

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 38 2009 (14th to 20th September 2009)



Summary

- Overall, influenza activity increased during week 38:
 - The sentinel GP influenza-like illness (ILI) consultation rate was 72.2 per 100,000 population in week 38, a marked increase in comparison to the updated rate of 42.2 per 100,000 during week 37
 - The sentinel GP age specific ILI consultation rates increased in all age groups except in those aged 65 years and older
 - The proportion of flu-related calls to GP Out-of-Hours services increased slightly during week 38
 - The number of laboratory confirmed cases of pandemic (H1N1) 2009 increased significantly
 - The number of hospitalised cases of pandemic (H1N1) 2009 also increased
 - The number of outbreaks reported in schools continues to increase
- Pandemic (H1N1) 2009 is the main influenza virus circulating; in week 38, 96.4% of specimens positive for influenza were pandemic (H1N1) 2009
- The proportion of sentinel and non-sentinel specimens positive for pandemic (H1N1) 2009 increased to 18.4% during week 38 (compared to 16.5% positive during week 37)
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 19th September:
 - 1,173 confirmed cases were notified in Ireland
 - Children and young adults remain the most affected groups; 80.7% of cases were less than 35 years of age
 - 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. ICGP 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 38 2009, 50 of 61 (82%) ICGP sentinel general practices provided data, with 34 practices reporting 144 influenza-like illness (ILI) cases and 27 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 72.2 per 100,000 population, which is a marked increase compared to the updated rate of 43.0 per 100,000 population reported during week 37 2009.* The ILI rate is well above the baseline threshold level of 17.8 per 100,000 population. 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.

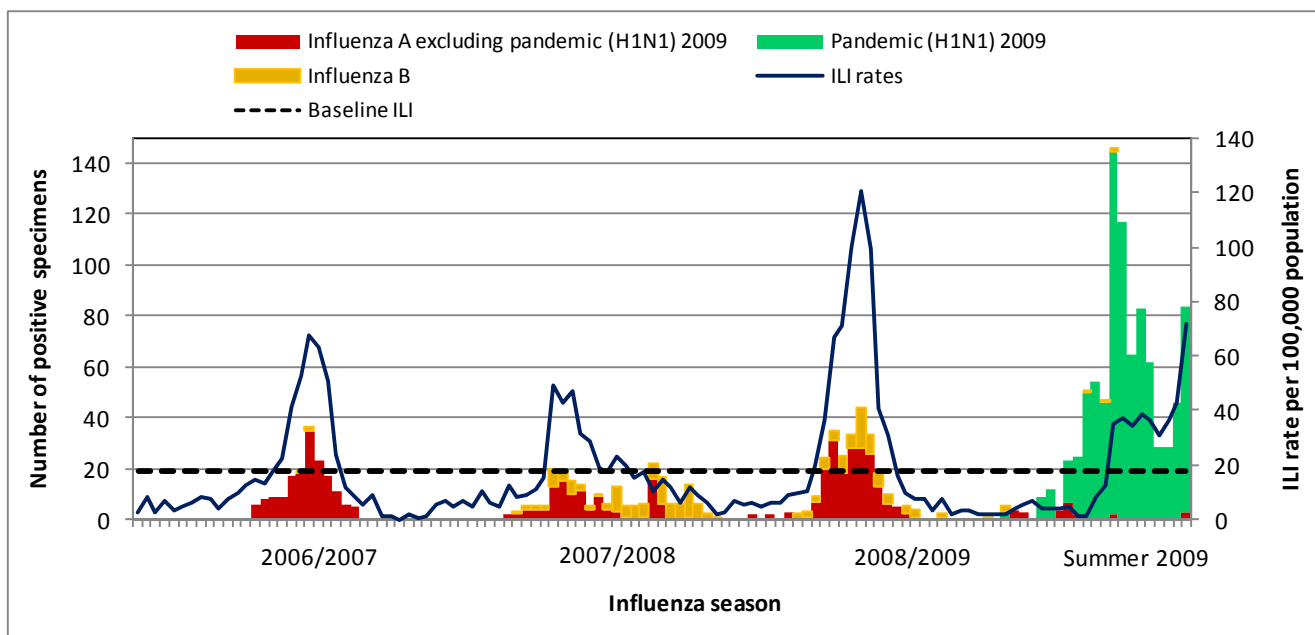


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens detected by the NVRL, by influenza week and season

Source: NVRL data and ICGP clinical ILI data

During week 38 2009, sentinel GPs reported nine ILI cases in the 0-4 year age group (63.3 per 100,000 population), 24 cases in the 5-14 year age group (90.7 per 100,000 population), 106 cases in the 15-64 year age group (77.5 per 100,000 population) and five cases in those aged 65 years and older (22.7 per 100,000 population) (figure 2).

