

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 14 2009 (30th March to 5th April 2009)

Summary

During week 14 2009, influenza activity remained stable in Ireland. Influenza-like illness (ILI) consultation rates remain stable and are well below baseline thresholds. No specimens tested by the NVRL were positive for influenza during week 14 2009.

Background

This is the ninth 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-four 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 eight ILI cases during week 14 2009. This corresponds to an ILI consultation rate of 3.9 per 100,000 population, which remains stable in comparison to the updated rate of 3.3 per 100,000 population reported during week 13 2009 (figure 1). This rate is below the baseline threshold of 17.8 per 100,000 population. Fifty-one of 54 (94.4%) sentinel general practices reported during week 14 2009, with eight reporting ILI cases.

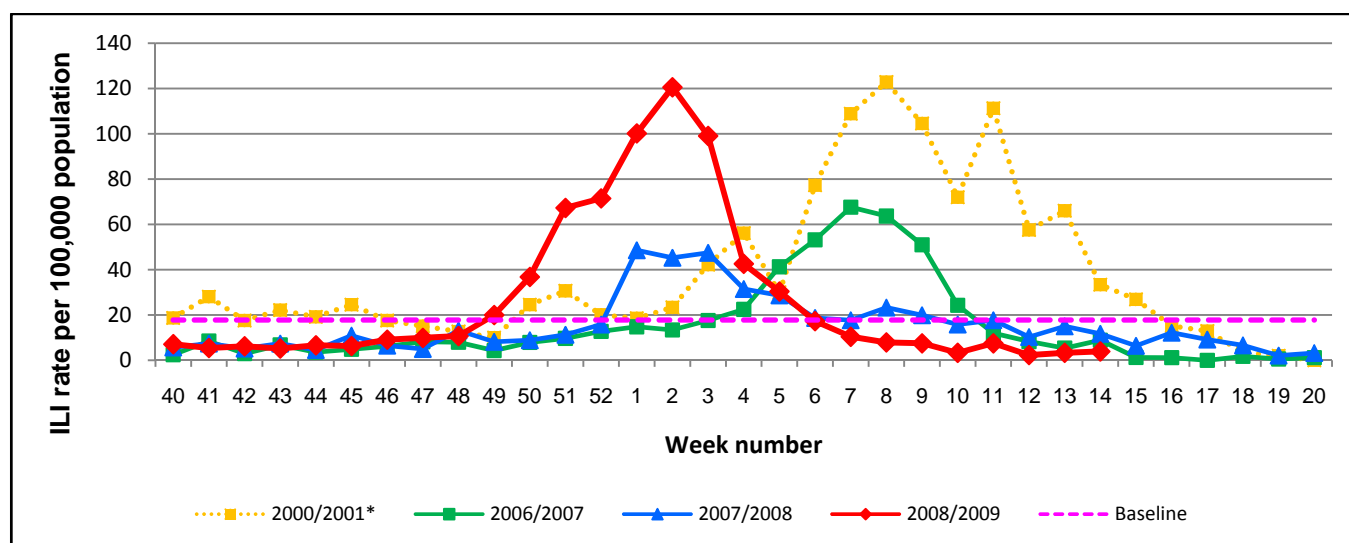


Figure 1: Influenza baseline activity threshold and GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2006/2007, 2007/2008 and 2008/2009 influenza seasons.

*Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 14 2009, one ILI case was reported in the 0-4 year age group (6.8 per 100,000 population), one case was reported in the 5-14 year age group (3.7 per 100,000 population) and six ILI cases were reported in the 15-64 year age group (4.2 per 100,000 population). No ILI cases were reported in those aged 65 years and older, as shown in figure 2.

