Influenza Surveillance in Ireland – Weekly Report

Influenza Week 13 2015 (23rd – 29th March 2015)

Summary

Overall, influenza activity has decreased further in Ireland during the week ending 29th March 2015 (week 13 2015); confirmed influenza outbreaks and hospitalisations continue to be reported at low levels.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 16.0 per 100,000 population in week 13 2015, a decrease compared to the updated rate of 21.3 per 100,000 population during week 12 2015.
  - ILI rates are now below the Irish baseline threshold (18.2/100,000 population).
  - Age specific ILI rates have decreased significantly in all age groups since the peak of influenza activity during weeks 7 and 8 2015.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services decreased during week 13 2015.
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity decreased further during week 13 2015, with 52 (15.2%) influenza positive specimens reported from the NVRL: 17 A(H3), 4 A(H1)pdm09 and 31 B.
  - The number of influenza B positive specimens was higher than influenza A(H3) during weeks 12 and 13 2015, however positivity levels for both influenza A(H3) and influenza B are decreasing. Overall for the season to date, influenza A(H3) viruses have predominated.
  - Sporadic detections of respiratory syncytial virus (RSV), human metapneumovirus (hMPV), adenovirus and parainfluenza viruses continue to be reported each week.
- Respiratory admissions: Of the five sentinel hospitals that reported data during week 13 2015, all reported a decrease in respiratory admissions compared to the previous week.
- Hospitalisations: 50 confirmed influenza hospitalised cases were notified to HPSC during the week ending 29th March 2015. For the 2014/2015 season to date, 795 confirmed influenza cases were reported as hospitalised. The median age of confirmed influenza hospitalised cases to date this season is 61 years.
- Critical care admissions: To date this season, 46 confirmed influenza cases were admitted to critical care units and reported to HPSC: 22 associated with A(H3), eight with A(H1)pdm09, nine with influenza A (not subtyped) and seven with B. The median age of confirmed influenza cases admitted to critical care units to date this season is 68 years.
- Mortality: Twenty-seven influenza-associated deaths have been reported to HPSC this season, with a median age of 81 years. Between weeks 2 - 9 2015, excess all-cause mortality was reported in Ireland in those aged 65 years and older.
- Outbreaks: Five acute respiratory general outbreaks were reported to HPSC during the week ending 29th March 2015: one outbreak was associated with influenza A, two with influenza B, one with RSV and one outbreak had no pathogen identified. Of the 75 confirmed influenza outbreaks reported this season, the majority have been associated with influenza A(H3) in residential care facilities for the elderly.
- International: In Europe, influenza activity is decreasing in most countries. Influenza A(H1)pdm09, A(H3) and B viruses continue to circulate in Europe, with increasing proportions of influenza B viruses detected.

1. GP sentinel surveillance system - Clinical Data

During week 13 2015 (the week ending 29th March 2015), 39 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 16.0 per 100,000 population, a decrease from the updated rate of 21.3 per 100,000 population during week 12 2015. ILI rates are now below the Irish baseline threshold (18.2/100,000 population), following 11 consecutive weeks above the baseline. Age specific ILI rates have decreased significantly in all age groups since the peak of influenza activity during weeks 7 and 8 2015 (figures 1 & 2).

