Influenza Surveillance in Ireland – Weekly Report

Influenza Week 10 2015 (2nd – 8th March 2015)

Summary

Overall, influenza activity has decreased in Ireland during the week ending 8th March 2015 (week 10 2015), however confirmed influenza outbreaks and hospitalisations continue to be reported.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 29.6 per 100,000 population in week 10 2015, a significant decrease compared to the updated rate of 51.1 per 100,000 population during week 9 2015.
  - ILI rates have remained above the Irish baseline threshold (18.2/100,000 population) for nine consecutive weeks. *It should be noted that HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) have revised the Irish baseline threshold for the 2014/2015 influenza season to 18.2 per 100,000 population.*
  - Age specific ILI rates decreased in all age groups during week 10 2015.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services decreased during week 10 2015.
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity remained elevated during week 10 2015, with 126 (24.3%) influenza positive specimens reported from the NVRL: 82 A(H3), 14 A(H1)pdm09, 6 A (not subtyped) and 24 B.
  - Influenza A(H3) remains the predominant circulating influenza virus this season, with both influenza A(H1)pdm09 and influenza B also currently circulating.
  - Respiratory syncytial virus (RSV) positivity is currently at low levels.
- Hospitalisations: 100 confirmed influenza hospitalised cases were notified to HPSC during the week ending 8th March 2015, an increase from 89 cases reported during the previous week. The median age of confirmed influenza hospitalised cases to date this season is 56 years.
- Critical care admissions: To date this season, 40 confirmed influenza cases were admitted to critical care units and reported to HPSC: 18 associated with A(H3), four with A(H1)pdm09, 12 with influenza A (not subtyped) and six with B.
- Mortality: Nineteen influenza-associated deaths have been reported to HPSC this season, with a median age of 81 years.
- Outbreaks: Seven acute respiratory general outbreaks were reported to HPSC during the week ending 8th March 2015: five of these outbreaks were associated with influenza A (H3), one with influenza B and one acute respiratory outbreak had no pathogen identified. The majority of confirmed influenza outbreaks this season have been associated with influenza A(H3) in residential care facilities for the elderly.
- International: In Europe, influenza activity continued to increase in eastern and central countries of the WHO European Region, but is decreasing in western countries. Influenza A(H1N1)pdm09, A(H3N2) and influenza B viruses continued to circulate in Europe, with A(H3N2) predominating, despite increasing detections of influenza B.

1. GP sentinel surveillance system - Clinical Data

During week 10 2015 (the week ending 8th March 2015), 75 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 29.6 per 100,000 population, a significant decrease compared to the updated rate of 51.1 per 100,000 population during week 9 2015. ILI rates have remained above the Irish baseline threshold (18.2/100,000 population) for nine consecutive weeks. It should be noted that HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) have revised the Irish baseline threshold for the 2014/2015 influenza season to 18.2 per 100,000 population. ILI age specific rates decreased in all age groups during week 10 2015 (figures 1 & 2).

