

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 1 2011 (3rd – 9th January 2011)



Summary

- During week 1 2011, influenza activity remains at a high level across Ireland.
- HPSC expects to see continued elevated influenza activity for several weeks.
- The sentinel GP influenza-like illness (ILI) consultation rate was 204.2 per 100,000 population in week 1 2011, a significant increase from the updated rate of 109.5 per 100,000 reported during week 52 2010.
 - ILI rates have reached the highest recorded levels since surveillance began in 2000/2001
 - ILI rates have increased in all age groups, particularly in the 15-64 year age group
- Influenza A (H1N1 2009) is the predominant influenza virus circulating in Ireland.
 - Accounting for 80.8% of all influenza positive specimens this season.
- Detections of influenza B viruses have been increasing in recent weeks.
 - 295 positive influenza A (H1N1 2009) specimens were detected by the NVRL in week 1 2011.
 - 53 influenza B, 5 influenza A (H3) and 25 influenza A (unsubtyped) specimens were also detected by the NVRL in week 1 2011.
- The number of hospitalised cases of influenza has continued to increase, with 393 cases hospitalised to date (as of January 12th 2011) and reports of 72 cases admitted to ICU.
- The proportion of influenza-related calls to GP Out-of-Hours services increased further in week 1 2011, reaching the highest recorded levels (14.4%).
- As of January 12th 2011, nine influenza/ILI outbreaks have been reported to HPSC to date this season.
- Respiratory syncytial virus (RSV) positive detections have plateaued in recent weeks.

Surveillance Systems

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

1. Irish College of General Practitioners (ICGP) GP sentinel surveillance system
2. Virological data from the National Virus Reference Laboratory (NVRL)
3. GP Out-of-Hours surveillance system
4. Influenza notifications reported on the Computerised Infectious Disease Reporting system (CIDR)
5. Enhanced surveillance of all hospitalised confirmed influenza cases aged 0-14 years
6. Intensive Care Society of Ireland (ICSI) enhanced surveillance of all critical care patients with confirmed influenza A (H1N1 2009)
7. Outbreak reporting on CIDR
8. Network of sentinel schools reporting absenteeism and sentinel hospitals reporting admission data

1. GP sentinel surveillance system

Clinical Data

During week 1 2011, 58 of 60 (96.7%) sentinel general practices provided data, with 51 practices (87.9%) reporting 522 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 204.2 per 100,000 population, a significant increase compared to the updated rate of 109.5 per 100,000 reported during week 52 2010. The ILI rates for week 1 2011 are above the Irish baseline threshold (17.8 per 100,000 population) and are the highest rates ever recorded. During the 2009 pandemic, ILI rates peaked at 201.3 per 100,000 during week 43 2009. Seven (12.1%) sentinel practices reported no ILI cases during week 1 2011. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

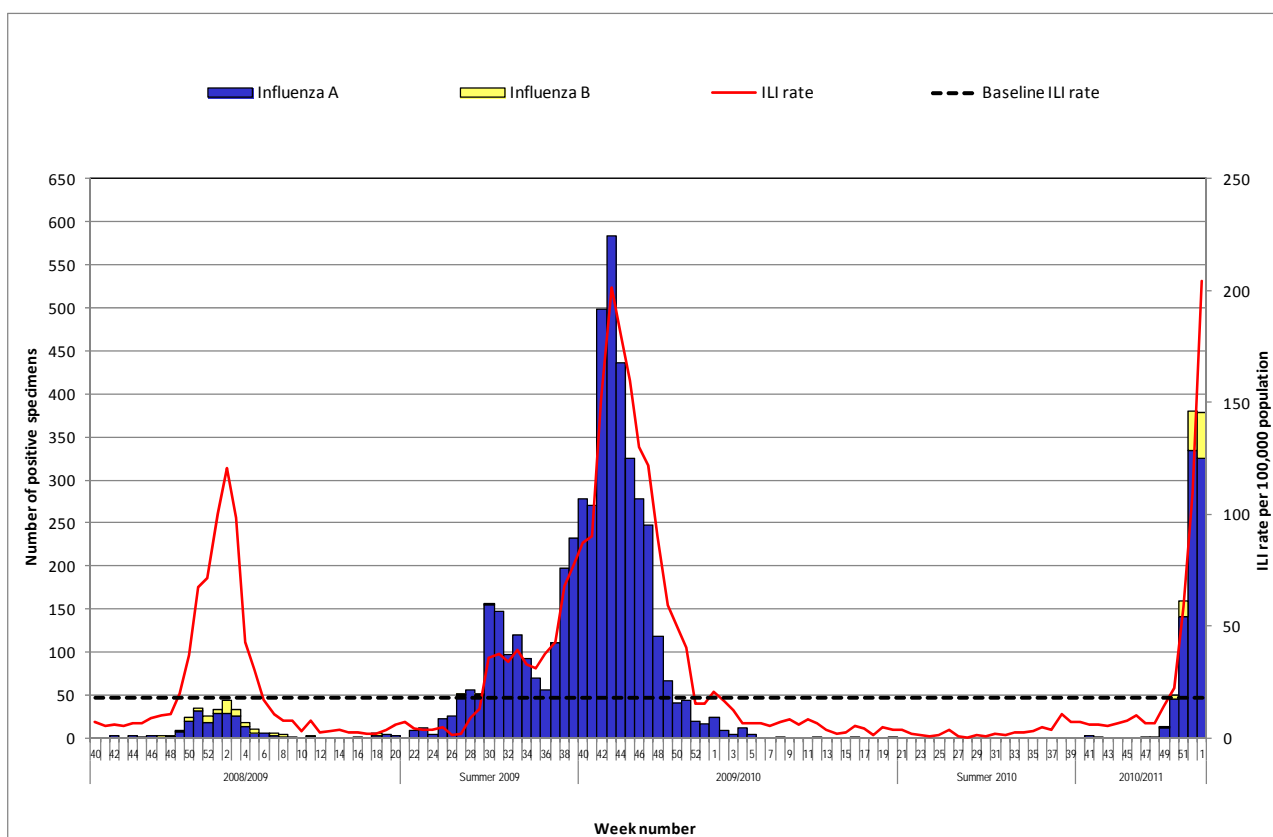


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens, by influenza week and season.

