

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 14 2013 (1st – 7th April 2013)



 **Intensive Care Society of Ireland**

Summary

- **Influenza activity in Ireland decreased during week 14 2013; however influenza continued to circulate associated with on-going outbreaks particularly in residential care facilities.**
- The sentinel GP influenza-like illness (ILI) consultation rate was 15.3 per 100,000 population in week 14 2013, a decrease compared to the updated rate of 21.9 per 100,000 during week 13 2013.
 - ♦ The ILI consultation rate was below the Irish baseline threshold (21.0 per 100,000 population).
 - ♦ ILI age specific rates were low in all age groups
- The proportion of influenza-related calls to GP Out-of-Hours services remained stable during week 14 2013, compared to the previous week.
- Influenza positivity decreased during week 14 2013 to 19.9%, compared to 27.5% during the previous week. Thirty-six influenza A(H3), 14 influenza A(H1)pdm09, 5 influenza A (unsubtyped) and 4 influenza B positive specimens were reported from the NVRL for week 14 2013.
 - Influenza A(H3) was the predominant influenza virus circulating during week 14 2013.
- Positivity levels for parainfluenza virus type 3 and human metapneumovirus increased slightly during week 14 2013. Respiratory syncytial virus (RSV) positivity remained at low levels during week 14 2013.
- During week 14 2013, 14 confirmed influenza cases were reported as hospitalised, 12 associated with influenza A and 2 with influenza B. To date this season, 357 confirmed influenza cases were reported as hospitalised, 56.9% were associated with influenza B.
- Twenty-three adult and ten paediatric confirmed influenza cases have been admitted to critical care to date this season. Of these 33 cases, 15 were associated with influenza B, 12 with influenza A (H1)pdm09, five influenza A (H3) and one with influenza A (unsubtyped). Thirty-two RSV paediatric cases were also admitted to critical care this season.
- To date this season, six confirmed influenza associated deaths have been reported to HPSC, two associated with influenza A(H3), two with influenza A (unsubtyped) and two associated with influenza B.
- Eight new acute respiratory outbreaks were reported to HPSC during week 14 2013. To date this season, 63 acute respiratory outbreaks were reported to HPSC.
- In Europe, influenza activity continued to decline or return to baseline levels during week 13 2013.
- Twenty-eight cases of human infection with influenza A(H7N9) in China have been reported by WHO, including nine deaths, 14 severe cases and five mild cases.
 - 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](#).

1. GP sentinel surveillance system

Clinical Data

During week 14 2013, 36 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 15.3 per 100,000 population, a decrease compared to the updated rate of 21.9 per 100,000 in week 13 2013. Fifty-two of 60 (86.7%) sentinel general practices provided data during week 14 2013, with 17 practices (32.7%) reporting ILI cases. The ILI consultation rate was below the Irish baseline threshold (21.0 per 100,000 population)* during week 14 2013. Figure 1 shows the ILI consultation rates, the baseline threshold rate and the number of positive specimens detected by the NVRL.