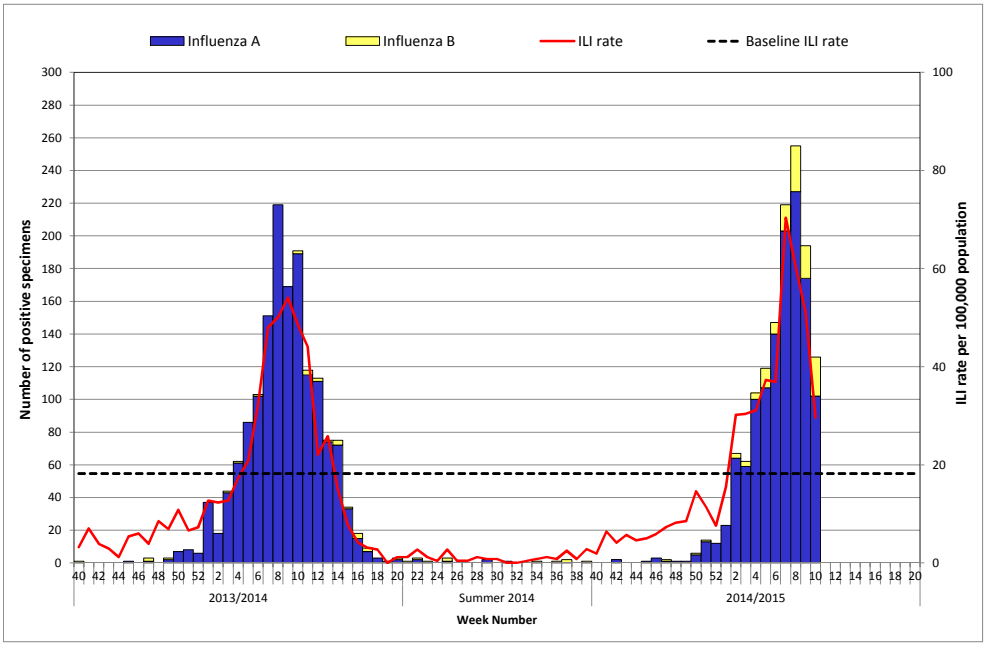

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. *Source: ICGP and NVRL*

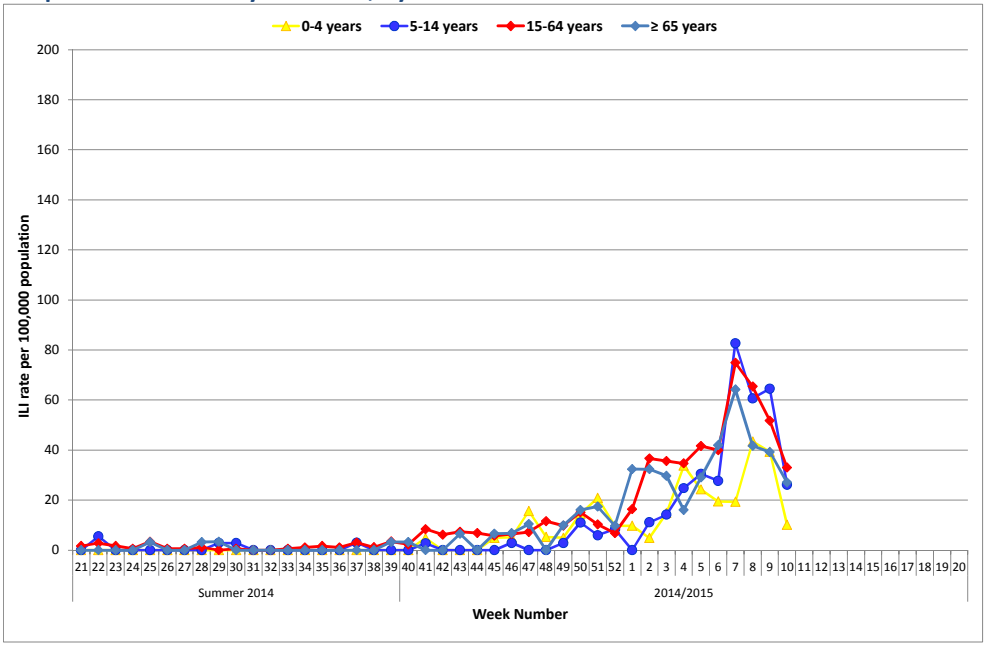

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2014 and the 2014/2015 influenza season to date. *Source: ICGP.*

2. Influenza and Other Respiratory Virus Detections - NVRL

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

- Influenza positivity remained elevated during week 10 2015, with 126 (24.3%) influenza positive specimens reported from the NVRL: 82 A(H3), 14 A(H1)pdm09, 6 A (not subtyped) and 24 B.
- To date this season, influenza A(H3) is the predominant circulating virus, with 78.8% (1070/1358) of confirmed influenza specimens reported by the NVRL positive for influenza A(H3). Influenza A(H3) viruses have accounted for 90.5% of all subtyped influenza A positive specimens this season.
- Week 10 2015:
    - 16 of 24 (66.7%) sentinel specimens were influenza positive: 9 A(H3), 3 A(H1)pdm09 and 4 B.
    - 110 of 495 (22.2%) non-sentinel specimens were influenza positive: 73 A(H3), 11 A(H1)pdm09, 6 A (not subtyped) and 20 B.
- Five (5/519; 1.0%) respiratory syncytial virus (RSV) positive sentinel GP and non-sentinel specimens were reported during week 10 2015. RSV positivity is at low levels and has continued to decrease, following the peak of activity during the last two weeks in December. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season.
- Sporadic detections of human metapneumovirus (hMPV), adenovirus and parainfluenza virus types -1, -3 & -4 have been reported for the season to date.

Genetic characterisation of influenza viruses circulating this season has been carried out by the NVRL, on 13 positive samples to date. A total of 11 influenza A(H3) viruses have been genetically characterised. Eight of 11 (72.7%) viruses were A/Hong Kong/5738/2014-like (3C.2a), which is a genetic group of viruses that have shown antigenic drift from the vaccine strain. The remaining viruses belong to the genetic group 3C.3, which is reportedly antigenically similar to the 2014/2015 influenza A(H3) vaccine strain. Two influenza B viruses were characterised and are B/Yamagata-like viruses, which are included in the 2014/2015 influenza vaccine. Further testing is ongoing, and the NVRL and HPSC are carefully monitoring the situation. The latest ECDC risk assessment on seasonal influenza for the 2014/2015 season in Europe, published on the 28th January 2015 is available here.

