

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 9 2009 (23rd February to 1st March 2009)

Summary

During week 9 2009, influenza activity continued to decrease in Ireland. Influenza-like illness (ILI) consultation rates decreased slightly and remain below baseline thresholds. One specimen tested by the NVRL was positive for influenza A(H3) during week 9 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 16 ILI cases during week 9 2009. This corresponds to an ILI consultation rate of 8.0 per 100,000 population, a decrease from the updated rate of 8.9 per 100,000 population reported during week 8 2009 (figure 1). This rate is below the baseline threshold of 17.8 per 100,000 population. Forty-nine of 54 (90.7%) sentinel general practices reported during week 9 2009, with nine reporting ILI cases.

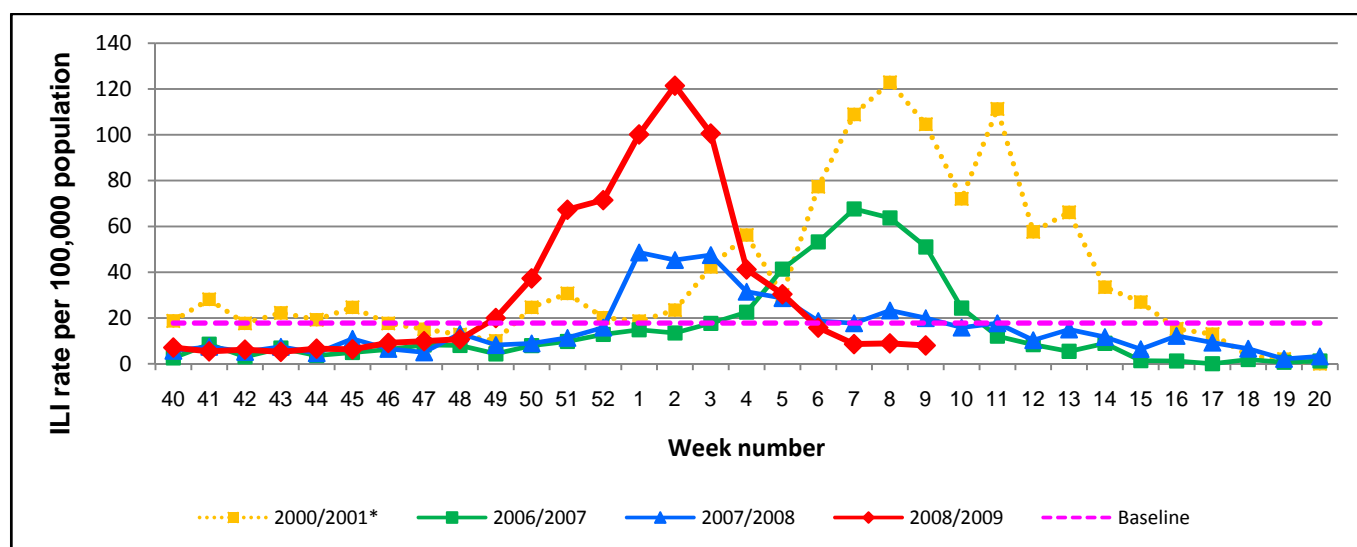


Figure 1: Influenza baseline activity threshold and GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2006/2007, 2007/2008 and 2008/2009 influenza seasons.

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

Results (continued)

During week 9 2009, one ILI case was reported in the 0-4 year age group (7.0 per 100,000 population), one ILI case was reported in the 5-14 year age group (3.8 per 100,000 population) and 14 ILI cases were reported in the 15-64 year age group (10.2 per 100,000 population). No ILI cases were reported in those aged 65 years and older, as shown in figure 2.

