Influenza Surveillance in Ireland – Weekly Report

Influenza Weeks 51 & 52 2018 (17th – 30th December 2018)

Data for week 52 2018 should be interpreted with caution, as reporting levels are affected during the Christmas/new year holiday period.

Summary

Influenza activity in Ireland increased during weeks 51 and 52 2018 (week ending 30th December 2018). Influenza A(H1N1)pdm09 is the predominant circulating virus to date this season, but cases of influenza A(H3N2) and influenza B have also been detected. Confirmed influenza hospitalisations are starting to increase. Respiratory syncytial virus (RSV) activity is decreasing.

- Influenza-like illness (ILI): The sentinel GP influenza-like illness (ILI) consultation rate was 10.6 per 100,000 population in week 52 2018 and 11.4 in week 51 2018, an increase compared to the updated rate of 9.2 per 100,000 reported during week 50 2018.
  - ILI rates remained below the Irish baseline threshold (17.5 per 100,000 population)
  - ILI age specific rates were below baseline levels in all age groups during weeks 51 and 52 2018
- National Virus Reference Laboratory (NVRL):
  - Influenza positivity increased during weeks 51 and 52 2018, compared to recent weeks, with 130 (16%) influenza positive specimens reported by the NVRL from non-sentinel sources: 112 A(H1N1)pdm09, 10 A(H3N2) and 8 A (not subtyped)
  - No confirmed influenza positive specimens were reported from the sentinel GP network during weeks 51 and 52 2018
  - Influenza A(H1N1)pdm09 is the predominant circulating virus in the 2018/2019 season to date, with low numbers of influenza A(H3N2) and Influenza B also detected
  - Respiratory syncytial virus (RSV) positivity decreased during weeks 51 and 52 2018.
  - Coinfections of all seasonal respiratory viruses were reported during weeks 51 and 52 2018.
  - Human metapneumovirus, adenovirus, parainfluenza virus and picornavirus (which includes both rhinovirus and enterovirus) continue to be detected.
- Hospitalisations: Sixty two confirmed influenza hospitalised cases were notified to HPSC during weeks 51 and 52 2018, bringing the season total to 131. The majority of hospitalisations were associated with influenza A. Where information on subtype was available, most of the hospitalised cases were due to influenza A(H1N1)pdm09.
- Critical care admissions: Ten confirmed influenza cases were admitted to critical care units and reported to HPSC during the 2018/2019 season to date.
- Mortality: Two deaths in influenza cases were notified to HPSC during the 2018/2019 season to date.
- Outbreaks: Two influenza outbreaks and one acute respiratory infection (ARI) outbreak were notified to HPSC during weeks 51 and 52 2018.
- International: Influenza activity is increasing in countries in western, northern and southern Europe and in other countries in the temperate zone of the northern hemisphere.

1. GP sentinel surveillance system - Clinical Data

- During week 52 2018, 26 influenza-like illness (ILI) cases were reported by sentinel GPs, corresponding to an ILI consultation rate of 10.6 per 100,000 population. This was similar to the rate of 11.4 per 100,000 reported during week 51 2018 and an increase compared to the updated rate of 9.2 per 100,000 in week 50 2018 (figure 1).
- The ILI rates remained below the Irish baseline ILI threshold (17.5/100,000 population).
- ILI age specific rates remained below baseline levels in all age groups during week 52 2018 (figure 2).
- HPSC in consultation with the European Centre for Disease Prevention and Control (ECDC) has revised the Irish baseline ILI threshold for the 2018/2019 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 (62.3/100,000 population) and high (122.2/100,000 population) intensity ILI thresholds are shown in figure 1.