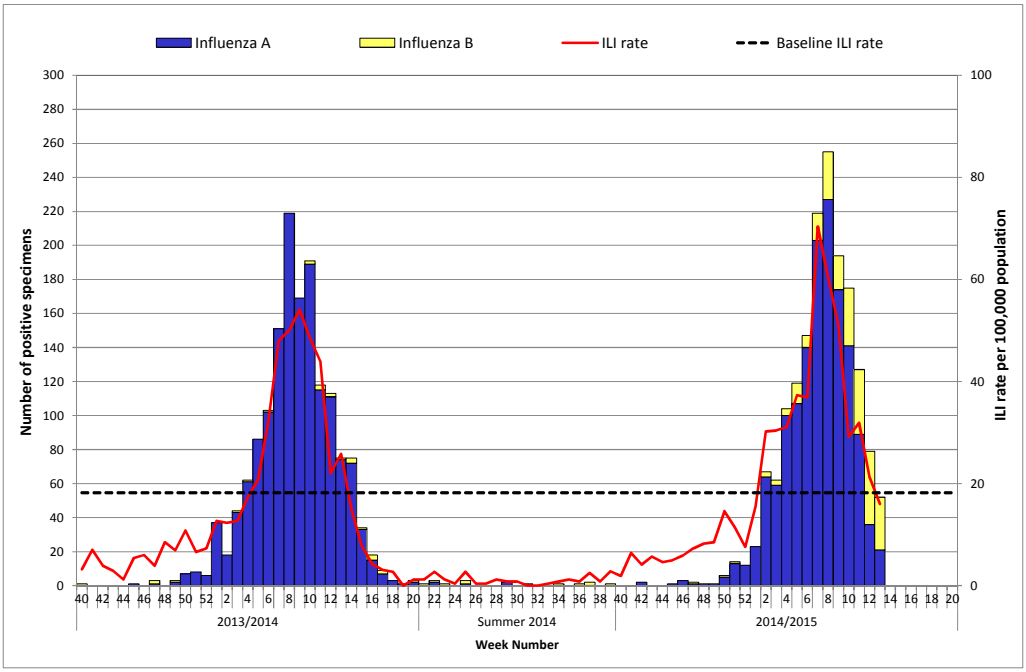

Figure 1. ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold rate, and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. *Source: ICGP and NVRL*

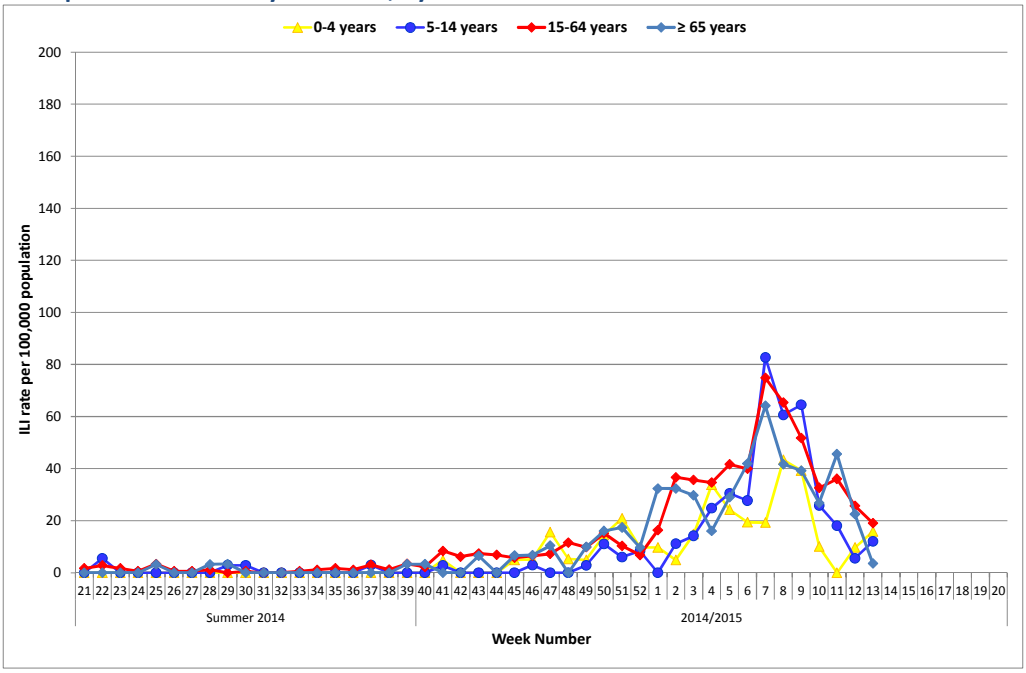

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2014 and the 2014/2015 influenza season to date. *Source: ICGP.*

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 decreased further during week 13 2015, with 52 (15.2%) influenza positive specimens reported from the NVRL: 17 A(H3), 4 A(H1)pdm09 and 31 B.
    - The number of influenza B positive specimens was higher than influenza A(H3) during weeks 12 and 13 2015, however positivity levels for both influenza A(H3) and influenza B are decreasing, with sporadic cases of influenza A(H1)pdm09 still being reported.
- Overall this season, influenza A(H3) viruses have predominated, with 72.1% (1200/1665) of confirmed influenza specimens reported by the NVRL positive for influenza A(H3). Influenza A(H3) viruses have accounted for 88.5% of all subtyped influenza A positive specimens this season.
- Week 13 2015:
    - 7 of 20 (35.0%) sentinel specimens were influenza positive, all of which were positive for influenza B.
    - 45 of 321 (14.0%) non-sentinel specimens were influenza positive: 17 A(H3), 4 A(H1)pdm09 and 24 B.
- Five (5/341; 1.5%) respiratory syncytial virus (RSV) positive sentinel GP and non-sentinel specimens were reported during week 13 2015. RSV positivity remains at low levels. 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 viruses continue to be reported each week.

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.