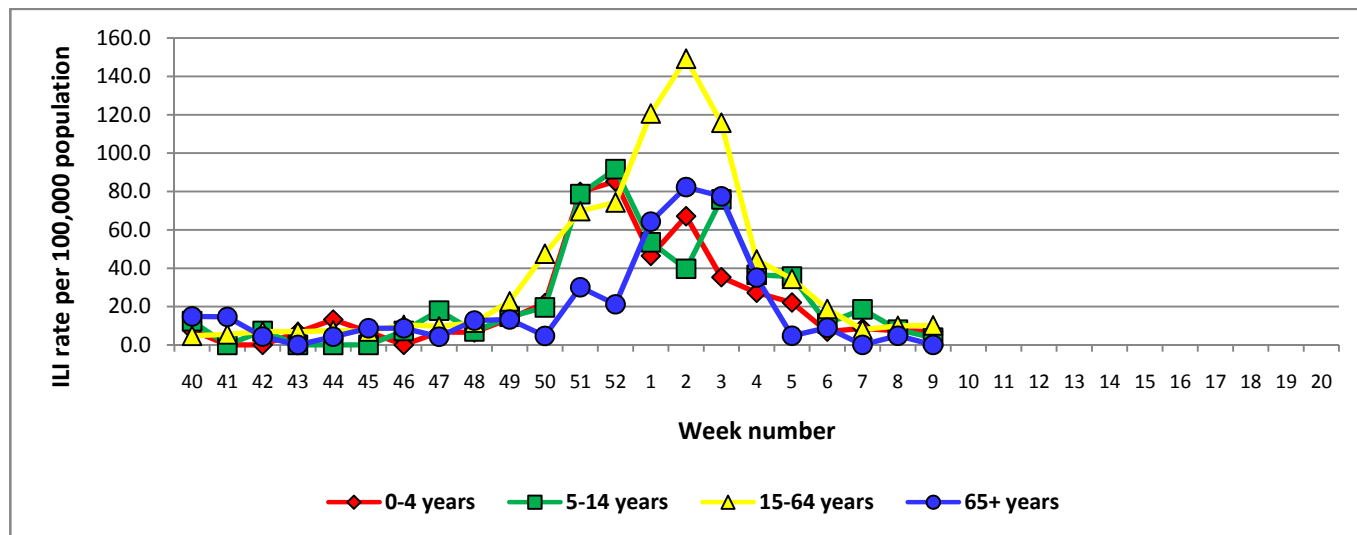


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2008/2009 influenza season

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=324) and zanamivir (n=303), whereas 100% of the 198 A(H3N2) viruses tested were resistant to M2 inhibitors. All influenza A(H1N1) viruses analysed were sensitive to zanamivir (n=153) and M2 inhibitors (n=59) but 98% were resistant to oseltamivir. Twenty-seven 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. Seventy influenza A(H1) specimens have been tested for anti-viral drug resistance, 69 (98.6%) of these were resistant to oseltamivir and all were sensitive to zanamivir and amantadine. Eighteen 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

The NVRL tested four sentinel specimens during week 9 2009, one of which was positive for influenza A(H3). The NVRL also tested 54 non-sentinel specimens taken during week 9 2009, mainly from hospitalised paediatric cases. None of the non-sentinel specimens tested positive for influenza and one non-sentinel specimen tested positive for respiratory syncytial virus (RSV) during week 9 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 the 2008/2009-influenza season to date. Influenza positive specimens by HSE area and age group (in years), for week 9 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 9 2009 and season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
9 2009	Sentinel	4	1	25	1	0	NA	NA
	Non-Sentinel	54	0	0	0	0	1	1.9
	Total	58	1	1.7	1	0	1	1.7
Season to date	Sentinel	326	198	60.7	145	53	NA	NA
	Non-Sentinel	1960	61	3.1	50	11	358	18.3
	Total	2286	259	11.3	195	64	358	15.7

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=198)		(n=145)		
Number positive	198	145	53	0	17	128
% Positive	60.7	73.2	26.8	0.0	11.7	88.3

[†] 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 = 326

Table 3: Total number of sentinel and non-sentinel† influenza A and B positive specimens by HSE area for week 9 2009 and the 2008/2009 season to date

	Week 9 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	1	0	1	75	19	94
HSE-M	0	0	0	13	11	24
HSE-MW	0	0	0	18	2	20
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	22	6	28
HSE-W	0	0	0	4	12	16
HSE area unknown	0	0	0	9	0	9
Total	1	0	1	195	64	259

Table 4: Total number of sentinel and non-sentinel† influenza A and B positive specimens by age group (in years) for week 9 2009 and the 2008/2009 season to date

	Week 9 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	1	0	1	141	48	189
65 years and older	0	0	0	7	2	9
Age group unknown	0	0	0	3	1	4
Total	1	0	1	195	64	259

