

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 11 2008 (10th – 16th March 2008)

Summary

During week 11 2008, GP consultation rates for influenza-like illness (ILI) remained at low levels. One influenza B positive specimen was detected by the National Virus Reference Laboratory (NVRL) during week 11 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 27 ILI cases during week 11 2008, corresponding to an ILI consultation rate of 17.6 per 100,000 population, a slight increase from the updated rate of 15.8 per 100,000 in week 10 2008 (figure 1). Thirty-nine (75.0%) sentinel practices reported during week 11 2008. Sentinel GP reporting levels were lower than normally observed; this is presumably due to the St. Patrick's Day and Easter holiday period.

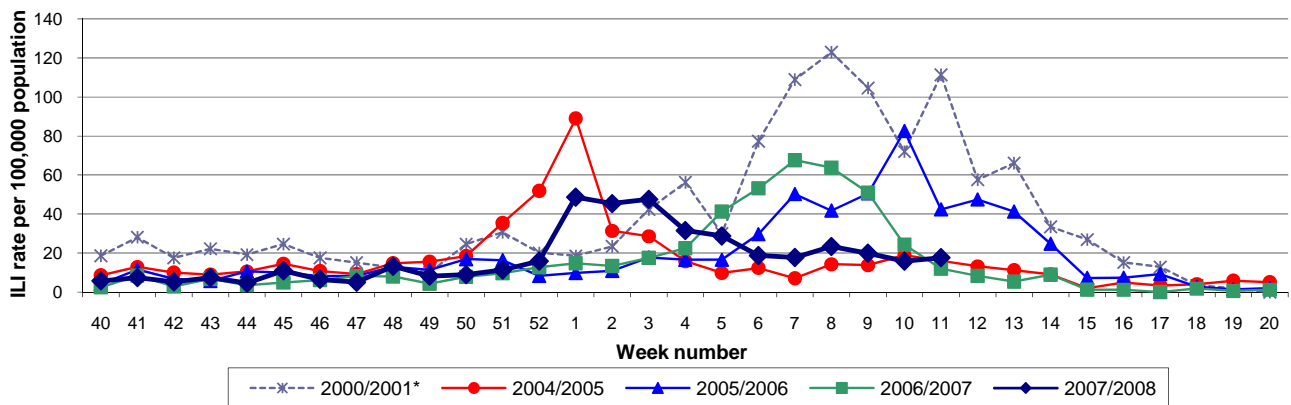


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 11 2008, there was an increase in ILI rates in 0-4 and 5-14 year olds, whilst ILI rates in 15-64 year olds and in those aged 65 years and older decreased. Two ILI cases were reported in the 0-4 year age group (18.2 per 100,000 population), three cases were reported in the 5-14 year age group (14.7 per 100,000 population), 20 cases in the 15-64 year age group (19.0 per 100,000 population) and two cases in those aged 65 years or older (11.8 per 100,000 population) during week 11 2008, as shown in figure 2.

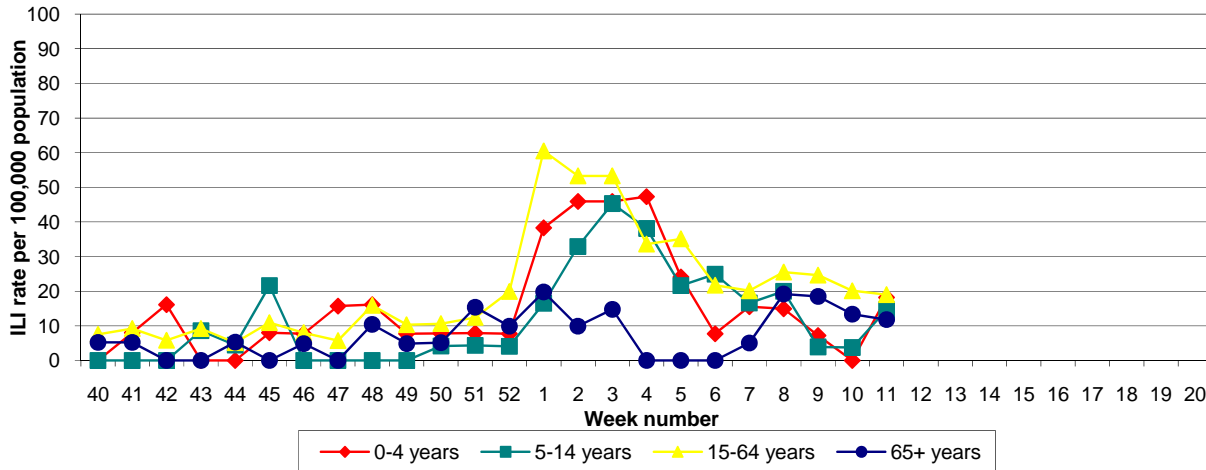


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar 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. To date, 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 three specimens taken by sentinel GPs during week 11 2008, all of which were negative for influenza. The NVRL also tested 31 non-sentinel specimens taken during week 11 2008, mainly from hospitalised paediatric cases, one of which was positive for influenza B.

