Influenza Weekly Surveillance Report

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

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 9 2008 (25th February – 2nd March 2008)

Summary

During week 9 2008, GP consultation rates for influenza-like illness (ILI) decreased and remain at low levels. One influenza A and two influenza B positive specimens were detected by the National Virus Reference Laboratory (NVRL) during week 9 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 39 ILI cases during week 9 2008, corresponding to an ILI consultation rate of 19.9 per 100,000 population, a decrease on the updated rate of 23.3 per 100,000 in week 8 2008 (figure 1). Fifty (96.1%) sentinel practices reported during week 9 2008.

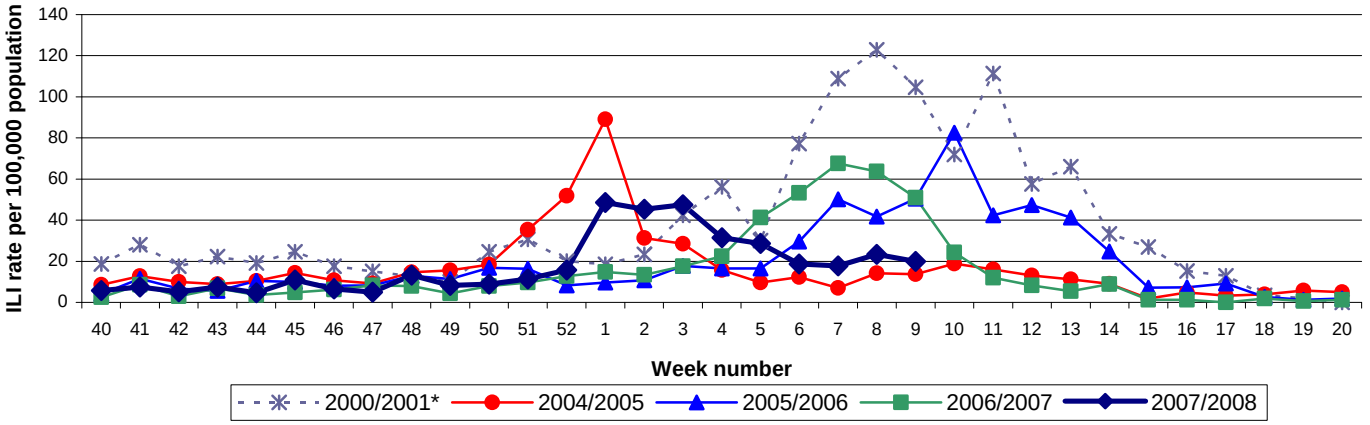

Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons **Highest recorded levels of ILI activity since initiation of sentinel surveillance*

Results (continued)

During week 9 2008, ILI rates decreased in all age groups. One ILI case was reported in the 0-4 year age group (7.2 per 100,000 population), one case in the 5-14 year age group (3.9 per 100,000 population), 33 cases in the 15-64 year age group (24.6 per 100,000 population) and four cases in those aged 65 years or older (18.5 per 100,000 population) during week 9 2008, as shown in figure 2.

