

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 36 2009 (31st August to 6th September 2009)



Summary

- Overall, the ILI rates during the past seven weeks have remained relatively stable and would be considered to be normal seasonal activity for the winter period.
- The influenza-like illness (ILI) GP consultation rate increased slightly to 37.4 per 100,000 population in week 36 (from the updated rate of 33.9/100,000 for week 35)*
- The proportion of flu-related calls to GP Out-of-Hours services remained stable during week 36
- Pandemic (H1N1) 2009 is the main influenza virus circulating; in week 36, 100% of specimens positive for influenza were pandemic (H1N1) 2009.
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 5th September:
 - 831 confirmed cases were notified in Ireland
 - Children and young adults remain the most affected groups; 78.6% of cases were less than 35 years of age
 - The highest age specific rate was observed in the 15-19 years age group.
 - Clinical illness continues to be mild in the majority of cases
- Two deaths from pandemic (H1N1) 2009 have been reported to date (in weeks 32 and 34).

Introduction

In order to monitor influenza activity in Ireland a number of surveillance systems are in place:

1. GP Sentinel surveillance system
2. GP Out-of-Hours system
3. Virological data from the NVRL
4. Enhanced surveillance system for pandemic (H1N1) 2009

Details of these surveillance systems are provided in Appendix A at the back of this report.

1. GP Sentinel surveillance system

Clinical Data

During week 36 2009, 53 of 61 (87%) ICGP sentinel general practices provided data, with 28 practices reporting 83 influenza-like illness (ILI) cases and 33 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 37.4 per 100,000 population, which is a slight increase compared to the updated rate of 33.9 per 100,000 population reported during week 35 2009.* The ILI rate remains above the baseline threshold level of 17.8 per 100,000 population and would be considered to be normal seasonal activity for the winter period. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the National Virus Reference Laboratory (NVRL) for recent influenza seasons.

* Since the last report, extra information on the number of ILI consultations occurring in week 35 was provided by sentinel GPs and the rate for the week was adjusted accordingly

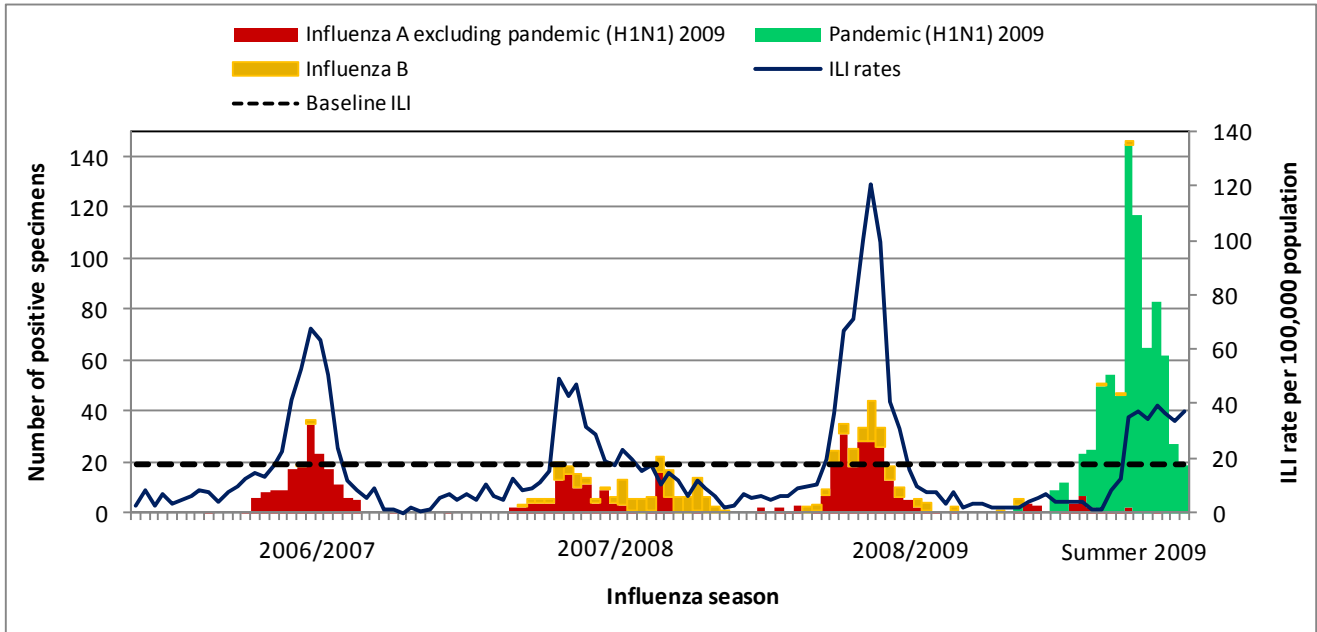


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens detected by the NVRL, by influenza week and season

During week 36 2009, sentinel GPs reported one ILI case in the 0-4 year age group (6.3 per 100,000 population), 11 cases in the 5-14 year age group (37.4 per 100,000 population), 68 cases in the 15-64 year age group (44.7 per 100,000 population) and three cases in those aged 65 years and older (12.2 per 100,000 population) (figure 2).