To date this season, 133 (7.1%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=1885): 13 A (unsubtyped), 73 A (H1), 1 A (H3) and 46 B viruses. Of the 87 influenza A positive specimens detected this season, influenza A (H1) accounts for 98.6% of subtyped (n=74) 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.

Two non-sentinel specimens¹ were positive for respiratory syncytial virus (RSV) during week 11 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, 9 influenza B, 452 RSV, 9 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 11 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
11 2008	Sentinel	3	0	0.0	0	0	-	-
	Non-Sentinel	31	1	3.2	0	1	2	6.5
	Total	34	1	2.9	0	1	2	5.9
Season to date	Sentinel	275	114	41.5	77	37	-	-
	Non-Sentinel	1610	19	1.2	10	9	452	28.1
	Total	1885	133	7.1	87	46	452	24.0

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 11 2008 and the 2007/2008 season to date

	Week 11 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	0	1	1	19	19	38
HSE-M	0	0	0	8	1	9
HSE-MW	0	0	0	7	2	9
HSE-NE	0	0	0	12	10	22
HSE-NW	0	0	0	2	2	4
HSE-SE	0	0	0	13	6	19
HSE-S	0	0	0	17	3	20
HSE-W	0	0	0	9	3	12
Total	0	1	1	87	46	133

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 11 2008 and the 2007/2008 season to date

	Week 11 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	1	9
15-64 years	0	0	0	71	40	111
65 years and older	0	0	0	1	2	3
Age group unknown	0	0	0	1	0	1
Total	0	1	1	87	46	133

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.

