Weekly Report on Severe Acute Respiratory Infection (SARI), Week 8 2023 (week ending 26/02/2023)

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 8 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

- In week 8 2023 (week ending 26/02/2023):
  - There were 13 SARI cases reported in week 8 2023, a decrease compared to 16 SARI cases reported during week 7 2023
  - The incidence rate per emergency hospitalisations was 52.2 per 1,000 emergency admissions, a decrease compared to 64.8 per 1,000 during week 7 2023
  - The incidence rate per hospital catchment population was 4.3 per 100,000 population aged ≥15 years, compared to the rate of 5.3 per 100,000 in week 7 2023
  - The highest proportion of SARI cases was among those aged 65 years and older (n=10; 76.9%), median age was 81 years (interquartile range (IQR): 71-84)
  - Among SARI cases admitted in week 8 2023, all cases were reported as having underlying medical conditions
  - SARS-CoV-2 PCR testing was carried out on 12 (92.3%) SARI cases, four (33.3%) of which tested positive, compared to 18.8% (n=3) in week 7 2023
  - Influenza PCR testing was carried out on 12 (92.3%) SARI cases, none of which tested positive for influenza, there were no positive influenza cases in week 7 2023
  - Respiratory syncytial virus (RSV) PCR testing was carried out on 12 (92.3%) SARI cases, one (8.3%) of which tested positive, there were no positive RSV cases in week 7 2023
- There were 55 SARI cases admitted to the SARI hospital site between weeks 5 and 8 2023. In total, during 2023 (weeks 1-8), 138 SARI cases have been admitted to the SARI hospital site.
  - The median age of SARI cases admitted during weeks 5-8 2023 was 71 years (IQR: 60-81 years), the median age of all cases admitted to date in 2023 was 73 years (IQR: 61-81 years)
  - Among SARI cases admitted during weeks 5–8 2023, 89.1% (n=49) reported having underlying medical conditions; overall 92.0% (n=127) of those admitted to date in 2023 reported having underlying conditions
  - Among SARS-CoV-2 positive SARI cases admitted during weeks 1–8 2023, for which whole genome sequencing (WGS) data are available, the variant of interest (VOI) XBB.1.5 was identified in two cases
  - Among SARI cases for whom admission to ICU is known, admitted during 2023 (weeks 1-8 2023), 48.6% (18/37) were reported to have been admitted to ICU and/or ventilated, compared to 57.6% (384/667) during 2022
  - Among SARI cases admitted since the roll-out of the second COVID-19 booster (22/04/2022) who tested positive by PCR for SARS-CoV-2 with known vaccination status, 61.7% (74/120) had not received a second booster vaccine dose >7 days prior to their onset of illness
  - Of those discharged, with known outcome, admitted during 2023, one (3.0%) death has been reported compared to 9.6% (n=62) during 2022.

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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 (E/D).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 is 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

Week number refers to the week of hospital admission. Weeks run from Monday to Sunday, as per the international ISO week[1].

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

Results

SARI cases and incidence rates

In total, 138 SARI cases were admitted to St. Vincent's University Hospital (SVUH) during 2023 (weeks 1-8), 730 cases were admitted during 2022.

In week 8 2023:

- 13 SARI cases were reported, compared to 16 SARI cases reported in week 7 2023 (see Figure 1).
- The SARI incidence rate was 4.3 per 100,000 hospital catchment population aged ≥15 years, compared to the rate of 5.3 per 100,000 in week 7 2023.
- The SARI incidence rate per emergency hospitalisations was 52.2 per 1,000, compared to the rate of 64.8 per 1,000 in week 7 2023.

