

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 16 2008 (14th – 20th April 2008)

Summary

During week 16 2008, GP consultation rates for influenza-like illness (ILI) remain at low levels. One influenza A and three influenza B positive specimens were detected by the National Virus Reference Laboratory (NVRL) during week 16 2008.

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 18 ILI cases during week 16 2008, corresponding to an ILI consultation rate of 10.6 per 100,000 population, a slight increase from the updated rate of 6.4 per 100,000 in week 15 2008 (figure 1). Forty-two (80.8%) sentinel practices reported during week 16 2008.

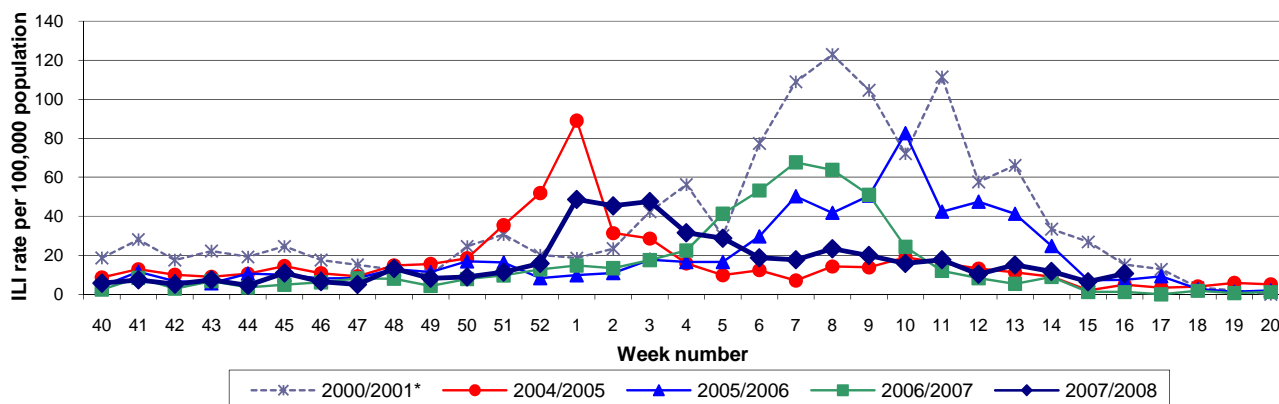


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 16 2008, ILI rates remained at low levels in all age groups. No ILI cases were reported in the 0-4 year age group or in those aged over 65 years. One ILI case was reported in the 5-14 year age group (4.4 per 100,000 population) and 17 cases in the 15-64 year age group (14.6 per 100,000 population) during week 16 2008, as shown in figure 2.

