

# Syndromic Surveillance in Maine

Maine CDC (MECDC)



Maine Center for Disease  
Control and Prevention  
An Office of the  
Department of Health and Human Services

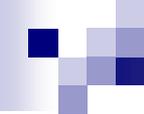
Paul R. LePage, Governor

Mary C. Mayhew, Commissioner



# Objectives

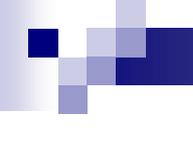
- Define Syndromic Surveillance
- Define EARS and BioSense 2.0
- Implement HL7 messaging



# 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/ehrmmeaningfuluse/Syndromic.html>



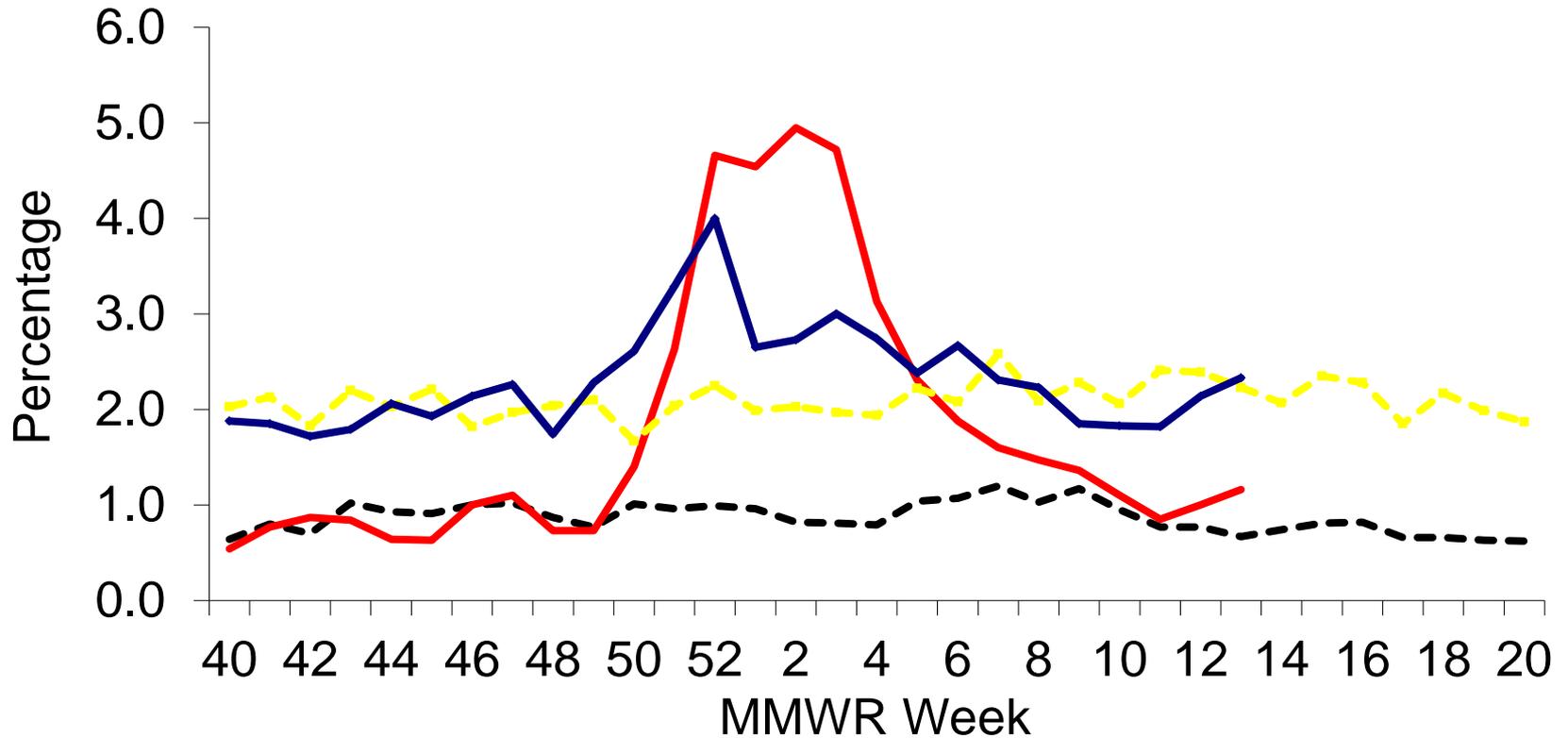
# Who sends and who receives Syndromic Surveillance data?

