

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 52 2008 and 1 2009 (22nd December 2008 to 4th January 2009)

Summary

During week 52 2008 and week 1 2009, influenza activity continued to increase in Ireland. Influenza-like illness (ILI) consultation rates increased and are at higher levels than normally observed at this time of year. Twenty-four specimens tested by the NVRL were positive during week 52 2008 and 12 were positive during week 1 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 150 ILI cases during week 52 2008 and 189 ILI cases during week 1 2009, corresponding to ILI consultation rates of 72.9 and 100.6 per 100,000 population respectively (figure 1). Both ILI rates are significantly higher than the baseline threshold of 17.8 per 100,000 population. Fifty-two of 54 (96.3%) sentinel general practices reported during week 52 2008, with 35 reporting ILI cases and 46 of 54 (85.2%) sentinel general practices reported during week 1 2009, with 36 reporting ILI cases.

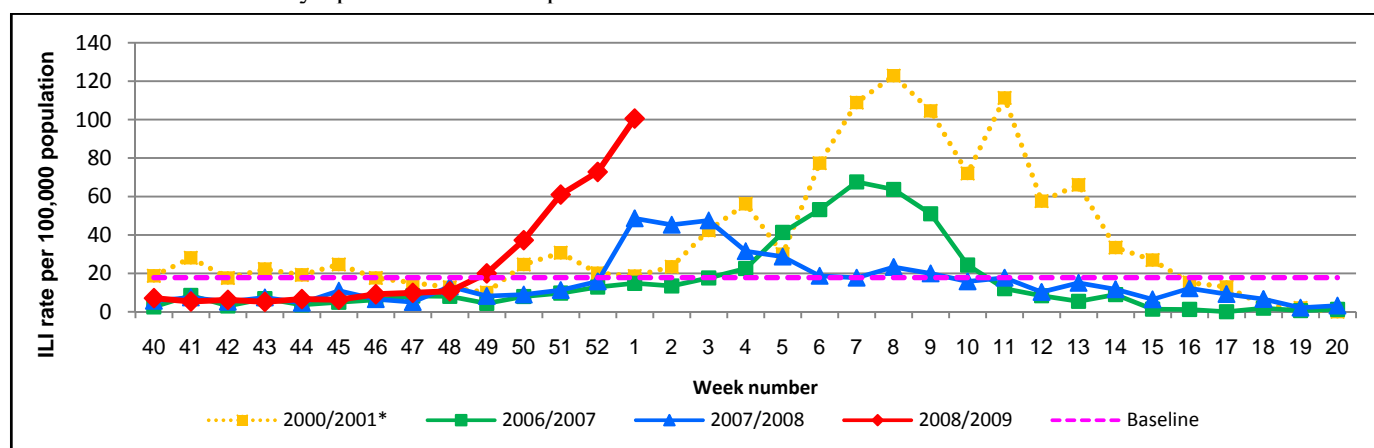


Figure 1: Influenza baseline activity threshold and GP consultation rate for ILI per 100,000 population by week, during the 2000/2001*, 2006/2007, 2007/2008 and 2008/2009 influenza seasons.

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

Results (continued)

During week 52 2008, 13 ILI cases were reported in the 0-4 year age group (88.6 per 100,000 population), 26 ILI cases were reported in the 5-14 year age group (95.3 per 100,000 population), 106 ILI cases were reported in the 15-64 year age group (75.1 per 100,000 population) and five ILI cases were reported in those aged 65 years or older (22.0 per 100,000 population). During week 1 2009, seven ILI cases were reported in the 0-4 year age group (52.3 per 100,000 population), 13 ILI cases were reported in the 5-14 year age group (52.2 per 100,000 population), 156 ILI cases were reported in the 15-64 year age group (121.1 per 100,000 population) and 13 ILI cases were reported in those aged 65 years or older (62.7 per 100,000 population) as shown in figure 2.