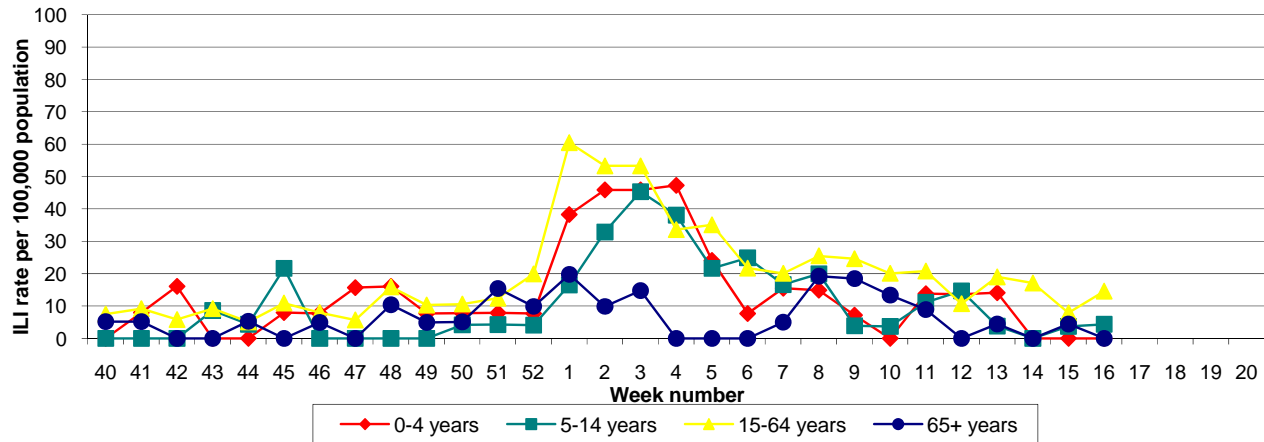


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar 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 five specimens taken by sentinel GPs during week 15 2008, one was positive for influenza A and one was positive for influenza B. The NVRL also tested 53 non-sentinel specimens¹ taken during week 16 2008, two of which were positive for influenza B.

To date this season, 194 (8.3%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=2328): 29 A (unsubtyped), 75 A (H1), 8 A (H3) and 82 B viruses. Of the 112 influenza A positive specimens detected this season, influenza A (H1) accounts for 90.4% of subtyped (n=83) 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). No specimens tested positive for RSV during week 16 2008. To date this season, the NVRL has detected the following positive specimens from non-sentinel sources: 33 influenza A, 26 influenza B, 459 RSV, 10 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 16 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
16 2008	Sentinel	5	2	40.0	1	1	-	-
	Non-Sentinel	53	2	3.8	0	2	0	0.0
	Total	58	4	6.9	1	3	0	0.0
Season to date	Sentinel	317	135	42.6	79	56	-	-
	Non-Sentinel	2011	59	2.9	33	26	459	22.8
	Total	2328	194	8.3	112	82	459	19.7

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 16 2008 and the 2007/2008 season to date

	Week 16 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	1	0	1	43	34	77
HSE-M	0	0	0	8	1	9
HSE-MW	0	1	1	7	7	14
HSE-NE	0	0	0	13	14	27
HSE-NW	0	0	0	2	7	9
HSE-SE	0	0	0	13	7	20
HSE-S	0	2	2	17	6	23
HSE-W	0	0	0	9	4	13
Unknown	0	0	0	0	2	2
Total	1	3	4	112	82	194

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 16 2008 and the 2007/2008 season to date

	Week 16 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	1	1	8	4	12
15-64 years	1	0	1	77	69	146
65 years and older	0	2	2	16	5	21
Age group unknown	0	0	0	5	1	6
Total	1	3	4	112	82	194