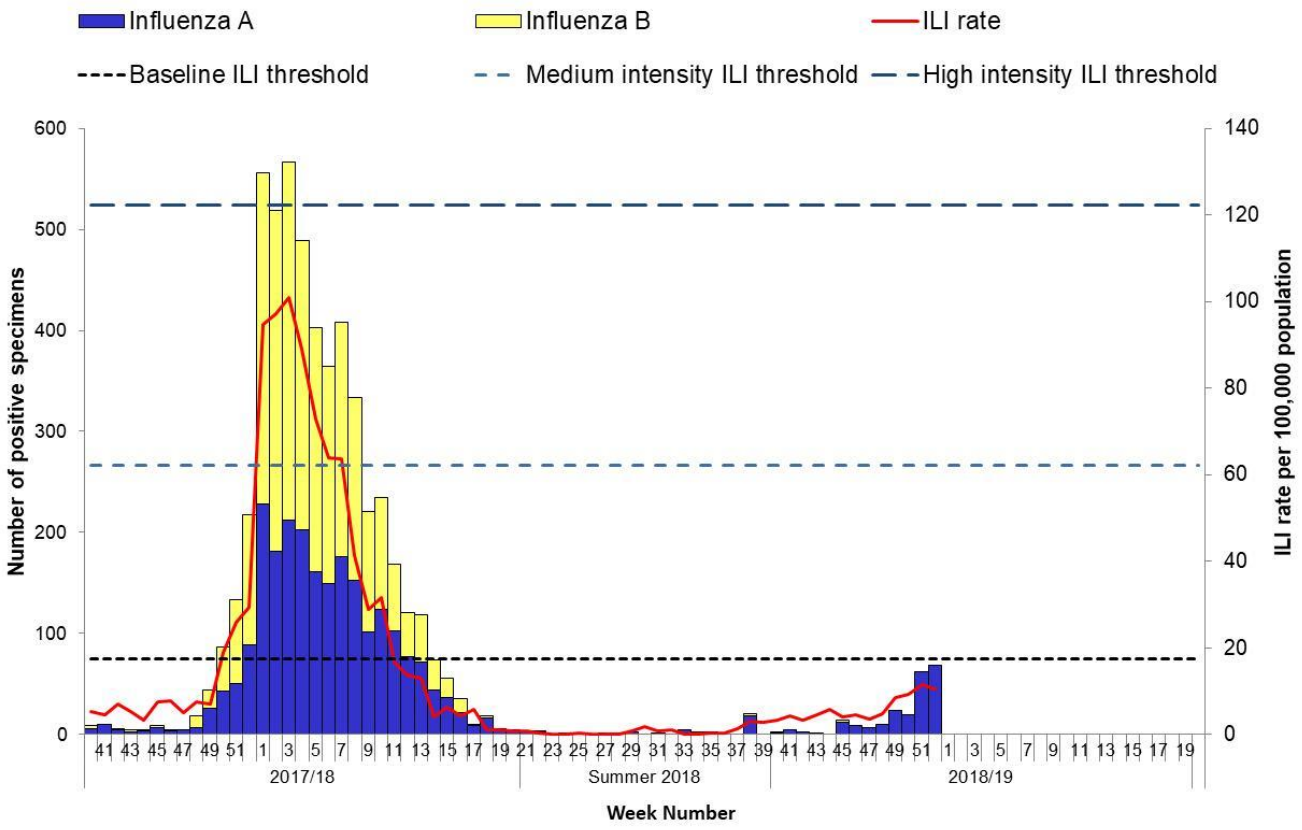

Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds* and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.
Source: ICGP and NVRL