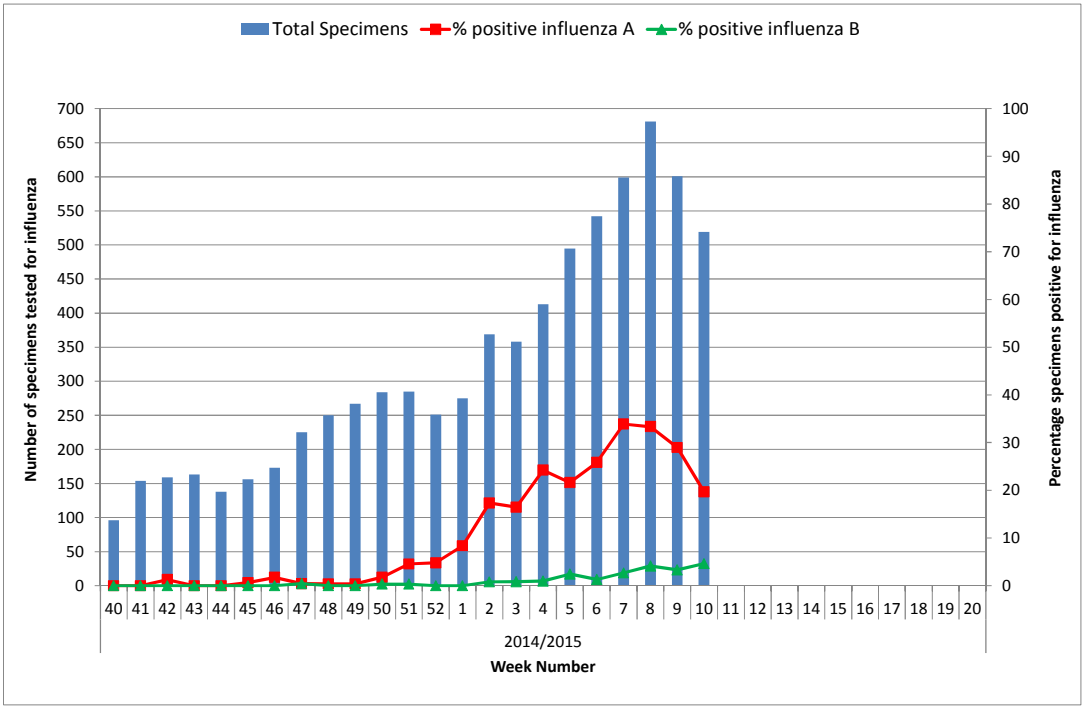

Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2014/2015 influenza season. *Source: NVRL*

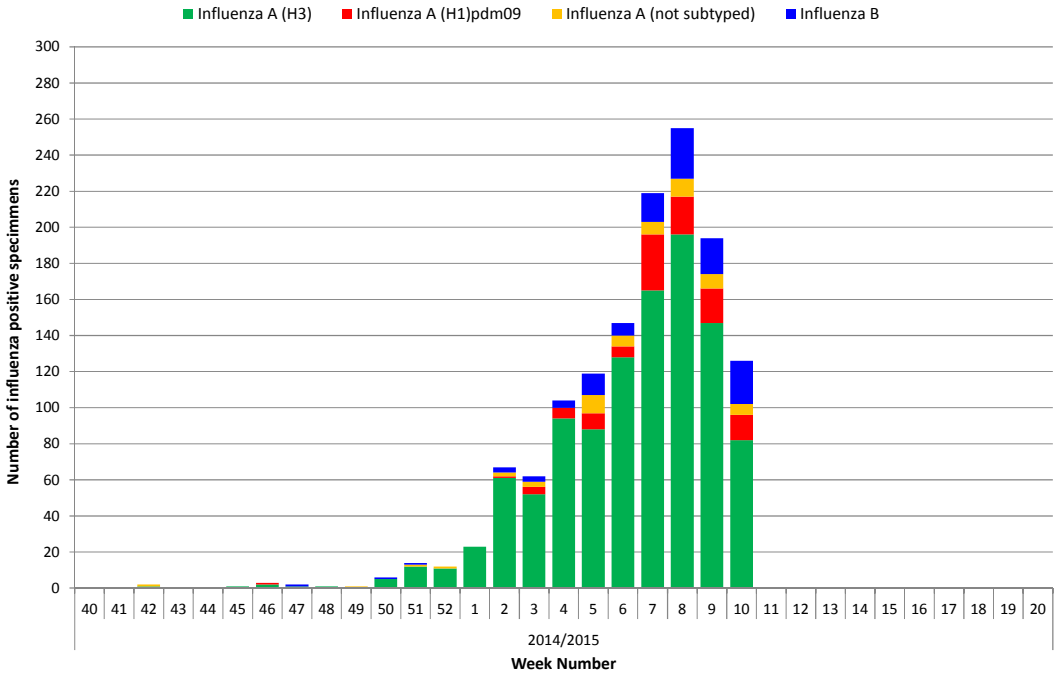

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2014/2015 influenza season. *Source: NVRL.*

