Influenza Weekly Surveillance Report

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

NATIONAL VIRUS REFERENCE LABORATORY

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 14 2006 (3rd to 9th April 2006)

Summary

During week 14 2006, influenza activity decreased in Ireland, with 28 influenza-like illness (ILI) cases reported by sentinel GPs. Eight positive influenza specimens were detected by the NVRL during week 14 2006, three influenza A and five influenza B. Influenza activity peaked for the 2005/2006 season during week 10 2006. The latest information on avian influenza is available on the HPSC website.

Background

This is the sixth 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. Forty-six 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 38^0C 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. This report includes data on ILI cases reported by sentinel GPs, influenza test results from the NVRL, influenza notifications, registered deaths attributed to influenza reported from the General Register's Office (GRO), regional influenza activity reported by the Departments of Public Health and sentinel school absenteeism and hospital admissions data.

Results

Clinical Data

During week 14 2006, 28 ILI cases were reported by sentinel GPs, corresponding to an ILI consultation rate of 23.7 per 100,000 population, a marked decrease from the updated rate of 40.1 per 100,000 during week 13 2006 (figure 1).

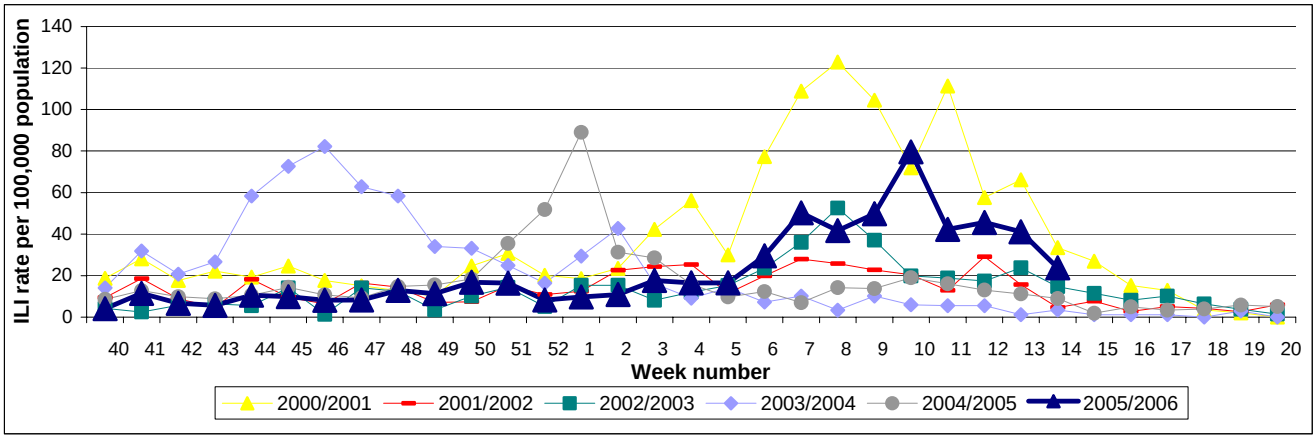

Figure 1: GP consultation rate for ILI per 100,000 population by week, during the 2000/2001, 2001/2002, 2002/2003, 2003/2004, 2004/2005 & 2005/2006 influenza seasons.

Results (continued)

During week 14 2006, nine ILI cases were reported in the 5-14 year age group (54.3 per 100,000 population) and 19 ILI cases were reported in those aged 15-64 years (23.7 per 100,000 population). No ILI cases were reported in 0-4 year olds or in those aged 65 years or older during Week 14 2006. ILI rates decreased significantly in 15-64 year age group during week 14 2006 (figure 2). Thirty-five of 46 (65.5%) sentinel general practices reported during week 14 2006, with 14 reporting ILI.

