.publichealth.lacounty.gov/clinicians

REPORTABLE NON-COMMUNICABLE DISEASES OR CONDITIONS

- Alzheimer's Disease and Related Conditions (CCR § 2802, § 2810)
- Disorders Characterized by Losses of Consciousness (CCR § 2808, § 2810)
- Pesticide-Related Illnesses (Health and Safety Code § 105200)

To report a case or outbreak of any disease, contact the Communicable Disease Reporting System

Tel: (888) 397-3993 or (213) 240-7821 • Fax: (888) 397-3778 or (213) 482-5508

Health Professionals Reporting Webpage: www.publichealth.lacounty.gov/clinicians/report

Urgency Reporting Requirements




Report IMMEDIATELY by phone

 Anthrax, human or animal




Report within 1 working day

 Hepatitis A, acute infection



Report within 7 calendar days

 Legionellosis



Where to Report?

Los Angeles County
ACDC

AND

Los Angeles County
HFID



Report to ACDC

To report a case or outbreak of any disease, contact the Communicable Disease Reporting System
Tel: (888) 397-3993 or (213) 240-7821 • Fax: (888) 397-3778 or (213) 482-5508

Health Professionals Reporting Webpage: www.publichealth.lacounty.gov/clinicians/report

REPORTABLE DISEASES AND CONDITIONS
Title 17, California Code of Regulations (CCR), § 2500

It is the duty of every health care provider, knowing of or in attendance on a case or suspected case of any of the diseases or conditions listed below, to report to the local health officer for the jurisdiction where the patient resides. Health care providers' includes all physicians, podiatrists, osteopaths, oriental medicine practitioners, veterinarians, podiatrists, physician assistants, registered nurse (nurse practitioners, nurse midwives, school nurses), infection control professionals, medical examination technicians, dentists, and chiropractors, as well as any other person with knowledge of a case or suspected case.

NOTE: This list is specific to Los Angeles County and differs from state and federal reporting requirements.

- Report immediately by telephone for both confirmed and suspected cases.
- Report by telephone **24/7** working day from identification.
- Report by electronic transmission (including FAX), telephone or mail within 1 working day from identification.
- Report by electronic transmission (including FAX), telephone or mail within 7 calendar days from identification.
- Mandated by and reportable to the Los Angeles County Department of Public Health.
- Report electronically via the National Healthcare Safety Network (<http://www.nhs.gov/go/nhsnet>) if available. If not available, use the LAC DPH Case Report Form (<http://publichealth.lacounty.gov/communications/EpiForm/CDR/SMP.pdf>).
- For TB reporting questions, contact the TB Control Program (213) 745-0300 or visit www.publichealth.lacounty.gov/tbhealthcare.htm.
- For HIV/AIDS reporting questions, contact the Division of HIV and STD Programs, HIV (213) 391-6916, STD (213) 399-7441 or www.publichealth.lacounty.gov/hiv/aids.htm.

For laboratory reporting: www.publichealth.lacounty.gov/lab/index.htm For veterinary reporting: www.publichealth.lacounty.gov/vet/index.htm

REPORTABLE COMMUNICABLE DISEASES

<input type="checkbox"/> Anthrax	<input type="checkbox"/> Giardiasis	<input type="checkbox"/> Rabies (Domestic)
<input type="checkbox"/> Botulism	<input type="checkbox"/> Gonorrhea	<input type="checkbox"/> Rabies (Wildlife)
<input type="checkbox"/> Brucellosis, human	<input type="checkbox"/> Hemorrhagic fever with renal syndrome	<input type="checkbox"/> Rocky Mountain Spotted Fever
<input type="checkbox"/> Brucellosis, animal, except infections due to Brucella abortus	<input type="checkbox"/> Hantavirus Pulmonary Syndrome	<input type="checkbox"/> Rubella (Congenital)
<input type="checkbox"/> Brucellosis, human	<input type="checkbox"/> Hepatitis B, specify acute or chronic	<input type="checkbox"/> Rubella (Acute)
<input type="checkbox"/> Cryptosporidiosis	<input type="checkbox"/> Hepatitis C, specify acute or chronic	<input type="checkbox"/> Scabies
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Hepatitis D, specify acute or chronic	<input type="checkbox"/> Shigellosis
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Hepatitis E, acute infection	<input type="checkbox"/> Shingles (Varicella)
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Human Immunodeficiency Virus (HIV) infection, stage 3 (AIDS) § 25191.3(a)	<input type="checkbox"/> Streptococcal infection, outbreaks any type
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Human Immunodeficiency Virus (HIV) infection, stage 2 (AIDS) § 25191.3(b)	<input type="checkbox"/> Streptococcal infection, individual case n/a
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Lyme Disease	<input type="checkbox"/> Tetanus
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Legionnaires' Disease	<input type="checkbox"/> Tetanus, animal
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Leptospirosis	<input type="checkbox"/> Tetanus, human
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Listeria	<input type="checkbox"/> Typhoid Fever, case and carrier
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Lymphogranuloma Venereum	<input type="checkbox"/> Typhoid Fever, human or animal
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Malaria	<input type="checkbox"/> Unlabeled specimens, human or animal
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Measles (Rubella)	<input type="checkbox"/> Unlabeled specimens, Dogs, Lizards and Snakes
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Meningococcal infection	<input type="checkbox"/> West Nile Virus (WNV) infection
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Mumps	<input type="checkbox"/> Yellow Fever
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Nocardiosis	<input type="checkbox"/> Yersinia
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Rabies (Domestic)	<input type="checkbox"/> Yersinia enterocolitica
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Rabies (Wildlife)	<input type="checkbox"/> Zoonoses
<input type="checkbox"/> Cryptosporidiosis, zoonotic	<input type="checkbox"/> Respiratory Syncytial Virus, deaths less than 7 years only	

