

Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 15 & 16 2011 (11th – 24th April 2011)



Summary

- Influenza activity remained at low levels in Ireland during weeks 15 and 16 2011.
 - The sentinel GP influenza-like illness (ILI) consultation rate was 3.1 per 100,000 population in week 16 2011, a slight decrease compared to 3.6 per 100,000 reported during week 15 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 15 and 16 2011.
 - There were no confirmed influenza positive specimens detected by the NVRL during weeks 15 and 16 2011.
 - There were no confirmed influenza cases admitted to hospital during weeks 15 and 16 2011.
 - No confirmed influenza cases have been admitted to ICU since February 17th 2011.
 - To date (27th April 2011) this season, 942 confirmed influenza cases have been hospitalised, 122 cases have been admitted to ICU and 31* deaths have been reported to HPSC.
 - No new general outbreaks of influenza/ILI have been reported since week 5 2011. As of 27th April 2011, 14 influenza/ILI outbreaks have been reported to HPSC this season.
 - The proportion of respiratory syncytial virus (RSV) positive detections decreased in weeks 15 and 16 2011, and remains at expected levels for the time of year.

** It should be noted that the number of influenza-associated deaths for the 2010/2011 influenza season increased since the last influenza surveillance report, due to the availability of further information on cases that had been referred to the coroner.*

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 16 2011, 44 of 60 (73.3%) sentinel general practices provided data, with six practices (13.6%) reporting six influenza-like illness (ILI) cases. This corresponds to an ILI consultation rate of 3.1 per 100,000 population, a slight decrease compared to the rate of 3.6 per 100,000 reported during week 15 2011. The ILI rates for weeks 15 and 16 2011 remain below the Irish baseline threshold (17.8 per 100,000 population). Thirty-eight (86.4%) sentinel practices reported no ILI cases during week 16 2011. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