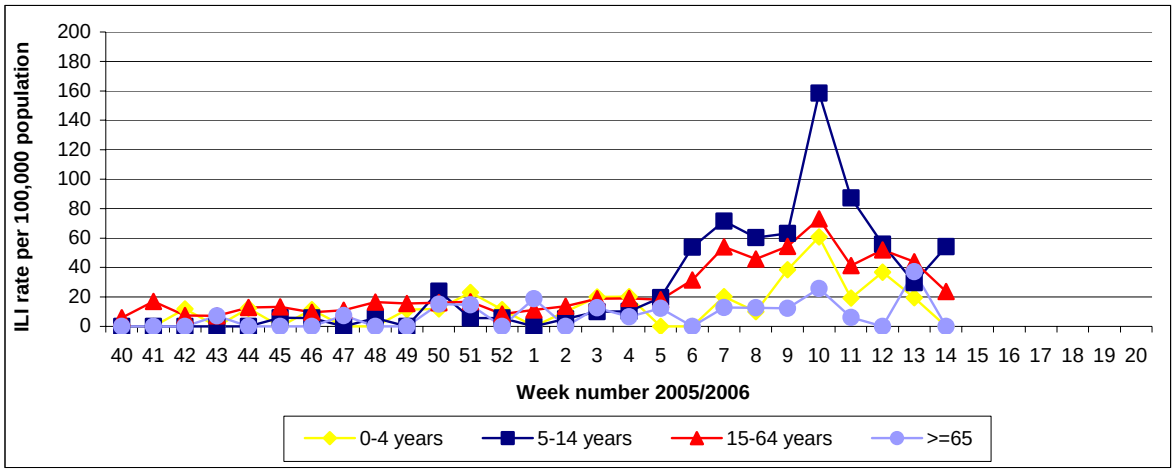

Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2005/2006 influenza season.
**Please note the denominator used in the age specific consultation rate is from the 2002 census data; this assumes that the age distribution of the sentinel general practices is similar to the national age distribution.*

Virological Data from the National Virus Reference Laboratory (NVRL)

The NVRL tested 12 specimens taken by sentinel GPs during week 14 2006, three were positive for influenza A and three were positive for influenza B. The NVRL also tested 45 non-sentinel specimens, taken during week 14 2006, mainly from hospitalised paediatric cases, two were positive for influenza B. To date this season, the NVRL has detected 161 positive influenza specimens: 83 influenza A (32 A H3 & 51 A unsubtyped) and 78 influenza B (table 1). Influenza positive specimens peaked in week 10 2006, coinciding with the peak in ILI consultation rates. Influenza positive specimens have been detected in all HSE-Health Areas this season (table 2). Figure 3 compares the ILI consultation rates by season and the number of positive influenza specimens tested by the NVRL. One non-sentinel specimens tested positive for respiratory syncytial virus (RSV) during week 14 2006 (figure 4). The percentage of RSV positive respiratory specimens peaked in week 50 2005.

The WHO Influenza Reference Laboratory at the National Institute for Medical Research, Mill Hill, London has antigenically characterised two influenza specimens from Ireland this season. One influenza A (H3) isolate was antigenically similar to A/Hong Kong/4443/05. One influenza B isolate was closely related to the recent B/Victoria-lineage reference virus B/Hong Kong/45/05.

Table 1: Total number of sentinel and non-sentinel* respiratory specimens and positive results for week 14 2006 and the 2005/2006 season to date.

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV
14 2006	Sentinel	12	6	50.0	3	3	NA
	Non-Sentinel	45	2	4.4	0	2	1
	Total	**57**	**8**	**14**	**3**	**5**	**1**
40 2005 – 14 2006	Sentinel	357	126	35.3	59	67	NA
	Non-Sentinel	1554	35	2.3	24	11	372
	Total	**1911**	**161**	**8.4**	**83**	**78**	**372**

**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-Health Area for week 14 2006 and the 2005/2006 season to date * *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.*

	Week 14 2006			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	0	2	2	40	30	**70**
HSE-MA	1	1	2	2	3	**5**
HSE-MWA	0	0	0	7	7	**14**
HSE-NEA	0	0	0	8	4	**12**
HSE-NWA	0	0	0	7	4	**11**
HSE-SEA	0	0	0	11	14	**25**
HSE-SA	2	0	2	7	8	**15**
HSE-WA	0	2	2	1	8	**9**
Total	**3**	**5**	**8**	**83**	**78**	**161**