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

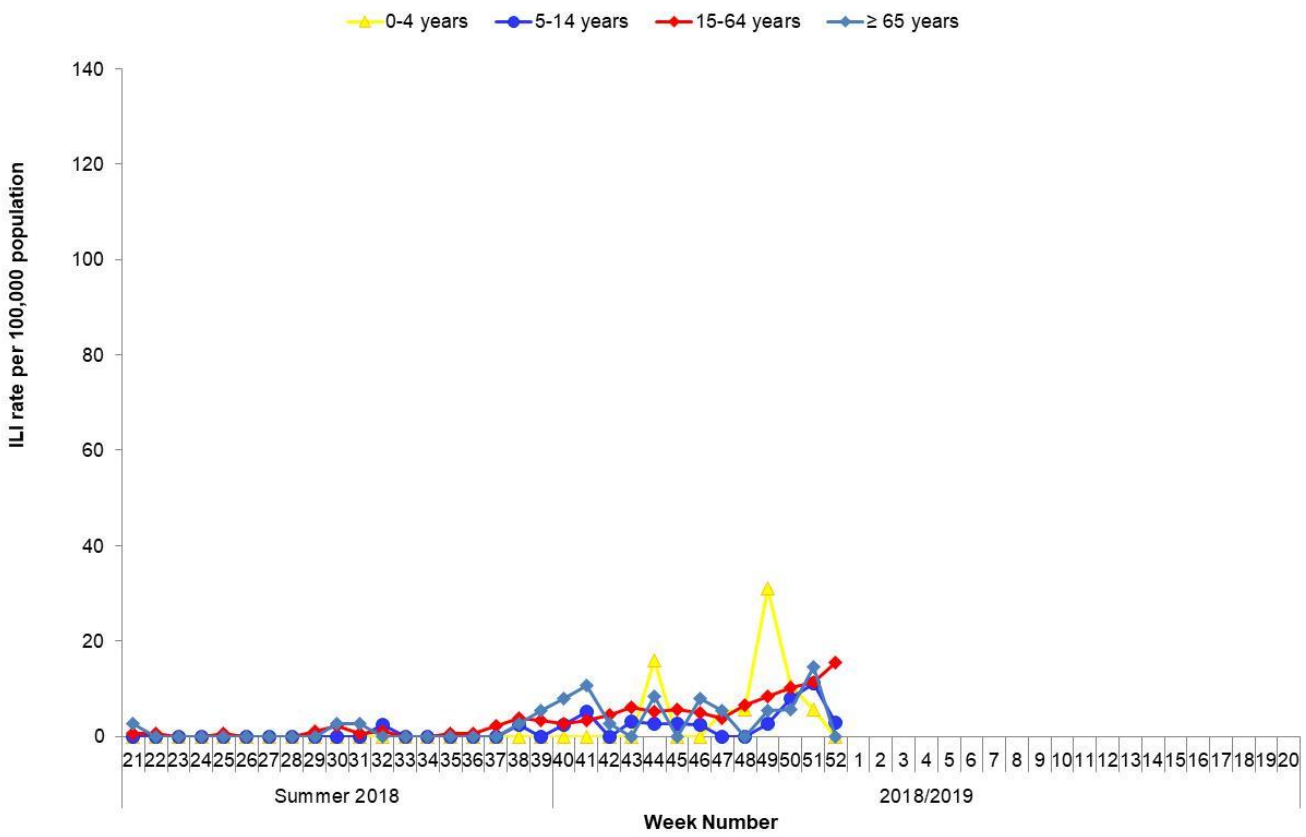

Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2018 and the 2018/2019 influenza season to date. *Source: ICGP.*

2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2018/2019 influenza season refer 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 and tables 1 & 2).

- Influenza positivity increased during weeks 51 and 52 2018, compared to recent weeks, with 130 (16%) influenza positive specimens reported by the NVRL from non-sentinel sources: 112 A(H1N1)pdm09, 10 A(H3N2) and 8 A (not subtyped). Of subtyped influenza A viruses, 92% were due to influenza A(H1N1)pdm09 and 8% were due to A(H3N2).
- Data from the NVRL for weeks 51 and 52 2018 and the 2018/2019 season to date are detailed in tables 1 and 2.
- Influenza A(H1N1)pdm09 is the dominant circulating virus this season to date, with low numbers of A(H3N2) and influenza B also being reported (figures 3 & 4).
- Respiratory syncytial virus (RSV) detections continued to decrease during weeks 51 and 52 2018. (table 2 & figure 5).
- Coinfections of all seasonal respiratory viruses were reported during weeks 51 and 52 2018.
- Human metapneumovirus, adenovirus, parainfluenza virus and picornavirus (which includes both rhinovirus and enterovirus) continue to be detected (table 2).

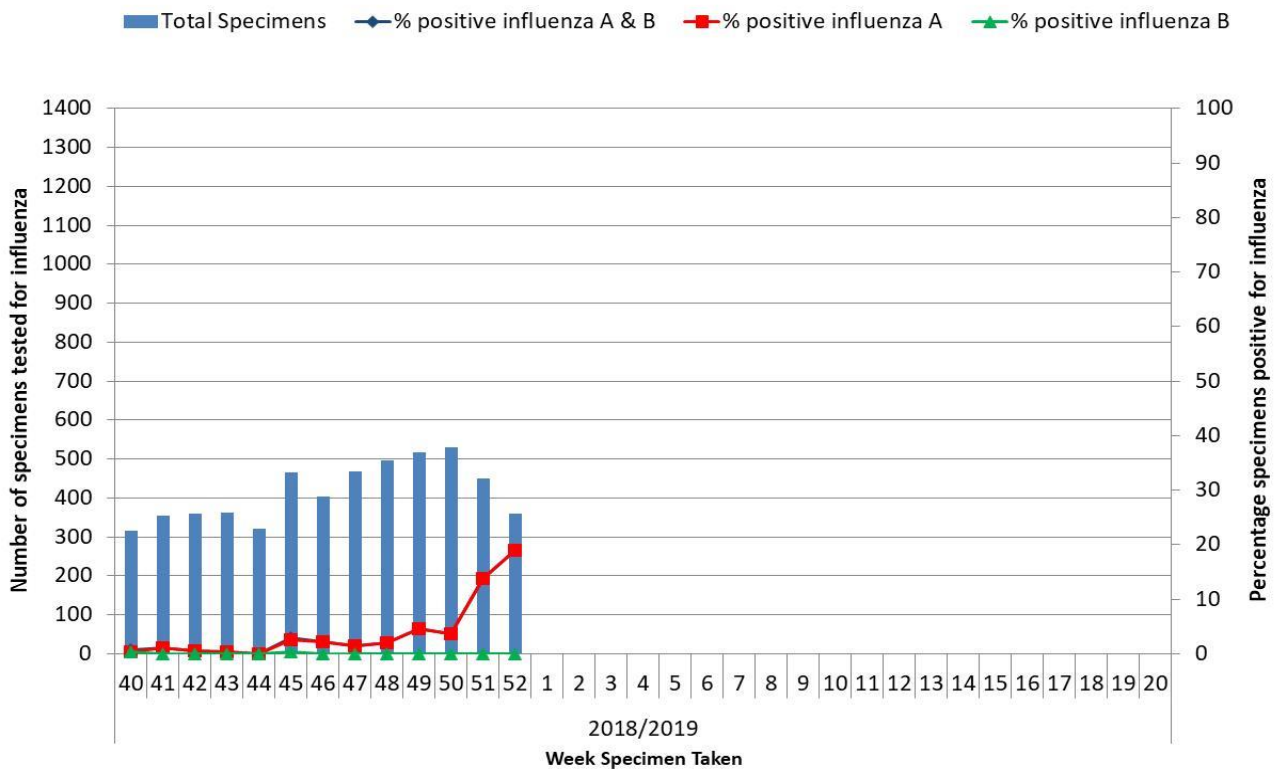

Figure 3: Number of specimens (from sentinel and non-sentinel sources combined) tested by the NVRL for influenza and percentage influenza positive by week for the 2018/2019 influenza season. *Source: NVRL.*