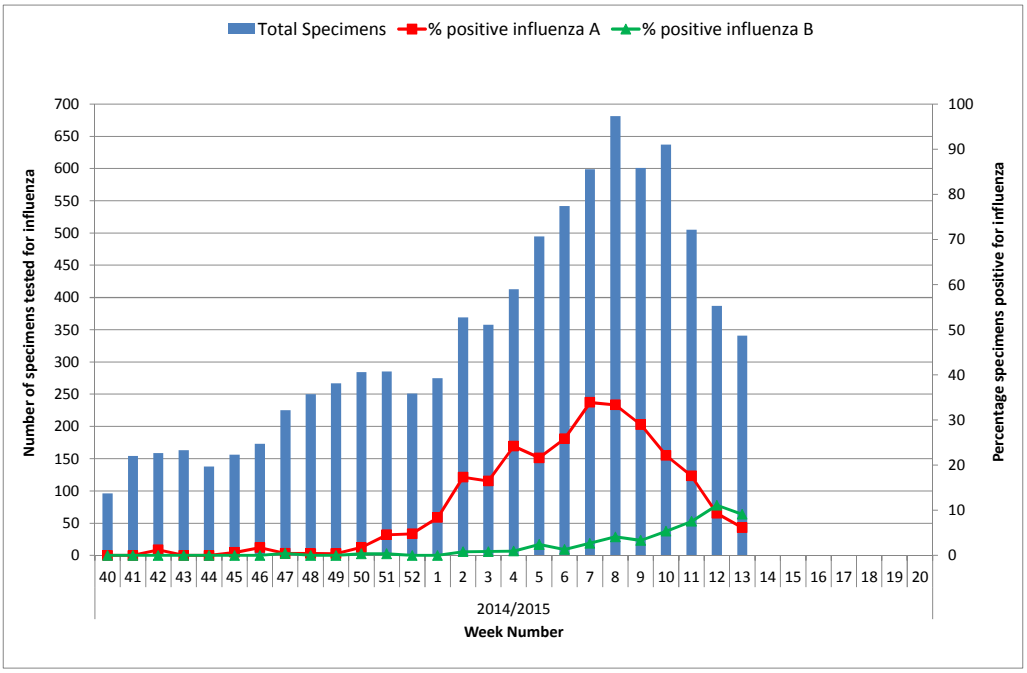

Figure 3: Number of sentinel and non-sentinel specimens tested by the NVRL for influenza and percentage influenza positive by week for the 2014/2015 influenza season. *Source: NVRL*

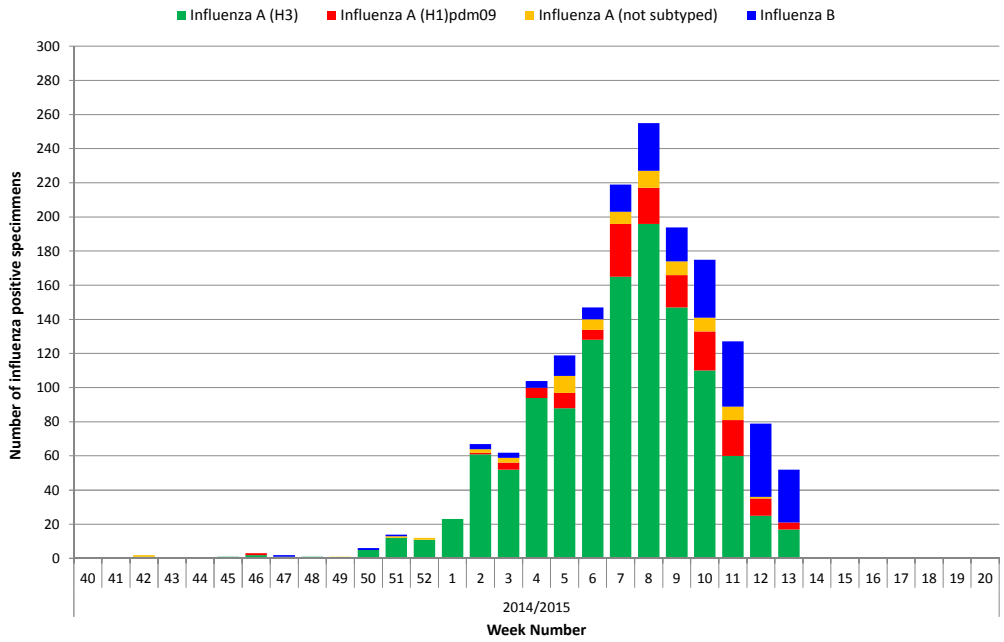

Figure 4: Number of positive influenza specimens by influenza type/subtype from sentinel and non-sentinel sources tested by the NVRL, by week for the 2014/2015 influenza season. *Source: NVRL.*

