Influenza Surveillance in Ireland – Weekly Report

Influenza Week 48 2017 (27th November – 3rd December 2017)

Summary

All indicators of influenza activity in Ireland were at low levels during week 48 2017 (week ending 3rd December 2017). Sporadic confirmed cases of influenza A(H1N1)pdm09, A(H3N2) and B have been reported to date this season. Respiratory syncytial virus (RSV) notifications remained elevated.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 8.0 per 100,000 population in week 48 2017, a slight increase compared to the updated rate of 4.8 per 100,000 reported during week 47 2017.
  - ILI rates were below the Irish baseline threshold (17.5 per 100,000 population).
  - ILI age specific rates remained below baseline in all age groups.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services was at low levels during week 48 2017.
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity reported by the NVRL was at very low levels during week 48 2017, at 3.1%.
  - No confirmed influenza positive specimens were reported from the sentinel GP network during week 48 2017
  - Eleven confirmed influenza positive specimens were reported from non-sentinel sources during week 48 2017.
  - Sporadic positive specimens of influenza A(H1N1)pdm09, A(H3N2) and B have been reported from sentinel GP and non-sentinel sources to date this season.
  - Respiratory syncytial virus (RSV) positivity was elevated in recent weeks, however remained within expected levels for this time of year.
  - Picornavirus positive detections, which include both rhinoviruses and enteroviruses, have continued to be reported at increased levels since September 2017, compared to the summer period.
- Hospitalisations: Three confirmed influenza hospitalised cases were notified to HPSC during week 48 2017.
- Critical care admissions: No confirmed influenza cases were admitted to critical care units and reported to HPSC for the 2017/2018 season to date.
- Mortality: There were no reports of any confirmed influenza deaths occurring during weeks 40-48 2017.
- Outbreaks: One acute respiratory infection (ARI) general outbreak was notified from HSE-Northwest during week 48 2017.
- International: Influenza activity remained at low levels in the European Region.

1. GP sentinel surveillance system - Clinical Data

- During week 48 2017, 19 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 8.0 per 100,000 population, remaining low, and stable compared to the updated rate of 4.8 per 100,000 reported during week 47 2017. The ILI rate for week 48 2017 is below the Irish baseline ILI threshold (17.5/100,000 population) (figure 1).
- ILI age specific rates were below baseline in all age groups during week 48 2017 (figure 2).
- HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) has revised the Irish baseline ILI threshold for the 2017/2018 influenza season to 17.5 per 100,000 population; this threshold indicates the likelihood that influenza is circulating in the community. The Moving Epidemic Method (MEM) has been adopted by ECDC to calculate thresholds for GP ILI consultations in a standardised approach across Europe.[1]
- The baseline ILI threshold (17.5/100,000 population), medium (59.6/100,000 population) and high (114.5/100,000 population) intensity ILI thresholds are shown in figure 1.

