

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 3 2009 (12th to 18th January 2009)

Summary

During week 3 2009, influenza activity decreased slightly in Ireland. Influenza-like illness (ILI) consultation rates decreased but remain at higher levels than normally observed at this time of year. Seventeen specimens tested by the NVRL were positive for influenza during week 3 2009. The use of antiviral drugs for the prevention or treatment of influenza in at-risk groups is now 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 162 ILI cases during week 3 2009, corresponding to an ILI consultation rate of 103.1 per 100,000 population, a decrease from the updated rate of 120.5 per 100,000 population reported during week 2 2009 (figure 1). This ILI rate remains significantly higher than the baseline threshold of 17.8 per 100,000 population. Forty-one of 54 (75.9%) sentinel general practices reported during week 3 2009, with 32 reporting ILI cases.

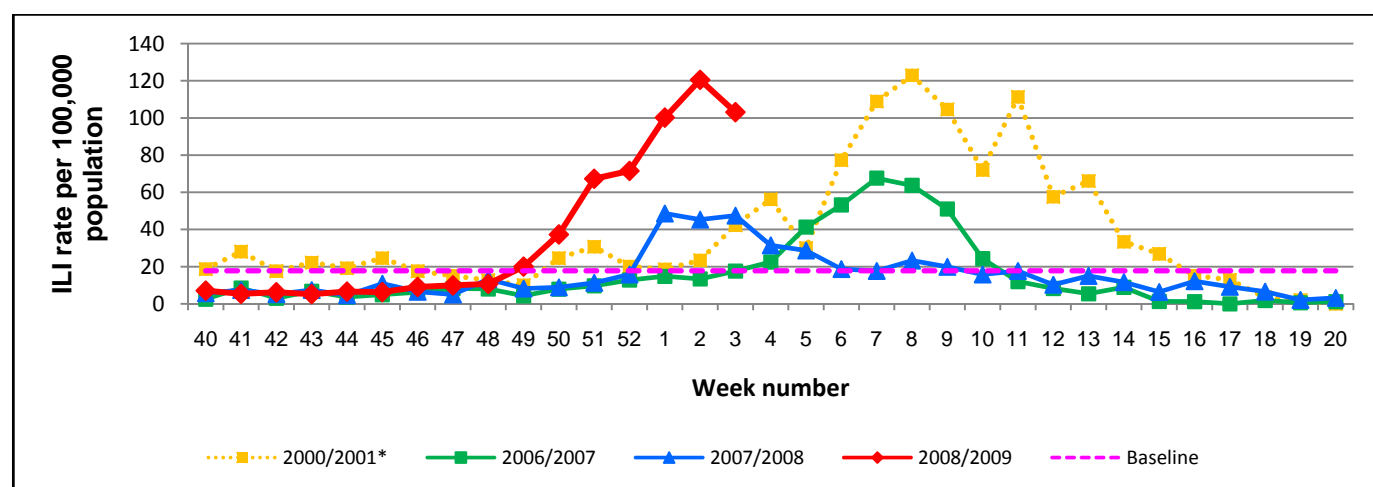


Figure 1: Influenza baseline activity threshold and GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2006/2007, 2007/2008 and 2008/2009 influenza seasons. *Highest recorded levels of ILI activity since initiation of sentinel surveillance

Results (continued)

During week 3 2009, five ILI cases were reported in the 0-4 year age group (44.6 per 100,000 population), 17 ILI cases were reported in the 5-14 year age group (81.6 per 100,000 population), 129 ILI cases were reported in the 15-64 year age group (119.8 per 100,000 population) and 11 ILI cases were reported in those aged 65 years or older (63.4 per 100,000 population) as shown in figure 2.