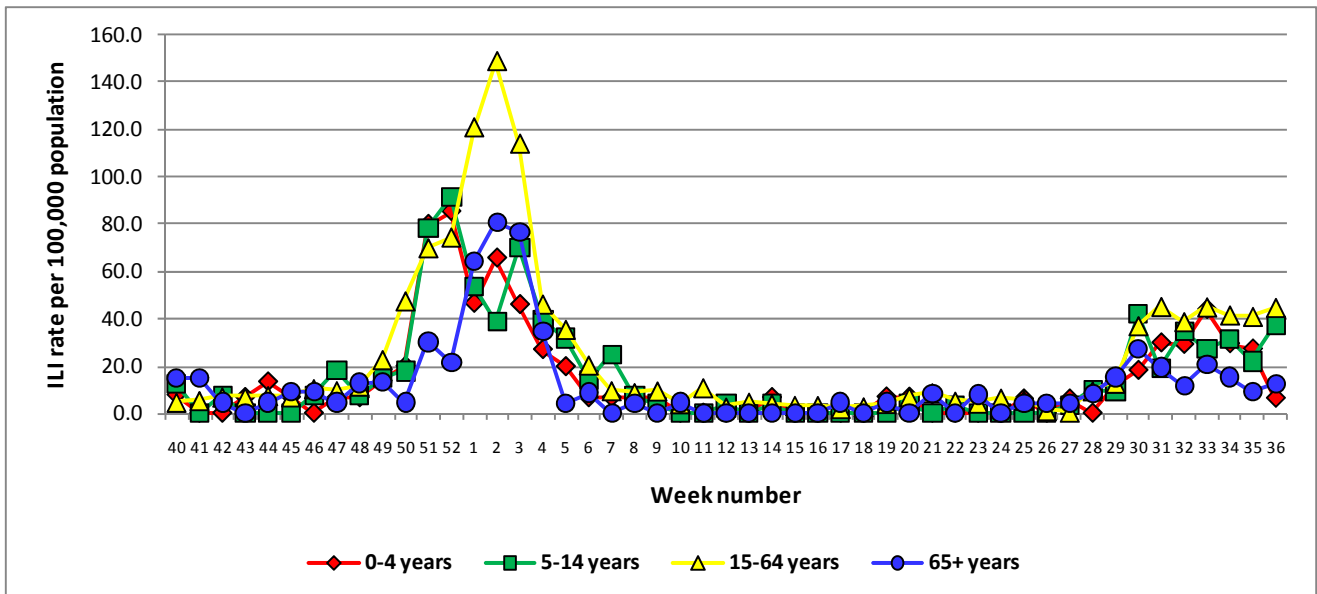


Figure 2: Age specific GP consultation rate for ILI per 100,000 population by week during the 2008/2009 and Summer 2009 influenza seasons

Regional Influenza Activity by HSE-Area

Influenza activity is reported on a weekly basis from the Departments of Public Health in each HSE area. Influenza activity is based on sentinel GP ILI consultation rates, laboratory confirmed influenza cases and ILI/influenza outbreaks. Sporadic influenza activity (based on isolated cases of ILI and/or positive virological results) was provisionally reported by HSE-E, -M, -MW, -NE, -NW and -S while localised activity (due to two outbreaks in each HSE area) was reported by HSE-SE and -W during week 36 2009 (figure 3).

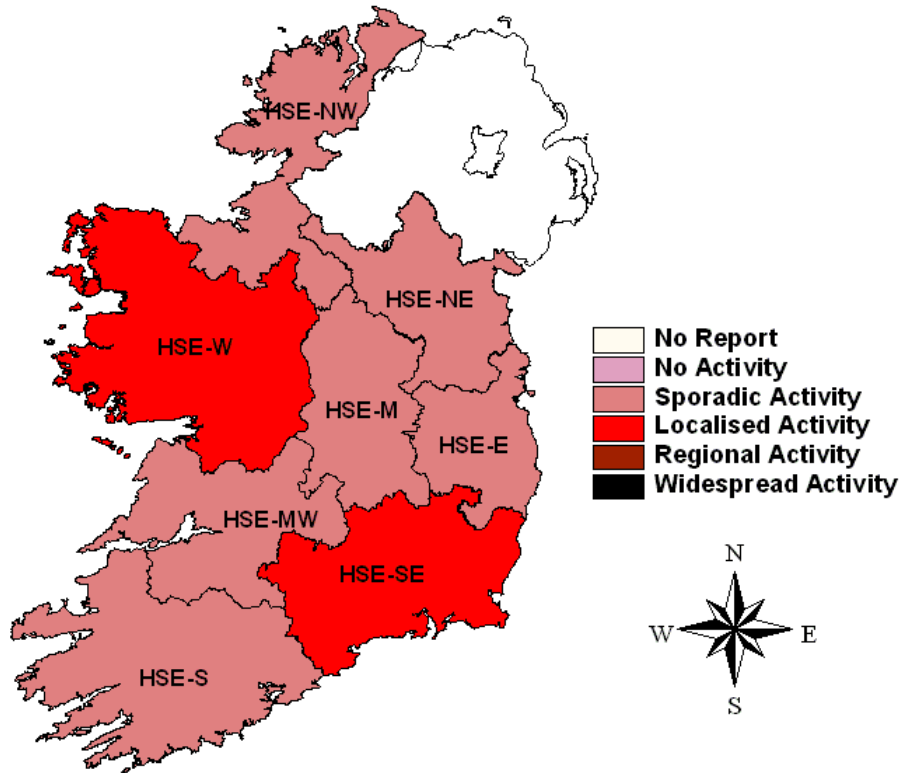


Figure 3: Map of provisional influenza activity by HSE area during influenza week 36 2009

