

Influenza Surveillance in Ireland - Weekly Update

Influenza Week 11 2010 (15th to 21st March 2010)



Summary

- Influenza activity in Ireland remained at low levels during week 11:
 - ♦ The sentinel GP influenza-like illness (ILI) consultation rate was 6.7 per 100,000 population during week 11 which remains stable compared to the updated rate of 6.2 per 100,000 reported during week 10*. 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 65 years and older (8.1 per 100,000 population).
 - ♦ No confirmed cases of pandemic (H1N1) 2009 were reported.
 - ♦ No pandemic (H1N1) 2009, influenza or ILI outbreaks were reported.
 - ♦ No influenza viruses were detected by NVRL, CUH or UCHG.
 - ♦ Respiratory Syncytial Virus (RSV) activity remained stable.
- Based on the surveillance of laboratory confirmed cases of pandemic (H1N1) 2009, as of 20th 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 (24th 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 occurring in week 10 was provided by sentinel GPs and the NVRL and the rate for the week was adjusted accordingly

1. GP sentinel surveillance system

Clinical Data

During week 11 2010, 56 of 60 (93.3%) ICGP sentinel general practices provided data, with 11 practices (18.3%) reporting 15 influenza-like illness (ILI) cases and 49 practices reporting no ILI cases. This corresponds to an ILI consultation rate of 6.7 per 100,000 population, which remains stable compared to the updated rate of 6.2 per 100,000 population reported during week 10 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 untyped isolates (probable pandemic (H1N1) 2009) are specimens that are awaiting laboratory confirmation as pandemic (H1N1) 2009.

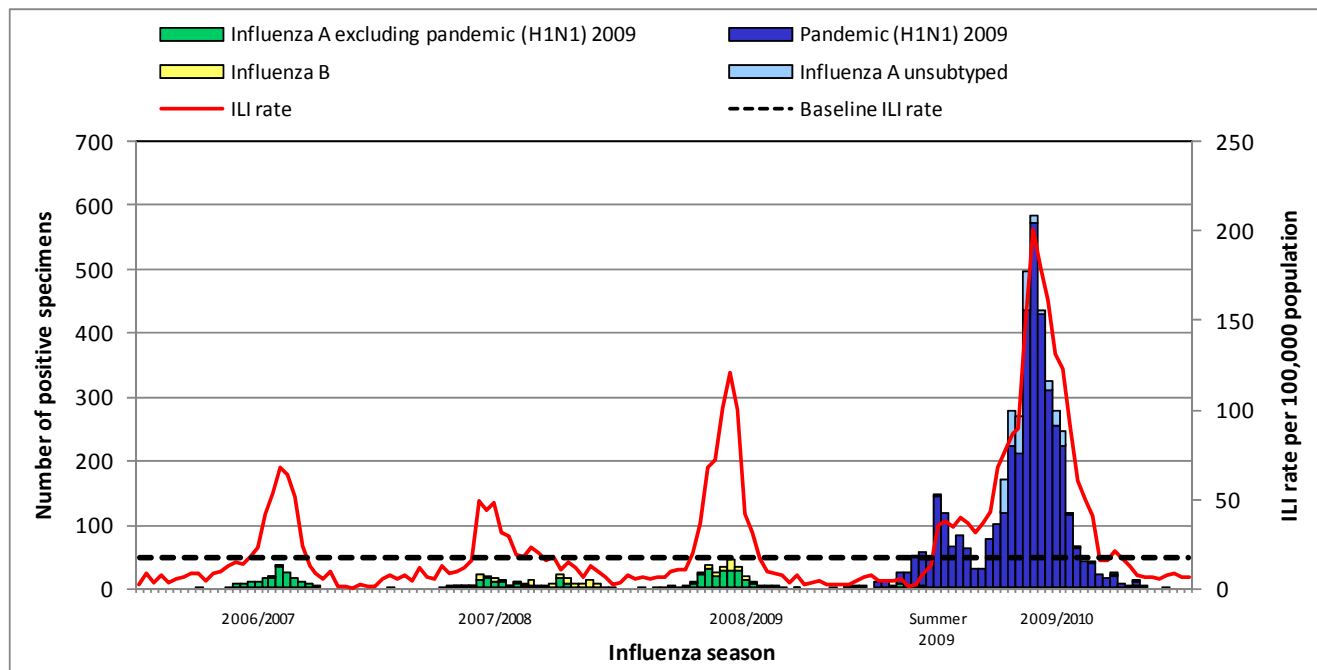


Figure 1: ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza specimens, by influenza week and season[‡]

