Influenza Surveillance in Ireland – Weekly Report

Influenza Week 1 2017 (2nd – 8th January 2017)

Intensive Care Society of Ireland

Summary

Overall, influenza activity in Ireland increased during week 1 2017 (up to the week ending January 8, 2017). Influenza A(H3) is the predominant influenza virus circulating this season. Confirmed influenza hospitalisations and influenza outbreaks remain at high levels and are continuing to increase, with those aged 65 years and older most affected. Respiratory admissions reported from a sentinel hospital network were at very high levels. It is recommended that antivirals be considered for the treatment and prevention of influenza in high risk groups.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 95.3 per 100,000 population in week 1 2017, an increase compared to the rate of 52.3 per 100,000 reported during week 52 2016.
  - The ILI rates have been above the Irish baseline ILI threshold (18.3/100,000) for five consecutive weeks (weeks 49 2016 – 1 2017) and were above the medium intensity threshold level in week 1 2017.
  - The latest ILI age specific rates were highest in those aged 65 years and older.
- GP Out of Hours: The proportion of influenza–related calls to GP Out-of-Hours services increased further during week 1 2017, reaching the highest level reported since the 2010/11 season.
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity increased significantly during week 1 2017, with 318 (44.7%) influenza A positive specimens reported from the NVRL from sentinel GP and non-sentinel sources.
  - Influenza A(H3) is the predominant circulating influenza virus this season to date.
  - Positive detections of respiratory syncytial virus (RSV) have decreased significantly during week 1 2016. RSV circulated earlier and at higher levels this season than are normally observed.
  - Human metapneumovirus (hMPV), adenovirus and parainfluenza virus positive detections continue to be reported. Coinfections of all seasonal respiratory viruses are also being reported.
- Respiratory admissions: Respiratory admissions data reported from a network of sentinel hospitals for week 1 2017 remained at very high levels.
- Hospitalisations: 262 confirmed influenza hospitalised cases were notified to HPSC during week 1 2017, bringing the season total to 535. The majority of hospitalised cases, this season to date, were in those aged 65 years and older. Eighty percent of hospitalised cases were reported by HSE E, MW, SE and S.
- Critical care admissions: 27 confirmed influenza cases have been admitted to critical care units and reported to HPSC this season to date. The majority of cases have been in those aged 65 years and older.
- Mortality: Fifteen confirmed influenza cases died and were notified to HPSC this season to date.
- Outbreaks: 25 acute respiratory infection and influenza outbreaks were reported to HPSC during week 1 2017, bringing the season total to 63.
- International: Preliminary estimates suggest that the effectiveness of this year's vaccine is in line with previous years. However, effectiveness is always partial and the use of antivirals for the treatment of laboratory-confirmed or probable cases of influenza should be considered for vaccinated and non-vaccinated patients at risk. The current information indicates that the circulating influenza viruses are in line with the influenza vaccine components.

1. GP sentinel surveillance system - Clinical Data

- During week 1 2017, 244 influenza-like illness (ILI) cases were reported from sentinel GPs, corresponding to an ILI consultation rate of 95.3 per 100,000 population, an increase compared to the updated rate of 52.3 per 100,000 reported during week 52 2016. The ILI rates have been above the Irish baseline ILI threshold (18.3/100,000 population) for five consecutive weeks (weeks 49 2016 – 1 2017). During week 51 2016 and week 1 2017, ILI rates were above the medium intensity threshold for the first time this season.
- ILI age specific rates were highest in those aged 65 years and older (at 117.2/100,000), followed by the 15-64 year age group (at 111.4/100,000) during week 1 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 2016/2017 influenza season to 18.3 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, medium (58.7/100,000 population) and high (113.3/100,000 population) intensity ILI thresholds are shown in figure 1.