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).

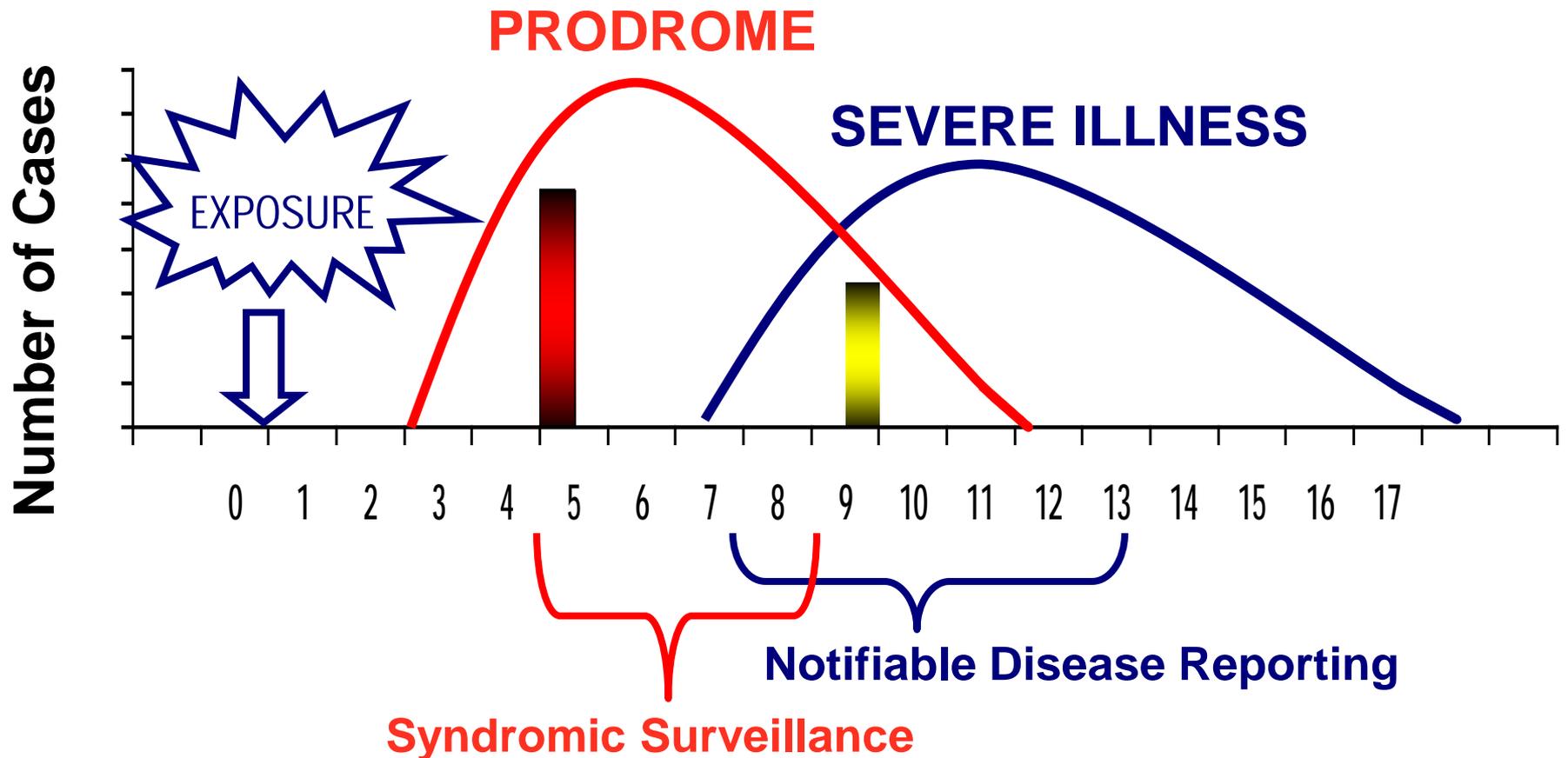
Source: ISDS (International Society for Disease Surveillance)  
Final Recommendation: Core Processes and EHR Requirements for Public Health Syndromic Surveillance, January 31, 2011.