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

During week 11 2010, sentinel GPs reported one ILI case in the 0-4 year age group (6.2 per 100,000 population), one case in the 5-14 year age group (3.4 per 100,000 population), 11 cases in the 15-64 year age group (7.1 per 100,000 population) and two cases in those aged 65 years and older (8.1 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 occurring in week 10 was provided by sentinel GPs and the NVRL and the rate for the week was 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.

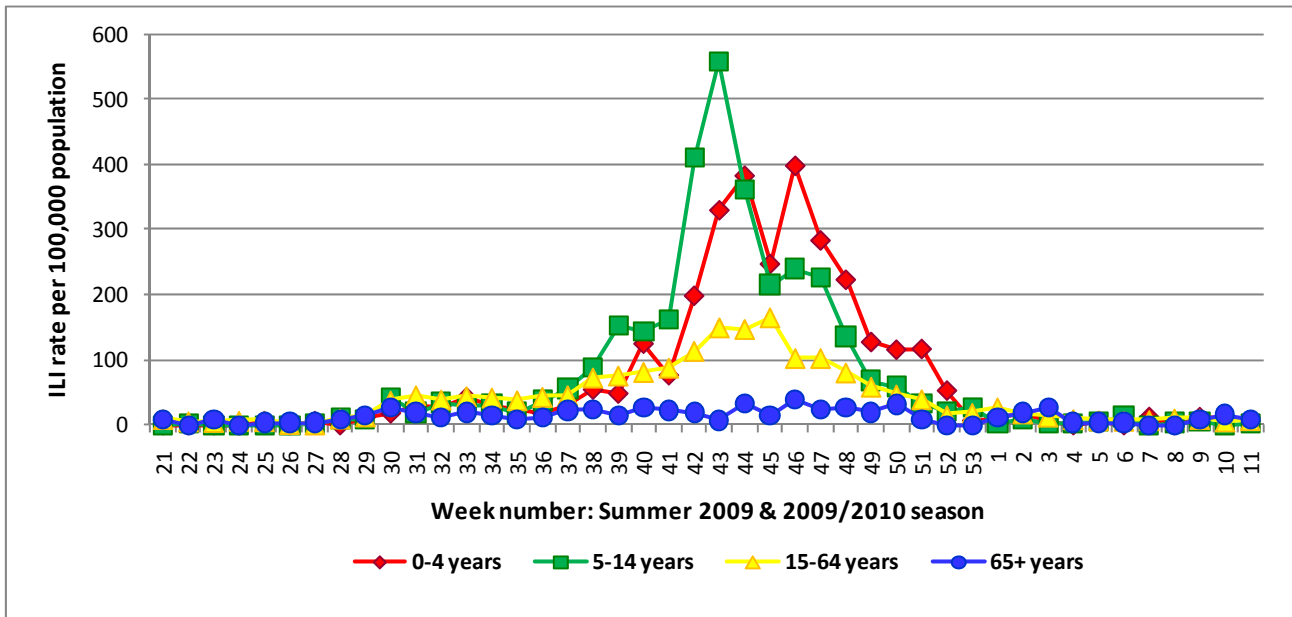


Figure 2: Age specific sentinel GP consultation rate for ILI per 100,000 population by week during the Summer 2009 and 2009/2010 influenza season

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 11 2010, no activity was reported by HSE-M, -NW and -W while sporadic activity (due to isolated cases of ILI and/or isolated laboratory confirmed cases of influenza) was reported by the remaining five 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 four HSE areas during week 11. A small increase in the proportion of respiratory admissions was reported by a sentinel hospital in HSE-NW during week 11. No increases in absenteeism were reported by sentinel schools during week 11.

