

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 15 2010 (12th to 18th April 2010)



Summary

- All indicators of influenza activity in Ireland remained at low levels during week 15 2010:
 - ♦ The sentinel GP influenza-like illness (ILI) consultation rate was 2.4 per 100,000 population during week 15, remaining stable compared to the updated rate of 2.1 per 100,000 reported during week 14^{*}. This rate is well below the Irish baseline threshold of 17.8 per 100,000 population.
 - ♦ ILI consultation rates were at low levels in all age groups.
 - ♦ No influenza positive specimens were reported.
 - ♦ No cases of confirmed pandemic (H1N1) 2009 were admitted to hospital or ICU.
 - ♦ No pandemic (H1N1) 2009, influenza or ILI outbreaks were reported.
 - ♦ Respiratory syncytial virus (RSV) positive detections remained at low levels.
- Based on surveillance of laboratory confirmed cases of pandemic (H1N1) 2009 since the beginning of the pandemic:
 - ♦ 4,585 confirmed cases were notified in Ireland, as of 17th April 2010
 - ♦ Children and young adults were the most affected groups; 80.0% of cases were less than 35 years of age.
- Twenty-six deaths in confirmed cases of pandemic (H1N1) 2009 have been reported to date (21st April 2010).

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 Galway University Hospitals (GUH).[†]
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.

^{*} Since the last report, extra information on the number of ILI consultations and positive influenza specimens was provided by sentinel GPs and the NVRL and rates were adjusted accordingly.

[†] Galway University Hospitals (GUH) include University Hospital Galway and Merlin Park University Hospital Galway.

1. GP sentinel surveillance system

Clinical Data

During week 15 2010, 53 of 60 (88.3%) ICGP sentinel general practices provided data, with five practices (8.3%) reporting influenza-like illness (ILI) cases and 55 (91.7%) practices reporting no ILI cases. Five ILI cases were reported during week 15 2010, corresponding to an ILI consultation rate of 2.4 per 100,000 population, which is a slight increase compared to the updated rate of 2.1 per 100,000 population reported during week 14 2010 and is well below the Irish baseline threshold[‡].

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 Galway University Hospitals, (GUH). CUH and GUH 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.

