DETECT, TEST, and REPORT Notifiable Diseases

Alabama Department of Public Health (ADPH)
Overview

- ADPH Programs
- Notifiable Disease Rules
- Outbreaks
- DETECT
- TEST
- REPORT
Objectives

- Ensure the most accurate diagnosis, test, treatment, and report of notifiable diseases.
- Locate basic disease information and proper test methods on www.adph.org/epi.
- Determine diseases to be reported, how to report, and timeframe for reporting
- Identify Notifiable Disease Reporters
Epidemiology Mission Statement

To protect the residents of Alabama through constant monitoring of the incidence and prevalence of communicable, zoonotic, and environmentally-related human disease.
Bureau of Communicable Diseases

- Epidemiology
- HIV/AIDS
- Immunization
- Sexually-transmitted Diseases
- Tuberculosis
Epidemiology (EPI) Division Branches

- Analysis & Reporting
- Infection Prevention
  - Healthcare-associated Infections*
  - Infected Healthcare Workers Program*
- Surveillance
- Toxicology
- Zoonotic

*Call 1-800-338-8374 and ask for Infection Control
Bureau of Clinical Laboratories (BCL)
Locations and Branches

Montgomery
- Clinical
- Metabolic
- Microbiology
- Respiratory
- Sanitary Bacteriology
- Serology

Mobile
- STD Clinical
- Environmental Water

www.adph.org/BCL
Bureau of Environmental Services (BES)

- Community Environmental Protection
  - Soil and Onsite Sewage
  - Indoor Air Quality and Lead
  - Solid Waste
- Food, Milk and Lodging
  - Food and Lodging
  - Seafood and Shellfish
  - Milk
- Quality Assurance

www.adph.org/environmental
Surveillance Pyramid

- Population
- Person becomes ill
- Person seeks care
- Specimen obtained
- Lab tests for organism
- Lab confirmed case
- Surveillance
- Report cases to ADPH/CDC
## EPI Investigations from 10/10-09/11

<table>
<thead>
<tr>
<th>Investigations</th>
<th>Cases</th>
<th>Hepatitis E, acute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaplasma phagocytophilum</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Babesiosis</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Botulism, infant</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Botulism, other/unspecific</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Brucellosis</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>316</td>
<td>271</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>171</td>
<td>163</td>
</tr>
<tr>
<td>Dengue Fever</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Ehrlichiosis, chaffeensis</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Encephalitis, St. Louis</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Encephalitis, West Nile</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Encephalitis/meningitis, Calif serogroup viral</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Giardiasis</td>
<td>211</td>
<td>191</td>
</tr>
<tr>
<td>Haemophilus influenzae, invasive</td>
<td>65</td>
<td>58</td>
</tr>
<tr>
<td>Hemolytic uremic synd, postdiarrheal</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>Hepatitis A, acute</td>
<td>72</td>
<td>6</td>
</tr>
<tr>
<td>Hepatitis B virus infection, Chronic</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Hepatitis B, acute</td>
<td>644</td>
<td>102</td>
</tr>
<tr>
<td>Hepatitis C Virus Infection, chronic or resolved</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Hepatitis C, acute</td>
<td>177</td>
<td>18</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,190</strong></td>
<td><strong>2,612</strong></td>
</tr>
</tbody>
</table>
Notifiable Diseases/Conditions

- **Purpose of Notifiable Diseases**
  - Prevent disease
  - Assist with medical decisions
  - Patient education
  - Required by law

- ADPH administrative code authorizes and requires reporting
  
  [http://www.alabamaadministrativecode.state.al.us/docs/hlth/420-4-1.pdf](http://www.alabamaadministrativecode.state.al.us/docs/hlth/420-4-1.pdf)

- ADPH is exempt from HIPAA Privacy Rules,
  
  [http://www.cdc.gov/mmwr/pdf/other/m2e411.pdf](http://www.cdc.gov/mmwr/pdf/other/m2e411.pdf)
Who Must Report

- Physicians
- Dentists
- Nurses
- Medical Examiners
- Hospital Administrators
- Nursing Home Administrators
- Laboratory Directors
- School Principals
- Day Care Center Directors

We expect and want multiple reports
Minimum Data Elements

- Name disease or health condition
- Patient name
- Patient DOB
- Patient gender
- Patient address
- Patient phone number
- Date of onset, date of lab results, and/or date of diagnosis
- Reporter’s Name
- Reporter’s Phone
- Facility/Organization Name
HIPAA

ADPH is a public health authority as defined by the Health Insurance Portability and Accountability Act (HIPAA) to collect or receive protected health information (PHI) for the purpose of surveillance, investigations, and interventions of notifiable diseases, without authorization of the patient.

http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm
Notifiable Disease/Condition Awareness Campaign

- **DETECT** - Decrease Epidemiological Threats with Environmental Controls and Testing
- **TEST** - Take Epidemiological Specimens Today
- **REPORT** - Rules for Every Provider and Organization to Report on Time
DETECT

- Surveillance
  - Programs
  - Processes
  - Guidelines
- Investigation
  - FSS
  - Outbreaks
  - Potential public health importance
  - Questionnaires
- Education
  - Disease, labs, infection controls, etc
  - Patients, staff, and facilities
DETECT Webpage

DETECT Notifiable Diseases
The DETECT (DEtecting Environmental Threats with Epidemiological Controls and Testing) system (DETECT) is a web-based tool that identifies and tracks notifiable diseases in Alabama. DETECT Notifiable Diseases involves surveillance, investigation, and recommendations for reportable diseases. Public health surveillance is the ongoing, systematic collection of information on the incidence of disease, mortality, and other health-related events. This information is used to identify outbreaks and other health-related events.

