

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 2 2019 (7th – 13th January 2019)



Summary

Influenza activity in Ireland increased during week 2 2019 (week ending 13th January 2019). Influenza-like illness rates are above baseline levels. Influenza A(H1N1)pdm09 is the dominant circulating virus to date this season. Confirmed influenza hospitalisations are increasing. It is recommended that antivirals be considered for the treatment and prophylaxis of influenza in at-risk groups.

- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate was 49 per 100,000 population in week 2 2019. This is an increase compared to the rate of 34 per 100,000 reported during week 1 2019.
 - ILI rates are above the Irish baseline threshold (17.5 per 100,000 population).
 - ILI age specific rates increased in all age groups during week 2 2019, with the highest rates reported in the 15-64 year age group.
- **National Virus Reference Laboratory (NVRL):**
 - Influenza detections decreased during week 2 2019, with 156 (21%) influenza positive specimens reported by the NVRL from sentinel and non-sentinel sources: 148 A(H1N1)pdm09 and 8 A(H3N2).
 - Influenza A(H1N1)pdm09 is the dominant circulating virus in the 2018/2019 season to date.
 - The NVRL has carried out genetic characterisation of 15 influenza A(H1N1)pdm09 positive specimens to date this season. All belonged to the influenza A(H1N1)pdm09 vaccine virus clade, genetic clade 6B.1, represented by A/Michigan/50/2015 in the 2018/2019 vaccine.
 - Respiratory syncytial virus (RSV) detections continued to decrease during week 2 2019.
 - Co-infections of all seasonal respiratory viruses were reported during week 2 2019. Fifteen percent of influenza cases detected from non-sentinel sources were co-infected with another respiratory virus.
 - Human metapneumovirus, adenovirus, parainfluenza virus and picornavirus (which includes both rhinovirus and enterovirus) continue to be detected.
- **Hospitalisations:** Two hundred and fifty four confirmed influenza hospitalised cases were notified to HPSC during week 2 2019, bringing the season total to 545. 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:** Forty five confirmed influenza cases were admitted to critical care units and reported to HPSC during the 2018/2019 season to date.
- **Mortality:** Nine deaths in influenza cases were notified to HPSC during the 2018/2019 season to date.
- **Outbreaks:** Six influenza outbreaks, two RSV outbreaks and three acute respiratory infection (ARI) outbreaks were notified to HPSC during week 2 2019.
- **International:** Influenza activity is increasing in Europe and in other countries in the temperate zone of the northern hemisphere.

1. GP sentinel surveillance system - Clinical Data

- During week 2 2019, 136 influenza-like illness (ILI) cases were reported by sentinel GPs, corresponding to an ILI consultation rate of 49 per 100,000 population. This was an increase compared to the rate of 34 per 100,000 reported during week 1 2019 (figure 1).
- The ILI rate for week 2 2019 was above the Irish baseline ILI threshold (17.5/100,000 population) (figure 1).
- ILI age specific rates increased in all age groups in week 2 2019, with the highest rates reported in the 15-64 year age group (56/100,000 population) (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.

