

Influenza Surveillance in Ireland – Weekly Report

Influenza Week 3 2022 (17th January 2022 – 23rd January 2022)



Summary

Influenza activity remained low in Ireland during week 3 2022, with three laboratory confirmed influenza cases notified. During the 2021/2022 season to date, 62 laboratory confirmed influenza cases have been notified, the majority associated with influenza A and of those subtyped, the majority are A(H3). In the European region, both influenza A and B viruses have been detected, with a dominance of A(H3) viruses across all monitoring systems.

- **Influenza-like illness (ILI):** The sentinel GP influenza-like illness (ILI) consultation rate decreased to 8.0/100,000 population during week 3 2022, compared to 19.1/100,000 in week 2 2022. Sentinel GP ILI consultation rates during week 3 2022 were below the Irish baseline threshold (18.1/100,000 population). Recent trends in sentinel GP ILI consultation rates are likely reflecting community COVID-19 incidence and changes to health seeking behaviour relating to GP consultation, the use of online COVID-19 test booking systems and antigen tests.
- Sentinel GP ILI rates were below age specific baseline levels in all age groups during week 3 2022.
- **GP Out of Hours:** The proportion of self-reported 'flu' calls to GP Out-of-Hours services was 0.3% (33/10,107) during week 3 2022, remaining below baseline levels (2.3%).
- **National Virus Reference Laboratory (NVRL):** Of 18 sentinel GP ILI and 90 non-sentinel respiratory specimens tested and reported by the NVRL during week 3 2022, no sample was positive for influenza. For the 2021/2022 season (weeks 40 2021 - 3 2022), only 0.2% (2/1079) of sentinel GP ILI specimens and 0.5% (17/3593) of non-sentinel respiratory specimens were positive for influenza: 15 A(H3), two A(H1)pdm09 and two influenza B.
- There were no RSV positive samples from non-sentinel sources in week 3 2022. Rhinovirus/enterovirus and other respiratory viruses continue to circulate at low levels
- **Influenza notifications:** Three laboratory confirmed influenza cases - 1 A(H3) and 2 A (not subtyped) - were notified to HPSC during week 3 2022. During the 2021/2022 season (weeks 40 2021-3 2022) 62 laboratory confirmed influenza cases were notified: 56 influenza A cases (of those subtyped - 12 A(H3) and 1 A(H1)pdm09) and 6 influenza B cases.
- **RSV notifications:** 59 RSV cases (44% aged 0-4 years; 27% aged ≥65 years) were notified during week 3 2022; 23 of these cases were reported as hospital inpatients (62% aged 0-4 years; 31% aged ≥65 years).
- **Hospitalisations and Critical care admissions:** Two laboratory confirmed influenza A hospitalised cases were notified during week 3 2022: 1 A(H3) and 1 A (not subtyped). During weeks 40 2021-3 2022, 18 confirmed influenza hospitalised cases were notified: 16 influenza A (5 subtyped as AH3) and two B cases. One case was admitted to critical care during week 2 2020.
- **Mortality:** No deaths in notified influenza cases were reported to HPSC during week 3 2022. No excess all-cause mortality was reported during week 2 2022; data reported with one-week time lag.
- **Outbreaks:** One RSV outbreak in an acute hospital was notified to HPSC during week 3 2022.
- **International:** For the European Region, influenza activity started to increase in week 49 2021, with different levels of activity observed between countries/areas, and a general dominance of A(H3) viruses, although some countries reported both A(H3) and A(H1)pdm09 viruses (e.g. France).

1. GP sentinel surveillance system - Clinical Data

- During week 3 2022, 23 influenza-like illness (ILI) cases were reported from the Irish sentinel GP network, corresponding to an ILI consultation rate of 8.0/100,000 population, a decrease compared to 19.1/100,00 during week 2 2022 (Figure 1). The sentinel GP ILI consultation rate was below the Irish sentinel GP ILI baseline threshold (18.1/100,000 population) during week 3 2022.
- 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 relating to GP consultations, the use of online COVID-19 booking systems and SARS-CoV-2 antigen tests. With a low number of laboratory confirmed influenza cases detected/notified in Ireland during the 2021/2022 season to date, sentinel GP ILI consultations are predominately reflecting circulation of SARS-CoV-2 in the community, rather than influenza viruses.
- During week 3 2022, sentinel GP ILI rates were below age specific baseline levels in all age groups. Data for weeks 40 2021 - 3 2022 are included in Figure 2 & Table 1.
- The Irish sentinel baseline ILI threshold for the 2021/2022 influenza season is 18.1/100,000 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), medium (57.5/100,000) and high (86.5/100,000) intensity ILI thresholds are shown in figure 1. Age specific MEM threshold levels are shown in Table 1.