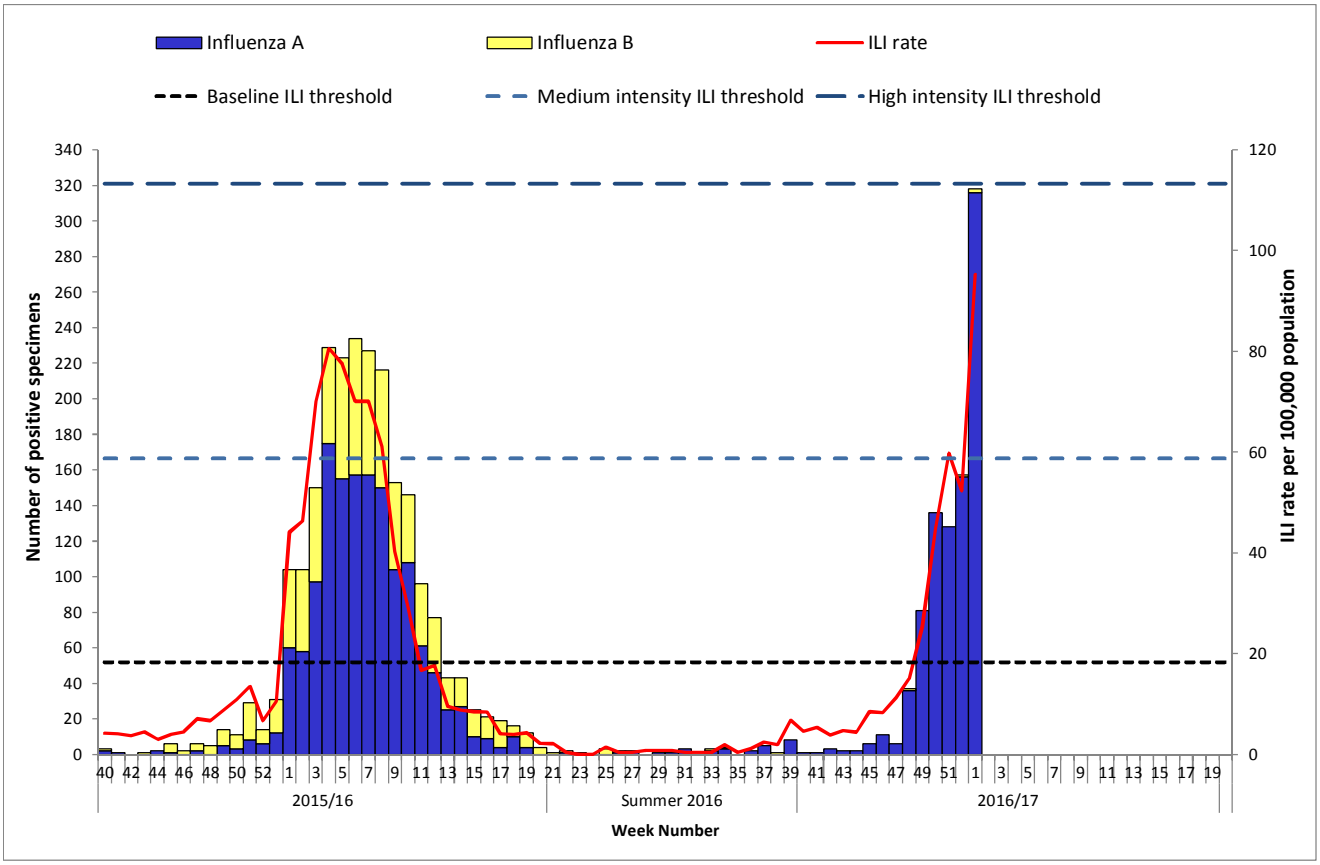

Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds[1] and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
Source: ICGP and NVRL