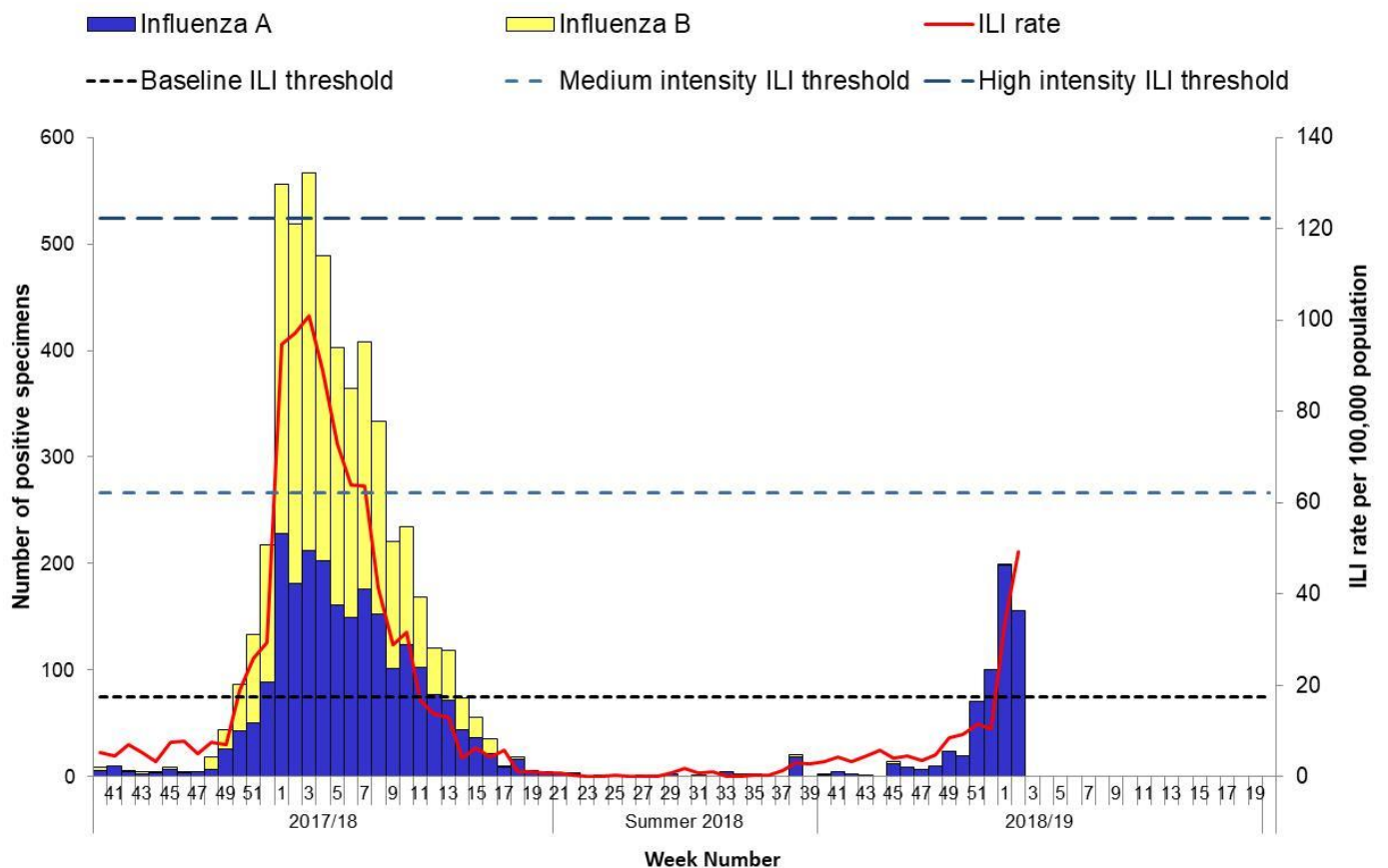


Figure 1: ILI sentinel GP consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds* and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season.

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>

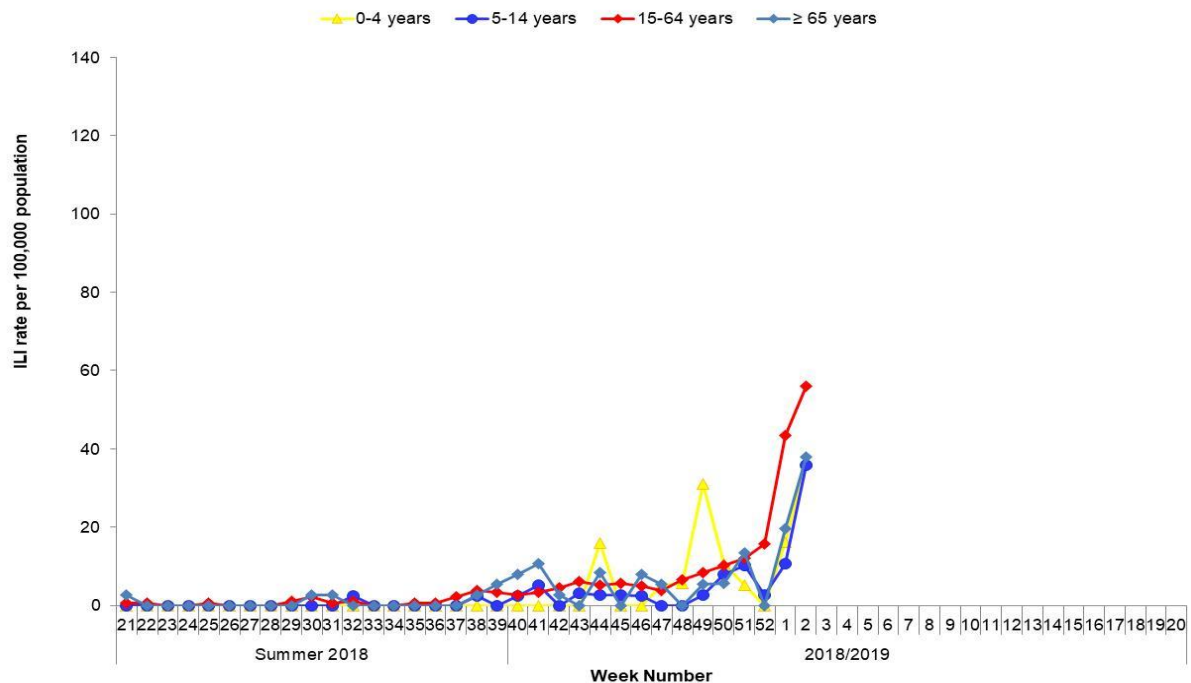


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2018 and the 2018/2019 influenza season to date. Source: ICGP.