* Since the last report, extra information on the number of ILI consultations occurring in week 37 was provided by sentinel GPs and the rate for the week was adjusted accordingly

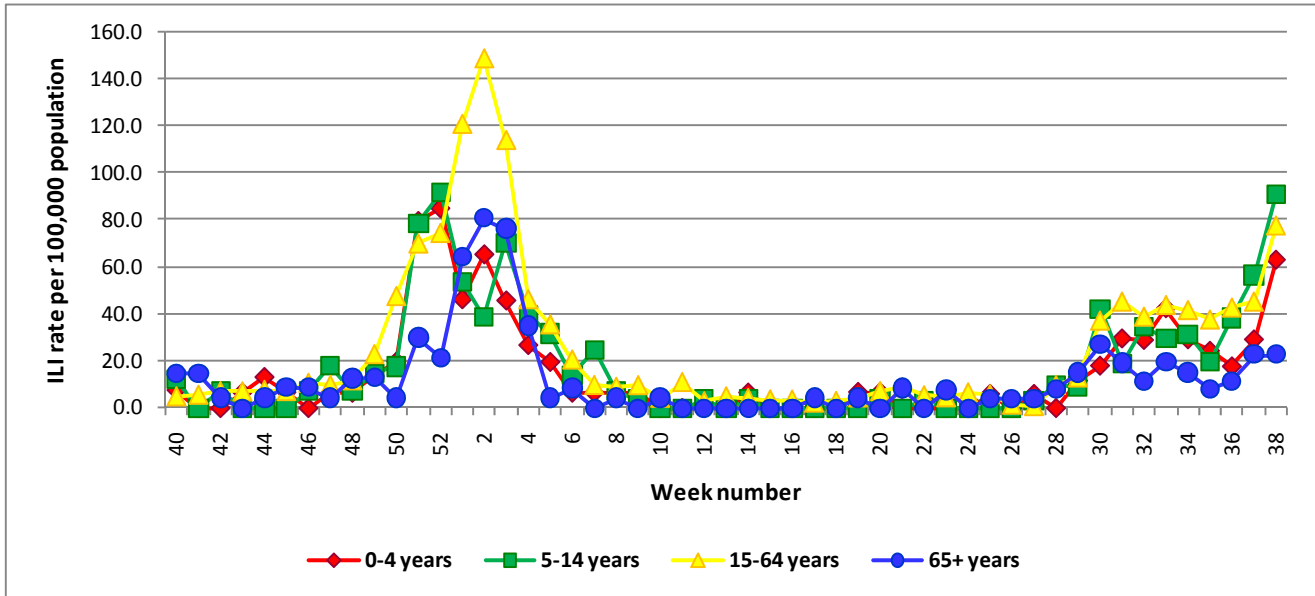


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the 2008/2009 and Summer 2009 influenza seasons
 Source: ICGP ILI clinical data

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, -S, -SE and -W while localised activity (due to two or more outbreaks in each HSE area) was reported by HSE-NE and -NW during week 38 2009 (figure 3).

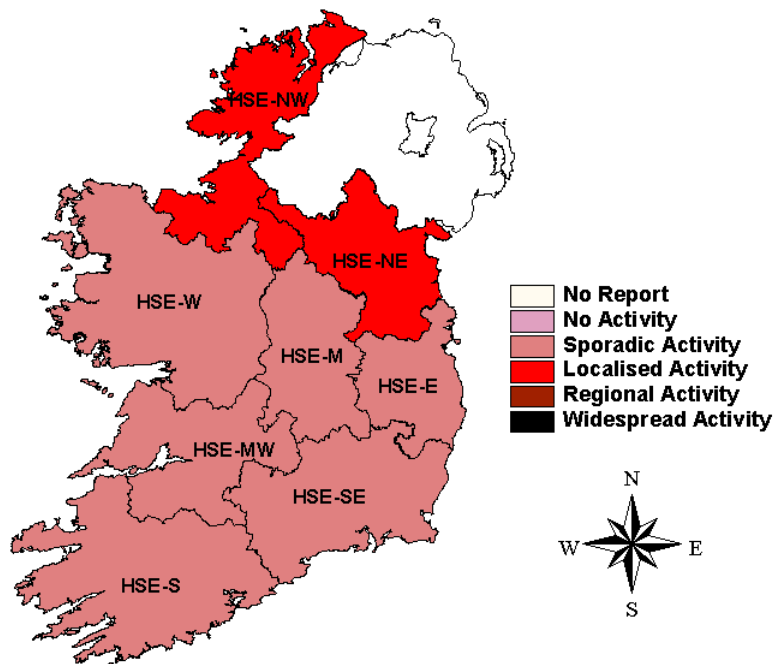


Figure 3: Map of provisional influenza activity by HSE area during influenza week 38 2009

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 38 2009, hospital data were received from four HSE areas (HSE-E, HSE-M, HSE-MW 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 38 2009.

