

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 52 2011 (27th December 2010 – 2nd January 2011)



Summary

- During week 52 2010, influenza activity increased significantly across Ireland.
- HPSC expects to see continued elevated influenza activity for several weeks.
- The sentinel GP influenza-like illness (ILI) consultation rate was 120.6 per 100,000 population in week 52 2010, double the updated rate of 59.5 per 100,000 reported during week 51 2010.
 - ILI rates are above baseline levels, and have reached one of the highest recorded levels
 - ILI rates have increased in all age groups
- Influenza A (H1N1 2009) is the predominant influenza virus circulating in Ireland.
 - 214 positive influenza A (H1N1 2009) specimens were detected by the NVRL in week 52, almost double the number in the previous week.
 - 30 influenza B, 2 influenza A (H3) and 13 influenza A (unsubtyped) specimens were also detected by the NVRL in week 52.
- The number of hospitalised cases of influenza A (H1N1 2009) has continued to increase, with 114 cases hospitalised to date (as of January 5th 2011) and reports of 33 cases admitted to ICU.
- As of January 5th 2011, seven influenza/ILI outbreaks were reported to HPSC to date this season, four ILI outbreaks and three influenza A (H1N1 2009) outbreaks.
- The proportion of influenza-related calls to GP Out-of-Hours services reached the highest recorded levels during week 52 2010.
- 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 52 2010, 47 of 60 (78.3%) sentinel general practices provided data, with 39 practices (83.0%) reporting 247 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 120.6 per 100,000 population, a significant increase compared to the updated rate of 59.5 per 100,000 reported during week 51 2010. The ILI rates for week 52 2010 are above the Irish baseline threshold (17.8 per 100,000 population) and are one of the highest rates ever recorded. During the 2009 pandemic, ILI rates peaked at 201.3 per 100,000 during week 43 2009. Outside of the pandemic period, ILI rates were only higher than 120.6 during the 2000/2001 influenza season, peaking at 122.9 per 100,000 during week 8 2001. ILI rates also peaked at 120.6 per 100,000 during the 2008/2009 influenza season (week 2 2009).

Eight (17.0%) sentinel practices reported no ILI cases during week 52 2010. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