# Syndromic surveillance data in use: Emergency Department Visits for ILI and Fever – Maine 2011-2013



-- 2011-12 ILI    — 2012-13 ILI    - - 2011-12 Fever    — 2012-13 Fever

# Why conduct syndromic surveillance?





**2. Send HL7 formatted message via  
secure transport mechanism to Maine  
CDC**



**1. ED  
collects data  
on each  
patient**



**5.  
Epidemiologists  
investigate  
aberrations**



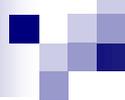
**6. Hospital receives  
reports**

# Syndromic Surveillance Process

**3. Maine CDC  
performs  
aberration  
detection  
and  
analyses**

**4. Signals require further  
analysis and interpretation**





# Syndromic Surveillance Analysis

- ❑ Maine CDC uses Early Aberration Reporting System (EARS) and BioSense 2.0
- ❑ Tools used by state epidemiologists to analyze and visualize public health surveillance data
- ❑ Assists in the early identification of outbreaks of disease and bioterrorism events

# Characteristics of Syndromic Surveillance Systems

## ■ EARS

- Secure state server
- Reports not available online
- Analysis at facility, county or state level
- State developed syndromes
- Syndromes can be modified by state

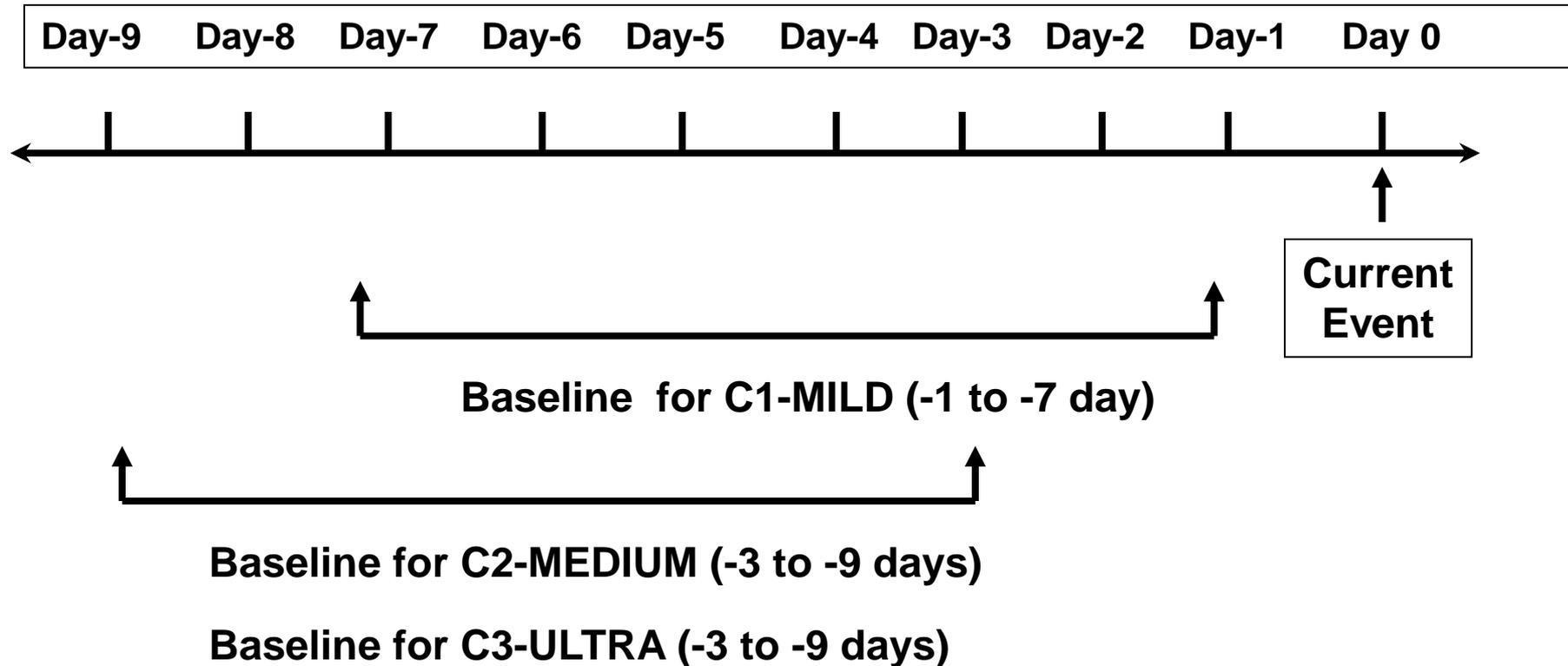
## ■ BioSense 2.0

- Secure cloud environment
- Online web portal
- Analysis at county and state level only
- Nationwide syndromes
- No modification of syndromes

# Aberration Detection Methods

- EARS uses three 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
- BioSense uses the C2-medium with an average count based on a 28 day period

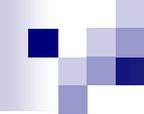
# Timeline for Aberration Detection Methods (EARS)





# Data Submission Process

- Expectations from the Hospital
- Expectations from MECDC



# Minimum data elements

- PHIN standards for syndromic surveillance
  - Page 91 table of minimum data elements
  - Additional fields required by Maine CDC are not all required fields in PHIN standards

# Minimally required data elements

- 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
- Chief complaint/reason for visit
- Diagnosis/injury code
- Diagnosis type
- Discharge disposition
- Disposition date and time



# Requested additional data elements, if available

- 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) 2.5.1 formatted data
- Data submitted to MECDC by secure transfer mechanism on a daily or more frequent basis