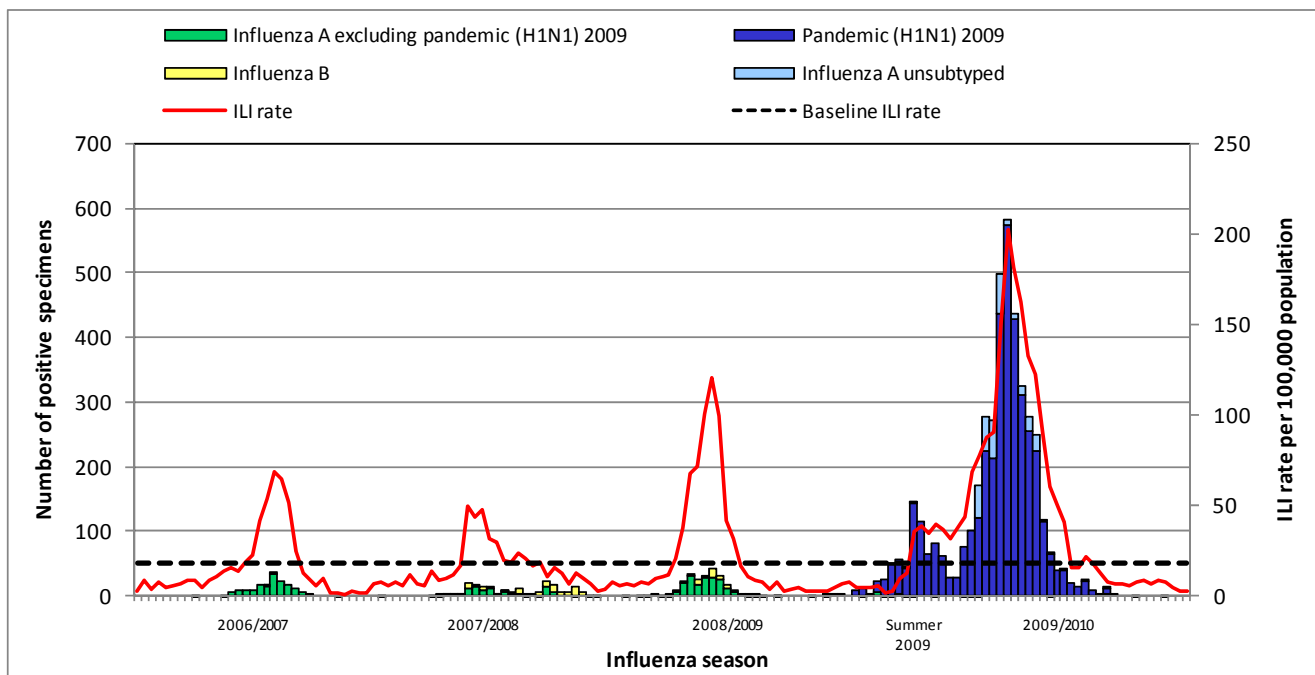


Figure 1: ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens, by influenza week and season[§]

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

During week 15 2010, sentinel GPs reported one ILI case in the 0-4 year age group (6.7 per 100,000 population) and four ILI cases in the 15-64 year age group (2.8 per 100,000 population) as shown in figure 2. No cases were reported in the 5-14 year age group or in those aged 65 years or older.

[‡] Since the last report, extra information on the number of ILI consultations and positive influenza specimens was provided by sentinel GPs and the NVRL and rates were adjusted accordingly

[§] Please note that virological data for NVRL is for all seasons, for CUH is from week 31 2009 and for GUH is from week 36 2009.

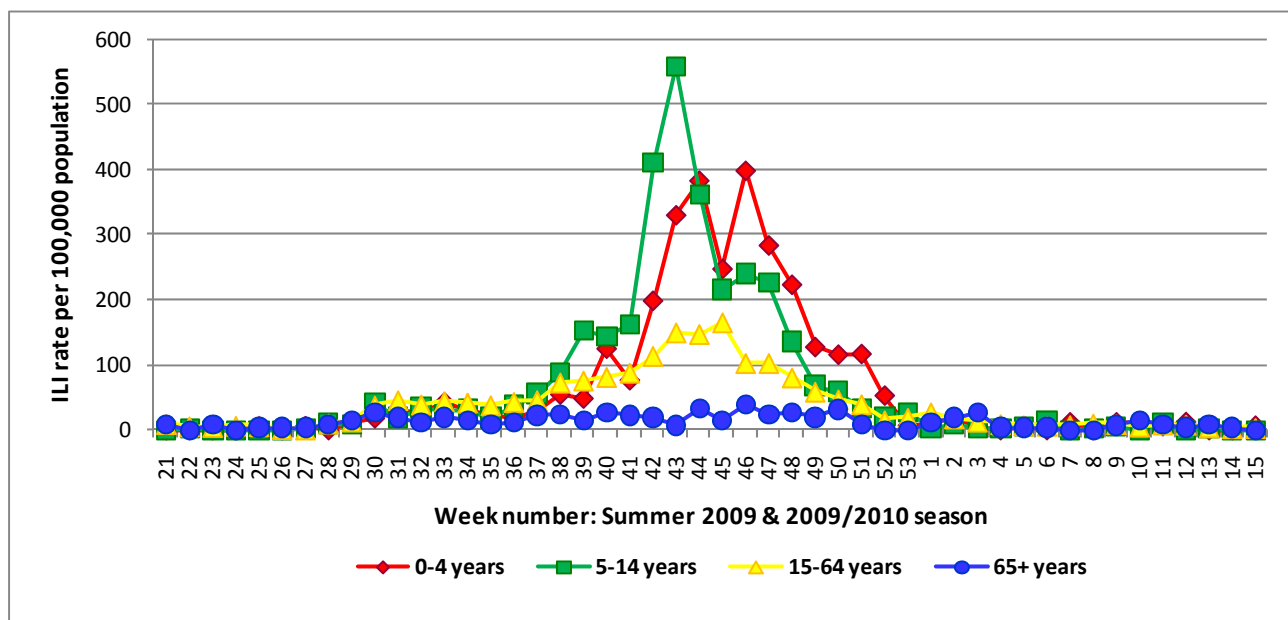


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the Summer 2009 and 2009/2010 influenza season

