Influenza Surveillance in Ireland – Weekly Report

Influenza Week 10 2014 (3rd – 9th March 2014)

Summary

- Influenza activity remained at elevated levels in Ireland during week 10 2014, with continuing reports of confirmed influenza hospital and ICU admissions and outbreaks. Influenza A(H3) is the predominant virus circulating, and is co-circulating with influenza A(H1)pdm09. Some indicators of influenza activity have started to decrease.
- Influenza-like illness (ILI): The sentinel GP ILI consultation rate was 49.1 per 100,000 population during week 10 2014, a slight decrease compared to the updated rate of 54.1 per 100,000 during week 9 2014.
    - ILI rates remain above the Irish baseline threshold (21.0 per 100,000 population), for the sixth consecutive week.
    - The highest age specific ILI rates during week 10 2014 were in the 0-4 and 15-64 year age groups.
- National Virus Reference Laboratory (NVRL): Influenza positivity decreased during week 10 2014, with 139 (24.8%) influenza positive specimens reported from the NVRL: 96 influenza A(H3), 33 influenza A(H1)pdm09, 8 influenza A (not subtyped) and 2 influenza B.
- Hospitalisation: 113 confirmed influenza hospitalised cases were reported to HPSC during week 10 2014, bringing the total number of hospitalised cases reported this season to 400.
    - The highest age specific rates for confirmed influenza cases admitted to hospital were in those aged less than 1 year and those aged 65 years and older.
- ICU admissions: 62 confirmed influenza cases were admitted to ICU and reported to HPSC to date this season, 30 associated with influenza A(H1)pdm09, 19 with A(H3), 13 A (not subtyped).
- Mortality: 19 influenza-associated deaths were reported to HPSC to date this season.
- Outbreaks: 14 acute respiratory outbreaks were reported to HPSC during week 10 2014, the majority in residential care facilities/long stay units/community hospitals.
- Europe: The status of the 2013/2014 influenza season has varied considerably between EU/EEA Member States. Some countries are experiencing decreasing influenza activity whilst others have reported increasing activity and high ILI/ARI rates. Influenza A(H1)pdm09 and A(H3) viruses are co-circulating in outpatient settings; however, A(H1)pdm09 is predominant in hospitalised cases.

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 ICU patients with confirmed influenza and enhanced surveillance of all severe acute respiratory infections (SARI) in one adult and one paediatric ICU site.
7. Outbreak reporting on CIDR
8. Network of sentinel hospitals reporting hospital admission data

1. GP sentinel surveillance system - Clinical Data

During week 10 2014, 126 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 49.1 per 100,000 population, a decrease compared to the updated rate for week 9 2014 which was 54.1 per 100,000 population. ILI rates remain above the Irish baseline threshold (21.0 per 100,000 population). The highest age specific ILI rates during week 10 2014 were in the 0-4 and 15-64 year age group (figures 1 & 2).

