

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 37 2009 (7th to 13th September 2009)



Summary

- Overall, the ILI rates during the past eight 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 was 37.9 per 100,000 population in week 37
- The proportion of flu-related calls to GP Out-of-Hours services increased during week 37
- Pandemic (H1N1) 2009 is the main influenza virus circulating; in week 37, 100% of specimens positive for influenza were pandemic (H1N1) 2009
- The proportion of sentinel and non-sentinel specimens positive for pandemic (H1N1) 2009 increased to 14.1% during week 37 (compared to 9.0% positive during week 36)
- An increase in the number of pandemic (H1N1) outbreaks was reported during week 37, mainly from educational settings
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 12th September:
 - 885 confirmed cases were notified in Ireland
 - Children and young adults remain the most affected groups; 79.1% 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 using the Computerised Infectious Disease Reporting system (CIDR)
5. Outbreak reporting (CIDR)

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 37 2009, 56 of 61 (91.8%) ICGP sentinel general practices provided data, with 33 practices reporting 86 influenza-like illness (ILI) cases and 28 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 37.9 per 100,000 population, which is similar to the updated rate of 36.8 per 100,000 population reported during week 36 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.

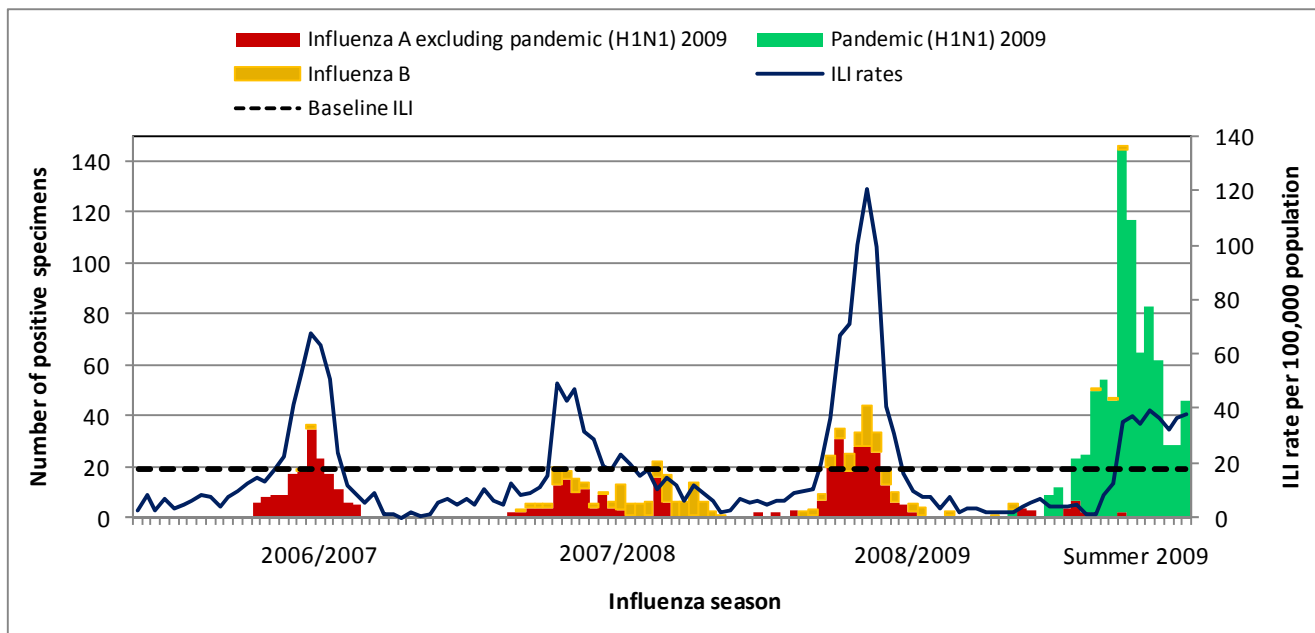


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens detected by the NVRL, by influenza week and season

During week 37 2009, sentinel GPs reported four ILI cases in the 0-4 year age group (24.8 per 100,000 population), 12 cases in the 5-14 year age group (39.9 per 100,000 population), 66 cases in the 15-64 year age group (42.5 per 100,000 population) and four cases in those aged 65 years and older (16.0 per 100,000 population) (figure 2).

