

Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 19 & 20 2011 (9th - 22nd May 2011)



Summary

- Influenza activity remained at low levels in Ireland during weeks 19 and 20 2011.
 - The sentinel GP influenza-like illness (ILI) consultation rate was 5.3 per 100,000 population in week 20 2011, a slight increase compared to 2.3 per 100,000 reported during week 19 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 during weeks 19 and 20 2011.
 - There was one confirmed influenza B positive specimen detected by the NVRL during weeks 19 and 20 2011.
 - The virus strains circulating during this season were well matched to the current influenza vaccine.
 - There was one confirmed influenza case admitted to hospital during week 20 2011.
 - No confirmed influenza cases have been admitted to ICU since February 17th 2011.
 - To date (25th May 2011) this season, 945 confirmed influenza cases have been hospitalised, 122 cases have been admitted to ICU and 33 deaths have been reported to HPSC.
 - No new general outbreaks of influenza/ILI have been reported since week 5 2011. As of 25th May 2011, 14 influenza/ILI outbreaks have been reported to HPSC this season.
 - The proportion of respiratory syncytial virus positive detections for weeks 19 and 20 2011 remained low and as expected for the time of year.
 - Detections of parainfluenza virus type-3 (PIV-3) decreased in weeks 19 and 20 2011, following an increase in activity in late April/early May. PIV-3 usually peaks in late spring/early summer.
 - Sporadic detections of adenovirus and PIV-1 have been reported in weeks 19 and 20 2011.
 - This is the last influenza report for the 2010/2011 influenza season. HPSC will be producing a fortnightly summary report over the summer period.

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 20 2011, 51 of 60 (85.0%) sentinel general practices provided data, with eight practices (15.7%) reporting 12 influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 5.3 per 100,000 population, a slight increase compared to the rate of 2.3 per 100,000 reported during week 19 2011. The ILI rates for weeks 19 and 20 2011 remain below the Irish baseline threshold (17.8 per 100,000 population). Forty-three (84.3%) sentinel practices reported no ILI cases during week 20 2011. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

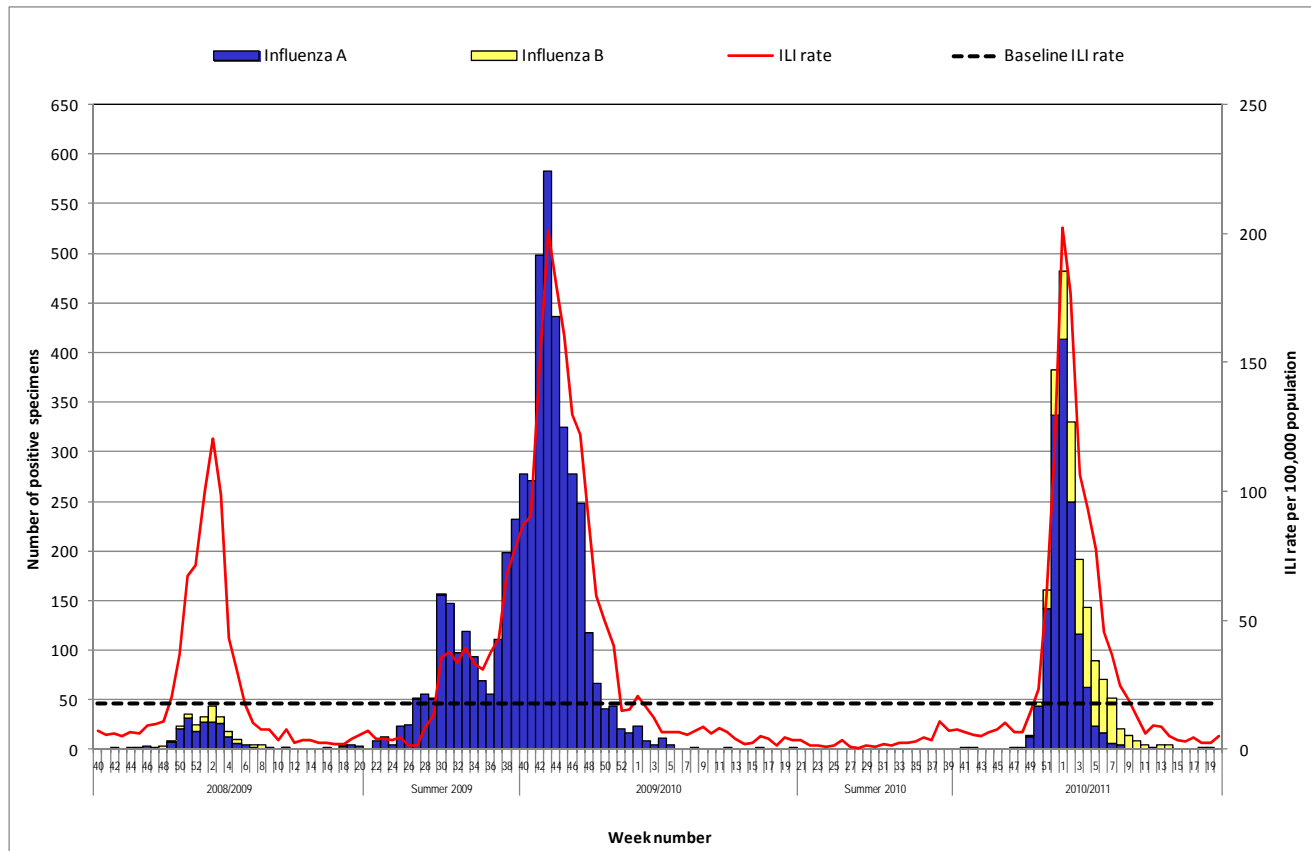


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

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 weeks 19 and 20 2011. During week 19 2011, one (5.4 per 100,000 population) ILI case was reported in the 0-4 year age group and five (2.8 per 100,000) ILI cases were reported in the 15-64 year age group. During week 20 2011, one (6.2 per 100,000 population) ILI case was reported in the 0-4 year age group, two (6.6 per 100,000 population) in the 5-14 year age group, eight (5.1 per 100,000) ILI cases were reported in the 15-64 year age group and one (4.0 per 100,000) ILI case in those aged 65 years or older (figure 2).