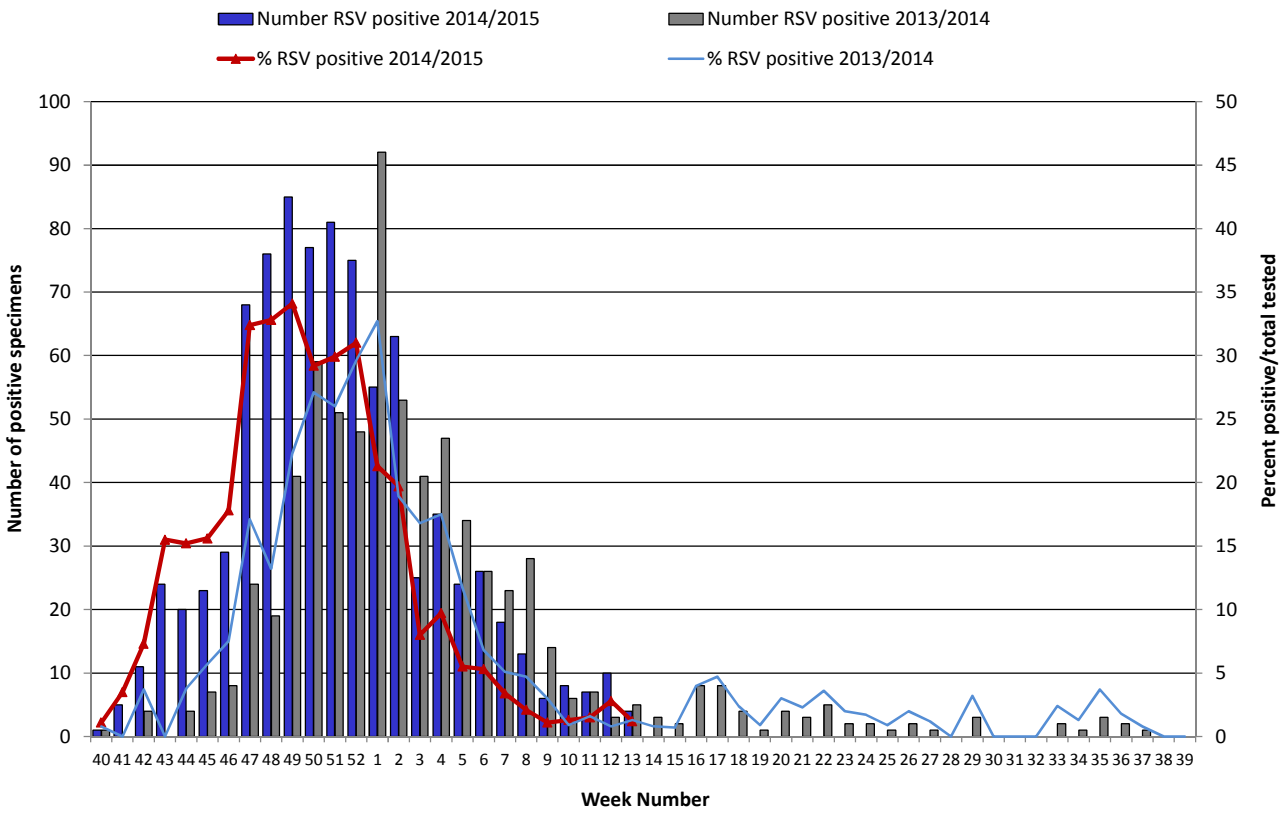

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2014/2015 season, compared to the 2013/2014 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[*] respiratory specimens tested by the NVRL and positive influenza results, for week 13 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	
13 2015	Sentinel	20	7	35.0	0	0	0	0	7
	Non-sentinel	321	45	14.0	4	17	0	21	24
	Total	**341**	**52**	**15.2**	**4**	**17**	**0**	**21**	**31**
2014/2015	Sentinel	713	327	45.9	34	223	3	260	67
	Non-sentinel	8091	1338	16.5	122	977	64	1163	175
	Total	**8804**	**1665**	**18.9**	**156**	**1200**	**67**	**1423**	**242**

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 13 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
13 2015	Sentinel	20	1	5.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	321	4	1.2	2	0.6	0	0.0	0	0.0	0	0.0	0	0.0	2	0.6
	Total	**341**	**5**	**1.5**	**2**	**0.6**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**2**	**0.6**
2014/2015	Sentinel	713	28	3.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	21	2.9
	Non-sentinel	8091	869	10.7	35	0.4	2	0.0	0	0.0	61	0.8	4	0.0	168	2.1
	Total	**8804**	**897**	**10.2**	**35**	**0.4**	**2**	**0.0**	**0**	**0.0**	**61**	**0.7**	**4**	**0.0**	**189**	**2.1**

[*] 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.

