

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 50 2010 (13th – 19th December 2010)



Summary

- During week 50 2010, influenza activity continued to increase across Ireland.
- The sentinel GP influenza-like illness (ILI) consultation rate was 24.1 per 100,000 population in week 50 2010, an increase from the updated rate of 14.3 per 100,000 reported during week 49 2010.
- ILI rates have risen above baseline level for the first time during the 2010/2011 influenza season.
- Influenza A (H1N1 2009) is the predominant influenza virus circulating in Ireland.
 - 30 positive influenza A (H1N1 2009) specimens were detected by the NVRL in week 50, more than double the number in the previous week.
 - One influenza A (H3) specimen and one influenza B specimen were also detected by the NVRL in week 50.
- The number of hospitalised cases of influenza A (H1N1 2009) has continued to increase, with 14 cases hospitalised to date (as of December 21st 2010) and reports of three cases admitted to ICU.
- As of December 21st 2010, four influenza/ILI outbreaks were reported to HPSC, two ILI outbreaks (one in a community setting and one in a school) and two influenza A (H1N1 2009) outbreaks (one in a maternity hospital and one in a school).
- The proportion of influenza-related calls to GP Out-of-Hours services increased during week 50 2010.
- Respiratory syncytial virus (RSV) positive detections decreased in week 50 2010.

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 50 2010, 44 of 60 (73.3%) sentinel general practices provided data, with 24 practices (54.5 %) reporting 45 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 24.1 per 100,000 population, an increase compared to the updated rate of 14.3 per 100,000 reported during week 49 2010. During week 50 2010, ILI rates have risen above the Irish baseline threshold (17.8 per 100,000 population) for the first time during the 2010/2011 influenza season. Twenty (45.5 %) practices reported no ILI cases during week 50 2010. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

