

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 47 2009 (16th to 22nd November 2009)



Summary

- Influenza activity in Ireland continued to decrease during week 47 but still remains at high levels:
 - ♦ The sentinel GP influenza-like illness (ILI) consultation rate was 126.9 per 100,000 population in week 47, a decrease compared to the rate of 134.4 per 100,000 reported during week 46.
 - ♦ The highest sentinel GP age-specific ILI consultation rates occurred in the 0-4 year age group.
 - ♦ The number of laboratory confirmed cases of pandemic (H1N1) 2009 decreased slightly.
 - ♦ The number of hospitalised cases of confirmed pandemic (H1N1) 2009 remained stable.
 - ♦ The number of hospitalised cases of confirmed pandemic (H1N1) 2009 admitted to ICU this week was 5, a decrease compared to 9 ICU admissions during the previous week.
 - ♦ The proportion of sentinel specimens testing positive for pandemic (H1N1) 2009 decreased during week 47.
 - ♦ A decrease in the proportion of respiratory admissions from two sentinel hospitals (HSE-E and-W) was reported.
 - ♦ The proportion of flu-related calls to GP Out-of-Hours services decreased slightly.
 - ♦ The number of pandemic (H1N1) 2009 and ILI outbreaks reported remained stable, with two outbreaks reported.
 - ♦ Pandemic (H1N1) 2009 is the only influenza virus circulating; in week 47, 100% of specimens positive for influenza were pandemic (H1N1) 2009.
 - ♦ Respiratory Syncytial Virus (RSV) activity increased during week 47.
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 21st November:
 - ♦ 4,143 confirmed cases have been notified in Ireland.
 - ♦ Children and young adults remain the most affected groups; 80.6% of cases are less than 35 years of age.
 - ♦ Clinical illness continues to be mild in the majority of cases.
- Seventeen deaths in confirmed cases of pandemic (H1N1) 2009 have been reported to date (25th November).

Introduction

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

1. Irish College of General Practitioners (ICGP) sentinel surveillance system
2. GP Out-of-Hours system
3. Virological data from the National Virus Reference Laboratory (NVRL), Cork University Hospital (CUH) and University College Hospital, Galway (UCHG)
4. Enhanced surveillance system for pandemic (H1N1) 2009 using the Computerised Infectious Disease Reporting system (CIDR)
5. Outbreak reporting (CIDR)
6. Pandemic (H1N1) ICU enhanced surveillance system

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 47 2009, 55 of 61 (90.2%) ICGP sentinel general practices provided data, with 50 practices (82.0%) reporting 282 influenza-like illness (ILI) cases and 11 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 126.9 per 100,000 population, which is a decrease compared to the rate of 134.4 per 100,000 population reported during week 46 2009.

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), Cork University Hospital (CUH) and University College Hospital, Galway (UCHG). CUH and UCHG have reported influenza positive non-sentinel specimens since weeks 31 and 36, 2009, respectively and these are included in figure 1. Influenza A untyped isolates (probable pandemic (H1N1) 2009) are specimens that are awaiting laboratory confirmation as pandemic (H1N1) 2009.

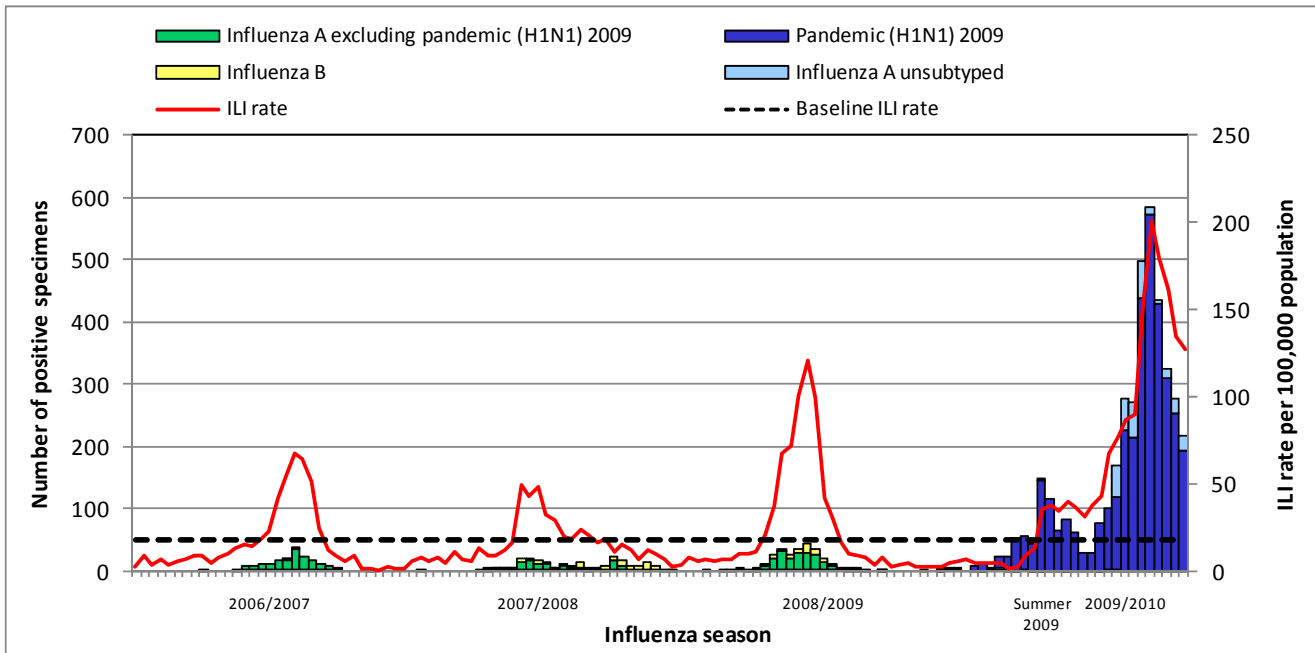


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens, by influenza week and season*

Source: NVRL, CUH and UCHG laboratory data and ICGP clinical ILI data

During week 47 2009, sentinel GPs reported 46 ILI cases in the 0-4 year age group (290.3 per 100,000 population), 70 cases in the 5-14 year age group (237.5 per 100,000 population), 160 cases in the 15-64 year age group (105.0 per 100,000 population) and 6 cases in those aged 65 years and older (24.5 per 100,000 population) (figure 2).

