

Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 17 & 18 2011 (25th April – 8th May 2011)



Summary

- Influenza activity remained at low levels in Ireland during weeks 17 and 18 2011.
 - The sentinel GP influenza-like illness (ILI) consultation rate was 1.7 per 100,000 population in week 18 2011, a decrease compared to 4.8 per 100,000 reported during week 17 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 17 and 18 2011.
 - There was one confirmed influenza B positive specimen detected by the NVRL during weeks 17 and 18 2011.
 - The virus strains circulating during the 2010/2011 season were well matched to the current influenza vaccine.
 - There were no confirmed influenza cases admitted to hospital during weeks 17 and 18 2011.
 - No confirmed influenza cases have been admitted to ICU since February 17th 2011.
 - To date (11th May 2011) this season, 943 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 11th May 2011, 14 influenza/ILI outbreaks have been reported to HPSC this season.
 - Detections of parainfluenza virus type-3 (PIV-3) have increased in recent weeks. PIV-3 usually peaks in late spring/early summer; therefore this increase is not unexpected.
 - The proportion of respiratory syncytial virus (RSV) positive detections for weeks 17 and 18 2011 remained low and as expected 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 18 2011, 53 of 60 (88.3%) sentinel general practices provided data, with four practices (7.5%) reporting four influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 1.7 per 100,000 population, a decrease compared to the rate of 4.8 per 100,000 reported during week 17 2011. The ILI rates for weeks 17 and 18 2011 remain below the Irish baseline threshold (17.8 per 100,000 population). Forty-nine (92.5%) sentinel practices reported no ILI cases during week 18 2011. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