2. GP Out-Of-Hours services surveillance

The Department of Public Health in the HSE-NE is collating national data on calls to nine 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. During week 38, the percentage of flu-related calls was 6.8, which a slight increase in the proportion of flu-related calls (6.4%) reported during week 37 (figure 4).

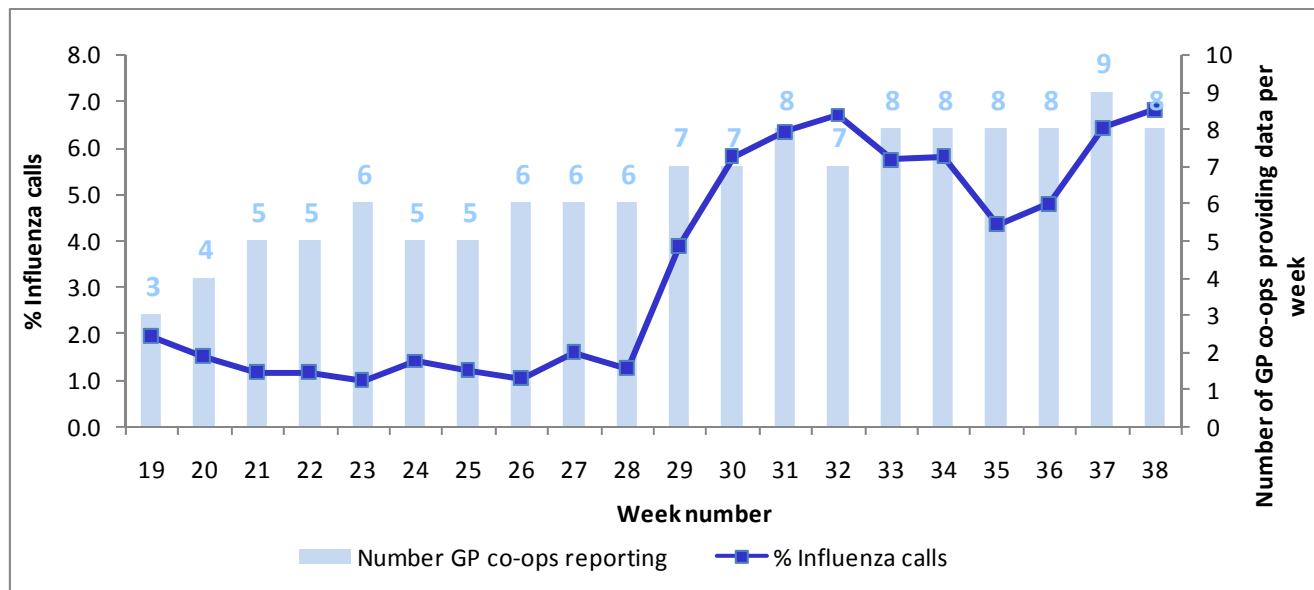


Figure 4: Flu-related call as a proportion of total calls to Out-of-Hours GP Co-ops by week[†]

Source: HSE-NE.

[†] Week 38: data received from CARE-Doc, D-Doc, K-Doc, NE-Doc, NoW-Doc, MI-Doc, Shannon-Doc, South Doc. Not all services provided data for all weeks.

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

Seventy-nine specimens from sentinel GPs were tested by the NVRL during week 38 2009, 20 (25.3%) of which were positive for influenza (19 pandemic (H1N1) 2009 and one influenza A untyped).

The NVRL tested 362 non-sentinel specimens taken during the same week. Sixty-four (17.7%) of the non-sentinel specimens tested positive for influenza (62 pandemic (H1N1) 2009 and two influenza A untyped). No specimens were positive for influenza B or other respiratory viruses (table 1).[‡]

Pandemic (H1N1) 2009 is the main influenza virus circulating. During week 38, 96.4% 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 38, the percentage of sentinel & non-sentinel specimens testing positive for pandemic (H1N1) 2009 was 18.4%, an increase compared to 16.5% positive during week 37. 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.