Localised influenza activity was reported in HSE-E, -MW, -NE, -SE, and –S and sporadic influenza activity was reported in HSE-M, -NW, -W during week 13 2015 (figure 6).

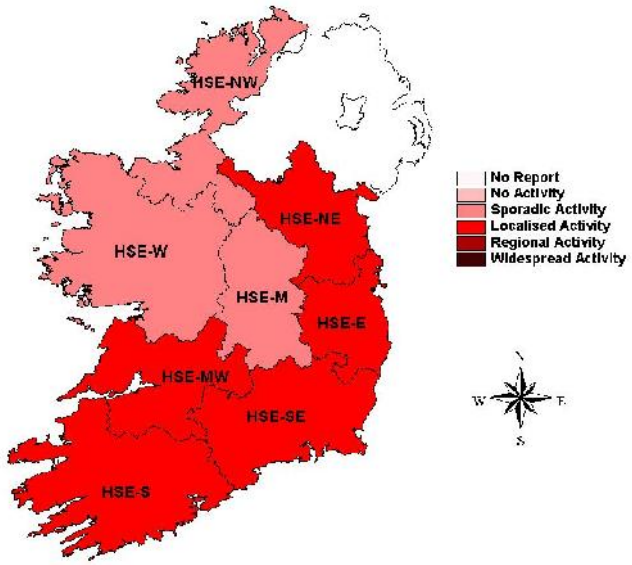

Figure 6: Map of provisional influenza activity by HSE-Area during influenza week 13 2015.

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 slightly during week 12 2015 to 354, compared to 209 during week 11 2015. Data for week 13 2015 were incomplete; with 5/8 sentinel hospitals reporting. All five reporting sentinel hospitals during week 13 2015, reported a decrease in respiratory admissions compared to the previous week. Respiratory admissions reported from sentinel hospitals during the 2014/2015 season peaked in late December 2014/early January 2015 (figure 7).

