World Health Organization
REGIONAL OFFICE FOR Europe

Summary of the 2011-2012 influenza season in the WHO European region

Key features of the 2011-2012 influenza season

- The 2011-2012 influenza season began late and was mild, with lower consultation rates of influenza-like illness (ILI)/acute respiratory infection (ARI) and fewer virological influenza detections in most countries in the Region compared with previous years.
- The influenza season was largely dominated by influenza A(H3N2). Influenza B viruses and influenza A(H1N1)pdm09 also circulated – the latter only sporadically.
- All of the tested influenza viruses were sensitive to the antivirals oseltamivir and zanamivir.
- Circulating influenza viruses were generally closely related to viruses recommended by WHO for inclusion in the influenza vaccine for the northern hemisphere 2011-2012 season. However, an increased proportion of A(H3N2) were antigenically different compared to the vaccine virus, and for influenza B, the proportion of Yamagata lineage viruses increased significantly and were antigenically different to the last Yamagata lineage vaccine virus used.
- WHO recommends that influenza vaccines for use in the 2012-2013 northern hemisphere influenza season contain the following viruses: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Victoria/361/2011 (H3N2)-like virus, and a B/Wisconsin/1/2010-like virus (Yamagata lineage).

Topics covered in this summary

1. Description of influenza surveillance in the WHO European Region

The WHO European Influenza Surveillance Network (EuroFlu[1]) presents epidemiological and virological data that are collected by clinician networks and laboratory networks on a weekly basis. EU and EEA Member States report to the European Centre for Disease Prevention and Control (TESSy[2]) with which the Regional Office for Europe coordinates influenza surveillance. During the 2011-2012 influenza season, EuroFlu received data from 49 out of 53 Member States.

Outpatient surveillance: In most countries of the Region, outpatient surveillance is performed by clinician networks represented by a group of primary care physicians that cover a representative sample of the general population (sentinel surveillance). In some countries, nation-wide surveillance systems are in place, whereby all cases of influenza-like illness (ILI) or acute respiratory infection (ARI) are reported. The primary care physicians report the weekly number of clinical cases of ILI and/or ARI to a central registry and take respiratory specimens according to a nationally defined sampling strategy. The specimens are sent to a national reference laboratory for testing to obtain information on types, subtypes and strains of influenza viruses circulating. Representative clinical specimens and/or isolated viruses are sent to a WHO CC for more in-depth analyses, notably relating to fuller antigenic analysis with panels of post-infection ferret sera raised against reference influenza viruses, including the current vaccine candidates.

Inpatient surveillance: Several Member States have in recent years established hospital-based surveillance of influenza in severe acute respiratory infections (SARI), using different methodologies, e.g. reporting of all-cause SARI hospitalizations and proportion of cases testing positive for influenza (sentinel SARI[3]) or only laboratory confirmed hospitalized cases of influenza[4]. These systems provide epidemiologic and virologic data on more severe influenza infections in the region, such as the burden of severe disease, identification of the viruses associated with severe disease and risk factors associated with severe illness.

2. Results from outpatient surveillance for ILI and ARI

The 2011-2012 influenza season started relatively late (Figure 1) and there was no distinct pattern in the spread over the Region (e.g. from west to east, as has been seen in some previous seasons). Consultation rates during the 2011-2012 influenza season were generally lower than during the 2010-2011 season, but the proportion of specimens testing positive for influenza were comparable to the previous four seasons (Figure 1). For several countries influenza activity remained low for the entire winter period, which indicates that it was a mild season, as indicated by the number of influenza detections (Table 1).