REPORTABLE NON-COMMUNICABLE DISEASES OR CONDITIONS

<input type="checkbox"/> Alzheimer's Disease and Related Conditions (CDC § 2008 § 25105)	<input type="checkbox"/> Disorders Characterized by Levels of Consciousness (CDC § 2008 § 25105)	<input type="checkbox"/> Pediatric-Related Diseases (Health and Safety Code § 152020)
--	--	---


To report a case or outbreak of any disease, contact the Communicable Disease Reporting System
Tel: (888) 397-3993 or (213) 240-7821 • Fax: (888) 397-3778 or (213) 482-5508

Health Professionals Reporting Webpage: www.publichealth.lacounty.gov/clinicians/report





Report to HFID



Health Facilities Inspection Division

Home | Program Home | About | FAQ | Comment | Contact | A-Z Index

Font Size | A A A

Search Service Locator

Health Facilities Inspection Division

Contact the Department of Public Health, Licensing and Certification Program

Types of Health Facilities We Monitor

Contact Information

Los Angeles County
Department of Public Health
Health Facilities Inspection Division
3400 Aerojet Avenue, #323
El Monte, CA 91731
Phone: (626)569-3724, (800) 228-1019

Useful Links

[California Department of Public Health - Health Care Facility Licensing & Certification](#)

Health Facilities Inspection Division

How to Contact the Department of Health Services, Licensing and Certification Program
Tel: (800) 228-1019 or (323) 869-8500

In Los Angeles County, the Health Facilities Inspection Division has the following sections and districts:

- ACUTE HOSPITALS
- NORTH DISTRICT
- WEST DISTRICT
- SAN GABRIEL DISTRICT
- EAST DISTRICT
- CLINICS
- HEALTH AGENCIES
- INTERMEDIATE CARE FACILITIES-DEVELOPMENT

NORTH DISTRICT
15643 Sherman Way, Suite 200
Van Nuys, CA 91406
Tel: (818) 901-4375

- Antelope Valley
- Burbank
- Calabasas
- Canoga Park
- Chatsworth
- West Valley

- NORTH DISTRICT
- WEST DISTRICT
- SAN GABRIEL DISTRICT
- EAST DISTRICT



Why Report?

- Required by law
- Determine extent of morbidity
- Evaluate risk of transmission
- Implement rapid interventions
 - Protect public/healthcare workers
 - Delay or Failure to report



Immediate Reporting to Public Health

- An **unusual or rarely seen organism** in the facility is identified, e.g. MDR CRE
- A **new, novel or emerging pathogen/disease** is identified, e.g. *Candida auris*, Zika, Ebola
- Decision is made to **conduct molecular testing**
 - PFGE
 - Whole genome sequencing



Examples of When to Report

- Infection Prevention suspects a cluster or unusual event and is conducting an investigation
- A consultant is hired to assist with the hospital investigation
 - Legionellosis
 - Aspergillosis
- Death(s) are linked to an unusual pathogen or infectious disease

“outbreak”



OUTBREAK INVESTIGATION





OUTBREAK OR CLUSTER?

