



Weekly Report on Severe Acute Respiratory Infection (SARI), Week 38 2023 (week ending 24/09/2023)

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 38 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 38 2023 (week ending 24/09/2023):

- **Number of cases:** 12 SARI cases admitted to the SARI hospital site, the same number of SARI cases was reported in week 37 2023
- **Incidence rate per hospital catchment population:** 3.9 per 100,000 population aged ≥ 15 years, the same rate was reported in week 37 2023
- **Incidence rate per emergency hospitalisations:** 41.2 per 1,000 emergency admissions, compared to 40.5 per 1,000 emergency admissions in week 37 2023
- **Age profile:** 58.3% (n=7) of SARI cases aged 65 years and older, median age was 70 years (interquartile range (IQR): 54-85)
- **Underlying medical conditions:** 91.7% (n=11) of SARI cases
- **PCR testing:**
 - All (100%) SARI cases were tested for SARS-CoV-2, three cases (25.0%) tested positive, compared to six (50.0%) positive cases in week 37 2023
 - Influenza PCR testing was carried out on all SARI cases, none of whom tested positive for influenza, the last positive influenza case was in week 31 2023
 - Respiratory syncytial virus (RSV) PCR testing was carried out on all SARI cases, none of whom tested positive for RSV, the last positive RSV case was in week 15 2023

Last four weeks (Weeks 35-38 2023)

- **Number of cases:** 43 SARI cases admitted to the SARI hospital site, based on PCR testing, 17 (39.5%) tested positive for SARS-CoV-2, none tested positive for influenza and none tested positive for RSV
- **SARS-CoV-2 whole genome sequencing (WGS):** *There can be a lag-time for the latest WGS data:
 - Four SARI cases identified as XBB.1.16, one identified as XBB.1.5, one identified as BA.2.75, five identified as XBB.1.5-like+F456L, and two identified as other variants
 - No SARI cases with variant BA.2.86 detected
- **Influenza types/subtypes:** No influenza positive SARI cases were admitted
- **Age profile:** 76.7% (n=33) of SARI cases aged 65 years and older, median age was 75 years (interquartile range (IQR): 66-84)
- **Underlying medical conditions:** 95.3% (n=41) of SARI cases

Year-to-date (Weeks 1-38 2023)

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

- **ICU admissions:** Among SARI cases for whom admission to ICU is known, 61.8% (280/453) were reported to have been admitted to ICU and/or ventilated
- **Outcome:** Of those discharged, with known outcome, 24 deaths (5.5%) have been reported
- **Vaccination status:**
 - Among cases where vaccination status is known, 46 (53.5%) SARS CoV-2 positive SARI cases had not received at least one vaccine dose within the six months prior to their hospitalisation

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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 and antiviral effectiveness

Methods

SARI surveillance was implemented in one tertiary care adult hospital; St. Vincent's University Hospital, Dublin (SVUH). Surveillance commenced on the 5th of July 2021. SARI cases are identified from new admissions through the Emergency Department (ED). 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 the SARI surveillance project in Ireland:

ECDC SARI definition: A hospitalised (defined as hospitalised for at least 24 hours) person with acute respiratory infection, with at least one of the following symptoms:

- cough,
- fever,
- shortness of breath,
- sudden onset of anosmia, ageusia or dysgeusia
- AND onset of symptoms within 14 days prior to hospital admission.

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

Denominator data

Denominator data for hospital catchment area are based on population projections for 2021. Population projections are provided by the Health Intelligence Unit (HIU) of the Health Service Executive (HSE) and were extracted from Health Atlas Ireland on 31/08/2021.

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

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

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

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

Week number refers to the week of hospital admission. Weeks run from Monday to Sunday, as per the international ISO week¹.

¹ Monday to Sunday (ISO week) used as per ECDC/WHO/international reporting protocol

Results

SARI cases and incidence rates

In total, 503 SARI cases were admitted to St. Vincent’s University Hospital (SVUH) during 2023 (weeks 1-38), 728 cases were admitted during 2022 (weeks 1-52).

In week 38 2023:

- 12 SARI cases were reported, remaining stable compared to the same number of SARI cases reported during week 37 2023 (Figure 1).
- The SARI incidence rate was 3.9 per 100,000 hospital catchment population aged ≥15 years, stable compared to the same incidence rate reported in week 37 2023.
- The SARI incidence rate per emergency hospitalisations was 41.2 per 1,000, stable compared to the rate of 40.5 per 1,000 in week 37 2023.