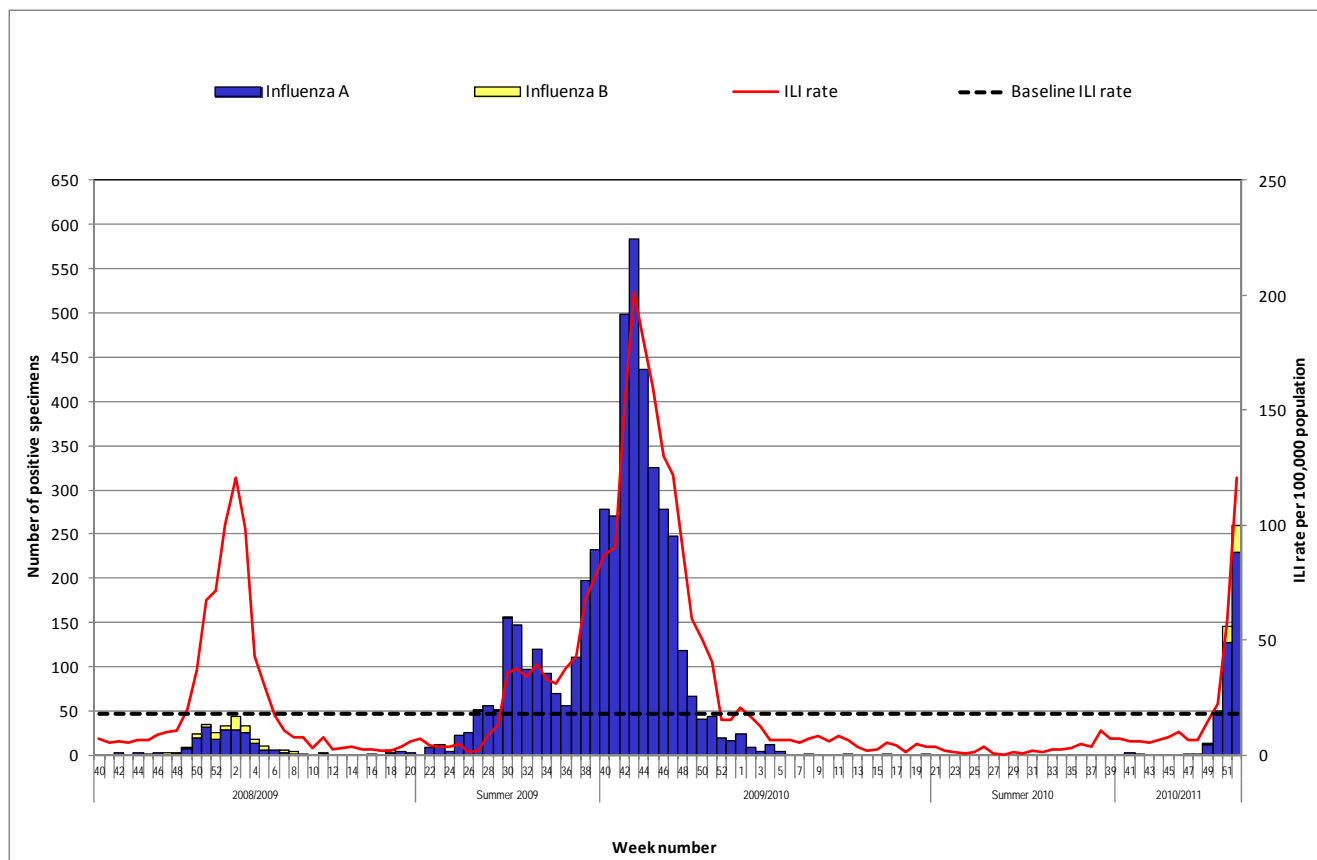


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens, by influenza week and season.

Source: Clinical ILI data from ICGP and virological data from the NVRL^{1,2}

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.

ILI rates increased in all age groups during week 52 2010, most significantly in the 0-4, 5-14 and 15-64 year age groups, with the highest rates reported in the 15-64 year age group. Nineteen ILI cases were reported in the 0-4 year age group (130.1 per 100,000), 26 cases were reported in the 5-14 year age group (95.7 per 100,000), 192 in the 15-64 year age group (136.7 per 100,000) and ten ILI cases in those aged 65 years or older (44.2 per 100,000).

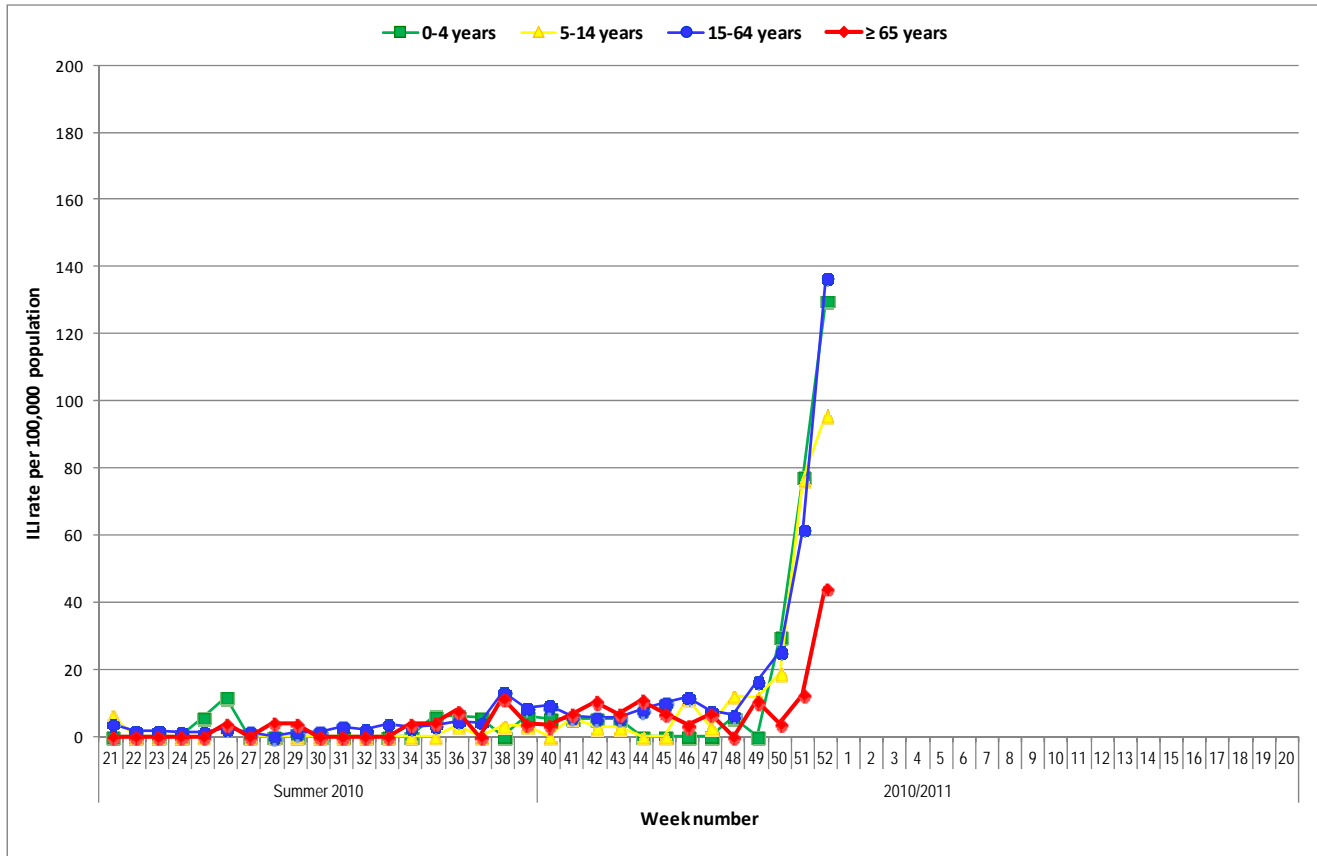


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date
 Source: ICGP ILI clinical data

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

A total of 539 specimens (all of which were non-sentinel specimens) were tested by the NVRL during week 52 2010. Two hundred and fifty-nine (48.1%) specimens were positive for influenza: 214 influenza A (H1N1 2009), two influenza A (H3), 13 influenza A (unsubtyped) and 30 influenza B.