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

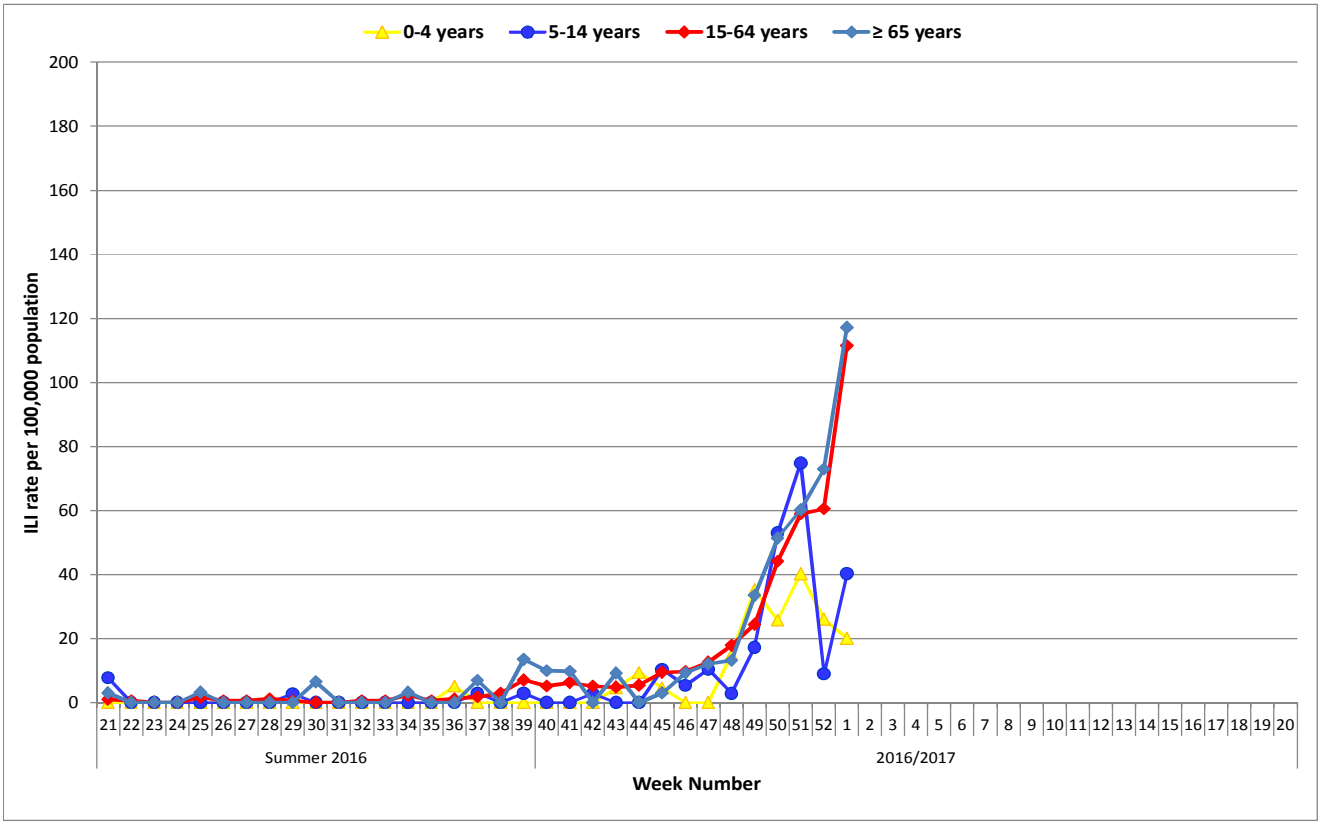

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2016 and the 2016/2017 influenza season to date. *Source: ICGP.*

2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2016/2017 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) (figures 3, 4 & 5, tables 1 & 2).

- Influenza positivity remained elevated during week 1 2017, with 318 (44.7%) influenza positive specimens reported from the NVRL from sentinel GP and non-sentinel sources. Influenza A(H3) is the predominant influenza virus circulating this season to date. Data from the NVRL for week 1 2017 and the 2016/17 season to date are detailed in tables 1 and 2.
- Week 1 2017:
  - 140 of 204 (68.6%) sentinel specimens were influenza positive: 137 were positive for A(H3) and the remaining three were A (not subtyped) .
  - 178 of 507 (35.1%) non-sentinel specimens were influenza positive: 171 A(H3) and 5 A (not subtyped) and 2 influenza B
- Respiratory syncytial virus (RSV) positivity decreased significantly during week 1 2017, with 47 (9.3%) positive non-sentinel specimens reported by the NVRL. In total 1047 RSV positive non-sentinel specimens have been detected by the NVRL this season. RSV circulated earlier and at higher levels than are normally observed. Figure 5 shows the number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2016/17 season, compared to the 2015/16 season. For the 2016/17 season to date, 37 RSV positive specimens have been detected from sentinel GP sources.
- Human metapneumovirus (hMPV), adenovirus and parainfluenza virus (PIV) positive specimens were reported by the NVRL during week 1 2017 (table 2). Coinfections of all seasonal respiratory viruses* were reported over recent weeks.
- The overall proportion of non-sentinel specimens positive for respiratory viruses*, remained high during week 1 2017, at 50%.**Respiratory viruses routinely tested for by the NVRL are detailed above.*

