Summary

- Influenza activity in North America continued to decrease overall, though activity remained high in some areas. Proportionally influenza B increased although influenza A(H3N2) was the most commonly detected virus in North America overall for this season. In the United States of America this season has been more severe than any since 2003-4 as reflected in numbers of pneumonia and influenza deaths with the highest impact for individuals over the age of 65 years.

- Influenza activity continued to decline in the most part of Western Europe, while it remained elevated in the eastern part of the region. The proportion of subtypes of viruses circulating was not uniform across the continent and has changed through the season. It has been notably different from North America with a mix of A(H3N2) and A(H1N1)pdm09 and B viruses. Influenza B mainly reported in western and northern countries and influenza A in eastern and central Europe. Excess mortality in most countries has been moderate and most deaths occurred among people aged 65 and older.

- Influenza activity throughout the temperate region of Asia decreased overall with the exception of Mongolia where activity levels were sustained but still within seasonal tolerance levels.

- Low levels of influenza activity continued to be reported across the tropical regions of the world and activity in countries of the southern hemisphere remained at inter-seasonal levels.

- Since the start of the season a few viruses with reduced susceptibility to neuraminidase inhibitors have been detected in the countries performing antiviral resistance testing. The majority of characterized influenza viruses were antigenically similar to the 2012-13 northern hemisphere vaccine viruses.

- In China three cases of influenza H7N9 have been identified, please see detail in the Disease Outbreak News (http://www.who.int/csr/don/en)

- The update on human cases of influenza at the human animal interface, 2012 was published in the Weekly Epidemiological Record (http://www.who.int/wer/2013/wer8813.pdf)

Note: Global epidemiology and surveillance updates are periodically collected from data reported by National authorities or organizations responsible for reporting this data. For further information on specific influenza virus activity in the world and scientific literature for practitioners and other professionals in the field, please visit the links provided at the end of this document.
Countries in the temperate zone of the northern hemisphere

North America

Overall influenza activity in North America continued to decrease during the first week of March since peaking in early January in Canada and the United States of America (USA) and approximately two weeks later in Mexico. Despite this decrease, influenza activity still remained high in some areas of the region.

In Canada, the percentage of positive influenza tests decreased to 12.2% in the second week of March) compared to 35% in the first week of January. The national influenza-like-illness (ILI) consultation rate also decreased from a peak in late December when it was 36.8 per 1000 patient visits to 23.2 in the second week of March. The number of reported outbreaks in hospitals, long term facilities and schools, decreased from 150 in the second week of January to 24 in the second week of March. Of the 507 influenza viruses detected in the second week of March in Canada, 55.4% were identified as influenza A and of those with subtype information, 22.6% were A(H3N2) and 20.8% were A(H1N1)pdm09. The proportion of positive influenza B appears to have risen relative to influenza A over the past 8 weeks in most areas from 2.1% in late January to 55.4% in the second week of March, but cumulative seasonal proportions are still much higher for influenza A compared to B. The Aggregated Surveillance System of Canada reported 95 laboratory-confirmed hospitalizations with 65% influenza A, predominantly A(H3N2), with the relative proportion of influenza B increased. The highest proportion of hospitalization continued to be in adults above 65 years of age (40%). In the same system 271 death have been reported to date and 83% (225) were in adults above 65 years of age.

Since the start of the season, the National Microbiology Laboratory has antigenically characterized 798 influenza viruses (128 A(H1N1)pdm09, 470 A(H3N2), and 160 influenza B). Of these, all influenza A and influenza B viruses were antigenically similar to the 2012-13 northern hemisphere vaccine viruses, with the exception of 40/160 influenza B viruses which were similar to the B/Brisbane/60/2008 (Victoria lineage) virus; a component of the 2011-2012 seasonal influenza vaccine. So far all viruses tested during this period showed no resistance to oseltamivir (0/730) or zanamivir (0/727).

In the United States of America, during the second week in March, influenza activity continued to decrease in most areas since peaking in late December to early January. Nationally, the proportion of ILI outpatient consultations is at the national baseline of 2.2%. The proportion of clinical ILI specimens testing positive for influenza decreased from the peak of 38% in the last week of 2012 to 16.3% during the second week of March.

The proportion of all deaths attributed to pneumonia and influenza (P&I) reported through the 122 Cities Mortality Reporting System continued to decrease from the peak of 9.8% in the fourth week of January, to 7.6% in the second week of March. This was still slightly above the epidemic threshold of 7.5%. This season’s P&I peak represents the second highest level seen in the previous 10 years, with only the 2003-04 influenza season achieving a higher peak (10.4%). In addition, 105 influenza-related paediatric deaths were reported so far this season, compared to 34 for the entire season in 2011-12, 122 in 2010-11, and 282 during the winter season of the 2009-10 influenza pandemic. A total of 11 307 laboratory-confirmed influenza-related hospitalizations were reported since the beginning of the season (cumulative rate of 40.6/100 000 population). This was notably higher than the previous three seasons (8.6, 21.4, and 29.0/100 000 population for the 2011-12, 2010-11, 2009-10 seasons respectively). The rate for individuals hospitalized for influenza above 65 years of age was markedly higher than for other age groups, representing 51% of all reported cases. The rate for other age groups remained at levels similar to previous years. Among all hospitalizations, 9387 (83.0%) were associated with influenza A and 1841 (16.3%) with influenza B. Since the start of the season, influenza A(H3N2) viruses have predominated nationally, however in recent weeks, the proportion of influenza B viruses has increased.