To date this season, 1940 sentinel and non-sentinel specimens were tested by the NVRL, 471 (24.3%) specimens tested positive for influenza: 389 influenza A (H1N1 2009), three influenza A (H3), 26 influenza A (unsubtyped) and 53 influenza B. Of the 471 positive influenza specimens, 418 (88.7%) were influenza A and 53 (11.3%) were influenza B. Of the 389 influenza A (H1N1 2009) specimens detected, 34 were sentinel specimens and 355 were from non-sentinel sources (figures 3 & 4).

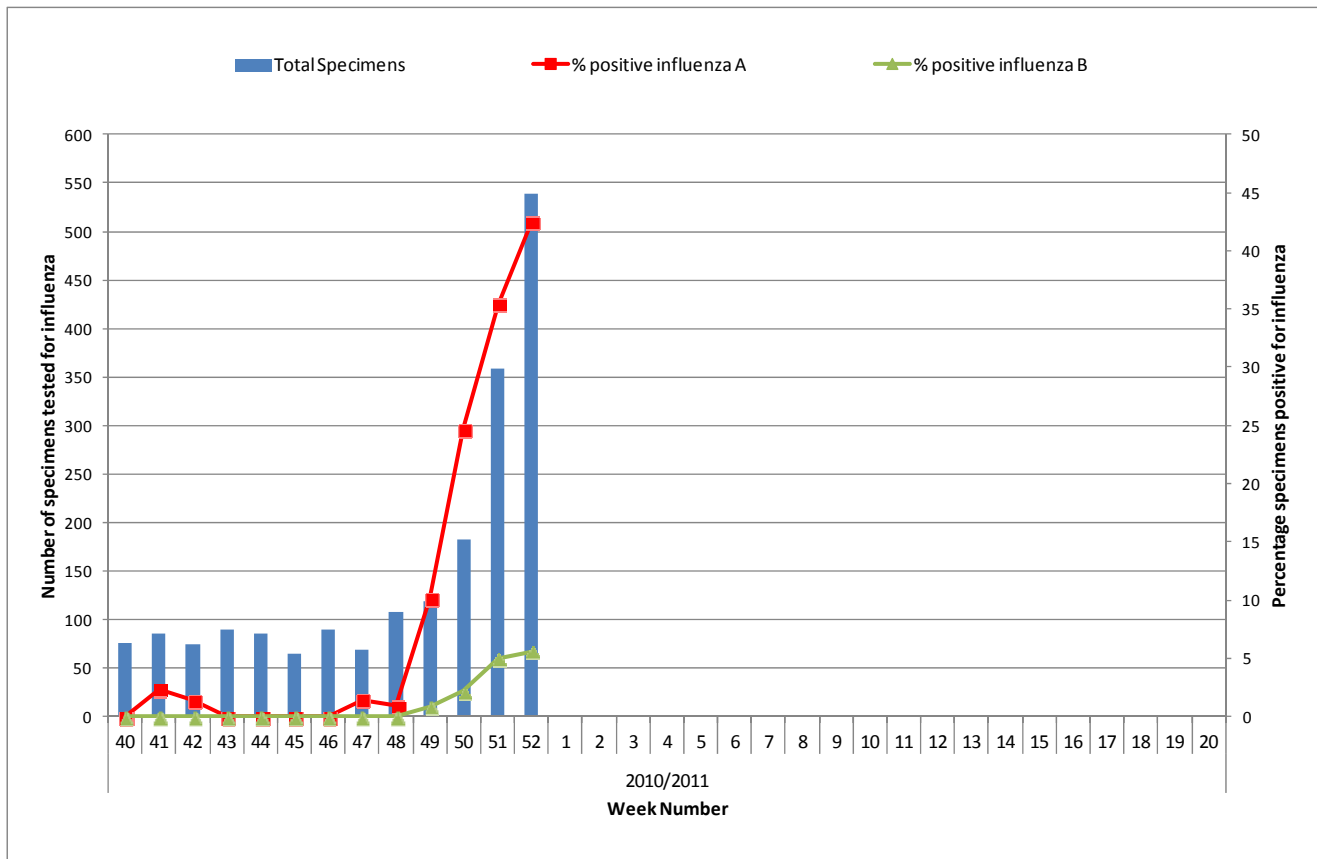


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL[§]

[‡] 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.

