Influenza Surveillance in Ireland – Weekly Report

Influenza Week 16 2013 (15th – 21st April 2013)

Intensive Care Society of Ireland

Summary

- **Influenza activity in Ireland decreased during week 16 2013. The number of acute respiratory outbreaks reported in residential care facilities is also beginning to decrease.**
- The sentinel GP influenza-like illness (ILI) consultation rate was 12.2 per 100,000 population in week 16 2013, a decrease compared to the updated rate of 18.5 per 100,000 during week 15 2013.
  - The ILI consultation rate was below the Irish baseline threshold (21.0 per 100,000 population) and has been for three consecutive weeks.
  - ILI age specific rates were low in all age groups
- The proportion of influenza–related calls to GP Out-of-Hours services decreased during week 16 2013, compared to the previous week.
- Influenza positivity decreased significantly during week 16 2013 to 10.7%, compared to 39.7% during the previous week. Seventeen influenza A(H3), 8 influenza A(H1)pdm09, 3 influenza A (not subtyped) and 4 influenza B positive specimens were reported from the NVRL for week 16 2013.
  - Influenza A(H3) was the predominant influenza virus circulating during week 16 2013.
- Positivity levels for respiratory syncytial virus (RSV), human metapneumovirus, parainfluenza viruses and adenoviruses remained at low levels during week 16 2013.
- During week 16 2013, 19 confirmed influenza cases were reported as hospitalised, all associated with influenza A. To date this season, 419 confirmed influenza cases were reported as hospitalised, 49.4% associated with influenza A and 50.6% associated with influenza B.
- Twenty-five adults and ten paediatric confirmed influenza cases have been admitted to critical care to date this season. Of these 35 cases, 15 were associated with influenza B, 13 with influenza A (H1)pdm09, five influenza A (H3) and two with influenza A (not subtyped). Thirty-two RSV paediatric cases were also admitted to critical care this season.
- To date this season, 8 confirmed influenza associated deaths have been reported to HPSC, two associated with influenza A(H3), one influenza A (H1)pdm09, two with influenza A (not subtyped) and three associated with influenza B.
- Six new acute respiratory outbreaks were reported to HPSC during week 16 2013. To date this season, 79 acute respiratory outbreaks have been reported to HPSC.
- In Europe, influenza activity continued to decline or has already returned to baseline levels. After more than three months of active influenza transmission, the 2012/2013 influenza season is waning and moving towards its end.
- Up to April 23rd 2013, 108 cases of human infection with influenza A(H7N9) in China have been reported by WHO, including 17 deaths.
  - For up to date information on the current case numbers and the WHO assessment of the situation please see here. The European Centre for Disease Prevention and Control has published additional information including an updated rapid risk assessment of the situation, see here.

1. GP sentinel surveillance system

Clinical Data

During week 16 2013, 27 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 12.2 per 100,000 population, a decrease compared to the updated rate of 18.5 per 100,000 in week 15 2013. Fifty-one of 60 (85.0%) sentinel general practices provided data during week 16 2013, with 15 practices (29.4%) reporting ILI cases. The ILI consultation rate was below the Irish baseline threshold (21.0 per 100,000 population)* during week 16 2013. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

