Influenza Surveillance
Current Situation Overview

July 2011
Percentage of respiratory specimens that tested positive for influenza
By influenza transmission zones

Status as of week 24
12–18 June 2011

Note: The available country data were joined in larger geographical areas with similar influenza transmission patterns to be able to give an overview (www.who.int/csr/disease/swineflu/transmission_zones/en/). The displayed data reflect reports of the stated week, or up to two weeks before if no data were available for the current week of that area.

Data used are from FluNet (www.who.int/flunet) regional WHO offices or ministry of health websites.

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization
Map Production: Public Health Information and Geographic Information Systems (GIS)
World Health Organization

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Review of the Northern Hemisphere 2010/11 Winter Influenza Season
North America Influenza Transmission, May 2010 – May 2011

Source: FluNet
Influenza Transmission, May 2010 – May 2011, Europe and Asia

Source: FluNet
Influenza Transmission, May 2010 – May 2011, Tropical Regions

The Americas

Sub-Saharan Africa

- B
- A(H1N1) 2009
- A not subtyped
- A(H3N2)
Distribution of virus subtypes by influenza transmission zone
October 2010 – April 2011

Source: WHO/GIP, data in HQ as of 02 May 2011.
Data used are from FluNet (www.who.int/flunet), 1:01 pm snapshot

Note: the available country data were joined in larger geographical areas with similar influenza transmission patterns to be able to give an overview (www.who.int/csr/disease/swineflu/transmission_zones/en/). The displayed data reports of the stated week, or up to two weeks before if no data were available for the current week of that area.

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Cross-reactivity with Trivalent Seasonal Vaccine Components

*WHO recommended vaccine virus
**Low cross reactive antibody titres to vaccine virus

Source: Reports from US CDC, UK, ECDC, EURO Flu, China NIC
Epi Data
Mortality in the U.S.A.

Pneumonia and Influenza Mortality for 122 U.S. Cities
Week ending 4/9/2011

<table>
<thead>
<tr>
<th>Date</th>
<th>A (2009 H1N1)</th>
<th>A (H3N2)</th>
<th>Influenza A (Subtype Unknown)</th>
<th>Influenza B</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># Deaths Since October 1, 2010</td>
<td>23</td>
<td>17</td>
<td>17</td>
<td>34</td>
<td>91</td>
</tr>
</tbody>
</table>
Age distribution of Laboratory Influenza Hospitalizations in the U.S.A.

2010/11 season vs. 2009/10 season
<table>
<thead>
<tr>
<th></th>
<th>2010-2011 FluSurv-NET³ N (%)</th>
<th>2009-2010 FluSurv-NET N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cases</td>
<td>5,705</td>
<td>7,517</td>
</tr>
<tr>
<td><strong>Age in Years</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-4</td>
<td>872 (15.3)</td>
<td>1,326 (17.6)</td>
</tr>
<tr>
<td>5-17</td>
<td>409 (7.2)</td>
<td>1,204 (16.0)</td>
</tr>
<tr>
<td>18-49</td>
<td>1,412 (24.8)</td>
<td>2,779 (37.0)</td>
</tr>
<tr>
<td>50-64</td>
<td>1,102 (19.3)</td>
<td>1,458 (19.4)</td>
</tr>
<tr>
<td><strong>65+</strong></td>
<td>1,908 (33.4)</td>
<td>750 (10.0)</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2,654 (46.5)</td>
<td>3,517 (46.8)</td>
</tr>
<tr>
<td>Female</td>
<td>3,047 (53.4)</td>
<td>4,000 (53.2)</td>
</tr>
<tr>
<td><strong>Flu Type and Subtype</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimens subtyped⁴</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (H1)</td>
<td>0 (0.0)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>A (H3)</td>
<td>983 (67.5)</td>
<td>3 (0.1)</td>
</tr>
<tr>
<td>A (2009 H1N1)</td>
<td>474 (32.5)</td>
<td>5,322 (99.9)</td>
</tr>
<tr>
<td>Influenza B</td>
<td>897 (15.7)</td>
<td>52 (0.7)</td>
</tr>
<tr>
<td><strong>Intensive Care Unit</strong></td>
<td>553 (16.5)</td>
<td>1,560 (20.8)</td>
</tr>
<tr>
<td>Mechanical Ventilation</td>
<td>249 (7.4)</td>
<td>758 (10.1)</td>
</tr>
<tr>
<td>Diagnosis of Pneumonia</td>
<td>929 (27.7)</td>
<td>2,804 (37.3)</td>
</tr>
<tr>
<td>Died</td>
<td>80 (2.4)</td>
<td>222 (3.0)</td>
</tr>
</tbody>
</table>
Summary U.S. Severity Data*

• Overall severity less than 2009/10 and 2007/08 (an H3N2 year), but more than 2008/09 influenza season, as determined by
  – percentage of deaths resulting from pneumonia or influenza,
  – number of influenza-associated pediatric deaths reported,
  – percentage of visits to outpatient clinics for ILI.