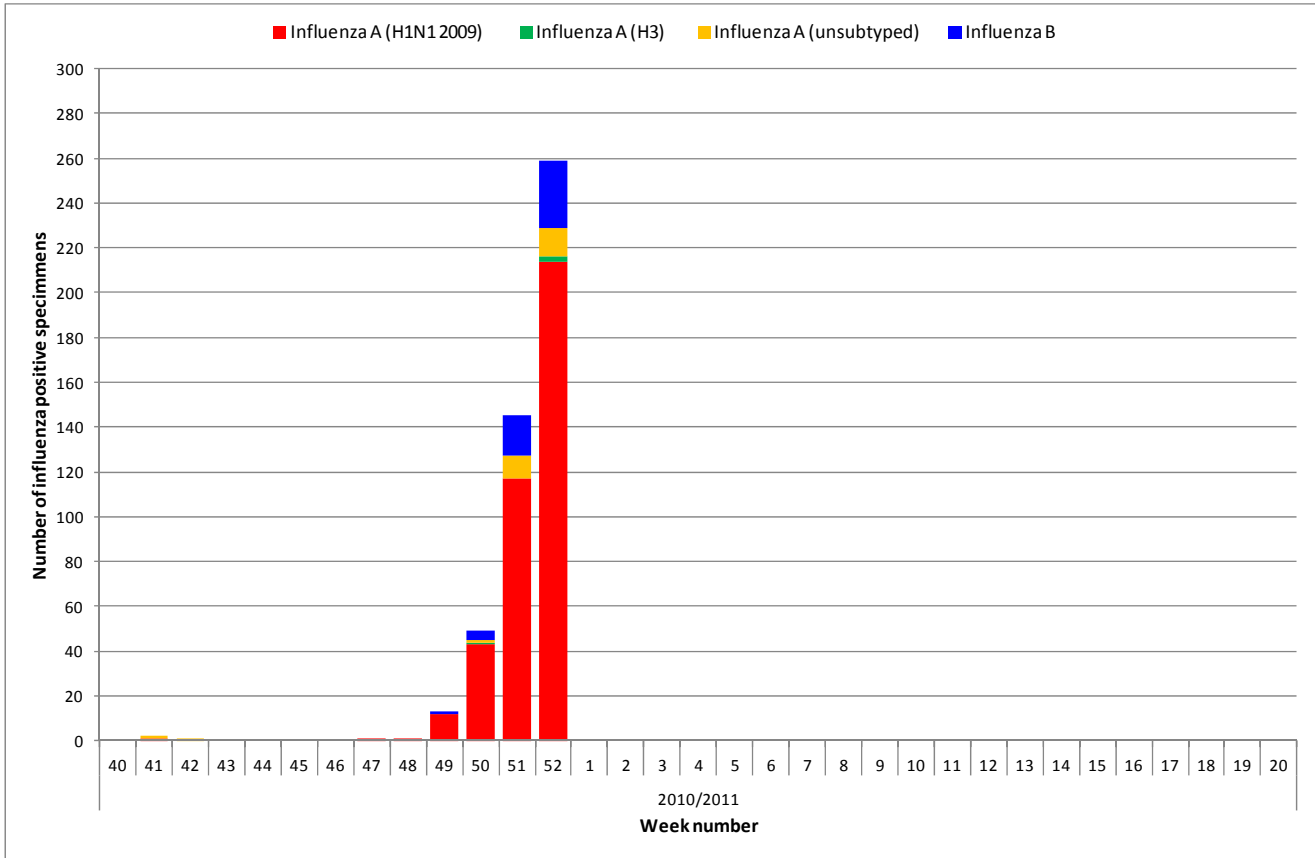


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL**

Of the 539 non-sentinel specimens tested during week 52 2010, 3.5% (19) were positive for RSV, a decrease from the updated proportion, 7.7%, for week 51 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. 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 adenovirus during week 52 2010. 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.

