

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 12 2010 (22nd to 28th March 2010)



Summary

- Influenza activity in Ireland remained at low levels during week 12:
 - ♦ The sentinel GP influenza-like illness (ILI) consultation rate was 7.1 per 100,000 population during week 12 which remains stable compared to the updated rate of 8.1 per 100,000 reported during week 11*. This rate is well below the Irish baseline threshold of 17.8 per 100,000 population.
 - ♦ The highest sentinel GP age-specific ILI consultation rate occurred in those aged 0-4 years (13.4 per 100,000 population).
 - ♦ No confirmed cases of pandemic (H1N1) 2009 were reported by sentinel GPs.
 - ♦ One confirmed case of pandemic (H1N1) 2009 from non-sentinel sources was detected by the NVRL.
 - ♦ One hospitalised case of confirmed pandemic (H1N1) 2009 was admitted to ICU.
 - ♦ No pandemic (H1N1) 2009, influenza or ILI outbreaks were reported.
 - ♦ Respiratory Syncytial Virus (RSV) activity remained stable.
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 27th March:
 - ♦ 4,584 confirmed cases have been notified in Ireland.
 - ♦ Children and young adults remain the most affected groups; 80.0% of cases are less than 35 years of age.
- Twenty-four deaths in confirmed cases of pandemic (H1N1) 2009 have been reported to date (31st March 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 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.

* 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.

1. GP sentinel surveillance system

Clinical Data

During week 12 2010, 54 of 60 (90.0%) ICGP sentinel general practices provided data, with 11 practices (18.3%) reporting 15 influenza-like illness (ILI) cases and 49 (81.7%) practices reporting no ILI cases. This corresponds to an ILI consultation rate of 7.1 per 100,000 population, which remains stable compared to the updated rate of 8.1 per 100,000 population reported during week 11 2010 and 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 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 unsubtype isolates (probable pandemic (H1N1) 2009) are specimens that are awaiting laboratory confirmation as pandemic (H1N1) 2009.