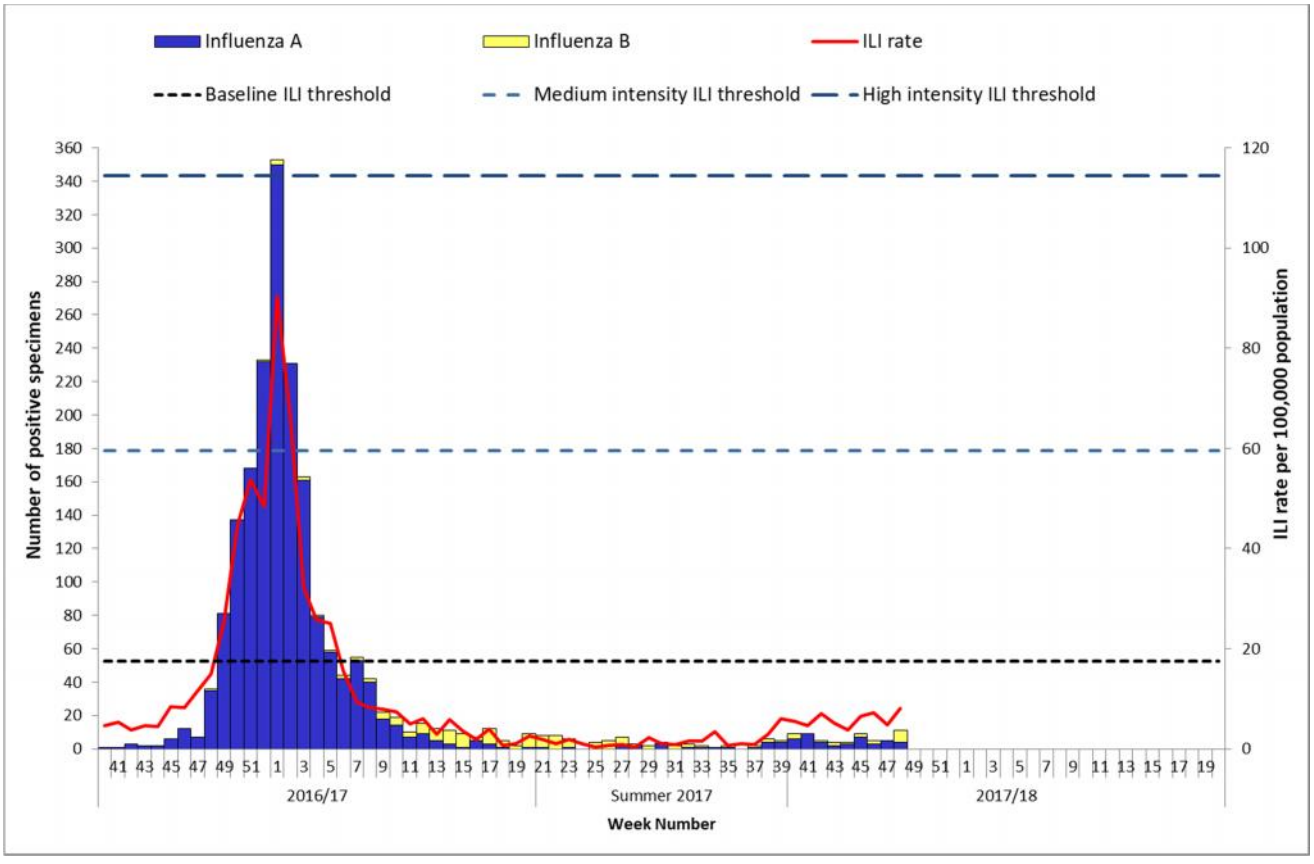

Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds* and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
Source: ICGP and NVRL

* For further information on the Moving Epidemic Method (MEM) to calculate ILI thresholds: http://www.ncbi.nlm.nih.gov/pubmed/22897919