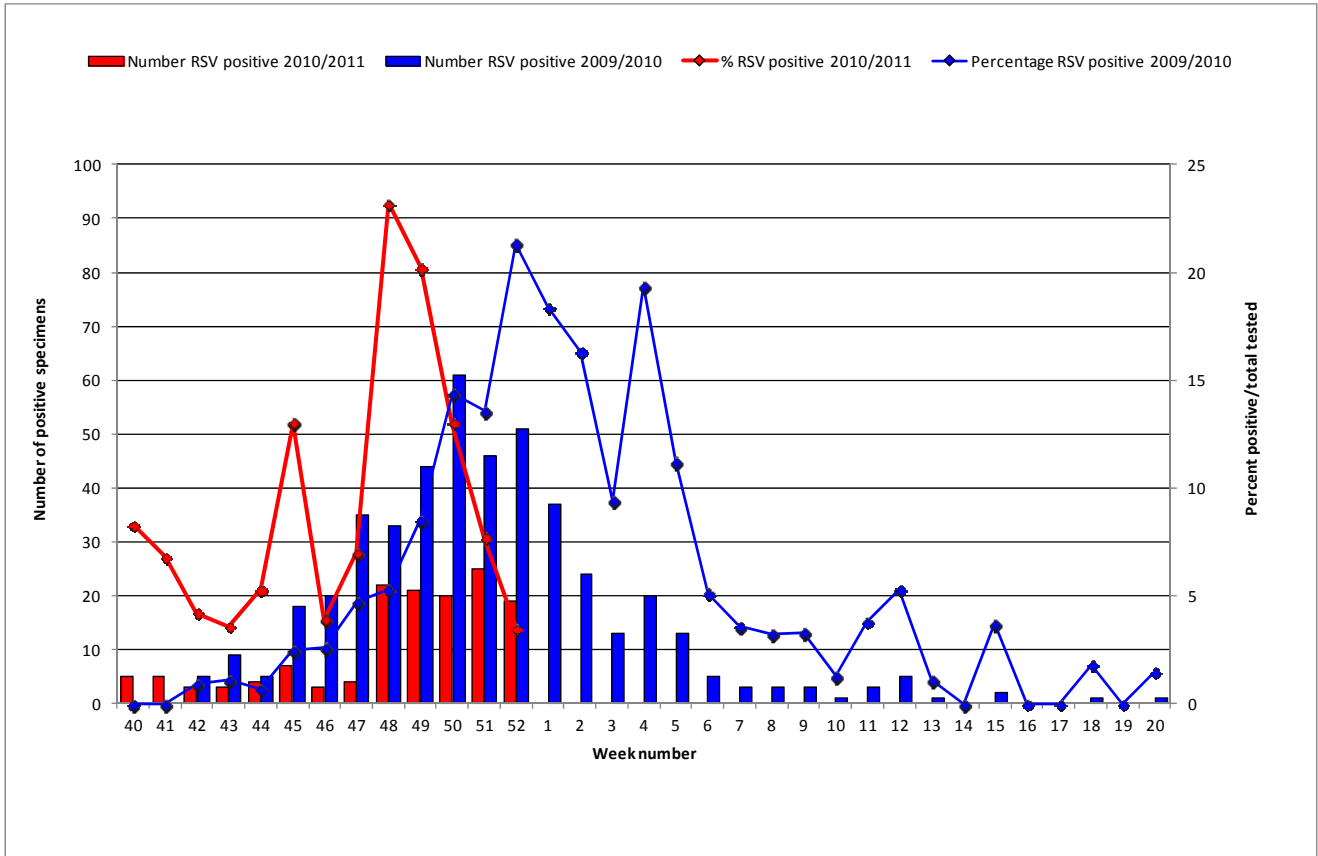


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

Table 1: Number of sentinel and non-sentinel^{††} respiratory specimens tested and positive influenza results, for week 52 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)	
52 2010	Sentinel	0	0	0.0	0	0	0	0	0	0
	Non-sentinel	539	259	48.1	229	214	2	0	13	30
	Total	539	259	48.1	229	214	2	0	13	30
2010/2011 season	Sentinel	171	48	28.1	35	34	1	0	0	13
	Non-sentinel	1769	423	23.9	383	355	2	0	26	40
	Total	1940	471	24.3	418	389	3	0	26	53

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 52 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
52 2010	539	19	3.5	1	0.2	0	0.0	0	0.0	0	0.0
2010/2011 season	1940	141	8.0	9	0.5	6	0.3	2	0.1	1	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 52 2010, widespread influenza activity was reported from five HSE-Areas (HSE-E, -MW, -NE, -NW, and -S). Localised influenza activity was reported from three HSE-Areas (HSE-M, -SE and HSE-W) (figure 6).

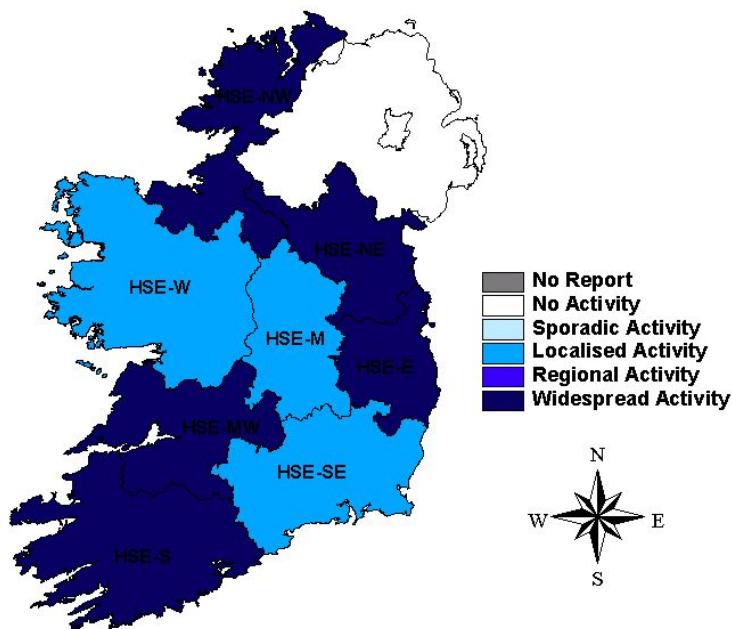


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 52 2010

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.

