

# Influenza Surveillance in Ireland – Weekly Report

Influenza Week 49 2021 (6<sup>th</sup> – 12<sup>th</sup> December 2021)



 Intensive Care Society of Ireland



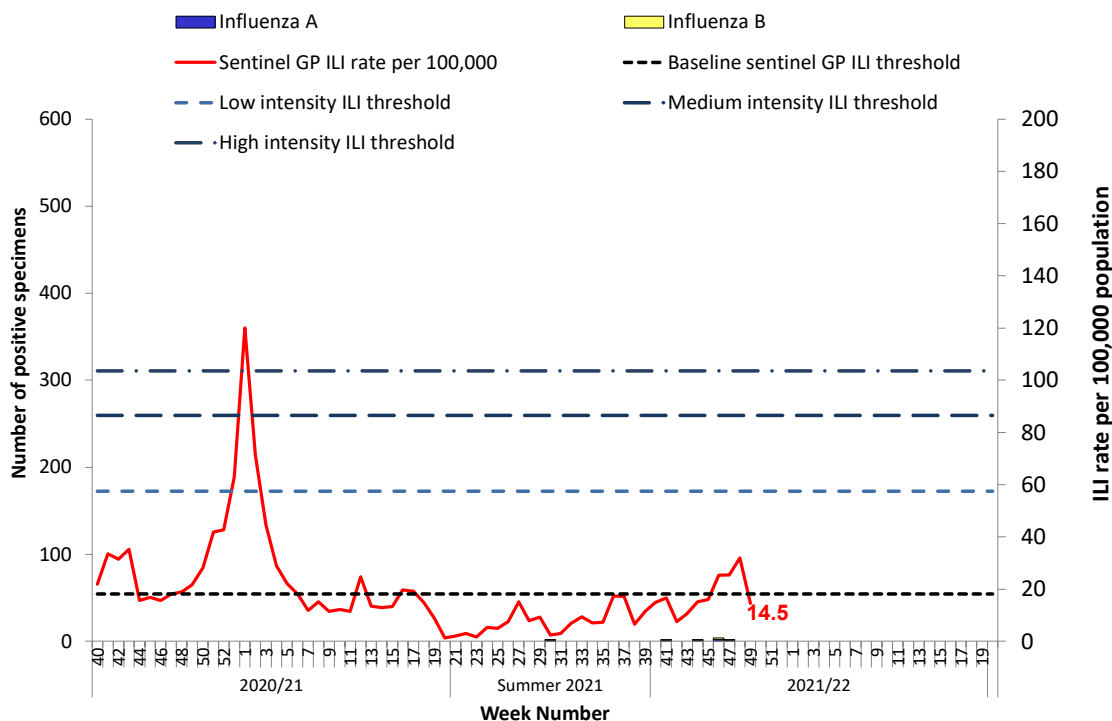
## Summary

Sporadic confirmed influenza cases notified to HPSC remain at low levels,  $\leq 5$  per week during weeks 48 and 49 2021. Notified influenza cases in Ireland during the 2021/2022 season to date, have predominately been associated with influenza A in those aged  $\leq 65$  years. In the European region, influenza activity remains low, however it has increased, and is predominately associated with influenza A(H3). Respiratory syncytial virus (RSV) continues to circulate in Ireland. COVID-19 epidemiology reports are published on [www.hpsc.ie](http://www.hpsc.ie).