* Since the last report, extra information on the number of ILI consultations occurring in week 36 was provided by sentinel GPs and the rate for the week was adjusted accordingly

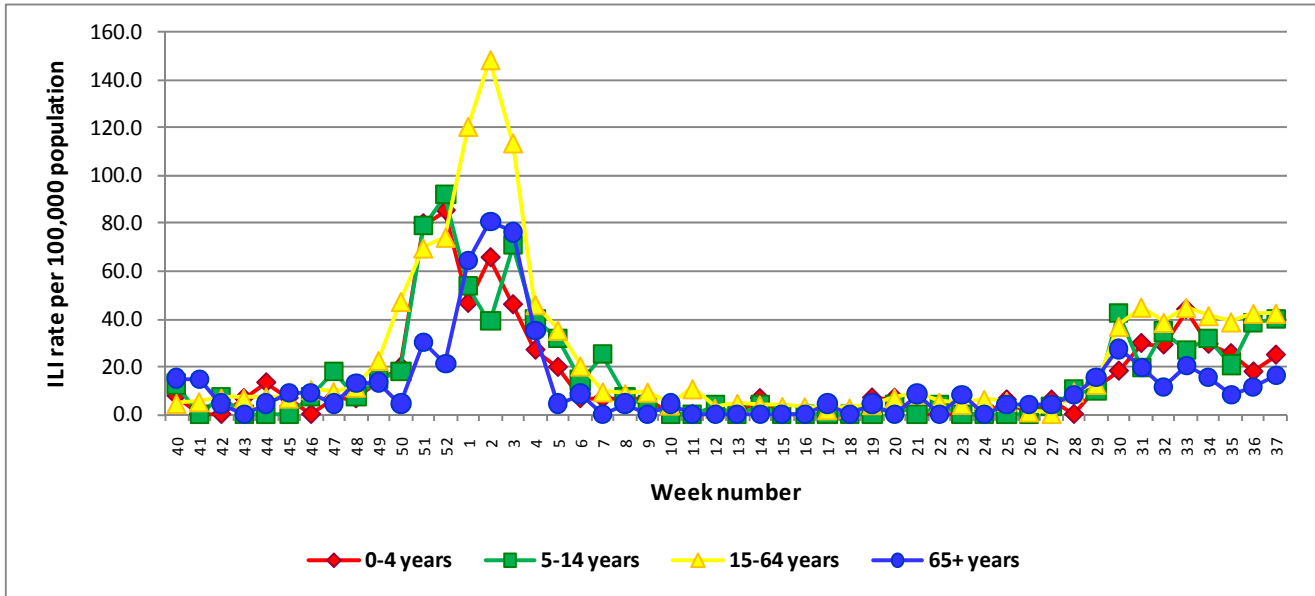


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the 2008/2009 and Summer 2009 influenza seasons

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, -NW, -S and -SE while localised activity (due to two or more outbreaks in each HSE area) was reported by HSE-NE and -W during week 37 2009 (figure 3).

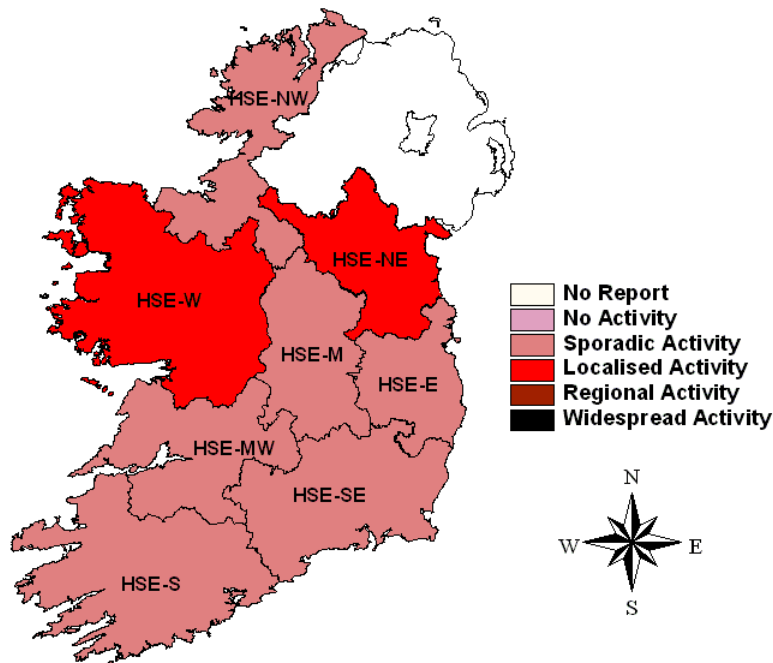


Figure 3: Map of provisional influenza activity by HSE area during influenza week 37 2009

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 37 2009, hospital data were received from five HSE areas (HSE-E, HSE-M, HSE-MW, HSE-S and HSE-W). No increases in the proportion of respiratory admissions were reported from sentinel hospitals and no increases in school absenteeism were reported from sentinel schools for week 37 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 37, the percentage of flu-related calls was 7.2, a substantial increase from the proportion of flu-related calls (4.8%) reported during week 36 (figure 4).