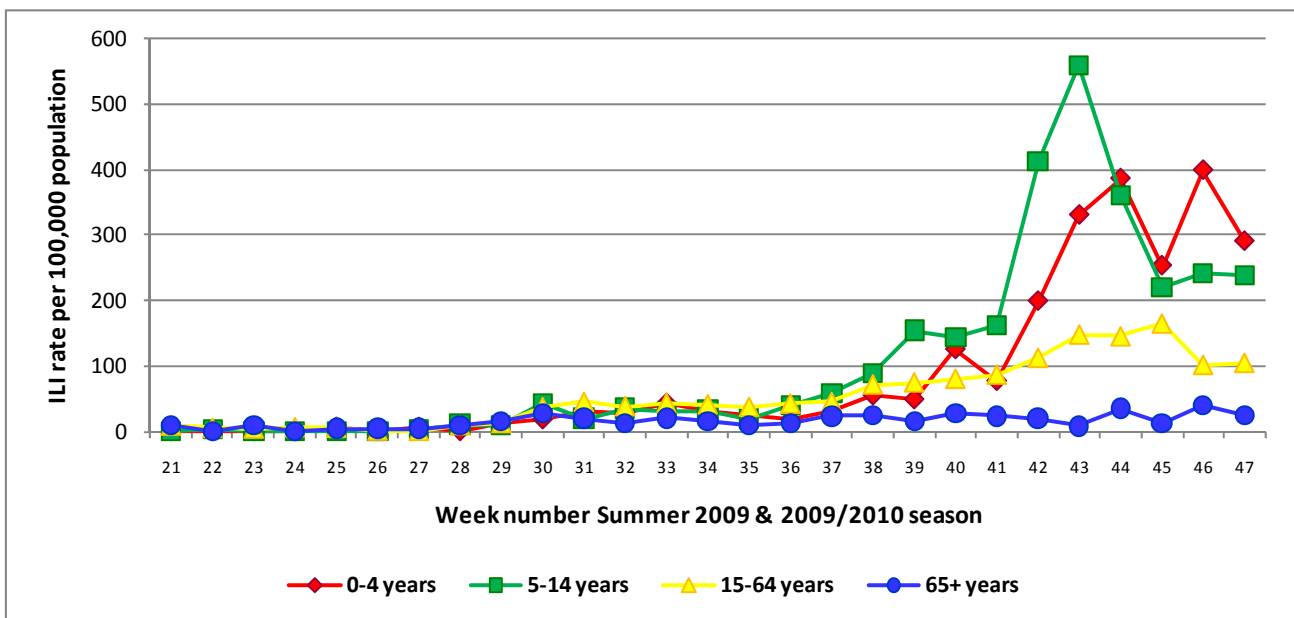


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the Summer 2009 and 2009/2010 influenza seasons

Source: ICGP ILI clinical data

* Please note that virological data for NVRL is for all seasons, for CUH is from week 31 2009 and for UCHG is from week 36 2009.

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.

During week 47 2009, localised influenza activity (due to increases in ILI in local areas or two or more outbreaks within a HSE area and laboratory confirmed cases of influenza) was reported by HSE-M, -NW, and -W and regional activity (based on increases in ILI in one or more counties of a HSE area and laboratory confirmed cases of influenza) was reported by HSE-E, -MW, -NE, -S and -SE (figure 3).

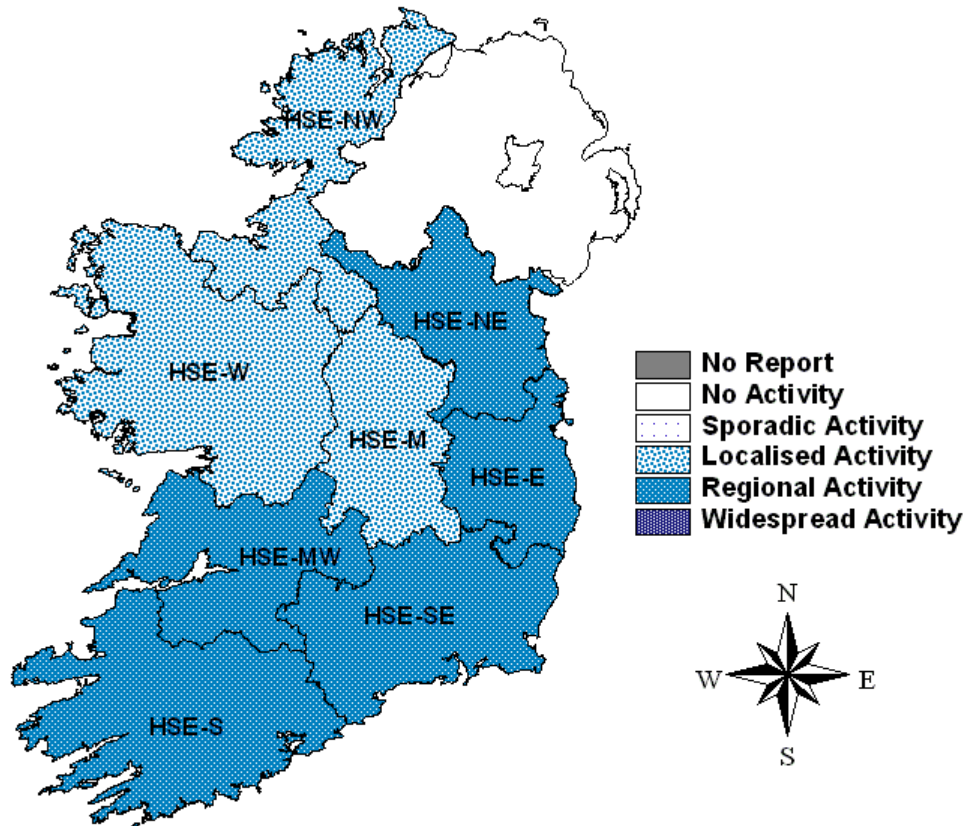


Figure 3: Map of provisional influenza activity by HSE area during influenza week 47 2009

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 47 2009, hospital and school sentinel data were received from seven of the eight HSE areas. No increase in the proportion of respiratory admissions was reported from sentinel hospitals during influenza week 47 2009 and two hospitals (in HSE-E and HSE-W) reported a decrease. Increased levels of school absenteeism were reported by seven primary schools (HSE-M, -MW, -NW, -S and -SE) and two secondary (HSE-M and HSE-SE).

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. The percentage of flu-related calls was 9.3% during week 47, a slight decrease compared to the proportion (10.2%) reported during week 46 (figure 4).