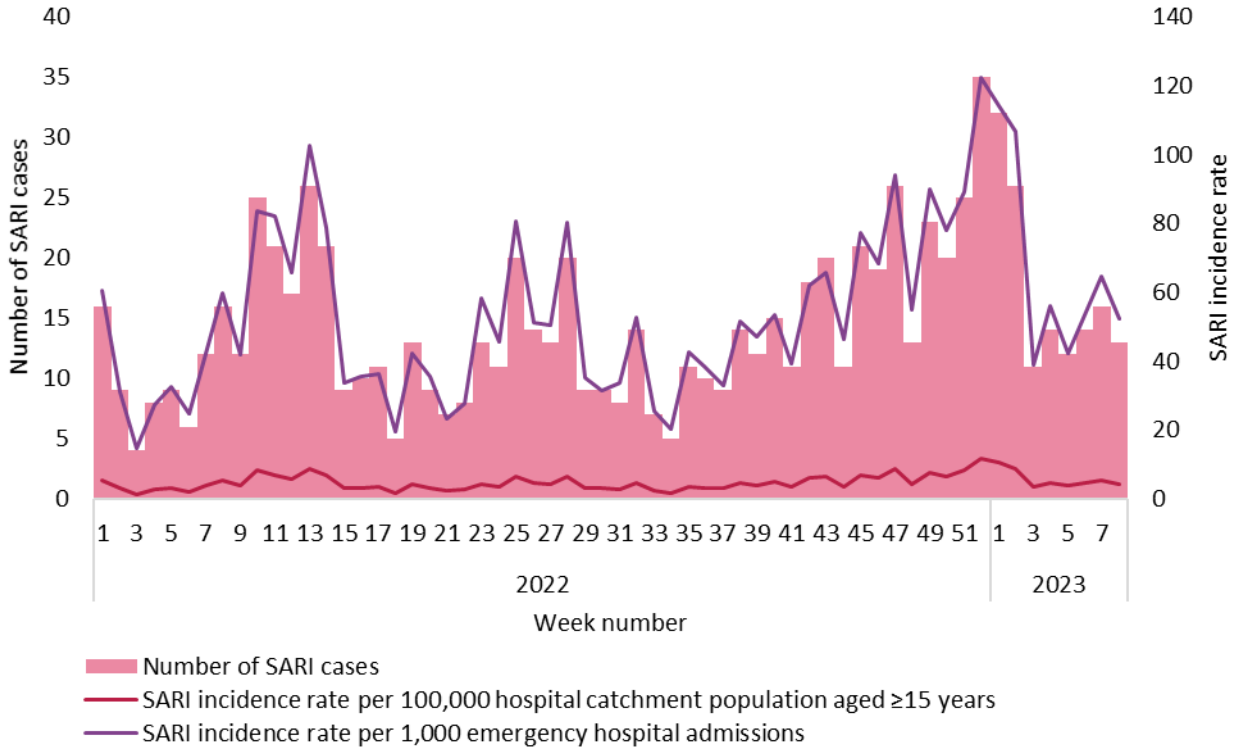

Figure 1 Number and incidence of SARI hospitalised cases (emergency admission) by week of hospital admission, from week 1 2022 up to current week (week 8 2023) (n=868).

NOTE: Data were extracted from the SARI surveillance database at HPSC on 01/03/2023, 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 8 2023, of the 13 SARI cases reported:

- The proportion of female cases was higher than male cases, see Table 1
- The median age of SARI cases admitted was 81 years (interquartile range: 71 - 84 years)
- The incidence rate amongst those aged 65 years and older was 16.7 per 100,000, similar to the rate of 16.7 per 100,000 in week 7 2023.

Table 1 Number and proportion of SARI cases by sex and age, for the current week, weeks 5 to 8 2023, weeks 1-8 2023 and for weeks 1-52 2022.