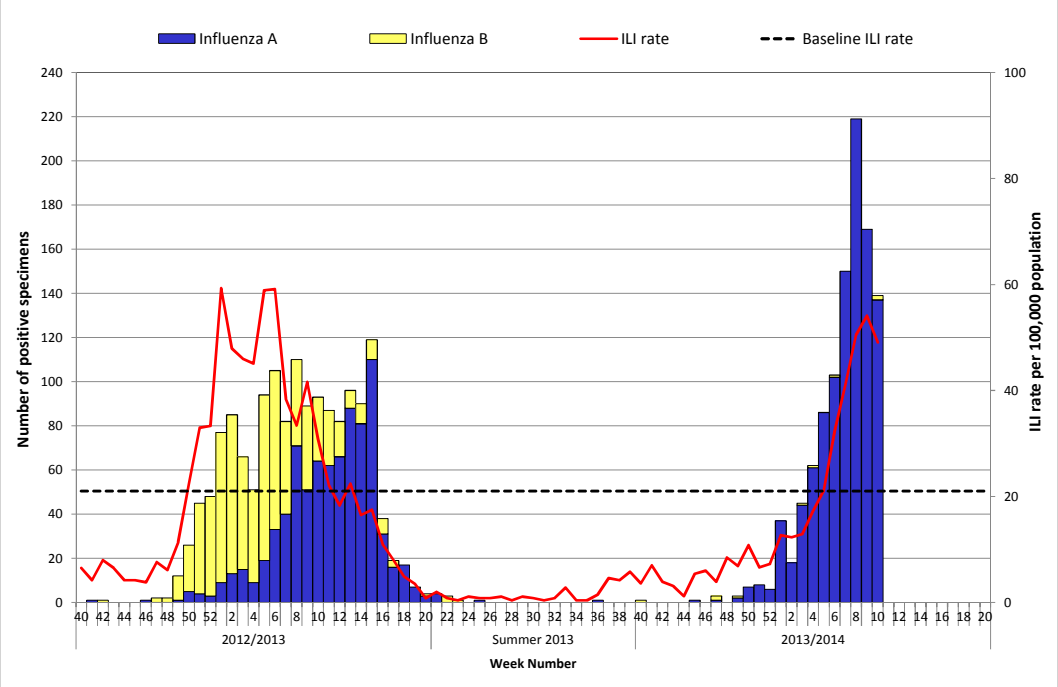

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. *Source: ICGP and NVRL.*

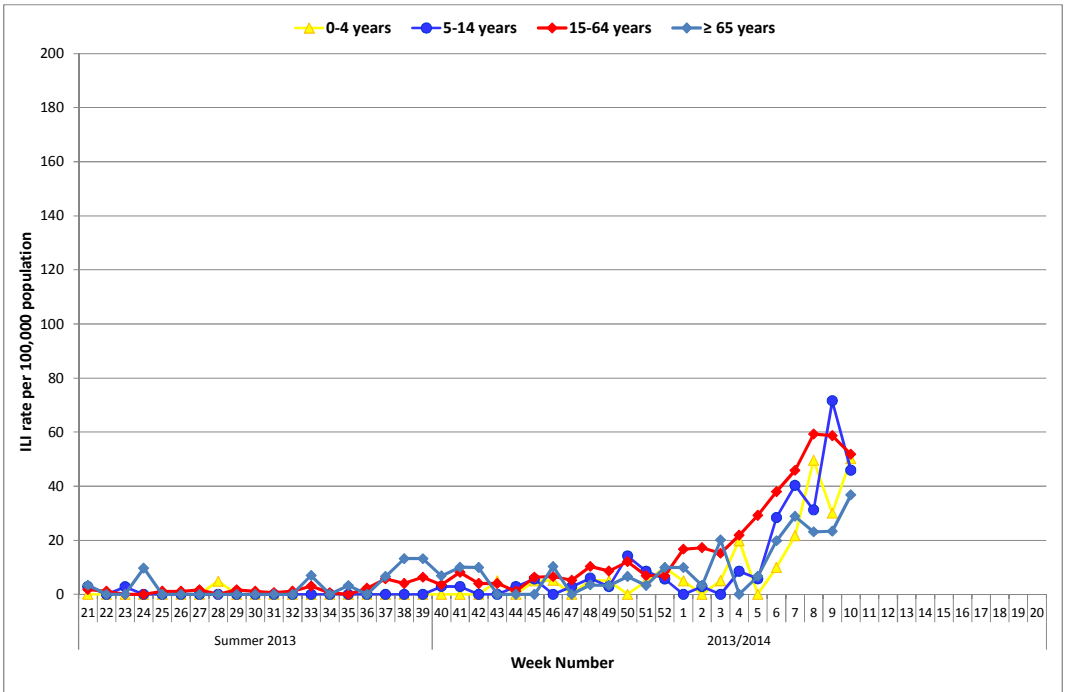

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2013 and the 2013/2014 influenza season to date. *Source: ICGP*

2. Influenza and Other Respiratory Viruses – National Virus Reference Laboratory

The data reported in this section refer to sentinel and non-sentinel specimens tested for influenza, respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses types 1-4 (PIV-1-4) and human metapneumovirus (hMPV) by the National Virus Reference Laboratory (NVRL) (figure 3, 4 & 5, tables 1 & 2).

- Influenza positivity decreased during week 10 2014, with 139 (24.8%) influenza positive specimens reported from the National Virus Reference Laboratory (NVRL): 96 influenza A(H3), 33 influenza A(H1)pdm09, 8 influenza A (not subtyped) and 2 influenza B.
    - 16 of 29 (55.2%) sentinel specimens were influenza positive: 7 A(H3), 7A(H1)pdm09 and 2 B.
    - 123 of 531 (23.2%) non-sentinel specimens were influenza positive: 89 influenza A(H3), 26 A(H1)pdm09 and 8 influenza A (not subtyped).
    - During week 10 2014, influenza A(H3) was the predominant circulating influenza virus and was co-circulating with influenza A(H1)pdm09.
- RSV activity decreased further during week 10 2014 and was at low levels, with 5 (0.9%) RSV positive sentinel and non-sentinel specimens reported from the NVRL.
- Sporadic detections of adenovirus, hMPV and parainfluenza viruses have been reported from the NVRL for the 2013/2014 season to date.