Source: Clinical ILI data from ICGP and virological data from the NVRL¹²

ILI rates increased in all age groups during week 1 2011, with the highest rates reported in the 15-64 year age group. Twenty-seven ILI cases were reported in the 0-4 year age group (148.1 per 100,000), 42 cases were

¹ Please note that in addition to the NVRL, Cork University Hospital (CUH) and Galway University Hospital(s) (GUH) also tested for influenza A (H1N1 2009) during the pandemic period.

² Sentinel GP consultations and virological data are updated on an ongoing basis, ILI rates and virological data are adjusted accordingly.

reported in the 5-14 year age group (123.9 per 100,000), 435 in the 15-64 year age group (248.2 per 100,000) and 18 ILI cases in those aged 65 years or older (63.8 per 100,000).

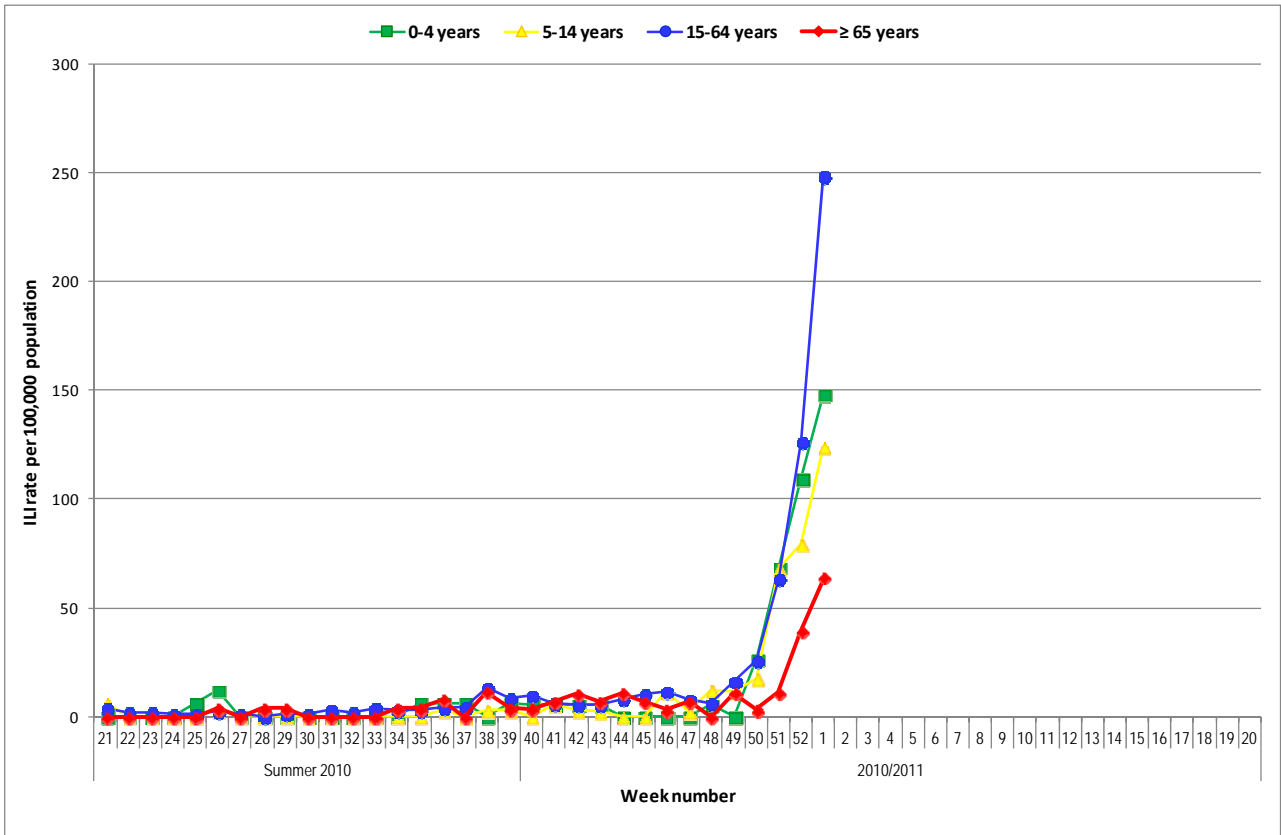


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date
 Source: ICGP ILI clinical data

2. Virological Data from the National Virus Reference Laboratory (NVRL)[‡]

A total of 943 specimens (116 sentinel and 827 non-sentinel specimens) were tested by the NVRL during week 1 2011. Three hundred and seventy-eight (40.1%) specimens were positive for influenza: 295 influenza A (H1N1 2009), five influenza A (H3), 25 influenza A (unsubtyped) and 53 influenza B.