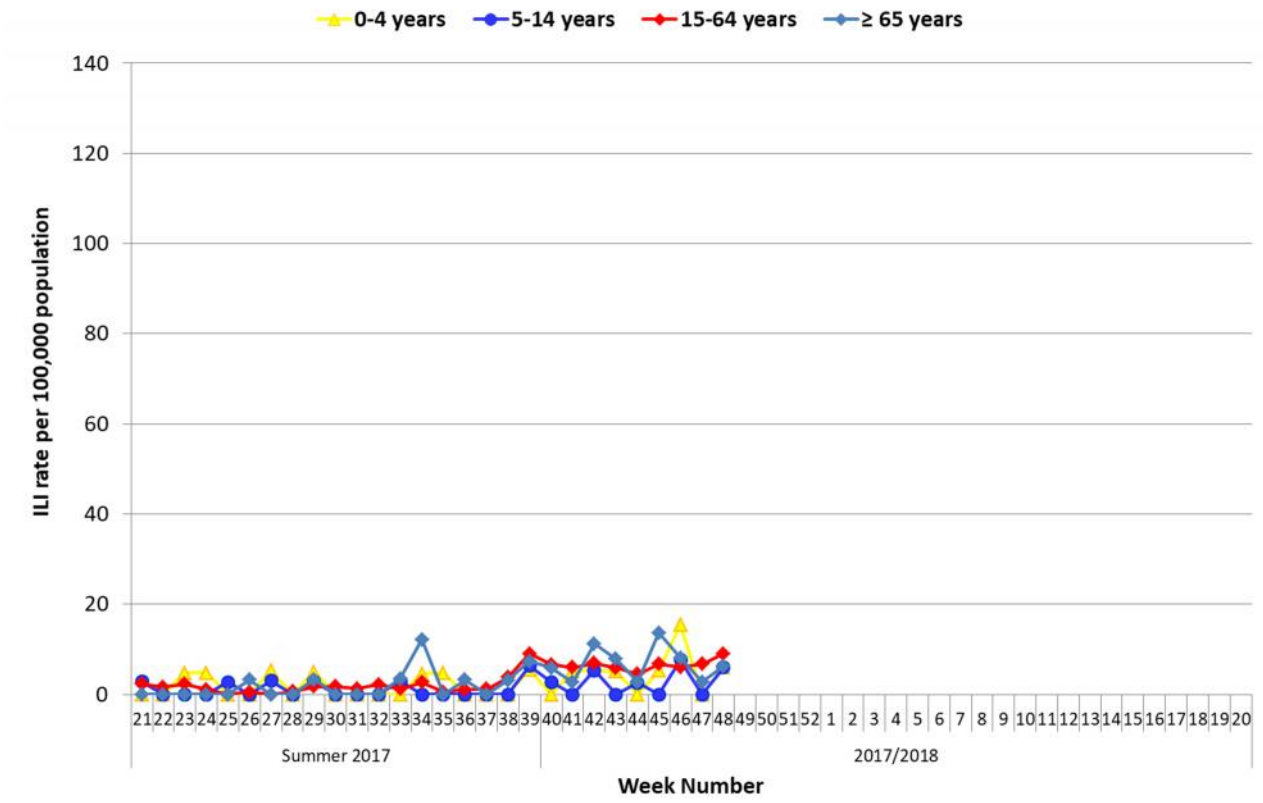

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2017 and the 2017/2018 influenza season to date. *Source: ICGP.*

2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2017/2018 influenza season refers to sentinel and non-sentinel respiratory specimens routinely tested* for influenza, respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses types 1, 2, 3 & 4 (PIV-1, -2, -3 & -4) and human metapneumovirus (hMPV) by the National Virus Reference Laboratory (NVRL) (figure 3 and tables 1 & 2).

- Influenza positivity reported by the NVRL was at very low levels during week 48 2017, at 3.1%.
- No confirmed influenza positive specimens were reported from sentinel GP sources during week 48 2017. Eleven confirmed influenza positive specimens were reported from non-sentinel sources during week 48 2017, seven were influenza B, three were influenza A (H3) and one was A(H1N1)pdm09. Data from the NVRL for week 48 2017 and the 2017/2018 season to date are detailed in tables 1 and 2.
- Sporadic positive specimens of influenza A(H3N2), A(H1N1)pdm09 and B were reported from sentinel GP and non-sentinel sources for the 2017/2018 influenza season to date.
- Respiratory syncytial virus (RSV) positive detections have increased in recent weeks; however remain within expected levels for this time of year (table 2).
- Human metapneumovirus (hMPV) positive detections increased during weeks 45 and 46 2017. Sporadic detections of parainfluenza virus and adenovirus have continued to be reported since week 40 2017 (table 2).
- Picornavirus positive detections, which include both rhinoviruses and enteroviruses, have continued to be reported at increased levels since the end of September 2017, compared to the summer 2017 period. It should be noted that there are no historic data on picornaviruses for seasonal comparisons. Data on picornaviruses* are not included in this report. **Respiratory viruses routinely tested for by the NVRL and reported in the influenza surveillance report are detailed above.*

