

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 7 2008 (11th – 17th February 2008)

Summary

During week 7 2008, GP consultation rates for influenza-like illness (ILI) were at low levels. No influenza positive specimens were detected by the National Virus Reference Laboratory (NVRL) during week 7 2008. Preliminary results from the NVRL on antiviral drug susceptibility have revealed that some of the influenza A (H1N1) viruses in circulation in Ireland this season are resistant to the antiviral drug, oseltamivir. The WHO has published the influenza vaccines recommended for the 2008/2009 influenza season.

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 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 28 ILI cases during week 7 2008, corresponding to an ILI consultation rate of 18.8 per 100,000 population, remaining at approximately the same level as the updated rate of 18.1 per 100,000 in week 6 2008 (figure 1). Forty-two (84.0%) sentinel practices reported during week 7 2008.

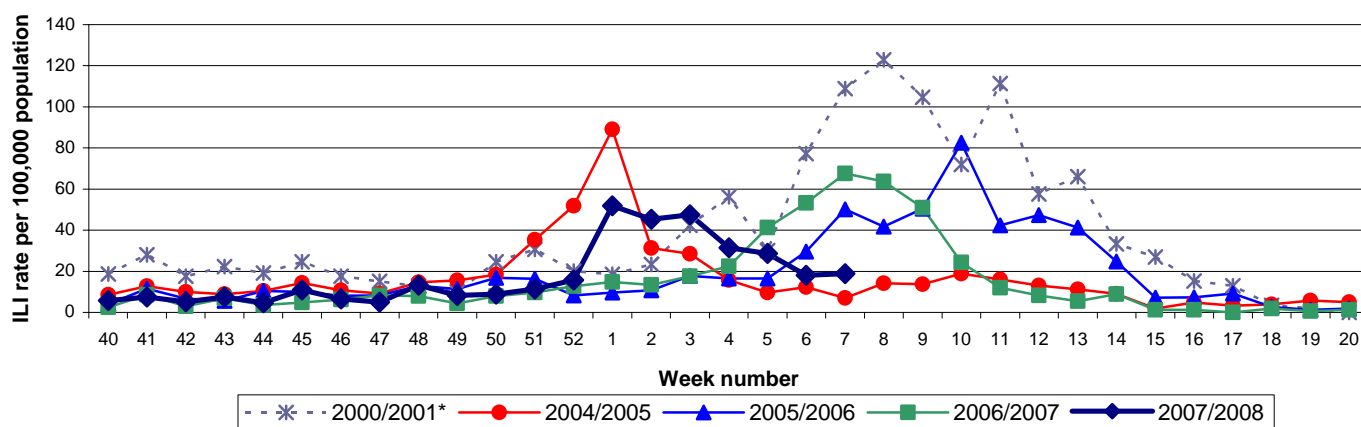


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 7 2008, there was a slight increase in ILI rates in the 0-4 year age group and in those aged 65 years or older and ILI rates decreased or remained stable in all other age groups. Two ILI cases were reported in the 0-4 year age group (18.8 per 100,000 population), four cases in the 5-14 year age group (20.2 per 100,000 population), 21 cases in the 15-64 year age group (20.6 per 100,000 population) and one case in those aged 65 years or older (6.1 per 100,000 population) during week 7 2008, as shown in figure 2.