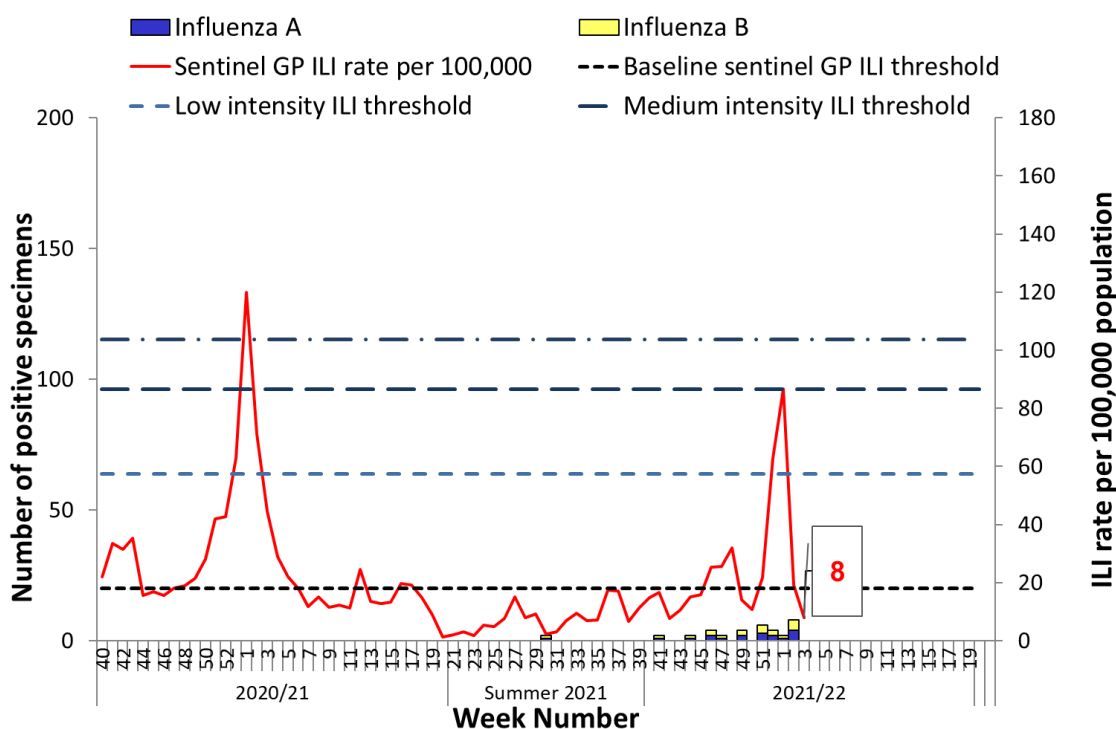


Figure 1: Sentinel GP Influenza-like illness (ILI) consultation rates per 100,000 population, baseline ILI threshold, medium and high intensity ILI thresholds and number of positive influenza A and B specimens tested by the NVRL, by influenza week and season. The current week sentinel GP ILI consultation rate per 100,000 population is highlighted in red text. *Source:* ICGP and NVRL

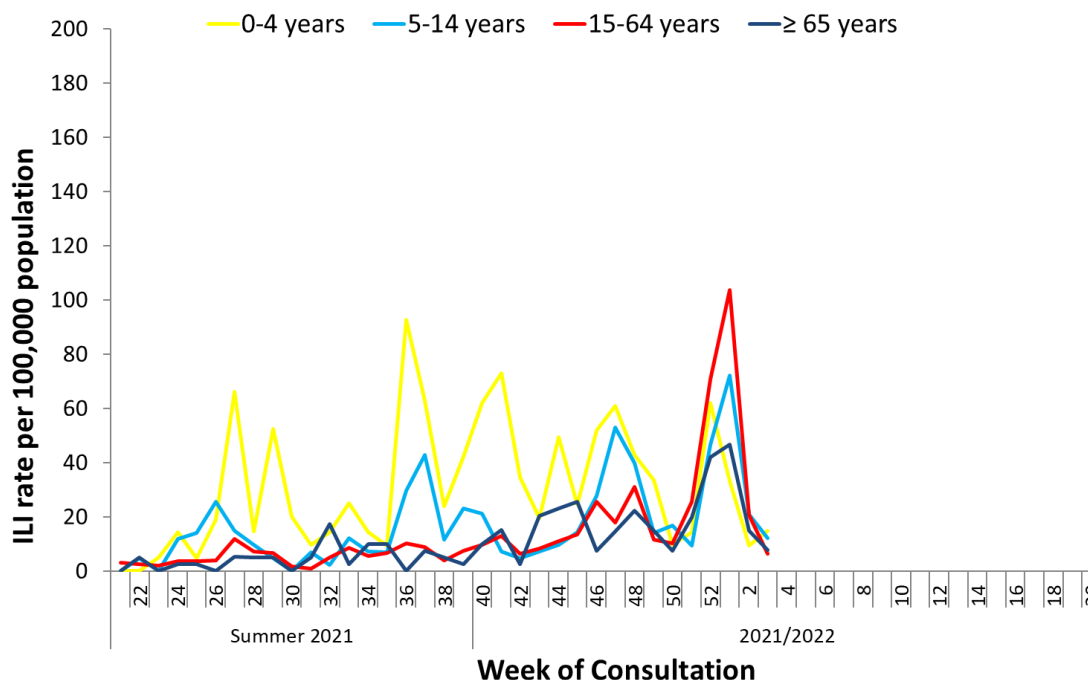


Figure 2: Age specific sentinel GP ILI consultation rate per 100,000 population by week during the summer of 2021 and the 2021/2022 influenza season to date. *Source: ICGP.*

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								
Age group (years)	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3
All Ages	14.9	16.6	7.6	10.6	15.1	16.0	25.3	25.5	31.9	14.0	10.8	21.8	63.0	86.7	19.1	8.0
<15 yrs	34.6	28.8	14.6	11.3	22.8	17.7	35.8	55.6	40.8	20.5	14.4	10.9	51.7	59.3	17.2	13.2
15-64 yrs	9.6	12.9	6.3	8.4	11.0	13.5	25.6	18.0	30.9	11.7	10.3	25.7	70.9	103.8	20.7	6.4
≥65 yrs	9.9	15.2	2.6	20.4	23.1	25.4	7.4	14.6	22.3	14.9	7.6	19.7	42.1	46.8	14.8	7.8
Reporting practices (N=61)	57	56	54	55	54	55	56	57	55	54	55	56	55	56	56	53

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 18 sentinel GP ILI and 90 non-sentinel respiratory specimens tested and reported by the NVRL during week 3 2022, no influenza positive specimens were detected during week 3 2022 (Table 2).
- For the 2021/2022 season (weeks 40 2021- 3 2022), only 0.2% (2/1079) of sentinel GP ILI and 0.5% (17/3593) of non-sentinel respiratory specimens were positive for influenza: 15 influenza A(H3), 2 influenza A(H1)pdm09 and 2 influenza B (one B/Victoria and one B/lineage not specified). Figures 3 & 4.
- No RSV positive samples were detected from non-sentinel respiratory specimens during week 3 2022; indicating that RSV circulation has declined (Table 3; Figure 5).
- Rhinovirus/enterovirus positive detections (non-sentinel respiratory sources) continue to be reported, with positivity levels at 13.3% (12/90) during week 3 2022 (Figure 6). Other respiratory viruses (ORVs) continue to be detected at lower levels, compared to RSV and rhinovirus/enterovirus positivity levels (Table 4).
- 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.