To date this season, 3121 sentinel and non-sentinel specimens were tested by the NVRL, 985 (31.6%) specimens tested positive for influenza: 796 influenza A (H1N1 2009), 13 influenza A (H3), 53 influenza A (unsubtyped) and 123 influenza B. Of the 985 positive influenza specimens, 862 (87.5%) were influenza A and 123 (12.5%) were influenza B. Of the 796 influenza A (H1N1 2009) specimens detected, 153 were sentinel specimens and 643 were from non-sentinel sources (figures 3 & 4).

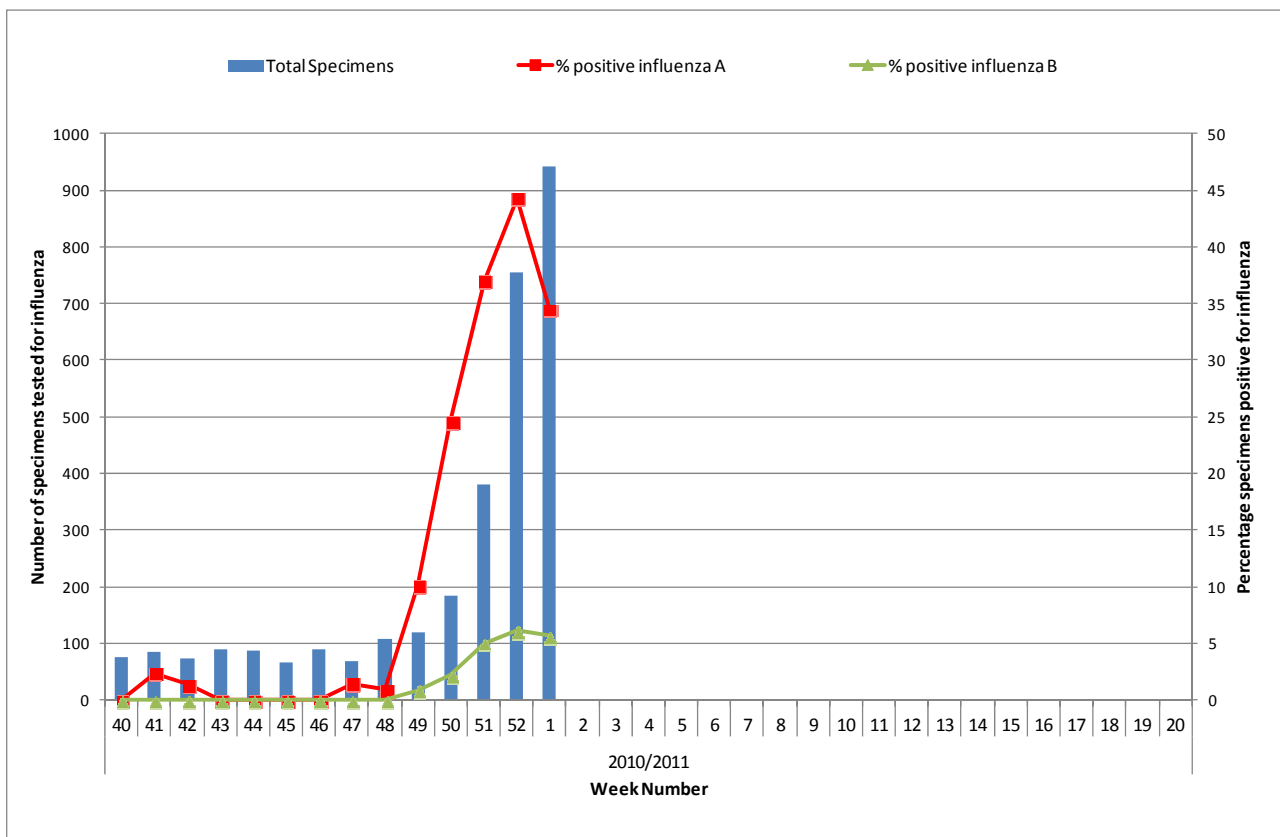


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. *Source: NVRL[§]*

[‡] It should be noted that virological data refer to weekly data received from the NVRL on Tuesday of each week.

[§] 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.