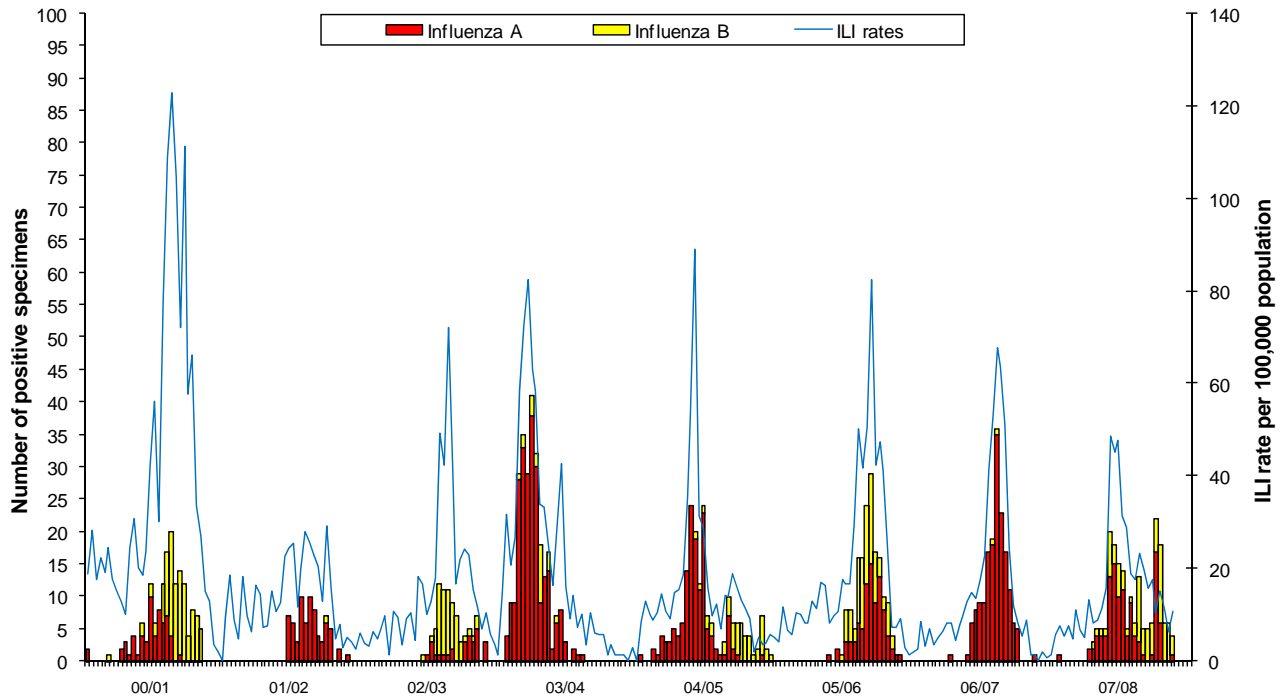


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

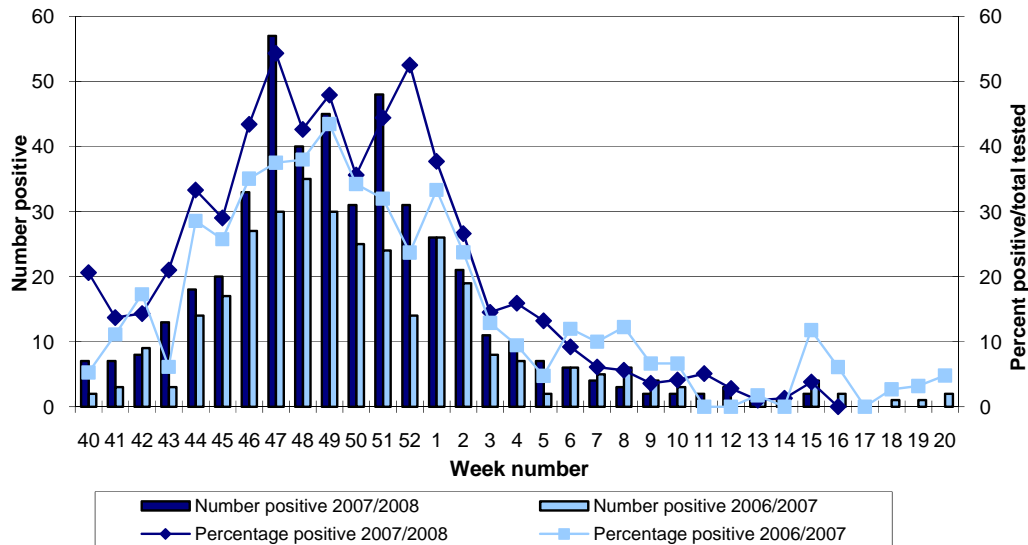


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Ten influenza B and 14 influenza type unspecified cases were notified to HPSC during week 16 2008: 22 from HSE-E, one from HSE-NE and one from HSE-NW. One influenza A, one influenza B and two influenza type unspecified cases were notified to HPSC during week 17 2008: three from HSE-E 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.

