Module 1: Surveillance

Epidemiology Division
Surveillance Branch
Module Learning Objectives

- Define Bureau of Communicable Disease.
- Define “active” and “passive” surveillance.
- Identify potential sources of surveillance data.
- Identify forms used to document foodborne illness.
- Discuss reasons whether or not to investigate complaints further.
- Perform group exercise
Bureau of Communicable Diseases

1. Tuberculosis
2. Sexually Transmitted Diseases
3. HIV/AIDS
4. Immunization
5. Epidemiology
Why Investigate Foodborne Outbreaks?

- ADPH Mission: “To serve the people of Alabama by assuring conditions in which they can be healthy.”
- Prevent Additional FB Illness
  - Product: Find a product that should be recalled so others don't get sick.
  - Procedure: Determine what went wrong so specific instructions can be given to the food preparer to prevent a recurrence.
Foodborne Outbreak Surveillance

**Epidemiology**
- Surveillance
- Outbreak determination
- Investigation

**Environmental**
- Helps identify suspect agent & establish case definition
- Specimen collection & submission

**Laboratory**
- Tests clinical & food samples
- Determines agent
- Reports to Submitter & Epidemiology

**Environmental**
- Assesses food facility
- Helps implement control measures
- Serves as link to food facility

**Epidemiology**
- Descriptive & analytical analyses of outbreak
- Final outbreak report
Two Types of Surveillance

Surveillance is defined as close and continuous observation or testing

1. Active
2. Passive
Active Surveillance

Regular periodic collection of case reports from health care providers or facilities

- **Advantage**: data is more accurate than in other types of surveillance
- **Disadvantage**: expensive and time consuming
Foodborne Diseases Active Surveillance Network (FoodNet)

15% of the U.S. population

Year | Pop.*
--- | ---
1997 | 16.1
1998 | 20.7
1999 | 25.9
2000 | 30.5
2001 | 34.9
2002 | 38.0
2003 | 41.5
2004 | 43.3
2005 | 44.9
2006 | 45.5
2007 | 45.9

*millions

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Bureau of Clinical Laboratories
Bureau of Environmental Services

Alabama is NOT a FoodNet state.
FoodNet Surveillance Sites

FoodNet consists of active surveillance for FB diseases and related epi studies at 10 sites designed to help public health officials better understand FB diseases in the US.

- California
- Colorado
- Connecticut
- Georgia
- Maryland
- Minnesota
- New Mexico
- New York
- Oregon
- Tennessee
Incidence* of Selected Foodborne Diseases, US

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Campylobacter</td>
<td>23.5</td>
<td>21.7</td>
<td>15.4</td>
<td>13.3</td>
<td>12.3</td>
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<tr>
<td>Salmonella</td>
<td>14.5</td>
<td>12.4</td>
<td>14.2</td>
<td>16.2</td>
<td>6.8</td>
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<tr>
<td>E. coli O157:H7</td>
<td>2.7</td>
<td>2.8</td>
<td>2.0</td>
<td>1.7</td>
<td>1.0</td>
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<tr>
<td>Listeria</td>
<td>0.5</td>
<td>0.6</td>
<td>0.34</td>
<td>0.26</td>
<td>0.25</td>
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<tr>
<td>Total</td>
<td>41.2</td>
<td>37.5</td>
<td>31.94</td>
<td>31.46</td>
<td>20.4</td>
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</table>

* per 100,000 population/year
** estimated, baseline for 2000 objectives

Healthy People Objectives**

FoodNet Data

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Bureau of Clinical Laboratories
Bureau of Environmental Services

http://cdc.gov/foodnet/
Passive Surveillance*

1. Have surveillance system in place
   - If yes, go to Notification of Illness
   - If no, stop

2. Notification of Illness
   - Refer complaint to responsible person
   - Log complaint
   - Review log and other data for related cases
   - Decide whether to investigate further
     - If yes, go to Obvious outbreaks
     - If no, go to Notification of Illness

3. Obvious outbreaks
   - Prepare Investigation

* Both lab confirmed cases and unconfirmed reports (illness complaints)
Passive Surveillance

Information provided to ADPH without initiating action

- Required routine reporting by MDs and labs
- Reports from concerned citizens
- **Advantage:** less expensive and troublesome to operate
- **Disadvantage:** likely to underestimate the presence of disease
The National Molecular Subtyping Network for Foodborne Disease Surveillance

January 2003
AL Notifiable Disease Rule
Foodborne Conditions

Common FB
- Salmonellosis
- E. coli O157:H7
- Botulism
- Campylobacteriosis
- Listeriosis
- Trichinellosis
- Typhoid fever
- Vibriosis

Possible FB
- Shigellosis
- Hepatitis A

Outbreaks of any kind
- Foodborne Outbreaks
- Waterborne Outbreaks
- Biological Outbreaks
- Chemical Outbreaks
The CDC FoodNet Surveillance Pyramid

1. Exposures in the general population
2. Person becomes ill
3. Person seeks care
4. Specimen obtained
5. Lab tests for organism
6. Laboratory confirmed case
7. Reported to PH/CDC

Surveillance

Laboratory Survey

Physician Survey

Population Survey
Sources of Surveillance Data

- ADPH requires each physician, dentist, nurse, medical examiner, hospital administrator, nursing home administrator, laboratory director, school principal, and day care director to report certain notifiable diseases and health conditions.
- ADPH receives potential FBO reports from Hospitals, Laboratories, Clinics, Public Health (e.g., CDC), Physicians, and Individuals.