Sentinel hospitals and schools

The Departments of Public Health have established at least one sentinel hospital in each HSE area, to report data on total hospital admissions, total emergency admissions and total respiratory admissions by age group on a weekly basis. Sentinel primary and secondary schools were also established in each area, in close proximity to the sentinel GPs, to report absenteeism data on a weekly basis. During influenza week 36 2009, hospital data were received from three HSE areas (HSE-E, HSE-M and HSE-S). No increases in the proportion of respiratory admissions were reported from sentinel hospitals. No data was received from sentinel schools for week 36 2009.

2. GP out-of-hours services surveillance

The Department of Public Health in the HSE-NE is collating national data on calls to eight of thirteen GP Out-of-Hours services in Ireland. Clinical details from all calls are recorded. Records with clinical symptoms reported as flu or influenza are extracted for analysis. This information may act as an early indicator of increased ILI activity. However, data are self-reported by callers and are not based on coded influenza diagnoses. There was a marked increase in the percentage of flu-related calls between weeks 28 to 30. The percentage of flu-related calls then stabilised during weeks 31 to 34, before decreasing slightly during week 35. During week 36, the percentage of flu-related calls was 4.6%, similar to the proportion of flu-related calls (4.3%) reported during week 35 (figure 5).

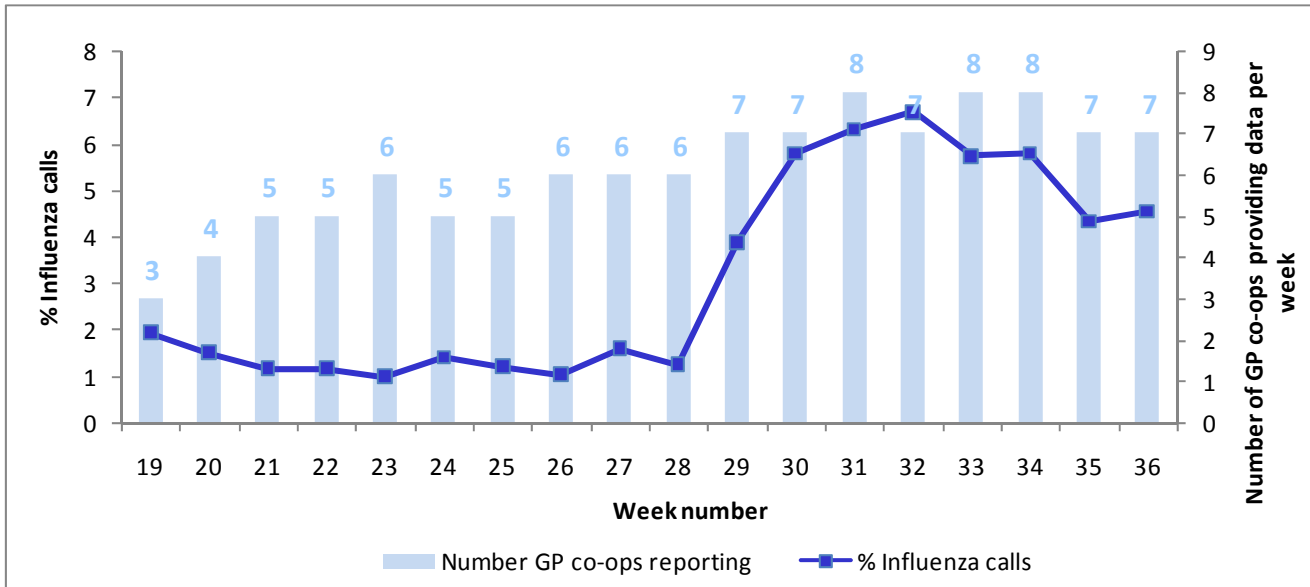


Figure 5: Flu-related call as a proportion of total calls to Out-of-Hours GP Co-ops by week

Source: HSE-NE. Not all services provided data for all weeks.

Week 36: data received from D-Doc, MI-Doc, NE-Doc, NoW-Doc, Shan-Doc, South-Doc and West-Doc

3. Virological Data from the National Virus Reference Laboratory (NVRL)

Thirty-four specimens from sentinel GPs were tested by the NVRL during week 36 2009, eight (23.5%) of which were positive for pandemic (H1N1) 2009.