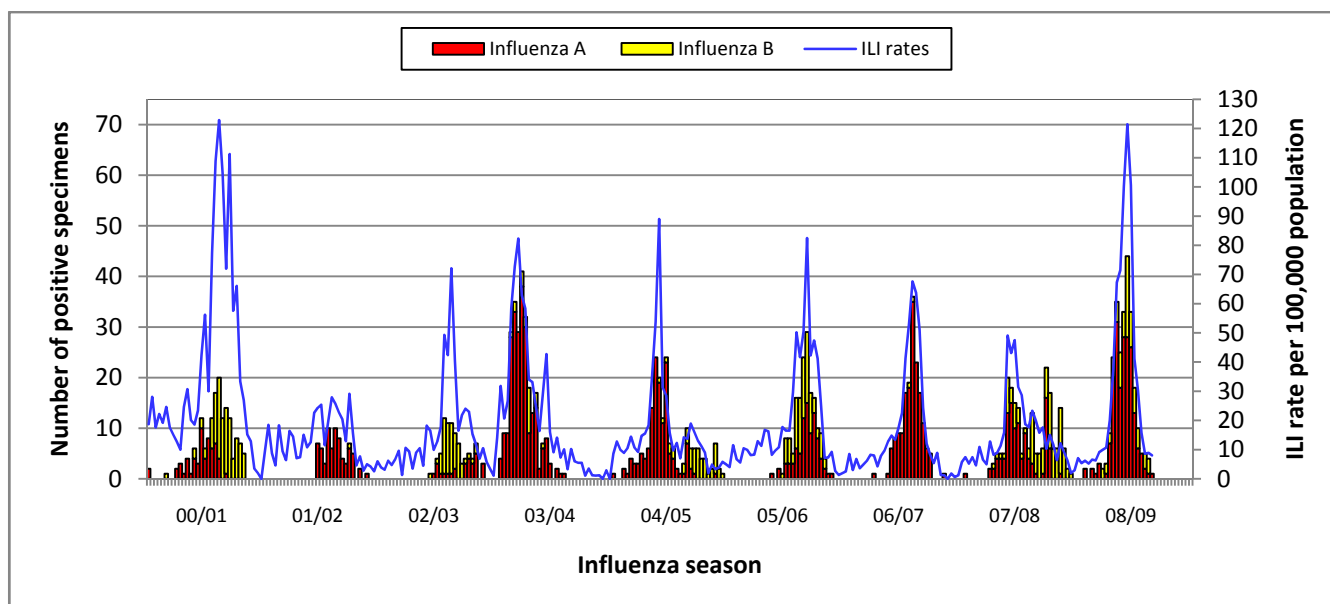


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2008/2009

†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

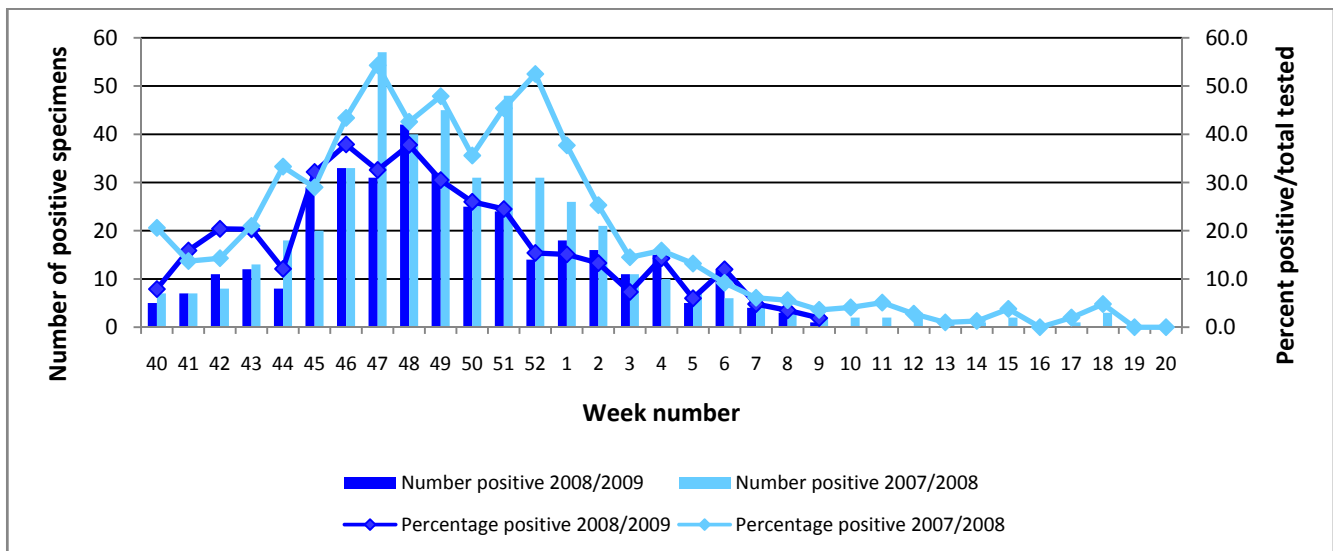


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2007/2008 and 2008/2009 influenza seasons

