

Influenza Weekly Surveillance Report



A REPORT BY THE HEALTH PROTECTION SURVEILLANCE CENTRE IN COLLABORATION WITH THE IRISH COLLEGE OF GENERAL PRACTITIONERS, THE NATIONAL VIRUS REFERENCE LABORATORY & THE DEPARTMENTS OF PUBLIC HEALTH

Week 17 2008 (21st – 27th April 2008)

Summary

During week 17 2008, GP consultation rates for influenza-like illness (ILI) remained at low levels. Three influenza B positive specimens were detected by the National Virus Reference Laboratory (NVRL) during this period.

Background

This is the eighth season of influenza surveillance using computerised sentinel general practices in Ireland. The Health Protection Surveillance Centre (HPSC) is working in collaboration with the Irish College of General Practitioners (ICGP), the National Virus Reference Laboratory (NVRL) and the Departments of Public Health on this sentinel surveillance project. Fifty-two sentinel general practices have been recruited to report on the number of patients with ILI on a weekly basis. ILI is defined as the sudden onset of symptoms with a temperature of 38°C or more, with two or more of the following: headache, sore throat, dry cough and myalgia.

Sentinel GPs send a combined nasal and throat swab, to the NVRL, on at least one patient per week where a clinical diagnosis of ILI is made during the influenza season. This report includes data on ILI cases reported by sentinel GPs, influenza test results from the NVRL, influenza notifications, registered deaths attributed to influenza, and regional influenza activity reported by the Departments of Public Health.

Results

Clinical Data

Sentinel GPs reported 17 ILI cases during week 17 2008, corresponding to an ILI consultation rate of 9.9 per 100,000 population, a slight decrease from the updated rate of 10.3 per 100,000 in week 16 2008 (figure 1). Forty-two (80.8%) sentinel practices reported during week 17 2008.

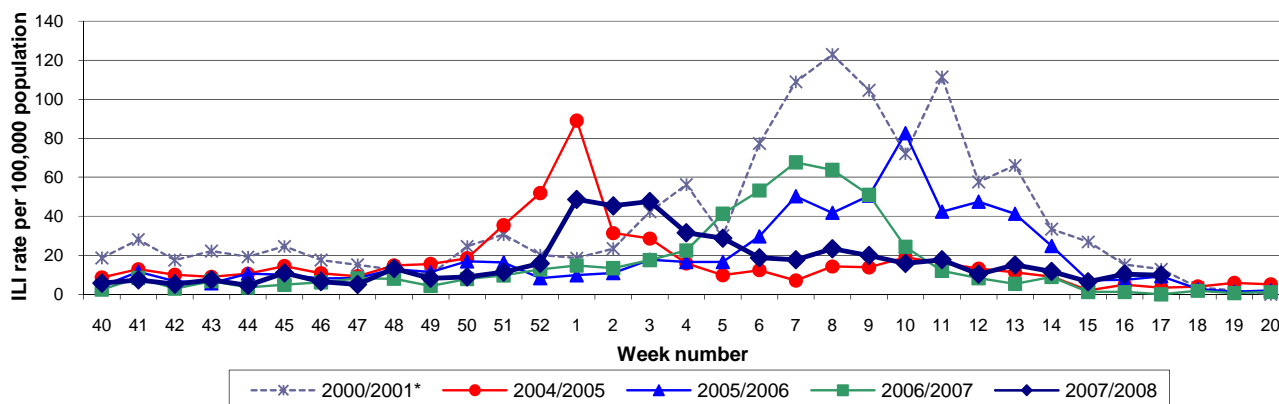


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 17 2008, ILI rates remained at low levels in all age groups. One ILI case was reported in the 0-4 year age group (8.2 per 100,000 population), one in the 5-14 year age group (4.4 per 100,000 population), 12 in the 15-64 year age group (10.2 per 100,000 population) and three ILI cases in those aged over 65 years (15.8 per 100,000 population), as shown in figure 2.