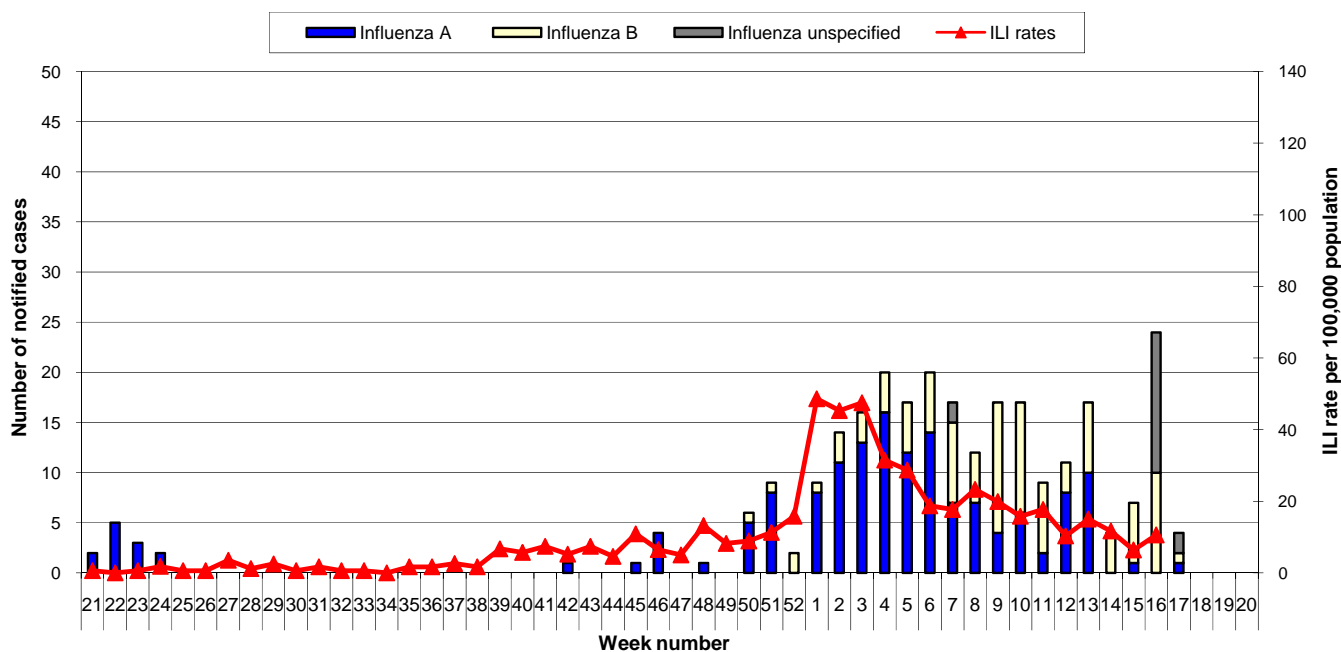


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 24/04/2008 at 12:16.

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.

Outbreak Reports

An influenza B outbreak was reported to HPSC from HSE-E during week 16 2008. The outbreak occurred on a coach tour from Dublin to Clare. Thirteen individuals were ill with ILI symptoms and influenza B was confirmed in three cases by the NVRL. This is the second outbreak of ILI/influenza that has been reported to HPSC to date this season, the first outbreak was reported from HSE-E during week 12 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.

No significant increases in hospital respiratory admissions were reported from sentinel hospitals during weeks 15 or 16 2008. School absenteeism increased in two sentinel secondary schools during week 15 2008, one in HSE-E (associated with ‘gastrointestinal and cold symptoms’) and one in HSE-MW.

During week 15 2008, no influenza activity was reported in HSE-M, HSE-S and HSE-W 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.

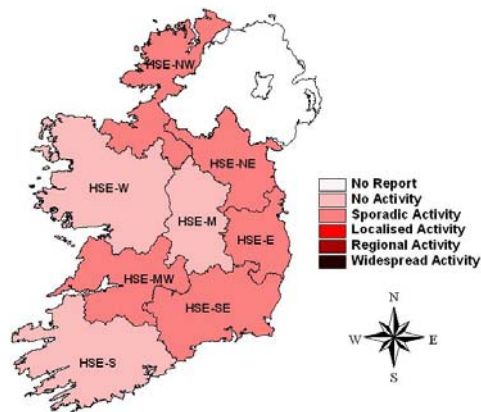


Figure 6: Map of influenza activity by HSE-Area for week 15 2008

Influenza Activity in Northern Ireland

During week 16 2008, the influenza/ILI GP consultation rate decreased in Northern Ireland from 40.5 per 100,000 population in week 15 2008 to 28.2 per 100,000 population in week 16 2008. No influenza positive specimens were detected during this period. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