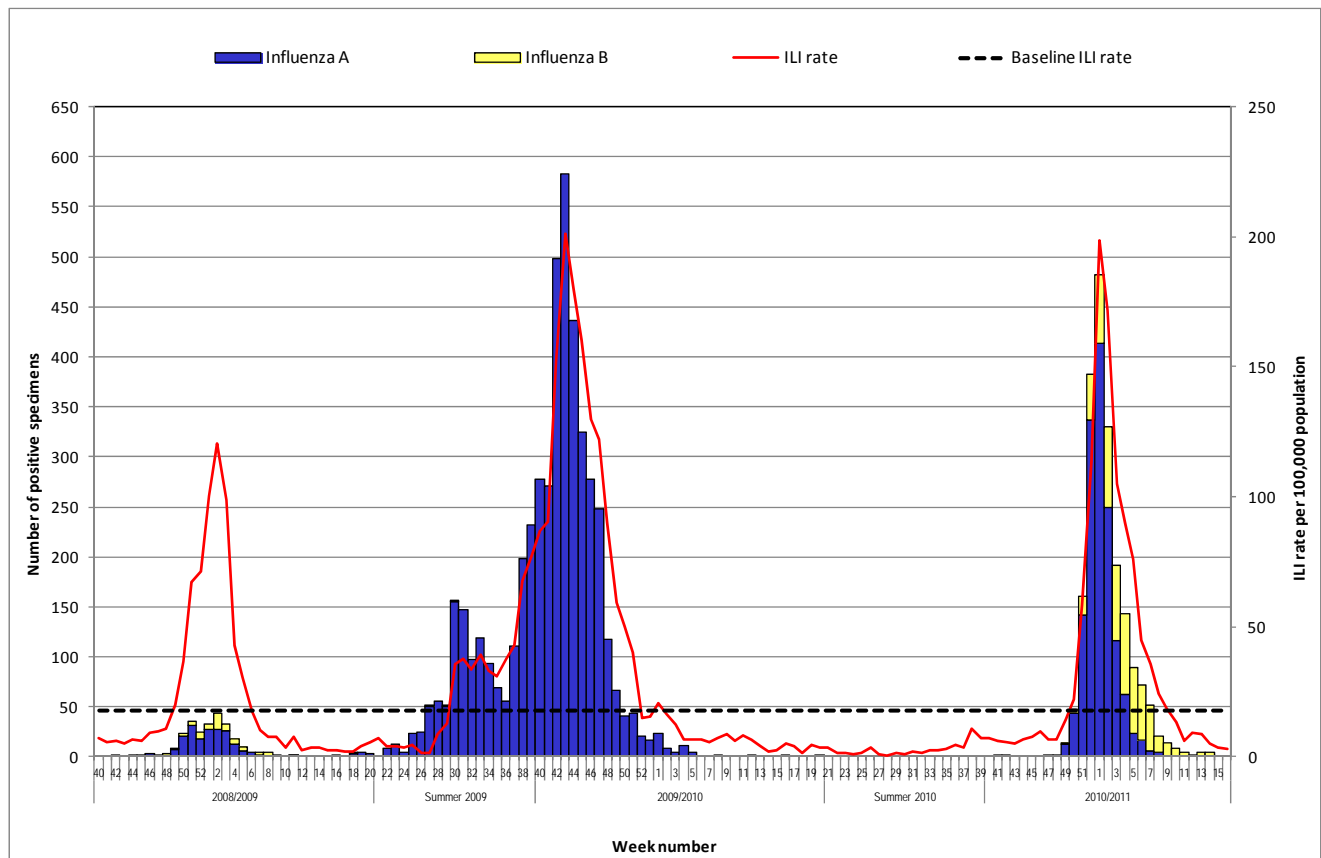


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

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 15 and 16 2011. During week 15 2011, one (5.6 per 100,000) ILI case was reported in the 0-4 year age group, one (3.0 per 100,000) in the 5-14 year age group, six (3.5 per 100,000) in the 15-64 year age group and one (3.6 per 100,000) ILI case in those aged 65 years or older. During week 16 2011, one (7.3 per 100,000) ILI case was reported in the 0-4 year age group, four (3.0 per 100,000) in the 15-64 year age group and one (4.7 per 100,000) ILI case in those aged 65 years or older. No ILI cases were reported in the 5-14 year age group during week 16 2011 (figure 2).

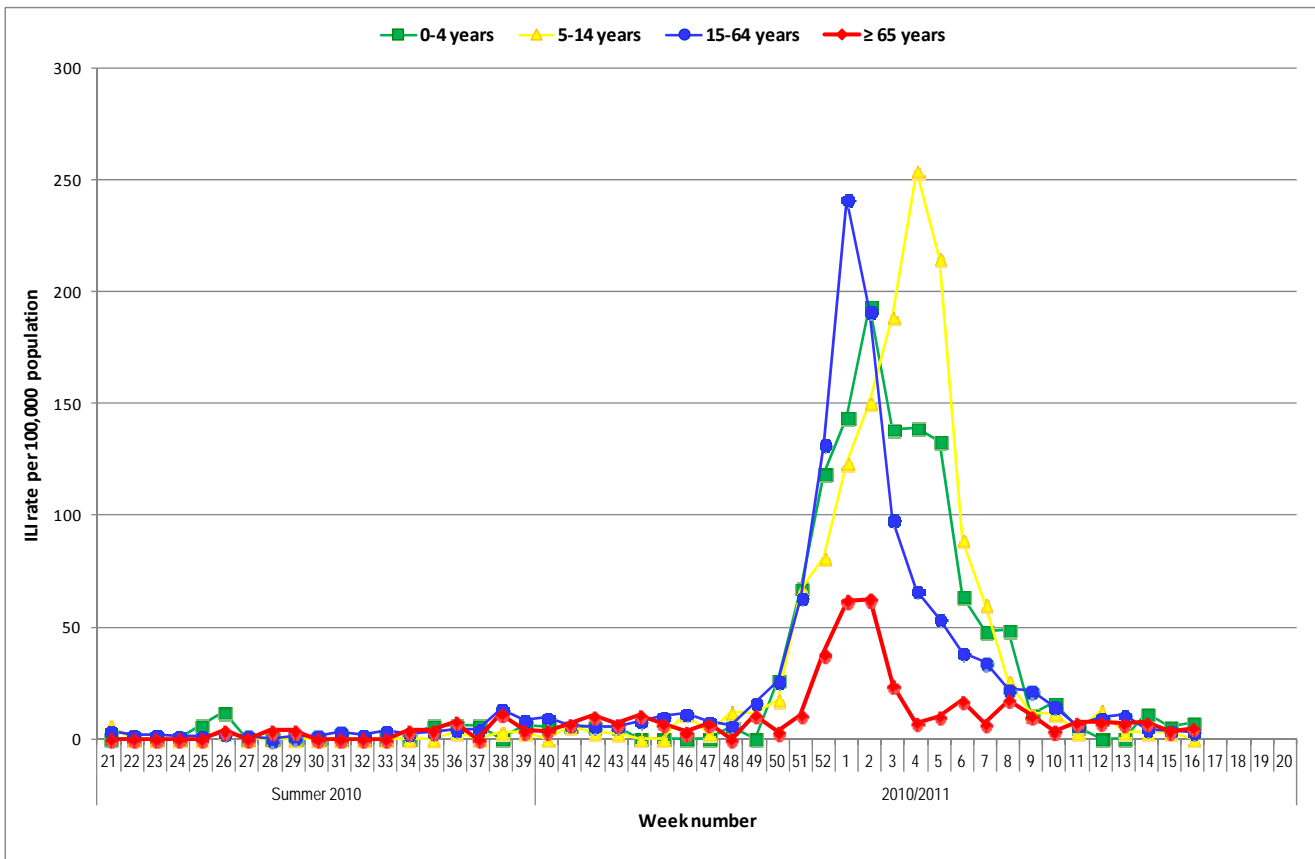


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2010 and the 2010/2011 influenza season to date

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 150 sentinel and non-sentinel specimens were tested by the NVRL during weeks 15 and 16 2011, all of which were negative for influenza virus. The NVRL tested 83 specimens (6 sentinel and 77 non-sentinel) during week 15 2011 and 67 specimens (1 sentinel and 66 non-sentinel[§]) during week 16 2011.