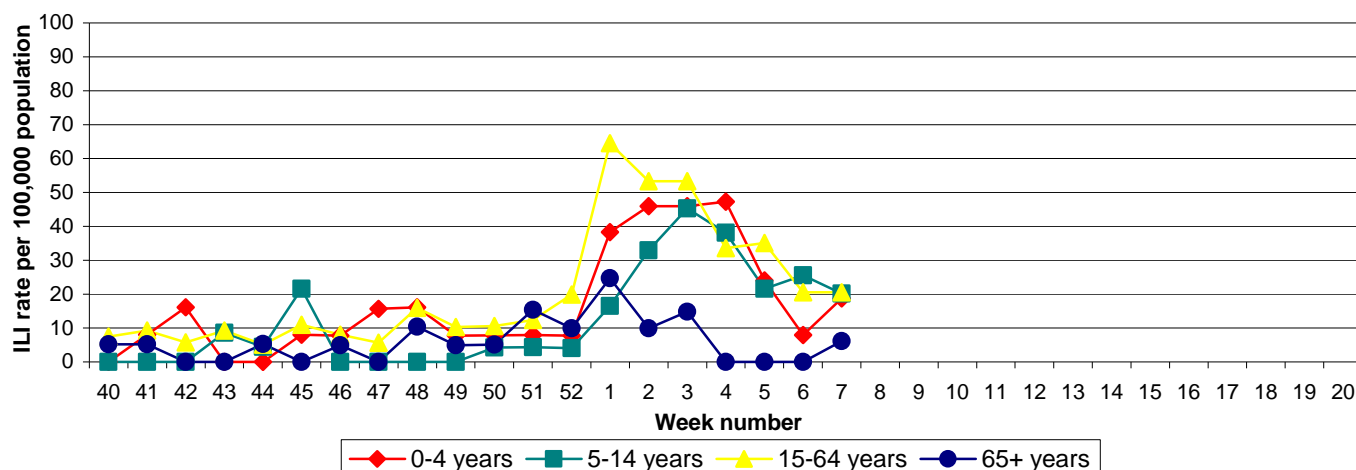


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar 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 20th 2008, three of 29 specimens (10.3%) 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 7 2008, all of which were negative for influenza. The NVRL also tested 65 non-sentinel specimens taken during week 7 2008, mainly from hospitalised paediatric cases, all of these tested negative for influenza virus. To date this season, 99 (6.0%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=1653): 16 A (unsubtyped), 58 A (H1), 1 A (H3) and 24 B viruses. Influenza A is the dominant influenza type circulating this season, accounting for 75.7% of positive specimens. Of the 75 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.

Four non-sentinel specimens¹ were positive for respiratory syncytial virus (RSV) during week 7 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, 2 influenza B, 443 RSV, 5 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 7 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
7 2008	Sentinel	4	0	0.0	0	0	-	-
	Non-Sentinel	65	0	0.0	0	0	4	6.2
	Total	69	0	0.0	0	0	4	5.8
Season to date	Sentinel	234	88	37.6	66	22	-	-
	Non-Sentinel	1419	11	0.8	9	2	443	31.2
	Total	1653	99	6.0	75	24	443	26.8

Table 2: Total number of sentinel and non-sentinel influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 7 2008 and the 2007/2008 season to date

	Week 7 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	0	0	0	16	5	21
HSE-M	0	0	0	7	0	7
HSE-MW	0	0	0	6	1	7
HSE-NE	0	0	0	11	8	19
HSE-NW	0	0	0	2	1	3
HSE-SE	0	0	0	11	6	17
HSE-S	0	0	0	15	1	16
HSE-W	0	0	0	7	2	9
Total	0	0	0	75	24	99

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 7 2008 and the 2007/2008 season to date

	Week 7 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	0	0	0	5	1	6
5-14 years	0	0	0	6	0	6
15-64 years	0	0	0	63	21	84
65 years and older	0	0	0	0	2	2
Age group unknown	0	0	0	1	0	1
Total	0	0	0	75	24	99

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.

