

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 4 2009 (19th to 25th January 2009)

Summary

During week 4 2009, influenza activity decreased sharply in Ireland. Influenza-like illness (ILI) consultation rates decreased but still remain above baseline thresholds. Fourteen specimens tested by the NVRL were positive for influenza during week 4 2009. The use of antiviral drugs for the prevention or treatment of influenza in at-risk groups is still recommended, as per the National Institute of Clinical Excellence (NICE) guidelines, UK.

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 81 ILI cases during week 4 2009, corresponding to an ILI consultation rate of 43.4 per 100,000 population, a sharp decrease from the updated rate of 100.6 per 100,000 population reported during week 3 2009 (figure 1). This ILI rate remains higher than the baseline threshold of 17.8 per 100,000 population. Forty-six of 54 (85.2%) sentinel general practices reported during week 4 2009, with 26 reporting ILI cases.

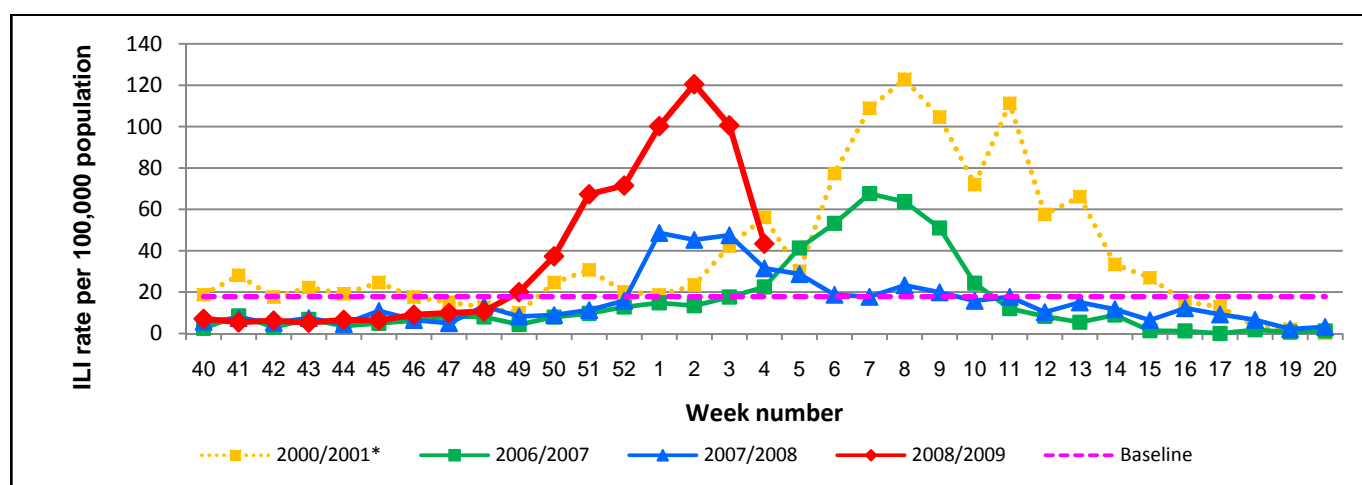


Figure 1: Influenza baseline activity threshold and GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2006/2007, 2007/2008 and 2008/2009 influenza seasons. *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 4 2009, four ILI cases were reported in the 0-4 year age group (30.1 per 100,000 population), 10 ILI cases were reported in the 5-14 year age group (40.4 per 100,000 population), 59 ILI cases were reported in the 15-64 year age group (46.1 per 100,000 population) and eight ILI cases were reported in those aged 65 years or older (38.9 per 100,000 population) as shown in figure 2.