- The European Centre for Disease Control (ECDC) have reported that since week 40 2013, none of the 511 antigenically characterised viruses have differed substantially from the current influenza vaccine viruses recommended by WHO.
- Genetic characterisation of influenza viruses circulating in Ireland this season has been carried out by the NVRL on 12 positive samples to date. All Influenza A(H1)pdm09 viruses characterised (N=4) clustered as A/St. Petersburg/27/2011-like (Group 6). All known viruses in this genetic group remain antigenically similar to the clade representative vaccine strain A/California/7/2009. Influenza A(H3) sequences (n=4) clustered closely with the influenza A(H3) vaccine strain for this season and were A/Victoria/361/2011-like (Group 3C). All influenza B strains characterised (n=4) belong to the Yamagata lineage of viruses. Two influenza B strains characterised at the beginning of the season were B/Massachusetts/02/2012-like (Clade 2), which is the influenza B vaccine component for this season. The other two influenza B strains clustered in clade 3 and were B/Wisconsin/1/2010-like, which was the influenza B vaccine component for the 2012/2013 influenza season.

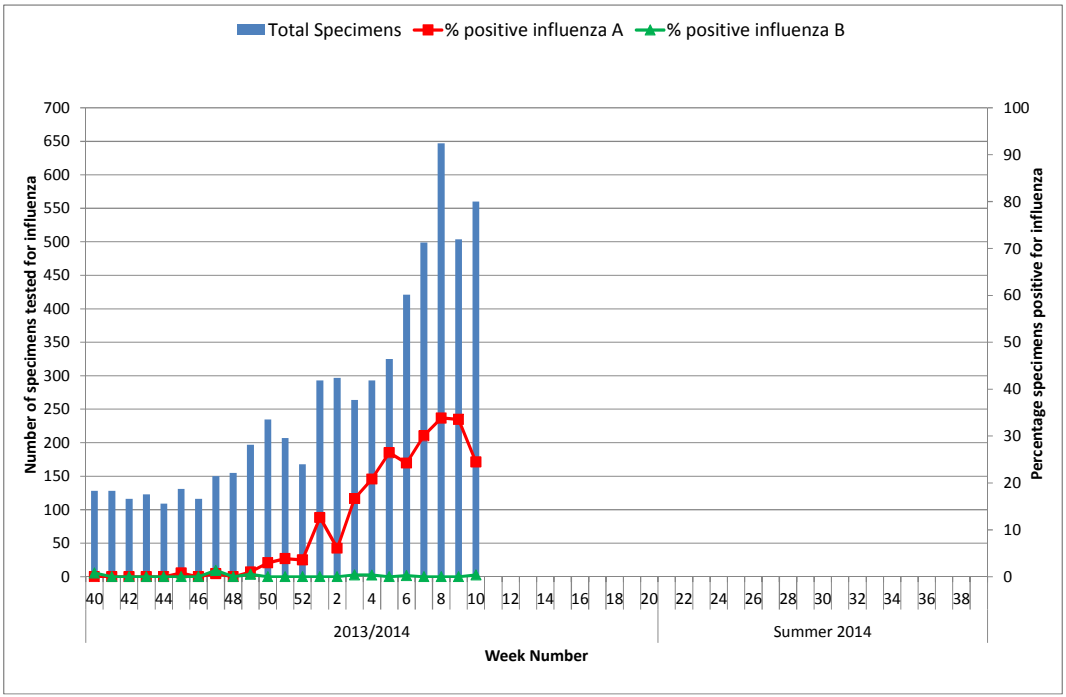

Figure 3: Number of sentinel and non-sentinel specimens tested for influenza and percentage influenza positive by week for the 2013/2014 influenza season. *Source: NVRL*