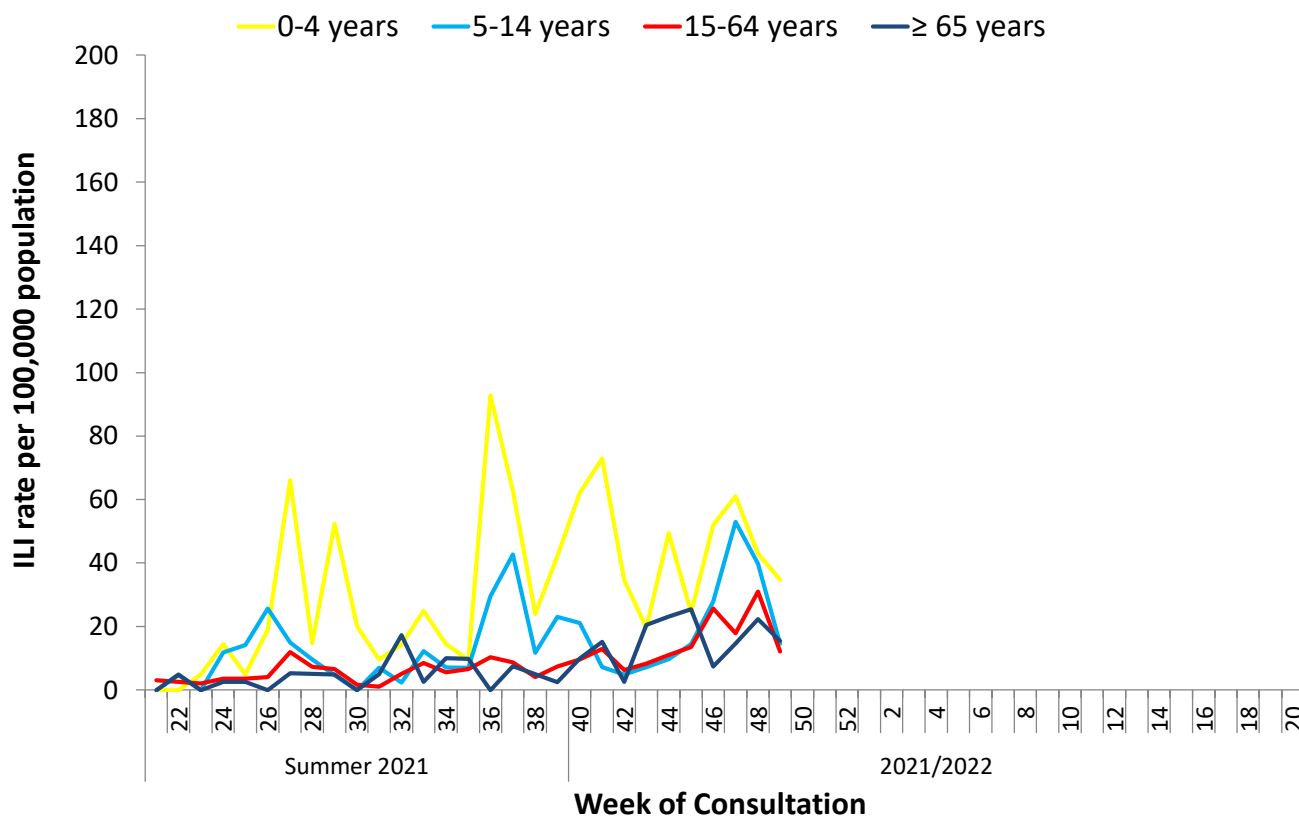
- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate was 14.5/100,000 population during week 49 2021, a decrease compared to an updated rate of 31.9/100,000 during week 48 2021. Sentinel GP ILI consultation rates are reflecting community COVID-19 incidence AND changes to health seeking behaviour regarding use of online COVID-19 test booking systems. GP consultations for week 49 2021 may also have been impacted by storm Barra.
- Sentinel GP ILI consultation rates during week 49 2021 were below the Irish baseline threshold (18.1/100,000 population).
- Sentinel GP ILI rates were above age specific baseline levels in those aged 0-14 years (21.2/100,000) and below baseline in those aged 15-64 years (12.1/100,000) and  $\geq 65$  years (15.5/100,000) during week 49.
- **National Virus Reference Laboratory (NVRL):** Of 71 sentinel GP ILI and 214 non-sentinel respiratory specimens tested and reported by the NVRL during week 49 2021, none were positive for influenza.
- For the 2021/2022 season (weeks 40-49 2021), only 0.2% (6/2475) of non-sentinel respiratory and 0.1% (1/671) of sentinel GP ILI specimens were positive for influenza; five influenza A(H3) and two influenza B.
- RSV positivity (non-sentinel sources) during week 49 2021 was at 7.9% (17/214), which is lower than the median positivity of 31.8% for the same week in the 2014-2019 time period. Rhinovirus/enterovirus and other respiratory viruses continue to circulate, with coinfections of respiratory viruses reported.
- **Influenza notifications:** Five laboratory confirmed influenza cases - four influenza A (not subtyped) and one influenza B cases were notified to HPSC during week 49 2021; bringing the season total to 15 laboratory confirmed influenza cases notified during weeks 40-49 2021.
- **RSV notifications:** 305 RSV cases (63% aged 0-4 years; 14.1% aged  $\geq 65$  years) were notified during week 49 2021, a decrease compared to 326 cases during week 48 2021. During week 49 2021, 110 notified RSV cases were reported as hospital inpatients (64.5% aged 0-4 years; 16.4% aged  $\geq 65$  years), compared to 135 during week 48 2021.
- **Hospitalisations and Critical care admissions:** Two confirmed influenza hospitalised paediatric cases were notified during week 49 2021, one associated with influenza A (not subtyped) and one with influenza B. No confirmed influenza cases were admitted to critical care during weeks 40-49 2021.
- **Mortality:** No deaths in notified influenza cases occurred during week 49 2021. No excess all-cause mortality was reported during week 48 2021.
- **Outbreaks:** One RSV and three acute respiratory infection (SARS-CoV-2 negative) outbreaks were notified to HPSC during week 49 2021. No influenza outbreaks were notified to HPSC during weeks 40-49 2021.
- **International:** Influenza activity increased in the European Region during week 48 2021. Influenza positivity was above 10% in Armenia, Israel, Kazakhstan, Kosovo, Kyrgyzstan and the Russian Federation.

## 1. GP sentinel surveillance system - Clinical Data

- During week 49 2021, 42 influenza-like illness (ILI) cases were reported from the Irish sentinel GP network, corresponding to an ILI consultation rate of 14.5 per 100,000 population, a decrease compared to the updated rate of 31.9 per 100,000 reported during week 48 2021 (Figure 1).
- Sentinel GP respiratory consultations are currently via phone consultations. Recent trends in sentinel GP ILI consultation rates are likely reflecting community COVID-19 incidence AND changes to health seeking behaviour regarding use of online COVID-19 booking systems. GP consultations for week 49 2021 may also have been impacted by storm Barra.
- With only a small number of sporadic laboratory confirmed influenza cases detected/notified in Ireland during the 2021/2022 season, sentinel GP ILI consultations are likely to be currently reflecting circulation of SARS-CoV-2, RSV and other respiratory viruses (ORVs) in the community, rather than influenza viruses.
- The sentinel GP ILI consultation rate was below the Irish sentinel GP ILI baseline threshold (18.1/100,000 population) during week 49 2021.
- Sentinel GP ILI rates were above age specific baseline levels in those aged 0-14 years (21.2/100,000) and below baseline in those aged 15-64 years (12.1/100,000) and  $\geq 65$  years (15.5/100,000) during week 49 2021 (Figure 2, Table 1).
- HPSG has reviewed the Irish sentinel baseline ILI threshold for the 2021/2022 influenza season, which will remain at 18.1 per 100,000 population. ILI rates above this baseline threshold combined with sentinel GP influenza positivity  $>10\%$  indicate the likelihood that influenza is circulating in the community. The Moving Epidemic Method (MEM) is used to calculate thresholds for GP ILI consultations in a standardised approach across Europe. The baseline ILI threshold (18.1/100,000 population), medium (57.5/100,000 population) and high (86.5/100,000 population) intensity ILI thresholds are shown in figure 1. Age specific MEM threshold levels are shown in Table 1.