Immediate, Extremely Urgent Disease/Condition (notify ADPH within 4 hours)
- Anthrax, Human
- Bacillus anthracis (anthrax), Infant
- Rabies
- Plague
- Poliovirus, poliomyelitis
- SARS-associated Coronavirus (SARS-CoV)

Immediate, Urgent Disease/Condition (notify ADPH within 24 hours)
- Poliomyelitis, meningococcal
- Rabies, human and animal
- Tuberculosis
- Typhoid fever
- Yellow fever
- Outbreaks of any kind
- Cases of potential public health importance

Standard Notification Disease/Condition (notify ADPH within 7 days, unless otherwise noted)
- Acute encephalitis
- Adenovirus
- Brucellosis
- Campylobacteriosis
- Cholera
- Chlamydophila psittaci (psittacosis)
- Dengue fever
- Ebola virus disease
- E. coli or Salmonella typhimurium (ETEC), including STEC
- Encephalitis (viral, bacterial, fungal)
- Epilepsy
- Haemophilus influenzae type A ( Hib, post-diphtheria)
- Hemophilus B. C. and other viridans
- Hepatitis A, B, C, and other
- HIV/AIDS
- Legionnaires disease
- Malaria
- Meningococcal disease
- Meningococcal meningitis
- Mumps
- Neisseria meningitidis
- Non-typhoid salmonellosis
- Paratyphoid fever
- Pertussis
- Rabies
- Salmonellosis
- Shigellosis
- Spotted Fever Rickettsiosis
- Staphylococcal food poisoning
- Varicella-zoster virus
- Vibrio cholerae
- West Nile Virus
- Yellow fever
- Zika virus

Download the DETECT, TEST, and REPORT Flows to share with others.
Visit 2017-2011 Disease Trends for reported cases of select notifiable diseases and conditions.

Below are the Alabama Notifiable Diseases and a link to basic information about each disease.
EPI Field Surveillance Staff (FSS)

PHA 1
Annie Brethrenick, RN
(W) 255-380-3535
(F) 255-383-8843

PHA 2
Canice Adams, RN
(W) 255-353-5799
(F) 255-353-4432

PHA 3
Shea Lamb, RN
(W) 205-562-7019
(F) 205-562-2761

PHA 4
Stephanie Millican, MPH
(W) 205-930-1456
Bridgette Kennedy, MPH
(W) 205-930-1456
(F) 205-935-1260

PHA 5
Terri D’Bryant, RN
(W) 255-568-8160
(F) 256-546-1578

PHA 6
Kara Beeneefield, RN
(W) 255-304-6410
(K) 256-546-1578

PHA 7
Betty Joiner, RN
(W) 205-436-5331
(F) 205-458-4027

PHA 8
Mary Conway, RN
(W) 334-277-8904
(F) 334-244-1562

PHA 9
Donna Johnson, RN
(W) 251-647-6285
(F) 251-647-6262

PHA 10
Peggie Williams, RN
(W) 334-603-2220
(F) 334-603-3010

Kelly Singleton, RN
(W) 251-047-0200
(F) 251-047-0202

PHA 11
Cheryl Laurs, RN
(W) 251-690-8175
(F) 251-690-8176

Melissa Tucker, RN
(W) 251-660-8884
(F) 251-660-8880

Epidemiology Division Numbers
Epidemiology 334-206-6971
Surveillance (247) 330-330 SEPI
Surveillance Fax 334-206-3754
Toxicology Branch 334-201-3298
Zoonotic Branch 800-677-0939

http://www.adph.org/epi/assets/FSS_Web_Map.pdf
Year-Round Surveillance

- Influenza-like Illness Network (ILINet) - data
- Specimen-submitting Network (SpeciNet) – specimens
- FSS determines cases to report to CDC by case definitions
  - Conduct investigation
  - Review labs
  - Call healthcare provider
  - Call patient/parents
  - Document information in ALNBS
ALNBS

- Alabama National Electronic Disease Surveillance System (NEDSS) Base System
- Lab test results electronically received from BCL, Labcorp, ARUP, Quest, ACL, Mayo, and several hospitals.
- Reporters can have a NEDSS account for sending reports or entering lab specimens sent to BCL
ADPH Guidelines

- Policy
  - Notifiable Disease Rules
  - HIPAA
- Protocols
  - Foodborne Outbreak
  - Institutional Outbreak
- Recommendations
  - Environmental Controls
  - Employee Health
  - Infection Control
TEST

Methods
- FDA and CLIA approved ≠ CDC recommended
- Test Methods List on the Web site
- Online lab assessment survey
- All notifiable disease specimens can be sent to the BCL, especially during cluster or outbreak situations
- Send specimens to both reference and BCL
TEST Notifiable Disease

Tetanus: *Clostridium tetani* - Clinical diagnosis

Tuberculosis: *Mycobacterium tuberculosis* - Culture, Microscopy, or NAAT

Typhoid fever: *Salmonella typhi* - Culture

Viral hemorrhagic fever: Crimean-Congo, Ebola, Lassa, Lujo, Marburg, and other viral hemorrhagic viruses - Culture, ELISA, IHC, or PCR

Yellow fever: Yellow fever virus - ELISA, Hybridization probes, PCR, or Serology

**Key**
- *To confirmation cases based on CDC case definitions
- *Test offered by Bureau of Clinical Laboratories (BCL)
- *Pure culture confirmation only by BCL
- *CF-complement fixation
- *Culture - Isolation
- *CIA - Chlamydial immunoassay
- *DFA - Direct fluorescent assay
- *ELISA/RIA - Enzyme-linked immunosorbent assay/enzyme immunoassay
- *EM - Electron microscopy
- *OFAS - Opaque fluid absorption
- *HAI - Hemagglutination inhibition
- *IFA - Immunofluorescence assay
- *IHC - Immunohistochemistry
- *LA - Latex agglutination
- *MAT - Microagglutination test
- *NIF - Nibroimmunofluorescence
- *Microscopy
- *NAA - Nucleic acid amplification
- *PCR - Polymerase chain reaction (nucleic acid amplification)
- *RIBA - Recombinant immunoblot assay
- *RDT - Rapid diagnostic test (i.e., antigen test or agglutination test)
- *Western blot - Immunoblot
Talk to Your Lab

- Labs are not the only ones who need to report
- Do they submit all required data elements?
  - If not, we have to call provider to get the information
- Do they use CDC recommended lab methods?
  - Antigen tests do not confirm many notifiable diseases
Bureau of Clinical Laboratories (BCL)

BCL provides the highest quality service possible for the healthcare providers in an accurate and timely manner:

- Perform the requested lab test on the appropriate specimen.
- Report lab test results
- Assure accuracy of testing performed following accepted procedures.
BCL

- Conduct tests for notifiable disease except for few, which are forwarded to CDC
- Providers can submit notifiable disease specimens for testing to BCL
- During outbreaks, send specimens directly to BCL
- BCL needs specimens for certification and validation of testing methods.
Sentinel Labs

- All hospital labs that test blood and urine
- Lab Response Network (LRN) Advanced
  - 46 hospital labs that conduct microbiology tests
  - BCL trains and equips
TEST Lab Assessment Survey

- Determine AL’s recommended lab capacity
- Which labs are doing what tests?
- Lab method determines whether ADPH counts case – case definition
- As of 9/14/11, BCL lab methods are displayed in ALNBS and have been requested for all ELRs
- National case definitions
TEST Survey Examples

* Campylobacteriosis, Campylobacter spp.
  ○ Yes ○ No

If yes, what method(s)?
- Culture and identification
- ELISA
- IFA
- PCR

Use Shift or Ctrl keys to select multiple values.

