

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 14 2008 (31st March - 6th April 2008)

Summary

During week 14 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 week 14 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 16 ILI cases during week 14 2008, corresponding to an ILI consultation rate of 9.9 per 100,000 population, a decrease from the updated rate of 15.4 per 100,000 in week 13 2008 (figure 1). Forty-three (82.7%) sentinel practices reported during week 14 2008.

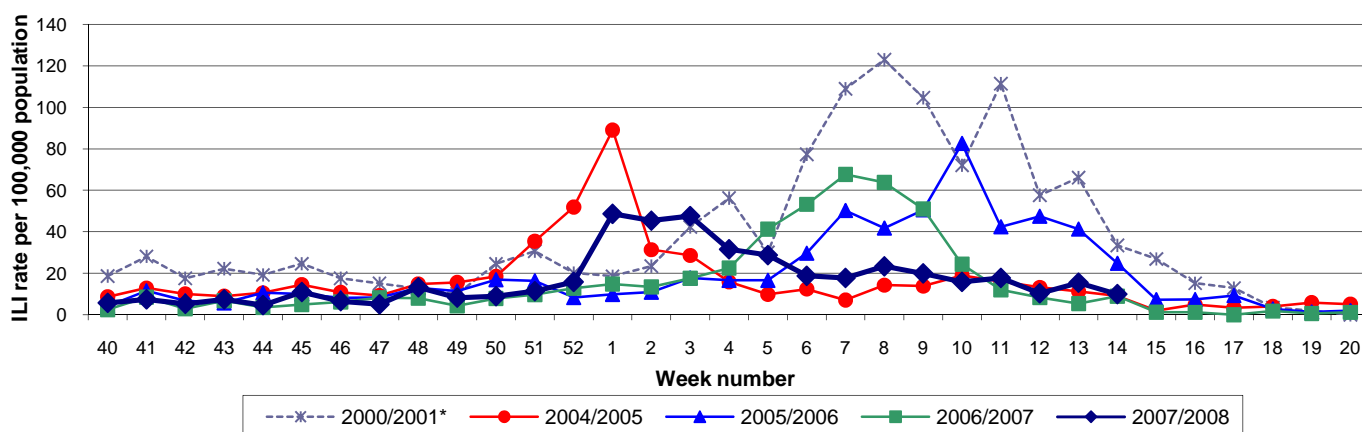


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 14 2008, ILI rates decreased in all age groups, with no ILI cases reported in 0-4 and 5-14 year olds and in those aged 65 years or older. Sixteen ILI cases were reported in the 15-64 year age group (14.4 per 100,000 population), as shown in figure 2.

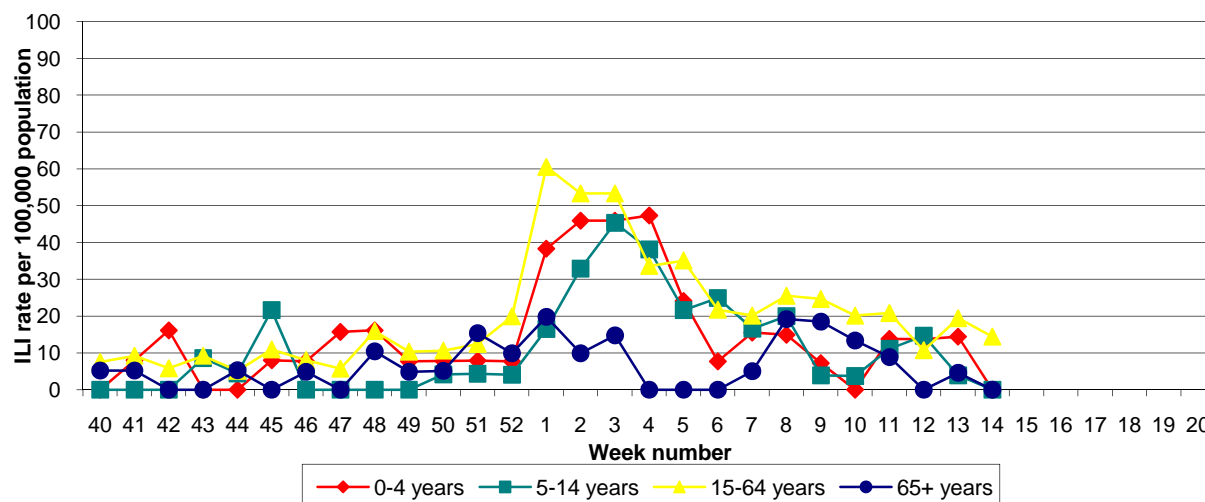


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar 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. To date, 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 eight specimens taken by sentinel GPs during week 14 2008, three of which were positive for influenza B. The NVRL also tested 71 non-sentinel specimens taken during week 14 2008, all of which were negative for influenza.