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 detections decreased during week 2 2019, with 156 (21%) influenza positive specimens reported by the NVRL from sentinel and non-sentinel sources, compared to an updated figure of 199 (27%) detections for week 1 2019
- Of the positives during week 2 2019, 148 (95%) were influenza A(H1N1)pdm09 and 8 (5%) were A(H3N2)
- Data from the NVRL for week 2 2019 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).
- The NVRL have carried out genetic characterisation of 15 influenza A(H1N1)pdm09 positive specimens to date this season. All belonged to the influenza A(H1N1)pdm09 vaccine virus clade, genetic clade 6B.1, represented by A/Michigan/50/2015 in the 2018/2018 influenza vaccine (matched H1N1 vaccine component). Further genetic and antigenic testing is ongoing at the NVRL.
- Respiratory syncytial virus (RSV) detections continued to decrease during week 2 2019 (table 2 & figure 5).
- Co-infections of all seasonal respiratory viruses were reported during week 2 2019. Fifteen percent of influenza cases detected from non-sentinel sources, were co-infected with another respiratory virus.
- Human metapneumovirus, adenovirus, parainfluenza virus and picornavirus (which includes both rhinovirus and enterovirus) continue to be detected (table 2).
- The overall proportion of non-sentinel specimens positive for respiratory viruses was 37% during week 2 2019.

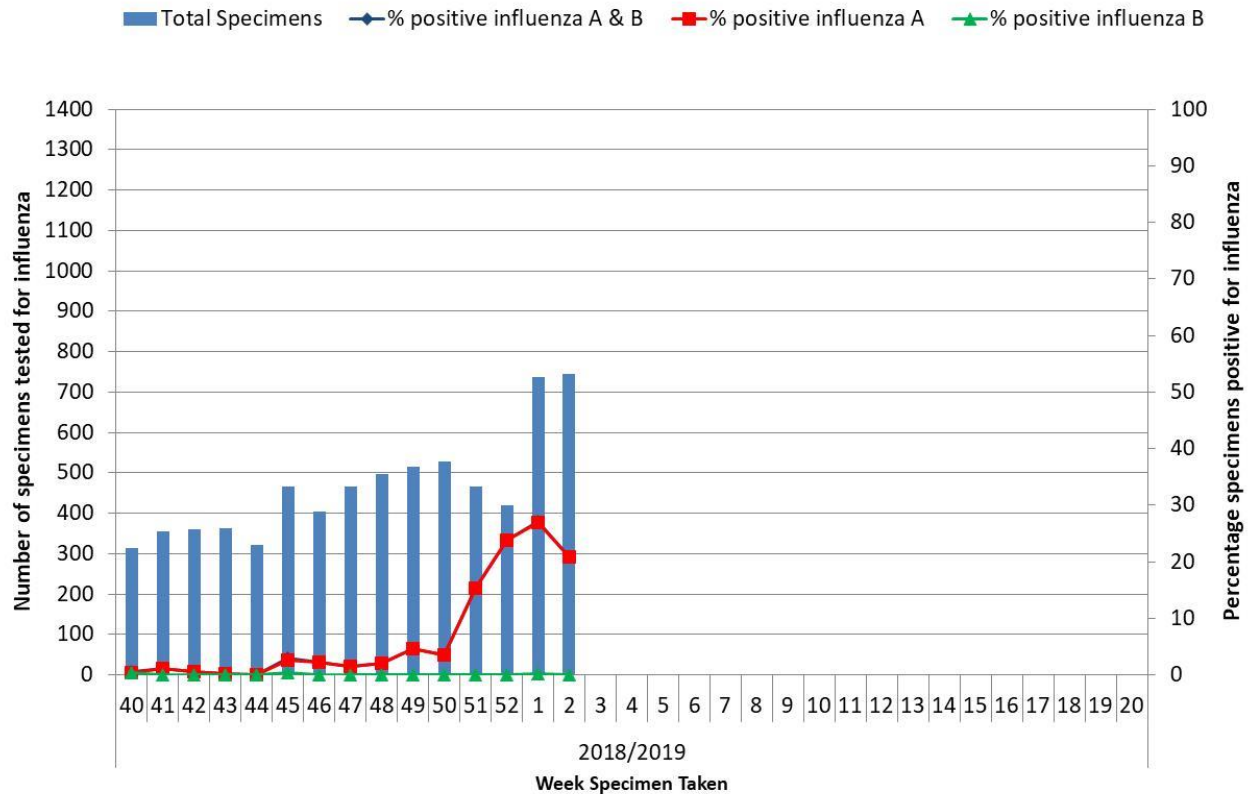


Figure 3: Number of specimens (from sentinel and non-sentinel sources combined) tested by the NVRL for influenza and percentage influenza positive by week for the 2018/2019 influenza season. Source: NVRL.