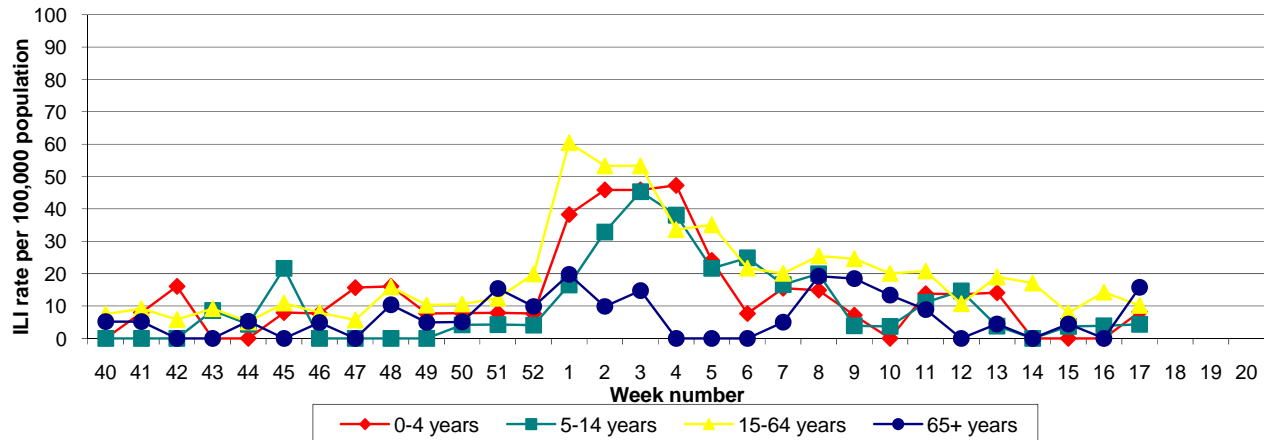


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar to the national age distribution.

Oseltamivir Resistance in Ireland

Results from the National Virus Reference Laboratory (NVRL) on antiviral drug susceptibility among seasonal influenza viruses circulating in Ireland have revealed that some of the A (H1N1) viruses in circulation this winter are resistant to the antiviral drug, oseltamivir (also known by the brand name Tamiflu). The NVRL conducted nucleotide sequencing on specimens taken by sentinel GPs between December 2007 and February 2008. Five of 55 specimens (9.1%) tested by the NVRL have shown resistance to oseltamivir. To date, oseltamivir resistant viruses have been detected in 15 European countries (including Ireland), the USA, Canada, Australia and Hong Kong.

Experts from the European Centre for Disease Prevention and Control (ECDC), the European Commission, the European Influenza Surveillance Scheme (EISS) and the World Health Organization (WHO) are currently assessing the significance of this information. An interim risk assessment has been published by ECDC.

Latest information on oseltamivir resistance in Europe: <http://ecdc.europa.eu/>
ECDC Report on Interim risk assessment: http://www.ecdc.europa.eu/pdf/080127_os.pdf

Virological Data from the NVRL

The NVRL tested two specimens taken by sentinel GPs during week 17 2008, one was positive for influenza B. The NVRL also tested 46 non-sentinel specimens¹ taken during week 17 2008, two of which were positive for influenza B.

To date this season, 203 (8.5%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=2383): 29 A (unsubtyped), 75 A (H1), 7 A (H3) and 92 B viruses. Of the 111 influenza A positive specimens detected this season, influenza A (H1) accounts for 91.5% of subtyped (n=82) specimens. Based on genetic characterisation of 52 viruses, 45 were A/Solomon Islands/3/2006 (H1N1)-like and seven were A/Wisconsin/67/2005 (H3N2)-like. A/Solomon Island/3/2006-like virus and A/Wisconsin/67/2005 (H3N2)-like virus are both included in the 2007/2008 influenza vaccine.

¹ Please note that non-sentinel specimens include all specimens referred to the NVRL, these specimens are mainly from hospitals and some GPs and may include more than one specimen from each case.

NVRL detections of RSV from non-sentinel sources peaked during week 47 2007 (figure 4). One non-sentinel specimen tested positive for RSV during week 17 2008. To date this season, the NVRL has detected the following positive specimens from non-sentinel sources: 32 influenza A, 28 influenza B, 460 RSV, 11 Adenovirus, 2 parainfluenza virus (PIV) type-1, 13 PIV-2 and 18 PIV-3. Influenza positive specimens by HSE-Area and age group (in years) for the current week and the 2007/2008 season to date are shown in tables 2 and 3, respectively. Figure 3 compares the ILI consultation rates by season and the number of positive influenza specimens tested by the NVRL. Figure 4 compares the number and percentage of non-sentinel RSV positive specimens detected during the 2006/2007 and 2007/2008 influenza seasons.