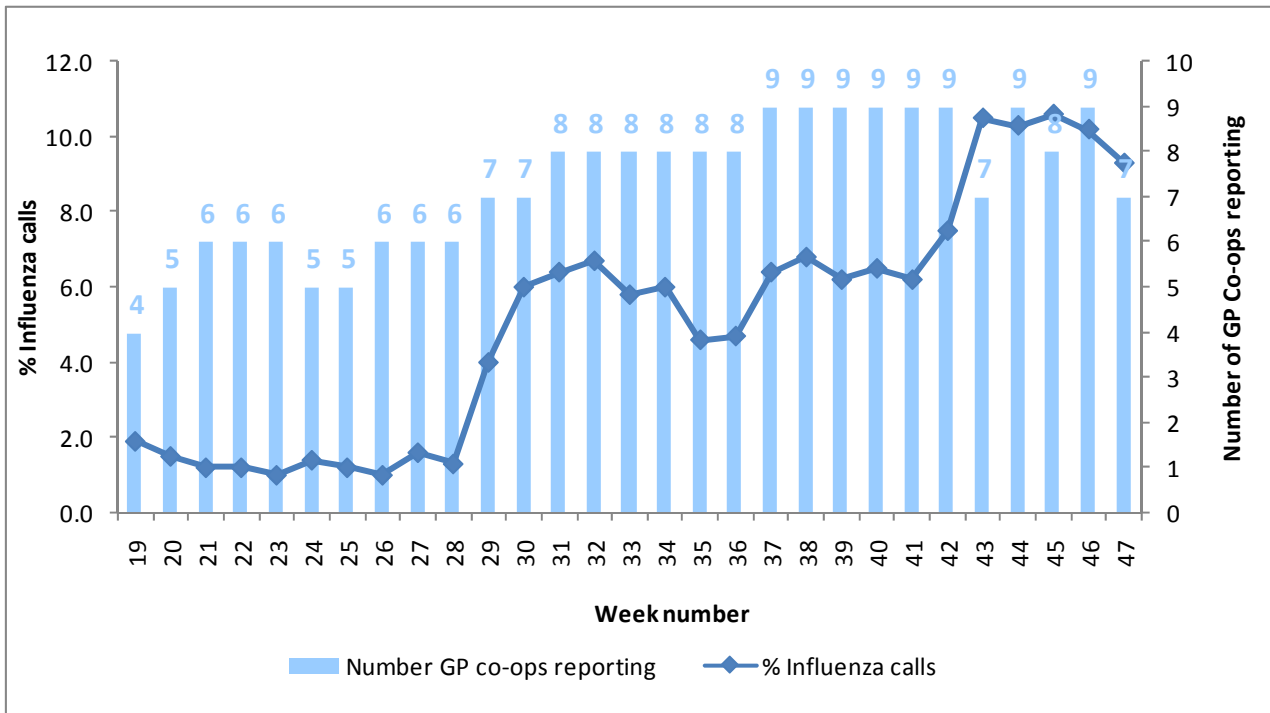


Figure 4: Flu-related calls as a proportion of total calls to Out-of-Hours GP Co-ops by week[†]

Source: HSE-NE.

[†] Week 47: data received from CARE-Doc, D-Doc, K-Doc, MI-Doc, NE-Doc, Shan-Doc, South-Doc. Not all services provided data for all weeks.

3. Virological Data from the National Virus Reference Laboratory (NVRL), Cork University Hospital (CUH) and University College Hospital, Galway (UCHG)

One hundred and fourteen specimens from sentinel GPs were tested by the NVRL during week 47 2009, 44 (38.6%) of which were positive for pandemic (H1N1) 2009.

The NVRL also tested 651 non-sentinel specimens taken during the same week.[‡] Of these, 111 (17.1%) were positive for pandemic (H1N1) 2009. Thirty-one specimens (4.8%) tested positive for RSV and one specimen (0.2%) was positive for parainfluenza virus type 2 (table 1 and table 3). No specimens were positive for other influenza A subtypes, influenza B, adenovirus or parainfluenza virus types 1 or 3. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2009/2010 and Summer 2010 influenza seasons, compared to the 2008/2009 and Summer 2009 influenza seasons.

UCHG tested 58 non-sentinel specimens taken during week 47 2009, 19 (32.8%) of which were positive for pandemic (H1N1) 2009 (table 2).

CUH tested 142 non-sentinel specimens taken during week 47 2009, 42 (29.6%) of which were positive for pandemic (H1N1) 2009 (table 2).

Pandemic (H1N1) 2009 is the main influenza virus circulating. During week 47, 100% of specimens positive for influenza were pandemic (H1N1) 2009. For summer 2009 and 2009/2010 seasons to date, confirmed pandemic (H1N1) 2009 has accounted for 99.3% of influenza positive specimens (table 1).

During week 47, the percentage of sentinel and non-sentinel specimens testing positive for pandemic (H1N1) 2009 was 22.4%, a decrease compared to 24.5% positive during week 46. Figure 6 shows the number of sentinel specimens tested by the NVRL for influenza and non-sentinel specimens tested by the NVRL, CUH and UCHG for influenza and the percentage of specimens testing positive for influenza by week number for the Summer 2009 and 2009/2010 influenza seasons.

To date, the NVRL has performed neuraminidase sequencing on 23 non-sentinel pandemic (H1N1) 2009 isolates. Oseltamivir susceptibility results are available for 23 isolates, of which all were susceptible to oseltamivir. Zanamivir susceptibility results are available for 17 isolates, of which all were susceptible to zanamivir.

[‡] 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

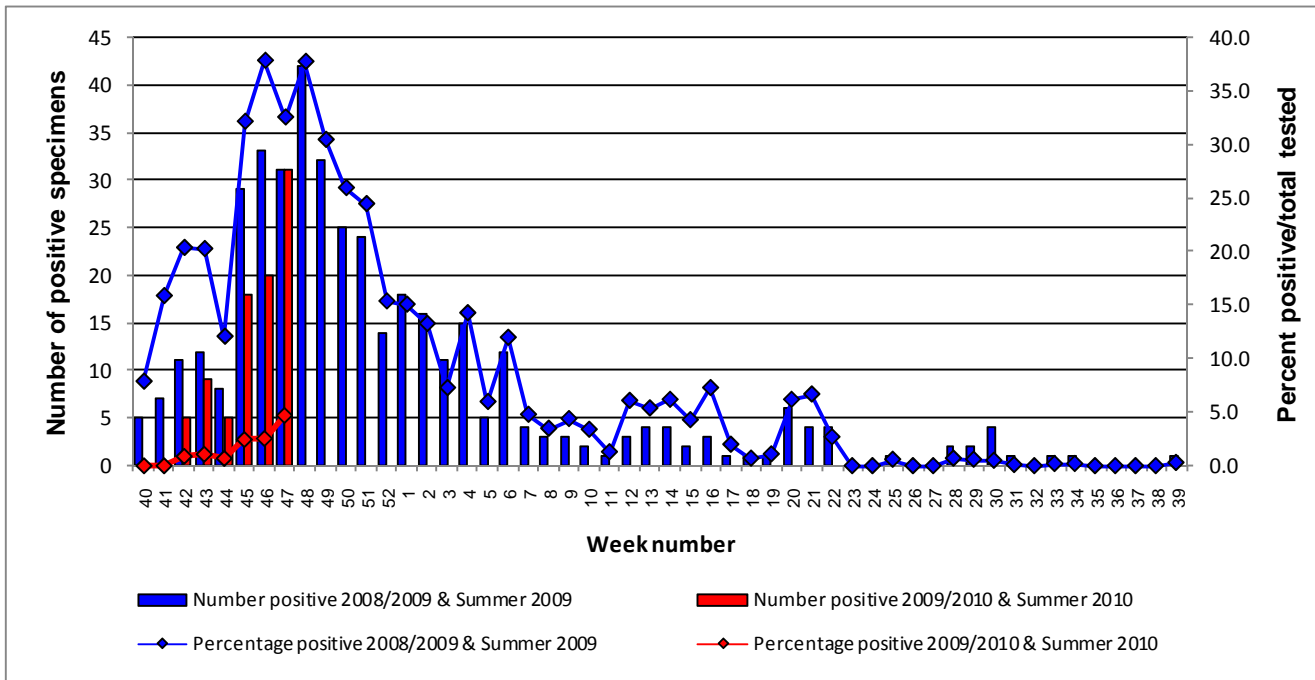


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2009/2010 and Summer 2010 influenza seasons, compared to the 2008/2009 and Summer 2009 influenza seasons