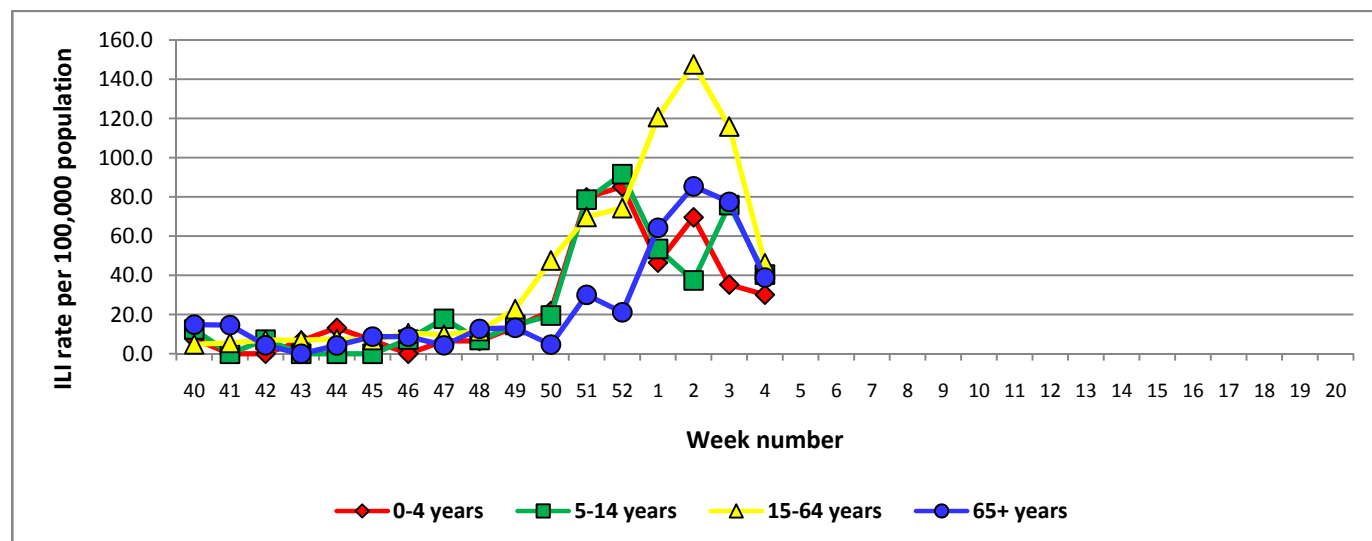


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2008/2009 influenza season

NEWS: Recommendations on the use of antiviral drugs

The use of antiviral drugs for the prevention or treatment of influenza in at-risk groups is still recommended, as per the National Institute of Clinical Excellence (NICE) guidelines, UK. When ILI rates increase to levels currently observed and when influenza is known to be circulating in the community, it is recommended that antiviral drugs are used in at-risk groups. Further information on the use of antiviral neuraminidase inhibitors, oseltamivir and zanamivir for the prevention and/or treatment of influenza in at-risk groups is available on the HPSC website. <http://www.ndsc.ie/hpsc/A-Z/Respiratory/Influenza/SeasonalInfluenza/Guidance/NICEguidanceontheuseofantiviraldrugs/>

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=114) and zanamivir (n=111), whereas 99% of the 89 A(H3N2) viruses tested were resistant to M2 inhibitors. Ten influenza B viruses were analysed and all were sensitive to oseltamivir and zanamivir. All influenza A(H1N1) viruses analysed were sensitive to zanamivir (n=60) and M2 inhibitors (n=23) but 98% were resistant to oseltamivir.

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 101 A(H3) isolates that have been tested have been found to be resistant to amantadine. Of the 101 A(H3), 74 have been tested and found to be sensitive to oseltamivir and zanamivir. Forty influenza A(H1) specimens have been tested for anti-viral resistance since week 40 2008, 39 of which were

* 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.

resistant to oseltamivir and all were sensitive to zanamivir and amantadine. Two influenza B specimens have been tested so far and were sensitive to oseltamivir and zanamivir. Please note these data are provisional.

Latest information on oseltamivir resistance in UK:

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1222154877315?p=1191942171484

Virological Data from the NVRL

The NVRL tested 14 sentinel specimens during week 4 2009, seven of which tested positive for influenza A (5 A(H3) and 2 A(H1)) and two were positive for influenza B. The NVRL also tested 89 non-sentinel specimens taken during week 4 2009, mainly from hospitalised paediatric cases. Three of the non-sentinel specimens were positive for influenza A, two were positive for influenza B and 14 non-sentinel specimens tested positive for respiratory syncytial virus (RSV) in week 4 2009 (table 1).