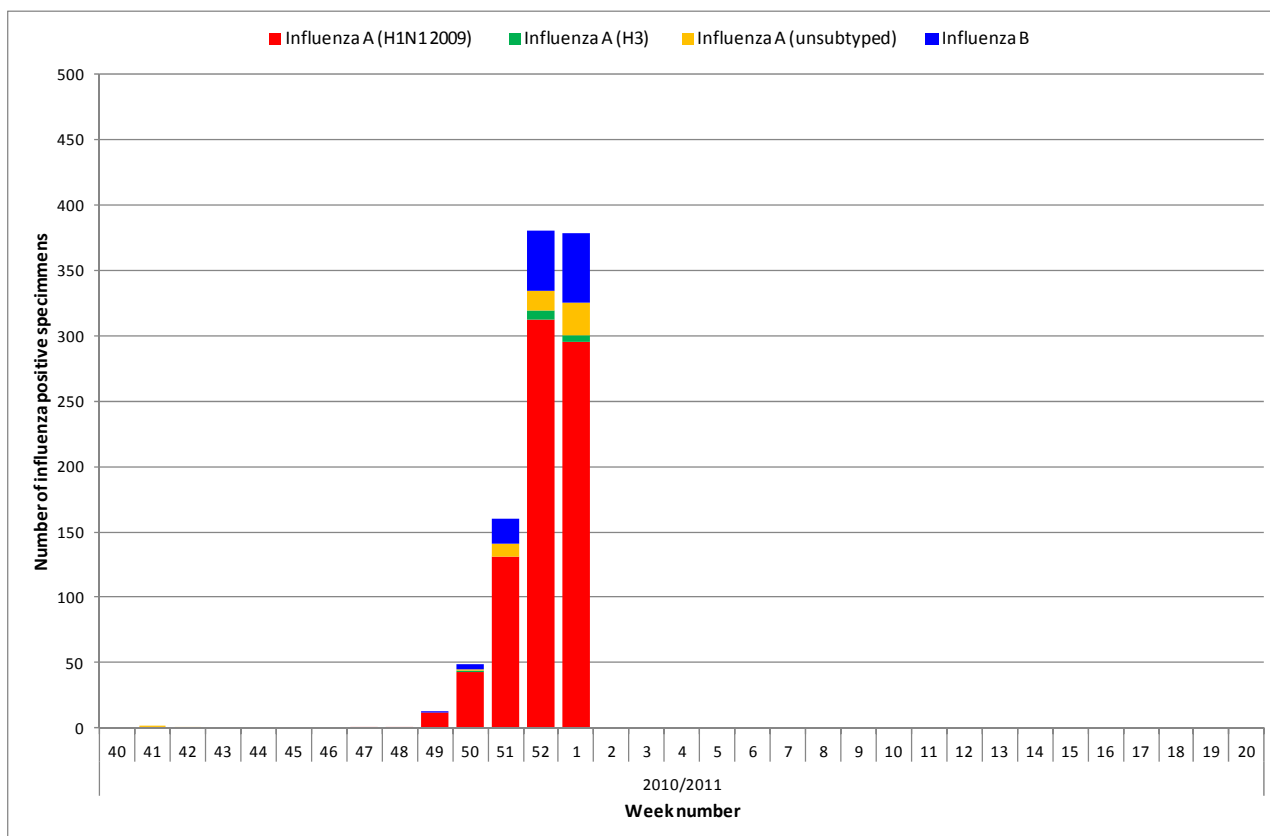


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL**

Of the 827 non-sentinel specimens tested during week 1 2011, 3.7% (n=31) were positive for RSV, remaining stable compared to the updated proportion, 4.4%, for week 52 2010 (Tables 1 & 2). The current proportion of RSV positive detections remains at low levels, compared to average proportions for the same period over the last 10 years. It should be noted that RSV data only include specimens referred to the NVRL for RSV testing. Not all hospitals refer respiratory specimens for RSV testing to the NVRL. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 and 2009/2010 seasons.^{††}

There was one positive detection of parainfluenza virus type 3 during week 1 2011. To date this season, there have been sporadic detections of adenovirus and parainfluenza virus (PIV) types -1, -2 and -3.

^{††} 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.

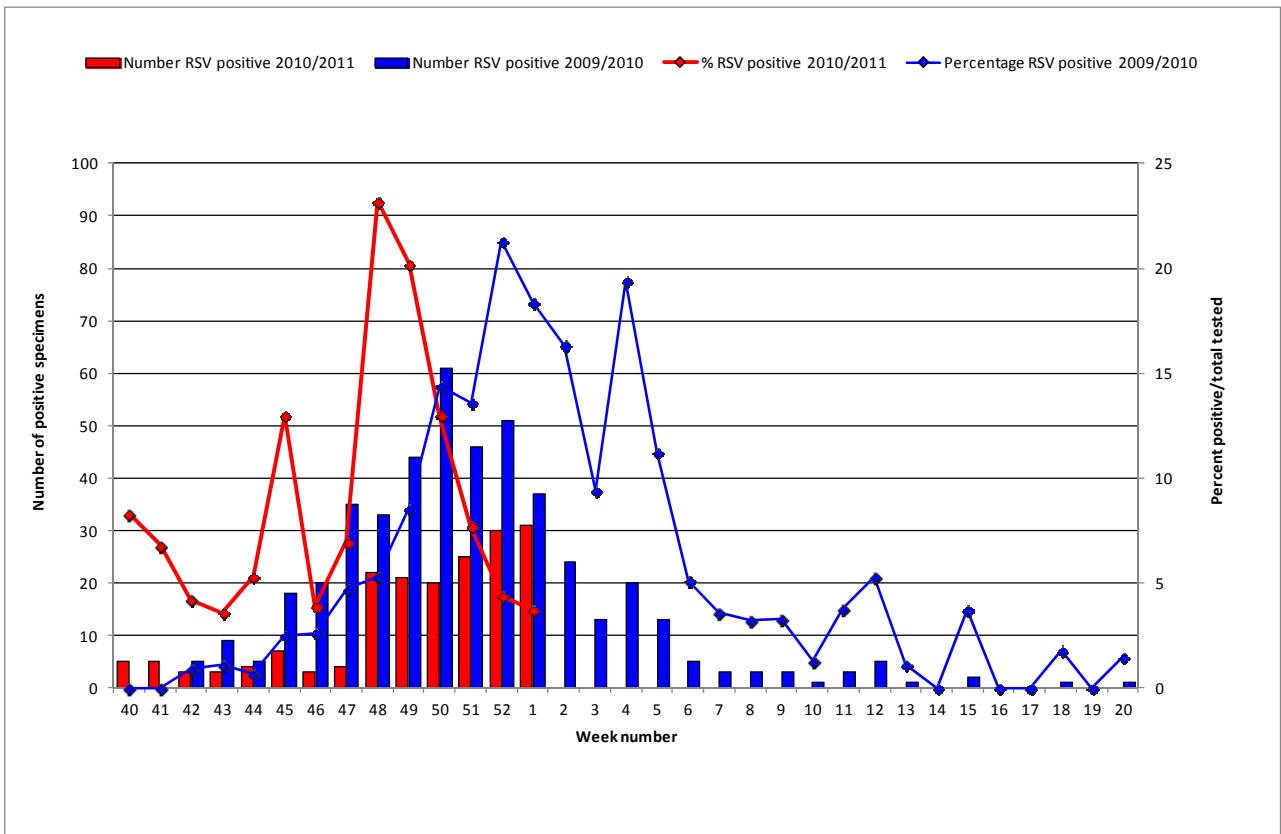


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. *Source: NVRL*

Table 1: Number of sentinel and non-sentinel^{††} respiratory specimens tested and positive influenza results, for week 1 2011 and the season to date