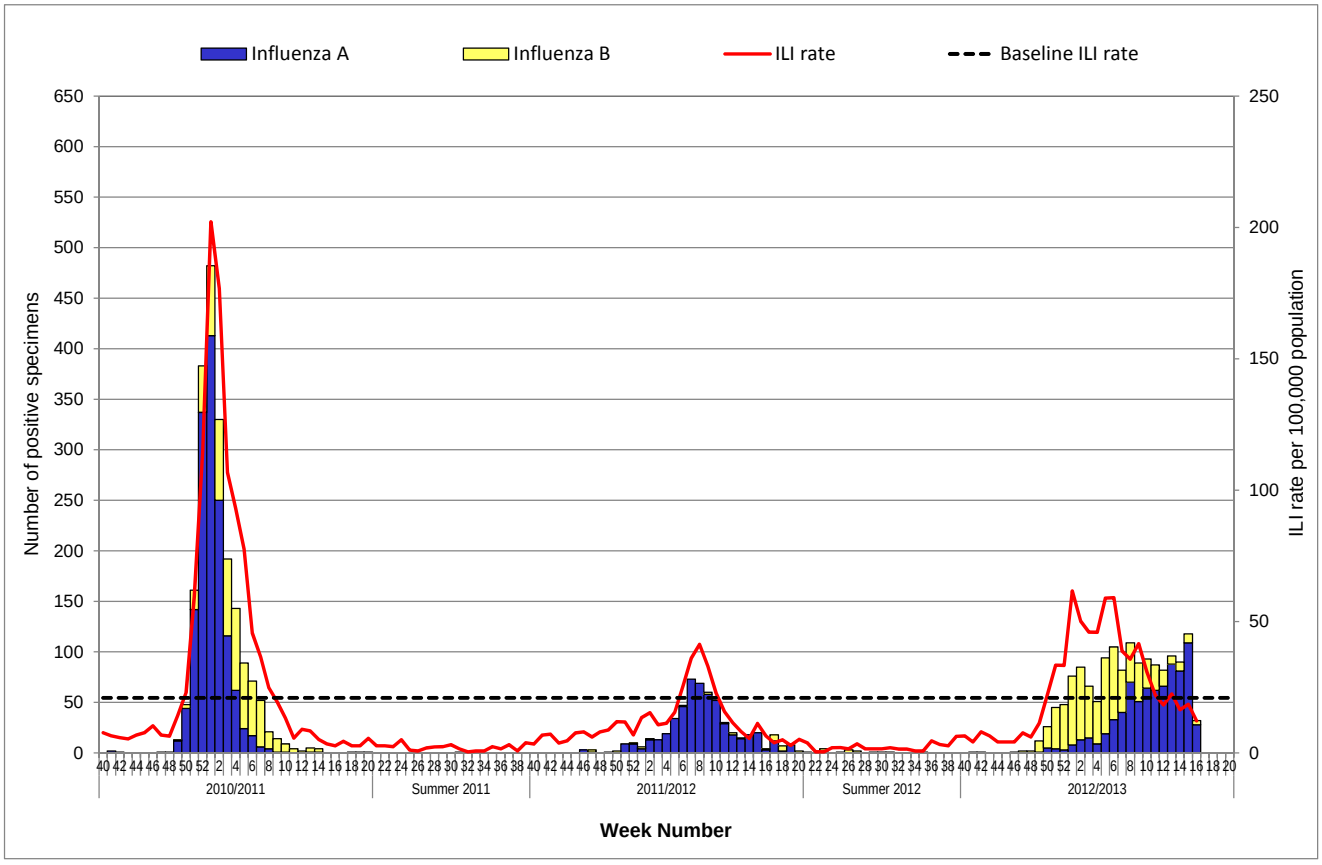

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
Source: Clinical ILI data from ICGPand virological data from the NVRL†

ILI age specific rates were at low levels in all age groups during week 16 2013. One ILI case were reported in the 0-4 year age group (5.8 per 100,000), 2 ILI cases were reported in the 5-14 year age group (6.7 per 100,000), 20 cases in the 15-64 year age group (13.5 per 100,000) and 4 ILI cases were reported in those aged 65 years and older (15.5 per 100,000) during week 16 2013 (figure 2).

* HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) have revised the Irish baseline threshold for the 2012/2013 influenza season to 21.0 per 100,000 population.
†Sentinel GP consultations and virological data are updated on an ongoing basis, ILI rates and virological data are adjusted accordingly.

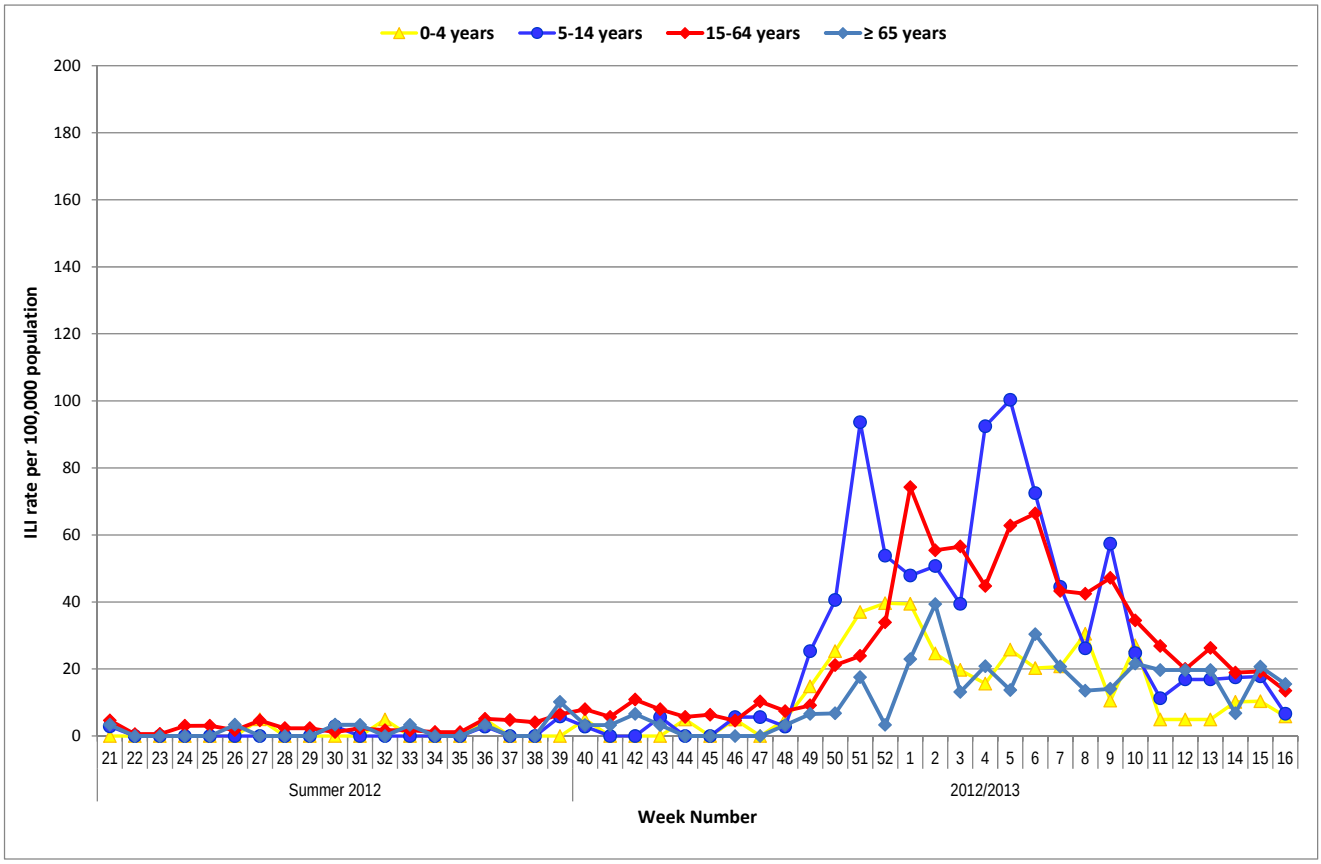

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2012 and the 2012/2013 influenza season to date. *Source: ICGP ILI clinical data*

2. Influenza and Other Respiratory Virus Detections - National Virus Reference Laboratory

The data reported in this section for the 2012/2013 influenza season refers to specimens tested by the National Virus Reference Laboratory (NVRL). The NVRL are now testing all sentinel and non-sentinel specimens for a panel of respiratory viruses: influenza A and B, respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses types 1, 2, and 3 (PIV-1, -2 & -3) and human metapneumovirus.

