Influenza Update Nº 185

10 May, 2013

Summary

- The influenza season is gradually coming to an end with inter-seasonal levels seen in much of North America, Europe, and northern Asia though low level persistent transmission was still observed in a few countries.

- The persistence of transmission at low levels in the northern hemisphere temperate regions has been associated with increasing numbers of influenza type B virus appearing late in the season across North America and parts of Europe. Prior to this, influenza A(H3N2) was the most commonly detected virus in North America, A(H1N1)pdm09 in Europe, and both in varying proportions in different countries of northern Asia.

- 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.

- The majority of influenza A viruses characterized so far this season have been antigenically related to those contained in the current trivalent vaccine. Among the B viruses characterized, those that were of the Yamagata lineage were antigenically related to the viruses recommended for the trivalent vaccine. Although 10-30% of reported B viruses were of the Victoria lineage. Only very low numbers of oseltamivir and zanamivir resistant viruses have been detected so far this season.

- In China, new cases of H7N9 have been reported with 131 cases and 32 deaths to date. For more information see link: [http://who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html](http://who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html)

- A summary review of the Northern Hemisphere influenza season is expected to be published in the World Epidemiological Report on 31 May 2013.
Countries in the temperate zone of the northern hemisphere

**North America**

Overall the influenza season in North America is almost over with low levels of activity since peaking in early January in Canada and the United States of America (USA) and approximately two weeks later in Mexico.

In Canada, the numbers of outbreaks and provinces reporting notable respiratory disease activity have returned to low but not quite inter-seasonal levels. The national influenza-like-illness (ILI) consultation rate decreased from 23.8 per 1000 patients in the second week of April to 15.2 in the most recent reporting week. The percentage of viruses that tested positive for influenza remained relatively constant and slightly elevated at 12% over the last several weeks compared to 35% at the peak of the season. The proportion of influenza viruses detected which were influenza type B viruses has increased from 2.1% in the third week of January to 81.7% in the week ending April. For most of the season A(H3N2) has been the most commonly detected influenza virus, accounting for 70.2% of subtyped influenza viruses (n=11 077) since August 26 2012.

Fifteen pediatric admissions to hospital with laboratory confirmed influenza were reported by the Immunization Monitoring Program Active network in the first week of May, of which 12 out of 15 were associated with influenza type B. In the same week, 4 adult admissions with laboratory confirmed influenza were reported by the PHAC/CIHR Influenza Research Network Serious Outcomes Surveillance network. Of the adult patients admitted, 3 out of 4 were associated with influenza B while the other case was associated with influenza A(H1N1)pdm09.

Since the start of the season, the National Microbiology Laboratory has antigenically characterized 1145 influenza viruses (189 A(H1N1)pdm09, 565 A(H3N2), and 313 influenza B). Of these, all influenza A viruses were antigenically similar to the 2012-13 northern hemisphere vaccine viruses. Among the influenza B viruses, 313 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 78 were similar to B/Brisbane/60/2008 (Victoria lineage). One A(H3N2) virus out of the 1078 viruses tested was resistant to oseltamivir and zanamivir.

In the United States of America (USA), during the first week of May, influenza activity continued to decrease since peaking in late December to early January and is now below seasonal thresholds. Nationally, the proportion of ILI outpatient consultations decreased to 1.0%, below 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 6.5% (177/2746) during the week ending April.

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 6.6% which is below the threshold of 7.2%. Overall numbers of P&I deaths since the beginning of the season have been relatively high compared to recent seasons. Laboratory confirmed influenza related hospitalizations were 44.2 per 100 000 populations; this was higher than the previous three seasons and was most notably in the age group > 65 years accounting for 50% of all reported cases. Among all hospitalizations, 9 757 (79.2%) were associated with influenza A and 2476 (20.1%) with influenza B.