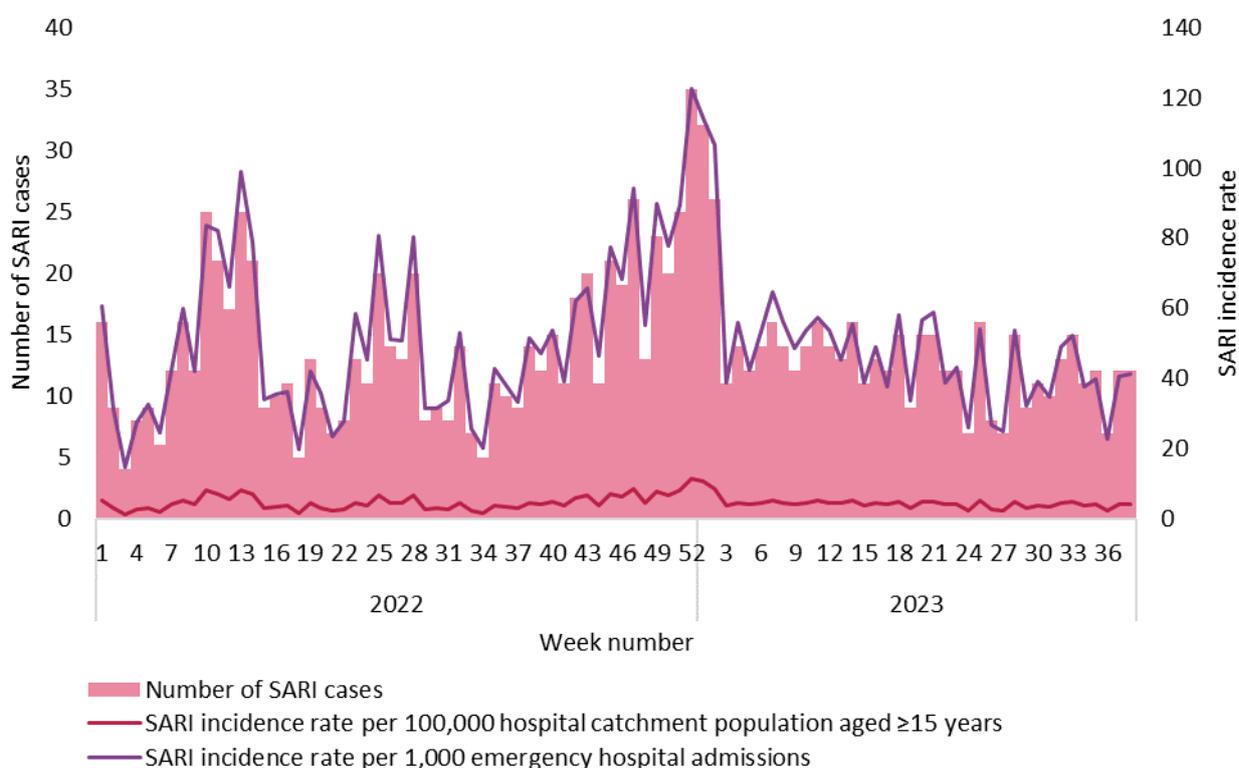


Figure 1 Number and incidence of SARI hospitalised cases (emergency admission) by week of hospital admission, from week 1 2022 to week 38 2023 (n=1231)

NOTE: Data were extracted from the SARI surveillance database at HPSC on 27/09/2023, 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 38 2023, of the 12 SARI cases reported:

- The proportion of male cases was higher than female cases (n=9; 75.0%), see Table 1
- The median age of SARI cases admitted was 70 years (interquartile range: 54-85 years)
- The age-specific incidence rate amongst those aged 65 years and older was 11.7 per 100,000, an increase compared to 15.0 per 100,000 in week 37 2023.

Table 1 Number and proportion of SARI cases by sex and age, for the current week, weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

		Week 38, 2023		Weeks 35-38 2023		Weeks 1 - 38 2023		Weeks 1-52 2022	
		n	%	n	%	n	%	n	%
Total number of SARI cases		12		43		503		728	
Sex	Male	9	75.0	27	62.8	238	47.3	368	50.5
	Female	3	25.0	16	37.2	265	52.7	360	49.5
Age (years)	Mean	66		72		71		72	
	Median	70		75		74		75	
	IQR	54 - 85		66 - 84		63 - 83		64 - 83	
	Range	18 - 91		18 - 93		16 - 99		16 - 101	
Age group (years)	15-24	1	8.3	1	2.3	7	1.4	16	2.2
	25-34	0	0.0	0	0.0	11	2.2	17	2.3
	35-44	1	8.3	3	7.0	28	5.6	23	3.2
	45-54	2	16.7	2	4.7	33	6.6	42	5.8
	55-64	1	8.3	4	9.3	62	12.3	92	12.6
	65-74	2	16.7	10	23.3	112	22.3	162	22.3
	75-84	1	8.3	13	30.2	148	29.4	230	31.6
85+	4	33.3	10	23.3	102	20.3	146	20.1	