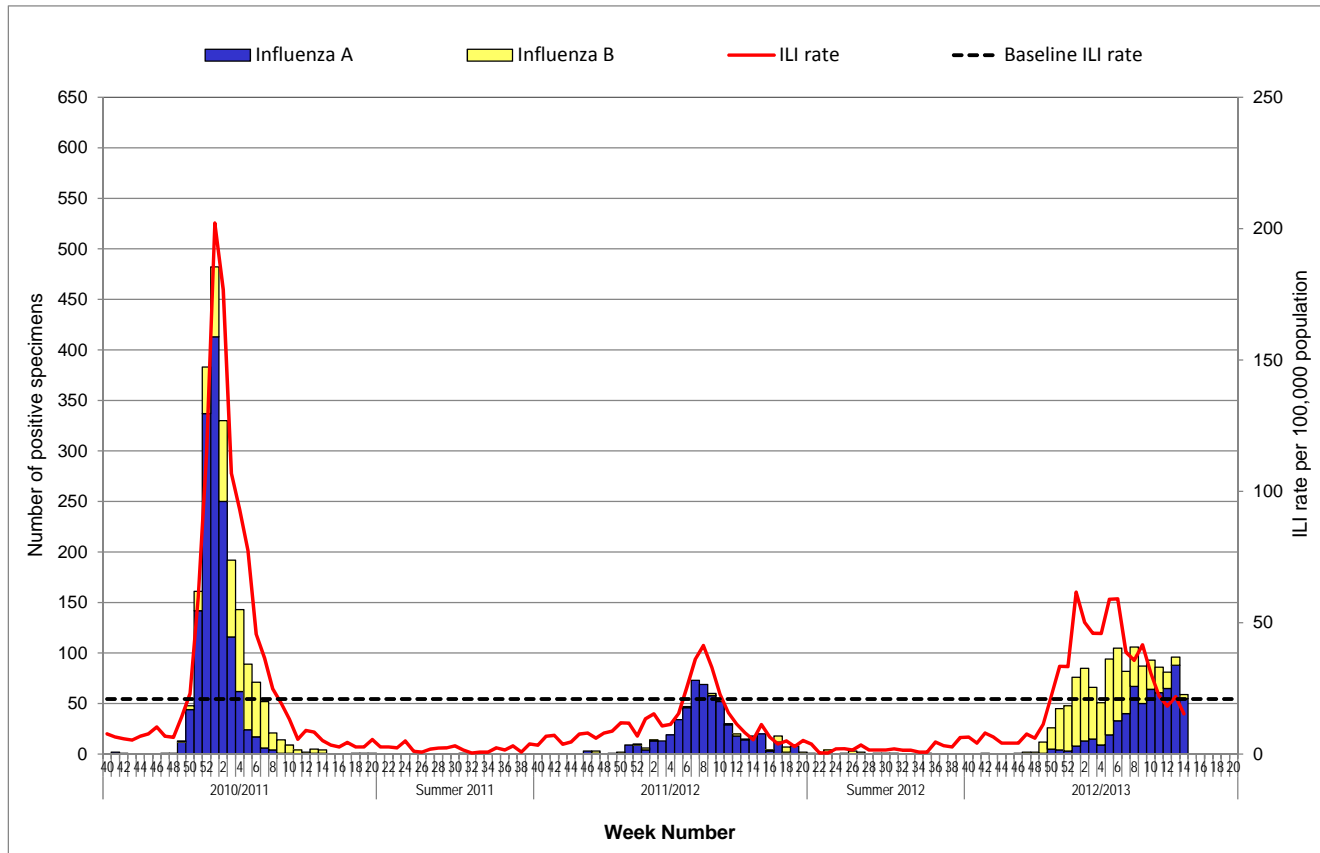


Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

Source: Clinical ILI data from ICGP and virological data from the NVRL[†]

ILI age specific rates were at low levels in all age groups during week 14 2013. One ILI case was reported in the 0-4 year age group (5.5 per 100,000), 5 ILI cases were reported in the 5-14 year age group (15.7 per 100,000), 28 cases in the 15-64 year age group (17.8 per 100,000) and 2 ILI cases were reported in those aged 65 years and older (7.3 per 100,000) during week 14 2013 (figure 2).

* HPSIC 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.