Weekly Influenza Notifications

During week 9 2009 (week 8 2009 of epidemiological calendar), three influenza A and two influenza B were notified to HPSC. During week 9 2009, one influenza A and one influenza B were reported from HSE-E, one influenza A from HSE-NW, one influenza A from HSE-SE and one influenza B from HSE-S. 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.

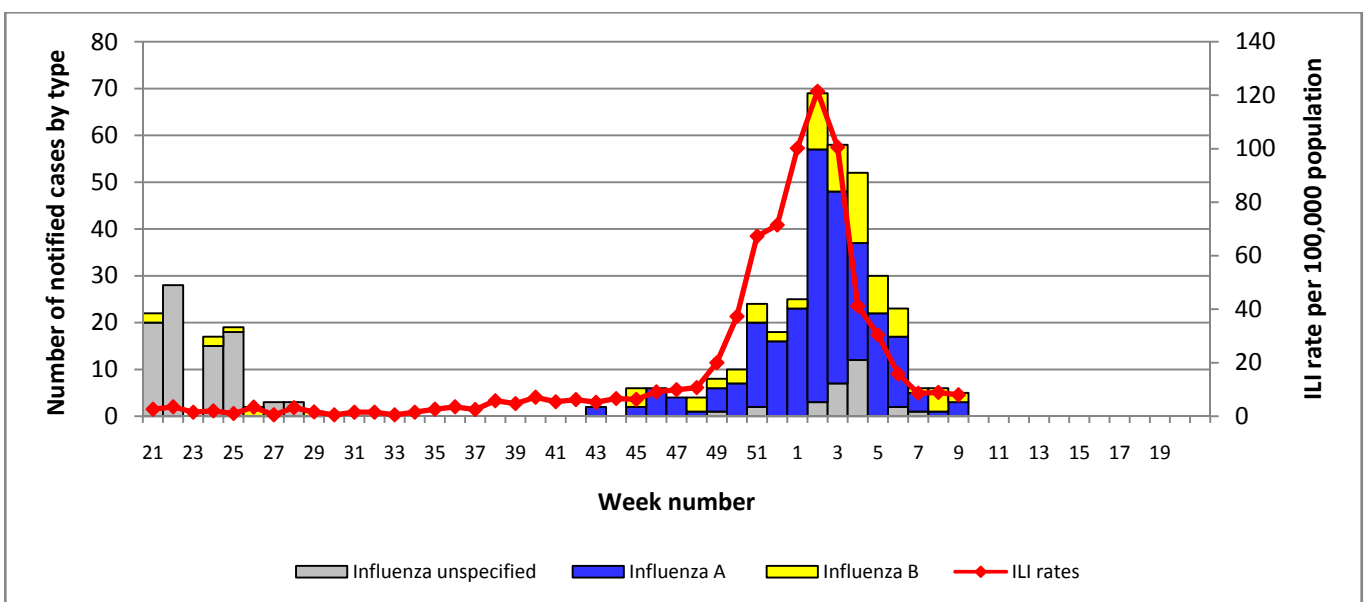


Figure 5: Number of notifications of influenza by type and week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2008 and the 2008/2009 influenza season[§]

[§] Notification data are provisional and were extracted from [CIDR](#) on the 03/03/2009 at 15.31

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 9 2009.

Outbreak Reports

No influenza/ILI outbreaks were reported to HPSC during week 9 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 8 2009, increases in respiratory admissions were reported by sentinel hospitals in HSE-E, -M and -W. No increases in school absenteeism were reported by sentinel schools during week 8 2009. No activity was reported by HSE-W, while sporadic influenza activity (based on isolated cases of ILI and/or virological results) was reported by HSE-E, -M, -MW, -NE, -NW, -S and -SE during week 8 2009 (figure 6).