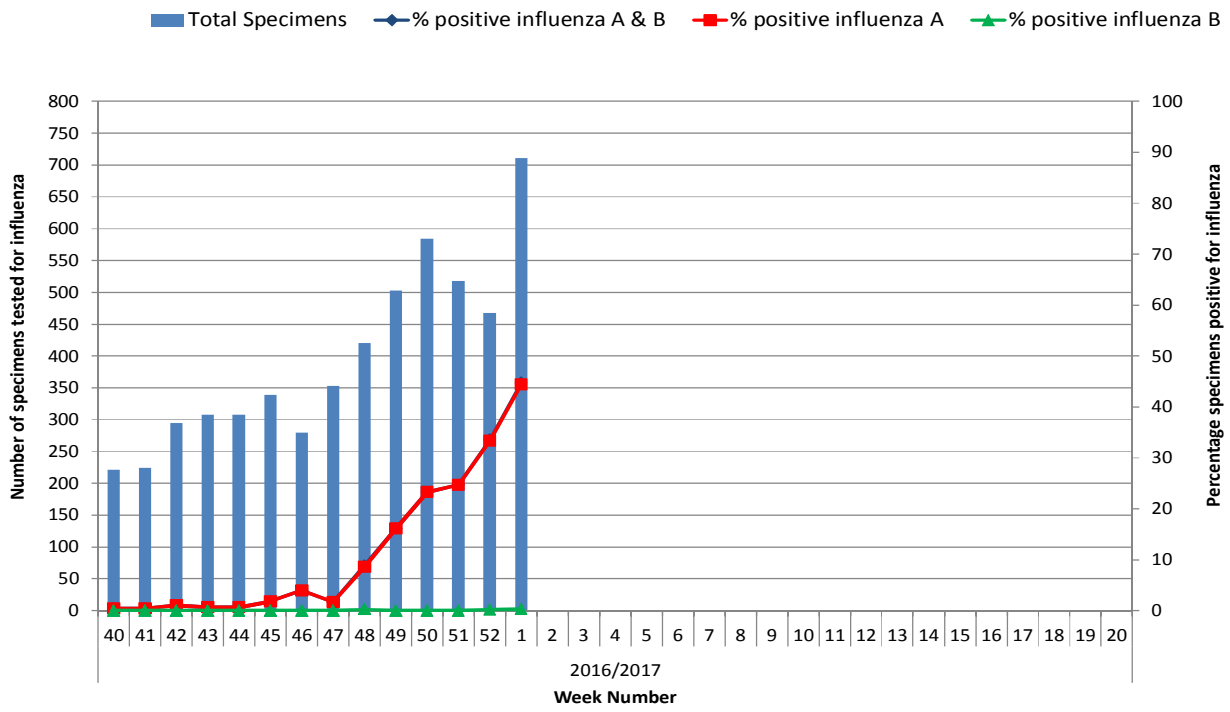

Figure 3: Number of specimens (from sentinel and non-sentinel sources combined) tested by the NVRL for influenza and percentage influenza positive by week for the 2016/2017 influenza season. *Source: NVRL*

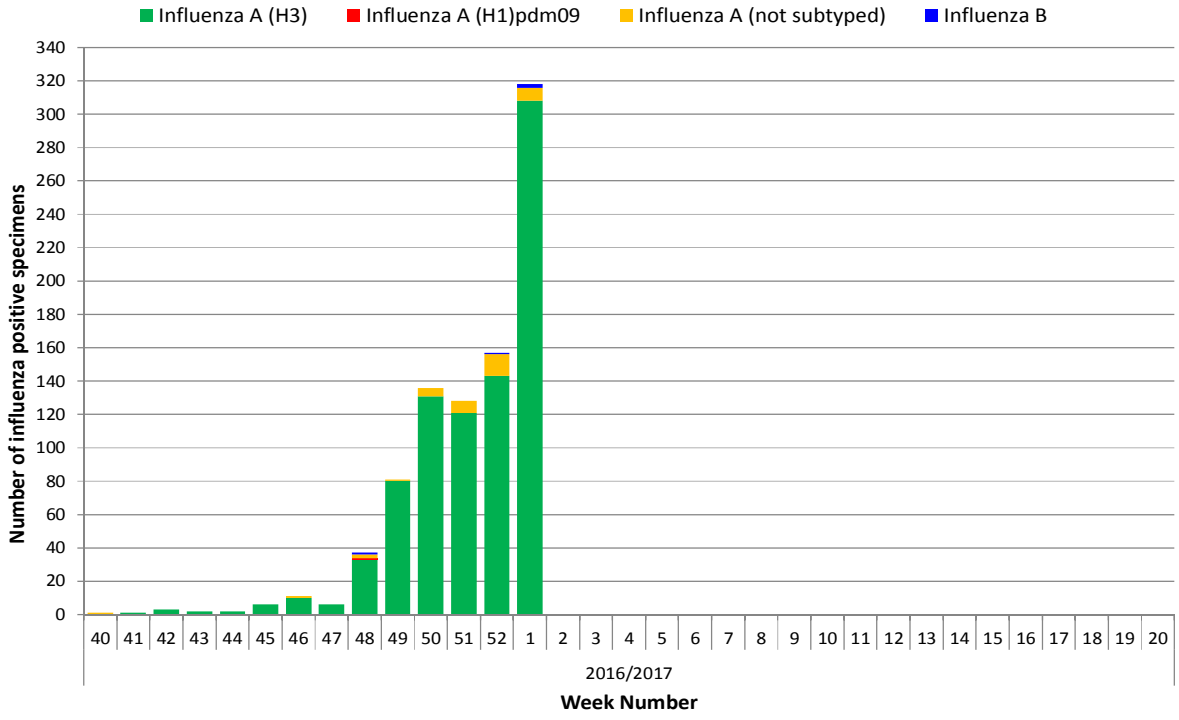

Figure 4: Number of positive influenza specimens (from sentinel and non-sentinel sources combined) by influenza type/subtype tested by the NVRL, by week for the 2016/2017 influenza season. *Source: NVRL.*