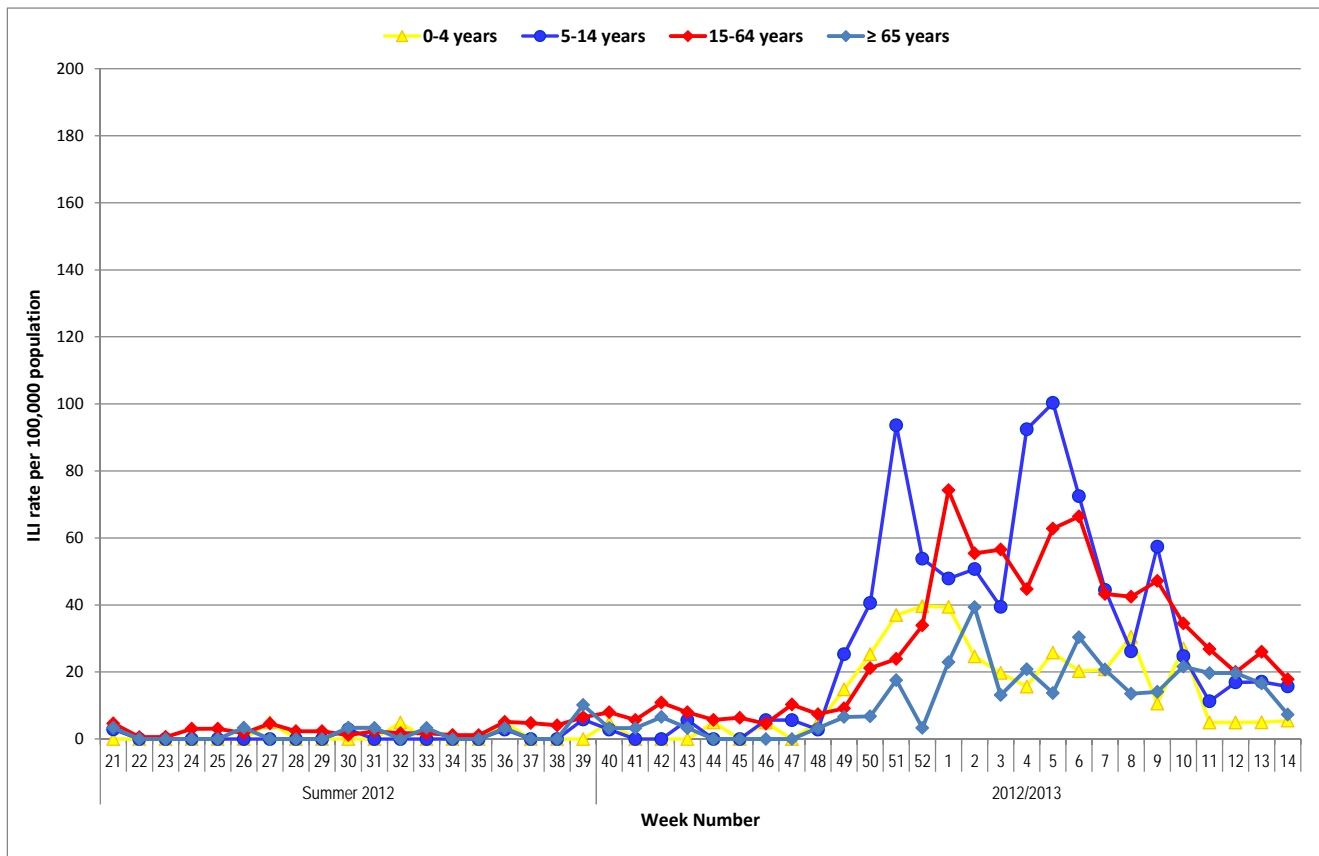


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2012 and the 2012/2013 influenza season to date. Source: ICGP ILI clinical data

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 14 2013, a total of 297 specimens (8 sentinel and 289 non-sentinel[‡] specimens) were tested by the NVRL. Fifty-nine (59/297; 19.9%) sentinel and non-sentinel specimens tested positive for influenza virus during week 14 2013: 36 A(H3), 14 A(H1)pdm09, 5 A (unsubtyped) and 4 B. Two (2/8; 25.0%) sentinel specimens tested positive for influenza virus during week 14 2013: 2 A(H1)pdm09. Fifty-seven (57/289; 19.7%) non-sentinel specimens tested positive for influenza virus during week 14 2013: 36 A(H3), 12 A(H1)pdm09, 5 A (unsubtyped) and 4 B (tables 1 & 2). Influenza A(H3) was the predominant influenza virus circulating during week 14 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 have dominated the 2012/2013 influenza season in Ireland, although influenza A(H3N2) and influenza A(H1N1)pdm09 viruses have also been circulating. The National Virus Reference Laboratory (NVRL) has genetically characterised 32 influenza viruses this season. Of twenty-four influenza B viruses analysed, twenty-one (87.5%) belong to the B/Yamagata lineage (which is included in the 2012/2013 influenza vaccine) and three (12.5%) belong to the B/Victoria lineage. Seven influenza A(H3N2) viruses were genetically characterised and were similar to the vaccine strain A/Victoria/361/2011. Sequence analysis of one influenza A(H1N1)pdm09 virus identified it was 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 characterisation of influenza strains. These viruses have been submitted for further antigenic characterisation and confirmatory testing.

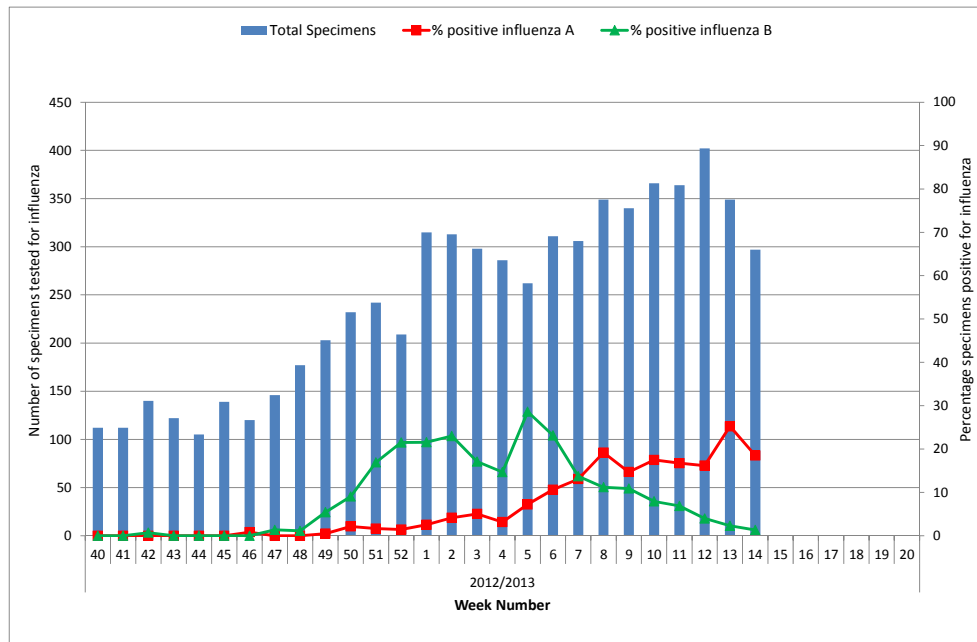


Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage of specimens tested positive for influenza A and B by week for the 2012/2013 influenza season. *Source: NVRL*