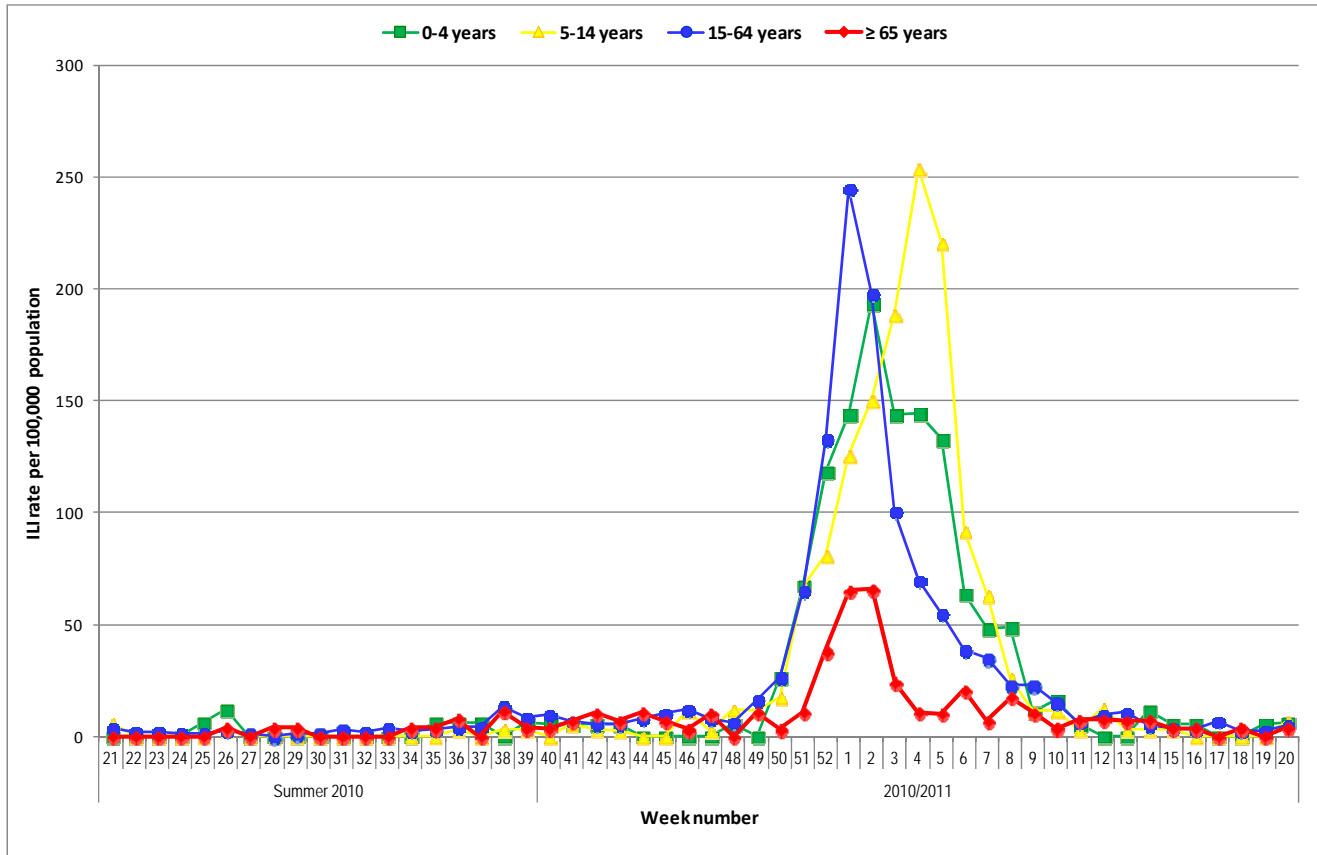


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date

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 152 sentinel and non-sentinel specimens were tested by the NVRL during weeks 19 and 20 2011. One specimen was positive for influenza, an influenza B virus from a non-sentinel specimen detected during week 19 2011. The NVRL tested 80 specimens (3 sentinel and 77 non-sentinel) during week 19 2011 and 72 specimens (4 sentinel and 68 non-sentinel[§]) during week 20 2011.

To date this season, 8,160 sentinel and non-sentinel specimens have been tested by the NVRL, 2,030 (24.9%) specimens tested positive for influenza: 1,366 influenza A (H1N1 2009), 40 influenza A (H3), 30 influenza A (unsubtyped) and 594 influenza B. Of the 2,030 positive influenza specimens, 1,436 (70.7%) were influenza A and 594 (29.3%) 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.