To date this season, 7,846 sentinel and non-sentinel specimens have been tested by the NVRL, 2,029 (25.9%) specimens tested positive for influenza: 1,366 influenza A (H1N1 2009), 40 influenza A (H3), 30 influenza A (unsubtyped) and 593 influenza B. Of the 2,029 positive influenza specimens, 1,436 (70.8%) were influenza A and 593 (29.2%) 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.

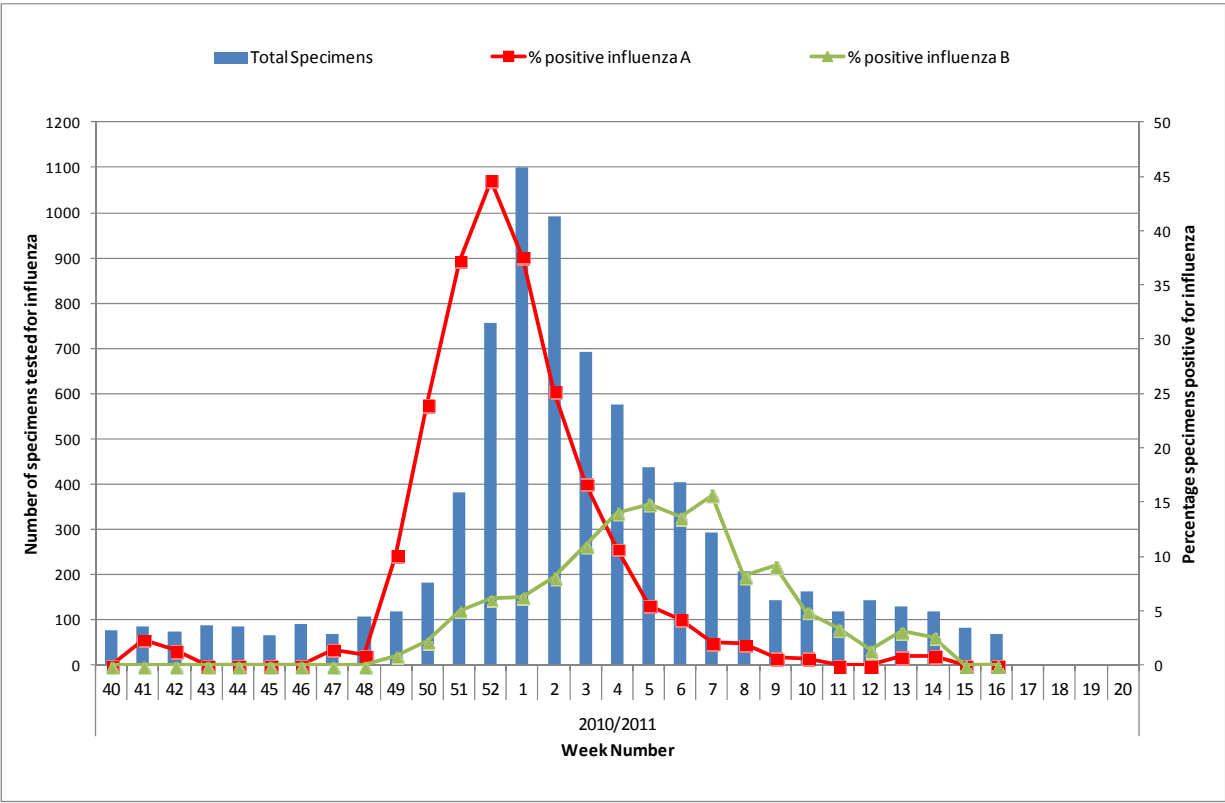


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2010/2011 influenza season. Source: NVRL