- **Outbreak**

- The occurrence of more cases of disease than expected in a given area (unit) or among a specific group of people over a particular period of time
- Cases have a common cause or presumed to be related to one another in some way

- **Cluster**

- An aggregation of cases in a given area over a particular period **without** regard to whether the number of cases is more than expected



Examples of Outbreaks

An increase in number of cases of disease above what is normally expected (baseline) on a particular unit or specific site

- Influenza
- Norovirus
- Clostridium difficile
- Carbapenem-Resistant Enterobacteriaceae (CRE)
- One case of a new, novel or emerging pathogen/disease



Recognizing an Outbreak

Greater number of infections than usual are found during routine surveillance

Example: Resistant Acinetobacter in sputum in several ICU patients

An unusual pathogen or infection is identified

Example: Botulism, Anthrax, Colistin and Carbapenem resistant

Reports of a “cluster” of patients or employees with same symptoms during same time period

Example: sudden onset of GI symptoms or diarrhea



Sources for Identifying Potential Outbreaks

Microbiology
lab

Local
physicians

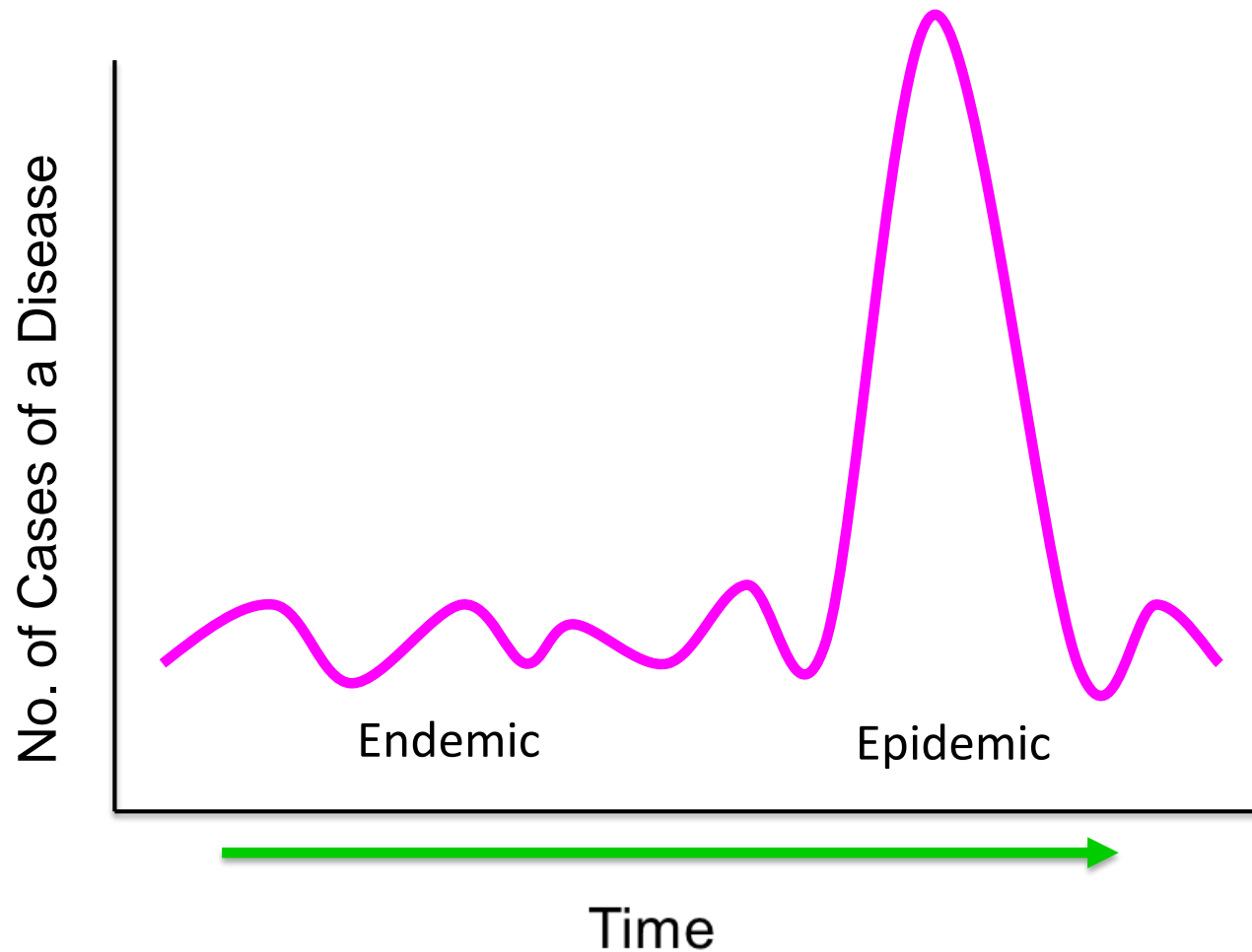
Public Health

Nursing Units

Emergency
Department



Endemic vs. Epidemic Infections





Steps in an Outbreak Investigation

- **Verify the diagnosis** and confirm outbreak
- **Define a case**
 - Example “Patients at XX hospital on the surgical ICU who have been diagnosed with c. diff from January 2015 to April 2015”
- **Conduct case finding**
 - Make a line list
- **Identify team members**, e.g. ICU director, lab manager
- **Implement immediate control measures**
- **Evaluate control measures**
- **Communicate findings**



Confirming an Outbreak

If you suspect an outbreak

- **Don't panic**
 - Suspected outbreak may be a **“pseudo-outbreak”**
 - May result from problems with collection methods, rumors, data inaccuracies
- **Evaluate initial data** or reports of disease
 - Look carefully at lab or clinical reports to confirm initial findings