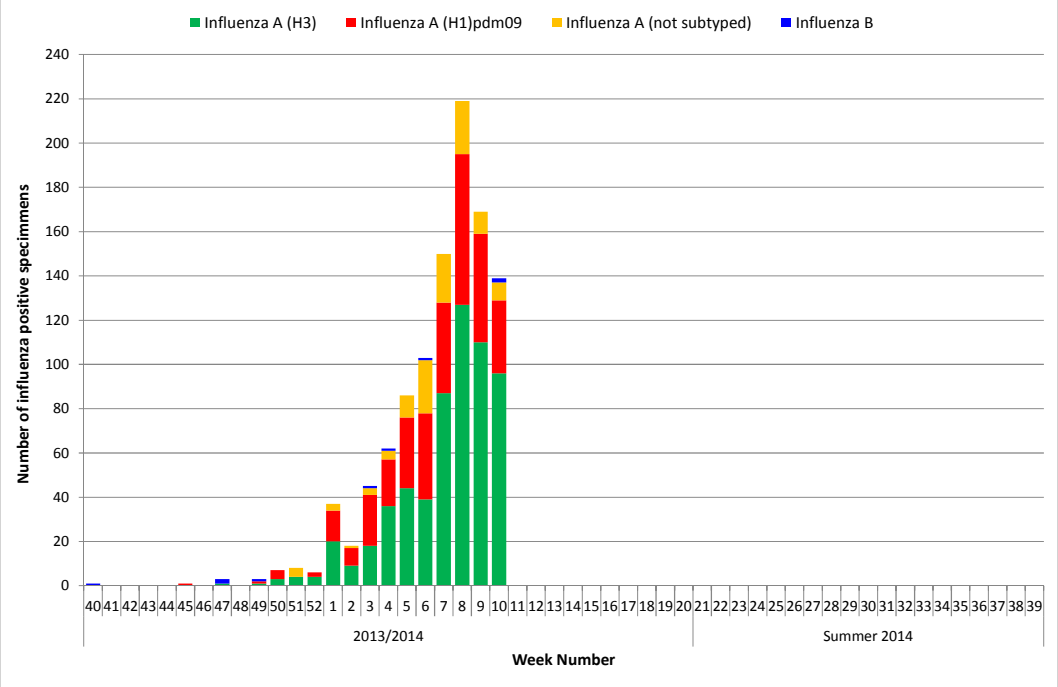

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2013/2014 influenza season. *Source: NVRL.*