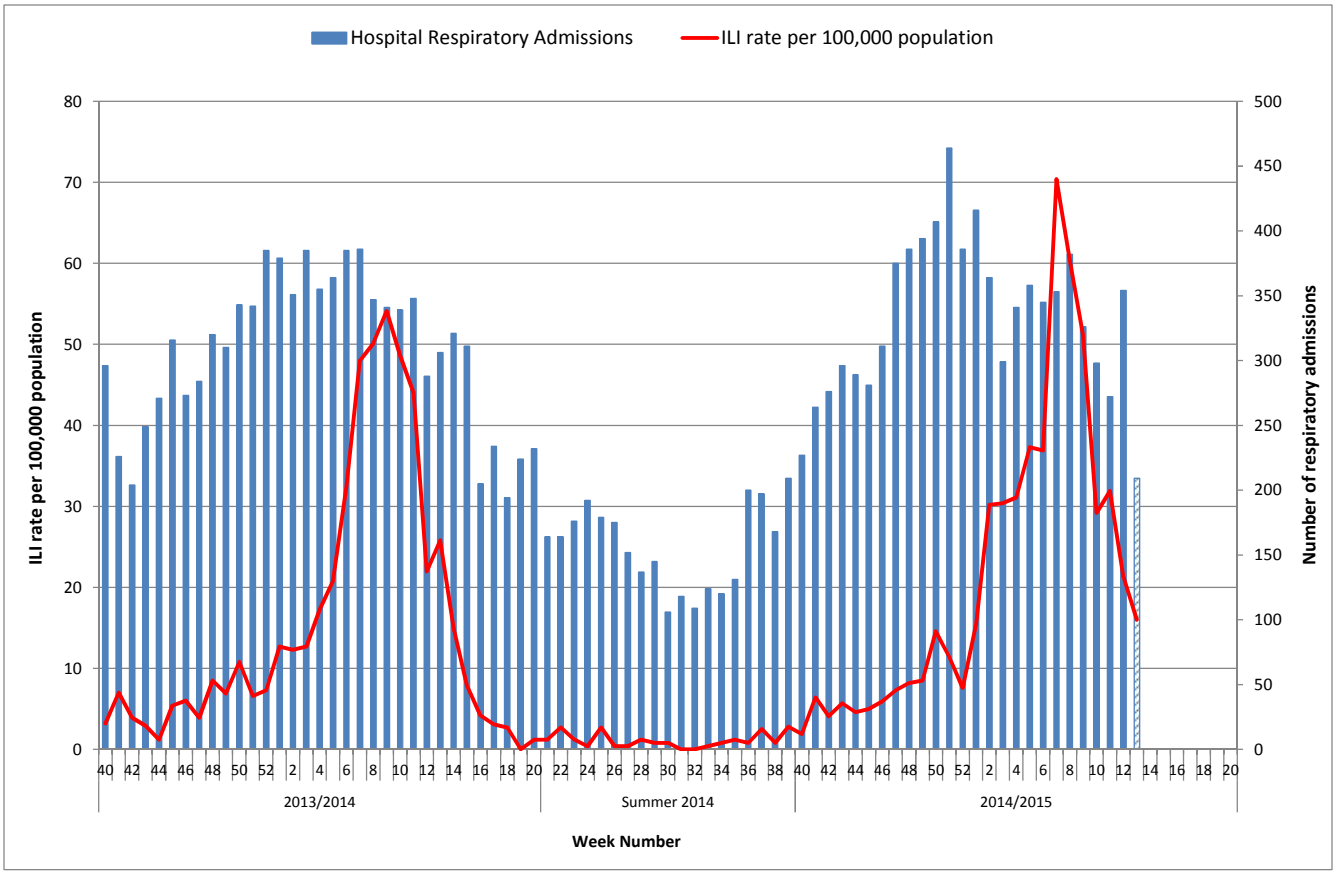

Figure 7: Number of respiratory admissions reported from sentinel hospitals and ILI sentinel GP consultation rate per 100,000 population by week and season. *Source: Departments of Public Health - Sentinel Hospitals & ICGP. It should be noted that data for week 13 2015 were incomplete.*

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 to 2.6% during week 13 2015, compared to 3.4% during week 12 2015 (figure 8).

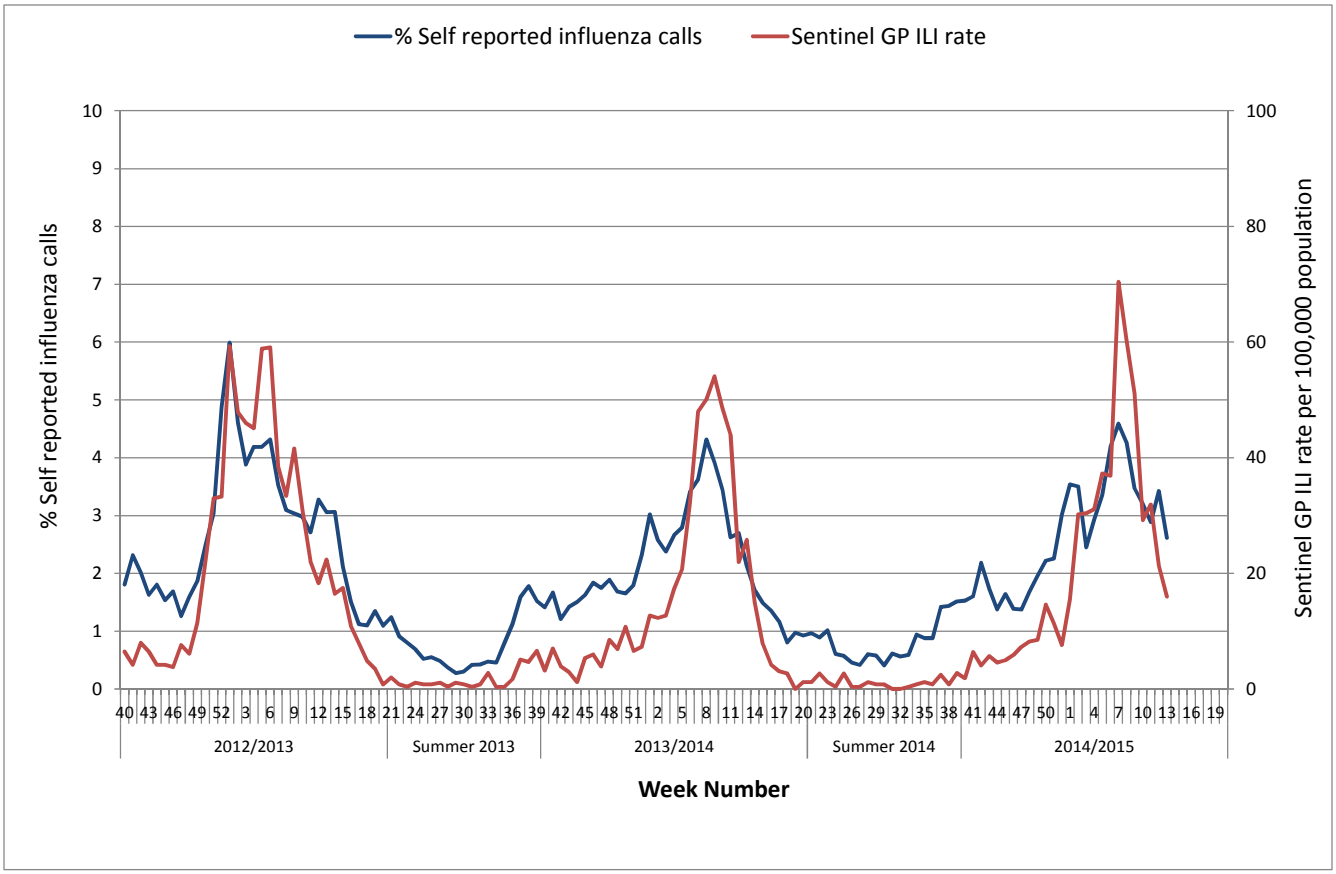

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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