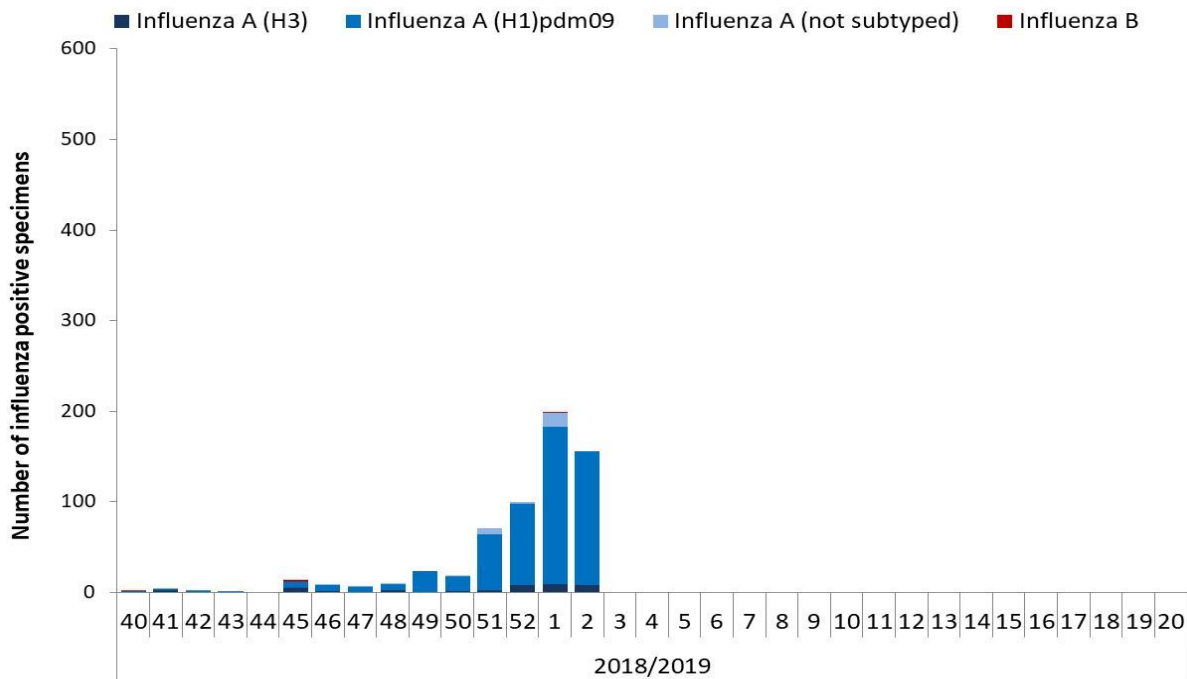


Figure 4: Number of positive influenza specimens (from sentinel and non-sentinel sources combined) by influenza type/subtype tested by the NVRL, by week for the 2018/2019 influenza season. Source: NVRL.

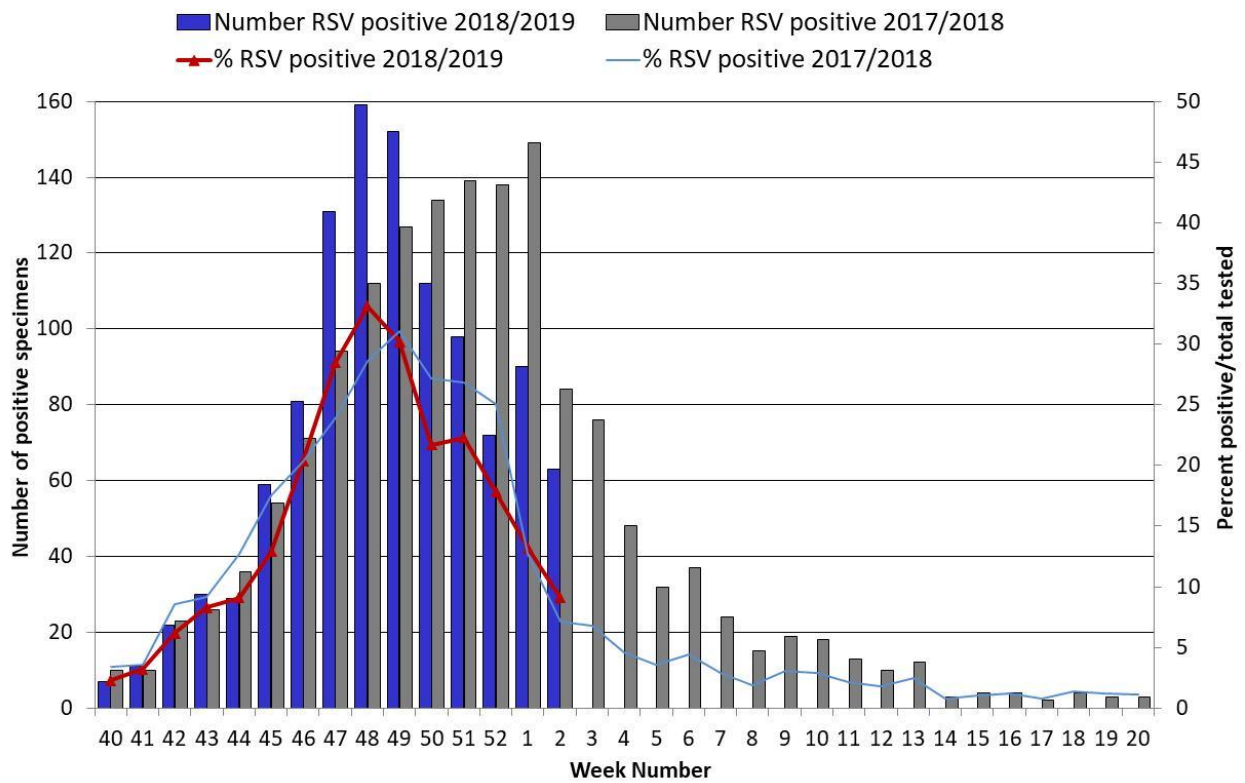


Figure 5: Number and percentage of non-sentinel RSV positive specimens detected by the NVRL during the 2018/2019 season, compared to the 2017/2018 season. Source: NVRL.