Source: NVRL

Week number	Specimen type	Total specimens tested	Number influenza positive	% Influenza positive	Influenza A					Influenza B
					Total influenza A	A (H1N1 2009)	A (H3)	A (H1)	A (unsubtyped)	
1 2011	Sentinel	116	73	62.9	63	63	0	0	0	10
	Non-sentinel	827	305	36.9	262	232	5	0	25	43
	Total	943	378	40.1	325	295	5	0	25	53
2010/2011 season	Sentinel	381	184	48.3	155	153	2	0	0	29
	Non-sentinel	2740	801	29.2	707	643	11	0	53	94
	Total	3121	985	31.6	862	796	13	0	53	123

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 1 2011 and the season to date Source:

NVRL

Week number	Total specimens tested	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
1 2011	827	31	3.7	0	0.0	0	0.0	0	0.0	1	0.1
2010/2011 season	2740	183	6.7	9	0.3	6	0.2	2	0.1	2	0.1

^{††} 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.

3. Regional Influenza Activity by HSE-Area

Regional influenza activity is reported on a weekly basis for each HSE area. Influenza activity is based on sentinel GP ILI consultation rates, laboratory confirmed influenza cases and ILI/influenza outbreaks.

During week 1 2011, widespread influenza activity was reported from all HSE-Areas (figure 6).

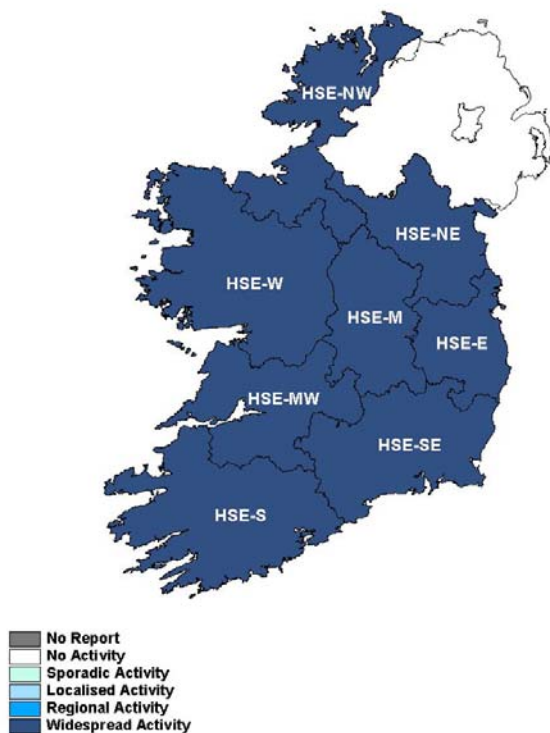


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 1 2011

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 HSE-Area, in close proximity to the sentinel GPs, to report absenteeism data on a weekly basis. Hospital admissions and school absenteeism data act as a crude indicator for influenza activity.

One sentinel hospital in HSE-W reported increases in respiratory admissions during week 1 2011. Sentinel hospitals in HSE-E and -S reported a slight decrease in respiratory admissions in week 1 2011, following elevated levels in weeks 51 and 52 2010. Sentinel school data were not available for week 1 2011 as schools were closed for the Christmas/New Year Holiday period.

4. GP Out-Of-Hours services surveillance

The Department of Public Health in 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 proportion of influenza-related calls to GP Out-of-Hours services continued to increase during week 1 2011, reaching 14.4%, which is the highest recorded proportion of influenza related calls to GP Out-of-Hours services. The highest recorded proportion of influenza-related calls to GP Out-of-Hours services during the pandemic period, was 10.6%, recorded during week 45 2009. Six GP Out-of-Hours services reported during week 1 2011 (figure 7).