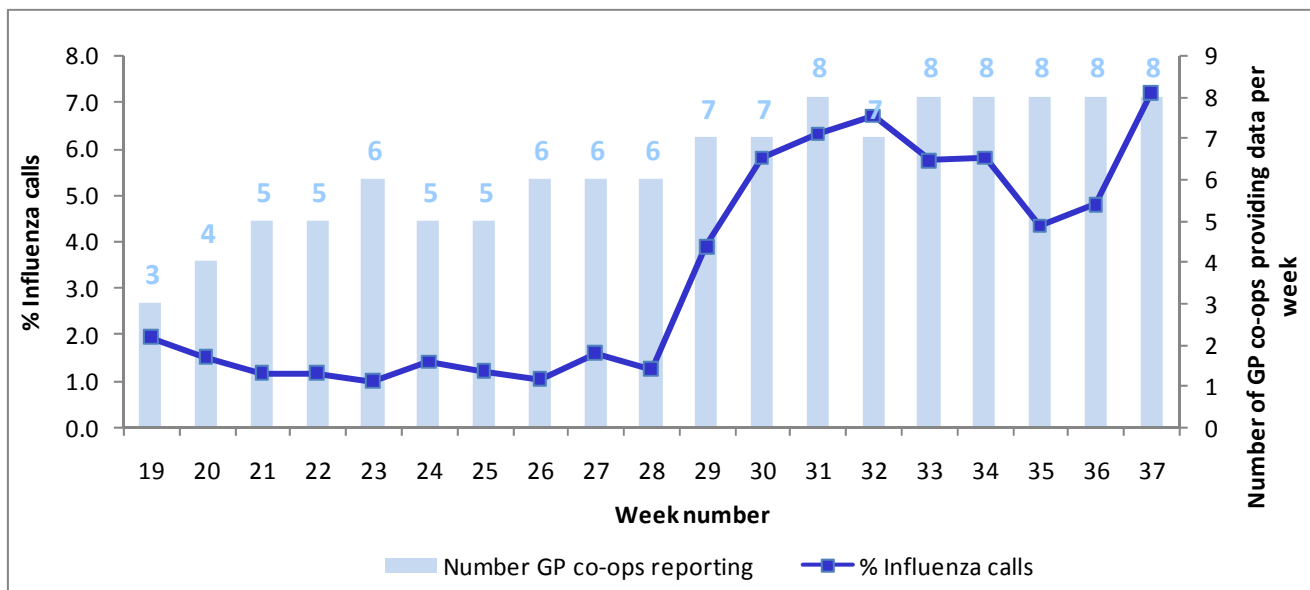


Figure 4: Flu-related call as a proportion of total calls to Out-of-Hours GP Co-ops by week

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

Week 37: data received from CARE-Doc, D-Doc, K-Doc, NE-Doc, NoW-Doc, MI-Doc, Shannon-Doc, West-Doc.

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

Forty-eight specimens from sentinel GPs were tested by the NVRL during week 37 2009, four (8.3%) of which were positive for pandemic (H1N1) 2009.

The NVRL tested 279 non-sentinel specimens taken during the same week. Forty-two (15.1%) of the non-sentinel specimens tested positive for pandemic (H1N1) 2009[†] and one specimen (0.4%) was positive for parainfluenza virus type 3. 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 37, 100% of specimens positive for influenza were pandemic (H1N1) 2009, while for the summer 2009 season to date, pandemic (H1N1) 2009 has accounted for 97.0% of influenza positive specimens (table 1). During week 37, the percentage of sentinel & non-sentinel specimens testing positive for pandemic (H1N1) 2009 was 14.1%, an increase in comparison to 9.0% positive during week 36. Figure 5 shows the number of sentinel and non-sentinel specimens tested by the NVRL for influenza and the percentage of specimens testing positive for influenza by week number for the Summer 2009 influenza season.