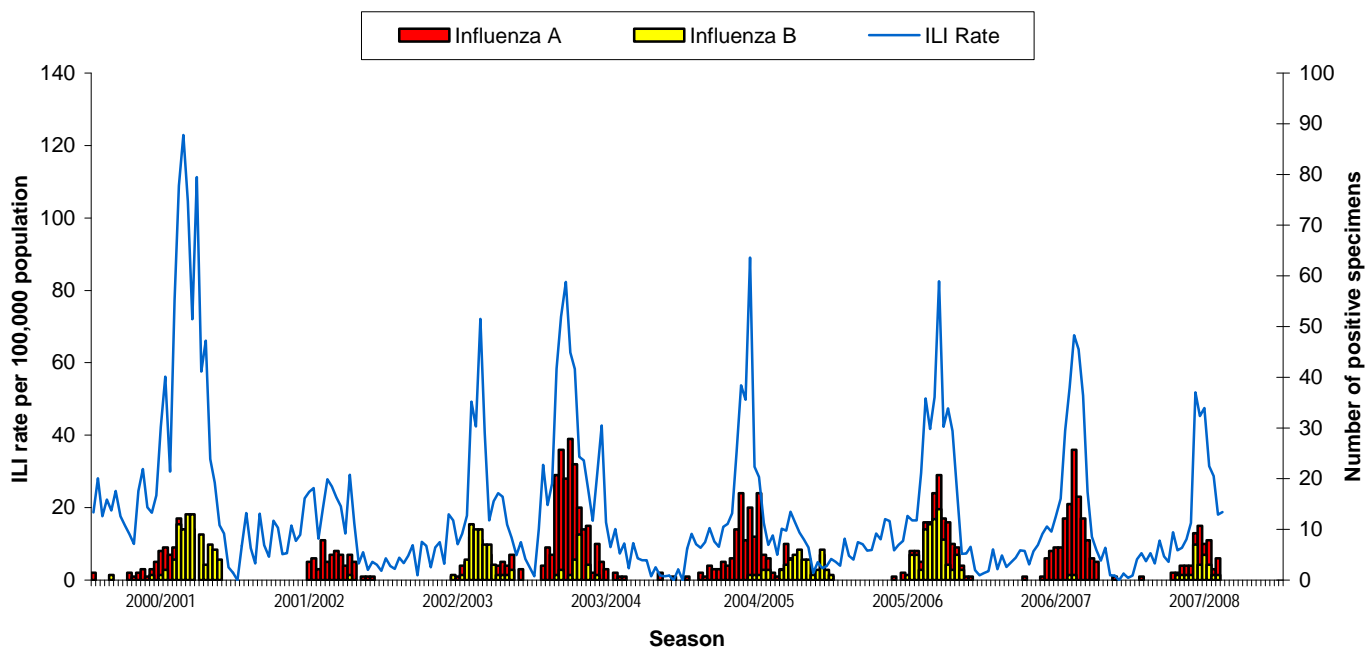


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

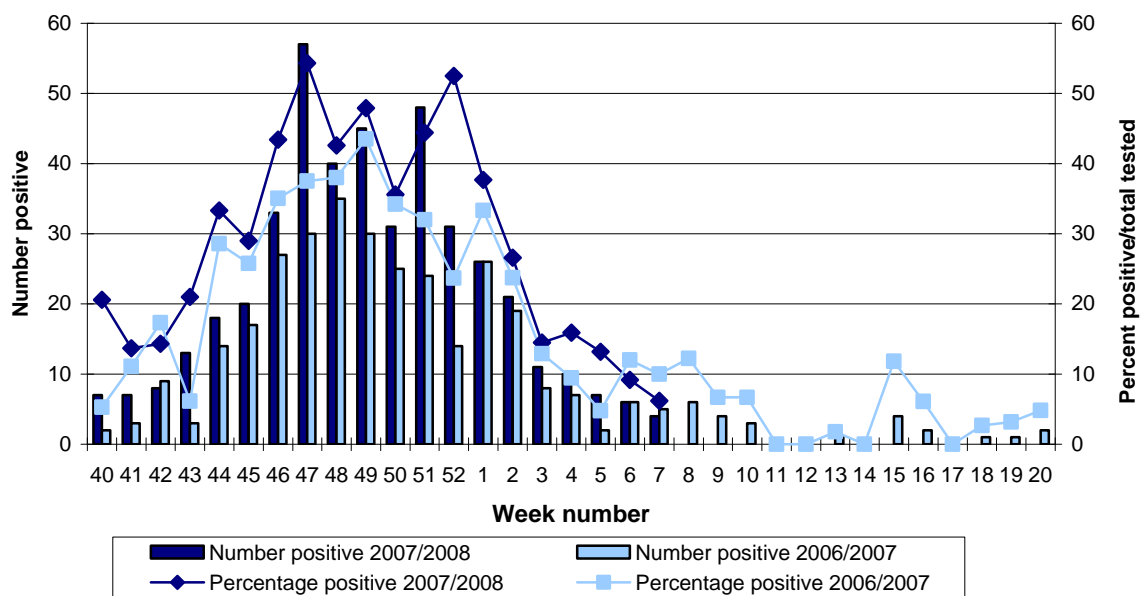


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Fourteen influenza A and six influenza B cases were notified to HPSC during week 6 2008: one from HSE-E, nine from HSE-MW, one from HSE-NE, one from HSE-NW, three from HSE-SE, three from HSE-S and two from HSE-W. Four influenza A, four