[1] www.euroflu.org
[2] http://ecdc.europa.eu/en/activities/surveillance/tessy/pages/tessy.aspx
[3] WHO Regional Office for Europe guidance for sentinel influenza surveillance in humans http://www.euro.who.int/__data/assets/pdf_file/0020/90443/E92738.pdf
[4] Weekly Influenza Surveillance Overview (WISO) ECDC http://ecdc.europa.eu/en/healthtopics/seasonal_influenza/epidemiological_data/pages/weekly_influenza_surveillance_overview.aspx

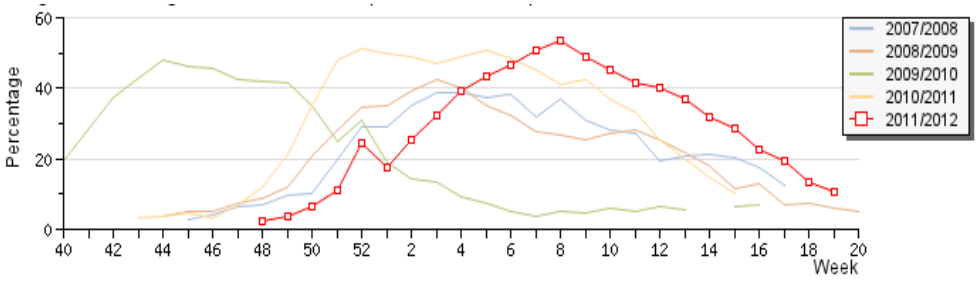

Figure 1. Percentage of sentinel ILI/ARI specimens testing positive for influenza by season

Influenza activity in the WHO European region was predominantly associated with influenza A(H3N2) viruses (Table 1). Sentinel virological detections indicated that 88% of all detected viruses were influenza A and 12% were influenza B. Influenza A(H1N1)pdm09 was reported sporadically and represented 2% of all influenza A sub-typed viruses, compared with 93% during the previous season. Influenza B contributed to a much lower percentage of ILI/ARI consultations in 2011- 2012 compared to the 2010-2011 influenza season (12% versus 40%).

Table 1. Sentinel virologic detections for the WHO European Region: seasons 2011-12, 2010-2011 and 2009-2010

Season	Influenza virus detections			A-subtyped viruses			
	Total (N)	% total positive		Total (N)	% of total positive for		
		Influenza A	Influenza B		A(H1N1)pdm09	A (H3N2)	A(H1N1)
2011-2012	10 709	87.9	12.1	8484	2.0	98.0	0
2010-2011	16 839	60.2	39.8	9457	93.1	6.9	0
2009-2010	24 438	98.9	1.1	23189	99.5	0.3	0.2

3. Results from inpatient surveillance for SARI

During the past two years, the WHO Regional Office for Europe has been working with Member States to establish sentinel surveillance systems for hospitalized SARI, with the goals of comparing the relative severity of different influenza seasons and specifically tracking/identifying the viruses that cause severe disease. During the 2011-2012 influenza season, data from 11 Member States located in the central and eastern parts of the region were reported in the EuroFlu Bulletin. The description of the sentinel SARI systems can be found at: http://euroflu.org/documents/Overview_of_SARI_Surveillance_Systems_25-03-2011.pdf

In most countries with sentinel SARI surveillance, peaks of sentinel SARI hospitalizations and percentage of samples testing positive for influenza correlated well with the outpatient surveillance with a lag time of 0-2 weeks. The proportion of influenza viruses detected in SARI specimens was lower (16%; range 4.4-24.9) than during the 2010-2011 influenza season (28%). As observed among outpatients, influenza A(H3N2) was the dominant virus accounting for 85% of influenza viruses detected among SARI patients.

4. Impact of influenza in the 2011-2012 season

Overall, data from outpatient and inpatient surveillance indicated that the 2011-2012 season was relatively mild in comparison with the previous season. Data from a number of countries in the western part of the Region suggested that the age-distribution among hospitalized patients had changed compared to the previous two seasons when influenza A(H1N1)pdm09 was most prevalent. Severe disease was observed primarily among young children and the elderly (<5 years and >65 years), while the proportion of severe cases in the 15-64 age group was lower as compared to the previous season (see: http://ecdc.europa.eu/en/publications/Publications/120312-TER-Seasonal-influenza-risk-assessment.pdf)

5. Vaccine match in the 2011-2012 influenza season

The twice-yearly update of virus strains suitable for inclusion in seasonal influenza vaccines is necessary due to the constant evolution of circulating influenza viruses. This leads to changes of the antigenic characteristics and, hence, a reduced match of the vaccine with circulating virus strains. Match of the vaccine with circulating virus strains is an important factor for the effectiveness of the vaccine. WHO monitors the evolution of influenza viruses through analysis of viruses shared by National Influenza Centres (NIC) with the WHO collaborating centres (WHO CC) for reference and research on influenza and through analysis performed by the NICs, themselves.