- Fifty confirmed influenza hospitalised cases were notified to HPSC during the week ending 29th March 2015: 11 were associated with influenza A(H3), 4 with A(H1)pdm09, 11 with A (not subtyped) and 24 with influenza B.
- For the 2014/2015 season to date (up to week ending 29nd March 2015), 795 confirmed influenza cases were reported as hospitalised to HPSC, 420 associated with A(H3), 69 with A(H1)pdm09, 206 with A (not subtyped) and 100 with influenza B. The number of confirmed influenza hospitalised cases peaked during the week ending 22nd February 2015 (week 8 2015), with 135 hospitalised cases swabbed during that week. The median age of hospitalised confirmed influenza cases to date this season is 61 years. The highest age specific rates are in those aged 65 years and 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, 46 confirmed influenza cases were admitted to critical care units and reported to HPSC, 22 associated with A(H3), eight with A(H1)pdm09, nine with influenza A (not subtyped) and seven with B. The highest age specific rates are in those aged 65 years and older, with a median age of 68 years.

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. *Age group was unknown for one hospitalised case.*

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	44	60.8	0	0.0
1-4	61	21.5	0	0.0
5-14	58	9.3	0	0.0
15-24	35	6.0	1	0.2
25-34	60	7.9	1	0.1
35-44	54	7.2	5	0.7
45-54	36	6.2	6	1.0
55-64	80	17.3	6	1.3
≥65	366	68.4	27	5.0
Total	**795**	**17.3**	**46**	**1.0**

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/

- Twenty-seven influenza-associated deaths were reported to HPSC this season to date, 16 were associated with influenza A(H3), two associated with influenza A(H1)pdm09, seven 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. Four cases were in the 45-64 year age group and 23 cases were in those aged 65 years and older.
- Between weeks 2 and 9 2015, excess all-cause mortality was reported in Ireland in those aged 65 years and 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. During week 13 2015, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.
- In Belgium, England, France, Hungary, Ireland, the Netherlands, Northern Ireland, Scotland, Spain, Sweden, Switzerland, and Wales excess number of deaths among the elderly have been observed since the beginning of the year. For England, Scotland and Wales the excess seen this winter appears to have ended. Excess all-cause mortality cannot be attributed with certainty to specific causes, but may be associated with circulating influenza, extreme cold or increases in acute respiratory illness. The current excess coincide with circulating influenza A(H3), and medium to high intensity in most countries and additionally with cold snaps in Spain and Portugal in the first weeks of the year. The excess all-cause mortality reported among the elderly this season is higher than the previous four winter seasons. http://www.euromomo.eu/.

9. Outbreak Surveillance

- Five acute respiratory general outbreaks were reported to HPSC during the week ending 29th March 2015: one outbreak was associated with influenza A, two with influenza B, one with RSV and one outbreak had no pathogen identified. Four outbreaks were in community hospitals/residential care facilities and one was in an acute hospital.
- For the 2014/2015 influenza season to date (up to the week ending 29th March 2015), 99 acute respiratory outbreaks were reported to HPSC. Seventy-five of these outbreaks were associated with influenza: 58 associated with A(H3), three with both A(H3) and A(H1)pdm09, four with A(H1)pdm09, four with A (not subtyped) and six with influenza B. Four outbreaks were associated with RSV, four with hMPV and 16 acute respiratory outbreaks had no pathogens identified. The majority of acute respiratory outbreaks this season occurred in residential care facilities/community hospital settings (82 of 99; 83%), mainly affecting the elderly. Fifteen 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.