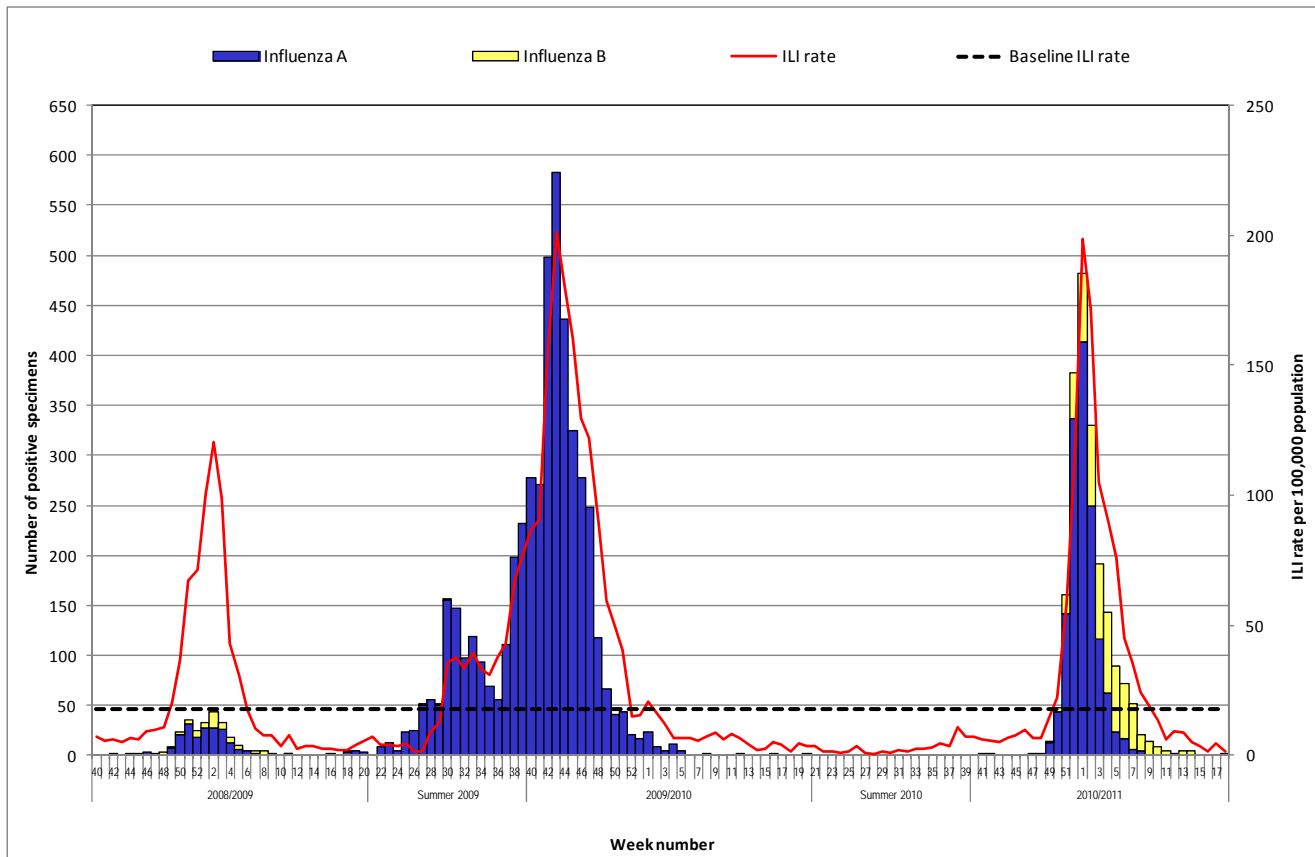


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

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 17 and 18 2011. During week 17 2011, eleven (7.0 per 100,000) ILI cases were reported in the 15-64 year age group. No ILI cases were reported in any other age group during week 17 2011. During week 18 2011, three (1.9 per 100,000) ILI cases were reported in the 15-64 year age group and one (3.9 per 100,000) ILI case in those aged 65 years or older. No ILI cases were reported in the 0-4 and 5-14 year age groups during week 18 2011 (figure 2).

