Summary

- In most areas of the northern hemisphere temperate regions, influenza activity appears to have peaked and is declining. In North America, influenza indicators have remained elevated in some areas of the United States of America, but declined in the last couple of weeks. Although, activity remains elevated across several regions in Canada, declining trends have started to be observed. Similarly, in Europe and northern Asia, nearly every country has now passed its peak of transmission and has reported declining activity.

- The most commonly detected virus type or subtype throughout Europe and North America (except Mexico) has been influenza A(H3N2), although the proportion of influenza B detection has been increasing toward the end of the season in North America. In Mexico influenza A(H1N1)pdm09 has been the most common influenza virus circulating; China and the surrounding countries of northern Asia are still reporting a predominance of influenza type B virus.

- Increasing genetic and antigenic diversity has been noted in H3N2 viruses in the later part of the influenza season.

- No significant increase in antiviral resistance has been reported this season.

Note: Global epidemiology and surveillance updates are periodically collected from data reported by National authorities or organization responsible for these reporting these data. For further information on specific influenza virus activity in the world visit the following pages (links are at the end of the document):

- Virological Update
Countries in the temperate zone of the northern hemisphere

Influenza activity is decreasing overall in the temperate northern hemisphere though there is some regional variation. Some regions in Canada reported an increase in influenza activity since the previous week though the national trend is downward, and a few countries in Europe have reported ILI consultation rates still above seasonal thresholds (Estonia, Latvia, the Russian Federation, Sweden and Switzerland) but declining. Overall ILI activity has continued to decrease in countries of northern Asia. Most indicators of influenza activity in the northern hemisphere reached peak levels similar to or below those of previous seasons.

North America

In Canada, influenza activity continued to be elevated across several regions and has increased in some areas compared to previous weeks, however, at a national level activity appears to have started to decline. Similar to last week, most regions reported localized or sporadic influenza activity and only two regions reported widespread activity. The proportion of respiratory specimens testing positive for influenza virus declined from 24% to 20% during last week. There was a decline in the influenza-like illness (ILI) consultation rate from 36.7 ILI consultations per 1,000 patient visits during 18-24 March to 22.1 ILI consultations per 1,000 patient visits in the most recent reporting week. The number of outbreaks has remained high for the past 3 weeks, with more than 50 outbreaks reported in each week. Compared to other past influenza seasons, ILI consultation rates are similar to baseline average rates for the period 1996 – 2010 and the number of influenza or ILI outbreaks have been similar to last season. A total of 126 new influenza-associated hospitalizations were reported this week, slightly less than in the previous week (133 hospitalizations). Thirty-six per cent of all laboratory confirmed influenza paediatric hospitalizations occurred in children under the age of 2 years. There were 11 adult influenza-associated deaths, of which 8 were associated with influenza B infection. Only two paediatric influenza-associated deaths have been reported since the start of the season. In hospitalized children, 67% of influenza-associated hospitalizations were due to influenza B; two out of eight influenza type A viruses subtyped were A(H1N1)pdm09 and six out of eight were A(H3N2). In contrast to the United States (USA), the weekly proportion of specimens testing positive for influenza B in outpatients has exceeded the proportion of tests positive for influenza A since March 10, 2012. Since the start of the season of the 166 influenza A(H3N2) viruses that have been antigenically characterized 90% were antigenically similar to A/Perth/16/2009 while 10% of the viruses showed reduced titers with antiserum produced against A/Perth/16/2009. Of the 143 A(H1N1) viruses characterized, 99% were antigenically similar to A/California/07/2009 and less than 1% of virus tested showed reduced titre with antiserum produced against the A/California/07/2009, which is included in the recommended vaccine. Of the 511 influenza B viruses characterized, 52% were antigenically similar to the vaccine strain B/Brisbane/60/2008 (Victoria lineage) and the remaining 48% of the influenza type B were antigenically related to the reference virus B/Wisconsin/01/2010-like, which belongs to the Yamagata lineage. Since the beginning of the season 731 influenza viruses have been tested for resistance to oseltamivir (by phenotypic assay and/or sequencing) and zanamivir (by phenotypic assay) and it was found that all viruses tested were susceptible to both drugs.