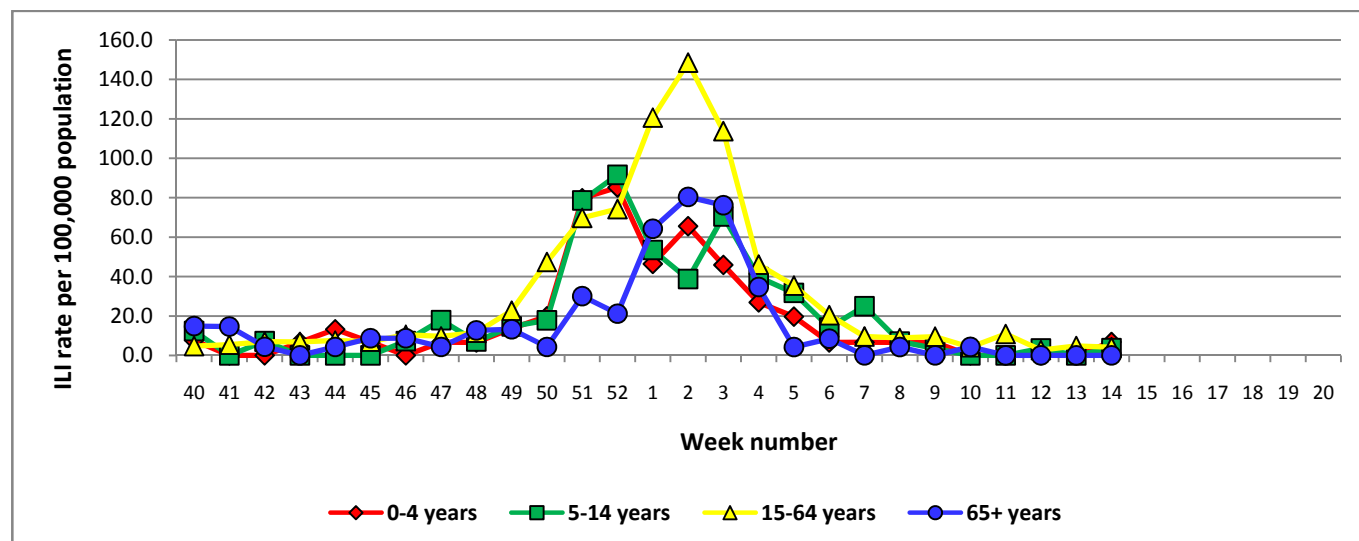


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2008/2009 influenza season

Oseltamivir Resistance in Europe

During the 2008/2009 influenza season, the NVRL has conducted nucleotide sequencing on 10 influenza A(H1) specimens taken by sentinel GPs in Ireland, nine (90%) of which were resistant to oseltamivir and one was sensitive. During the 2007/2008-influenza season, seven of 63 specimens (11.1%) tested by the NVRL showed resistance to oseltamivir.

Preliminary results from antiviral drug susceptibility testing among seasonal influenza viruses circulating in Europe have revealed that some of the influenza A (H1N1) viruses in circulation this season are resistant to the antiviral drug, oseltamivir. In Europe, all influenza A(H3N2) viruses tested were sensitive to oseltamivir (n=541) and zanamivir (n=495), whereas 99.8% of the 415 A(H3N2) viruses tested were resistant to M2 inhibitors. Of the influenza A(H1N1) viruses analysed, 100% were sensitive to zanamivir (n=217) and 98.9% were sensitive to M2 inhibitors (n=95) but 98% were resistant to oseltamivir (n=217). Fifty-six influenza B viruses were analysed and all were sensitive to oseltamivir and zanamivir.

Latest information on oseltamivir resistance in Europe:

http://ecdc.europa.eu/en/Health_topics/Seasonal%20Influenza/Epidemiological_updates.aspx

http://ecdc.europa.eu/en/Health_Topics/influenza/antivirals.aspx

In the UK, since week 40 2008 all of the 229 influenza A(H3) isolates that have been tested for drug sensitivity have been found to be sensitive to oseltamivir and zanamivir, but resistant to amantadine. Eighty-six influenza A(H1) specimens have been tested for anti-viral drug resistance, 85 (98.8%) of these were resistant to oseltamivir and all were sensitive to zanamivir and amantadine. Thirty-five influenza B specimens have been tested and all were sensitive to oseltamivir and zanamivir.

Latest information on oseltamivir resistance in the UK:

<http://www.hpa.org.uk/web/HPAweb&Page&HPAwebAutoListName/Page/1191942171468>

* 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.