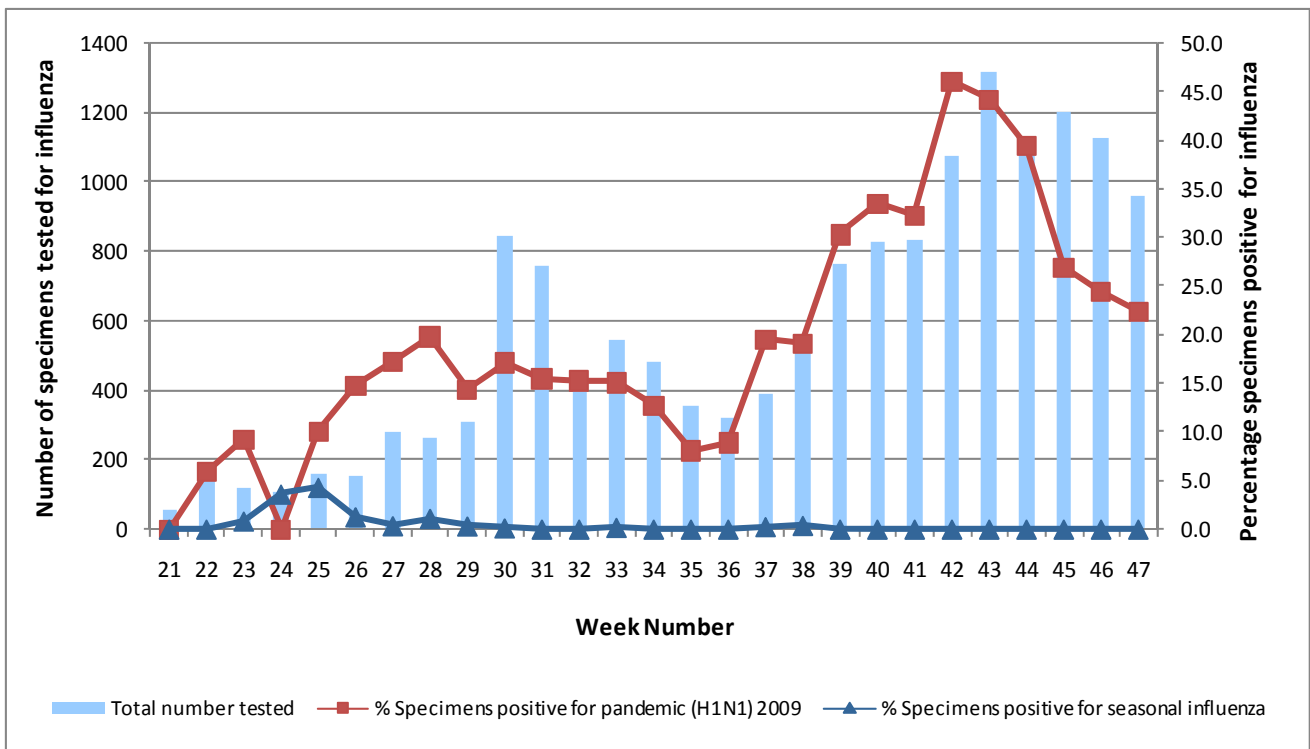


Figure 6: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive⁵
 Source: NVRL, CUH & UCHG

⁵ Please note that virological data for NVRL is from week 21 2009, for CUH is from week 31 2009 and for UCHG is from week 36 2009.

Table 1: Number of sentinel and non-sentinel respiratory specimens tested and positive results, influenza week 47 2009 and Summer 2009 & 2009/2010 seasons to date**

Source: NVRL, CUH and UCHG

Week number	Specimen type	Total Specimens tested	Number Influenza Positive	% Influenza Positive	Confirmed Pandemic (H1N1) 2009	Probable Pandemic (H1N1) 2009	Influenza A(H3)	Influenza A(H1)	Influenza A (unsubtyped)	Influenza B	% Pandemic (H1N1) 2009
47 2009	Sentinel	114	44	38.6	44	0	0	0	0	0	100.0
	Non-sentinel	851	172	20.2	149	23	0	0	0	0	100.0
	Total	965	216	22.4	193	23	0	0	0	0	100.0
Summer 2009 & 2009/2010 seasons to date	Sentinel	1791	682	38.1	679	0	3	0	0	0	99.6
	Non-sentinel	14652	3608	24.6	3294	289	0	0	22	3	99.3
	Total	16443	4290	26.1	3973	289	3	0	22	3	99.3

Table 2: Number of non-sentinel respiratory specimens tested and positive results by laboratory, influenza week 47 2009 and Summer 2009 & 2009/2010 seasons to date**

Source: NVRL, CUH and UCHG

Week number	Laboratory	Total specimens tested	Number influenza positive	% Influenza positive	Confirmed Pandemic (H1N1) 2009	Probable Pandemic (H1N1) 2009	% Pandemic (H1N1) 2009	Influenza A (unsubtyped)	Influenza B
47 2009	NVRL	651	111	17.1	111	0	100.0	0	0
	CUH	142	42	29.6	19	23	100.0	0	0
	UCHG	58	19	32.8	19	0	100.0	0	0
	Total	851	172	20.2	149	23	100.0	0	0
Summer 2009 & 2009/2010 season to date	NVRL	11226	2382	21.2	2354	4	99.0	21	3
	CUH	2358	758	32.1	473	285	100.0	0	0
	UCHG	1068	468	43.8	467	0	99.8	1	0
	Total	14652	3608	24.6	3294	289	99.3	22	3

Table 3: Number of non-sentinel specimens tested by the NVRL for other respiratory pathogens and positive results, influenza week 47 2009 and Summer 2009 & 2009/2010 seasons to date

Source: NVRL

Week number	Total specimens	RSV	% RSV Positive	Adenovirus	% Adenovirus positive	Parainfluenza virus type 1	% Parainfluenza virus type 1	Parainfluenza virus type 2	% Parainfluenza virus type 2	Parainfluenza virus type 3	% Parainfluenza virus type 3
47 2009	651	31	4.8	0	0.0	0	0.0	1	0.2	0	0.0
Summer 2009	6093	21	0.3	4	0.1	4	0.1	0	0.0	6	0.1
2009/2010 season to date	5133	88	1.7	2	0.0	4	0.1	1	0.0	0	0.0

** Please note that virological data for NVRL is from week 21 2009, for CUH is from week 31 2009 and for UCHG is from week 36 2009.

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

During the current pandemic phase of mitigation, testing is focused on cases hospitalised for influenza, cases with severe clinical illness and in other situations such as clusters of ILI in institutions or unusual clusters of serious illness.

As of 21st November 2009, a total of 4,143 confirmed cases of pandemic (H1N1) 2009 infection were reported.^{††} Figure 7 shows the number of confirmed pandemic (H1N1) 2009 cases by week of notification and hospitalisation status.

