

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 11 2011 (14th – 20th March 2011)



Summary

- Influenza activity remains at low levels and continues to decrease in Ireland during week 11 2011.
 - The sentinel GP influenza-like illness (ILI) consultation rate was 5.9 per 100,000 population in week 11 2011, a decrease from the updated rate of 13.5 per 100,000 reported during week 10 2011.
 - ILI rates remain below baseline levels and are low in all age groups
 - The proportion of influenza-related calls to GP Out-of-Hours services remained at low levels in week 11 2011.
 - The proportion of influenza positive specimens detected by the NVRL decreased in week 11 2011 to 0.9%, compared to 5.5% in the previous week.
 - Only one positive influenza specimen (influenza B) was detected in week 11 2011.
 - No confirmed influenza cases were admitted to hospital or ICU during week 11 2011.
 - To date (March 23rd 2011) this season, 937 confirmed influenza cases have been hospitalised, 122 cases have been admitted to ICU and 26 deaths have been reported to HPSC.
 - No new outbreaks of influenza/ILI have been reported since week 5 2011. As of March 23rd 2011, 14 influenza/ILI outbreaks have been reported to HPSC this season.
 - The proportion of respiratory syncytial virus (RSV) positive detections decreased in week 11 2011, although remains slightly above average for the time of year.

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
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 11 2011, 50 of 60 (83.3%) sentinel general practices provided data, with 11 practices (22.0%) reporting 12 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 5.9 per 100,000 population, a decrease compared to the updated rate of 13.5 per 100,000 reported during week 10 2011. The ILI rate for week 11 2011 remains below the Irish baseline threshold (17.8 per 100,000 population). Thirty-nine (78.0%) sentinel practices reported no ILI cases during week 11 2011. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

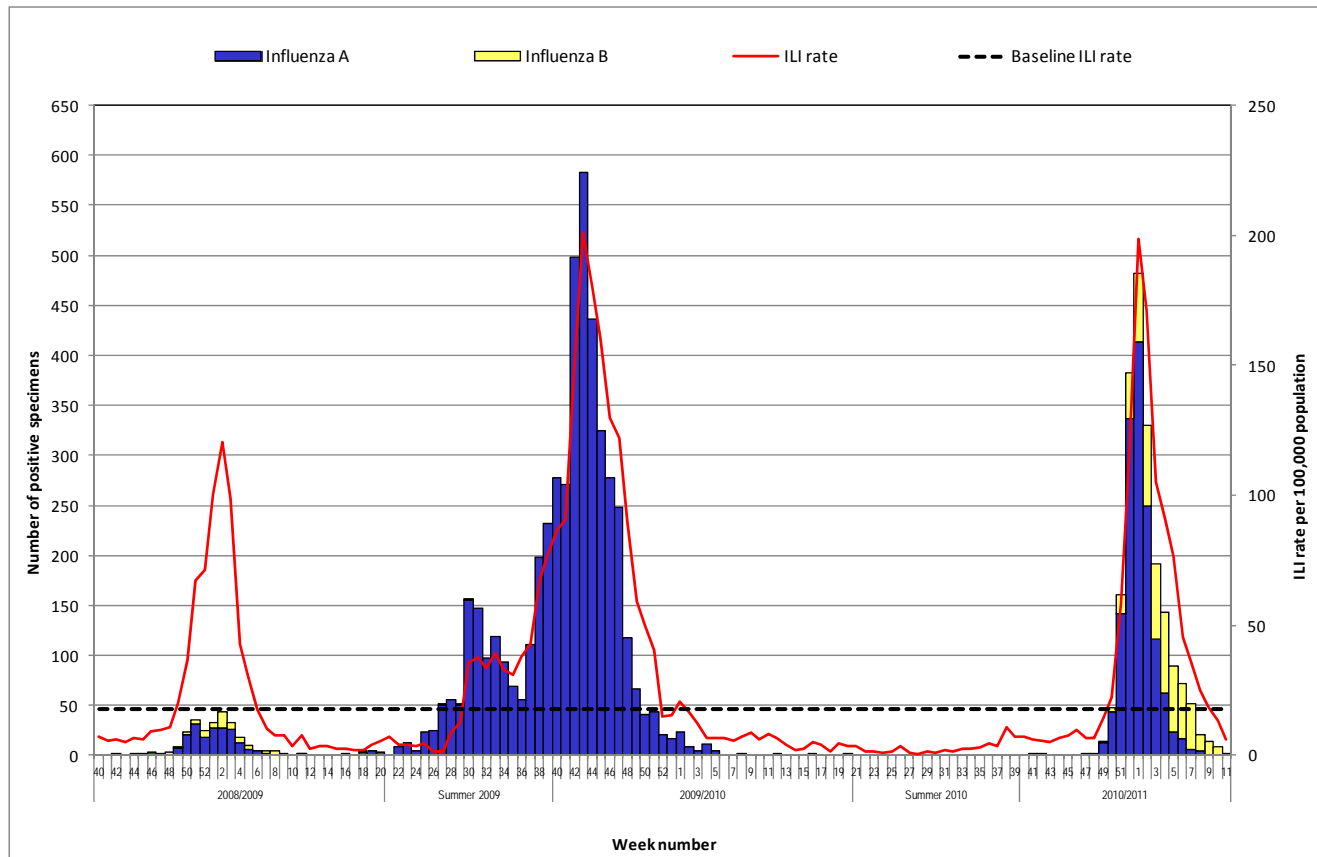


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

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 age specific rates were at low levels in all age groups during week 11 2011. One ILI case was reported in the 0-4 year age group (6.8 per 100,000), one case was reported in the 5-14 year age group (3.7 per 100,000), 8 in the 15-64 year age group (5.7 per 100,000) and two ILI cases in those aged 65 years or older (8.8 per 100,000) during week 11 2011.