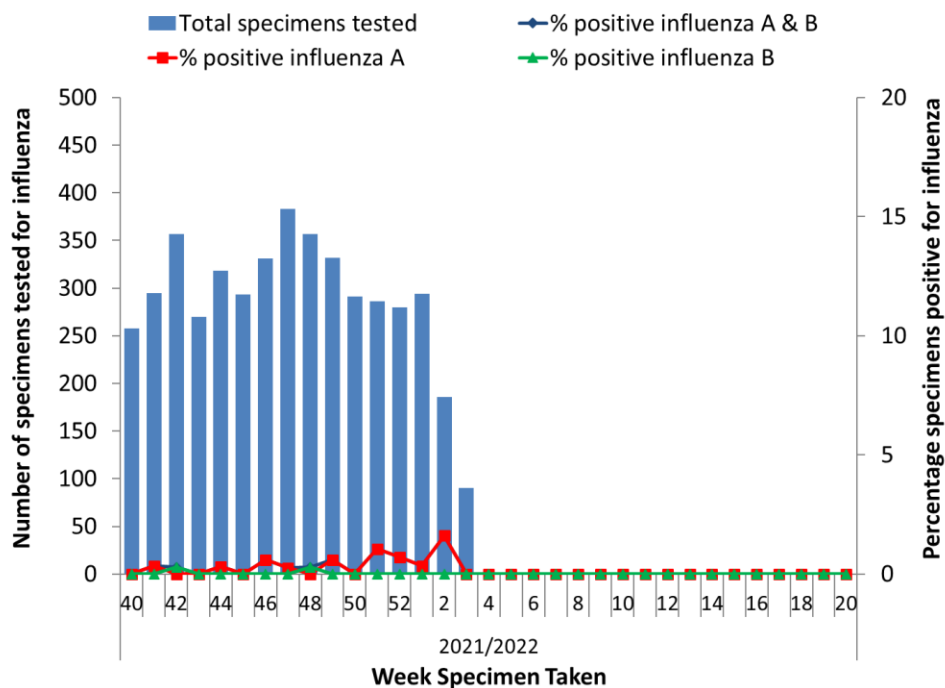


Figure 3: Number of specimens (from sentinel GP ILI and non-sentinel respiratory sources) tested by the NVRL for influenza and percentage influenza positive by week for the 2021/2022 influenza season. *Source: NVRL.*

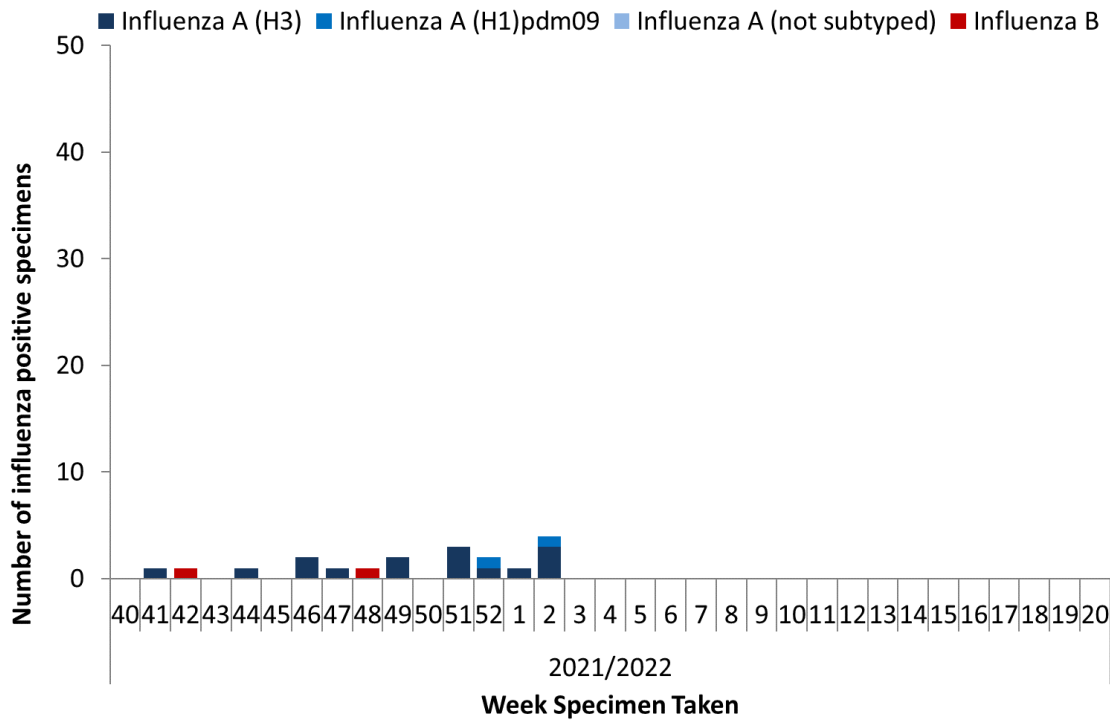


Figure 4: Number of positive influenza specimens (from sentinel GP ILI and non-sentinel respiratory sources) tested by the NVRL by influenza type/subtype and by week for the 2021/2022 influenza season. *Source: NVRL.*

Table 2: Number of sentinel GP ILI and non-sentinel respiratory specimens tested by the NVRL and positive influenza results, for week 3 2022 and the 2021/2022 season (weeks 40 2021- 3 2022). *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
3 2022	Sentinel GP ILI referral	18	0	0.0	0	0	0	0	0	0	0	0
	Non-sentinel	90	0	0.0	0	0	0	0	0	0	0	0
	Total	108	0	0.0	0	0	0	0	0	0	0	0
2021/2022	Sentinel GP ILI referral	1079	2	0.2	1	1	0	2	0	0	0	0
	Non-sentinel	3593	17	0.5	1	14	0	15	1	1	0	2
	Total	4672	19	0.4	2	15	0	17	1	1	0	2

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

Surveillance period	Specimen type	Total tested	Number RSV positive	% RSV positive	RSV A	RSV B	RSV (unspecified)
Week 3 2022	Sentinel GP ILI	18	0	0.0	0	0	0
	Non-sentinel	90	0	0.0	0	0	0
	Total	108	0	0.0	0	0	0
2021/2022	Sentinel GP ILI	1079	54	5.0	27	27	0
	Non-sentinel	3593	701	19.5	395	305	1
	Total	4672	755	16.2	422	332	1

Table 4: Number of non-sentinel respiratory specimens tested by the NVRL for other respiratory viruses (ORVs) and positive results, for week 3 2022 and the 2021/2022 season (weeks 40 2021-3 2022). *Source: NVRL*