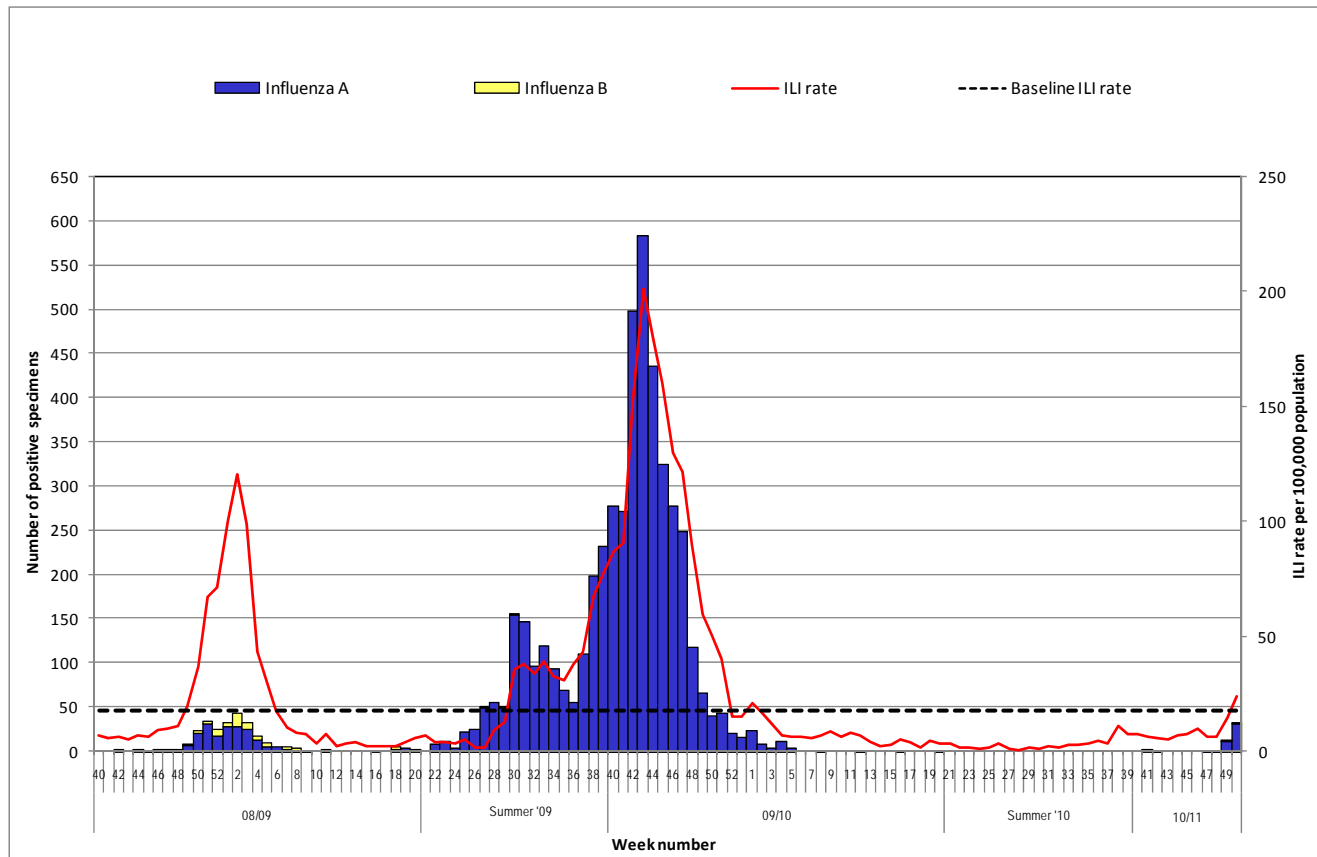


Figure 1. ILI GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens, by influenza week and season.

Source: Clinical ILI data from ICGP and virological data from the NVRL^{*†}

ILI rates increased significantly in the 0-4, 5-14 and 15-64 year age groups during week 50 2010, with the highest rates reported in the 0-4 year age group. Five ILI cases were reported in the 0-4 year age group (37.5 per 100,000), five cases were reported in the 5-14 year age group (20.2 per 100,000), 34 in the 15-64 year age group (26.5 per 100,000) and one ILI case in those aged 65 years or older (4.8 per 100,000).

* 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.