Other test methods performed

Test method CPT code(s)

* Cryptosporodiosis, Cryptosporidium
  ○ Yes ○ No

If yes, what method(s)?
- Please Select
- Microscopy
- DFA
- PCR

Use Shift or Ctrl keys to select multiple values.

Other test methods performed

Test method CPT code(s)
How to REPORT

- Immediate, Extremely Urgent
  W/in 4 hrs of dx
  - Phone 1-800-338-8374
- Immediate, Urgent
  W/in 24 hrs of dx
  - Online, REPORT Card
  - Email to report@adph.state.al.us
  - Fax (334) 206-3734
  - Phone 1-800-338-8374

- Standard
  W/in 7 days of dx
  - Online, REPORT Card
  - Email to report@adph.state.al.us
  - Fax (334) 206-3734
  - In writing – Mail green “REPORT Card”
Pulsed Field Gel Electrophoresis (PFGE)
PFGE Multi-state Clusters

- 4 Levels of Activity
  - PFGE match recognized and PulseNet cluster name assigned
  - CDC Epidemiologist assigned to PulseNet cluster
  - CDC Epidemiologist requests additional questionnaires from affected states
  - Source identified

- Majority of PulseNet clusters are never solved.
  - 2011, AL in 38 PulseNet clusters year-to-date, of which 5 have been solved
REPORT

- Diseases
- Reporters
- Timeframes
  - Immediate, Extremely Urgent (within 4 hrs of diagnosis (dx))
  - Immediate, Urgent (within 24 hrs of dx)
  - Standard (within 7 days of dx)
- How to report
REPORT Webpage

Immediate, Extremely Urgent Disease/Condition Case Definitions (notify ADPH within 4 hours)
- Anthrax
- Botulism
- Plague
- E. coli O157:H7
- SAR-associated Coronavirus (SARS-CoV)

Immediate, Urgent Disease/Condition Case Definitions (notify ADPH within 24 hours)
- Brucellosis
- Cholera
- Dengue
- Haemophilus influenzae, invasive disease
- Hepatitis A
- Measles
- Meningococcal disease
- Norovirus
- Pertussis

Standard Notification Disease/Condition Case Definition (notify ADPH within 7 days, unless otherwise noted)
- Asthma
- Arboviral disease
- Influenza
- Lassa fever
- Lyme disease
- Malaria
- Measles
- Pertussis
- Q fever
- Rabies
- Shigellosis
- Staphylococcal aureus
- Varicella-zoster virus
- Yellow fever

For more information, please visit www.adph.org/epi.
Report within 7 days of Diagnosis Standard Notification

<table>
<thead>
<tr>
<th>Arboviral disease</th>
<th>Legionellosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Babesiosis</td>
<td>Leptospirosis</td>
</tr>
<tr>
<td>Campylobacteriosis</td>
<td>Listeriosis</td>
</tr>
<tr>
<td>Chancroid</td>
<td>Lyme disease</td>
</tr>
<tr>
<td><em>Chlamydia trachomatis</em></td>
<td>Malaria</td>
</tr>
<tr>
<td>Cryptosporidiosis</td>
<td>Mumps</td>
</tr>
<tr>
<td>Dengue</td>
<td>Psittacosis</td>
</tr>
<tr>
<td><em>E. coli</em>, shiga toxin-producing STEC), including O157:H7</td>
<td>Q Fever</td>
</tr>
<tr>
<td>Ehrlichiosis/Anaplasmosis</td>
<td>Salmonellosis</td>
</tr>
<tr>
<td>Encephalitis, viral</td>
<td>Shigellosis</td>
</tr>
<tr>
<td>Giardiasis</td>
<td>Spotted Fever Rickettsiosis</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td><em>Staphylococcus aureus</em>, Vancomycin-intermediate (VISA)</td>
</tr>
<tr>
<td>Hansen’s disease (Leprosy)</td>
<td><em>Staphylococcus aureus</em>, Vancomycin-resistant (VRSA)</td>
</tr>
<tr>
<td>Hemolytic uremic syndrome (HUS), post-diarrheal</td>
<td><em>Streptococcus pneumoniae</em>, invasive disease*</td>
</tr>
<tr>
<td>Hepatitis B, C, and other viral</td>
<td>Syphilis</td>
</tr>
<tr>
<td>Histoplasmosis</td>
<td>Tetanus</td>
</tr>
<tr>
<td>Human Immunodeficiency Virus infection (including asymptomatic infection, AIDS, CD4 counts, and viral load)</td>
<td>Toxic shock syndrome</td>
</tr>
<tr>
<td>Influenza-associated pediatric mortality</td>
<td>Trichinellosis (Trichinosis)</td>
</tr>
<tr>
<td>Lead, exposure screening test result</td>
<td>Varicella</td>
</tr>
<tr>
<td></td>
<td>Vibriosis</td>
</tr>
</tbody>
</table>
Case Definition

- The CDC and Council of State and Territorial Epidemiologists (CSTE) determine national case definitions
REPORT Notifiable Disease Card

* Reportable Disease/Health Condition:
For Immediate, Urgent or Standard Notification Diseases, select from the drop-box. For Immediate, Extremely Urgent Diseases, please call 1-800-338-8374 within 4 hour of diagnosis.