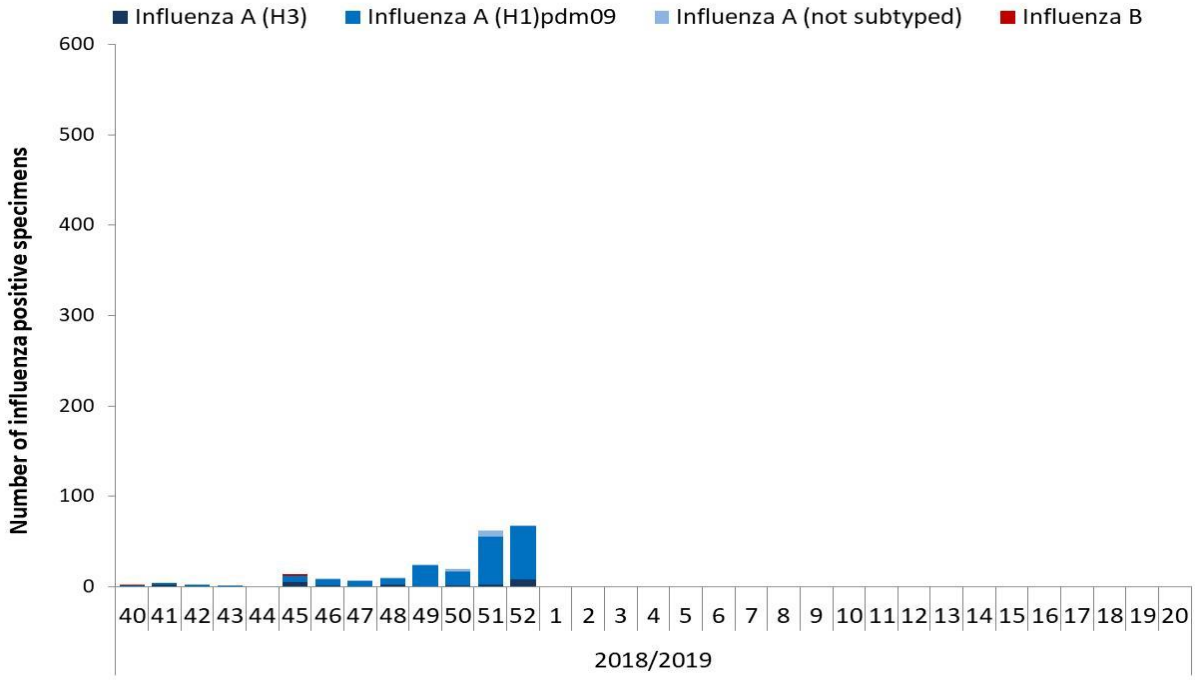

Figure 4: Number of positive influenza specimens (from sentinel and non-sentinel sources combined) by influenza type/subtype tested by the NVRL, by week for the 2018/2019 influenza season. *Source: NVRL.*