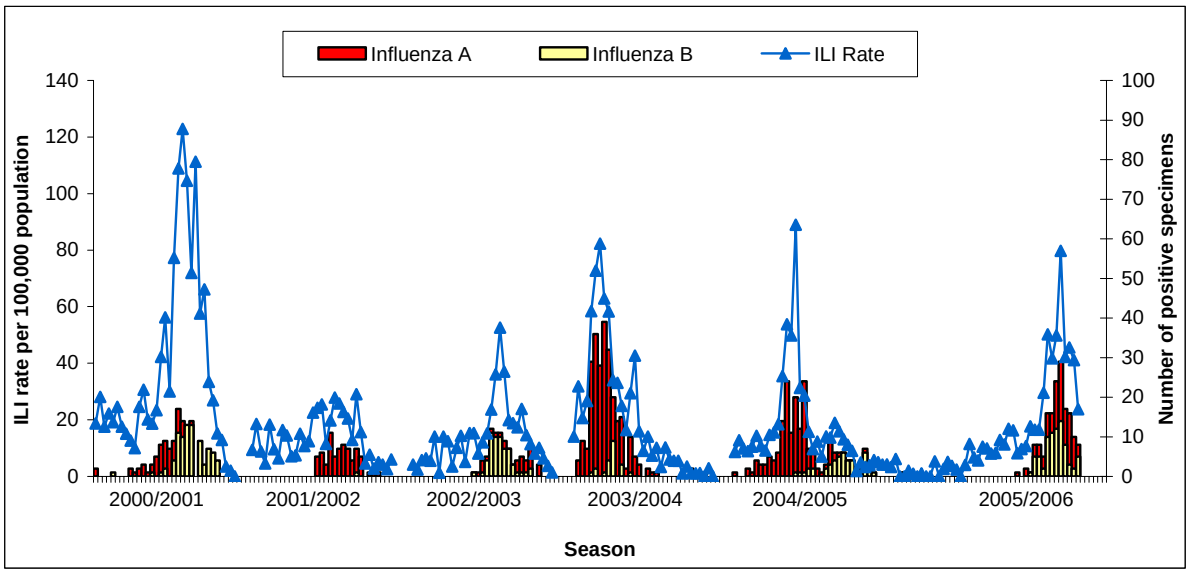

Figure 3: ILI rate per 100,000 population and the number of positive influenza specimens detected by the NVRL during the 2000/2001, 2001/2002, 2002/2003, 2003/2004 & 2004/2005 seasons, summer 2005 and the 2005/2006 season.