As part of the WHO Global Influenza Surveillance Programme, a proportion of influenza viruses (10 A (H1N1) 2009 and 2 B viruses) circulating in Ireland during the 2010/2011 season were submitted to the WHO Collaborating Centre for Reference and Research on Influenza (Mill Hill, London) for characterisation. Antigenic results for the circulating influenza A (H1N1 2009) and for the influenza B isolates showed good reactivity with the A/California/7/2009 and the B/Brisbane/60/2008 vaccine strains, respectively. Both strains were included in the 2010/2011 influenza vaccine.

[‡] 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.

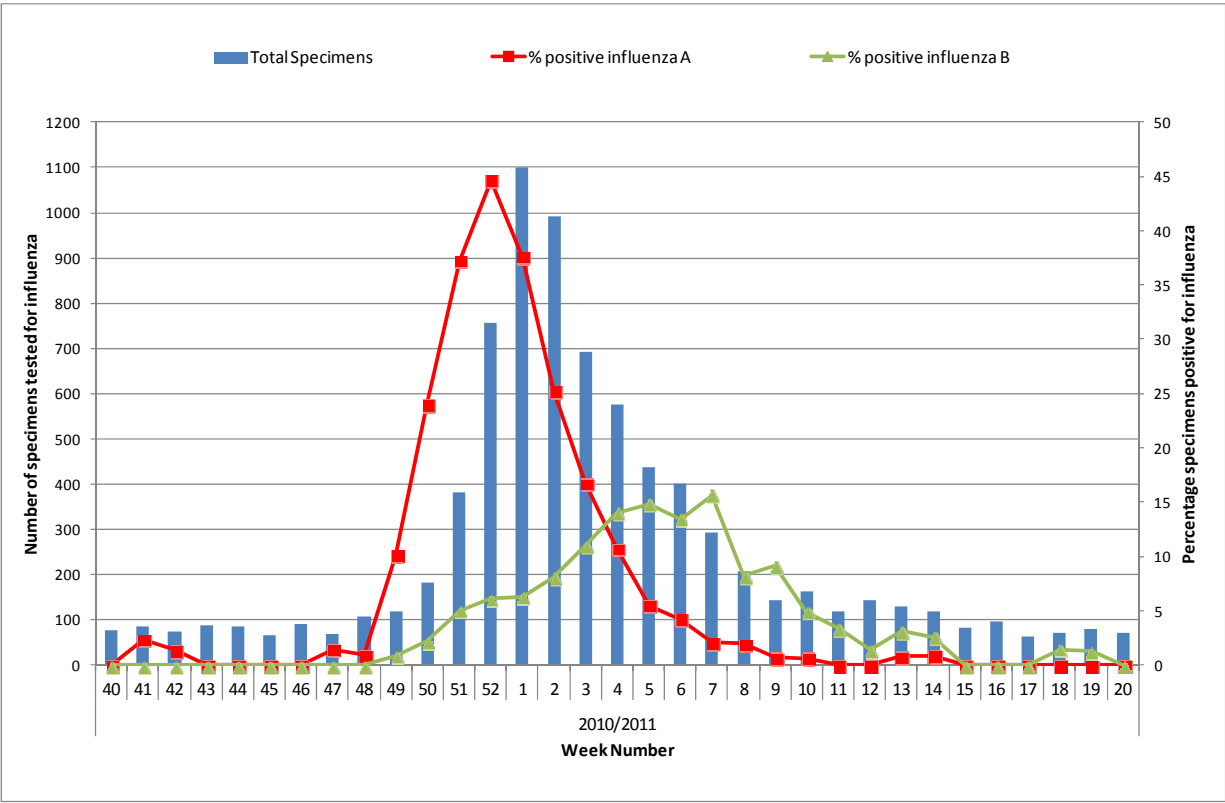


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL

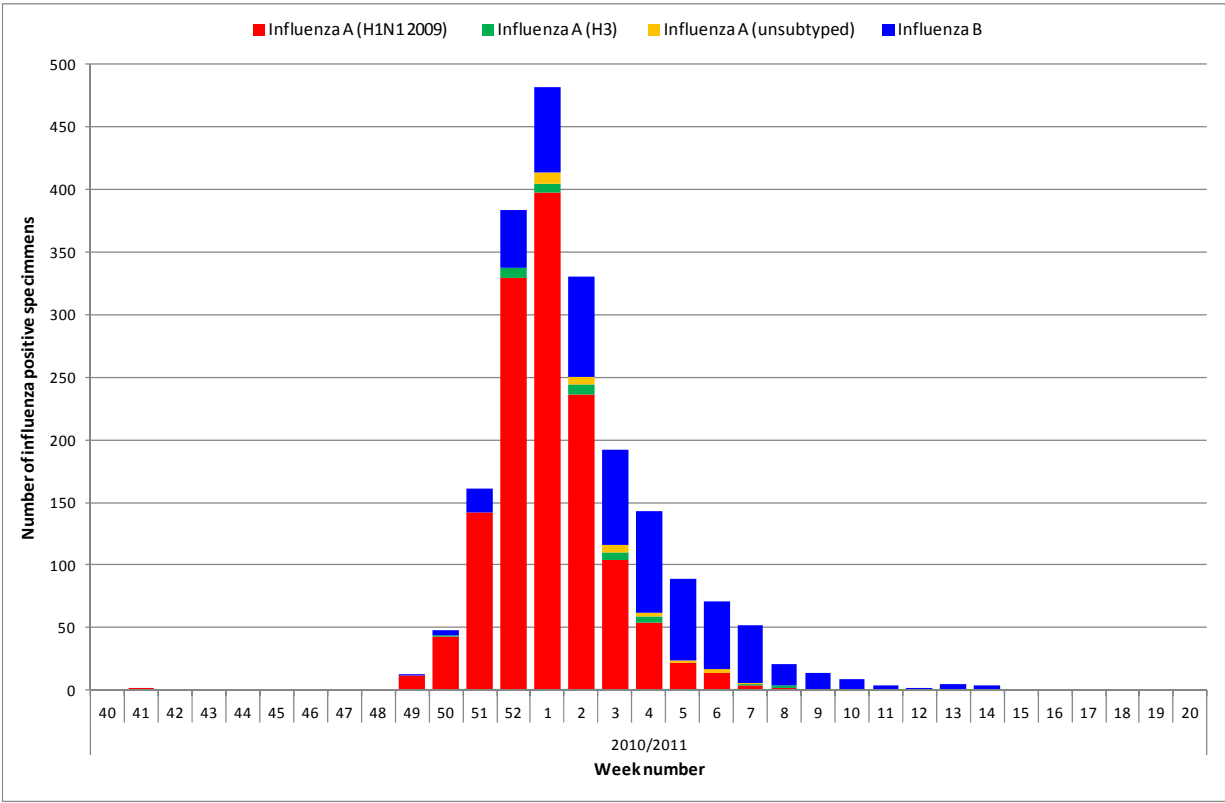


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL

Of the 145 non-sentinel specimens tested during weeks 19 and 20 2011, three were positive for RSV. The proportion of RSV positive detections during this period remains low and at expected levels 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.**