Table 1: Number of sentinel and non-sentinel respiratory specimens and positive results reported by the NVRL for week 17 2008 and the 2007/2008 season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
17 2008	Sentinel	2	1	50.0	0	1	-	-
	Non-Sentinel	46	2	4.3	0	2	1	2.2
	Total	48	3	6.2	0	3	1	2.1
Season to date	Sentinel	324	143	44.1	79	64	-	-
	Non-Sentinel	2059	60	2.9	32	28	460	22.3
	Total	2383	203	8.5	111	92	460	19.3

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 17 2008 and the 2007/2008 season to date

	Week 17 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	0	1	1	42	40	82
HSE-M	0	0	0	8	1	9
HSE-MW	0	1	1	7	8	15
HSE-NE	0	0	0	13	14	27
HSE-NW	0	1	1	2	9	11
HSE-SE	0	0	0	13	7	20
HSE-S	0	0	0	17	9	26
HSE-W	0	0	0	9	4	13
Total	0	3	3	111	92	203

Table 3: Total number of sentinel and non-sentinel influenza A and B positive specimens by age group (in years) reported by the NVRL for week 17 2008 and the 2007/2008 season to date

	Week 17 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	0	0	0	6	3	9
5-14 years	0	0	0	8	4	12
15-64 years	0	2	2	77	79	156
65 years and older	0	1	1	15	6	21
Age group unknown	0	0	0	5	0	5
Total	0	3	3	111	92	203