Virological Data from the NVRL

Two sentinel specimens were tested by the NVRL during week 14 2009, both of which were negative for influenza. The NVRL also tested 45 non-sentinel specimens taken during week 14 2009, mainly from hospitalised paediatric cases. None of the non-sentinel specimens tested positive for influenza and one specimen tested positive for respiratory syncytial virus (RSV) during week 14 2009 (table 1).

The NVRL has completed genetic characterisation for two influenza A (H3) and five influenza B viruses so far this season. Both A(H3) viruses were characterised as A/Brisbane/10/2007-like virus which is included in the 2008/2009 influenza vaccine. All five influenza B viruses were characterised as B/Malaysia/2506/2004-like (B/Victoria/2/87 lineage) which is not included in the 2008/2009 influenza vaccine. This reflects the situation in Europe where the majority of influenza B viruses characterised to date are B/Victoria lineage.

Table 2 shows the number and percentage of sentinel specimens that tested positive for influenza, by type and subtype, for the 2008/2009-influenza season to date. Influenza positive specimens by HSE area and age group (in years), for week 14 2009 and the 2008/2009 season to date are shown in tables 3 and 4, 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 2007/2008 and 2008/2009 influenza seasons.

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens and positive results for week 14 2009 and season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
14 2009	Sentinel	2	0	0	0	0	NA	NA
	Non-Sentinel	45	0	0	0	0	1	2.2
	Total	47	0	0	0	0	1	2.1
Season to date	Sentinel	335	200	59.7	146	54	NA	NA
	Non-Sentinel	2275	61	2.7	50	11	372	16.4
	Total	2610	261	10.0	196	65	372	14.3

Table 2: Number and percentage of positive sentinel specimens by type and subtype, 2008/2009 season to date

2008/2009 Season to date [‡]						
Influenza (all types)		Influenza A (all subtypes)	Influenza B	Influenza A Unsubtyped	Influenza A(H1)	Influenza A(H3)
		(n=200)		(n=146)		
Number positive	200	146	54	0	17	129
% Positive	59.7	73.0	27.0	0.0	11.6	88.4

[†] 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

[‡] Number of sentinel specimens tested = 335

Table 3: Total number of sentinel and non-sentinel† influenza A and B positive specimens by HSE area for week 14 2009 and the 2008/2009 season to date

	Week 14 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	0	0	0	75	19	94
HSE-M	0	0	0	13	11	24
HSE-MW	0	0	0	18	3	21
HSE-NE	0	0	0	17	2	19
HSE-NW	0	0	0	11	9	20
HSE-SE	0	0	0	26	3	29
HSE-S	0	0	0	23	6	29
HSE-W	0	0	0	4	12	16
HSE area unknown	0	0	0	9	0	9
Total	0	0	0	196	65	261

Table 4: Total number of sentinel and non-sentinel† influenza A and B positive specimens by age group (in years) for week 14 2009 and the 2008/2009 season to date

	Week 14 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	0	0	0	29	7	36
5-14 years	0	0	0	15	6	21
15-64 years	0	0	0	142	49	191
65 years and older	0	0	0	7	2	9
Age group unknown	0	0	0	3	1	4
Total	0	0	0	196	65	261