During the second week in March, 72% of all influenza positive specimens reported were influenza B viruses while 28.1% were influenza A. Of the influenza A viruses with subtype information, 34.4% were influenza A(H3N2) and 4.7% A(H1N1)pdm09. Overall, influenza B viruses were reported more frequently than influenza A viruses in 8 of 10 regions. Cumulatively, the seasonal trend in the United
States of America differed from Canada, where 95% of the all confirmed specimens were still influenza A.

Since the beginning of the 2012-13 influenza season, the Centers for Disease Control and Prevention characterized 1695 influenza viruses antigenically (141 influenza A(H1N1)pdm09, 1012 influenza A(H3N2), and 542 influenza B viruses). Of these, all influenza A and influenza B viruses were antigenically similar to the 2012-13 northern hemisphere vaccine viruses, with the exception of 159/542 influenza B viruses which belonged to the B/Victoria/02/87-like lineage. In addition, 0.4% (4/1012) of A(H3N2) and 2.1% (3/141) of A(H1N1)pdm09 viruses tested showed reduced titres with antiserum produced against the A/Victoria/361/2011 and A/California/7/2009 viruses respectively. Since the beginning of the season, none of the influenza A(H3N2) and influenza B viruses tested were resistant to the neuraminidase-inhibitors, oseltamivir and zanamivir. Two oseltamivir-resistant A(H1N1)pdm09 virus have been reported out of 405 tested in this season. Two A(H3N2) viruses out of 1577 tested have also been reported oseltamivir-resistant.

Mexico continued to report a decreasing trend in influenza activity over the last few weeks with a majority being influenza A(H3N2). Influenza activity in Mexico appears to have peaked approximately two weeks after the USA.

**Number of specimens positive for influenza by subtype in the Northern America transmission zone**

**Influenza transmission zone: North America**

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

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

**Europe**

Influenza activity continued to decline among most parts of the region, while some countries in eastern part of the region still reported increasing activity.

Consultation rates of ILI and acute respiratory infections peaked around the last week of January in western Europe where the season has been unusually long with the proportions of different viruses contributing being different by country and in some countries altering as the season progressed. The proportion of influenza positive sentinel specimens in Europe continued to decrease from previous reports, but remained high at 46% (549/1199). The overall peak was seen in the last week of January with 60% positivity. In the countries with surveillance for SARI, the weekly number of cases has already peaked, with a few exceptions in the eastern part of the region. Overall, A(H1N1)pdm09
remained the most commonly detected influenza virus in Europe, however, this pattern has not been uniform across the continent. Of more than 78 000 influenza viruses characterized since the beginning of the season in Europe, 65% were influenza A while 35% were B. Of the influenza A viruses with subtype information, 70% (23 002/32 806) were A(H1N1)pdm09 and 30% (9804/32 806) were A(H3N2). However, northern and western countries tended to report the dominance of influenza B or co-circulation of influenza A(H1N1)pdm09 and A(H3N2) and B. In contrast, very little circulation of influenza B was observed in eastern Europe.

During the second week of March some countries in the east showed increasing number of hospitalized adult cases, coinciding with increased flu-positivity rates and increases in ARI/ILI consultation rates. In 15 countries participating in the European Mortality Monitoring Project, similar mortality patterns were reported as in the previous weeks with higher mortality among people aged 65 and older. In most countries excess mortality was considered moderate in comparison to previous years. However in Denmark, the highest increase and longest sustained excess mortality was observed.

Of the 4099 influenza A viruses antigenically characterized since the beginning of the season, all A(H1N1)pdm09 and A(H3N2) were similar to A/California/7/2009 and A/Victoria/361/2011, respectively, which corresponded with the recommendation by WHO for the current northern hemisphere seasonal influenza vaccine. Of the 1136 influenza B viruses antigenically characterized, 85% (1361/1594) were belonged to the B/Yamagata/16/88-lineage and 14% (218/1594) to the B/Victoria/2/87-lineage.

Since the beginning of the season, a total of 967 viruses from 12 countries have been tested for antiviral susceptibility to the neuraminidase inhibitors oseltamivir and zanamivir. Nine A(H1N1)pdm09 viruses were found to have the neuraminidase H275Y amino acid substitution, causing resistance to oseltamivir. All of 233 influenza A(H3N2) tested showed susceptibility to both drugs. Of the 291 influenza B viruses tested, one virus with reduced inhibition to oseltamivir was detected.

