

# 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

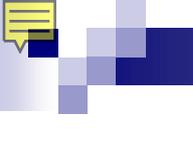
- Define Syndromic Surveillance
- Define EARS
- Hospital Report Process
- Next Steps



# 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/ehrmmeaningfuluse/Syndromic.html>



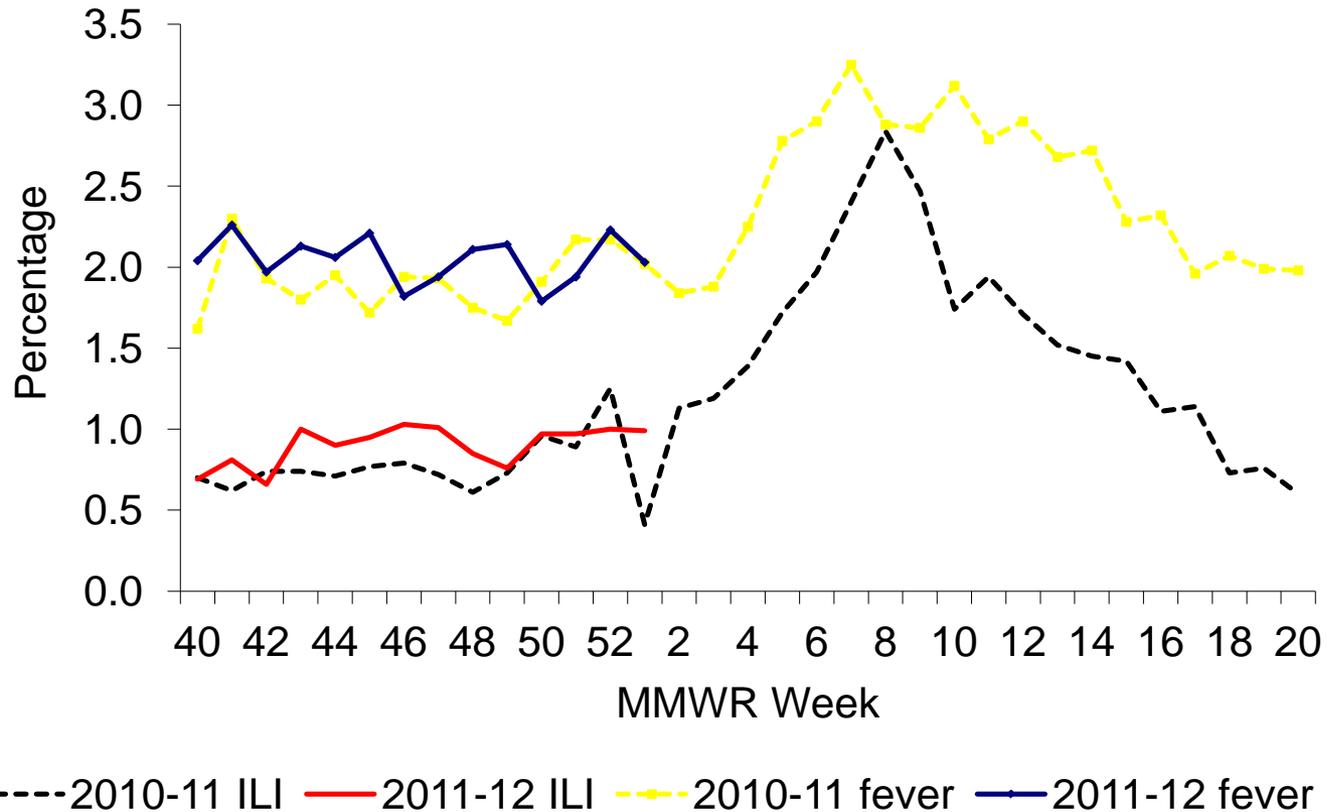
# Who sends and who receives Syndromic Surveillance data?

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).