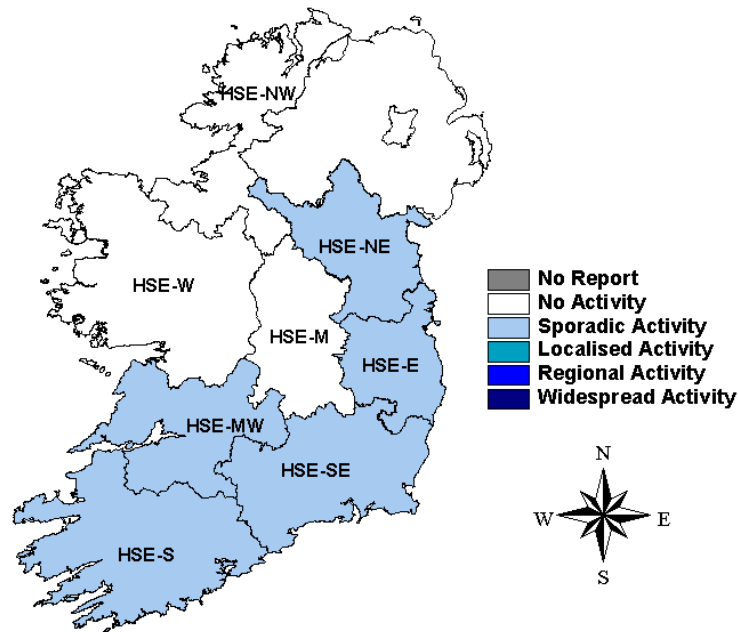


Figure 3: Map of provisional influenza activity by HSE area during influenza week 11 2010

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 0.8% during week 11, which remains stable compared to the proportion (1.0%) reported during week 10 (figure 4).

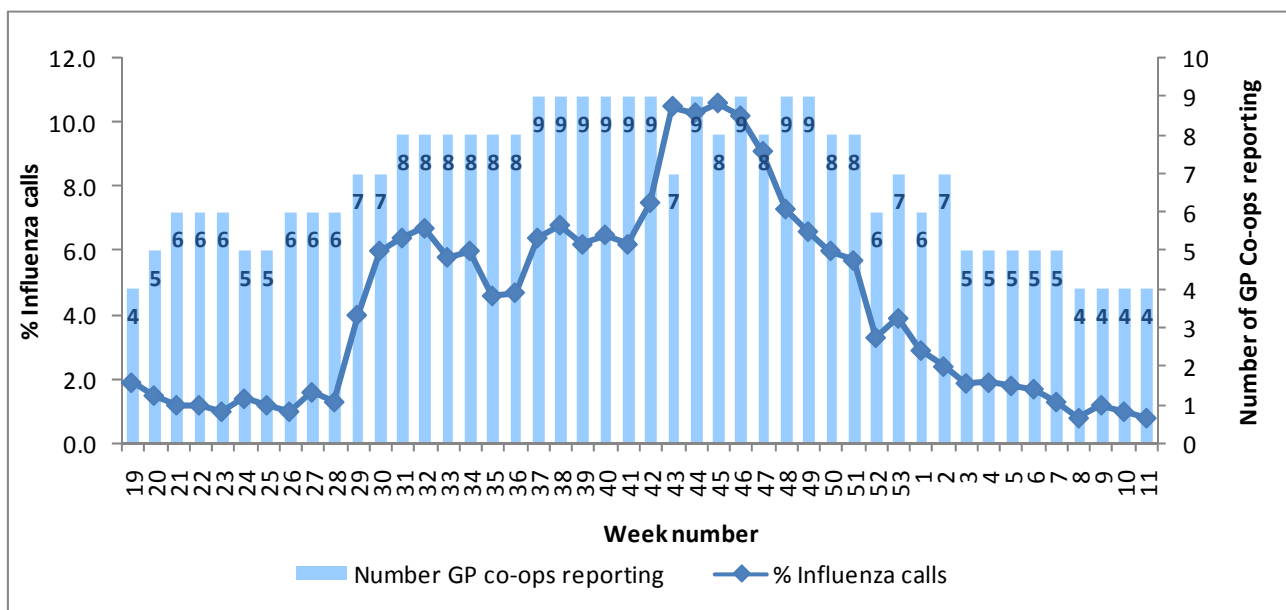


Figure 4: Flu-related calls as a proportion of total calls to out-of-hours GP Co-ops by week[§] Source: HSE-NE.