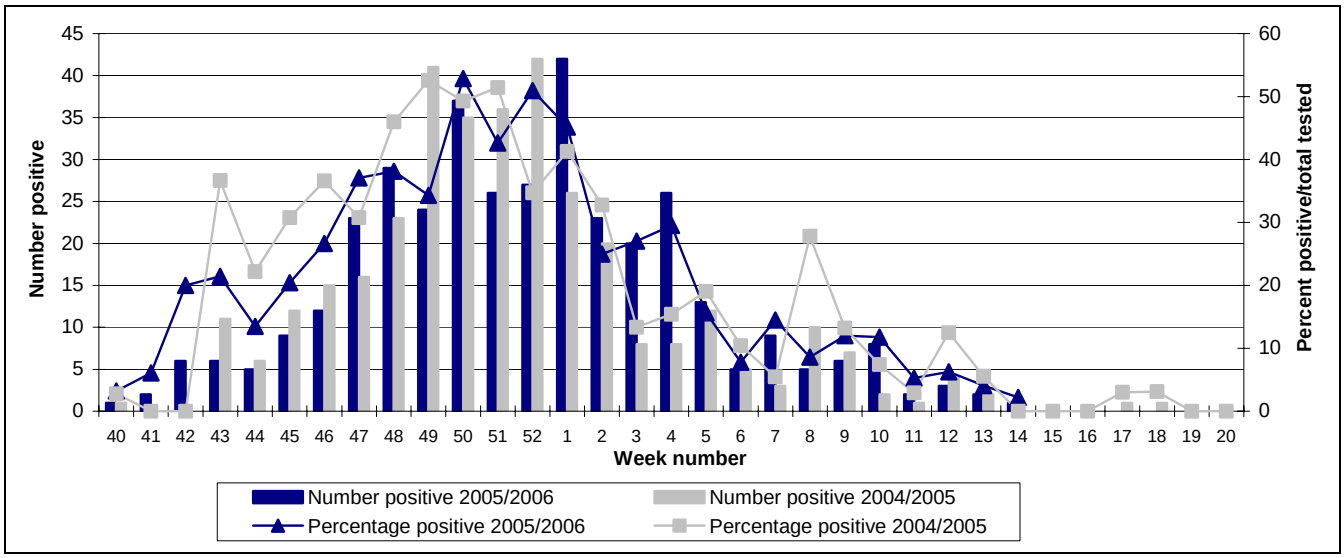

Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2005/2006 and 2004/2005 influenza seasons.

Weekly Influenza Notifications

During week 14 2006, seven influenza A (one from HSE-MA, two from HSE-NEA, one from HSE-NWA and three from HSE-SEA) and three influenza B (from HSE-SEA) cases were notified to HPSC. During week 13 2006, 18 influenza A (nine from HSE-ER, four from HSE-NEA, three from HSE-SEA and two from HSE-SA) and six influenza B (two from HSE-ER, one from HSE-NEA, one from HSE-NWA, one from HSE-SEA and one from HSE-SA) cases were notified to HPSC. It should be noted that influenza notifications reported through the weekly notification system may also be reported by the NVRL (table 1). Influenza cases notified to HPSC during the summer of 2005 and during the 2005/2006 influenza season are shown in figure 5, and compared to ILI consultation rates.

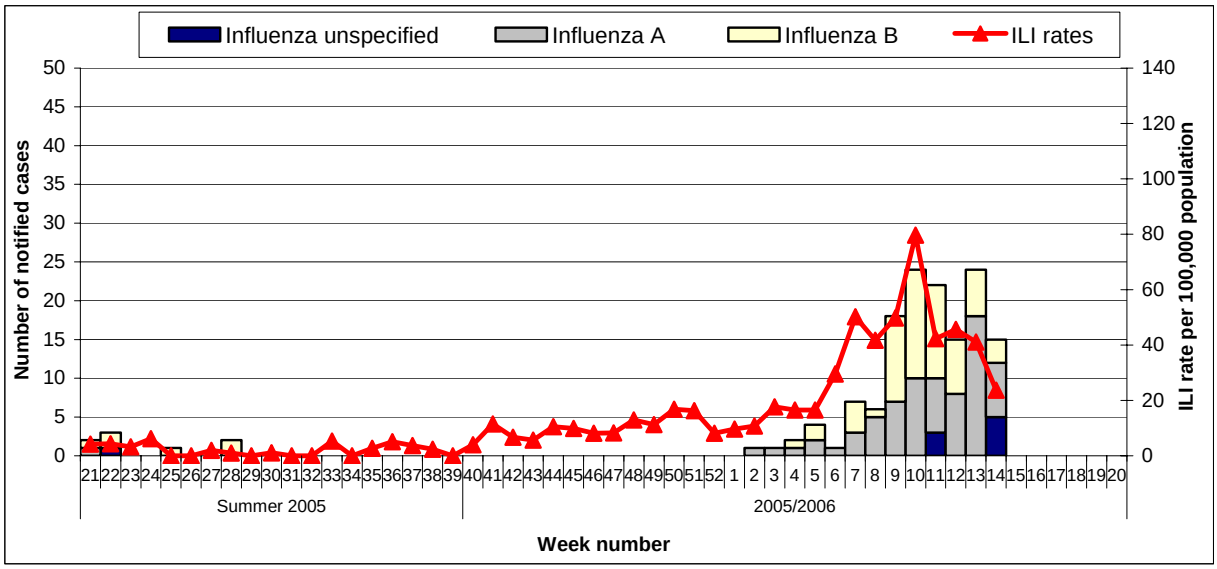

Figure 5: Number of notifications* of influenza (possible & confirmed) by type and by week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2005 and the 2005/2006 influenza season. **Notification data are provisional and were extracted from CIDR on the 12/04/2006 at 02:26 GMT.*

Mortality Data

No deaths registered with the GRO to date this season were attributed to influenza.