You must submit at least 1 of 3 date fields listed below:

Date of Onset:
June 14 2011

Date of Diagnosis:
June 14 2011

Date of Lab Results:
June 14 2011

* Reporter Type
Please Select

* Reporter Facility Name

* Reporter’s First Name:

* Reporter’s Last Name

* Reporter’s Area Code and Phone:
Report within 4 hours of Diagnosis
Immediate, Extremely Urgent

<table>
<thead>
<tr>
<th>Anthrax, human</th>
<th>Smallpox</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botulism★</td>
<td>Tularemia</td>
</tr>
<tr>
<td>Plague</td>
<td>Viral hemorrhagic fever</td>
</tr>
<tr>
<td>Poliomyelitis, paralytic</td>
<td>Cases related to nuclear, biological, or chemical terroristic agents</td>
</tr>
<tr>
<td>Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV)</td>
<td></td>
</tr>
</tbody>
</table>

★ Must request permission from Epidemiology before testing

Select Agents and Toxins

HHS SELECT AGENTS AND TOXINS
Abrin
Botulinum neurotoxins
Botulinum neurotoxin producing species Str. novi
Cercopithecine herpesvirus 1 (Herpes B virus)
Clostridium perfringens epsilon toxin
Coccidioides posadasii/Coccidioides immitis
Conotoxins
Coxiella burnetii
Crimean-Congo haemorrhagic fever virus
Diacetoxyxipenol
Eastern Equine Encephalitis virus
Ebola virus
Francisella tularensis
Lassa fever virus
Marburg virus
Monkeypox virus
Reconstructed replication competent forms of the 1918 pandemic influenza virus containing any portion of the coding regions of all eight gene segments (Reconstructed 1918 influenza virus)
Ricin
Rickettsia prowazekii
Rickettsia rickettsii
Saxitoxin
Shiga-like ribosome inactivating proteins
Shigatoxin

South American Haemorrhagic Fever viruses
Flexal
Guinarito
Junin
Machupo
Sabia
Staphylococcal enterotoxins
T-2 toxin
Tetrodotoxin
Tick-borne encephalitis complex (flavi)viruses
Central European Tick-borne encephalitis
Far Eastern Tick-borne encephalitis
Kysanur Forest disease
Omak I haemorrhagic fever
Russian Spring and Summer encephalitis
Variola major virus (Smallpox virus)
Variola minor virus (Alastrim)

OVERLAP SELECT AGENTS AND TOXINS
Bacillus anthracis
Brucella abortus
Brucella melitensis
Brucella suis
Burkholderia mallei (formerly Pseudomonas mallei)
Burkholderia pseudomallei (formerly Pseudomonas pseudomallei)
Hendra virus
Nipah virus
Rift Valley fever virus
Venezuelan Equine Encephalitis virus

Report within 24 hours diagnosis
Extremely Urgent

<table>
<thead>
<tr>
<th>Brucellosis</th>
<th>Pertussis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cholera</td>
<td>Poliovirus infection, nonparalytic</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>Rabies, human and animal</td>
</tr>
<tr>
<td><em>Haemophilus influenzae, invasive disease</em></td>
<td>Rubella</td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Measles (rubeola)</td>
<td>Typhoid fever</td>
</tr>
<tr>
<td>Meningococcal Disease</td>
<td>Yellow fever</td>
</tr>
<tr>
<td><em>(Neisseria meningitidis)</em></td>
<td>Outbreaks of any kind</td>
</tr>
<tr>
<td>Novel influenza A virus infections</td>
<td>Cases of potential public health importance</td>
</tr>
</tbody>
</table>
Outbreaks

- An outbreak is defined as illness in 2 or more people, from separate households, with a common exposure.

- ADPH Bureaus involved in outbreak investigation:
  - Bureau of Communicable Diseases (BCD)
  - Bureau of Clinical Laboratories (BCL)
  - Bureau of Environmental Services (BES)
Who Reports Outbreaks?

- *Serratia marcescens* – Infection Preventionists
- *Escherichia coli (E. coli)*, Shiga-toxin producing (STEC) – Hospital ED
- *Salmonella* – Public Compliant
- Norovirus – School
- Coxsackievirus – Pediatrician
Escherichia coli O157:H7 Outbreak Investigation
On June 20, 2011 the Alabama Department of Public Health (ADPH) was contacted by East Alabama Medical Center (EAMC), Opelika, about two pediatric patients with symptoms of bloody diarrhea, fever, and abdominal cramps.

Parents were interviewed and reported that children had been to the Opelika Sportsplex Splash Park.

In all, information on 91 individuals was gathered.
Case Definition

Individuals exposed to the Opelika Sportsplex and Aquatics Center on or after June 4, 2011 who experienced vomiting, diarrhea, or other gastrointestinal symptoms within 10 days of the visit.
Opelika Sportsplex and Aquatics Center
Objectives

• Determine the extent of the outbreak of *E. coli* O157:H7 infection.

• Evaluate risk factors for *E. coli* and identify possible etiologies.

• Review procedures and practices at the Opelika Sportsplex and Aquatics Center to identify potential sources of contamination.

• Mitigate and eliminate public health threat
# Case Characteristics

## CASE DEFINITIONS

<table>
<thead>
<tr>
<th>CASE DEFINITIONS</th>
<th>NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirmed</td>
<td>6</td>
</tr>
<tr>
<td>Probable</td>
<td>13</td>
</tr>
</tbody>
</table>

- **Confirmed**: An individual meeting the case definition with a confirmed laboratory result of *E. coli* O157:H7.
- **Probable**: An individual meeting the case definition in which no other known cause was identified.
## Case Characteristics

<table>
<thead>
<tr>
<th>Number of Cases</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>9</td>
</tr>
<tr>
<td>Median</td>
<td>6</td>
</tr>
<tr>
<td>Range</td>
<td>1-35</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
</tr>
<tr>
<td>Male</td>
<td>10</td>
</tr>
<tr>
<td><strong>Hemolytic-Uremic Syndrome Development</strong></td>
<td>4</td>
</tr>
<tr>
<td><strong>Deaths</strong></td>
<td>0</td>
</tr>
</tbody>
</table>
Case Counts *E. coli* O157:H7 Outbreak Opelika Sportsplex and Aquatic Center by Date of Symptom Onset

![Graph showing case counts by date and pool exposure]

- Splash Park
- Large Pool
- Both Pools
- Unknown
Sportsplex Exposure Dates of those Interviewed during Outbreak Investigation, June 2011