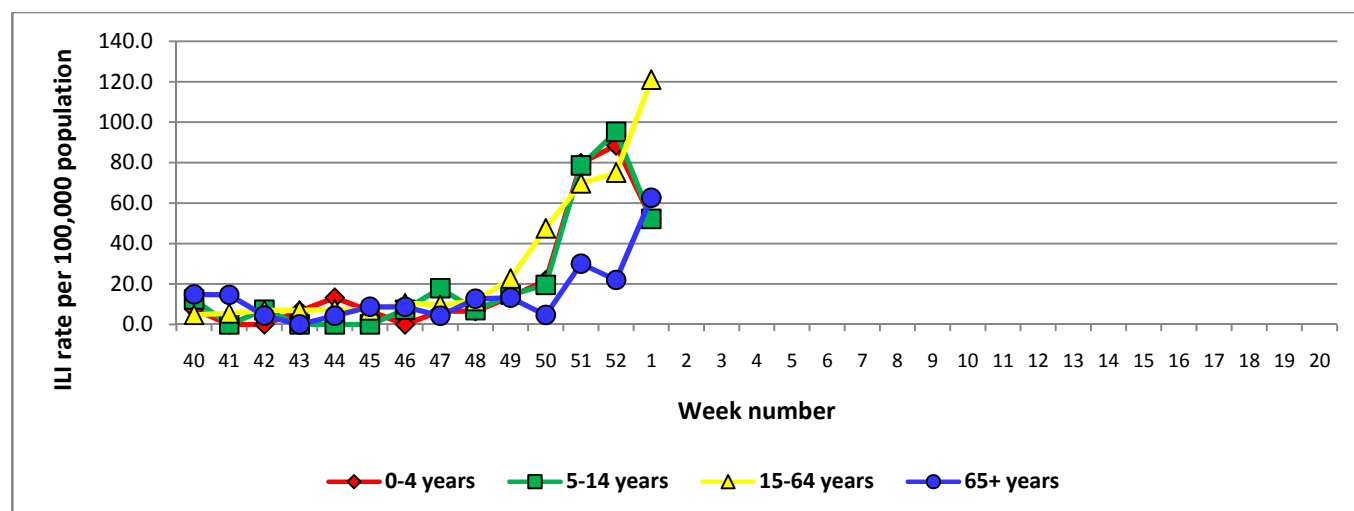


Figure 2: Age specific GP consultation rate* for ILI per 100,000 population by week during the 2008/2009 influenza season

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, forty-two A(H3N2) viruses have been tested for antiviral susceptibility so far this season. All those tested were sensitive to neuraminidase inhibitors (42 for oseltamivir, 40 for zanamivir) and resistant to the M2 inhibitor amantadine (40). Of the 29 A(H1N1) viruses tested, all were sensitive to zanamivir and 28 were resistant to oseltamivir, whilst all of the 19 tested against amantadine were sensitive. Both B viruses tested have been sensitive to neuraminidase inhibitors (one was tested against both zanamivir and oseltamivir and one against oseltamivir only). Apart from two oseltamivir resistant A(H1N1) viruses from Norway, all other viruses tested have been from the UK. During the 2008/2009-influenza season to date, oseltamivir resistant viruses have been detected in four European countries (Austria, Ireland, Norway and the UK), as well as in Australia, Canada, Hong Kong and the USA.

Latest information on oseltamivir resistance in Europe: http://ecdc.europa.eu/en/Health_Topics/influenza/antivirals.aspx

* 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.

In the UK, neuraminidase inhibitor susceptibility testing has been carried out on 40 influenza A (H1) specimens since week 40 2008. Of the 40 A(H1), 39 were resistant to oseltamivir and all were sensitive to zanamivir and amantadine. One hundred and one influenza A (H3) specimens have been found resistant to amantadine, of these 74 have been tested and found sensitive to oseltamivir and zanamivir. Two influenza B specimens have been tested so far and were sensitive to oseltamivir and zanamivir.