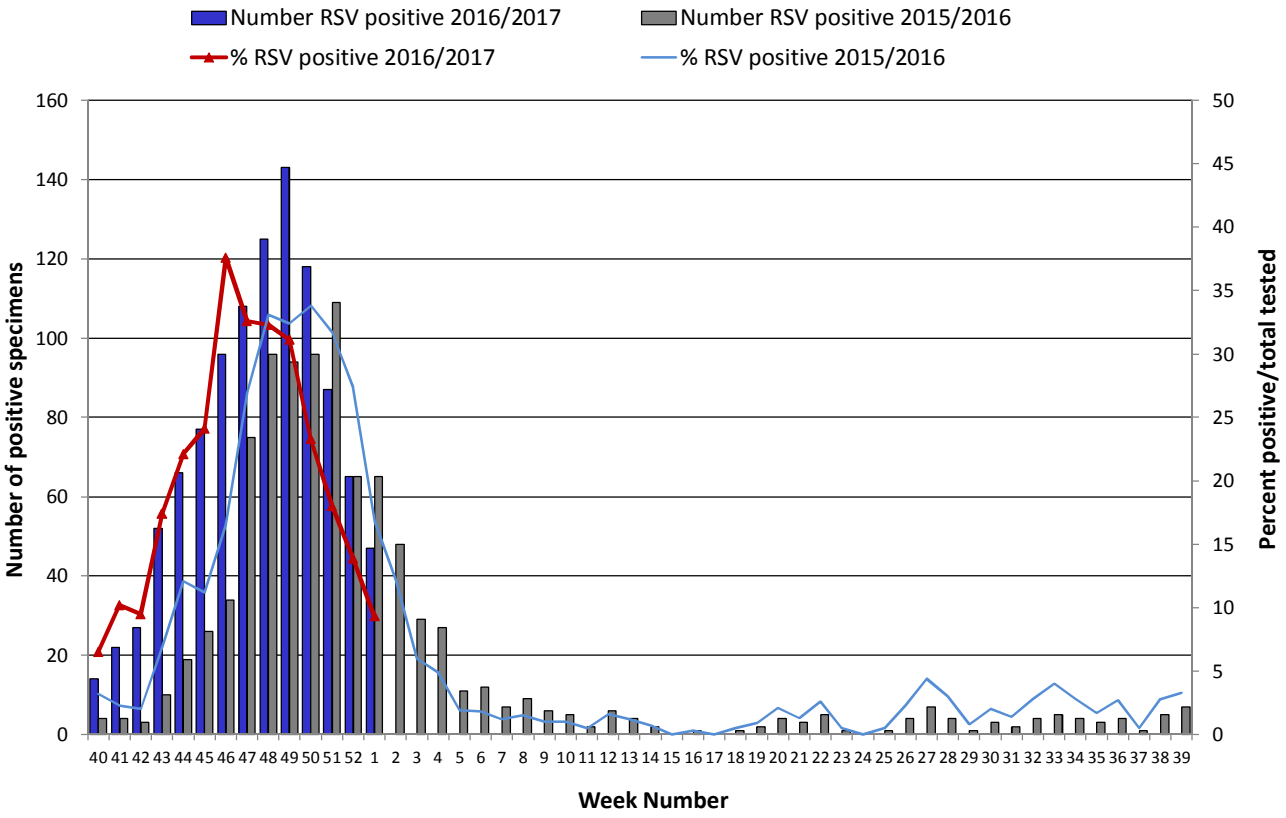

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2016/2017 season, compared to the 2015/2016 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for week 1 2017 and the 2016/2017 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	
1 2017	Sentinel	204	140	68.6	0	137	3	140	0
	Non-sentinel	507	178	35.1	0	171	5	176	2
	Total	**711**	**318**	**44.7**	**0**	**308**	**8**	**316**	**2**
2016/2017	Sentinel	500	232	46.4	0	229	3	232	0
	Non-sentinel	5033	657	13.1	1	617	35	653	4
	Total	**5533**	**889**	**16.1**	**1**	**846**	**38**	**885**	**4**

Table 2: Number of sentinel and non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 1 2017 and the 2016/2017 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
1 2017	Sentinel	204	6	2.9	3	1.5	0	0.0	0	0.0	1	0.5	0	0.0	3	1.5
	Non-sentinel	507	47	9.3	6	1.2	0	0.0	0	0.0	6	1.2	1	0.2	16	3.2
	Total	**711**	**53**	**7.5**	**9**	**1.3**	**0**	**0.0**	**0**	**0.0**	**7**	**1.0**	**1**	**0.1**	**19**	**2.7**
2016/2017	Sentinel	500	37	7.4	4	0.8	0	0.0	2	0.4	4	0.8	4	0.8	16	3.2
	Non-sentinel	5033	1047	20.8	111	2.2	2	0.0	17	0.3	68	1.4	66	1.3	134	2.7
	Total	**5533**	**1084**	**19.6**	**115**	**2.1**	**2**	**0.0**	**19**	**0.3**	**72**	**1.3**	**70**	**1.3**	**150**	**2.7**

[À] 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

The geographical spread of influenza activity is reviewed on a weekly basis using sentinel GP ILI consultation rates, laboratory data and outbreak data.

The geographical spread of influenza/ILI during week 1 2017 is shown in figure 6. Widespread influenza activity was reported in HSE East, South-East, South and Mid-West, regional influenza activity was reported in HSE Midlands and North-East, localised activity was reported in HSE North West and West during week 1 2017 (figure 4).