Influenza activity remained elevated in some areas of the United States of America but declined in most of the reporting states. Nationally, the proportion of consultations ILI was 1.7%, the lowest since the end of January 2012 and below the seasonal threshold level (2.4%). The proportion of samples testing positive for influenza decreased from 26.6% during 11-17 March to 20.5% at the end of March a three week downward trend. The number of states reporting widespread activity has decreased from 16 to 10 in the last couple of weeks. Most of the regions in the USA reported minimal ILI activity (44 states and New York City) whereas six states experienced low activity. Compared to previous seasons, mortality from pneumonia and influenza reported in the 122 cities surveillance system has remained relatively low throughout the season, crossing the upper epidemic threshold (the upper 90% confidence interval above the seasonal average) during only one week; ILI rates have not exceeded the national baseline during the entire season. Laboratory-confirmed influenza-associated
hospitalizations rose during last week (5.5 per 100,000 population vs. 5 in the previous week). Higher influenza-associated hospitalization rates were reported in adults ≥ 65 years (18 per 100,000 population) and in children under the age of four (~11 per 100,000 population); the lowest rate of influenza-associated hospitalizations was observed in adults between 18 to 48 years old (3 per 100,000 population). The two most common co-morbidities among hospitalized adults were chronic lung diseases (44%) and obesity (35%). Similarly, chronic lung diseases were the most common underlying medical conditions in paediatric patients (25%), followed by asthma (20%). In 46% of hospitalized children underlying medical conditions were identified. Since the start of the 2011-2012 influenza season, influenza type A viruses have remained predominant in the USA. However, the number of specimens testing positive for influenza type B has gradually and slowly increased in the past few weeks. Out of 932 specimens tested in the past week, 86% (800) were positive for influenza A and 14% were positive for influenza B. Among those with influenza A viruses that were subtyped in the last week, A(H3N2) accounted for 67% and A(H1N1)pdm09 33%. Of the influenza viruses characterized antigenically, 79.5% of the influenza A(H3N2) viruses and 99.2% of the of the influenza A(H1N1)pdm09 viruses were antigenically related to viruses contained in the current seasonal trivalent influenza vaccine.

In Mexico, the proportion of samples testing positive for influenza slightly increased from 11.9% to 14.8% in the past week; however, overall influenza activity appears to be decreasing. Influenza A(H1N1)pdm09 was the predominant circulating virus.

**Influenza indicators in Europe continued to decline in most countries since the last report. Thirty of the 46 Member States in the WHO European Region reporting indicators for influenza activity, reported that the seasonal influenza epidemic has peaked and is decreasing for the past few weeks. Outpatient consultation rates for influenza-like illness (ILI) and acute respiratory infections (ARI) are generally low, although one country (Slovakia) reported increasing rates in week 13. Six countries, Denmark, England, Lithuania and Netherlands, reported stable activity. Although influenza activity has been declining in Estonia, the Russian Federation, Latvia, Sweden, and Switzerland, ILI consultation**

Data source: FluNet (www.who.int/flunet), Global Influenza Surveillance and Response System (GISRS) Data generated on 12/04/2012 06:20:24 UTC
rates continued to be reported above the threshold in these countries. The number of respiratory specimens tested for influenza as well as positivity rates have shown a steady decline in the last four weeks, dropping from 45% (851/1878) during the first week of March to 30% (199/657) in early April. The weekly number of hospitalizations due to severe acute respiratory infection (SARI) cases has been decreasing. Since the beginning of the influenza season 2011-2012, 1,638 SARI cases have been reported by sentinel hospitals in seven countries (Slovakia, Ireland, Romania, Spain, Belgium, France and the United Kingdom). 36% SARI cases were reported in adults ≥ 65 years old, followed by 17% of SARI cases being reported on pediatric patients under the age of 2. Five percent (87) of SARI cases were fatal. In eastern Europe, a total of 126 respiratory specimens were collected from SARI patients, of which 22 (17%) were positive for influenza. As reported by the European Mortality Monitoring Project, all-cause mortality for adults over 65 years increased and the excess of mortality concurred with increased influenza activity and a cold snap that affected parts of Europe in the beginning of February – (See the European mortality bulletin). Influenza A(H3N2) viruses continued to be the most commonly detected influenza viruses, found in 72% of all influenza positive ILI/ARI cases. In relation to the amount of viruses circulating across Europe, the proportion of influenza B viruses has increased during the past weeks, accounting for 28% of all cases as compared to mid-March when the proportion of B viruses accounted for 18% of all influenza infections. In contrast to other countries in Europe, only B viruses were circulating in Turkey during last week. No influenza A(H1N1)pdm09 viruses were detected in the last week. In Europe, increasing genetic diversity has been noted in H3N2 viruses circulating this season indicating that the vaccine strain is an imperfect match for currently circulating viruses. No resistance to neuraminidase inhibitors (oseltamivir and zanamivir) has been reported so far this season. Consistent with observations in previous weeks, all of the 110 influenza A(H3N2) viruses and 10 influenza A(H1N1)pdm09 viruses that were screened for susceptibility to adamantanes were found to be resistant.

**Influenza transmission zone: European Region of WHO**

**Number of specimens positive for influenza by subtype**

Data source: FluNet (www.who.int/flunet), Global Influenza Surveillance and Response System (GISRS)

Data generated on 12/04/2012 06:23:27 UTC
**Influenza update**

**Northern Africa and eastern Mediterranean**

Most countries in North Africa and Middle East are reporting influenza activity at or near inter-seasonal levels. Algeria, Iran, and Egypt have all reported a decreasing and low numbers of influenza cases in the last weeks following a peak at the start of 2012, almost all of which are influenza A(H3N2). Oman and Tunisia had an increase in the number of specimens testing positive for influenza since last week. In Oman, all influenza viruses circulating are type B.