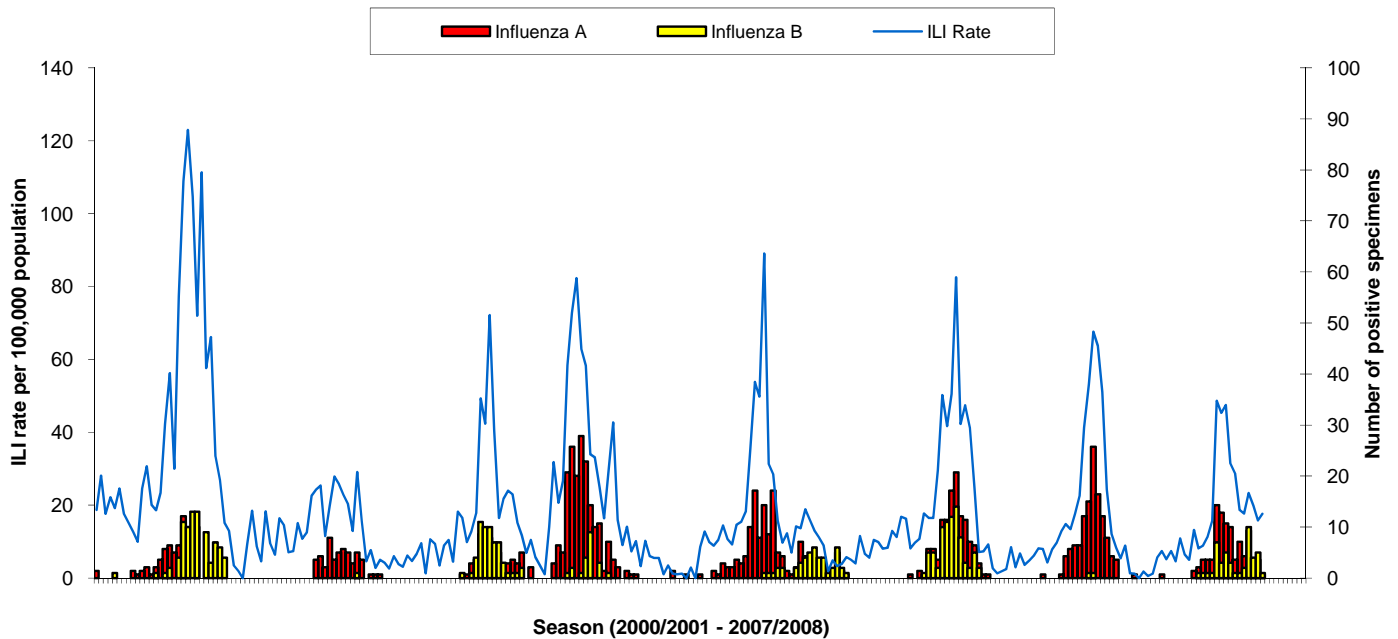


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

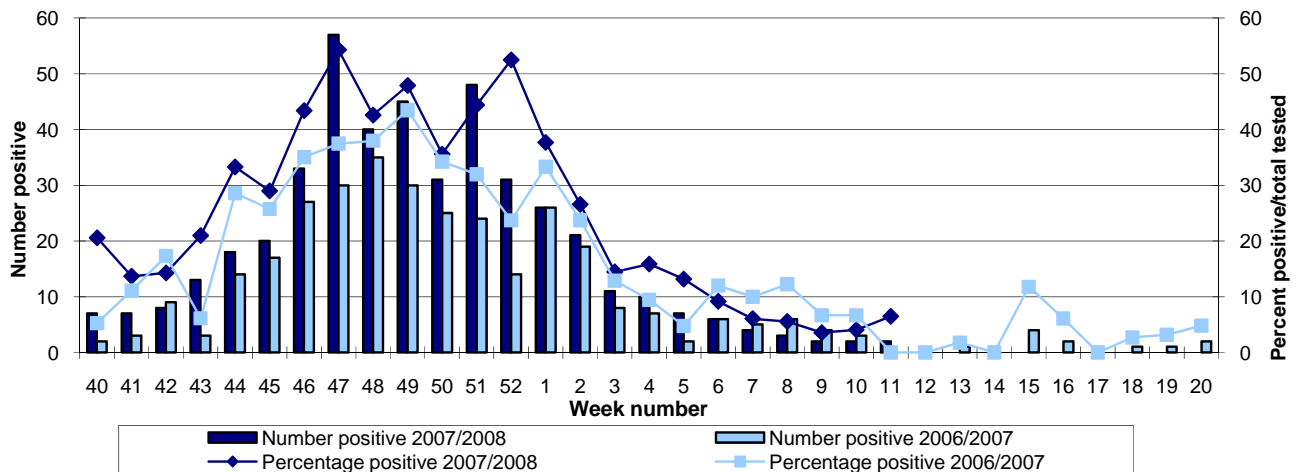


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Six 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, three from HSE-S and two from HSE-W. One influenza A and six influenza B cases were notified to HPSC during week 11 2008: six from HSE-E and one from HSE-M. 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.

