Weekly Report on Severe Acute Respiratory Infection (SARI), Week 50 2023 (week ending 17/12/2023)

This report includes data on SARI hospitalised cases, aged 15 years and older who were admitted to St.Vincent's University Hospital (SVUH), Dublin, up to week 50 2023.

Please note that this report on SARI surveillance pertains to one hospital site only, data are not nationally representative. Therefore caution is advised when interpreting rates and trends as outlined in the report, which may fluctuate due to the low case numbers.

Key points

Week 50 2023 (week ending 17/12/2023):
- **Number of cases:** 11 SARI cases admitted to the SARI hospital site, compared to 13 cases reported during week 49 2023 (15.4% decrease).
- **Incidence rate per hospital catchment population:** 2.8 per 100,000 population aged 15 years and older, compared to 3.4 per 100,000 in week 49 2023.
- **Incidence rate per emergency hospitalisations:** 35.5 per 1,000, compared to 43.6 per 1,000 in week 49 2023 (18.6% decrease).
- **Age profile:** Nine (81.8%) SARI cases aged ≥65 years, median age: 69 years; IQR: 67-74 years.
- **Underlying medical conditions:** 11 (100.0%) SARI cases reported having underlying medical conditions.
- **PCR testing:** Of those tested, three (30.0%) tested positive for SARS-CoV-2; one (10.0%) tested positive for influenza A, and none tested positive for RSV.

Last four weeks (weeks 47-50 2023)
- **Number of cases:** 46 SARI cases admitted to the SARI hospital site.
- **Age profile:** 30 (65.2%) of SARI cases aged ≥65 years; median age: 69 years; IQR: 53-77 years.
- **Underlying medical conditions:** 42 (91.3%) SARI cases reported having underlying medical conditions.
- **PCR testing:** Of those tested, eight (17.8%) tested positive for SARS-CoV-2; one (2.2%) tested positive for influenza A, and four (8.9%) tested positive for RSV.
- **SARS-CoV-2 whole genome sequencing (WGS):** *There can be a lag-time before WGS results are available.* Among those sequenced, one (20.0%) identified as XBB.1.5-like with F456L mutation; one (20.0%) identified as XBB.1.5-like; three (60.0%) SARI cases with variant BA.2.86 sub-lineage JN.1 have been detected.

Year to date (weeks 1-50 2023)
Collection of discharge data is a manual process, there is a significant lag time between discharge and data collection. Vaccination data is available approximately one week after cases are notified.
- **Number of cases:** 655 SARI cases admitted to the SARI hospital site.
- **COVID-19 vaccination status:** Of those who tested positive by PCR for SARS-COV-2 with known vaccination status (n=115), 64 (55.7%) had not received a vaccine dose within the six months prior to their episode of illness.
- **ICU admissions:** Among those for whom admission to ICU and/or respiratory status is known (n=636), 357 (56.1%) reported admission to ICU and/or required respiratory support.
- **Outcome:** Of those discharged, with known outcome (n=545), 30 (5.5%) SARI cases died in hospital.

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Background

Severe acute respiratory infection (SARI) is of major relevance to public health worldwide. Surveillance of SARI is essential to monitor the (co-) circulation of respiratory pathogens and to assess disease severity. Data collected as part of SARI surveillance can provide important early warning information in the context of respiratory disease outbreaks and pandemics. SARI data can also be used as a platform to measure vaccine and antiviral effectiveness and impact. The objectives of SARI surveillance are:

- To describe the number and incidence of SARI cases by aetiology, time, place and person
- To describe and monitor trends, intensity of activity and severity of SARI infections
- To identify groups at risk of severe disease
- To detect unusual and unexpected events
- To assess the SARI burden of disease in the participating hospital
- To assess and monitor vaccine effectiveness

Methods

SARI surveillance was implemented in one tertiary care adult hospital; St.Vincent's University Hospital (SVUH), Dublin. Surveillance commenced on the 5th of July 2021. SARI cases are identified from new admissions through the Emergency Department. The SARI surveillance system includes people who are aged 15 years or older.

Case definition

SARI cases are identified from new admissions through the Emergency Department, based on clinical symptoms. Patients that develop SARI during their admission, or are admitted through alternate routes, are not included in the surveillance system.

Clinical SARI case:

The European Centre for Disease Prevention and Control (ECDC) clinical SARI case definition is currently used for SARI surveillance in Ireland:

- ECDC SARI definition: A hospitalised[1] person 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.

The ECDC clinical SARI case definition has been used for SARI surveillance since week 34 2021.

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[1] Hospitalised for at least 24 hours

Denominator data

Denominator data for the hospital catchment area are based on the Census of Population, 2022. The hospital catchment data were prepared and provided by the Health Intelligence Unit (HIU) of the Health Service Executive (HSE) and were extracted from Health Atlas Ireland on 15/12/2023.

Weekly denominator data on all-cause hospital admissions, via the Emergency Department, were provided by the SVUH Statistics Department.

Data collection and reporting

Clinical data were collected and managed using REDCap electronic data capture tools hosted at University College Dublin. Laboratory data are extracted from APEX, the laboratory information management system (LIMS), using IBM Cognos software hosted at SVUH.

Case-based data are reported by SVUH to the HSE Health Protection Surveillance Centre (HPSC) on a weekly basis. Data are also reported by HPSC to ECDC via The European Surveillance System (TESSy) on weekly basis as part of European level SARI surveillance.

COVID-19 vaccination data were collected from the National COVID-19 Vaccination Management System (COVAX) and linked to SARI cases by the HSE-Integrated Information service, where data were available.