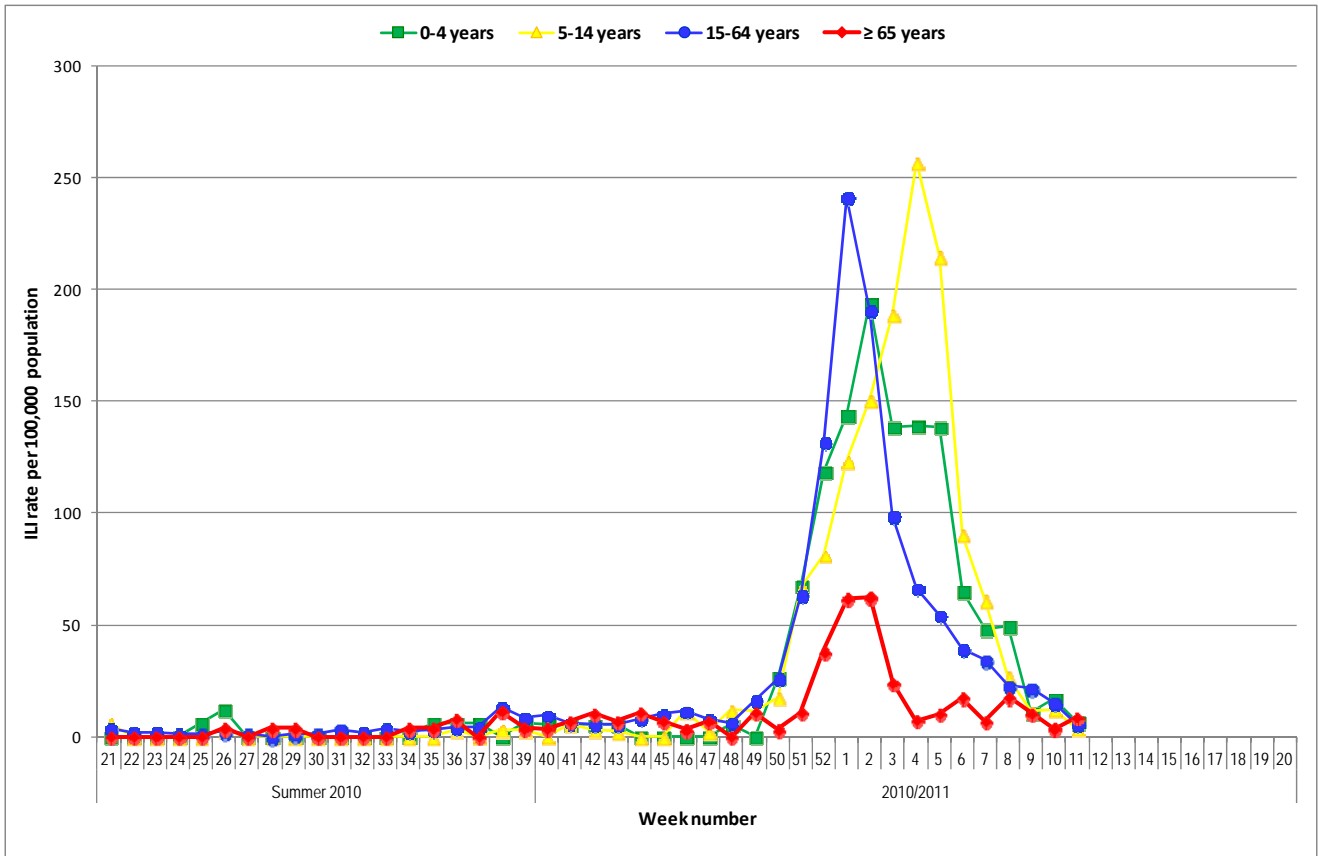


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date

Source: ICGP ILI clinical data

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

The data reported in this section for the 2010/2011 influenza season refers to specimens tested by the National Virus Reference Laboratory (NVRL). A total of 108 specimens (9 sentinel and 99 non-sentinel[§] specimens) were tested by the NVRL during week 11 2011. One (0.9%) specimen was positive for influenza B. Influenza B has been the predominant circulating influenza type in Ireland since week 4 2011.

Of the nine GP sentinel specimens taken during week 11 2011, one (11.1%) was positive for influenza B. There were no positive influenza A sentinel specimens during week 11 2011. Of the 99 non-sentinel specimens taken during week 11 2011, all were negative for influenza virus.

To date this season, 7,296 sentinel and non-sentinel specimens have been tested by the NVRL, 2015 (27.6%) specimens tested positive for influenza: 1,365 influenza A (H1N1 2009), 39 influenza A (H3), 30 influenza A (unsubtyped) and 581 influenza B. Of the 2,015 positive influenza specimens, 1,434 (71.2%) were influenza A and 581 (28.8%) were influenza B (figures 3 & 4). To date this season, six influenza B cases were co-infected with influenza A: 5 with influenza A (H1N1 2009) and one with influenza A (unsubtyped).

The NVRL has tested eight non-sentinel specimens from six confirmed influenza A (H1N1 2009) cases for antiviral resistance. All six patients were hospitalised and admitted to intensive care. One (12.5%) of the eight specimens tested was resistant to oseltamivir, carrying the H275Y mutation.

[‡] 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.