Two sentinel hospitals reported significant increases in respiratory admissions over the Christmas/New Year period, one in HSE-W during weeks 51 and 52 2010 and one in HSE-S during week 51 2010. The latest available data from sentinel hospitals in HSE-E and -NW also demonstrated increases in respiratory admissions during week 50 2010. Sentinel school data were not available as schools are currently 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 increased significantly during weeks 51 and 52 2010, reaching 11.1% during week 52 2010, which is the highest recorded proportion of influenza related calls to GP Out-of-Hours services. The previous highest recorded proportion of influenza-related calls to GP Out-of-Hours services was during the pandemic period, peaking at 10.6% during week 45 2009. Six GP Out-of-Hours services reported during week 52 2010 (figure 7).

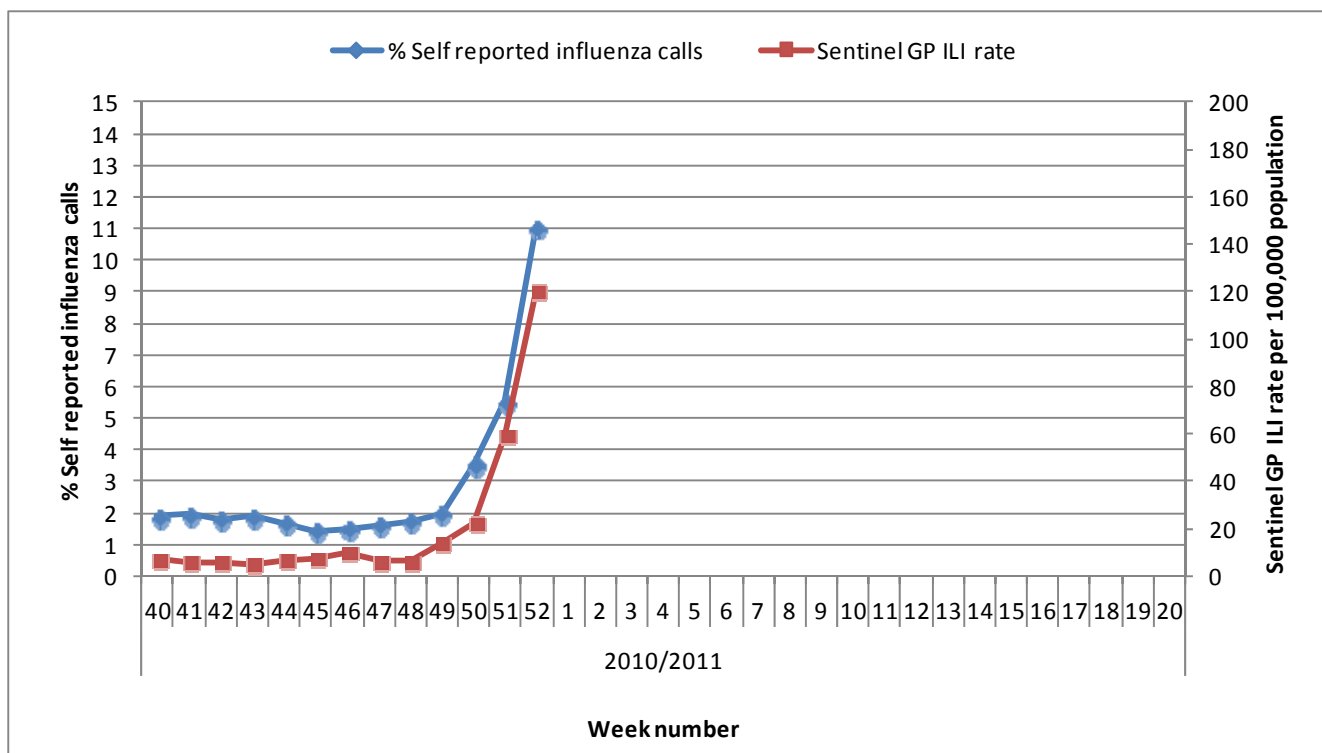


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 5th January 2011 (17:38), 364 confirmed influenza cases were notified on CIDR for the 2010/2011 influenza season: 306/364 (84.1%) were confirmed influenza A (H1N1 2009), one (0.3%) was influenza A (H3), 12 (3.3%) were influenza A (unsubtyped) and 45 (12.4%) influenza B cases. One hundred and seventy-four

influenza cases have been notified to date for week 1 2011. It should be noted that data for week 1 2011 are incomplete and only include notified cases as of 5th January 2011 (17:38).

One hundred and fourteen (31.3%) of the 364 confirmed influenza cases notified were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients). Of the 114 hospitalised cases, 97 (85.1%) were influenza A (H1N1 2009) cases, 6 (5.3%) were influenza A (unsubtyped) and 11 (9.6%) were influenza B cases. Twenty-eight (7.7%) of the 364 confirmed influenza cases were hospital outpatients, 20 (5.5%) cases were Emergency Department patients and 70 (19.2%) were GP patients. Other was recorded as the patient type for four (1.1%) patients and patient type was unknown for 128 (35.2%) cases (figure 8).