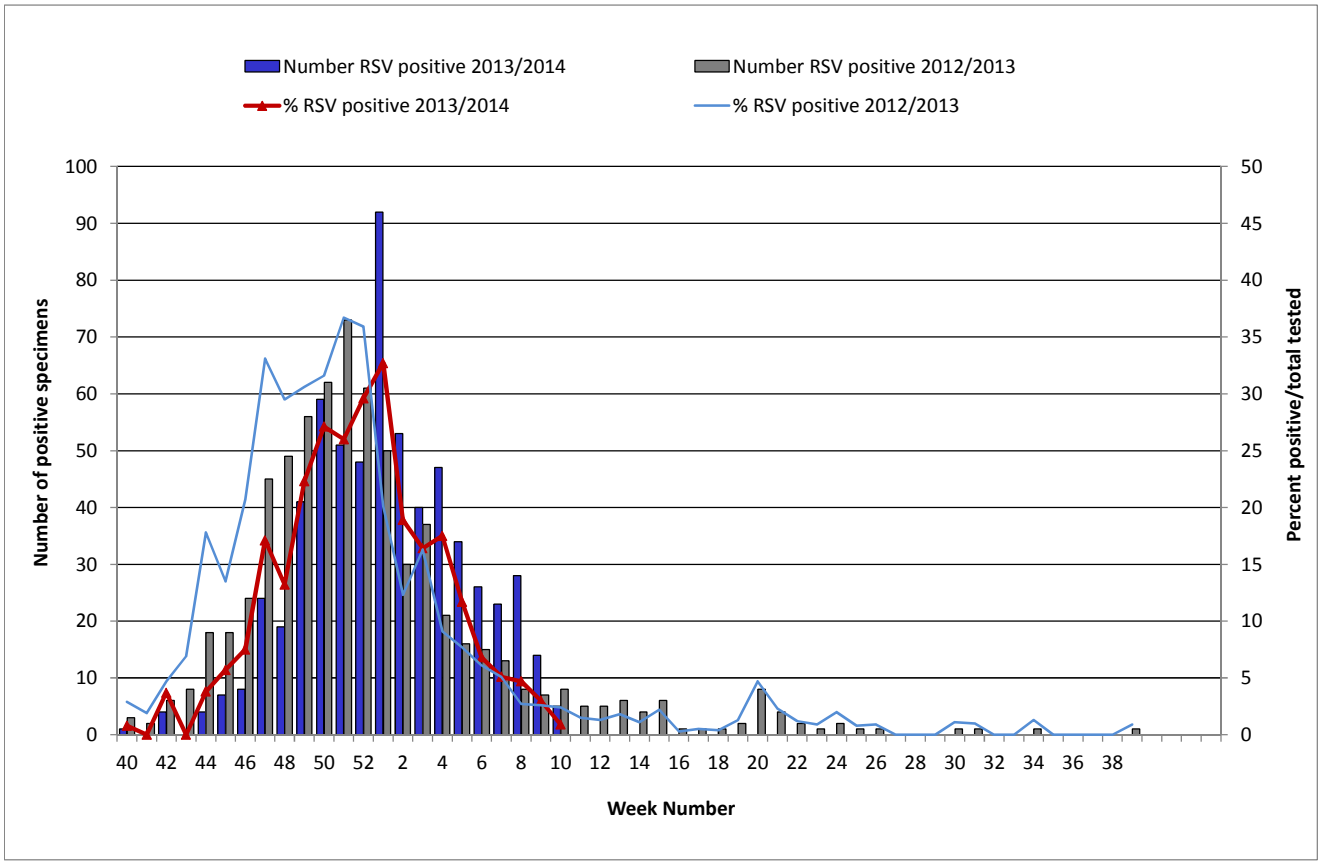

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2013/2014 season, compared to the 2012/2013 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[*] respiratory specimens tested by the NVRL and positive influenza results, for week 10 2014 and the 2013/2014 influenza 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 (not subtyped)	Total influenza A	
10 2014	Sentinel	29	16	55.2	7	7	0	14	2
	Non-sentinel	531	123	23.2	26	89	8	123	0
	Total	**560**	**139**	**24.8**	**33**	**96**	**8**	**137**	**2**
2013/2014	Sentinel	437	198	45.3	84	99	8	191	7
	Non-sentinel	5629	859	15.3	252	500	105	857	2
	Total	**6066**	**1057**	**17.4**	**336**	**599**	**113**	**1048**	**9**

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 10 2014 and the 2013/2014 influenza 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	PIV-4	% PIV-4	hMPV	% hMPV
10 2014	Sentinel	29	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	531	5	0.9	2	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Total	**560**	**5**	**0.9**	**2**	**0.4**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**
2013/2014	Sentinel	437	7	1.6	2	0.5	3	0.7	3	0.7	1	0.2	0	0.0	6	1.4
	Non-sentinel	5629	628	11.2	57	1.0	47	0.8	27	0.5	12	0.2	1	0.02	90	1.6
	Total	**6066**	**635**	**10.5**	**59**	**1.0**	**50**	**0.8**	**30**	**0.5**	**13**	**0.2**	**1**	**0.02**	**96**	**1.6**

[*] 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 data and outbreaks. Widespread influenza activity was reported from HSE-E, -MW, -SE and –S, regional influenza activity was reported in HSE-NE, and localised activity was reported from HSE-M, -NW and -W during week 10 2014 (figure 6).

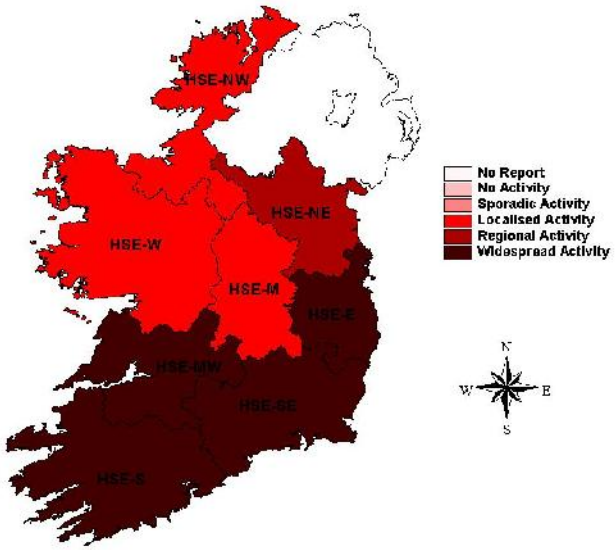

Figure 6: Map of provisional influenza activity by HSE-Area during week 10 2014

Sentinel hospitals

The Departments of Public Health have established at least one sentinel hospital in each HSE-Area, to report data on total, emergency and respiratory admissions on a weekly basis.

During week 10 2014, 317 respiratory admissions were reported from sentinel hospitals, compared to 341 during week 9 2014. Data for week 10 2014 were incomplete; with 7 of 8 sentinel hospitals reporting (fig. 7).