Since the beginning of the 2012-13 influenza season, the Centers for Disease Control and Prevention characterized 2317 influenza viruses antigenically (234 influenza A(H1N1)pdm09, 1268 influenza A(H3N2), and 815 influenza B viruses). Of these, all influenza A were antigenically similar to the 2012-13 northern hemisphere vaccine viruses, although, 0.3% (4/1268) of A(H3N2) and 1.3% (3/234) of A(H1N1)pdm09 viruses tested had reduced titres with antiserum produced against the A/Victoria/361/2011 and A/California/7/2009 viruses respectively. Of the influenza B viruses characterized, 33.0% (263/815) belonged to the B/Victoria/02/87–like lineage, which is not in the current trivalent vaccine. Since the beginning of the season, two of 511 A(H1N1)pdm09 and two of 2051 A(H3N2) viruses tested were oseltamivir resistant. None of the 783 influenza B viruses were oseltamivir resistant.
Influenza activity in Mexico has reached level of out of season period with specimens positive for influenza showing a continuous decline with a majority of viruses detected being influenza A(H3N2). Influenza activity there peaked approximately two weeks after the USA in the last half of January.

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

Data source: FluNet (www.who.int/flu), Global Influenza Surveillance and Response System (GISRS)
Data generated on 07/05/2013

**Europe**

In Europe, influenza season seems to be at the end. Influenza activity continued to decline or has returned to baseline levels in most parts of the region during the first week of May, with most countries reporting decreasing and low intensity transmission. Some countries in the eastern part of the region, notably in the Russian Federation, Slovenia, and Ukraine, also reported decreasing but persistent activity and appeared to be a few weeks behind more northern and western countries in the region. Consultation rates for ILI and acute respiratory infection (ARI) were low for most countries across Europe. The percentage of sentinel ILI and/or ARI positive tests for influenza has been declining since mid-February. During the week ending April pooled analysis of all-cause mortality data by data based on 13 countries or regions, showed a sustained peak of excess all-cause mortality among those 65 years and older (the European Mortality Monitoring Project). Cumulative excess mortality among the elderly showed levels higher than what has been observed in the past three years. Mortality data in all younger age groups was similar to previous seasons.

Since the beginning of the season, A(H1N1)pdm09 has been the most commonly detected influenza virus in Europe overall, with only a few countries, notably Ireland and Spain, reporting more influenza B. However, in the last several weeks, as in North America, the proportion of influenza B has increased across the continent and has become the more commonly detected virus in a majority of countries in the region.

Of the 5300 influenza viruses antigenically characterized in Europe since the beginning of the season, 99% of the 2832 influenza A viruses and 26% of the 2468 B viruses correspond with the viruses recommended for the current northern hemisphere seasonal influenza vaccine. Since the beginning of the season, a total of 1384 viruses from 12 countries have been tested for antiviral susceptibility to the neuraminidase inhibitors oseltamivir and zanamivir. Of all 695 A(H1N1)pdm09 viruses tested, 13 (2%) were found to have the neuraminidase H275Y amino acid substitution, associated with resistance to oseltamivir. All of 294 influenza A(H3N2) viruses tested showed susceptibility to both drugs. Of the 405 influenza B viruses tested, there was one virus with reduced inhibition to oseltamivir and normal inhibition by zanamivir.

**Number of specimens positive for influenza by subtype in the European region**
Northern Africa and the Middle East

Across Northern Africa the number of positive influenza specimens reported has continued to decrease with very low levels this week since peaking in late February. Generally, the timing and pattern of virus types was similar to that seen in Europe, influenza A(H1N1)pdm09 was the most commonly detected virus in most of the region with the exception of Egypt reporting mainly influenza A(H3N2).

In the Middle East the number of positive influenza tests reported has also reached very low levels. Most countries in the region have reported primarily influenza A(H1N1)pdm09 throughout the season, with the exception of Oman and Pakistan reporting a majority of influenza B especially in the last several weeks and,. In Qatar, the number of specimens positive for influenza has increased compared to previous weeks with influenza A(H1N1)pdm09 been the most common virus.

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

Northern and Eastern Asia

Influenza activity in much of the temperate region of Asia has decreased over the past several weeks since peaking in the end of January, although activity has remained at notable levels in China and in the Republic of Korea. Those two countries also peaked several weeks later than most of the region.
In northern China and Japan ILI activity and the percentage of ILI specimens testing positive for influenza virus has declined over the past several weeks since peaking in late January. In contrast, Mongolia reported an increase in prevalence of those hospitalized with pneumonia although this has not been associated with increasing numbers of influenza virus detections and the ILI mortality per 1000 patients across the country continues to decrease after reaching a peak in February.

As described in previous reports, influenza A(H3N2) has been the most commonly detected virus in most of northern Asia this season. However, moderate numbers of influenza A(H1N1)pdm09 have also been reported in many countries and in Northern China it was the most commonly detected virus in the second half of the season.