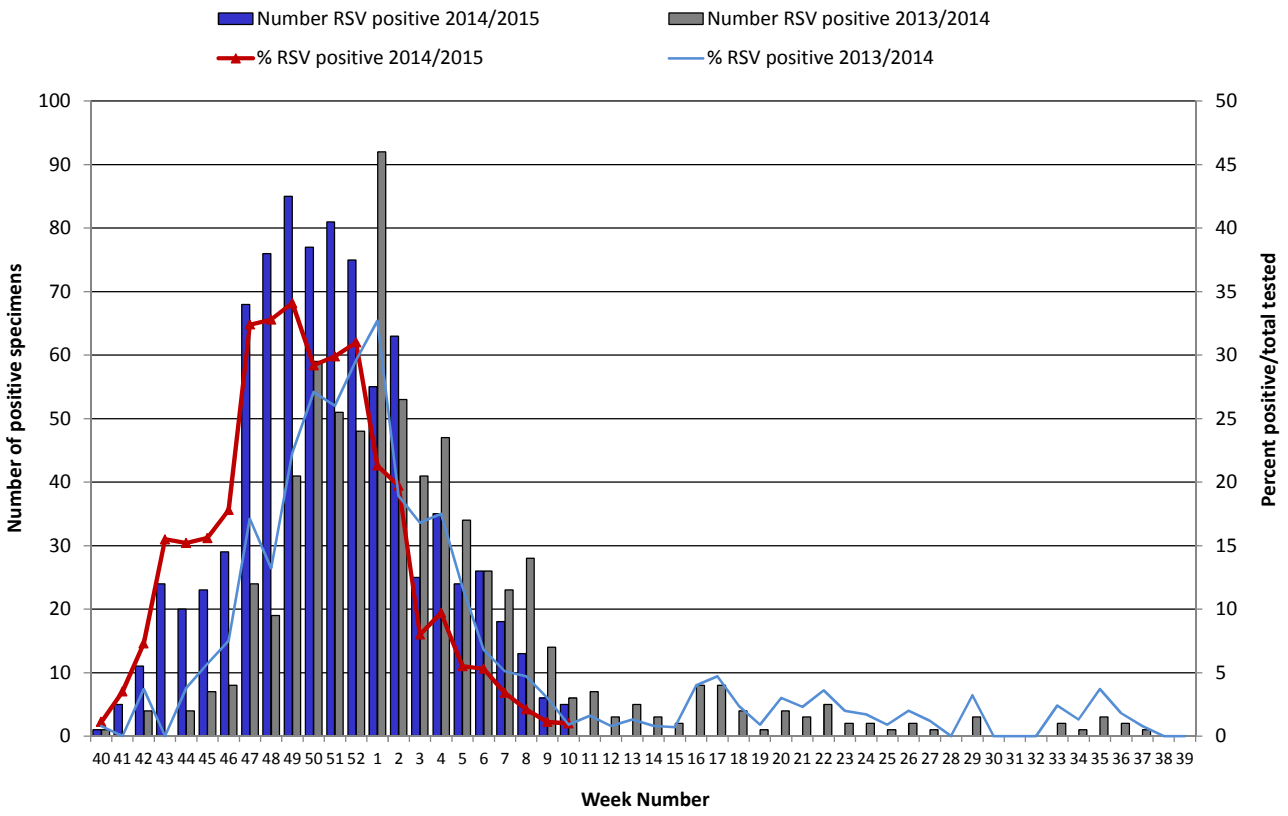

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[*] respiratory specimens tested by the NVRL and positive influenza results, for week 10 2015 and the 2014/2015 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 2015	Sentinel	24	16	66.7	3	9	0	12	4
	Non-sentinel	495	110	22.2	11	73	6	90	20
	Total	**519**	**126**	**24.3**	**14**	**82**	**6**	**102**	**24**
2014/2015	Sentinel	619	286	46.2	30	212	3	245	41
	Non-sentinel	6834	1072	15.7	82	858	53	993	79
	Total	**7453**	**1358**	**18.2**	**112**	**1070**	**56**	**1238**	**120**

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 10 2015 and the 2014/2015 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 2015	Sentinel	24	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	495	5	1.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	5	1.0
	Total	**519**	**5**	**1.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**5**	**1.0**
2014/2015	Sentinel	619	27	4.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	20	3.2
	Non-sentinel	6834	845	12.4	29	0.4	2	0.0	0	0.0	59	0.9	4	0.1	151	2.2
	Total	**7453**	**872**	**11.7**	**29**	**0.4**	**2**	**0.0**	**0**	**0.0**	**59**	**0.8**	**4**	**0.1**	**171**	**2.3**

[*] 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 based on sentinel GP ILI consultation rates, laboratory data and outbreaks.

Widespread influenza activity was reported in HSE-E, regional influenza activity was reported from HSE-M, -SE and -S, and localised influenza activity in HSE-NE, -NW, -MW and -W during week 10 2015 (figure 6).