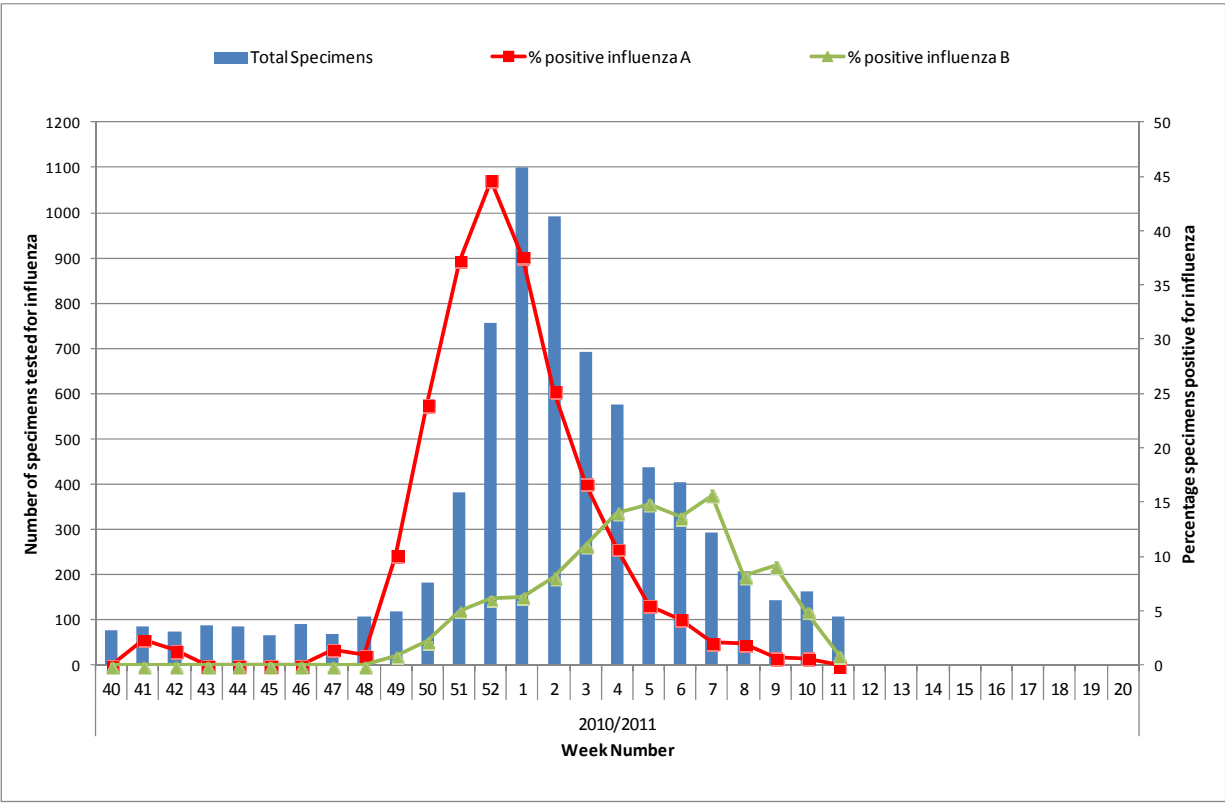


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL

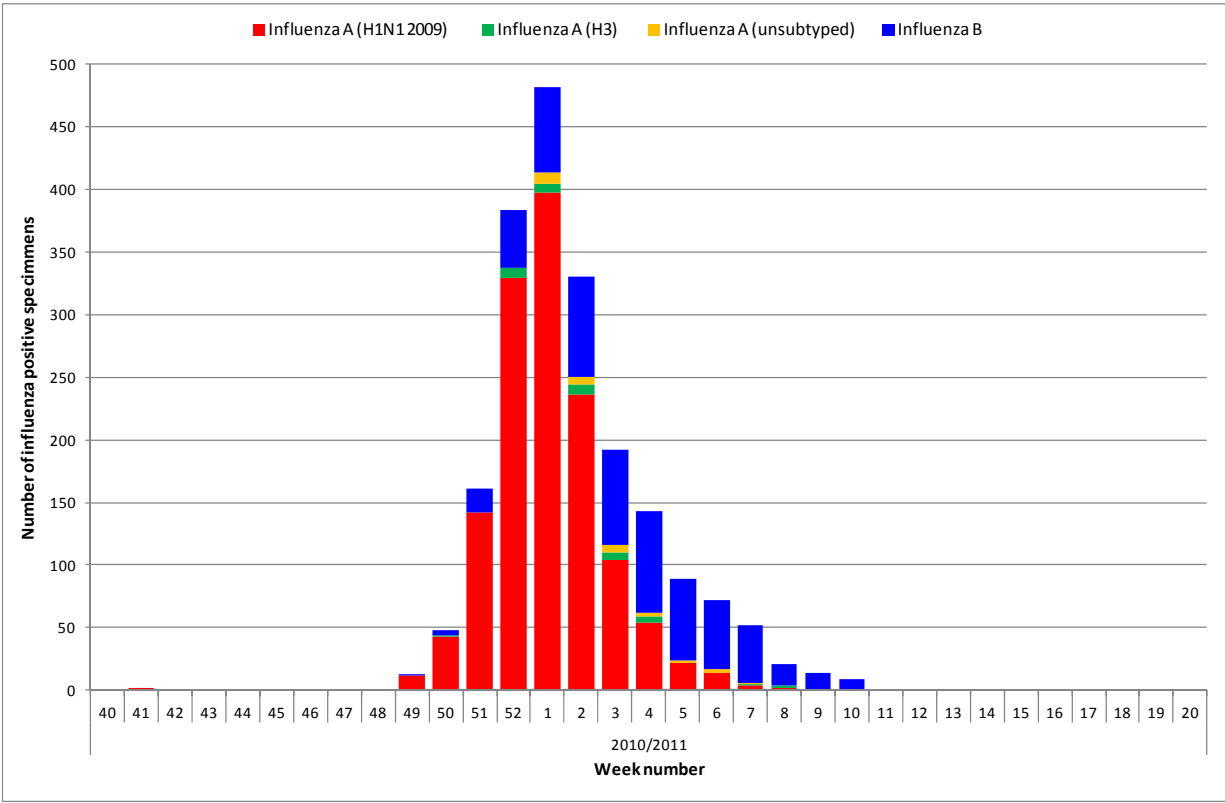


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL

Of the 99 non-sentinel specimens tested during week 11 2011, 11.1% (n=11) were positive for RSV. Although the proportion of RSV positive detections decreased in week 11 2011 (from 22.1% in week 10 2011), detections remain slightly above average for the time of year (tables 1 & 2). 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.**

One adenovirus and two parainfluenza virus (PIV) type-3 positive specimens were detected during week 11 2011. To date this season, there have been sporadic detections of adenovirus and PIV types -1, -2 and -3.