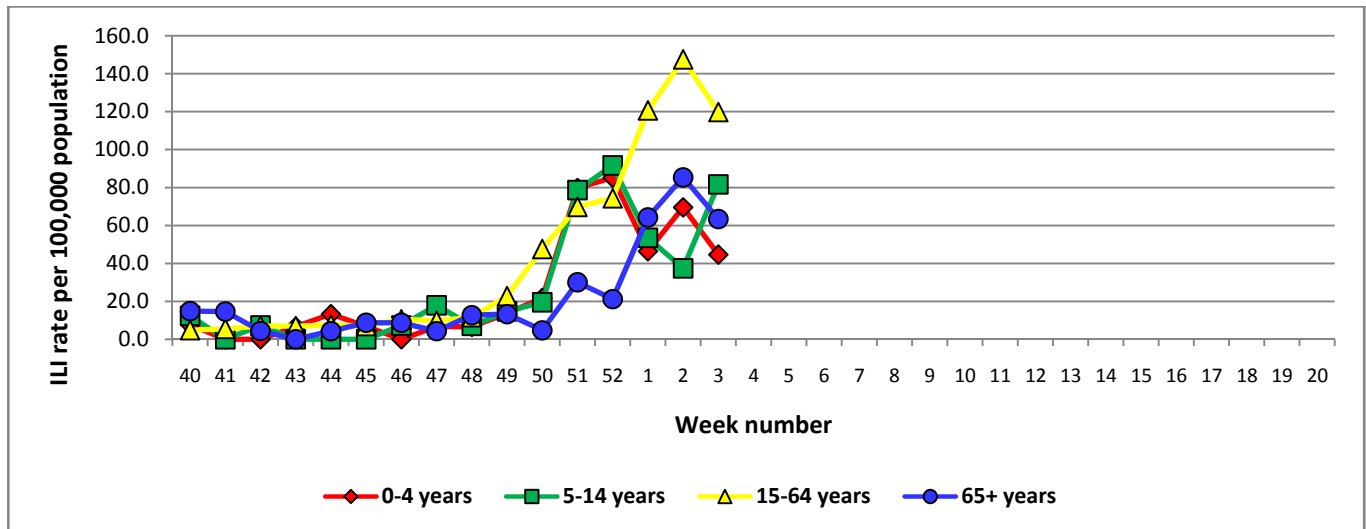


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2008/2009 influenza season

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 now 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 two influenza A(H1N1) specimens taken by sentinel GPs in Ireland, both of which were resistant to oseltamivir. 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, 93 influenza A(H3N2) and three influenza B viruses tested were sensitive to oseltamivir and zanamivir. Of these, the 88 A(H3N2) viruses tested were resistant to M2 inhibitors. Fifty-one of 52 influenza A(H1N1) viruses analysed (98%) were resistant to oseltamivir but all those tested were sensitive to zanamivir, while 23 of those tested were sensitive to M2 inhibitors. Three countries have reported on antiviral susceptibility based on genotyping (Norway, Spain, Sweden), Italy reported using phenotyping while the UK reported using both techniques.

Latest information on oseltamivir resistance in Europe:

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

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

* 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.

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 28 sentinel specimens during week 3 2009, 12 of which tested positive for influenza A (7 (A(H3) and 5 influenza A untyped) and two were positive for influenza B. The NVRL also tested 122 non-sentinel specimens taken during week 3 2009, mainly from hospitalised paediatric cases. Three of the non-sentinel specimens were positive for influenza A and 10 non-sentinel specimens tested positive for respiratory syncytial virus (RSV) in week 3 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 3 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 3 2009 and season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
3 2009	Sentinel	28	14	50	12	2	NA	NA
	Non-Sentinel	122	3	2.5	3	0	10	8.2
	Total	150	17	11.3	15	2	10	6.7
Season to date	Sentinel	250	155	62.0	118	37	NA	NA
	Non-Sentinel	1420	45	3.2	38	7	320	22.5
	Total	1670	200	12.0	156	44	320	19.2

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=155)		(n=118)		
Number positive	155	118	37	28	11	79
% Positive	62.0	76.1	23.9	23.7	9.3	66.9

[†] 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

[‡] Number of sentinel specimens tested = 250

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

	Week 3 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	6	0	6	57	9	66
HSE-M	1	1	2	12	8	20
HSE-MW	2	1	3	12	1	13
HSE-NE	0	0	0	17	0	17
HSE-NW	1	0	1	9	8	17
HSE-SE	0	0	0	23	1	24
HSE-S	5	0	5	17	5	22
HSE-W	0	0	0	2	12	14
HSE area unknown	0	0	0	7	0	7
Total	15	2	17	156	44	200

Table 4: Total number of sentinel and non-sentinel† influenza A and B positive specimens by age group (in years) for week 3 2009 and the 2008/2009 season to date

	Week 3 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	3	0	3	23	4	27
5-14 years	1	0	1	12	4	16
15-64 years	11	1	12	112	34	146
65 years and older	0	1	1	6	2	8
Age group unknown	0	0	0	3	0	3
Total	15	2	17	156	44	200