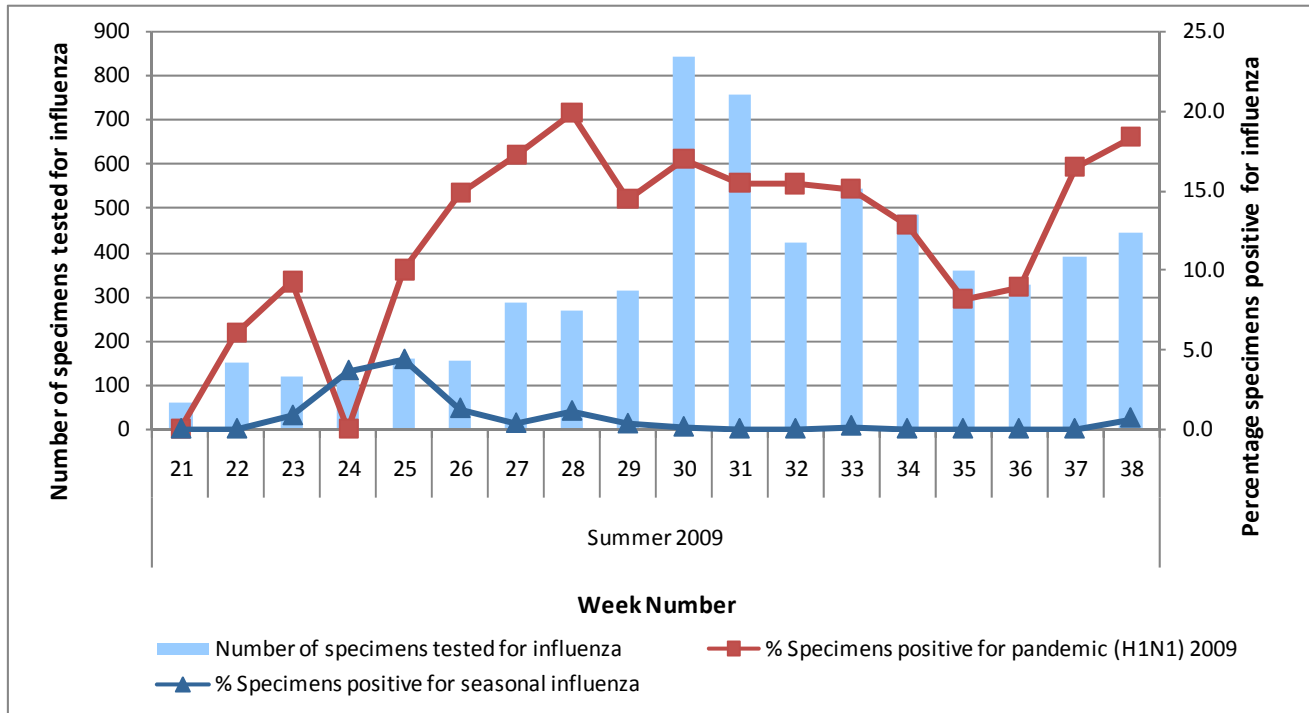


Figure 5: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive

Source: NVRL

[‡] 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 38 2009 and Summer 2009 season to date

Source: NVRL

Week number	Specimen type	Total specimens	Number 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
38 2009	Sentinel	79	20	25.3	19	0	0	1	0	95.0	NA	NA	NA	NA
	Non-sentinel	362	64	17.7	62	0	0	2	0	96.9	0	0	0	0.0%
	Total	441	84	19.0	81	0	0	3	0	96.4	0	0	0	0.0%
Summer season to date	Sentinel	551	97	17.6	93	3	0	1	0	95.9	NA	NA	NA	NA
	Non-sentinel	5625	808	14.4	785	14	2	4	3	97.2	20	0.4	4	0.07%
	Total	6176	905	14.7	878	17	2	5	3	97.0	20	0.3	4	0.07%

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

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

As of 19th September 2009, a total of 1173 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 37, only three cases were reported as having been infected outside of Ireland.