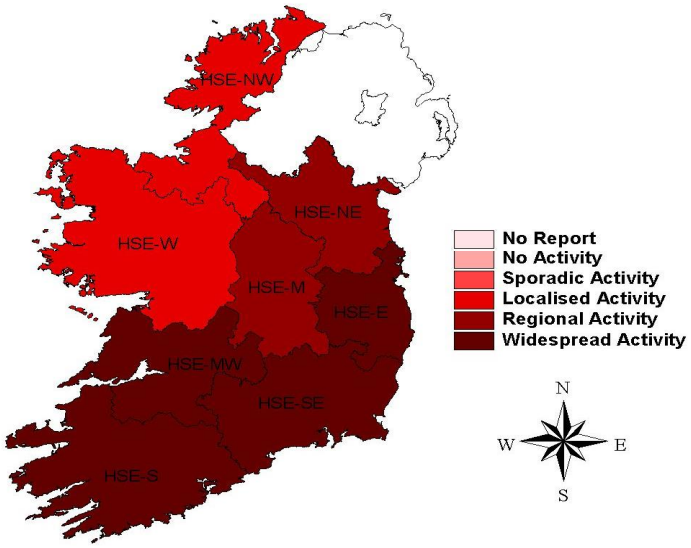

Figure 6: Map of provisional influenza activity by HSE-Area during week 1 2017

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. For the 2016/2017 influenza season, eight sentinel hospitals are regularly reporting respiratory admissions data in a timely manner.

Respiratory admissions reported from a network of sentinel hospitals were at high levels during week 1 2017, at 450 (figure 7). This was a decrease compared to week 52 2016 when 550 admissions were reported. However, data were incomplete at the time of publication of this report, with data missing from two of the eight sentinel hospitals.