**Temperate countries of Asia**

In the temperate countries of Asia, overall influenza activity continued to decrease, except for the Republic of Korea. In the Republic of Korea during the week 25 to 31 March, the number of ILI cases per 1000 outpatient was 20.3, slightly higher than the previous week (18.0). Although influenza A (H3N2) was most common until February, influenza B became predominant from the week 4 to 10 Mar. In northern China, the proportion of outpatient visits that were due to ILI at national sentinel hospitals was 2.8% during the week 26 March to 1 April, which was lower than that of previous week (3.1%), a persistent downward trend over 2 to 3 weeks. ILI rates in northern China have been similar to previous years. Influenza type B has been the most commonly detected virus in China this season though as numbers have dropped, the proportion of influenza A(H3N2) virus has increased. Among 285 samples positive for influenza in the most recent reporting week, 165 (58%) were influenza A. Of the influenza A viruses for which subtype information is available 86% were influenza A(H3N2). All pandemic influenza viruses tested were sensitive to the neuraminidase (numbers were not available). In Mongolia, during 26 March to 1 April, ILI activity decreased and the majority of samples were influenza A(H3N2) with some co-circulation of influenza B.

**Influenza transmission zone: Eastern Asia**

**Number of specimens positive for influenza by subtype**

Data source: FluNet ([www.who.int/flunet](http://www.who.int/flunet)). Global Influenza Surveillance and Response System (GISRS) Data generated on 11/04/2012 15:46:15 UTC

**Countries in the tropical zone**

**Tropical countries of the Americas**

In tropical countries of South America, influenza activity and acute respiratory illness activity remained low except in Guatemala, where influenza A(H1N1)pdm09 has increased and has been co-circulating with influenza B. In the week 18 to 24 Mar according to laboratory data, among 104 samples tested, the percentage of positive samples for respiratory viruses was 53%, predominantly influenza A, nearly all of which were influenza A(H1N1)pdm09.
Influenza transmission zone: Tropical South America
Number of specimens positive for influenza by subtype

Sub-Saharan Africa
In sub-Saharan Africa, low numbers of detections were reported. In Madagascar, the number of specimen positive for influenza continued to increase for the past six weeks. Most of the influenza viruses identified in Madagascar have been influenza A(H3N2) with a much smaller number of influenza type B.

Tropical Asia
In the tropical areas of Asia, influenza activity has continued to decline or remained stable at low levels in most areas. In southern China, during the week 26 March to 1 April, the percentage of visits that were ILI in sentinel hospitals was 3.1%, slightly lower than the previous week (3.2%). The proportion of respiratory specimens testing positive for influenza has also decreased over the last five weeks to 30% of 1541 specimens tested from a peak level of more than 40% in early February. The majority (66.7%) of influenza viruses detected in the past week in southern China were influenza A and of influenza A viruses with subtype information, all were influenza A(H3N2). In Hong Kong Special Administrative Region, however, the overall influenza activity remained high but are decreasing. About half of influenza viruses detected in Hong Kong SAR (53%) are influenza A(H3N2) and half (47%) are influenza B. From the data monitoring influenza associated intensive care unit (ICU) admissions or deaths (aged 18 years or above) since 13 January, 2012, there were 106 cases of influenza associated ICU admissions or deaths, in which 61 of them were fatal as of 3 April; the numbers of influenza associated hospitalizations and deaths are similar to previous seasons. In South East Asia (Viet Nam, Cambodia, and Lao People's Democratic Republic very low numbers of influenza type B were reported. In Singapore, acute respiratory infection (ARI*) activity decreased slightly during 25 to 31 March compared to the previous week. The proportion of cases with ILI among the polyclinic ARI cases was low at 1%. Of 192 ILI samples collected in the last four weeks, 43% (preliminary) were positive for influenza virus. Of all influenza isolates collected in March 2012, influenza B constituted 74%, while influenza A(H1N1)pdm09 and influenza A(H3N2) constituted 15% and 11%, respectively. Transmission of influenza A(H1N1)pdm09 has been reported in India along with unconfirmed media reports of a number of fatal cases in the area around Pune.
Influenza transmission zone: South East Asia
Number of specimens positive for influenza by subtype

Countries in the temperate zone of the southern hemisphere
In the Southern Hemisphere, ILI activity continued to remain low at inter-seasonal levels.

Source of data
The Global Influenza Programme monitors influenza activity worldwide and publishes an update every two weeks.

The updates are based on available epidemiological and virological data sources, including FluNet (reported by the Global Influenza Surveillance and Response System) and influenza reports from WHO Regional Offices and Member States. Completeness can vary among updates due to availability and quality of data available at the time when the update is developed.

Link to web pages
Epidemiological Influenza updates:
http://www.who.int/influenza/surveillance_monitoring/updates/latest_update_GIP_surveillance
Epidemiological Influenza updates archives 2012:
http://www.who.int/influenza/surveillance_monitoring/updates/GIP_surveillance_2012_archives

Virological surveillance updates:
http://www.who.int/influenza/gisrs_laboratory/updates/summaryreport
Virological surveillance updates archives:
http://www.who.int/influenza/gisrs_laboratory/updates

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