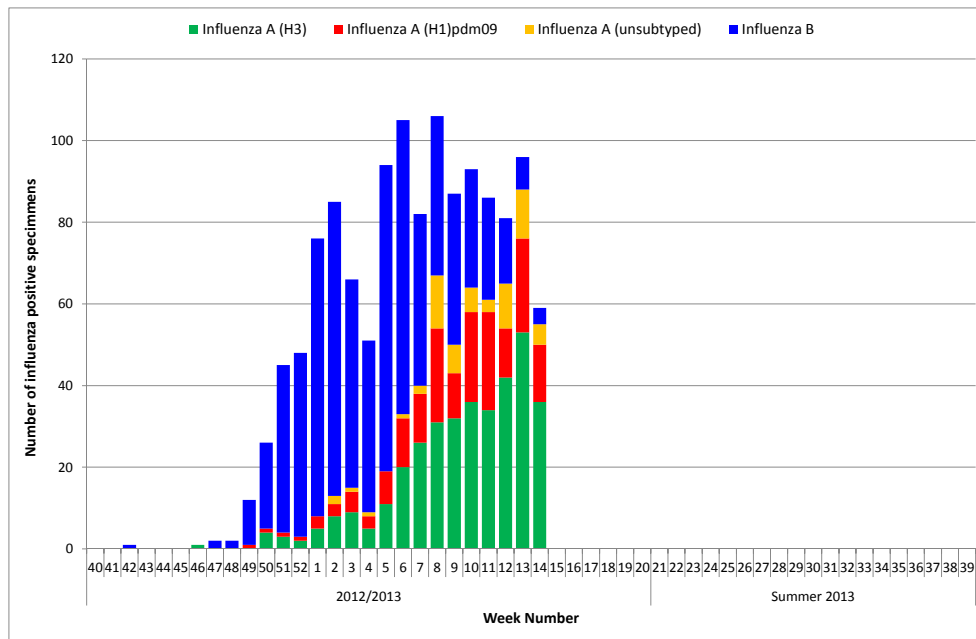


Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2012/2013 influenza season. Source: NVRL

Respiratory Syncytial Virus (RSV)

Respiratory syncytial virus (RSV) positivity reported from the NVRL (non-sentinel sources) remained at low levels at 0.7% (2/289) during week 14 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 14 2013, 16 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](#).

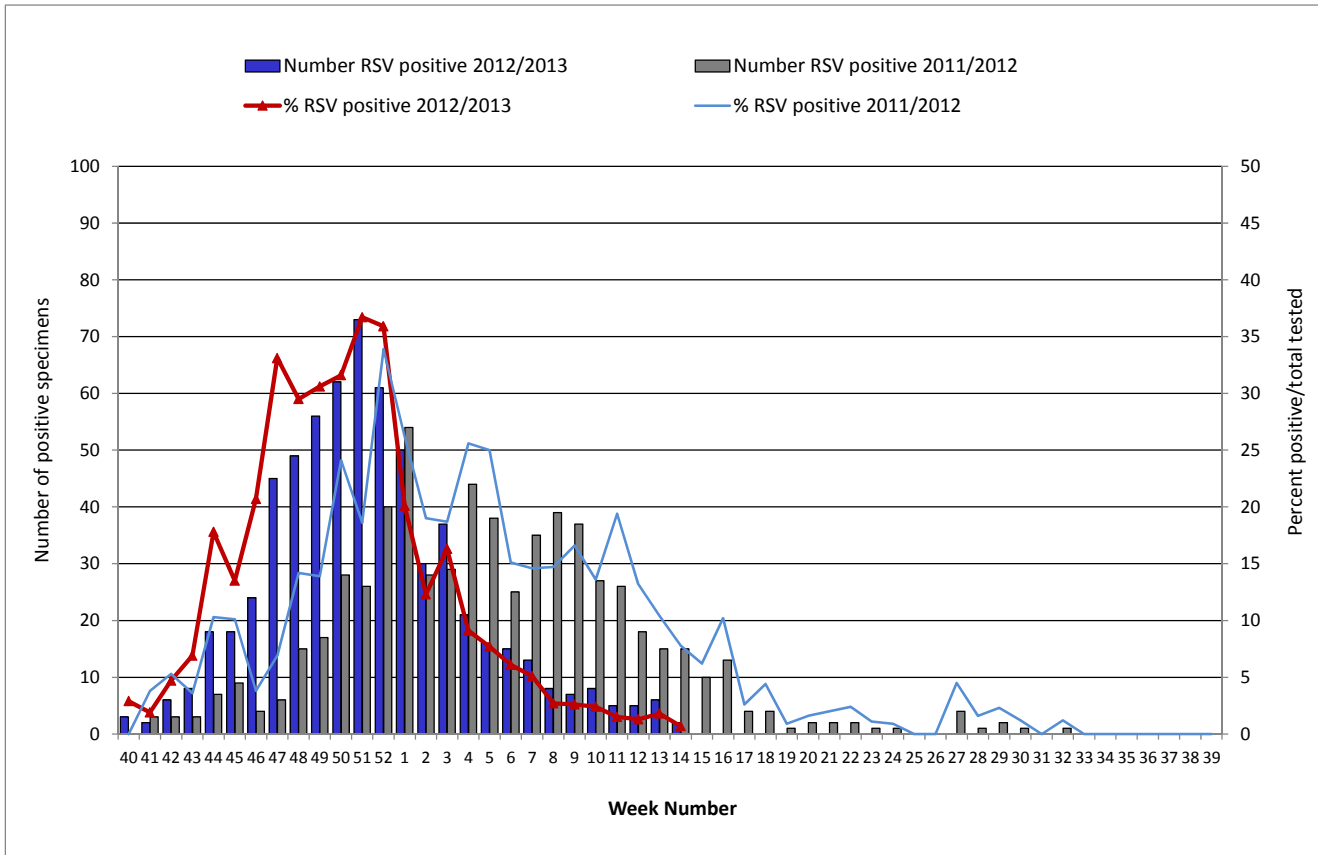


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2012/2013 season, compared to the 2011/2012 season. Source: NVRL