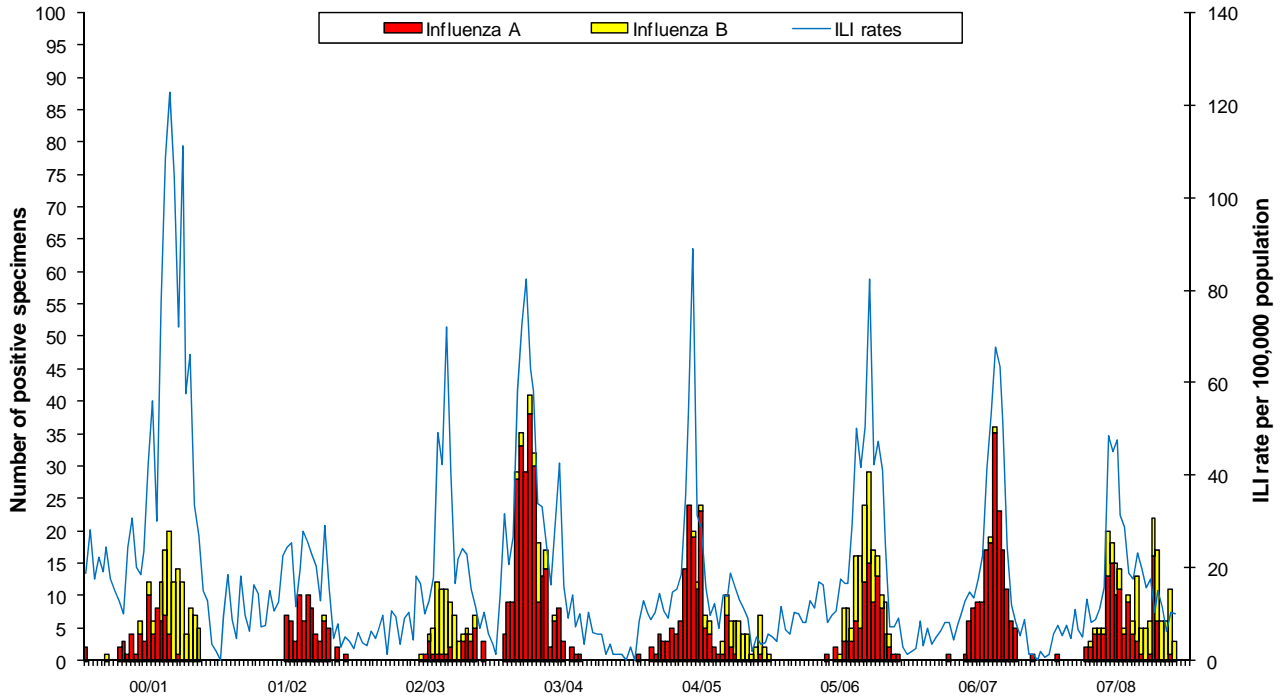


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

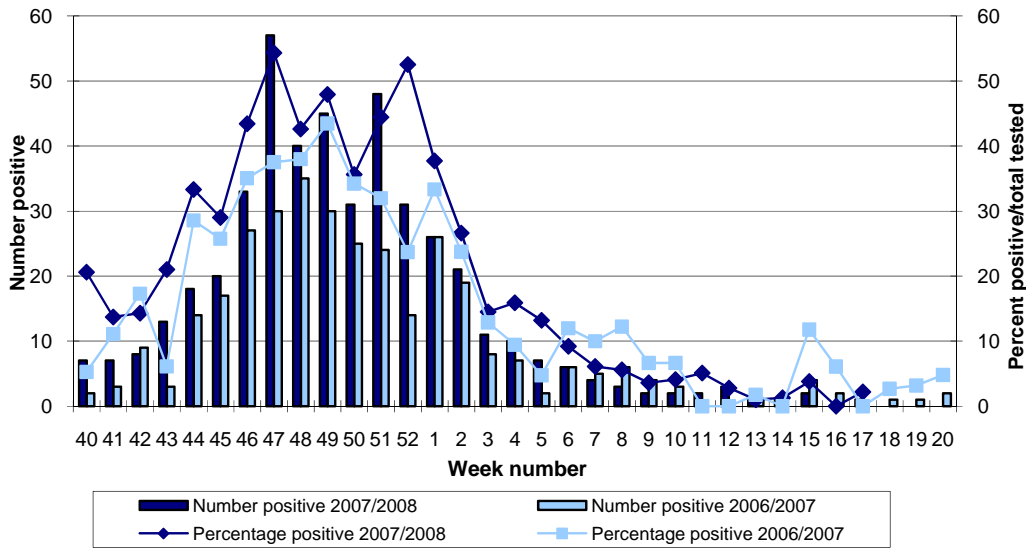


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Six influenza B cases were notified to HPSC during week 18 2008: three from HSE-E and three from HSE-S. One influenza A, two influenza B and three influenza type unspecified cases were notified to HPSC during week 17 2008: three from HSE-E, one from HSE-NE, one from HSE-NW and one from HSE-S. Influenza cases notified to HPSC during the summer of 2007 and during the 2007/2008 influenza season are shown in figure 5 and compared to GP ILI consultation rates.

It should be noted that 14 influenza (type unspecified) cases notified to HPSC during week 16 2008 were possible cases (i.e. clinical cases with no laboratory confirmation) that were late GP notifications from HSE-E for the period January – April 2008.

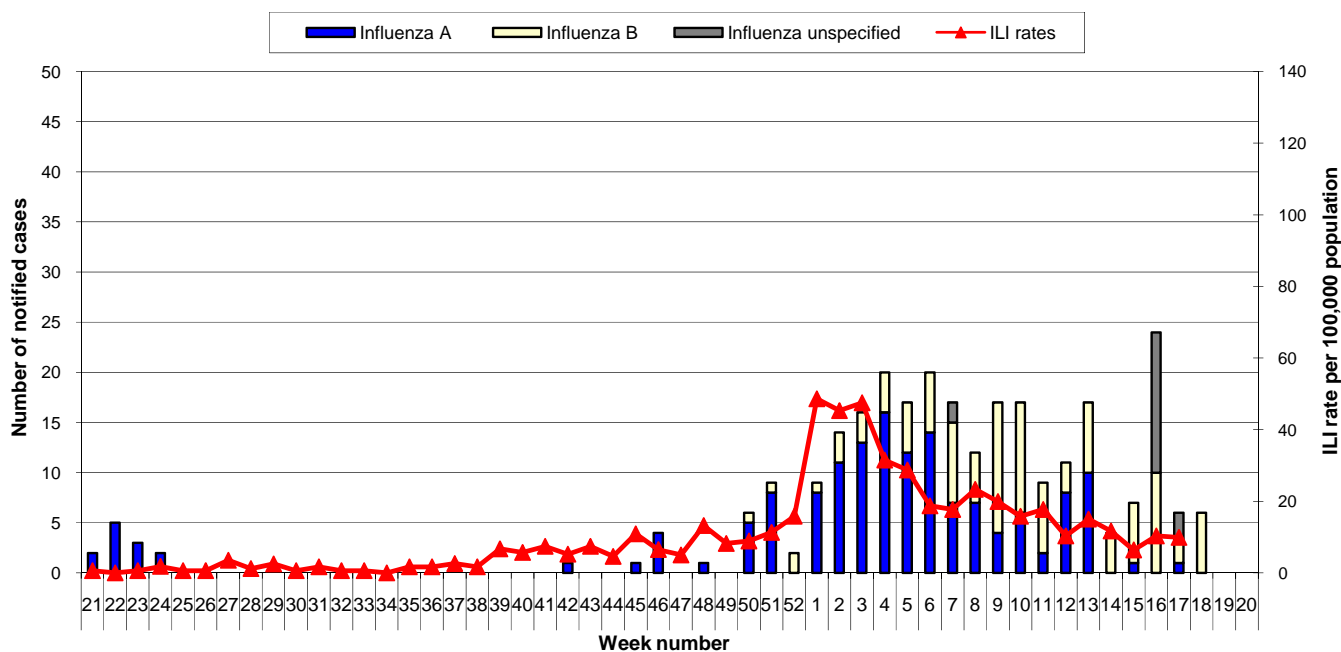


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 01/05/2008 at 15:25.