[§] 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)

No specimens tested positive for influenza during week 11 2010.

Ten specimens from sentinel GPs were tested by the NVRL during week 11 2010, none of which were positive for influenza.

The NVRL also tested 57 non-sentinel specimens taken during week 11, none of which were positive for influenza while two specimens (3.5%) were positive for RSV and one (1.8%) was positive for parainfluenza virus type 3. No specimens were positive for adenovirus (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 taken during week 11 2010, none which were positive for influenza (table 2).

CUH did not test any non-sentinel specimens taken during week 11 2010 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

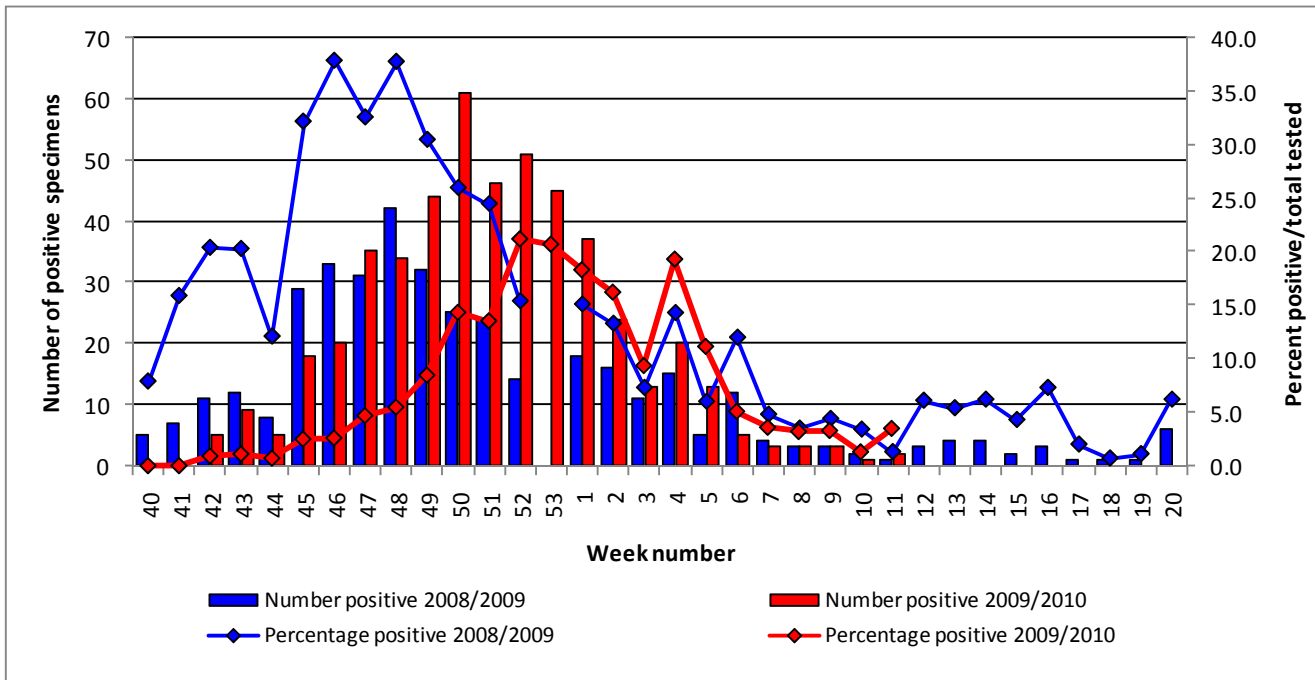


Figure 5: NVRL non-sentinel RSV activity for influenza season 2009/2010 compared to influenza season 2008/2009^{††}
 Source: NVRL