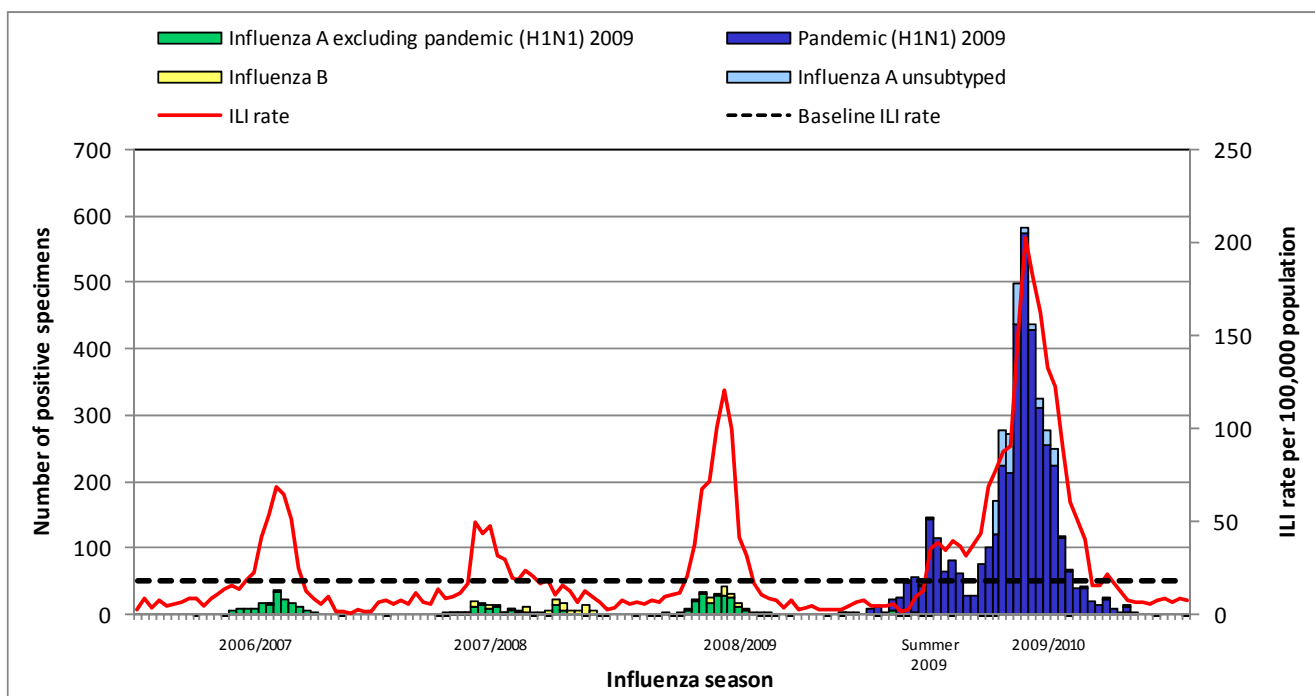


Figure 1: ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens, by influenza week and season[‡]

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

During week 12 2010, sentinel GPs reported two ILI cases in the 0-4 year age group (13.4 per 100,000 population), no cases in the 5-14 year age group, 12 cases in the 15-64 year age group (8.3 per 100,000 population) and one case in those aged 65 years and older (4.3 per 100,000 population) as shown in figure 2.

[†] 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 UCHG is from week 36 2009.

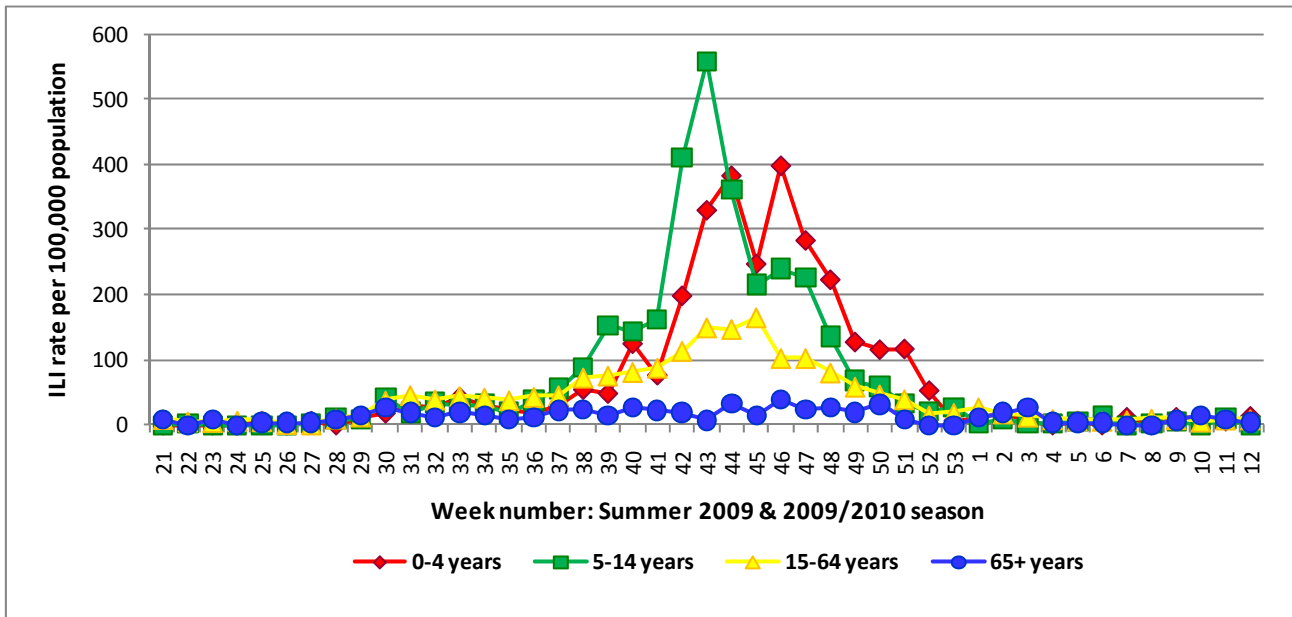


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the Summer 2009 and 2009/2010 influenza season

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 12 2010, no influenza activity was reported by HSE-M, -NW, -SE and -W while sporadic activity (due to isolated cases of ILI and/or isolated laboratory confirmed cases of influenza) was reported by the remaining four HSE areas (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. Sentinel school and hospital data were received from six HSE areas during week 12. No increases in the proportion of respiratory admissions were reported by sentinel hospitals during week 12. One sentinel primary school and one sentinel secondary school in HSE-E reported slight increases in absenteeism during week 12 2010.