• Hospitalization rates by age group
  – In ≥65 y.o. higher rates of hospitalization vs. 2009/10 but lower than 2007/08 season
  – Younger populations had lower rates than 2009/10 but higher than 2007/08

*Source: MMWR June 3, 2011 / 60(21);705-712
ILI consultation rates in Canada, by week, 1996/97 - 2010/11 seasons
Age distribution of viruses in Canada, 2010/11 season

- 85% of influenza virus detections were A viruses
  - 84% of subtyped specimens were A/H3N2.
- 51% of influenza A(H3N2) were ≥ 65 y.o.
- 95% of influenza A(H1N1) and 90% of influenza B were < 65 y.o.
- 671 hospitalizations with laboratory-confirmed influenza were reported in <16 y.o.
  - 23% H3N2* (85% of subtyped A viruses)
  - 4% H1N1* (15% of subtyped A viruses)
  - 33% influenza B (vs. 15% of all viruses from the community)
- 969 hospitalized cases in adults
  - 21% H3N2* (81% of subtyped A viruses)
  - 5% H1N1* (19% of subtyped A viruses)
  - 8% influenza B
- 227 fatal cases reported
  - 60% H3N2* (91% of subtyped A viruses)
  - 7% H1N1* (19% of subtyped A viruses)
  - 5% influenza B

*Percentages don’t add up to 100% because unsubtyped A virus % not shown.
Age Distribution of Hospital Admissions, Canada, 2010/11

Total = 1640
Age Distribution of Severe Cases in Canada

- Pediatric hospitalized cases (N=671)
  - 17% 0-5 month olds;
  - 28% 6-23 month olds;
  - 29% 2-4 year-olds;
  - 26% 5-16 years old

- Adult hospitalized cases (N=961)
  - 67% were ≥65 y.o.
  - 45% were males

- Fatal Cases (N=227)
  - 79% were ≥65 y.o.
  - 11% were 45 - 64 y.o.
Risk Factors for Severe Influenza
U.S.A., 2010/11 Winter Season

Selected underlying medical conditions in patients hospitalized with influenza, FluSurv-NET 2010-2011

- Asthma: 9.0% (Pediatric) vs. 19.7% (Adult)
- Cardiovascular disease: 4.2% (Pediatric) vs. 35.6% (Adult)
- Chronic lung disease: 4.6% (Pediatric) vs. 22.4% (Adult)
- Immune suppression: 4.2% (Pediatric) vs. 11.6% (Adult)
- Metabolic disorder: 4.1% (Pediatric) vs. 34.5% (Adult)
- Neurologic disease: 4.8% (Pediatric) vs. 7.1% (Adult)
- Obesity: 1.2% (Pediatric) vs. 11.6% (Adult)
- Pregnancy: 0.7% (Pediatric) vs. 5.4% (Adult)
- Renal disease: 1.5% (Pediatric) vs. 14.2% (Adult)
- No known condition: 14.8% (Pediatric) vs. 50.5% (Adult)
Europe
RCGP: Influenza-like illness current and recent seasons

Week number

Rate per 100,000

2009/10
2008/09
2007/08
1999/00
2010/11

15 July 2011
Excess number of deaths in England and Wales
January 2009 – March 2011
Samples positive from community sources by age group, 2010-11

15 July 2011
Samples positive from hospital sources, by age group, 2010-11

Number of positive samples by age group and influenza subtype:

- **<5 years**
  - Influenza B
  - Influenza H3
  - Influenza H1 (pre-pandemic)
  - Influenza H1N1 (2009)

- **5-14 years**
  - Influenza B
  - Influenza H3
  - Influenza H1 (pre-pandemic)
  - Influenza H1N1 (2009)

- **15-44 years**
  - Influenza B
  - Influenza H3
  - Influenza H1 (pre-pandemic)
  - Influenza H1N1 (2009)

- **45-64 years**
  - Influenza B
  - Influenza H3
  - Influenza H1 (pre-pandemic)
  - Influenza H1N1 (2009)

- **65+ years**
  - Influenza B
  - Influenza H3
  - Influenza H1 (pre-pandemic)
  - Influenza H1N1 (2009)

15 July 2011
2011/10 Influenza Season in the UK

- Intensive care units stressed.
  - Many on ECMO
- More laboratory confirmed deaths than in 2009/10
  - Influenza H1N1 overly represented
- Severe cases were predominantly young and middle aged adults
  - Only 22% ≥ 65 years old.
- Risk factors similar to last year
  - About 70% of severe cases, less in other countries
- Few severe cases were vaccinated
Antiviral Resistance

• >98% H1N1 were sensitive to oseltamivir
  – No difference between regions or over time
• Somewhat higher rate found in high-risk patients (~3%)
  – Some with no history of exposure
• All are resistant to M2 inhibitors
• H3N2 and B sensitive to oseltamivir
  – 1 report of H3 resistance in US at end of season
Summary

• Influenza A(H1N1)2009 continues to circulate widely.
  – Now co-circulating with other influenza viruses; not predominant
  – Occurred during the expected influenza seasonal time frame with no out-of-season community transmission
• Pattern of association between severe disease and age was similar to that observed previously.
  – H1N1 (2009) problem for young and middle-aged adults,
  – H3N2 associated with severe disease in > 65 years.
  – Influenza type B appears to disproportionately affect young children.
• A few countries had higher number of severe cases compared to last year
• All three viruses had very little antigenic drift
  – closely related to the strains in the vaccine.
• Small percentage resistant to neuraminidase inhibitors.
  – No change over time
Thank you

Merci!

Thank you

Go raibh maith agat

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با تشکر از شما

謝謝你

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