Table 1: Number of sentinel and non-sentinel[†] respiratory specimens tested by the NVRL and positive influenza results, for week 2 2019 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	
2 2019	Sentinel	56	13	23.2	13	0	0	13	0
	Non-sentinel	689	143	20.8	135	8	0	143	0
	Total	745	156	20.9	148	8	0	156	0
2018/2019	Sentinel	230	58	25.2	53	2	2	57	1
	Non-sentinel	6726	560	8.3	495	36	26	557	3
	Total	6956	618	8.9	548	38	28	614	4

Table 2: Number of non-sentinel specimens tested by the NVRL for other respiratory viruses and positive results, for week 2 2019 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
2 2019	Sentinel	56	4	7.1	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	1	1.8
	Non-sentinel	689	63	9.1	7	1.0	0	0.0	2	0.3	6	0.9	1	0.1	36	5.2
	Total	745	67	9.0	8	1.1	0	0.0	2	0.3	6	0.8	1	0.1	37	5.0
2018/2019	Sentinel	230	23	10.0	5	2.2	1	0.4	0	0.0	1	0.4	2	0.9	15	6.5
	Non-sentinel	6726	1116	16.6	166	2.5	2	0.0	19	0.3	58	0.9	162	2.4	320	4.8
	Total	6956	1139	16.4	171	2.5	3	0.0	19	0.3	59	0.8	164	2.4	335	4.8

[†] 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.
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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 week 2 2019 is shown in figure 6. Localised influenza activity was reported in all areas (figure 6).

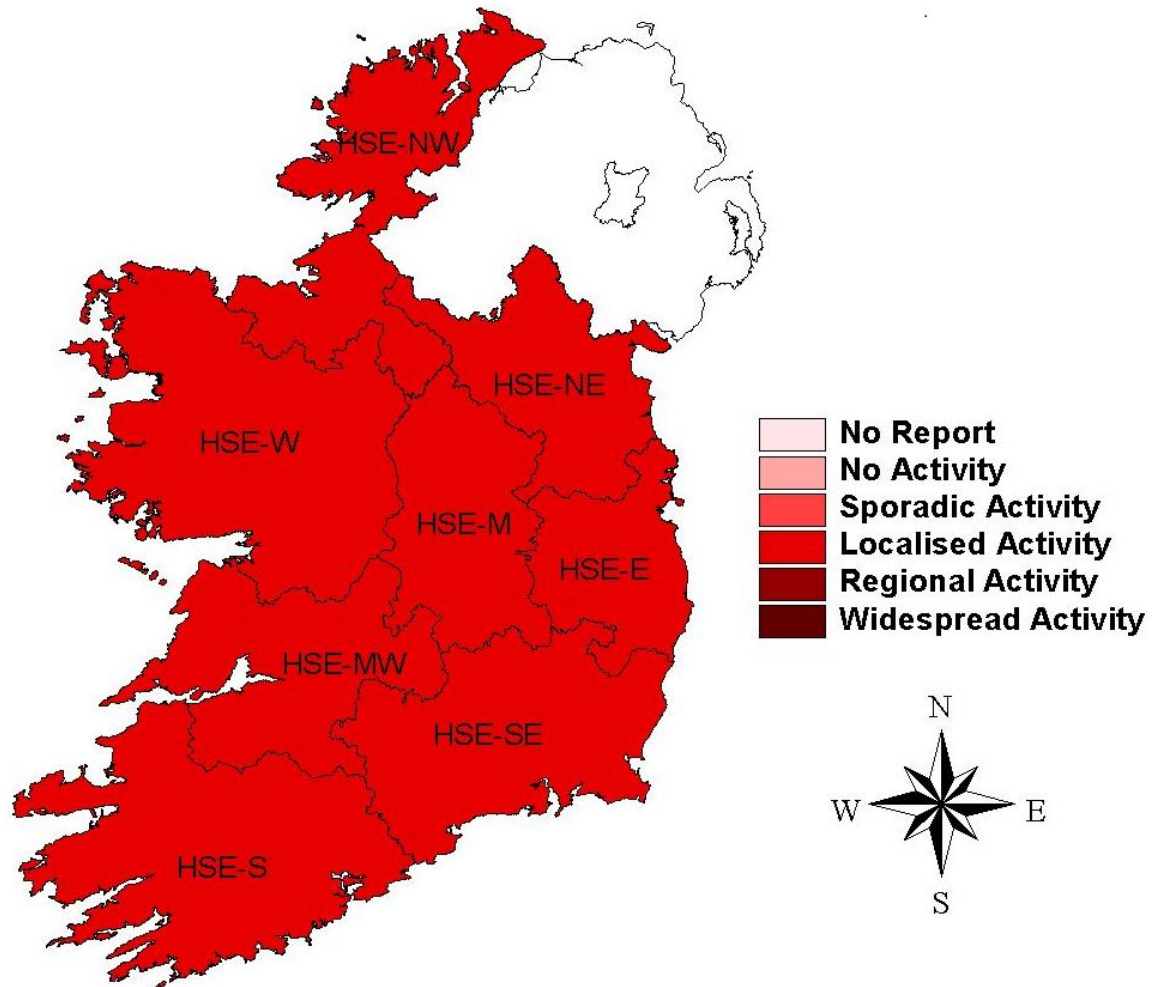


Figure 6: Map of provisional influenza activity by HSE-Area during week 2 2019

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 sentinel hospitals were at moderate levels, at 430, during week 2 2019. This was a small decrease compared to week 1 2019 when 465 respiratory admissions were reported. Data were received from the same seven sentinel hospitals for both weeks (figure 7). One hospital did not report data.