Detections of parainfluenza virus type-3 (PIV-3) decreased in weeks 19 and 20 2011, following a peak in week 18 2011. Eight non-sentinel specimens were positive for PIV-3 during week 19 and four were positive during week 20 2011. PIV-3 usually peaks in late spring/early summer; therefore the peak in activity in recent weeks was not unexpected.

Five non-sentinel specimens were positive for adenovirus and one specimen was positive for PIV-1 during weeks 19 and 20 2011. To date this season, there have been sporadic detections of adenovirus and PIV types - 1, -2 and -3.

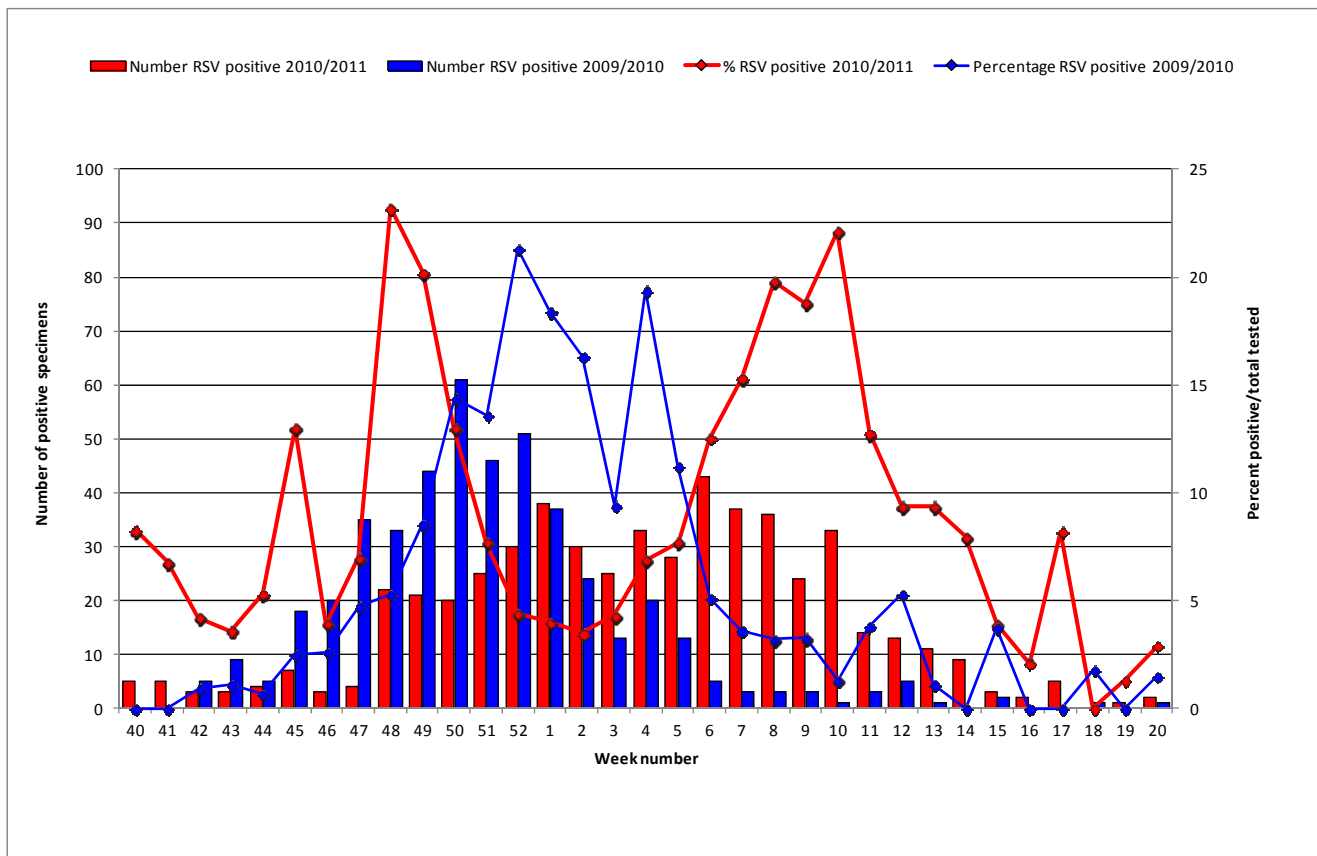


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

** 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 20 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)	
20 2011	Sentinel	4	0	0.0	0	0	0	0	0	0
	Non-sentinel	68	0	0.0	0	0	0	0	0	0
	Total	72	0	0.0	0	0	0	0	0	0
2010/2011 season	Sentinel	1054	513	48.7	279	267	9	0	3	234
	Non-sentinel	7106	1517	21.3	1157	1099	31	0	27	360
	Total	8160	2030	24.9	1436	1366	40	0	30	594