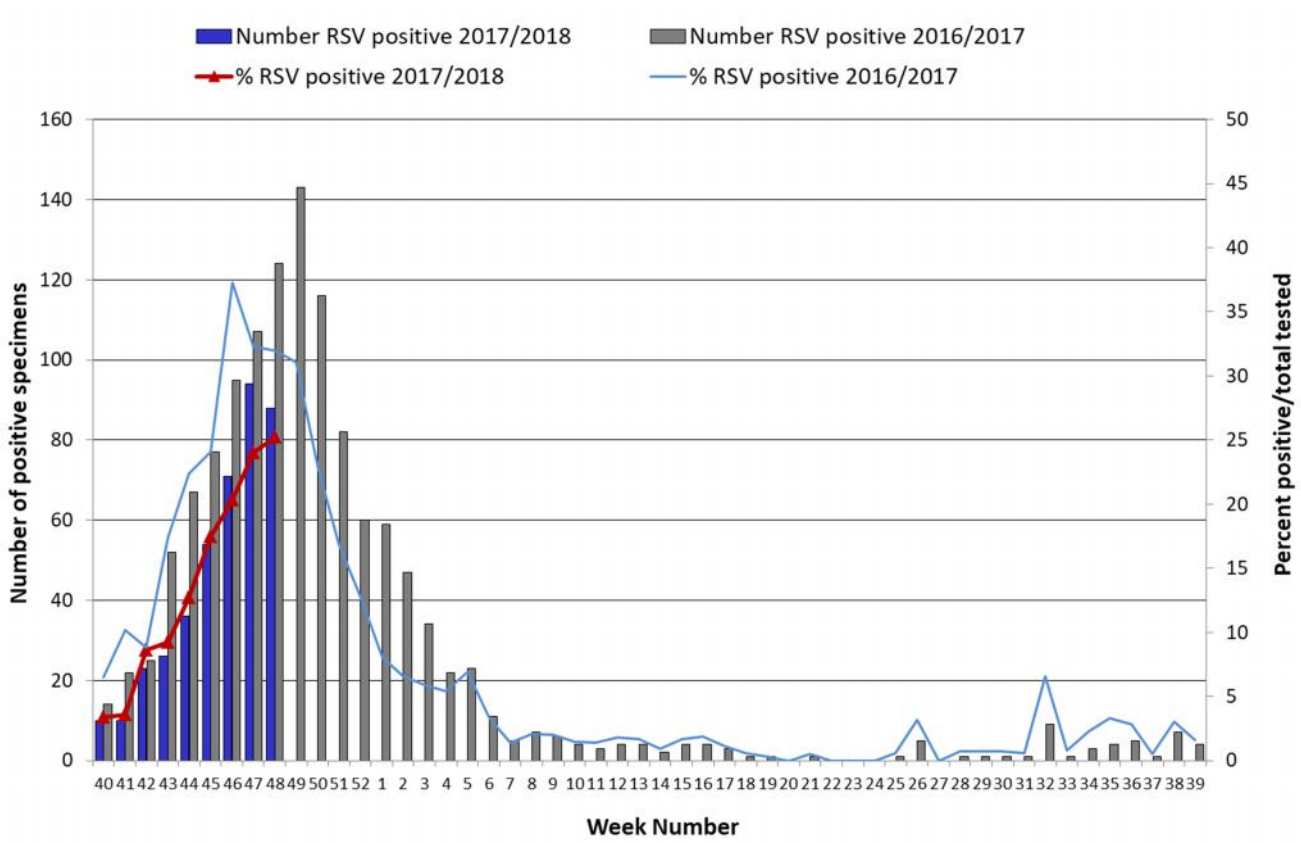

Figure 3: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2017/2018 season, compared to the 2016/2017 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for week 48 2017 and the 2017/2018 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	
48 2017	Sentinel	11	0	0.0	0	0	0	0	0
	Non-sentinel	349	11	3.2	1	3	0	4	7
	Total	**360**	**11**	**3.1**	**1**	**3**	**0**	**4**	**7**
2017/2018	Sentinel	136	13	9.6	1	4	2	7	6
	Non-sentinel	2803	48	1.7	9	24	3	36	12
	Total	**2939**	**61**	**2.1**	**10**	**28**	**5**	**43**	**18**

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 48 2017 and the 2017/2018 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
48 2017	Sentinel	11	1	9.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	349	88	25.2	5	1.4	4	1.1	4	1.1	1	0.3	1	0.3	23	6.6
	Total	**360**	**89**	**24.7**	**5**	**1.4**	**4**	**1.1**	**4**	**1.1**	**1**	**0.3**	**1**	**0.3**	**23**	**6.4**
2017/2018	Sentinel	136	6	4.4	4	2.9	11	8.1	0	0.0	0	0.0	2	1.5	1	0.7
	Non-sentinel	2803	412	14.7	77	2.7	121	4.3	24	0.9	10	0.4	30	1.1	196	7.0
	Total	**2939**	**418**	**14.2**	**81**	**2.8**	**132**	**4.5**	**24**	**0.8**	**10**	**0.3**	**32**	**1.1**	**197**	**6.7**

[†] 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.