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 25 specimens taken by sentinel GPs during week 52 2008 and 24 specimens during week 1 2009. Eighteen specimens tested positive for influenza during week 52 2008 and six specimens tested positive for influenza during week 1 2009. The NVRL also tested 89 non-sentinel specimens taken during week 52 2008 and 108 specimens during week 1 2009, mainly from hospitalised paediatric cases. Six of the non-sentinel specimens were positive for influenza in both week 52 2008 and 1 2009. Fifteen non-sentinel specimens tested positive for respiratory syncytial virus (RSV) in week 52 2008 and 10 specimens were positive in week 1 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 52 2008 and 1 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 52 2008 and week 1 2009 and season to date

Week Number	Specimen Type	Total Specimens	No. Influenza Positive	% Influenza Positive	Influenza A	Influenza B	RSV	% RSV Positive
52 2008	Sentinel	25	18	72.0	12	6	NA	NA
	Non-Sentinel	89	6	6.7	6	0	15	16.9
	Total	114	24	21.1	18	6	15	13.2
1 2009	Sentinel	24	6	25.0	4	2	NA	NA
	Non-Sentinel	108	6	5.6	5	1	10	9.3
	Total	132	12	9.1	9	3	10	7.6
Season to date	Sentinel	166	91	54.8	70	21	NA	NA
	Non-Sentinel	1165	26	2.2	24	2	285	24.5
	Total	1331	117	8.8	94	23	285	21.4

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 untyped	Influenza A(H1)	Influenza A(H3)
Number positive	91	70	21	35	3	32
% Positive	54.8	76.9	23.1	38.5	3.3	35.2

[†] 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 = 166

Table 3: Total number of sentinel and non-sentinel† influenza A and B positive specimens by HSE area for week 52 2008, week 1 2009 and the 2008/2009 season to date

	Week 52 2008			Week 1 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total	Flu A	Flu B	Total
HSE-ER	7	0	7	5	1	6	32	3	35
HSE-M	0	1	1	0	0	0	9	5	14
HSE-MW	2	0	2	1	0	1	9	0	9
HSE-NE	1	0	1	1	0	1	14	0	14
HSE-NW	2	1	3	0	0	0	6	4	10
HSE-SE	3	0	3	1	0	1	12	0	12
HSE-S	2	1	3	1	1	2	4	2	6
HSE-W	1	3	4	0	1	1	1	9	10
HSE area unknown	0	0	0	0	0	0	7	0	7
Total	18	6	24	9	3	12	94	23	117

Table 4: Total number of sentinel and non-sentinel† influenza A and B positive specimens by age group (in years) for week 52 2008, week 1 2009 and the 2008/2009 season to date

	Week 52 2008			Week 1 2009			Season to date		
	Flu A	Flu B	Total	Flu A	Flu B	Total	Flu A	Flu B	Total
0-4 years	3	0	3	4	1	5	15	1	16
5-14 years	1	1	2	0	0	0	7	3	10
15-64 years	13	4	17	5	2	7	66	18	84
65 years and older	1	1	2	0	0	0	4	1	5
Age group unknown	0	0	0	0	0	0	2	0	2
Total	18	6	24	9	3	12	94	23	117