The NVRL tested 230 non-sentinel specimens taken during the same week. Eleven (4.8%) of the non-sentinel specimens tested positive for pandemic (H1N1) 2009[†]. No specimens were positive for other influenza A subtypes, influenza B or other respiratory viruses (table 1).

Pandemic (H1N1) 2009 is the main influenza virus circulating. During week 36, 100% of specimens positive for influenza were pandemic (H1N1) 2009, while for the summer 2009 season to date, pandemic (H1N1) 2009 has accounted for 96.8% of influenza positive specimens (table 1). Figure 6 shows the number of sentinel and non-sentinel specimens tested for influenza and the percentage of specimens testing positive for influenza by week number for the Summer 2009 influenza season.

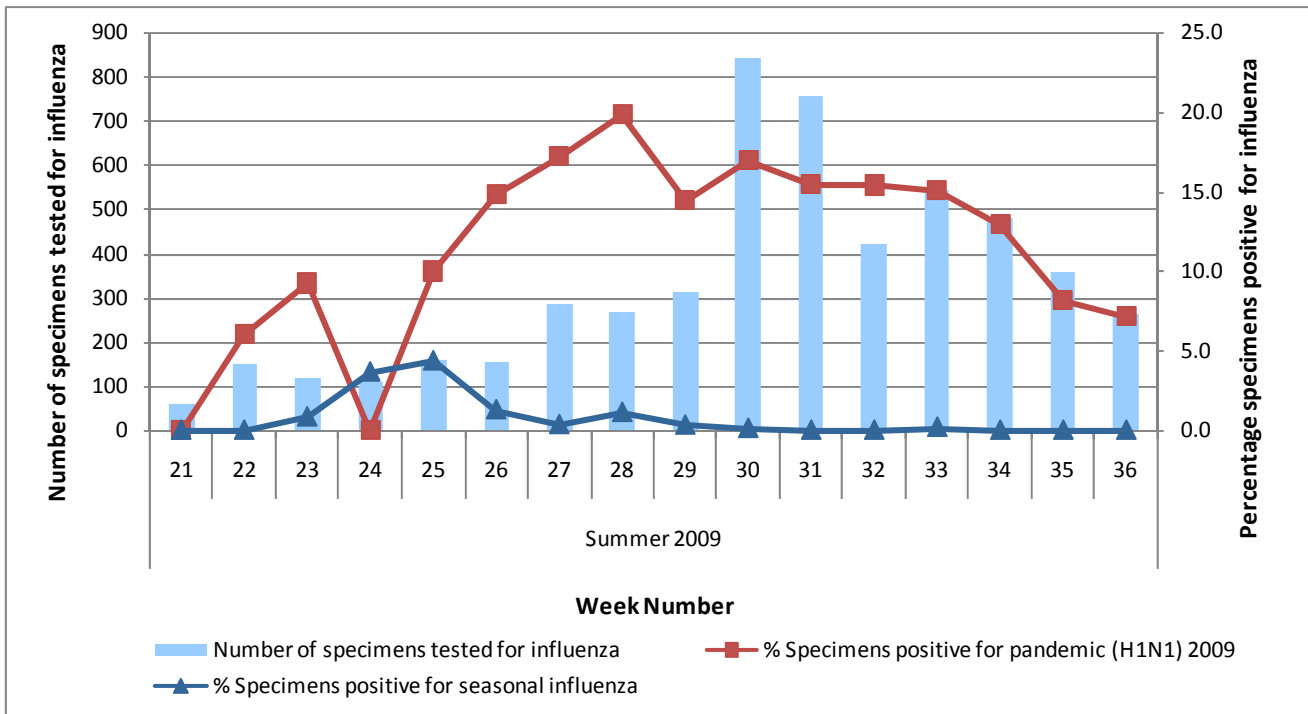


Figure 6: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive

[†] Please note that non-sentinel specimens relate to specimens referred to the NVRL (other than sentinel specimens) and may include more than one specimen from each case

Table 1: Number of sentinel and non-sentinel respiratory specimens and positive results, influenza week 36 2009 and Summer 2009 season to date

Week number	Specimen type	Total specimens	No. influenza Positive	% Influenza Positive	Pandemic (H1N1) 2009	Influenza A(H3)	Influenza A(H1)	Influenza A [‡]	Influenza B	% Pandemic (H1N1) 2009	RSV	% RSV Positive	Adenovirus	% Adenovirus positive
36 2009	Sentinel	34	8	23.5	8	0	0	0	0	100.0	NA	NA	NA	NA
	Non-sentinel	230	11	4.8	11	0	0	0	0	100.0	0	0	0	0.0%
	Total	264	19	7.2	19	0	0	0	0	100.0	0	0	0	0.0%
Summer season to date	Sentinel	389	66	17	63	3	0	0	0	95.5	NA	NA	NA	NA
	Non-sentinel	4889	681	13.9	660	14	2	2	3	96.9	20	0.4	4	0.1%
	Total	5278	747	14.2	723	17	2	2	3	96.8	20	0.4	4	0.1%

[‡] Influenza A - not subtyped yet, but not pandemic (H1N1) 2009

4. Laboratory confirmed cases of pandemic (H1N1) 2009

As of 5th September 2009, a total of 831 confirmed cases of pandemic (H1N1) 2009 infection were reported. Figure 7 shows the number of confirmed pandemic (H1N1) 2009 cases by week of notification. During week 35, only two cases were reported as having been infected outside of Ireland.