 - Interview staff
 - Rule out misdiagnoses or lab errors

As you begin...

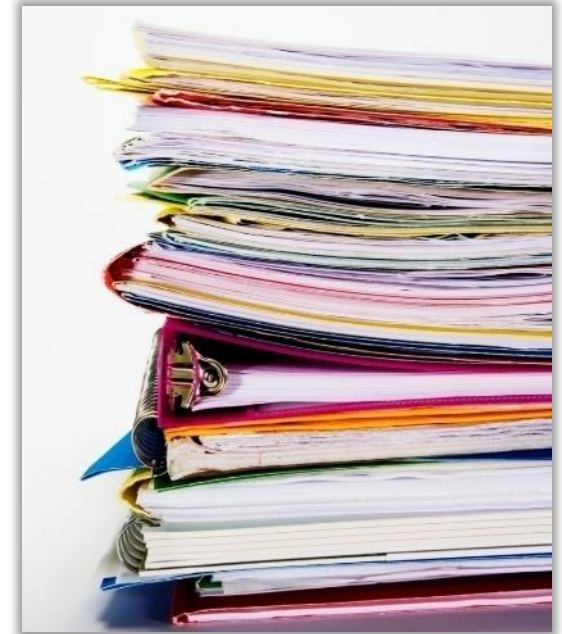
- Save all isolates!
- Save potential reservoirs for possible culturing later
 - multi-dose medications
 - Antiseptics
 - Equipment
 - food



Document the Outbreak Investigation

Word to the wise... your documentation will be needed:

- Start a file folder immediately
- Make notes of
 - What you did each day
 - Who was notified
 - Include dates and times
- Keep a timeline
- Keep everything!





Notification of Public Health Officials

- **Coordinate** with your facility Administration
- **Determine** who makes the phone call and have information available
- **Contact:** local public health (Acute Communicable Disease Control)*
- **Contact:** California Department of Public Health, Licensing and Certification (Health Facilities Inspection Division)*



Case Finding

- Look back in time for more cases
 - Microbiology lab may be able to help
- Characterize cases of disease by person, place and time – add info to your line list
 - Who got sick?
 - Where were they when they got sick?
 - When did they get sick?
- May need to collect specimens
 - Patient cultures
 - Environmental cultures
 - Staff/HCW cultures (Be wary of swabbing noses of employees/physicians)



Investigate Symptomatic Patients

- What are the prominent symptoms?
- When did they begin?
- Did fever occur? When? Other vital signs?
- Who may have been exposed?
 - Maintain census for affected unit
 - List staff who provided care
- How many and who ate which foods? Who became ill?



Develop a Line List

- Include
 - Name and Medical Record Number
 - Age, Sex, Diagnosis
 - Unit or location
 - Date of Admission / Date of onset
 - Procedures
 - Symptoms
 - Positive cultures
- Use of an Excel spread sheet can be helpful



Sample Line List

Name	MR#	Admit Date	Age	Sex	Unit /Room	Culture	Surgery	Surgeon Room
Smith	23456	3/1	49	F	313	MRSA	CABG	Doe / 6
Jones	54328	3/2	55	M	314	MRSA	Appy	Moore / 5
Brown	34567	3/2	61	F	315	MRSA	Chole	Stone / 4

Checkpoint: What do these patients have in common?