influenza B and two influenza type unspecified cases were notified to HPSC during week 7 2008: two from HSE-E, one from HSE-M, two from HSE-MW, 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.

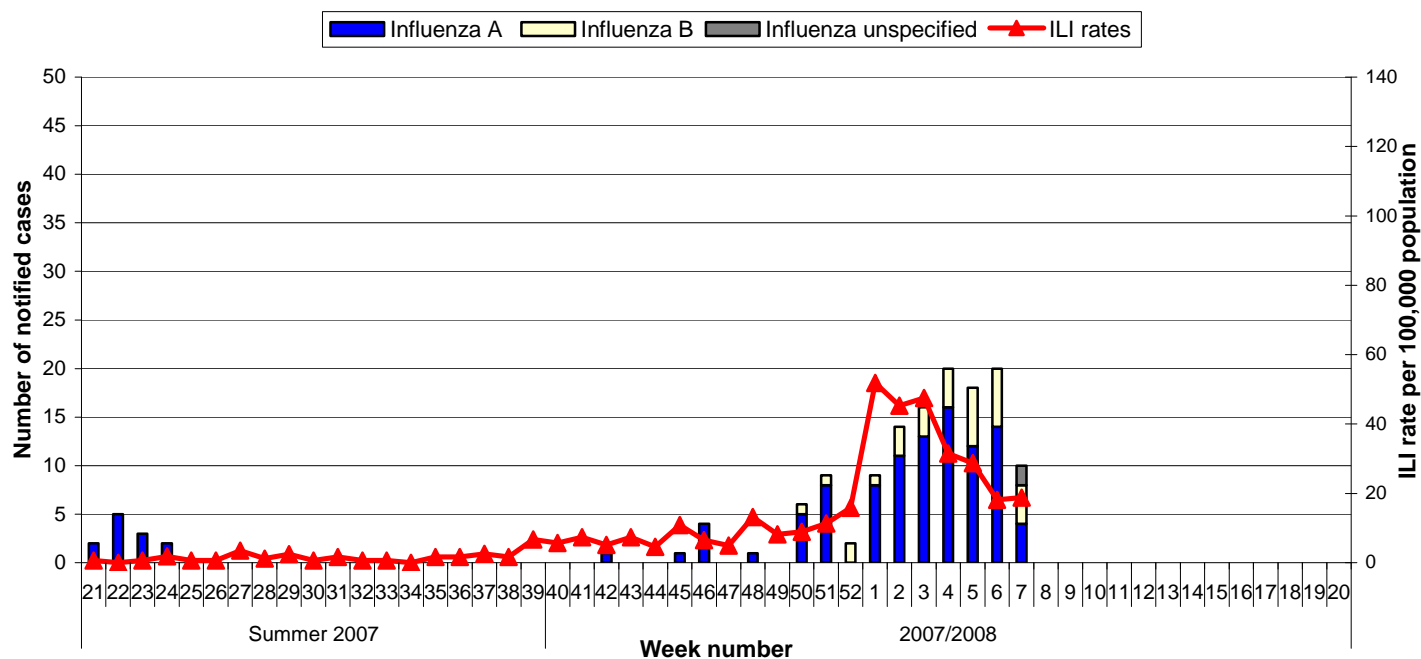


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 21/02/2008 at 09:53

Mortality Data

No influenza associated deaths were registered with the GRO and reported to HPSC to date this season.