Virus	Week 3 2022 (N=90)		2021/2022 (N=3593)	
	Total positive	% positive	Total positive	% positive
Influenza virus	0	0.0	17	0.5
Respiratory Syncytial Virus (RSV)	0	0.0	701	19.5
Rhino/enterovirus	12	13.3	699	19.5
Adenovirus	0	0.0	40	1.1
Bocavirus	1	1.1	108	3.0
Human metapneumovirus (hMPV)	4	4.4	98	2.7
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)	0	0.0	101	2.8
Parainfluenza virus type 4 (PIV-4)	0	0.0	61	1.7

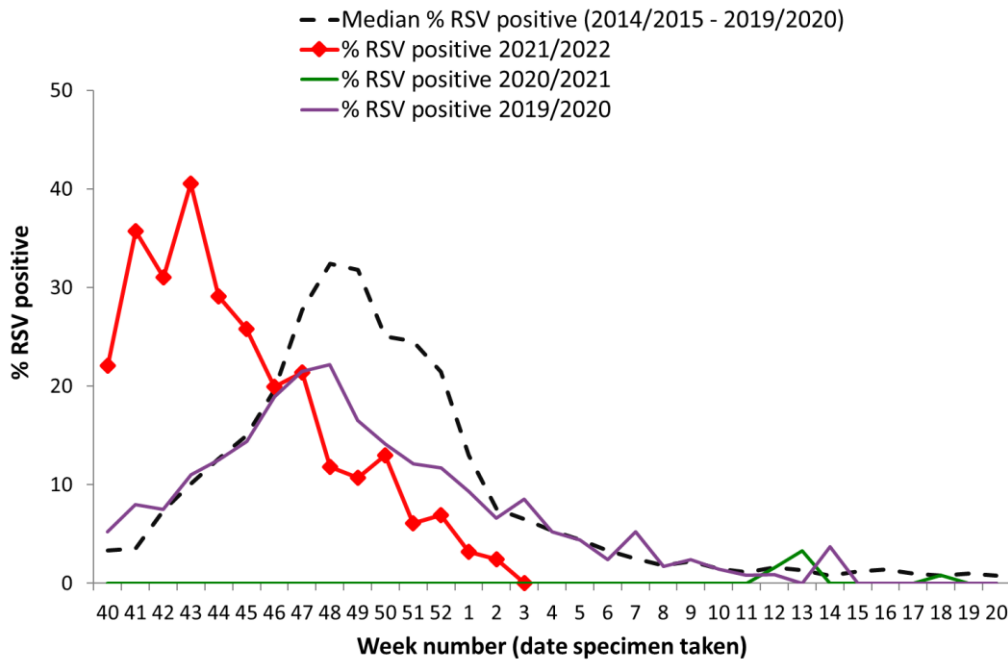


Figure 5: NVRL non-sentinel RSV positivity by week specimen was taken for 2021/2022, 2020/2021 and 2019/2020 seasons compared to median % RSV positivity (2014/2015-2019/2020). *Source: NVRL.*

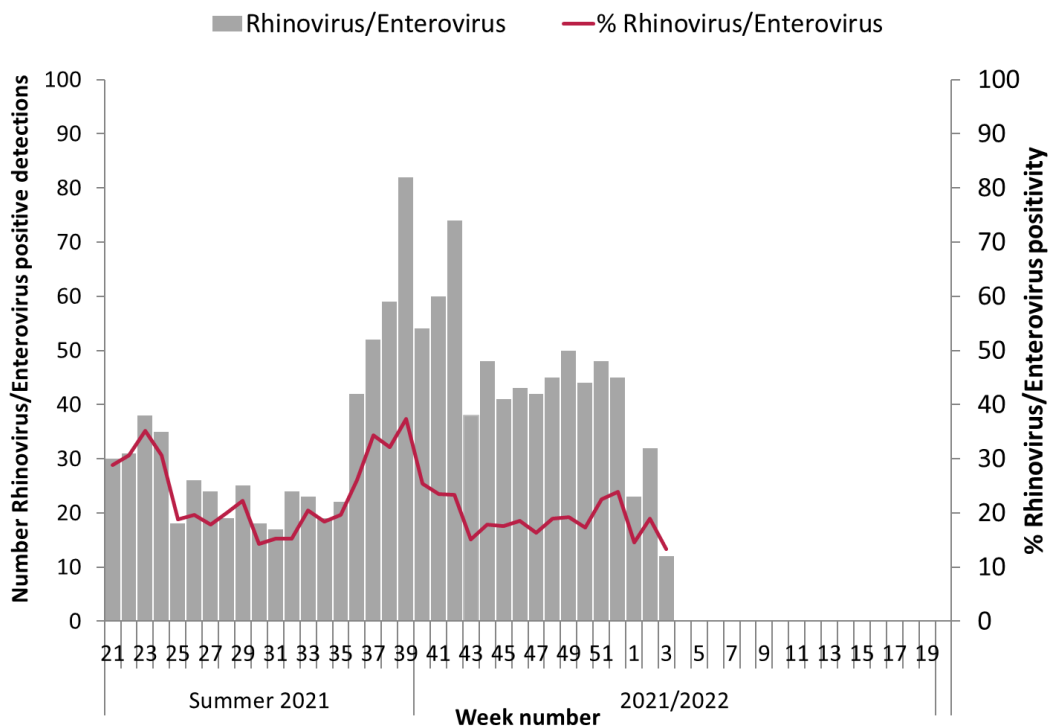


Figure 6: Number (and percentage) of non-sentinel rhinovirus/enterovirus positive detections by week specimen was taken for summer 2021 and 2021/2022 season. *Source: NVRL.*

3. Regional Influenza Activity by HSE-Area

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

No sporadic influenza activity (i.e. >1 laboratory confirmed influenza case or a laboratory confirmed influenza outbreak in an HSE region during the same week) was observed in any HSE-area during week 3 2022.

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.

- 984 (9.7% of total calls; N=10,107) self-reported cough calls were reported by a network of GP OOHs services during week 3 2022, below baseline levels for the second consecutive week (Figures 7 & 8). The baseline threshold level for self-reported cough calls is 10.7%.
- 33 (0.3% of total calls; N=10,107) self-reported 'flu' calls were reported by a network of GP OOHs services during week 3 2022, remaining below baseline levels, and a decrease compared to 43 (0.4% of total calls; N=10,083) self-reported 'flu' calls during week 2 2022. The baseline threshold level for self-reported 'flu' calls is 2.3%. (Figure 9).
- Five GP OOH services provided data for week 3 2022.