Sample Line List for Foodborne Outbreak

Name	MR #	Unit/Room	Symptoms	Onset	Foods Eaten
Lopez	64654	414	N/V/D	3/3	Potato Salad Tuna Sandwich Iced Tea
Ball	45463	623	N/V/D	3/3	Potato Salad Meat Loaf Lemonade
Penn	76785	733	N/V/D	3/3	Potato Salad Ham Sandwich Pepsi
Newby	33435	544	N	3/3	Macaroni & Cheese Coffee



Implement Outbreak Control Measures

Based on working hypothesis

- Food outbreak?
 - Stop serving suspected food item
 - Ask dietary to save food (Testing may be useful)
- Suspect contaminated IV fluids?
 - Remove from use and save suspected lot numbers
 - Consider culturing
 - Notify manufacturer or distributor
- Pseudomonas cluster in NICU?
 - Need to cohort/isolate patients
 - Review hand hygiene compliance
 - Observe equipment and cleaning protocol



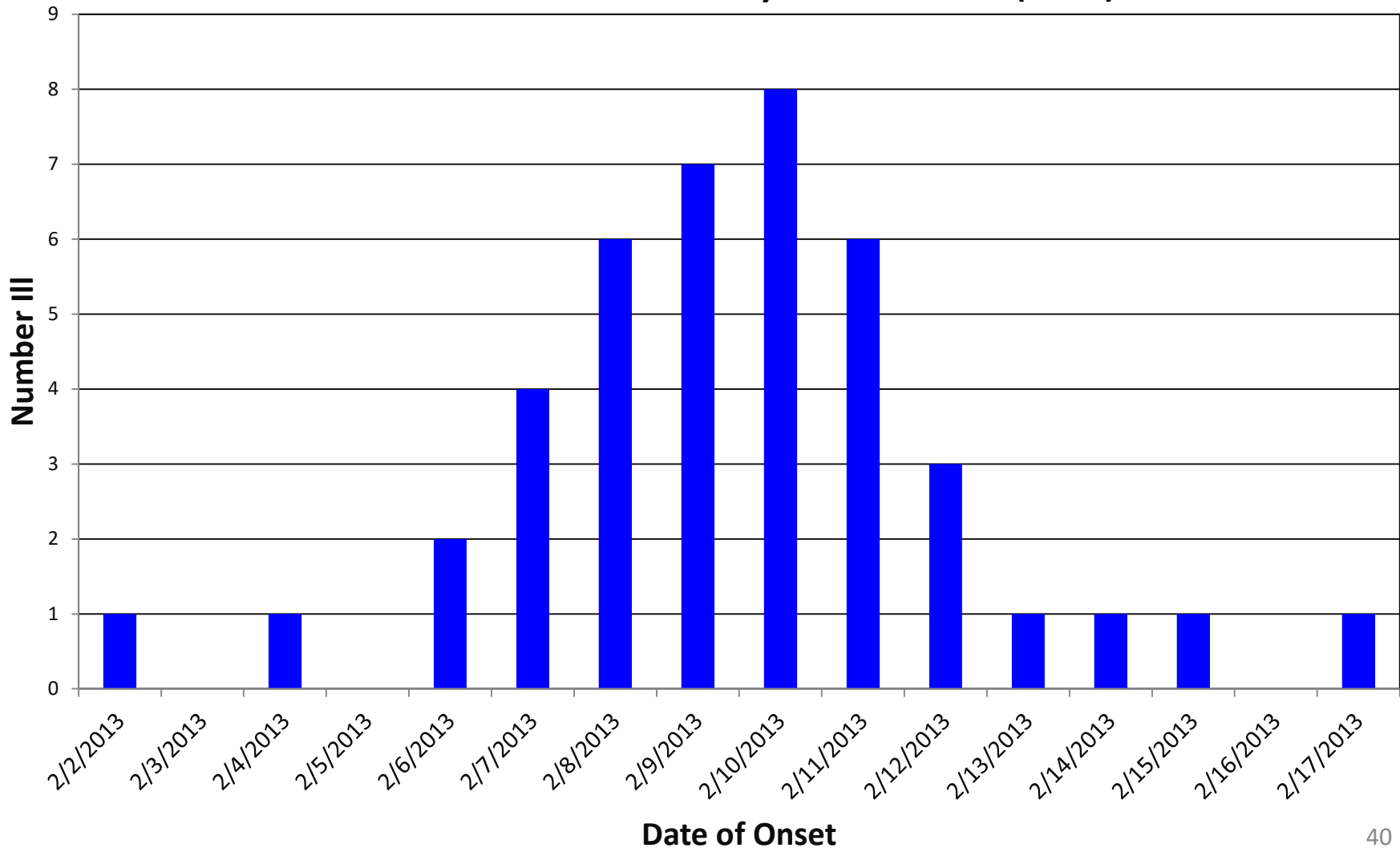
Develop an Epidemic Curve

- Graph showing all cases of disease during the epidemic period
 - Cases plotted by illness onset date or time
- Helps to determine
 - whether problem is ongoing
 - if additional cases are forthcoming
 - if control measures are effective
- Visualization of cases with and without suspected exposure variables can assist in determining cause of the outbreak



