The Role of State Public Heath

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What Does State Public Health Do?

• Work with a network of local health departments to identify and prevent infections

• Two main mechanisms:
  – Routine Surveillance (Reporting)
    • Need consistent and complete reports to LHDs
  – Outbreak Investigations
    • Rely on astute partners to recognize and report
Individual Health vs. Public Health

**INDIVIDUAL**
- Clinician
- Patient
- Chart
- Diagnosis
- Prognosis
- Therapy
- Cure

**PUBLIC**
- Epidemiologist
- Community/Population
- Data
- Time, Place, Person
- Predict Trend
- Control Measures
- Prevention
Reporting of Infectious Diseases

Prevention!
Reporting of Infectious Diseases

Cause?
How Do We Use All This Data?

• Compile information from local health departments to identify outbreaks and risk factors
• Support local health departments in investigations
• Provide technical expertise and share best practices from other health departments/investigations
• Develop policies and recommendations
Public Health in Action

• Prevention and Control
  – Localized: Identify practices at a facility that can be changed/improved
    • New cleaning procedures
    • Changes in infection control practices
    • Cooking temperatures and holding times
  – General: Introduce policies to identify at risk patients and prevent future infections
    • Screening
    • Vaccination
Surveillance Data in Action

• Use the trends and reports to develop the Communicable Disease Rules
Communicable Disease Rules

• Definitions
• Who must report
• What is reportable
  – Diseases, conditions
  – Laboratory results
  – Specific reportable information about the patient and condition
• Time frame for reporting
• Local health agency responsibilities

• Case/contact control measures
• Immunization requirements/reporting
• Control measures for animals exposed to rabies
• AAC Title 9 Chapter 6
  http://www.azsos.gov/public_services/Title_09/9-06.htm
Surveillance Data in Action

• Use the trends and reports to develop the Communicable Disease Rules

• Modify rules to changes in surveillance data
  – Add new conditions
  – Change testing requirements
  – Require specimens to be sent to public health
  – Change control measures
## Reportable Diseases (Providers)

<table>
<thead>
<tr>
<th>Disease Type</th>
<th>Disease Name</th>
</tr>
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<tbody>
<tr>
<td>Amebiasia</td>
<td>Hemolytic uremic syndrome</td>
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<tr>
<td>Anthrax</td>
<td>Hantavirus infection</td>
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<tr>
<td>Aseptic meningitis: viral</td>
<td>Hepatitis A</td>
</tr>
<tr>
<td>Basidiobolomycosis</td>
<td>Hepatitis B and D</td>
</tr>
<tr>
<td>Botulism</td>
<td>Hepatitis C</td>
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<tr>
<td>Brucellosis</td>
<td>Hepatitis E</td>
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<tr>
<td>Campylobacteriosis</td>
<td>Herpes genitalis</td>
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<tr>
<td>Chancroid</td>
<td>HIV infection and related disease</td>
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<tr>
<td><em>Chlamydia</em> infection, genital</td>
<td>Kawasaki syndrome</td>
</tr>
<tr>
<td>Cholera</td>
<td>Legionellosis (Legionnaires’ disease)</td>
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<tr>
<td>Coccidioidomycosis (valley fever)</td>
<td>Leptospirosis</td>
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<tr>
<td>Colorado tick fever</td>
<td>Listeriosis</td>
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<tr>
<td>Conjunctivitis: acute</td>
<td>Lyme disease</td>
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<tr>
<td>Creutzfeldt-Jakob disease</td>
<td>Lymphocytic choriomeningitis</td>
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<tr>
<td>Cryptosporidiosis</td>
<td>Malaria</td>
</tr>
<tr>
<td>Cyclospora infection</td>
<td>Measles (rubeola)</td>
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<tr>
<td>Cysticercosis</td>
<td>Meningococcal invasive disease</td>
</tr>
<tr>
<td>Salmonellosis</td>
<td>Scabies</td>
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<tr>
<td>Severe acute respiratory syndrome</td>
<td>Shigellosis</td>
</tr>
<tr>
<td>Smallpox</td>
<td>Streptococcal Group A: Invasive disease</td>
</tr>
<tr>
<td>Streptococcal Group B: Invasive disease in infants younger than 90 days of age</td>
<td><em>Streptococcus pneumoniae</em> (pneumococcal invasive disease)</td>
</tr>
<tr>
<td>Syphilis</td>
<td>Taeniasis</td>
</tr>
<tr>
<td>Tetanus</td>
<td>Toxic shock syndrome</td>
</tr>
<tr>
<td>Trichinosis</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>Tuberculosis infection in a child younger than 6 (positive test result)</td>
<td>Tularemia</td>
</tr>
<tr>
<td>Typhoid fever</td>
<td></td>
</tr>
</tbody>
</table>
### Arizona Laboratory Reporting Requirements