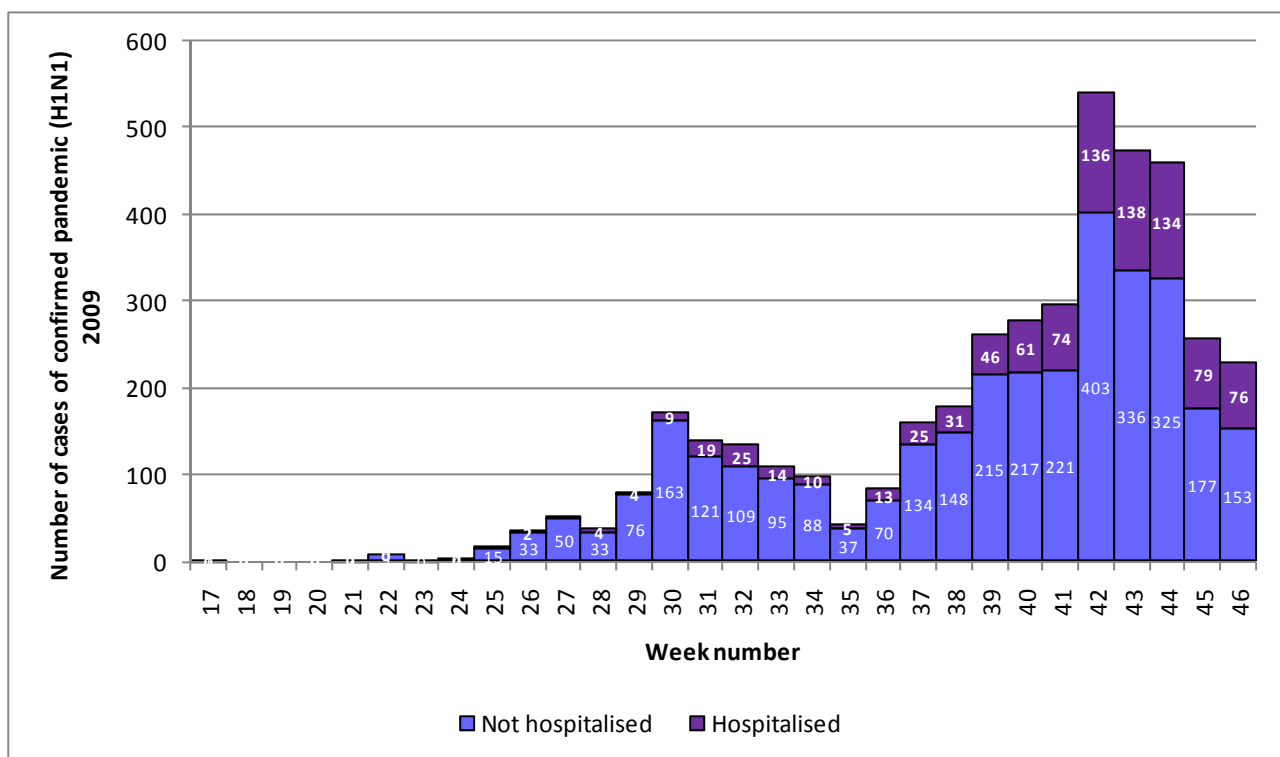


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification and hospitalisation status^{††}

Source: CIDR

Age and Sex

Of the 4,143 confirmed cases reported to 21st November, 2,211 were female (53.4%), 1,912 were male (46.2%) and sex was not reported for 20 cases (0.5%). The median age of cases was 18 years (range: 0-84 years) and 80.4% were less than 35 years of age. Figure 8 shows the age specific rates per 100,000 population of confirmed cases of pandemic (H1N1) 2009 by week of notification. The highest age specific rates are in the 0-4 year age group since week 40 but have decreased in the past two weeks. During week 46, the age specific notification rate decreased in all age groups except for the 25-34 year age group, which increased slightly.

^{††} 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 17-46 above is equivalent to weeks 18-47 on the influenza system.

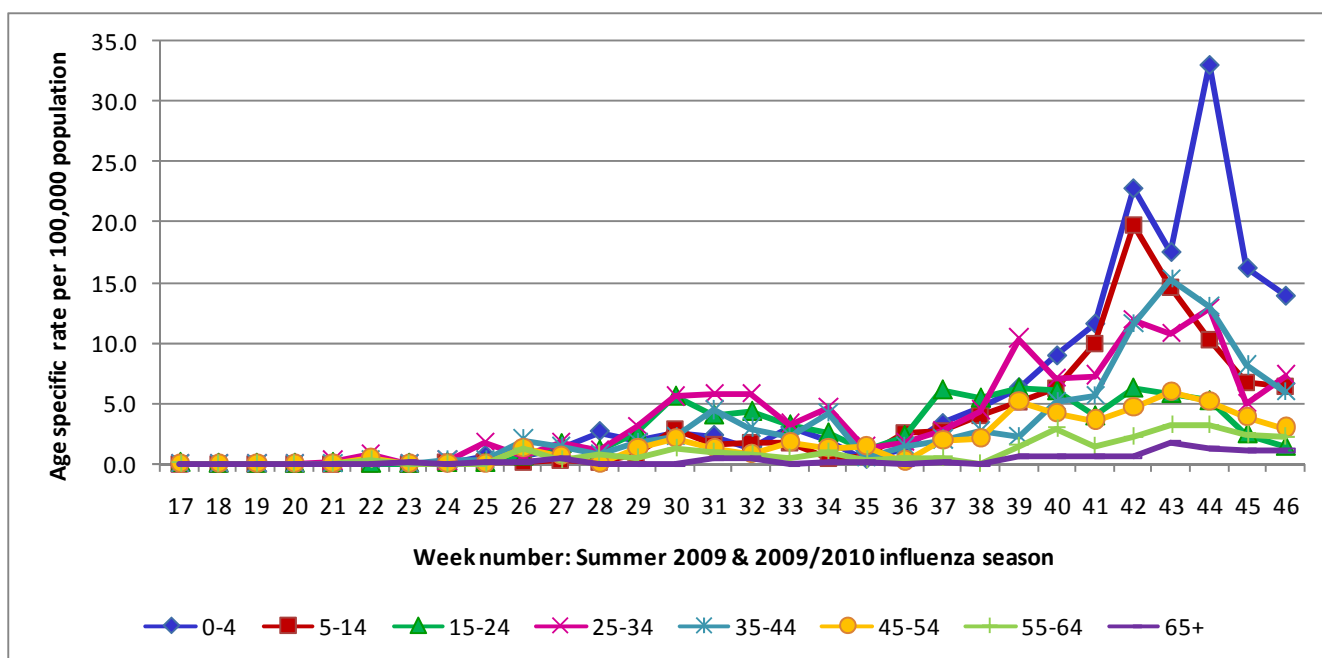


Figure 8: Age specific notification rate per 100,000 population of confirmed cases of pandemic (H1N1) 2009 by week of notification^{§§}

Source: CIDR

HSE area

All HSE areas have reported confirmed cases. The numbers and rates by HSE area are shown in table 4. The highest rate for week 46 was in HSE-SE (8.0 per 100,000 population).

Table 4: Number and rate per 100,000 population for confirmed cases of pandemic (H1N1) 2009 by HSE area^{§§}

Source: CIDR

HSE Area	Week 46: 15 th to 21 st November 2009		Week 17 - Week 46 2009	
	Number of confirmed cases	Rate per 100,000 population	Number of confirmed cases	Rate per 100,000 population
HSE-E	72	4.8	1348	89.9
HSE-M	14	5.6	146	58.0
HSE-MW	14	3.9	267	74.0
HSE-NE	22	5.6	301	76.4
HSE-NW	9	3.8	208	87.7
HSE-SE	37	8.0	323	70.1
HSE-S	34	5.5	845	136.0
HSE-W	27	6.5	705	170.2
Total	229	5.4	4143	97.7

^{§§} Week number in figure 8 and table 4 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 46 above is equivalent to week 47 on the influenza system.

Severity of illness

As of 21st November 2009, clinical illness continues to be mild in the majority of cases. Of the 4,143 confirmed cases, outcome was reported for 1,222 (29.5%) cases. Of the 1,222 confirmed cases where outcome was reported, 1,132 have recovered or are recovering (92.6%) and 73 are still ill (6.0%). To date (25th November) 17 laboratory confirmed cases have died. Table 5 shows the number of deaths in confirmed cases of pandemic (H1N1) 2009 by week.