Epi Curve Example

Norovirus Illness in a SNF by Date of Onset (n=42)





PATIENT SAFETY CONCERNS or Other Considerations

- Is transmission ongoing?
- Does the unit need to be closed?
- Is the outbreak isolated only to this facility?
 - Consult with LAC, CDPH and CDC
- Is patient safety compromised?



Outbreak Investigation Considerations

- Investigation may not occur in a step-wise fashion
- Steps often done simultaneously
- Information constantly evolving, things can move very quickly
- Case definition may change
- You may not know which intervention was the most effective
- Sometimes cause of outbreak cannot be identified
- Does the public need to know?

Outbreaks Happen

Hepatitis C transmission in an outpatient clinic

- Question if improper injection practices are used
- Clean medication preparation area?



Cluster of NICU pseudomonas infections

- Who cleans the respiratory therapy equipment?
- Any “common bags” of medication used?



Patients with positive Legionella

- Can you rule out community onset?
- Did you have units out of service for some time so water lines are contaminated?





ACDC INVESTIGATION PROCESS



INITIAL INTAKE

- Date reported, reporter, and phone number
- Facility information
- Affected unit
- Organism
- Outbreak time period
- Number affected (cases), severity
- Number of deaths
- Control measures implemented
- Suspected mode of transmission



INITIAL DATA REQUESTS

- Line list
- Case medical records
- Laboratory reports, including sensitivities
- Background data for organism
- Summary of control measures
- Floor plan of unit
- Case room location from admission to discharge
- Policies/Procedures



ADDITIONAL DATA REQUESTS

- Staff list
 - Direct care staff
- Facility investigation report
- Pharmacy list
- Microbiology list
- Dietary list
- Consultant's report
 - E.g. air samples, water sample results



RECOMMENDATIONS (1)

- Appropriate isolation/cohorting
- Handwashing enforcement
- Staff education
- Identify common procedures, multi-dose meds, reusable supplies
- Review relevant policy/procedures



RECOMMENDATIONS (2)

- Environmental cultures
- Environmental cleaning
- Surveillance cultures
 - Patient
 - Staff
- Report additional cases
- Collect specimens
- Hire environmental consultant w/hospital expertise





ACDC Surveillance

- May Include:
 - Daily/Weekly status update
 - Phone &/or email
 - Surveillance period varies
 - Conference call
 - Coordinate isolates to PHL for strain testing
 - Provide management recommendations
 - Site investigation
 - Case control study

SITE INVESTIGATION

- Entrance/exit conference
- Outbreak Details
 - Chart review
 - Policy/procedure review
- Interview staff
- Tour facility
 - Observe procedures
- Environmental assessment
- Laboratory assistance





When is it Over?

- **When transmission no longer occurs**
 - No additional cases are identified
 - All requested documents are received
- Routine investigation
 - Closure email
- Complex investigation
 - Closure letter
 - » Investigation summary
 - » Final recommendations