Based on antigenic characterization of a large number of influenza viruses (N=2068) performed by NIC in 19 Member States, the vast majority (95%) of characterized viruses matched well with the viruses recommended by the WHO for inclusion in the seasonal influenza vaccine for 2011-2012 season in the northern hemisphere. However, many A(H3N2) viruses that circulated in the 2011-2012 season showed reduced antigenic relatedness to the A/Perth/16/2009 2011-2012-like vaccine virus, and global data indicated that an increasing proportion of the circulating A(H3N2) viruses were more similar to an A/Victoria/361/2011-like virus. WHO has therefore recommended inclusion of an A/Victoria/361/2011-like virus in the vaccine for the 2012-2013 northern hemisphere season.

The recommendation for inclusion of an A/California/7/2009 (H1N1)pdm09-like virus remains unchanged.

Influenza B viruses of both the B/Victoria/2/87 and the B/Yamagata/16/88 lineages co-circulated in many parts of the world. The recommendation for the influenza B virus component of the vaccine has often been challenging, as only one lineage is included in current trivalent inactivated influenza vaccines and it is uncertain which lineage of influenza B virus will predominate in the forthcoming season. While both lineages of influenza B viruses have co-circulated globally during the last several seasons, during the 2011-2012 season there were indications of an increase in the prevalence of viruses of the B/Yamagata/16/88 lineage relative to viruses of the B/Victoria/2/87 lineage. WHO has therefore recommended changing the influenza B component of the vaccine for the 2012-2013 northern hemisphere season from a B/Brisbane/60/2008-like virus (B/Victoria lineage) to a B/Wisconsin/1/2010-like virus (B/Yamagata lineage).

In summary, WHO recommends inclusion of the following viruses in the seasonal influenza vaccine for the 2012-2013 northern hemisphere season:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A/Victoria/361/2011 (H3N2)-like virus;
- a B/Wisconsin/1/2010-like virus.

The complete report can be viewed here:
http://www.who.int/influenza/vaccines/virus/recommendations/2012_13_north/en/

A "Questions and Answers" document concerning the recommended composition of influenza virus vaccines for use in the 2012-2013 northern hemisphere influenza season can be viewed here:
http://www.who.int/influenza/vaccines/virus/recommendations/201202_qanda_recommendation.pdf

6. Antiviral resistance and clinical care of patients

Based on antiviral susceptibility data provided by 12 Member States, there was no indication of resistant influenza viruses circulating during the winter of 2011-2012.

A total of 12 countries have screened 962 influenza A(H3N2), A(H1N1)pdm09 and B viruses for susceptibility to the neuraminidase inhibitors oseltamivir and zanamivir. None of the A(H3N2), A(H1N1)pdm09 and B viruses tested for susceptibility to neuraminidase inhibitors showed resistance or reduced susceptibility. All A(H1N1)pdm09 and A(H3N2) viruses that were screened for susceptibility to adamantanes were found to be resistant. WHO guidance recommends that an antiviral should not be used for treatment when the infecting virus type/subtype is known to be, or is highly likely to be, resistant to that antiviral[5].

These data indicate that clinicians should continue to include the use of neuraminidase inhibitors in their clinical management of all patients with moderate or severe disease suspected, or confirmed, to be due to influenza.

Acknowledgements

We gratefully acknowledge the Member States of the WHO European Region who provided the data upon which this report is based.

[5] WHO Guidelines for Pharmacological Management of Pandemic Influenza A(H1N1) 2009 and other Influenza Viruses http://www.who.int/csr/resources/publications/swineflu/h1n1_guidelines_pharmaceutical_mngt.pdf