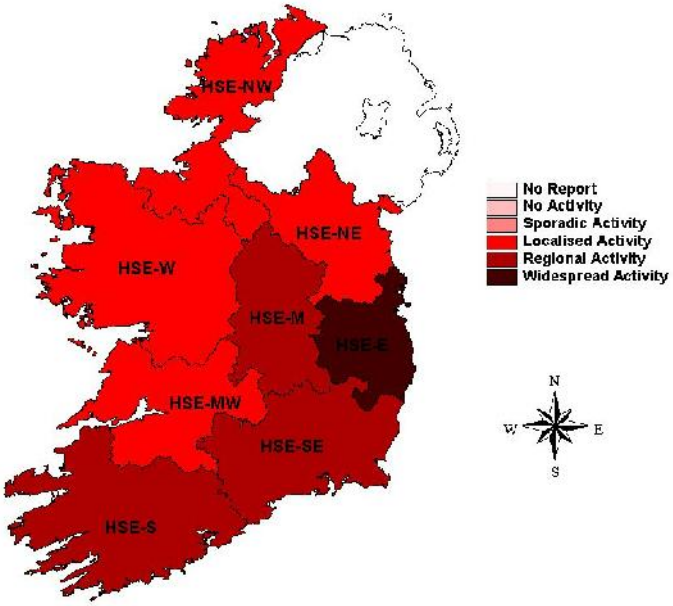

Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 10 2015.

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.

Respiratory admissions reported from sentinel hospitals increased during week 8 2015 to 382, compared to 353 during week 7 2015. It should be noted that data for weeks 9 and 10 2015 were incomplete (figure 7).

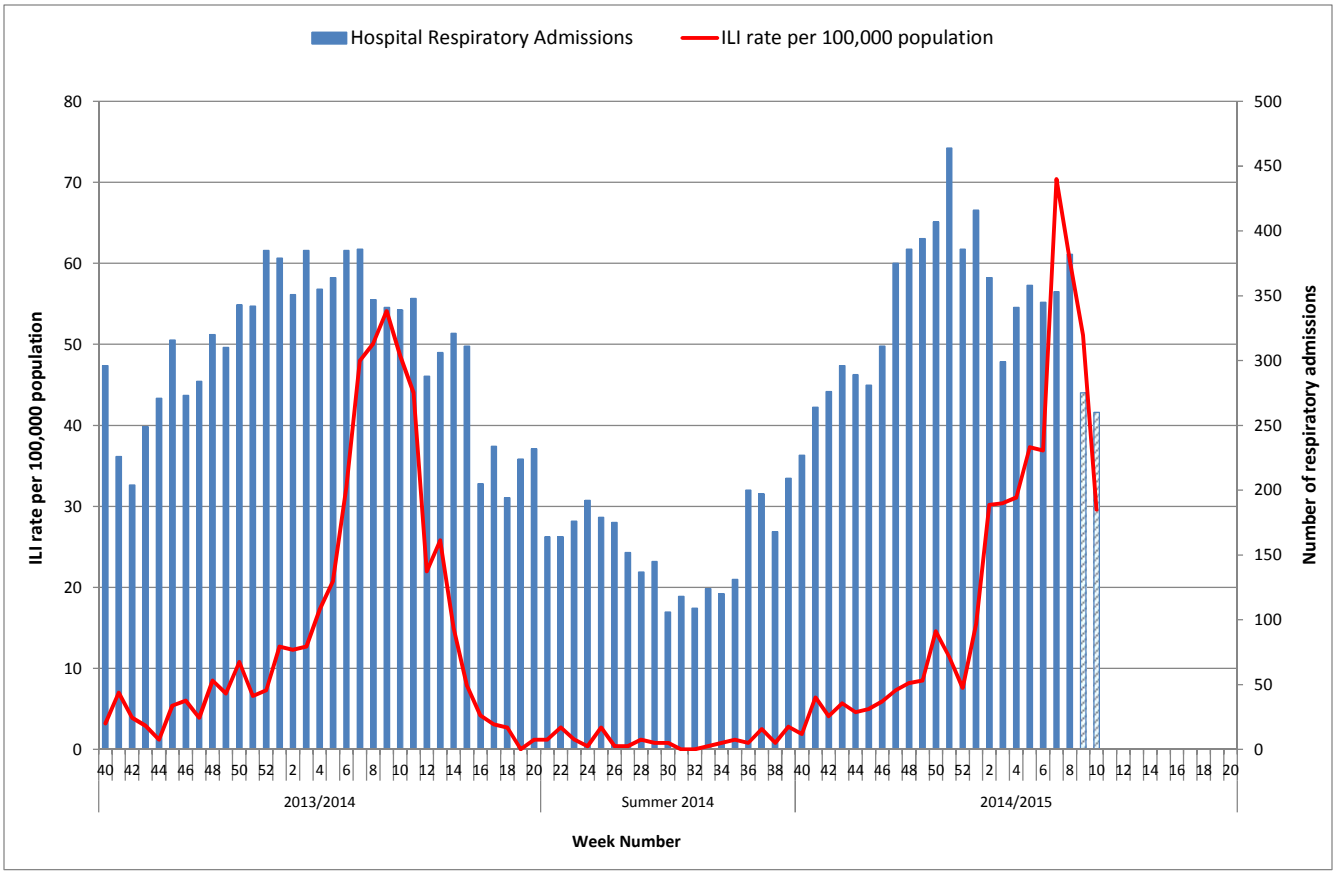

Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. *Source: Departments of Public Health - Sentinel Hospitals & ICGP. It should be noted that data for weeks 9 and 10 2015 were incomplete.*

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. 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 decreased during week 10 2015 to 3.2%, compared to 3.5% during week 9 2015. Influenza-related calls to GP Out-of-Hours have decreased each week for three consecutive weeks (figure 8).