CASE STUDY



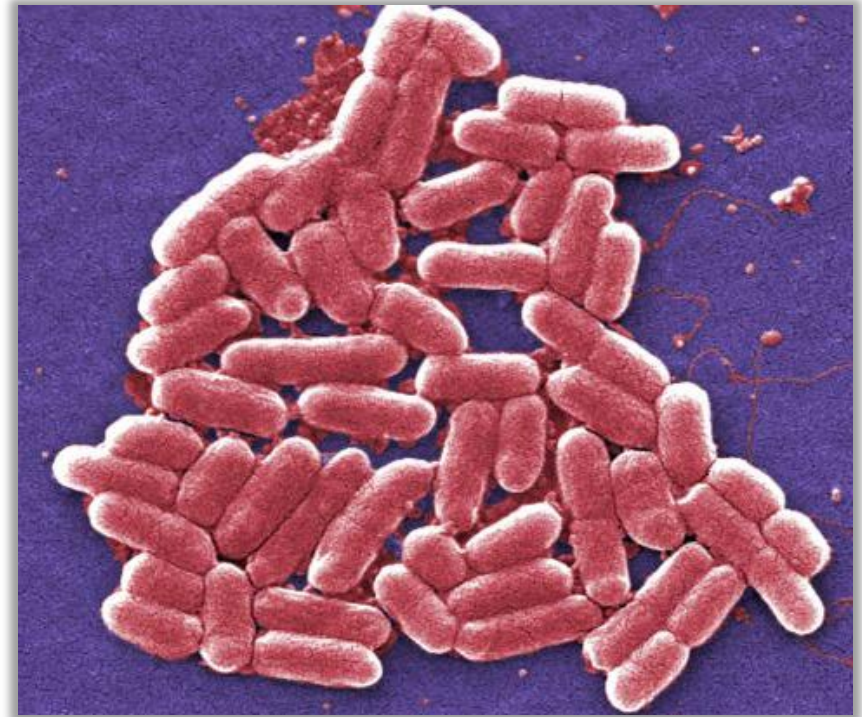
Outbreak Call

- When: March 2016
- Where: <100-Bed Acute Care Hospital
- Patients: Chronic respiratory illness
Most ventilator-dependent
- Status: 8 culture positive patients
4 more in subsequent week
- Organism: *Elizabethkingia meningoseptica*



***Elizabethkingia meningoseptica* (EM)**

- *Flavobacterium meningosepticum*,
Chryseobacterium meningosepticum
- Rare human pathogen
- Gram-negative MDRO
- Waterborne transmission



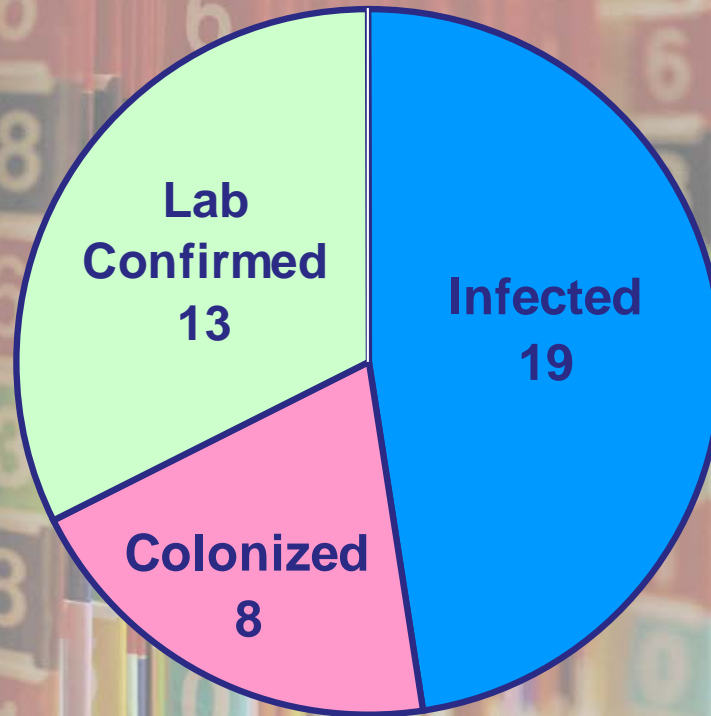
Case Definition

A patient who was blood or sputum culture positive for EM, with or without symptoms, 48 hours post-admission from March 2015 through May 2016.





Chart Review



Total cases: 40



ACDC Initial Recommendations

- Contact precautions
- Cohort patients
- Hand hygiene
- Staff education



Consultation

Consultation:

- CDPH
- CDC
 - No EM outbreaks reported statewide or nationally
- LAC DPH –Environmental Health
 - 10 water samples collected for analysis
 - All samples negative for EM



Environmental Surveillance

- Cultures collected by ACDC:
 - 2 ICU sinks, 1 ICU soap dispenser
 - 5 patient room sinks
 - 2 tap water samples
 - 1 endotracheal tubing system
- All environmental cultures were negative for EM

Hand Hygiene Compliance

- Nursing 63%
- Ancillary staff 62%
- Physicians 100%
- Isolation compliance 53%



- Improvements needed in:
 - wearing gowns in isolation rooms
 - removing masks upon leaving room
 - removing gloves and performing hand hygiene after leaving the room



Review of Hospital Policy/Procedures

- Infection control surveillance
- Contact precautions
- Hand hygiene & handwashing
 - Hospital policy: 10 seconds
 - CDC guidelines: 15 seconds