**Figure 1:** Sentinel GP Influenza-like illness (ILI) 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. The current week sentinel GP ILI consultation rate (per 100,000 population) is highlighted in red text. *Source: ICGP and NVRL*



**Figure 2:** Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2021 and the 2021/2022 influenza season to date. *Source: ICGP.*

**Table 1:** Age specific sentinel GP ILI consultation rate per 100,000 population by week for the 2021/2022 season, colour coded by sentinel GP ILI [age specific](#) Moving Epidemic Method (MEM) threshold levels. *Source: ICGP.*

Sentinel GP ILI Threshold Levels	Below Baseline	Low	Moderate	High	Extraordinary
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Age group (years)	40	41	42	43	44	45	46	47	48	49
All Ages	14.9	16.6	7.6	10.6	15.1	16.0	25.3	25.5	31.9	14.5
<15 yrs	34.6	28.8	14.6	11.3	22.8	17.7	35.8	55.6	40.8	21.2
15-64 yrs	9.6	12.9	6.3	8.4	11.0	13.5	25.6	18.0	30.9	12.1
≥65 yrs	9.9	15.2	2.6	20.4	23.1	25.4	7.4	14.6	22.3	15.5
Reporting practices (N=61)	57	56	54	55	54	55	56	57	55	52

## 2. Influenza and Other Respiratory Virus Detections - NVRL

The data reported in this section for the 2021/2022 influenza season refer to sentinel GP ILI and non-sentinel respiratory specimens routinely tested for influenza, respiratory syncytial virus (RSV), adenovirus, parainfluenza virus types 1-4 (PIV-1-4), human metapneumovirus (hMPV) and rhino/enteroviruses by the National Virus Reference Laboratory (NVRL) (Tables 2 & 3, Figure 3). In Ireland, virological surveillance for influenza, RSV and other respiratory viruses (ORVs) undertaken by the Irish sentinel GP network is integrated into current testing structures for COVID-19 primary care referrals. Non-sentinel respiratory specimens relate to specimens referred to the NVRL (other than sentinel GP specimens) and may include more than one specimen from each case.

- Of 71 sentinel GP ILI and 214 non-sentinel respiratory specimens tested and reported by the NVRL during week 49 2021, none (N=285) were positive for influenza (Table 2).
- For the 2021/2022 season (weeks 40-49 2021), only 0.2% (6/2475) of non-sentinel respiratory and 0.1% (1/671) of sentinel GP ILI specimens were positive for influenza; five influenza A(H3) and two influenza B (one B/Victoria and one with no B lineage reported).
- RSV positivity (non-sentinel sources) was 7.9% (17/214) during week 49 2021, which is lower than the median positivity of 31.8% for the same week in the 2014-2019 time period. RSV activity appears to be declining during weeks 44-49 2021, data will be closely observed over the coming weeks (Table 3; Figure 3).
- Rhinovirus/enterovirus positive detections (non-sentinel sources) continue to be reported, with positivity levels at 18.2% (39/214) during week 49 2021 (Figure 4). Other respiratory viruses (ORVs) continue to be detected at lower levels, compared to RSV and rhinovirus/enterovirus positivity levels (Table 4).
- Coinfections of respiratory viruses have been reported throughout the 2021/2022 season (weeks 40-49 2021), with >20% of respiratory specimens (from non-sentinel sources) tested positive for more than one respiratory virus. Coinfections detected from the sentinel GP network were lower, 3% (21/671) of sentinel GP ILI specimens tested positive for more than one respiratory virus during weeks 40-49 2021.
- During the COVID-19 pandemic, there may be a lag time receiving data from NVRL and laboratories under the clinical governance of the NVRL. The data reported on sentinel GP ILI and non-sentinel respiratory specimens tested by the NVRL for the current week, may be under reported and are updated in subsequent weeks.

**Table 2:** Number of sentinel GP ILI and non-sentinel respiratory specimens tested by the NVRL and positive influenza results, for the current week and 2021/2022 season (weeks 40-49 2021). *Source: NVRL*

