Summary

- The 2011-2012 influenza season is coming to an end in most northern temperate regions of the world. Countries in the southern hemisphere temperate zone are still at low or inter-seasonal levels, though some very small increases in detections have been reported in Chile. Some activity persists in sub-Saharan Africa.

- Throughout the 2011-12 influenza season, different viruses have predominated in different parts of the world in the northern hemisphere. In North America, Canada had a slight predominance nationally of influenza B over influenza A(H3N2) (67% vs. 33% respectively) particularly later in the season but the distribution was not uniform across the country. In the United States of America (USA), the proportions were reversed, and A(H3N2) was more common. The season in Mexico was dominated by influenza A(H1N1)pdm09. In Europe, the large majority of influenza viruses have been influenza A(H3N2) with only very small numbers of A(H1N1)pdm09 and B. In Asia, northern China and Mongolia reported mostly influenza B early in the season with influenza A(H3N2) appearing later, and this sequence was reversed in the Republic of Korea and Japan where, A(H3N2) was predominant in the beginning and type B appeared later.

- Early in the season, most viruses tested were antigenically related to those found in the current trivalent seasonal vaccine. However, by mid-season, divergence was noted in both the USA and Europe in the A(H3N2) viruses tested. Significant numbers of A(H3N2) viruses tested in recent months have shown reduced cross-reactivity with the 2011-12 vaccine virus. Influenza type B virus detections have been both from the Victoria and Yamagata lineages with the former slightly more common in China and parts of Europe.

- Resistance to neuraminidase inhibitors has been low or undetectable throughout the season; however, a slight increase in levels of resistance to oseltamivir has been reported in influenza A(H1N1)pdm09 isolates in the USA. Most (11/16) of these oseltamivir resistant cases have been from the state of Texas, where influenza A(H1N1)pdm09 has been the most common virus circulating.

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
- Peer-reviewed Literature: Influenza serological studies to inform public health action: best practices to optimise timing, quality and Reporting
Countries in the temperate zone of the northern hemisphere

Influenza activity continues to decrease across the entire northern hemisphere temperate zone. In some countries, the 2011-2012 season was quite mild when compared to previous influenza seasons. Other countries in Europe and northern Asia have reached influenza activity levels similar to previous years.

North America

The 2011-2012 season peaked later than previous seasons, and influenza activity in North America is continuing to decline. Throughout the season, influenza B was the predominant virus in Canada and influenza A(H3N2) in the United States of America.

In Canada, during the week of 6-12 May, influenza activity continued to decrease. The ILI consultation rate declined considerably compared to the previous week and is below expected levels for this time of year. Among the 3,124 samples tested in the week of 6-12 May, 10% were positive for influenza, which is a decrease from the 15% in the previous report. Ninety new laboratory-confirmed influenza-associated hospitalizations were reported, up from 67 in the last reporting period. To date this season, 559 influenza-associated paediatric hospitalizations have been reported by the Immunization Monitoring Program Active (IMPACT) network system, and 36% were under 2 years of age. Since the start of the season, 34% of 1674 influenza-associated hospitalizations and 80% of 88 laboratory-confirmed deaths reported by the Aggregated Surveillance System were in adults over the age of 65 years. Since the start of the season, 1202 influenza viruses were antigenically characterized. Of the 202 A(H3N2) viruses, 90% were antigenically similar to A/Perth/16/2009, the virus contained in the current trivalent seasonal influenza vaccine, while 10% viruses showed reduced titres with antiserum produced against the virus. Of the 807 influenza B viruses characterized, 46% were antigenically similar to the vaccine virus B/Brisbane/60/2008 (Victoria lineage); however 1 virus out of the 391 tested showed reduced titre with antiserum produced against B/Brisbane/60/2008. The remaining 52% influenza B viruses were antigenically related to the reference virus B/Wisconsin/01/2010, which belongs to the Yamagata lineage.

In the United States of America (USA), influenza activity declined nationally and available data suggests that the 2011-2012 season was milder compared to previous seasons. The ILI consultation rate (1.4%) continued to decline and was below the national baseline (2.4%). All regions reported ILI activity below their region specific baselines. The number of respiratory specimens testing positive for influenza viruses has also been declining since mid-March to 13% during week 6-12 May. The number of states reporting widespread activity has decreased from 2 to 1 since the last report. The mortality from pneumonia and influenza reported in the 122 cities surveillance system decreased to 6% and continued to be below the epidemic threshold of 7.5%. Two influenza-associated paediatric deaths were reported this week, which results in a total of 24 influenza-associated paediatric deaths for the 2011-2012 season. This is markedly less than the 2010-2011 season when 122 paediatric deaths were reported. Of the 288 specimens that tested positive for influenza in early May, 47% were influenza type B and 53% were type A. Among influenza A viruses with subtype information, A(H3N2) accounted for 40% (61), and A(H1N1)pdm09 for 8% (12). There have been 1514 influenza viruses antigenically characterized since October 1, 2011; 98% of the influenza A(H1N1)pdm09 viruses, and 81% of the influenza A(H3N2) viruses, and 46% of the influenza B viruses are antigenically related to viruses contained in the 2011-12 seasonal trivalent influenza vaccine. Oseltamivir resistance was reported in 1% (16) of the 1147 influenza A(H1N1)pdm09 viruses tested, with no new resistant cases reported since the last report. No resistance is reported in the influenza A(H3N2) or influenza B viruses tested. Details of the 16 oseltamivir resistant cases can be found in the previous biweekly update or on the CDC website (http://www.cdc.gov/flu/weekly/).