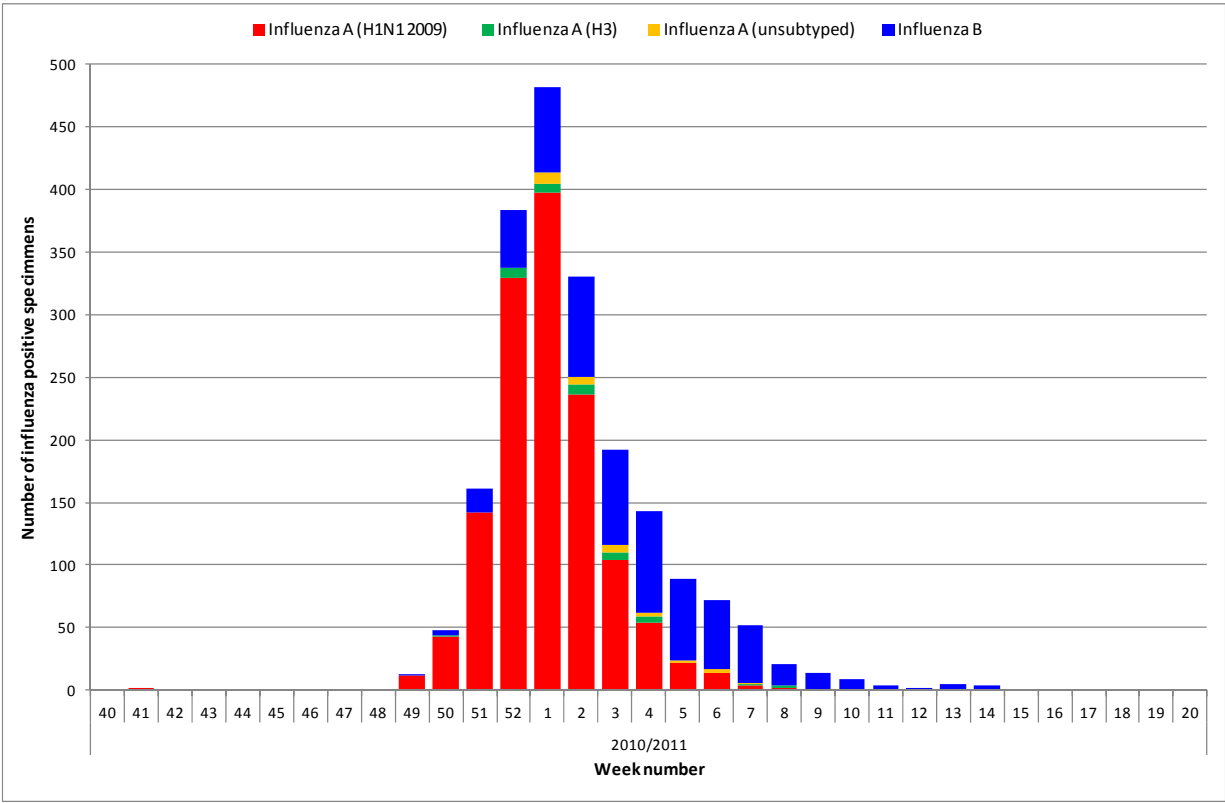


Figure 4: Number of sentinel and non-sentinel specimens positive for influenza by type/subtype and week for the 2010/2011 influenza season. Source: NVRL

Of the 66 non-sentinel specimens tested during week 16 2011, 3.0% (n=2) were positive for RSV. During week 15 2011, 77 specimens were tested and 3.9% (n=3) were positive for RSV. The proportion of RSV positive detections decreased during weeks 15 and 16 2011 (from 8.0% in week 14 2011), and remains 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.**

Five non-sentinel specimens were positive for parainfluenza virus (PIV) type 3 during weeks 15 and 16 2011 (three in week 15 and two in week 16). One non-sentinel specimen was positive for adenovirus during week 15 2011. No specimens were positive for PIV types -1 or -2 during weeks 15 and 16 2011. To date this season, there have been sporadic detections of adenovirus and PIV types -1, -2 and -3.