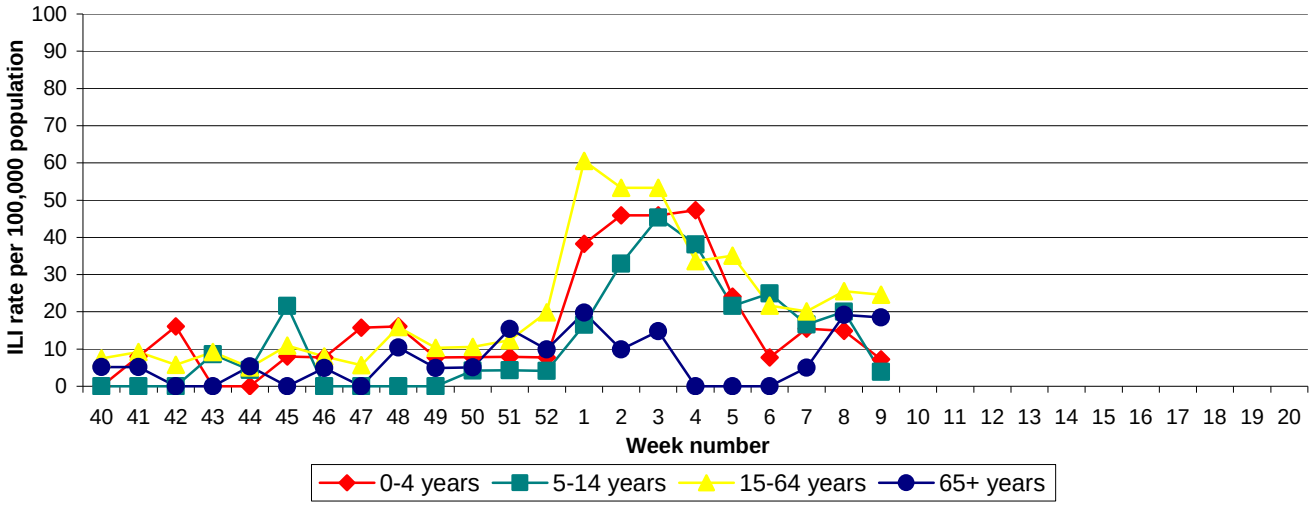

Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
**Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is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

Oseltamivir Resistance in Ireland

Preliminary results from the National Virus Reference Laboratory (NVRL) on antiviral drug susceptibility among seasonal influenza viruses circulating in Ireland has revealed that some of the A (H1N1) viruses in circulation this winter are resistant to the antiviral drug, oseltamivir (also know by the brand name Tamiflu). The NVRL conducted nucleotide sequencing on specimens taken by sentinel GPs between December 2007 and January 2008. As of February 27th 2008, five of 46 specimens (10.9%) tested by the NVRL have shown resistance to oseltamivir. The NVRL is currently arranging for further Irish samples to be tested. 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 four specimens taken by sentinel GPs during week 9 2008, one of which was positive for influenza B. The NVRL also tested 52 non-sentinel specimens taken during week 9 2008, mainly from hospitalised paediatric cases, one of these tested positive for influenza A and one for influenza B.

To date this season, 124 (7.0%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=1784): 28 A (unsubtyped), 58 A (H1), 1 A (H3) and 37 B viruses. Of the 87 influenza A positive specimens detected this season, influenza A (H1) accounts for 98.3% of subtyped (n=59) specimens. To date this season, the NVRL have completed genetic strain characterisation on 15 influenza A (H1) subtypes, all 15 were A/Solomon Island/3/2006 (H1)-like viruses. A/Solomon Island/3/2006-like virus is the H1N1 strain included in the 2007/2008 influenza vaccine.

One non-sentinel specimen[1] was positive for respiratory syncytial virus (RSV) during week 9 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: 10 influenza A, 8 influenza B, 447 RSV, 9 Adenovirus, 2 parainfluenza virus (PIV) type-1, 13 PIV-2 and 11 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 9 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
9 2008	Sentinel	4	1	25.0	0	1	-	-
	Non-Sentinel	52	2	3.8	1	1	1	1.9
	Total	**56**	**3**	**5.4**	**1**	**2**	**1**	**1.8**
Season to date	Sentinel	258	106	41.1	77	29	-	-
	Non-Sentinel	1526	18	1.2	10	8	447	29.3
	Total	**1784**	**124**	**7.0**	**87**	**37**	**447**	**25.1**

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 9 2008 and the 2007/2008 season to date

	Week 9 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	1	2	**3**	19	14	**33**
HSE-M	0	0	**0**	8	1	**9**
HSE-MW	0	0	**0**	7	1	**8**
HSE-NE	0	0	**0**	12	9	**21**
HSE-NW	0	0	**0**	2	1	**3**
HSE-SE	0	0	**0**	13	6	**19**
HSE-S	0	0	**0**	17	3	**20**
HSE-W	0	0	**0**	9	2	**11**
Total	**1**	**2**	**3**	**87**	**37**	**124**

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 9 2008 and the 2007/2008 season to date

	Week 9 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	0	**8**
15-64 years	1	2	**3**	71	32	**103**
65 years and older	0	0	**0**	1	2	**3**
Age group unknown	0	0	**0**	1	0	**1**
Total	**1**	**2**	**3**	**87**	**37**	**124**

[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.