The NVRL has completed genetic characterisation for two influenza A (H3) viruses so far this season. Both have been characterised as A/Brisbane/10/2007-like virus which is included in the 2008/2009 influenza vaccine. 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 4 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 4 2009 and season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
4 2009	Sentinel	14	9	64.3	7	2	NA	NA
	Non-Sentinel	89	5	5.6	3	2	14	15.7
	Total	103	14	13.6	10	4	14	13.6
Season to date	Sentinel	280	176	62.9	132	44	NA	NA
	Non-Sentinel	1537	54	3.5	45	9	335	21.8
	Total	1817	230	12.7	177	53	335	18.4

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=176)		(n=132)		
Number positive	176	132	44	4	15	113
% Positive	62.9	75.0	25.0	3.0	11.4	85.6

[†] 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 = 280

Table 3: Total number of sentinel and non-sentinel† influenza A and B positive specimens by HSE area for week 4 2009 and the 2008/2009 season to date

	Week 4 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	3	3	6	65	13	78
HSE-M	1	0	1	13	10	23
HSE-MW	1	0	1	14	1	15
HSE-NE	0	1	1	17	2	19
HSE-NW	0	0	0	10	8	18
HSE-SE	1	0	1	26	2	28
HSE-S	3	0	3	21	5	26
HSE-W	1	0	1	3	12	15
HSE area unknown	0	0	0	8	0	8
Total	10	4	14	177	53	230

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

	Week 4 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	2	1	3	26	5	31
5-14 years	1	0	1	14	5	19
15-64 years	6	2	8	127	40	167
65 years and older	1	0	1	7	2	9
Age group unknown	0	1	1	3	1	4
Total	10	4	14	177	53	230