Among influenza viruses antigenically characterized by the Chinese National Influenza Center since the beginning of the 2012-13 season, 99.1% (226/248) of influenza A (H1N1)pdm09 viruses were characterized as A/California/7/2009-like and 100% (577/577) of influenza A (H3N2) viruses were A/Victoria/361/2011(H3N2)-like. For influenza B, 100% (25/25) of the viruses from the B/Yamagata lineage were characterized as B/Wisconsin/01/2010-like and 96.7% (147/152) of the B/Victoria lineage were B/Brisbane/60/2008-like. All of the influenza viruses tested since October 2012 were sensitive to the neuraminidase inhibitors.

In China, new cases of H7N9 have been reported as of May 8, 131 cases and 32 deaths have been reported. For more and updated information see link: http://who.int/influenza/human_animal_interface/influenza_h7n9/en/index.html

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

![Number of specimens positive for influenza by subtype in the Eastern Asia Transmission Zone](image)

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

Data generated on 07/05/2013

Countries in the tropical zone

**Tropical countries of the Americas/Central America and the Caribbean**

In the Central America and Caribbean regions, influenza activity remained low with low level circulation of influenza A(H1N1)pdm09, influenza A(H3N2) and Influenza B especially in Nicaragua. In the Caribbean region especially in countries Cuba, Jamaica, Trinidad and Tobago and Dominican Republic, influenza A(H1N1)pdm09remained the more common virus. However, most ILI and acute respiratory cases were associated with respiratory viruses other than influenza such as the respiratory syncytial virus (RSV), adenovirus and rhinovirus.

In tropical South America, acute respiratory infections showed an increasing trend in most countries but within normal limits. In Ecuador, influenza A(H3N2) was the most common virus type reported while in Brazil, Influenza A(H1N1)pdm09 was the most common virus type and the number of specimens showing positive for influenza decreased compared to previous week while in Ecuador,
influenza A(H3N2) was the most common virus type reported. Both countries showed influenza B to be more common earlier on in the season when influenza activity was low.

**Number of specimens positive for influenza by subtype in the Tropical South America Transmission Zone**

![Graph showing the number of specimens positive for influenza by subtype in the Tropical South America Transmission Zone.](image)

**Central African tropical region**

A few countries in the Central African tropical region have reported low grade, persistent influenza transmission with varying proportions of all three virus types over the past several weeks. In Côte d’Ivoire the number of specimens positive for influenza increased this week compared to the previous week with co-circulation of influenza A(H1N1)pdm09 and influenza B viruses, in Cameroon number of specimens positive for influenza continue to decrease with a co-circulation of influenza A(H1N1)pdm09 and B in the last weeks. Madagascar reported also an increasing level in the number of specimens positive for influenza with influenza A(H1N1)pdm09 as the most common virus.

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

![Graph showing the number of specimens positive for influenza by subtype in the Middle African transmission zone.](image)

**Tropical Asia**
Influenza transmission in southern Asia was at slightly higher levels compared to previous week with co-circulation of all three influenza viruses (influenza A(H1N1)pdm09, influenza A(H3N2) and influenza B. Transmission in India appears to have peaked in late March and was primarily associated with influenza A(H1N1)pdm09 with slightly smaller numbers of A(H3N2) and influenza B viruses. In Sri Lanka, influenza activity has reached the highest level throughout this season with influenza B and influenza A(H1N1)pdm09 circulating in higher proportions compared to influenza A(H3N2).

Influenza transmission in southern China peaked in mid-March and was almost entirely associated with influenza A(H1N1)pdm09. In Hong Kong, influenza activity also appeared to peak about the same time but was primarily associated with A(H1N1)pdm09, with much smaller numbers of A(H3N2). The average consultation rate for influenza - like illness (ILI) among sentinel general outpatient clinics (GOPCs) in Hong Kong was 3.8 ILI cases per 1000 consultations. In contrast to North America, those within the age of 0-4 years old show the highest number of hospital admission rates.

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

![Number of specimens positive for influenza by subtype in the Southern Asia Region](image)

Data source: FluNet ([www.who.int/flunet](http://www.who.int/flunet)), Global Influenza Surveillance and Response System (GISRS)
Data generated on 07/05/2013

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

Influenza activity in all temperate countries of the southern hemisphere has remained at inter-seasonal levels and countries have not yet reported any notable increase in activity.

### 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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