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 20 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
20 2011	68	2	2.9	1	1.5	0	0.0	0	0.0	4	5.9
2010/2011 season	7106	539	7.6	23	0.3	10	0.1	2	0.03	52	0.7

^{††} 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 19 2011, sporadic influenza activity was reported from HSE-M and -MW, whilst HSE-E, -NE, -NW, -S, -SE and -W all reported no influenza activity. During week 20 2011, sporadic influenza activity was reported from HSE-E and -MW, whilst HSE-M, -NE, -NW, -S, -SE and -W all reported no influenza activity (figure 6).

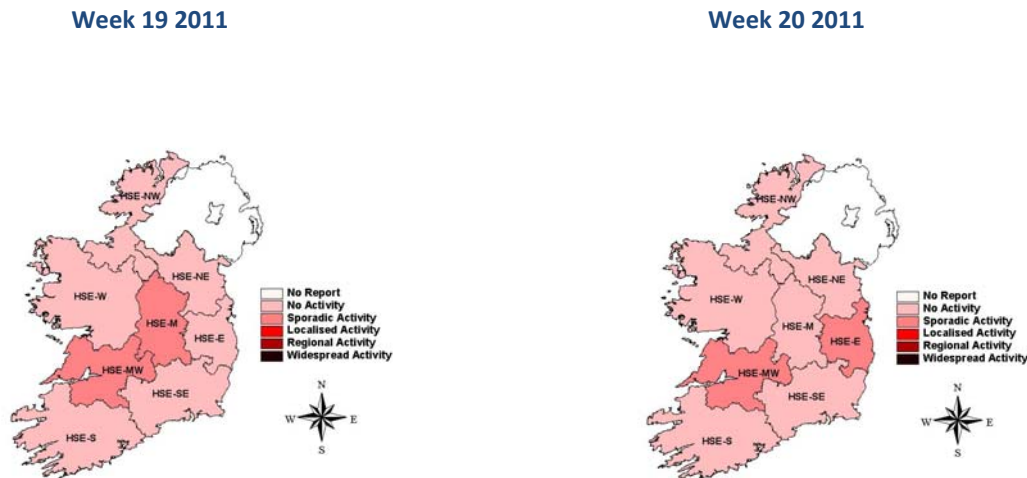


Figure 6: Maps of provisional influenza activity by HSE-Area during influenza weeks 19 and 20 2011

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 weeks 19 and 20 2011, there were no significant increases in respiratory admissions reported from sentinel hospitals. There were also no significant increases in sentinel school absenteeism reported during weeks 19 and 20 2011.

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 and at low levels during weeks 19 and 20 2011, at 1.1% during both weeks. Six GP Out-of-Hours services reported each week during weeks 19 and 20 2011 (figure 7).