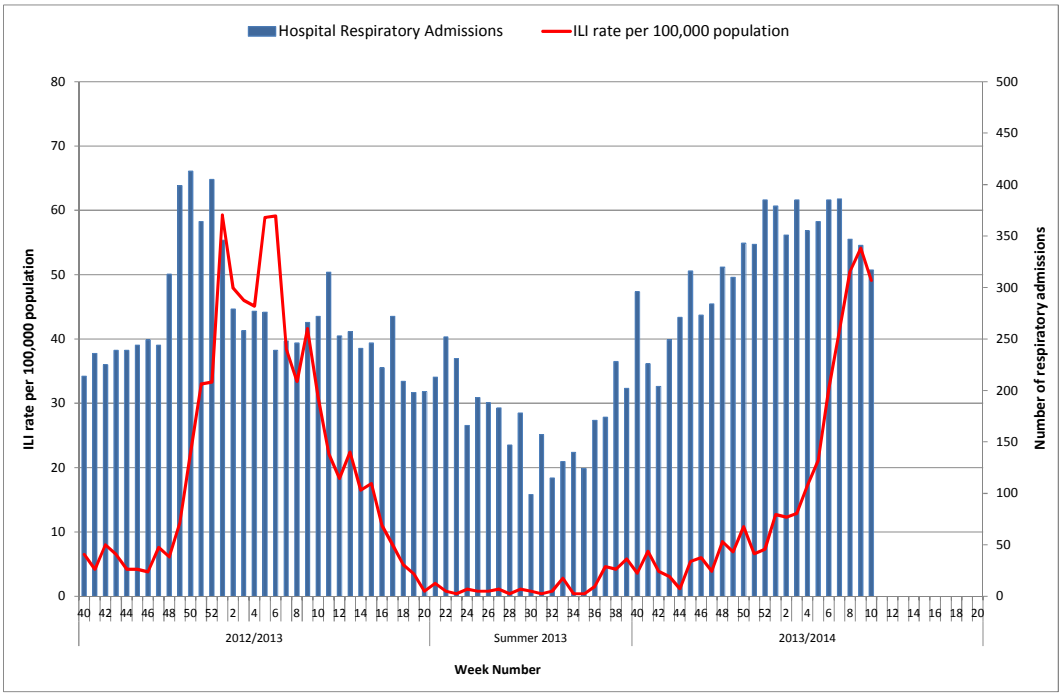

Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. *Source: Departments of Public Health - Sentinel Hospitals & ICGP.*

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. Records with clinical symptoms reported as flu or influenza are extracted for analysis.

The proportion of influenza–related calls to GP Out-of-Hours services decreased to 3.1% during week 10 2014, compared to 3.6% during week 9 2014.

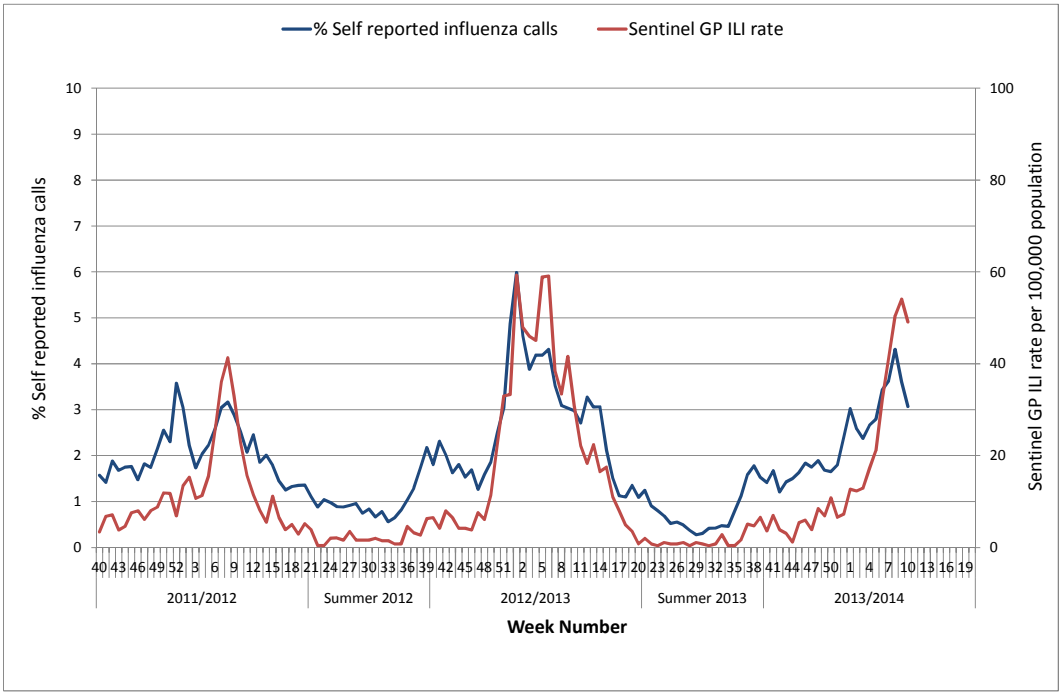

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

5. Influenza & RSV notifications

Influenza and RSV cases notifications are reported on Ireland's Computerised Infectious Disease Reporting System (CIDR), including all positive influenza/RSV specimens reported from all laboratories testing for influenza/RSV and reporting to CIDR.

Influenza and RSV notifications are reported in the Weekly Infectious Disease Report for Ireland.

6. Influenza Hospitalisations

- One hundred and thirteen confirmed influenza hospitalised cases were reported to HPSC during week 10 2014 (figure 9), 60 cases were associated with influenza A(H3), 25 with A(H1)pdm09 and 28 with A (not subtyped).
- To date this season, 400 confirmed influenza hospitalised cases were reported to HPSC: 397 cases were associated with influenza A (175 A(H3), 123 A(H1)pdm09, 99 A (not subtyped)) and three with influenza B. The highest age specific rates were in those aged less than 1 year and those aged 65 years and over (table 3).