Reference dates

05/07/2021 (Week 27 2021) – Commencement of SARI surveillance project

27/09/2021 (Week 39 2021) – rollout of the first COVID-19 booster vaccination campaign

22/04/2022 (Week 16 2022) – rollout of the second COVID-19 booster vaccination campaign

03/10/2022 (Week 40 2022) – rollout of the third COVID-19 booster vaccination campaign

28/04/2023 (Week 17 2023) – rollout of the fourth COVID-19 booster vaccination campaign

02/10/2023 (week 40 2023) – rollout of the fifth COVID-19 booster vaccination campaign

Week number refers to the week of hospital admission. Weeks run from Monday to Sunday, as per the international ISO week[2].

[2] Monday to Sunday (ISO week) used as per ECDC/WHO/International reporting protocol.

Results

SARI cases and incidence rates

In total, 655 SARI cases were admitted to St.Vincent's University Hospital (SVUH) during 2023 (weeks 1-50), 668 SARI cases were admitted during the same period in 2022 (weeks 1-50).

In week 50 2023:

*   11 SARI cases were reported in week 50 2023, a 15.4% decrease compared to 13 SARI cases reported in week 49 2023 (Figure 1)
*   The SARI incidence rate was 2.8 per 100,000 hospital catchment population aged 15 years and older, compared to the rate of 3.4 per 100,000 in week 49 2023.
*   The incidence rate per emergency hospitalisations was 35.5 per 1,000 emergency admissions, an 18.6% decrease compared to the rate of 43.6 per 1,000 emergency admissions in week 49 2023.
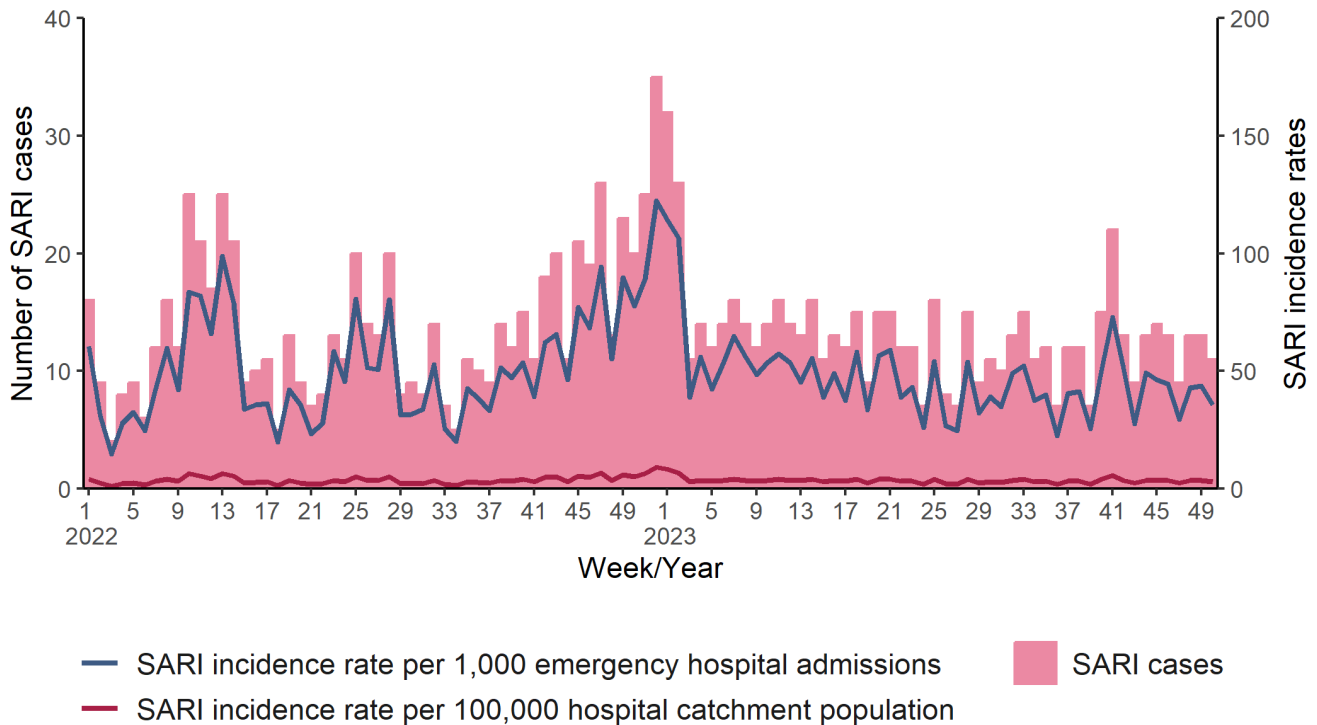
Figure 1 Number and incidence of SARI hospitalised cases (emergency admissions) by week of hospital admission, week 1 2022 to week 50 2023 (n=1383)

NOTE: Data were extracted from the SARI surveillance database at HPSC on **20/12/2023**, and are subject to ongoing review, validation and update. As a result, figures in this report may differ from previously published figures.

Demographics

In week 50 2023, of the 11 SARI cases reported:

- Females accounted for a higher proportion of SARI cases, n=10 (90.9%) (Table 1)
- The median age of SARI cases admitted was 69 years (interquartile range: 67-74 years)
- The age specific incidence rate amongst those aged 65 years and older was 14.3 per 100,000 compared to 15.9 per 100,000 in week 49 2023.

The incidence rate per 100,000 hospital catchment population by age group is shown in Figure 2.