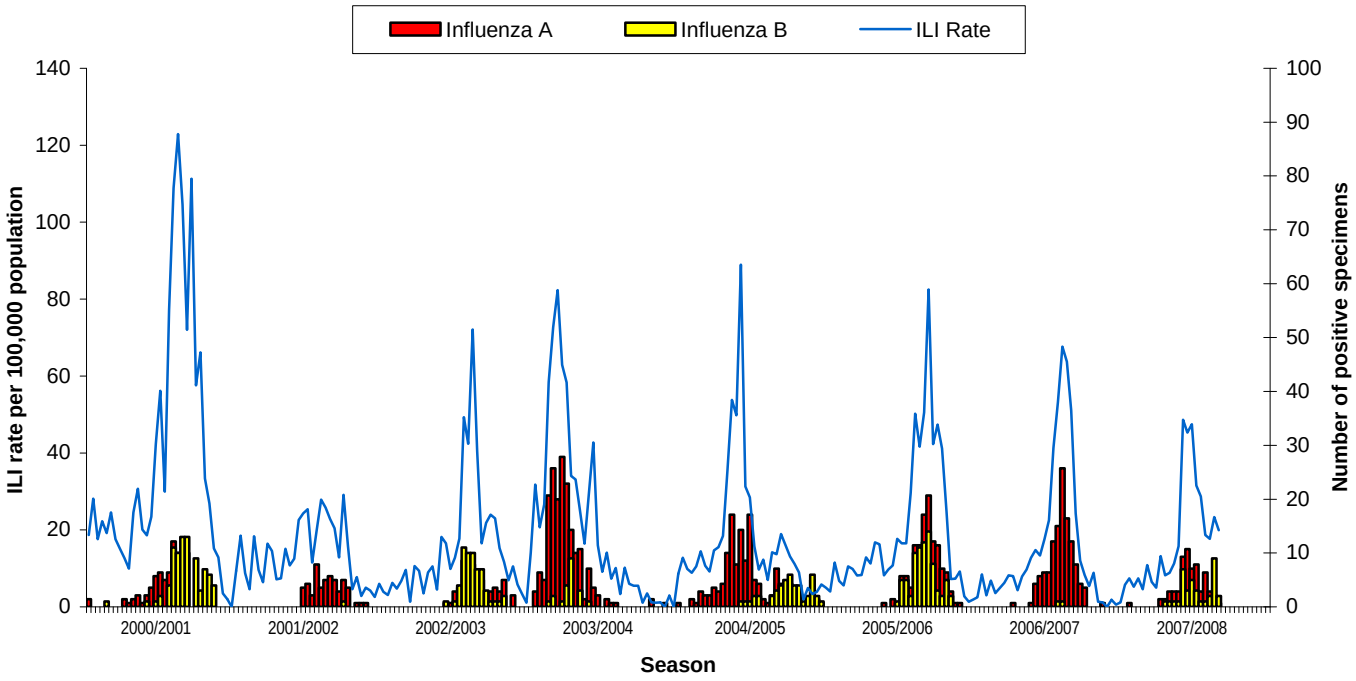

Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

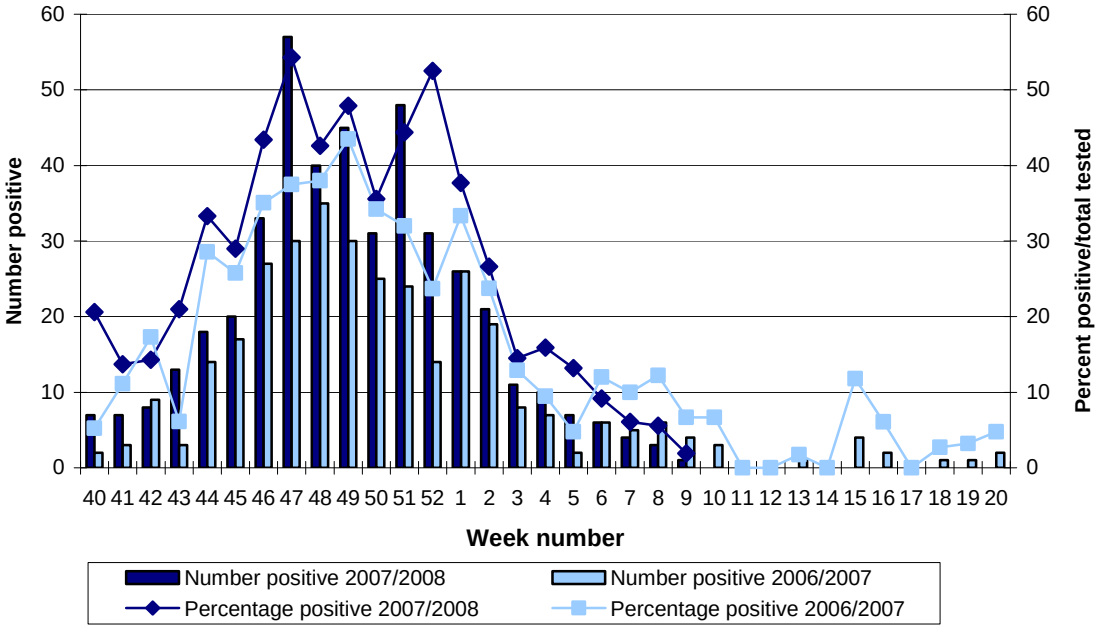

Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Three influenza A and seven influenza B cases were notified to HPSC during week 9 2008: three from HSE-E, two from HSE-M, one from HSE-NE, three from HSE-SE and one from HSE-S. Four influenza A and seven influenza B cases were notified to HPSC during week 10 2008: six from HSE-E, one from HSE-M, one from HSE-NE and three 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.