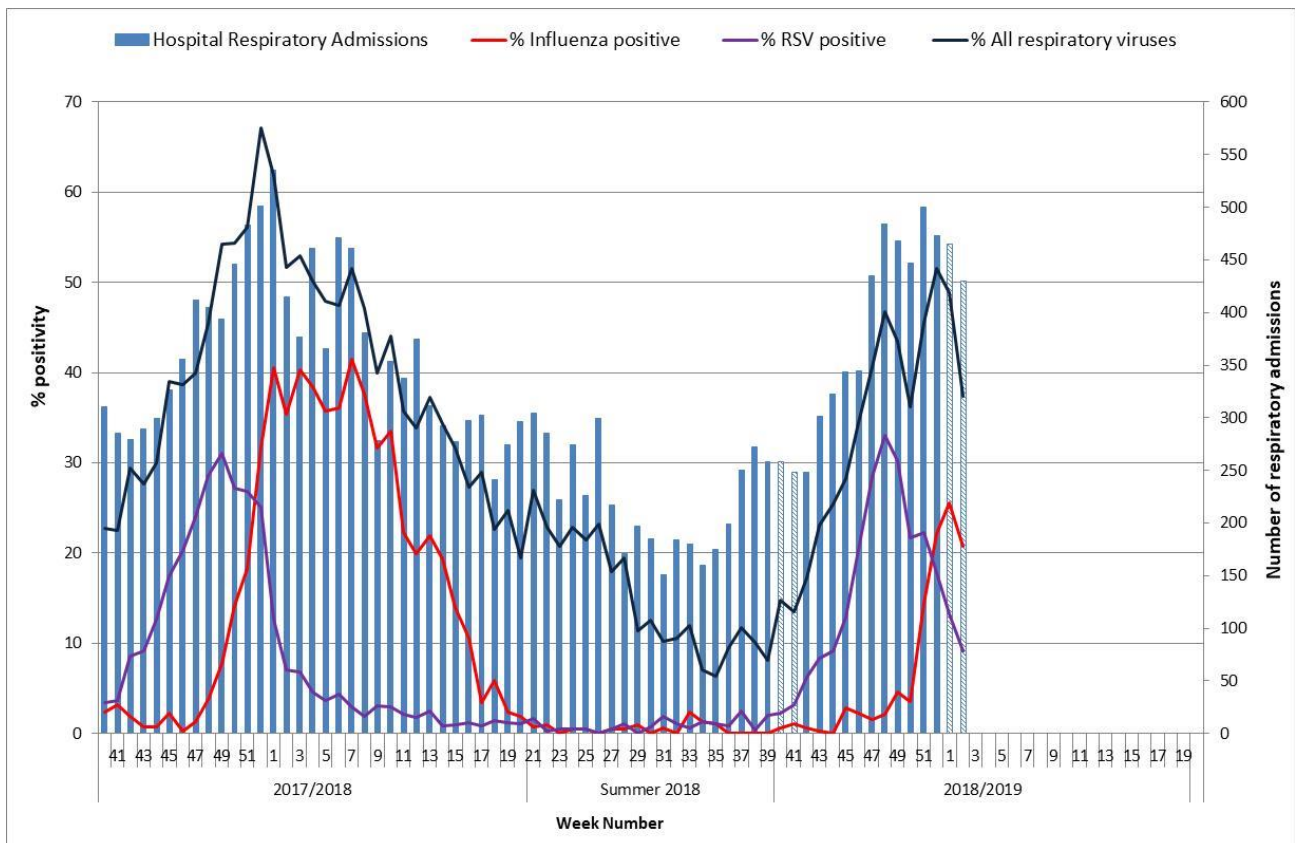


Figure 7: Number of respiratory admissions reported from the sentinel hospital network and % positivity for influenza, RSV and all seasonal respiratory viruses tested[‡] by the NVRL by week and season. Source: Departments of Public Health - Sentinel Hospitals & NVRL.

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 decreased slightly to 5.6% in week 2 2019 compared to 6.2% in week 1. Four services reported data for week 2 2019 and there were 689 calls relating to self-reported influenza (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