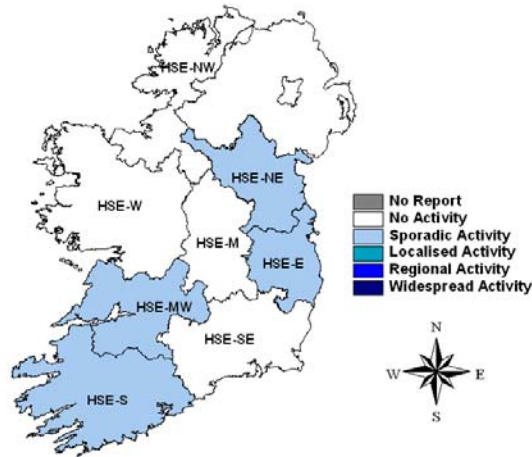


Figure 3: Map of provisional influenza activity by HSE area during influenza week 12 2010

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 1.3% during week 12, which remains stable compared to the proportion (1.1%) reported during week 11 (figure 4).

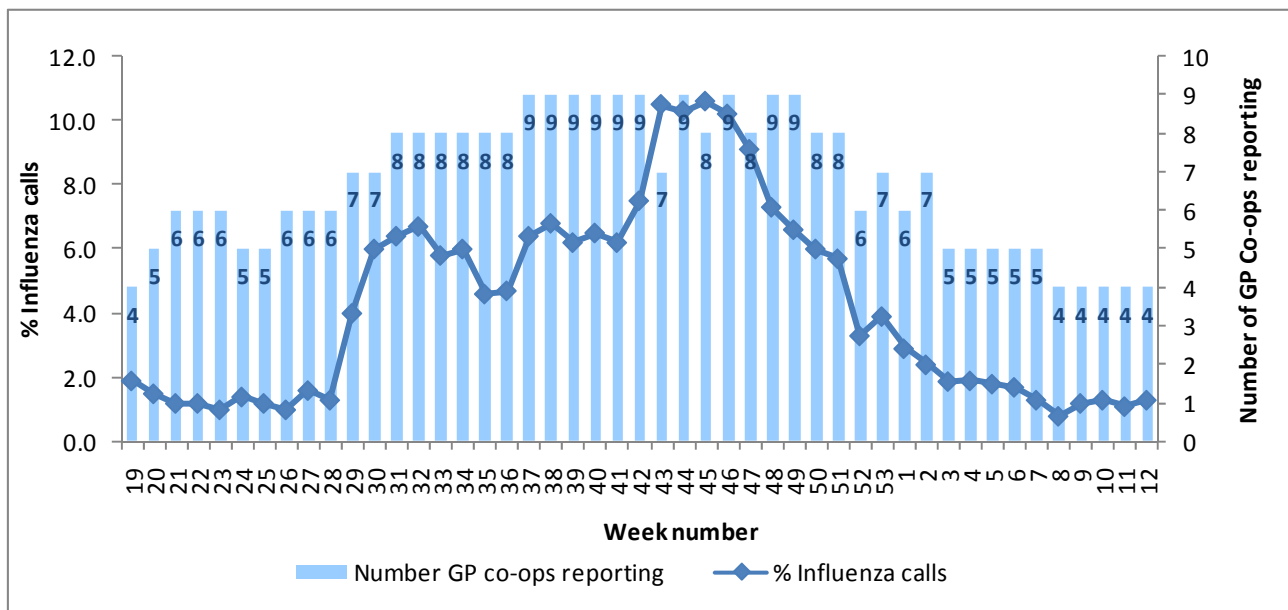


Figure 4: Flu-related calls as a proportion of total calls to out-of-hours GP Co-ops by week[§] Source: HSE-NE.

[§] Week 11: data received from D-Doc, K-Doc, Shan-Doc and 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)

Seven specimens from sentinel GPs were tested by the NVRL during week 12 2010, none of which were positive for influenza.