To date this season, 181 (8.2%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=2201): 28 A (unsubtyped), 75 A (H1), 8 A (H3) and 70 B viruses. Of the 110 influenza A positive specimens detected this season, influenza A (H1) accounts for 90.4% of subtyped (n=83) specimens. Based on genetic characterisation of 53 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.

One non-sentinel specimen¹ was positive for respiratory syncytial virus (RSV) during week 14 2008 (table 1). NVRL detections of RSV from non-sentinel sources peaked during week 47 2007 (figure 4). To date this season, the NVRL has detected the following positive specimens from non-sentinel sources: 33 influenza A, 21 influenza B, 457 RSV, 10 Adenovirus, 2 parainfluenza virus (PIV) type-1, 13 PIV-2 and 12 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 14 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
14 2008	Sentinel	8	3	37.5	0	3	-	-
	Non-Sentinel	71	0	0.0	0	0	1	1.4
	Total	79	3	3.8	0	3	1	1.3
Season to date	Sentinel	302	127	42.1	78	49	-	-
	Non-Sentinel	1899	54	2.8	33	21	457	24.1
	Total	2201	181	8.2	111	70	457	20.8

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 14 2008 and the 2007/2008 season to date

	Week 14 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	0	1	1	42	33	75
HSE-M	0	0	0	8	1	9
HSE-MW	0	1	1	7	5	12
HSE-NE	0	1	1	13	12	25
HSE-NW	0	0	0	2	5	7
HSE-SE	0	0	0	13	7	20
HSE-S	0	0	0	17	3	20
HSE-W	0	0	0	9	4	13
Total	0	3	3	111	70	181

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 13 2008 and the 2007/2008 season to date

	Week 14 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	2	10
15-64 years	0	3	3	76	62	138
65 years and older	0	0	0	16	3	19
Age group unknown	0	0	0	5	0	5
Total	0	3	3	111	70	181

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.