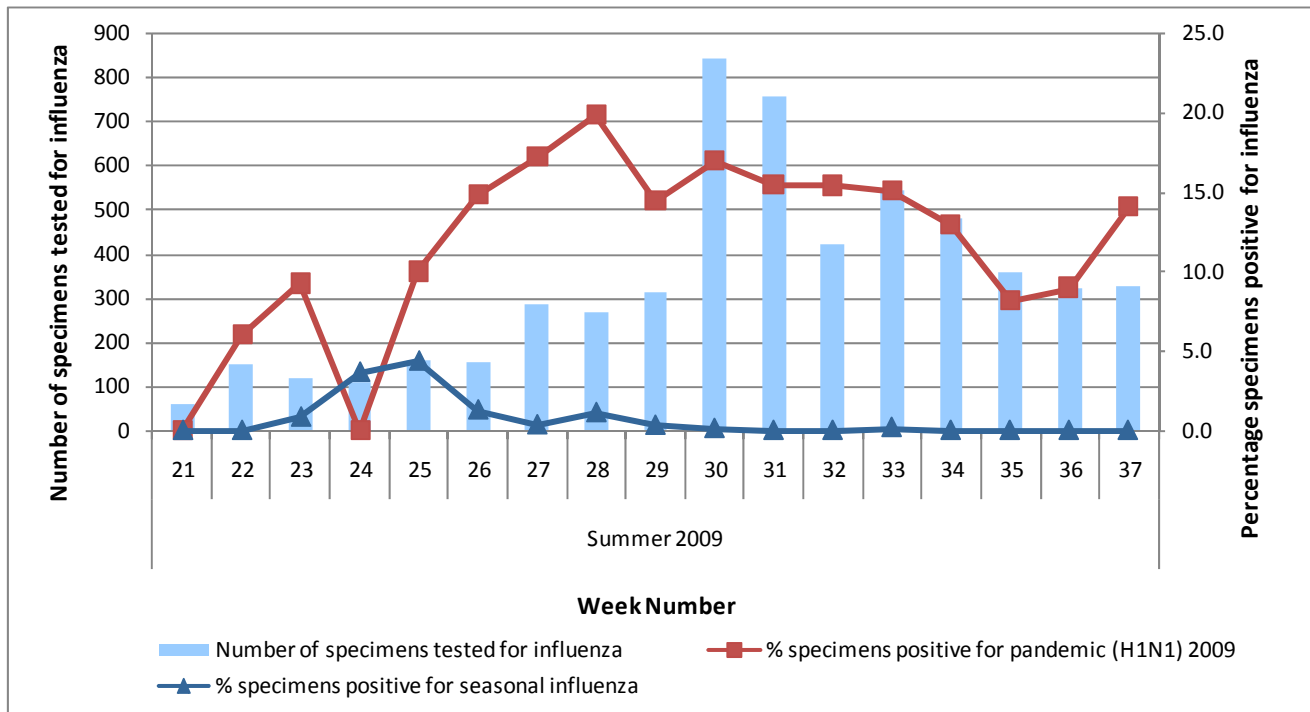


Figure 5: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive

[†] 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 tested by the NVRL and positive results, influenza week 37 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
37 2009	Sentinel	48	4	8.3	4	0	0	0	0	100	NA	NA	NA	NA
	Non-sentinel	279	42	15.1	42	0	0	0	0	100	0	0.0	0	0.0
	Total	327	46	14.1	46	0	0	0	0	100	0	0.0	0	0.0
Summer season to date	Sentinel	451	73	16.2	70	3	0	0	0	95.9	NA	NA	NA	NA
	Non-sentinel	5213	730	14.0	709	727	730	5213	18	97.1	20	0.4	4	0.0
	Total	5664	803	14.2	779	730	730	5213	18	97.0	20	0.4	4	0.0

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

4. Laboratory confirmed cases of pandemic (H1N1) 2009 (CIDR)

As of 12th September 2009, a total of 885 confirmed cases of pandemic (H1N1) 2009 infection were reported. Figure 6 shows the number of confirmed pandemic (H1N1) 2009 cases by week of notification. During week 36, only five cases were reported as having been infected outside of Ireland.