Twenty-nine (8.0%) of the 364 cases were reported as either pregnant or postnatal related cases. Fifteen of these cases were reported as hospitalised: 14 influenza A (H1N1 2009) cases and one influenza B case.^{§§}

Of the 364 notified confirmed cases, 33 (9.1%) were in the 0-4 year age group, 24 (6.6%) were aged 5-14 years, 281 (77.2%) were in the 15-64 year age group, 17 (4.7%) cases were aged 65 years or older and age was unknown for nine (2.5%) cases. Of the 114 hospitalised cases, 15 (13.2%) were in the 0-4 year age group, 7 (6.1%) were aged 5-14 years, 84 (73.7%) were in the 15-64 year age group and 8 (7.0%) cases were aged 65 years or older.

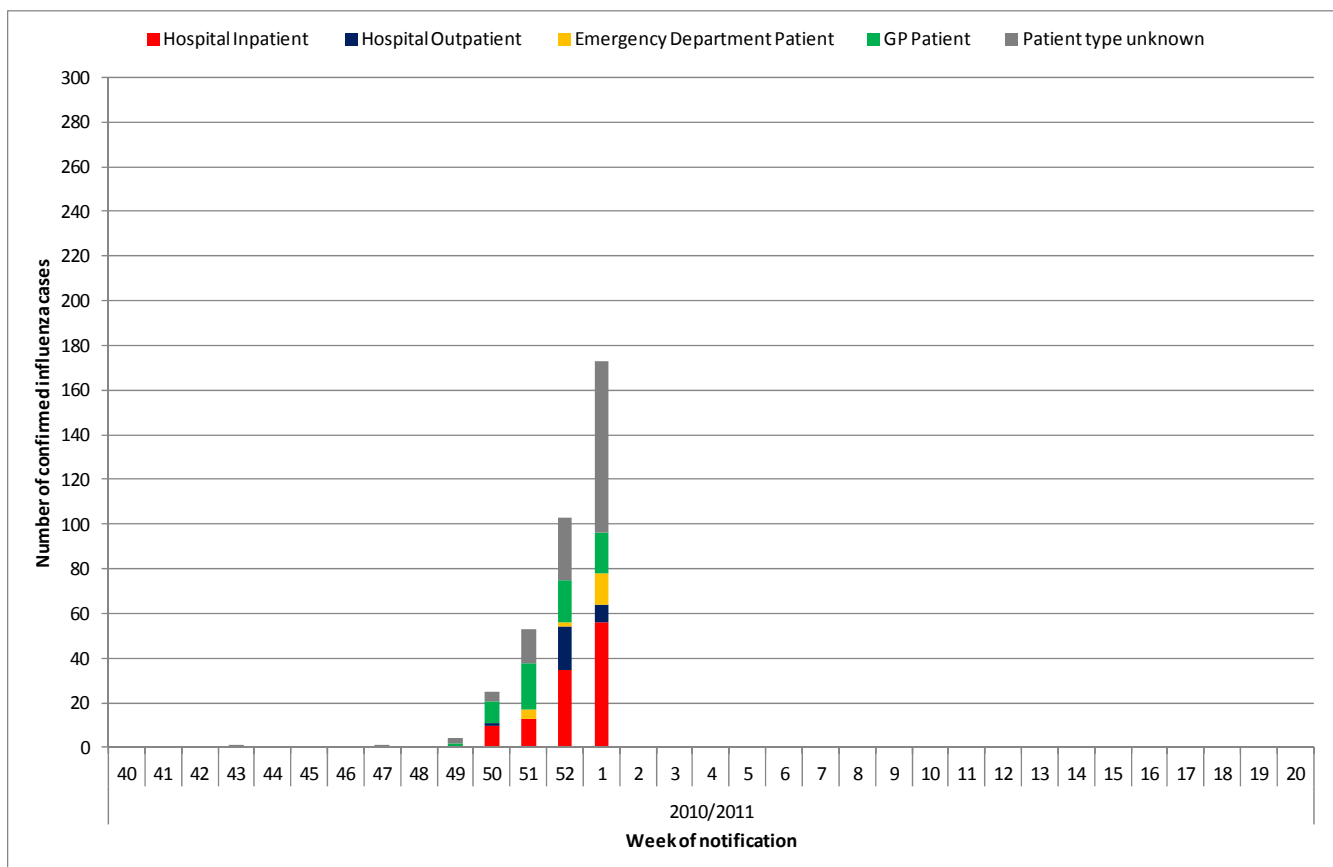


Figure 8: Number of confirmed influenza cases reported to CIDR by patient type and week of notification for the 2010/2011 influenza season.

Source: CIDR 05/01/2011 17:38

^{§§} It should be noted that information on pregnancy is not available for all cases.

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 will notify any cases to HPSC, who will process and report on this information on behalf of the regional Director of Public Health/Medical Officer of Health.

As of 5th January 2011 (18:50), HPSC has been notified of 33 hospitalised patients admitted to critical care units with confirmed influenza A (H1N1 2009) during the 2010/2011 influenza season. Three of these cases were paediatric cases. Seven (21.2%) of the 33 cases have been discharged from ICU. Enhanced data are currently available on 22 cases, 14 (63.6%) of whom had underlying medical conditions.

