

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 8 2008 (18th – 24th February 2008)

Summary

During week 8 2008, GP consultation rates for influenza-like illness (ILI) increased slightly but remain at low levels. Seven influenza B positive specimens were detected by the National Virus Reference Laboratory (NVRL) during week 8 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-one 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 44 ILI cases during week 8 2008, corresponding to an ILI consultation rate of 23.3 per 100,000 population, a slight increase on the updated rate of 17.7 per 100,000 in week 7 2008 (figure 1). All 51 (100.0%) sentinel practices reported during week 8 2008.

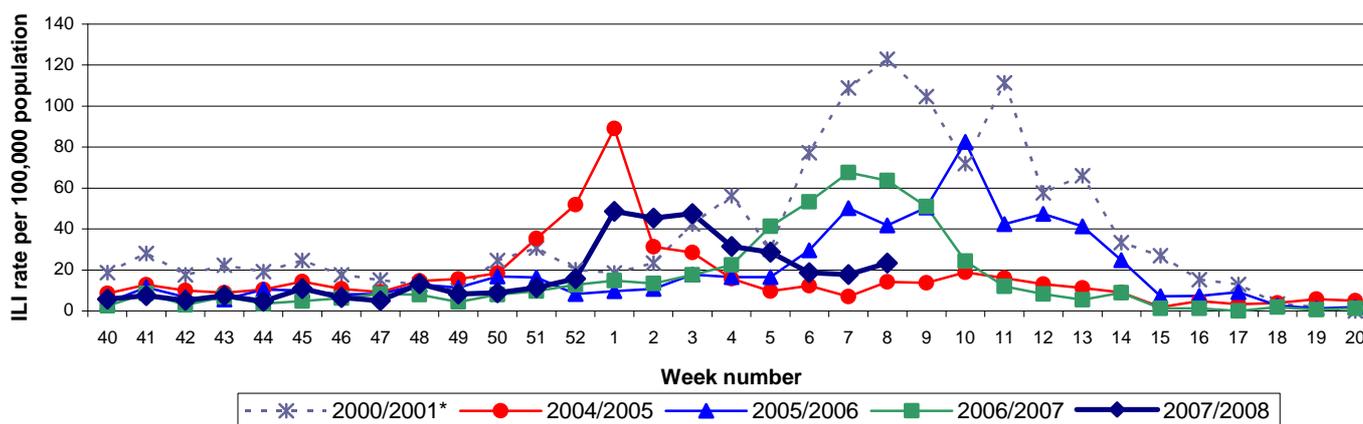


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 8 2008, ILI rates increased in the 5-14, 15-64 and 65 or older year age groups. Two ILI cases were reported in the 0-4 year age group (14.9 per 100,000 population), five cases in the 5-14 year age group (20.0 per 100,000 population), 33 cases in the 15-64 year age group (25.5 per 100,000 population) and four cases in those aged 65 years or older (19.2 per 100,000 population) during week 8 2008, as shown in figure 2.