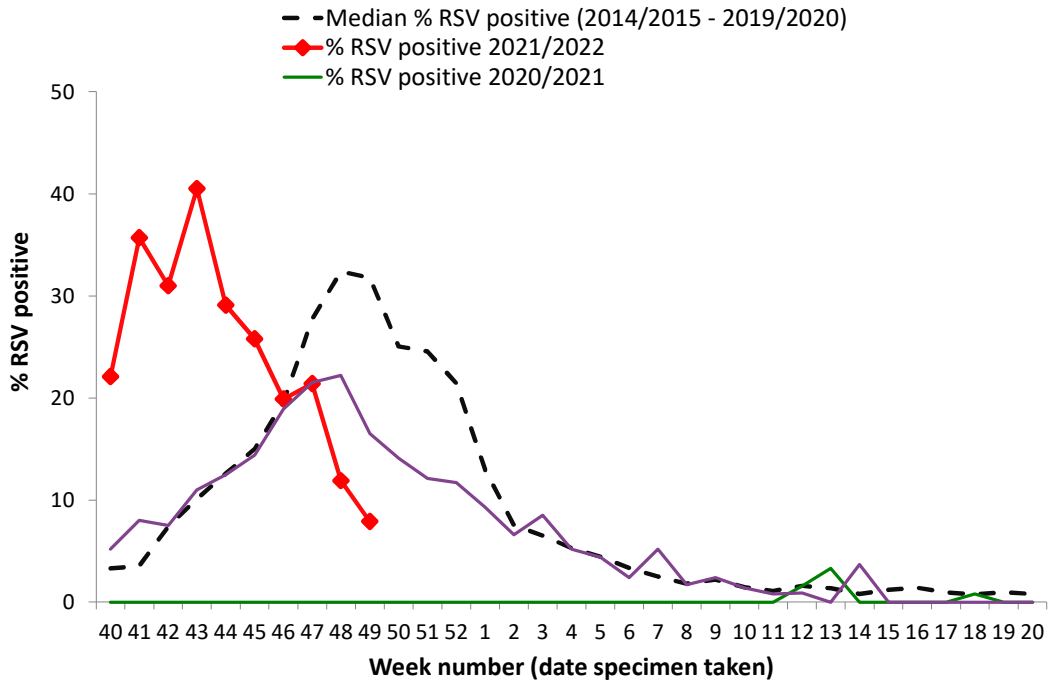
Surveillance period	Specimen type	Total tested	Number influenza positive	% Influenza positive	Influenza A				Influenza B			
					A(H1)pdm09	A(H3)	A (not subtyped)	Total influenza A	B (unspecified)	B Victoria lineage	B Yamagata lineage	Total influenza B
49 2021	Sentinel GP ILI referral	71	0	0.0	0	0	0	0	0	0	0	0
	Non-sentinel	214	0	0.0	0	0	0	0	0	0	0	0
	<b>Total</b>	<b>285</b>	<b>0</b>	<b>0.0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
2021/2022	Sentinel GP ILI referral	671	1	0.1	0	1	0	1	0	0	0	0
	Non-sentinel	2475	6	0.2	0	4	0	4	1	1	0	2
	<b>Total</b>	<b>3146</b>	<b>7</b>	<b>0.2</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>2</b>

**Table 3:** Number of sentinel GP ILI and non-sentinel respiratory specimens tested by the NVRL and positive RSV results, for the current week and 2021/2022 season (weeks 40-49 2021). *Source: NVRL*

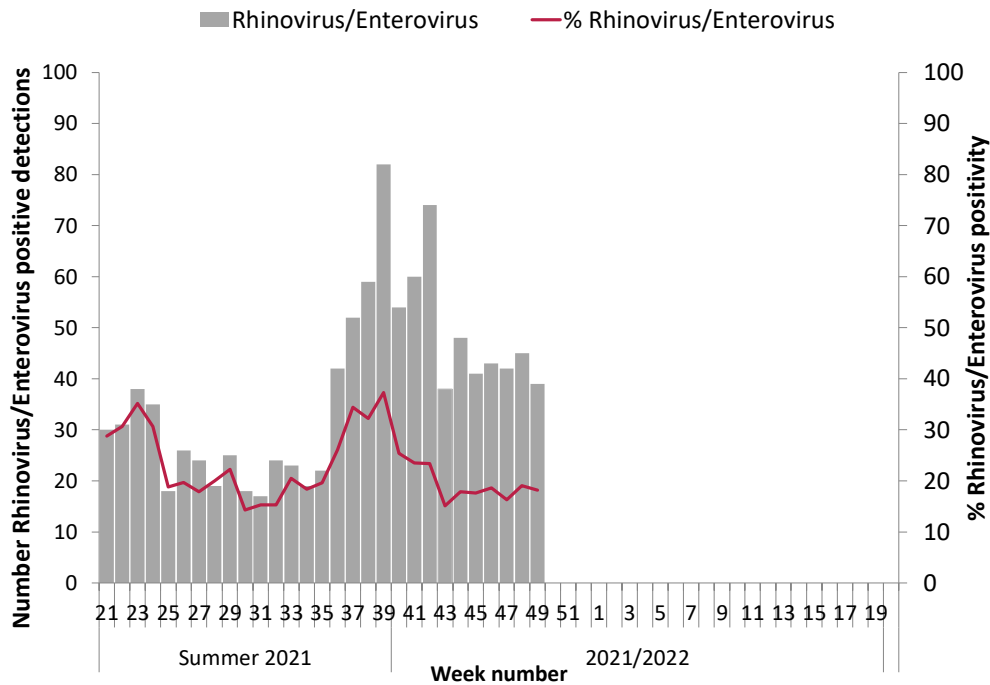
Surveillance period	Specimen type	Total tested	Number RSV positive	% RSV positive	RSV A	RSV B	RSV (unspecified)
Week 49 2021	Sentinel GP ILI	71	7	9.9	1	6	0
	Non-sentinel	214	17	7.9	11	5	1
	<b>Total</b>	<b>285</b>	<b>24</b>	<b>8.4</b>	<b>12</b>	<b>11</b>	<b>1</b>
2021/2022	Sentinel GP ILI	671	50	7.5	27	23	0
	Non-sentinel	2475	622	25.1	362	259	1
	<b>Total</b>	<b>3146</b>	<b>672</b>	<b>21.4</b>	<b>389</b>	<b>282</b>	<b>1</b>

**Table 4:** Number of non-sentinel respiratory specimens tested by the NVRL for other respiratory viruses (ORVs) and positive results, for the current week and the 2021/2022 season (weeks 40-49 2021). *Source: NVRL*

