

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 5 2008 (28th January– 3rd February 2008)

Summary

During week 5 2008, GP consultation rates for influenza-like illness (ILI) decreased slightly. One influenza A positive specimen was detected by the NVRL during week 5 2008. Influenza A (H1) is the predominant influenza subtype circulating this season. Preliminary results from a survey of antiviral drug susceptibility in Europe have revealed that some of the influenza A (H1N1) viruses in circulation this season are resistant to the antiviral drug, oseltamivir.

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 50 ILI cases during week 5 2008, corresponding to an ILI consultation rate of 30.5 per 100,000 population, a slight decrease from the updated rate of 31.7 per 100,000 in week 4 2008 (figure 1). Forty-four (88.0%) sentinel practices reported during week 5 2008.

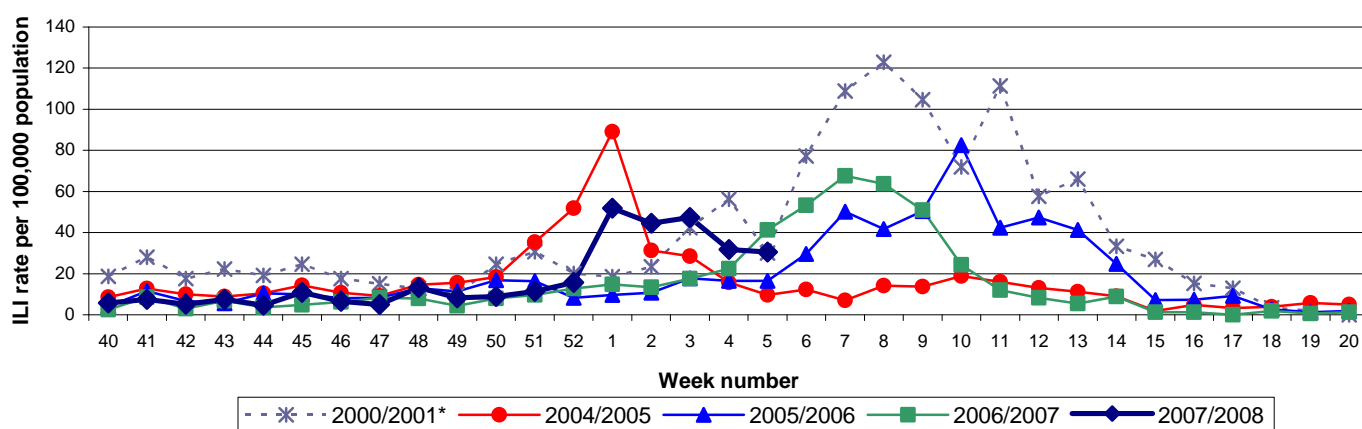


Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2004/2005, 2005/2006, 2006/2007 & 2007/2008 influenza seasons *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 5 2008, ILI rates increased slightly in the 15-64 year age group and decreased or remained stable in all other age groups. Three ILI cases were reported in the 0-4 year age group (25.7 per 100,000 population), five cases in the 5-14 year age group (23.0 per 100,000 population), 42 cases in the 15-64 year age group (37.4 per 100,000 population) and no cases in those aged 65 year or older during week 5 2008, as shown in figure 2.