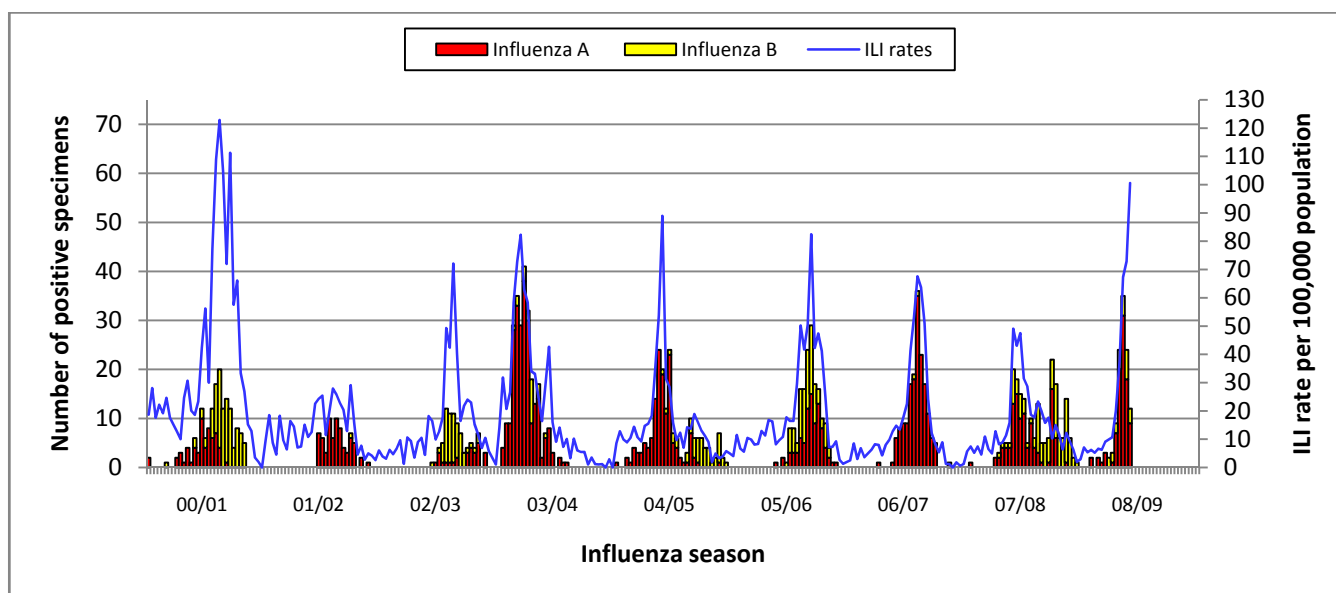


Figure 3: GP ILI consultation rate per 100,000 population and the number of positive influenza specimens detected by the NVRL by week and season, 2000/2001 - 2008/2009

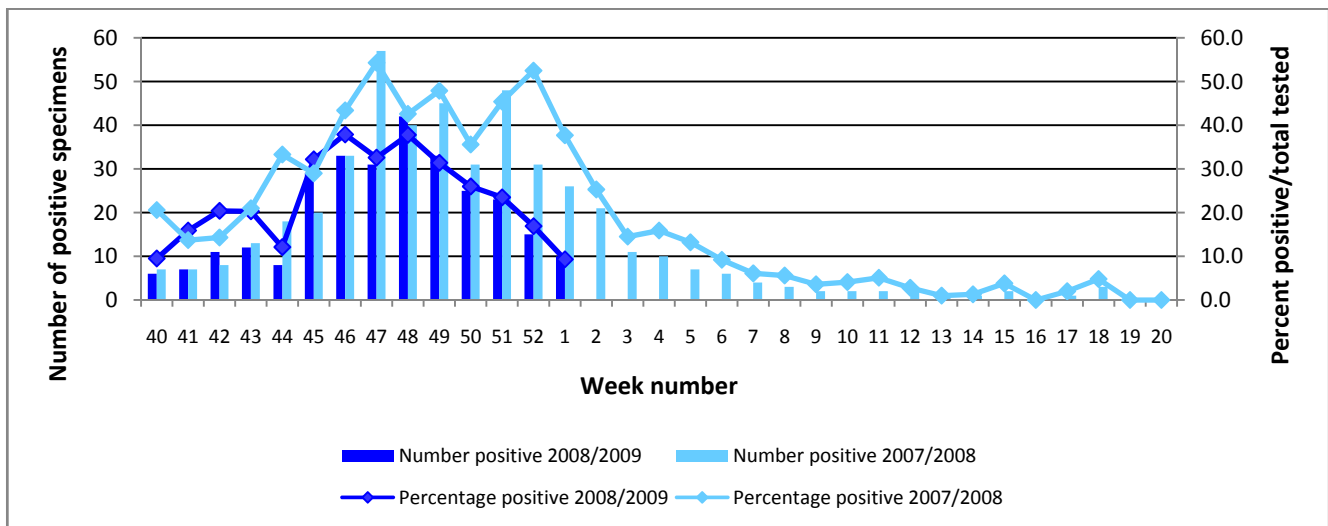


Figure 4. Number and percentage of non-sentinel RSV positive specimens detected during the 2007/2008 and 2008/2009 influenza seasons

Weekly Influenza Notifications

Fifteen influenza A and two influenza B were notified to HPSC during week 52 2008 and 19 influenza A and one influenza B were notified to HPSC during week 1 2009 (week 53 2008 of epidemiological calendar). During weeks 52 2008 and 1 2009, 16 influenza A and one influenza B were reported from HSE-E, two influenza A from HSE-M, four influenza A from HSE –NE, two influenza A and two influenza B from HSE NW, two influenza A from HSE-S and eight influenza A 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.