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. During week 15 2010, sporadic influenza activity (due to isolated cases of ILI and/or isolated laboratory confirmed cases of influenza) was reported by HSE-E and -MW and no influenza activity was reported by HSE-M, -NE, -NW, -SE, -S and -W (figure 3).

Sentinel hospitals and schools

The Departments of Public Health have established at least one sentinel hospital in each HSE area (n=8), 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. Data were received from six HSE areas during week 15 2010. No significant increases in the proportion of respiratory admissions were reported by sentinel hospitals during week 15 2010. Sentinel schools did not report any significant increases in absenteeism during week 15 2010.

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

During week 15 2010, no specimens from the National Virus Reference Laboratory (NVRL), Cork University Hospital (CUH) or Galway University Hospitals (GUH) were positive for influenza.

One specimen from sentinel GPs was tested by the NVRL during week 15 2010, which was negative for influenza.

The NVRL also tested 49 non-sentinel specimens taken during week 15, all of which were negative for influenza. Two (4.1%) non-sentinel specimens (tested by the NVRL) were positive for respiratory syncytial virus (RSV). One (2.0%) non-sentinel specimen was positive for parainfluenza virus type 1 and one (2.0%) was positive for parainfluenza virus type 3, during week 15 2010. No specimens were positive for adenovirus or parainfluenza virus type 2 (table 1 and table 3) during this period. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2009/2010 influenza season compared to the 2008/2009 influenza season. **

CUH tested one non-sentinel specimen taken during week 15 2010, which was negative for influenza. GUH tested no non-sentinel specimens taken during week 15 2010 (table 2).

During the 2009/2010 influenza season, pandemic (H1N1) 2009 has been the sole influenza virus circulating. Figure 6 shows the number of sentinel specimens tested by the NVRL for influenza and non-sentinel specimens tested by the NVRL, CUH and GUH for influenza and the percentage of specimens positive for influenza by week number for Summer 2009 and the 2009/2010 influenza season.

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 (i.e. specimens other than sentinel specimens) from the NVRL may include more than one specimen from each case