*Surveillance excludes children under 15 years of age

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

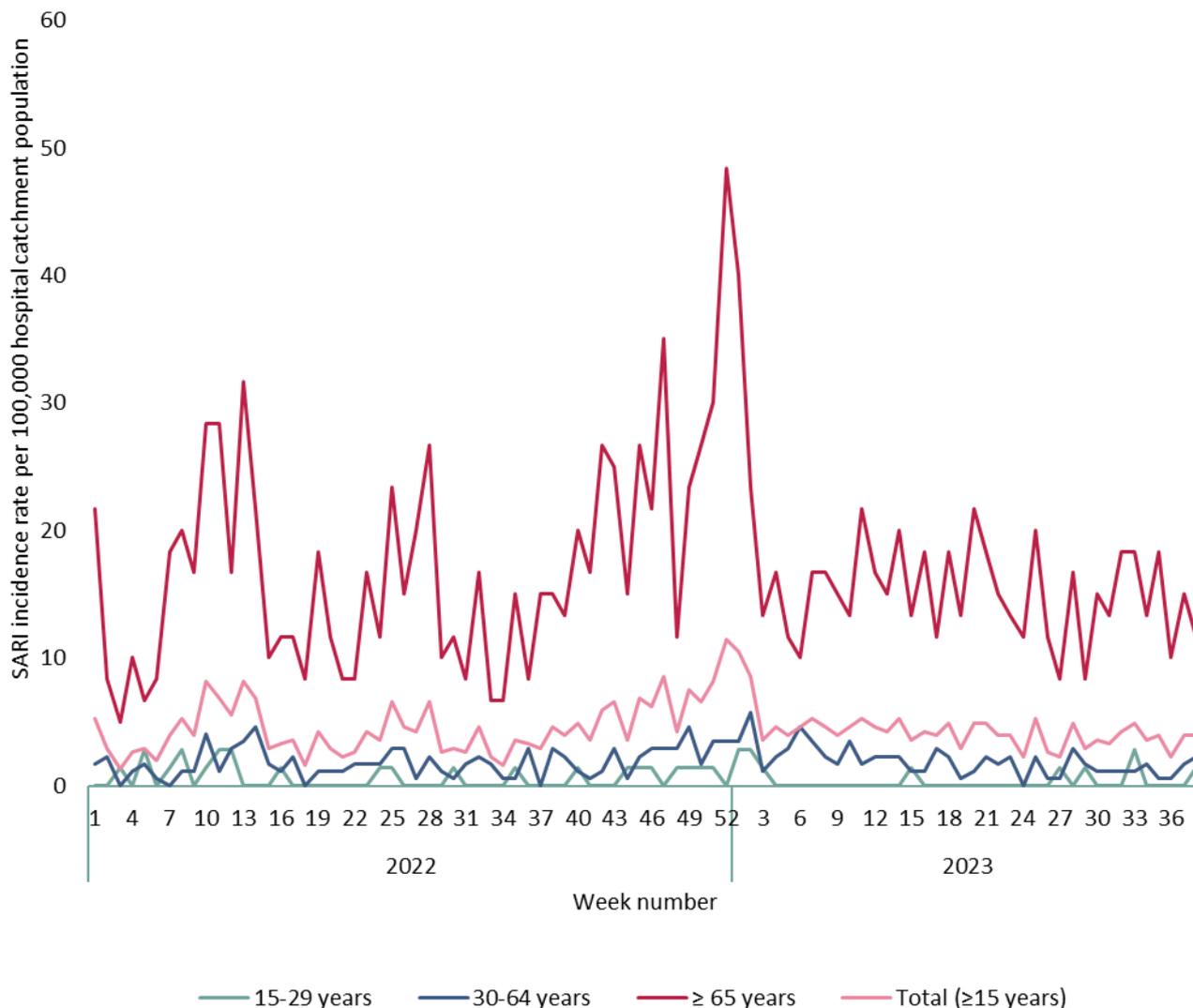


Figure 2 SARI incidence rate per 100,000 hospital catchment population by age group and week of hospital admission, from week 1 2022 to week 38 2023 (n=1231)

Underlying medical conditions and risk factors

The number and proportion of individual 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 interpreting changes in weekly proportions.