During week 16 2013, a total of 299 specimens (8 sentinel and 291 non-sentinel[‡] specimens) were tested by the NVRL. Thirty-two (32/299; 10.7%) sentinel and non-sentinel specimens tested positive for influenza virus during week 16 2013: 17 A(H3), 8 A(H1)pdm09, 3 A (not subtyped) and 4 B. One (1/8; 12.5%) sentinel specimen tested positive for influenza virus (influenza A(H3)) during week 16 2013. Thirty-one (31/291; 10.7%) non-sentinel specimens tested positive for influenza virus during week 16 2013: 16 A(H3), 8 A(H1)pdm09, 3 A (not subtyped) and 4 B (tables 1 & 2). Influenza A(H3) was the predominant influenza virus circulating during week 16 2013 (figures 3 & 4).

[‡]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.

Influenza Virus Characterisation

Influenza B viruses dominated during the first part of the 2012/2013 influenza season in Ireland, followed by influenza A(H3N2) viruses which have been dominant for the last six weeks, co-circulating with influenza A(H1N1)pdm09 viruses. The National Virus Reference Laboratory (NVRL) has genetically characterised 55 influenza viruses this season. Of 43 influenza B viruses analysed, 38 (88.4%) belong to the B/Yamagata lineage (which is included in the 2012/2013 influenza vaccine) and five (11.6%) belong to the B/Victoria lineage. Ten influenza A(H3N2) viruses were genetically characterised and were similar to the vaccine strain A/Victoria/361/2011. Sequence analysis of two influenza A(H1N1)pdm09 viruses identified them as related to the vaccine strain A/California/07/2009. As part of the WHO Global influenza surveillance programme, a proportion of influenza viruses are submitted to the WHO Collaborating Centre for Reference and Research on Influenza (Mill Hill, London) for further antigenic characterisation and confirmatory testing.

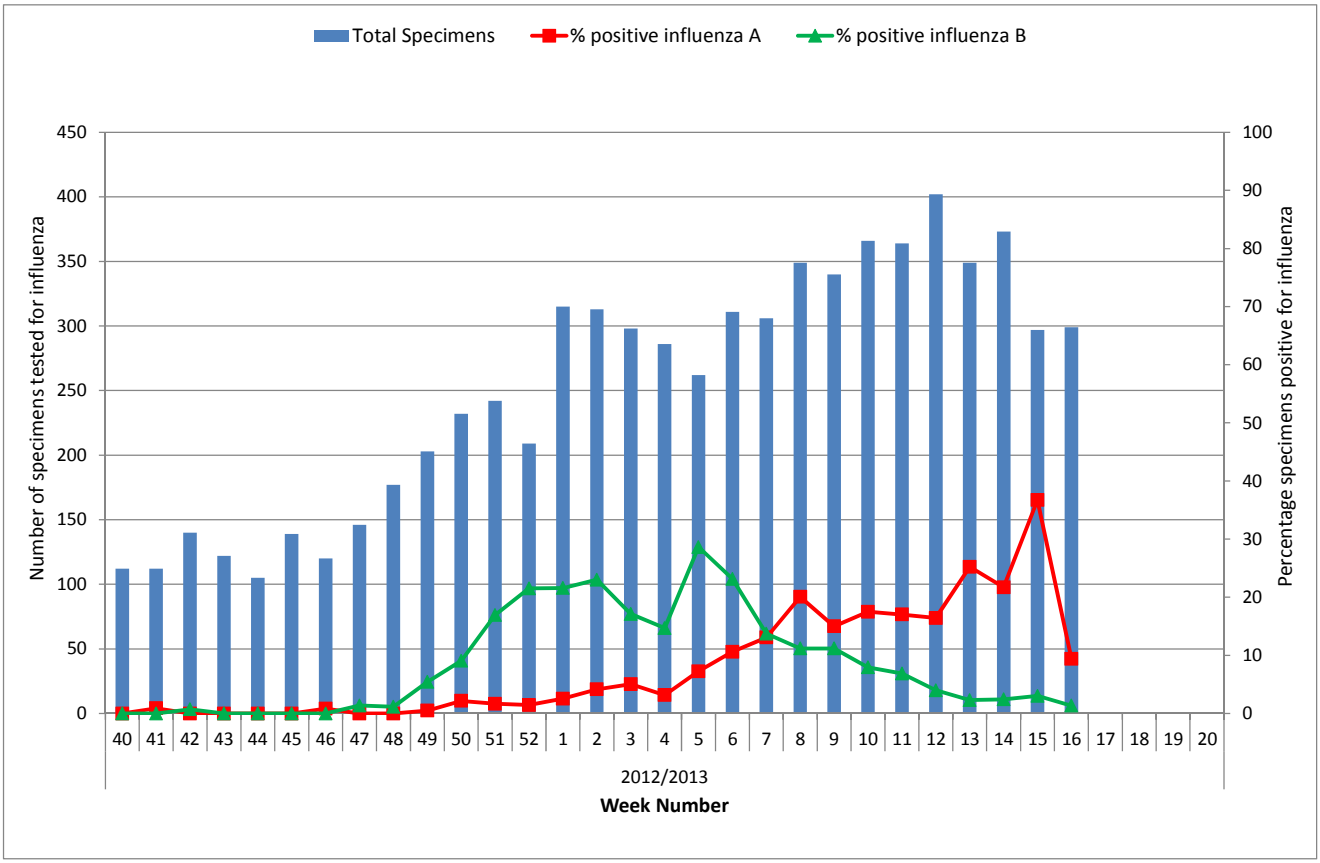

Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage of specimens tested positive for influenza A and B by week for the 2012/2013 influenza season. *Source: NVRL*