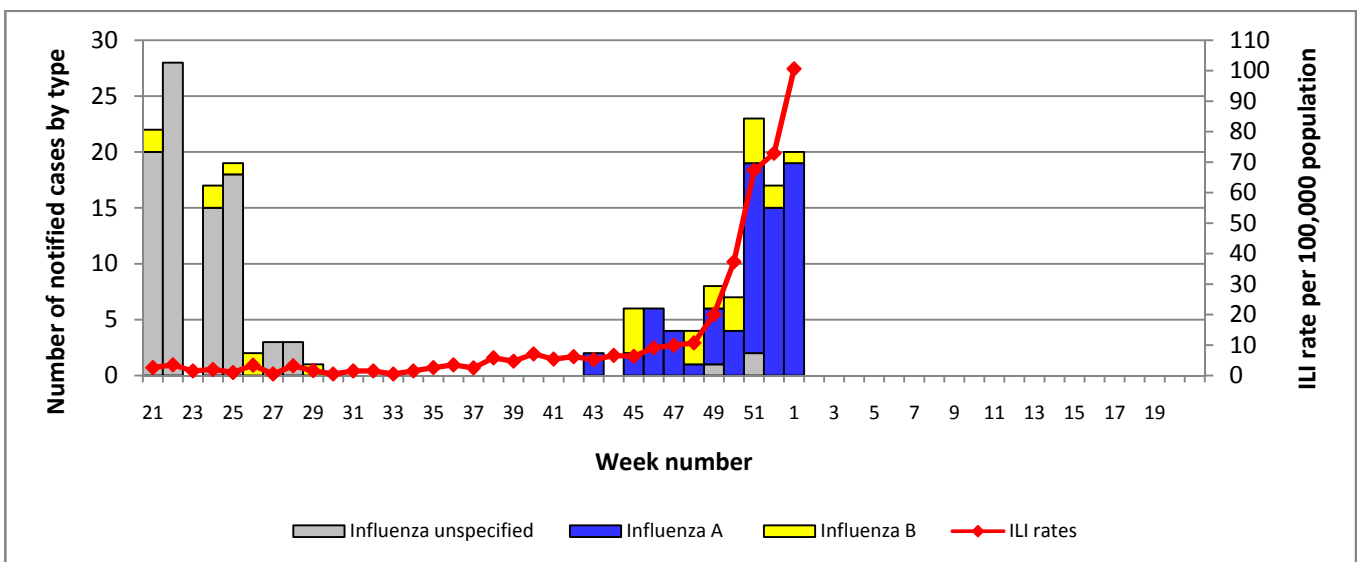


Figure 5: Number of notifications of influenza by type and week of notification compared to sentinel GP ILI consultation rates per 100,000 population during the summer of 2008 and the 2008/2009 influenza season[§]

[†]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

[§] Notification data are provisional and were extracted from [CIDR](#) on the 06/01/2009 at 17.49

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 weeks 52 2008 or 1 2009.

Outbreak Reports

One influenza outbreak in a residential institution in HSE-E was reported to HPSC during week 1 2009 (week 53 2008 of epidemiological calendar). Eleven people were reported as ill, with symptoms reported as fever and cough. Of the 11 people ill, two have been hospitalised and two have tested positive for 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 51 2008, increases in absenteeism were reported from sentinel schools in HSE-E and -NW while an increase in respiratory admissions were reported by a sentinel hospital in HSE-M. During week 51 2008 sporadic influenza activity (based on isolated cases of ILI and virological results) was reported in HSE-E, -MW, -NW, -S and -W while localised influenza activity was reported by HSE-M, -NE and -SE (figure 6).