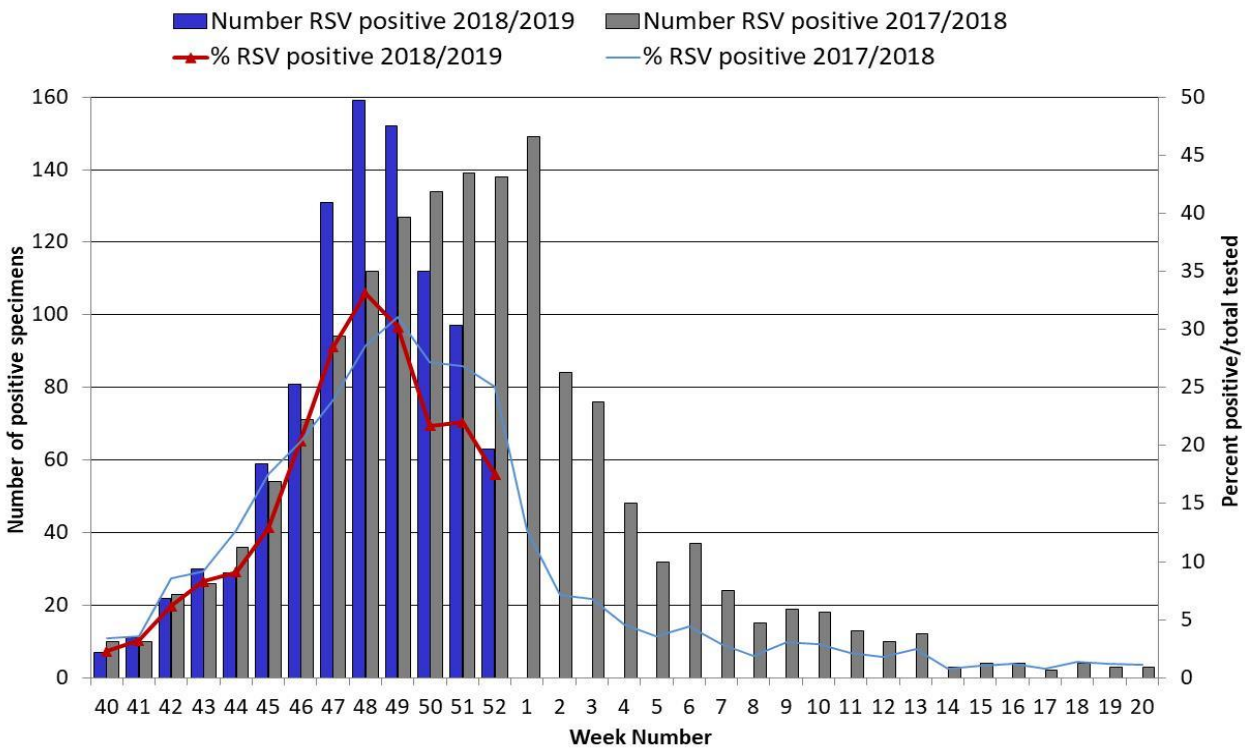

Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2018/2019 season, compared to the 2017/2018 season. *Source: NVRL.*

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for weeks 51 and 52 2018 and the 2018/2019 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	
51 2018	Sentinel	11	0	0.0	0	0	0	0	0
	Non-sentinel	440	62	14.1	53	2	7	62	0
	Total	**451**	**62**	**13.7**	**53**	**2**	**7**	**62**	**0**
52 2018	Sentinel	0	0	0.0	0	0	0	0	0
	Non-sentinel	360	68	18.9	59	8	1	68	0
	Total	**360**	**68**	**18.9**	**59**	**8**	**1**	**68**	**0**
2018/2019	Sentinel	92	3	3.3	0	0	2	2	1
	Non-sentinel	5309	219	4.1	184	21	12	217	2
	Total	**5401**	**222**	**4.1**	**184**	**21**	**14**	**219**	**3**

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for weeks 51 and 52 2018 and the 2018/2019 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
51 2018	Sentinel	11	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	9.1
	Non-sentinel	440	97	22.0	9	2.0	0	0.0	1	0.2	3	0.7	7	1.6	19	4.3
	Total	**451**	**97**	**21.5**	**9**	**2.0**	**0**	**0.0**	**1**	**0.2**	**3**	**0.7**	**7**	**1.6**	**20**	**4.4**
52 2018	Sentinel	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	Non-sentinel	360	63	17.5	12	3.3	0	0.0	1	0.3	5	1.4	4	1.1	22	6.1
	Total	**360**	**63**	**17.5**	**12**	**3.3**	**0**	**0.0**	**1**	**0.3**	**5**	**1.4**	**4**	**1.1**	**22**	**6.1**
2018/2019	Sentinel	92	16	17.4	2	2.2	1	1.1	0	0.0	1	1.1	2	2.2	8	8.7
	Non-sentinel	5309	953	18.0	145	2.7	2	0.0	16	0.3	45	0.8	156	2.9	239	4.5
	Total	**5401**	**969**	**17.9**	**147**	**2.7**	**3**	**0.1**	**16**	**0.3**	**46**	**0.9**	**158**	**2.9**	**247**	**4.6**

[†] 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.

The geographical spread of influenza/ILI during weeks 51 and 52 2018 is shown in figure 6. Localised activity was reported in HSE-East and –South during week 51 and in HSE-East and -Northeast during week 52 2018. Sporadic or no activity were reported elsewhere (figure 6).