Table 2 Number and proportion of SARI cases with pre-existing conditions, reported on hospital admission, for current week, weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

Underlying medical condition*	Week 38 2023 (n=11)		Weeks 35-38 2023 (n=41)		Weeks 1 - 38 2023 (n=481)		Weeks 1-52 2022 (n=692)	
	n	%	n	%	n	%	n	%
Heart disease	4	36.4	19	46.3	195	40.5	289	41.8
Hypertension	2	18.2	12	29.3	185	38.5	273	39.5
Lung disease	2	18.2	12	29.3	183	38.0	242	35.0
Cancer	4	36.4	10	24.4	75	15.6	138	19.9
Neurological disease	1	9.1	4	9.8	132	27.4	120	17.3
Asthma	1	9.1	2	4.9	84	17.5	106	15.3
Diabetes	2	18.2	7	17.1	81	16.8	115	16.6
Kidney disease	0	0.0	1	2.4	29	6.0	52	7.5
Intellectual disability	1	9.1	2	4.9	14	2.9	32	4.6
Immunocompromised	1	9.1	1	2.4	6	1.2	17	2.5
Obesity	0	0.0	1	2.4	11	2.3	18	2.6
Cystic fibrosis	0	0.0	0	0.0	1	0.2	2	0.3
Other chronic conditions**	5	45.5	19	46.3	230	47.8	337	48.7

*SARI cases could be reported with one or more underlying medical condition

**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 (3.0%) case was reported as being pregnant at the time of admission. In total during 2022, 14.3% (n=6) of the female SARI cases aged 15-49 years were reported as being pregnant at the time of admission.

Among those admitted during 2023 for whom healthcare worker status is known, five (1.0%) cases were reported as being healthcare workers at the time of admission. In total during 2022, 2.1% (n=15) of SARI 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, shortness of breath, and fever (Table 3).

Table 3 Number and proportion of SARI cases with clinical symptoms, either at or prior to hospital admission, for current week, weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

Clinical symptom*	Week 38 2023 (n=12)		Weeks 35 - 38 2023 (n=43)		Weeks 1 - 38 2023 (n=503)		Weeks 1-52 2022 (n=728)	
	n	%	n	%	n	%	n	%
Cough	10	83.3	28	65.1	377	75.0	569	78.2
Shortness of breath	7	58.3	26	60.5	371	73.8	536	73.6
Fever	8	66.7	25	58.1	257	51.1	342	47.0
General deterioration	2	16.7	14	32.6	202	40.2	313	43.0
Malaise	2	16.7	2	4.7	33	6.6	94	12.9
Headache	1	8.3	3	7.0	24	4.8	40	5.5
Muscular pain	0	0.0	0	0.0	29	5.8	42	5.8
Sore throat	1	8.3	2	4.7	30	6.0	50	6.9
Ageusia	0	0.0	0	0.0	0	0.0	4	0.5
Anosmia	0	0.0	0	0.0	1	0.2	4	0.5
Dysgeusia	0	0.0	0	0.0	0	0.0	3	0.4

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

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 in 2022 (weeks 1-52) and 2023 (weeks 1-38), the most common complications reported were pneumonia and ARDS, see table 4 for further information.

Table 4 Number and proportion of discharged SARI cases by complication, for weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

Complications*	Weeks 35-38 2023 (n=17)		Weeks 1-38 2023 (n=435)		Weeks 1-52 2022 (n=728)	
	n	%	n	%	n	%
Pneumonia	2	11.8	71	16.3	64	8.8
ARDS	4	23.5	25	5.7	50	6.9
Sepsis	0	0.0	8	1.8	19	2.6
Multiorgan failure	0	0.0	6	1.4	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	1	0.1
Bronchiolitis	0	0.0	1	0.2	0	0.0
Other complications**	3	17.6	100	23.0	206	28.3
No complications	3	17.6	248	57.0	429	58.9
Unknown	6	35.3	7	1.6	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 data are only available after discharge, therefore, data on ICU length of stay for weeks 35-38 2023 are not included, due to the small numbers involved.

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

Table 5 Number and proportion of SARI cases by respiratory support and ICU admission, for weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

		Weeks 35-38 2023 (n=12)		Weeks 1-38 2023 (n=427)		Weeks 1-52 2022 (n=728)	
		n	%	n	%	n	%
Respiratory support	High-flow oxygen therapy*	10	83.3	271	63.5	418	57.4
	Invasive ventilation	0	0.0	6	1.4	29	4.0
	No respiratory support given	2	16.7	150	35.1	281	38.6
		(n=31)		(n=453)		(n=728)	
		n	%	n	%	n	%
Admitted to ICU	Yes	1	3.2	24	5.3	40	5.5
	No	30	96.8	429	94.7	688	94.5
	ICU/ventilated**	11	35.5	280	61.8	447	61.4
ICU length of stay (days)	Mean	-	-	6	-	19	-
	Median	-	-	5	-	10	-
	Interquartile range	-	-	3-8	-	3-30	-
	Range	-	-	<1-20	-	<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 cases, there is a lag time with testing for influenza and RSV².