Sporadic influenza activity (based on ILI cases and/or laboratory confirmed influenza cases) was reported in HSE-East, -Midlands, -Midwest, -North East -South East and -West during week 48 2017. No influenza activity was reported in HSE –North West and -South, during week 48 2017 (figure 4).

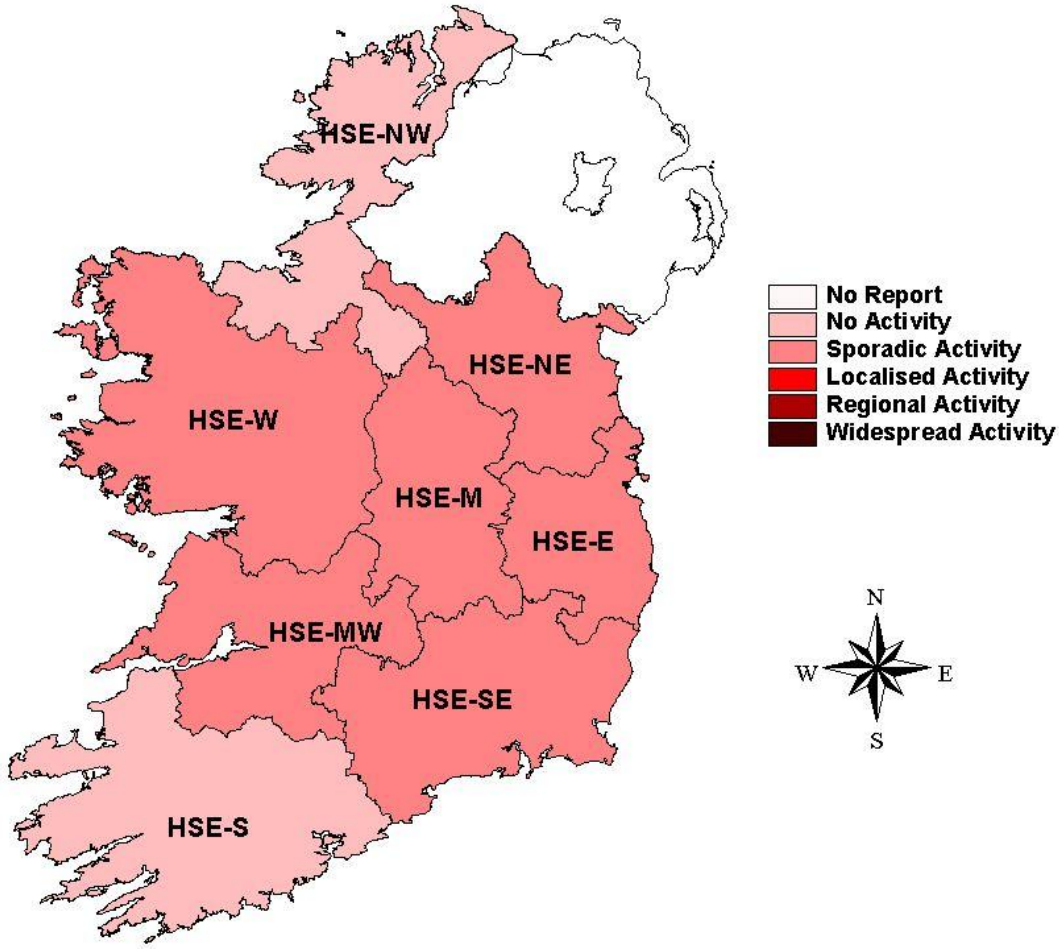

Figure 4: Map of provisional influenza activity by HSE-Area during influenza week 48 2017

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 a network of sentinel hospitals were at low levels; at 412 during week 47 and 396 during week 48 2017 (figure 5). All eight sentinel hospitals reported data for week 47 and seven hospitals reported data for week 48 2017.