Table 1 Number and proportion of SARI cases by sex and age, for the current week, weeks 47-50 2023, weeks 1-50 2023 and weeks 1-50 2022

| Year | 2023 | | 2023 | | 2023 | | 2022 | |
| Weeks | 50 | | 47-50 | | 1-50 | | 1-50 | |
	n	(%)	n	(%)	n	(%)	n	(%)
All SARI cases	**11**		**46**		**655**		**668**	
Gender								
Male	1	9.1	17	37.0	303	46.3	335	50.1
Female	10	90.9	29	63.0	352	53.7	333	49.9
Age (years)								
Mean	70		65		71		72	
Median	69		69		75		75	
IQR	67-74		53-77		64-83		63-83	
Range	53-84		27-93		16-99		16-101	
Age groups (years)								
15-24	0	0.0	0	0.0	9	1.4	16	2.4
25-34	0	0.0	6	13.0	18	2.7	14	2.1
35-44	0	0.0	1	2.2	36	5.5	22	3.3
45-54	1	9.1	6	13.0	43	6.6	40	6.0
55-64	1	9.1	3	6.5	71	10.8	85	12.7
65-74	6	54.5	13	28.3	145	22.1	147	22.0
75-84	3	27.3	15	32.6	196	29.9	207	31.0
85+	0	0.0	2	4.3	137	20.9	137	20.5
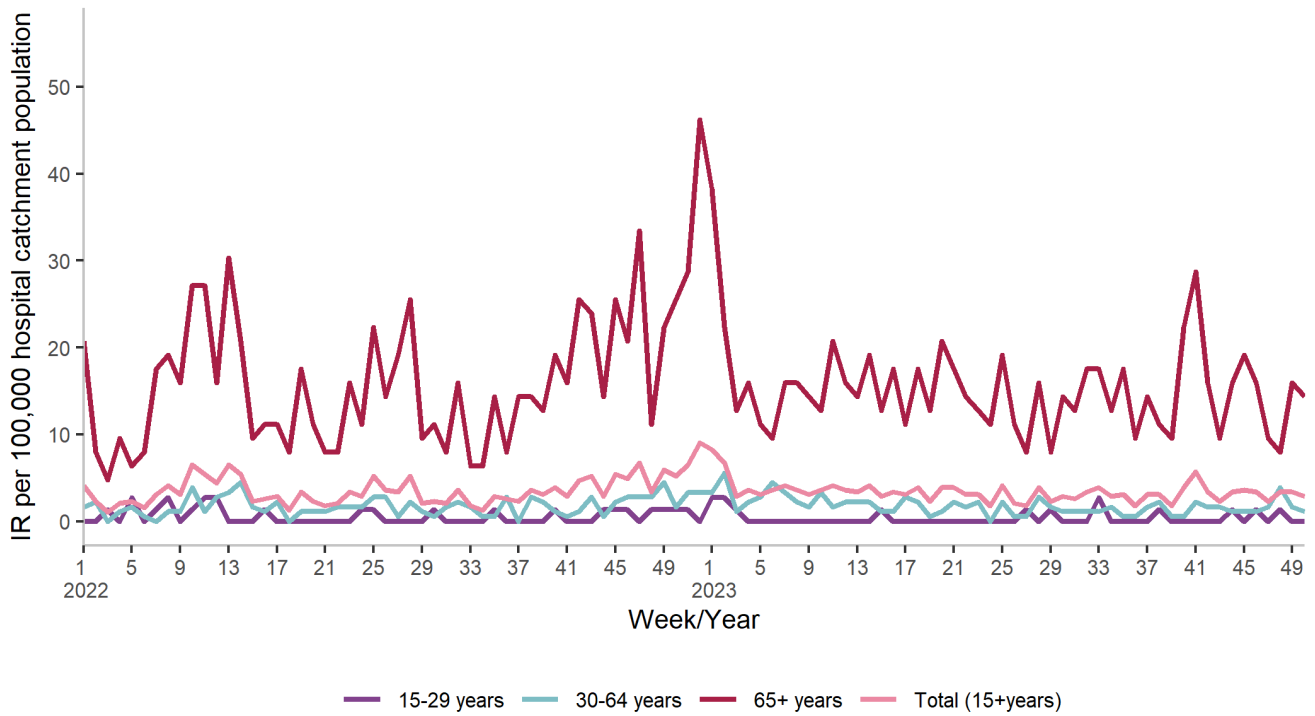
Figure 2 SARI incidence rate per 100,000 hospital catchment population by age group and week of hospital admission, from week 1 2022 to week 50 2023 (n=1383)

Underlying medical conditions and risk factors

The number and proportion of individuals with underlying medical conditions, where known, among those that reported having underlying medical conditions are displayed in table 2.

Weekly proportions can be based on small numbers and can vary from week to week, caution is therefore advised when interpreting changes in weekly proportions.

Table 2 Number and proportion of SARI cases with pre-existing conditions, reported on hospital admission, for the current week, weeks 47-50 2023, weeks 1-50 2023 and for weeks 1-50 2022.

Year	2023		2023		2023		2022	
Weeks	50		47-50		1-50		1-50	
	(n=11)		(n=42)		(n=625)		(n=632)	
Medical condition*	n	%	n	%	n	%	n	%
Heart disease	**5**	**45.5**	**13**	**31.0**	**250**	**40.0**	**264**	**41.8**
Hypertension	**7**	**63.6**	**18**	**42.9**	**237**	**37.9**	**252**	**39.9**
Lung disease	**4**	**36.4**	**15**	**35.7**	**229**	**36.6**	**217**	**34.3**
Cancer	4	36.4	11	26.2	102	16.3	131	20.7
Neurological disease	5	45.5	9	21.4	161	25.8	111	17.6
Asthma	3	27.3	7	16.7	104	16.6	97	15.3
Diabetes	1	9.1	5	11.9	105	16.8	107	16.9
Kidney disease	1	9.1	5	11.9	46	7.4	46	7.3
Intellectual disability	0	0.0	0	0.0	19	3.0	29	4.6
Immunocompromised	0	0.0	2	4.8	8	1.3	17	2.7
Obesity	0	0.0	0	0.0	12	1.9	16	2.5
Cystic fibrosis	0	0.0	1	2.4	2	0.3	2	0.3
Other chronic conditions**	6	54.5	22	52.4	294	47.0	308	48.7