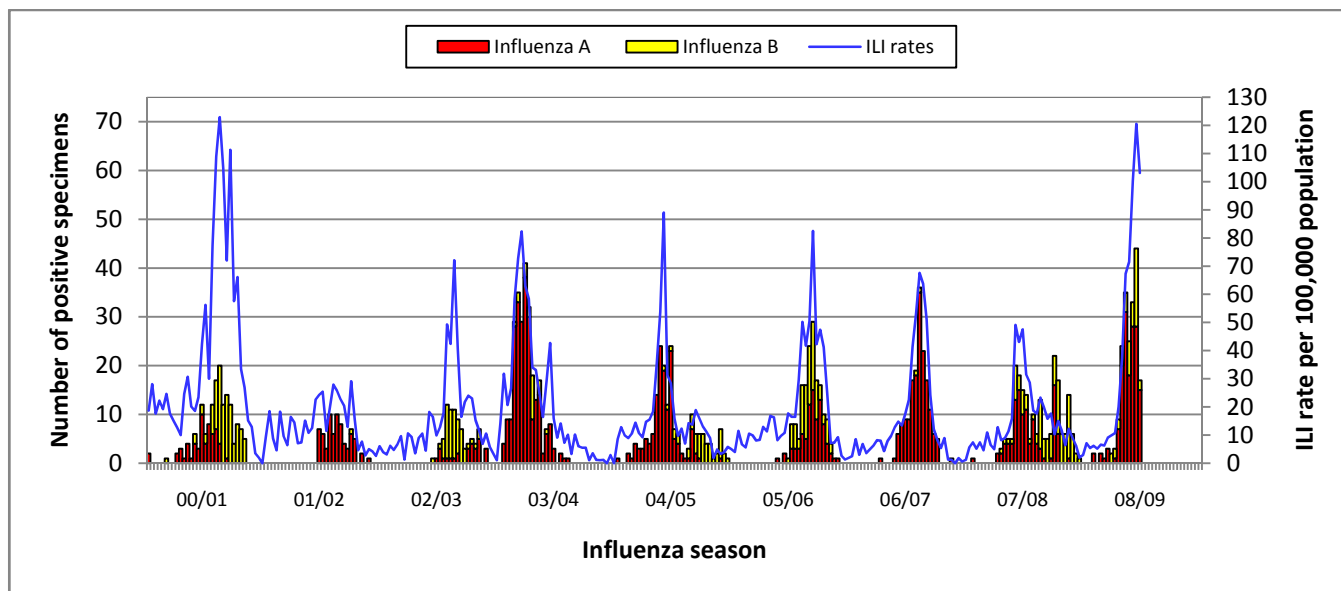


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2008/2009

†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

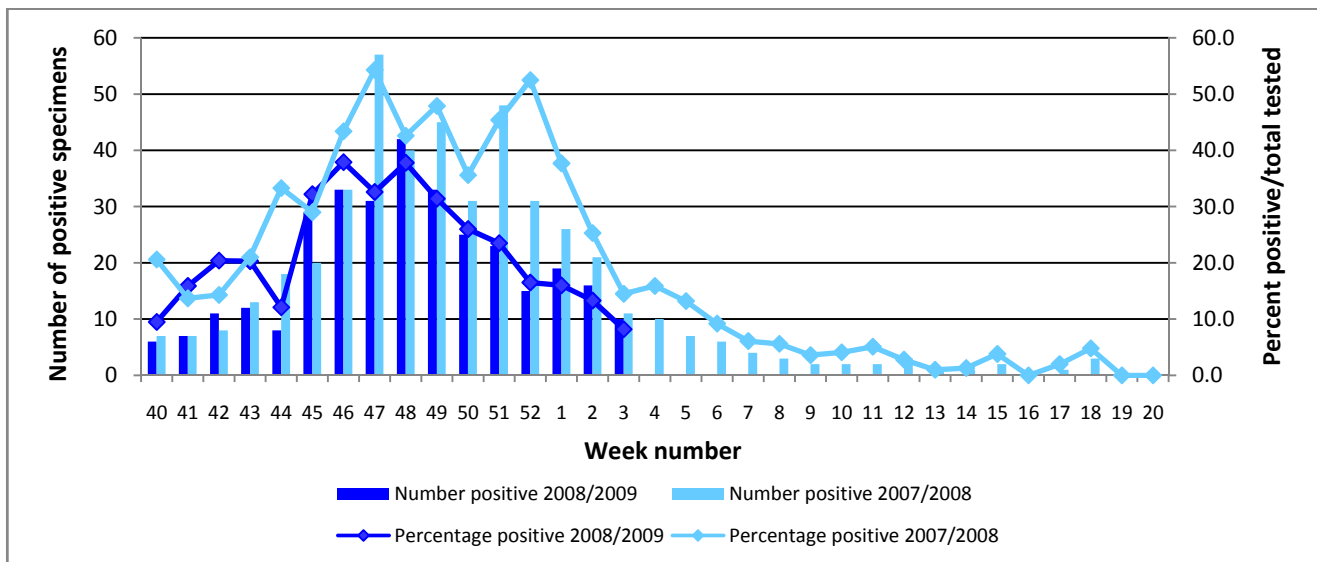


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2007/2008 and 2008/2009 influenza seasons

Weekly Influenza Notifications

Thirty-eight influenza A, eight influenza B and seven influenza unspecified were notified to HPSC during week 3 2009 (week 2 2009 of epidemiological calendar). During week 3 2009, 18 influenza A, four influenza B and seven influenza unspecified were reported from HSE-E, three influenza A and two influenza B from HSE-M, three influenza A from HSE –NE, one influenza A from HSE NW, eight influenza A and one influenza B from HSE-S and five 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.