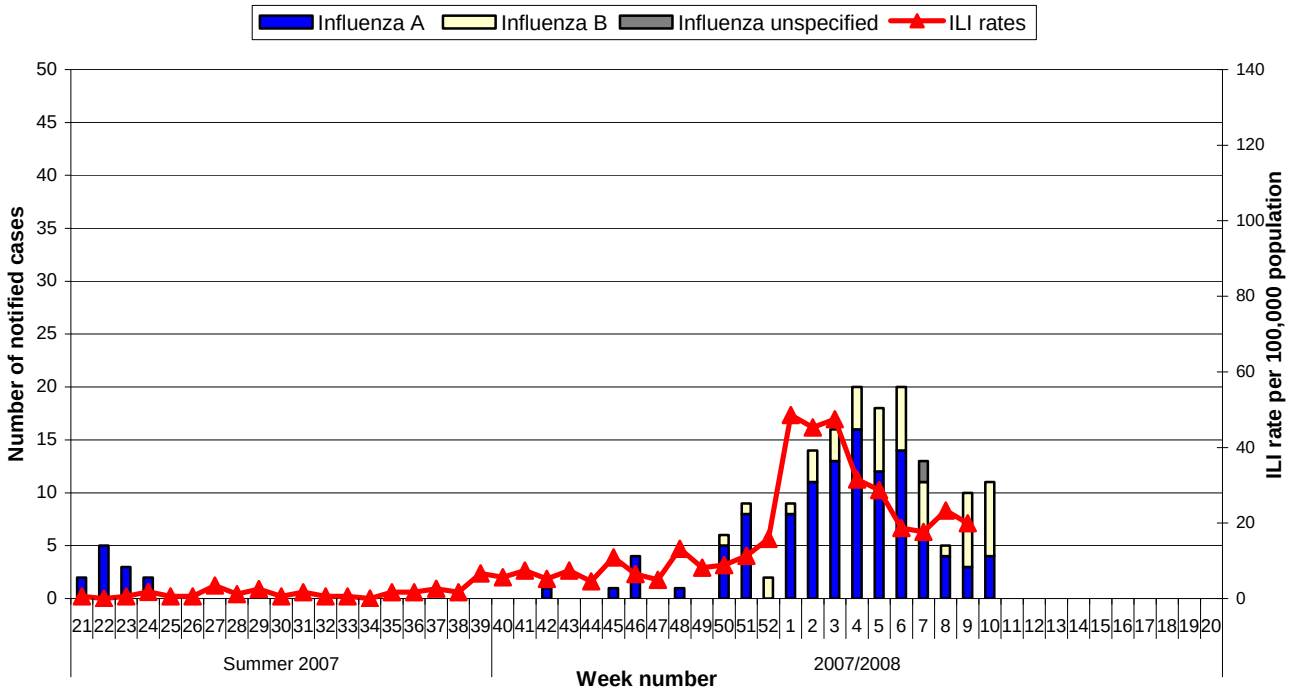

Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
**Notification data are provisional and were extracted from CIDR on the 06/03/2008 at 14:26*

Mortality Data

One death attributed to influenza was registered with the General Register Office during week 8 2008 (from HSE-NW). This death was an adult over 65 years of age who died in December (week 51) 2007. Influenza was the primary cause of death in this case.

Outbreak Reports

No ILI/influenza outbreaks have been reported to HPSC to date this season.

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.

There were no increases in hospital respiratory admissions reported from sentinel hospitals during week 8 2008. Two sentinel primary schools in HSE-NW reported increased absenteeism during week 8 2008.

During week 8 2008, no influenza activity was reported in HSE-NW and sporadic influenza 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.

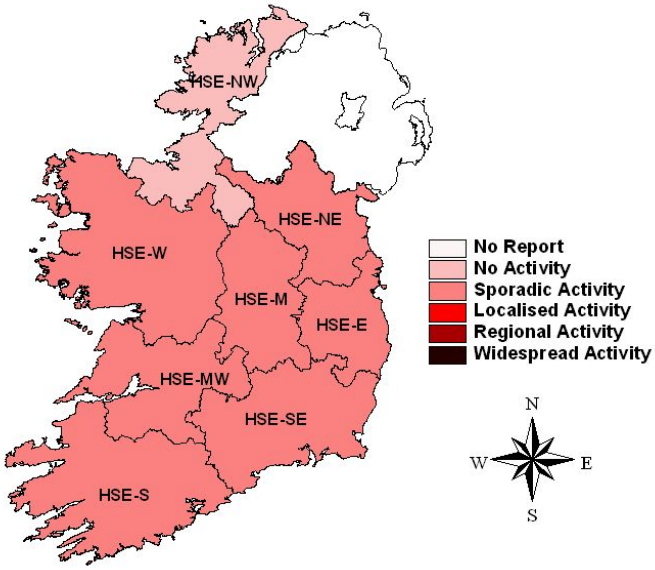

Figure 6: Map of influenza activity by HSE-Area for week 8 2008

Influenza Activity in Northern Ireland