Virus	Week 49 2021 (N=214)		2021/2022 (N=2475)	
	Total positive	% positive	Total positive	% positive
Influenza virus	0	0.0	6	0.2
Respiratory Syncytial Virus (RSV)	17	7.9	622	25.1
Rhino/enterovirus	39	18.2	484	19.6
Adenovirus	1	0.5	24	1.0
Bocavirus	4	1.9	75	3.0
Human metapneumovirus (hMPV)	6	2.8	40	1.6
Parainfluenza virus type 1 (PIV-1)	0	0.0	0	0.0
Parainfluenza virus type 2 (PIV-2)	0	0.0	1	0.0
Parainfluenza virus type 3 (PIV-3)	6	2.8	83	3.4
Parainfluenza virus type 4 (PIV-4)	3	1.4	47	1.9



**Figure 3:** NVRL non-sentinel RSV positivity by week specimen was taken for 2021/2022, 2020/2021 and 2019/2020 seasons compared to median % RSV positivity (2014/2015-2019/2020). *Source: NVRL.*



**Figure 4:** Number (and percentage) of non-sentinel rhinovirus/enterovirus positive detections by week specimen was taken for summer 2021 and 2021/2022 season. *Source: NVRL.*

### 3. Regional Influenza Activity by HSE-Area

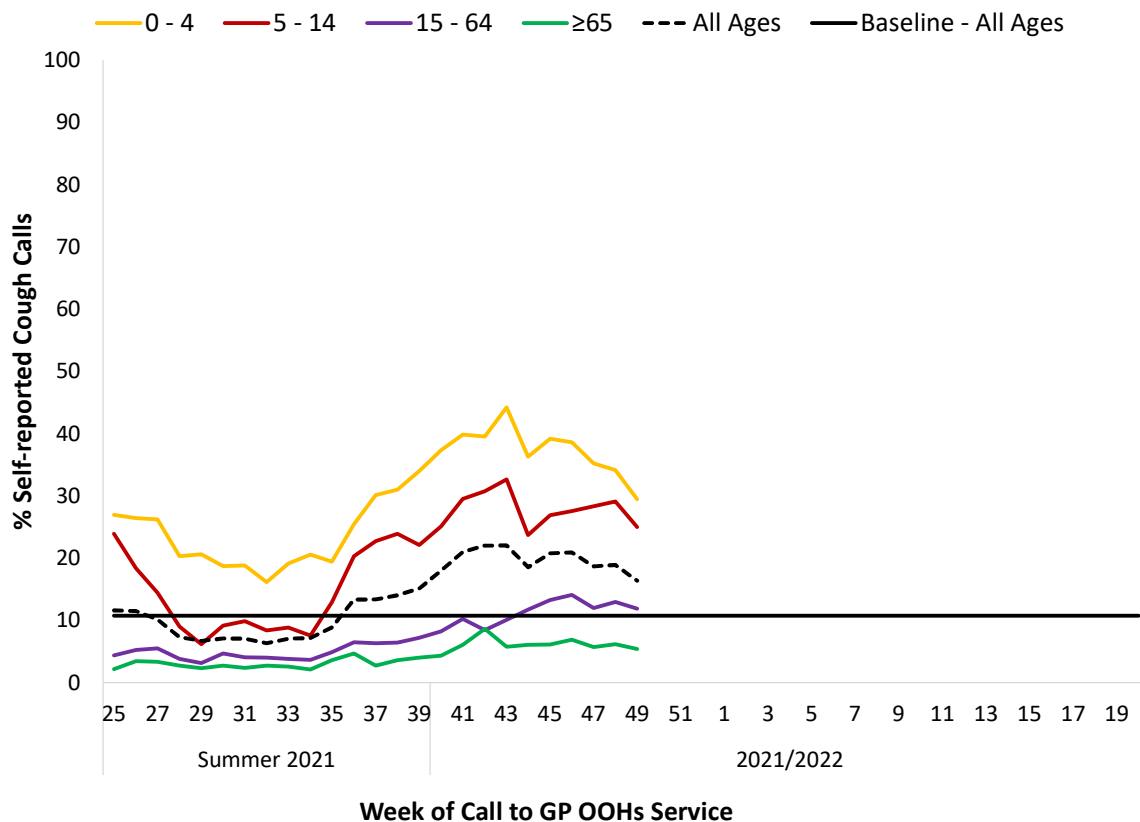
Regional influenza activity levels will be based on laboratory confirmed influenza cases and/or outbreaks.

Sporadic influenza activity (i.e. >1 influenza case in a HSE region during the same week) was reported in HSE-Midwest and HSE-South during week 49 2021.