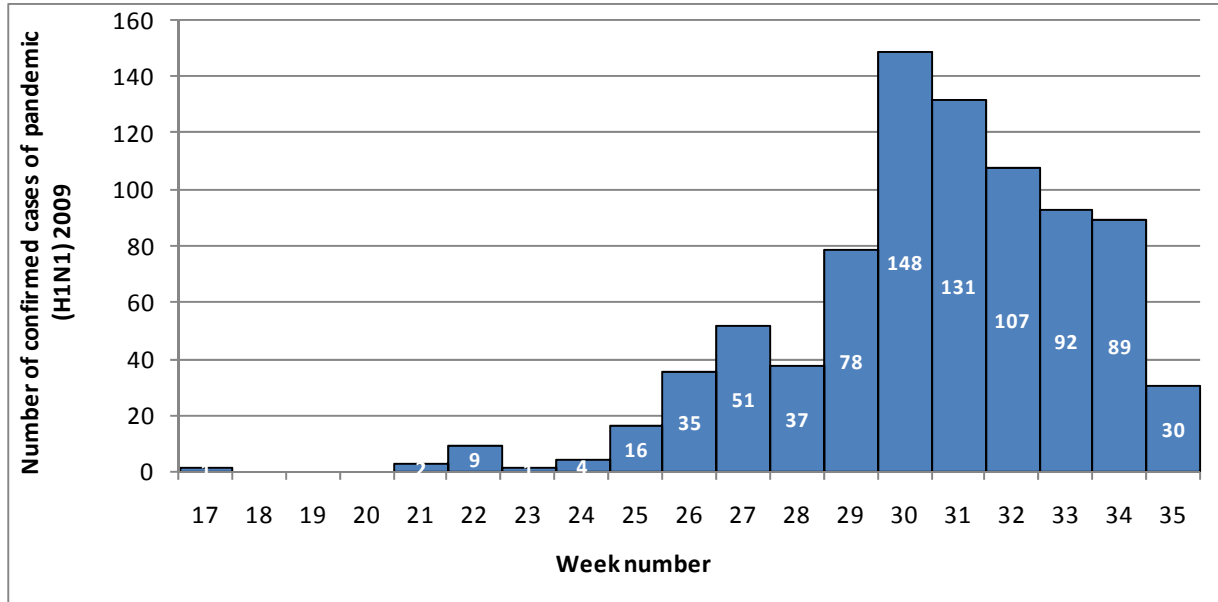


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification[§]

Age and Sex

Of the 831 confirmed cases reported to date, 425 were female (51.1%), 404 were male (48.6%) and sex was not reported for two cases (0.2%). The median age of cases was 21 years (range: 0-79 years) and 78.6% were less than 35 years of age. The highest age specific rate was observed in the 15-19 years age group. Figure 8 shows the number of cases and notification rates per 100,000 population by age group.

[§]As WHO has advised Member States to reduce laboratory testing of suspect cases and to move to clinical diagnosis of influenza-like illness, the number of laboratory confirmed cases of pandemic (H1N1) 2009 reported here understates the actual number of cases in the population.

Week number on figure 7 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore weeks 17-35 above is equivalent to weeks 18-36 on the influenza system