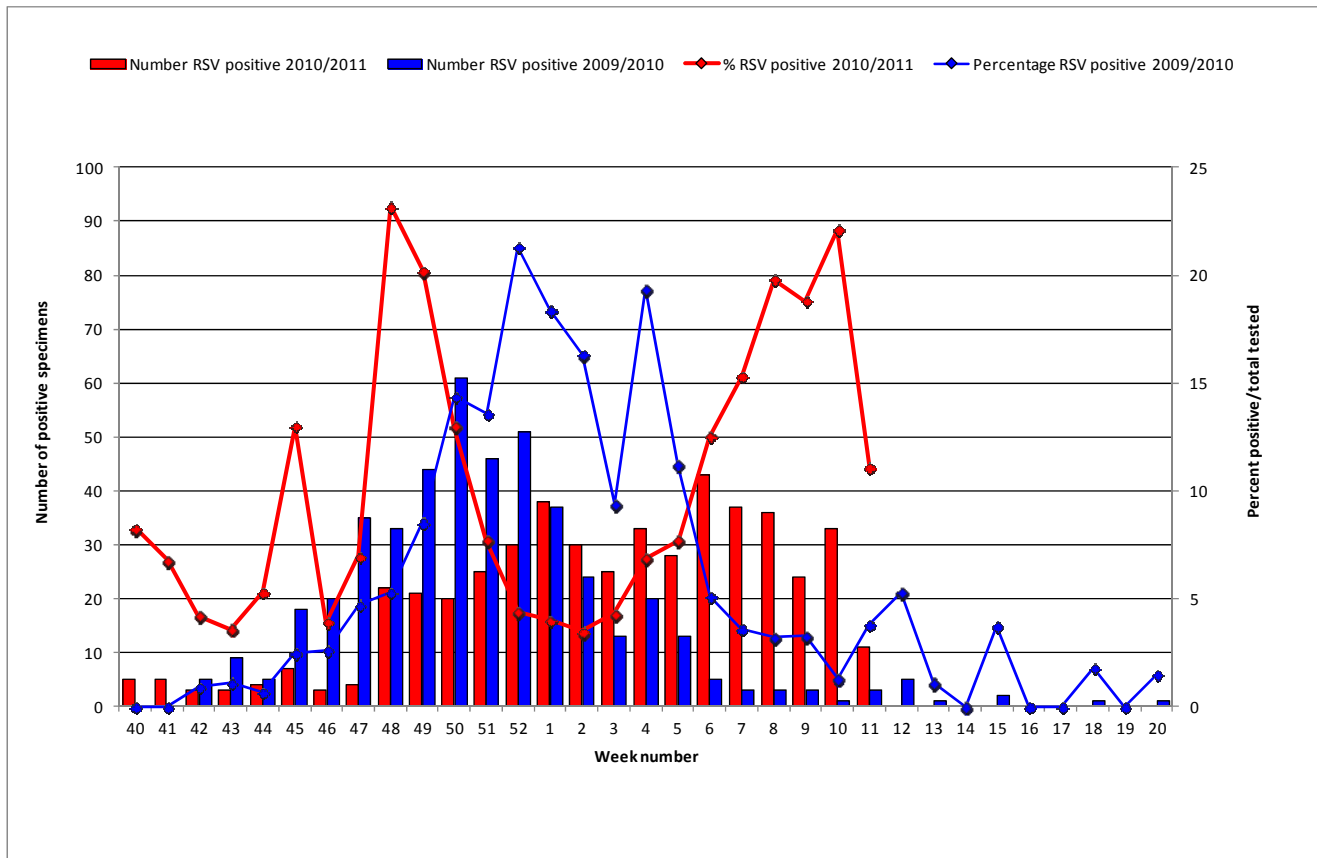


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

** 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 by the NVRL and positive influenza results, for week 11 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)	
11 2011	Sentinel	9	1	11.1	0	0	0	0	0	1
	Non-sentinel	99	0	0.0	0	0	0	0	0	0
	Total	108	1	0.9	0	0	0	0	0	1
2010/2011 season	Sentinel	1015	509	50.1	279	267	9	0	3	230
	Non-sentinel	6281	1506	24.0	1155	1098	30	0	27	351
	Total	7296	2015	27.6	1434	1365	39	0	30	581

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 11 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
11 2011	99	11	11.1	1	1.0	0	0.0	0	0.0	2	2.0
2010/2011 season	6281	490	7.8	15	0.2	7	0.1	2	0.03	9	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

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 11 2011, sporadic influenza activity was reported from HSE-E, -MW, -S, -SE and -W while HSE-M, -NE and -NW all reported no influenza activity (figure 6).

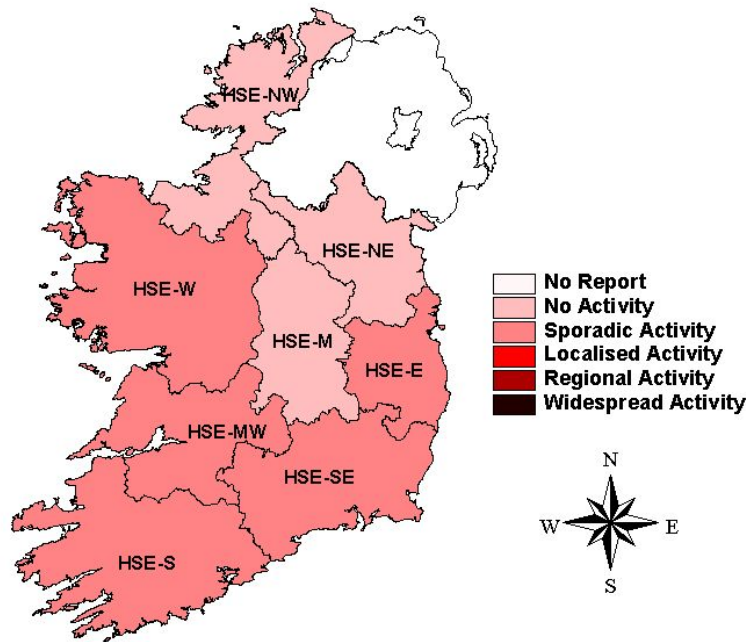


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 11 2011

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.

During week 11 2011, there were no significant increases in respiratory admissions reported from sentinel hospitals or in absenteeism reported from sentinel schools. The proportion of respiratory admissions from reporting sentinel hospitals in HSE-E, -S, -SE and -W peaked during weeks 51 and 52 2010.