During week 9 2008, 24 cases of clinical influenza and 80 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 71.3 per 100,000 population, an increase from the updated rate of 47.1 per 100,000 for week 8 2008. Twenty-six non-sentinel specimens were tested during week 9 2008, one was positive for influenza A. http://www.cdscni.org.uk

Influenza Activity in England, Scotland & Wales

During week 9 2008, influenza activity increased in England and remained at about the same level in Scotland and Wales. Activity is at baseline levels in England, Scotland and Wales. In England, the ILI episode incidence rate was at 10.7 per 100,000 persons in week 8 2008 and 15.9 per 100,000 in week 9 2008. In Scotland, GP ILI consultation rates were at 14.0 per 100,000 in week 8 2008 and 12.0 per 100,000 in week 9 2008. In Wales, GP consultation rates for influenza were at 2.0 per 100,000 in week 8 2008 and 2.4 per 100,000 in week 9 2008. Of the samples referred to the Centre for Infection's Respiratory Virus Unit during this week, influenza B continues to account for the majority of detections although the numbers are low. Of the influenza viruses characterised this season, there have been 298 A/Solomon Island/3/2006 (H1 and H1N1)-like viruses, four A/Wisconsin/67/05 (H3N2)-like viruses and 41 B/Florida/4/2006-like viruses.
http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/flureports0708.htm