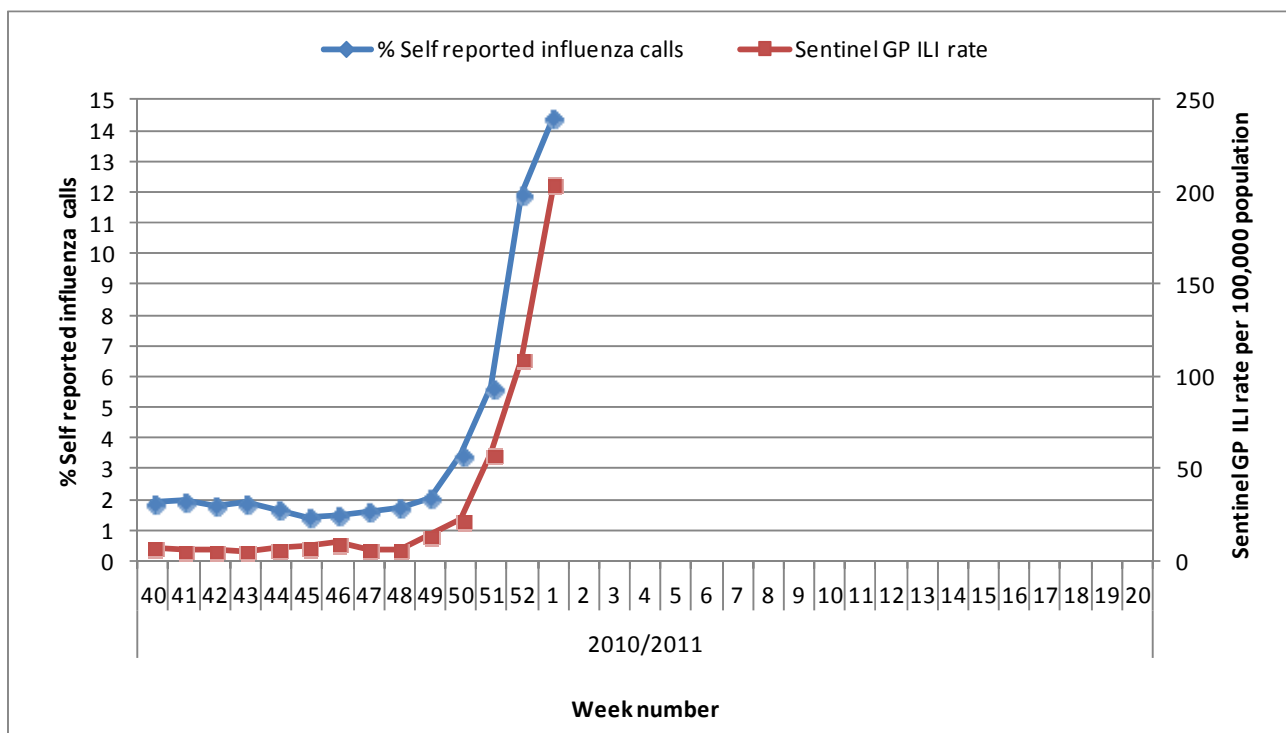


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

5. Influenza notifications (CIDR)

As of 12th January 2011 (16:00), 1049 confirmed influenza cases were notified on CIDR for the 2010/2011 influenza season: 803/1049 (76.5%) were confirmed influenza A (H1N1 2009), three (0.3%) were influenza A (H3), 106 (10.1%) were influenza A (unsubtyped) and 136 (13.0%) were influenza B cases. Influenza type/subtype was not recorded for one case. Three hundred and fifty cases have been notified to date for week 2 2011. It should be noted that data for week 2 2011 are incomplete and only include notified cases as of 12th January 2011 (16:00).

Three hundred and ninety three (37.5%) of the 1049 confirmed influenza cases notified were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients) (figure 8). Of the 393 hospitalised cases, 296 (75.3%) were influenza A (H1N1 2009) cases, 54 (13.7%) were influenza A (unsubtyped) and 42 (10.7%) were influenza B cases. Influenza type/subtype was not recorded for one hospitalised influenza case.

The highest cumulative age specific rate in influenza confirmed hospitalised cases for the 2010/2011 influenza season to date is currently in the 0-4 year age group (23.2 per 100,000 population), followed by the 25-34 year age group (11.9 per 100,000 population) (table 3). All laboratory confirmed influenza hospitalised cases by HSE Area by week for the 2010/2011 influenza season to date are detailed in table 4.

To date this season, 38 (3.6%) of the 1049 laboratory confirmed influenza cases were reported as pregnant. Twenty-one of these cases were reported as hospitalised: 20 influenza A (H1N1 2009) cases and one influenza B case.⁵⁵

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 population	Number	Age specific rate per 100,000 population
0-4	70	23.2	6	2.0
5-14	17	3.0	0	0.0
15-24	48	7.6	2	0.3
25-34	86	11.9	14	1.9
35-44	46	7.4	9	1.4
45-54	45	8.6	11	2.1
55-64	42	10.3	11	2.7
65+	38	8.1	7	1.5

Table 3: Age specific rate per 100,000 population by age group (years) for all influenza confirmed hospitalised cases and cases admitted to ICU for the 2010/2011 influenza season to date. Source: CIDR 12/01/2011 16:00

⁵⁵ It should be noted that information on pregnancy is not completed for all cases.

		ERHA	MHB	MWHB	NEHB	NWHB	SEHB	SHB	WHB	Total
2010	40	0	0	0	0	0	0	0	0	0
	41	0	0	0	0	0	0	0	0	0
	42	0	0	0	0	0	0	0	0	0
	43	0	0	0	0	0	0	0	0	0
	44	0	0	0	0	0	0	0	0	0
	45	0	0	0	0	0	0	0	0	0
	46	0	0	0	0	0	0	0	0	0
	47	0	0	0	0	0	0	0	0	0
	48	0	0	0	0	0	0	0	0	0
	49	1	0	0	0	0	0	0	0	1
	50	4	0	1	0	4	0	1	0	10
	51	11	0	0	0	3	0	2	0	16
	52	16	5	3	4	9	0	1	3	41
2011	1	74	11	15	22	23	10	23	30	208
	2	15	14	15	3	9	19	5	37	117
Total		121	30	34	29	48	29	32	70	393

Table 4: Confirmed influenza hospitalised cases by HSE Area and week of notification for the 2010/2011 influenza season to date. It should be noted that data for week 2 2011 are incomplete and only include notified cases as of 12th January 2011 (16:00). Source: CIDR 12/01/2011 16:00

6. Intensive Care Society of Ireland (ICSI) enhanced surveillance of all critical care patients with confirmed influenza A (H1N1 2009)

The Intensive Care Society of Ireland (ICSI) are continuing with the enhanced surveillance system, set up during the 2009 pandemic, on all critical care patients with confirmed influenza A (H1N1 2009), and notify any cases to HPSC, who process and report on this information on behalf of the regional Director of Public Health/Medical Officer of Health.