**Arboviruses**

- Zika
- Dengue
- Chikungunya
- West Nile
- Eastern Equine
- St. Louis
- Venezuelan

**Bacillus anthracis**

- Anthrax

**Bordetella pertussis**

- Whooping cough

**Brucella spp.**

- Undulant fever

**Campylobacter spp.**

- Campylobacteriosis

**CD4 T-lymphocyte count**

- Less than 200 per microliter of whole blood or CD4 T-lymphocyte percentage of total lymphocytes of less than 14%

**Chlamydia trachomatis**

- Chlamydial infection

**Clostridium botulinum toxin**

- Botulism

**Coxiella burnetii** spp., by culture or serologies

- Q fever

**Haemophilus influenzae**, type B, isolated from a normally sterile site

**Haemophilus influenzae**, other, isolated from a normally sterile site

**Hantavirus**

- Hantavirus pulmonary syndrome

**Hepatitis A virus** (anti-HAV-IgM serologies)

**Hepatitis B virus** (anti-Hepatitis B core-IgM serologies, Hepatitis B surface antigen serologies, and polymerase chain reactions)

**Hepatitis C virus**

**Hepatitis D virus**

**Hepatitis E virus**

**HIV** (by culture, antigen, antibodies to the virus, or detection of viral nucleic acid)

**SARS-associated corona virus**

**Shigella spp.**

**Streptococcus Group A** isolated from a normally sterile site

**Streptococcus Group B** isolated from a normally sterile site in an infant younger than 90 days of age

**Streptococcus pneumoniae** and its drug sensitivity pattern, isolated from a normally sterile site

**Treponema pallidum** (syphilis)

**Vancomycin-resistant Enterococcus spp.**

**Respiratory syncytial virus**

**Salmonella spp.**

**SARS-associated corona virus**

**Shigella spp.**

**Streptococcus Group A** isolated from a normally sterile site

**Streptococcus Group B** isolated from a normally sterile site in an infant younger than 90 days of age

**Streptococcus pneumoniae** and its drug sensitivity pattern, isolated from a normally sterile site

**Treponema pallidum** (syphilis)

**Vancomycin-resistant Enterococcus spp.**
State Public Health Lab

• Provide testing free of charge for public health investigations (requires public health approval)

• Advanced Testing Methods
  – Serotyping: More information about the infection
    • Clinical importance: *E. coli* O157:H7
    • Comparison with other infections: *Salmonella* Bredeney
State Public Health Lab

• Pulsed Field Gel Electrophoresis (PFGE)
  – Can compare bacterial DNA
  – Helps identify whether infections are from the same source
  – Allows public health to sort through thousands of reports to find those that may be part of an outbreak
Investigating and Reporting Cases

• You are an important public health partner
  – Report cases to public health!

• We are here to help:
  – Local health departments can support investigations
  – Arrange for testing
  – Provide evidence-based recommendations and education
  – Prevent future cases
Investigations

- Establish the diagnosis and case classification
- Isolate/treat confirmed, probable and suspected cases
- Identify contacts for tracing, vaccination and follow-up
- Identify source of infection
- Monitor course and outcome
- Monitor epidemiology and obtain information for analysis and communication
Why do we ask so many questions?

- Identifying a source can be complex and challenging
  - Individuals may not want to share risky/illegal behavior
  - People can’t always remember
  - Sometimes we want to talk to people who are not sick to find out if an exposure is unusual
Correctional Facility Environment

High Risk Populations

• Pre-existing conditions
  • HIV, Hepatitis C, STDs

• Homelessness

• Substance abuse

• Mental health issues
Correctional Facility Environment

Close Quarters

• Person-to-person spread
  – Droplet transmission
    • Coughing, sneezing – Close proximity

Influenza Viruses

Whooping Cough
Correctional Facility Environment

Close Quarters

• Person-to-person spread
  – Airborne transmission
  • Coughing, sneezing – Remains in Air!

*Note: Image of Mycobacterium tuberculosis*
Correctional Facility Environment

Close Quarters

• Person-to-person spread
  – Fecal-Oral Transmission
    • HAND HYGIENE
  – Close Contact and Shared Items
    • Scabies and Lice

Scabies mite
Correctional Facility Environment

Additional Risk Factors

• Food-borne Transmission
  – Large serving operations
  – Shared food/drink from prisoners
  • Some of these may be prepared under less than ideal conditions

Escherichia coli, Salmonella species
Correctional Facility Environment

Additional Risk Factors

• Blood-borne pathogens
  – Contaminated needles or medical products
    • Healthcare associated infections
  – Sharing of needles
  – Tattooing
Correctional Facility Environment

• Logistical Challenges
  – Reliability of information
  – Isolation and quarantine