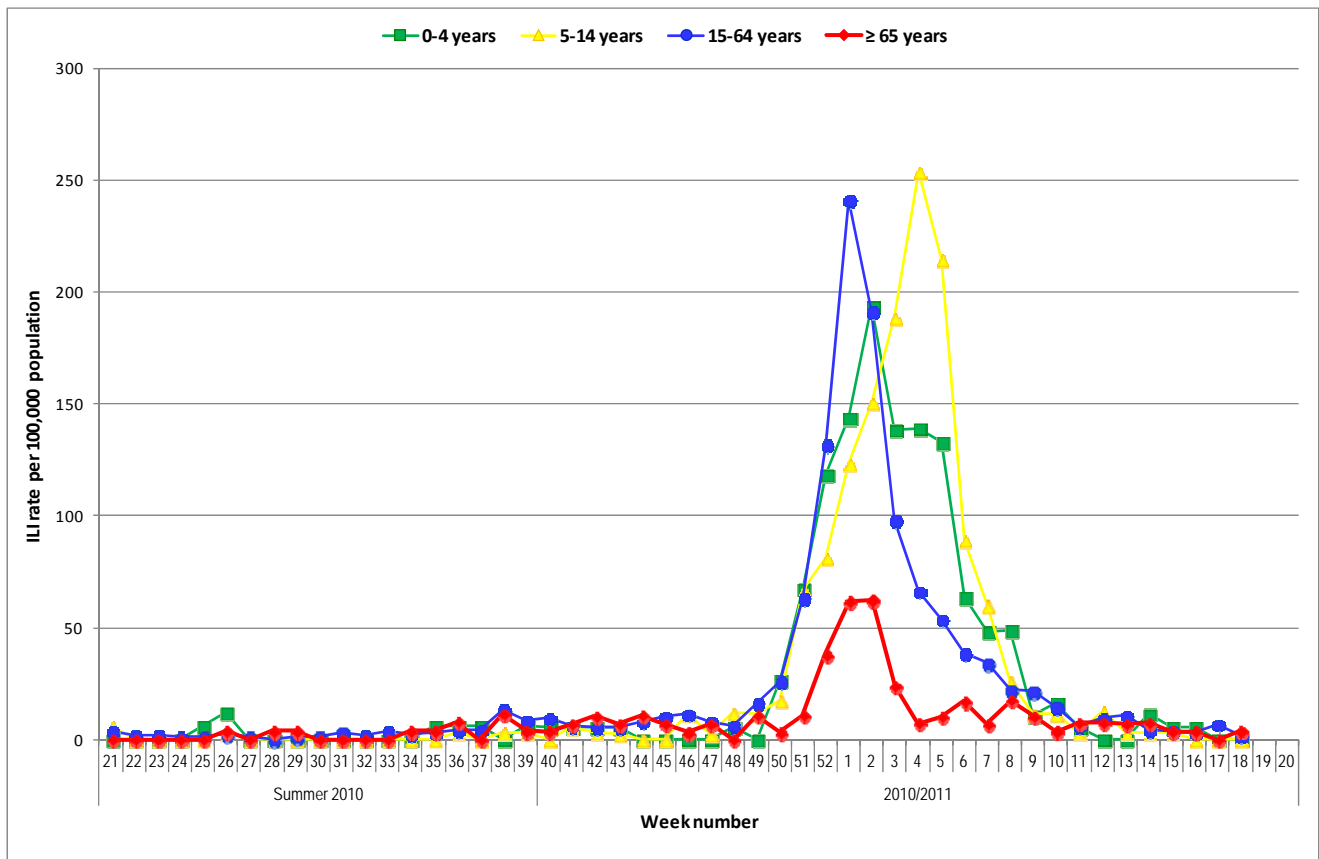


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date

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 130 sentinel and non-sentinel specimens were tested by the NVRL during weeks 17 and 18 2011. One specimen was positive for influenza, an influenza B virus from a non-sentinel specimen detected during week 18 2011. The NVRL tested 64 specimens (3 sentinel and 61 non-sentinel) during week 17 2011 and 66 specimens (1 sentinel and 65 non-sentinel[§]) during week 18 2011.