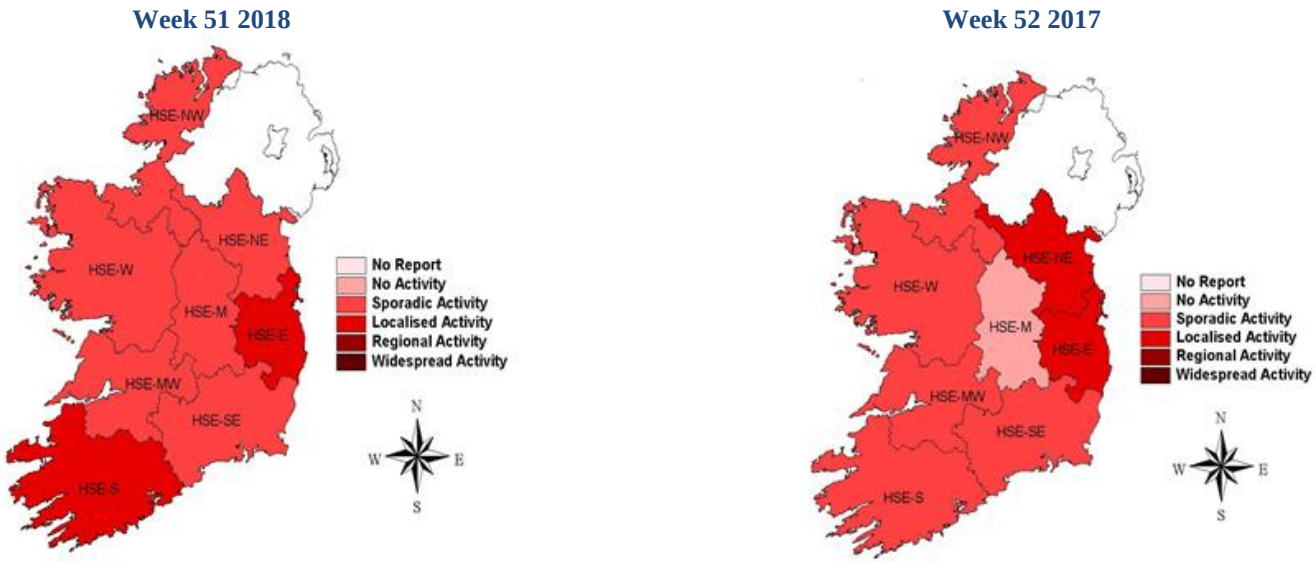

Figure 6: Map of provisional influenza activity by HSE-Area during weeks 51 and 52 2018

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 the network of eight sentinel hospitals were at high levels, at 500, during week 51 2018. The number of respiratory admissions reported during week 52 2018 was lower, at 353, but data were not received from two hospitals (figure 7).

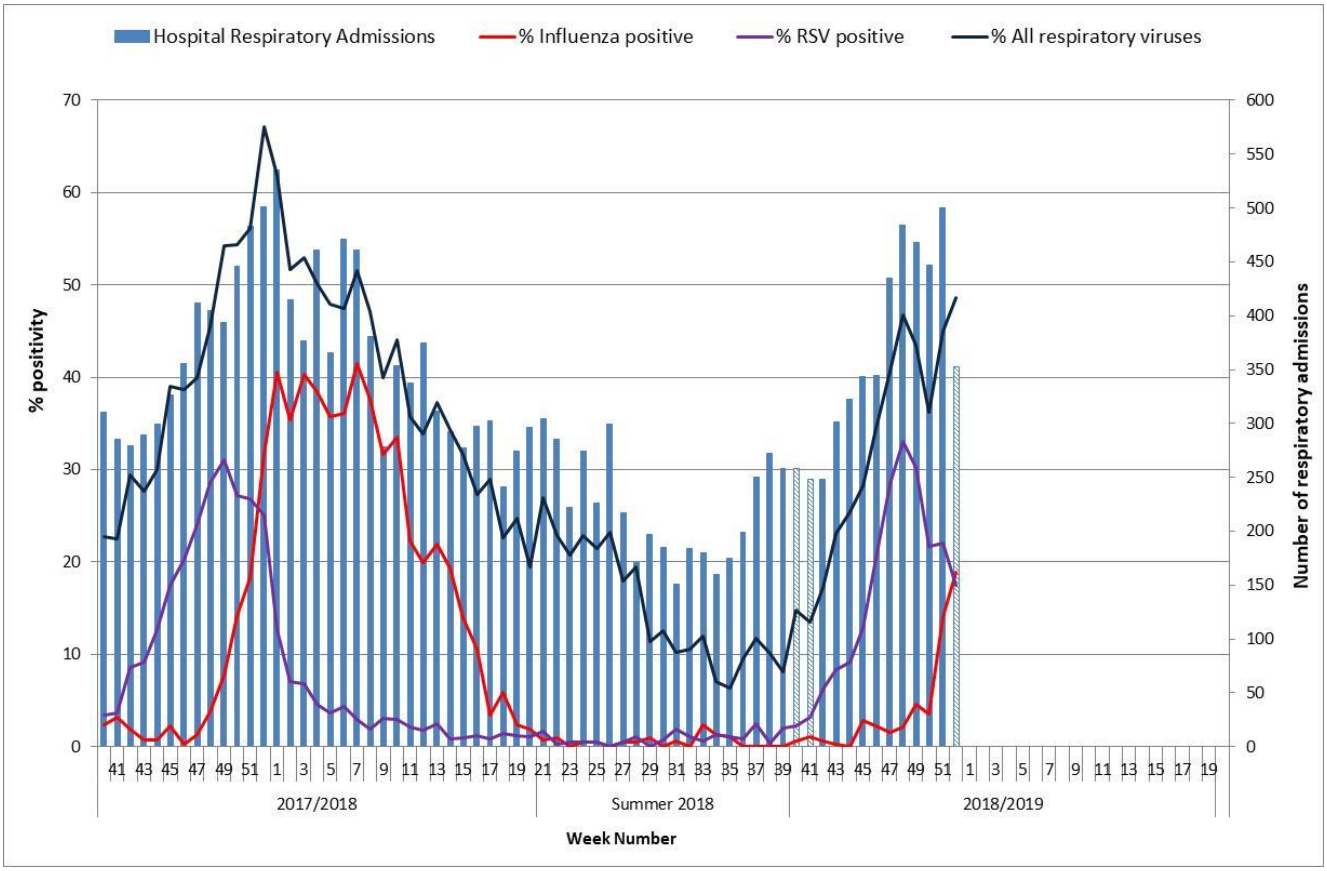

Figure 7: Number of respiratory admissions reported from the sentinel hospital network and % positivity for influenza, RSV and all seasonal respiratory viruses tested[‡] by the NVRL by week and season. *Source: Departments of Public Health - Sentinel Hospitals & NVRL.*

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 was low during week 50 2018 at 2.3%. No data were reported for weeks 51 and 52 2018 (figure 8).