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-SE during week 6 2008. One sentinel secondary school in HSE-M and one sentinel primary school in HSE-W reported increases in absenteeism during week 6 2008. Two sentinel primary schools reported increased absenteeism during week 7 2008, one in HSE-MW and one in HSE-S. Increased absenteeism during weeks 6 and 7 could possibly be related to school mid-term holidays.

During week 6 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.

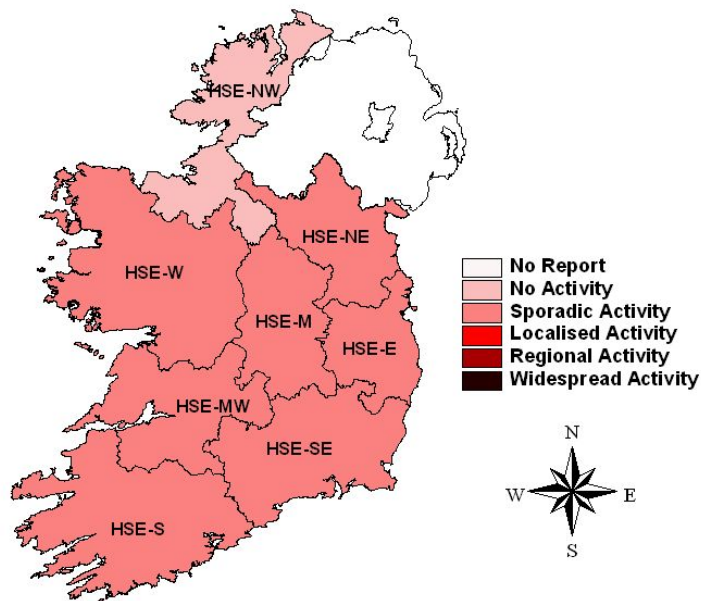


Figure 6: Map of influenza activity by HSE area for week 6 2008

Influenza Activity in Northern Ireland

During week 7 2008, seven cases of clinical influenza and 52 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 47.4 per 100,000 population, a decrease from the updated rate of 52.6 per 100,000 for week 6 2008. Thirty-four sentinel and non-sentinel specimens were tested during week 7 2008, one was positive for influenza A and one was positive for influenza B. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

During week 7 2008, influenza activity remained at baseline and at approximately the same level in England, Scotland and Wales. In England, the ILI episode incidence rate remained at approximately the same level at 11.9 per 100,000 persons in week 6 2008 and 11.0 per 100,000 in week 7 2008. In Scotland, GP ILI consultation rates also remained at the same level at 21 per 100,000 in week 6 2008 and 22 per 100,000 in week 7 2008. In Wales, GP consultation rates for influenza were at 3.4 per 100,000 in week 6 2008 and 3.7 per 100,000 in week 6 2008. Of the samples referred to the Centre for Infection's Respiratory Virus Unit during this week, two tested positive for influenza A (H1), fifteen for influenza B and one for RSV. Of the influenza viruses characterised this season, 277 were A/Solomon Island/3/2006 (H1 and H1N1)-like viruses, two were A/Wisconsin/67/05 (H3N2) like viruses and 26 were B/Florida/4/2006-like viruses.

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

Influenza Activity in Europe

During week 6 2008, influenza activity continued to decline in large parts of Europe, whilst in other parts it was increasing or stable, compared to the previous week. Eleven countries reported widespread activity, five countries regional activity, five countries local activity, seven countries sporadic activity and one country reported no influenza activity during week 6 2008. A number of countries have not yet observed consultation rates above the national baseline threshold (e.g. Denmark and Germany). The total number of respiratory specimens collected by sentinel physicians in week 6 2008 was 1536, of which 616 (40%) were influenza virus positive: 205 (33%) A (unsubtyped), 224 (36%) A (H1) [of which 161 were A (H1N1)], four (<1%) A (H3N2) and 183 (30%) B. In addition, 658 influenza virus detections were reported from non-sentinel sources: 381 (58%) A (unsubtyped), 122 (19%) A (H1) [of which 52 were A (H1N1)], one (< 1%) A (H3) and 154 (23%) type B. Based on (sub)typing data of all influenza virus detections this season (N=8145; sentinel and non-sentinel data), 3510 (43%) were A