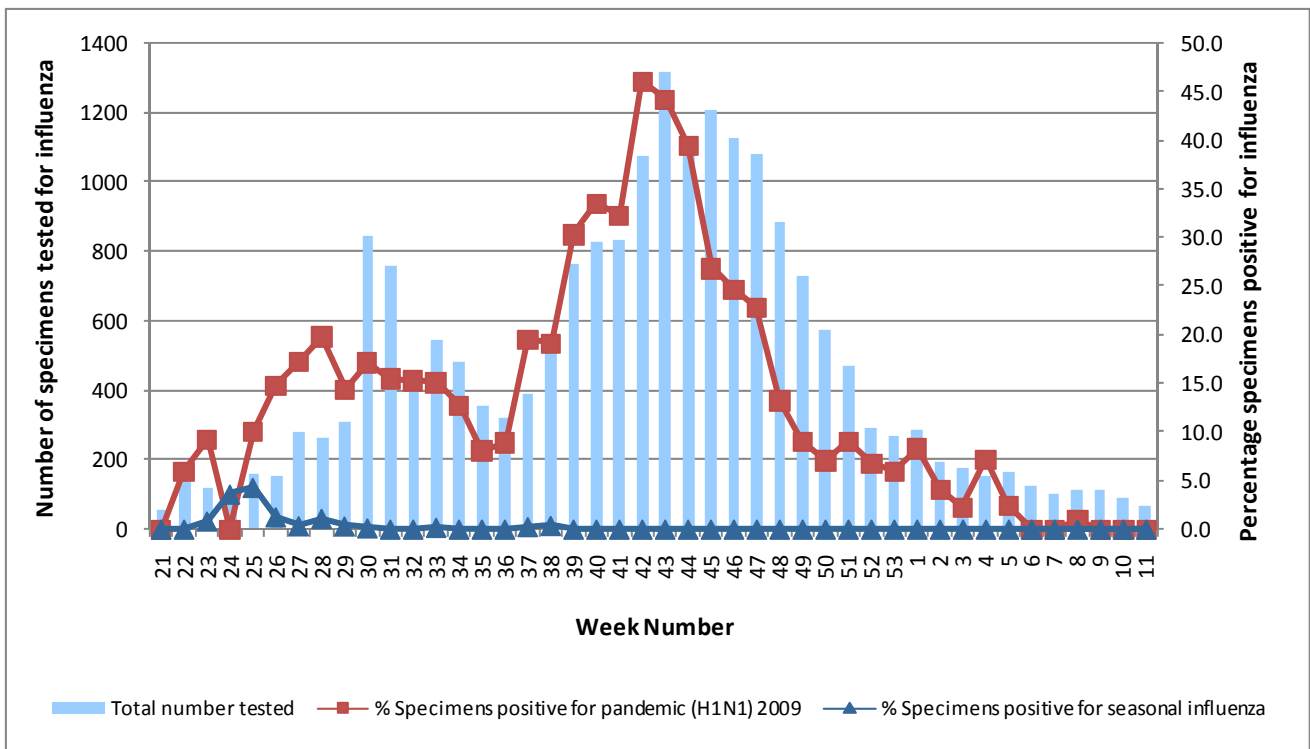


Figure 6: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive^{††}
 Source: NVRL, CUH & UCHG

^{††} 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 11 2010 and Summer 2009 & 2009/2010 season 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
11 2010	Sentinel	10	0	0.0	0	0	0	0	0	0	0.0
	Non-sentinel	60	0	0.0	0	0	0	0	0	0	0.0
	Total	70	0	0.0	0	0	0	0	0	0	0.0
Summer 2009 & 2009/2010 season to date	Sentinel	2222	773	34.8	770	0	3	0	0	0	99.6
	Non-sentinel	19183	3906	20.4	3581	300	0	0	22	3	99.4
	Total	21405	4679	21.9	4351	300	3	0	22	3	99.4