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

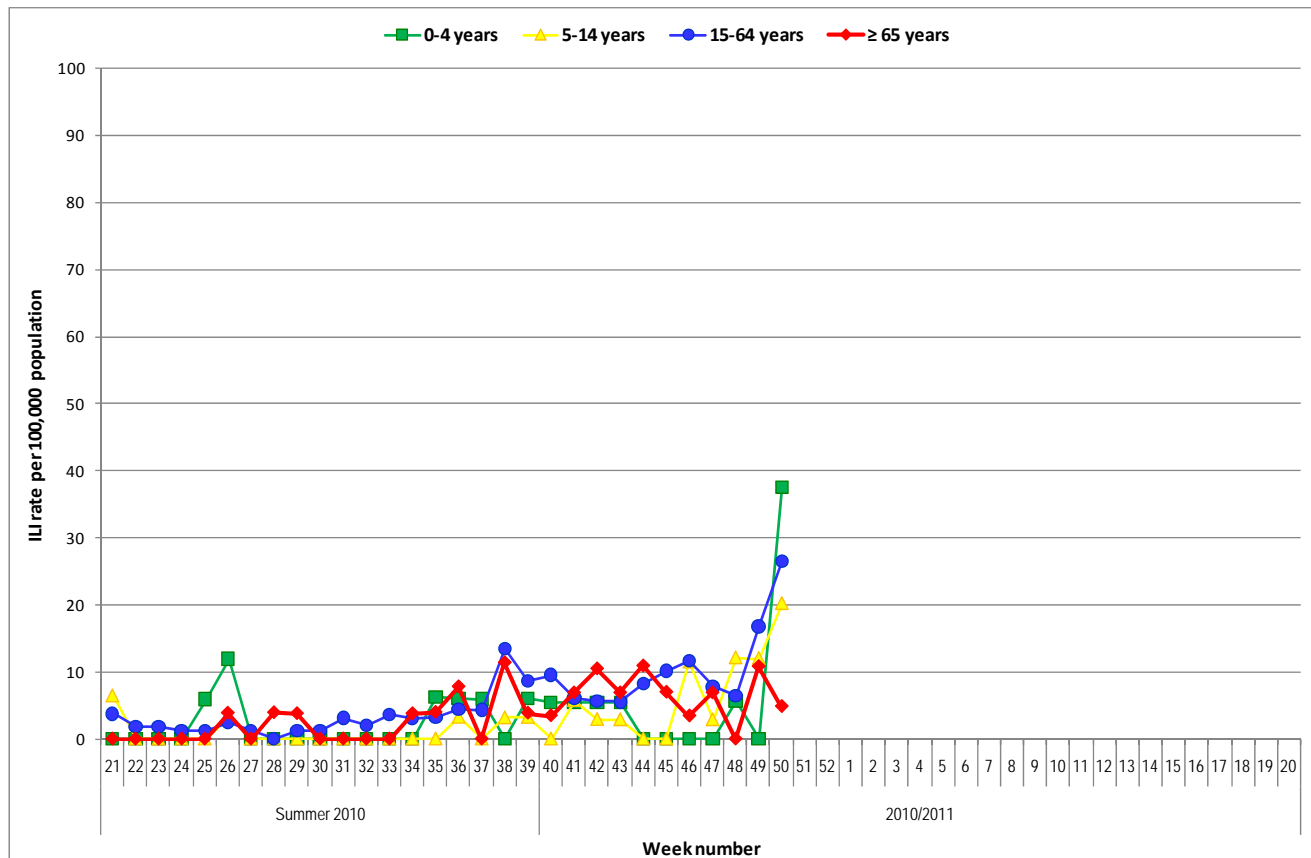


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date

Source: ICGP ILI clinical data

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

A total of 179 specimens (24 sentinel and 155 non-sentinel) were tested by the NVRL during week 50 2010. Thirty-three (18.4%) specimens were positive for influenza: 30 influenza A (H1N1 2009), one influenza A (H3), one influenza A (unsubtyped) and one influenza B. Of the 24 sentinel specimens taken during week 50 2010, seven (29.2%) were positive for influenza: five influenza A (H1N1 2009), one A (H3) and one influenza B. Of the 155 non-sentinel specimens taken during week 50 2010, 26 (16.8%) were positive for influenza: 25 influenza A (H1N1 2009) and one influenza A (unsubtyped).

To date this season, 1038 sentinel and non-sentinel specimens were tested by the NVRL, 51 (4.9%) specimens tested positive for influenza: 45 influenza A (H1N1 2009), one influenza A (H3), three influenza A (unsubtyped) and two influenza B. Of the 45 influenza A (H1N1 2009) specimens detected, 14 were sentinel specimens and 31 were from non-sentinel sources (figures 3 & 4).

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

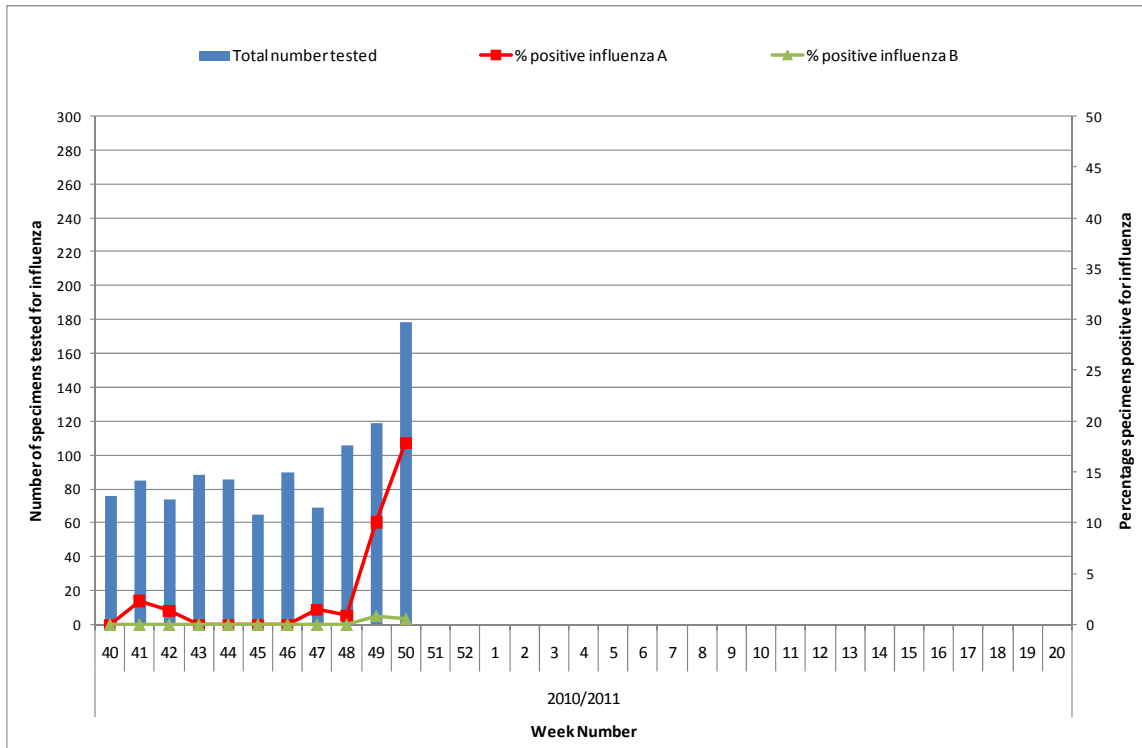


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL[§]