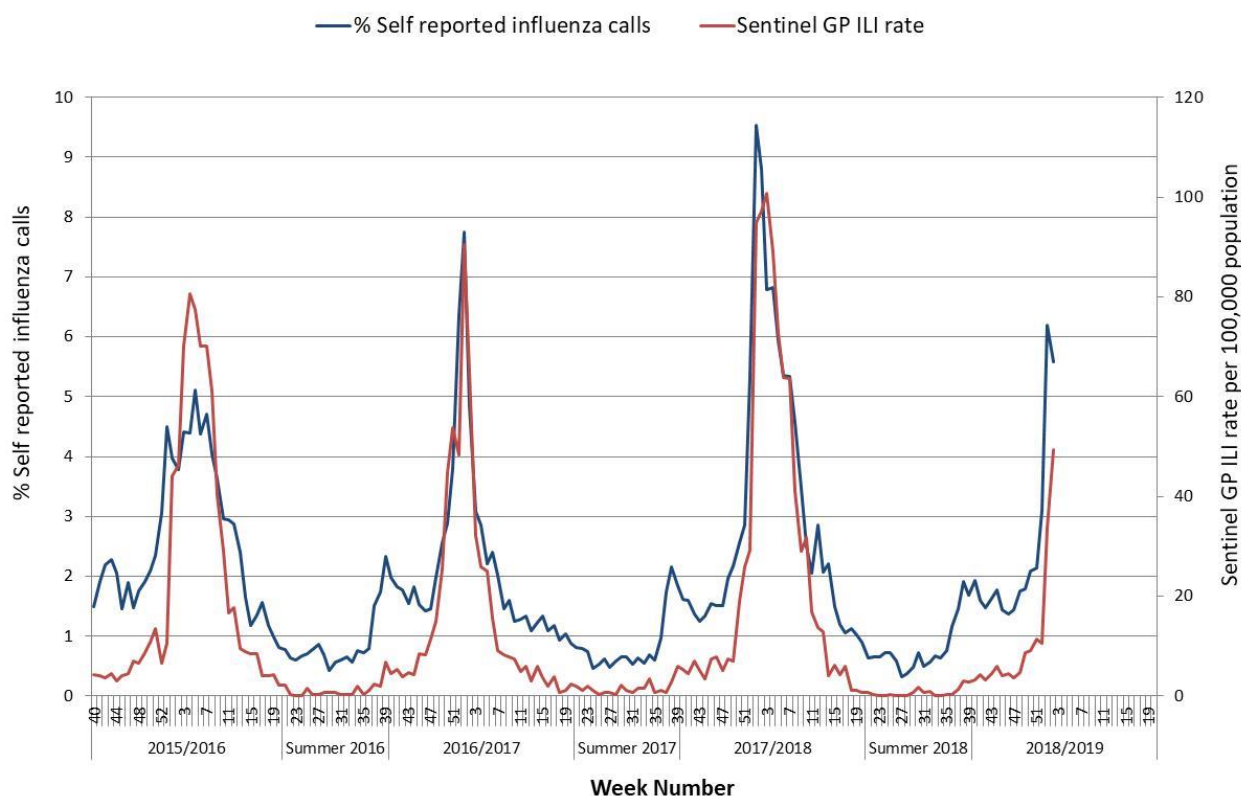


Figure 8: Self-reported influenza-related calls as a proportion of total calls to Out-of-Hours GP Co-ops and sentinel GP ILI consultation rate per 100,000 population by week and season. Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.

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 significantly during week 2 2019, with 590 cases reported compared to 358 in the previous week. During week 2 2019, 218 cases were due to influenza A(H1N1)pdm09, 7 were due to A(H3N2), 362 were due to influenza A (not subtyped), 2 were due to influenza B and one was due to influenza type/subtype not reported.

For the 2018/2019 influenza season to date, 1,224 confirmed influenza cases have been notified to HPSC: 404 were due to influenza A(H1N1)pdm09, 25 were due to A(H3N2), 784 were due to A (not subtyped), 9 were due to influenza B and two were due to influenza type/subtype not reported.

RSV notifications were at high levels during week 1 2019, with 355 cases notified.

6. Influenza hospitalisations

Two hundred and fifty four confirmed influenza hospitalised cases were notified to HPSC during week 2 2019. For the 2018/2019 influenza season to date, 545 confirmed influenza hospitalised cases (99% influenza A and 1% influenza B) have been notified to HPSC: 171 were due to A(H1N1)pdm09, 5 were due to A(H3N2), 365 were due to A (not subtyped) and four were due to influenza B (figure 9).

Age specific rates for hospitalised influenza cases are reported in table 3, with the highest rates reported in those aged less than five years old (39/100,000 population).