In week 38 2023:

- SARS-CoV-2 PCR testing was carried out on all SARI cases, three (25.0%) of whom tested positive for COVID-19, a decrease compared to 50.0% (n=6) positivity in week 37 2023
- Influenza PCR testing was carried out on all SARI cases, none of whom tested positive for influenza, the last positive influenza case was in week 31 2023
- RSV PCR testing was carried out on all SARI cases, none of whom tested positive for RSV, the last positive RSV case was in week 15 2023

² Due to reagent supply issues, samples are occasionally sent to external laboratories for influenza and RSV testing.

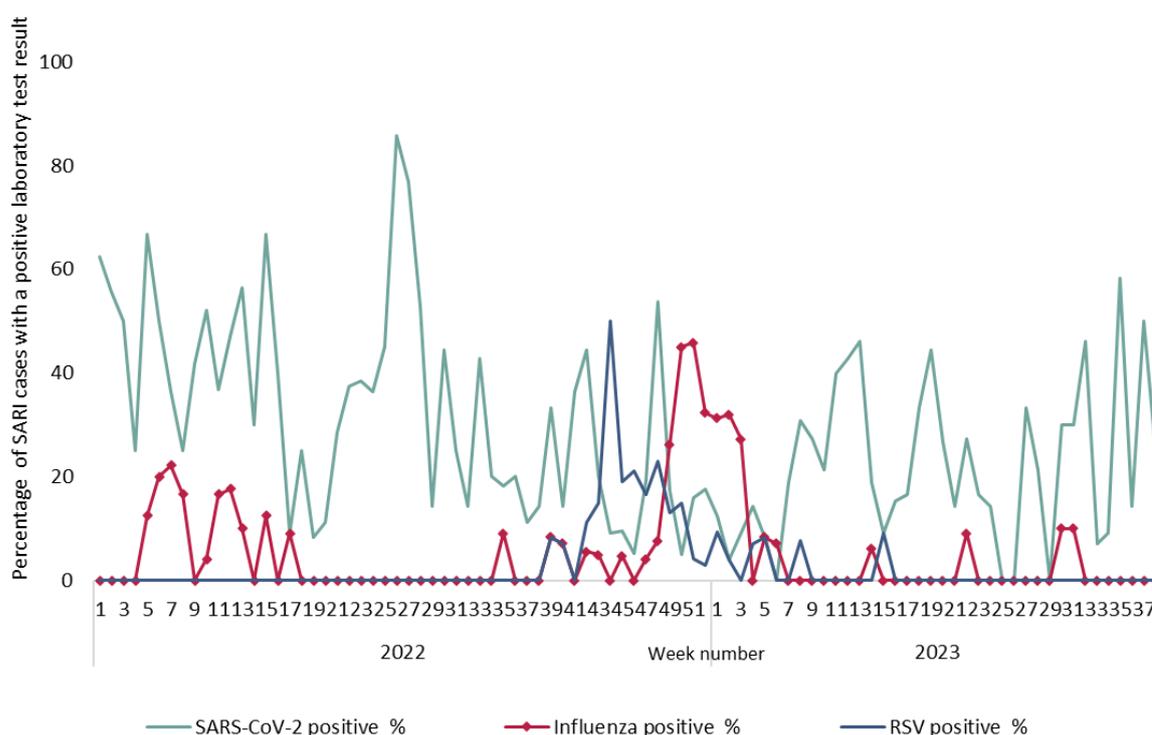


Figure 3 Percentage of SARI cases with a positive laboratory test result for SARS-CoV-2, influenza and RSV by week, from week 1 2022 to week 38 2023

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 current week, weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

Laboratory test	Laboratory test result	Week 38 2023 (n=12)		Weeks 35-38 2023 (n=43)		Weeks 1-38 2023 (n=487)		Weeks 1-52 2022 (n=716)	
		n	%	n	%	n	%	n	%
Tested for SARS-CoV-2	Positive	3	25.0	17	39.5	105	21.6	230	32.1
	Negative	9	75.0	25	58.1	374	76.8	454	63.4
	Indeterminate*	0	0.0	1	2.3	8	1.6	32	4.5

* Ct value (cycle threshold) >30

RSV and influenza:

The influenza surveillance season runs from week 40 (early October) to week 20 (end of May) each season. During this time, seasonal influenza viruses and RSV usually circulate at higher levels, compared to the summer period (week 21 to week 39). Samples that are PCR positive for influenza are sent to the NVRL for influenza typing/subtyping/genetic and antigenic characterisation.

Table 7 displays the influenza type/subtype for all influenza positive samples and RSV positive PCR test results during the current week, the 2023 summer period (week commencing 22/05/2023) and the 2022/2023 influenza season (weeks 40 2022 - 20 2023).