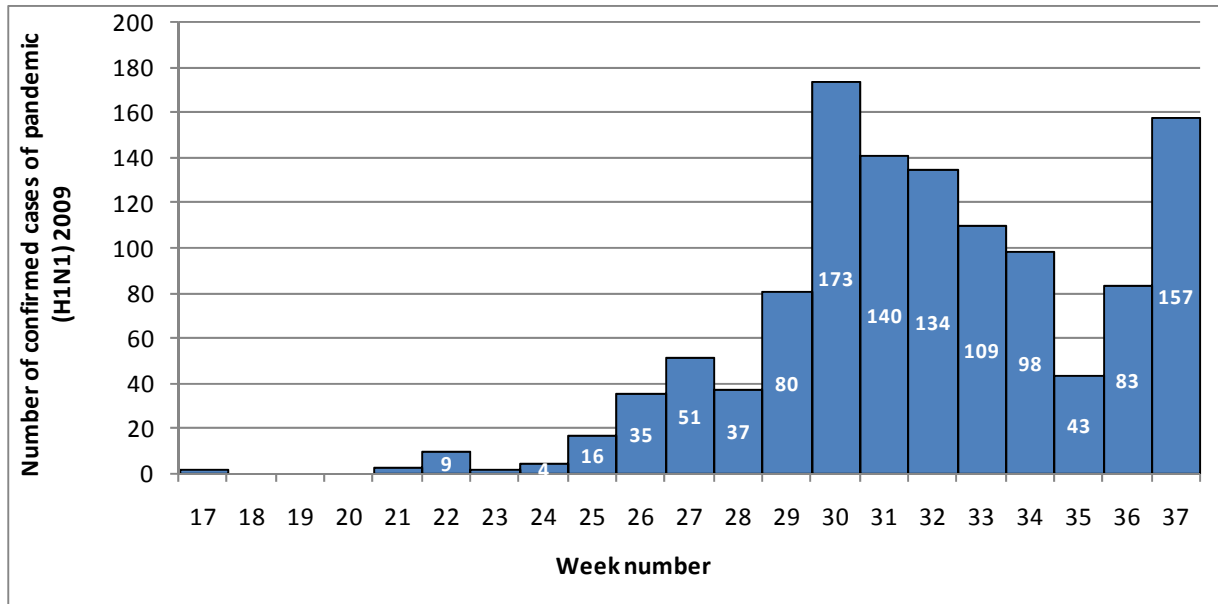


Figure 6: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification **

Source: CIDR

Age and Sex

Of the 1173 confirmed cases reported to date, 589 were female (50.3%), 573 were male (48.9%) and sex was not reported for 11 cases (0.9%). The median age of cases was 20 years (range: 0-79 years) and 80.7% were less than 35 years of age. The highest age specific rate was observed in the 15-19 year 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 17-37 above is equivalent to weeks 18-38 on the influenza system

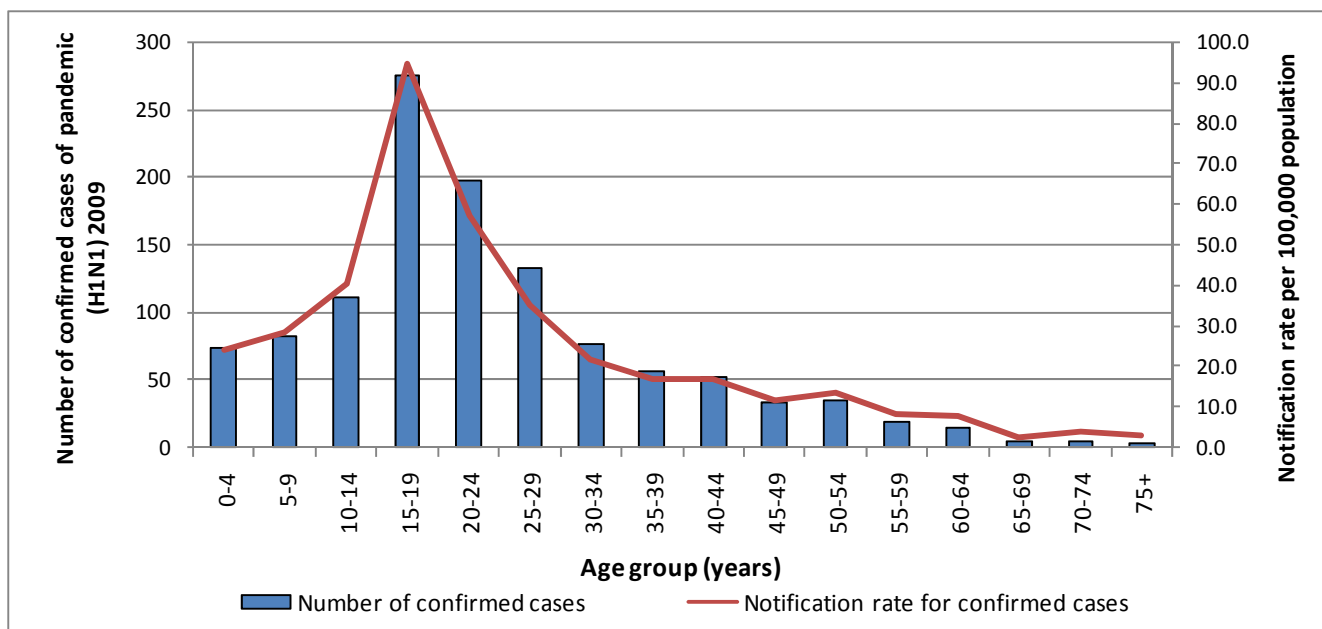


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 and notification rate per 100,000 population by age group (years)
 Source: CIDR

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 37 was in HSE-W (13.3 per 100,000 population).

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

Source: CIDR

HSE Area	Week 37 ^{††} : 13 th to 19 th September 2009		Week 17 - Week 37 2009	
	Number of confirmed cases	Rate per 100,000 population	Number of confirmed cases	Rate per 100,000 population
HSE-E	24	1.6	381	25.4
HSE-M	0	0.0	29	11.5
HSE-MW	15	4.2	85	23.5
HSE-NE	24	6.1	128	32.5
HSE-NW	8	3.4	78	32.9
HSE-SE	8	1.7	64	13.9
HSE-S	23	3.7	163	26.2
HSE-W	55	13.3	245	59.1
Total	157	3.7	1173	27.7

^{††} 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 37 above is equivalent to week 38 on the influenza system

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; 29 cases developed pneumonia and six developed acute respiratory distress syndrome (ARDS) (four of these also had pneumonia). Other reported complications included otitis media, chest infections, acute renal failure and multi-organ failure.