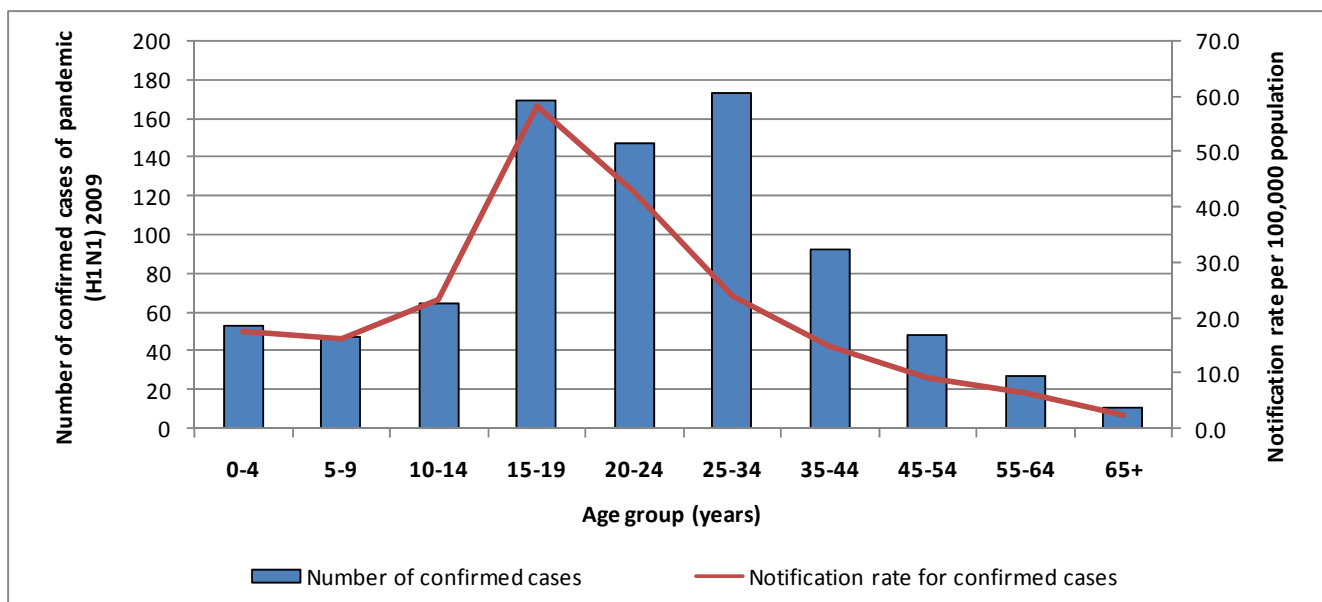


Figure 8: Number of confirmed cases of pandemic (H1N1) 2009 and notification rate per 100,000 population by age group (years)

HSE area

All HSE areas have reported confirmed cases. The numbers and rates by HSE area are shown in table 2. The highest rate for week 35 was in HSE-S.

Table 2: Number and rate per 100,000 population for confirmed cases of pandemic (H1N1) 2009 by HSE area

HSE Area	Week 35** : 30/08/2009 to 05/09/2009		Week 17 - Week 35	
	Number of confirmed cases	Rate per 100,000 population	Number of confirmed cases	Rate per 100,000 population
HSE-E	9	0.6	337	22.5
HSE-M	1	0.4	29	11.5
HSE-MW	2	0.6	67	18.6
HSE-NE	1	0.3	94	23.9
HSE-NW	2	0.8	68	28.7
HSE-SE	0	0.0	54	11.7
HSE-S	12	1.9	126	20.3
HSE-W	3	0.7	56	13.5
Total	30	0.7	831	19.6

Severity of illness

Clinical illness continues to be mild in the majority of cases. Two deaths have been reported to date in Ireland. The first death occurred in a female during week 32 2009 and the second death was in a male and occurred during week 34. Reported complications have been mostly respiratory in nature; 25 cases developed pneumonia and four developed acute respiratory distress syndrome (ARDS) (three of these also had

** Week number in table 2 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 35 above is equivalent to week 36 on the influenza system

pneumonia). Other reported complications included otitis media, chest infections, acute renal failure and multi-organ failure.

Of the 831 confirmed cases, 86 (10.3%) were reported as having been admitted to hospital. Sixty-seven hospitalised cases have recovered or are recovering (77.9%), five are still ill (5.8%), outcome is awaited for 12 (14.0%) and two cases died (2.3%). Table 3 shows the number of hospitalised cases by age group (years) and sex. Thirty-seven (43.0%) of the hospitalised cases had pre-existing clinical conditions including chronic heart disease, chronic liver disease, chronic respiratory disease, chronic neurological disease, asthma, haemoglobinopathy, immunosuppression, diabetes mellitus, severe obesity (BMI >40) and pregnancy.

Table 3: Number of confirmed cases of pandemic (H1N1) 2009 admitted to hospital by age group (years) and sex

Age group (years)	Female	Male	Total
<1	2	2	4
1-4	2	3	5
5-9	2	6	8
10-14	2	2	4
15-19	9	4	13
20-24	6	7	13
25-34	12	3	15
35-44	4	4	8
45-54	3	1	4
55-64	3	5	8
65+	2	2	4
Total	47	39	86

5. Outbreak surveillance

As of 9th September 2009, 35 outbreaks of pandemic (H1N1) 2009 have been reported in Ireland. These involved 444 people in total, of which 86 were laboratory confirmed cases. The number ill per outbreak has ranged between two and 150 people. Eighteen outbreaks occurred in private house/family settings, 10 occurred in educational settings, two in crèches and one each were in a community hospital/long-stay unit, a hotel, a workplace, an intellectual disability unit and one was travel related (figure 9). Table 4 summarises the pandemic (H1N1) 2009 outbreaks to date by HSE area, while table 4 and table 5 show the number of outbreak associated pandemic (H1N1) 2009 cases by age group (years) and sex respectively.