Other Respiratory Viruses

Five adenovirus, 19 parainfluenza virus (PIV) type 3 and 13 human metapneumovirus (hMPV) positive specimens from non-sentinel sources were reported from the NVRL during week 14 2013. No adenovirus, parainfluenza viruses or hMPV positive detections were reported from the NVRL from sentinel GP sources during week 14 2013 (table 2). Positivity levels for hMPV and PIV-3 were at slightly elevated levels during week 14 2013.

Table 1: Number of sentinel and non-sentinel[§] respiratory specimens tested by the NVRL and positive influenza results, for week 14 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	
14 2013	Sentinel	8	2	25.0	2	0	0	2	0
	Non-sentinel	289	57	19.7	12	36	5	53	4
	Total	297	59	19.9	14	36	5	55	4
2012/2013	Sentinel	870	483	55.5	49	76	2	127	356
	Non-sentinel	5747	821	14.3	130	282	62	474	347
	Total	6617	1304	19.7	179	358	64	601	703

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 14 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
14 2013	Sentinel	8	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	289	2	0.7	5	1.7	0	0.0	0	0.0	19	6.6	13	4.5
	Total	297	2	0.7	5	1.7	0	0.0	0	0.0	19	6.4	13	4.4
2012/2013	Sentinel	870	14	1.6	24	2.8	1	0.1	0	0.0	2	0.2	11	1.3
	Non-sentinel	5747	648	11.3	109	1.9	2	0.0	3	0.1	141	2.5	115	2.0
	Total	6617	662	10.0	133	2.0	3	0.0	3	0.0	143	2.2	126	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 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.

Regional influenza activity was reported from HSE-E, localised influenza activity was reported in HSE-MW, -NE, -NW, and -S and sporadic influenza activity was reported from all other HSE-Areas (HSE-M, -SE and -W) during week 14 2013 (figure 6). Regional and localised influenza activity reported during week 14 2013 was mainly associated with ongoing influenza/ILI outbreaks in residential institutions.

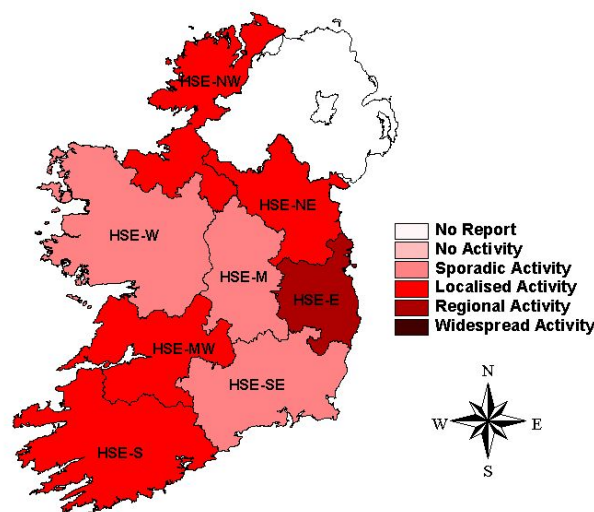


Figure 6: Map of provisional influenza activity by HSE-Area during week 14 2013

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 227 during week 14 2013, a decrease compared to 251 during week 13 2013. Data from the sentinel hospital in HSE-SE was unavailable during weeks 13 and 14 2013. To date this season, hospital respiratory admissions peaked at 413 during week 50 2012 (figure 7).