Outbreak Reports

Four ILI/influenza outbreaks have been reported to HPSC to date this season, three outbreaks occurred in schools and one in a nursing home.

Hospital Admissions

Each Department of Public Health has established one sentinel hospital in each HSE-Health Area, to report total hospital admissions, accident and emergency admissions and respiratory admissions data on a weekly basis. Increased respiratory admissions were reported from a sentinel hospital in HSE-MA and increased total admissions were reported from a sentinel hospital in HSE-NEA during week 13 2006.

School Absenteeism

Sentinel primary and secondary schools have been established in each HSE-Health Area in close proximity to the sentinel GPs, reporting absenteeism data on a weekly basis. Increased absenteeism was reported in a primary and a secondary sentinel school in HSE-ER during week 13 2006. Increased absenteeism was also reported in primary sentinel schools in HSE-MA and HSE-WA during week 13 2006.

Regional Influenza Activity by HSE-Health 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, NVRL laboratory confirmed influenza cases and influenza/ILI outbreaks. Localised influenza activity was reported in HSE-NEA and HSE-WA, five HSE-Health Areas reported sporadic activity and no influenza activity was reported from HSE-MA during week 13 2006 (figure 6).

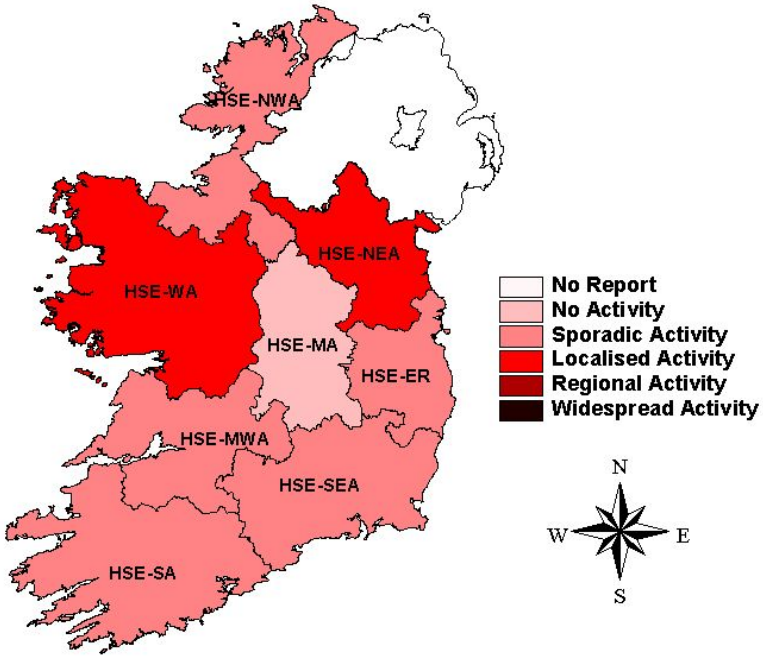

Figure 6: Map of influenza activity by HSE-Health Area during week 13 2006

Influenza Activity in Northern Ireland

The combined ILI and clinical influenza consultation rate in Northern Ireland during week 14 2006 was 73.9 per 100,000 population, an increase from the updated rate of 62.2 per 100,000 in week 13 2006. Four influenza A viruses were detected during week 14 2006. http://www.cdscni.org.uk

Influenza Activity in England, Scotland & Wales

ILI consultation rates decreased from 23.9 per 100,000 population in week 13 2006 to 15.9 per 100,000 in week 14 2006 according to data reported from 81 GP practices in England and Wales representing a population of 765,000. The ILI rates remained below 30 per 100,000 population for all age groups. GP consultation rates for ILI in Scotland remained low at 15.7 per 100,000 in week 13 2006 and 15.0 per 100,000 in week 14 2006. Consultation rates for influenza in Wales remained similarly low at 2.2 per 100,000 in week 14 2006 and 1.3 per 100,000 in week 13 2006. Two samples in week 13 2006 and three samples in week 14 2006 referred to the Centre for Infections Respiratory Virus Unit (RVU) from community sources tested positive for influenza B, respectively, and 12 and six samples for influenza A, respectively. Since week 40 2005 (week ending 09/10/2005) 480 influenza viruses have been further characterised by RVU; 45 influenza A/New Caledonia/20/1999 (H1N1)-like, 38 influenza A/California/7/2004 (H3N2)-like (two of which are influenza A/Wellington/1/04 (H3N2)-like); 392 influenza B viruses antigenically similar to influenza B/Hong Kong/330/2001 and five influenza B/Shanghai/361/2002-like viruses.http://www.hpa.org.uk/infections/topics_az/influenza/seasonal/flureports0506.htm