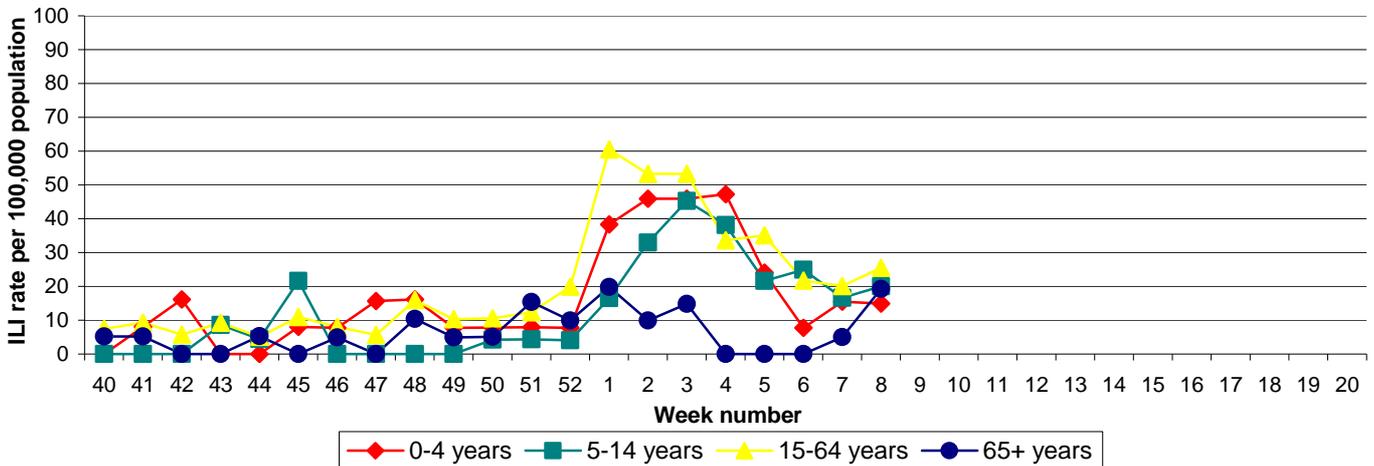


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar 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 known 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 eight specimens taken by sentinel GPs during week 8 2008, two of which were positive for influenza B. The NVRL also tested 53 non-sentinel specimens taken during week 8 2008, mainly from hospitalised paediatric cases, five of these tested positive for influenza B. The proportion of influenza B detections has increased over the past two weeks, accounting for 100% of positive influenza detections in week 8.

To date this season, 114 (6.6%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=1723): 22 A (unsubtyped), 58 A (H1), 1 A (H3) and 33 B viruses. Of the 81 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.

Three non-sentinel specimens¹ were positive for respiratory syncytial virus (RSV) during week 8 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: 9 influenza A, 7 influenza B, 446 RSV, 9 Adenovirus, 2 parainfluenza virus (PIV) type-1, 13 PIV-2 and 10 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 8 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
8 2008	Sentinel	8	2	25.0	0	2	-	-
	Non-Sentinel	53	5	9.4	0	5	3	5.7
	Total	61	7	12.0	0	7	3	4.9
Season to date	Sentinel	250	98	39.2	72	26	-	-
	Non-Sentinel	1473	16	1.1	9	7	446	30.3
	Total	1723	114	6.6	81	33	446	25.9

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 8 2008 and the 2007/2008 season to date

	Week 8 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	0	5	5	16	12	28
HSE-M	0	0	0	8	0	8
HSE-MW	0	0	0	6	1	7
HSE-NE	0	1	1	12	9	21
HSE-NW	0	0	0	2	1	3
HSE-SE	0	0	0	13	6	19
HSE-S	0	1	1	15	2	17
HSE-W	0	0	0	9	2	11
Total	0	7	7	81	33	114

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 8 2008 and the 2007/2008 season to date

	Week 8 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	0	2	2	6	3	9
5-14 years	0	0	0	7	0	7
15-64 years	0	5	5	67	28	95
65 years and older	0	0	0	0	2	2
Age group unknown	0	0	0	1	0	1
Total	0	7	7	81	33	114

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.