Preliminary information as of July 12, 2011. Subject to change.
Relative Risk

The probability that a member of an exposed group will develop a disease as compared to an unexposed group.
## Relative Risk

<table>
<thead>
<tr>
<th>Statistically Significant Exposures</th>
<th>Relative Risk</th>
<th>P-value (2 tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splash Park</td>
<td>4.41</td>
<td>0.04</td>
</tr>
<tr>
<td>Large Pool</td>
<td>3.58</td>
<td>0.009</td>
</tr>
<tr>
<td>12 - June</td>
<td>4.29</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>14 – June</td>
<td>4.21</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>16 - June</td>
<td>4.73</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Preliminary information as of July 12, 2011. Subject to change.
Human and Environmental Samples
E. coli O157:H7

- 6 samples received from ill patients were biochemically confirmed as E. coli 0157:H7.
- Genotyping analysis determined 2 separate DNA fingerprints (example to follow).
- Multiple water samples were obtained from locations around the Sportsplex, including the Splash Park, drinking fountains, hand sinks, large pool (lap pool), and hot tub.
  - All samples were negative.
  - Samples taken were retrieved after water had been chlorinated. This may account for any contaminants in water being unable to culture for identification.
E. coli Lab Results from Patients

Note: Each E. coli DNA fingerprint obtained from an isolate has 2 corresponding PFGE patterns, one for the XbaI pattern and one for the BlnI pattern (right and left respectively). The two on left are the XbaI and BlnI patterns from the E. coli isolates of confirmed cases A, B, D, and E. The two on the right are from confirmed case C.
Potential Sources of Contamination

CDC recommends free chlorine levels between 1-3 parts per million and pH level between 7.2-7.8 for recreational swimming pools.

- Practices in ensuring water testing, and response may have been suboptimal.

- Multiple instances of recently ill children returning to pools.

- Chlorine and pH levels may not have been optimal on multiple occasions.
Public Health Response

- Splash Park closure was recommended pending further investigation. The Sportsplex staff complied with the request and closed the Splash Park on June 20th.

- Daycares with attendees identified were notified and sent flyers with information on *E. coli*. In addition, news releases were distributed as needed.

- ADPH staff worked with the Opelika Sportsplex to ensure water testing was done daily and readings were taken. At least 9 visits were conducted from June 20th to June 30th.
Public Health Response

- Conference calls with the Sportsplex operators stressed the need for proper monitoring of chlorine and pH levels, and appropriate action to take when chlorine and pH levels drop below CDC suggested standards.

- ADPH provided examples from CDC site regarding appropriate signage for swimming facilities in encouraging patrons to adhere to certain health standards.
Serratia marcescens
Outbreak Investigation
Disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention. This report summarizes the field component of the investigation conducted in collaboration with the Alabama Department of Public Health. Because of the preliminary nature of this report, future correspondence or other published reports might present results, interpretations, and recommendations that are different from those contained in this document.
Objectives

- Determine the extent of the outbreak of *Serratia marcescens* bacteremia
- Evaluate risk factors for *Serratia* bacteremia and identify possible etiologies
- Review TPN compounding practices to identify potential sources of contamination

Preliminary information as of May 3, 2011. Subject to change.
TPN Customers of Compounding Pharmacy A
Serratia bloodstream infections among patients in hospitals receiving TPN from one compounding pharmacy – Alabama
Case Definition

*Serratia marcescens* bacteremia occurring in patients receiving TPN from Compounding Pharmacy A between January 1, 2011 through March 15, 2011.
## Case Characteristics

<table>
<thead>
<tr>
<th>Case Characteristics</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>19</td>
</tr>
<tr>
<td>Number of healthcare facilities</td>
<td>6</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>56</td>
</tr>
<tr>
<td>(Range)</td>
<td>(38-94)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>11</td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
</tr>
<tr>
<td>Higher level of care required</td>
<td>11</td>
</tr>
<tr>
<td>Deaths</td>
<td>9</td>
</tr>
</tbody>
</table>
## Attack Rates Among Patients Receiving TPN:
March 1 – March 15, 2011

<table>
<thead>
<tr>
<th></th>
<th>Number of S. marcescens bloodstream infections</th>
<th>Number of Patients Receiving TPN</th>
<th>Attack Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Neonates</strong></td>
<td>0</td>
<td>7</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Adults</strong></td>
<td>17</td>
<td>41</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>17</td>
<td>48</td>
<td>35%</td>
</tr>
</tbody>
</table>

Preliminary information as of May 3, 2011. Subject to change.
TPN Production
Amino Acid Sterilization by Filtration
Potential Sources of Contamination

• Cleaning of mixing equipment with tap water may have been a source of introduction of *Serratia marcescens* in the TPN compounding process.
• Suboptimal practices in filter-sterilization of the amino acid solution may have led to contamination of the TPN compounding process.
  ➢ According to USP 797 Guidelines, the filter should not be changed during the filtration process.
  ➢ Amino acids should be tested and stored at appropriate conditions as per USP 797 Guidelines.
• Regular compliance with sterility testing as per USP 797 guidelines may have been lacking.
• Regular compliance with manufacturer instructions for tubing used with the TPN compounding machine may have been lacking.
  ➢ Tubing should be discarded and changed every 24-hours.

Preliminary information as of May 3, 2011. Subject to change.
TPN COMPOUNDING

Preliminary information as of May 3, 2011. Subject to change.
Serratia marcescens PFGE

Note: Lane 2 is TPN. All others are patient specimens.
Human and Environmental Samples
*Serratia marcescens*, PFGE Match

- Tap water spigot
- Amino Acid powder from Meds IV
- Impellor
- Carboy mixing container
- Amino Acid mixture from Meds IV
- 2 TPN bags from Meds IV
- 2 TPN bags from patients
- 1 TPN isolate from patient
- 14 patient isolates

Preliminary information as of May 3, 2011. Subject to change.
Institutional Outbreaks
Institutional Protocol

Institutional Outbreak Protocols

Purpose
To establish standard investigation and control measures for outbreaks emerging in an institutional setting.

Institutional Outbreak Definition
An institutional outbreak is defined as two or more persons who experience similar illness symptoms and reside or work in the same facility. An institution includes, but is not limited to, nursing homes, independent or assisted living facilities, group homes, correctional facilities, detention centers, rehabilitation centers, and college dormitories. Day care center and school outbreaks are not covered by this protocol.