### 4. GP Out-Of-Hours services surveillance

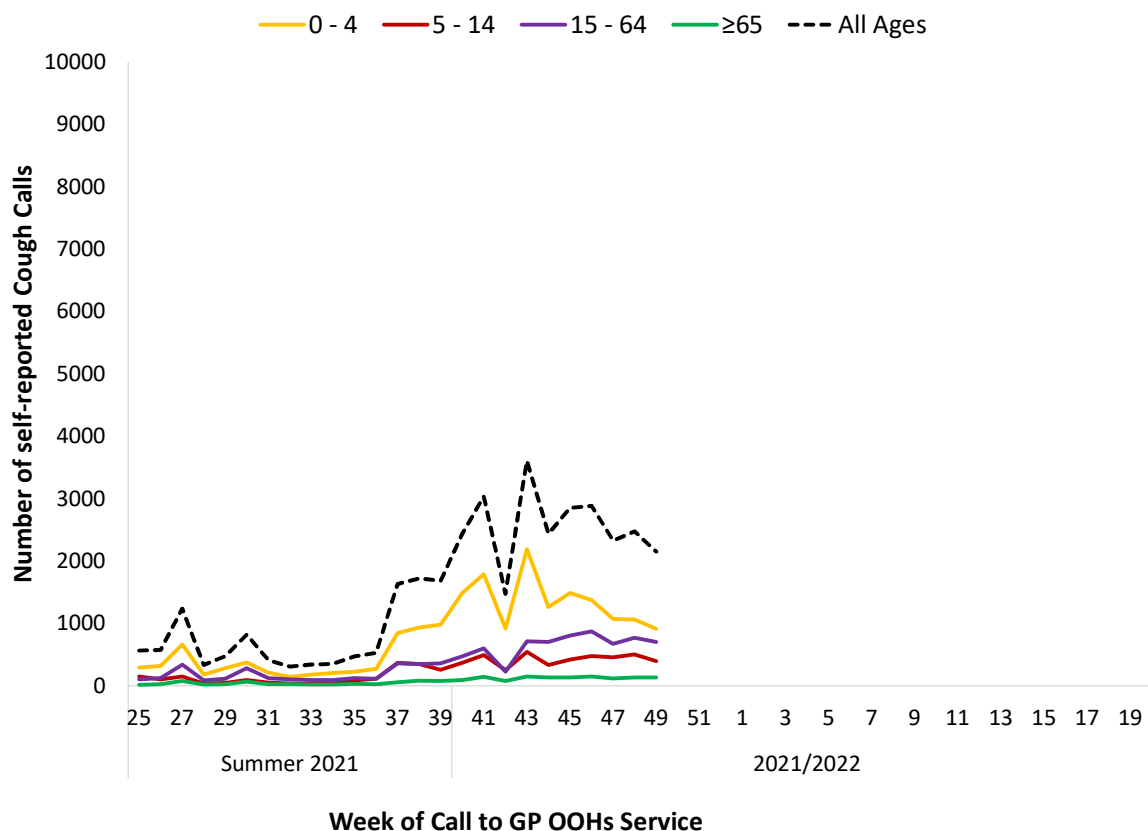
The Department of Public Health in HSE-NE is collating national data on calls to nine of thirteen GP Out-of-Hours (GP OOHs) services in Ireland. Records with clinical symptoms reported as flu/influenza or cough are extracted for analysis. This information may act as an early indicator of circulation of influenza, SARS-CoV-2 or other respiratory viruses. Data are self-reported by callers and are not based on coded diagnoses.

- 2151 (16.4% of total calls; N=13153) self-reported cough calls were reported by a network of GP OOHs services during week 49 2021, remaining above baseline levels for 14 consecutive weeks (Figures 5 & 6). The baseline threshold level for self-reported cough calls is 10.7%.
- Inclusion of data on self-reported ‘flu’ calls in this report will resume, once influenza viruses are circulating in the community.



**Figure 5:** Percentage of self-reported COUGH calls for all ages and by age group as a proportion of total calls to GP Out-of-Hours services by week of call, 2021-2022. The % cough calls baseline for all ages calculated using the MEM method on historic data is shown. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*



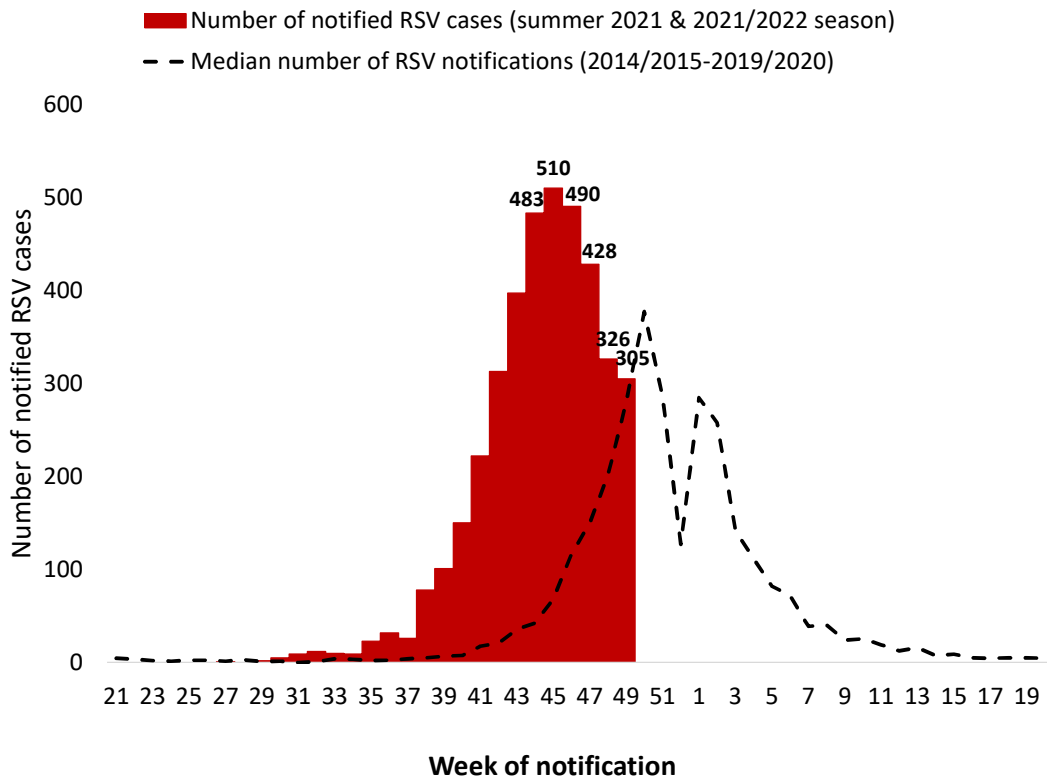


**Figure 6:** Number of self-reported COUGH calls for all ages and by age group to GP Out-of-Hours services by week of call, 2021-2022. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