As of 12th January 2011 (16:00), HPSC has been notified of 72 hospitalised patients admitted to critical care units, 71 with confirmed influenza A (H1N1 2009) and one with influenza A (H3) during the 2010/2011 influenza season.

Enhanced surveillance information is available for 60 cases, 54 of whom are adults and six are paediatric cases. Forty-two (70.0%) of the 60 cases are currently in ICU^{***}. The number of confirmed influenza hospitalised cases by ICU status and by week of notification on CIDR for the 2010/2011 influenza season are detailed in figure 8. Forty-one of the 60 (68.3%) cases have underlying medical conditions, 38 adults and three paediatric cases. The underlying medical conditions include: chronic respiratory disease, chronic heart disease, immunosuppression, pregnancy, metabolic disorders and severe obesity. The age specific rates for all cases admitted to ICU are detailed in table 3.

*** This information is based on the enhanced surveillance data.

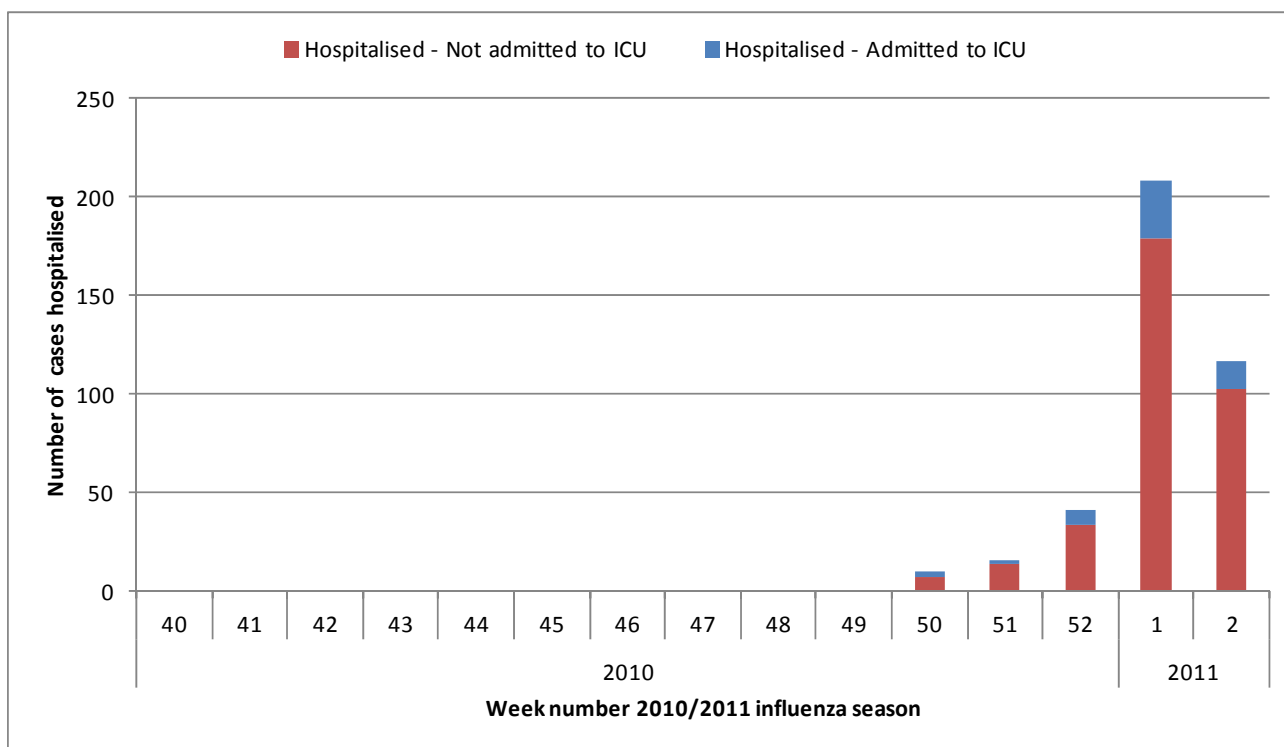


Figure 8: Number of confirmed influenza hospitalised cases by ICU status by week of notification on CIDR for the 2010/2011 influenza season. It should be noted that data for week 2 2011 are incomplete and only include notified cases as of 12th January 2011 (16:00). Source: CIDR 12/01/2011 16:00^{†††}

7. Mortality surveillance

HPSC has been informed of two influenza associated deaths to date this season, one influenza A (H1N1 2009) and one influenza B. One death was in a patient in the 15-64 year age group and one in a patient aged 65 years or older. Both deaths occurred in patients with underlying medical conditions.

8. Outbreak surveillance

As of 12th January 2011 (16:00), nine general outbreaks of ILI/influenza/influenza A (H1N1 2009) were reported to CIDR for the 2010/2011 influenza season: four ILI outbreaks, three influenza A (H1N1 2009) outbreaks, one outbreak associated with both influenza A (H1N1 2009) and influenza B and one with influenza type not reported. One outbreak was reported in week 49 2010, two in week 50 2010, four in week 51 2010 and one in week 2 2011. Four outbreaks were reported from HSE-E, three from HSE-S and two from HSE-W. One outbreak was in a maternity hospital, four in schools, one in a community setting, one in a residential institution and two outbreaks reported as 'Other' setting.