To date this season, 8,005 sentinel and non-sentinel specimens have been tested by the NVRL, 2,030 (25.4%) 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.

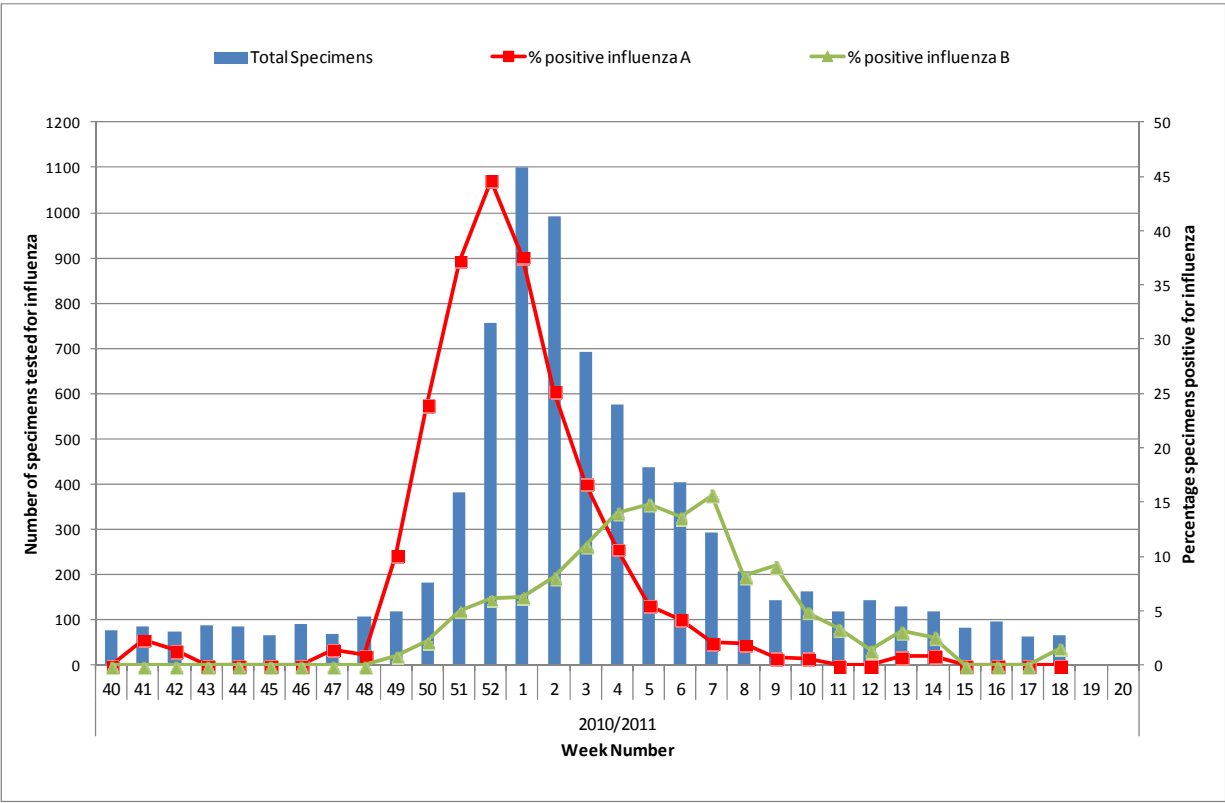


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL

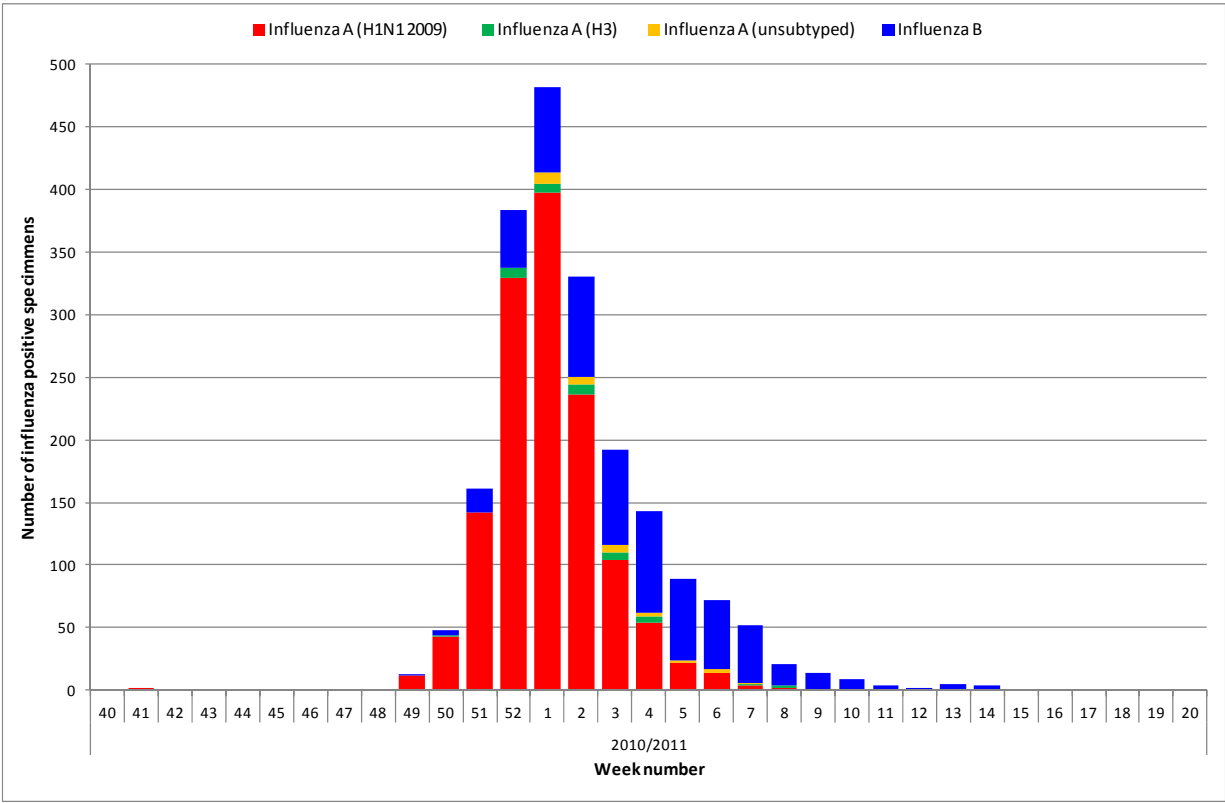


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL

Of the 65 non-sentinel specimens tested during week 18 2011, all were negative for RSV. During week 17 2011, 61 specimens were tested and 8.2% (n=5) were positive for RSV. The proportion of RSV positive detections during weeks 17 and 18 2011 remain 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) have increased in recent weeks. Seven non-sentinel specimens were positive for PIV-3 during week 17 and six were positive during week 18 2011 (compared to three positive detections during week 15 and four in 16 2011). PIV-3 usually peaks in late spring/early summer; therefore an increase is not unexpected.

One non-sentinel specimen was positive for adenovirus and two specimens were positive for PIV-1 during weeks 17 and 18 2011. To date this season, there have been sporadic detections of adenovirus and PIV types - 1, -2 and -3.