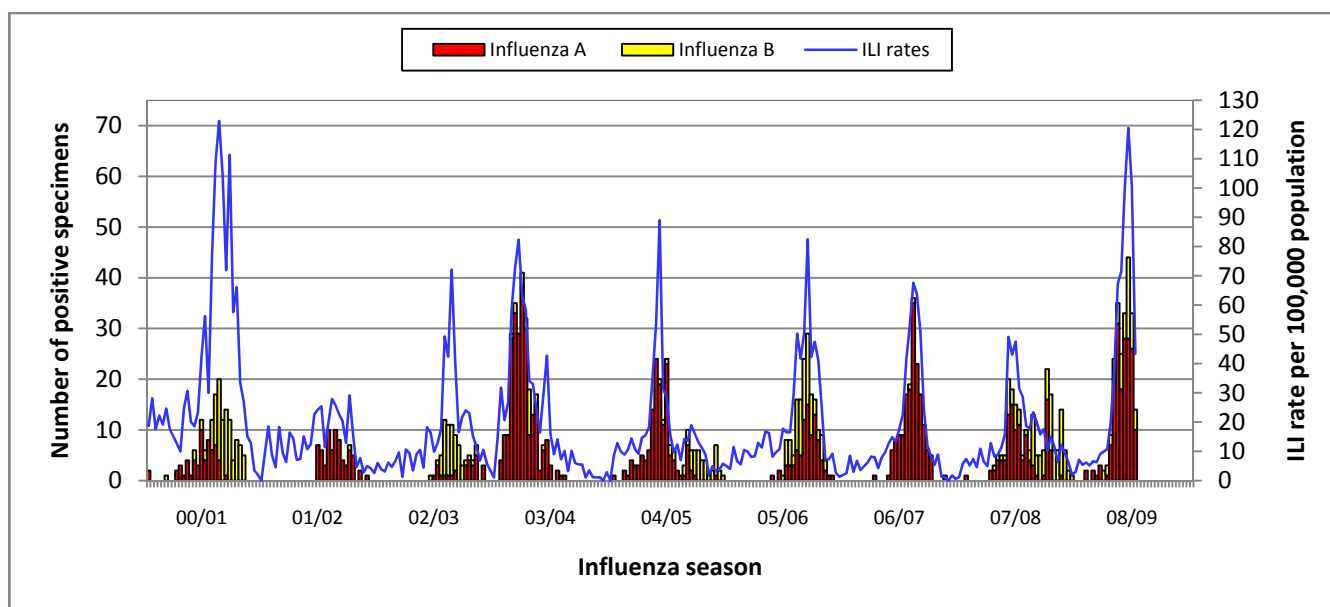


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2008/2009

†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

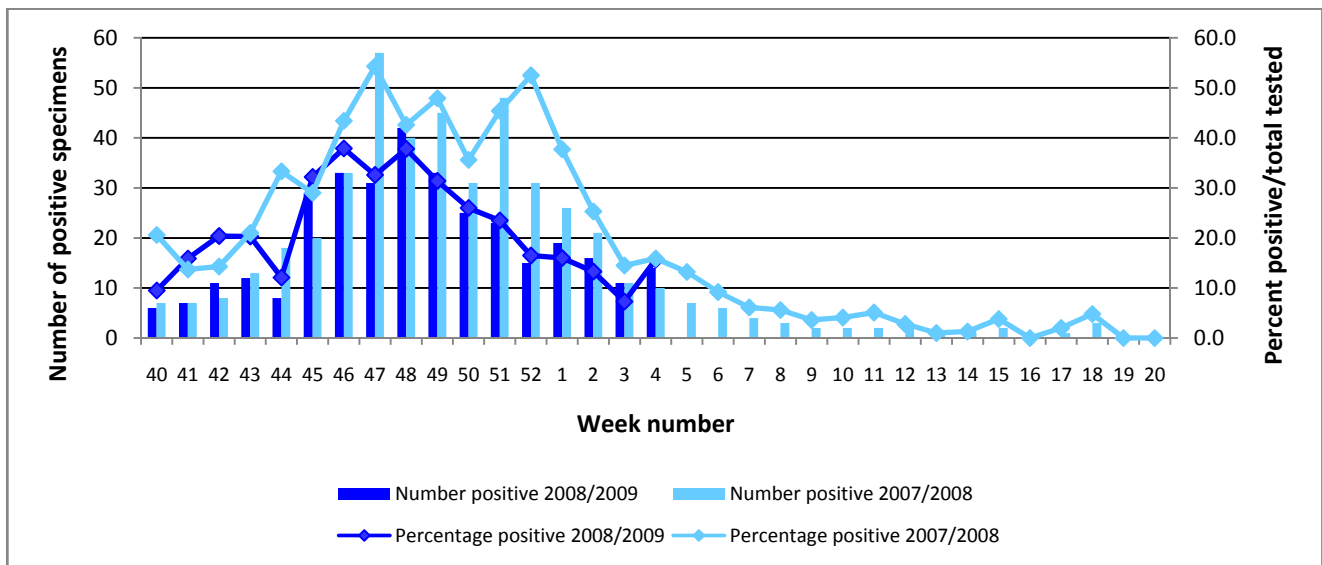


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2007/2008 and 2008/2009 influenza seasons

Weekly Influenza Notifications

During week 4 2009 (week 3 2009 of epidemiological calendar), 21 influenza A, 11 influenza B and 11 influenza unspecified were notified to HPSC. During week 4 2009, eight influenza A, four influenza B and three influenza unspecified were reported from HSE-E, one influenza A and two influenza B from HSE-M, two influenza A and one influenza unspecified from HSE-NE, two influenza A and four influenza B from HSE-NW, six influenza A and seven influenza unspecified from HSE-S and two influenza A and one influenza B from HSE-SE. 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.