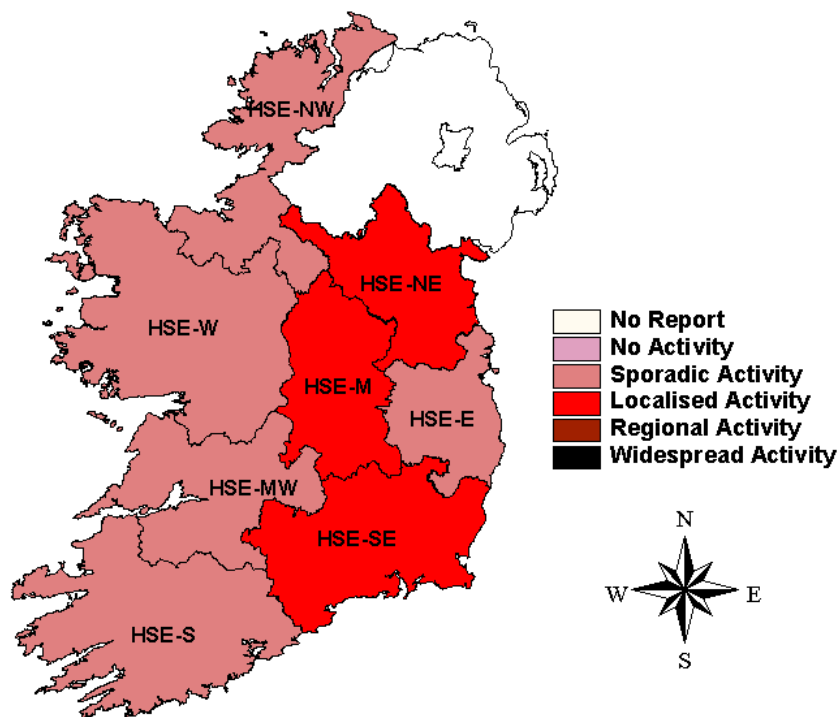


Figure 6: Map of influenza activity by HSE area during week 51 2008

Influenza Activity in Northern Ireland

During week 1 2009, 221 ILI cases and 71 clinical influenza cases were reported in Northern Ireland, corresponding to a combined rate of 192.1 per 100,000 population, an increase compared to the rate of 136.3 per 100,000 population reported during week 52 2008. During week 1 2009, 23 sentinel specimens tested positive for influenza, 18 influenza A and five influenza B. A further 22 non-sentinel specimens tested positive for influenza, 19 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 51.0 per 100,000 population was reported during week 1 2009, an increase from the rate of 41.5 per 100,000 population reported in week 52 2008. This rate is above the baseline activity threshold of 30 per 100,000 population. In Scotland, GP consultation rates for influenza were 79.0 per 100,000 population during week 1 2009, an increase from the rate of 73.0 per 100,000 population reported during week 52 2008. This rate is above the Scottish baseline threshold of 50 consultations per 100,000 population. In Wales, GP consultation rates for influenza were 18.8 per 100,000 population in week 1 2009, a decrease from the rate of 21.5 per 100,000 reported in week 52 2008 but well below the baseline threshold of 25 consultations per 100,000 population.

During week 52 2008, 102 samples referred to the Centre for Infections' Respiratory Virus Unit (RVU) tested positive for influenza A, (98 A (H3) and 4 A (H1)) and 5 samples were positive for influenza B. NHS and HPA laboratories reported 145 influenza A and 10 influenza B detections during week 52 2008 and 200 influenza A and one influenza B detection during week 1 2009.

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://gamapserv.who.int/GlobalAtlas/home.asp>

Avian Influenza

The Ministry of Health in China reported a new case of human infection with the H5N1 avian influenza virus on 7th January 2009. The case is a 19-year old female from Chaoyang District, Beijing. She developed symptoms on 24th December 2008, was hospitalised and died on 5th January 2009. The case was confirmed by the national laboratory. The case had contact with poultry prior to her illness. All contacts have been placed under medical observation and remain healthy to date. Of the 31 cases confirmed to date in China, 21 (67.7%) have been fatal.

The Ministry of Health in Viet Nam reported a new confirmed case of human infection with the H5N1 avian influenza virus on 7th January 2009. The case has been confirmed at the National Institute of Hygiene and Epidemiology (NIHE). The case is an 8-year old girl from Dien Trung commune, Ba Thuoc district, Thanh Hoa province. She developed symptoms on 27th December 2008 and was hospitalised on 2nd January 2009. She is currently in a stable condition. The case is known to have had recent contact with sick and dead poultry prior to the onset of her illness. Further investigations are currently underway. Control measures have been implemented and close contacts are being identified and monitored. Of the 107 cases confirmed to date in Viet Nam, 52 (48.6%) have been fatal.

As of the 16th December 2008, 393 confirmed human cases and 248 (63.1%) 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

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