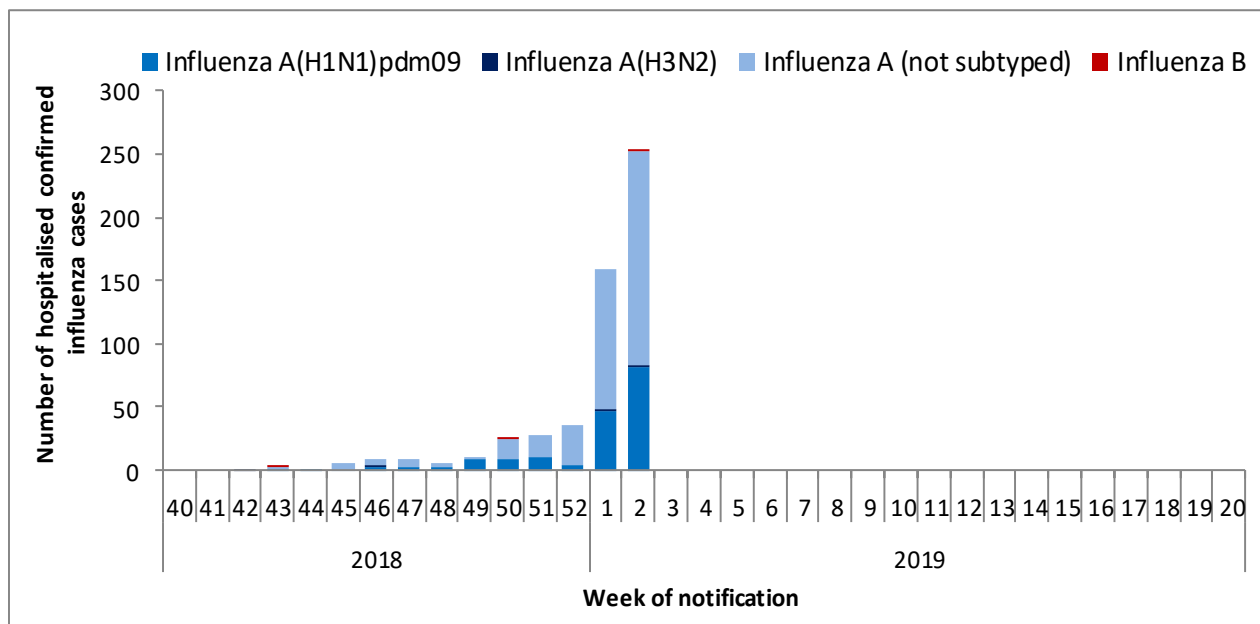


Figure 9. Number of confirmed influenza cases hospitalised by influenza type/subtype and by week of notification. Source: Ireland's Computerised Infectious Disease Reporting System (CIDR).

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.

Forty five confirmed influenza cases (fifteen associated with influenza A(H1N1)pdm09 and thirty with influenza A - not subtyped) were admitted to critical care units and reported to HPSC during the 2018/2019 influenza season to date. The age specific rates for admission to critical care are shown in table 3. The highest ICU admission rates were in adults aged 45 years and older (1.8/100,000 population).

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.

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 population	Number	Age specific rate per 100,000 population
<1	23	36.9	0	0
1-4	106	39.4	1	0.4
5-14	56	8.3	0	0
15-24	18	3.1	0	0
25-34	47	7.1	5	0.8
35-44	39	5.2	7	0.9
45-54	59	9.4	11	1.8
55-64	63	12.4	9	1.8
≥65	134	21	12	1.9
Unknown				
Total	545	11.4	45	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.

- Nine 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^s

- Six influenza outbreaks were notified to HPSC during week 2 2019. Three were in hospitals, one was in a nursing home, one was in a community hospital/long-stay unit and the remaining outbreak was in a residential institution.
- Two RSV outbreaks were notified to HPSC during week 2 2019. One was in a community hospital/long-stay unit and one was in a residential institution.
- Three acute respiratory infection (ARI) outbreaks were reported during week 2 2019; two were in nursing homes and one was in a residential institution.
- For the 2018/2019 influenza season to date, 29 influenza/ARI general outbreaks have been notified; ten were due to influenza, six were due to RSV, three were due to coronavirus, two were due to rhinovirus/enterovirus, one was due to human metapneumovirus, and the pathogen was not reported for the remaining seven outbreaks. Table 4 summarises respiratory outbreaks notified on CIDR during the 2018/2019 season to date.

^s Excludes family outbreaks
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Table 4: Summary of respiratory outbreaks by HSE area and disease during 2018/2019 Source: CIDR

HSE area	Influenza	Respiratory syncytial virus infection	Acute respiratory infection	Total
HSE-E	6	1	1	8
HSE-M	0	0	2	2
HSE-MW	0	0	0	0
HSE-NE	1	0	1	2
HSE-NW	1	4	0	5
HSE-SE	1	0	2	3
HSE-S	1	0	6	7
HSE-W	0	1	1	2
Total	10	6	13	29

10. International Summary

- Influenza activity continued to increase in the European Region during week 1 2019. Both influenza A(H1N1)pdm09 and A(H3N2) are being detected. However, most of the hospitalised cases were due to influenza A(H1N1)pdm09 and were in people aged between 15 and 64 years.
- The dominant circulating A(H1N1)pdm09 and A(H3N2) viruses match the vaccine components, although relatively low numbers of influenza A(H3N2) viruses have been characterised to date.
- For week 1 2018, data from 21 Member States and areas reporting to the EuroMOMO project indicated that all-cause mortality was at expected levels for this time of year.
- In the temperate zone of the northern hemisphere influenza activity continued to increase slowly.
- National Influenza Centres (NICs) and other national influenza laboratories from 102 countries, areas or territories reported data to FluNet for the time period from 10th to 23rd December 2018. The WHO GISRS laboratories tested more than 97,188 specimens during that time period; 12,945 were positive for influenza viruses, of which 12,148 (94%) were typed as influenza A and 797 (6%) as influenza B. Of the sub-typed influenza A viruses, 5823 (77%) were influenza A(H1N1)pdm09 and 1739 (23%) were influenza A(H3N2). Of the characterised B viruses, 40 (40%) belonged to the B-Yamagata lineage and 59 (60%) to the B-Victoria lineage.
- 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 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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