Table 5: Number of deaths due to pandemic (H1N1) 2009

Week number	Number of deaths due to pandemic (H1N1) 2009
31	1
32	0
33	1
34	0
35	0
36	0
37	0
38	0
39	2
40	0
41	1
42	4
43	3
44	2
45	2
46	1
Total	17

Reported complications have been mostly respiratory in nature; 151 cases developed pneumonia and 58 developed acute respiratory distress syndrome (ARDS). Other reported complications included chest infections, acute renal failure and multi-organ failure.

Hospitalised cases

Of the 4,143 confirmed cases, 908 (21.9%) were admitted to hospital. Of these, 77 (8.5%) were admitted to ICU. The number of laboratory confirmed cases who were hospitalised and admitted to ICU in week 46 was 5, a decrease compared to 9 cases admitted to ICU in week 45.*** Table 6 shows the number of hospitalised cases by age group (years), sex and age-specific hospitalisation rate while figure 9 shows the cumulative numbers and age specific rates by hospitalisation status.

The highest age-specific rates for hospitalised patients are seen in the 0-4 year age group while the highest age-specific rates for non-hospitalised cases are seen in the 5-14 year age group. The median age of hospitalised cases was 17 years. Of the 908 hospitalised cases, 467 (51.5%) were female, 438 (48.2%) were male and sex was not reported for 3 cases (0.3%).

*** ICU figures taken from the pandemic (H1N1) ICU enhanced surveillance system.

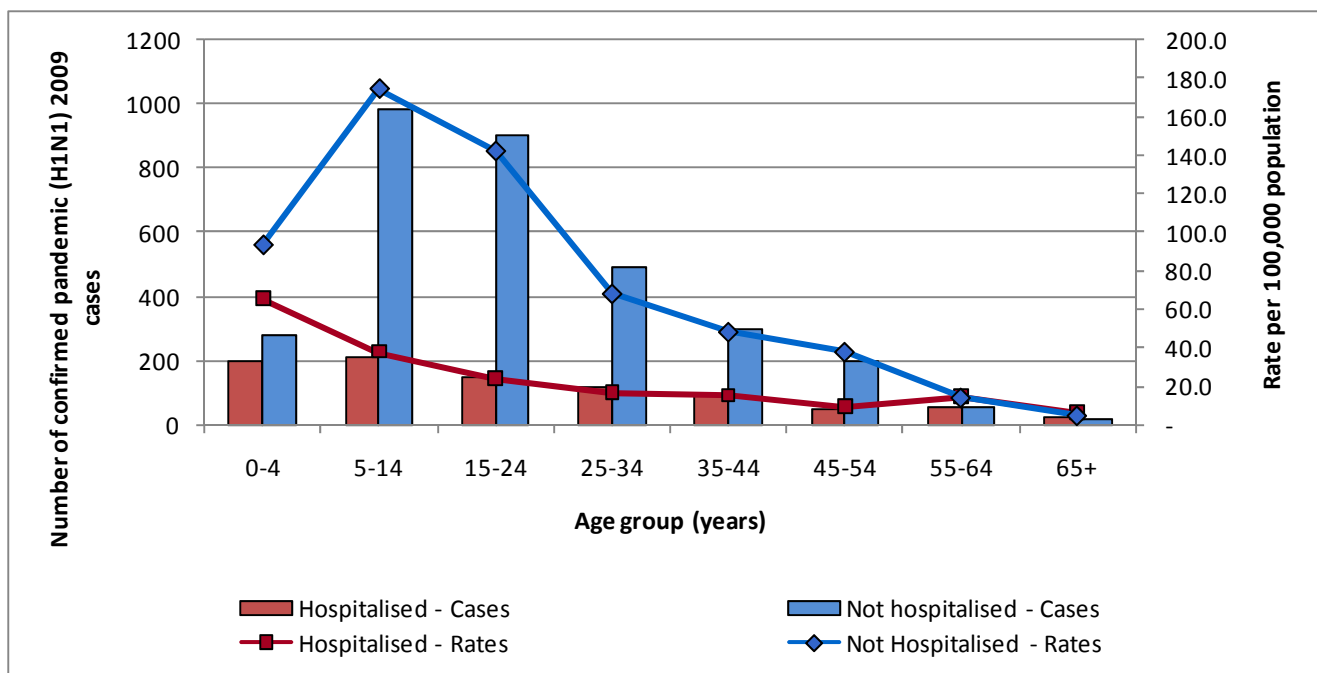


Figure 9: Cumulative numbers and age specific rates for confirmed cases of pandemic (H1N1) 2009 by hospitalisation status

Table 6: Cumulative number of hospitalised cases of confirmed pandemic (H1N1) 2009 by age group (years) and sex (Week 17 – 46)

Source: CIDR

Age group (years)	Female	Male	Unknown	Total	Age specific hospitalisation Rate per 100,000 population	% of Total
0-4	83	113	1	197	65.2	21.7
5-14	81	130	1	212	37.7	23.3
15-24	92	59	0	151	23.9	16.6
25-34	82	38	0	120	16.6	13.2
35-44	61	30	1	92	14.8	10.1
45-54	28	22	0	50	9.6	5.5
55-64	28	29	0	57	14.0	6.3
65+	11	16	0	27	5.8	3.0
Age unknown	1	1	0	2	n/a	0.2
Total	467	438	3	908	21.4	100.0

Of the 908 confirmed cases hospitalised, 390 (43.0%) of the hospitalised cases had pre-existing clinical conditions including chronic heart disease, chronic liver disease, chronic renal disease, chronic respiratory disease, chronic neurological disease, asthma, haemoglobinopathy, immunosuppression, diabetes mellitus, severe obesity (BMI ≥ 40) and pregnancy. Approximately 25% (11 of 45) of hospitalised cases with a chronic neurological disease were reported to have cerebral palsy. Table 7 shows the cumulative number of hospitalised cases by risk group.

Table 7: Cumulative number of hospitalised cases of confirmed pandemic (H1N1) 2009 by risk group (Wk 17 – 46)⁺⁺⁺

Source: CIDR

Risk group	Number of cases	% of hospitalised cases
On medication for asthma	109	12.0
Chronic respiratory disease	94	10.4
Pregnant	61	6.7
Immunosuppressed	60	6.6
Chronic heart disease	47	5.2
Chronic neurological disease	45	5.0
Diabetes mellitus	31	3.4
Haemoglobinopathies	24	2.6
Renal disease	21	2.3
Chronic liver disease	11	1.2
Severely obese (BMI ≥ 40)	10	1.1

⁺⁺⁺ Cases may belong to more than one risk group

5. Outbreak surveillance (CIDR)

As of 21st November 2009, 107 general outbreaks of pandemic (H1N1) 2009 and ILI have been reported in Ireland since week 23 2009. These outbreaks involved 2,370 people in total, of which 194 (8.2%) were laboratory confirmed cases of pandemic (H1N1) 2009. The number ill per outbreak has ranged between two and 150 people.

The majority of these outbreaks (82) occurred in educational settings. Nine outbreaks occurred in residential institutions, four in crèches, three in workplaces, two were in a community hospital/long-stay unit, two were travel related, two were related to social gatherings and one each occurred in a hotel, an intellectual disability unit and a prison (figure 10). Table 7 summarises the pandemic (H1N1) 2009 and ILI outbreaks to date by location, while table 8 summarises the pandemic (H1N1) 2009 and ILI outbreaks by HSE area. Table 9 shows the number of outbreak associated pandemic (H1N1) 2009 and ILI cases by age group (years).