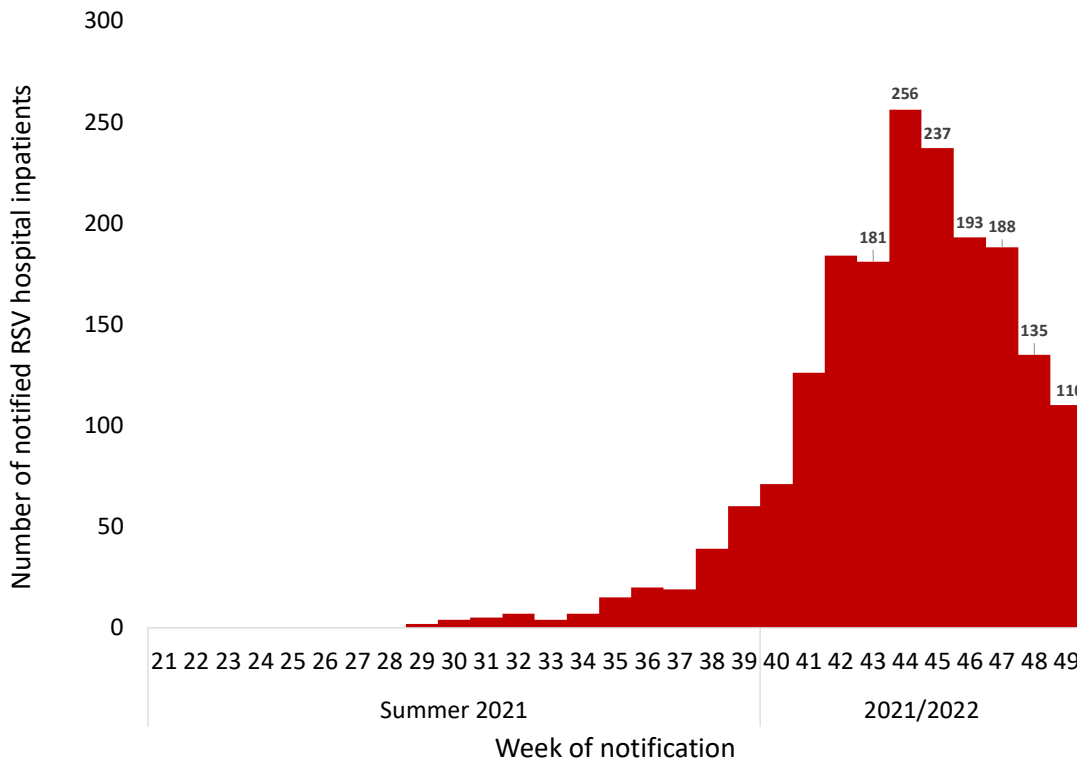
## 5. Influenza & RSV notifications

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](#).

- Five laboratory confirmed influenza cases were notified during week 49 2021: 4 influenza A (not subtyped) and one influenza B. All five notified cases were aged less than 65 years, with a median age of 16 years.
- Fifteen confirmed influenza cases were notified during the 2021/2022 season (weeks 40-49 2021): 12 influenza A (8 influenza A-not subtyped and 4 influenza A(H3)) and three influenza B. The median age of notified cases for the 2021/2022 season to date (weeks 40-49 2021) is 25 years.
- Influenza RNA can be detected in PCR tests in children within 14 days of receipt of Live Attenuated Influenza Vaccine (LAIV). These LAIV vaccine virus detections are not notified as confirmed influenza cases.
- RSV notifications decreased during week 49 2021, however remain at a high level.
- During week 49 2021, 305 RSV cases (63% aged 0-4 years; 14.1% aged ≥65 years) were notified, a decrease compared to 326 notifications during week 48 2021 (Figure 7).
- During week 49 2021, 110 notified RSV cases were reported as hospital inpatients (64.5% aged 0-4 years; 16.4% aged ≥65 years), compared to 135 during week 48 2021 (Figure 8). It should be noted that patient type is not always reported/updated for RSV notified cases; an RSV patient may be admitted to hospital and patient type not updated on CIDR.



**Figure 7:** Number of RSV cases notified by week of notification, summer 2021 and 2021/2022, and median number of RSV notifications by week (2014/2015-2019/2020). *Source: Ireland's Computerised Infectious Disease Reporting System.*



**Figure 8:** Number of notified RSV cases reported as hospital inpatients, by week of notification, summer 2021 and 2021/2022. *Source: Ireland's Computerised Infectious Disease Reporting System.*

## 6. Influenza Hospitalisations

- Two confirmed influenza hospitalised cases were notified to HPSC during week 49 2021, both were paediatric cases, one associated with influenza A (not subtyped) from HSE-Midwest and one influenza B case from HSE-East.
- For the 2021/2022 season to date (weeks 40-49 2021), four confirmed influenza hospitalised cases have been notified to HPSC from HSE-East, -NorthEast and -Midwest: two influenza B and two influenza A (one A subtyped and one influenza A(H3)).

## 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 40-49 2021.

## 8. Severe Acute Respiratory Infection (SARI) surveillance

Severe Acute Respiratory Infection (SARI) surveillance was implemented in one tertiary care adult hospital; St. Vincent's University Hospital, Dublin (SVUH) on the 5<sup>th</sup> of July 2021. The current SARI ECDC case definition used is defined as a hospitalised person (hospitalised for at least 24 hours) with acute respiratory infection, with at least one of the following symptoms: cough, fever, shortness of breath OR sudden onset of anosmia, ageusia or dysgeusia with onset of symptoms within 14 days prior to hospital admission. SARI cases are identified from new admissions (aged  $\geq 15$  years) through the SVUH Emergency Department. SARI patients are tested for SARS-CoV-2, influenza and RSV.