The NVRL also tested 79 non-sentinel specimens taken during week 12, one (1.2%) of which was positive for pandemic (H1N1) 2009 while three specimens (3.8 %) were positive for RSV. No specimens were positive for other influenza A subtypes, influenza B, adenovirus or parainfluenza viruses (table 1 and table 3). 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. **

UCHG tested three non-sentinel specimens and CUH tested four non-sentinel specimens taken during week 12 2010, none of which were positive for influenza (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 UCHG for influenza and the percentage of specimens testing 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 relate to specimens referred to the NVRL (other than sentinel specimens) and may include more than one specimen from each case

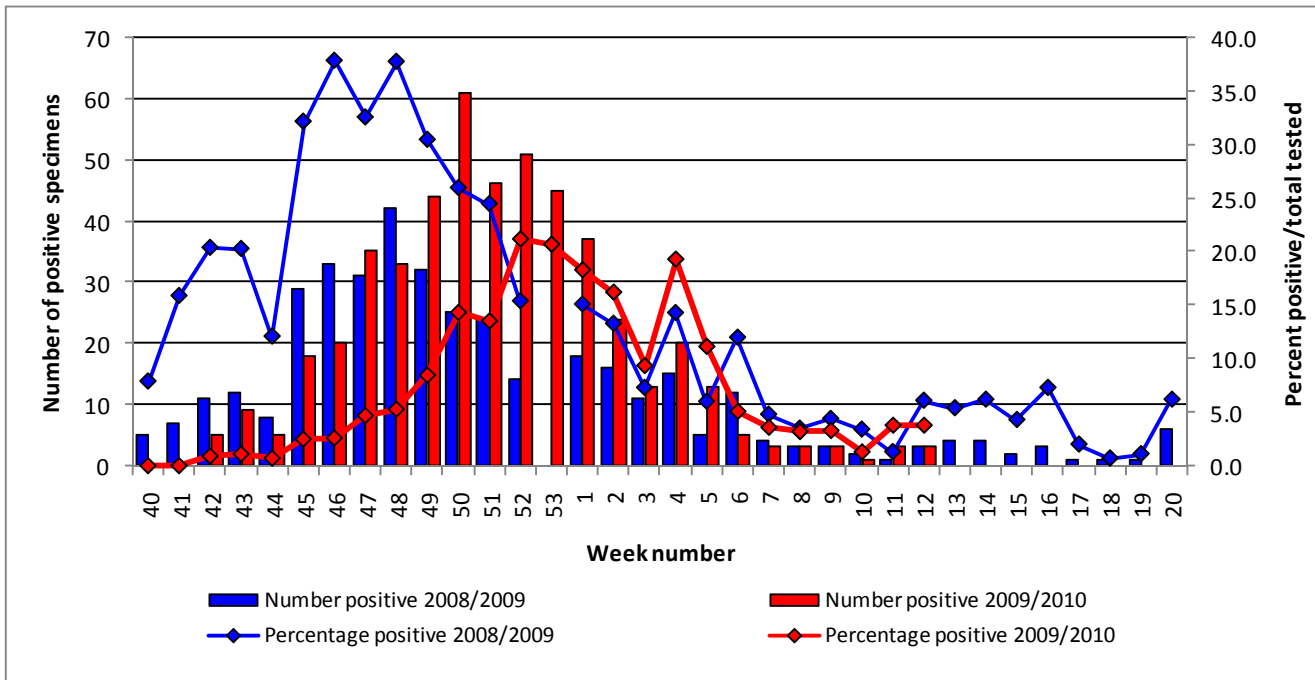


Figure 5: NVRL non-sentinel RSV activity for influenza season 2009/2010 compared to influenza season 2008/2009^{††}
 Source: NVRL

