Syndromic Surveillance in Maine

Maine CDC (MECDC)
Objectives

- Define Syndromic Surveillance
- Define EARS
- Hospital Report Process
- Next Steps
What is Syndromic Surveillance?

“Syndromic surveillance uses individual and population health indicators that are available before confirmed diagnoses or laboratory confirmation to identify outbreaks or health events and monitor the health status of a community.”

- Center for Disease Control and Prevention
http://www.cdc.gov/ehrmeaningfuluse/Syndromic.html
Who sends and who receives Syndromic Surveillance data?

**Senders** of data include Hospitals, emergency departments, urgent care centers, hospital corporations, corporate third party operators of information brokers, regional data centers for hospitals, health information exchanges (HIE), and regional health information organizations (RHIO).

** Receivers** are state and local public health authorities, or a designated third party (BioSense 2.0, for example).

Source: ISDS (International Society for Disease Surveillance)  
Syndromic surveillance data in use:
Emergency Department Visits for ILI and Fever – Maine 2010-12

- 2010-11 ILI
- 2011-12 ILI
- 2010-11 fever
- 2011-12 fever
Why conduct syndromic surveillance?

Number of Cases

- PRODROME
- SEVERE ILLNESS

EXPOSURE

Notifiable Disease Reporting

Syndromic Surveillance
ED collects data on each patient.

Syndromic Surveillance Process

Hospital receives reports.

Maine CDC performs aberration detection and analyses.

Signals require further analysis and interpretation.

Epidemiologists investigate aberrations.

Send HL7 formatted message via secure transport mechanism to Maine CDC.
What is EARS?

- Early Aberration Reporting System
- Tool used by state epidemiologists to analyze and visualize public health surveillance data
- Assists in the early identification of outbreaks of disease and bioterrorism events
- System used for situational awareness
EARS Background

- Currently used nationally and internationally by:
  - States
  - Counties
  - Cities

- Also used at several public events:
  - Democratic National Convention (Boston, MA)
  - Republican National Convention (New York, NY)
  - G8 Summit (Sea Island, GA)
  - 2004 Summer Olympics (Athens, Greece)
Detecting Aberrations

- EARS uses three baseline aberration detection methods:
  - **C1-Mild**: Baseline determined based on the average count from the past 7 days
  - **C2-Medium**: Baseline determined based on the average count from the 7 day period between 10 days prior to 3 days prior to measurement.
  - **C3-Ultra**: Uses the same baseline as C2, but takes a three day average of events to determine the measure
Timeline for Aberration Detection Methods

Day-9     Day-8     Day-7     Day-6     Day-5     Day-4     Day-3     Day-2     Day-1     Day 0

Baseline for C1-MILD (-1 to -7 day)
Baseline for C2-MEDIUM (-3 to -9 days)
Baseline for C3-ULTRA (-3 to -9 days)
EARS Output

Early Aberration Reporting System (EARS)

Sample

Hospital A  Respiratory  Ending Date 6/26/08

(count on red star plot to view flagged data)

<table>
<thead>
<tr>
<th>Events</th>
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<tbody>
<tr>
<td>17May</td>
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</table>

C = Mild Sensitivity  C2 = Moderate Sensitivity  C3 = Ultra Sensitivity
*C = total count (last three digits)  **F are flags 1 = C1  2 = C2  3 = C3  4 = C1C3  5 = C2C3  6 = C1C2C3
## Sample Hospital Report

### EARS

**Centers for Disease Control and Prevention (CDC)**

#### Sample

**Maine Centers for Disease Control and Prevention**

**Range of Input Days:** 42  
**Interval Displayed:** 08/17/08 to 08/26/08

**NOTE1:** Red highlighted count = new high  
**NOTE2:** A value next to syndrome name is a threshold value

### All Data

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<th>In 42 days</th>
<th>26 JUN</th>
<th>25 JUN</th>
<th>24 JUN</th>
<th>23 JUN</th>
<th>22 JUN</th>
<th>21 JUN</th>
<th>20 JUN</th>
<th>19 JUN</th>
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Data Submission Process

- Expectations from the Hospital
- Expectations from MECDC
Fields to be Reported to MECDC

Minimally required fields:
- Facility identifier
- Facility name
- Facility/visit type
- Report date/time
- Unique patient identifier
- Age
- Gender
- Town of residence
- Zip code of residence
- State of residence
- County of residence
- Race
- Ethnicity
- Unique visiting ID
- Visit date/time

Requested (if available):
- Chief complaint/reason for visit
- Diagnosis/injury code
- Diagnosis type
- Discharge disposition
- Disposition date and time
- Medical record number
- Country of residence
- Date of onset
- Patient class
- Triage notes
- Clinical impression
- Initial temperature
- Initial pulse oximetry
Report Format

- Health Level 7 (HL7) formatted data
- Data submitted to MECDC by secure transfer mechanism on a daily or more frequent basis
  - PHIN-MS
  - NHIN Connect
Reports Back to Hospitals

- Once data is received, MECDC will analyze the data and then process the EARS reports.
- Reports will be emailed to a designated hospital representative every Monday.
- All data will be stored by MECDC and reports can be requested at any time.
Next Steps

- MECDC will provide a MOU for the hospital to review and sign

- MECDC will communicate with the hospital IT staff on the report format (HL7) and secure transport mechanism

- MECDC will review test files sent from the hospital and compare/validate against files sent via traditional method (if applicable)

- MECDC will notify hospital IT staff once a test file has been successfully validated
Next Steps (cont.)

- MECDC will communicate with the hospital on the timing of when system is ready to receive live data
- Hospital will send files daily or more frequently via secure transport mechanism
- MECDC will send weekly report to identified hospital staff
State Syndromic Data

www.isdsdistribute.org

- Aggregate ILI data for Maine and other participating states
Contact Information

EARS mailbox
ears@maine.gov

Amy Robbins
(207) 287-3332
amy.robbins@maine.gov

Trevor Brown
(207) 287-5170
trevor.brown@maine.gov