Table 7 Number of positive RSV and influenza SARI cases and influenza type/subtype for current week, 2023 summer period (from week 21 2023) and 2022/2023 season

Positive laboratory result	Week 38 2023 (n=12)		Summer 2023 (n=192)		2022/2023 season (n=547)	
	n	%	n	%	n	%
RSV	0	0.0	0	0.0	42	7.7
Influenza A (H1)pdm09	0	0.0	1	0.5	30	5.5
Influenza A (H3)	0	0.0	2	1.0	31	5.7
Influenza A (not subtyped)	0	0.0	0	0.0	4	0.7
Influenza B/Victoria lineage	0	0.0	0	0.0	2	0.4
Influenza B (no lineage reported)	0	0.0	0	0.0	0	0.0
Total influenza	0	0.0	3	1.6	67	12.2

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 National Virus Reference Laboratory (NVRL) up to week 44 2022. The molecular lab in SVUH has been identified as a spoke WGS testing site as part of the national SARS-CoV-2 WGS surveillance programme, and from week 45 2022, SARI WGS testing has been performed on-site at SVUH. Among SARI SARS-CoV-2 positive cases, there are currently four cases from weeks 37 and 38 2023 who are eligible for sequencing with results pending. Sequencing results have been received for 266 SARI cases admitted between week 1 2022 and week 38 2023, see figure 4 below.

Omicron XBB.1.5 and its sublineages are the dominant variant circulating among SARI cases admitted to hospital in 2023. Among SARS-CoV-2 positive SARI cases admitted during weeks 1–38 2023, for whom WGS data are available, 31 (34.4%) were identified as XBB.1.5 and sublineages, and 12 (13.3%) were identified as XBB.1.5-like + F456L.

Moreover, among SARS-CoV-2 positive SARI cases admitted during the 2023 summer period (weeks 21-38 2023), for whom WGS data are available, 37.8% (14/37) identified as XBB.1.16 and sublineages, 32.4% (12/37) identified as XBB.1.5-like + F456L, and 13.5% (5/37) identified as XBB.1.5 and sublineages. No SARI cases with variant BA.2.86 detected. For further information on circulating variants in Ireland see the COVID-19 virus variants report on the HPSC website.³

³ HPSC website, <https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/surveillance/summaryofcovid-19virusvariantsinireland/>

Figure 4 shows sequenced SARI cases by week of hospitalisation and Pango Lineage for cases admitted during 2022 (weeks 1-52) and 2023 (weeks 1-38), further information on Pango Lineage is available in the appendix (Table A1 and A2).