		Week 8 2023		Weeks 5-8 2023		Weeks 1 - 8 2023		Weeks 1-52 2022	
		n	%	n	%	n	%	n	%
Total number of SARI cases		13		55		138		730	
Sex	Male	5	38.5	26	47.3	66	47.8	370	50.7
	Female	8	61.5	29	52.7	72	52.2	360	49.3
Age (years)	Mean	77		68		69		72	
	Median	81		71		73		75	
	IQR	71 - 84		60 - 81		61 - 81		61 - 83	
	Range	58 - 93		31 - 93		17 - 94		16 - 101	
Age group	15-24 years	0	0.0	0	0.0	3	2.2	16	2.2
	25-34 years	0	0.0	3	5.5	6	4.3	17	2.3
	35-44 years	0	0.0	5	9.1	6	4.3	23	3.2
	45-54 years	0	0.0	3	5.5	9	6.5	42	5.8
	55-64 years	3	23.1	11	20.0	25	18.1	93	12.7
	65-74 years	2	15.4	8	14.5	23	16.7	161	22.1
	75-84 years	5	38.5	17	30.9	42	30.4	231	31.6
	85+ years	3	23.1	8	14.5	24	17.4	147	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.

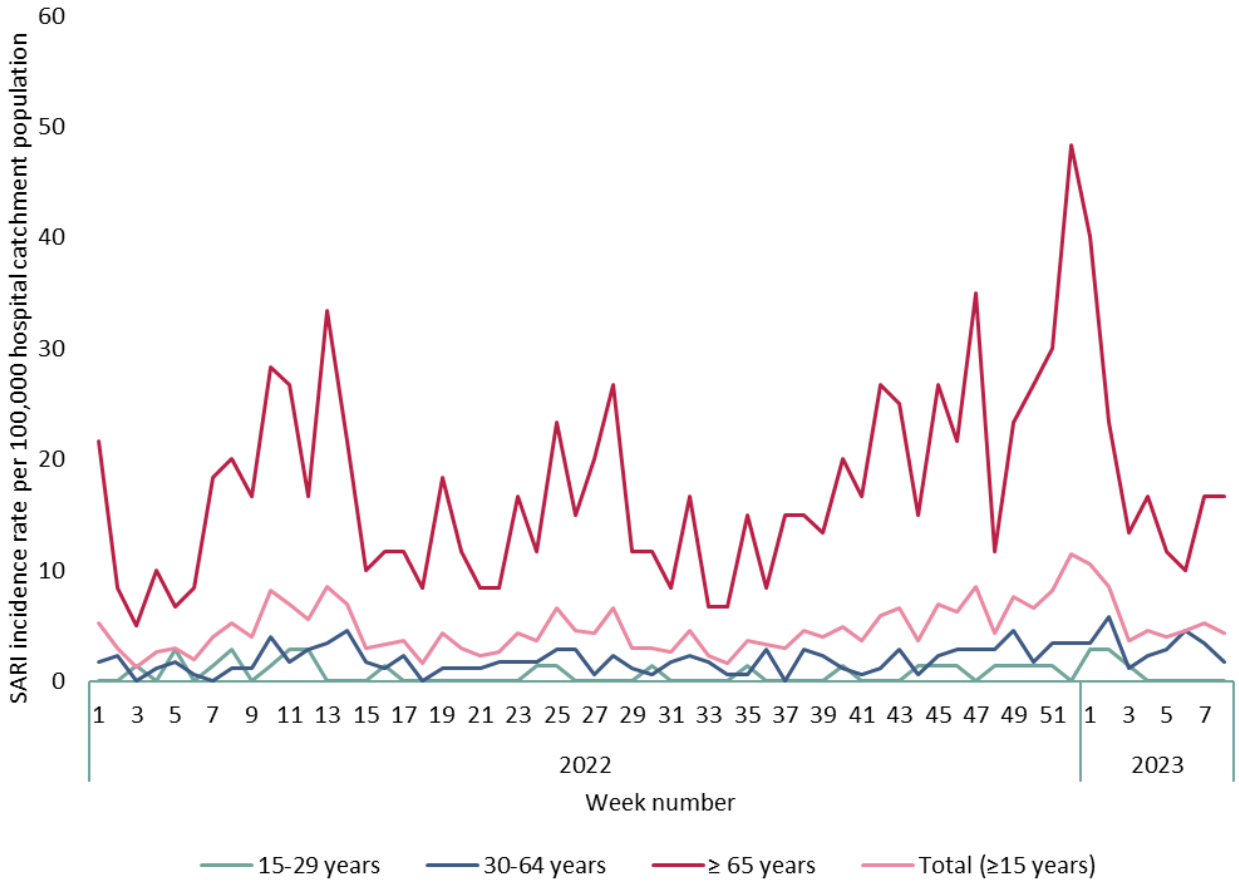

Figure 2 SARI incidence rate per 100,000 hospital catchment population by age group and week of hospital admission, from week 1 2022 up to current week (week 8 2023) (n=868)

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 5 – 8 2023, weeks 1-8 2023 and weeks 1-52 2022.

Underlying medical condition*	Week 8 2023 (n=13)		Weeks 5-8 2023 (n=49)		Weeks 1 - 8 2023 (n=127)		Weeks 1-52 2022 (n=678)	
	n	%	n	%	n	%	n	%
Heart disease	8	**61.5**	19	**38.8**	42	**33.1**	283	**41.7**
Hypertension	4	**30.8**	19	**38.8**	55	**43.3**	267	**39.4**
Lung disease	6	**46.2**	20	**40.8**	43	**33.9**	239	**35.3**
Cancer	1	7.7	9	18.4	19	15.0	136	20.1
Neurological disease	3	23.1	17	34.7	37	29.1	120	17.7
Asthma	1	7.7	10	20.4	22	17.3	104	15.3
Diabetes	3	23.1	11	22.4	21	16.5	112	16.5
Kidney disease	2	15.4	5	10.2	8	6.3	48	7.1
Intellectual disability	0	0.0	2	4.1	4	3.1	32	4.7