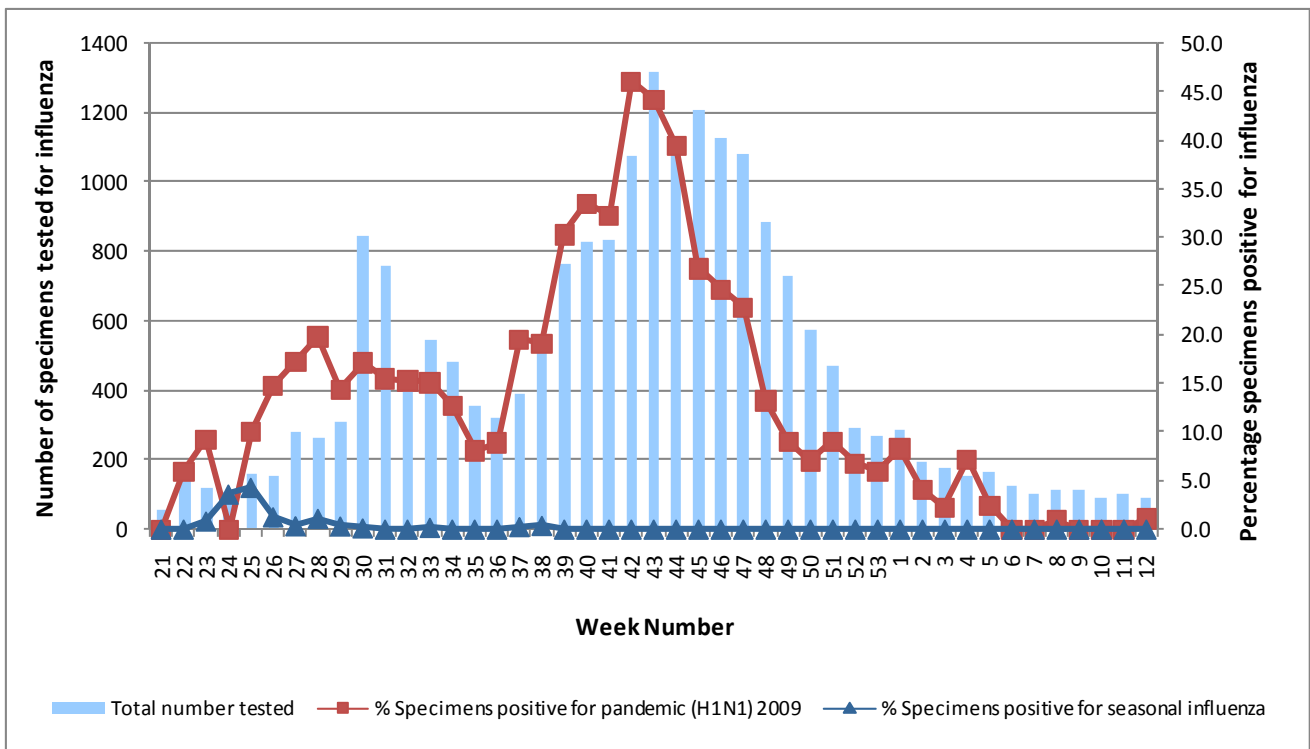


Figure 6: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive^{††}
 Source: NVRL, CUH & UCHG

^{††} 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 UCHG is from week 36 2009.

Table 1: Number of sentinel and non-sentinel respiratory specimens tested and positive results, influenza week 12 2010 and Summer 2009 & 2009/2010 season to date^{§§} Source: NVRL, CUH and UCHG

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
12 2010	Sentinel	7	0	0.0	0	0	0	0	0	0	0.0
	Non-sentinel	86	1	1.2	1	0	0	0	0	0	1.2
	Total	93	1	1.1	1	0	0	0	0	0	1.1
Summer 2009 & 2009/2010 season to date	Sentinel	2243	773	34.5	770	0	3	0	0	0	99.6
	Non-sentinel	19292	3907	20.3	3582	300	0	0	22	3	99.4
	Total	21535	4680	21.7	4352	300	3	0	22	3	99.4

Table 2: Number of non-sentinel respiratory specimens tested and positive results by laboratory, influenza week 12 2010 and Summer 2009 & 2009/2010 season to date^{§§} Source: NVRL, CUH and UCHG

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
12 2010	NVRL	79	1	1.3	1	0	100.0	0	0
	CUH	4	0	0.0	0	0	0.0	0	0
	UCHG	3	0	0.0	0	0	0.0	0	0
	Total	86	1	1.2	1	0	100.0	0	0
Summer 2009 & 2009/2010 season to date	NVRL	14983	2591	17.3	2562	5	99.1	21	3
	CUH	3025	833	27.5	538	295	100.0	0	0
	UCHG	1284	483	37.6	482	0	99.8	1	0
	Total	19292	3907	20.3	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 12 2010 and Summer 2009 & 2009/2010 season to date. Source: NVRL

Week number	Total specimens	RSV	% RSV Positive	Adenoviruses	% 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
12 2010	79	3	3.8	0	0.0	0	0.0	0	0.0	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	8890	500	5.6	6	0.1	7	0.1	3	0.03	4	0.04

§§ 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, 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 27th March 2010, a total of 4,584 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.