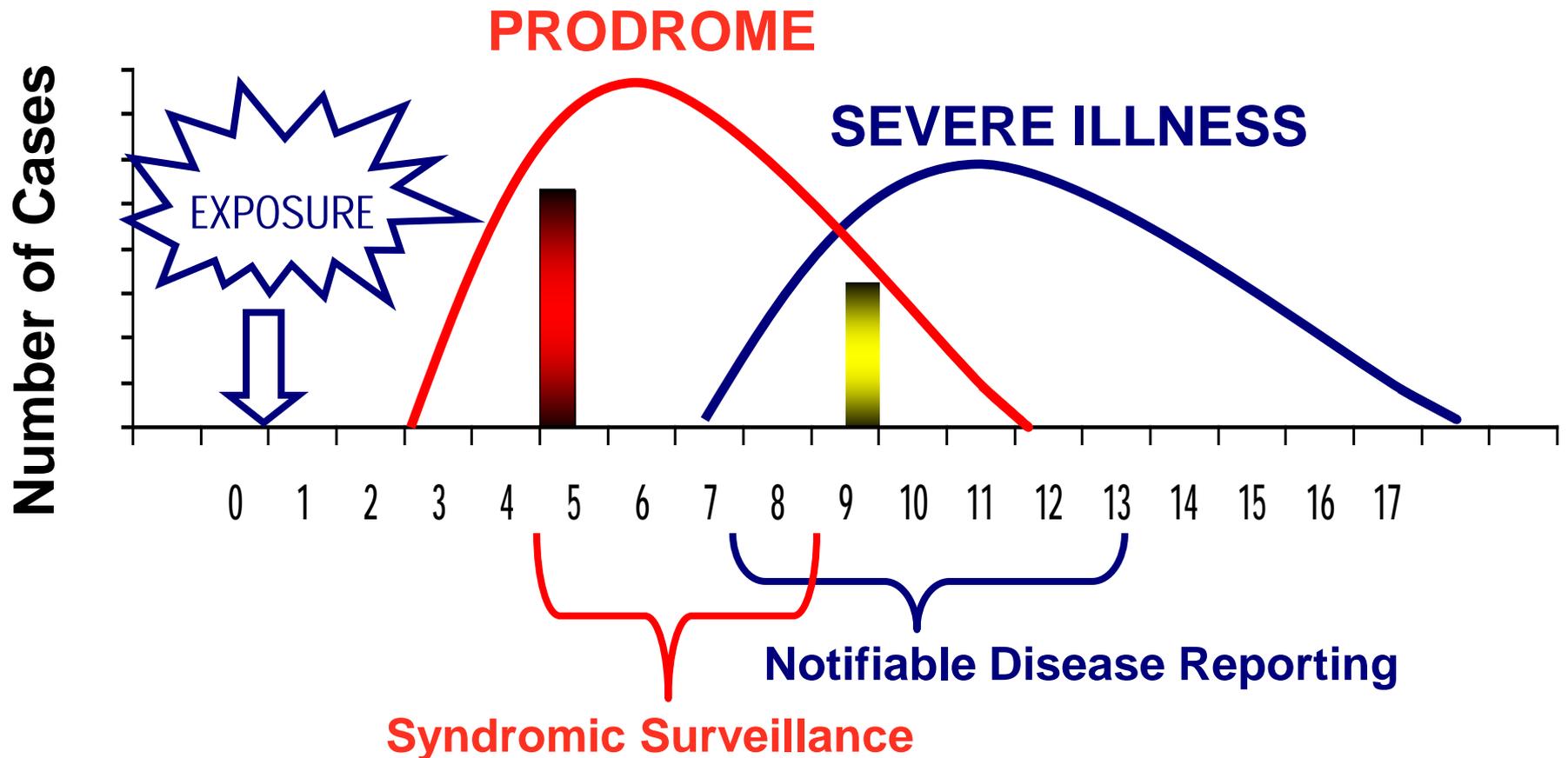
Receivers are state and local public health authorities, or a designated third party (BioSense 2.0, for example).

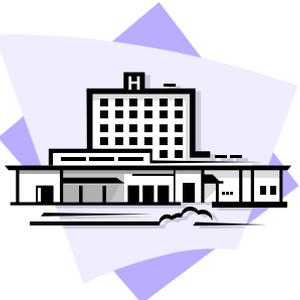
Source: ISDS (International Society for Disease Surveillance)  
Final Recommendation: Core Processes and EHR Requirements for Public Health Syndromic Surveillance, January 31, 2011.

# Syndromic surveillance data in use: Emergency Department Visits for ILI and Fever – Maine 2010-12



# Why conduct syndromic surveillance?





Send HL7 formatted message via  
secure transport mechanism to Maine  
CDC



Hospital receives reports

ED collects  
data on each  
patient



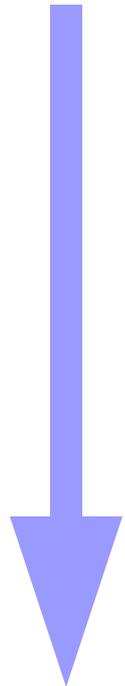
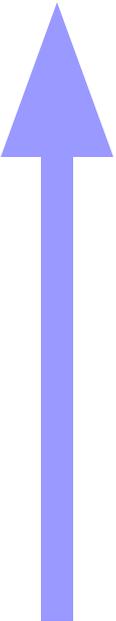
Epidemiologists  
investigate  
aberrations