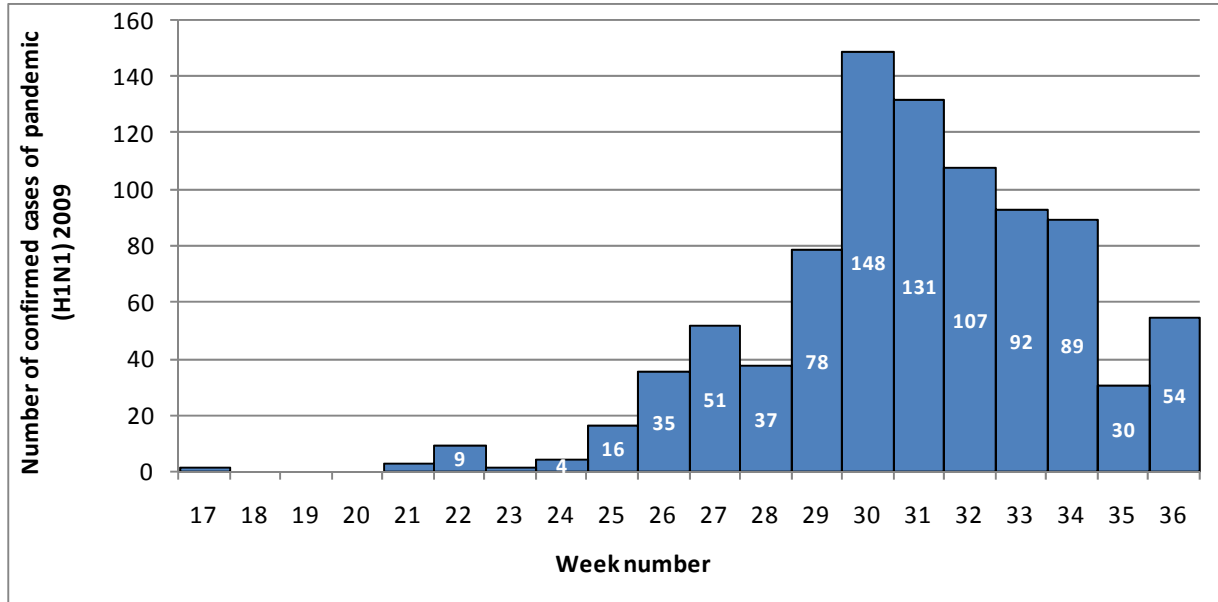


Figure 6: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification[§]

Age and Sex

Of the 885 confirmed cases reported to date, 452 were female (51.1%), 431 were male (48.7%) and sex was not reported for two cases (0.2%). The median age of cases was 21 years (range: 0-79 years) and 79.1% were less than 35 years of age. The highest age specific rate was observed in the 15-19 years age group. Figure 7 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 6 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore weeks 17-36 above is equivalent to weeks 18-37 on the influenza system

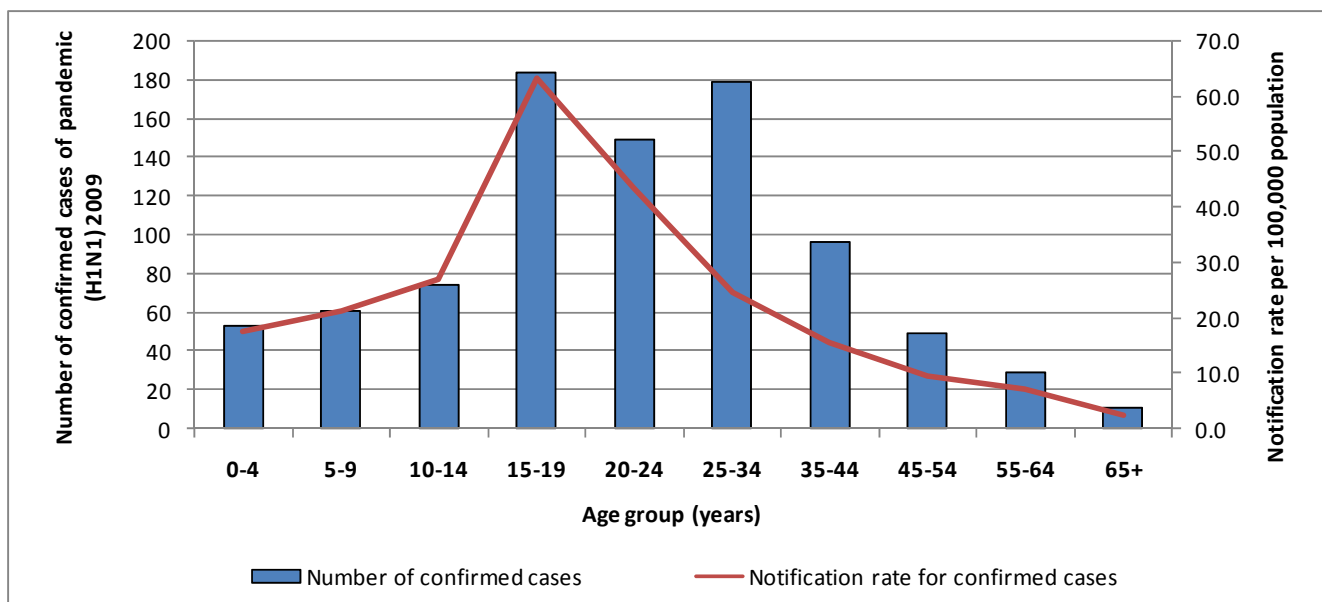


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 and notification rate per 100,000 population by age group (years)

HSE area

All HSE areas have reported confirmed cases. The numbers and rates by HSE area are shown in table 2. The highest rates for week 36 were in HSE-NE (2.5 per 100,000 population) and HSE-S (2.3 per 100,000 population).