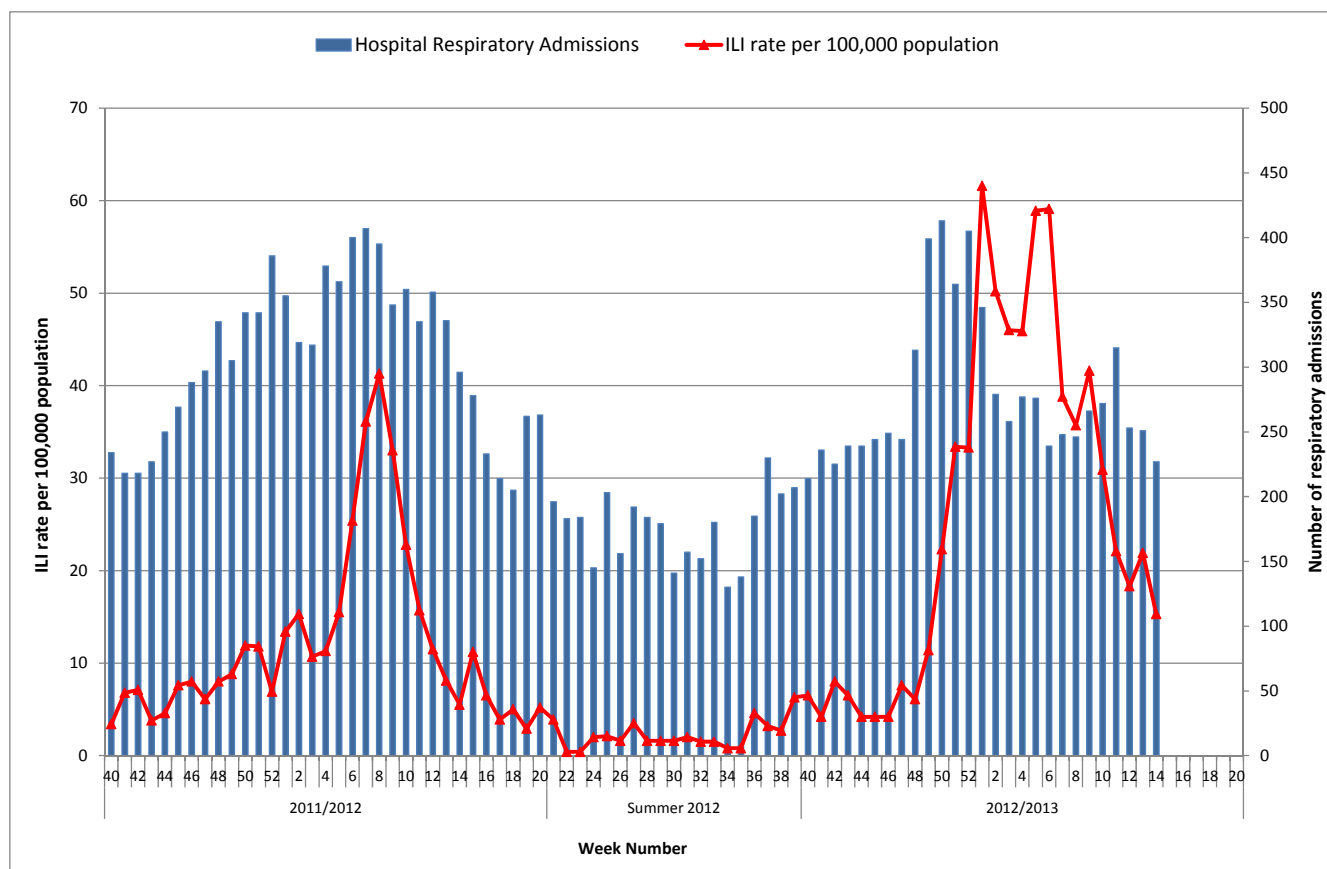


Figure 7: Number of respiratory admissions reported from sentinel hospitals and national sentinel GP ILI consultation rate per 100,000 population by week for the 2011/2012 season, summer 2012 and the 2012/2013 season to date.
Source: Departments of Public Health - Sentinel Hospitals & ICGP.

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 14 2013 remained stable at 3.1%, compared to the updated proportion of 3.1% in the previous week. Six GP Out-of-Hours services reported during week 14 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).