Types of Outbreak and Symptoms
1. Gastrointestinal Outbreak affected persons may have symptoms such as fever, abdominal cramps, bloody stools, and muscle aches. If a foodborne outbreak is suspected, please see the Foodborne Outbreak (FBO) Protocols for roles, responsibilities, and overall actions
2. Acute Respiratory Illness Outbreak affected persons may have symptoms such as fever, cough, sore throat, headache, tiredness, runny nose, congestion, and shortness of breath
Outbreak Management
## Total Outbreaks

<table>
<thead>
<tr>
<th>AL Outbreaks</th>
<th>2011</th>
<th>2012**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adenovirus*</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>Bacillus cereus</em></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>*E. coli 0157:H7</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Campylobacter</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Coxsackievirus (CVA6)*</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Influenza</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Multi-organism</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td><em>Norovirus</em></td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Public Health Importance</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>RSV</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Salmonella</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><em>Serratia marcescens</em></td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Shigella</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Undetermined</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Outbreaks</strong></td>
<td>32</td>
<td>49</td>
</tr>
</tbody>
</table>

*Not reportable diseases, but reportable as an outbreak

**As of 4/27/12
Outbreak Resources

Outbreak General Public Flyers

- *E. coli*
- Hand, Foot and Mouth Disease
- *Norovirus*
- Salmonella
- Shigella

Additional Outbreak Resources

- CVA6 Map as of February 29, 2012 New!
- New Guidelines for the Prevention and Management of Norovirus Outbreaks
  New!
- Norovirus Outbreak Control Resource Toolkit New!
- Bureau of Clinical Laboratories’ Lab Slips
- Stool Collection Procedures for Healthcare Providers and Patients
- Acute Foodborne Gastroenteritis Reference Table
- Childcare Center Exclusion Criteria Supplement

http://www.adph.org/epi/index.asp?id=5548
Electronic Questionnaires

AL1107EXH-41a FOODBORNE QUESTIONNAIRE

“Hello, my name is ____________ and I am with the Alabama Department of Public Health. We are investigating a cluster of GI illness and you were identified as an ill or potentially exposed person. We would like to ask you some questions to help us determine the source of this illness. To ensure accurate and scientific results are obtained from this interview, I must read the questions exactly as written.”

Working Case Definition: An individual associated with Miss Deanna’s daycare center that became ill with gastrointestinal illness from 7/1/2011 to present.

Investigator: Please answer each item completely. Do not skip questions.

DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Patient Name:</th>
<th>DOB: MM/DD/YYYY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last</td>
<td>First</td>
</tr>
</tbody>
</table>

Age: _______ Y/M: ☐ Years ☐ Months

Sex: ☐ Female ☐ Male

Ethnicity: ☐ Hispanic ☐ Not Hispanic ☐ Unknown
# Templates Developed

**Epi Outbreak Investigation Report (EOIR)**

- **Lead FSS** - red, **SBS** - green, and **A&R** - purple must minimally update this report.

<table>
<thead>
<tr>
<th>Lead FSS</th>
<th>Lead SBS:</th>
<th>Lead A&amp;R:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outbreak PHA:</td>
<td>Outbreak County: P</td>
<td></td>
</tr>
</tbody>
</table>

- Facility* Name: School
- Facility Type:
- Was anyone in the group sick before the common exposure?
  - Example facility includes school, restaurant, church, nursing home, or hotel.

<table>
<thead>
<tr>
<th>Total ill/absent</th>
<th>Total exposed/enrolled</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total facility staff ill</td>
<td>Total facility staff</td>
</tr>
<tr>
<td>Information gathered from (mask all that apply): Environmentalist</td>
<td>Ill person</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signs and Symptoms After Common Exposure</th>
<th>Yes, No, or Unknown</th>
<th>Other signs and symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diarrhea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomiting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Exposure</th>
<th>Date (MM/DD/YY)</th>
<th>Time (HH:MM)</th>
<th>AM/PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earliest exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latest exposure</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**DETECT**

Decrease Environmental Threats

with Environmental Controls and Testing

ALABAMA DEPARTMENT OF PUBLIC HEALTH

**TEST**

The Epidemiological Specimen Today

ALABAMA DEPARTMENT OF PUBLIC HEALTH

**REPORT**

Alabama Department of Public Health
Environmental Investigation
Outbreak Report
Environmental Outbreak Investigation Report

Establishment: ____________________ Contact Person: ____________________
Environmentalist: ________________ Date of Assessment: ________ Time: ________
☐ Copy of Last Inspection Report  ☐ DETECT KIT

Requested Documents
☐ List of Employees with Contact Information
☐ Copy of Menu
☐ Oyster Tags Collected  N/A  Yes  No
☐ Copy of Food Invoice

Employee Health and Schedule
Sick Employee Policy? ____________________
Total number of employees: ________ How many Employees have diapered family members? ___
Number of sick employees prior to outbreak: ____________________
Proper handwashing occurs?  Yes  No  N/O  Observations: ____________________
Ready to Eat Food handled with: Bare Hands  Gloves  Utensils  Other__________________
Menu

Special items served not on menu: ________________________________

Suspected food: ________________________________

Consumer Advisory Posted:  N/A      Yes      No

Facility

Walk In Cooler Temp. ________ Reach In Cooler Temp. ________ Hot Holding Temp. ________

Walk In Freezer Temp. ________ Reach In Freezer Temp. ________ Cold Holding Temp. ________

Cook Temps: ________________________________

Stem Type Thermometer available:  Yes   No   Calibrated:  Yes   No
Water Supply: Public or Private  (if private request copy of latest well water test results)

Sewage Disposal: Public or Private

Standard Operating Procedures

Check for proper cleaning and sanitizing of equipment/utensils - Method: Chemical or Heat
Warewashing Sink  __________ ppm Quat  Chlorine  __________ Degrees F
Dish Machine: Yes  No  __________ ppm Quat Chlorine __________ Final Rinse Degrees F
Toxic items properly stored: _______________________________________________________
Wiping Cloths stored in sanitizer solution: _______________________________________
Cooling methods – Describe: ____________________________________________________
Reheating methods – Describe: _________________________________________________
Datemarking: _________________________________________________________________
Cross Contamination Prevented: ________________________________________________
Food Specimens