[‡] 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). Weeks where data were missing or unavailable are represented by the hatched bar

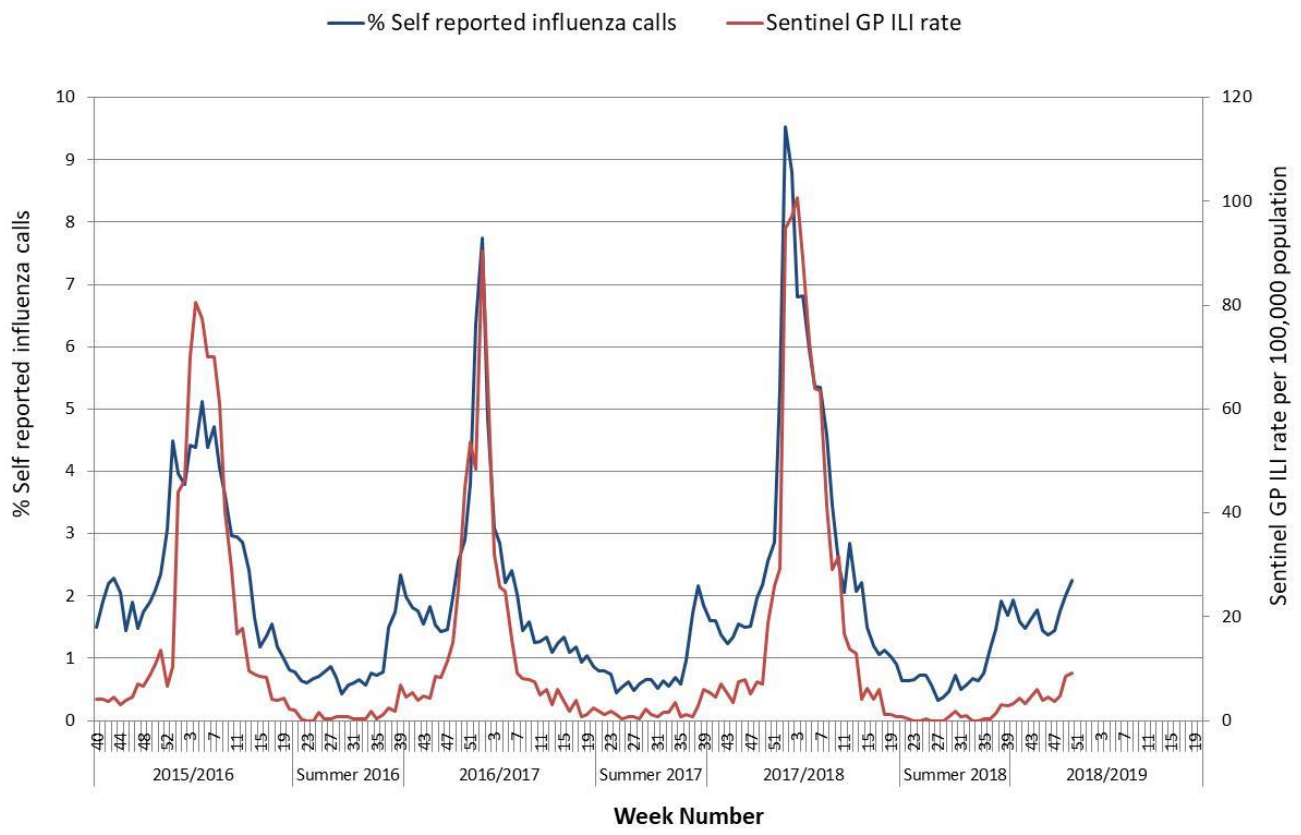

Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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 slightly during week 51 2018 to 56 (compared to 50 in the previous week) and increased further during week 52 2018 to 69. This may be an underestimate due to reduced reporting levels over the Christmas holiday period. During weeks 51 and 52 2018, 33 cases were due to influenza A(H1N1)pdm09 and 92 were due to influenza A (not subtyped). For the 2018/2019 influenza season to date, 276 confirmed influenza cases have been notified to HPSC: 83 were due to influenza A(H1N1)pdm09, 10 were due to A(H3N2), 176 were due to A (not subtyped), 6 were due to influenza B and one was due to influenza type/subtype not reported.

RSV notifications were at high levels during week 51 2018, with 367 cases notified, but decreased to moderate levels during week 52, with 196 cases notified.