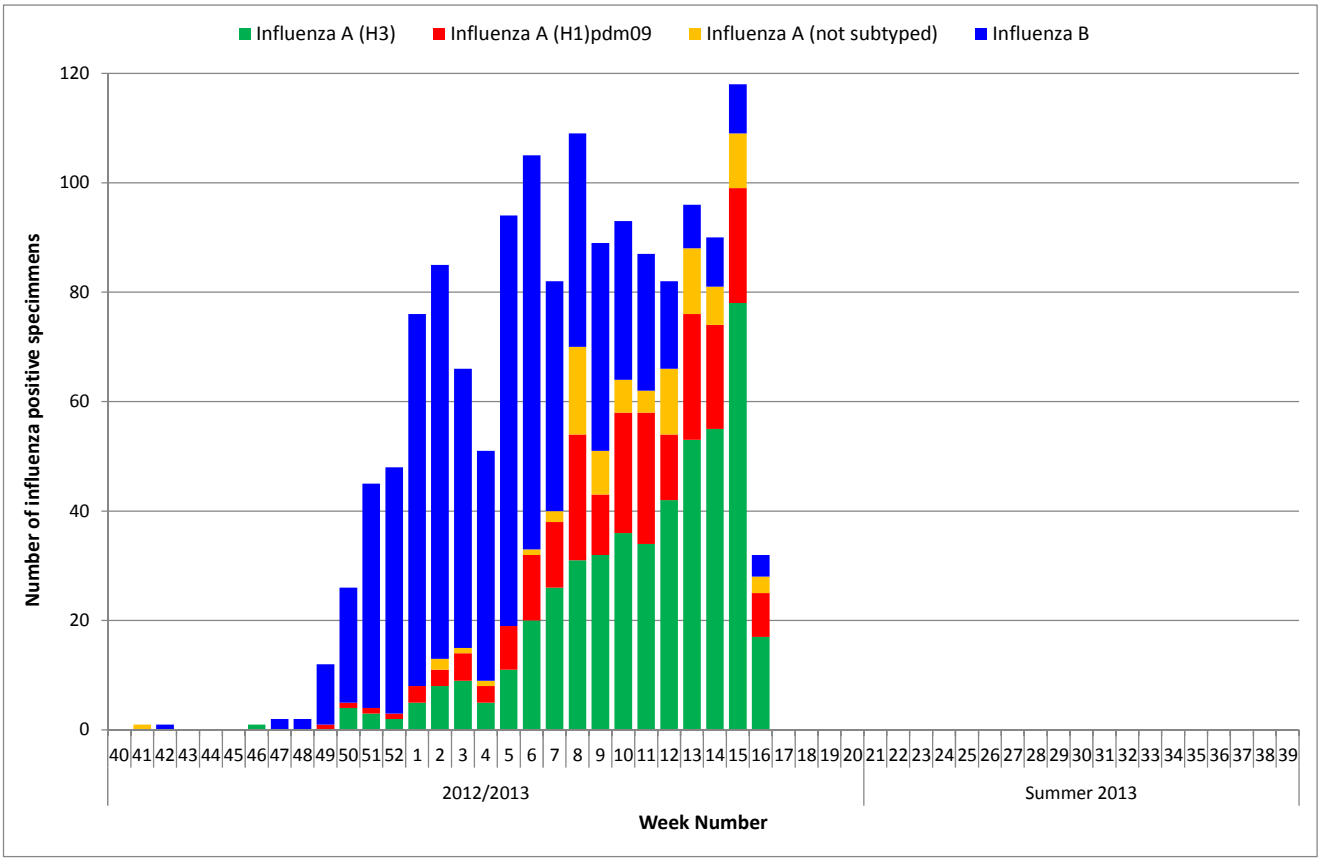

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2012/2013 influenza season. *Source: NVRL*

Respiratory Syncytial Virus (RSV)

Respiratory syncytial virus (RSV) positivity reported from the NVRL (non-sentinel sources) remained at low levels at 0.3% (1/291) during week 16 2013. RSV positivity peaked at 36.7% during week 51 2012 (figure 5). Sporadic cases of RSV have been detected this season from sentinel GP sources (table 2).

RSV was made notifiable in Ireland on 1st January 2012. During week 16 2013, 13 laboratory notifications of RSV were reported on Ireland's Computerised Infectious Disease Reporting System (CIDR). Laboratory notifications of RSV are reported in more detail in the Weekly Infectious Disease Report for Ireland.