http://www.alabammaadministrativecode.state.al.us/docs/hlth/index.html
Sources of Foodborne Disease Data

- Foodborne Outbreak Surveillance System
- Laboratory-based Surveillance
- Epidemic Investigations
- Complaint Investigations

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Bureau of Clinical Laboratories
Bureau of Environmental Services
Networking

Share information with other health departments in region

Provide up-to-date list of key contacts in local area

Networking: Maintain Information Flow

CDC

Neighboring Health Departments

State Epidemiologist

State laboratory

Epidemiology Division
Bureau of Clinical Laboratories
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Effective Local Surveillance System

ADPH Partners
- Epidemiology
- Environmental Health
- Field Surveillance Staff
- Laboratory
- Health Educators

Local Partners
- Hospitals
- Clinics
- Physicians
- Fire
- Police
- Education
- Nursing Homes
- Industry
**Foodborne Classifications**

- **Family** – household members (Family ate at Burger King)
- **Case** – reported case of illness (Case of disease such as salmonella)
- **Foodborne Outbreaks** – 2 or more from different households (Group that attended a wedding reception)
- **ICC** – isolated consumer complaint (Band-Aid found in potato salad)
Local Public Health Preparation

- Define roles and responsibilities
- Have needed supplies on hand
- Procedures for sharing information (internally and externally)
- Training plan
- Periodic meetings
Potential Outbreaks

- Document all illness reports in a foodborne illness complaint log
- Initiate appropriate steps during outbreak investigation
- Identify information needs
- Notify and consult with state health and/or agriculture departments
Log Complaint

- Assign unique sequential number to each complaint
- Systematically enter data into log
- Transfer key information from input forms to log
- Establish retention schedule for surveillance records
Review Log and Other Data for Related Cases

- Who’s in charge?
- Establish written procedure for reviewing surveillance data
- Check expected levels of health events
## Not "Closed" Complaints Report

<table>
<thead>
<tr>
<th>Status</th>
<th>Month of Complaint</th>
<th>Record ID</th>
<th>Last Name</th>
<th>First Name</th>
<th>Address of Complaint</th>
<th>Nature of Complaint</th>
<th>Date of Complaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>historical</td>
<td>April 2010</td>
<td>1492</td>
<td></td>
<td></td>
<td>2421 Winchester Rd Huntsville</td>
<td>Cellar's wife purchase home made chocolate covered pretzels and gum on 04/26/10. The items had a funny taste. They discovered they had been rebagged. The original expiration date on the pretzels was 02/21/10. On the gum, the original expiration date was 11/22/09.</td>
<td>2010 9:23:3</td>
</tr>
<tr>
<td>invalid</td>
<td>October 2010</td>
<td>1561</td>
<td></td>
<td></td>
<td>3279 Dug Hill Rd Huntsville</td>
<td>30 dogs running around with lots of smelly dog poo. No address mentioned but is north dead end post of Dug Hill Rd. near Wesley Taylor—something about lumber at Shiloh Church and 1st driveway on left.</td>
<td>2010 9:23:3</td>
</tr>
<tr>
<td>Non-existant-INVALID</td>
<td>February 2010</td>
<td>1457</td>
<td></td>
<td></td>
<td>816 Steele Ln New Market</td>
<td>Septic tank is uncovered. An open hand dug well is also on the property. Yard has a lot of trash.</td>
<td>2010 9:21:5</td>
</tr>
<tr>
<td></td>
<td>September 2010</td>
<td>1545</td>
<td></td>
<td></td>
<td>1699 Old Monrovia Rd Huntsville</td>
<td>School has cats. The school is infested with fleas.</td>
<td>2010 8:25:3</td>
</tr>
<tr>
<td>NOT VALID</td>
<td>April 2010</td>
<td>1489</td>
<td></td>
<td></td>
<td>160 B.J. Lane Toney</td>
<td>Complainant stated that the property behind her has an abandoned pond that is not being used or maintained. She said that the pond breeds mosquitoes and snakes and it sites become a problem in the neighborhood. She stated that the property belongs to the resident at 160 B.J. Lane. Her other contact 34 are 457-4099 and 828-4099.</td>
<td>2010 12:04:0</td>
</tr>
<tr>
<td>NOTICE ISSUED</td>
<td>May 2009</td>
<td>1305</td>
<td></td>
<td></td>
<td>147 Clubhouse Lane Madison</td>
<td>Sewage present in front yard.</td>
<td>2009 8:09:01</td>
</tr>
</tbody>
</table>

Epidemiology Division
Bureau of Clinical Laboratories
Bureau of Environmental Services

DETECT
Department of Environmental Threats
With Environmental Consulting
ALABAMA DEPARTMENT OF PUBLIC HEALTH
Refer to Responsible Person or Agency

- Refer complaints to agency with regulatory authority for collaboration
- Follow-up complaints under your jurisdiction
- Notify communicable disease staff of confirmed infections
- Clearly document referred incidents
Preliminary Investigation

- Obtain information from reporter
  - Number Ill Event Information
  - Symptoms Foods Served
- Review surveillance information
- Review foodborne outbreak definitions
- Consult Central Office Epidemiology
- Request Environmentalist to inspect facility
Is it a Foodborne Outbreak??

- Increase in the number of reports over expected
- Possible epi association (person, place, and time)
- Possible laboratory linkage
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Group Exercise

Log Book