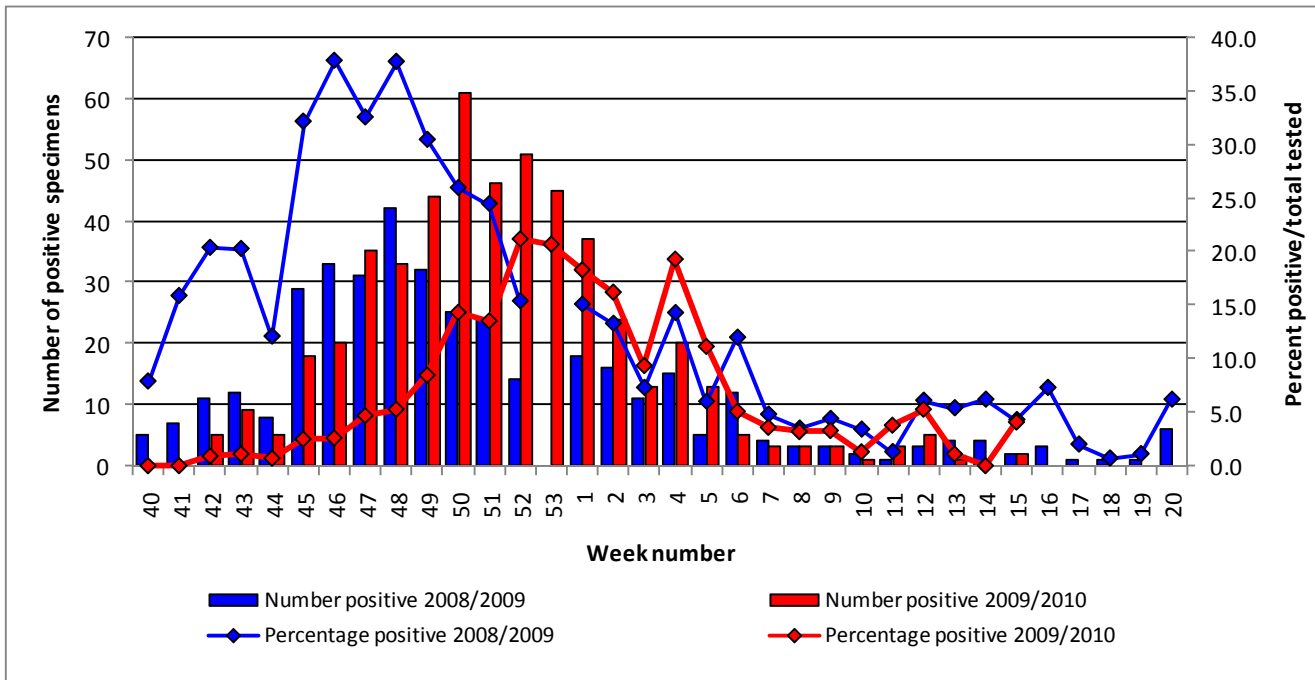


Figure 5: NVRL non-sentinel RSV activity for influenza season 2009/2010 compared to influenza season 2008/2009^{††}
 Source: NVRL