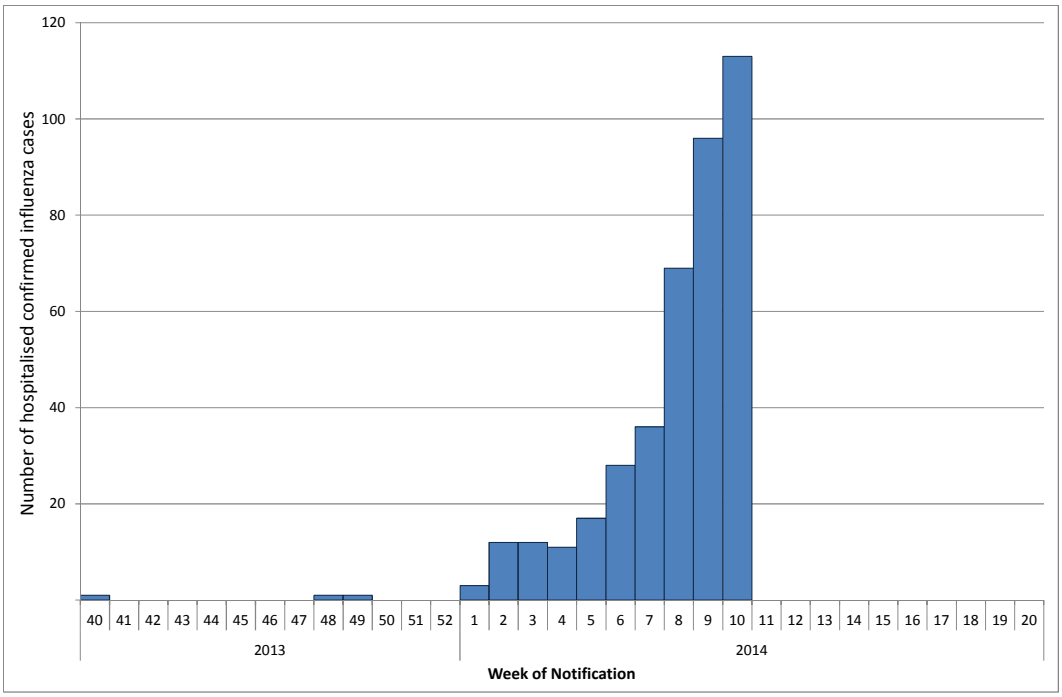

Figure 9: Number of hospitalised confirmed influenza cases reported to HPSC by week of notification for the 2013/2014 influenza season. *Source: Computerised Infectious Disease Reporting System (CIDR).*

7. 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 ICU sites, one adult and one paediatric, will also continue during the 2013/2014 season. HPSC process and report on this information on behalf of the regional Directors of Public Health/Medical Officers of Health.

- To date this season, 62 confirmed influenza cases were admitted to ICU and reported to HPSC, 31 associated with influenza A(H1)pdm09, 22 with A(H3) and 9 A (not subtyped). The highest age specific rates were in those aged less than 1 year and those aged 65 years and older (table 3). HPSC have received no reports of new cases admitted to ICU during the last 7 days.
- Fifty-three paediatric cases (cases aged less than 15 years) with severe acute respiratory infections (SARI) have been admitted to ICU and reported to HPSC this season: 12 associated with influenza A (8 A(H1)pdm09, 2 A(H3), 2 A-not subtyped) (reported above), three with adenovirus, four with parainfluenza 1, two with human metapneumovirus and 32 with RSV.

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2013/2014 influenza season to date. Age specific rates are based on the 2011 CSO census.

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	26	35.9	4	5.5
1-4	32	11.3	4	1.4
5-14	27	4.3	4	0.6
15-24	16	2.8	1	0.2
25-34	47	6.2	3	0.4
35-44	40	5.3	9	1.3
45-54	23	4.0	8	1.4
55-64	47	10.1	11	2.4
≥65	142	26.5	18	3.4
Total	**400**	**8.7**	**62**	**1.4**

8. Mortality Surveillance

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. These data are provisional due to the time delay in deaths' registration in Ireland. http://www.euromomo.eu/

- Nineteen influenza-associated deaths were reported to HPSC this season; one in a 0-4 year old, one in a 5-14 year old, two in a 15-64 year old and 15 deaths were in patients aged 65 years and over. Ten deaths were associated with influenza A(H3), five with influenza A(H1)pdm09 and three with influenza A (not subtyped). One death was in a clinical ILI case.
- During week 10 2014, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm. However, during week 6 2014, excess all-cause mortality was reported.