Immunocompromised	0	0.0	1	2.0	1	0.8	17	2.5
Obesity	0	0.0	1	2.0	6	4.7	18	2.7
Cystic fibrosis	0	0.0	0	0.0	0	0.0	2	0.3
Other chronic conditions**	8	61.5	27	55.1	65	51.2	326	48.1

*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 15-44 years admitted during 2023, one (10.0%) case was reported as being pregnant at the time of admission. In total during 2022, 18.8% (n=6) of female SARI cases aged 15-44 years were reported as being pregnant at the time of admission.

Among those for whom healthcare worker status is known admitted during 2023, two (1.5%) cases were reported as being healthcare workers at the time of admission. In total during 2022, 2.3% (n=16) 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 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 current week, weeks 5 to 8 2023, weeks 1-8 2023 and weeks 1-52 2022.

Clinical symptom*	Week 8 2023 (n= 13)		Weeks 5 - 8 2023 (n= 55)		Weeks 1 - 8 2023 (n=138)		Weeks 1-52 2022 (n= 730)	
	n	%	n	%	n	%	n	%
Cough	9	**69.2**	40	**72.7**	108	**78.3**	560	**76.7**
Shortness of breath	13	**100.0**	42	**76.4**	107	**77.5**	528	**72.3**
Fever	5	38.5	33	60.0	66	47.8	338	46.3
General deterioration	6	46.2	22	40.0	50	36.2	307	42.1
Malaise	0	0.0	4	7.3	5	3.6	92	12.6
Headache	0	0.0	2	3.6	6	4.3	40	5.5
Muscular pain	0	0.0	3	5.5	11	8.0	40	5.5
Sore throat	0	0.0	4	7.3	9	6.5	50	6.8
Ageusia	0	0.0	0	0.0	0	0.0	4	0.5
Anosmia	0	0.0	0	0.0	1	0.7	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), the most common complication reported was pneumonia, see table 4 for further information.

Table 4 Number and proportion of discharged SARI cases by complication, for weeks 5-8 2023, weeks 1-8 2023 and weeks 1-52 2022.