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 remained stable at 1.9% during week 11 2011, compared to 1.8% in week 10 2011. Seven GP Out-of-Hours services reported during week 11 2011 (figure 7).

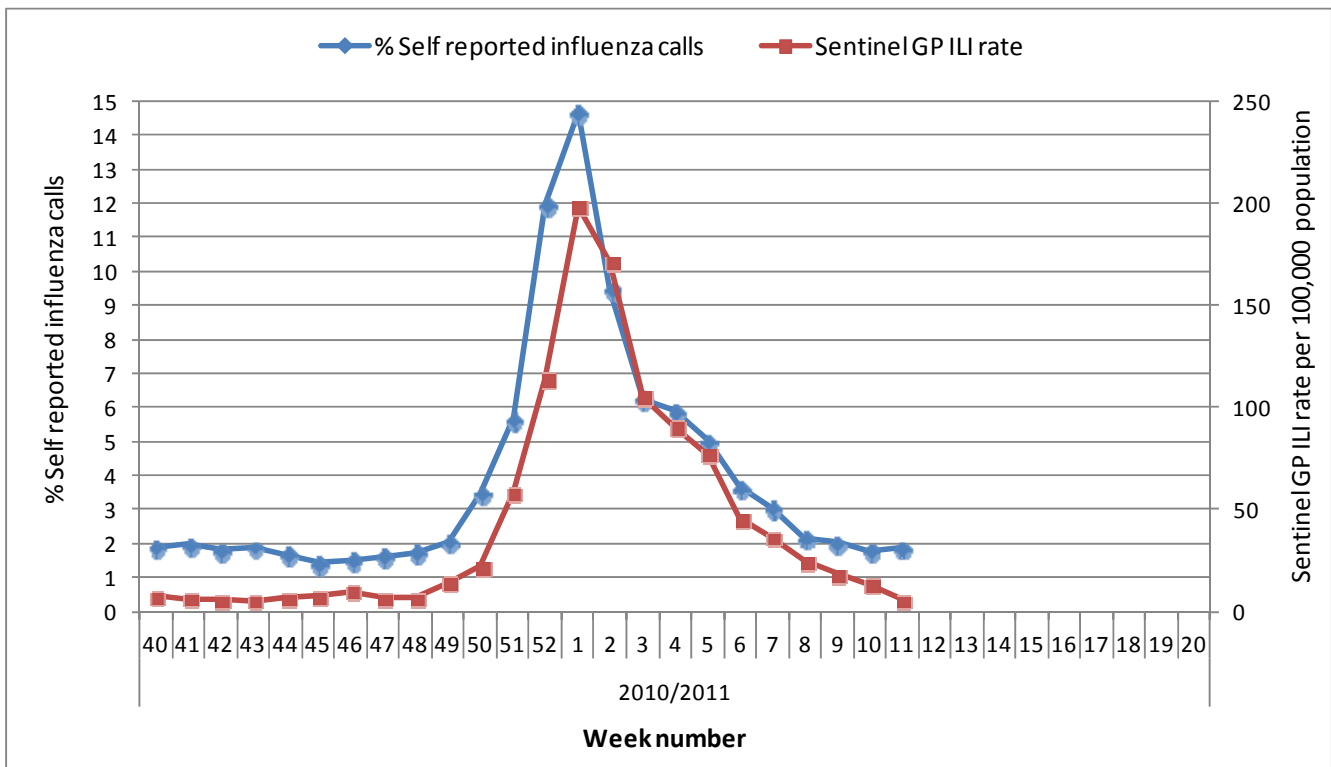


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 23rd March 2011 (09:00), 2216 confirmed influenza cases were notified on CIDR for the 2010/2011 influenza season. Laboratory confirmed influenza cases notified on CIDR include all positive influenza specimens reported from all laboratories testing for influenza and reporting to CIDR. Currently, the NVRL is the only laboratory subtyping positive influenza A specimens for all influenza A subtypes. Of the 2216 confirmed influenza cases, 1321 (59.6%) were confirmed influenza A (H1N1 2009), 22 (1.0%) were influenza A (H3), 203 (9.2%) were influenza A (unsubtyped), 670 (30.2%) were influenza B cases. It should be noted that data for week 12 2011 are incomplete and only include notified cases as of Wednesday 23rd March 2011 (09:00).