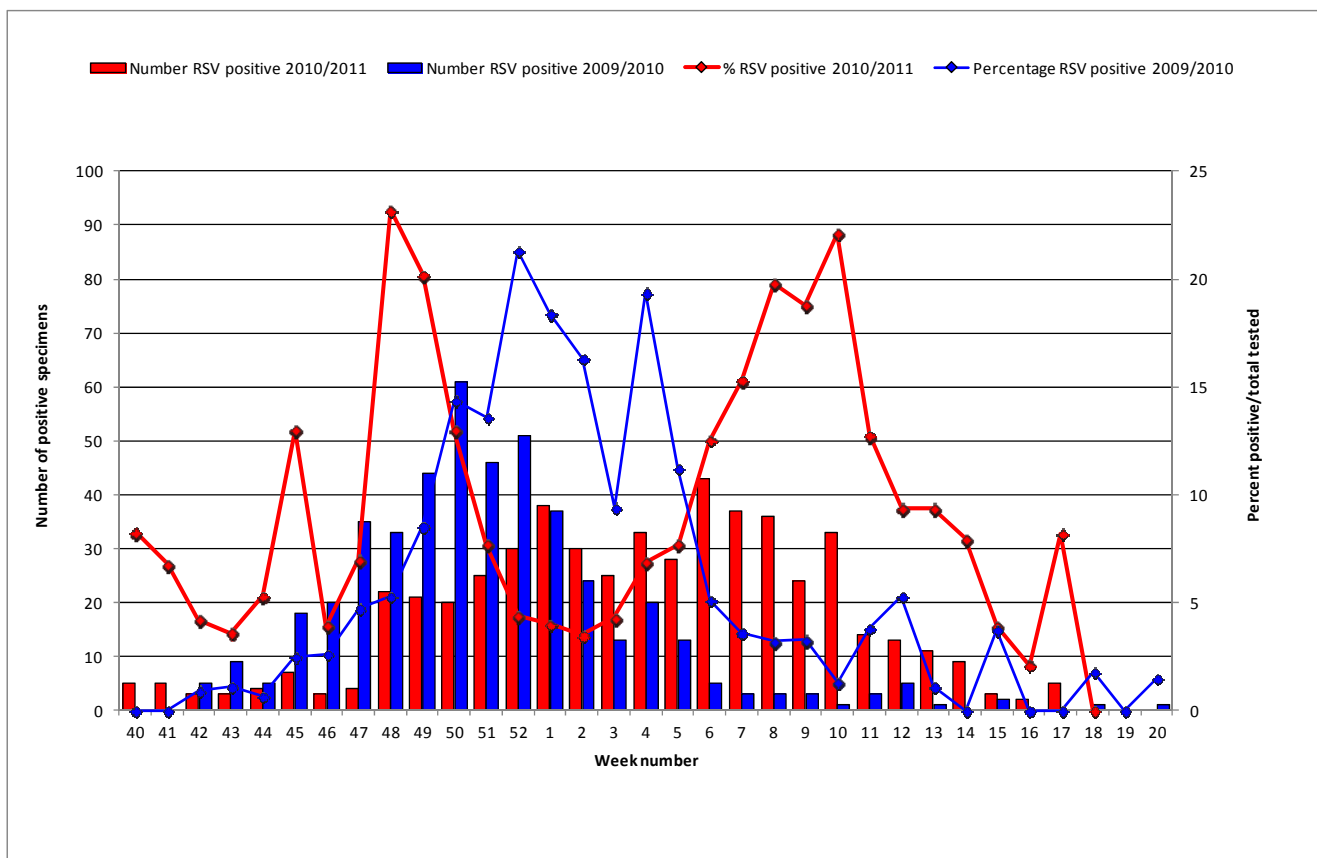


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

** 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 18 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)	
18 2011	Sentinel	1	0	0.0	0	0	0	0	0	0
	Non-sentinel	65	1	1.5	0	0	0	0	0	1
	Total	66	1	1.5	0	0	0	0	0	1
2010/2011 season	Sentinel	1049	514	49.0	279	267	9	0	3	235
	Non-sentinel	6956	1516	21.8	1157	1099	31	0	27	359
	Total	8005	2030	25.4	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 18 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
18 2011	65	0	0.0	1	1.5	1	1.5	0	0.0	6	9.2
2010/2011 season	6956	536	7.7	18	0.3	9	0.1	2	0.03	36	0.5

^{††} 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 17 2011, sporadic influenza activity was reported from HSE-E, -M, and -MW, whilst HSE-NE, -NW, -S, -SE and -W all reported no influenza activity. During week 18 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. (figure 6).

Week 17 2011

Week 18 2011



Figure 6: Maps of provisional influenza activity by HSE-Area during influenza weeks 17 and 18 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 17 and 18 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 week 18 2011. Schools were closed during weeks 16 and 17 2011 for the Easter 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 remained stable and at low levels during weeks 17 and 18 2011, at 1.4% and 1.2%, respectively. Seven GP Out-of-Hours services reported during weeks 17 and 18 2011 (figure 7).