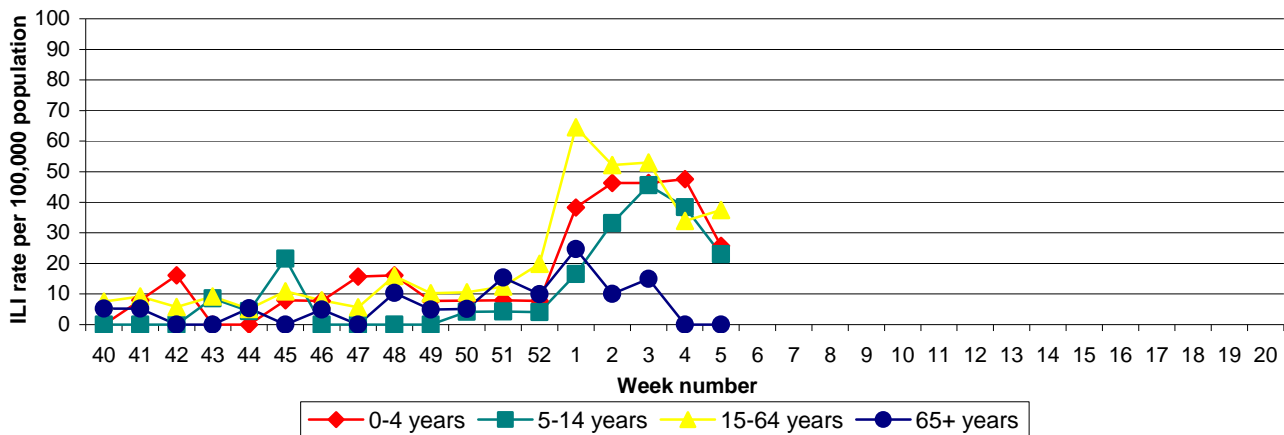


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2007/2008 influenza season
*Please note the denominator used in the age specific consultation rate is from the 2006 census data; this assumes that the age distribution of the sentinel general practices is similar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

Oseltamivir Resistance in Europe

Preliminary results from a survey of antiviral drug susceptibility among seasonal influenza viruses circulating in Europe has revealed that some of the influenza A (H1N1) viruses in circulation this season are resistant to the antiviral drug, oseltamivir. So far, 437 influenza A (H1N1) viruses isolated between November 2007 and January 2008 from eighteen European countries have been tested. Of these 59 (13.5%) have shown evidence of resistance to oseltamivir. The highest level of resistance has been observed in Norway, where 26 of 37 samples (70%) were resistant. In the UK, 8 of 162 samples (4.9%) were resistant. The National Virus Reference Laboratory is currently arranging for Irish samples to be tested. Experts from the European Centre for Disease Prevention and Control (ECDC), the European Commission, and WHO are currently assessing the significance of this information. Although this is an important finding, it is too early to assess the clinical significance until more research is completed.

Eurosurveillance article: http://www.eurosurveillance.org/edition/v13n05/080131_2.asp

ECDC Report on Interim risk assessment: http://www.ecdc.europa.eu/pdf/080127_os.pdf

Virological Data from the NVRL

The NVRL tested two specimens taken by sentinel GPs during week 5 2008, neither of which were positive for influenza. The NVRL also tested 52 non-sentinel specimens taken during week 5 2008, mainly from hospitalised paediatric cases, one (1.9%) of which was positive for influenza A. To date this season, 85 (5.7%) specimens have tested positive for influenza from sentinel and non-sentinel sources (n=1497): 15 A (unsubtyped), 48 A (H1), 1 A (H3) and 21 B viruses. Influenza A is the dominant influenza type circulating this season, accounting for 75.3% of positive specimens. Of the 64 influenza A positive specimens detected this season, influenza A (H1) accounts for 98.0% of subtyped (n=49) 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.

Six non-sentinel specimens were positive for respiratory syncytial virus (RSV) during week 5 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: 8 influenza A, 2 influenza B,

432 RSV, 5 Adenovirus, 2 parainfluenza virus (PIV) type-1, 1 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 5 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
5 2008	Sentinel	2	0	0.0	0	0	-	-
	Non-Sentinel	52	1	1.9	1	0	6	11.5
	Total	54	1	1.9	1	0	6	11.1
Season to date	Sentinel	209	75	35.9	56	19	-	-
	Non-Sentinel	1288	10	0.8	8	2	432	33.5
	Total	1497	85	5.7	64	21	432	28.9

*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

Table 2: Total number of sentinel and non-sentinel* influenza A and B positive specimens by HSE-Area, reported by the NVRL for week 5 2008 and the 2007/2008 season to date

	Week 5 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-E	1	0	1	15	4	19
HSE-M	0	0	0	6	0	6
HSE-MW	0	0	0	4	1	5
HSE-NE	0	0	0	8	8	16
HSE-NW	0	0	0	2	1	3
HSE-SE	0	0	0	10	5	15
HSE-S	0	0	0	14	0	14
HSE-W	0	0	0	5	2	7
Total	1	0	1	64	21	85

* 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

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 5 2008 and the 2007/2008 season to date