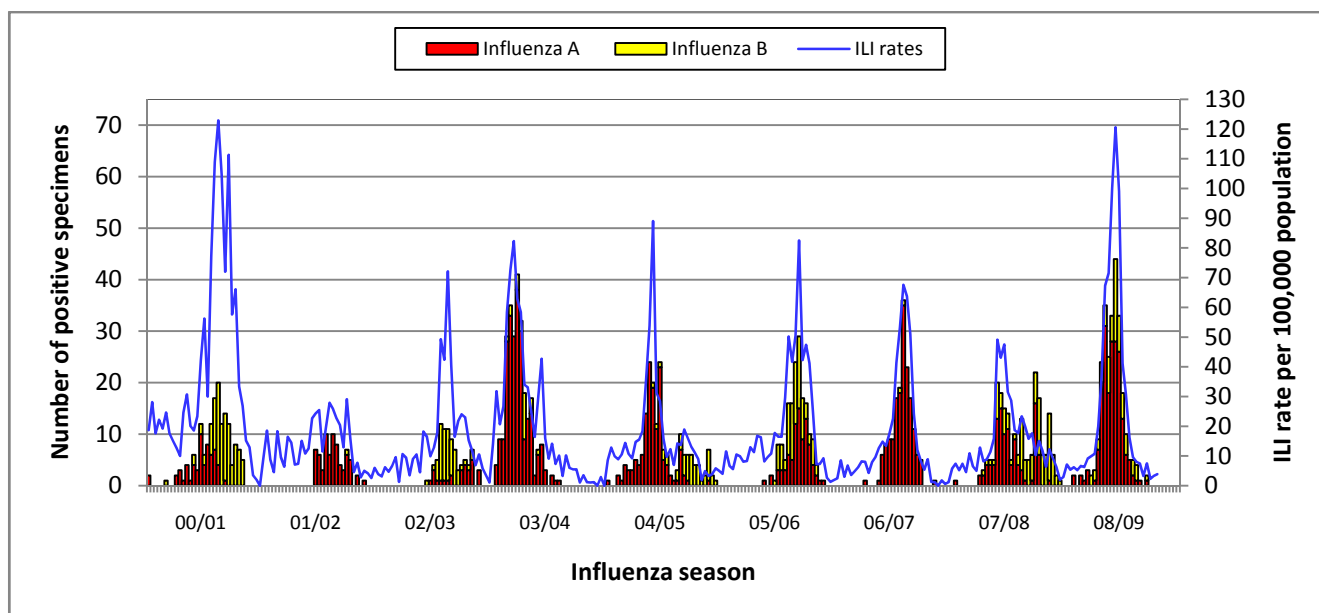


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2008/2009

†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

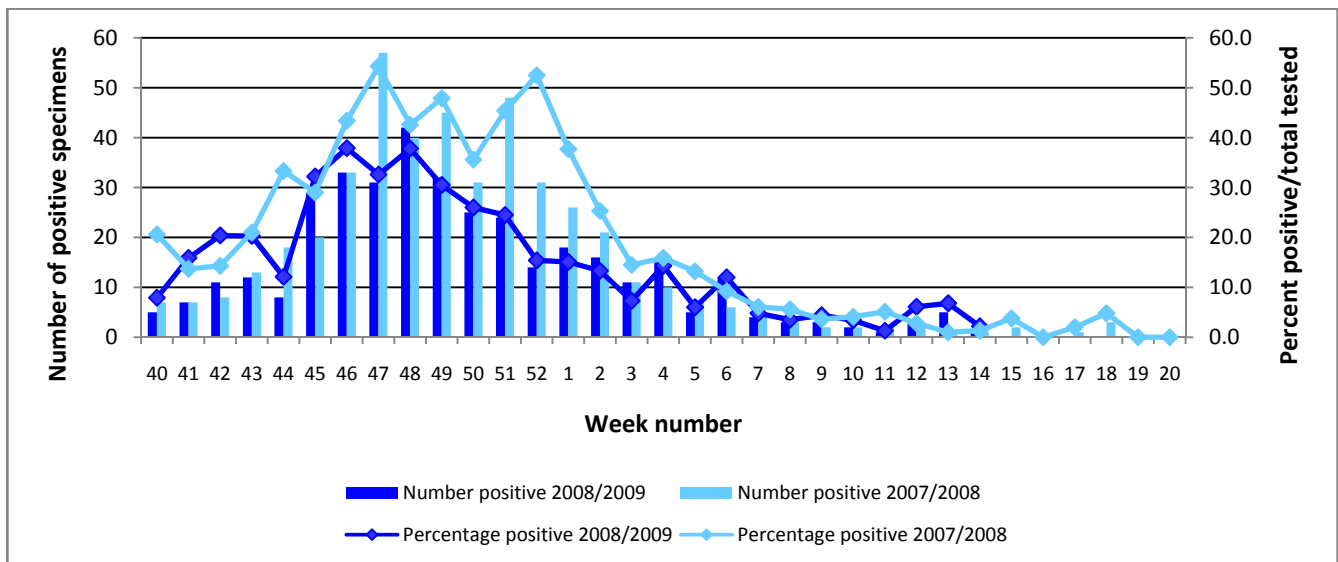


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2007/2008 and 2008/2009 influenza seasons