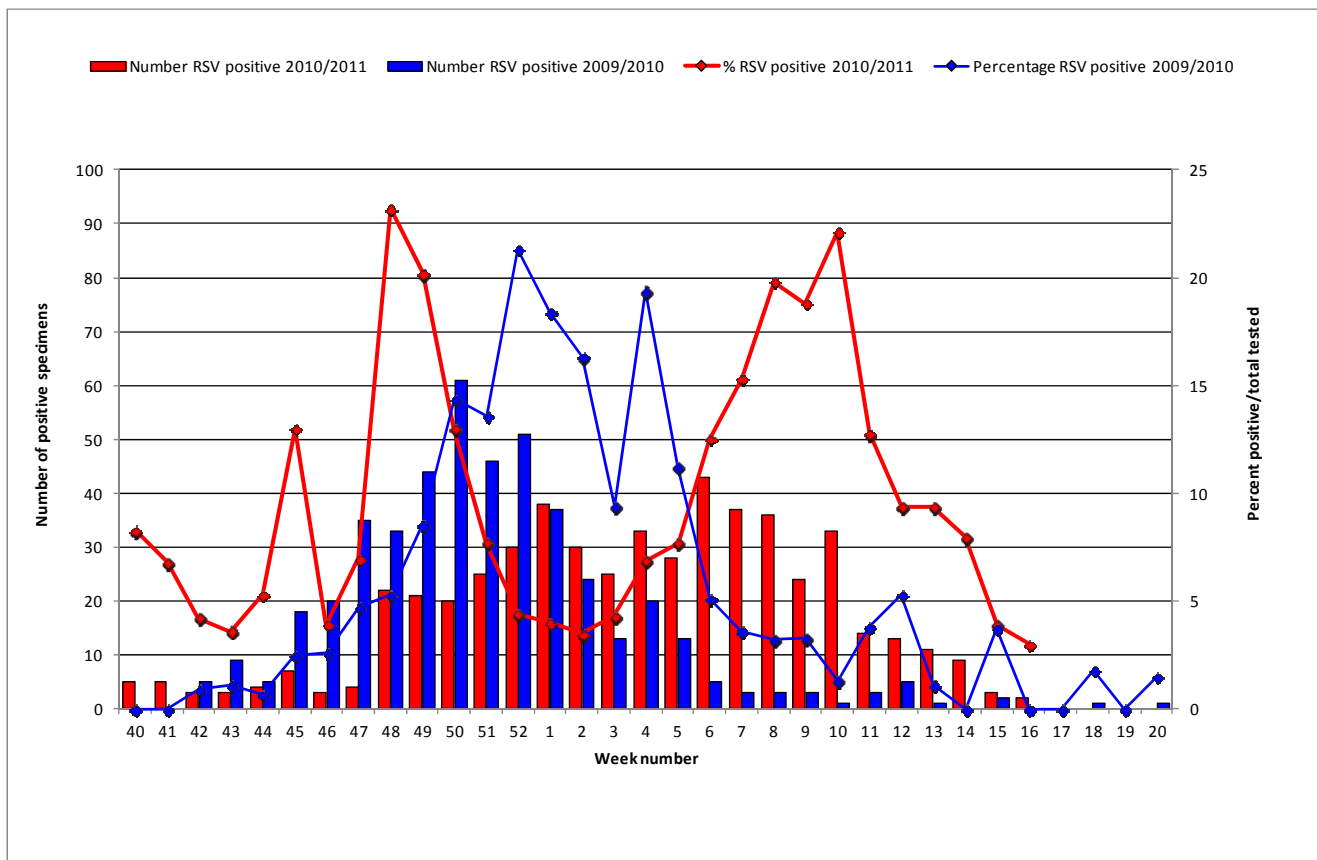


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2010/2011 season, compared to the 2009/2010 season. Source: NVRL

** 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 16 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)	
16 2011	Sentinel	1	0	0.0	0	0	0	0	0	0
	Non-sentinel	66	0	0.0	0	0	0	0	0	0
	Total	67	0	0.0	0	0	0	0	0	0
2010/2011 season	Sentinel	1044	514	49.2	279	267	9	0	3	235
	Non-sentinel	6802	1515	22.3	1157	1099	31	0	27	358
	Total	7846	2029	25.9	1436	1366	40	0	30	593

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 16 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
16 2011	66	2	3.0	0	0.0	0	0.0	0	0.0	2	3.0
2010/2011 season	6646	531	7.8	17	0.2	7	0.1	2	0.03	21	0.3

^{††} Please note that non-sentinel specimens relate to specimens referred to the NVRL (other than sentinel specimens) and may include more than one specimen from each case.

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 15 2011, sporadic influenza activity was reported from HSE-E, -MW, and -SE, whilst HSE-M, -NE, -NW, -S and -W all reported no influenza activity. During week 16 2011, influenza activity remained unchanged from the previous week in all HSE-Areas (figure 6).

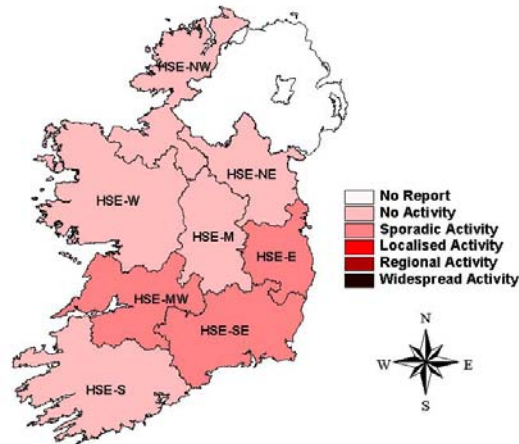


Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 16 2011

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 15 and 16 2011, there were no significant increases in respiratory admissions reported from sentinel hospitals. There were also no significant increases in sentinel school absenteeism during week 15 2011. Schools were closed during week 16 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 15 and 16 2011, at 1.3% and 1.1%, respectively. Seven GP Out-of-Hours services reported during weeks 15 and 16 2011 (figure 7).