*SARI cases could be reported with one or more underlying medical conditions
**Data reported on other chronic conditions may include some of the chronic conditions listed above, these data are under review and may change over time

Among female SARI cases aged 15-49 years admitted during 2023, one (2.1%) case was reported as being pregnant at the time of admission. During the same period in 2022 (weeks 1-50), six (14.6%) cases were reported as being pregnant at the time of admission.

Among those admitted during 2023 for whom healthcare worker status is known, six (0.9%) cases were reported as being healthcare workers at the time of admission. During the same period in 2022 (weeks 1-50), 15 (2.2%) cases were reported as being healthcare workers.

Symptoms

Information on clinical symptoms, either at or prior to hospital admission, was reported for all SARI cases. The most common symptoms reported were cough and shortness of breath (Table 3).

Table 3 Number and proportion of SARI cases with clinical symptoms, either at or prior to hospital admission, for the current week, weeks 47-50 2023, weeks 1-50 2023 and for weeks 1-50 2022.

Year	2023		2023		2023		2022	
Weeks	50		47-50		1-50		1-50	
	(n=11)		(n=46)		(n=655)		(n=668)	
Clinical symptom*	n	%	n	%	n	%	n	%
Cough	**11**	**100.0**	**42**	**91.3**	**489**	**74.7**	**521**	**78.0**
Shortness of breath	**9**	**81.8**	**39**	**84.8**	**486**	**74.2**	**491**	**73.5**
Fever	7	63.6	19	41.3	318	48.5	311	46.6
General deterioration	5	45.5	13	28.3	262	40.0	280	41.9
Malaise	1	9.1	10	21.7	60	9.2	88	13.2
Headache	0	0.0	1	2.2	28	4.3	37	5.5
Muscular pain	0	0.0	0	0.0	35	5.3	37	5.5
Sore throat	0	0.0	1	2.2	35	5.3	48	7.2
Ageusia	0	0.0	0	0.0	1	0.2	4	0.6
Anosmia	0	0.0	0	0.0	2	0.3	4	0.6
Dysgeusia	0	0.0	0	0.0	1	0.2	3	0.4

*SARI cases could be reported with one or more clinical symptoms

Severe clinical course during hospitalisation

Information on the clinical course during hospitalisation is only available after discharge, and there may be a delay between discharge and data collection, due to the manual data collection methods required. Among those for whom discharge information is available the most common complication reported was pneumonia (Table 4).

Data collection is ongoing for those not yet discharged from hospital.

Table 4 Number and proportion of SARI cases by complication, for weeks 47-50 2023, weeks 1-50 2023 and for weeks 1-50 2022.

Year	2023		2023		2022	
Weeks	47-50		1-50		1-50	
	(n=2)		(n=545)		(n=668)	
Complications*	n	%	n	%	n	%
Pneumonia	**0**	**0.0**	**87**	**16.0**	**60**	**9.0**
ARDS	0	0.0	34	6.2	49	7.3
Sepsis	0	0.0	13	2.4	18	2.7
Multiorgan failure	0	0.0	7	1.3	3	0.4
Myocarditis	0	0.0	0	0.0	1	0.1
Encephalitis	0	0.0	0	0.0	1	0.1
Long Covid	0	0.0	0	0.0	0	0.0
Coagulopathy	0	0.0	0	0.0	0	0.0
Bronchiolitis	0	0.0	1	0.2	0	0.0
Other complications**	0	0.0	120	22.0	188	28.1
No complications	2	100.0	316	58.0	393	58.8
Unknown	0	0.0	2	0.4	1	0.1

*SARI cases could be reported with one or more complication
**Data reported on "other complications" may include some of the complications listed above, these data are under review and may change over time.

Information on ICU admission and respiratory support may be available prior to discharge, see table 5. However, length of stay in ICU is only available after discharge, therefore, data on ICU length of stay for weeks 47-50 2023 are not included, due to the small numbers involved.

Table 5 Number and proportion of SARI cases by respiratory support and ICU admission, for weeks 47-50 2023, weeks 1-50 2023 and for weeks 1-50 2022.

Year		2023		2023		2022	
Weeks		47-50		1-50		1-50	
		(n=4)		(n=546)		(n=668)	
		n	%	n	%	n	%
Respiratory support	High-flow oxygen therapy*	2	50.0	347	63.6	376	56.3
	Invasive ventilation	0	0.0	7	1.3	26	3.9
	No respiratory support	2	50.0	190	34.8	266	39.8
		(n=43)		(n=636)		(n=668)	
Admitted to ICU	Yes	1	2.3	26	4.1	35	5.2
	No	42	97.7	610	95.9	633	94.8
	ICU/ventilated**	3	7.0	357	56.1	402	60.2
ICU length of stay (days)	Mean	-		7		20	
	Median	-		4		11	
	Interquartile range	-		2-8		4-30	
	Range	-		<1-36		<1-85	