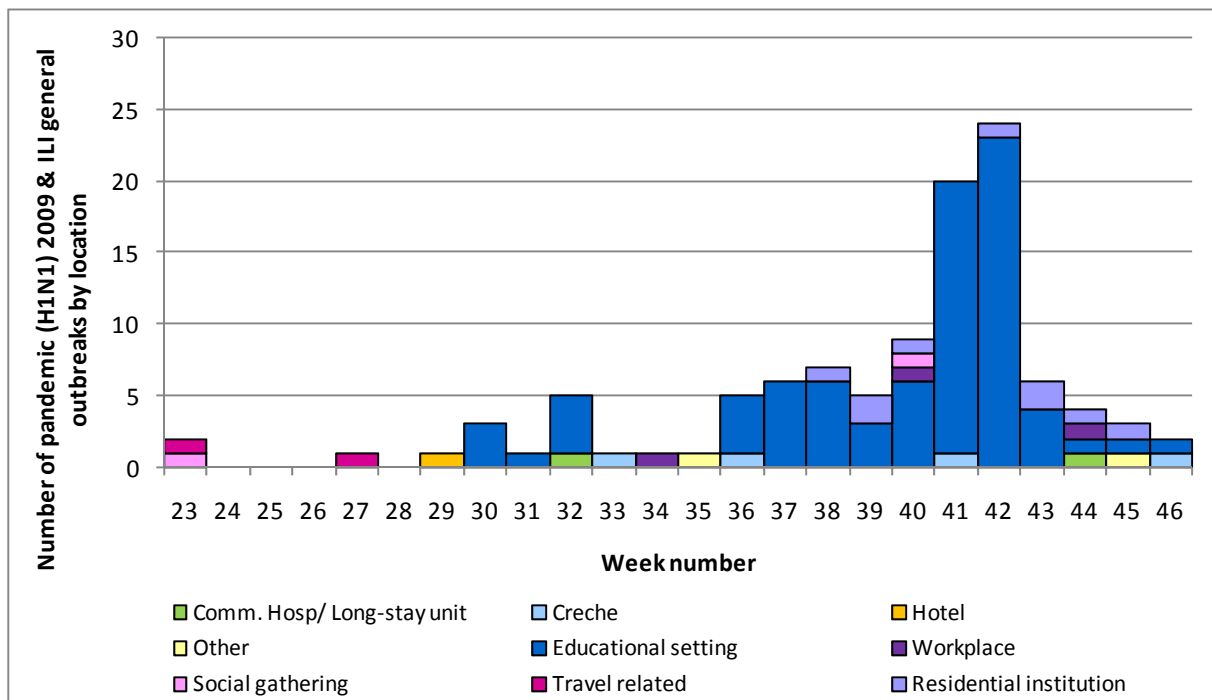


Figure 10: Number of pandemic (H1N1) 2009 and ILI general outbreaks by location and week number^{†††}

Source: CIDR

^{†††} Week number in Figure 10 is based on infectious disease notification week number, which is one week behind the international influenza week number. Therefore week 46 above is equivalent to week 47 on the influenza system.

Table 8: Summary of pandemic (H1N1) 2009 and ILI general outbreaks by location, to date

Source: CIDR

Location	Number of outbreaks	Total number ill	Total number laboratory investigated
Comm. Hosp/ Long-stay unit	2	10	4
Crèche	4	41	6
Hotel	1	3	1
Other	2	5	5
Educational setting	82	2203	131
Residential institution	9	88	34
Social gathering	2	4	3
Travel related	2	9	8
Workplace	3	7	2
Total	107	2370	194

Table 9: Summary of pandemic (H1N1) 2009 and ILI general outbreaks by HSE area, to date

Source: CIDR

HSE Area	Number of outbreaks	Total number ill	Total number laboratory confirmed
HSE-E	28	543	42
HSE-M	0	0	0
HSE-MW	7	32	21
HSE-NE	15	528	31
HSE-NW	9	359	26
HSE-SE	10	193	10
HSE-S	27	293	35
HSE-W	11	422	29
Total	107	2370	194

Table 10: Number of general outbreak associated pandemic (H1N1) and ILI cases of by age group (years), to date

Source: CIDR

Number of cases	0-1	2-4	5-9	10-19	20-49	50-64	65+	Age unknown	Total
	8	33	264	1033	90	7	0	935	2370

International summary

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

Source: WHO 15th November 2009

WHO Region	Cumulative total as of 15 th November 2009	
	Cases ^{§§§}	Deaths
Africa (AFRO)	14,950	103
Americas (AMRO)	190,765	4,806
Eastern Mediterranean (EMRO)	28,751	188
Europe (EURO)	Over 79,000	At least 350
South-East Asia (SEARO)	45,844	710
Western Pacific (WPRO)	166,750	613
Total	Over 526,060	At least 6,770

United Kingdom

During week 46 (9-15 November 2009), the weekly influenza/ILI consultation rates were stable or decreased, though remained above the winter baseline thresholds, in all UK schemes. The majority of pandemic influenza cases continue to be mild, although, the cumulative number of deaths reported to be due to pandemic (H1N1) 2009 is 214. There were 1,483 new patients hospitalised in England with suspected pandemic influenza in the week from 12-18 November, an increase from 1,355 in the previous week. The highest hospitalisation rate has consistently been in those aged under 5 years. The main influenza virus circulating in the UK continues to be the pandemic (H1N1) 2009 strain, with few influenza H1 (non-pandemic), H3 and B viruses detected.

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

On 20th November, the Health Protection Agency (HPA) in the UK reported nine Pandemic Influenza A (H1N1)v confirmed cases amongst patients on a hospital ward in Wales. Five of these cases are determined to be resistant to oseltamivir, one is sensitive and for three resistance status is currently unknown. The cluster is in a group of patients with haematological problems which result in immunosuppression either because of the disorder or the chemotherapy given to treat the disorder. Comment from HPA states that although further epidemiological investigation is underway, it would seem likely that transmission of oseltamivir-resistant H1N1 virus has taken place. In addition, the virus remains sensitive to the other licensed neuraminidase inhibitor zanamivir which is being used as an alternative antiviral and to which patients are responding. For further information, see:

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1258560561316?p=1231252394302

http://ecdc.europa.eu/en/healthtopics/Documents/091123_Influenza_AH1N1_Situation_Report_0900hrs.pdf

Europe

During week 46, three countries (Italy, Norway and Sweden) reported very high intensity, nine countries (Bulgaria, Denmark, Germany, Iceland, Ireland, Lithuania, Luxembourg, Poland and Portugal) reported high intensity, 14 countries reported medium intensity and one country reported low intensity. Seventeen countries reported an increasing trend of influenza activity compared to twenty in the previous week. Countries in Central and Eastern Europe were especially experiencing rising trends. Seven countries (Belgium, Bulgaria, Iceland, Ireland, Luxembourg, Norway and Northern Ireland), reported decreasing trends. Belgium, Iceland and

^{§§§} 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.

the UK (Northern Ireland), reported decreasing trends in week 45 as well. In most countries where influenza activity has risen above baseline levels, the most affected group includes those younger than 15 years. The proportion of sentinel specimens that are confirmed influenza is 45%, a high level normally only seen during the peaks of previous winter influenza epidemics. A total of 670 deaths have been reported since April 2009. Since week 41, the numbers of deaths each week has shown a steady increase almost doubling every fortnight over the last six weeks. While most deaths have been in Western Europe there are increasing numbers of deaths being reported from Central and Eastern Europe.