Influenza activity remains at baseline levels in England, Scotland and Wales. In week 16 2008, consultation rates for ILI in sentinel GP schemes increased in England (from the updated rate of 8.9 per 100,000 population in week 15 2008 to 10.5 per 100,000 in week 16 2008), in Wales (from 2.7 per 100,000 to 8.8 per 100,000) and in Scotland (from 7 per 100,000 to 8 per 100,000). During week 16 2008, detections of influenza B from NHS and HPA laboratories remain at higher levels than influenza A (eleven influenza A and 34 influenza B). Of the specimens sent to the Respiratory Virus Unit (RVU) at the HPA Centre for Infections, influenza A account for the majority of detections (one influenza A H1, seven influenza A H3 and three influenza B). To date this season, 784 influenza viruses have been isolated by the RVU: 583 A viruses and 201 B viruses.

<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 during week 15 2008. Widespread influenza activity was reported in the Netherlands, regional activity in Norway, local activity in England, sporadic activity in 16 countries and no activity in seven countries. Influenza B accounted for 82% of the total positive specimens collected in week 15 2008. However the majority of virus detections since the start of the season have been influenza A (H1N1) viruses. Based on (sub)typing data of all influenza virus detections this season (N=16489; sentinel and non-sentinel data), 5094 (31%) were A (unsubtyped), 4986 (30%) were A (H1), 166 (1%) were A (H3) and 6243 (38%) were B. Based on the antigenic and/or genetic characterisation of 3337 influenza viruses, 60 were A/New Caledonia/20/99 (H1N1)-like, 2080 were A/Solomon Island/3/2006 (H1N1)-like, 21 were A/Wisconsin/67/2005 (H3N2)-like, 18 were A/Brisbane/10/2007 (H3N2)-like, 1143 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and 15 were B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage). <http://www.eiss.org/index.cgi>

Influenza Activity in Canada

During week 15 2008, overall influenza activity in Canada declined slightly from the previous week. Two regions reported widespread influenza activity, 21 reported localised activity, 25 reported sporadic activity and six regions reported no activity. The ILI consultation rate was 28 per 1,000 patient visits, which is above the expected range for this week. In week 15 2008, the percentage of specimens that tested positive for influenza increased slightly to 18.2% (880/4,822). The proportion of influenza B virus detections continues to increase steadily whereas the proportion of influenza A virus detections have remained fairly stable over recent weeks. Based on antigenic

characterisation of 1078 viruses, 422 were A/Solomon Islands/3/2006 (H1N1)-like, 18 were A/Brisbane/59/2007 (H1N1)-like, six were A/Wisconsin/67/2005 (H3N2)-like, 141 were A/Brisbane/10/2007 (H3N2)-like, eight were B/Malaysia/2506/2004-like and 483 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Influenza Activity in the United States

During week 15 2008, influenza activity continued to decrease in the United States. Three states reported widespread influenza activity; four states reported regional activity; 16 states reported local activity; 26 states and the District of Columbia and Puerto Rico reported sporadic activity; and one state reported no activity. The proportion of outpatient visits for ILI and the proportion of outpatient visits for acute respiratory illness (ARI) were below national baseline levels. The proportion of deaths attributed to pneumonia and influenza has been above the epidemic threshold for 14 consecutive weeks. During week 15 2008, WHO and NREVSS laboratories reported 2,935 specimens tested for influenza viruses, 350 (11.9%) of which were positive: 5 A (H1), 24 A (H3), 105 A (unsubtyped) and 216 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 15 2008, sporadic influenza activity was reported in Cameroon (1 A H1), China (7 A unsubtype, 12 A H1, 12 A H3 & 42 B) and Sri-Lanka (1 B). No influenza activity was reported in Kazakhstan and South Africa.

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

Avian Influenza

As of April 17th 2008, 381 confirmed human cases and 240 (63.0%) 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