*Non-invasive ventilation
**SARI cases which required invasive and/or non-invasive ventilation and/or ICU admission
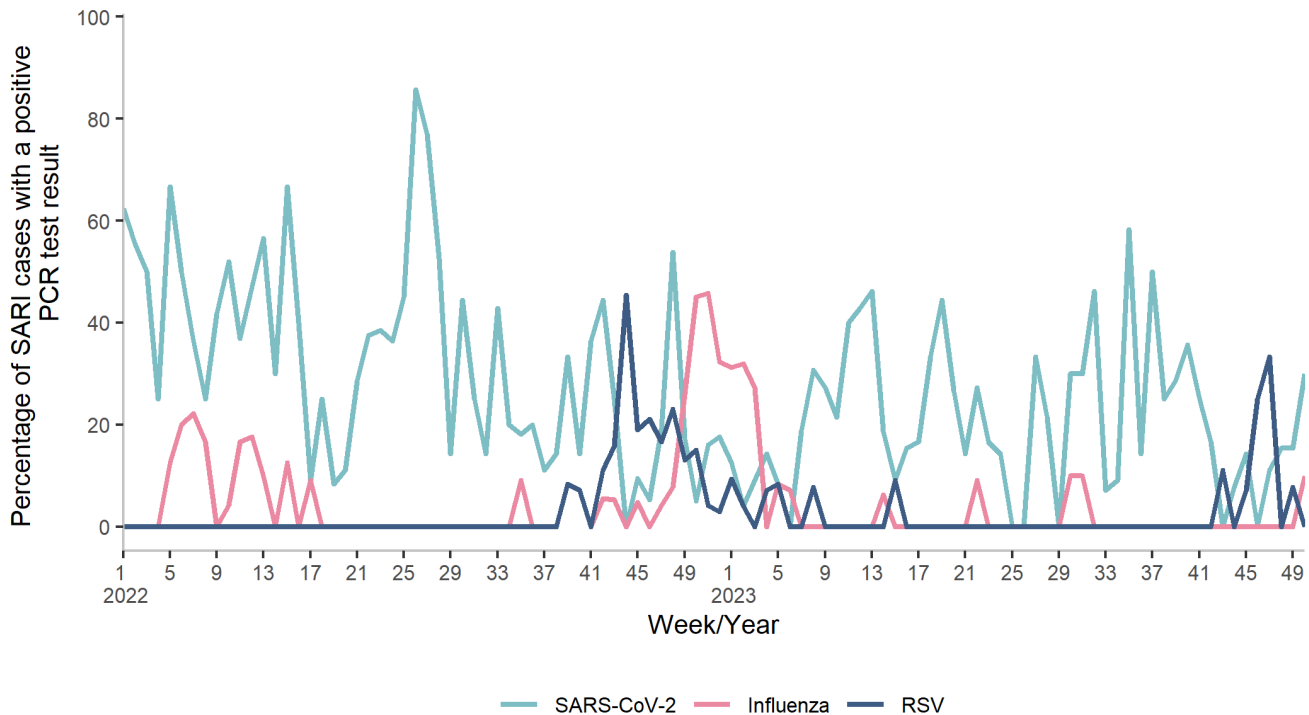
Laboratory testing for SARS-CoV-2, influenza and RSV

PCR testing:

SARI cases are tested by PCR for SARS-CoV-2, influenza and RSV on admission. For a small proportion of SARI cases, there is a lag time with testing for influenza and RSV[3].

In week 50 2023:

- SARS-CoV-2 PCR testing was carried out on 10 (90.9%) SARI cases, three (30.0%) tested positive, compared to two (15.4%) positive in week 49 2023.
- Influenza PCR testing was carried out on 10 (90.9%) SARI cases, one (10.0%) was positive for influenza A. There were no positive SARI cases in week 49 2023.
- Respiratory syncytial virus (RSV) PCR testing was carried out on 10 (90.9%) SARI cases, none were positive for RSV, compared to one (7.7%) positive in week 49 2023.

Figure 3 Percentage of SARI cases with a positive laboratory test result for SARS-CoV-2, influenza and RSV by week, from week 1 2022 to week 50 2023.

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[3] Due to reagent supply issues, samples are occasionally sent to external laboratories for influenza and RSV testing.

SARS-CoV-2:

SARS-CoV-2 PCR testing is carried out on admission, table 6 displays the number and proportion of SARI cases tested for SARS-CoV-2 by PCR test result.

Table 6 Number and proportion of SARI cases tested for SARS-CoV-2, for the current week, weeks 47-50 2023, weeks 1-50 2023 and for weeks 1-50 2022

Year	2023		2023		2023		2022	
Weeks	50		47-50		1-50		1-50	
Test result	n	%	n	%	n	%	n	%
Positive	**3**	**30.0**	**8**	**17.8**	**130**	**20.5**	**220**	**33.5**
Negative	7	70.0	35	77.8	491	77.6	408	62.1
Indeterminate*	0	0.0	2	4.4	12	1.9	29	4.4
Total tested	10		45		633		657	

*Ct value (cycle threshold) >30

RSV and influenza

The influenza surveillance season runs from week 40 (early October) to week 20 (end of May). During this time, seasonal influenza viruses and RSV usually circulate at higher levels, compared to the summer period. Samples that are PCR positive for influenza are sent to the National Virus Reference Laboratory (NVRL) for influenza typing/subtyping/genetic and antigenic characterisation. Table 7 displays the influenza type/subtype for all influenza and RSV PCR positive test results.

Table 7 Number of positive RSV and influenza SARI cases and influenza type/subtype for current week, weeks 47-50 2023, weeks to date in the current influenza season (40-50) and the corresponding weeks in the 2022/2023 flu season (40-50).