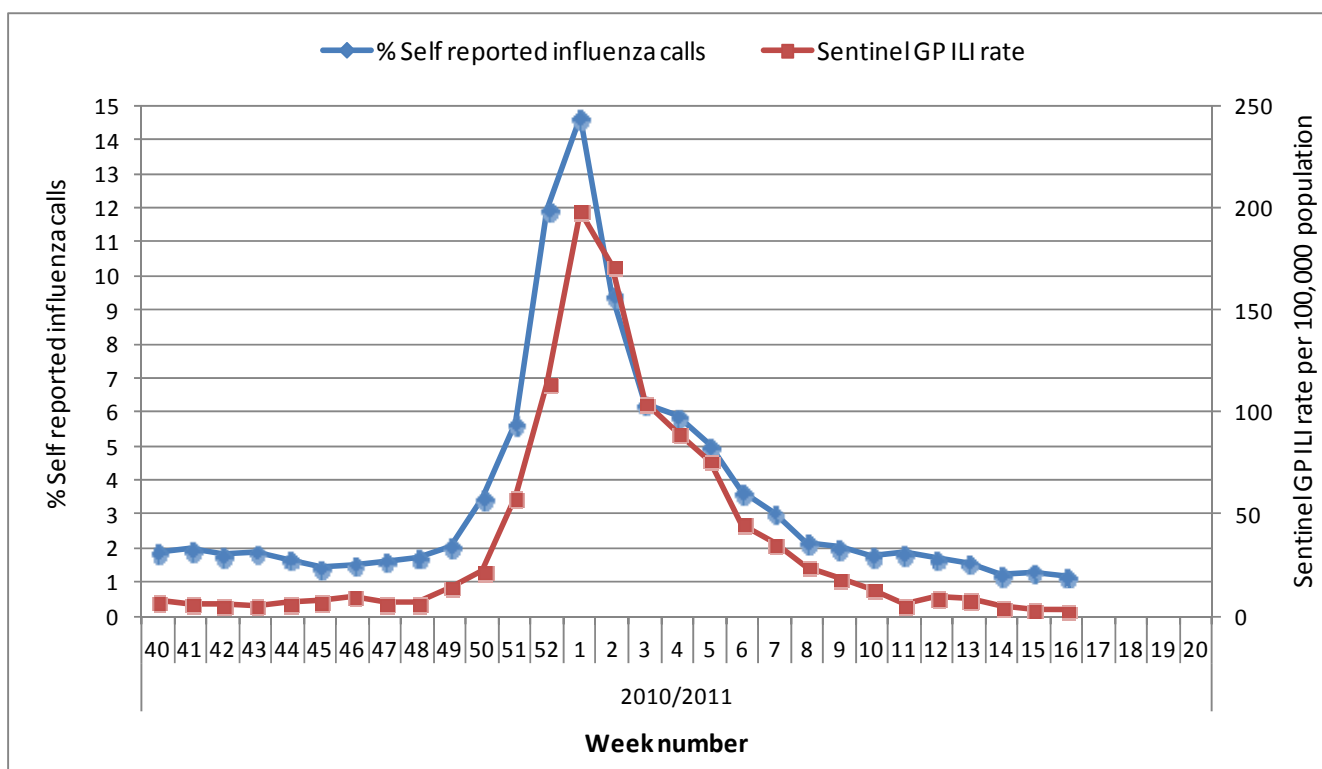


Figure 7: Self reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2010/2011 season

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

5. Influenza notifications (CIDR)

As of 27th April 2011, 2230 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 2230 confirmed influenza cases, 1324 (59.4%) were confirmed influenza A (H1N1 2009), 23 (1.0%) were influenza A (H3), 203 (9.1%) were influenza A (unsubtyped), 680 (30.5%) were influenza B cases. It should be noted that data for week 17 2011 are incomplete and only include notified cases as of Wednesday 27th April 2011.