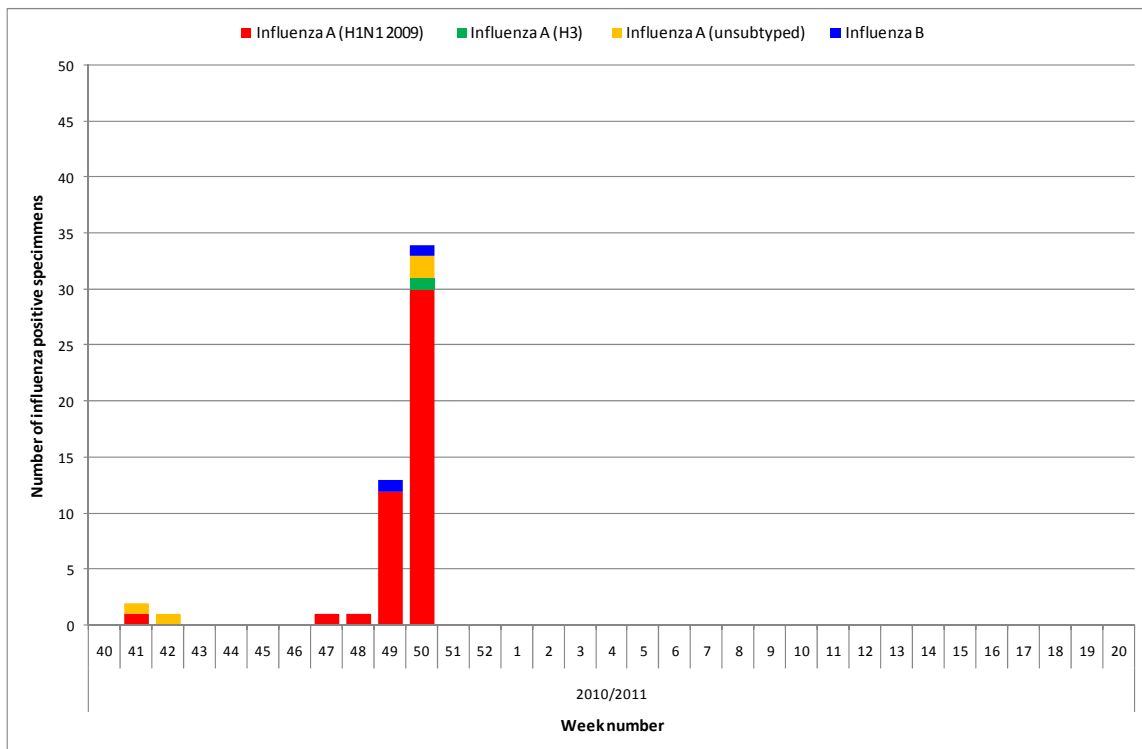


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL^{**}

[§] 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.

Of the 155 non-sentinel specimens tested during week 50 2010, 9.7% (15) were positive for RSV, a decrease from the updated proportion, 20.2%, for week 49 2010 (Tables 1 & 2). The current proportion of RSV positive detections remains at low levels, compared to average levels 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 were no positive detections of adenovirus or parainfluenza viruses during week 50 2010. To date this season, there have been sporadic detections of adenovirus and parainfluenza virus (PIV) types -1, -2 and -3.