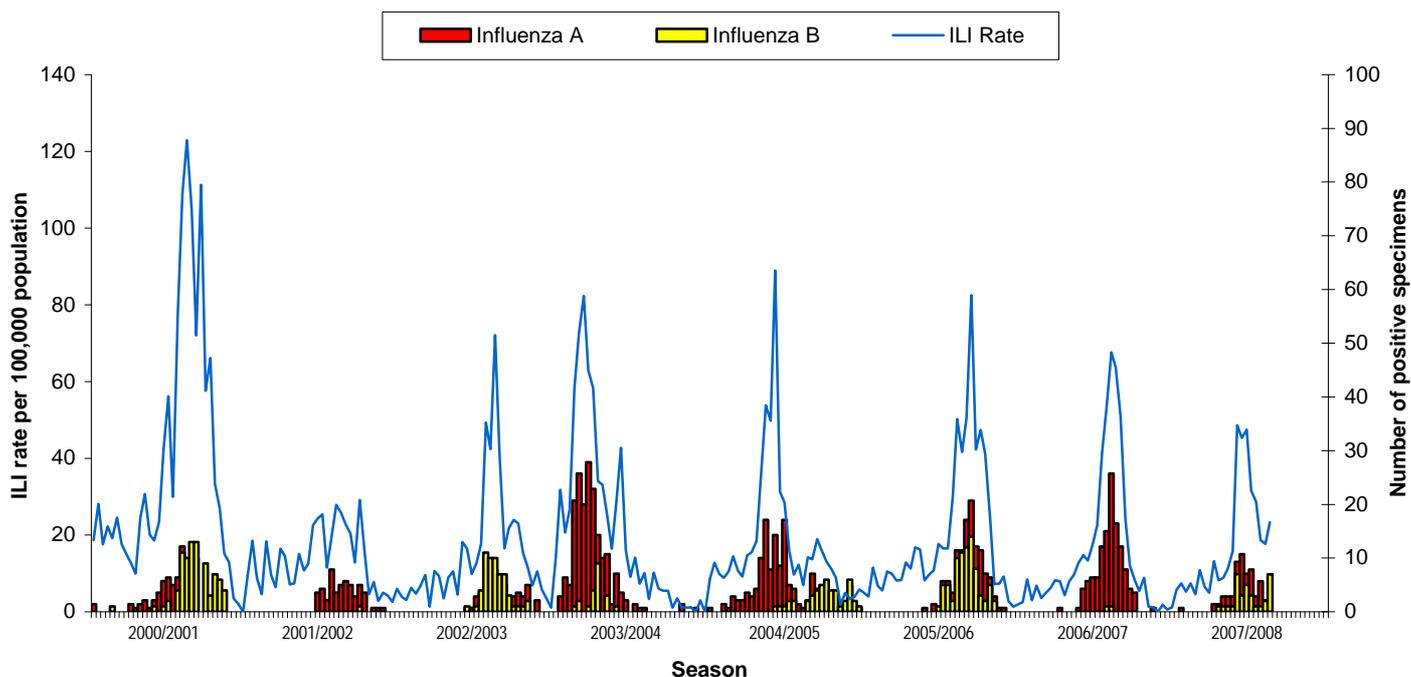


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

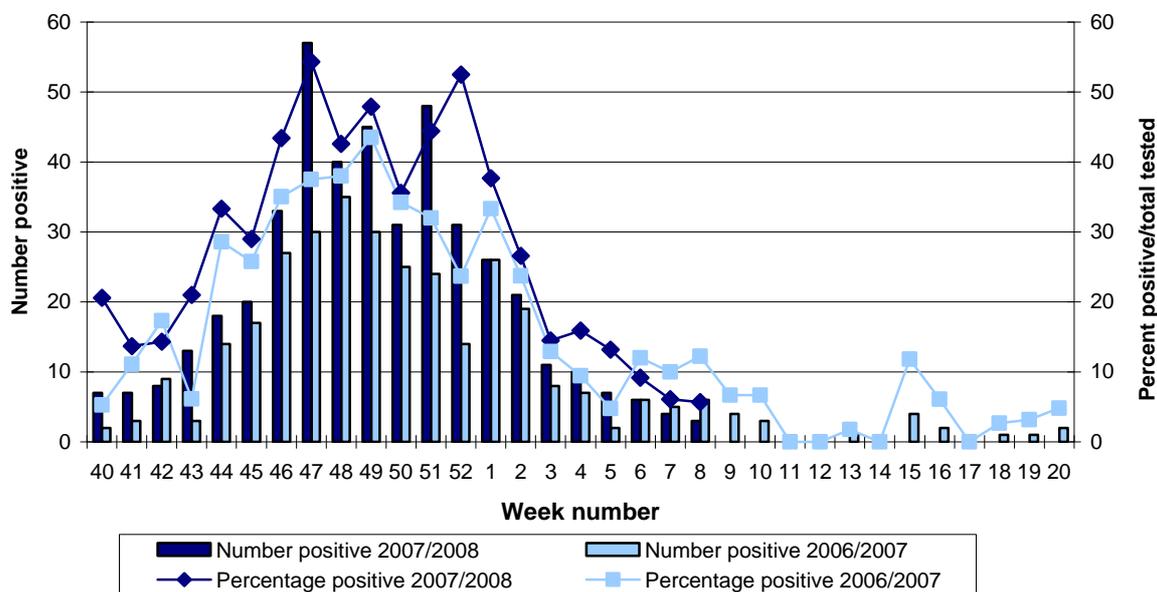


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Three influenza A and one influenza B cases were notified to HPSC during week 8 2008: one from HSE-E, two from HSE-NE and one from HSE-SE. 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. 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.