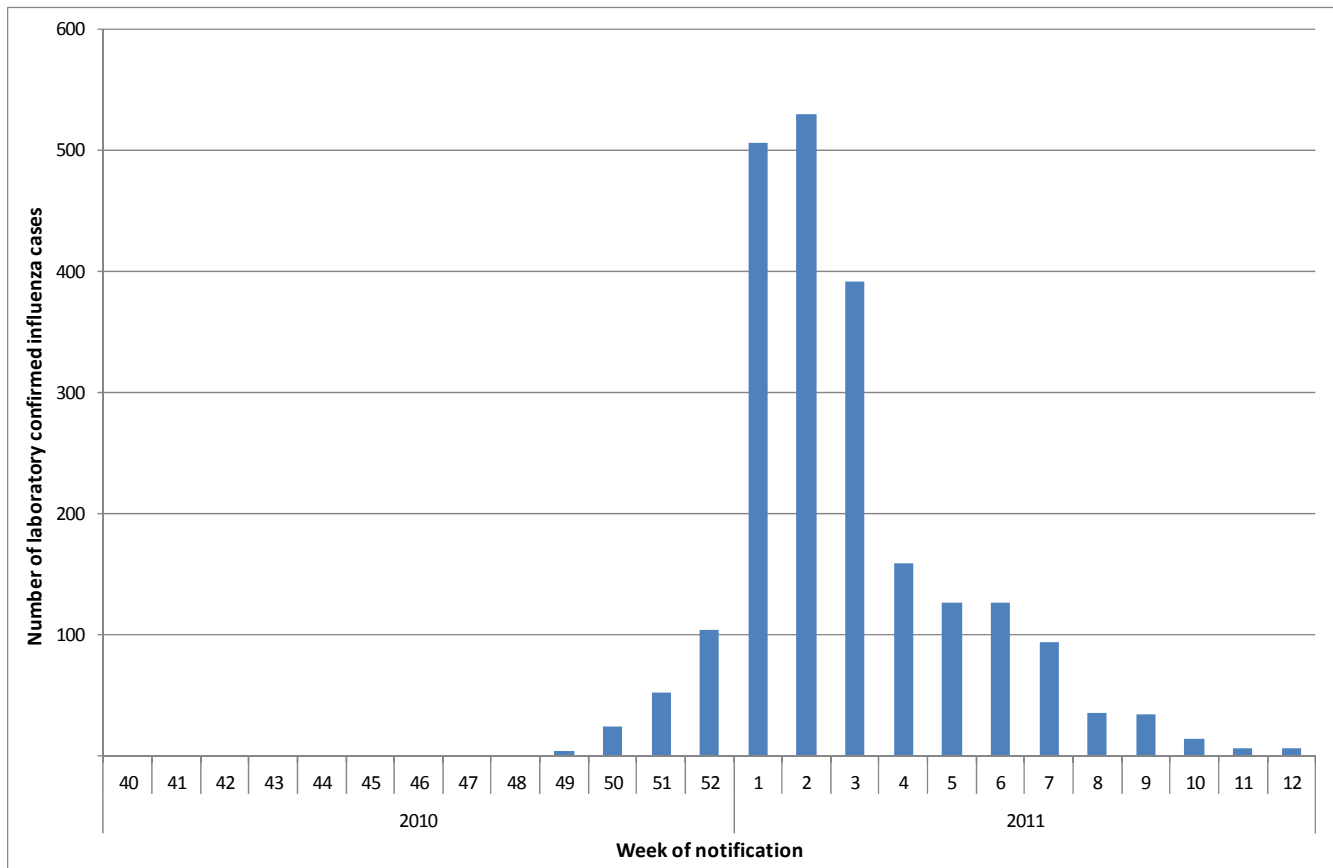


Figure 8: Number of laboratory confirmed influenza cases by week of notification on CIDR for the 2010/2011 influenza season. *It should be noted that data for week 12 2011 are incomplete and only include notified cases as of 23rd March 2011 (09:00). Source: CIDR 23/03/2011 09:00

Nine hundred and thirty-seven (42.3%) of the 2216 confirmed influenza cases notified this influenza season were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients) (figure 9). Of the 937 hospitalised cases, 597 (63.7%) were influenza A (H1N1 2009) cases, 7 (0.7%) were influenza A (H3) cases, 109 (11.6%) were influenza A (unsubtyped) and 224 (23.9%) were influenza B cases. No confirmed influenza cases were admitted to hospital during week 11 2011.

The highest cumulative age specific rate for influenza confirmed hospitalised cases for the 2010/2011 influenza season to date is currently in the 0-4 year age group (60.9 per 100,000 population) (table 3). It should be noted that age was unknown for one hospitalised case.

To date this season, 79 (3.6%) of the 2216 laboratory confirmed influenza cases were reported as pregnant. Fifty (63.3%) of these cases were reported as hospitalised: 42 influenza A (H1N1 2009), 2 influenza A (unsubtyped) cases and 6 influenza B cases.**

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

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 population	Number	Age specific rate per 100,000 population
0-4	184	60.9	12	4.0
5-14	90	16.0	2	0.4
15-24	101	16.0	3	0.5
25-34	172	23.8	21	2.9
35-44	102	16.4	18	2.9
45-54	88	16.9	23	4.4
55-64	101	24.8	25	6.1
65+	98	20.9	18	3.8

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 and ICU enhanced surveillance system 23/03/2011 09:00

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

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, 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 23rd March 2011 (09:00), HPSC has been notified of 122 hospitalised patients admitted to critical care units with confirmed influenza, 108 of whom are adults and 14 are paediatric cases. Seven (5.7%) of the 122 cases are currently in ICU^{§§}. Ninety-one of the 122 (74.6%) cases have underlying medical conditions, 82 adults and nine paediatric cases. The underlying medical conditions include: chronic respiratory disease, chronic heart disease, immunosuppression, pregnancy, metabolic disorders and morbid obesity.

The age specific rates for all cases admitted to ICU are detailed in table 3 above. The number of confirmed influenza hospitalised cases by ICU status and by week of notification on CIDR for the 2010/2011 influenza season is detailed in figures 9. The number of adult and paediatric ICU admissions for confirmed influenza cases by date of first admission to ICU is detailed in figure 10.

^{§§} This information is based on the enhanced surveillance data.