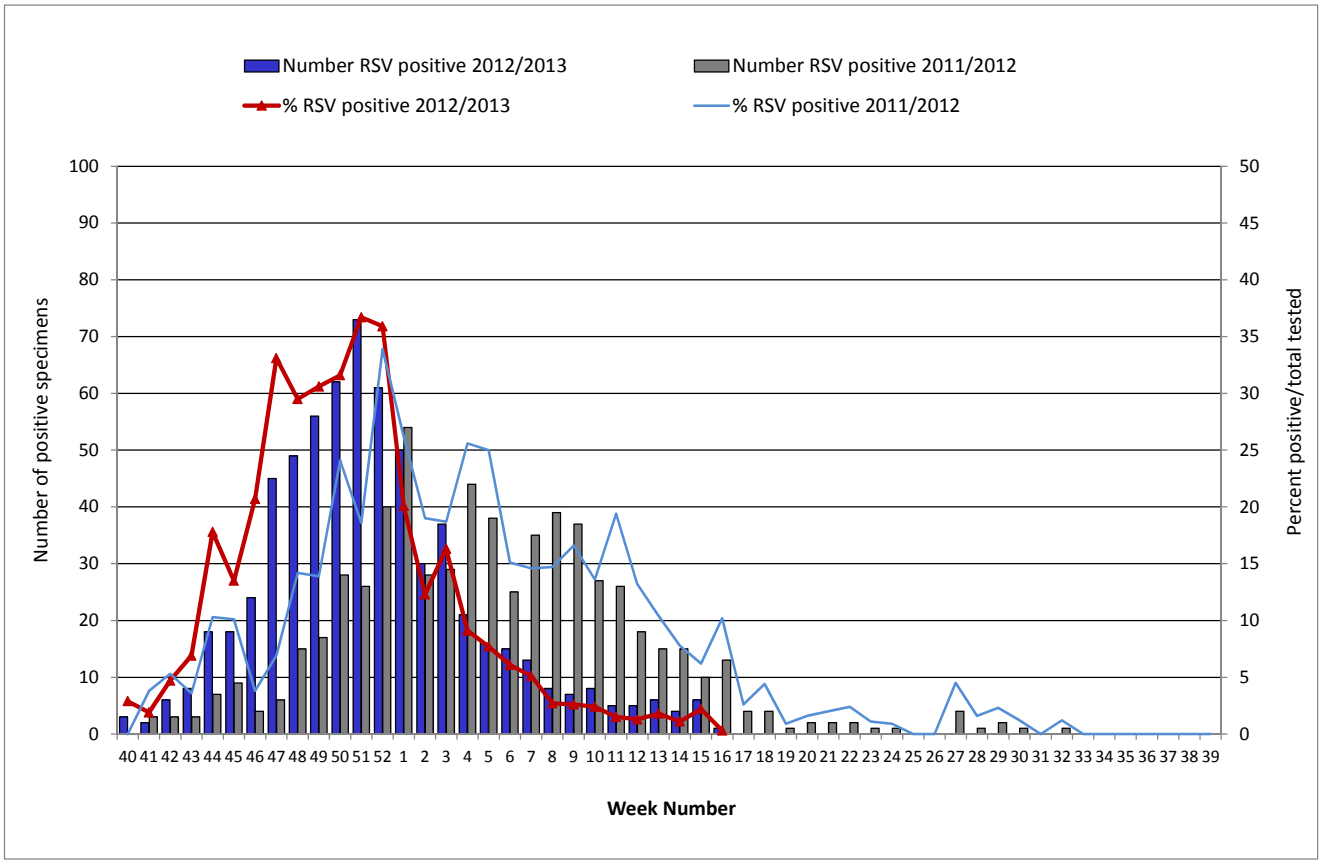

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2012/2013 season, compared to the 2011/2012 season. *Source: NVRL*

Other Respiratory Viruses

Five adenovirus, nine parainfluenza virus (PIV) type 3 and four human metapneumovirus (hMPV) positive specimens from non-sentinel sources were reported by the NVRL during week 16 2013. No adenovirus, parainfluenza viruses or hMPV positive detections were reported by the NVRL from sentinel GP sources during week 16 2013 (table 2).

Table 1: Number of sentinel and non-sentinel[§] respiratory specimens tested by the NVRL and positive influenza results, for week 16 2013 and the 2012/2013 season to date. *Source: NVRL*

Week	Specimen type	Total tested	Number influenza positive	% Influenza positive	Influenza A				Influenza B
					A (H1)pdm09	A (H3)	A (unsubtyped)	Total influenza A	
16 2013	Sentinel	8	1	12.5	0	1	0	1	0
	Non-sentinel	291	31	10.7	8	16	3	27	4
	Total	**299**	**32**	**10.7**	**8**	**17**	**3**	**28**	**4**
2012/2013	Sentinel	905	507	56.0	51	86	9	146	361
	Non-sentinel	6384	986	15.4	162	386	77	625	361
	Total	**7289**	**1493**	**20.5**	**213**	**472**	**86**	**771**	**722**

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 16 2013 and the 2012/2013 season to date. *Source: NVRL*

Week	Specimen type	Total tested	RSV	% RSV	Adenovirus	% Adenovirus	PIV-1	% PIV-1	PIV-2	% PIV-2	PIV-3	% PIV-3	hMPV	% hMPV
16 2013	Sentinel	8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	291	1	0.3	5	1.7	0	0.0	0	0.0	9	3.1	4	1.4
	Total	**299**	**1**	**0.3**	**5**	**1.7**	**0**	**0.0**	**0**	**0.0**	**9**	**3.0**	**4**	**1.3**
2012/2013	Sentinel	905	14	1.5	26	2.9	1	0.1	0	0.0	2	0.2	11	1.2
	Non-sentinel	6384	657	10.3	125	2.0	2	0.0	3	0.0	167	2.6	129	2.0
	Total	**7289**	**671**	**9.2**	**151**	**2.1**	**3**	**0.0**	**3**	**0.0**	**169**	**2.3**	**140**	**1.9**

[§]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 based on sentinel GP ILI consultation rates, laboratory confirmed influenza cases and ILI/influenza outbreaks. Localised influenza activity was reported from HSE-E, -M, -MW, -SE and -S and sporadic influenza activity was reported in HSE-NE, -NW and –W during week 16 2013 (figure 6).

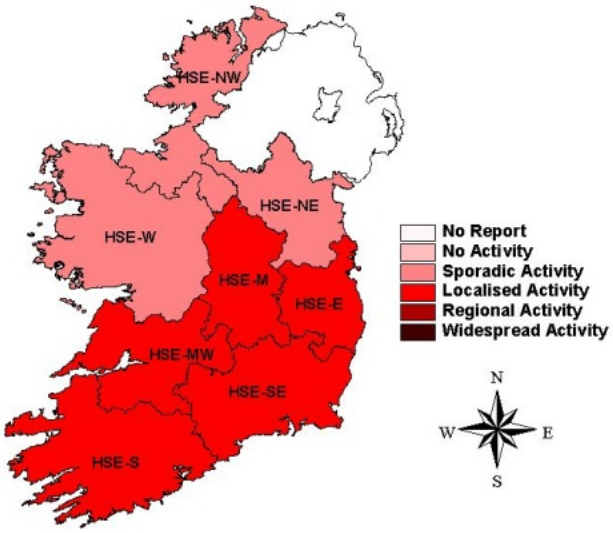

Figure 6: Map of provisional influenza activity by HSE-Area during week 16 2013

Sentinel Hospitals – Admissions Data

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. Hospital admissions data act as a crude indicator for influenza activity. Overall, the total number of respiratory admissions reported from sentinel hospitals was 84 during week 16 2013, a decrease compared to 246 during week 15 2013. It should be noted that data for week 16 2013 were incomplete. To date this season, hospital respiratory admissions peaked at 413 during week 50 2012 (figure 7).