Of the 1173 confirmed cases, 131 (11.2%) were reported as having been admitted to hospital. Of the 131 hospitalised cases, 10 (7.6%) were admitted to ICU. Figure 8 shows the number of hospitalised cases of confirmed pandemic (H1N1) 2009 by week number. Ninety-two hospitalised cases have recovered or are recovering (70.2%), 12 are still ill (9.2%), outcome is awaited for 25 (19.1%) and two cases died (1.5%). Table 3 shows the number of hospitalised cases by age group (years) and sex. Sixty-four (48.9%) 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.

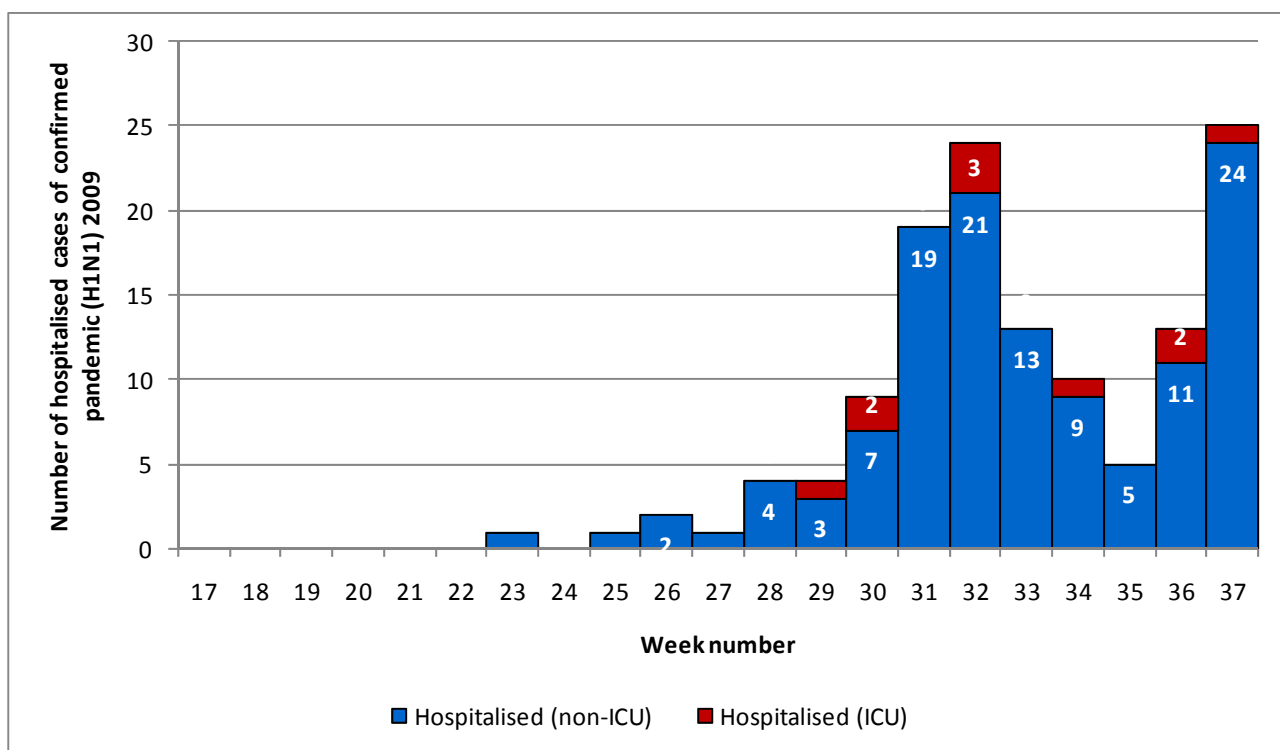


Figure 8: Number of hospitalised cases of confirmed pandemic (H1N1) 2009 by week number^{**}

Source: CIDR

^{**} Week number in Figure 8 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 37 above is equivalent to week 38 on the influenza system

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

Source: CIDR

Age group (years)	Female	Male	Total
<1	2	2	4
1-4	4	5	9
5-9	5	11	16
10-14	3	7	10
15-19	11	10	21
20-24	12	9	21
25-34	12	5	17
35-44	6	4	10
45-54	5	3	8
55-64	3	7	10
65+	3	2	5
Total	66	65	131

6. Outbreak surveillance (CIDR)

As of 24th September 2009, 29 general outbreaks of pandemic (H1N1) 2009 have been reported in Ireland. Please note this section will no longer report family outbreaks and now only includes general outbreaks. These involved 747 people in total, of which 69 were laboratory confirmed cases. The number ill per outbreak has ranged between two and 150 people. Twenty outbreaks occurred in educational settings, two in crèches, two were travel related and one each were in a community hospital/long-stay unit, a hotel, a workplace, an intellectual disability unit and one was related to a social gathering (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.

