Influenza Surveillance in the United States

Scott Epperson, MPH
Surveillance and Outbreak Response Team
Influenza Division
U.S. Centers for Disease Control and Prevention
Influenza Surveillance

- Responsibility for national influenza surveillance rests with CDC
- State, local, and territorial public health departments are our primary partners
  - Influenza surveillance coordinator
- Goal is to build a system that is useful on the local level that feeds into national level surveillance
U.S. Surveillance Systems for Influenza

- Pediatric mortality
- 122 Cities mortality
- FluSurv-NET
- ILINet

FluSurv-NET and ILINet feed into:
- Symptomatic
- Medically-attended
- Hospitalized
- Died

Infection levels from bottom up are:
- Infected
- Symptomatic
- Medically-attended
- Hospitalized
- Died

Viral Surveillance
Viral Surveillance in the U.S.

- Approximately 150 participating laboratories
  - Weekly reports
    - # specimens tested
    - # positive for influenza by type, subtype, and age
  - Specimen level and aggregate reporting
  - Specimens collected during routine patient care
  - Subset of positive specimens submitted for additional testing
U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet)

- ~3,000 physicians/facilities enrolled for the 2013-14 season
- Weekly reports
  - Total # of patient visits
  - # visits for influenza-like illness (ILI) by age group
    - ILI = fever ≥ 100 °F (37.8 °C) and cough or sore throat, in absence of a known cause other than influenza
- Submit respiratory specimens to public health labs for testing
122 Cities Mortality Reporting System

- **Purpose**: monitor P&I related mortality in a timely manner
- **Weekly reports from vital statistics offices in 122 U.S. cities**
  - Total # of death certificates processed
  - # with pneumonia or influenza listed (some exclusions)
- **Approximately 25% of U.S. deaths**
Influenza-Associated Pediatric Mortality

- Initiated during the 2003-04 season
- Nationally notifiable condition
- Year-round surveillance
- Laboratory confirmation required
The Five Categories of Influenza Surveillance

- Viral Surveillance
- Outpatient Illness Surveillance
- Mortality Surveillance
- Hospitalization Surveillance
  - Emerging Infections Program (EIP)
  - Influenza Hospitalization Surveillance Project (IHSP)
- Summary of the Geographic Spread of Influenza
<table>
<thead>
<tr>
<th>Activity Level</th>
<th>ILI Activity*/Outbreaks</th>
<th>Laboratory Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Activity</td>
<td>Low</td>
<td>And No lab confirmed cases†</td>
</tr>
<tr>
<td>Sporadic</td>
<td>Not Increased</td>
<td>Isolated lab-confirmed case(s)</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td></td>
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<tr>
<td></td>
<td>Not Increased</td>
<td>Or</td>
</tr>
<tr>
<td></td>
<td>And</td>
<td>Recent (within the past 3 weeks) lab evidence of influenza in region with increased ILI</td>
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<tr>
<td>Local</td>
<td>Increased ILI in 1 region**; ILI activity in other regions is not increased</td>
<td>And Recent (within the past 3 weeks) lab evidence of influenza in region with increased ILI</td>
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<td>OR</td>
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<td></td>
<td>2 or more institutional outbreaks (ILI or lab confirmed) in 1 region; ILI activity in other regions is not increased</td>
<td>And Recent (within the past 3 weeks) lab evidence of influenza in region with the outbreaks; virus activity is no greater than sporadic in other regions</td>
</tr>
<tr>
<td>Regional (does not apply to jurisdictions with ≤ 4 regions)</td>
<td>Increased ILI in ≥2 but less than half of the regions</td>
<td>And Recent (within the past 3 weeks) lab confirmed influenza in the affected regions</td>
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<tr>
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<td>Institutional outbreaks (ILI or lab confirmed) in ≥2 and less than half of the regions</td>
<td>And Recent (within the past 3 weeks) lab confirmed influenza in the affected regions</td>
</tr>
<tr>
<td>Widespread</td>
<td>Increased ILI and/or institutional outbreaks (ILI or lab confirmed) in at least half of the regions</td>
<td>And Recent (within the past 3 weeks) lab confirmed influenza in the state</td>
</tr>
</tbody>
</table>

*ILI activity can be assessed using a variety of data sources including ILINet providers, school/workplace absenteeism, and other syndromic surveillance systems that monitor influenza-like illness.
† Lab confirmed case = case confirmed by rapid influenza diagnostic test, antigen detection, culture, or PCR.
‡ Institution includes nursing home, hospital, prison, school, etc.
**Region: population under surveillance in a defined geographical subdivision of a state.
Interpretation and Communication of Surveillance Data

- Each surveillance system provides information on a different aspect of influenza-related illness
- Weekly surveillance report created
  - Most visited CDC website during flu season
  - Most important communications tool with the public and decision makers
  - Keeps your program visible
Questions?

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
Visit: www.cdc.gov | Contact CDC at: 1-800-CDC-INFO or www.cdc.gov/info

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.