# Syndromic Surveillance Process

Maine CDC  
performs  
aberration  
detection  
and  
analyses



Signals require further  
analysis and interpretation



# 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



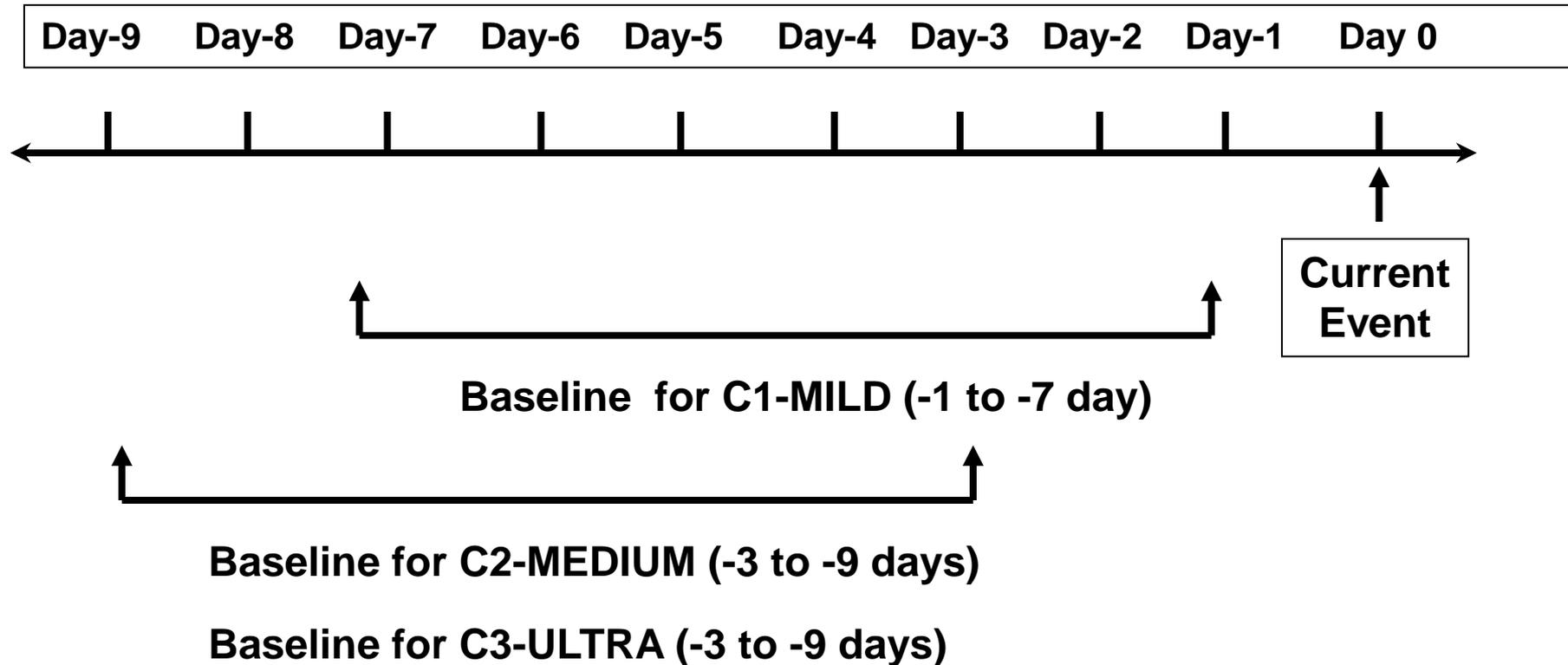
# EARS Background

- ❑ 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

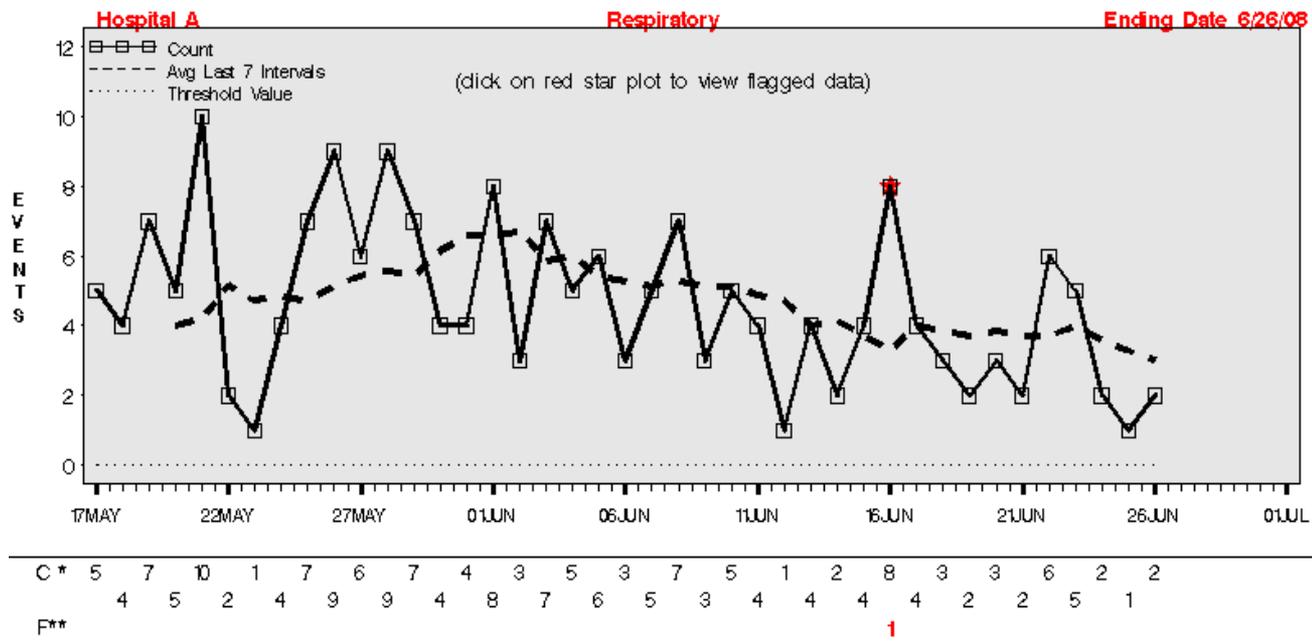
# Timeline for Aberration Detection Methods



# EARS Output

## Early Aberration Reporting System (EARS)

Sample



C1= 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

<b>EARS</b> <small>Centers for Disease Control and Prevention (CDC)</small>	<b>Sample</b>												
	<b>Maine Centers for Disease Control and Prevention</b>												
	<b>Range of Input Days: 42    Interval Displayed: 06/17/08 to 06/26/08</b>												
	<small>NOTE1: Red highlighted count = new high - NOTE2: A value next to syndrome name is a threshold value</small>												
<b>All Data</b>													
<b>Hospital A</b>		In 42 days	26 JUN	25 JUN	24 JUN	23 JUN	22 JUN	21 JUN	20 JUN	19 JUN	18 JUN	17 JUN	
<b>Fever</b>	Flag	2	—	—	—	—	—	—	—	—	—	—	
	Count	39	0	1	1	2	0	1	0	1	2	1	
<b>Gastrointestinal</b>	Flag	3	C123	C123	—	—	—	—	—	—	—	—	
	Count	85	14	6	2	3	2	2	1	3	1	3	
<b>Influenza like illness</b>	Flag	0	—	—	—	—	—	—	—	—	—	—	