	Week 5 2008			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	0	0	0	3	1	4
5-14 years	0	0	0	5	0	5
15-64 years	1	0	1	55	18	73
65 years and older	0	0	0	0	2	2
Age group unknown	0	0	0	1	0	1
Total	1	0	1	64	21	85

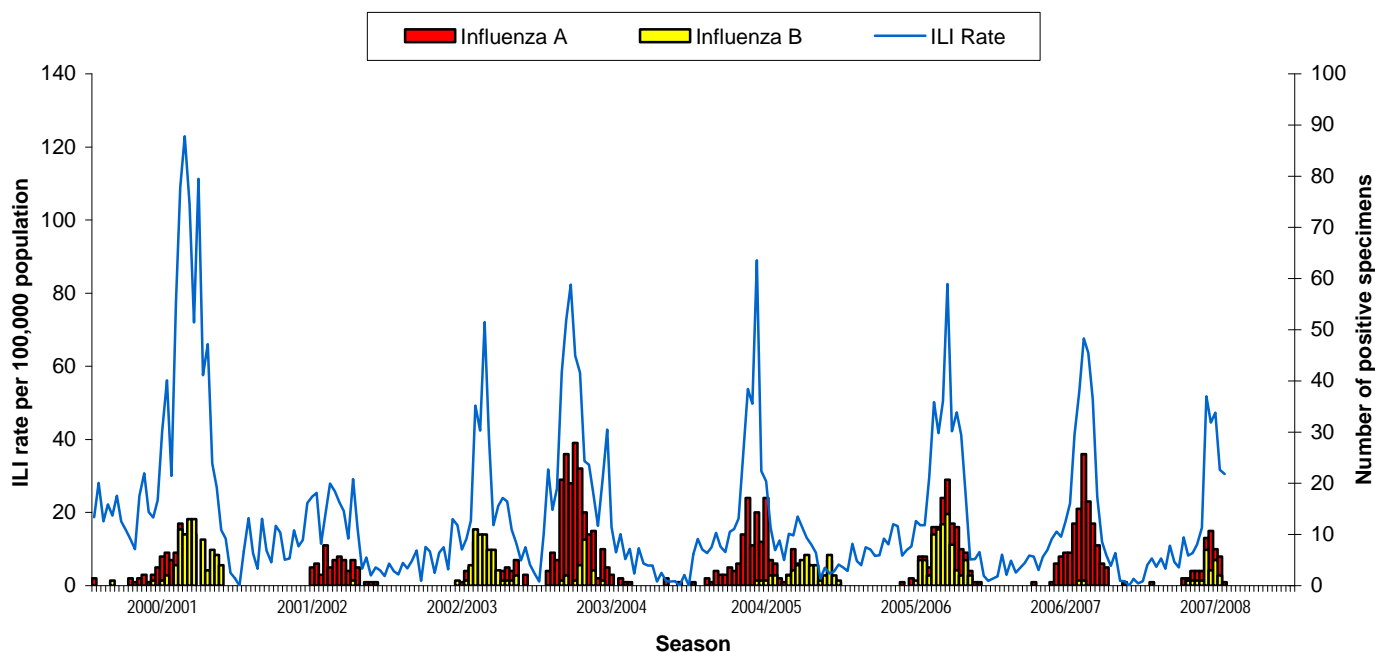


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2007/2008

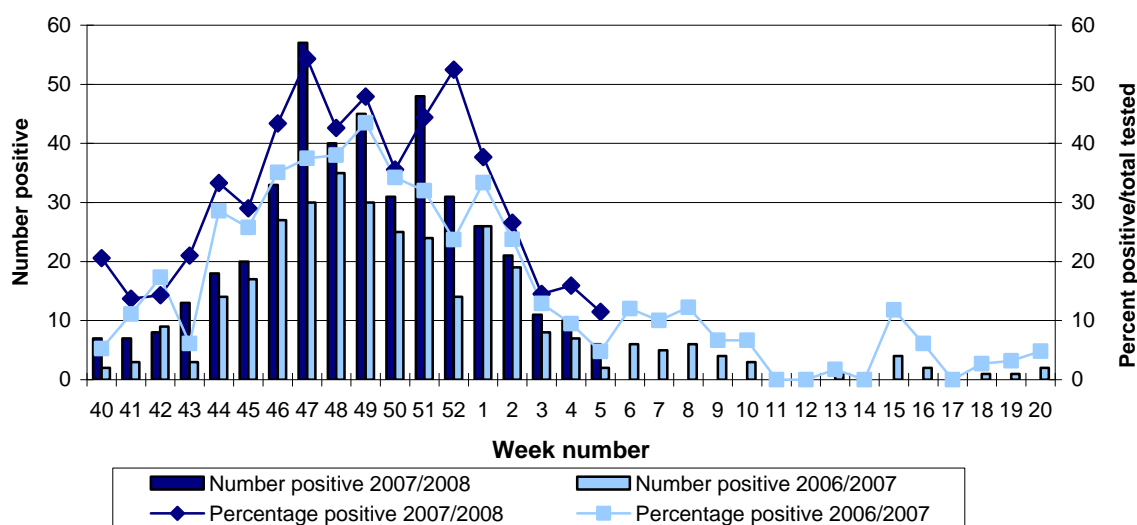


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2006/2007 and 2007/2008 influenza seasons

Weekly Influenza Notifications