7. Outbreak surveillance

As of 5th January 2011 (17:38), seven general outbreaks of ILI/influenza/influenza A (H1N1 2009) were reported to CIDR for the 2010/2011 influenza season: four ILI outbreaks and three influenza A (H1N1 2009) outbreaks. One outbreak was reported in week 49 2010, two in week 50 2010 and four in week 51 2010. Two 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 and one other.

8. International summary

United Kingdom

Influenza activity continues to increase across the UK during week 51 2010. Influenza A (H1N1 2009) and B are the predominant circulating viruses with few, sporadic A (H3N2) viruses detected. The A (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. The HPA expects to see continued elevated influenza activity for several weeks. During week 51 2010, the weekly influenza/ILI consultation rates were above baseline levels in England (124.4 per 100,000), Wales (92.1 per 100,000), Scotland (58.4 per 100,000) and Northern Ireland (99.4 per 100,000). The weekly national proportion of NHS Direct cold/flu calls for week 51 increased. However, the daily proportion of cold/flu calls decreased slightly. The proportion of calls for fever in the 5-14 year age group decreased from 21.6% to 16.8%, although remained above the baseline level (9%). These decreases suggest the possibility that the UK may be approaching the peak of influenza activity. Two acute respiratory disease outbreaks were reported in week 51, one in a primary school and in a prison, bringing the total reported to date this season to 122. It should be noted that most schools across the UK were on holiday in week 51. One-hundred and twenty-six of 189 (66.7%) specimens from patients with ILI presenting to sentinel GPs in England in week 51, were reported as positive for influenza. The proportion of specimens reported to DataMart (England) as positive for influenza has increased to 43.2% (1,711 of 3,959). The proportion of samples positive for RSV and rhinovirus was stable or decreasing. From week 36 2010, 39 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 over weeks 51 and 52 due to the Christmas holiday period which reduces consulting rates, reporting to national centres and ECDC. In addition there is the effect of school closures which seems to reduce transmission of influenza A (H1N1) 2009. Sixteen countries experienced influenza activity of low intensity and four countries reported medium intensity during week 51 2010. Three

countries (Belgium, France and Portugal) reported widespread activity and six countries reported increasing trends. A total of 642 influenza viruses were detected during week 51 2010. Of these detections, 65% were type A and 35% were type B. The percentage of sentinel specimens testing positive for influenza virus (33.5%) was lower than in the previous week (39.4%), but this decline may reflect incomplete data returns over the Christmas holiday period. Influenza A (H1N1 2009) virus was reported as dominant in seven countries, while influenza B virus was dominant in one country. Since week 40 2010, of the 3,122 influenza detections in sentinel and non-sentinel specimens, 2,130 (68%) were type A and 992 (32%) were type B influenza viruses. Of 1,245 influenza A viruses sub-typed, 1,149 (92%) were influenza A (H1N1 2009) and 96 (8%) were A (H3) viruses. 180 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically: 95 as A/California/7/2009 (H1N1)-like; 25 as A/Perth/16/2009 (H3N2)-like; 54 as B/Brisbane/60/2008-like (Victoria lineage) and six as B/Florida/4/2006-like (Yamagata lineage).

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

USA

During week 51 2010, influenza activity in the United States continued to increase. The proportion of ILI outpatient visits was 2.7%, which is above the national baseline of 2.5%. Of the 3,284 specimens tested, 689 (21.0%) were positive for influenza: 15 A (H1N1 2009), 187 A (H3), 277 A (unsubtyped) and 210 B. The proportion of deaths attributed to pneumonia and influenza was at the epidemic threshold. One influenza-associated paediatric death was reported and was associated with influenza A (H3) virus infection. CDC has antigenically characterised 13 A (H1N1 2009) viruses as A/California/7/2009-like, 54 A (H3N2) viruses as A/Perth/16/2009-like and 50 B viruses as B/Brisbane/60/2008-like, all of which are components of the 2010/2011 influenza vaccine. <http://www.cdc.gov/flu/weekly/>

Canada

The latest available report for Canada is for week 50 2010. During week 50 2010, all influenza surveillance indicators continued to increase. The national ILI consultation rate was 24.5 consultations per 1,000 patient visits which increased from the previous week, but was still within the expected levels for the time of year. Ten new ILI/influenza outbreaks were reported during week 50: 9 outbreaks of influenza A (unsubtyped) and one influenza A (H1N1 2009) outbreak. The proportion of positive influenza specimens reported during week 50, increased compared to the previous week with 565 specimens out of 3,577 (15.8%) testing positive: 99% influenza A and 1% influenza B. Of the positive subtyped influenza A specimens: 91% were influenza A (H3N2) and 9% were influenza A (H1N1 2009). <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

Acknowledgements

HPSC wishes to thank the ICGP, NVRL, Departments of Public Health, ICSI, HSE-NE, CUH and GUH 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.