Year/season	2023		2023		2023/2024		2022/2023	
Weeks	50		47-50		40-50		40-50	
	(n=10)		(n=45)		(n=139)		(n=193)	
Positive laboratory result	n	%	n	%	n	%	n	%
RSV	**0**	**0.0**	**4**	**8.9**	**9**	**6.5**	**32**	**16.6**
Influenza A(H3)	0	0.0	0	0.0	0	0.0	8	4.1
Influenza A(H1)pdm09	0	0.0	0	0.0	0	0.0	9	4.7
Influenza A (not subtyped)	1	10.0	1	2.2	1	0.7	3	1.6
Influenza B (Victoria lineage)	0	0.0	0	0.0	0	0.0	1	0.5
Influenza B (no lineage reported)	0	0.0	0	0.0	0	0.0	0	0.0
Total influenza	**1**	**10.0**	**1**	**2.2**	**1**	**0.7**	**21**	**10.9**

Genomic analysis

SARS-CoV-2

SARI samples that are positive for SARS-CoV-2 and that have a cycle threshold (Ct) value <25 are referred for whole genome sequencing (WGS). All WGS testing was performed in the NVRL up to week 44 2022. The molecular laboratory in SVUH has been identified as a spoke WGS testing site as part of the national SARS-CoV-2 WGS surveillance programme. From week 45 2022, SARI WGS testing has been performed on-site at SVUH. Sequencing results have been received for 290 SARI cases admitted between week 1 2022 and week 49 2023, see figure 4 below.
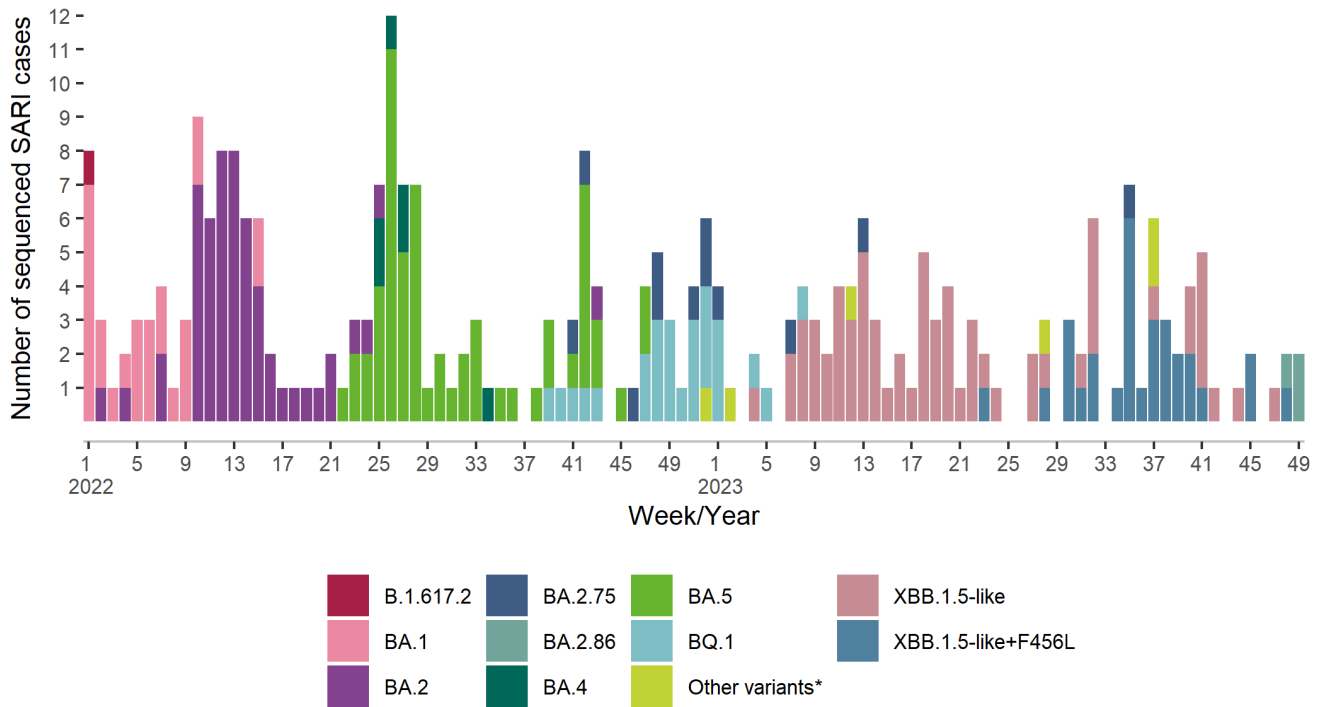
There can be a lag-time before WGS results are available. The WGS data presented is up to week 49 2023

Omicron XBB.1.5-like lineages are the dominant variants circulating among SARI cases admitted to the hospital site in 2023. Among SARS-CoV-2 positive SARI cases admitted during weeks 1-49 2023, for whom WGS data are available, 66 (57.9%) were identified as XBB.1.5-like lineages, 30 (26.3%) were identified as XBB.1.5-like+F456L mutation, and three (2.6%) SARI cases with variant BA.2.86 sub-lineage JN.1 have been detected.

Further information on SARI variants is available in the appendix (Table A1 and A2). For further information on circulating variants in Ireland, see the COVID-19 virus variants reports on the HPSC website[4].

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[4]   https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/surveillance/summaryofcovid-19virusvariantsinireland/

Figure 4 Number of SARI cases sequenced and reported, by week of hospitalisation, week 1 2022 to week 49 2023, (n=290)

*As described by the ECDC, 'XBB.1.5-like' and 'XBB.1.5-like + F456L' refer to groupings of lineages that share sets of spike protein mutations
**All other variants
Note: The three cases of BA.2.86 detected are all sub-lineage JN.1

COVID-19 Vaccination status

Vaccination data are available approximately one week after cases are notified, therefore the vaccination status for the current week's SARI cases is recorded as unknown.