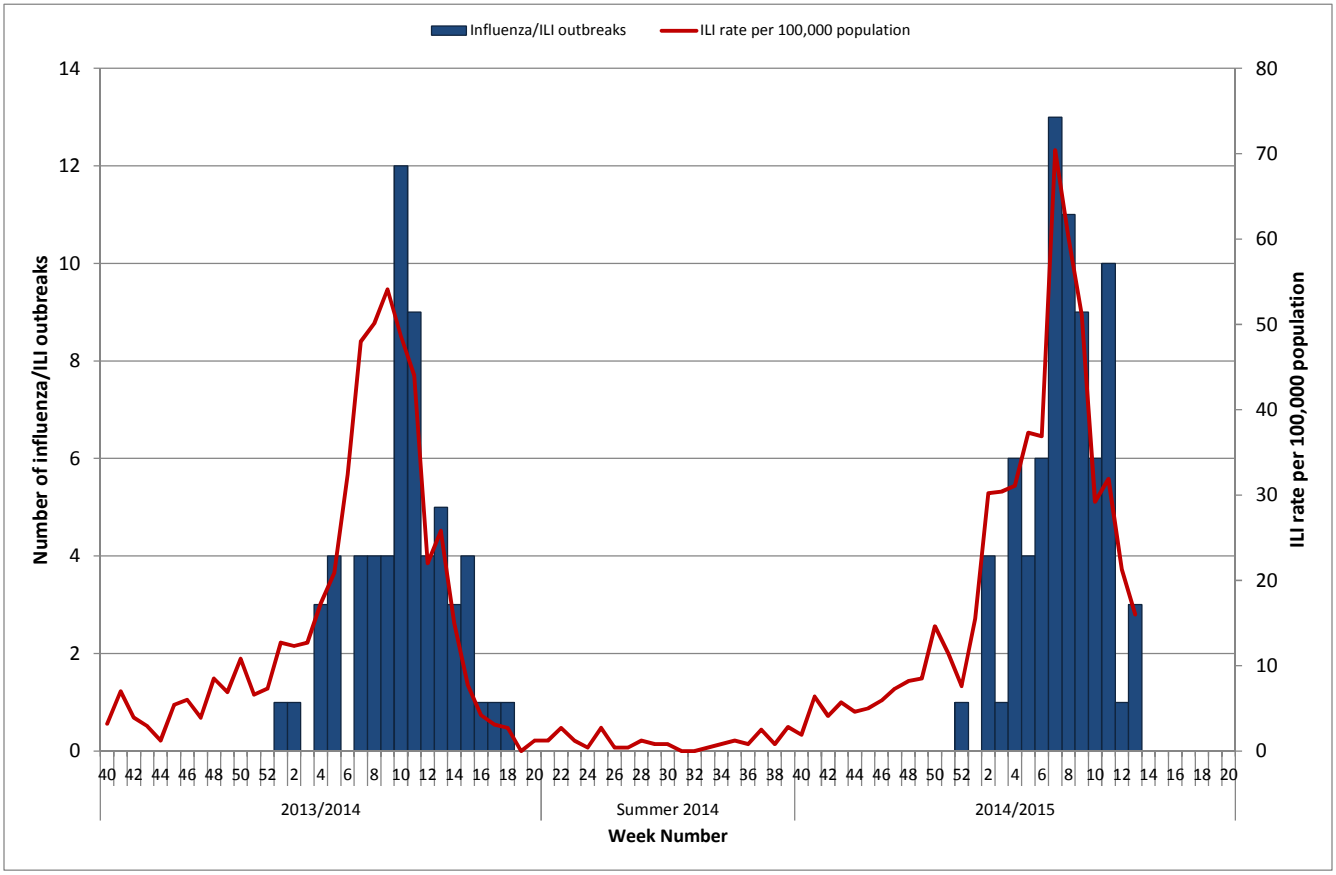

Figure 9: Number of influenza/ILI outbreaks and national sentinel GP ILI consultation rate per 100,000 population by week and influenza season. *It should be noted that the week numbers run Monday to Sunday, as per the international influenza surveillance calendar. Source: Computerised Infectious Disease Reporting System (CIDR) & ICGP.*

10. International Summary

- In Europe, influenza activity is decreasing in most reporting countries, however the proportion of influenza virus positive samples remains high (41%). Influenza A(H1N1)pdm09, A(H3N2) and influenza B viruses continue to circulate in Europe, with increasing proportions of influenza B viruses detected.
- Approximately, two thirds of the A(H3N2) viruses characterised in Europe to date this season show antigenic differences compared to the virus included in the 2014/2015 northern hemisphere influenza vaccine. The observed reduction in effectiveness of the A(H3N2) component of the vaccine might have contributed to the excess mortality reported among older age groups. The A(H1N1)pdm09 and B components of the vaccine are likely to be effective. There are no indications of reduced sensitivity of influenza A or B viruses to the neuraminidase inhibitors oseltamivir or zanamivir.
- In North America, influenza activity continued to decrease but remained elevated, with late season circulation of influenza B. Overall, influenza A(H3N2) viruses predominated this season.
- 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.
- The latest ECDC rapid risk assessment on human infection with avian influenza A(H5N1) in Egypt is available 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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