Weekly Influenza Notifications

During week 14 2009 (week 13 2009 of epidemiological calendar), no influenza cases were notified to HPSC. It should be noted that 87 influenza (type unspecified) cases notified to HPSC during the 2008 summer season (weeks 21-39 2008) were possible cases (i.e. clinical cases with no laboratory confirmation). These were late GP notifications from HSE-E for 2007. Influenza cases notified to HPSC during the summer of 2008 and during the 2008/2009 influenza season are shown in figure 5 and compared to GP ILI consultation rates.

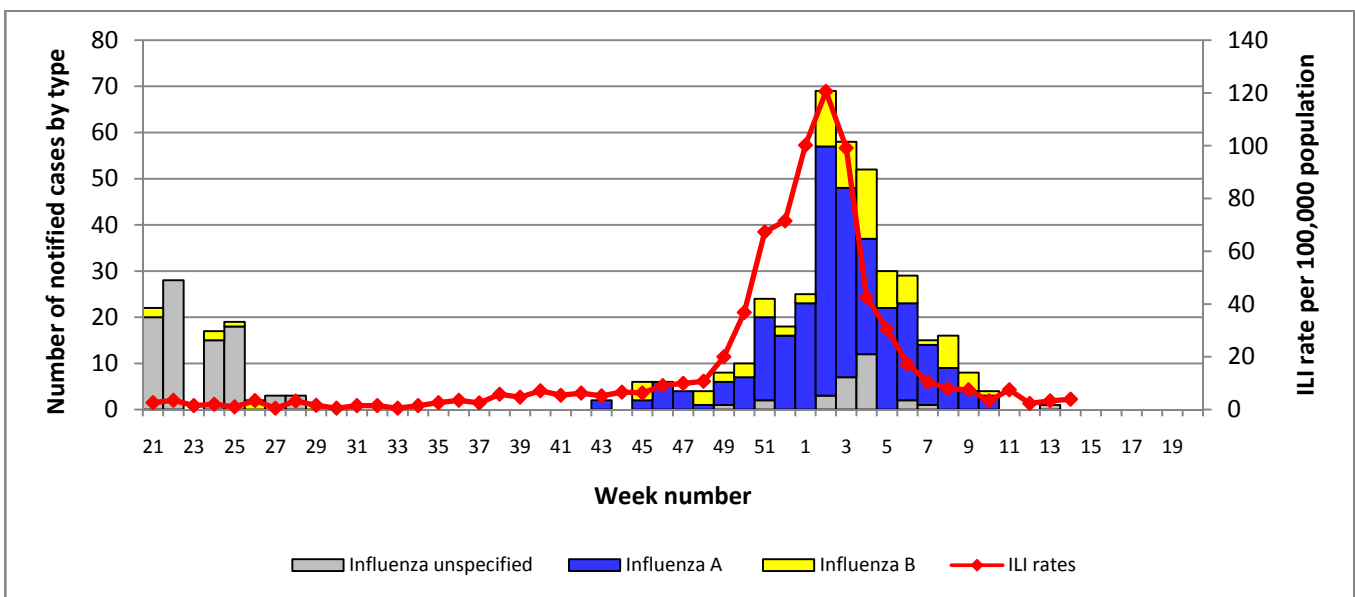


Figure 5: Number of notifications of influenza by type and week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2008 and the 2008/2009 influenza season[§]

[§] Notification data are provisional and were extracted from [CIDR](#) on the 07/04/2009 at 17.33

Baseline thresholds

A baseline threshold of 17.8 cases per 100,000 population will be used alongside expert opinion to assess influenza activity during the 2008/2009 influenza season in Ireland. This baseline was derived from the EISS method using a mathematical algorithm to identify the influenza activity period of the previous eight seasons.