Table 2: Number of non-sentinel respiratory specimens tested and positive results by laboratory, influenza week 11 2010 and Summer 2009 & 2009/2010 season 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
11 2010	NVRL	57	0	0.0	0	0	0.0	0	0
	CUH	0	0	0.0	0	0	0.0	0	0
	UCHG	3	0	0.0	0	0	0.0	0	0
	Total	60	0	0.0	0	0	0.0	0	0
Summer 2009 & 2009/2010 season to date	NVRL	14883	2590	17.4	2561	5	99.1	21	3
	CUH	3019	833	27.6	538	295	100.0	0	0
	UCHG	1281	483	37.7	482	0	99.8	1	0
	Total	19183	3906	20.4	3581	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 11 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
11 2010	57	2	3.5	0	0.0	0	0.0	0	0.0	1	1.8
Summer 2009	6093	21	0.3	4	0.1	4	0.1	0	0.0	6	0.1
2009/2010 season to date	8790	496	5.6	6	0.1	7	0.1	3	0.03	4	0.05

§§ 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)

As of 20th 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.

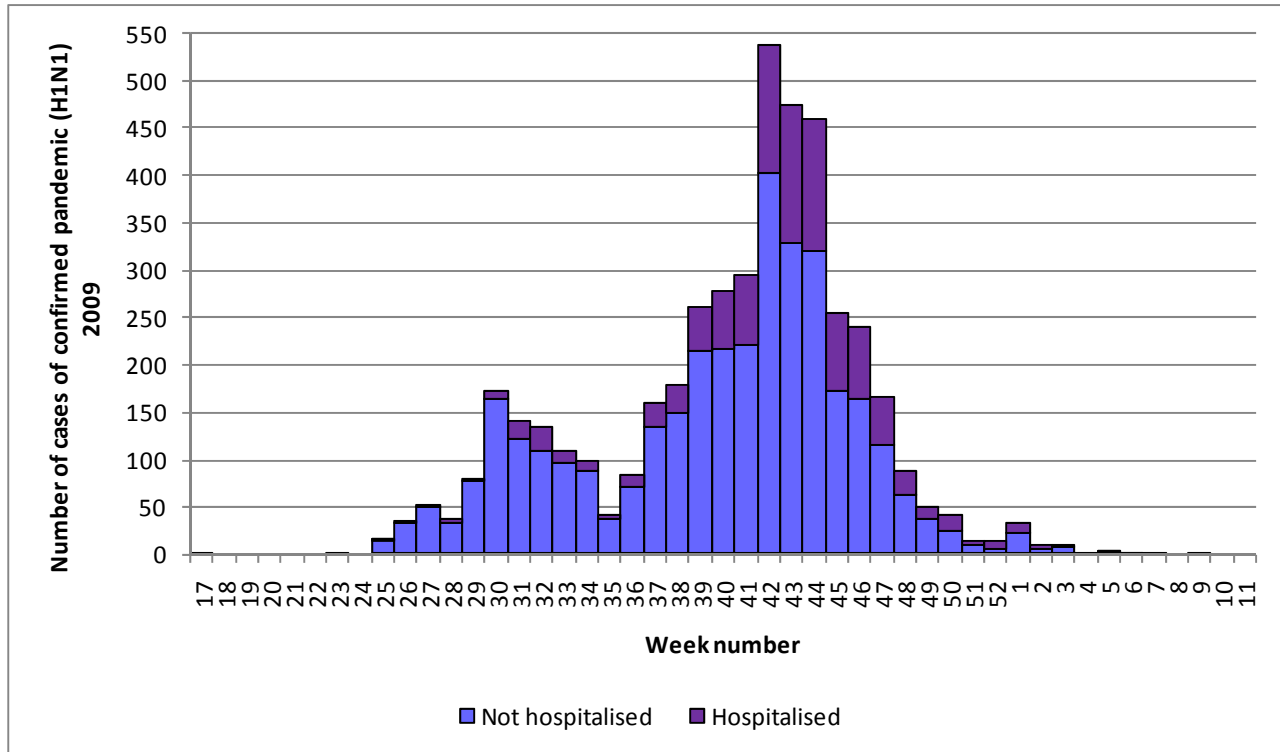


Figure 7: Number of confirmed cases of pandemic (H1N1) 2009 by week of notification and hospitalisation status^{***}