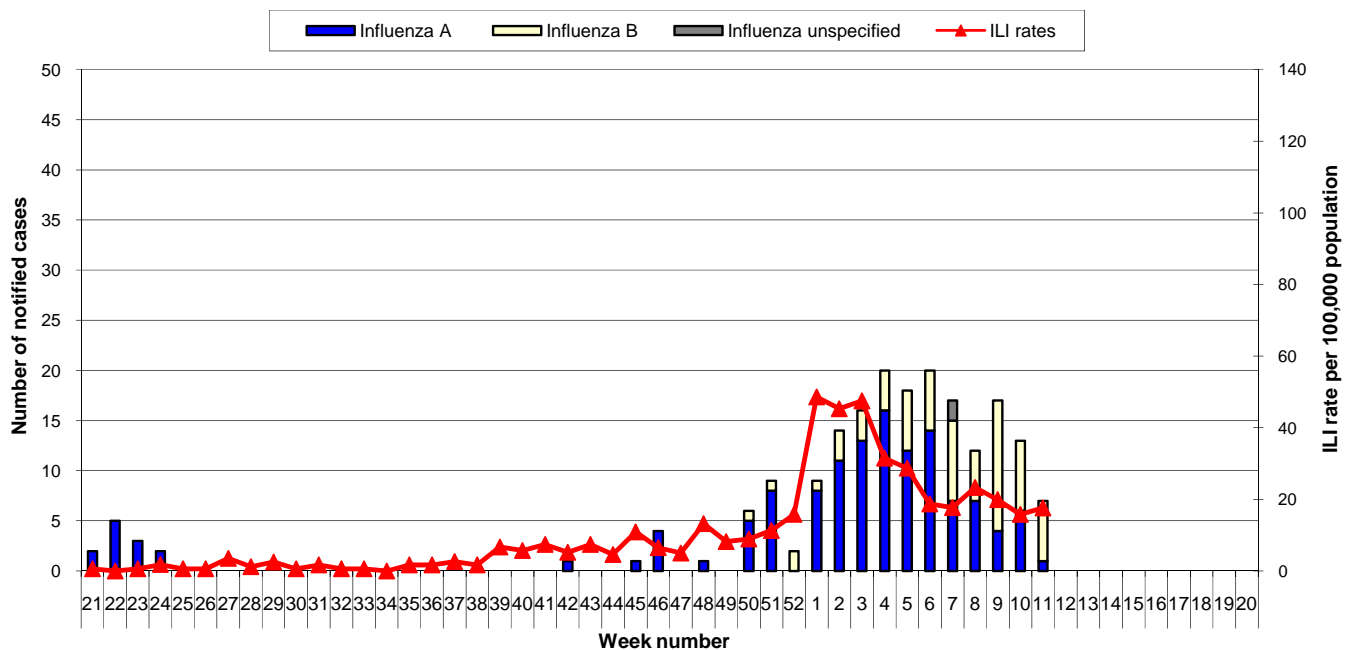


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 18/03/2008 at 12:22

Mortality Data

One death attributed to influenza was registered with the General Register Office this season to date. This death was an adult over 65 years of age (from HSE-NW) 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 weeks 10 or 11 2008. One sentinel secondary school in HSE-MW reported a significant increase in absenteeism during weeks 10 and 11 2008, this could possibly be due to the Easter holiday period.

During week 10 2008, sporadic influenza activity was reported in all 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.

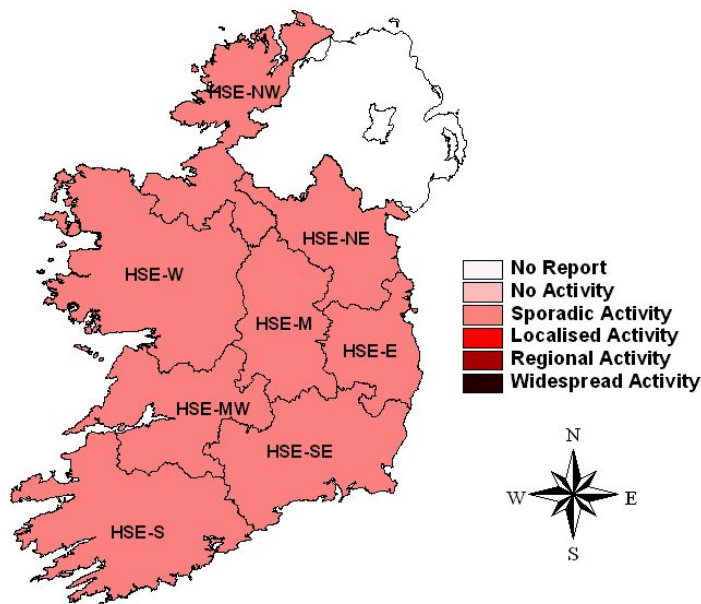


Figure 6: Map of influenza activity by HSE-Area for week 10 2008

Influenza Activity in Northern Ireland

Data for week 11 2008 was not available at the time of publication of this report. During week 10 2008, 16 cases of clinical influenza and 70 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 63.4 per 100,000 population, a decrease from the updated rate of 69.8 per 100,000 for week 9 2008. Fifty sentinel and non-sentinel specimens were tested during week 10 2008, two were positive for influenza A and 11 for influenza B.

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

Influenza Activity in England, Scotland & Wales

Data for week 11 2008 was not available at the time of publication of this report. During week 10 2008, influenza activity decreased in England and Wales and remained at approximately the same level in Scotland. Activity remains at baseline levels in England, Scotland and Wales. In England, the ILI episode incidence rate decreased from 15.7 per 100,000 persons in week 9 2008 to 11.0 per 100,000 in week 10 2008. In Scotland, GP consultation rates for ILI were at 12 per 100 000 in week 9 2008 and 11 per 100 000 in week 10 2008. In Wales, GP consultation rates for influenza decreased from 2.4 per 100,000 in week 9 2008 to 0.7 per 100,000 in week 10 2008. Of the samples referred to the Centre for Infection’s Respiratory Virus Unit during week 9 2008, 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 304 A/Solomon Island/3/2006 (H1 and H1N1) like viruses, five A/Wisconsin/67/05 (H3N2)-like viruses and 46 B/Florida/4/2006-like viruses.