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

HSE Area	Week 36 ^{**} : 6 th to 12 th September 2009		Week 17 - Week 36 2009	
	Number of confirmed cases	Rate per 100,000 population	Number of confirmed cases	Rate per 100,000 population
HSE-E	20	1.3	357	23.8
HSE-M	0	0.0	29	11.5
HSE-MW	3	0.8	70	19.4
HSE-NE	10	2.5	104	26.4
HSE-NW	2	0.8	70	29.5
HSE-SE	2	0.4	56	12.2
HSE-S	14	2.3	140	22.5
HSE-W	3	0.7	59	14.2
Total	54	1.3	885	20.9

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; 26 cases developed pneumonia and seven developed acute respiratory distress syndrome (ARDS) (four 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 36 above is equivalent to week 37 on the influenza system

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

Of the 885 confirmed cases, 96 (10.8%) were reported as having been admitted to hospital. Of the 96 hospitalised cases, nine were admitted to ICU. Figure 8 shows the number of hospitalised cases of confirmed pandemic (H1N1) 2009 by week number. Sixty-nine hospitalised cases have recovered or are recovering (71.9%), seven are still ill (7.3%), outcome is awaited for 17 (17.7%) and two cases died (2.1%). Table 3 shows the number of hospitalised cases by age group (years) and sex. Forty-four (45.8%) 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.

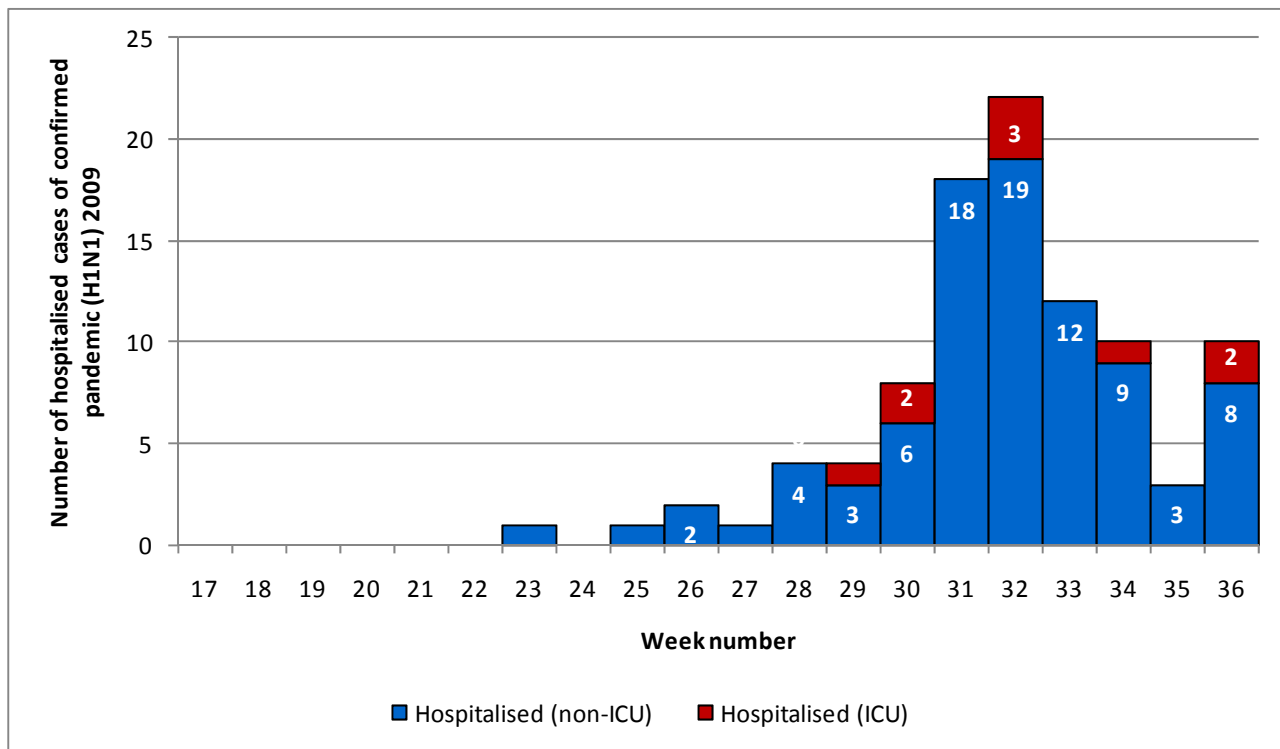


Figure 8: Number of hospitalised cases of confirmed pandemic (H1N1) 2009 by week number

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

Age group (years)	Female	Male	Total
<1	2	2	4
1-4	2	3	5
5-9	2	8	10
10-14	3	4	7
15-19	10	6	16
20-24	6	6	12
25-34	12	3	15
35-44	5	4	9
45-54	4	1	5
55-64	3	6	9
65+	2	2	4
Total	51	45	96

6. Outbreak surveillance (CIDR)

As of 15th September 2009, 37 outbreaks of pandemic (H1N1) 2009 have been reported in Ireland. These involved 484 people in total, of which 94 were laboratory confirmed cases. The number ill per outbreak has ranged between two and 150 people. Eighteen outbreaks occurred in private house/family settings, 12 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 location, while table 5 summarises the pandemic (H1N1) 2009 outbreaks by HSE area. Table 6 and table 7 show the number of outbreak associated pandemic (H1N1) 2009 cases by age group (years) and sex respectively.