Date Collected: __________________________

Date Shipped to BCL: __________________________

Specific Food Collected: __________________________

Food Source

Approved Source – Supplier: __________________________

Additional Comments

________________________

________________________
Infection Control Update 2011

OSHA Required Information
Standard Precautions

- Hand washing – When to perform:
  - After touching blood, body fluids, or contaminated items, whether or not gloves are worn
  - After gloves are removed, between patient contacts, and if necessary, when performing procedures on the same patient to prevent cross contamination
Standard Precautions

- Hand sanitizers:
  - May use if hands are not visibly soiled
  - Are not as drying as soap and water
  - Works better than soap and water at killing organisms
  - Use as directed on the product
  - Must be at least 60% alcohol
Standard Precautions

Gloves

- Wear when touching blood, body fluids, secretions, excretions, and contaminated items
- Change between tasks and procedures on the same patient and after contact with materials that may contain a high concentration of microorganisms
Standard Precautions

Face Protection

- Wear mask and eye protection, or face shield to protect mucous membranes of the eyes, nose, and mouth during procedures and patient-care activities that are likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.
Standard Precautions

Gown

- Wear during procedures and patient-care activities that are likely to generate splashes of blood, body fluids, secretions or excretions or cause soiling of clothing
- Remove soiled gown as promptly as possible and wash hands to avoid transfer of microorganisms
Hepatitis B & C

- Blood and Body Fluids Transmission
  * Sex with an infected person
  * Sharing needles
  * Occupational needlesticks or sharps exposures
  * From infected mother to baby during birth.
Hepatitis B & C

- There is a vaccine to prevent Hepatitis B.
- The vaccine is a yeast product (not blood) and is considered to be 96% effective.
- There is no vaccine for Hepatitis C.
- There are some anti-viral medications available for treatment of some Hepatitis C patients, but treatment is usually only effective in 10 – 40% of those treated.
Resistant Organisms

- Methicillin Resistant Staph Auerus
- Clostridium difficile
Staph aureus

- Staph aureus as a community pathogen is best known for its ability to produce furuncles and carbuncles.
- Furuncle (boil):
  - A painful superficial skin infection that develops in a hair follicle or gland. These lesions are commonly found on the neck or buttocks and are the most common infection caused by Staph Aureus.
- Carbuncle:
  - Spread of infection from furuncle to the deeper subcutaneous tissues resulting in abscess formation.
Staph aureus

- To cause infection, an organism must:
  - Enter the body
  - Grow and multiply
  - Cause a response

- Organisms are transmitted by:
  - Direct contact
  - Indirect contact
  - Droplets
MRSA

- Methicillin was developed in 1957. It is a synthetic penicillin.
- First MRSA was seen in 1961.
- Mainly seen in hospitals.
- Transmitted by the unwashed hands of healthcare workers.
MRSA

- Colonization – the microorganism is living in or on the body without causing disease or harm.

- Infection – the body is invaded by a microorganism, the organism multiples and causes injury or illness.
MRSA

- Various settings:
  - Football players, wrestlers, fencers
  - Inmates of correctional facilities
  - Military recruits
  - Men who have sex with men
  - Daycare centers
Spider Bite
MRSA
Community Acquired-MRSA

**Definition:**

- An infection with MRSA in a person who does not have any recent healthcare exposure, such as:
  - Recent hospitalization
  - Surgery
  - Permanent intravenous lines
  - Residence in chronic care facility
CA-MRSA

- The lines are now blurred:
  - CA-MRSA can now be hospital associated.
  - Hospital associated MRSA is being seen in the community.
  - You can see both in your facility.
MRSA

The Five C’s:
- Crowding
- Contact (Frequent skin-to-skin)
- Compromised skin
- Contaminated surfaces and shared items
- Cleanliness (lack of)
MRSA

**Prevention:**

- Handwashing
- Good personal hygiene
- Regularly clean commonly touched surfaces, such as, tables, door knobs, bathrooms, counters, etc. with any EPA approved disinfectant
- Cheapest and very effective is household bleach and water in a 1:9 solution (1 Tablespoon bleach to a quart of water, mixed fresh daily).
Clostridium difficile (C difficile)

- Spore-forming, gram positive anaerobic bacillus
- Produces 2 exotoxins
- Causes 15 to 25% of all antibiotic associated diarrhea
Prevention Strategies: Core

- Implement an antimicrobial stewardship program
- Contact Precautions for duration of diarrhea
- Hand hygiene in compliance with CDC/WHO
- Cleaning and disinfection of equipment and environment
- Laboratory-based alert system for immediate notification of positive test results
- Educate about CDI: HCP, housekeeping, administration, patients, families
Prevention Methods

- Since spores may be difficult to remove from hands even with hand washing, adherence to glove use, and Contact Precautions in general, should be emphasized for preventing.
- There may be a role for universal glove use as a special approach to reducing transmission on units with longer lengths of stay and high endemic CDI rates.
- Focus enhanced environmental cleaning strategies and avoid shared medical equipment on such units.
C. difficile

**Treatment:**

- 23% resolve spontaneously within 2 to 3 days of discontinuing antibiotics.
- 10 day course of either:
  - Metronidazole (Flagyl)
  - Vancomycin
**CDC Information**

---

**Types of Infections**
- Central Line-associated Bloodstream Infections
- **Clostridium difficile** Infection
  - Patients
  - Clinicians
  - FAQs about *C. difficile* for Healthcare Providers
  - *C. difficile* Excerpt
  - Facilities/Settings
  - State Health Departments

- Surgical Site Infection
- Catheter-associated Urinary Tract Infection
- Ventilator-associated Pneumonia

**Diseases and Organisms**
- Preventing HAIs
- Map: HAIs Prevention Activities
- Monitoring HAIs
- Research
- Patient Safety

**Laboratory Resources**

---

**Clostridium difficile** Infection

People getting medical care can catch serious infections called healthcare-associated infections (HAIs). While most types of HAIs are declining, one – caused by the germ *C. difficile* – remains at historically high levels. *C. difficile* causes diarrhea linked to 14,000 American deaths each year. Those most at risk are people, especially older adults, who take antibiotics and also get medical care. CDC provides guidelines and tools to the healthcare community to help prevent *Clostridium difficile* infections as well as provides resources to help the public safeguard their own health.