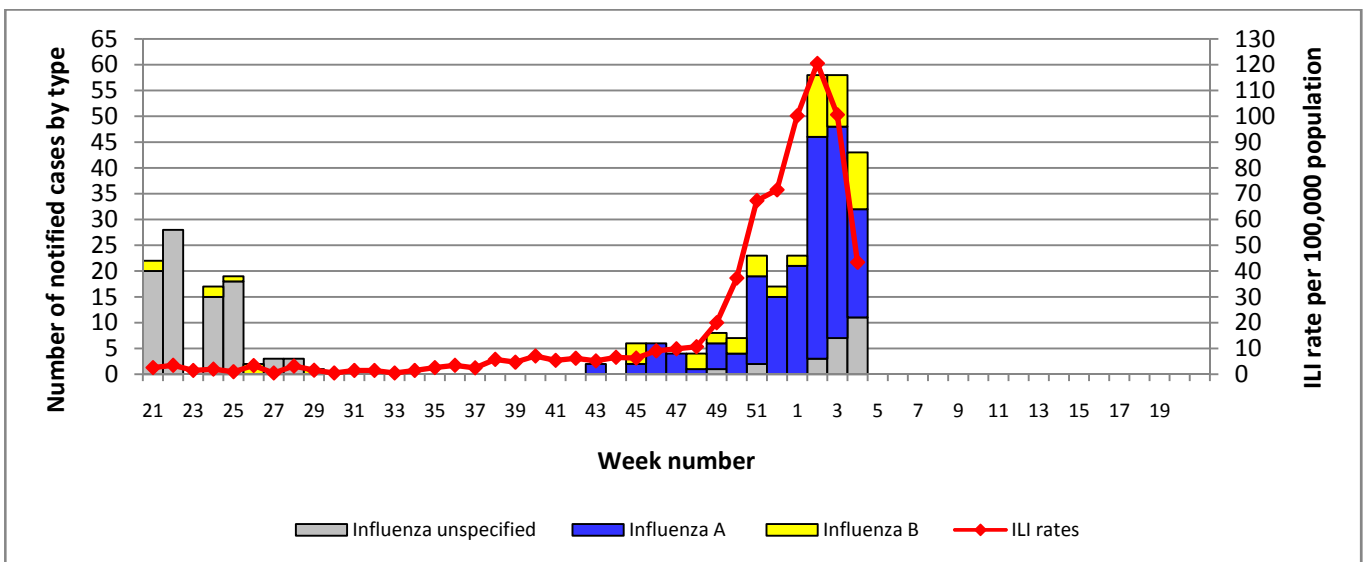


Figure 5: Number of notifications of influenza by type and week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2008 and the 2008/2009 influenza season[§]

Baseline thresholds

[§] Notification data are provisional and were extracted from [CIDR](#) on the 27/01/2009 at 12.57

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 4 2009.

Outbreak Reports

One ILI outbreak in HSE-W was reported to HPSC during week 4 2009. The ILI outbreak was in a residential institution with 18 patients and six staff ill. To date, one case tested positive for influenza A(H3).

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 3 2009, an increase in school absenteeism was reported by HSE-NW and an increase in respiratory admissions was reported by a sentinel hospital in HSE-NE. During week 3 2009 sporadic influenza activity (based on isolated cases of ILI and/or virological results) was reported in HSE-MW and -NE while localised influenza activity was reported by HSE-E, -M, -NW, -S, -SE and -W (figure 6).