6. Influenza Hospitalisations

Sixty two confirmed influenza hospitalised cases were notified to HPSC during weeks 51 and 52 2018. For the 2018/2019 influenza season to date, 131 confirmed influenza hospitalised cases (98% influenza A and 2% influenza B) have been notified to HPSC: 38 were due to A(H1N1)pdm09, 2 were due to A(H3N2), 88 were due to A (not subtyped)) and three were due to influenza B. Age specific rates for hospitalised influenza cases are reported in table 3, with the highest rates reported in those aged less than five years.

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.

Ten confirmed influenza cases (six associated with influenza A(H1N1)pdm09 and four with influenza A - not subtyped) were admitted to critical care units and reported to HPSC during weeks 40 - 52 2018. The age specific rates for admission to critical care are shown in table 3. These ICU rates are based on small numbers.

Table 3: Age specific rates for confirmed influenza cases hospitalised and admitted to critical care during the 2018/2019 influenza season to date. Age specific rates are based on the 2016 CSO census.

	Hospitalised		Admitted to ICU	
Age (years)	Number	Age specific rate per 100,000 population	Number	Age specific rate per 100,000 population
<1	3	4.8	0	0
1-4	27	10.0	1	0.4
5-14	20	3.0	0	0
15-24	5	0.9	0	0
25-34	10	1.5	1	0.2
35-44	13	1.7	2	0.3
45-54	14	2.2	3	0.5
55-64	18	3.5	1	0.2
≥65	21	3.3	2	0.3
Unknown			0	0
Total	**131**	**2.8**	**10**	**0.2**

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.

- Two deaths in notified influenza cases were reported to HPSC in the 2018/2019 influenza season to date.
- 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[§]

- Two influenza outbreaks were notified to HPSC during weeks 51 and 52 2018: the influenza type/subtype has not yet been reported for either. One of the outbreaks was in an acute hospital setting in HSE-East and the other was in a nursing home in HSE-North East.
- One acute respiratory infection (ARI) outbreak was reported in a community hospital/long-stay unit in HSE-South; the causative pathogen has not yet been reported.
- For the 2018/2019 influenza season to date, 14 influenza/ARI general outbreaks have been notified; three were due to influenza , three were due to RSV, two were due to rhinovirus/enterovirus, one was due to human metapnuemovirus, one was due to coronavirus and the pathogen was not reported for the remaining four outbreaks. Table 4 summarises respiratory outbreaks notified on CIDR during the 2018/2019 season to date.

Table 4: Summary of respiratory outbreaks by HSE area and disease during 2018/2019 *Source: CIDR*

HSE area	Acute respiratory infection	Influenza	Respiratory syncytial virus infection	Total
HSE-E	1	1		2
HSE-M	2			2
HSE-NW			3	3
HSE-NE		1		1
HSE-SE	1	1		2
HSE-S	3			3
HSE-W	1			1
Total	**8**	**3**	**3**	**14**

10. International Summary

- During week 51 2018, influenza activity increased in countries in western, northern and southern Europe and in other countries in the temperate zone of the northern hemisphere, although overall influenza activity remained low. Increased influenza detections were reported in some countries of Southern and South-East Asia. In the temperate zones of the southern hemisphere, influenza activity returned to inter-seasonal levels. Worldwide, seasonal influenza A viruses accounted for the majority of detections.
- For week 51 2018, data from the 8 Member States and areas reporting to the EuroMOMO project indicated all-cause mortality to be at expected levels for this time of year.
- National Influenza Centres (NICs) and other national influenza laboratories from 115 countries, areas or territories reported data to FluNet for the time period from 26 November 2018 to 9 December 2018. The WHO GISRS laboratories tested more than 139511 specimens during that time period. 10520 were positive for influenza viruses, of which 9970 (94.8%) were typed as influenza A and 550 (5.2%) as influenza B. Of the sub-typed influenza A viruses, 4961 (84.1%) were influenza A(H1N1)pdm09 and 936 (15.9%) were influenza A(H3N2). Of the characterised B viruses, 85 (63%) belonged to the B-Yamagata lineage and 50 (37%) to the B-Victoria lineage.
- See ECDC and WHO influenza surveillance reports for further information.

[§] Excludes family outbreaks

- 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 February 22nd, 2018, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2018/2019 northern hemisphere influenza season contain the following:
an A/Michigan/50/2015 (H1N1)pdm09-like virus, an A/Singapore/INFIMH-16-0019/2016 (H3N2)-like virus and a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage). It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage). http://www.who.int/influenza/vaccines/virus/recommendations/2018_19_north/en/

On September 27, 2018, the WHO vaccine strain selection committee recommended that trivalent vaccines for use in the 2019 southern hemisphere influenza season contain the following: an A/Michigan/50/2015 (H1N1)pdm09-like virus; an A/Switzerland/8060/2017 (H3N2)-like virus and a B/Colorado/06/2017-like virus (B/Victoria/2/87 lineage). It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Phuket/3073/2013-like virus (B/Yamagata/16/88 lineage).
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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