Amongst the SARI cases, admitted in 2023 (weeks 1-50) who tested positive by PCR for SARS-CoV-2 and with known COVID-19 vaccination status, 64 (55.7%) had not received a vaccine dose within the six months prior to their episode of illness (Table 8).

Refer to the technical notes for the full list of definitions regarding epidemiological date and COVID-19 vaccination status[5].

NOTE: Data are provisional and subject to ongoing review, validation and update.

Table 8 Number and proportion of SARS-CoV-2 positive SARI cases with known vaccination status by COVID-19 vaccination status, time since vaccination and date of hospitalisation

Year Weeks Vaccination status	Days since vaccination	2023 47-50 n	%	2023 1-50 n	%	2022 1-50 n	%
Not vaccinated		0	0.0	1	0.9	21	11.3
Partial primary series		0	0.0	0	0.0	1	0.5
Primary series completed	<180 days	0	0.0	0	0.0	12	6.5
	≥180 days	0	0.0	6	5.2	14	7.5
First booster	<180 days	0	0.0	1	0.9	71	38.2
	≥180 days	1	50.0	18	15.7	36	19.4
Second booster	<180 days	0	0.0	7	6.1	25	13.4
	≥180 days	1	50.0	22	19.1	2	1.1
Third booster	<180 days	0	0.0	33	28.7	4	2.2
	≥180 days	0	0.0	18	15.7	0	0.0
Fourth booster	<180 days	0	0.0	9	7.8	0	0.0
	≥180 days	0	0.0	0	0.0	0	0.0
Total		**2**		**115**		**186**	

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[5] Refer to www.hse.ie for further information on the COVID-19 vaccination rollout

Table 9 displays the clinical course and outcome of those admitted between weeks 1-50 2023 by SARS-CoV-2 PCR result and vaccination status.

Data collection for clinical course and outcome is on-going.

Table 9 Number and proportion of SARS-CoV-2 positive SARI cases, with known vaccination status, admitted in weeks 1-50 2023, by COVID-19 vaccination status, time since vaccination, the clinical course and outcome.

Vaccination status	Days since vaccination	SARI cases*	Respiratory support		ICU admission		Died in hospital	
		n	n	%	n	%	n	%
Not vaccinated		1	0	0.0	0	0.0	0	0.0
Partial primary series		0	0	0.0	0	0.0	0	0.0
Primary series completed	<180 days	0	0	0.0	0	0.0	0	0.0
	≥180 days	6	2	33.3	0	0.0	1	16.7
First booster only	<180 days	1	1	100.0	0	0.0	0	0.0
	≥180 days	18	8	44.4	0	0.0	0	0.0
Second booster only	<180 days	7	3	42.9	0	0.0	2	28.6
	≥180 days	22	12	54.5	1	4.5	2	9.1
Third booster only	<180 days	33	19	57.6	2	6.1	3	9.1
	≥180 days	18	10	55.6	1	5.6	2	11.1
Fourth booster only	<180 days	9	6	66.7	0	0.0	0	0.0
	≥180 days	0	0	0.0	0	0.0	0	0.0

*Number of SARS-CoV-2 positive SARI cases, with known vaccination status, admitted in weeks 1-50

Outcome

Of the 655 SARI cases admitted to St Vincent's University Hospital in 2023 (weeks 1-50), 545 (83.2%) have been discharged. Of those admitted during the same period in 2022 (weeks 1-50), all cases (n=668) have been discharged (Table 10).

Collection of discharge data is a manual process, therefore there is a significant lag time between discharge and data collection.

Among SARI cases admitted in 2023 (weeks 1-50) and discharged with known outcome, 30 (5.5%) deaths have been reported, 14 (46.7%) were male and 16 (53.3%) were female. The median age was 85.5 years (IQR: 74-89 years).

Among SARI cases admitted during the same period in 2022 and discharged with known outcome, 76 (11.4%) died in hospital, 49 (64.5%) were male and 27 (35.5%) were female. The median age was 78.5 years (IQR: 74-86 years).

Table 10 Number and proportion of discharged SARI cases by outcome and hospital length of stay, for weeks 47-50 2023 and weeks 1-50 2023 and weeks 1-50 2022.

Year Weeks		2023 47-50 (n=2)		2023 1-50 (n=545)		2022 1-50 (n=668)	
		n	%	n	%	n	%
Outcome	Discharged alive	2	100.0	508	93.2	581	87.0
	Transferred*	0	0.0	7	1.3	11	1.6
	Died in hospital	0	0.0	30	5.5	76	11.4
Hospital length of stay (days)	Mean	4		10		14	
	Median	4		5		7	
	Interquartile range	4-4		3-10		3-14	
	Range	3-5		1-271		1-210	

*Transferred to another hospital

Acknowledgements

Technical notes

1. SARI case
   – A SARI case refers to an individual patient episode of care.
2. Epidemiological date
   – Epidemiological date is used to determine timing of Severe Acute Respiratory Infections. Epidemiological date is based on the earliest date available on the case, taken from date of onset of symptoms, laboratory specimen collection date, and date of hospitalisation.
3. Vaccination status
   – For the purposes of SARI surveillance, vaccination status of cases is as follows:

Primary vaccination series – Partial completion, if:

- Received one dose of a recommended two-dose vaccine schedule and the epidemiological date is ≥14 days after receipt of dose one.
- Date of receipt of dose two of a recommended two-dose vaccine schedule is <14 days before the epidemiological date.
- No identifiable linked record on the National COVID-19 Immunisation system, of receiving dose two of a recommended two-dose COVID-19 vaccine schedule.