Source: CIDR

Age and Sex

Of the 4,584 confirmed cases reported to 20th 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 11 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, 99 (9.3%) were admitted to ICU. No laboratory confirmed cases were admitted to ICU since week 8. The highest age-specific rates for hospitalised patients are seen in the 0-4 year age group. Of the 1,068 confirmed cases hospitalised, 464 (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 11 2010. As of 20th 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 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 19th March 2010

WHO Region	Cumulative total as of 19 th March 2010
	Deaths
Africa (AFRO)	167
Americas (AMRO)	At least 7622
Eastern Mediterranean (EMRO)	1019
Europe (EURO)	At least 4596
South-East Asia (SEARO)	1691
Western Pacific (WPRO)	1718
Total	At least 16813

United Kingdom

During week 10 (ending 14th March 2010), overall pandemic influenza activity was stable or decreasing across the UK. 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). The main influenza virus circulating in the UK continues to be the pandemic (H1N1) 2009 strain, with few influenza A(H1) (non-pandemic), A(H3) and B viruses detected. 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. http://www.hpa.org.uk/web/HPAweb&HPAwebStandard/HPAweb_C/1243928258754

Europe

During week 10 (8th – 14th March), 24 out of 29 countries reported epidemiological data. All countries reported low intensity. Regional activity was reported in Austria and Greece while local activity was reported in Malta and the UK (Scotland). Sporadic or no activity was reported in the remaining 20 countries. Sentinel physicians collected 416 respiratory specimens, 26 (6.3%) of which were positive for influenza virus (16 influenza A and 10 influenza B). Since week 40 2009, over 99% of the viruses detected in sentinel specimens were 2009 pandemic influenza A(H1N1) 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 10 (7th – 13th 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. Two influenza associated paediatric deaths were reported during week 10. One death was associated with pandemic influenza A (H1N1) virus infection and one death was associated with an influenza A virus for which the subtype was undetermined. During week 10, 200 (5.6%) specimens tested by collaborating laboratories and reported to CDC/Influenza Division were positive for influenza. Of the subtyped influenza A viruses being reported to CDC, 100% were pandemic influenza A (H1N1) 2009 viruses. <http://www.cdc.gov/flu/weekly/>

Canada

During week 10 (7th – 13th March 2010), all influenza indicators remained low for this time of year. 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 0.3% of specimens testing positive for influenza. A total of 8,669 hospitalised cases, including 1,472 (17.0%) cases admitted to ICU and 429 (4.9%) deaths of pandemic (H1N1) 2009 were reported since the beginning of the pandemic. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Other countries

As of 19th March 2010

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

- **South/Southeast & East Asia:** In South and Southeast Asia, pandemic influenza virus circulation persists in most countries. However, overall transmission remains most active in Thailand since mid-January 2010. In East Asia, pandemic influenza activity continues to decrease or remain low as levels of ILI return to seasonal baselines. In addition, increasing but low levels of circulation of seasonal influenza B viruses has been observed across parts of East and Southeast Asia. Small numbers of seasonal influenza A(H3N2) viruses have also been detected in several countries of East and Southeast Asia.
- **Western Asia:** In Western Asia, overall pandemic influenza activity remains low in most places, with the exception of Iraq and Afghanistan, both of which reported regional spread of influenza with an increasing trend in respiratory diseases activity.

- **Americas, the Caribbean and the Southern Hemisphere:** In the Americas, particularly in Central America and the Caribbean, limited data suggest that pandemic influenza virus transmission may be active. In the temperate zone of the southern hemisphere, overall influenza activity remained low, with sporadic detections of pandemic and seasonal influenza viruses
- **Africa:** In North Africa, influenza activity is low. In West Africa, limited data suggest that active transmission of pandemic influenza virus remains sustained across much of the region without clear evidence of a peak in activity. Localised outbreaks of pandemic influenza A(H1N1) have also been recently reported in parts of East Africa. Pandemic influenza virus continues to be the predominant influenza virus circulating in West and East Africa, however, small numbers of seasonal influenza A(H3N2) and seasonal influenza B viruses have also been identified.

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 detected at low levels across southeast Asia and eastern Africa.

Avian influenza (H5N1):

As of the 16th March 2010, 489 confirmed human cases and 289 (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

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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>