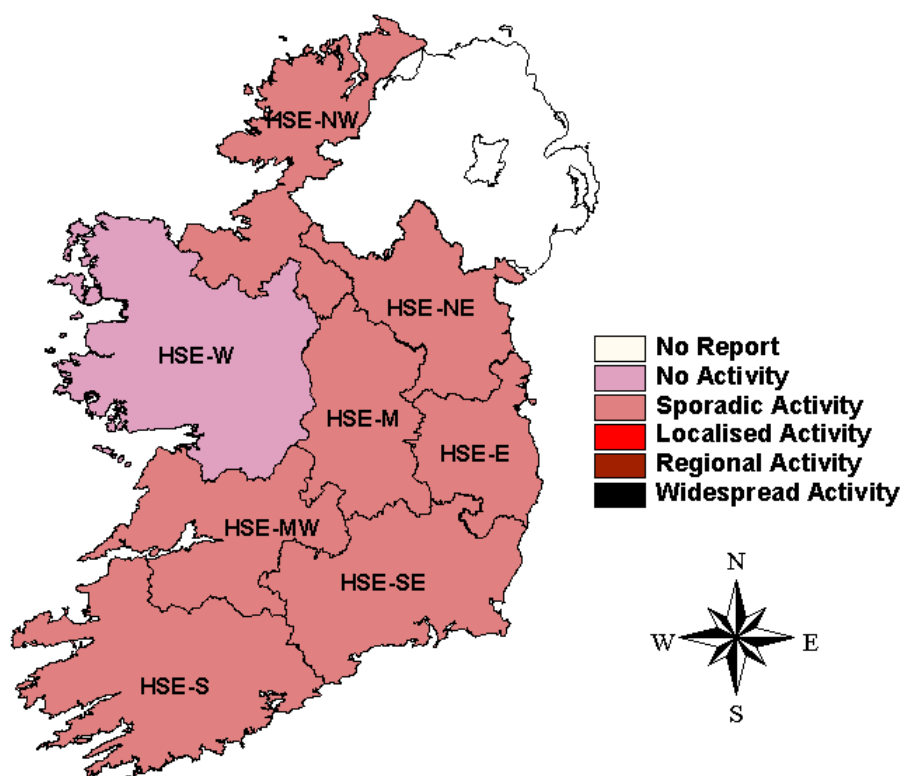


Figure 6: Map of influenza activity by HSE area during week 8 2009

Influenza Activity in Northern Ireland

During week 9 2009, 15 ILI cases and 34 clinical influenza cases were reported in Northern Ireland, corresponding to a combined rate of 31.4 per 100,000 population, an increase compared to the updated rate of 20.5 per 100,000 population reported during week 8 2009. During week 9 2009, one sentinel specimen tested positive for influenza B. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

In England, an overall ILI incidence rate of 7.1 per 100,000 population was reported during week 9 2009, which remains stable in comparison with the rate of 7.3 per 100,000 population reported in week 8 2009. Both rates are below the baseline activity threshold of 30 per 100,000 population. In Scotland, GP consultation rates for influenza were 11.0 per 100,000 population during week 9 2009, a slight increase from the rate of 9.0 per 100,000 population reported during week 8 2009. Both rates are below the Scottish baseline threshold of 50 consultations per 100,000 population. In Wales, GP consultation rates for influenza were 4.2 per 100,000 population, during week 9 2009. This rate is well below the baseline threshold of 25 per 100,000 population. During week 9 2009, one sample referred to the Centre for Infections' Respiratory Virus Unit (RVU) tested positive for influenza A(H1) and three samples were 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 and Population of Egypt has reported a new confirmed human case of avian influenza on 1st March 2009. The new case is a two year old male from Yousef el seddik district of Fayoum Governorate whose symptoms began on 25th February. He was hospitalised and treated at the Manshiet Elbakry general hospital on 28th February and is currently in a critical condition. Infection with H5N1 avian influenza was confirmed by the Egyptian Central Public Health Laboratory on 1st March. Investigations into the source of infection indicate a history of close contact with dead and sick poultry prior to becoming ill. Of the 56 cases confirmed to date in Egypt, 23 (41.1%) have been fatal.

The Ministry of Health in Viet Nam has announced the death of a previously confirmed case of H5N1 infection on 27th February 2009. The 32 year old male from Kim Son district, Ninh Binh Province died on 25th February. Of the 109 cases confirmed to date in Viet Nam, 54 (49.5%) have been fatal.

As of the 2nd March 2009, 409 confirmed human cases and 256 (62.6%) 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