Primary vaccination series - Complete, if:

- Received one dose of a recommended one-dose vaccine schedule, and the epidemiological date is ≥14 days after receipt of the dose.
- Received two doses of a recommended two-dose vaccine schedule, and the epidemiological date is ≥14 days after receipt of the second dose.
- Received three doses of a recommended three-dose vaccine schedule, and the epidemiological date is >7 days after receipt of the third dose. The recommended primary series for immunocompromised individuals is three doses of a recommended vaccine.
- Date of receipt of first booster dose is ≤7 days before the epidemiological date.
- There is no identifiable linked record on the National COVID-19 Immunisation system of receiving a booster dose of a recommended COVID-19 vaccine schedule.

First booster dose, if:

- They had a first booster dose of a recommended vaccine schedule, and the epidemiological date is >7 days after receipt of the booster dose.
- Date of receipt of second booster dose is ≤7 days before the epidemiological date.
- There is no identifiable linked record on the National COVID-19 Immunisation system of receiving a second booster dose of a recommended COVID-19 vaccine schedule.

Second booster dose, if:

- They had a second booster dose of a recommended vaccine schedule, and the epidemiological date is >7 days after receipt of the booster dose.
- Date of receipt of third booster dose is ≤7 days before the epidemiological date.
- There is no identifiable linked record on the National COVID-19 Immunisation system of receiving a third booster dose of a recommended COVID-19 vaccine schedule.

Third booster dose, if:

- They had a third booster dose of a recommended vaccine schedule, and the epidemiological date is >7 days after receipt of the booster dose.
- Date of receipt of fourth booster dose is ≤7 days before the epidemiological date.
- There is no identifiable linked record on the National COVID-19 Immunisation system of receiving a fourth booster dose of a recommended COVID-19 vaccine schedule.

Fourth booster dose, if:

- They had a fourth booster dose of a recommended vaccine schedule, and the epidemiological date is >7 days after receipt of the booster dose.

Not vaccinated, if the following applies:

- Vaccination record on the National COVID-19 Immunisation system indicates the person was vaccinated after the epidemiological date.
- The SARI patient was reported as not vaccinated on the SARI hospital clinical questionnaire, and there is no identifiable linked record of COVID-19 vaccination on the National COVID-19 Immunisation system.

Vaccine status unknown, if:

- The SARI patient is reported on the SARI hospital clinical questionnaire as vaccinated, however there is no identifiable linked record of COVID-19 vaccination on the National COVID-19 Immunisation system. Vaccination status is reported as unknown, until verified on the National COVID-19 Immunisation system.
- The SARI patient is reported on the SARI hospital clinical questionnaire as vaccination status unknown, AND there is no identifiable linked record of COVID-19 vaccination on the National COVID-19 Immunisation system

Appendix

Table A1

Number and proportion of SARI cases sequenced and reported, by pango lineage and variant, admitted during weeks 1-49 2023 (n=114)

Virus Variant	Pango Lineage	Number of cases	Sequenced cases %
XBB.1.5like+F456L	EG.5.1	5	4.4
	EG.5.1.1	9	7.9
	EG.5.1.3	1	0.9
	FE.1.1.1	1	0.9
	FE.1.2	1	0.9
	GK.1	1	0.9
	HK.3	1	0.9
	HV.1	2	1.8
	XBB.1.16.6	9	7.9
XBB.1.5-like lineages	EG.1	2	1.8
	FL.15	1	0.9
	FL.3	1	0.9
	FL.9	1	0.9
	FU.1	1	0.9
	GE.1	2	1.8
	XBB.1.16	5	4.4
	XBB.1.16.11	3	2.6
	XBB.1.5	23	20.2
	XBB.1.5.13	1	0.9
	XBB.1.5.16	2	1.8
	XBB.1.5.18	1	0.9
	XBB.1.5.24	1	0.9
	XBB.1.5.28	1	0.9
	XBB.1.5.38	1	0.9
	XBB.1.5.51	1	0.9
	XBB.1.5.7	2	1.8
	XBB.1.9.1	9	7.9
	XBB.1.9.2	4	3.5
	XBB.2.3	1	0.9
	XBB.2.3.11	1	0.9
	XBB.2.3.13	1	0.9
	XBB.2.3.2	1	0.9
BA.2.75 lineages	BM.2	1	0.9
	CH.1.1	2	1.8
	DV.7	1	0.9

Virus Variant	Pango Lineage	Number of cases	Sequenced cases %
BQ.1 lineages	BQ.1.1.18	1	0.9
	BQ.1.10	1	0.9
	BQ.1.12	1	0.9
	BQ.1.3	2	1.8
	DR.1	1	0.9
BA.2.86 lineages	JN.1	3	2.6
Other variants	GW.5	1	0.9
	XBB.1	2	1.8
	XBB.1.41.1	1	0.9
	XCF	1	0.9
Total		**114**	

Table A2

Number of SARI cases sequenced and reported by Pango Lineage and week of admission, SARI cases admitted in weeks 44-49 2023

Virus variant	Lineage	2023-W44	2023-W45	2023-W46	2023-W47	2023-W48	2023-W49	Total
XBB.1.5-like+F456L	HV.1	0	1	0	0	0	0	**1**
	HK.3	0	1	0	0	0	0	**1**
	EG.5.1.1	0	0	0	0	1	0	**1**
XBB.1.5-like	XBB.2.3.13	1	0	0	0	0	0	**1**
	XBB.1.5	0	0	0	1	0	0	**1**
BA.2.86	JN.1	0	0	0	0	1	2	**3**
Total	**-**	**1**	**2**	**0**	**1**	**2**	**2**	**8**