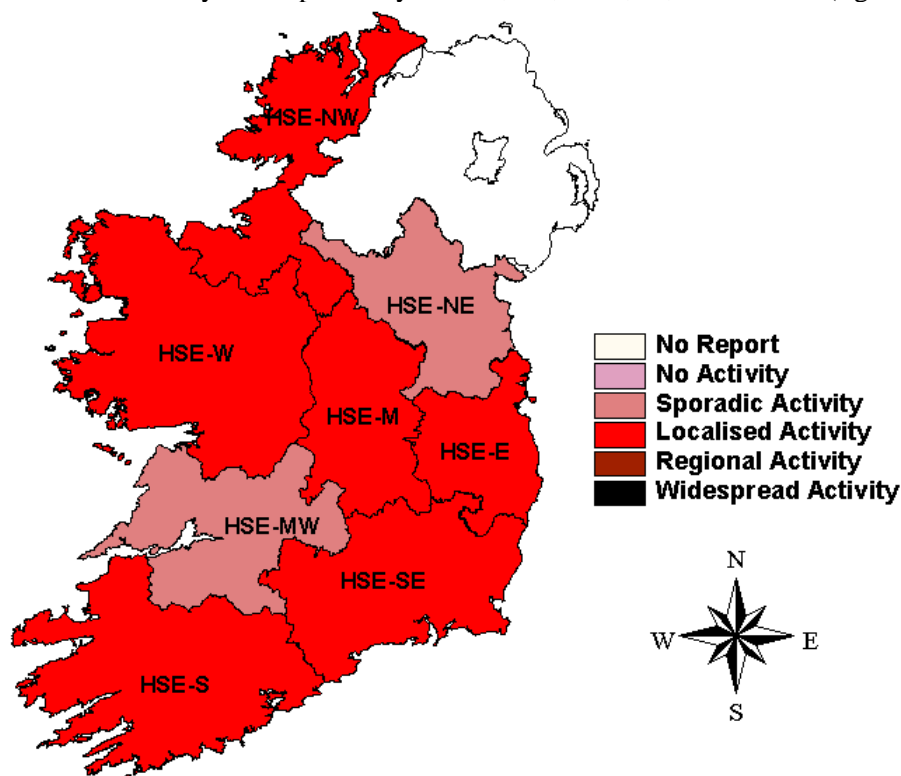


Figure 6: Map of influenza activity by HSE area during week 3 2009

Influenza Activity in Northern Ireland

During week 4 2009, 122 ILI cases and 13 clinical influenza cases were reported in Northern Ireland, corresponding to a combined rate of 89.4 per 100,000 population, a decrease compared to the updated rate of 112.6 per 100,000 population reported during week 3 2009. During week 4 2009, five sentinel specimens tested positive for influenza, four influenza A and one influenza B. A further five non-sentinel specimens tested positive for influenza, two influenza A and three influenza B. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

In England, an overall ILI incidence rate of 16.8 per 100,000 population was reported during week 4 2009, a decrease from the rate of 31.6 per 100,000 population reported in week 3 2009. This rate is now below the baseline activity threshold of 30 per 100,000 population. In Scotland, GP consultation rates for influenza were 31.0 per 100,000 population during week 4 2009, a decrease from the rate of 68.0 per 100,000 population reported during week 3 2009. This rate is below the Scottish baseline threshold of 50 consultations per 100,000 population. In Wales, GP consultation rates for influenza were 6.8 per 100,000 population during week 4 2009, a decrease from the rate of 12.7 per 100,000 population reported during week 3 2009. This rate is below the Welsh baseline threshold of 25 consultations per 100,000 population. During week 4 2009, 25 samples referred to the Centre for Infections' Respiratory Virus Unit (RVU) tested positive for influenza A (23 A(H3) and 2A(H1)) and six 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 in China announced three new confirmed human cases of H5N1 infection on 27th January 2009. The first, a 31-year-old female from Urumqi, Xinjiang Autonomous Region had onset of symptoms on 10th January. She received treatment in hospital but died on 23rd January. Investigations into the possible source of her infection indicate recent visits to a live poultry market. The local authorities are currently conducting epidemiological investigations and close contacts are being monitored. To date, no clinical symptoms have been reported among the contacts. The second case is a 29-year-old male from Guiyang city, Guizhou. He had onset of symptoms on 15th January and remains in a critical condition. Investigations into the source of his infection indicate possible exposure at a poultry market. The third case is an 18-year-old male from Beiliu City, Guangxi Province. He had onset of symptoms on 19th January and died on 26th January. Investigations into the source of his infection indicate a recent history of exposure to sick and dead poultry. Close contacts of the case are being monitored and to date all remain well. Of the 37 cases confirmed to date in China, 25 (67.6%) have been fatal.

The Ministry of Health and Population of Egypt announced a new human case of avian influenza A(H5N1) virus infection on 26th January 2009. The case is a 2-year-old female from Manofia Governorate, Shebin Elkom District. Her symptoms began on 23rd January and she was immediately hospitalised and remains in a stable condition. Infection with the H5N1 avian influenza virus was confirmed by the Egyptian Central Public Health Laboratory. Investigations into the source of her infection indicate a recent history of contact with sick and dead poultry. Of the 53 cases confirmed to date in Egypt, 23 (43.4%) have been fatal.

As of the 27th January 2009, 403 confirmed human cases and 245 (60.8%) 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 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

HPSC, ICGP and NVRL wish to thank the sentinel GPs who have participated in the GP sentinel surveillance system and who have contributed towards this report

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