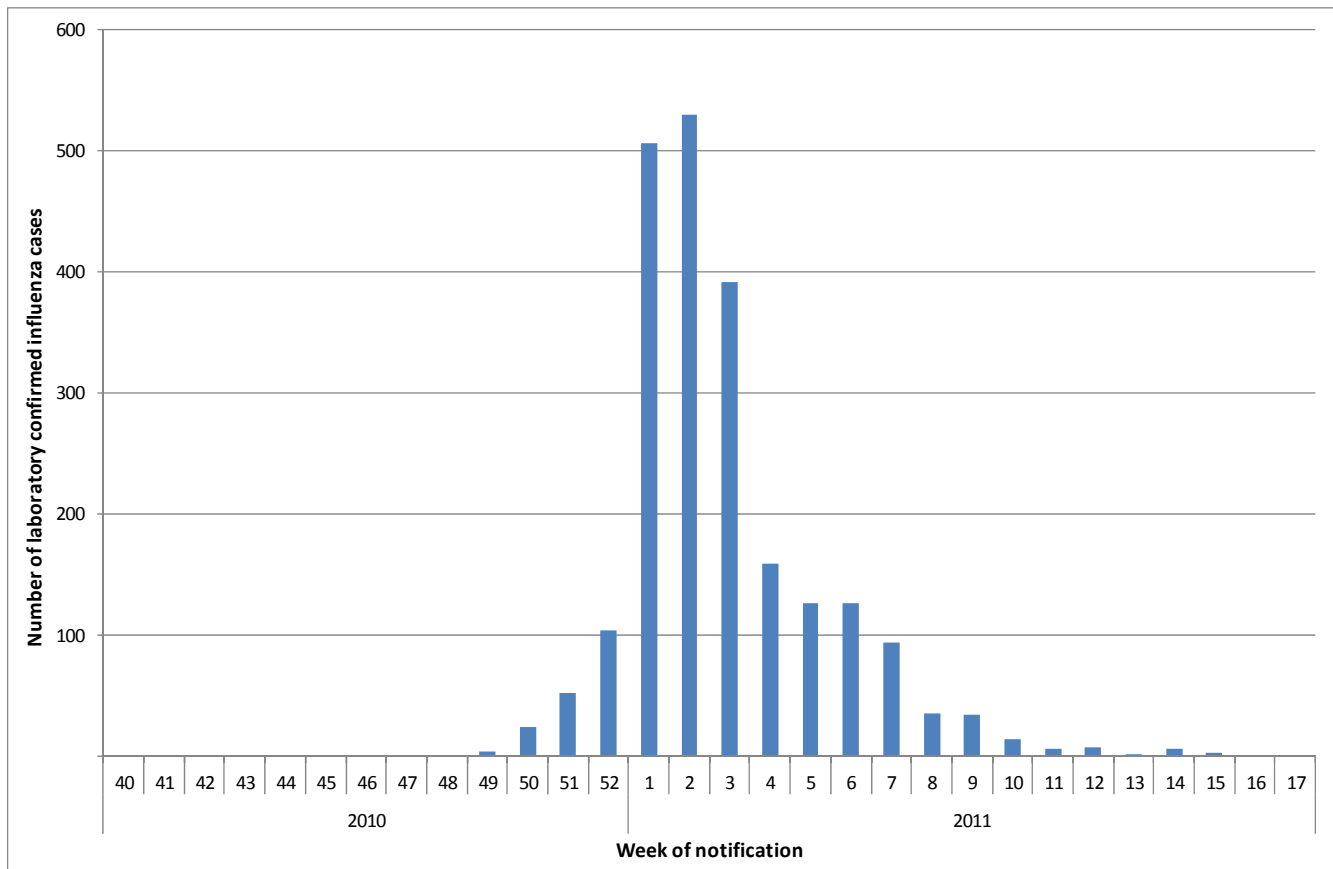


Figure 8: Number of laboratory confirmed influenza cases by week of notification on CIDR for the 2010/2011 influenza season. *It should be noted that data for week 17 2011 are incomplete and only include notified cases as of 27th April 2011. Source: CIDR 27/04/2011

Nine hundred and forty-two (42.2%) of the 2230 confirmed influenza cases notified this influenza season were hospitalised (i.e. these cases were recorded on CIDR as hospital inpatients) (figure 9). Of the 942 hospitalised cases, 600 (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 2230 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	172	23.8	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 27/04/2011

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 27th April 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.