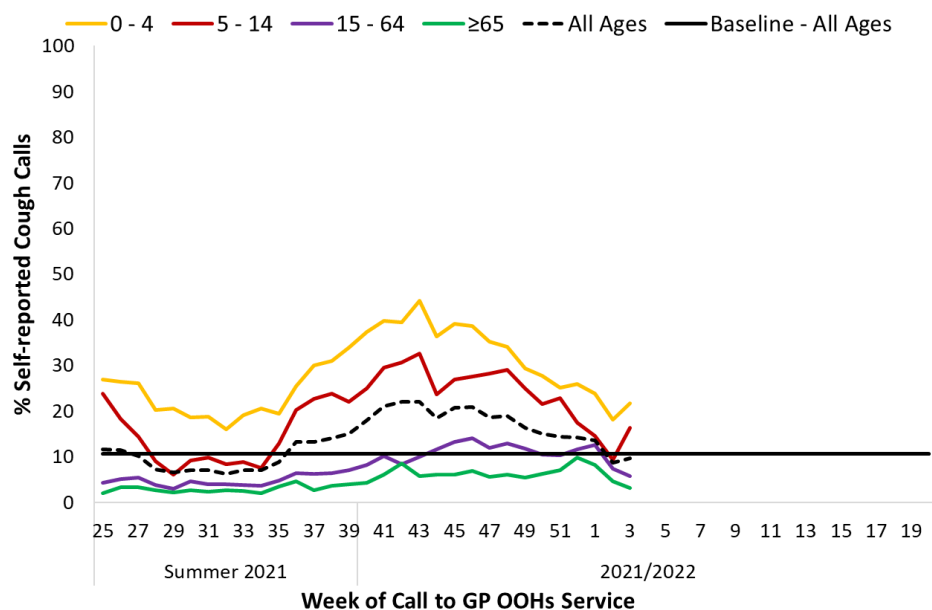


Figure 7: Percentage of self-reported COUGH calls for all ages and by age group as a proportion of total calls to GP Out-of-Hours services by week of call, 2021-2022. The % cough calls baseline for all ages calculated using the MEM method on historic data is shown. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

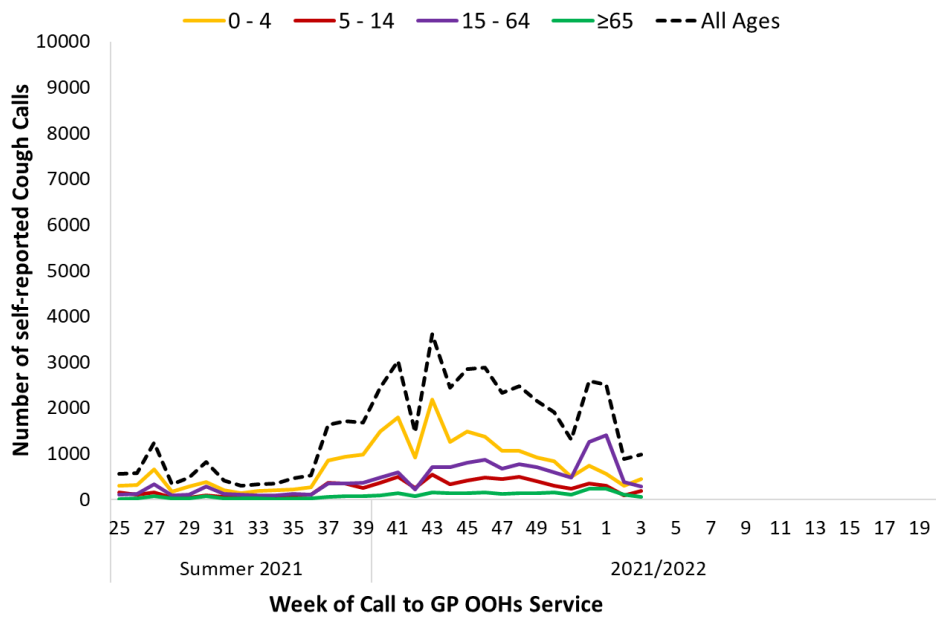


Figure 8: Number of self-reported COUGH calls for all ages and by age group to GP Out-of-Hours services by week of call, 2021-2022. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

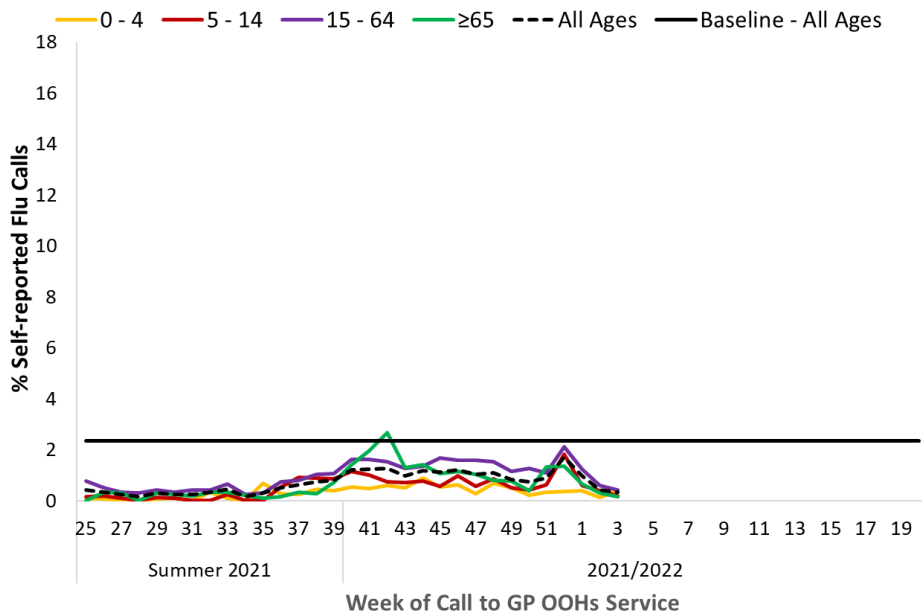


Figure 9: Percentage of self-reported FLU calls for all ages and by age group as a proportion of total calls to GP Out-of-Hours services by week of call, 2021-2022. The % flu calls baseline for all ages calculated using the MEM method on historic data is shown. *Source: GP Out-Of-Hours services in Ireland (collated by HSE-NE) & ICGP.*

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](#).