Mortality Data

No deaths attributed to influenza were registered with the General Register Office during week 13 2009.

Outbreak Reports

No influenza/ILI outbreaks were reported to HPSC during week 14 2009. During the 2008/2009-influenza season to date, six influenza/ILI outbreaks have been reported to HPSC.

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, total emergency admissions and total 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. During week 13 2009, no increases in respiratory admissions were reported by sentinel hospitals and no increases in school absenteeism were reported by sentinel schools. No activity was reported by HSE-E, -NW and -S, while sporadic influenza activity (based on isolated cases of ILI and/or virological results) was reported by HSE-M, MW, -NE, -SE and -W during week 13 2009 (figure 6).

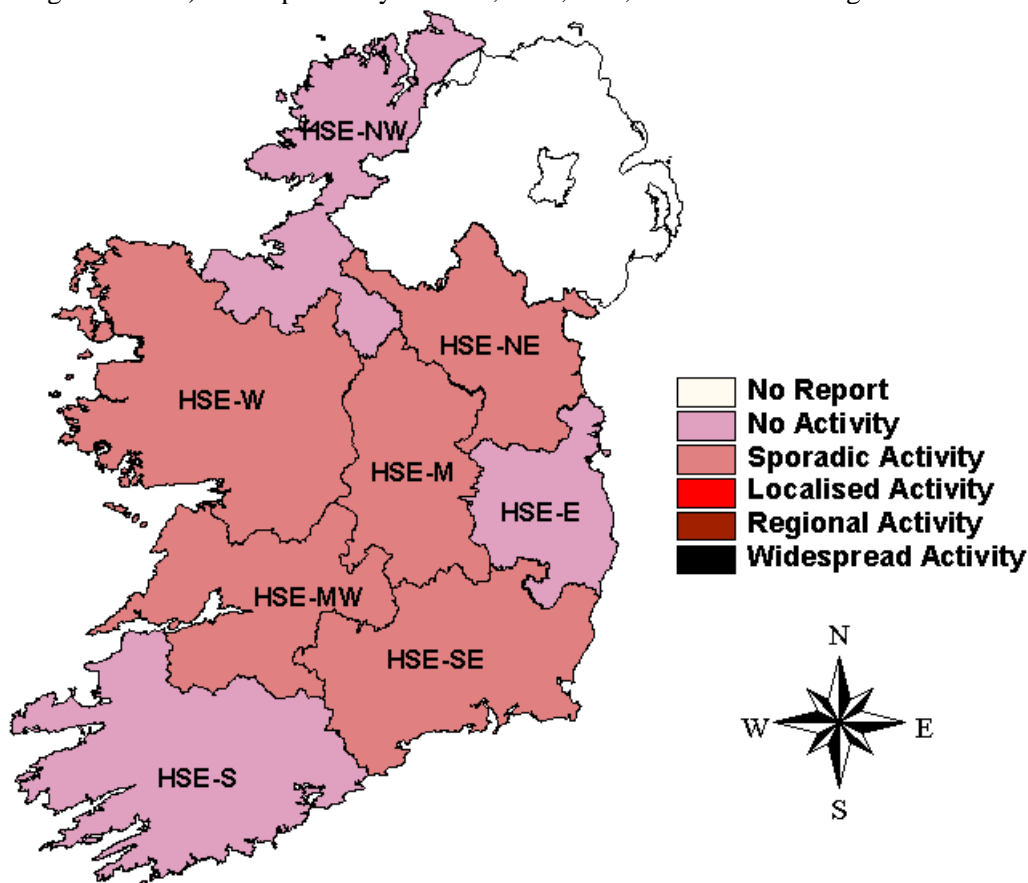


Figure 6: Map of influenza activity by HSE area during week 13 2009

Influenza Activity in Northern Ireland

During week 14 2009, 23 ILI cases were reported in Northern Ireland, corresponding to a rate of 17.2 per 100,000 population, a decrease compared to the updated rate of 23.8 per 100,000 population reported during week 13 2009. During week 14 2009, no specimens tested positive for influenza. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