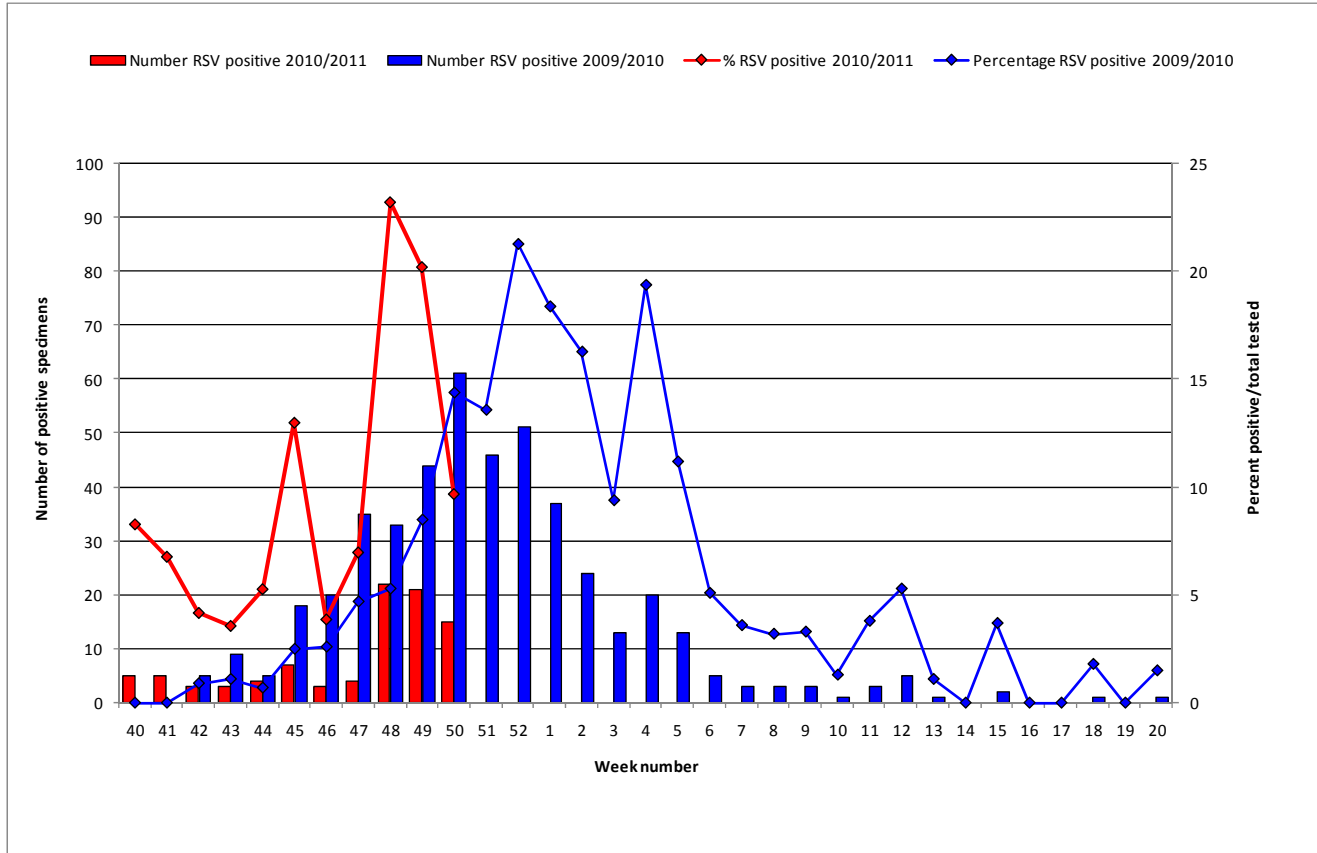


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

^{††} 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.

Table 1: Number of sentinel and non-sentinel^{††} respiratory specimens tested and positive influenza results, for week 50 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)	
50 2010	Sentinel	24	7	29.2	6	5	1	0	0	1
	Non-sentinel	155	26	16.8	26	25	0	0	1	0
	Total	179	33	18.4	32	30	1	0	1	1
2010/2011 season	Sentinel	132	17	12.9	15	14	1	0	0	2
	Non-sentinel	906	34	3.8	34	31	0	0	3	0
	Total	1038	51	4.9	49	45	1	0	3	2

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 50 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
50 2010	155	15	9.7	0	0.0	0	0.0	0	0.0	0	0.0
2010/2011 season	906	92	10.2	6	0.7	5	0.6	2	0.2	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 50 2010, localised influenza activity was reported from two HSE-Areas (HSE-E and HSE-S), and sporadic activity was reported from the remaining six HSE-Areas (figure 6).

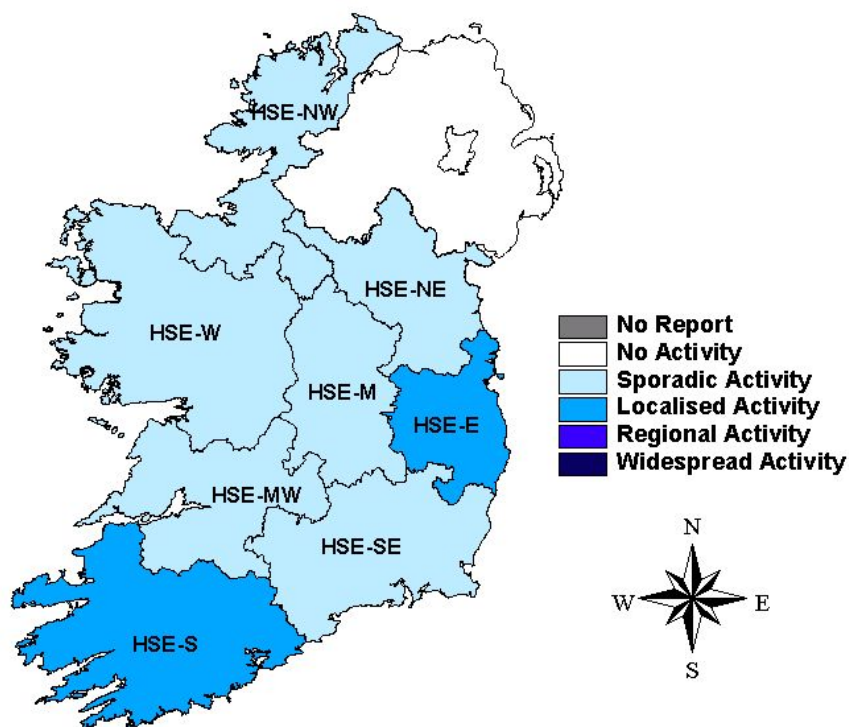


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 50 2010

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.