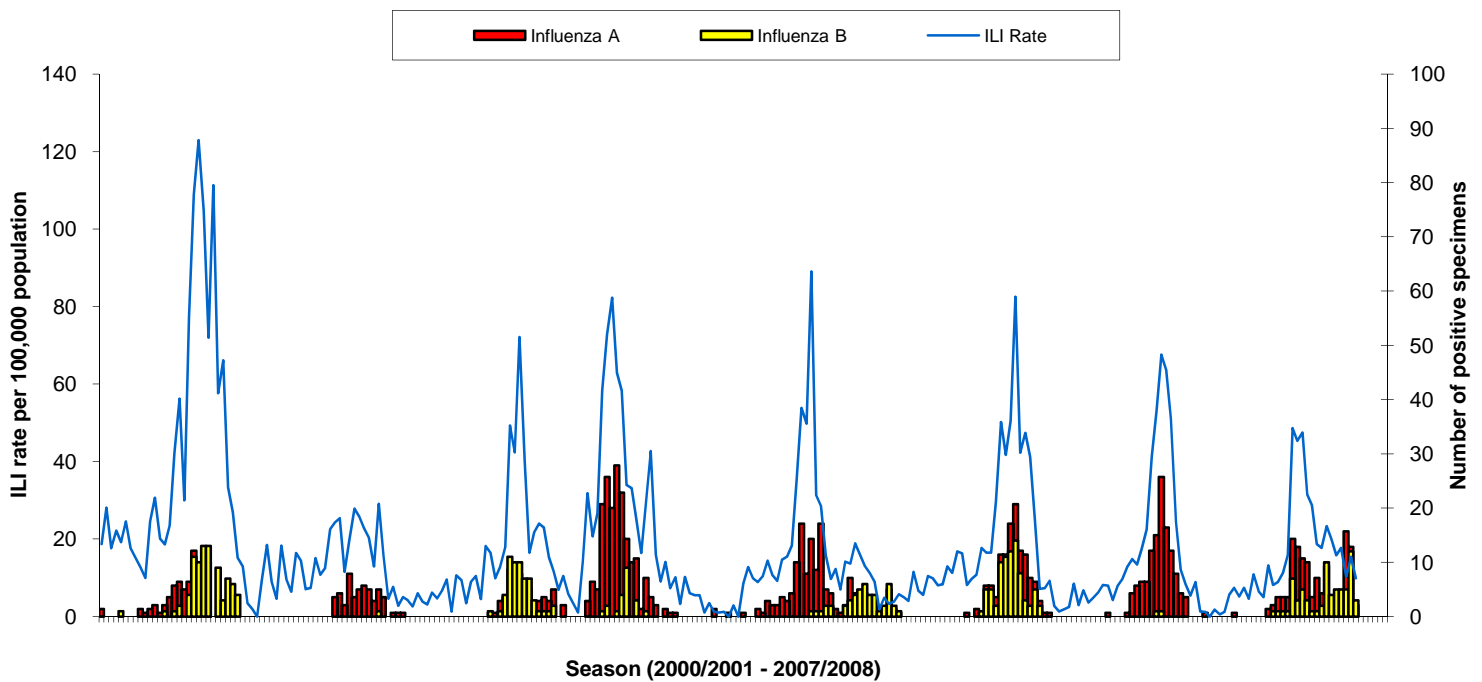


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

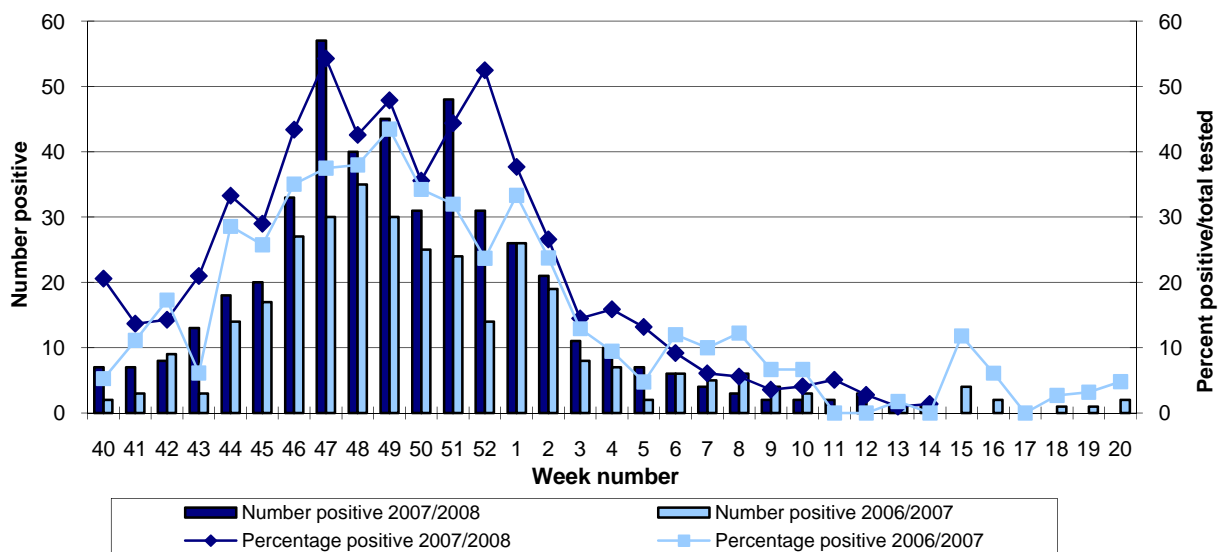


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Three influenza B cases were notified to HPSC during week 14 2008: two from HSE-E and one from HSE-NW. One influenza A and two influenza B cases were notified to HPSC during week 15 2008: two 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.