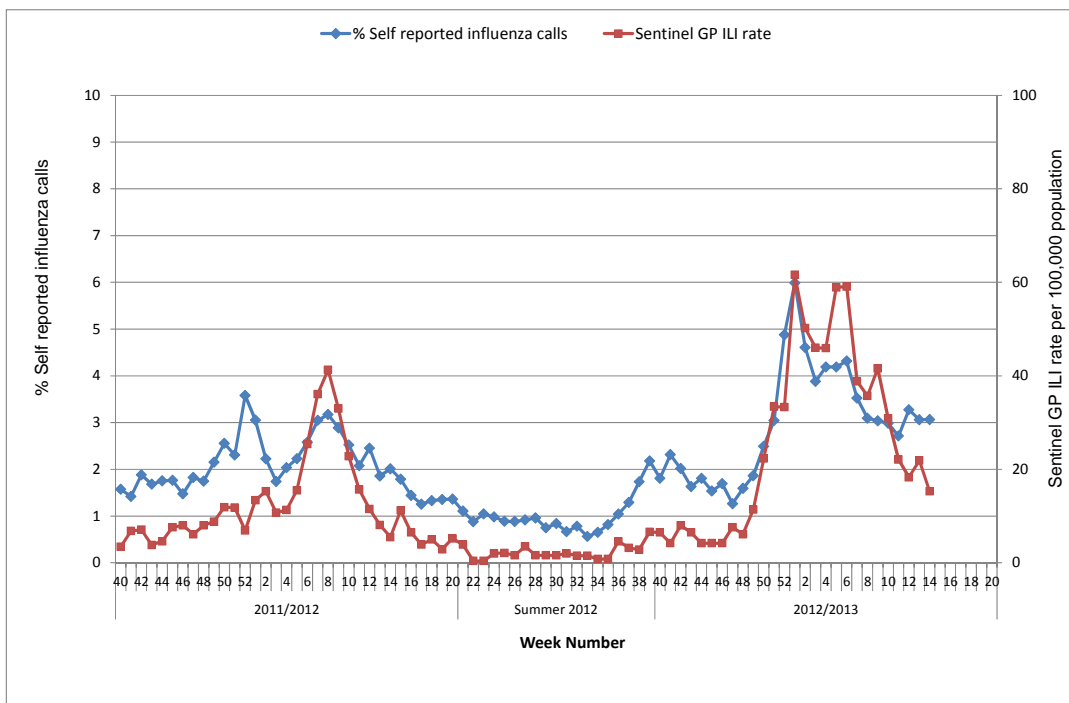


Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and national sentinel GP ILI consultation rate per 100,000 population by week for the 2011/2012 and 2012/2013 seasons

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.

Sixty-five laboratory confirmed influenza cases were notified during week 14 2013, a decrease compared to 107 notifications during week 13 2013. Of the 65 cases reported during week 14 2013, 58 were associated with influenza A (31 A(H3), 12 A(H1)pdm09 & 15 A(unsubtyped)) and 7 with influenza B.

The number of confirmed influenza cases reported as hospitalised during week 14 2013 was 14, compared to 28 during week 13 2013. Of the 14 cases reported as hospitalised during week 14 2013, 12 were associated with influenza A (6 A(H3), 2 A(H1)pdm09 & 4 A(unsubtyped)) and 2 were associated with influenza B. To date this season, 357 confirmed influenza cases (203 influenza B, 71 influenza A (H3), 53 A (H1)pdm09 and 30 influenza A (unsubtyped)) have been reported as hospitalised, 56.9% of these cases 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, 23 adult and 10 paediatric confirmed influenza cases have been admitted to critical care. Of these 33 cases, 15 were associated with influenza B, 12 with influenza A (H1)pdm09, 5 influenza A (H3) and one with influenza A (unsubtyped). 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, six influenza associated deaths have been reported to HPSC, two associated with influenza A(H3), two with influenza A (unsubtyped) and two 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 14 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, 50 and 52 2012 and weeks 1, 4, 5, 6 and 9 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

Eight new acute respiratory outbreaks were reported to HPSC during week 14 2013, seven associated with influenza A and one associated with hMPV and PIV-3, all were in residential institutions/long stay units. To date this influenza season, 63 acute respiratory outbreaks have been reported to HPSC, 29 outbreaks associated with influenza A (17 A H3, 2 A(H1)pdm09 and 10 A(unsubtyped), 11 with influenza B, three with influenza A and B, three RSV, three hMPV 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.

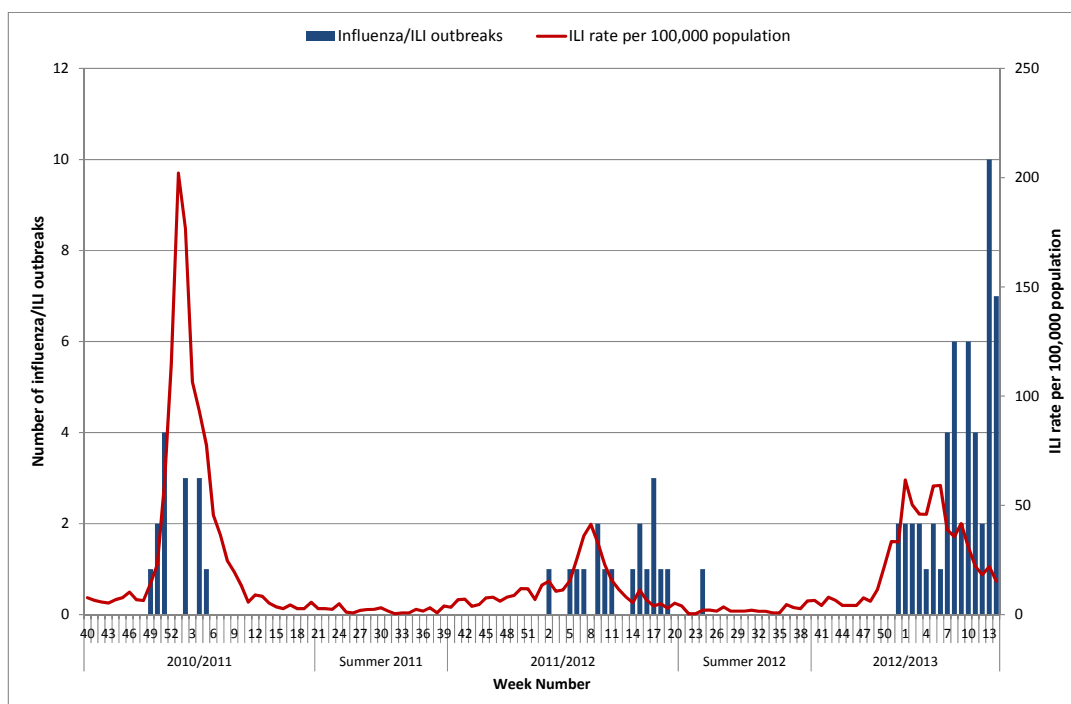


Figure 9: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.