9. Outbreak Surveillance

Fourteen acute respiratory outbreaks were reported to HPSC (via Ireland's Computerised Infectious Disease Reporting System) during week 10 2014, 11 were associated with influenza A (8 A(H3), one with both A(H3) and A(H1)pdm09 and 2 A-not subtyped), one with RSV and two were associated with unidentified pathogens. To date this season, 48 acute respiratory outbreaks were reported to HPSC from from all HSE-Areas. Thirty-one outbreaks were associated with influenza A (25 with A(H3), two with both A(H3) and A(H1)pdm09 and 4 A-not subtyped) in HSE-E, -M, -NE, -NW, -MW, -S and -SE. The remaining 17 outbreaks were influenza negative (four were associated with RSV, two with hMPV and 11 were associated with unidentified pathogens). The majority of these outbreaks were in residential care facilities/community hospital 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 10.

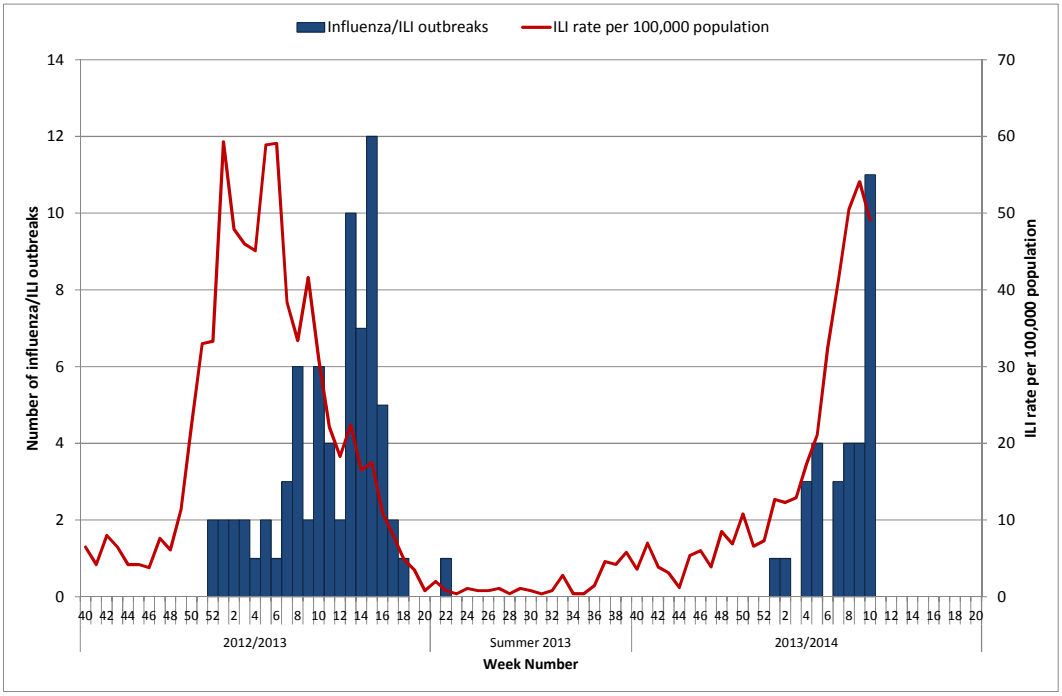

Figure 10: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. *Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.*

10. International Summary

The status of the 2013/2014 influenza season has varied considerably between EU/EEA Member States. Some countries are experiencing decreasing influenza activity whilst others have reported increasing activity and high ILI/ARI rates. Influenza A(H1)pdm09 and A(H3) viruses are co-circulating in outpatient settings; however, A(H1)pdm09 is predominant in hospitalised cases. Influenza B viruses have been detected only rarely. See WHO and ECDC influenza surveillance reports for further information. ECDC have published a risk assessment for the 2013/2014 influenza season, see here.

- Further information is available on the following websites:

Northern Ireland	http://www.fluawareni.info/
Public Health England	http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/SeasonalInfluenza/
Europe – ECDC	http://ecdc.europa.eu/
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

11. Novel viruses

- For up to date information on human infection with avian influenza A(H7N9) virus in China including the current case numbers and WHO risk assessment of the situation please see here.
- Information on Middle Eastern Respiratory Syndrome Coronavirus (MERS-CoV), including the latest ECDC rapid risk assessment is available on the ECDC website. Further information and guidance documents are also available on the HPSC and WHO websites.

12. Flusurvey

- For information on Flusurvey.ie, Ireland's first online influenza surveillance survey, please see the here.

13. Influenza Vaccine Recommendations

The WHO vaccine strain selection committee recommended that vaccines for use in the 2014/2015 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Texas/50/2012 (H3N2)-like virus; a B/Massachusetts/2/2012-like virus (Yamagata lineage), see here.

Further information on influenza is available at www.hpsc.ie

This report was prepared by Lisa Domegan and Joan O'Donnell, HPSC. HPSC wishes to thank the sentinel GPs, the ICGP, NVRL, Departments of Public Health, ICSI and HSE-NE for providing data for this report.