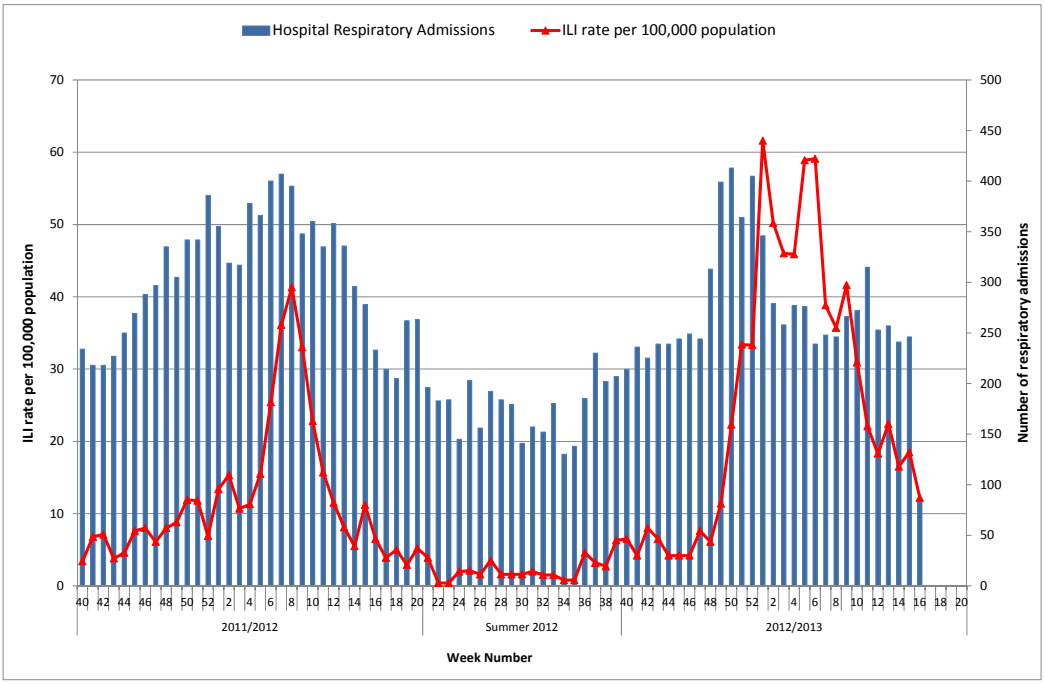

Figure 7: Number of respiratory admissions reported from sentinel hospitals and national sentinel GP ILI consultation rate per 100,000 population by week for the 2011/2012 season, summer 2012 and the 2012/2013 season to date. *Source: Departments of Public Health - Sentinel Hospitals & ICGP.*

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 during week 16 2013 decreased to 1.5%, compared to the updated proportion of 2.1% in the previous week. Five GP Out-of-Hours services reported during week 16 2013. To date this season, the proportion of influenza–related calls to GP Out-of-Hours services peaked at 6.0% during week 1 2013 (figure 8).

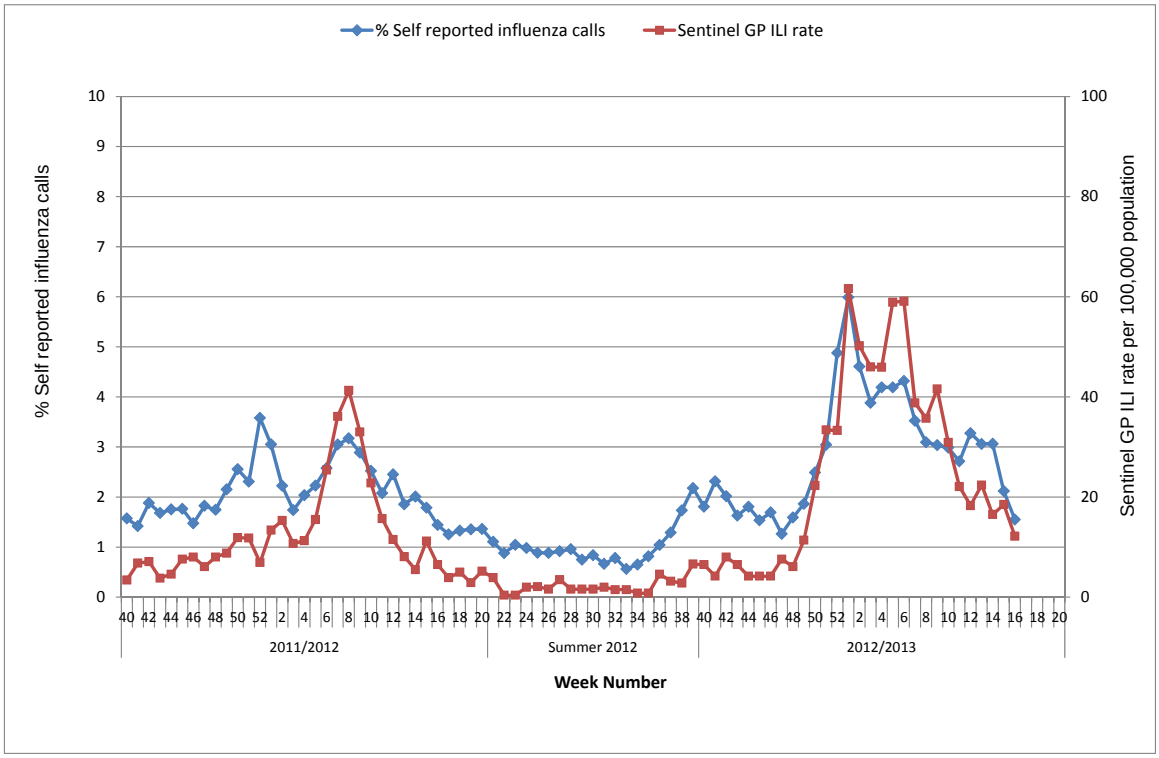

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2011/2012 and 2012/2013 seasons
Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