Nine influenza A and four influenza B cases were notified to HPSC during week 5 2008: one from HSE-E, two from HSE-M, six from HSE-NE, one from HSE-NW, two from HSE-SE and one from HSE-S. Six influenza A and two influenza B cases were notified to HPSC during week 6 2008: one from HSE-E, one from HSE-NE, one from HSE-NW, three from HSE-SE and two 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.

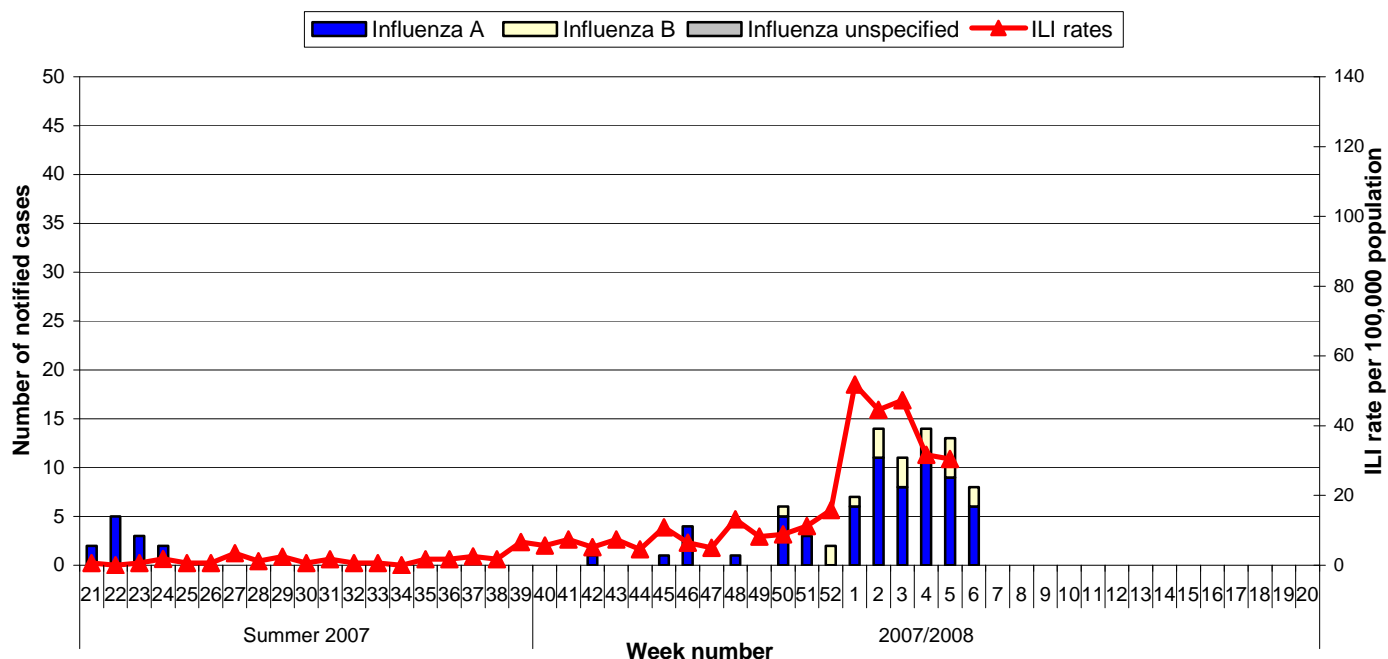


Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2007 and the 2007/2008 influenza season
 *Notification data are provisional and were extracted from [CIDR](#) on the 07/02/2008 at 11:46