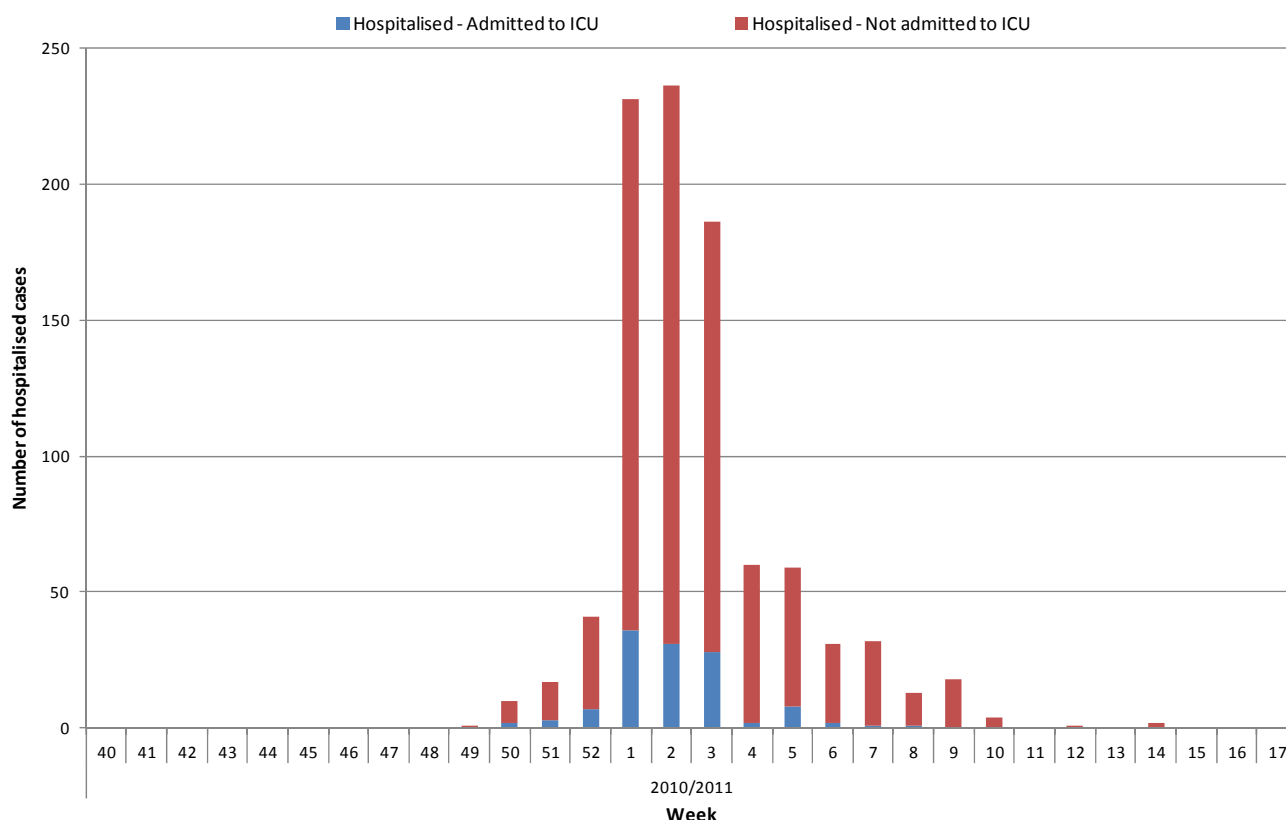


Figure 9: Number of confirmed influenza hospitalised cases by ICU status by week of notification on CIDR for the 2010/2011, influenza season. It should be noted that data for week 17 2011 are incomplete and only include notified cases as of 27th April 2011. Source: CIDR and ICU enhanced surveillance system 27/04/2011

7. Mortality surveillance

HPSC has been informed of 31 influenza associated deaths to date this season (as of 27/04/2011), 25 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, 21 patients were in the 15-64 year age group and eight patients were aged 65 years and older. Twenty-six 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 27/04/2011

HSE Area	Influenza Deaths
HSE-E	14
HSE-M	3
HSE-MW	0
HSE-NE	2
HSE-NW	3
HSE-SE	3
HSE-S	4
HSE-W	2
Total	31

8. Outbreak surveillance

No new general outbreaks of influenza/ILI have been reported since week 5 2011. To date this season, (as of 27th April 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 15 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 15 2011, the weekly primary care ILI consultation rate decreased in Scotland (28.4 per 100,000) and Northern Ireland (7.4 per 100,000) and remained low in England (5.2 per 100,000) and Wales (3.4 per 100,000). The proportion of NHS Direct calls for cold/influenza and fever remained below threshold levels. No acute respiratory disease outbreaks have been reported in the UK since week 6 2011. The total number of reported outbreaks for the 2010/2011 season remains at 170. No respiratory specimens reported to Data Mart (England) were positive for influenza. The proportion of positive samples increased slightly for adenovirus and parainfluenza, decreased for rhinovirus and remained stable for RSV and HMPV. Since week 36, 592 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

The influenza epidemics of the 2010/2011 influenza season are drawing to a close in European countries. All 22 EU/EEA countries reporting influenza intensity experienced low activity during week 15 2011 and 23 countries reported decreasing or unchanging trends. Of the 24 influenza viruses detected in sentinel specimens during week 15 2011, 23 (95.8%) were influenza B viruses and one (4.2%) was influenza A (unsubtyped). For the last 4 weeks, influenza B viruses have been detected more frequently than influenza A viruses in Europe. Three countries reported a total of 10 hospitalised severe acute respiratory infections, of which one was due to influenza infection. Since week 40 2010, 3,995 influenza viruses from sentinel and non-sentinel specimens have been characterised antigenically: 2,041 as A/California/7/2009 (H1N1)-like; 1,659 as B/Brisbane/60/2008-like (Victoria lineage); 153 as B/Florida/4/2006-like (Yamagata lineage); 140 as A/Perth/16/2009 (H3N2)-like; and two as B/Bangladesh/3333/2007-like (Yamagata lineage). Denmark, Germany, Ireland, Italy, Norway, the Netherlands, Spain and the UK have reported antiviral resistance data to ECDC. Ninety-two (2.9%) of 3,201 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 15 2011, influenza activity in the United States continued to decrease. Of the 2,972 specimens tested, 201 (6.8%) were positive for influenza: 17 A (H1N1 2009), 79 A (H3), 31 A (unsubtyped) and 74 B. The proportion of outpatient ILI visits was 1.3%, which is below the national baseline of 2.5%. The proportion of deaths attributed to pneumonia and influenza has been at or above the epidemic threshold for 12 consecutive

weeks. Four influenza-associated paediatric deaths were reported, bringing the season total to 95. One of these deaths was associated with influenza A (H1N1 2009) and three deaths were associated with influenza B. <http://www.cdc.gov/flu/weekly/>

Canada

In Canada during week 15 2011, a few more regions reported localised influenza activity compared to the previous week. The ILI consultation rate increased slightly, however all other indicators of influenza activity decreased. In week 15, influenza B continued to increase and accounted for 63% of positive influenza detections. <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 21st April 2011, worldwide influenza activity was generally low and decreasing. Influenza activity in the northern hemisphere temperate regions was back to baseline levels in most areas, indicating that the influenza season is now ending. In tropical zone countries, influenza activity was generally low with a few recent localised areas of activity reported and ongoing transmission of influenza A (H3N2) in central Africa. In southern hemisphere temperate countries, influenza seasonal activity has not yet started. Viruses which have been characterised antigenically continue to be largely related to the lineages found in the current trivalent seasonal vaccine. <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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