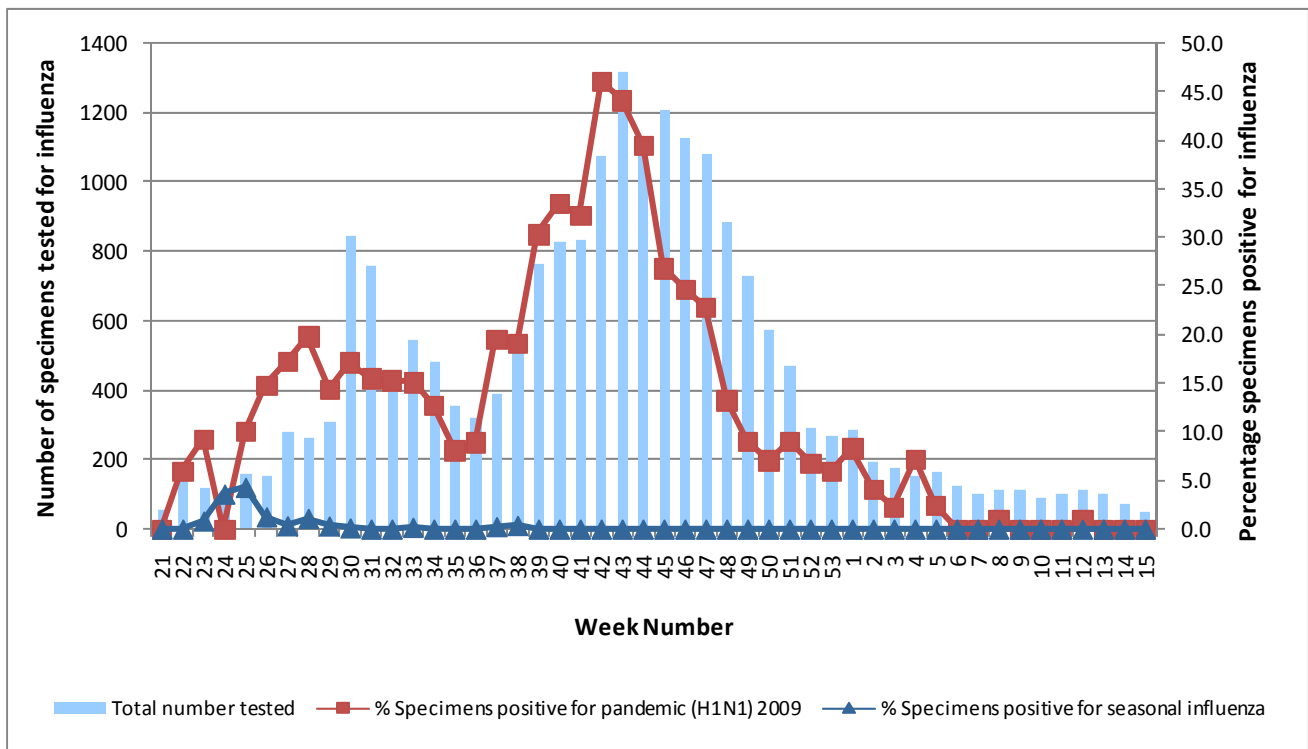


Figure 6: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive^{††}
 Source: NVRL, CUH & GUH

^{††} Please note there was no week 53 in 2008.

^{††} Virological data for NVRL is from week 21 2009, for CUH is from week 31 2009 and for GUH is from week 36 2009.

Table 1: Number of sentinel and non-sentinel respiratory specimens tested and positive results, influenza week 15 2010 and Summer 2009 & 2009/2010 season to date^{§§} *Source: NVRL, CUH and GUH*

Week number	Specimen type	Total Specimens tested for influenza	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
15 2010	Sentinel	1	0	0.0	0	0	0	0	0	0	0.0
	Non-sentinel	50	0	0.0	0	0	0	0	0	0	0.0
	Total	51	0	0.0	0	0	0	0	0	0	0.0
Summer 2009 & 2009/2010 season to date	Sentinel	2253	773	34.3	770	0	3	0	0	0	99.6
	Non-sentinel	19530	3907	20.0	3582	300	0	0	22	3	99.4
	Total	21783	4680	21.5	4352	300	3	0	22	3	99.4

Table 2: Number of non-sentinel respiratory specimens tested and positive results by laboratory, influenza week 15 2010 and Summer 2009 & 2009/2010 season to date^{§§} *Source: NVRL, CUH and GUH*

Week number	Laboratory	Total Specimens tested for influenza	Number Influenza Positive	% Influenza Positive	Confirmed Pandemic (H1N1) 2009	Probable Pandemic (H1N1) 2009	% Pandemic (H1N1) 2009	Influenza A (unsubtyped)	Influenza B
15 2010	NVRL	49	0	0.0	0	0	0.0	0	0
	CUH	1	0	0.0	0	0	0.0	0	0
	GUH	0	0	0.0	0	0	0.0	0	0
	Total	50	0	0.0	0	0	0.0	0	0
Summer 2009 & 2009/2010 season to date	NVRL	15208	2591	17.0	2562	5	99.1	21	3
	CUH	3035	833	27.4	538	295	100.0	0	0
	GUH	1287	483	37.5	482	0	99.8	1	0
	Total	19530	3907	20.0	3582	300	99.4	22	3

Table 3: Number of non-sentinel specimens tested by the NVRL for other respiratory pathogens and positive results, influenza week 15 2010 and Summer 2009 & 2009/2010 season 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
15 2010	49	2	4.1	0	0.0	1	2.0	0	0.0	1	2.0
Summer 2009	6093	21	0.3	4	0.1	4	0.1	0	0.0	6	0.1
2009/2010 season to date	9115	505	5.5	7	0.1	8	0.1	3	0.03	12	0.1

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

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

During the current pandemic phase, 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 17th April 2010, a total of 4,585 confirmed cases of pandemic (H1N1) 2009 have been reported since the beginning of the pandemic. Figure 7 shows the number of confirmed pandemic (H1N1) 2009 cases by week of notification and hospitalisation status.