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 were at elevated levels in a sentinel hospital in HSE-SE during week 4 2008. Increased absenteeism was reported in two sentinel secondary schools during week 4 2008, one in HSE-E and one in HSE-SE.

During week 4 2008, localised influenza activity was reported in HSE-SE, sporadic influenza activity was reported in six HSE-Areas and no influenza activity was reported in HSE-M (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.

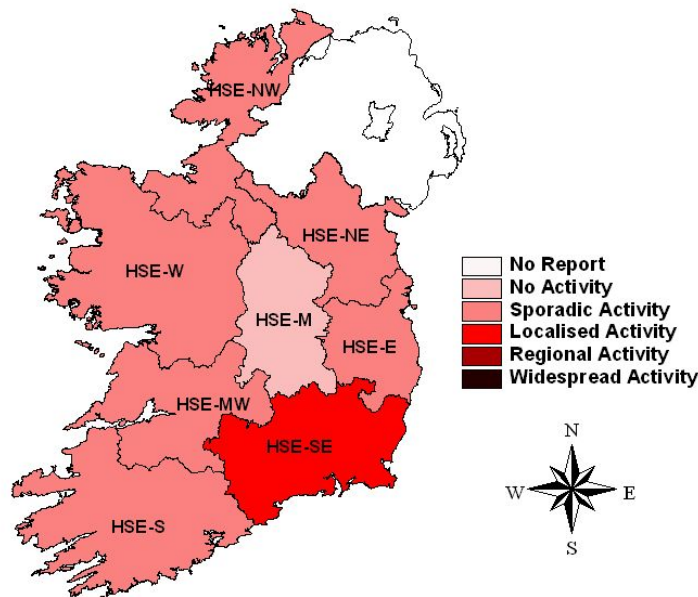


Figure 6: Map of influenza activity by HSE area for week 4 2008

Influenza Activity in Northern Ireland

During week 5 2008, eleven cases of clinical influenza and 77 ILI cases were reported in Northern Ireland, corresponding to a combined rate of 67.0 per 100,000 population, a slight increase from the updated rate of 64.4 per 100,000 for week 4 2008. Thirty-four sentinel and non-sentinel specimens were tested during week 5 2008, all of which were negative. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

During week 5 2008, influenza activity decreased and was at baseline levels in England, Scotland and Wales. In England, the ILI episode incidence rate decreased from 15.0 per 100,000 persons in week 4 2008 to 12.3 per 100,000 in week 5 2008. In Scotland, GP ILI consultation rates decreased from 27 per 100,000 in week 4 2008 to 24 per 100,000 in week 5 2008. In Wales, GP consultation rates for influenza declined from 5.8 per 100,000 in week 4 2008 to 1.7 per 100,000 in week 5 2008. Of the samples referred to the Centre for Infection's Respiratory Virus Unit during week 5 2008, 14 tested positive for influenza A (H1), two for A (H3), two for B and one for RSV. Of the influenza viruses characterised this season, 193 were A/Solomon Island/3/2006 (H1)-like viruses, 42 were A/Solomon Island/3/2006 (H1N1)-like viruses, two were A/Wisconsin/67/05 (H3N2) like viruses and 14 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 4 2008, there was medium or high influenza activity in 18 countries in Europe (Austria, Belgium, Bulgaria, the Czech Republic, Estonia, France, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Romania, Slovenia, Spain and Switzerland). In Ireland, Spain and the United Kingdom, influenza activity was declining during week 4 2008. Twelve countries reported widespread activity, five countries regional activity, three countries local activity, seven countries sporadic activity and one country reported no influenza activity during week 4 2008. Substantial increases in consultation rates for clinical influenza were observed in Latvia and Lithuania. In countries with increased levels of influenza activity, the highest consultation rates have generally been reported in the 0-4 and 5-14 age groups, however, England, Ireland, Norway, Spain and Switzerland have also reported high consultation rates in the 15-64 age group compared to the other ages. Based on (sub)typing data of all influenza virus detections this season (N=4913; sentinel and non-sentinel data), 2236 (46%) were A (unsubtyped), 1723 (35%) were A (H1), 41 (1%) were A (H3) and 913 (19%) were B. While the majority of countries in Europe