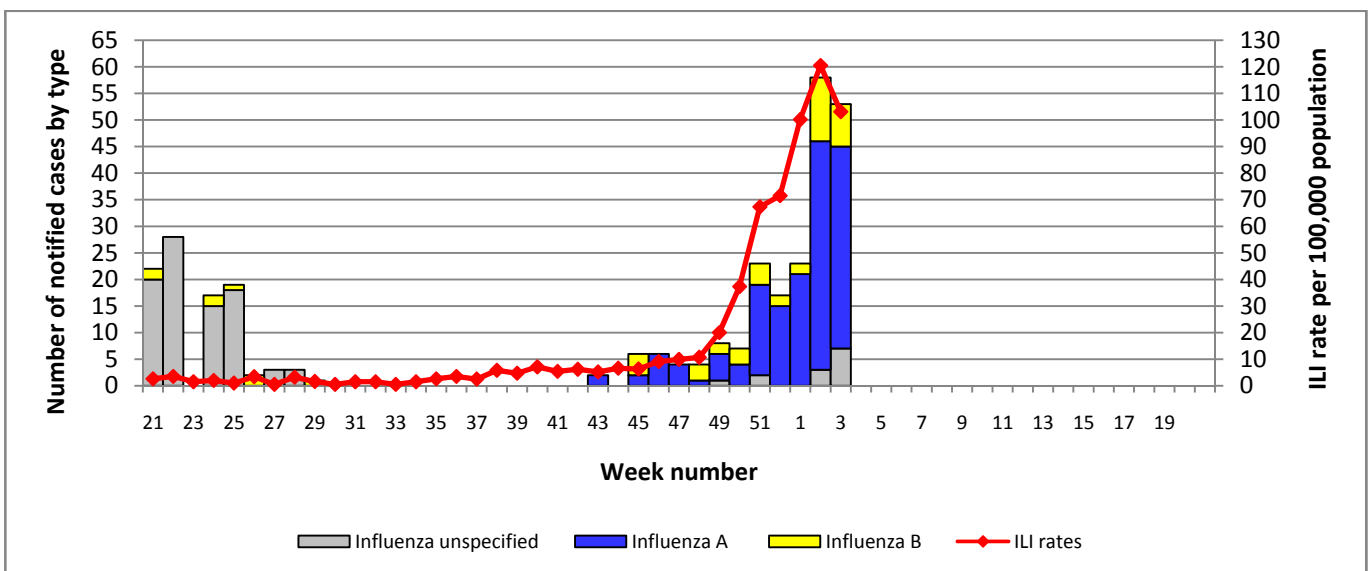


Figure 5: Number of notifications of influenza by type and week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2008 and the 2008/2009 influenza season[§]

[§] Notification data are provisional and were extracted from [CIDR](#) on the 19/01/2009 at 10.43

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

One death attributed to influenza, in an adult over 65 years old from HSE-S, was registered with the General Register Office during week 3 2009. Influenza was listed as the secondary cause of death in this case.

Outbreak Reports

One ILI outbreak in HSE-S and one influenza outbreak in HSE-E were reported to HPSC during week 3 2009. The ILI outbreak in HSE-S was in a residential institution with 18 people ill, all of whom were aged 65 years and older. Culture results for influenza were negative and PCR results for influenza and RSV are awaited. The influenza outbreak in HSE-E was in a long-term care facility with nine people ill, four of whom were laboratory confirmed as influenza A.

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 2 2009, increases in school absenteeism were reported by HSE-NE and -NW and an increase in respiratory admissions was reported by a sentinel hospital in HSE-NE. During week 2 2009 sporadic influenza activity (based on isolated cases of ILI and virological results) was reported in HSE-MW while localised influenza activity was reported by HSE-E, -M, -NE, -NW, -S, -SE and -W (figure 6).