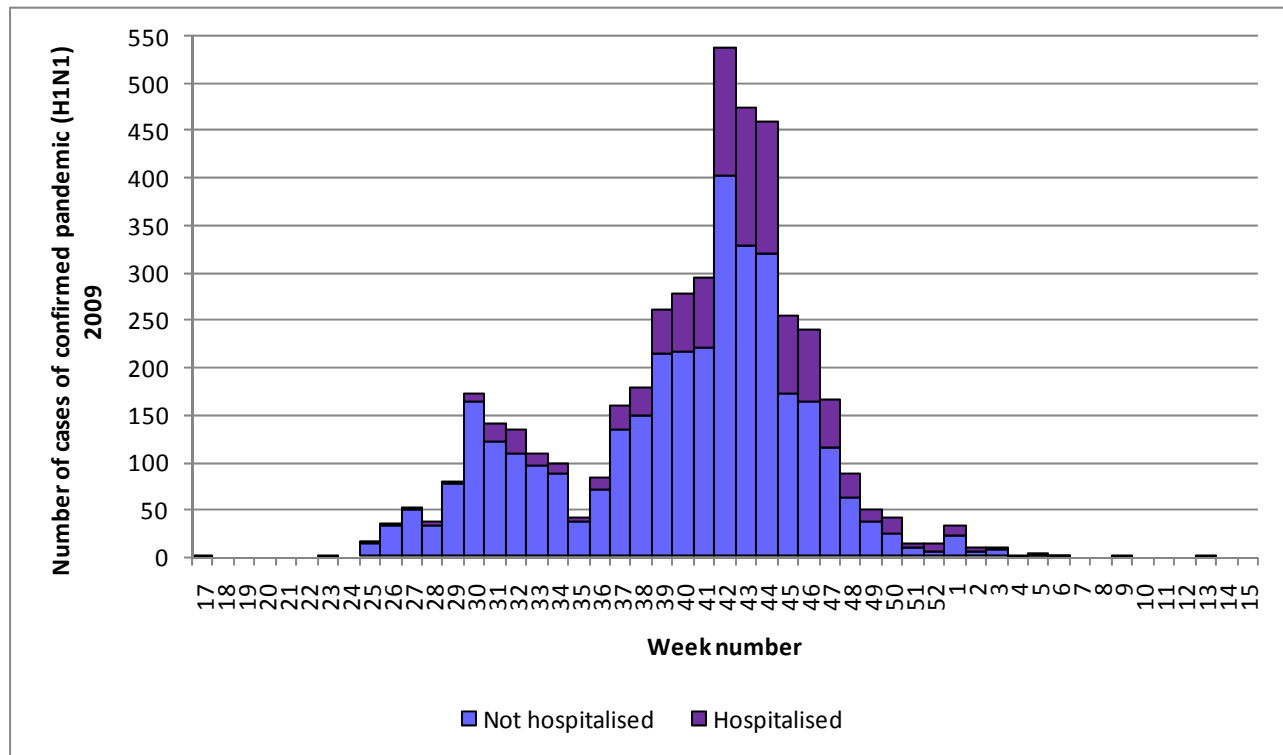


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification and hospitalisation status ***
Source: CIDR

Age and Sex

Of the 4,585 confirmed pandemic (H1N1) 2009 cases reported (as of 17th April 2010), 2,440 were female (53.2%), 2,122 were male (46.3%) and sex was not reported for 23 cases (0.5%). The median age of cases was 18 years (range: 0-84 years) and 80.0% were less than 35 years of age.