- Three laboratory confirmed influenza cases, 1 A(H3) and 2 A (not subtyped), were notified to HPSC during week 3 2022 (Figure 10). The median age of cases notified during week 3 2022 was 18 years (interquartile range 11-33 years). Laboratory confirmed influenza cases were notified from HSE-East (n=1), HSE-North West (n=1) and HSE-South (n=1)) during week 3 2022.
- Sixty-two laboratory confirmed influenza cases were notified during the 2021/2022 season (weeks 40 2021 - 3 2022): 56 influenza A (43 A not subtyped, 12 A(H3) and one A(H1)pdm09) and 6 influenza B. The median age of notified cases for the 2021/2022 season to date is 31 years (interquartile range 22-60 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.
- During week 3 2022, 59 RSV cases (44%, n=26/59 aged 0-4 years; 27%, n=16/59, aged ≥65 years) were notified; 23 of these cases were reported as hospital inpatients (70%, n=16/23, aged 0-4 years; 22%, n=5/23, aged ≥65 years) (Figures 11 & 12). 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.

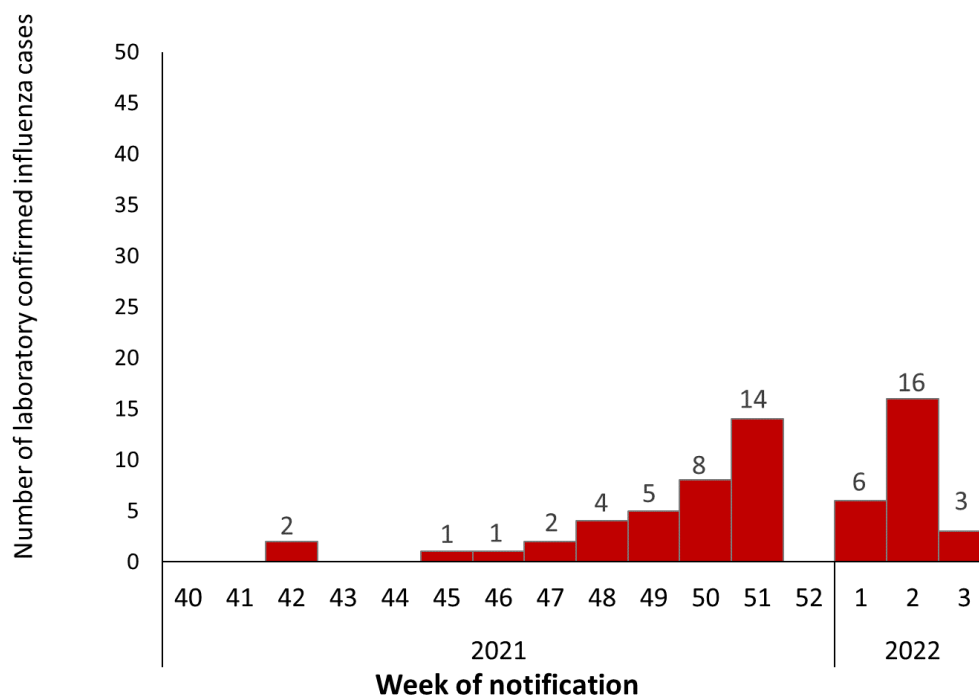


Figure 10: Number of laboratory confirmed influenza cases notified by week of notification, 2021/2022. *Source: Ireland's Computerised Infectious Disease Reporting System*

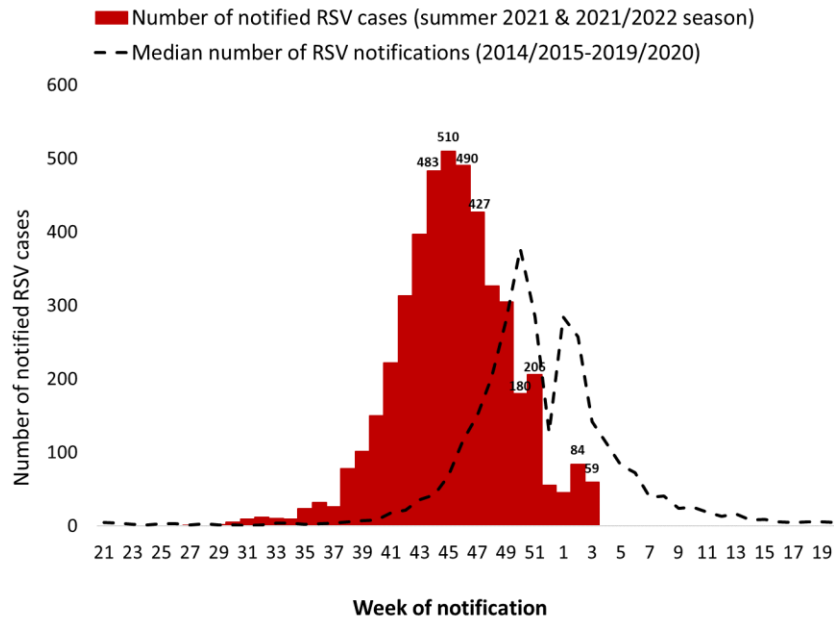


Figure 11: Number of RSV cases notified by week of notification, summer 2021 and 2021/2022, and median number of RSV notifications by week (2014/2015-2019/2020). *Source: Ireland's Computerised Infectious Disease Reporting System.*