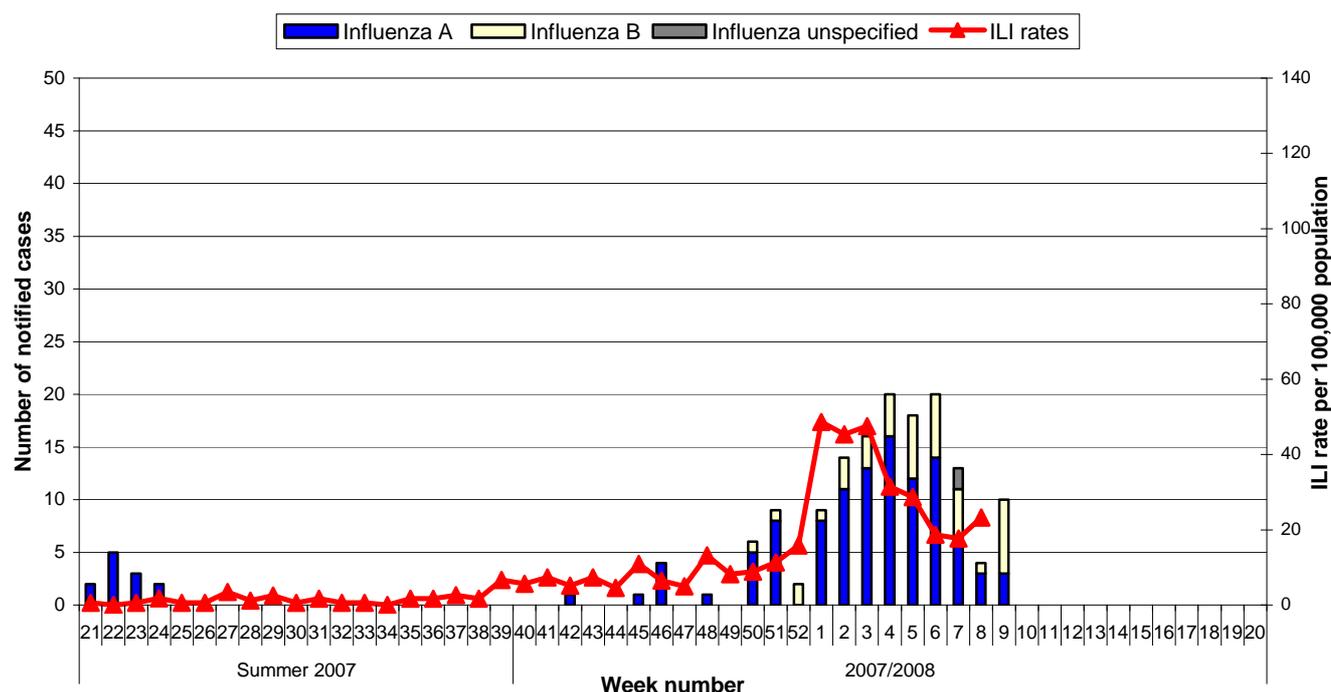


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 28/02/2008 at 12:41

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.

Hospital respiratory admissions increased in one sentinel hospital in HSE-E during weeks 5-7 2008. One sentinel primary school in HSE-MW and one sentinel secondary school in HSE-E reported increased absenteeism during week 7 and 8 2008, respectively.

During week 7 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.

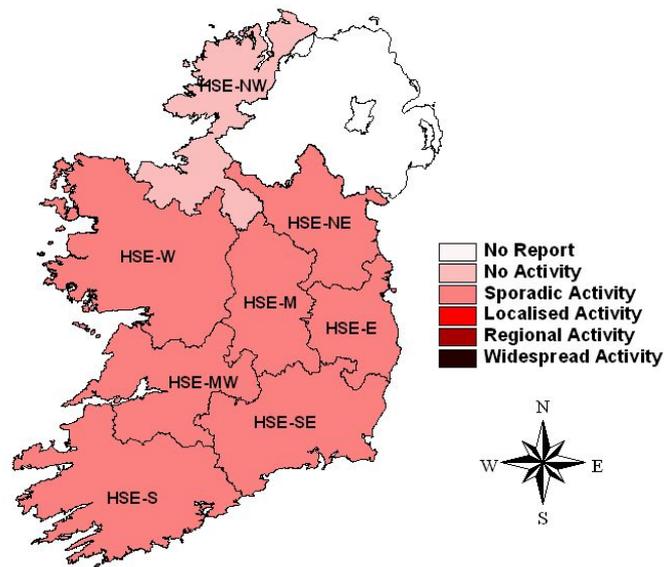


Figure 6: Map of influenza activity by HSE-Area for week 7 2008

Influenza Activity in Northern Ireland

During week 8 2008, seventeen cases of clinical influenza and 48 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 48.4 per 100,000 population, a slight increase from the updated rate of 44.1 per 100,000 for week 7 2008. Fifty-two sentinel and non-sentinel specimens were tested during week 8 2008, one was positive for influenza A and two were positive for influenza B. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