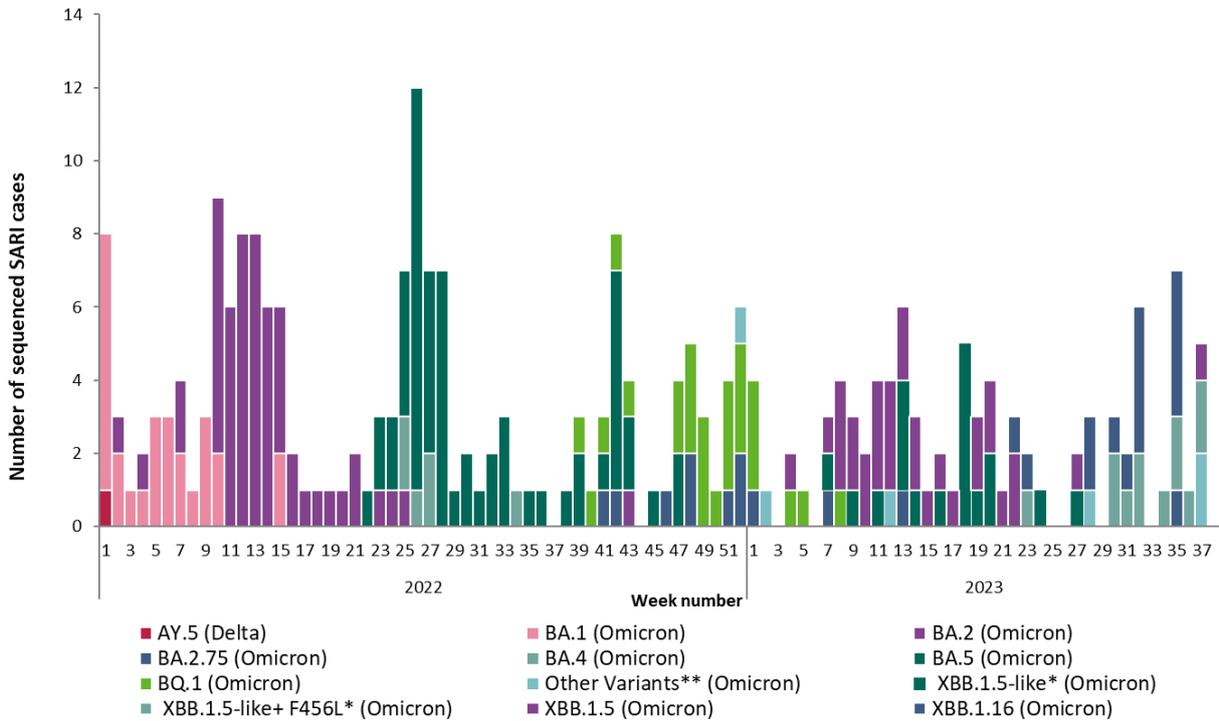


Figure 4 Number of SARI cases sequenced and reported, by week of hospitalisation, week 1 2022 to week 38 2023 (n=266)

*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; excludes XBB.1.5 and XBB.1.16 variants and sublineages

**All other variants

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.

Among SARI cases admitted in the previous 12 months who tested positive by PCR for SARS-CoV-2 with known vaccination status, 50.8% (66/130) had not received at least one vaccine dose within the six months prior to their hospitalisation (Table 8).

Please refer to the technical notes for the full list of definitions regarding epidemiological date and COVID-19 vaccination status⁴.

⁴ Refer to www.hse.ie for further information on the COVID-19 vaccination rollout

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

Vaccine status	Days since vaccination	Admitted last 12 months*		Admitted 2023		Admitted 2022	
		n	%	n	%	n	%
Not vaccinated		3	2.3	1	1.2	21	10.8
Partial Primary series		0	0.0	0	0.0	1	0.5
Primary series completed	<180 days	0	0.0	0	0.0	12	6.2
	≥ 180 days	7	5.4	5	5.8	15	7.7
First booster only	<180 days	3	2.3	1	1.2	71	36.4
	≥ 180 days	21	16.2	11	12.8	37	19.0
Second booster only	<180 days	21	16.2	6	7.0	25	12.8
	> 180 days	22	16.9	17	19.8	5	2.6
Third booster only	<180 days	35	26.9	27	31.4	8	4.1
	≥ 180 days	13	10.0	13	15.1	0	0.0
Fourth booster only	<180 days	5	3.8	5	5.8	0	0.0
	≥ 180 days	0	0.0	0	0.0	0	0.0
Totals		130		86		195	

*From week 38 2022 to week 37 2023

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

Table 9 displays the clinical course and outcome of those admitted in the last 12 months with known vaccination status, by vaccination status and time since vaccination.

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

Table 9 Number and proportion of SARS-CoV-2 positive SARI cases with known vaccination status, admitted in the previous 12 months by COVID-19 vaccination status, time since vaccination, the clinical course and outcome

Vaccine status	Days since vaccination	Admitted last 12 months*		Required respiratory support		ICU admission		Died in hospital	
		n	%	n	%	n	%	n	%
Not vaccinated		3	0.0	0	0.0	0	0.0	0	0.0
Primary series completed	<180 days	0	0.0	0	0.0	0	0.0	0	0.0
	≥ 180 days	7	57.1	4	57.1	0	0.0	2	28.6
First booster only	<180 days	3	66.7	2	66.7	1	33.3	0	0.0
	≥ 180 days	21	47.6	10	47.6	0	0.0	1	4.8
Second booster only	<180 days	21	42.9	9	42.9	0	0.0	1	4.8
	> 180 days	22	63.6	14	63.6	1	4.5	3	13.6
Third booster only	<180 days	35	54.3	19	54.3	3	8.6	5	14.3
	≥ 180 days	13	46.2	6	46.2	1	7.7	1	7.7
Fourth booster only	<180 days	5	60.0	3	60.0	0	0.0	0	0.0
	≥ 180 days	0	0.0	0	0.0	0	0.0	0	0.0

*From week 38 2022 to week 37 2023

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

Outcome

Of the 503 SARI cases admitted to St Vincent's University Hospital in 2023 (weeks 1-38), 86.5% (n=435) have been discharged, of those admitted during 2022 (weeks 1-52), all cases (n=728) have been reported as 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 1-38) and discharged with known outcome, 24 (5.5%) deaths have been reported, 11 (45.8%) were male and 13 (54.2%) were female. The median age was 84 years (interquartile range 74-89 years).

Of the 86 (11.8%) cases admitted during 2022, who died in hospital, 54 (62.8%) were male and 32 (37.2%) were female. The median age was 79 years (interquartile range 73-86 years).