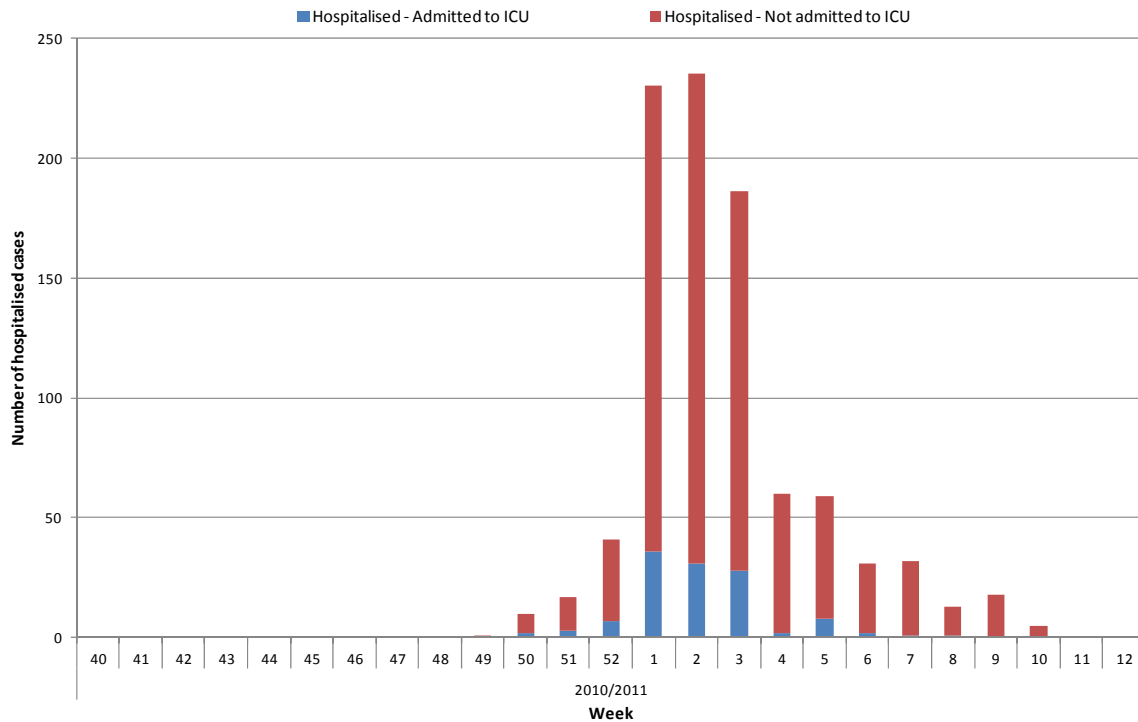


Figure 9: Number of confirmed influenza hospitalised cases by ICU status by week of notification on CIDR for the 2010/2011, influenza season. It should be noted that data for week 12 2011 are incomplete and only include notified cases as of 23rd March 2011 (09:00). Source: CIDR and ICU enhanced surveillance system 23/03/2011 09:00

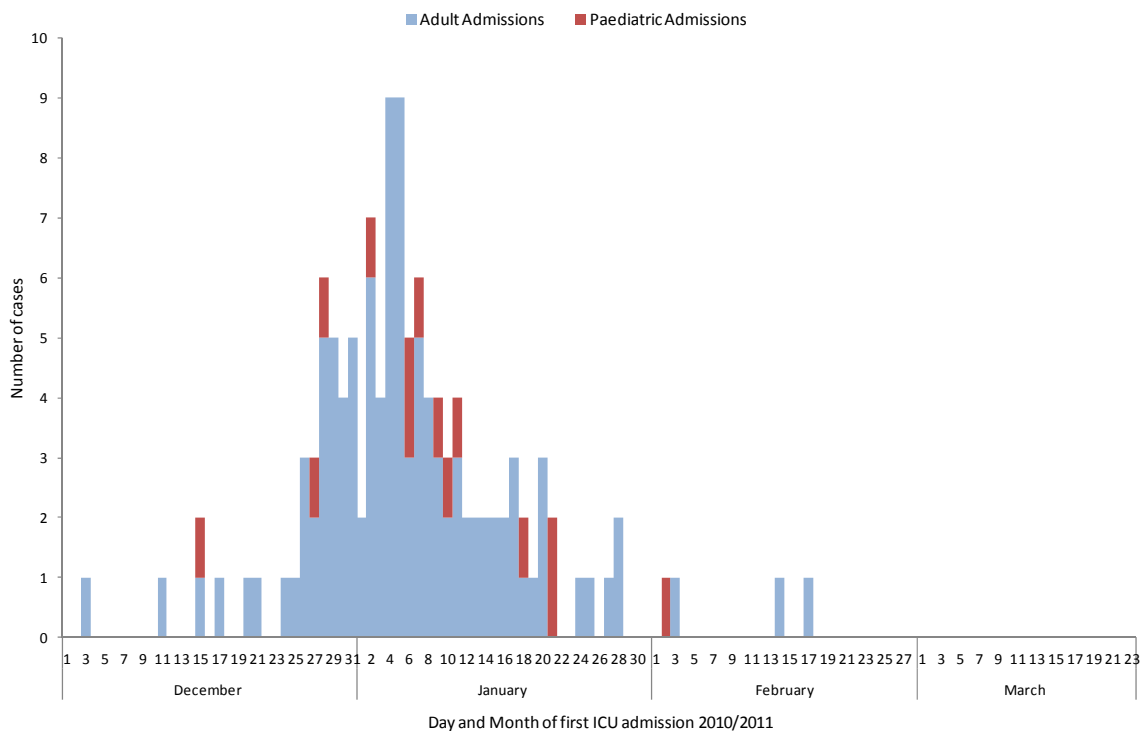


Figure 10: Number of confirmed influenza hospitalised adult and paediatric cases admitted to ICU, by date of first admission to ICU, for December 2010 - March 2011 to date (n=122). Source: ICU enhanced surveillance system 23/03/2011 09:00

7. Mortality surveillance

HPSC has been informed of 26 influenza associated deaths to date this season (as of 23/03/2011), 21 influenza A (H1N1 2009), one co-infection of influenza A (H1N1) and influenza B, one influenza A (unsubtyped) and three influenza B. One death was in a patient in the 0-4 year age group, 19 patients were in the 15-64 year age group and six patients were aged 65 years and older. Twenty-three deaths occurred in patients with underlying medical conditions. One death occurred in week 52 2010, two in week 1 2011, five in week 2 2011, eight in week 3 2011, four in week 4 2011, four in week 5 2011, one in week 6 2011 and one in week 11 2011. Table 4 outlines the influenza associated deaths by HSE-Area for the 2010/2011 influenza season to date.

Table 4: Influenza associated deaths in laboratory confirmed influenza cases by HSE-Area for the 2010/2011 influenza season to date. Source: Deaths reported to HPSC as of 23/03/2011 09.00

HSE Area	Influenza Deaths
HSE-E	13
HSE-M	3
HSE-MW	0
HSE-NE	2
HSE-NW	3
HSE-SE	2
HSE-S	2
HSE-W	1
Total	26

8. Outbreak surveillance

No new outbreaks of influenza/ILI have been reported since week 5 2011. To date this season, (as of 23rd March 2011 09:00), 14 general outbreaks of ILI/influenza/influenza A (H1N1 2009) were reported to CIDR: eight ILI outbreaks, five influenza A (H1N1 2009) outbreaks and one outbreak associated with both influenza A (H1N1 2009) and influenza B. One outbreak was reported in week 49 2010, two in week 50 2010, four in week 51 2010, three in week 2 2011, three in week 4 2011 and one in week 5 2011. Five outbreaks were reported from HSE-E, seven from HSE-S and two from HSE-W. Two outbreaks were in healthcare settings (one of which was a maternity hospital), seven in schools, one in a community setting, one in a residential institution, one in a prison, one travel related outbreak and one outbreak reported as 'Other' setting.