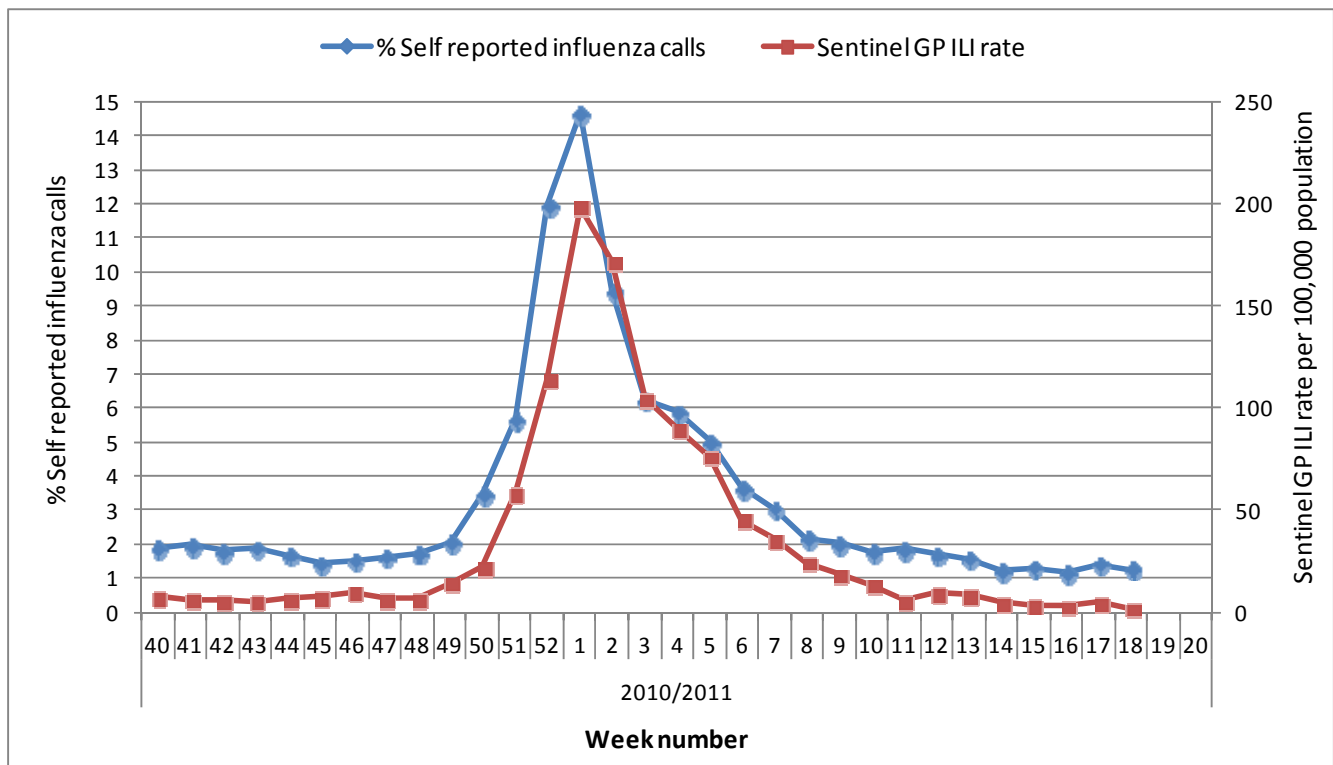


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 11th May 2011, 2231 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 2231 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), 681 (30.5%) were influenza B cases. It should be noted that data for week 19 2011 are incomplete and only include notified cases as of Wednesday 11th May 2011.