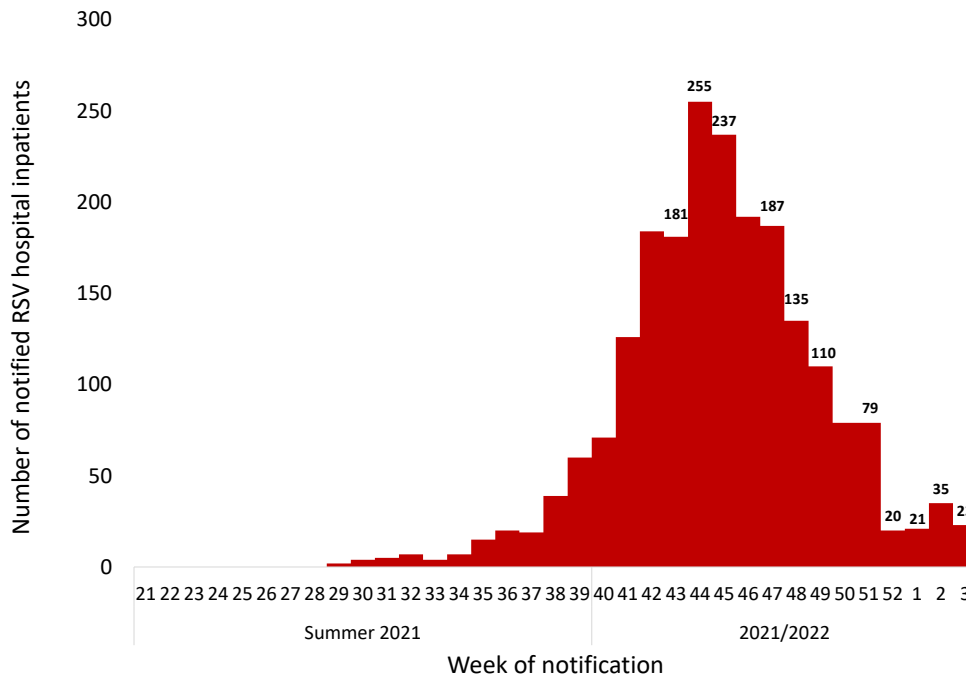


Figure 12: Number of notified RSV cases reported as hospital inpatients, by week of notification, summer 2021 and 2021/2022. *Source: Ireland's Computerised Infectious Disease Reporting System.*

6. Influenza Hospitalisations

- Two laboratory confirmed influenza hospitalised cases were notified during week 3 2022, both influenza A (1 A(H3) and 1 A not subtyped), cases were aged 5-14 and 15-24 years (Figure 13 and Table 5).
- During weeks 40 2021 - 3 2022, 18 laboratory confirmed influenza hospitalised cases were notified: 16 influenza A (5 subtyped as AH3) and two influenza B cases (Figure 14). Confirmed influenza hospitalised cases have been notified from HSE-MidWest (n=4), -East (n=3), -Northeast (n=1), -Northwest (n=7), -Southeast (n=1) and HSE-South (n=2).

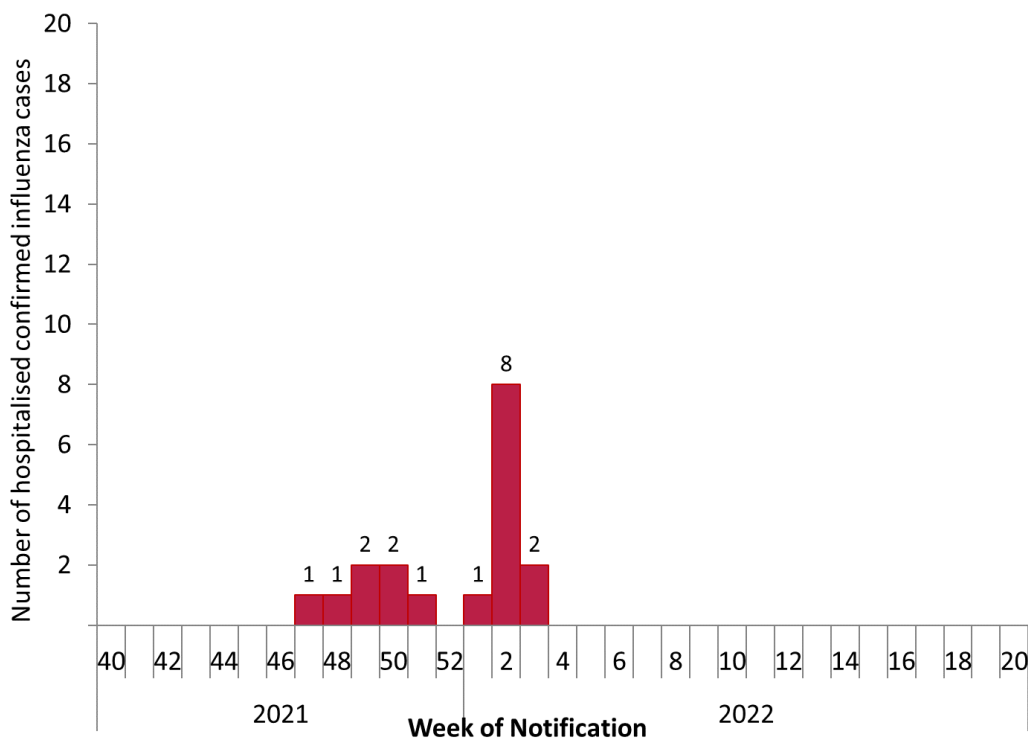


Figure 13: Number of notified laboratory confirmed influenza cases reported as hospital inpatients, by week of notification 2021/2022. *Source: Ireland's Computerised Infectious Disease Reporting System*