<http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/flureports0708.htm>

Influenza Activity in Europe

During week 10 2008, the majority of European countries reported decreasing activity. Widespread influenza activity was reported in eight countries, regional activity in one country (Germany), local activity in six countries, sporadic activity in 13 countries and no activity was reported in Wales. Influenza virus type B accounted for 63% of the total positive specimens collected during week 10 2008; however the majority of virus detections since the start of the season were influenza A (H1N1) viruses. Based on (sub)typing data of all influenza virus detections this season (N=13278; sentinel and non-sentinel data), 4871 (37%) were influenza A (unsubtyped), 4305 (32%) were A (H1), 121 (1%) were A (H3) and 3981 (30%) were B. Based on the antigenic and/or genetic characterisation of

2913 influenza viruses, 60 were A/New Caledonia/20/99 (H1N1)-like, 1993 were A/Solomon Island/3/2006 (H1N1)-like, 17 were A/Wisconsin/67/2005 (H3N2)-like, 55 were A/Brisbane/10/2007 (H3N2)-like, 774 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and 14 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 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 10 2008, overall influenza activity in Canada remained similar to previous weeks with some indicators having increased slightly compared to week 9 2008. Widespread influenza activity was reported by three regions and localised influenza activity by 16 regions. Six regions reported no activity and 31 reported sporadic activity. The ILI consultation rate increased to 28 per 1,000 patient visits, which is within the expected range for this week. In week 10 2008, the percentage of specimens that tested positive for influenza was 18% (851/4,736). The proportion of influenza B detections in Canada continued to increase, accounting for 39% of detections in week 10; however, the majority of influenza detections were still influenza A viruses. Based on antigenic characterisation of 651 viruses, 347 were A/Solomon Islands/3/2006 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 57 were A/Brisbane/10/2007 (H3N2)-like, three were B/Malaysia/2506/2004-like and 239 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Influenza Activity in the United States

During week 10 2008, influenza activity continued to decrease in the United States. Forty-two states reported widespread influenza activity; eight states reported regional influenza activity; the District of Columbia reported local influenza activity; and Puerto Rico reported sporadic influenza activity. The proportion of outpatient visits for ILI was above national baseline levels, while the proportion of outpatient visits for acute respiratory illness (ARI) was below national baseline levels. During week 10 2008, WHO and NREVSS laboratories reported 8,969 specimens tested for influenza viruses, 1,936 (21.6%) of which were positive: 19 A (H1), 183 A (H3), 1,026 A (unsubtyped) and 708 B. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the ninth consecutive week. 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 Outbreaks in Hong Kong

Several outbreaks affecting schools and community settings are currently being reported in Hong Kong. Furthermore, some severe cases have been admitted to hospital including young children. The Hong Kong Health Protection Centre reported 14 confirmed institutional outbreaks in week 10 2008. During the 2006/2007 influenza season, the maximum number of confirmed institutional outbreaks per week was 22 (in week 27). To date, three deaths in children with influenza-like symptoms were reported. For two of them the presence of influenza virus was confirmed by local authorities (one A/H1N1 and one A/H3N2). In all three cases, SARS and A/H5N1 related disease was excluded. Following the hospital admission of five school children from the same primary school, the authorities decided in response to parental concern to bring forward closure for Easter holidays of all primary schools in Hong Kong by 10 days. The notification of institutional outbreaks as well as the hospital admission of severe influenza cases and occasional deaths is not unexpected in the context of the current seasonal influenza activity in Hong Kong. Therefore, the current influenza epidemiological situation in Hong Kong is consistent with regular seasonal influenza activity and the usual prevention measures for influenza infection apply, including vaccination. For further information: <http://www.ecdc.europa.eu/index.html>

Influenza Activity Worldwide

During week 10 2008, widespread influenza activity was reported in Tunisia (3 A H1 & 21 B)) and sporadic activity was reported in China (11 A unsubtyped, 107 A H1, 54 A H3 & 143 B), Madagascar and Mongolia (3 A H3 & 3 B). <http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza

As of March 18th 2008, 373 confirmed human cases and 236 (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 in Viet Nam has confirmed a new case of human infection of H5N1 avian influenza. The case has been confirmed by the National Institute of Hygiene and Epidemiology (NIHE). The case is an 11-year old male from Thanh Liem district, Ha Nam province. He developed symptoms on 4 March was hospitalised on 9 March and died on 14 March. The case had contact with sick and dead poultry prior to his illness. Control measures have been implemented and close contacts have been identified. All remain healthy and will continue to be monitored. Of the 106 cases confirmed to date in Vietnam, 52 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

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