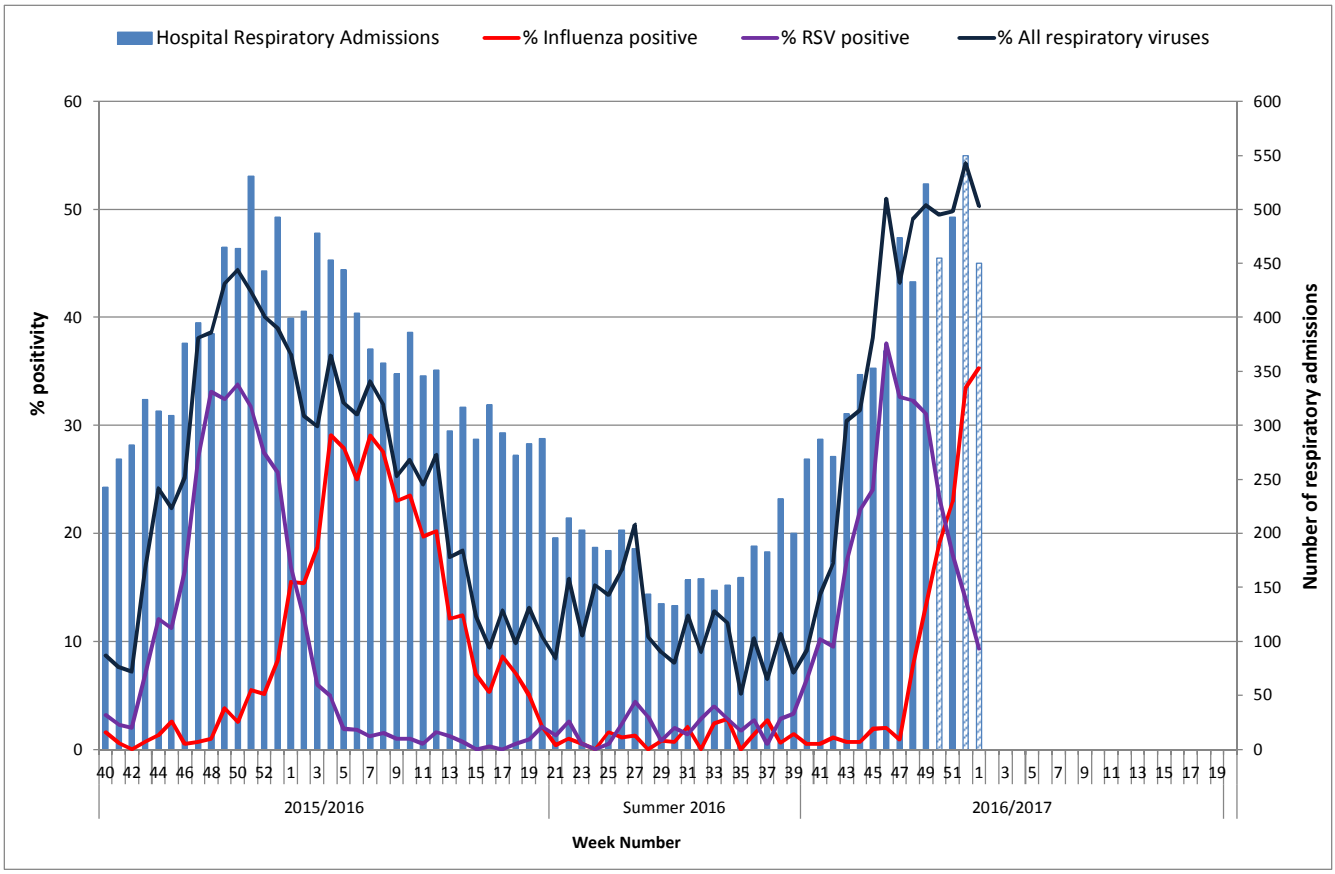

Figure 7: Number of respiratory admissions reported from sentinel hospitals and % positivity for influenza, RSV and all respiratory viruses tested* by the NVRL by week and season. *Source: Departments of Public Health - Sentinel Hospitals & NVRL. *All respiratory viruses tested refer to non-sentinel respiratory specimens routinely tested by the NVRL including influenza, RSV, adenovirus, parainfluenza viruses and human metapneumovirus (hMPV). Data were incomplete during week 50 and 52 2016 and week 1 2017; these weeks are represented by the hatched bars.*

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 increased significantly during week 1 2017 to 7.7%, compared to 6.8% during week 52 2016. The proportion reported in week 1 2017 is at the highest level reported since the 2010/2011 season (figure 8).

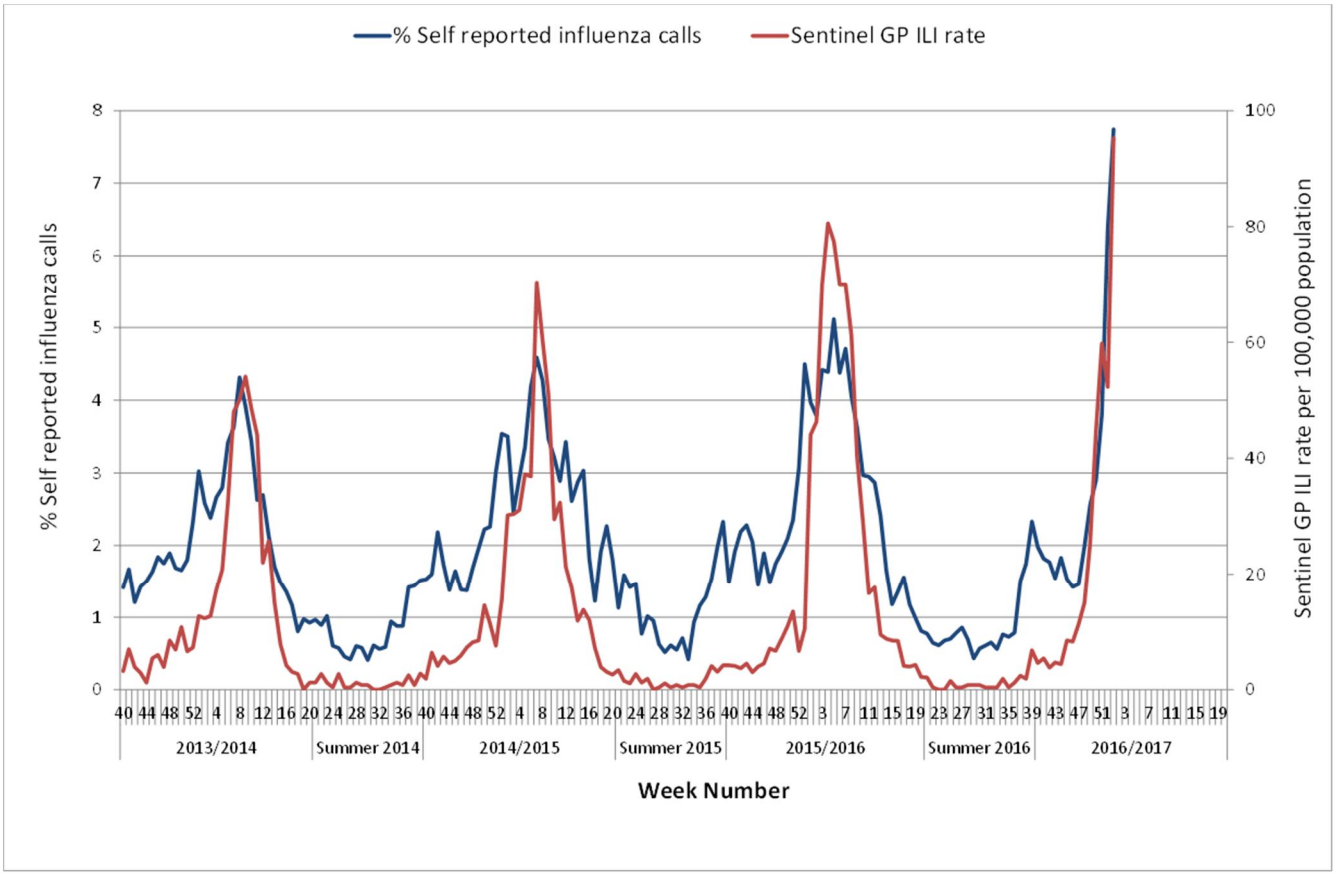

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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. Influenza notifications increased significantly during week 1 2017, with 472 confirmed influenza cases notified. Of the confirmed influenza cases notified during week 1, 408 were associated with influenza A (not subtyped), 60 with A(H3), 1 with A(H1N1)pdm09, 1 with influenza B and 2 with influenza (not typed). RSV notifications remained at high levels, with 153 cases notified during week 1 2017, compared to 252 and 106 during weeks 51 and 52 2016, respectively. However, RSV activity has started to decrease and appears to have passed its peak.