In England, an overall ILI incidence rate of 4.5 per 100,000 population was reported during week 14 2009, an increase from the rate of 3.1 per 100,000 population reported during week 13 2009. Both rates are well below the baseline activity threshold of 30 per 100,000 population. In Scotland, GP consultation rates for influenza were 6.0 per 100,000 population during week 14 2009, an increase from the rate of 4.9 per 100,000 population reported during week 13 2009. Both rates are well below the Scottish baseline threshold of 50 consultations per 100,000 population. In Wales, GP consultation rates for influenza were 0.7 per 100,000 population during week 14 2009, a slight decrease compared to the rate of 1.2 per 100,000 population during week 13 2009. Both rates are well below the Welsh baseline threshold of 25 consultations per 100,000 population. During week 14 2009, one sample referred to the Centre for Infections' Respiratory Virus Unit (RVU) tested positive for influenza B.

http://www.hpa.org.uk/infections/topics%5Faz/influenza/seasonal/activity0809/weekly_summary.htm

Influenza Activity in Europe

Influenza surveillance data for Europe can be accessed at the following link:

<http://www.eiss.org/index.cgi>

Influenza Activity in Canada

Influenza surveillance data for Canada can be accessed at the following link:

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

Influenza Activity in the United States

Influenza surveillance data for the United States can be accessed at the following link:

<http://www.cdc.gov/flu/weekly/fluactivity.htm>

Influenza Activity Worldwide

Global influenza surveillance data can be accessed at the following link:

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

Avian Influenza

The Ministry of Health in Viet Nam reported a new confirmed case of human infection with the H5N1 avian influenza virus on 8th April 2009. The case was confirmed at the National Institute of Hygiene and Epidemiology (NIHE). The case is a 3 year old boy from Chau Thanh District, Dong Thap Province. He developed symptoms on 12th March, was hospitalised on 13th March and died on 19th March. Investigations into the source of infection indicated a history of close contact with sick and dead poultry prior to the onset of symptoms. Of the 110 cases confirmed to date in Viet Nam, 55 (50%) have been fatal.

As of the 8th April 2009, 417 confirmed human cases and 257 (61.6%) deaths from avian influenza A (H5N1) have been reported to the WHO from Azerbaijan, Bangladesh, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Lao Peoples Democratic Republic, Myanmar, Nigeria, Pakistan, Thailand, Turkey and Viet Nam.

Further information on avian influenza is available on the following websites:

WHO http://www.who.int/csr/disease/avian_influenza/en/

HPSC <http://www.ndsc.ie/hpsc/A-Z/Respiratory/AvianInfluenza/>

ECDC <http://ecdc.europa.eu/en/>

Northern Hemisphere Influenza Vaccine for the 2008/2009 and 2009/2010 Seasons

For the 2008/2009 influenza season in the Northern Hemisphere, the members of the WHO Collaborating Centres on Influenza have recommended that influenza vaccines 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

For the 2009/2010 influenza season in the Northern Hemisphere, the members of the WHO Collaborating Centres on Influenza have recommended that influenza vaccines for the contain the following strains:

- an A/Brisbane/59/2007 (H1N1)-like virus^{**}
- an A/Brisbane/10/2007 (H3N2)-like virus^{††}
- a B/Brisbane/60/2008-like virus^{‡‡}

^{**}*A/Brisbane/59/2007 is a current vaccine virus; A/South Dakota/6/2007 (an A/Brisbane/59/2007-like virus) is a current vaccine virus used in live attenuated vaccines.*

^{††}*A/Brisbane/10/2007 and A/Uruguay/716/2007 (an A/Brisbane/10/2007-like virus) are current vaccine viruses.*

^{‡‡}*B/Brisbane/33/2008 is a B/Brisbane/60/2008-like virus.*

http://www.who.int/csr/disease/influenza/recommendations2009_10north/en/index.html.

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

Acknowledgements

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This report was produced by Sarah Jackson and Dr Joan O'Donnell, HPSC