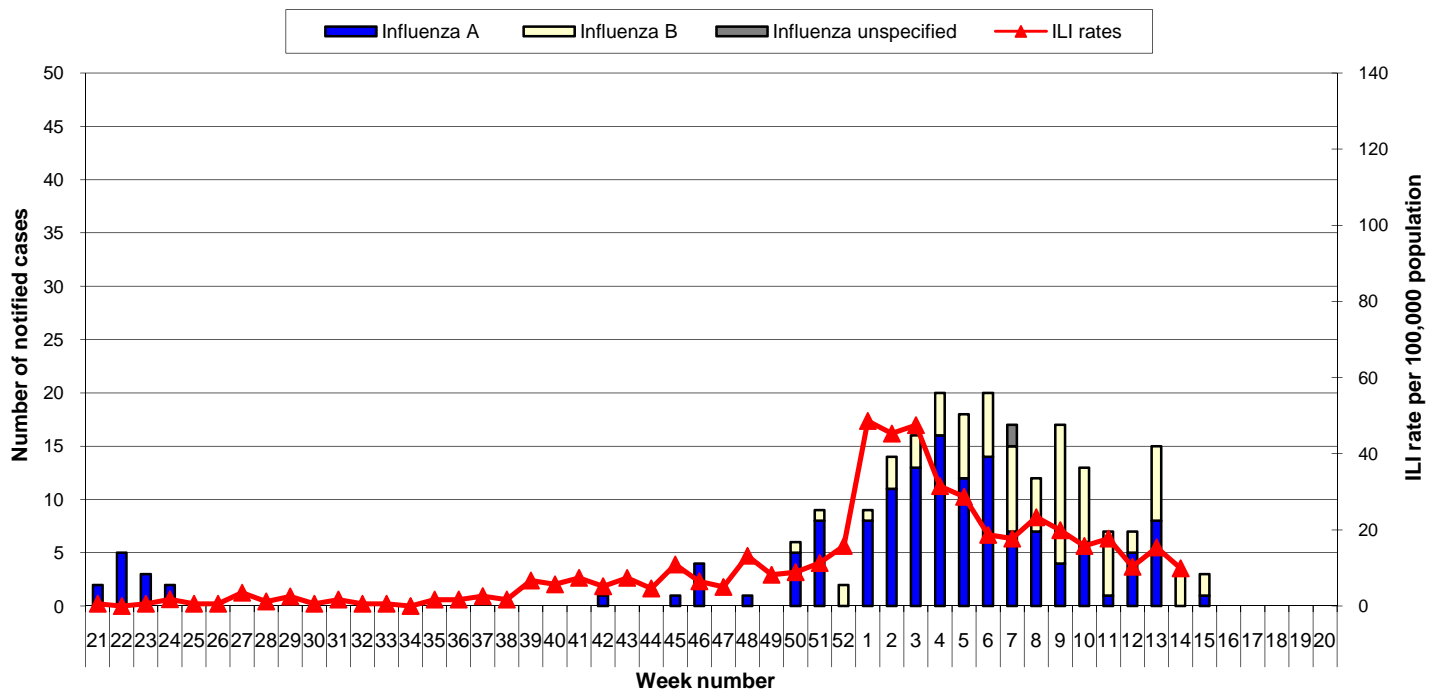


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 10/04/2008 at 15:22

Mortality Data

One death attributed to influenza was registered with the General Register Office (GRO) during week 14 2008. This death was in an adult aged over 65 years (from HSE-S) who died in March (week 12) 2008. Influenza was reported as the primary cause of death. This is the second death attributed to influenza and registered with the GRO to date this season

Outbreak Reports

An outbreak of ILI/influenza was reported to HPSC from HSE-E during week 12 2008. The outbreak occurred in a long-stay residential unit of a healthcare institution. Thirty-one patients and 14 staff with ILI symptoms were reported. Influenza A (H3N2) was detected in specimens from six patients. The NVRL have completed genetic strain characterisation and all six influenza A (H3N2) viruses were A/Wisconsin/67/2005 (H3N2)-like. The outbreak was declared over on Monday April 7th 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.

Increases in hospital respiratory admissions were reported from sentinel hospitals in HSE-M and –MW during week 13 2008. No school absenteeism data are available due to the Easter holiday period.

During week 13 2008, no influenza activity was reported in 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.

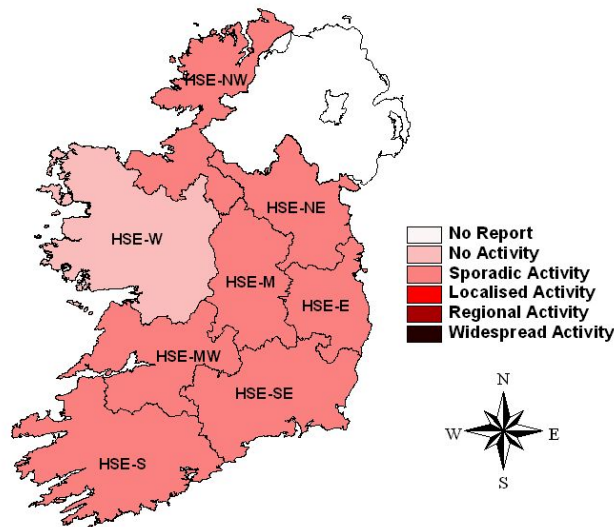


Figure 6: Map of influenza activity by HSE-Area for week 13 2008

Influenza Activity in Northern Ireland

During week 14 2008, 13 cases of clinical influenza and 56 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 59.2 per 100,000 population, an increase from the updated rate of 41.2 per 100,000 for week 13 2008. Seven influenza B positive specimens were detected during week 14 2008.