Mortality Data

To date this season, two deaths attributed to influenza have been registered with the General Register Office (GRO). These deaths were both in adults over 65 years of age, one in HSE-NW registered in week 8 2008 and one in HSE-S registered in week 14 2008. It should be noted that the death registered in HSE-S was not a laboratory confirmed case of influenza.

Outbreak Reports

Two ILI/influenza outbreaks have been reported to HPSC to date this season, both reported from HSE-E, one during week 12 2008 and one during week 16 2008.

Regional Influenza Activity by HSE-Area

Influenza activity is reported on a weekly basis from the Departments of Public Health. Influenza activity is based on sentinel GP ILI consultation rates, laboratory confirmed influenza cases and ILI/influenza outbreaks. Each Department of Public Health has established one sentinel hospital in each HSE area, to report total hospital admissions, accident and emergency admissions and respiratory admissions data on a weekly basis. Sentinel primary and secondary schools were also established in each HSE-Area in close proximity to the sentinel GPs, reporting absenteeism data on a weekly basis.

Increased hospital respiratory admissions were reported from one sentinel hospital in HSE-M during week 16 2008. School absenteeism increased in one sentinel secondary school in HSE-E during week 17 2008 and in one sentinel primary school (in HSE-NW) and two sentinel secondary schools (one in HSE-NW and one in HSE-SE) during week 16 2008. Colds, coughs and gastrointestinal symptoms were reported from sentinel schools in HSE-NW during week 16 2008.

During week 16 2008, no influenza activity was reported in HSE-M and sporadic activity was reported in all other HSE-Areas (figure 6). Regional or widespread influenza activity has not been reported from any HSE-Area this season. To date this season, influenza positive specimens have been detected in all HSE-Areas.

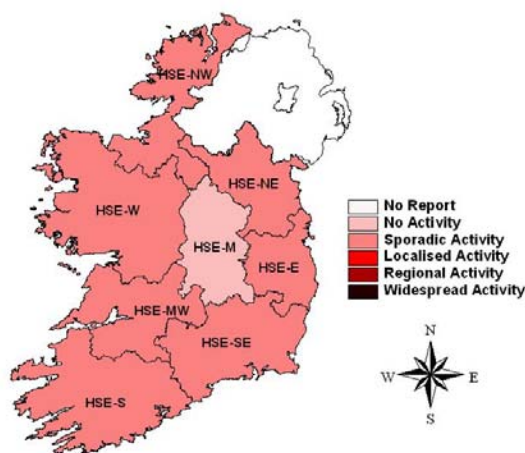


Figure 6: Map of influenza activity by HSE-Area for week 16 2008

Influenza Activity in Northern Ireland

During week 17 2008, the influenza/ILI GP consultation rate increased slightly in Northern Ireland from 28.2 per 100,000 population in week 16 2008 to 36.5 per 100,000 population in week 17 2008. No influenza positive specimens were detected during this period. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

During weeks 16 and 17 2008, influenza activity decreased in England and Wales and remained at approximately the same level in Scotland. Activity is still at baseline levels in England, Scotland and Wales. None of the samples referred to the Centre for Infections' Respiratory Virus Unit during week 17 2008 were positive for influenza. <http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/flureports0708.htm>

Influenza Activity in Europe

Influenza activity in Europe is coming to an end with all countries reporting low levels of influenza activity since week 14 2008. Influenza virus detections are also declining for Europe as a whole. In most countries, influenza activity only reached moderate levels of intensity this winter. During week 16 2008, widespread influenza activity was reported in the Netherlands, sporadic activity in ten countries and no activity in 13 countries. Influenza virus type B accounted for 80% of the total positive specimens collected in week 16 2008. However, the majority of virus detections since the start of the season have been influenza A (H1N1) viruses. Based on the antigenic and/or genetic characterisation of 3504 influenza viruses this season, ten were A/New Caledonia/20/99 (H1N1)-like, 2141 were A/Solomon Island/3/2006 (H1N1)-like, 21 were A/Wisconsin/67/2005 (H3N2)-like, 23 were A/Brisbane/10/2007 (H3N2)-like, 1293 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and 16 were B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage). <http://www.eiss.org/index.cgi>