---

**Resources for...**

- **Patients**
  - General information for you and your family about *Clostridium difficile*, FAQs, resources for patients...

- **Clinicians**
  - FAQs, guidelines and recommendations, CDC expert commentaries...

- **Facilities/Settings**
  - *Clostridium difficile* infections tools, evaluating environmental cleaning tools...

---

**State Health Departments**

---

**New: Vital Signs**

- **Vitalsigns™**
  - Learn Vital Information about stopping *C. difficile* infections.

  - Read CDC Vital Signs™

---

**Tracking C. difficile**

- A full picture of *C. difficile* is possible using complimentary systems...
Impetigo

- Highly contagious superficial skin infection, characterized by large blisters and large numbers of organisms. Seen most often in children under conditions where direct spread can occur. Prevent the spread of infection.

- Prevention:
  - Always use a clean washcloth and towel each time.
  - Do not share towels, clothing, razors, and other personal care products with other family members.
  - Wash your hands thoroughly after touching the skin lesions.
  - Good general health and hygiene help to prevent infection. Thoroughly clean minor cuts and scrapes with soap and clean water. You can also use a mild antibacterial soap.
  - Impetigo is contagious, so avoid touching the draining (oozing) lesions.
Impetigo
Isolation

- Contact Precautions:
  - MRSA
  - C difficile
Contact Isolation

- Cohort patients in the same room who are infected or colonized with the same organism.

- Ensure patients are >3 feet from each other.

- Change protective attire and perform hand hygiene between patients.
Contact Isolation

- **Hand hygiene and gloves:**
  - Observe hand hygiene practices and wear gloves whenever touching the patient’s intact skin or surfaces and articles in close proximity to the patient.

- **Gowns:**
  - Wear a gown whenever anticipating that clothing will have direct contact with patient or potentially contaminated environmental surfaces.
Droplet Precautions

- Use for patients known or suspected to be infected with microorganisms transmitted by respiratory droplets, large-particle droplets (>5 microns in size) that can be generated by the patient during coughing, sneezing, talking, or the performance of cough-inducing procedures.
Droplet Precautions

- In acute care settings, place patient in a single patient room, if possible.
- In a residential care setting, decisions made on a case-by-case basis.
- Ambulatory settings, place patient in an examination room or cubicle as soon as possible.
Droplet Precautions

- Wear a surgical mask for close patient contact (within 3 feet).

- Limit transport of patient, but if necessary, the patient wears a surgical mask.
Airborne Infection Isolation

- Use for patients known or suspected to be infected with agents transmitted person-to-person by the airborne route.
  - Tuberculosis, measles, chickenpox, smallpox, viral hemorrhagic fevers, SARS.

- A private room is required.
Personal Protective Equipment

- PPE selection depends on type of exposure anticipated
  - Splash/spray versus touch
  - Category of isolation precautions
- Don before contact with the patient, generally before entering the room.
- Use carefully, don’t spread infection.
PPE

Sequence for donning PPE:

- Gown first
- Mask or respirator
- Goggles or face shield
- Gloves
Do’s and Don’ts of glove use:

- Work from “clean to dirty”
- Limit opportunities for “touch contamination”
- Protect yourself, others and the environment
  - Don’t touch your face or adjust PPE with contaminated gloves
  - Don’t touch environmental surfaces except as necessary during patient care
PPE

- Change gloves
  - If torn or when heavily soiled (even during use on the same patient)
  - After use on each patient

- Discard in appropriate receptacle and perform hand hygiene
PPE

Sequence for removing PPE:

- Gloves
- Face shield or goggles
- Gown
- Mask or respirator
Hand Hygiene

- **Handwashing:**
  - Most sources recommend a minimum of 10 – 15 seconds of friction
  - Rinse well under running water to remove all soap
  - Turn off water with a paper towel, discard, and then dry hands.
Hand Hygiene

Soap:

- Liquid soap is best
- Bacteria can grow on bar soap, especially if it is resting in water.
- Liquid soap containers may also become contaminated. If a container is refilled, be sure that it is clean and dry.
Hand Hygiene

- Waterless alcohol hand wash products:
  - First used only when soap and water were not available
  - Cause less skin irritation
  - Decrease time needed to decontaminate hands
  - Alcohol is not a good cleaning agent and is not recommended in the presence of dirt or body fluids.
Hand Hygiene

- Frequent handwashing will strip the skin of natural oils and lead to dryness, cracking and irritation. This increases the risk of colonization and infection.
- Lotions and creams should be used with care.
- Fingernails should be kept short and many hospitals have banned artificial nails and polish.
Infection Prevention

Resources
- Infection Prevention Guidelines
- Bloodborne Pathogens Exposure Plan
- Hand Hygiene Resource Web Page
- Infection Control Update 2009
- AHQI Statewide Antibiogram
- *C. difficile* fact sheet

Publications
- Guidance for Control of Infections with Carbapenem-Resistant or Carbapenemase-Producing *Enterobacteriaceae* in Acute Care Facilities
- Enhanced Hygiene Measures and Norovirus Transmission During an Outbreak
- Preventing *Clostridium difficile* Infections

Press Releases
- FDA: Insulin Pens and Insulin Cartridges Must Not Be Shared
- FDA Information for Healthcare Professionals: Risk of Transmission of Blood-Borne Pathogens from Shared Use of Insulin Pens

http://www.adph.org/epi/index.asp?id=5548
Conclusion
Objectives

- Ensure the most accurate diagnosis, testing, treatment, and reporting of notifiable diseases.
- Locate basic disease information and proper test methods on [www.adph.org/epi](http://www.adph.org/epi).
- Determine what diseases need to be reported, how they can be reported, and timeframe for reporting.
- Identify Notifiable Disease Reporters
Unofficial Epi Logos

Push Stool!

Together, we can get that crap to the BCL!
Contact Information

- County Health Department (CHD)
  http://adph.org/administration/assets/countylist.pdf
- Field Surveillance Staff (FSS)
  http://www.adph.org/epi/default.asp?id=1438
- Epidemiology Division (EPI)
  1-800-338-8374
  http://www.adph.org/epi/