During week 8 2008, influenza activity decreased in Scotland and remained at approximately the same level in England and Wales. In England, the ILI episode incidence rate was at 10.3 per 100,000 persons in week 7 2008 and 10.6 per 100,000 in week 8 2008. In Scotland, GP ILI consultation rates decreased from 22.0 per 100,000 in week 7 2008 to 14.0 per 100,000 in week 8 2008. In Wales, GP consultation rates for influenza were at 3.7 per 100,000 in week 7 2008 and 2.0 per 100,000 in week 8 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. All influenza B viruses isolated this season belong to the B/Yamagata lineage (B/Florida/42006-like viruses). These viruses are different from the B/Victoria lineage (B/Malaysia-like virus) which is included in the 2007/2008 vaccine. Although this "mismatch" in the B component may reduce the vaccine's effectiveness, some protection is still likely. <http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/flureports0708.htm>

Influenza Activity in Europe

During week 7 2008, eight countries reported widespread activity, six countries regional activity, three countries local activity, nine countries sporadic activity and two countries reported no influenza activity. While Estonia, Germany, Norway and Slovenia indicated an increase in clinical influenza activity in week 7 2008 compared to week 6 2008, the majority of the countries in Europe reported decreasing or unchanging influenza activity. The total number of respiratory specimens collected by sentinel physicians in week 7 2008 was 1282, of which 553 (43%) were influenza virus positive: 119 (22%) A (unsubtyped), 186 (34%) A (H1), four (<1%) A (H3) and 244 (44%) B. In addition, 543 influenza virus detections were reported from non-sentinel sources, of which 274 (51%) were A (unsubtyped), 90 (17%) A (H1), four (<1%) A (H3) and 175 (32%) type B. Based on (sub)typing data of all influenza virus detections this season (N=9583; sentinel and non-sentinel data), 4003 (42%) were type A (unsubtyped), 3297 (34%) were A (H1), 85 (1%) were A (H3) and 2198 (23%) were B. 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 in week 7 2008. The increased circulation of B type viruses was

observed from the beginning of 2008. The proportion of influenza B has increased from 14% in week 1 2008 to 37% in week 7 2008 compared to the detection of influenza A. The majority of influenza B viruses in Europe this winter belong to a different lineage than the current vaccine strain B/Malaysia/3506/2004. There are considerable antigenic differences between these two lineages, but, despite this mismatch, it is expected that the 2007/2008 vaccine will provide valuable protection due to cross reactive antibodies induced by the vaccine. There is a reasonably good match between most A (H1N1) viruses currently circulating in Europe and the corresponding vaccine strain A/Solomon Island/3/2006 which is included in the 2007/2008 influenza vaccine. A number of recent A (H1N1) virus strains are, however, distinguishable from the vaccine virus in antigenic analyses. As these viruses show better antigenic match to another virus, 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. Nevertheless, 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 7 2008, overall influenza activity in Canada remained fairly similar to previous weeks. Widespread influenza activity was reported by four regions and localised influenza activity by 10 regions. Eleven regions reported no activity and 30 reported sporadic activity. This week, the ILI consultation rate was 19 per 1,000 patient visits, which is below the expected range for this week. In week 7 2008, the percentage of specimens that tested positive for influenza was 13% (595/4,528). The proportion of influenza B detections in Canada continued to increase over previous weeks, accounting for 34% of detections in week 7; however, influenza A accounted for the majority of influenza detections. Based on antigenic characterisation of 406 viruses, 247 were A/Solomon Islands/3/2006 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 33 were A/Brisbane/10/2007 (H3N2)-like, three were B/Malaysia/2506/2004-like and 118 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Influenza Activity in the United States

During week 7 2008, influenza activity continued to increase in the United States. 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 outpatient visits for ILI and acute respiratory illness was above national baseline levels. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the sixth consecutive week. During week 7, WHO and NREVSS laboratories reported 6,889 specimens tested for influenza viruses, 2,340 (34.0%) of which were positive: 47 A (H1), 379 A (H3), 1,432 A (unsubtyped) and 482 B. <http://www.cdc.gov/flu/weekly/fluactivity.htm>

Influenza Activity Worldwide

During week 7 2008, regional influenza activity was reported in Tunisia (7 A H1, 3 A H3 & 1 B). Sporadic influenza activity was reported in Brazil, Cameroon (1 A H1), China (3 A unsubtyped, 53 A H1, 33 A H3 and 91 B) and Egypt. <http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza

As of February 28th 2008, 369 confirmed human cases and 234 (63.4%) 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 a 4 year old female who developed symptoms on February 21st and was hospitalised on February 24th. She is receiving treatment and is in a stable condition. Investigations into the source of her infection indicate exposure to sick poultry in the week prior to onset of symptoms. Of the 44 cases confirmed to date in Egypt, 19 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:

- ^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