Influenza Activity in Europe

Seasonal influenza epidemics have started late in Europe during the 2005/2006 season. In week 13 2006, the ILI consultation rate continued to increase in the Czech Republic and Slovakia. In all other European countries, the consultation rate for ILI or acute respiratory infections (ARI) was either declining or at baseline levels, indicating that seasonal influenza activity in Europe is probably coming to an end for this winter. During week 13 2006, Denmark, Hungary, the Netherlands, Norway and Slovenia reported widespread influenza activity. Belgium, Germany, Spain and Switzerland reported regional activity, four countries reported local outbreaks and 14 countries reported sporadic activity. The highest consultation rates were reported in the 0-4 and 5-14 age groups. The total number of respiratory specimens collected by sentinel physicians in week 13 2006 was 1248, of which 359 (29%) were positive for influenza virus: 198 (55%) influenza B and 161 (45%) influenza A. In addition, 249 non-sentinel specimens tested positive for influenza virus, of which 107 (43%) were type B and 142 (57%) type A. Since the start of the season, influenza activity in Europe as a whole has mainly been associated with influenza B viruses (62% of total detections). Based on (sub)typing data of all influenza virus detections from sentinel and non-sentinel sources up to week 13 2006 (N=8103), 5058 (62%) were influenza B and 3045 (38%) were influenza A. Of the total influenza A virus detections (N=3045), 2020 (66%) were influenza A (unsubtyped), 424 (14%) were A (H1) [169 were A(H1N1), and 2 A(H1N2)] and 601 (20%) were A(H3) [264 were A(H3N2)]. Based on the characterisation data of all influenza virus detections up to week 13 2006, 1632 have been antigenically and/or genetically characterised: 294 were A/New Caledonia/20/99 (H1N1)-like, 160 were A/California/7/2004 (H3N2)-like, 1059 were B/Malaysia/2506/2004-like (B/Victoria/2/87-lineage) and 119 were B/Jiangsu/10/2003-like (B/Jiangsu/10/2003 is a B/Shanghai/361/2002-like virus from the B/Yamagata/16/88-lineage).
http://www.eiss.org/index.cgi

Influenza Activity in Canada

During week 13 2006, overall influenza activity in Canada remained at approximately the same level as the previous week. Elevated influenza activity levels were reported mostly in regions of Quebec and Ontario; whereas decreasing influenza activity levels were reported in the West. In week 13, the ILI consultation rate decreased from the previous week and was calculated as 24 per 1000 patient visits, which is within the expected range for this week. ILI consultations remained highest among children in most of the provinces and territories reporting ILI activity. In week 13, 20% of the specimens tested for influenza viruses were positive. In the current season to date, a mix of influenza A (55%) and influenza B (45%) viruses have been detected in Canada. To date, 100% of the influenza A strains characterised have matched those included in the 2005/2006 Canadian vaccine. However, 98% of the influenza B strains characterised belong to the B/Victoria/02/1987 lineage and are not covered by this year's vaccine. Information on influenza activity in Canada to date suggests that the current season is milder compared to the previous two seasons. In addition, increased influenza activity presented later this season than expected.
http://www.phac-aspc.gc.ca/fluwatch/index.html