<http://ecdc.europa.eu/en/publications/Pages/Publications.aspx>

On 20th November 2009, the Norwegian Institute of Public Health reported the detection of a mutation in the viruses affecting three cases of severe pandemic Influenza A (H1N1)v infection. In addition to Norway, the mutation has been observed in Brazil, China, Japan, Mexico, Ukraine and the USA. Comment from ECDC on November 23rd states that there is no indication of change in the virulence of the circulating pandemic H1N1 virus and that the virus with this mutation remains sensitive to oseltamivir and zanamivir. ECDC also states that studies show that the currently available vaccines confer protection and continued close virological monitoring in particular of severe cases, is needed to elucidate any potential relationship between the mutation and the clinical outcome of infection. For further information see:

http://ecdc.europa.eu/en/healthtopics/Documents/091123_Influenza_AH1N1_Situation_Report_0900hrs.pdf

USA

During week 46 (8-14 November), influenza activity decreased slightly in the U.S. The proportion of outpatient visits for influenza-like illness (ILI) was 5.5%, a decrease from the previous week (6.7%) and above the national baseline (2.3%). All 10 regions reported ILI above region-specific baseline levels. The proportion of deaths attributed to pneumonia and influenza (7.5%) in week 46 was above the epidemic threshold (6.9%) for the seventh consecutive week. Twenty one influenza-associated paediatric deaths were reported to CDC in week 46, 15 were associated with Pandemic (H1N1) 2009 infection and six were associated with influenza A virus for which the subtype was undetermined. This brings the total of paediatric deaths to 171. During week 46, 3,106 (28.8%) specimens tested by collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Over 99% of all subtyped influenza A viruses being reported to CDC were pandemic (H1N1) 2009 viruses. Forty three states reported geographically widespread influenza activity.

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

Canada

During week 46 (8-14 November 2009), the activity level remained similar to the previous week. While the number of hospitalizations and deaths still increased, the proportion of positive influenza tests was comparable and the national ILI consultation rate and the number of influenza outbreaks reported decreased. The Pandemic (H1N1) 2009 strain accounted for nearly 100% of the positive influenza A subtyped specimens. During week 46, the intensity of Pandemic (H1N1) 2009 in the population was high with 1,674 hospitalisations, 261 ICU admissions and 84 deaths reported. From August 30 to November 14 2009, a total of 3,965 hospitalised cases including 576 cases admitted to ICU (14.5%), as well as 142 deaths have been reported. Numbers of new deaths were more than two times higher than in the previous week. The number of hospitalisations and deaths reported this week were higher than the overall number of hospitalisations and deaths for the first wave. While the proportion of severe cases (ICU admissions and deaths) among all hospitalised cases was lower in previous weeks, the proportion of deaths over all hospitalized (5%) this week is back to what was observed in the first wave. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

New Zealand

During week 46 (9-15 November 2009), there was a slight decrease in consultations for influenza-like illness through sentinel surveillance. The highest ILI consultation rates have been reported among children and teenagers aged 0 to 19 years. During week 46, one influenza virus was reported as pandemic (H1N1) 2009 from the non-sentinel surveillance. http://www.surv.esr.cri.nz/virology/influenza_weekly_update.php

Australia

During week 46, (7-13 November), national influenza activity continues to decrease with ILI rates below the baseline level reached at the end of the 2007 and 2008 seasons. There were 20 new laboratory confirmed Pandemic (H1N1) cases reported in week 46. The number of people with Pandemic (H1N1) requiring hospitalisation continues to decrease. In total, 4,833 people had been hospitalised, with 13% admitted to ICU. Type A influenza is the predominant seasonal influenza type reported by all jurisdictions and the pandemic strain has almost replaced the current seasonal H1N1 virus. As of 13th November 2009, there were 37,196 confirmed cases of pandemic (H1N1) 2009 and 190 (0.5%) deaths associated with pandemic (H1N1) 2009. <http://www.healthemergency.gov.au/internet/healthemergency/publishing.nsf/Content/ozflucurrent.htm>

Other countries

As of 20th November 2009 <http://www.who.int/csr/disease/swineflu/updates/en/>

- **Ukraine:** WHO released the first information on the genetic characterization of Influenza A virus strains collected from Ukraine on November 17th. The preliminary analysis by two different specialist laboratories shows that the virus is very similar to the other strains causing the current Influenza A(H1N1) pandemic elsewhere in Europe. More details can be found at: http://www.who.int/csr/don/2009_11_16/en/index.html
- **Central and Western Asia:** In Central and Western Asia, increasing disease activity and pandemic influenza virus isolations continue to be reported in several countries. A high intensity of respiratory diseases with increasing trend was reported in Kazakhstan. Recent increases in rates of ILI or ARI have been observed in Uzbekistan and in parts of Afghanistan. In Israel, sharp increases in rates of ILI and pandemic virus detections have been reported in recent weeks.
- **East Asia:** In East Asia, influenza transmission remains active. Intense influenza activity continues to be observed in Mongolia with a severe impact on the healthcare system; however, disease activity may have recently peaked in the past 1-2 weeks. In Japan, influenza activity remains elevated but stable nationally, and may be decreasing slightly in populated urban areas.
- **South and Southeast Asia:** With the exception of Sri Lanka, overall transmission continues to decline in most parts of tropical South and Southeast Asia. In Hong Kong SAR, rates of ILI have returned to baseline after a recent wave of predominantly pandemic H1N1 influenza.
- **Central and South America:** In the tropical areas of Central and South America, most countries continue to report declining influenza activity, with the exception of Peru and Colombia. In the Caribbean Epidemiology Centre (CAREC) countries, after a recent peak of disease activity, rates of ARI have declined over the past 3-4 weeks.

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/>

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Appendix A

Sentinel surveillance for influenza

This is the tenth 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-one 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 provided on both sentinel and non-sentinel specimens. Influenza test results from Cork University Hospital (CUH) and University College Hospital, Galway (UCHG) are also provided on 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.

ICU enhanced surveillance system:

On October 5th 2009, enhanced ICU surveillance system of confirmed cases of pandemic (H1N1) 2009 commenced in Ireland. It is a collaborative project between ICU medical and nursing staff, hospital administrators, departments of public health and the Health Protection Surveillance Centre. Forty hospitals (35 public and 5 private) currently participate in the surveillance scheme.

This system relates to adult, paediatric and neonatal confirmed and probable cases of pandemic (H1N1) 2009 admitted to intensive care units (ICU). The principal aim of the surveillance system is to report on the demographic profile (age, sex,) of all cases of pandemic (H1N1) 2009 admitted to ICU with details of predisposing risk factors, medical interventions and complications and clinical outcome. This information is used in conjunction with surveillance data from a number of other sources as follows: mortality data, data on laboratory confirmed cases, virology data and data on ILI consultation rates from sentinel GP practices.

A more detailed description of this system is available at:

<http://ndsc.newsweaver.ie/newepsiinsight/rqnq2ayeg0sugy02flxkl0>