Influenza Activity in Canada

During week 16 2008, overall influenza activity in Canada continued to decline. Only one region reported widespread influenza activity, localised influenza activity was reported by 16 regions, 29 reported sporadic activity and eight regions reported no activity. The ILI consultation rate for week 16 2008 was 24 per 1,000 patient visits, which is slightly above the expected range for this week. In week 16 2008, the percentage of specimens that tested positive for influenza declined to 16.8% (758/4,517). To date this season, 59.7% of influenza detections were influenza A and 40.3% were influenza B. Based on antigenic characterisation of 1149 viruses, 449 were A/Solomon Islands/3/2006 (H1N1)-like, 20 were A/Brisbane/59/2007 (H1N1)-like, seven were

A/Wisconsin/67/2005 (H3N2)-like, 157 were A/Brisbane/10/2007 (H3N2)-like, eight were B/Malaysia/2506/2004-like and 528 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Influenza Activity in the United States

During week 16 2008, influenza activity continued to decrease in the United States. One state reported widespread influenza activity; four states reported regional influenza activity; 14 states reported local influenza activity; 29 states and the District of Columbia reported sporadic influenza activity; one state reported no influenza activity; and one state did not report. The proportion of outpatient visits for ILI and acute respiratory illness (ARI) was below national and region-specific baseline levels. The proportion of deaths attributed to pneumonia and influenza has been above the epidemic threshold for 15 consecutive weeks. During week 16 2008, WHO and NREVSS laboratories reported 2,070 specimens tested for influenza viruses, 190 (9.2%) of which were positive: 14 A (H3), 49 A (unsubtyped) and 127 B viruses. Antigenic characterisation data indicate similarities and differences between a sample of circulating strains and the 2007/2008 vaccine strains as determined by laboratory studies.

<http://www.cdc.gov/flu/weekly/fluactivity.htm>

Influenza Activity Worldwide

During week 16 2008, sporadic influenza activity was reported in Cameroon (1 A H1), China (4 A unsubtyped, 17 A H1, 22 A H3 & 39 B) and Sri-Lanka (1 A unsubtyped). No influenza activity was reported in Kazakhstan.

<http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza

As of April 30th 2008, 382 confirmed human cases and 241 (63.1%) deaths from avian influenza A (H5N1) have been reported to the WHO from Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Lao Peoples Democratic Republic, Myanmar, Nigeria, Pakistan, Thailand, Turkey and Viet Nam.

WHO http://www.who.int/csr/disease/avian_influenza/en/

HPSC <http://www.ndsc.ie/hpsc/A-Z/Respiratory/Influenza/AvianInfluenza/>

ECDC <http://www.ecdc.eu.int/>

HPA http://www.hpa.org.uk/infections/topics_az/influenza/avian/default.htm

Northern Hemisphere Influenza Vaccine for the 2007/2008 Season

The members of the WHO Collaborating Centres on Influenza have recommended that influenza vaccines for the 2007/2008 influenza season in the Northern Hemisphere contain the following strains:

- an A/Solomon Island/3/2006 (H1N1)-like virus
- an A/Wisconsin/67/2005 (H3N2)-like virus^a
- a B/Malaysia/2506/2004-like virus

Candidate vaccine viruses include:

- ^aA/Wisconsin/67/2005 (H3N2) and A/Hiroshima/52/2005

<http://www.who.int/csr/disease/influenza/recommendations2007north/en/print.html>

Northern Hemisphere Influenza Vaccine for the 2008/2009 Season

The members of the WHO Collaborating Centres on Influenza have recommended that influenza vaccines for the 2008/2009 influenza season in the Northern Hemisphere contain the following strains:

- an A/Brisbane/59/2007 (H1N1)-like virus;
- an A/Brisbane/10/2007 (H3N2)-like virus;*
- a B/Florida/4/2006-like virus.#

* A/Brisbane/10/2007 is a current southern hemisphere vaccine virus.

B/Florida/4/2006 and B/Brisbane/3/2007 (a B/Florida/4/2006-like virus) are current southern hemisphere vaccine viruses. http://www.who.int/csr/disease/influenza/recommendations2008_9north/en/index.html

Further information on influenza can be found on the [HPSC website](#)

Acknowledgements

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This report was produced by Dr. Lisa Domegan and Dr. Joan O'Donnell, HPSC