6. Influenza Hospitalisations

Two hundred and sixty-two confirmed influenza hospitalised cases were notified to HPSC during week 1 2017: 43 associated with influenza A(H3), 218 with influenza A (not subtyped) and 1 with influenza (not typed). To date this season (up to the week ending January 8, 2017), 535 confirmed influenza hospitalised cases have been notified to HPSC: 154 associated with influenza A(H3), 370 with influenza A (not subtyped), 4 with influenza B and 7 with influenza (untyped). The majority of cases were in those aged 65 years and older (table 3). Eighty percent of hospitalised cases, this season to date, were reported by the HSE East, Mid-West, South-East and South.

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.

Twenty seven confirmed influenza cases (11 associated with influenza A(H3), 15 with influenza A (not subtyped) and one with influenza B) were admitted to critical care units and reported to HPSC this season to date. The majority of cases were in those aged 65 years and older. Two paediatric cases have been reported this season to date (table 3).

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2016/2017 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	15	20.7	0	0.0
1-4	24	8.5	0	0.0
5-14	28	4.5	2	0.3
15-24	25	4.3	0	0.0
25-34	39	5.2	1	0.1
35-44	24	3.2	0	0.0
45-54	36	6.2	0	0.0
55-64	48	10.4	3	0.6
≥65	296	55.3	21	3.9
Total	**535**	**11.7**	**27**	**0.6**

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/

- To date this season, fifteen confirmed influenza cases died and were notified to HPSC. The majority of deaths were in cases aged 65 years and older. Ten were associated with influenza A(H3), four with influenza A (not subtyped) and one with influenza B.
- During week 1 2017, no excess all-cause mortality was reported in Ireland after correcting GRO data for reporting delays with the standardised EuroMOMO algorithm.
- The reported all-cause mortality has in most of the reporting European countries been within normal expected levels over the past weeks, with the exception of Portugal, where a large excess in mortality has been observed in the age group of 65+ years. http://www.euromomo.eu/

9. Outbreak Surveillance

Twenty five acute respiratory infection (ARI) and influenza outbreaks were reported to HPSC during week 1 2017, 18 were reported as influenza outbreaks and seven were reported as ARI outbreaks with no pathogens identified. To date this season (up to the week ending January 8, 2017), 63 ARI and influenza outbreaks were reported to HPSC, 43 of which were associated with influenza (40 influenza A and 3 not yet typed), two were associated with RSV, one with parainfluenza virus, two with human metapneumovirus and 15 with no pathogens identified. The majority of ARI and influenza outbreaks reported to date this season were in residential care facilities/community hospitals, mainly affecting those aged 65 years and older. Six confirmed influenza outbreaks were in acute hospital settings (up to the week ending January 8, 2017), 2 in HSE East and 1 each in HSE Mid-West, South-East, South and West. To date this season, of the 63 ARI general outbreaks reported, 14 were in HSE East, 2 in HSE Midlands, 5 in HSE Mid-West, 4 in HSE North-East, 8 in HSE North-West, 6 in HSE South-East, 21 in HSE South and 3 in HSE West.

10. International Summary

Influenza activity in the temperate zone of the northern hemisphere continued to increase, with many countries especially in Europe and East Asia passing their seasonal threshold early in comparison with previous years. Worldwide, influenza A(H3N2) virus was predominant. The majority of influenza viruses characterised so far are similar antigenically to the reference viruses representing vaccine components for 2016-2017 influenza season. The majority of recently circulating viruses tested for antiviral sensitivity is susceptible to the neuraminidase inhibitor antiviral medications.

Preliminary estimates from Scandinavia suggest that the effectiveness of this year's vaccine is in line with previous years. However, effectiveness is always partial and the use of antivirals for the treatment of laboratory-confirmed or probable cases of influenza should be considered as an option for vaccinated and non-vaccinated patients at risk. The current information from the European Centre for Disease Prevention and Control indicates that the circulating influenza viruses are similar to the influenza vaccine strains.

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.
- The latest ECDC and WHO risk assessments on influenza A(H5N8) have been published on the ECDC and WHO websites. Further information on the public health measures for protecting and managing people exposed to highly pathogenic avian influenza A(H5N8) in Europe has been published on the Eurosurveillance website.
- Further information on avian influenza is available on the ECDC website.

11. WHO recommendations on the composition of influenza virus vaccines

On February 25, 2016, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2016/2017 influenza season (northern hemisphere winter) contain the following: an A/California/7/2009 (H1N1)pdm09-like virus; an A/Hong Kong/4801/2014 (H3N2)-like virus; 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

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