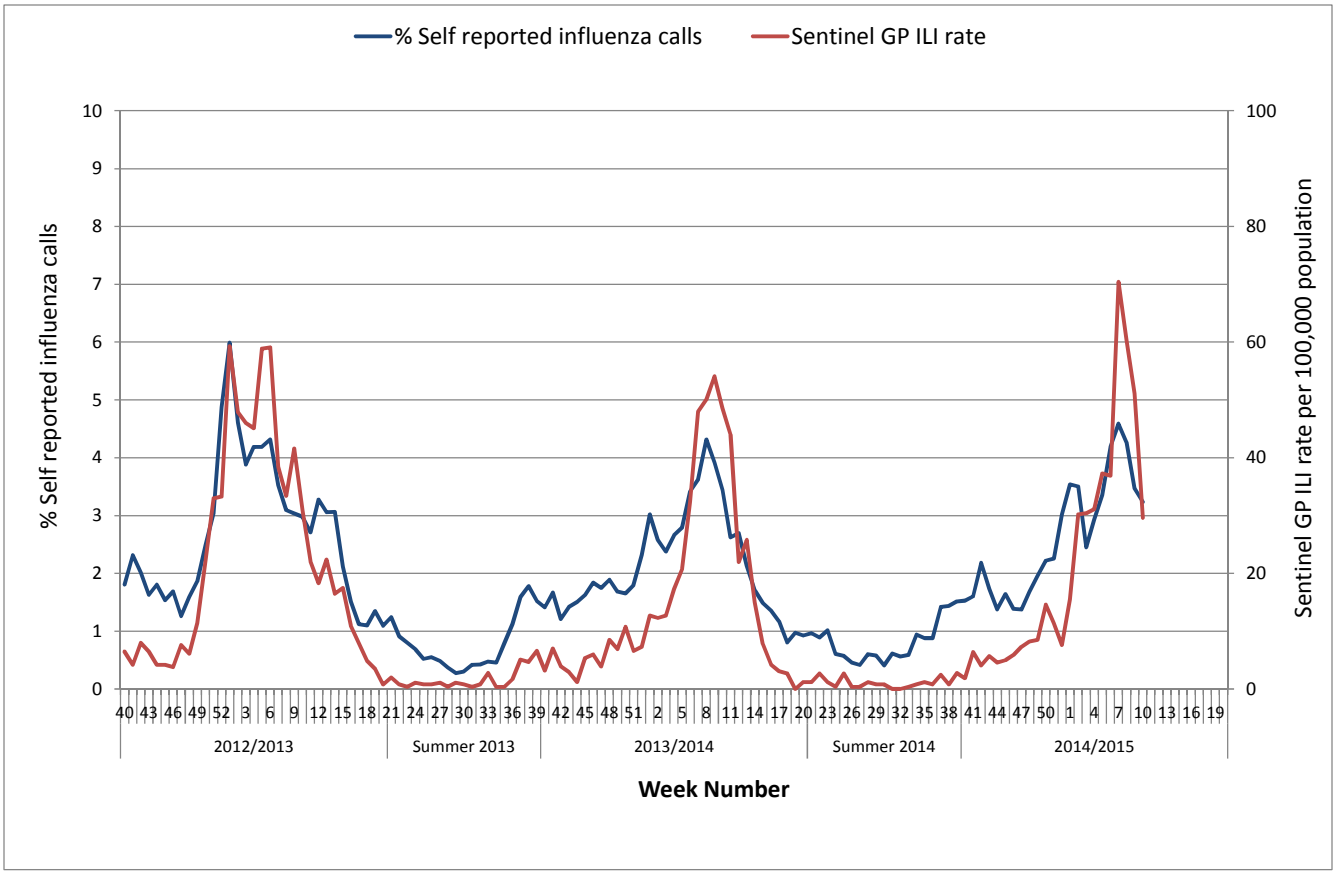

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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 confirmed influenza cases were notified to HPSC and reported as hospitalised during the week ending 8th March 2015, compared to 89 reported during the previous week. During the week ending 8th March 2015, 63 hospitalised cases associated with influenza A(H3), 17 with A(H1)pdm09, 10 with A (not subtyped) and 10 with influenza B.
- For the 2014/2015 season to date (up to week ending 8th March 2015), 521 confirmed influenza cases were reported as hospitalised to HPSC, 325 associated with A(H3), 45 with A(H1)pdm09, 126 with A (not subtyped) and 25 with influenza B. The median age of hospitalised confirmed influenza cases to date this season, is 56 years. The highest age specific rates are in those aged less than one year and those aged 65 years or older (table 3).