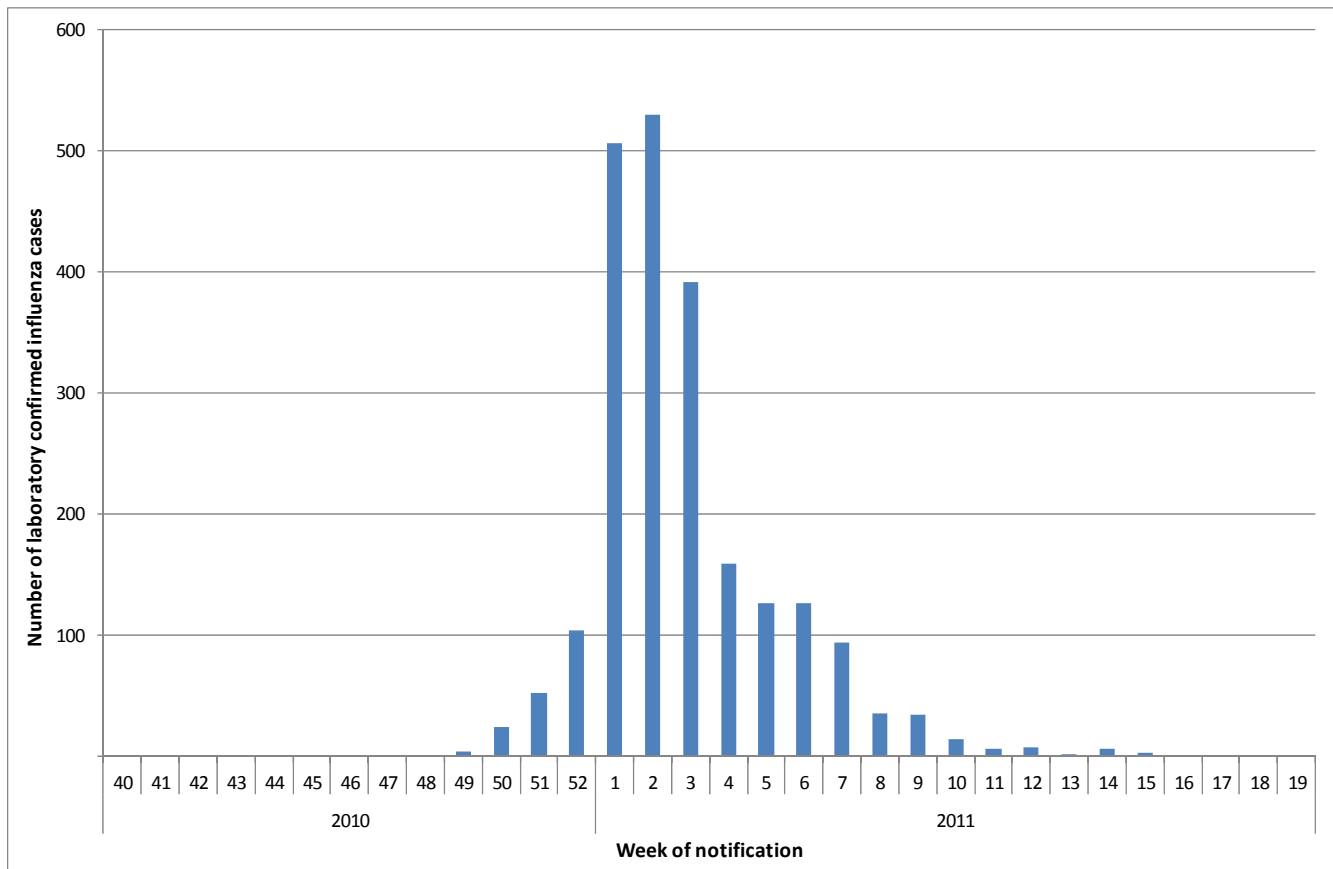


Figure 8: Number of laboratory confirmed influenza cases by week of notification on CIDR for the 2010/2011 influenza season. **It should be noted that data for week 19 2011 are incomplete and only include notified cases as of 11th May 2011. Source: CIDR 11/05/2011*

Nine hundred and forty-three (42.3%) of the 2231 confirmed influenza cases notified this influenza season were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients) (figure 9). Of the 943 hospitalised cases, 601 (63.7%) were influenza A (H1N1 2009) cases, 7 (0.7%) were influenza A (H3) cases, 109 (11.6%) were influenza A (unsubtyped) and 226 (24.0%) 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 (61.5 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 2231 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	186	61.5	12	4.0
5-14	90	16.0	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 11/05/2011*

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 11th 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.