Table 10 Number and proportion of discharged SARI cases by outcome and hospital length of stay, for weeks 35-38 2023, weeks 1-38 2023 and weeks 1-52 2022

		Weeks 35-38 2023 (n=17)		Weeks 1-38, 2023 (n=435)		Weeks 1-52 2022 (n=728)	
		n	%	n	%	n	%
Outcome	Discharged alive	16	94.1	404	92.9	631	86.7
	Transferred to another hospital	0	0.0	7	1.6	11	1.5
	Died in hospital	1	5.9	24	5.5	86	11.8
Hospital length of stay (days)	Mean	6		10		14	
	Median	5		5		7	
	Interquartile range	3 - 6		3 - 10		3 - 14	
	Range	1 - 22		1 - 175		1 - 210	

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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, SARI cases week 1 2022 to week 38 2023 (n=266)

Virus variant	Number of cases	% sequenced cases
Total sequenced	266	
Delta and Delta sublineages:	1	0.4
AY.5	1	0.4
Omicron sublineages:	265	99.6
BA.1 lineages		
BA.1	16	6.0
BA.1.1	11	4.1
BA.2 lineages		
BA.2	41	15.4
BA.2.9	6	2.3
BA.2.3	5	1.9
BA.2.1	1	0.4
BA.2.18	1	0.4
BA.2.40.1	1	0.4
BA.2.75 lineages		
CH.1.1	4	1.5
CH.1.1.1	1	0.4
CV.1	1	0.4
DV.7	1	0.4
BN.1.2	1	0.4
BN.1.5	1	0.4
BN.1.2.1	1	0.4
BN.1.9	1	0.4
BM.2	1	0.4
BA.4 lineages		
BA.4	3	1.1
BA.4.1	1	0.4
BA.4.4	1	0.4
BA.4.6	1	0.4
BA.5 lineages		
BA.5.1	19	7.1
BA.5.2	11	4.1
BA.5.2.1	8	3.0
BA.5.2.20	1	0.4
BA.5	5	1.9
BE.1	4	1.5
BF.7	3	1.1
BA.5.2.6	2	0.8
BA.5.3	1	0.4
BE.1.1	1	0.4
BF.11.1	1	0.4
BF.1	1	0.4
BE.1.1.2	1	0.4
BQ.1 lineages		
BQ.1.8	2	0.8
BQ.1	4	1.5
BQ.1.1.18	2	0.8

Virus variant	Number of cases	% sequenced cases
BQ.1.3	2	0.8
BQ.1.1.5	1	0.4
BQ.1.10	1	0.4
BQ.1.1.15	1	0.4
BQ.1.16	1	0.4
BQ.1.1	4	1.5
BQ.1.12	2	0.8
BQ.1.1.22	1	0.4
BQ.1.2	1	0.4
BQ.1.1.29	1	0.4
BQ.1.1.4	1	0.4
BQ.1.5	1	0.4
DR.1	1	0.4
Other variants		
GW.5	1	0.4
XBB.1	2	0.8
XBB.1.41.1	1	0.4
XCF	1	0.4
XBB.2	1	0.4
XBB.1.5-like lineages		
EG.1	2	0.8
FL.3	1	0.4
FU.1	1	0.4
XBB.1.5	21	7.9
XBB.1.5.7	2	0.8
XBB.1.5.13	1	0.4
XBB.1.5.16	2	0.8
XBB.1.5.18	1	0.4
XBB.1.5.24	1	0.4
XBB.1.5.28	1	0.4
XBB.1.5.38	1	0.4
XBB.1.5.51	1	0.4
XBB.1.16	5	1.9
XBB.1.16.11	3	1.1
XBB.2.3.2	1	0.4
XBB.1.9.1	9	3.4
XBB.1.9.2	4	1.5
XBB.1.5-like+ F456L lineages		
EG.5.1	4	1.5
EG.5.1.1	5	1.9
FE.1.1.1	1	0.4
FE.1.2	1	0.4
GK.1	1	0.4
XBB.1.16.6	6	2.3

Table A2

Number of SARI cases sequenced and reported by Pango lineage and week of admission, SARI cases admitted in weeks 32-38 2023

Virus variant	Pango lineage	2023						Total	
		W38	W37	W36	W35	W34	W33		
Omicron, BA.2.75	DV.7				1			1	
Omicron, XBB.1.5-like	XBB.1.16						2	2	
	XBB.1.16.11						2	2	
	XBB.1.5.28		1					1	
Omicron, XBB.1.5-like+ F456L	GK.1			1				1	
	EG.5.1				1			1	
	EG.5.1.1		1		1	1	2	5	
	FE.1.2		1					1	
	XBB.1.16.6				4			4	
Other Variants	GW.5		1					1	
	XBB.1.41.1		1					1	
Total		0	5	1	7	1	0	6	20