In Mexico, between 6-12 May, of the total samples analyzed (n=18), there were no respiratory virus detected.
Europe

The 2011-2012 season is coming to an end though significant transmission was still being reported in the Russian Federation. During the week of 6-12 May, consultation rates for ILI and acute respiratory infection (ARI) returned to low activity level in almost all the countries. The number of specimens tested, as well as the percentage of influenza-positive cases, continued to decline but the positive cases show a higher prevalence of influenza B viruses, especially in Turkey and Greece. Hospitalizations due to severe acute respiratory infection (SARI) have stabilized with a slight increase in influenza-positivity rate, and during week 6-12 May, no cases of SARI or severe influenza were reported from western Europe. During the 2011-2012 season, excess mortality in people ≥ 65 years increased significantly, particularly between weeks 5 to 11, and this intensification coincided with increased influenza A(H3N2) transmission; however, rates have now returned to baseline levels. Since the beginning of the season, 42 644 influenza viruses from sentinel and non-sentinel sources have been typed: 91% were influenza A and 9% were influenza B. Of the influenza A viruses, 21 110 were subtyped: 96% as A(H3N2) and 4% as A(H1N1)pdm09. No resistance to oseltamivir was reported from Europe during the 2011-2012 season.
**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 24/05/2012 04:44:58 UTC

### Northern Africa and eastern Mediterranean

In the eastern Mediterranean and northern African region, influenza activity continues to decrease after peaking towards the end of 2011. At this time, influenza B viruses are predominant in this region, although the numbers are very small. Similarly to the last report, Oman reported influenza A(H1N1)pdm09 activity between 6-12 May.

**Influenza transmission zone: Eastern Mediterranean**

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

- Data source: FluNet (www.who.int/flunet), Global Influenza Surveillance and Response System (GISRS)
**Temperate countries of Asia**

Overall influenza activity is decreasing, and the 2011-2012 season appears to be over. In northern China, the percentage of ILI related visits to sentinel hospitals was 2.6%, similar to the level reported in the previous recent weeks. In week 6-12 May, 181 specimens were tested and 4% were positive for influenza, which is a decrease from the previous weeks. As transmission declined, the proportion of influenza A (mostly A(H3N2)) increased relative to influenza B, and represented 86% of all positive samples in the week 6-12 May. Transmission peaked in northern China in early March, at which time influenza B accounted for the large majority of viruses detected. In Mongolia, ILI decreased as it has been for the past few weeks. Most of the ILI activity was reported in children between the ages of 1 and 4. None of the recent cases hospitalised for pneumonia were associated with influenza. Since the beginning of the season, there has been a transition from influenza B to influenza A predominance, with both A(H3N2) and A(H1N1)pdm09 detected in previous weeks. Similarly to northern China, Mongolia has also experienced a transition from influenza B predominance to influenza A(H3N2) in past weeks. In the Republic of Korea (ROK), ILI activity continued to decrease. In contrast to China and Mongolia, although influenza A(H3N2) was predominant in the beginning of the season, nearly all detections since early March have been influenza B. In Japan, ILI case reporting continues to decrease. Influenza A(H3N2) was the predominant virus subtype detected this season in the country though small numbers of influenza B were reported towards the end of the season.

**Influenza transmission zone: Eastern Asia**

Number of specimens positive for influenza by subtype

![Influenza transmission zone: Eastern Asia](image)

**Countries in the tropical zone**

**Tropical countries of the Americas**

In the Caribbean, influenza activity remained low in most of the region. Only the Dominican Republic and El Salvador reported appreciable virus transmission, primarily influenza A(H3N2) in the former and influenza A(H1N1)pdm09 in the latter. In the rest of Central and tropical South American,
countries continued to report low or undetectable levels of influenza transmission as expected for this period of time.

**Influenza transmission zone: Tropical South America**

Number of specimens positive for influenza by subtype

![Chart showing influenza transmission in Tropical South America](chart)

**Sub-Saharan Africa**

In sub-Saharan Africa, few countries reported appreciable transmission of influenza. Transmission of primarily influenza A(H3N2) peaked in early March but has been decreasing since then. Kenya typically detects virus throughout the year. Rwanda and Tanzania both reported relatively small numbers influenza A(H1N1)pdm09. In Madagascar, detections of both A(H3N2) and influenza B have increased in recent weeks.

**Tropical Asia**

Influenza activity in tropical Asia has decreased across most of the region. In southern China, the percentage of ILI visits in sentinel hospitals was 3.3%. Of the 1117 specimens tested, 8% were positive for influenza, and influenza A was the predominant strain. Among influenza viruses tested in China for antiviral resistance since the start of the 2011/2012 season, all A(H1N1)pdm09 and A(H3N2) viruses were resistant to adamantine and sensitive to the neuraminidase inhibitors; all influenza B viruses were sensitive to neuraminidase inhibitors. However, in China Hong Kong Special Administrative Region, influenza activity remained at a high level. In addition, 17 cases of influenza associated ICU admissions or deaths were recorded, 9 of which were fatal. In Singapore, between 6-12 May, the number of consultations for acute respiratory infections was higher than normal however detections of influenza type B, with smaller numbers of A(H1N1), appear to have peaked in early March and have declined since then. As with many other tropical countries, Singapore has reported virus detections nearly every week in the past one year. Viet Nam, has had a similar transmission pattern to Singapore with influenza B transmission peaking in early March but with A(H3N2) co-circulation rather than A(H1N1)pdm09. In Thailand, Cambodia and Lao PDR, influenza activity was low or undetected.
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 temperate regions of South America, Africa, Australia, and New Zealand, ILI activity and virus detections were generally low; however, Chile has reported increased detections of A(H3N2) in the past 4 weeks and Australia has had nearly continuous low level detection of A(H3N2) and type B viruses throughout most of the Australian summer.

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://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