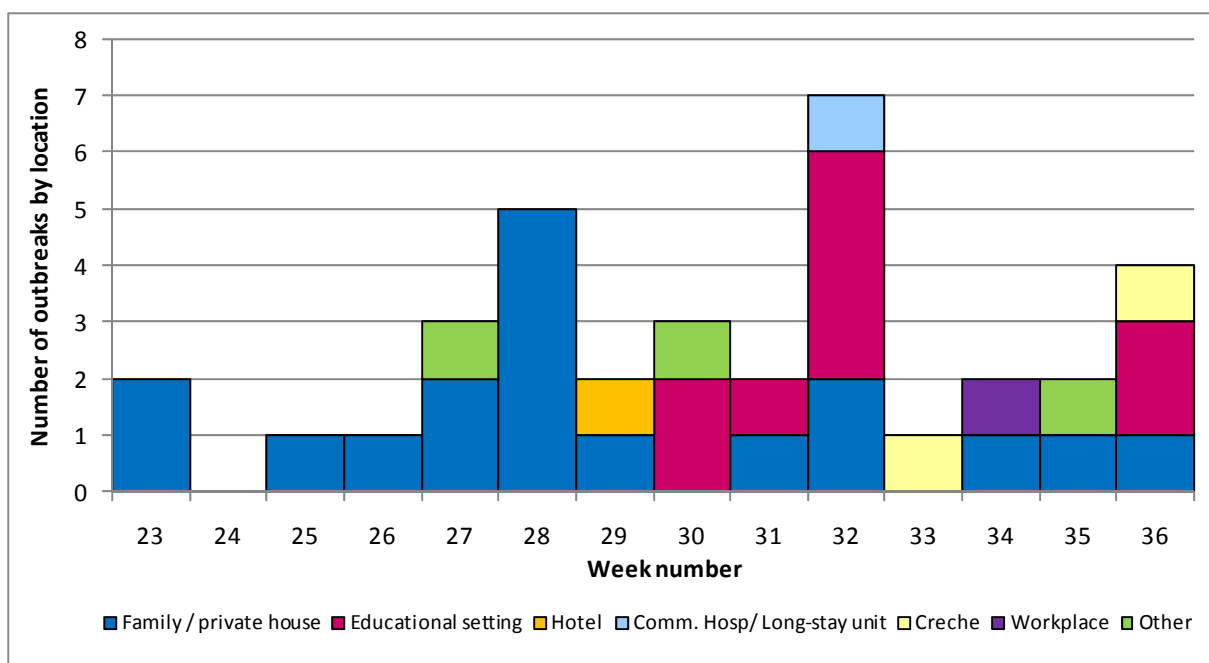


Figure 9: Number of pandemic (H1N1) 2009 outbreaks by outbreak location and week

Table 4: Summary of pandemic (H1N1) 2009 outbreaks to date by HSE area

HSE Area	Number of outbreaks	Total number ill	Total number hospitalised	Total Number dead	Total number lab confirmed	Total number lab investigated
HSE-E	4	19	3	0	15	17
HSE-M	1	3	0	0	1	1
HSE-MW	5	17	1	0	13	13
HSE-NE	1	24	0	0	4	4
HSE-NW	3	220	0	0	13	18
HSE-SE	5	43	1	0	12	13
HSE-S	5	16	1	0	15	15
HSE-W	11	102	0	0	13	24
Total	35	444	6	0	86	105

Table 5: Number of outbreak associated cases of pandemic (H1N1) by age group (years)

Number of cases	0-1	2-4	5-9	10-19	20-49	50-64	65+	Age unknown	Total
	6	5	6	275	62	6	0	84	444

Table 6: Number of outbreak associated cases of pandemic (H1N1) by sex

Number of cases	Female	Male	Sex Unknown	Total
	69	69	306	444

International summary

The total numbers of confirmed cases and deaths worldwide by World Health Organization (WHO) region are shown in table 4. The numbers shown are likely to be an underestimate of the numbers of cases as many countries are now moving to selective testing policies.

Table 7: Reported number of confirmed pandemic (H1N1) 2009 cases and deaths by WHO region (Source: WHO 30th August 2009)

Region	Cumulative total as of 30 th August 2009	
	Cases*	Deaths
Africa (AFRO)	3872	11
Americas (AMRO)	116046	2234
Eastern Mediterranean (EMRO)	5031	21
Europe (EURO)	Over 46000	At least 104
South-East Asia (SEARO)	19362	188
Western Pacific (WPRO)	63895	279
Total	Over 254206	At least 2837

*Given that countries are no longer required to test and report individual cases, the number of cases reported significantly understates the actual number of cases.

United Kingdom

During week 35, influenza activity decreased in all regions and age groups in the UK, but remained higher than usual for the time of year. Although most cases continued to be mild, 70 people have died to date. The highest hospitalisation rates have consistently been in children aged less than 5 years.

http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1243928258754

Europe:

During week 35 2009, Sweden reported widespread influenza activity at medium level with an increasing trend. Overall, influenza activity continued to decline, with most countries reporting low local activity at most.

http://ecdc.europa.eu/en/activities/surveillance/EISN/Pages/EISN_Bulletin.aspx

USA

During week 34 (23rd – 29th August 2009), influenza activity increased in the United States. Since mid-April 2009 to 30th August 2009, a total of 9,079 hospitalisations and 593 deaths associated with pandemic (H1N1) 2009 infection have been reported to CDC. Ninety-seven percent of all subtyped influenza A viruses being reported to CDC were pandemic (H1N1) 2009 viruses.

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

Canada

During week 34 (23rd – 29th August 2009), the national ILI consultation rate was 12 consultations per 1,000 visits, which remains stable in comparison to the previous weeks rate (12 per 1,000 visits). Overall influenza activity has been decreasing in Canada in recent weeks and the ILI consultation rate is now approaching the range of expected levels for this time of year. To date, cases under 15 years have the highest rates of hospitalisation, but mortality has been highest in those 45 years and older.