Severity of illness

One pandemic (H1N1) 2009 associated death was notified during week 15 2010. This death occurred during week 10 2010. To date, 26 patients with confirmed pandemic (H1N1) 2009 have died, 11 males and 15 females. Nineteen (73.1%) deaths were in adults 35 years of age and older (Table 4). Underlying medical conditions (including pregnancy) were reported for 24 of the 26 deaths (92.3%) and two deaths had no reported underlying conditions. Some cases had more than one underlying condition. Underlying conditions included chronic respiratory disease (n=11), chronic neurological disease (n=9), immunosuppression (n=5), chronic heart

*** Week number on figure 7 is based on infectious disease notification week number, which was one week behind the international influenza week number during 2009. Therefore weeks 17-52 above are equivalent to weeks 18-53 on the influenza system. Epidemiological and influenza week numbering systems are the same for 2010.

disease (n=3), chronic liver disease (n=2), asthma (n=2), chronic renal disease (n=1), pregnancy (n=1) and severe obesity i.e. BMI ≥40 (n=1).

Table 4: Number of deaths in confirmed cases of pandemic (H1N1) 2009 by age group

Age group (years)	Total Number	Percentage of Total
0-4	0	0.0
5-14	3	11.5
15-24	2	7.7
25-34	2	7.7
35-44	5	19.2
45-54	3	11.5
55-64	6	23.1
65+	5	19.2
Unknown	0	0.0
All ages	26	100.0

Hospitalised cases

No laboratory confirmed cases of pandemic (H1N1) 2009 were admitted to hospital or ICU during week 15 2010. Of the 4,585 confirmed cases reported since the beginning of the pandemic, 1,069 (23.3%) were admitted to hospital. Of these, 100 (9.4%) were admitted to ICU. For hospitalised patients, the highest age-specific rates were in the 0-4 year age group. Of the 1,069 confirmed cases hospitalised, 465 (43.5%) had pre-existing clinical conditions.

5. Outbreak surveillance (CIDR)

No new outbreaks of pandemic (H1N1) 2009, influenza or ILI were reported during week 15 2010. As of 17th April 2010, 109 general outbreaks of pandemic (H1N1) 2009 and ILI have been reported in Ireland since week 23 2009. These outbreaks involved 2,578 people in total, of which 204 (7.9%) were laboratory confirmed cases of pandemic (H1N1) 2009. The number ill per outbreak has ranged between two and 150 people.

6. International summary

United Kingdom

During week 14 2010, overall pandemic influenza activity was very low across the UK. GP ILI consultation rates decreased or remained stable in England, Wales and Northern Ireland and increased slightly in Scotland. There have been very few pandemic (H1N1) 2009 viruses detected through non-sentinel surveillance in recent weeks and no sentinel detections since week 11 2010. Few influenza H1 (non-pandemic), H3 and B viruses have been detected in the 2009/2010 season. Forty of 6,124 pandemic viruses tested have been confirmed to carry a mutation which confers resistance to the antiviral drug oseltamivir; 15 are phenotypically resistant to the drug but retain sensitivity to zanamivir. There have been 474 deaths reported due to pandemic (H1N1) 2009 in the UK. http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1243928258754

Europe

During week 14 2010, all 24 reporting countries experienced low intensity of influenza activity for the sixth consecutive week. All countries reported no or sporadic influenza activity, except for Italy who reported localised activity. Of the 40 influenza viruses detected from sentinel and non-sentinel sources during week 14

2010, 27 (68%) were influenza type B viruses. Influenza activity caused by the 2009 pandemic influenza A(H1N1) virus is well past its winter peak in EU/EEA countries. However, transmission associated with sporadic cases continues to occur whilst most cases of ILI in EU/EEA countries are not due to influenza virus infection.

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

USA

During week 14 2010, influenza activity decreased in the U.S. The proportion of outpatient visits for ILI was below the national baseline. During week 14 2010, 2.7% of specimens tested positive for influenza. Among 34 subtyped influenza A viruses, 33 were 2009 influenza A (H1N1) and one was influenza A (H3). The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. Three influenza-associated paediatric deaths were reported. One was associated with 2009 influenza A (H1N1) virus infection, one was associated with an influenza A virus for which the subtype was undetermined, and one death was associated with a seasonal influenza A (H1) virus infection, but occurred during the 2008/2009 season.