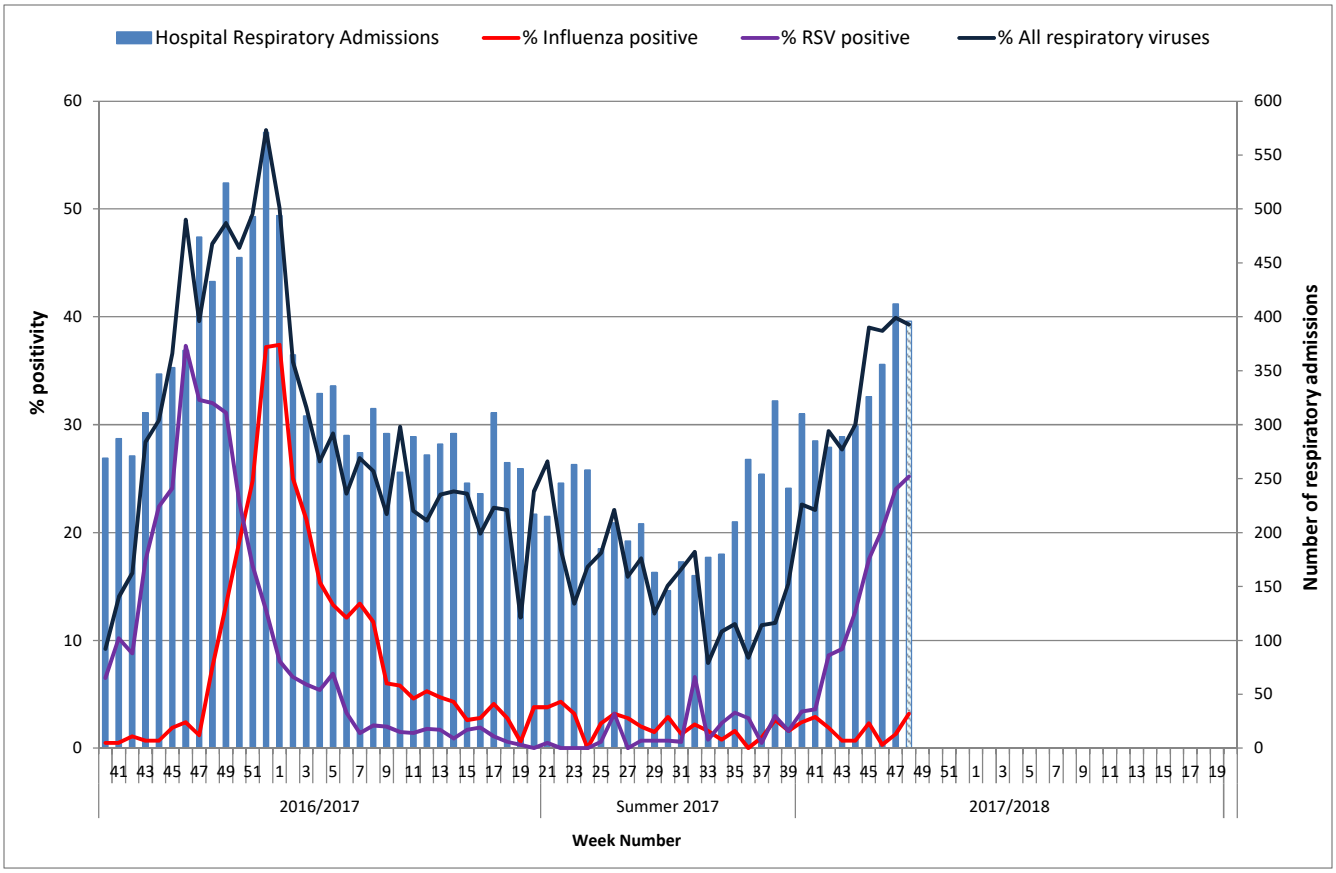

Figure 5: Number of respiratory admissions reported from the sentinel hospital network and % positivity for influenza, RSV and all seasonal respiratory viruses tested* by the NVRL by week and season. *Source: Departments of Public Health - Sentinel Hospitals & NVRL. *All seasonal respiratory viruses tested refer to non-sentinel respiratory specimens routinely tested by the NVRL including influenza, RSV, adenovirus, parainfluenza viruses and human metapneumovirus (hMPV). Data were incomplete during weeks 48 2017 and are represented by the hatched bar*