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

New Zealand

ILI rates have been decreasing in New Zealand in recent weeks. This decline continued in week 35, but the ILI rate remains higher than for the same time period in previous years. To date, the highest ILI rates have been in children and teenagers aged 0 to 19 years. Pandemic (H1N1) 2009 has become the dominant strain among all influenza viruses currently identified in New Zealand. So far the virus has been shown to be genetically stable and sensitive to oseltamivir.

http://www.surv.esr.cri.nz/virology/influenza_weekly_update.php

Australia

As of 28th August, current national influenza activity appears to be decreasing. The national ILI consultation rate in week 34 was 18 per 1,000 patients seen, a decrease compared to 28 per 1,000 patients seen, reported during week 33 2009. The proportion of influenza positive tests that were pandemic (H1N1) 2009 increased during week 34, with an average proportion positive of 94.2%. As of 9th September, there were 35,775 confirmed cases of pandemic (H1N1) 2009 and 162 deaths associated with pandemic (H1N1) 2009. The number of people with pandemic (H1N1) 2009 requiring hospitalisation appears to be decreasing. As of the 9th September 2009, the total number of hospitalisations in Australia since pandemic (H1N1) 2009 was identified is 4,596 (12.8%). Of the 4,596 cases ever hospitalised, 334 are currently hospitalised with pandemic (H1N1) 2009 in Australia, 65 (19.5%) of which are in intensive care units. Due to underlying chronic disease and social deprivation, indigenous Australians are approximately five times more likely than non-indigenous Australians to be hospitalised for pandemic (H1N1) 2009. The highest hospitalisation rate occurred in young children aged less than 5 years of age.

<http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/ozflucurrent.htm>

<http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/updates>

Other countries

Tropical regions of South and Southeast Asia continue to experience geographically regional or widespread influenza activity. In tropical regions of Central America and the Caribbean, influenza activity continues to be geographically regional or widespread, however, most are now reporting a declining trend in the level of respiratory diseases. Countries in the equatorial and tropical regions of South America continue to experience geographically regional or widespread influenza activity, with many reporting an increasing trend in the level of respiratory diseases. In Japan, influenza activity continues to increase past the seasonal epidemic threshold, indicating an early beginning to the to annual influenza season. Pandemic (H1N1) influenza virus continues to be the dominant circulating virus of influenza, both in the northern and southern hemisphere. All pandemic (H1N1) 2009 influenza viruses analysed to date have been antigenically and genetically similar to A/California/7/2009-like pandemic H1N1 2009 virus.

www.who.int/topics/influenza/en/

World Health Organization (WHO) guidance documents:

The WHO Regional Office for Europe recently published “**WHO Regional Office for Europe guidance for influenza surveillance in humans**”. This document provides technical guidance to establish sentinel site surveillance to assess the virologic and epidemiologic characteristics of respiratory disease leading to outpatient consultation or hospitalisation that may be caused by influenza (seasonal or pandemic) or another respiratory virus. This document complements, not replaces “Human infection with pandemic (H1N1) 2009 virus: updated interim WHO guidance on global surveillance.”

<http://www.euro.who.int/document/e92738.pdf>

MMWR articles (4th September 2009):

Surveillance for Paediatric Deaths Associated with 2009 Pandemic Influenza A (H1N1) Virus Infection - United States, April - August 2009

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5834a1.htm>

Eurosurveillance articles (3rd September 2009):

Assessment of secondary attack rate and effectiveness of antiviral prophylaxis among household contacts in an influenza A(H1N1)v outbreak in Kobe, Japan, May–June 2009

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19320>

Epidemiological analysis of the influenza A(H1N1)v outbreak in Bolivia, May-August 2009

<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=19323>

Further information on influenza in Ireland and internationally can be found on the following websites:

Ireland

www.hpsc.ie

Europe – ECDC

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

Europe – EISN

<http://ecdc.europa.eu/en/activities/surveillance/EISN/Pages/home.aspx>

Northern Ireland

<http://www.cdscni.org.uk/>

Acknowledgements

HPSC wishes to thank the Departments of Public Health, HSE-NE, ICGP and NVRL for providing data for this report

Appendix A

Sentinel surveillance for influenza

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. Sixty sentinel general practices covering 5.7% of the national population 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 five patients per week where a clinical diagnosis of ILI is made during the influenza season.

Influenza test results from the NVRL are also provided on both sentinel and non-sentinel specimens.

Laboratory confirmed pandemic (H1N1) 2009

Since the end of April 2009, a case-based surveillance system for pandemic (H1N1) 2009 has been in operation in Ireland following the declaration by World Health Organization (WHO) of a public health emergency of international concern due to the virus. Basic demographic data are collected on all laboratory confirmed cases and additional enhanced data are collected on all hospitalised laboratory confirmed cases. Data are collated on the Computerised Infectious Disease Reporting (CIDR) system using information available from the National Virus Reference Laboratory (NVRL), Departments of Public Health, clinicians and a number of other laboratories. Data presented in this report are based on details recorded on the CIDR system.