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

Canada

Overall influenza activity has remained low in Canada for at least 16 consecutive weeks. The proportion of tests that were positive for influenza during week 14 2010 (0.36%, 6/1,671) remained at a very low level; among the six positive specimens, three were pandemic (H1N1) 2009, two were unsubtyped influenza A and one was influenza B. Although still high, the proportion of positive RSV (13.0%) has continued to decline for the last 7 weeks. No new H1N1-related hospitalisations and deaths have been reported this week. To date, only 14 hospitalisations and two deaths have occurred since the beginning of 2010.

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

Worldwide

As of 11th April 2010, more than 214 countries and overseas territories or communities have reported laboratory confirmed cases of pandemic influenza H1N1 2009, including over 17,798 deaths. The most active areas of pandemic influenza virus transmission are currently in parts of the tropical zones of the Americas, West Africa, Eastern Africa and South East Asia. Although pandemic influenza continues to be the predominant circulating influenza virus worldwide, seasonal influenza type B virus circulation continues to be predominant in East Asia, and is being detected across other parts of Asia, and Europe at low levels. Sporadic detections of seasonal influenza H3N2 viruses have been reported across Asia, Eastern Europe and Eastern Africa most notably in recent weeks in Indonesia and Tanzania. Sporadic seasonal H1N1 viruses were reported in the Russian Federation and Northern China in the last week.

The total numbers of confirmed pandemic (H1N1) 2009 deaths reported worldwide by the World Health Organization (WHO) region are shown in table 5.

Table 5: Reported number of confirmed pandemic (H1N1) 2009 deaths by WHO region

Source: WHO <http://www.who.int/csr/disease/swineflu/updates/en/>

WHO Region	Cumulative total as of 11 th April 2010
	Deaths
Africa (AFRO)	168
Americas (AMRO)	At least 8274
Eastern Mediterranean (EMRO)	1019
Europe (EURO)	At least 4776
South-East Asia (SEARO)	1757
Western Pacific (WPRO)	1804
Total	At least 17798

Avian influenza (H5N1):

As of 21st April 2010, 495 confirmed human cases and 292 (58.9%) deaths from avian influenza A (H5N1) have been reported to the WHO from Azerbaijan, Bangladesh, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Lao Peoples Democratic Republic, Myanmar, Nigeria, Pakistan, Thailand, Turkey and Viet Nam. To date in 2010, Egypt, Indonesia and Vietnam have all reported human H5N1 infections.

Further information on avian influenza is available on the following websites:

http://www.who.int/csr/disease/avian_influenza/country/en/
<http://www.hpsc.ie/hpsc/A-Z/Respiratory/Influenza/AvianInfluenza/>
http://ecdc.europa.eu/en/healthtopics/Pages/Avian_Influenza.aspx

Northern hemisphere influenza vaccine for the 2010/2011 season:

For the 2010/2011 influenza season in the Northern Hemisphere, the members of the WHO Collaborating Centres on Influenza have recommended that seasonal influenza vaccines contain the following strains:

- an A/California/7/2009 (H1N1)-like virus
- an A/Perth/16/2009 (H3N2)-like virus⁺⁺⁺
- a B/Brisbane/60/2008-like virus

http://www.who.int/csr/disease/influenza/recommendations2010_11north/en/index.html
http://www.who.int/csr/disease/influenza/201002_Recommendation.pdf

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

Ireland	www.hpsc.ie
Northern Ireland	http://www.cdscni.org.uk/
Europe – ECDC	http://ecdc.europa.eu/
Europe – EISN	http://ecdc.europa.eu/en/activities/surveillance/EISN/Pages/home.aspx
World Health Organization	http://www.who.int/topics/influenza/en/

Acknowledgements

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⁺⁺⁺ A/Wisconsin/15/2009 is an A/Perth/16/2009 (H3N2)-like virus and is a 2010 southern hemisphere vaccine virus.

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 sentinel general practices covering 5.6% 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/newepiinsight/rqng2ayeg0sugy02flxkl0>