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. HPSC process and report on this information on behalf of the regional Directors of Public Health/Medical Officers of Health.

To date this season, 40 confirmed influenza cases were admitted to critical care units and reported to HPSC, 18 associated with A(H3), four with A(H1)pdm09, 12 with influenza A (not subtyped) and six with B. The median age of confirmed influenza cases admitted to critical care units for the 2014/2015 influenza season to date, is 67 years. The highest age specific rates are in those aged 65 years or older (table 3).

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2014/2015 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	33	45.6	0	0.0
1-4	46	16.2	0	0.0
5-14	42	6.7	0	0.0
15-24	28	4.8	1	0.2
25-34	44	5.8	1	0.1
35-44	36	4.8	4	0.6
45-54	28	4.8	7	1.2
55-64	46	9.9	4	0.9
≥65	218	40.7	23	4.3
Total	**521**	**11.4**	**40**	**0.9**

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 to date, 12 were associated with influenza A(H3), one associated with influenza A(H1)pdm09, four with influenza A (not subtyped) and one influenza B. One death was in a clinical ILI case. The median age of influenza associated deaths for the 2014/2015 season to date, is 81 years. Three cases were in the 45-64 year age group and 16 cases were in those aged 65 years or older.
- During week 10 2015, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm. However, during weeks 2 and 5 2015, excess all-cause mortality was reported in those aged 65 years or older. Due to the time delay in deaths' registration, it is likely as more deaths are registered in the coming weeks, the number of weeks with excess deaths reported will increase.
- Excess all-cause mortality has been observed among those aged 65 years or older since the beginning of the year in Belgium, Denmark, England, France, Northern Ireland, the Netherlands, Portugal, Scotland, Spain, Switzerland and Wales. Excess all-cause mortality cannot with certainty be attributed to specific causes, but may be associated with circulating influenza, extreme cold or increases in acute respiratory illness. The current excess mortality coincides with circulating influenza A(H3), and medium to high influenza intensity in most countries and additionally with cold snaps in Portugal and Spain in the first weeks of the year. The current excess all-cause mortality reported among the elderly for the last few weeks is higher than the previous four winter seasons. http://www.euromomo.eu/.

9. Outbreak Surveillance

- Seven acute respiratory general outbreaks were reported to HPSC during the week ending 8th March 2015: six of these outbreaks were associated with influenza (five with A(H3) and one with influenza B) and one acute respiratory outbreak had no pathogen identified. Four outbreaks were in community hospitals/residential care facilities and three were in acute hospitals.
- For the 2014/2015 influenza season to date (up to the week ending 8th March 2015), 80 acute respiratory outbreaks were reported to HPSC. Sixty-one of these outbreaks were associated with influenza A: 53 associated with A(H3), three with both A(H3) and A(H1)pdm09, two with A(H1)pdm09, one with A (not subtyped) and two with influenza B. Three outbreaks were associated with RSV, four with hMPV and 12 acute respiratory outbreaks had no pathogens identified. The majority of these outbreaks occurred in residential care facilities/community hospital settings, mainly affecting the elderly. Twelve outbreaks occurred in acute hospitals, one in a hospital step down facility and one in a school. The number of confirmed influenza outbreaks reported to HPSC is shown in figure 9.