	Weeks 5-8 2023 (n=6)		Weeks 1-8 2023 (n=33)		Weeks 1-52 2022 (n=643)	
Complications*	**n**	**%**	**n**	**%**	**n**	**%**
Pneumonia	0	0.0	2	6.1	53	8.2
ARDS	0	0.0	0	0.0	48	7.5
Sepsis	0	0.0	1	3.0	12	1.9
Multiorgan failure	0	0.0	1	3.0	2	0.3
Myocarditis	0	0.0	0	0.0	1	0.2
Encephalitis	0	0.0	0	0.0	1	0.2
Other complications**	0	0.0	4	12.1	164	25.5
No complications	5	83.3	24	72.7	383	59.6
Unknown	1	16.7	2	6.1	16	2.5

*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 5-8 2023 and 1-8 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 5-8 2023, weeks 1-8 2023 and weeks 1-52 2022.

		Weeks 5-8 2023 (n=5)		Weeks 1-8 2023 (n=31)		Weeks 1-52 2022 (n=637)	
		n	**%**			**n**	**%**
Respiratory support	High-flow oxygen therapy*	2	40.0	17	54.8	361	56.7
	Invasive ventilation	0	0.0	1	3.2	21	3.3
	No respiratory support given	3	60.0	13	41.9	255	40.0
		(n=6)		**(n=37)**		**(n=667)**	
		n	**%**			**n**	**%**
Admitted to ICU	Yes	0	0.0	3	8.1	32	4.8
	No	6	100.0	34	91.9	635	95.2
	ICU/ventilated**	2	33.3	18	48.6	384	57.6
ICU length of stay (days)	Mean	-		-		20	
	Median	-		-		9	
	Interquartile range	-		-		3-29	
	Range	-		-		<1-85	

*Non-invasive ventilation

**SARI cases which required invasive and/or non-invasive ventilation and/or ICU admission
Data collection is ongoing for those not yet discharged from hospital.

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 RSV[2].

In week 8 2023:

- SARS-CoV-2 PCR testing was carried out on 12 (92.3%) SARI cases, there were four (33.3%) positive COVID-19 cases, compared to 18.8% (n=3) positivity in week 7 2023 (Figure 3)
- Influenza PCR testing was carried out on 12 (92.3%) SARI cases, none of which tested positive for influenza, there were no positive influenza cases in week 7 2023.
- RSV PCR testing was carried out on 12 (92.3%) SARI cases, one (8.3%) of which tested positive for RSV, there were no positive RSV cases in week 7 2023.