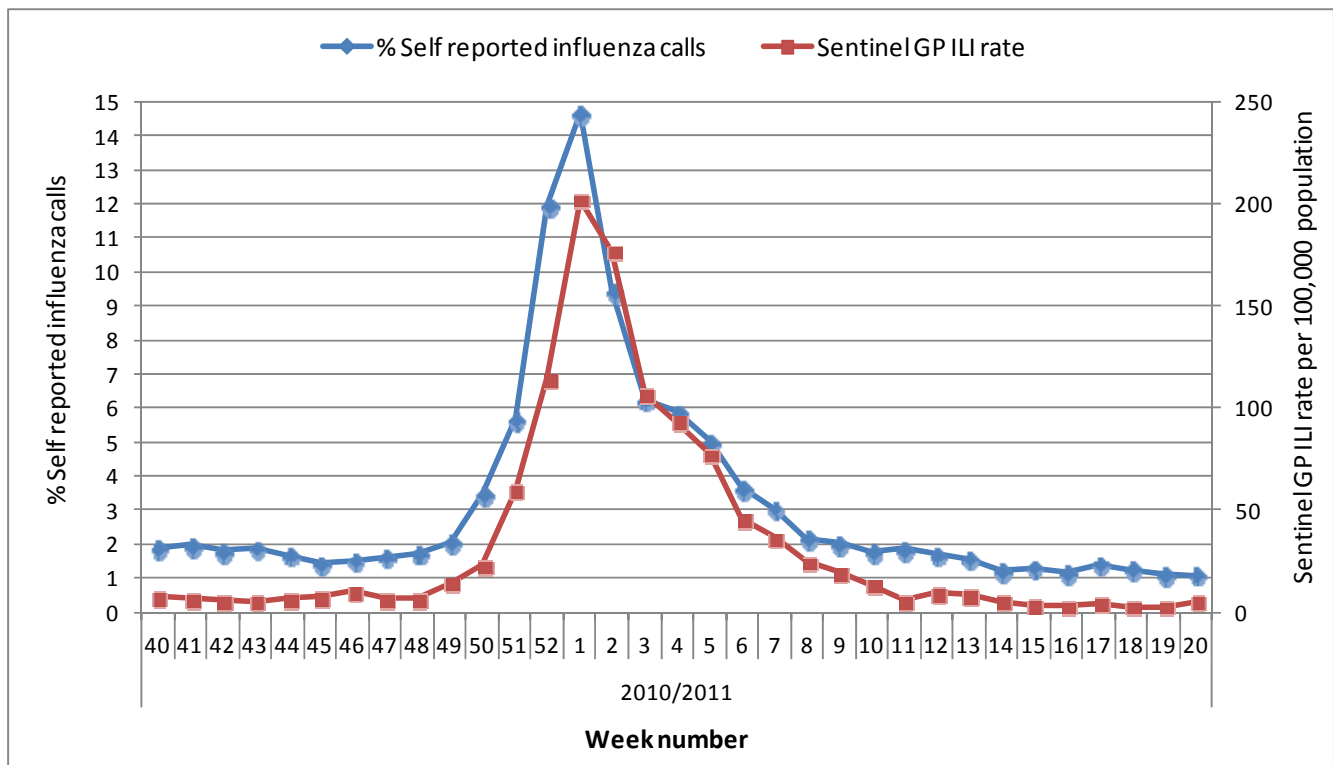


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 25th May 2011, 2233 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 2233 confirmed influenza cases, 1324 (59.3%) were confirmed influenza A (H1N1 2009), 23 (1.0%) were influenza A (H3), 203 (9.1%) were influenza A (unsubtyped) and 683 (30.6%) were influenza B cases.

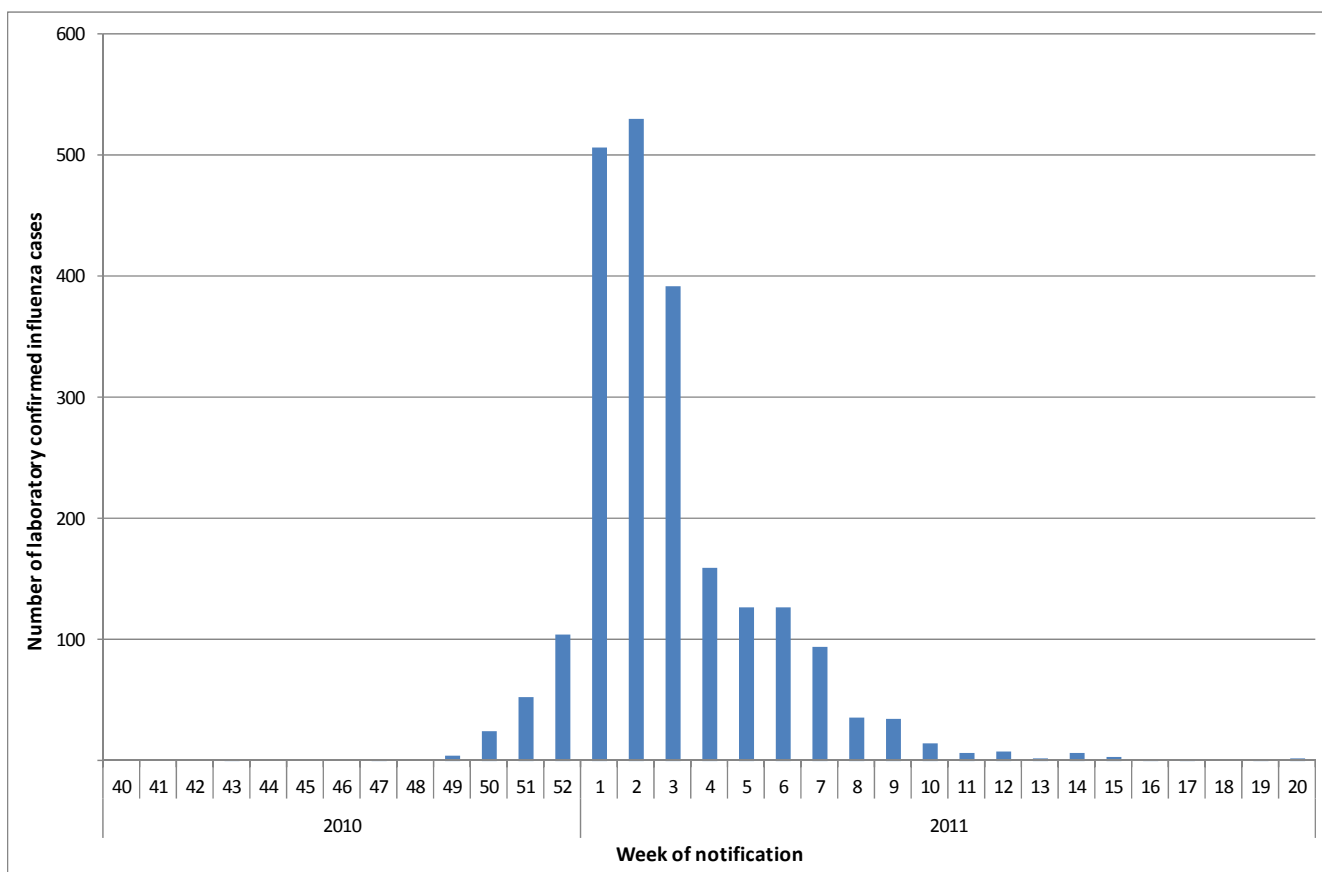


Figure 8: Number of laboratory confirmed influenza cases by week of notification on CIDR for the 2010/2011 influenza season. Source: CIDR 25/05/2011

Nine hundred and forty-five (42.3%) of the 2233 confirmed influenza cases notified this influenza season were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients) (figure 9). Of the 945 hospitalised cases, 601 (63.6%) were influenza A (H1N1 2009) cases, 7 (0.7%) were influenza A (H3) cases, 109 (11.5%) were influenza A (unsubtyped) and 228 (24.1%) were influenza B cases.