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 remained at low levels and was stable during week 48 2017 at 2.0%, compared to 1.5% reported during week 47 2017. A slight increase in the proportion of influenza-related calls to GP Out-of-Hours services occurred between weeks 36-39 2017; this increase is usually observed each September when schools return from the summer break (figure 6).

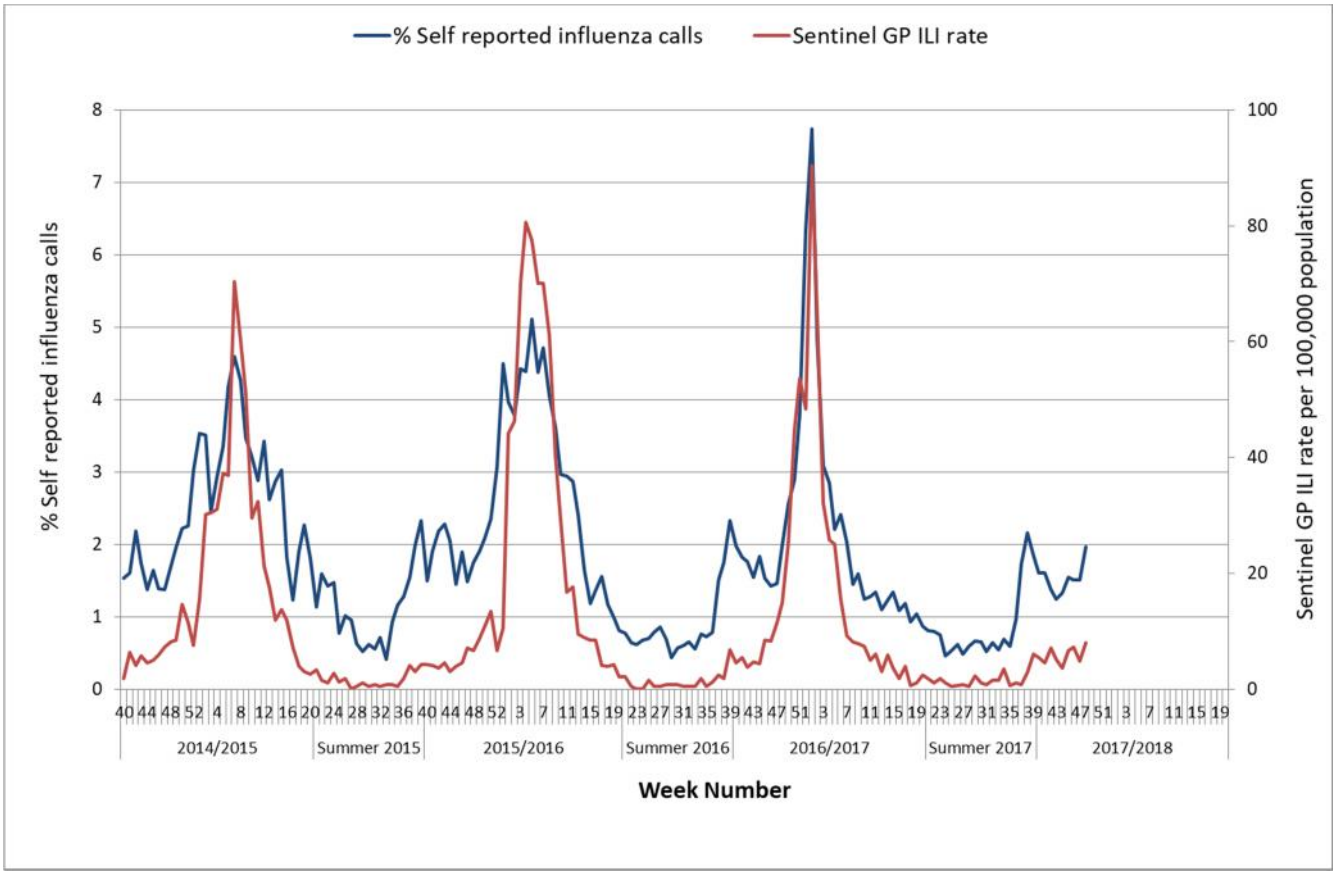

Figure 6: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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. Influenza notifications were at low levels during week 48 2017, with nine confirmed influenza cases notified; one case associated with influenza A(H1N1)pdm09, one with influenza A(H3N2), four with influenza A (not subtyped) and three with influenza B. RSV notifications increased during week 48 2017, with 159 cases notified, compared to 111 cases notified during week 47 2017.

6. Influenza Hospitalisations

Three confirmed influenza hospitalised cases were notified to HPSC during week 48 2017, one associated with influenza A(H3N2), one influenza A (not subtyped) and one with influenza B. For the 2017/2018 influenza season to date, 33 confirmed influenza hospitalised cases have been notified to HPSC: six associated with influenza A(H1N1)pdm09, seven with A(H3N2), 11 with A (not subtyped) and nine with influenza B.

7. Critical Care Surveillance

The Intensive Care Society of Ireland (ICSI) and the HSE Critical Care Programme are continuing with the enhanced surveillance system set up during the 2009 pandemic, on all critical care patients with confirmed influenza. HPSC processes and reports on this information on behalf of the regional Directors of Public Health/Medical Officers of Health.

No confirmed influenza cases were admitted to critical care and reported to HPSC during weeks 40 - 48 2017.

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/

- No confirmed influenza cases died and were notified to HPSC during weeks 40 to 48 2017.
- No excess all-cause mortality was reported this season in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.

9. Outbreak Surveillance

One acute respiratory infection (ARI) general outbreak (associated with picornavirus – which includes rhinovirus and enterovirus) in a community hospital in HSE-Northwest was reported during week 48 2017. For the 2017/2018 influenza season to date, four influenza/ARI general outbreaks in residential care facilities/long stay units/other residential settings have been notified; one in HSE-South associated with influenza A(H1N1)pdm09 and three in HSE-Northwest (one associated with RSV and two with picornavirus - which includes both rhinoviruses and enteroviruses). *Family outbreaks are not included in this surveillance report.*