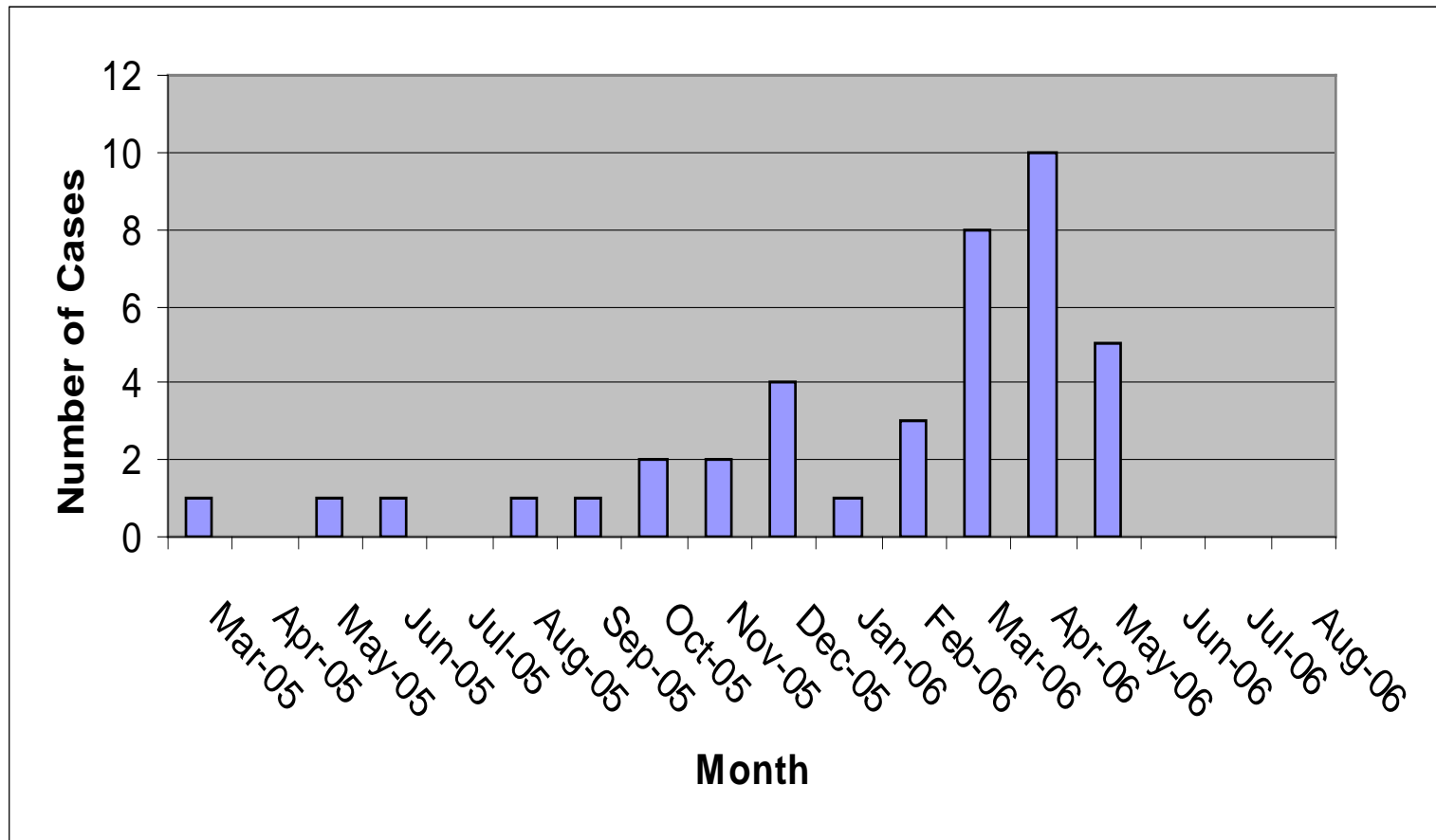


PHN Site Visit

- 5 PHN site visits
 - Unannounced
 - May 25, 2016 to June 26, 2016
- Observational Checklist
 - Hand hygiene compliance
 - Patient/Staff cohorting compliance
 - PPE compliance



Outbreak Over: Cases Decreased to Zero





Thank you!

- Talar Kamali, RN, BSN, PHN, CIC
Assistant Program Specialist
- Acute Communicable Disease Control – for Infection Control Consultation
 - Phone: (213) 240-7941
- Outbreak Reporting to Public Health Morbidity Unit
 - Phone: (888) 397-3993
 - Fax: (888) 397-3778
 - **Business Hours: Monday - Friday 8 AM – 5 PM**