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 (61.9 per 100,000 population) (table 3). It should be noted that age was unknown for one hospitalised case.

To date this season, 81 (3.6%) of the 2233 laboratory confirmed influenza cases were reported as pregnant. Fifty-one (63.0%) of these cases were reported as hospitalised: 42 influenza A (H1N1 2009), 2 influenza A (unsubtyped) cases and 7 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	187	61.9	12	4.0
5-14	91	16.2	2	0.4
15-24	103	16.3	3	0.5
25-34	173	23.9	21	2.9
35-44	103	16.5	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 25/05/2011*

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 25th May 2011, 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. The last confirmed influenza case admitted to ICU was on February 17th 2011. All 122 cases have now been discharged from 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 figure 9.

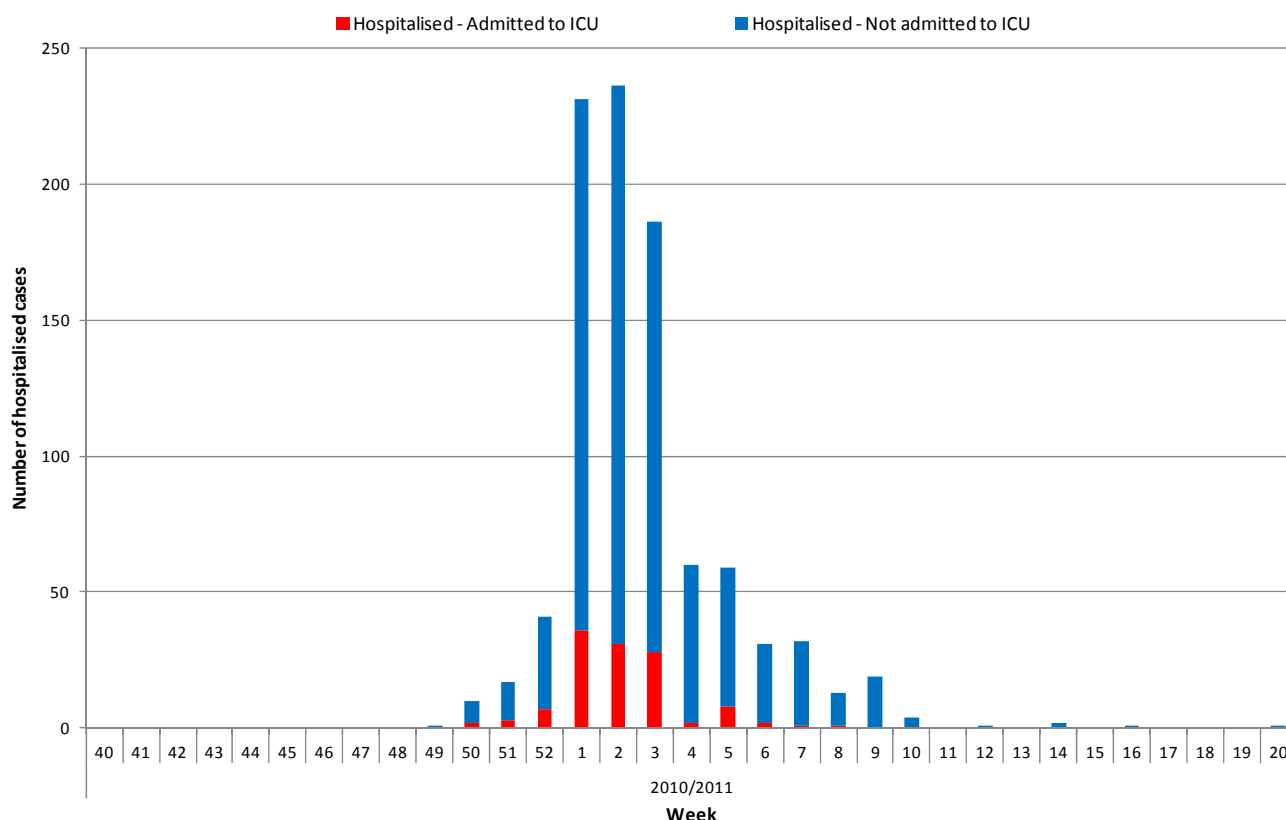


Figure 9: Number of confirmed influenza hospitalised cases by ICU status by week of notification on CIDR for the 2010/2011, influenza season. Source: CIDR and ICU enhanced surveillance system 25/05/2011

7. Mortality surveillance

HPSC has been informed of 33 influenza associated deaths to date this season (as of 25/05/2011), 27 influenza A (H1N1 2009), one co-infection of influenza A (H1N1) and influenza B, one influenza A (H3), one influenza A (unsubtyped) and three influenza B. Two deaths were in patients aged 0-4 years, 23 patients were in the 15-64 year age group and eight patients were aged 65 years and older. Twenty-eight deaths occurred in patients with underlying medical conditions. Table 4 outlines the influenza associated deaths by HSE-Area for the 2010/2011 influenza season to date. It should be noted that the number of influenza-associated deaths for the 2010/2011 influenza season has increased since the last influenza surveillance report, due to the availability of further information on cases that had been referred to the coroner.