- During week 49 2021, 17 SARI cases were admitted to the SARI hospital site, corresponding to an incidence rate of 53.6 per 1,000 emergency admissions; remaining stable compared to 55.9/1,000 in week 48 2021.
- The SARI incidence rate per hospital catchment population was 5.6/100,000 population during week 49 2021, remaining unchanged from 5.6/100,000 in week 48 2021.
- SARI SARS-CoV-2 positivity was 67% (10/17 tested) during week 49 2021, compared to 56% (9/16) during week 48 2021.
- No SARI patients tested positive for influenza during weeks 48 and 49 2021.
- No SARI patients tested positive for RSV in week 49 2021. One SARI patient tested positive for RSV in week 48 2021, corresponding to RSV positivity of 7% (1/14).

## 9. Mortality Surveillance

Influenza 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 deaths in notified influenza cases occurred during week 49 2021. During the 2021/2022 season (weeks 40-49 2021) one death in a notified influenza A(H3) case was reported to HPSC during week 45 2021.
- No excess all-cause deaths were observed during week 48 2021, after correcting data for reporting delays with the standardised EuroMOMO algorithm. Due to delays in death registrations in Ireland, excess mortality data included in this report will be reported with one-week lag time.

## 10. Outbreak Surveillance

COVID-19 outbreaks are not included in this report; surveillance data on COVID-19 outbreaks are detailed on the HPSC website. <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/surveillance/>

- During week 49 2021, one RSV outbreak in a nursing home in HSE-NorthEast was notified. In addition, three acute respiratory infection (ARI-SARS-CoV-2 negative) outbreaks were notified during week 49 2021, one associated with seasonal coronavirus (OC43) in HSE-NorthWest and two ARI SARS-CoV-2 negative outbreaks with no pathogen identified (one in HSE-NorthWest and one in HSE-NorthEast).
- For the 2021/2022 season to date (weeks 40-49 2021), four RSV and six ARI (SARS-CoV-2 negative) outbreaks were notified to HPSC. Of the six ARI outbreaks, two were associated with rhinovirus/enterovirus, one with seasonal coronavirus (OC43) and three with no pathogen identified. No laboratory confirmed influenza outbreaks have been notified to HPSC during weeks 40-49 2021.

## 11. International Summary

As of 6<sup>th</sup> December 2021, globally, influenza activity continued to increase but remained low and below levels observed in previous seasons. RSV continues to circulate in the Northern Hemisphere and was at higher than expected levels in Canada. WHO are advising countries to remain vigilant for the possibility of influenza circulating and to be prepared for co-circulation of SARS-CoV-2 and influenza.

Influenza activity increased in the European Region during week 48 2021 (week ending 05/12/2021). Several countries reported seasonal influenza activity above the 10% influenza positivity threshold in sentinel primary care or hospital settings (Armenia, Israel, Kazakhstan, Kosovo, Kyrgyzstan, Russian Federation). Both influenza A and B viruses were detected with a predominance of A(H3) viruses across all monitoring systems and in nearly all SARI cases. Of the 1178 specimens tested for influenza during week 48 2021, from patients presenting with ILI or ARI symptoms to sentinel primary healthcare sites, 56 (5%) were positive for influenza; 96% influenza A and 4% influenza B. Of 23 subtyped A viruses, 2 (9%) were A(H1)pdm09 and 21 (91%) A(H3). During week 48 2021, from non-sentinel sources (hospitals, schools, primary care facilities not involved in sentinel surveillance, or nursing homes and other institutions) 1524 of 49033 specimens tested positive for influenza; 97% influenza A and 3% influenza B. Of 810 subtyped A viruses, 5% were A(H1)pdm09 and 95% A(H3).

See [ECDC](#) and [WHO](#) influenza surveillance reports for further information.

- Further information on influenza is available on the following websites:
  - Europe – ECDC <http://ecdc.europa.eu/>
  - Public Health England <https://www.gov.uk/government/collections/weekly-national-flu-reports>
  - 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>
- Influenza case definition in Ireland <https://www.hpsc.ie/a-z/respiratory/influenza/casedefinitions/>
- COVID-19 case definition in Ireland <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/casedefinitions/>
- Avian influenza overview May – August 2020 <https://www.ecdc.europa.eu/en/publications-data/avian-influenza-overview-may-august-2020>
- Avian influenza: EU on alert for new outbreaks <https://www.ecdc.europa.eu/en/news-events/avian-influenza-eu-alert-new-outbreaks>
- Information on COVID-19 in Ireland is available on the HPSC website <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/>
- The WHO categorised COVID-19 as a pandemic on 11 March 2020. For more information about the situation in the WHO European Region visit:
  - WHO website: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
  - ECDC website: <https://www.ecdc.europa.eu/en/novel-coronavirus-china>

## 11. WHO recommendations on the composition of influenza virus vaccines

The WHO vaccine strain selection committee recommend that quadrivalent egg-based vaccines for use in the 2021/2022 northern hemisphere influenza season contain the following: an A/Victoria/2570/2019 (H1N1)pdm09-like virus; an A/Cambodia/e0826360/2020 (H3N2)-like virus; a B/Washington/02/2019 (B/Victoria lineage)-like virus; and a B/Phuket/3073/2013 (B/Yamagata lineage)-like virus <https://www.who.int/teams/global-influenza-programme/vaccines/who-recommendations>

**Further information on influenza in Ireland is available at [www.hpsc.ie](http://www.hpsc.ie)**

This report was prepared by the HPSC influenza epidemiology team: Lisa Domegan, Maeve McEnery, Eva Kelly, Adele McKenna, Martha Neary and Joan O'Donnell.

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