reported influenza H1 as the dominant subtype, Sweden and Germany have reported a relatively high proportion of influenza B compared to other countries. Based on the antigenic and/or genetic characterisation of 1025 influenza viruses, 57 were A/New Caledonia/20/99 (H1N1)-like, 778 were A/Solomon Island/3/2006 (H1N1)-like, two were A/Wisconsin/67/2005 (H3N2)-like, ten were A/Brisbane/10/2007 (H3N2)-like, 168 were B/Florida/4/2006-like and ten were B/Malaysia/2506/2004-like. There is a 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. <http://www.eiss.org/index.cgi>

Influenza Activity in Canada

During week 4 2008, overall influenza activity levels in Canada increased steadily from previous weeks. In week 4, more regions reported widespread (n=4) and localised influenza activity (n=8) compared to previous weeks. Eighteen regions reported no activity and 25 reported sporadic activity. In week 4, the number of specimens that tested positive for influenza was 9% (351/3884). Of the influenza detections to date, 77% were influenza A and 23% were influenza B. Although influenza A detections continue to predominate in most provinces, influenza B detections have increased steadily over recent weeks. During week 4 2008, the ILI consultation rate was 21 per 1,000 patient visits, which is within the expected range for this week. Based on antigenic characterisation of 243 viruses, 171 were A/Solomon Islands/3/2006 (H1N1)-like, five were A/Wisconsin/67/2005 (H3N2)-like, 12 were A/Brisbane/10/2007 (H3N2)-like, three were B/Malaysia/2506/2004-like and 52 were B/Florida/4/2006-like. <http://www.phac-aspc.gc.ca/fluwatch/index.html>

Influenza Activity in the United States

During week 4 2008, influenza activity continued to increase in the United States. The proportion of outpatient visits for ILI was above national baseline levels, and the proportion of outpatient visits for acute respiratory illness was below national baseline levels. Eleven states reported widespread influenza activity; 26 states reported regional influenza activity; nine states and the District of Columbia reported local influenza activity; and four states and Puerto Rico reported sporadic influenza activity. During week 4 2008, WHO and NREVSS laboratories reported 4,034 specimens tested for influenza viruses, 677 (16.8%) of which were positive: 452 A (unsubtyped), 64 A (H1), 69 A (H3) and 92 influenza B viruses. The proportion of deaths attributed to pneumonia and influenza was above the epidemic threshold. It is too early in the influenza season to determine which influenza viruses will predominate or how well the vaccine and circulating strains will match. <http://www.cdc.gov/flu/weekly/fluactivity.html>

Influenza Activity Worldwide

During week 4 2008, localised influenza activity was reported in Israel (8 A unsubtyped & 17 B) and Tunisia (2 A H1). Sporadic influenza activity was reported in Chile (2 A unsubtyped), China (1 A unsubtyped, 17 A H1, 11 A H3 and 13 B) and Mongolia. No influenza activity was reported in the Philippines. <http://gamapserver.who.int/GlobalAtlas/home.asp>

Avian Influenza

As of February 5th 2008, 359 confirmed human cases and 226 (63.0%) 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 of Indonesia has announced two new cases of human H5N1 avian influenza infection. The first is a 29-year-old female from Tangerang City, Banten Province who developed symptoms on January 22nd and died on February 2nd. Investigations into the source of her infection are ongoing. The second case is a 38-year-old female from West Jakarta, Jakarta Province who developed symptoms on January 24th 2008 and is currently in hospital in a critical condition. Investigations into the source of her infection are ongoing. Of the 126 cases confirmed to date in Indonesia, 103 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>

Further information on influenza can be found on the [HPSC website](#)

Acknowledgements

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