Influenza Activity in the United States

During week 13 2006, influenza activity decreased in the United States. The proportion of patient visits to sentinel providers for ILI was above the national baseline. The proportion of deaths attributed to pneumonia and influenza was below the baseline level. Thirteen states reported widespread influenza activity; 14 states reported regional influenza activity; 12 states, New York City, and the District of Columbia reported localised influenza activity; ten states and Puerto Rico reported sporadic influenza activity; and one state reported no activity. During week 13, WHO and NREVSS laboratories reported 2,790 specimens tested for influenza viruses and 464 (16.6%) were positive: 47 A (H3N2), 3 A (H1N1), 198 A (unsubtyped) and 216 B. CDC has antigenically characterised 458 influenza viruses [379 influenza A (H3N2), 27 influenza A (H1), and 52 influenza B viruses] this season. Of the 379 influenza A (H3N2) viruses, 301 (79.4%) were characterised as A/California/07/2004-like, and 78 (20.6%) viruses showed reduced titers with antisera produced against A/California/07/2004. Of the 78 low-reacting viruses, 52 were tested with antisera produced against A/Wisconsin/67/2005, and 44 are A/Wisconsin-like. The hemagglutinin proteins of 25 (92.6%) influenza A (H1) viruses were similar antigenically to the hemagglutinin of the vaccine strain A/New Caledonia/20/99, and 2 (7.4%) showed reduced titers with antisera produced against A/New Caledonia/20/99. Twenty-four (46.2%) of the influenza B viruses that have been characterised belong to the B/Yamagata lineage. Four were similar to B/Shanghai/361/2002 and 20 were characterised as B/Florida/07/2004-like. Twenty-eight (53.8%) influenza B viruses were identified as belonging to the B/Victoria lineage and all were similar to B/Ohio/1/2005. http://www.cdc.gov/flu/

Influenza Activity Worldwide

During Week 13 2006, sporadic activity was reported in Brazil (2 A unsubtyped), China (93 A H1, two A H3, two A unsubtyped & 39 B), Iran (two A H3), Madagascar, Mongolia, New Caledonia (five B) and Tunisia (11 A H1). No influenza activity was reported in Argentina during week 13 2006.
http://gamapserver.who.int/GlobalAtlas/home.asp

Avian Influenza

As of April 12th 2006, there have been 194 confirmed human cases of influenza A (H5N1) and 109 fatalities in nine different countries (Azerbaijan, Cambodia, China, Egypt, Indonesia, Iraq, Thailand, Turkey and Vietnam) reported to the WHO. The World Organisation for Animal Health (OIE) and the European Centre for Disease Prevention and Control (ECDC) have reported influenza A (H5) in avian species in 14 EU countries: Austria, Czech Republic, Denmark, France, Germany, Greece, Hungary, Italy, Poland, Slovakia, Slovenia, Sweden, Ukraine and United Kingdom. Developments concerning influenza A (H5N1), particularly in Europe, are being followed carefully by HPSC.

Further information on avian influenza is available on the following websites:
WHO http://www.who.int/csr/disease/avian_influenza/en/
HPSC http://www.hpsc.ie/A-Z/Respiratory/AvianInfluenza/
ECDC http://www.ecdc.eu.int/

Northern Hemisphere Influenza Vaccine for the 2005/2006 Season

The members of the WHO Collaborating Centres on Influenza recommended that influenza vaccines for the 2005/2006 influenza season in the Northern Hemisphere contain the following strains:

- an A/New Caledonia/20/99(H1N1)-like virus
- an A/California/7/2004(H3N2)-like virus[a]
- a B/Shanghai/361/2002-like virus[b]

a A/New York/55/2004 is available as a vaccine virus
b The currently used vaccine viruses are B/Shanghai/361/2002, B/Jiangsu/10/2003 and B/Jilin/20/2003.
http://www.who.int/csr/disease/influenza/vaccinerecommendations1/en/
www.emea.eu.int

Northern Hemisphere Influenza Vaccine for the 2006/2007 Season

The members of the WHO Collaborating Centres on Influenza recommended that influenza vaccines for the 2006/2007 influenza season in the Northern Hemisphere contain the following strains:

- an A/New Caledonia/20/99(H1N1)-like virus;
- an A/Wisconsin/67/2005 (H3N2)-like virus[a;]
- a B/Malaysia/2506/2004-like virus[b]

Candidate vaccine viruses include:
[a]A/Wisconsin/67/2005 (H3N2) and A/Hiroshima/52/2005
[b]B/Malaysia/2506/2004 virus and B/Ohio/1/2005
http://www.who.int/csr/disease/influenza/recommendations2007north/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, Sarah Jackson & Joan O'Donnell, HPSC