Number of specimens positive for influenza by subtype in the European Region

Data source: FluNet (www.who.int/flunet). Global Influenza Surveillance and Response System (GISRS)
Data generated on 28/03/2013
Northern Africa and the eastern Mediterranean region

Across the northern Africa region and the eastern Mediterranean region the number of positive influenza specimens reported has decreased over the past weeks. The peak activity was reached in February in both of these regions. Influenza A(H1N1)pdm09 was the dominant virus in most of northern Africa and the eastern Mediterranean region. In some countries (Bahrain and Jordan) proportionally influenza B has increased in the last weeks.

Number of specimens positive for influenza by subtype in Northern Africa transmission zone

Influenza transmission zone: Northern Africa

![Graph showing the number of specimens positive for influenza by subtype in Northern Africa](image)

*Data source: FluNet (www.who.int/flunet). Global Influenza Surveillance and Response System (GISRS) Data generated on 27/03/2013*

Northern and Eastern Asia

Influenza activity continued to decrease in much of the temperate region of Asia. In northern China and Japan ILI activity and the percentage of ILI specimens testing positive for influenza virus has declined for approximately four weeks. In contrast, ILI activity in Mongolia based on the proportion of outpatients showed continued sustained activity but is still within seasonal tolerance levels.

Influenza activity in the Republic of Korea continued to decrease with the number of ILI cases recorded at 9.0 per 1000 patients visits compared to the peak in the beginning of March (week 9) with 12.7 per 1000. As described in previous reports, influenza A(H3N2) has been the most commonly detected virus in most of northern Asia this season.

Northern China also continued to report a decline and the influenza season appears to have ended. During the second week of March, the percentage of specimens that were positive for influenza was 5.6%, compared to a peak at around 27% in the beginning of January. Among influenza viruses antigenically characterized by the Chinese National Influenza Center since the beginning of the 2012-13 season, 99.4% (173) of influenza A (H1N1)pdm09 viruses were characterized as A/California/7/2009-like and 100% (559) of influenza A (H3N2) viruses were A/Victoria/361/2011(H3N2)-like. For influenza B, 100% (25) B/Yamagata like viruses were characterized as B/Wisconsin/01/2010-like and 96.7% (147) of the B/Victoria like viruses were B/Brisbane/60/2008-like.
Of the influenza viruses tested since October 2012, all A(H1N1)pdm09 and all influenza A(H3N2) viruses were sensitive to the neuraminidase inhibitors and resistant to adamantine while all influenza B viruses were sensitive to neuraminidase inhibitors.

Number of specimens positive for influenza by subtype in the Eastern Asia Transmission Zone

![Graph showing number of specimens positive for influenza by subtype in the Eastern Asia Transmission Zone]

Data source: FluNet (www.who.int/influenza). Global Influenza Surveillance and Response System (GISRS)
Data generated on 27/03/2013

Countries in the tropical zone

Tropical countries of the Americas/Central America and the Caribbean

In both Central America and the Caribbean, influenza activity was similar or decreased compared to previous weeks. Across the region, co-circulation of influenza A(H1N1)pdm09, A(H3N2) and influenza B continued to be reported, with influenza A(H3N2) constituting the majority of the viruses. In general, most ILI and acute respiratory cases were reported to be non-influenza illnesses, with respiratory syncytial virus and rhinovirus as the most commonly reported causative agent. Cuba continued to report slight activity with co-circulation of all three influenza types. In contrast to the previous report, Nicaragua reported noticeably decreased activity since a peak during the last week in February.

In Tropical South America, influenza activity remained low and within expected levels. Ecuador and Peru reported small numbers of influenza B and influenza A(H3N2) respectively.
Central African tropical region

Most countries in the Central African tropical region such as Burkina Faso, Cameroon and the Democratic Republic of Congo, experienced low, but persistent, co-circulation of all three influenza viruses over the past several weeks. Kenya continued to report persistent co-circulation of both influenza A viruses, while Madagascar continued to report influenza A(H3N2) and influenza B. Rwanda and the United Republic of Tanzania have reported sharp increases in influenza activity over the past several weeks.

Number of specimens positive for influenza by subtype in the middle African transmission zone

Data source: FluNet (www.who.int/flunet). Global Influenza Surveillance and Response System (GISRS)
Data generated on 28/03/2013
**Tropical Asia**

Influenza transmission in southern Asia was at low levels. In the first week of March, most countries in the region reported either sporadic activity.

In India, co-circulation of A(H1N1)pdm09 and A(H3N2) was reported unlike the end of February, where A(H1N1)pdm09 was predominant. Sri Lanka continued to report elevated level of influenza activity with no predominant influenza subtype.

**Number of specimens positive for influenza by subtype in the Southern Asia Region**

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

**Data source:** FluNet ([www.who.int/flunet](http://www.who.int/flunet)). Global Influenza Surveillance and Response System (GISRS)

Data generated on 28/03/2013

**Countries in the temperate zone of the southern hemisphere**

Influenza activity in all temperate countries of the southern hemisphere is now 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:

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