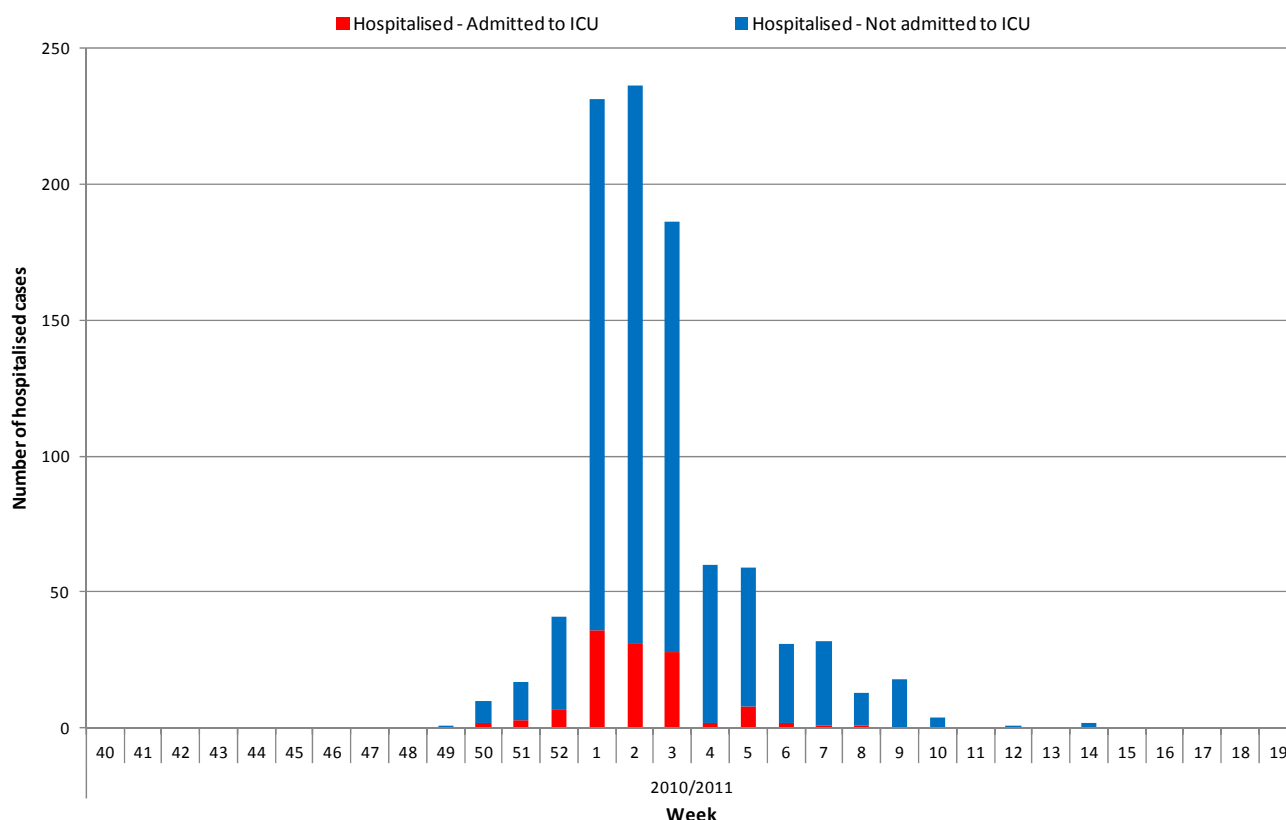


Figure 9: Number of confirmed influenza hospitalised cases by ICU status by week of notification on CIDR for the 2010/2011, influenza season. It should be noted that data for week 19 2011 are incomplete and only include notified cases as of 11th May 2011. Source: CIDR and ICU enhanced surveillance system 11/05/2011

7. Mortality surveillance

HPSC has been informed of 33 influenza associated deaths to date this season (as of 11/05/2011), 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 11/05/2011

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 11th 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 remains low in England, Wales, Scotland and Northern Ireland. 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 17 2011, the weekly ILI consultation rate decreased in Northern Ireland (4.2 per 100,000) and remained low in England (2.6 per 100,000), Scotland (23.3 per 100,000) and Wales (1.2 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 the UK since week 6 2011, with the total reported this season remaining at 170. One respiratory specimen reported to Data Mart (England) out of 332 was positive for influenza (influenza A (H1N1 2009)). The proportion of positive samples increased for parainfluenza, decreased for rhinovirus and remained stable for RSV, hMPV and adenovirus. Since week 36 2010, 602 deaths in the UK associated with confirmed influenza infection 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

Based on influenza activity during week 17 2011, the 2010/2011 influenza season is now drawing to a close in European countries. For week 17 2011, all 25 countries reported experienced low activity. For the seventh consecutive week, the number of influenza B virus detections was greater than that for influenza A viruses. Since week 40 2010, 4,448 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically: 2,233 as A/California/7/2009 (H1N1)-like; 1,893 as B/Brisbane/60/2008-like (Victoria lineage); 175 as B/Florida/4/2006-like (Yamagata lineage); 145 as A/Perth/16/2009 (H3N2)-like; and two as B/Bangladesh/3333/2007-like (Yamagata lineage). Two countries reported a total of eight hospitalised cases with a severe acute respiratory infection, none of which were due to influenza virus infection. Denmark, Germany, Ireland, Italy, the Netherlands, Norway, Spain and the UK have reported antiviral resistance data to ECDC. Ninety-three (3.0%) of 3,054 influenza A (H1 2009) viruses tested were resistant to oseltamivir but remained sensitive to zanamivir. All the resistant viruses carried the H275Y mutation. Sixteen of 65 resistant viruses, from patients for whom exposure to antivirals was known, 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 17 2011, influenza activity in the United States continued to decrease. The proportion of outpatient ILI visits was 1.3%, which is below the national baseline of 2.5%. Of the 1,901 specimens tested, 69 (3.6%) were positive for influenza: 6 A (H1N1 2009), 19 A (H3), 11 A (unsubtyped) and 33 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 100. <http://www.cdc.gov/flu/weekly/>

Canada

In week 17 2011, influenza activity in Canada continued to decline with only a few pockets of localised activity in Ontario and the Atlantic provinces. Influenza B continued to be detected more frequently than influenza A, however, the overall percentage of influenza positive specimens continued to decrease. The number of outbreaks reported decreased considerably, as well as the ILI consultation rate during week 17 2011. Both adult and paediatric hospitalisations with influenza were also low.

<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 6th May 2011, influenza activity worldwide was low. Influenza activity across the entire temperate Northern Hemisphere has returned to baseline or pre-seasonal levels. As levels of influenza activity decreased, influenza B was more commonly detected across the Northern Hemisphere temperate areas and in much of the tropics. Transmission in tropical areas of the world was also generally low. In countries of Sub-Saharan Africa, some transmission of a mixture of viruses and slight predominance of influenza B was reported. The influenza season has not yet started in the temperate areas of the southern hemisphere. Nearly all influenza A viruses tested were antigenically similar to those found in the current trivalent vaccine. More than 90% of influenza B viruses were also of the Victoria lineage found in the vaccine; however, a small number of B viruses of the Yamagata lineage were also being reported. <http://www.who.int/csr/disease/influenza/en/>

Avian influenza

As of 21st April 2011, 552 confirmed human cases of avian influenza A (H5N1) and 322 (58.3%) 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 April 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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