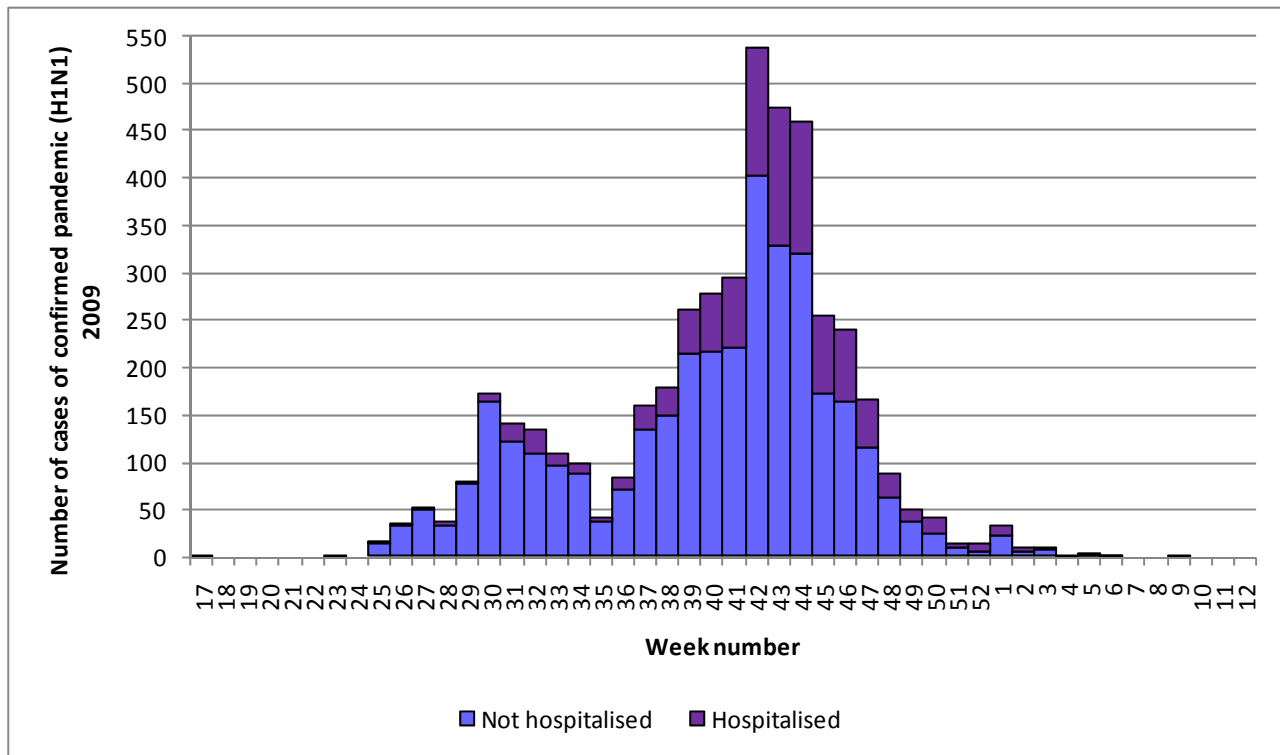


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification and hospitalisation status ***
Source: CIDR

Age and Sex

Of the 4,584 confirmed cases reported to 27th March, 2,440 were female (53.2%), 2,121 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

No deaths were reported during week 12 2010. Twenty-four patients with confirmed pandemic (H1N1) 2009 have died to date, ten males and fourteen females. Seventy five percent (18/24) of deaths were in adults 35 years of age and older (Table 4). Underlying medical conditions (including pregnancy) were reported for 23 of the 24 deaths (96%) and one death had no reported underlying condition. Some cases had more than one underlying condition. Underlying conditions included chronic respiratory disease (n=10), chronic neurological disease (n=9), immunosuppression (n=5), chronic heart 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 \geq 40 (n=1).