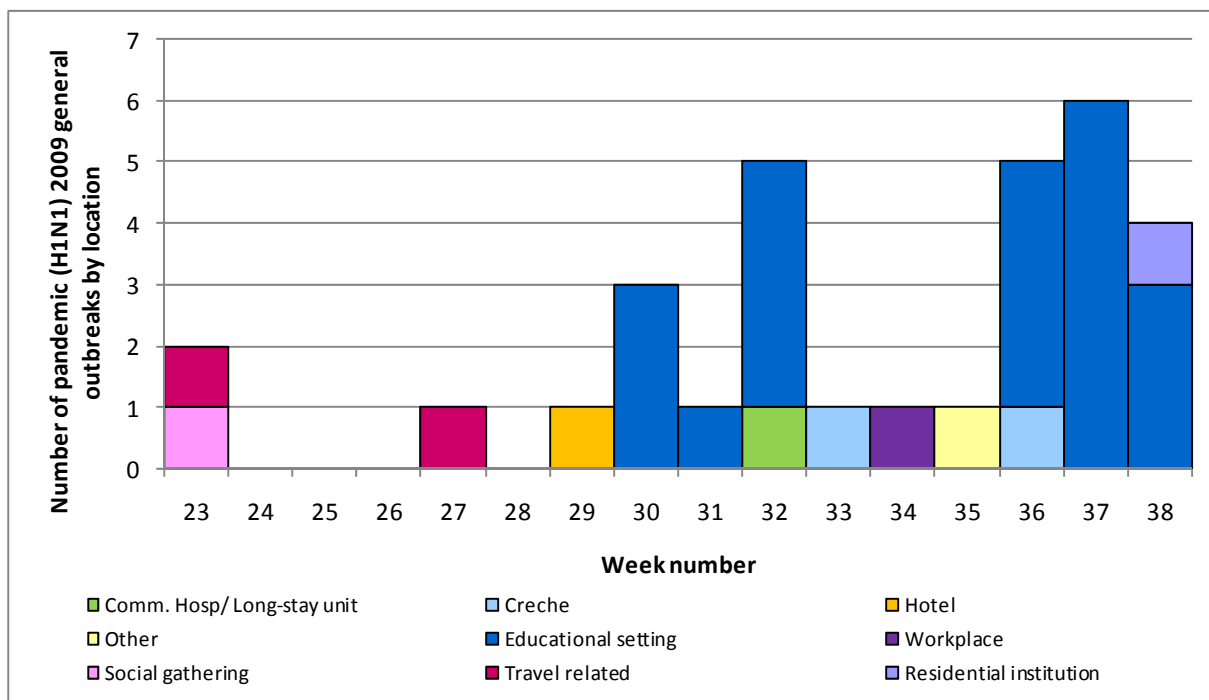


Figure 9: Number of pandemic (H1N1) 2009 general outbreaks by location and week number^{§§}

Source: CIDR

^{§§} Week number in Figure 9 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 38 above is equivalent to week 39 on the influenza system and only represents data from Sunday 20th to Thursday 24th September @ 10.24 hours

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

Source: CIDR

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
Hotel	1	3	0	0	1	1
Other	1	3	0	0	3	3
Residential institution	1	12	0	0	0	0
Educational setting	21	713	2	0	56	65
Workplace	1	3	0	0	0	0
Travel related	2	9	0	0	8	7
Social gathering	1	2	0	0	2	2
Total	31	759	2	0	77	85

Table 5: Summary of pandemic (H1N1) 2009 general outbreaks to date * by HSE area**

Source: CIDR

HSE Area	Number of outbreaks	Total number ill	Total number hospitalised	Total Number dead	Total number laboratory confirmed	Total number laboratory investigated
HSE-E	2	17	0	0	2	2
HSE-M	0	0	0	0	0	0
HSE-MW	6	14	0	0	18	10
HSE-NE	7	92	1	0	11	14
HSE-NW	3	220	0	0	13	18
HSE-SE	1	35	0	0	4	5
HSE-S	3	11	0	0	5	8
HSE-W	9	370	1	0	24	28
Total	31	759	2	0	77	85

Table 6: Number of general outbreak associated cases of pandemic (H1N1) by age group (years) ****

Source: CIDR

Number of cases	0-1	2-4	5-9	10-19	20-49	50-64	65+	Age unknown	Total
	7	8	8	514	71	6	0	145	759

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

Source: CIDR

Number of cases	Female	Male	Sex Unknown	Total
	65	68	626	759

*** Data taken from CIDR at 24/09/2009, 10.24 hours

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 18th September 2009

WHO Region	Cumulative total as of 18 th September 2009	
	Cases ^{†††}	Deaths
Africa (AFRO)	8125	40
Americas (AMRO)	124126	2625
Eastern Mediterranean (EMRO)	10533	61
Europe (EURO)	over 52000	at least 140
South-East Asia (SEARO)	25339	283
Western Pacific (WPRO)	76348	337
Total	over 296471	at least 3486