9. International summary

United Kingdom

Influenza activity and GP consultation rates remained low in England, Wales, Scotland and Northern Ireland during week 10 2011. All influenza subtypes were decreasing. The influenza 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. In week 10 2011, the weekly primary care ILI consultation rate remained stable in England (7.8 per 100,000), increased slightly in Scotland (39.8 per 100,000) and Northern Ireland (19.2 per 100,000) and decreased in Wales (2.8 per 100,000). The proportion of NHS Direct calls for cold/influenza remained at the threshold level this week. The proportion of calls for fever increased but remained below baseline levels. No acute respiratory disease outbreaks have been reported in the UK since week 6 2011. The proportion of respiratory specimens reported to Data Mart (England) as positive for influenza decreased to 1.0% (6 of 590). The proportion of positive samples remained stable for RSV, decreased for rhinovirus, human metapneumovirus and adenovirus and increased for parainfluenza. Since week 36 2010, 553 deaths in the UK associated with confirmed influenza infection have been reported. Following the excess all-cause mortality observed over the Christmas period, excess mortality remained below the upper limit of expected levels for this time of year.

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

Europe

The majority of European countries reported decreasing ILI/ acute respiratory infection trends during week 10 2011; only Bulgaria reported increasing trends of influenza activity. Most countries reported regional or sporadic influenza activity. In week 10 2011, the proportion of influenza B viruses (58.9%) in sentinel specimens was higher than the percentage of influenza A viruses (41.1%). Five countries (Austria, Belgium, France, Romania and Slovakia) reported 39 cases of all-cause severe acute respiratory infection (SARI) and 43 hospitalised confirmed influenza cases in week 10 2011. The latter were mostly (68.4%) due to influenza A (H1N1 2009) virus. Since week 40 2010, 3033 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically: 1452 (47.9%) as A/California/7/2009 (H1N1)-like; 102 (3.4%) as A/Perth/16/2009 (H3N2)-like; 1369 (45.1%) as B/Brisbane/60/2008-like (Victoria lineage) and 110 (3.6%) as B/Florida/4/2006-like (Yamagata lineage). Germany, Ireland, Italy, Norway, the Netherlands, Spain, and the UK have reported antiviral resistance data to ECDC. To date this season, 32 (3.0%) influenza A (H1 2009) viruses tested for susceptibility to neuraminidase inhibitors were resistant to oseltamivir, but remained sensitive to zanamivir. All the resistant viruses carried the H275Y substitution. Eight of 32 resistant viruses, from patients for which exposure to antivirals was known, were from patients that had not been treated with oseltamivir.

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

USA

During week 10 2011, influenza activity in the United States decreased. The proportion of outpatient ILI visits was 3.0%, which is above the national baseline of 2.5%. Of the 6,384 specimens tested, 1,346 (21.1%) were positive for influenza: 288 A (H1N1 2009), 386 A (H3), 307 A (unsubtyped) and 365 B. The proportion of deaths attributed to pneumonia and influenza was at or above the epidemic threshold for the seventh consecutive week. Eleven influenza-associated paediatric deaths were reported, bringing the season total to 71. Four of these deaths were associated with influenza B, three were associated with influenza A (H1N1 2009), two were associated with influenza A (H3N2) and two were associated with an influenza A virus for which the subtype was not determined. <http://www.cdc.gov/flu/weekly/>

Canada

In week 10 2011, overall influenza activity was on the decline in many parts of Canada. All influenza indicators including the number of outbreaks, the proportion of positive influenza detections, adult and paediatric hospitalisations, and the ILI consultation rate declined during week 10 2011. Since the beginning of the season, 85% of the subtyped positive influenza A specimens have been influenza A (H3N2). Influenza B detections have been slowly increasing since week 3 2011 and now account for 28% of all influenza positive specimens. The percentage of positive RSV specimens decreased over the last two weeks and appears to have peaked during week 7 2011. <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 11th March 2011, the influenza season of the northern hemisphere appears to be peaking or in decline in most areas. Influenza A (H3N2) comprises the largest proportion of influenza detections in North America. Although, influenza A (H1N1 2009) has been the most commonly detected virus in Europe and northern Asia this season, influenza B has been increasing in Europe and is now the predominant influenza virus circulating in many countries. The majority of influenza viruses characterised to date are closely related to the vaccine strains included in the current seasonal vaccines. A small number of influenza B viruses of the Yamagata lineage have been reported in North America and Europe, making up approximately 5-7% of B viruses detected. <http://www.who.int/csr/disease/influenza/en/>

Avian influenza

As of 16th March 2011, 534 confirmed human cases of avian influenza A (H5N1) and 316 (59.2%) deaths have been reported to WHO from 15 countries since 2003. The latest confirmed cases and deaths were reported from Bangladesh, Egypt and Indonesia during February and March 2011. Investigations into the source of infection indicate that all confirmed cases in Indonesia and Egypt had exposure to poultry (suspected to have avian influenza infection). Investigations are ongoing in Bangladesh.

http://www.who.int/csr/disease/avian_influenza/en/index.html

8. Northern hemisphere influenza vaccine for the 2011/2012 season:

Following a WHO Consultation, it is recommended that vaccines for use in the 2011/2012 influenza season (northern hemisphere) contain the following viruses:

- an A/California/7/2009 (H1N1)-like virus;
- an A/Perth/16/2009 (H3N2)-like virus;
- a B/Brisbane/60/2008-like virus.

The recommended 2011/2012 influenza vaccine remains unchanged from the 2010/2011 influenza vaccine.

http://www.who.int/csr/disease/influenza/recommendations_2011_12north/en/index.html

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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