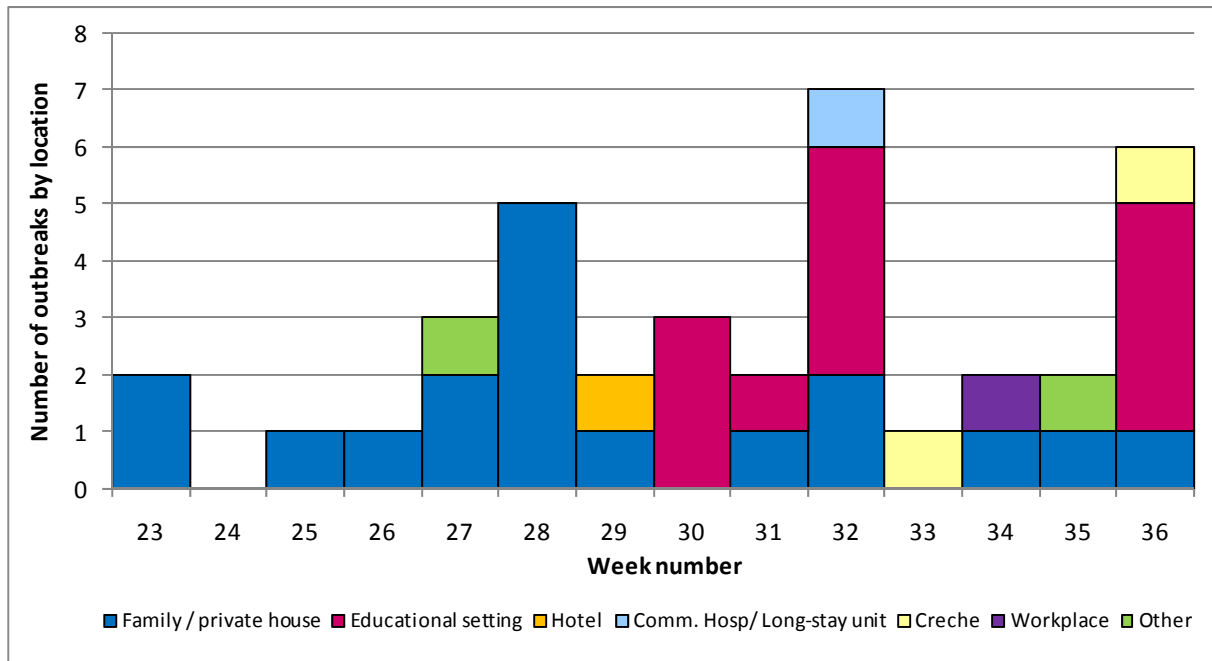


Figure 9: Number of pandemic (H1N1) 2009 outbreaks by outbreak location and week

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

Location	Number of outbreaks	Total number ill	Total number hospitalised	Total Number dead	Total number laboratory confirmed	Total number laboratory investigated
Comm. Hosp/ Long-stay unit	1	5	0	0	2	2
Creche	2	9	0	0	5	5
Family / private house	18	59	6	0	46	48
Hotel	1	3	0	0	1	1
Other	3	9	0	0	7	8
Educational setting	11	396	1	0	33	47
Workplace	1	3	0	0	0	0
Total	37	484	7	0	94	111

Table 5: 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 laboratory confirmed	Total number laboratory 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	3	64	1	0	8	9
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	17	25
Total	37	484	7	0	94	111

Table 6: 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	290	62	6	0	109	484

Table 7: Number of outbreak associated cases of pandemic (H1N1) by sex

Number of cases	Female	Male	Sex Unknown	Total
	70	72	342	484

International summary

The total numbers of confirmed cases and deaths worldwide by World Health Organization (WHO) region are shown in table 8. 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 8: Reported number of confirmed pandemic (H1N1) 2009 cases and deaths by WHO region (Source: WHO 11th September 2009)

WHO Region	Cumulative total as of 11 th September 2009	
	Cases*	Deaths
Africa (AFRO)	6336	35
Americas (AMRO)	120653	2467
Eastern Mediterranean (EMRO)	9844	51
Europe (EURO)	Over 49000	At least 125
South-East Asia (SEARO)	22387	221
Western Pacific (WPRO)	69387	306
Total	Over 277607	At least 3205

*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 36, 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, 75 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 36 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. Very little co-circulation of seasonal influenza A or B viruses has been reported.