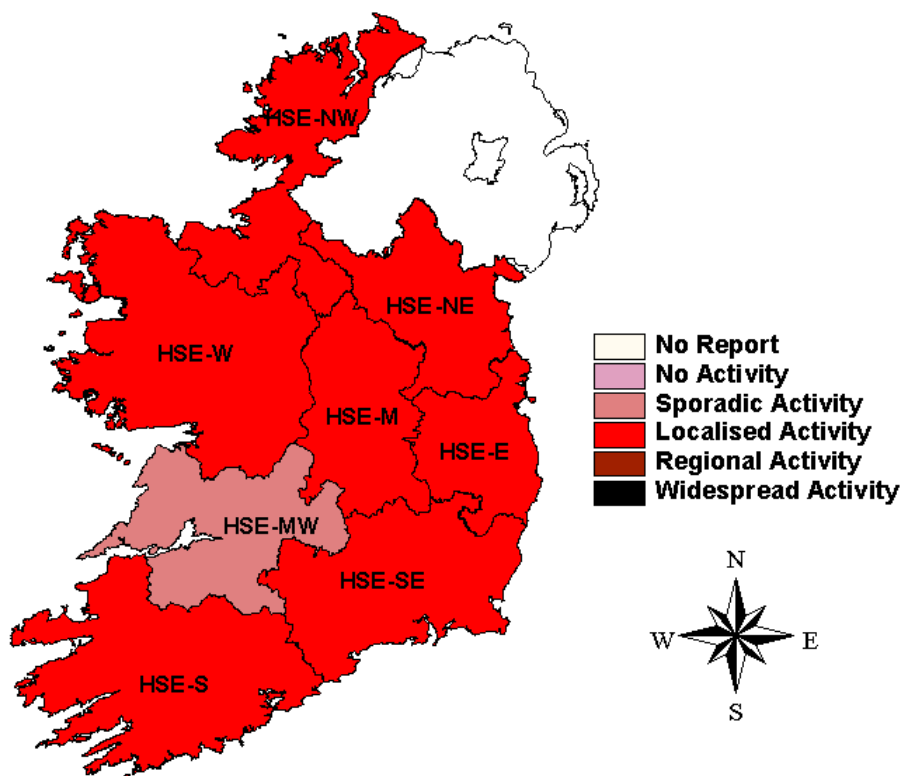


Figure 6: Map of influenza activity by HSE area during week 2 2009

Influenza Activity in Northern Ireland

During week 3 2009, 141 ILI cases and 23 clinical influenza cases were reported in Northern Ireland, corresponding to a combined rate of 112.6 per 100,000 population, a decrease compared to the updated rate of 157.3 per 100,000 population reported during week 2 2009. During week 3 2009, three sentinel specimens tested positive for influenza, two influenza A and one influenza B. A further 10 non-sentinel specimens tested positive for influenza, nine influenza A and one influenza B. <http://www.cdscni.org.uk>

Influenza Activity in England, Scotland & Wales

In England, an overall ILI incidence rate of 31.6 per 100,000 population was reported during week 3 2009, a decrease from the rate of 44.3 per 100,000 population reported in week 2 2009. This rate is marginally above the baseline activity threshold of 30 per 100,000 population. In Scotland, GP consultation rates for influenza were 68.0 per 100,000 population during week 3 2009, a decrease from the rate of 92.0 per 100,000 population reported during week 2 2009. This rate is above the Scottish baseline threshold of 50 consultations per 100,000 population. In Wales, GP consultation rates for influenza were 12.7 per 100,000 population during week 3 2009, a decrease from the rate of 11.6 per 100,000 population reported during week 2 2009. This rate is below the Welsh baseline threshold of 25 consultations per 100,000 population. During week 3 2009, 45 samples referred to the Centre for Infections' Respiratory Virus Unit (RVU) tested positive for influenza A (39 A(H3), 4A(H1) and 2 A(H1N1)) 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 in China reported three new cases of human infection with the H5N1 avian influenza virus on 19th January 2009. The first case was a 27 year old female from Jinan City, Shandong Province. She developed symptoms on 5th January, was hospitalised and died on 17th January. The source of her infection is presently under investigation. The second case is a 2 year old female from Luliang City, Shanxi Province. She developed symptoms on 7th January, was hospitalised and is in a critical condition. The source of her infection is presently under investigation. The third case is a 16 year old male from Huaihua City, Hunan Province. He developed symptoms on 8th January, was hospitalised on 16th January and is in a critical condition. The case had exposure to sick and dead poultry. All three cases were confirmed by the national laboratory. All contacts have been placed under medical observation and remain healthy to date. Of the 34 cases confirmed to date in China, 22 (64.7%) have been fatal.

As of the 19th January 2009, 397 confirmed human cases and 249 (62.7%) 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