	Count	19	0	0	0	0	1	0	0	0	0	1	
<b>Neurological</b>	Flag	3	—	C123	—	—	—	—	—	—	—	—	
	Count	17	1	2	0	0	0	0	0	0	1	0	
<b>Other</b>	Flag	1	—	—	—	C123	—	—	—	—	—	—	
	Count	1354	27	27	34	52	33	37	35	29	33	35	
<b>Rash</b>	Flag	5	—	—	—	—	—	—	—	—	—	—	
	Count	32	0	0	2	0	1	0	1	0	1	1	
<b>Respiratory</b>	Flag	1	—	—	—	—	—	—	—	—	—	—	
	Count	189	2	1	2	5	6	2	3	2	3	4	
<b>Respiratory test</b>	Flag	2	—	—	—	C3	—	—	—	—	—	—	
	Count	127	2	0	1	4	5	1	1	1	2	4	
<b>Ticks</b>	Flag	1	—	—	—	—	—	—	—	—	—	—	
	Count	55	1	0	2	0	1	2	2	2	3	2	



# Data Submission Process

- Expectations from the Hospital
- Expectations from MECDC

# Fields to be Reported to MECDC

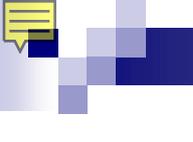
## Minimally required fields:

- 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

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

## Requested (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) formatted data
- Data submitted to MECDC by secure transfer mechanism on a daily or more frequent basis
  - PHIN-MS
  - NHIN Connect



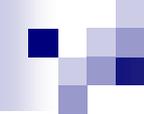
# Reports Back to Hospitals

- 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](http://www.isdsdistribute.org)

- Aggregate ILI data for Maine and other participating states



# Contact Information

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