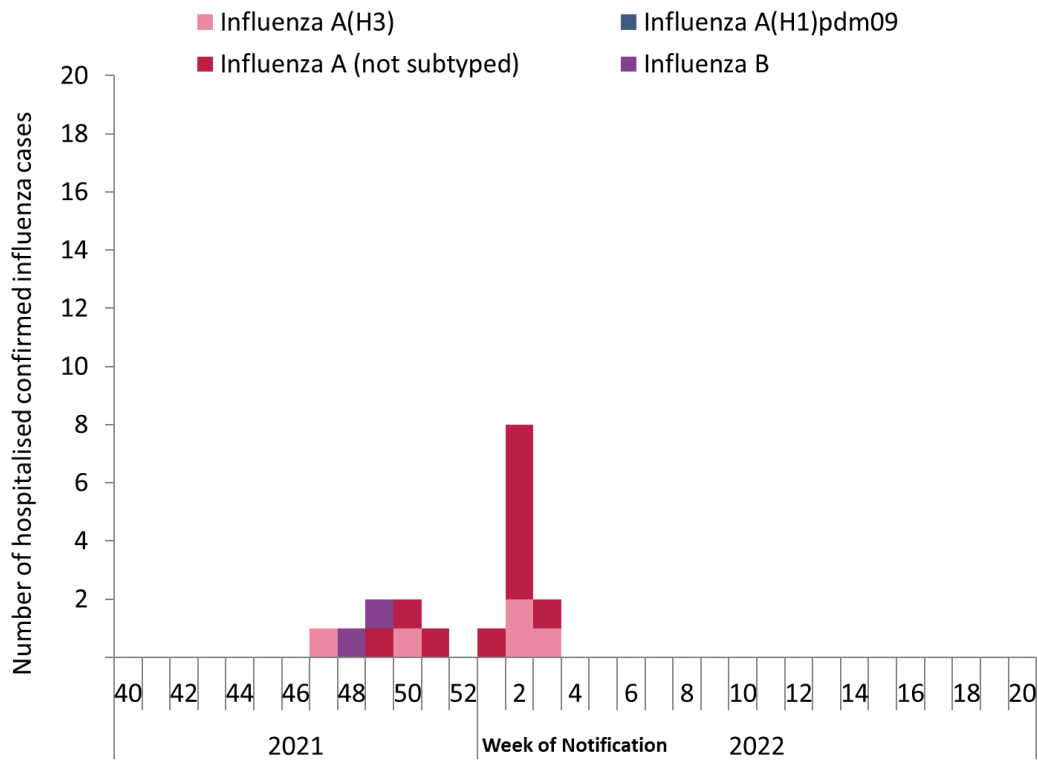


Figure 14: Number of laboratory confirmed notified influenza hospitalised cases, by influenza type/subtype and week of notification, 2021/2022 season *Source: Ireland's Computerised Infectious Disease Reporting System*

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.

- During the 2021/2022 influenza season, only one laboratory confirmed influenza A case was admitted to critical care and reported to HPSC (during week 2 2022), the case was aged ≥ 65 years (Table 5).

Table 5: Number (and age specific rate per 100,000 population of laboratory confirmed notified influenza hospitalised and critical care cases, weeks 40 2021-3 2022 *Source: Ireland's Computerised Infectious Disease Reporting System*

Age (years)	Hospitalised		Admitted to ICU	
	Number	Age specific rate per 100,000 pop.	Number	Age specific rate per 100,000 pop.
<1	0	0.0	0	0.0
1-4	2	0.7	0	0.0
5-14	2	0.3	0	0.0
15-24	2	0.3	0	0.0
25-34	1	0.2	0	0.0
35-44	1	0.2	0	0.0
45-54	0	0.0	0	0.0
55-64	2	0.4	0	0.0
≥65	8	1.3	1	0.2
Unknown	0	-	0	-
Total	18	0.4	1	0.0

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 5th of July 2021. SARI cases are identified from new admissions (aged ≥15 years) through the SVUH Emergency Department. 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 patients are tested for SARS-CoV-2, influenza and RSV.

- During week 3 2022, four SARI cases were admitted to the SARI hospital site, corresponding to an incidence rate per emergency hospitalisation of 14.8/1,000; a decrease on 31/1,000 in week 2 2022.
- The SARI incidence rate per hospital catchment population was 1.3/100,000 population during week 3 2022, a decrease on 3.0/100,000 in week 2 2022
- SARI SARS-CoV-2 positivity was 50% (2/4 tested) during week 2 2022, compared to 56% (5/9) during week 2 2022.
- No SARI patients tested positive for influenza or RSV during weeks 2 and 3 2022.

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 were reported to HPSC during week 3 2022. During the 2021/2022 season (weeks 40 2021- 3 2022) two deaths in notified influenza cases were reported to HPSC (1 A(H3) and 1 A not subtyped).
- No excess all-cause mortality was reported during week 2 2022, 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 are reported with a 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/>

- One RSV outbreak in an acute hospital was notified to HPSC during week 3 2022. No influenza or acute respiratory infection (ARI) (SARS-CoV-2 negative) outbreaks were notified to HPSC during week 3 2022.
- For the 2021/2022 season to date (weeks 40 2021- 3 2022), one influenza A(H3) family outbreak, five RSV and ten ARI (SARS-CoV-2 negative) outbreaks were notified to HPSC. Of the ten ARI outbreaks, two were associated with rhinovirus/enterovirus, four with seasonal coronavirus (OC43) and four with no pathogen identified.

11. International Summary

The latest available WHO influenza report was published on 24 January 2022, based on data up to 9 January 2022

In temperate zones of the northern hemisphere, influenza activity although still low appeared to increase in some countries with detections of mainly influenza A(H3N2) viruses and in China B-Victoria lineage viruses. In North America, influenza virus detections were predominately A(H3N2) among those detected and subtyped. Influenza detections remained low compared to similar periods in past seasons (except 2020-2021). RSV activity continued to decrease in the USA and Canada. In East Asia, influenza activity continued on an increasing trend in China, while influenza illness indicators and activity remained low in the rest of the subregion. Influenza B-Victoria lineage viruses predominated. In Western Asia and Northern Africa, continuous influenza transmission has been reported in some countries. In the Caribbean and Central American countries, some influenza activity was reported with influenza A(H3N2) predominating. In tropical South America, influenza A(H3N2) detections remained elevated. In tropical Africa, overall influenza activity continued on a decreasing trend. In Southern Asia, influenza virus detections of predominately influenza A(H3N2) increased overall, although several countries are reporting already declining influenza activity trends. In South-East Asia, sporadic influenza detections were reported in the Philippines. In the temperate zones of the southern hemisphere, influenza activity remained low overall, although increased detections of influenza A(H3N2) were reported in some countries in temperate South America.

<https://www.who.int/teams/global-influenza-programme/surveillance-and-monitoring/influenza-updates/current-influenza-update>

During week 2 2022 (week ending 16/01/2022), 35 countries and areas in the European region reported on intensity of influenza activity, 20 reported baseline-intensity (across the Region), 12 reported low-intensity (across the Region) and 3 reported medium-intensity (Kazakhstan, North Macedonia and Serbia). Six countries reported seasonal influenza activity at or above 10% positivity in sentinel primary care: Armenia (56%), Serbia (22%), Estonia (15%), France (13%), Georgia (12%) and Russian Federation (10%). Both influenza A and B viruses were detected, with a dominance of A(H3) viruses across all monitoring systems. Some countries reported both A(H3) and A(H1)pdm09 viruses e.g. France. <https://flunewseurope.org/>

- 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

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