10. International Summary

Influenza activity remained low across the European Region. For detections from both sentinel and non-sentinel surveillance systems, most influenza viruses subtyped or assigned to a lineage this season were identified as A(H3N2) and B/Yamagata viruses, respectively. While low in number (n=35), over 59% of the A(H3N2) viruses genetically characterised belonged to clade 3C.2a, the vaccine virus clade, as described in the WHO recommendations for vaccine composition for the northern hemisphere 2017–18. As of November 13th 2017, globally, influenza activity increased slightly in the temperate zone of the northern hemisphere. Declining levels of influenza activity were reported in the temperate zone of the southern hemisphere and in some countries of South and South East Asia. In Central America and the Caribbean, low influenza activity was reported in a few countries. Worldwide, influenza A(H3N2) and B viruses accounted for the majority of influenza detections. 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
- Information on Middle Eastern Respiratory Syndrome Coronavirus (MERS), 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.
- Further information on avian influenza is available on the ECDC website. The latest ECDC rapid risk assessment on highly pathogenic avian influenza A of H5 type is also available on the ECDC website.

11. WHO recommendations on the composition of influenza virus vaccines

On March 2, 2017, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2017/2018 northern hemisphere influenza season contain the following: an A/Michigan/45/2015 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; a B/Brisbane/60/2008-like virus. It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus.

On September 28, 2017, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2018 southern hemisphere influenza season contain the following: an A/Michigan/45/2015 (H1N1)pdm09-like virus; an A/Singapore/INFIMH-16-0019/2016 (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.
http://www.who.int/influenza/vaccines/virus/recommendations/en/

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

Acknowledgements

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