9. International summary

United Kingdom

GP and school closures over the Christmas period will have affected surveillance indicators; therefore all data should be interpreted with caution. Indeed, several influenza indicators during week 52 2010 have apparently plateaued. GP consultation rates remain above baseline levels in all four countries. Influenza A (H1N1 2009)

^{†††} It should be noted that dates of hospitalisation/ICU admission have to be verified for five of 60 ICU cases on which enhanced information is currently available. These five cases are not included in figure 8.

and B are the predominant circulating viruses with sporadic A (H3N2) viruses detected. The H1N1 (2009) virus strain is virologically and epidemiologically similar to that seen during the pandemic. The virus strains circulating are overall well matched to the current influenza vaccine. In week 52 2010, the weekly influenza/ILI consultation rates decreased in England (98.4 per 100,000) and Scotland (52.0 per 100,000), were stable in Wales (89.2 per 100,000) and increased in Northern Ireland (179.5 per 100,000). The weekly national proportions of NHS Direct calls for cold/flu and fever have decreased in week 52. One hundred and thirty-five acute respiratory disease outbreaks were reported in the UK to date this season. One-hundred and fourteen of 161 (70.8%) specimens from patients with ILI presenting to sentinel GPs in England in week 52, were reported as positive for influenza. The proportion of specimens reported to DataMart (England) as positive for influenza was 41.4% (2,047 of 4,941). The proportion of samples positive for RSV increased slightly and for rhinovirus continued to decrease. From week 36 2010, 50 deaths associated with influenza infection have been reported. The majority of fatal cases reported were unimmunised.

<http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/>

Europe

Reporting of influenza was less complete during 52 2010 due to the Christmas holiday period which reduces consulting rates, reporting to national centres and ECDC. Nevertheless, in week 52 2010, 15 of the 25 countries reported increasing trends of influenza activity. After little change in week 51 2010, the percentage of sentinel specimens that tested positive for influenza rose to 46% in week 52 2010, indicating rising intensity. For combined sentinel and non-sentinel influenza positive specimens reported for week 52 2010, 73% were type A and 27% were type B. Ninety-eight percent of sub-typed influenza A viruses were influenza A (H1N1 2009) during this period. To date this season, of the 7854 influenza detections in sentinel and non-sentinel specimens, 5764 (73%) were influenza A and 2090 (27%) influenza B viruses. Of 2959 influenza A viruses sub-typed, 2830 (95.6%) were A (H1N1 2009) and 129 (4.4%) were A (H3) viruses. Two hundred and thirty six influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically this season: 99 as A/California/7/2009 (H1N1)-like; 42 as A(H3)/Perth/16/2009 (H3N2)-like; 89 as B/Brisbane/60/2008-like (Victoria lineage); and six as B/Florida/4/2006-like (Yamagata lineage). In week 52 2010 six countries reported 56 SARI cases, of which 22 were known to have been infected with influenza A (H1N1 2009) virus. Of the 613 SARI cases reported this season, twelve deaths have been reported.

http://ecdc.europa.eu/en/healthtopics/influenza/epidemiological_data/Pages/Weekly_Influenza_Surveillance_Overview.aspx

USA

During week 52 2010, influenza activity in the United States decreased slightly. The proportion of outpatient ILI visits was 2.6%, which is above the national baseline of 2.5%. Of the 4,911 specimens tested, 995 (20.3%) were positive for influenza: 44 A (H1N1 2009), 269 A (H3), 343 A (unsubtyped) and 339 B. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. One influenza-associated paediatric death was reported and was associated with Influenza B virus infection. CDC has antigenically characterised 29 A (H1N1 2009) viruses as A/California/7/2009-like, 137 A (H3N2) viruses as A/Perth/16/2009-like, 83 as B/Brisbane/60/2008-like and 8 B/Yamagata lineage viruses. <http://www.cdc.gov/flu/weekly/>

Canada

During weeks 51 and 52 2010, the overall influenza activity in Canada continued to increase across the country. Twenty five percent of specimens tested were positive for influenza during the two-week period, an increase from previous weeks. The ILI consultation rate also increased, but was within the expected range. Influenza A was identified in 98.3% of positive influenza tests, and among those which were subtyped, 94% were influenza A (H3N2) and 6% were influenza A (H1N1 2009). Both the number of paediatric and adult hospitalisations with influenza increased during weeks 51 and 52 compared to the previous week. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>

Worldwide (WHO)

The WHO Global Influenza Programme monitors influenza activity worldwide and publishes an update every two weeks. The winter influenza season is under way in parts of the Northern Hemisphere. As of December 30th 2010, North America reported ILI increases above baseline levels, associated primarily with influenza viruses A (H3N2) and type B. The UK has been experiencing a surge in both mild and severe cases for the last three weeks which has not yet peaked and is primarily associated with influenza A (H1N1 2009) and to a lesser extent influenza B. The pattern of illness associated with A (H1N1 2009) virus infection in the UK is similar to last season primarily affecting young adults, particularly those with underlying chronic illness or pregnancy although a number have had no known risk factors. On the European continent, the Middle East and in northern Asia, ILI rates were low but recent increases have been noted in some areas. In tropical regions, very little activity was noted in most of the world; however Sri Lanka has reported a marked increase in the number of both mild and severe cases related to A (H1N1 2009), including 22 deaths. As in the UK, the deaths in Sri Lanka have been predominantly in people under the age of 60 years and most have had pre-existing medical conditions. No significant influenza transmission has been reported in Southern Hemisphere temperate regions. Notably, the large majority of viruses that have been characterised from North America and the UK have been antigenically similar to those contained in the current trivalent influenza vaccine. WHO continues to recommend vaccination for those at high risk of complications, where it is available, and early treatment of those at high risk or with severe or rapidly deteriorating disease. <http://www.who.int/csr/disease/influenza/en/>

8. 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

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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.