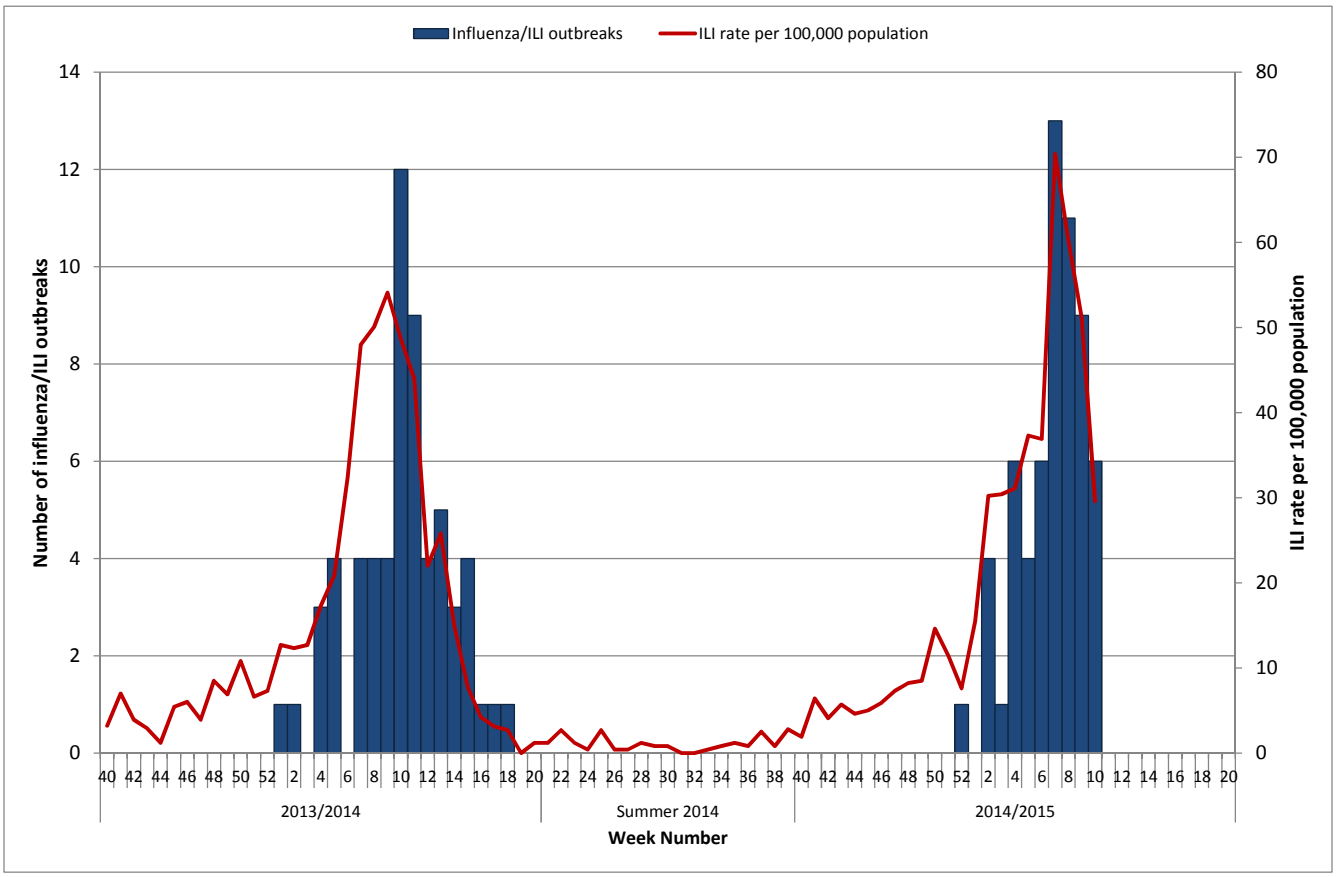

Figure 10: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. *It should be noted that the week numbers run Monday to Sunday, as per the international influenza surveillance calendar. Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.*

10. International Summary

- Globally, influenza activity remained high in the northern hemisphere with influenza A(H3N2) viruses predominating. Some countries in Africa, Asia and the southern part of Europe reported increased influenza A(H1N1)pdm09 activity.
- Influenza activity continued to increase in eastern and central countries of the WHO European Region, but is decreasing in western countries. Influenza A(H1N1)pdm09, A(H3N2) and influenza B viruses continued to circulate in Europe, with A(H3N2) predominating, despite increasing detections of influenza B.
- In North America, influenza activity remained elevated following the influenza peak. Influenza A(H3N2) remained the dominant virus detected this season
- Globally, antigenic characterisation of most influenza A(H3N2) viruses tested this season indicated differences from the A(H3N2) virus used in the influenza vaccines for the northern hemisphere 2014/2015 season. Although this may compromise the effectiveness of the A(H3N2) component of the vaccine, it is still important that people are vaccinated, particularly those at risk of developing severe influenza symptoms. Vaccination of the elderly and other risk groups is still recommended, as the A(H3N2) component is expected to reduce the likelihood of severe outcomes due to cross-protection, and both the A(H1N1)pdm09 and influenza B components are effective. Vaccination remains the most effective means of preventing infection by seasonal influenza viruses. Based on tests to date, the influenza A(H3N2) viruses are expected to be sensitive to antiviral drugs, oseltamivir and zanimivir.
- The majority of influenza A(H1)pdm09 and influenza B viruses characterised this season are similar to those included in the 2014/2015 northern hemisphere trivalent vaccine.
- The ECDC risk assessment on seasonal influenza for the 2014/2015 season in Europe is available here.
- See ECDC and WHO influenza surveillance reports for further information.

- Further information is available on the following websites:

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/index-eng.php

- For the latest ECDC rapid risk assessment on human infection with low pathogenic avian influenza A(H7N7) see here.
- The latest ECDC risk assessment on human infection with influenza A(H7N9) in China and Canada is available here.
- For information on human infection with avian influenza A(H5N1) in Egypt, 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.

11. WHO recommendations on the composition of influenza virus vaccines

The WHO vaccine strain selection committee recommended that vaccines for use in the 2015/2016 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Switzerland/9715293/2013 (H3N2)-like virus; a B/Phuket/3073/2013-like virus. It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus.

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

Acknowledgements

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