Influenza Activity in Europe

During week 8 2008, medium influenza activity as reported in 16 countries in Europe. In most countries influenza activity was unchanging or declining. Nine countries reported widespread activity, three countries regional activity, five countries local activity, 11 countries sporadic activity and one country reported no influenza activity. While the majority of countries in Europe reported influenza A (H1) as the dominant subtype throughout the season, eight countries reported a co-circulation with influenza B since week 7 2008 and five countries reported influenza B as the dominant subtype in week 8 2008. The proportion of influenza B has further increased from 37% in week 7 2008 to almost 50% in week 8 2008. Based on the antigenic and/or genetic characterisation of 2524 influenza viruses, 58 were A/New Caledonia/20/99 (H1N1)-like, 1872 were A/Solomon Island/3/2006 (H1N1)-like, eight were A/Wisconsin/67/2005 (H3N2)-like, 16 were A/Brisbane/10/2007 (H3N2)-like, 560 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and ten were B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage). Despite the mismatch of the circulating influenza B viruses with the vaccine strain, it is expected that the 2007/2008 vaccine still provides valuable protection due to cross reactive antibodies induced by the vaccine. A number of recent A

(H1N1) viruses are distinguishable from the vaccine virus in antigenic analyses. As these viruses show better antigenic match to A/Brisbane/59/2007, the WHO has now recommended that an A/Brisbane/59/2007-like virus is included in the vaccine for the 2008/2009 season. As there is still significant antigenic similarity, the present vaccine is expected to provide protection against the current H1N1 viruses. http://www.eiss.org/index.cgi

Influenza Activity in Canada

During week 8 2008, overall influenza activity in Canada increased slightly from previous weeks. Widespread influenza activity was reported by four regions and localised influenza activity by 13 regions. Ten regions reported no activity and 29 reported sporadic activity. This week, the ILI consultation rate was 15 per 1,000 patient visits, which is below the expected range for this week. In week 8 2008, the percentage of specimens that tested positive for influenza was 17% (755/4518). The proportion of influenza B detections continued to increase over previous weeks, accounting for 37% of detections in week 8 2008. Based on antigenic characterisation of 504 viruses, 282 were A/Solomon Islands/3/2006 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 35 were A/Brisbane/10/2007 (H3N2)-like, three were B/Malaysia/2506/2004-like and 179 were B/Florida/4/2006-like. http://www.phac-aspc.gc.ca/fluwatch/index-eng.php

Influenza Activity in the United States

During week 8 2008, influenza activity decreased slightly in the United States. The proportion of outpatient visits for ILI and acute respiratory illness (ARI) was above national baseline levels. Forty-nine states reported widespread influenza activity; one state reported regional influenza activity; and the District of Columbia reported local influenza activity. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the seventh consecutive week. During week 8, WHO and NREVSS laboratories reported 7,726 specimens tested for influenza viruses, 2,321 (30.0%) of which were positive: 67 A (H1), 437 A (H3), 1,193 A (unsubtyped) and 624 influenza B viruses. http://www.cdc.gov/flu/weekly/fluactivity.htm

Influenza Activity Worldwide

During week 8 2008, regional influenza activity was reported in Tunisia (4 A H1, 1 A H3 & 4 B) and localised activity was reported in Mongolia. Sporadic influenza activity was reported in Brazil, Chile (1 A H1), China (2 A unsubtyped, 54 A H1, 66 A H3 and 96 B) and Egypt (7 A unsubtyped).
http://gamapserver.who.int/GlobalAtlas/home.asp

Avian Influenza

As of March 5th 2008, 371 confirmed human cases and 235 (63.3%) 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.

The Ministry of Health and Population of Egypt has announced a new human case of avian influenza A (H5N1) virus infection. The case is an 11-year-old male from Menof District, Menofia Governorate. He was hospitalised with symptoms on February 26th and was confirmed as being infected with A (H5N1) by the Central Public Health Laboratory and NAMRU-3 on March 4th. He remains in a critical condition. Investigations into the source of his infection indicate a history of contact with sick and dead poultry. Of the 46 cases confirmed to date in Egypt, 20 have been fatal.

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:

- [a]A/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