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

USA

During week 35 (30th August to 5th September 2009), influenza activity increased in the United States. During week 35, 1,380 hospitalisations and 196 deaths, associated with influenza virus infection or syndromic surveillance for influenza and pneumonia, were reported to CDC. This is the first week of reporting hospitalisations and deaths from a new system for monitoring the trend of influenza-related hospitalisations and deaths. This new system replaces the weekly report of laboratory confirmed pandemic (H1N1) 2009-related hospitalisations and deaths. This is the first week of data from this system and reflects reports by 29 states and territories. 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 35 (30th August to 5th September 2009), the national ILI consultation rate was 14 consultations per 1,000 visits, a slight increase in comparison to the previous weeks rate (12 per 1,000 visits). This rate is slightly higher than expected for this time of year. During week 35, the intensity of pandemic (H1N1) infection 2009 in the population was low to moderate with only a small number of hospitalisations (n=11) and two deaths reported. 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 36, 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 4th September 2009, current national influenza activity appears to be decreasing. The national ILI consultation rate in week 35 was 14 per 1,000 patients seen, a decrease compared to 18 per 1,000 patients seen, reported during week 34 2009. ILI presentations to GPs continued to decrease and are lower than 2007 and 2008 rates nationally. The proportion of influenza positive tests that were pandemic (H1N1) 2009 decreased during week 35, with a national proportion positive of 90%. As of 16th September, there were 36,173 confirmed cases of pandemic (H1N1) 2009 and 171 deaths associated with pandemic (H1N1) 2009. The number of people with pandemic (H1N1) 2009 requiring hospitalisation appears to be decreasing. As of the 16th September 2009, the total number of hospitalisations in Australia since pandemic (H1N1) 2009 was identified is 4,685 (13 %). Of the 4,685 cases ever hospitalised, 307 are currently hospitalised with pandemic (H1N1) 2009 in Australia, 59 (19.2%) of which are in intensive care units. Due to underlying chronic disease and social deprivation, indigenous Australians are approximately eight 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

In the temperate region of the southern hemisphere (represented by countries such as Chile, Argentina and South Africa), influenza activity continues to decrease or return to baseline. Active transmission persists in tropical regions of the Americas and Asia. Many countries in Central America and the Caribbean continue to report declining activity for the second week in a row. However, countries in the tropical region of South America (represented by countries such as Bolivia, Ecuador and Venezuela) are reporting increasing levels of respiratory disease. In the tropical regions of Asia, respiratory disease activity remains geographically regional or widespread but the trend is generally increasing as noted in India, Bangladesh and Cambodia.

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

World Health Organization (WHO) guidance/articles:

On 11th September 2009, WHO issued advice on measures that can be undertaken in schools to reduce the impact of the H1N1 influenza pandemic. Full details are available at:

http://www.who.int/csr/disease/swineflu/notes/h1n1_school_measures_20090911/en/index.html

On 4th September 2009, WHO published “*Global influenza surveillance network: laboratory surveillance and response to pandemic H1N1 2009*” in the Weekly Epidemiological Record. This article is available at:

<http://www.who.int/wer/2009/wer8436.pdf>

MMWR articles (11th September 2009):

Oseltamivir-Resistant 2009 Pandemic Influenza A (H1N1) Virus Infection in Two Summer Campers Receiving Prophylaxis - North Carolina, 2009 Available at:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a1.htm>

Receipt of Influenza Vaccine During Pregnancy Among Women With Live Births - Georgia and Rhode Island, 2004 - 2007. Available at: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5835a2.htm>

New England Journal of Medicine articles (10th September 2009):

Response after One Dose of a Monovalent Influenza A (H1N1) 2009 Vaccine — Preliminary Report.

A randomized, observer-blind, parallel-group trial evaluating two doses of an inactivated, split-virus 2009 H1N1 vaccine in healthy adults between the ages of 18 and 64 years is ongoing at a single site in Australia. A single 15-µg dose of 2009 (H1N1) vaccine was immunogenic in adults, with mild-to-moderate vaccine-associated reactions. Full article available at: <http://content.nejm.org/cgi/content/full/NEJMoa0907413>

Trial of Influenza A (H1N1) 2009 Monovalent MF59-Adjuvanted Vaccine — Preliminary Report

In preliminary analyses, the monovalent influenza A (H1N1) 2009 MF59-adjuvanted vaccine generates antibody responses likely to be associated with protection within 14 days after a single dose is administered.

Full article available at: <http://content.nejm.org/cgi/content/full/NEJMoa0907650>)

ECDC commentary on the above articles available at:

http://ecdc.europa.eu/en/activities/sciadvice/Lists/ECDC%20Reviews/ECDC_DispForm.aspx?List=512ff74f%2D77d4%2D4ad8%2Db6d6%2Dbf0f23083f30&ID=649

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.