  - Secure FTP
  - PHIN-MS



# During Transition

- For those hospitals transitioning from non-HL7 delimited files
  - Non-HL7 delimited files will continue to be sent during the technical and business validation process



# Engagement and Connection

- Primary points of contact for both identified
  - Complete contact form
- Points of contact from hospital and Maine CDC will convene to discuss next steps by conference call
- Secure a signed MOU from senior hospital representative
- Hospital to identify data sources for ED visit data per requirements

# Engagement and Connection

- All coding compliant with PHIN messaging guide for syndromic surveillance using HL7 2.5.1 standards
  - <http://www.cdc.gov/phin/resources/PHINguides.html>
- Hospital and Maine CDC determine ability to send message and identify secure transport method

# Technical Validation

- Hospital will test message through PHIN Message Quality Framework (MQF) to confirm structural and data requirements
  - <https://phinmqf.cdc.gov>
- Hospital will identify and correct any issues identified
- Hospital will send first round of test messages to MECDC



# Technical Validation

- MECDC will validate technical structure of message
- Collaborative effort between hospital and MECDC to resolve issues
- Technical validation complete when MECDC confirms successful consumption of test messages



# Business Validation

- Weekly review of
  - Non-HL7 delimited file and HL7 file
  - Compare completeness of data elements
- Collaborate with hospital to correct any issues identified
- Once all issues are resolved, data will be moved to production system
  - Non-HL7 delimited file disabled



# Reports Back to Hospitals

- Once data are received, MECDC will analyze data and then produce syndrome reports
- Reports will be emailed to a designated hospital representative at the beginning of the week (Monday or Tuesday)
- All data will be stored by MECDC and reports can be requested at any time

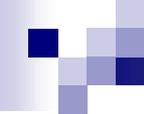
# Important websites

- Maine MU

- <http://www.maine.gov/hit/public-health/index.shtml>

- Federal CDC MU syndromic surveillance (includes links for ONC certification)

- <http://www.cdc.gov/ehrmeaningfuluse/Syndromic.html>



# Contact Information

Syndromic mailbox

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