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 25/05/2011

HSE Area	Influenza Deaths
HSE-E	16
HSE-M	3
HSE-MW	0
HSE-NE	2
HSE-NW	3
HSE-SE	3
HSE-S	4
HSE-W	2
Total	33

8. Outbreak surveillance

No new general outbreaks of influenza/ILI have been reported since week 5 2011. To date this season, (as of 25th May 2011), 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 remained low in England, Wales, Scotland and Northern Ireland during week 19 2011. 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 19 2011, the weekly primary care ILI consultation rate decreased in Northern Ireland (7.8 per 100,000) and Scotland (18.7 per 100,000) and remained low in England (1.9 per 100,000) and Wales (0.7 per 100,000). The proportion of NHS Direct calls for cold/influenza and fever remain below threshold levels. No acute respiratory disease outbreaks have been reported in week 19, bringing the total reported this season to 171. One respiratory specimen reported to Data Mart (England) out of 351 was positive for influenza (influenza A (H1N1 2009)). The proportion of positive samples slightly increased for adenovirus and rhinovirus, decreased for human metapneumonia virus and remained stable for RSV and parainfluenza. Since week 36 2010, 607 deaths associated with confirmed influenza infection in the UK have been reported. Excess mortality remains below the upper limit of expected levels for this time of year.

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

Europe

During week 19 2011, influenza activity was at its lowest level since the peak of the season in week 52 2010. For the first time this season, no influenza virus was detected from sentinel sources. Six influenza A and six influenza B viruses were detected in non-sentinel specimens. Three severe acute respiratory infection (SARI) cases unrelated to influenza virus infection were reported by two countries. Since week 40 2010, of the 57,372 influenza detections in sentinel and non-sentinel specimens, 37,818 (65.9%) were influenza A and 19,554 (34.1%) were influenza B viruses. Of 27,240 sub-typed influenza A viruses, 26,536 (97.4%) were A (H1 2009) and 704 (2.6%) were A (H3) viruses. To date this season, 4,535 influenza viruses from sentinel and non-sentinel specimens were characterised antigenically: 2,259 as A/California/7/2009 (H1N1)-like; 1,945 as B/Brisbane/60/2008-like (Victoria lineage), 180 as B/Florida/4/2006-like (Yamagata lineage), 145 as A/Perth/16/2009 (H3N2)-like and six as B/Bangladesh/3333/2007-like (B/Yamagata/16/88 lineage). Denmark, Germany, Ireland, Italy, the Netherlands, Norway, Spain and the UK have reported antiviral resistance data to ECDC. Ninety-three (3.0%) of 3,058 influenza A (H1 2009) viruses tested were resistant to oseltamivir but all viruses tested remained sensitive to zanamivir. All the resistant viruses carried the NA H275Y substitution. Sixteen of 65 resistant viruses, in patients with known exposure to antivirals, were from patients who had not been treated with oseltamivir. These patients were probably infected with resistant viruses carrying the NA H275Y substitution.

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

USA

During week 19 2011, influenza activity in the United States continued to decrease. The proportion of outpatient ILI visits was 0.9%, which is below the national baseline of 2.5%. Of the 1,265 specimens tested, 14 (1.1%) were positive for influenza: 1 A (H1N1 2009), 5 A (H3), 2 A (unsubtyped) and 6 B. The proportion of

deaths attributed to pneumonia and influenza was below the epidemic threshold. Three influenza-associated paediatric deaths were reported, bringing the season total to 105. One of these deaths was associated with an influenza A (H1N1 2009), one was associated with an influenza A (H3) and one was associated with an influenza A virus for which the subtype was not determined.

<http://www.cdc.gov/flu/weekly/>

Canada

In week 19 2011, influenza activity in Canada continued to decline with most of the country reporting sporadic or no activity. Localised activity persisted in a few regions of Quebec and Newfoundland. The ILI consultation rate and adult hospitalisations with influenza continued on a downward trend. Paediatric hospitalisations with influenza increased slightly compared to the previous week, although few cases were reported. Both influenza A and B detections continued to decrease. The proportion of positive tests for parainfluenza viruses continued to increase in many regions of the country. <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 20th May 2011, the influenza season has come to an end in the temperate countries of the northern hemisphere with transmission now either undetectable or at very low levels in most areas. A few tropical countries are experiencing low grade transmission including the Dominican Republic, Venezuela (influenza A (H1N1 2009), Jamaica (influenza B), Rwanda (influenza A (H3N2) and Madagascar (influenza B). The influenza season has yet to start in the temperate countries of the southern hemisphere. Australia has reported a small increase in ILI reports however actual detections of influenza virus have decreased in most jurisdictions in recent weeks, including in the northern tropical states. <http://www.who.int/csr/disease/influenza/en/>

Avian influenza

As of 13th May 2011, 553 confirmed human cases of avian influenza A (H5N1) and 323 (58.4%) deaths have been reported to WHO from 15 countries since 2003. The latest confirmed cases and deaths were reported from Bangladesh, Cambodia, Egypt and Indonesia between February and May 2011. Ongoing investigations into the source of infection indicate that all confirmed cases had exposure to poultry (suspected to have avian influenza infection). 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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