Three sentinel hospitals, two in HSE-E (one adult and one paediatric hospital) and one in HSE-W reported slight increases in the proportion of respiratory admissions during week 50 2010. During weeks 49 and 50 2010, a large proportion of sentinel schools continued to experience increased absenteeism or were closed due to severe weather conditions.

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.

During week 50 2010, the proportion of influenza-related calls to GP Out-of-Hours services was 3.5%, an increase from the updated data for week 49 2010 of 2.0% (figure 6). Seven GP Out-of-Hours services reported during week 50 2010 (figure 7).

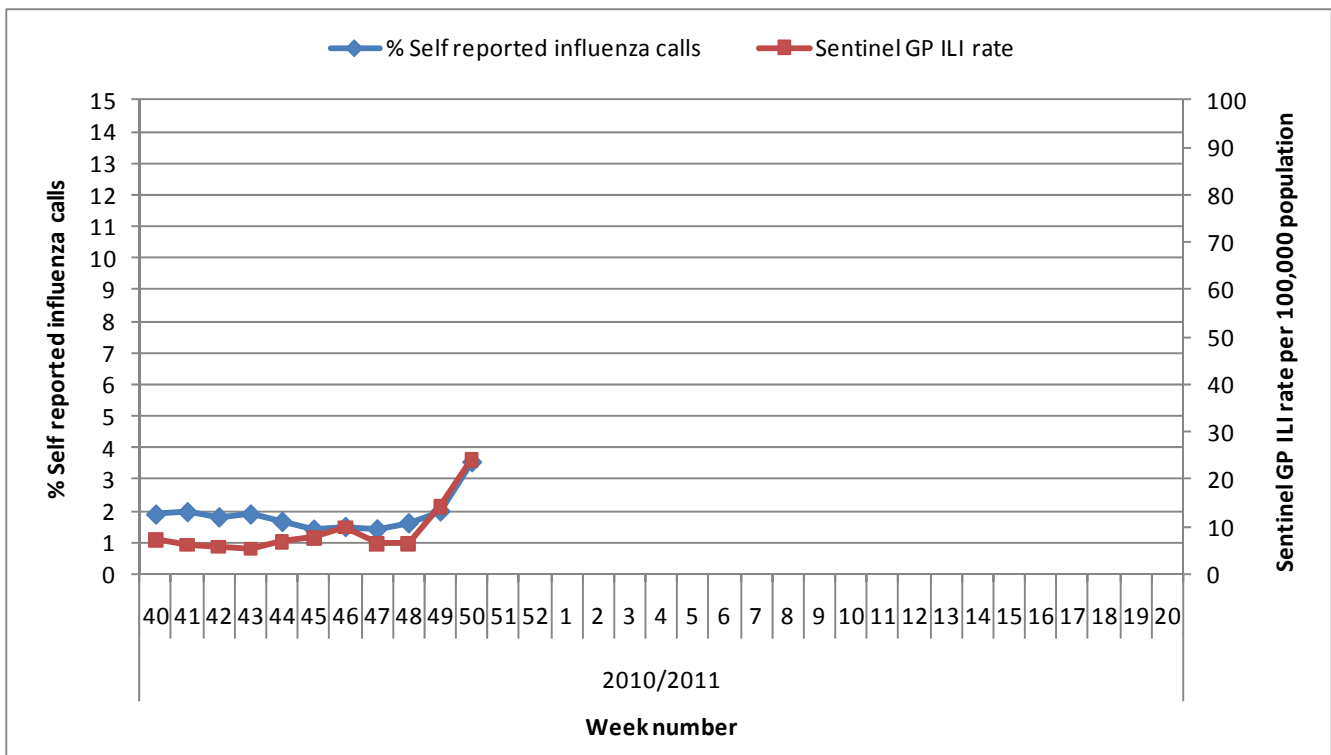


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 21st December 2010 (15:20), 50 confirmed influenza cases were notified on CIDR for the 2010/2011 influenza season; 48/50 (96.0%) were confirmed influenza A (H1N1 2009), one (2.0%) was influenza A (H3) and one (2.0%) influenza B case. One case was notified during week 43 2010, one during week 47 2010, four in week 49 2010, 25 in week 50 2010 and 19 in week 51 2010. It should be noted that data for week 51 2010 are incomplete and only include notified cases as of 21st December 2010 (15:20).