<http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

Influenza activity remains at baseline levels in England, Scotland and Wales. In week 13 2008, clinical indicators of influenza activity increased slightly in England (from the updated rate of 8.7 per 100,000 population in week 12 to 10.1 per 100,000 in week 13 2008) and Wales (from 1.3 per 100,000 to 2.6 per 100,000) and decreased in Scotland (from 9 per 100,000 to 8 per 100,000). During week 13 2008, detections of influenza B from NHS and HPA laboratories remain at higher levels than influenza A (5 A and 24 B). Of the specimens sent to the Respiratory Virus Unit (RVU) at the Centre for Infections, influenza B continues to account for the majority of detections, although the numbers are low (one A H3 and five B). To date this season, 730 influenza viruses have been isolated by the RVU: 561 A viruses and 169 B viruses. Two outbreaks were reported in Wales (one hospital ward and one nursing home) without laboratory confirmation. Of the influenza viruses characterised this season, there have been 308 A/Solomon Island/3/2006 (H1 and H1N1) like viruses, five A/Wisconsin/67/05 (H3N2) like viruses and 67 B/Florida/4/2006-like viruses. <http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/flureports0708.htm>

Influenza Activity in Europe

For all countries in Europe influenza activity has returned to low levels of activity. During week 13 2008, widespread influenza activity was reported in the Netherlands, regional activity in Norway, local activity in Belgium and Luxembourg, sporadic activity in 17 countries and no activity was reported in six countries. Influenza virus type B accounted for 78% of the total positive specimens collected in week 13 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 3917 influenza viruses this season to date, 62 were A/New Caledonia/20/99 (H1N1)-like, 2456 were A/Solomon Island/3/2006 (H1N1)-like, 17 were A/Wisconsin/67/2005 (H3N2)-like, 68 were A/Brisbane/10/2007 (H3N2)-like, 1297 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and 17 were B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage).

<http://www.eiss.org/index.cgi>

Influenza Activity in Canada

During week 13 2008, overall influenza activity in Canada remained fairly similar to the previous week and moderate overall. Widespread influenza activity was reported by four regions and localised influenza activity by 17 regions. Three regions reported no activity and 30 reported sporadic activity. In week 13, the percentage of specimens that tested positive for influenza declined slightly to 16% (759/4,708). This week, the ILI consultation rate remained stable at 22 per 1,000 patient visits, which is within the expected range for this week. Based on antigenic characterisation of 952 viruses, 407 were A/Solomon Islands/3/2006 (H1N1)-like, 18 were A/Brisbane/59/2007 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 106 were A/Brisbane/10/2007 (H3N2)-like, seven were B/Malaysia/2506/2004-like and 409 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Influenza Activity in the United States

During week 13 2008, influenza activity continued to decrease in the United States. The proportion of outpatient visits for ILI was at national baseline levels, while the proportion of outpatient visits for acute respiratory illness (ARI) was below national baseline levels. Seven states reported widespread influenza activity; 27 states reported regional influenza activity; 11 states reported local influenza activity; and five states and the District of Columbia reported sporadic influenza activity. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the twelfth consecutive week. During week 13 2008, WHO and NREVSS laboratories reported 3,964 specimens tested for influenza viruses, 703 (17.7%) of which were positive: including six A (H1), 61 A (H3), 244 A (unsubtyped) and 392 B. Antigenic characterisation data indicate similarities and differences between a sample of circulating strains and the 2007/2008 vaccine strains as determined by laboratory studies. Clinical vaccine effectiveness cannot be accurately predicted using these data, and in previous years, influenza vaccination has been shown to provide measurable protection against influenza illness and influenza-related complications, even when vaccine strains are antigenically distinct from circulating strains. <http://www.cdc.gov/flu/weekly/fluactivity.htm>

Influenza Activity Worldwide

During week 13 2008, local influenza activity was reported in Japan (1 A H1 & 4 A H3) and sporadic activity was reported in China (12 A unsubtyped, 62 A H1, 40 A H3 & 166 B). <http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza

As of April 8th 2008, 379 confirmed human cases and 239 (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

HPSC, ICGP and NVRL wish to thank the sentinel GPs who have participated in the GP sentinel surveillance system and who have contributed towards this report

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