United Kingdom

During week 37, pandemic influenza activity started to increase in many areas of the UK, particularly in school-aged children. Although most cases continued to be mild, 78 people have died to date. The highest hospitalisation rates have consistently been in children aged less than 5 years. Two of 913 pandemic viruses tested in England have been confirmed to carry a mutation which confers resistance to the antiviral drug oseltamivir, and one of these has been shown phenotypically to be resistant to the drug but retains sensitivity to zanamivir. http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1243928258754

Europe:

During week 36 2009, Sweden and Northern Ireland reported medium influenza activity while all other countries reported low activity. Hungary and Spain reported local activity while other countries reported sporadic or no activity. During week 37, 96% of virus detections from sentinel physicians were pandemic (H1N1) 2009. http://ecdc.europa.eu/en/activities/surveillance/EISN/Pages/EISN_Bulletin.aspx

USA

During week 36 (6th to 12th September 2009), influenza activity increased in the United States. During week 36, 1,378 (18.2%) specimens tested by U.S. WHO and National Respiratory and Enteric Virus Surveillance System (NREVSS) collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Of all subtyped influenza A viruses being reported to CDC, 99% were pandemic (H1N1) 2009 viruses.

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

^{†††} 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.

Canada

During week 36 (6th to 12th September 2009), the national ILI consultation rate was 23 consultations per 1,000 visits, an increase in comparison to the previous week's rate (14 per 1,000 visits). This rate is within the range of expected levels for this time of year. During week 36, the intensity of pandemic (H1N1) infection 2009 in the population was low to moderate with only a small number of hospitalisations (n=15) and two deaths reported. Children under 2 years of age, pregnant women, persons under 65 years of age with underlying medical conditions and Aboriginal populations have higher rates of hospitalisation and greater risk of severe outcomes. <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 37, 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. During week 37, 50% of specimens positive for influenza were pandemic (H1N1) 2009. http://www.surv.esr.cri.nz/virology/influenza_weekly_update.php

Australia

As of 11th September 2009, overall current national influenza continues to decrease. Most jurisdictions have reported that pandemic (H1N1) 2009 activity has peaked and is decreasing. ILI presentations to GPs have remained steady or decreased in most states and territories. At a national level, rates are below levels seen at the same time in 2007 and 2008. For this reporting period, the number of respiratory tests has decreased and the proportion of influenza positive tests that were pandemic (H1N1) 2009 decreased, with a national proportion positive of 91%. As of 23rd September, there were 36,454 confirmed cases of pandemic (H1N1) 2009 and 177 (0.5%) deaths associated with pandemic (H1N1) 2009. The number of people with pandemic (H1N1) 2009 requiring hospitalisation continues to decrease. As of the 23rd September 2009, the total number of hospitalisations in Australia since pandemic (H1N1) 2009 was identified is 4,759 (13.1 %). Of the 4,759 cases ever hospitalised, 290 are currently hospitalised, 53 (18.2%) of whom 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 Central Asia activity remains low. In Japan, influenza activity remains above the seasonal epidemic threshold. In the tropical regions of the Americas and Asia, influenza transmission remains active. Geographically regional to widespread influenza activity continues to be reported throughout much of South and Southeast Asia, with increasing trends in respiratory diseases being reported in India and Bangladesh. Geographically regional to widespread influenza activity continues to be reported for the tropical regions of Central and South America without a consistent pattern in the trend of respiratory diseases. In the temperate regions of the southern hemisphere, influenza activity continues to decrease or has returned to the seasonal baseline in most countries. In South Africa, the second peak of influenza activity appears to have recently passed (the first peak was due to seasonal influenza A (H3N2) and second peak was due to pandemic (H1N1) 2009). Pandemic (H1N1) influenza virus continues to be the predominant circulating influenza virus, both in the northern and southern hemisphere. www.who.int/topics/influenza/en/

European Centre for Disease Prevention and Control (ECDC) updated guidance:

On 16th September ECDC issued *Revised pandemic 2009 planning assumptions for Europe*. This document contains revised recommended planning assumptions for European countries which have been extended out to May 2010, i.e. for the first year of the pandemic. Previous planning assumptions have generally been scaled down from the planning assumptions issued in July. This revision also includes a recommended estimate of the intensive care capacity which countries might use. The full review is available at:

<http://ecdc.europa.eu/en/activities/sciadvice/Lists/ECDC%20Reviews/DispForm.aspx?ID=650>

MMWR articles (18th September 2009):

Update: Influenza Activity - United States, April - August 2009. Available at:

<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5836a6.htm>

National Institute of Allergy and Infectious Diseases (NIAID (21st September 2009):

Early Results: In Children, 2009 H1N1 Influenza Vaccine Works Like Seasonal Flu Vaccine. Available at:

<http://www3.niaid.nih.gov/news/newsreleases/2009/H1N1PedTrial.htm>

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.