Fourteen (28.0%) of the 50 confirmed influenza cases notified were hospitalised (i.e. hospital inpatient status), all of whom were confirmed influenza A (H1N1 2009) cases. Neither the influenza A (H3) nor influenza B case was hospitalised. Two (4.0%) of the 50 confirmed influenza cases were hospital outpatients, two (4.0%) cases were A&E patients, 20 (40.0%) were GP patients and hospital status was unknown for 12 (24.0%) cases (figure 8). Eight (16.0%) of the 50 cases were reported as either pregnant or postnatal related cases. All eight were confirmed influenza A (H1N1 2009) cases, five of whom were reported as hospitalised. Of the 50 notified confirmed cases, five cases were in the 0-4 year age group, four cases were aged 5-14 years, 38 were in the 15-64 year age group, two cases were aged 65 years or older and age was unknown for one case.

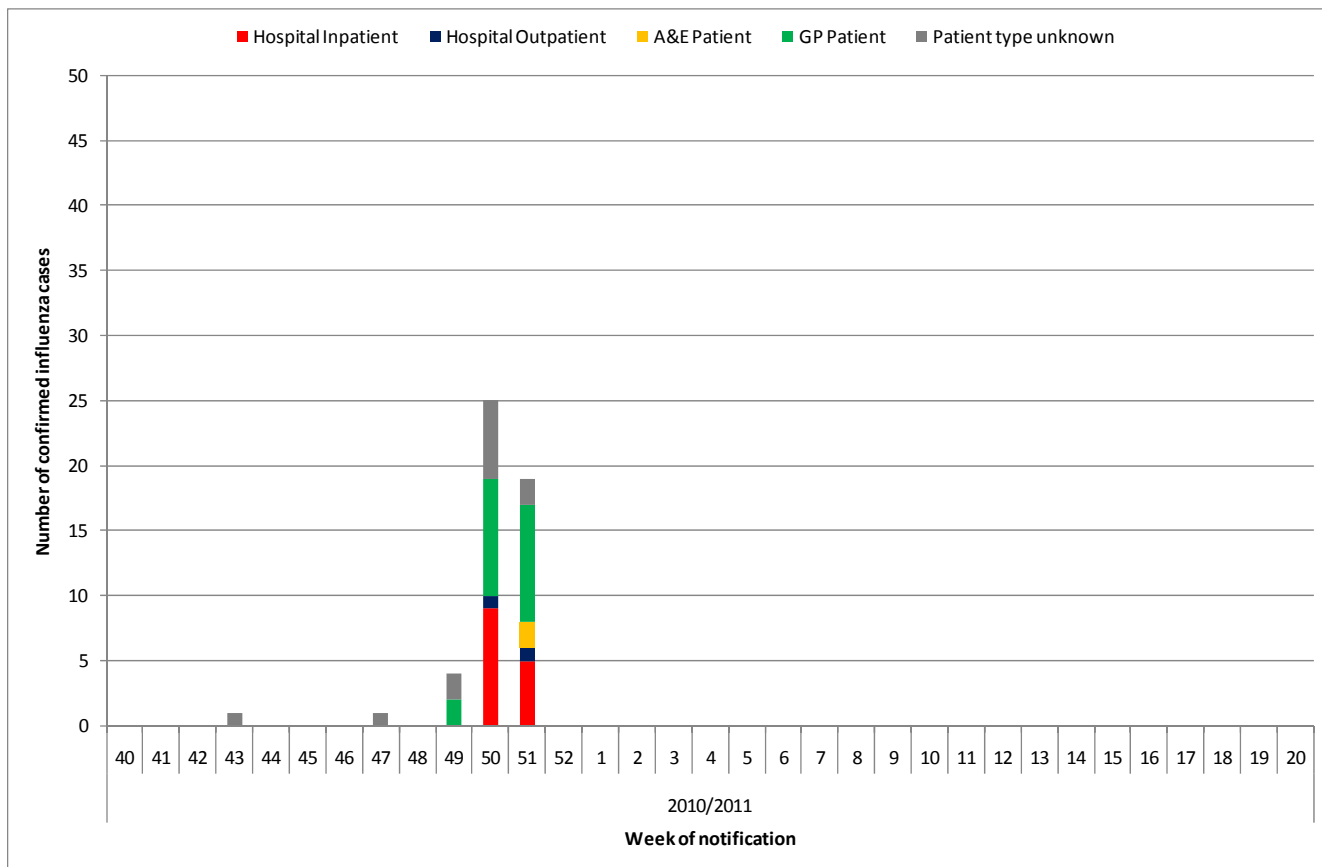


Figure 8: Number of confirmed influenza cases reported to CIDR by patient type and week of notification for the 2010/2011 influenza season.