(unsubtyped), 2881 (35%) were A (H1), 71 (1%) were A (H3) and 1683 (21%) were B. Although influenza A (H1) is the dominant virus strain circulating in Europe this season, influenza B represents 20% of the total influenza virus detections since the start of the season and, in Spain, influenza B is currently the dominant virus. Based on the antigenic and/or genetic characterisation of 1705 influenza viruses, 58 were A/New Caledonia/20/99 (H1N1)-like, 1286 were A/Solomon Island/3/2006 (H1N1)-like, four were A/Wisconsin/67/2005 (H3N2)-like, 11 were A/Brisbane/10/2007 (H3N2)-like, 336 were B/Florida/4/2006-like (B/Yamagata/16/88 lineage) and ten were B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage). There is a comparably good match between the dominant virus strain circulating in Europe (influenza A (H1)) and the corresponding vaccine strain A/Solomon Island/3/2006 which is included in the 2007/2008 influenza vaccine. Despite a mismatch of the majority of characterised influenza B viruses with the influenza B virus strain included in the vaccine, it is expected that the vaccine still offers valuable protection due to cross reactive antibodies between the two lineages of influenza B viruses. <http://www.eiss.org/index.cgi>

Influenza Activity in Canada

During week 6 2008, overall influenza activity in Canada remained fairly similar to previous weeks; however more regions reported widespread and localised influenza activity this week compared to last week. Thirteen regions reported no activity and 27 reported sporadic activity. This week, the ILI consultation rate was 23 per 1,000 patient visits, which is below the expected range for this week. In week 6 2008, the percentage of specimens that tested positive for influenza declined slightly to 10% (469/4,531). Of the influenza detections to date, 74% were influenza A and 26% were influenza B. Based on antigenic characterisation of 370 viruses, 223 were A/Solomon Islands/3/2006 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 32 were A/Brisbane/10/2007 (H3N2)-like, three were B/Malaysia/2506/2004-like and 107 were B/Florida/4/2006-like.

<http://www.phac-aspc.gc.ca/fluwatch/index.html>

Influenza Activity in the United States

During week 6 2008, influenza activity continued to increase in the United States. The proportion of outpatient visits for ILI and acute respiratory illness (ARI) was above national baseline levels. ILI increased in eight of the nine regions compared to week 5 and was above region-specific baselines in all nine regions. Forty-four states reported widespread influenza activity; five states reported regional influenza activity; one state and the District of Columbia reported local influenza activity; and Puerto Rico reported sporadic influenza activity. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold for the fifth consecutive week. During week 6, WHO and NREVSS laboratories reported 6,382 specimens tested for influenza viruses, 2,126 (33.3%) of which were positive, including 70 influenza A (H1) viruses, 322 influenza A (H3) viruses, 1,356 influenza A viruses that were not subtyped, and 378 influenza B viruses. <http://www.cdc.gov/flu/weekly/fluactivity.htm>

Influenza Activity Worldwide

During week 6 2008, regional influenza activity was reported in Israel (14 A subtyped, 5 A H1 & 20 B). Sporadic influenza activity was reported in Cameroon (1 A H1), China (1 A untyped, 16 A H1, 7 A H3 and 22 B), Egypt, Mongolia and Peru (2 A untyped). No influenza activity was reported in Sri Lanka during week 6 2008.

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

Avian Influenza

As of February 15th 2008, 361 confirmed human cases and 227 (62.9%) 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. The case is a 40-year old male from Hai Duong province. He developed symptoms on February 2nd and died on February 13th. The case had contact with sick and dead poultry prior to his illness. The Ministry of Health and local health units have implemented control measures and close contacts have been identified. All remain healthy and will continue to be monitored. Of the 103 cases confirmed to date in Vietnam, 49 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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