*** 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.

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	12.5
15-24	2	8.3
25-34	1	4.2
35-44	4	16.7
45-54	3	12.5
55-64	6	25.0
65+	5	20.8
Unknown	0	0.0
All ages	24	100

Hospitalised cases

Of the 4,584 confirmed cases, 1,068 (23.3%) were admitted to hospital. Of these, 100 (9.4%) were admitted to ICU. One laboratory confirmed hospitalised case was admitted to ICU during week 12 2010. For hospitalised patients, the highest age-specific rates were in the 0-4 year age group. Of the 1,068 confirmed cases hospitalised, 464 (43.4%) had pre-existing clinical conditions.

5. Outbreak surveillance (CIDR)

No new outbreaks of pandemic (H1N1) 2009, influenza or ILI were reported during week 11 2010. As of 27th March 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

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 26th March 2010

WHO Region	Cumulative total as of 26 th March 2010
	Deaths
Africa (AFRO)	167
Americas (AMRO)	At least 7673
Eastern Mediterranean (EMRO)	1019
Europe (EURO)	At least 4637
South-East Asia (SEARO)	1709
Western Pacific (WPRO)	1726
Total	At least 16931

United Kingdom

During week 11 (week ending 21st March 2010), overall pandemic influenza activity was low and generally stable across the UK. No specimens collected through GP sentinel systems tested positive for any influenza virus in week 11 2010. Forty of 5,629 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 457 deaths reported due to pandemic (H1N1) 2009 in the UK (342 in England, 69 in Scotland, 28 in Wales and 18 in Northern Ireland).

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

Europe

During week 11 2010 (week ending 21st March), all 24 reporting countries reported low intensity. Regional activity was reported in Greece while local activity was reported in Italy and Scotland. Sporadic or no activity was reported in the remaining reporting countries. Although pandemic (H1N1) 2009 is predominating, there is evidence of circulating influenza B viruses as well. Since week 40 2009, over 99% of the viruses detected in sentinel specimens were pandemic influenza A (H1N1) 2009 virus. Oseltamivir resistance was detected in 37 (2.5%) of the 1,453 viruses tested and reported to EISN to date. Resistance to zanamivir was not detected in any of the 1,447 strains tested. <http://ecdc.europa.eu/en/publications/Pages/Publications.aspx>

USA

During week 11 2010 (week ending 20th March), influenza activity remained stable. The proportion of outpatient visits for ILI was below the national baseline level. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. One influenza associated paediatric death was reported during week 11, associated with an influenza A virus for which the subtype was undetermined. During week 11, two influenza B viruses and one influenza A (H3N2) virus were reported, although approximately 99% of all subtyped influenza A viruses reported to CDC this week were pandemic influenza A (H1N1) 2009 viruses.

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

Canada

During week 11 (week ending 20th March), all influenza indicators were still considerably below expected levels for this time of the year. Overall influenza activity has remained low for at least 13 consecutive weeks. On January 27th, the Public Health Agency of Canada announced that the second wave of pandemic (H1N1) 2009 had tapered off. The ILI consultation rate was still significantly below the expected range for this time of the year with only 0.4% of specimens testing positive for influenza. Of the nine positive specimens detected during week 11 2010, seven (78%) were positive for pandemic (H1N1) 2009, one (11%) was unsubtyped influenza A and one (11%) was positive for influenza B. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Other countries

As of March 26th 2010, the most active areas of pandemic influenza virus transmission currently are in parts of Southeast Asia, West Africa, and in the tropical zone of the Americas. After a period of sustained pandemic influenza transmission in Thailand over the past two months, overall activity now appears to be decreasing. In West Africa, limited data suggests that active transmission of pandemic influenza virus persists without clear evidence of a peak in activity. In Central America and in the tropical zone of South America, an increasing trend of respiratory disease activity, associated with circulation of pandemic influenza virus, has been reported since early March 2010 in an increasing number of countries. Although pandemic influenza virus continues to be the predominant influenza virus circulating worldwide, seasonal influenza B viruses are predominant in East Asia, and have been increasingly detected at low levels across southeast and western Asia, eastern Africa, and in parts of Europe. <http://www.who.int/csr/disease/swineflu/updates/en/>

Avian influenza (H5N1):

As of 30th March 2010, 492 confirmed human cases and 291 (59.1%) 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.

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

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

^{†††} 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>