Source: CIDR 21/12/2010 15:20

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 21st December 2010 (15:20), HPSC has been notified of three hospitalised patients admitted to critical care units with confirmed influenza A (H1N1 2009) during the 2010/2011 influenza season. All three patients

had underlying medical conditions, one case was in the 15-64 year age group and two were aged 65 years or older. Two cases were notified on CIDR during week 50 2010 and one during week 51 2010.

7. Outbreak surveillance

As of 21st December 2010 (15:20), four general outbreaks of ILI/influenza/influenza A (H1N1 2009) were reported to CIDR for the 2010/2011 influenza season: two ILI outbreaks and two influenza A (H1N1 2009) outbreaks. One outbreak was reported in week 49 2010, two in week 50 2010 and one in week 51 2010. Two outbreaks were reported from HSE-E, one from HSE-S and one from HSE-W. One outbreak was in a maternity hospital, two in schools and one in a community setting.

8. International summary

United Kingdom

Influenza activity is increasing in the UK. In week 49 2010, the weekly influenza/ILI consultation rates increased above baseline levels in England (34.6 per 100,000). The rates have increased but remain below the baseline in Wales (22.5 per 100,000), Scotland (36.1 per 100,000) and Northern Ireland (29.2 per 100,000). Consultation rates for acute bronchitis also increased. Outbreaks and severe cases requiring ICU/ECMO admission, mainly in people aged less than 65 years continue to be reported. Fifty-seven acute respiratory disease outbreaks were reported in UK in week 49 2010, 55 schools, one care home and one hospital. Eight-eight outbreaks have been reported to date this season in the UK. Influenza A (H1N1 2009) and B are the predominant circulating viruses with few, sporadic A (H3N2) viruses detected. The influenza A (H1N1 2009) virus strain is virologically and epidemiologically similar to that observed during the pandemic. The virus strains circulating are well matched to the current influenza vaccine and very little antiviral resistance has been detected. Eighty-four of 149 (56.4%) specimens from patients with ILI presenting to sentinel GPs in England in week 49, were reported as positive for influenza. The proportion of samples positive for RSV and rhinovirus are decreasing. From week 36, 17 deaths associated with influenza infection have been reported. The HPA expects to see continued elevated influenza activity for several weeks. <http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/>

Europe

During week 49 2010, 24 of the 25 reporting countries and the UK (Northern Ireland, Scotland and Wales) experienced influenza activity of low intensity while the UK (England) reported medium intensity and activity above the baseline. Fourteen countries reported an increasing trend of influenza activity. During week 49 2010, 22% of sentinel specimens were positive for influenza. Of the 347 influenza viruses detected during week 49 2010, 234 (67%) were influenza A, the majority of which were A (H1N1 2009), 113 (33%) were influenza B and a small number A (H3). The circulating viruses detected to date, have been similar to the current vaccine viruses. Annual influenza epidemics are starting in Europe and are at present dominated by influenza A (H1N1 2009) and B viruses.

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

USA

During week 49 2010, influenza activity in the United States increased. The proportion of ILI outpatient visits was 1.8%, which is below the national baseline of 2.5%. Of the 3,295 specimens tested, 363 (11.0%) were positive for influenza: 11 A (H1N1 2009), 88 A (H3), 95 A (unsubtyped) and 169 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 A (H3) virus infection. One case of human infection with a novel influenza A virus was reported. The patient became ill with a swine origin influenza A (H3N2) virus infection in November. The case reported contact with pigs in the week preceding symptom onset. The patient required hospitalisation, but has since recovered. CDC has antigenically characterised 13 A (H1N1 2009) viruses as A/California/7/2009-like, 26 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

During week 49 2010, overall influenza activity in Canada increased from the previous week. The proportion of positive influenza specimens reported during week 49 2010 increased, with 323 of 3,000 (10.8%) specimens positive, of which 96.6% were influenza A and 3.4% influenza B. Of the positive influenza A viruses subtyped, 94% were influenza A (H3N2) and 6% were influenza A (H1N1 2009). Both the number of paediatric and adult hospitalisations with influenza reported have increased during week 49 2010 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. As of December 17th 2010, increasing influenza activity has been observed across parts of Europe, most notably in the United Kingdom, indicating the start of wintertime influenza epidemics in several countries. Influenza activity is also increasing in other temperate regions of the Northern Hemisphere, including East Asia and North America where there is evidence of the beginnings of the local winter influenza season. Worldwide, influenza A (H3N2), influenza B and influenza A (H1N1 2009) viruses are co-circulating with significant regional heterogeneity in the predominant circulating influenza viruses.

<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.