5. Influenza notifications and hospitalisation status

Laboratory confirmed influenza cases notified on Ireland's Computerised Infectious Disease Reporting System (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. Seventy-eight laboratory confirmed influenza cases were notified during week 16 2013, a significant decrease compared to 140 notifications during week 15 2013. Of the 78 cases reported during week 16 2013, 68 were associated with influenza A (32 A(H3), 14 A(H1)pdm09 & 22 A(not subtyped)) and 10 with influenza B. The number of confirmed influenza cases reported as hospitalised during week 16 2013 was 19, compared to 40 during week 15 2013. Of the 19 cases reported as hospitalised during week 16 2013, all were associated with influenza A: 4 A(H3), 6 A(H1)pdm09 & 9 A(not subtyped). To date this season, 419 confirmed influenza cases (212 influenza B, 92 influenza A(H3), 65 A(H1)pdm09 and 50 influenza A (not subtyped)) have been reported as hospitalised, 49.4% of these cases were associated with influenza A and 50.6% were associated with influenza B.

6. Critical care surveillance

The Intensive Care Society of Ireland (ICSI) are continuing with the enhanced surveillance system set up during the 2009 pandemic, on all critical care patients with confirmed influenza. A study on severe acute respiratory infections (SARI) in critical care at two pilot ICU sites which commenced during the 2011/2012 season will continue during the 2012/2013 season. HPSC process and report on this information on behalf of the regional Directors of Public Health/Medical Officers of Health and ICSI. To date this season, 25 adults and 10 paediatric confirmed influenza cases have been admitted to critical care. Of these 35 cases, 15 were associated with influenza B, 13 with influenza A (H1)pdm09, five influenza A (H3) and two with influenza A (not subtyped). Thirty-two RSV paediatric cases were also admitted to critical care this season. The majority (90.6%) of these reported RSV admissions to critical care were admitted during November and December 2012.

7. Mortality surveillance

To date this season, eight influenza associated deaths have been reported to HPSC, two associated with influenza A(H3), one influenza A (H1)pdm09, two with influenza A (not subtyped) and three associated with influenza B. Influenza-associated deaths include all deaths where influenza is reported as the primary/main cause of death by the physician or if influenza is listed anywhere on the death certificate as the cause of death. HPSC receives daily mortality data from the General Register Office (GRO) on all deaths from all causes registered in Ireland. These data have been used to monitor excess all-cause and influenza and pneumonia deaths as part of the influenza surveillance system and the European Mortality Monitoring Project (Euro MoMo). During week 16 2013, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm. However, during weeks 45 and 50-52 2012 and weeks 1, 2, 4-6, 9-11 and 14 2013, excess all-cause mortality was reported. These data are provisional due to the time delay in deaths' registration in Ireland. http://www.euromomo.eu/

8. Outbreak surveillance

Six new acute respiratory outbreaks were reported to HPSC during week 16 2013, three associated with influenza A (H3), one associated with influenza A (not subtyped), one ILI outbreak and one associated with PIV-3, all were in residential care facilities/community hospitals/long stay units. To date this influenza season, 79 acute respiratory outbreaks have been reported to HPSC, 59 outbreaks were associated with influenza [46 influenza A (33 A(H3), 3 A(H1)pdm09 and 10 A(not subtyped)), 11 influenza B, two with both influenza A and B co-circulating], one outbreak was associated with RSV, four with hMPV, one with parainfluenza virus type 3 and 14 associated with unidentified pathogens. The majority of these outbreaks have been associated with residential care facilities/long stay units for the elderly. It should be noted that family outbreaks are not recorded in this report. The number of influenza/ILI outbreaks reported to HPSC is shown in figure 9.