9. International summary

United Kingdom

Influenza was continuing to circulate in the UK during week 14 2013. GP consultation rates for ILI remained low in all schemes in the UK. In week 14 2013, 92 (12.4%) of the 743 respiratory specimens reported to the English Respiratory Data Mart system were positive for influenza (75 A untyped, 41 A(H3), 10 A(H1N1)pdm09 and 10 B), compared to 16.0% in week 13. 18 new acute respiratory outbreaks have been reported in the past week across the UK (15 in care homes, two in hospitals and one in a school). Nine had a virological result available (7 influenza A(untyped), 1 B and 1 A(H1N1)pdm09). In week 14 2013, significant excess mortality above threshold levels was reported in 65+ year olds in England after correcting data for reporting delays with the standardised EuroMOMO algorithm.

Europe

In Europe, in all reporting countries, influenza activity continued to decline or return to baseline levels. The 2012/2013 influenza season is waning and slowly moving towards its close. Nineteen of 26 reporting countries indicated low-intensity of influenza transmission during week 13 2013. Decreasing or stable trends were reported by almost all reporting countries. The proportion of influenza-positive sentinel specimens remained high (40%) but has continued to decrease since the peak observed in week 5 2013 (61%) and with a considerably lower number of specimens tested. Since week 40 2012, 47% of sentinel specimens tested were positive for influenza A and 53% for influenza B. Of the influenza A viruses subtyped, the proportion of A(H1)pdm09 viruses was 63%. Thirty-two hospitalised laboratory-confirmed influenza cases were reported by six countries, including one fatality. Of the 1896 antigenic characterisations of influenza A viruses reported for sentinel and non-sentinel specimens since week 40 2012, 1213 (64%) have been characterised as A/Victoria/361/2011(H3N2)-like. Of the 1869 antigenic characterisations of influenza B viruses reported, 931 (50%) have been characterised as B/Estonia/55669/2011-like (B/Yamagata/16/88-lineage), and 408 (22%) as B/Wisconsin/1/2010-like. 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](#)).

United States of America

During week 13 2013, influenza activity decreased in the United States. The proportion of outpatient ILI visits was 1.8%, below the national baseline of 2.2%. Of 4909 specimens tested and reported by collaborating laboratories, 555 (11.3%) were positive for influenza. A cumulative rate for the season of 42.3 laboratory-confirmed influenza-associated hospitalisations per 100,000 population was reported. Of reported hospitalisations, 50% were among adults 65 years and older. The proportion of deaths attributed to pneumonia and influenza was below the epidemic threshold. CDC has antigenically characterised 1970 influenza viruses to date this season: 200 (98.5%) influenza A(H1N1)pdm09 viruses were similar to the vaccine strain A/California/7/2009-like, 1154 (99.7%) (H3N2) viruses were similar to the vaccine strain A/Victoria/361/2011-like, 426 (70.0%) influenza B viruses were similar to the vaccine strain B/Wisconsin/1/2010-like and 183 (30.0%) influenza B viruses were similar to the B/Victoria lineage of viruses.

Canada

In Canada, overall influenza activity continued to decline. The number of regions reporting widespread or localised influenza activity decreased in week 13. The ILI consultation rate increased slightly but was within the expected range for this time of year. Laboratory detections of influenza were similar to the past 2 weeks, and the proportion of influenza B continued to increase. During the 2012/2013 season, the National Microbiology Laboratory has antigenically characterised 902 influenza viruses. The 515 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 150 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 190 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 47 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011/2012 seasonal influenza vaccine).

Worldwide

The WHO Global Influenza Programme monitors influenza activity worldwide and publishes an update every two weeks. The most recent update of 2nd April 2013, stated that influenza activity in North America continued to decrease overall, though activity remained high in some areas. Proportionally influenza B increased although influenza A(H3N2) was the most commonly detected virus in North America overall for this season. In the United States of America this season has been more severe than any since 2003/2004 as reflected in numbers of pneumonia and influenza deaths with the highest impact for individuals over the age of 65 years. Influenza activity continued to decline in the most part of Western Europe, while it remained elevated in the eastern part of the region. The proportion of subtypes of viruses circulating was not uniform across the continent and has changed through the season. It has been notably different from North America with a mix of A(H3N2) and A(H1N1)pdm09 and B viruses. Influenza B mainly reported in western and northern countries and influenza A in eastern and central Europe. Excess mortality in most countries has been moderate and most deaths occurred among those aged 65 and older. Influenza activity throughout the temperate region of Asia decreased overall with the exception of Mongolia where activity levels were sustained but still within seasonal tolerance levels. 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 10th April 2013, 28 cases of human infection with influenza A(H7N9) in China, including nine deaths, 14 severe cases and five mild cases have been reported by WHO. To date there is no epidemiological link between the cases and there is currently no evidence of human-to-human transmission of the influenza A(H7N9) virus. 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. ECDC have issued an updated [risk assessment](#). 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/

Acknowledgements

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