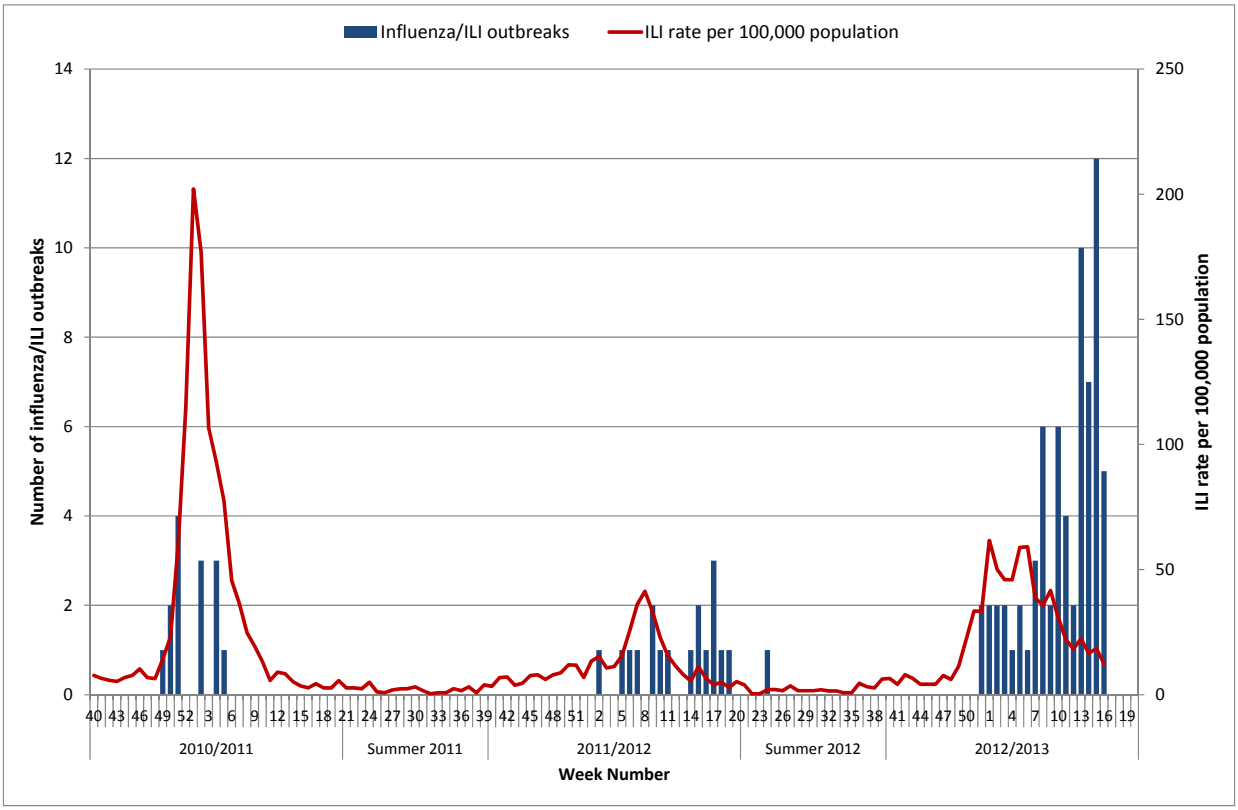

Figure 9: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. *Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.*

9. International summary

Europe

In Europe, influenza activity continued to decline or has already returned to baseline levels. After more than three months of active influenza transmission, the 2012/2013 influenza season is waning and moving towards its end. Twenty-five of 28 reporting countries indicated low-intensity influenza transmission during week 15 2013. Decreasing or stable trends were reported by all reporting countries. The proportion of influenza-positive sentinel specimens (34%) has continued to decrease since the peak observed in week 5 2013 (61%), in line with the lower numbers of specimens being tested. Since week 40 2012, 47% of sentinel surveillance specimens testing positive for influenza virus were influenza A and 53% were influenza B. Of the influenza A viruses subtyped, the proportion of A(H1)pdm09 viruses was 64%. Cumulative winter excess mortality among older people (cumulated from week 40 2012 to week 15 2013) showed excess mortality levels comparable to levels reported during the 2011/2012 winter season. The mortality pattern may be explained by the pattern of influenza activity this season in Europe, but other factors such as the long, cold winter may also have played a role. The viruses circulating this season remain well matched with the vaccine viruses for the 2012/2013 season. However, observational studies indicate that adjusted vaccine effectiveness is in the range 50–60% (see I-MOVE Report).

Worldwide

The WHO Global Influenza Programme monitors influenza activity worldwide and publishes an update every two weeks. The most recent update of 12th April 2013, stated that influenza activity in North America appears to have declined during the last week of March since peaking in early January in Canada and the United States of America and approximately two weeks later in Mexico. Proportionally influenza B activity increased, although influenza A(H3N2) was the most commonly detected virus in North America overall for this season. Influenza activity continued to decline in Europe in general. The proportions of influenza A and B viruses circulating were not uniform across the continent and have changed throughout the season. Influenza B was mainly reported in western and northern countries and influenza A in eastern and central Europe. To date this season, excess mortality in most countries has been moderate and most deaths occurred among people aged 65 and older with no excess mortality in younger age groups. Influenza activity throughout the temperate region of Asia decreased overall with the exception of China and the Republic of Korea, which have reported sustained activity. Low levels of influenza activity continued to be reported across the tropical regions of the world and activity in countries of the southern hemisphere remained at inter-seasonal levels. Since the start of the season a few viruses with reduced susceptibility to neuraminidase inhibitors have been detected in the countries performing antiviral resistance testing. The majority of characterised influenza viruses were antigenically similar to the 2012/2013 northern hemisphere vaccine viruses.

Human Avian Influenza and Novel Coronavirus Updates

Influenza A(H5N1)

WHO report monthly risk assessments on influenza at the human-animal interface (HAI). The latest summary on 12th March 2013, stated that 622 laboratory-confirmed human cases with avian influenza A(H5N1) virus infection have been officially reported to WHO since 2003 from 15 countries, of which 371 died.

Influenza A(H7N9)

As of 23rd April 2013, 108 cases of human infection with influenza A(H7N9) in China, including 22 deaths, have been reported by WHO. Investigations into the possible sources of infection and reservoirs of the virus are ongoing. Until the source of infection has been identified, it is expected that there will be further cases of human infection with the virus in China. So far, there is no evidence of ongoing human-to-human transmission. For up to date information on the current case numbers and the WHO assessment of the situation please see here. The European Centre for Disease Prevention and Control has published a rapid risk assessment of the situation, see here.

Novel Coronavirus

To date, WHO has been informed of a global total of 17 confirmed cases of human infection with novel coronavirus (nCoV), including 11 deaths. Based on the current situation and available information, WHO encourages all Member States (MS) to continue their surveillance for severe acute respiratory infections (SARI) and to carefully review any unusual patterns. WHO is currently working with international experts and countries where cases have been reported to assess the situation and review recommendations for surveillance and monitoring. Further information is available on the WHO website and ECDC website.

2013/2014 seasonal influenza vaccine recommendations – WHO

The WHO Consultation on the Composition of Influenza Virus Vaccines for the Northern Hemisphere 2013/2014 took place on the 21st February 2013. It is recommended that vaccines for use in the 2013/2014 influenza season (northern hemisphere winter) contain the following:

- an A/California/7/2009 (H1N1)pdm09-like virus;
- an A(H3N2) virus antigenically like the cell-propagated prototype virus A/Victoria/361/2011;
- a B/Massachusetts/2/2012-like virus (Yamagata lineage).

Further details on these recommendations can be found here.

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 and enhanced surveillance of all severe acute respiratory infections (SARI) in two pilot ICU sites.
7. Outbreak reporting on CIDR
8. Network of sentinel hospitals reporting admission data

Further information on influenza in Ireland and internationally

Ireland	www.hpsc.ie
Northern Ireland	http://www.fluawareni.info/
Europe – ECDC	http://ecdc.europa.eu/
Public Health England	http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/
United States CDC	http://www.cdc.gov/flu/weekly/fluactivitysurv.htm
Public Health Agency of Canada	http://www.phac-aspc.gc.ca/fluwatch/12-13/index-eng.php

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