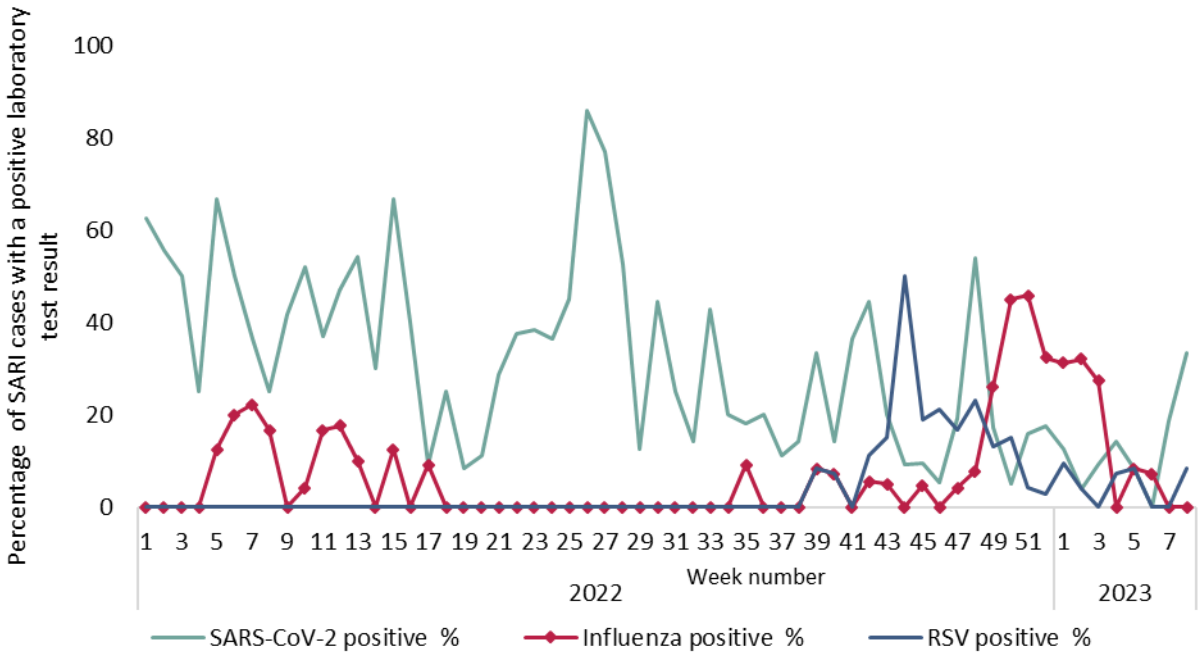

Figure 3 Percentage of SARI cases with a positive laboratory test result for SARS-CoV-2, influenza and RSV by week, from week 1 2022 up to current week (week 8, 2023)

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.

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

Table 6 Number and proportion of SARI cases tested for SARS-CoV-2, for current week, weeks 5 to 8 2023, weeks 1-8 2023 and weeks 1-52, 2022

Laboratory test	Laboratory test result	Week 8 2023 (n=12)		Weeks 5-8 2023 (n=54)		Weeks 1-8 2023 (n=136)		Weeks 1-52 2022 (n=718)	
		n	%	n	%	n	%	n	%
Tested for SARS-CoV-2	Positive	4	**33.3**	8	**14.8**	16	**11.8**	230	**32.0**
	Negative	8	66.7	46	85.2	118	86.8	456	63.5
	Indeterminate*	0	0.0	0	0.0	2	1.5	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.

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 PCR test results during the 2022/2023 influenza season (weeks 40 2022 - 8 2023).

Table 7 Number of positive RSV and influenza SARI cases and influenza type/subtype for current week, preceding week and 2022/2023 season

Positive laboratory result	Week 8 2023 (n=12)		Week 7 2023 (n=16)		2022/2023 season (n=387)	
	n	%	n	%	n	%
RSV	1	**8.3**	0	**0.0**	41	**10.6**
Influenza A(H1)pdm09	0	0.0	0	0.0	29	7.5
Influenza A(H3)	0	0.0	0	0.0	28	7.2
Influenza A (not subtyped)	0	0.0	0	0.0	7	1.8
Influenza B/Victoria lineage	0	0.0	0	0.0	1	0.3
Influenza B (no lineage reported)	0	0.0	0	0.0	1	0.3
Total influenza	0	**0.0**	0	**0.0**	66	**17.1**

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. Sequencing results have been received for 186 SARI cases admitted between week 1 2022 and week 7 2023, see figure 4 below.

Omicron has been the dominant variant identified in SARI cases admitted since week 1 2022, 99.5% (n=185) of samples sequenced were identified as Omicron, the last Delta variant was identified in week 1 2022.

BA.2 and BA.5 sublineages with different mutation profiles have emerged in 2022, with new sublineages being identified regularly. In addition, the variant of interest (VOI); XBB.1.5, was identified in two SARI cases, in week 4 2023 and week 7 2023 and the variant under monitoring (VUM); BA.2.75 sublineage CH.1.1, was identified in three SARI cases in weeks 48 and 52 2022 and week 1 2023.

Figure 4 shows sequenced SARI cases by week of hospitalisation and Pango Lineage for cases admitted during 2022 and 2023 (weeks 1-7 2023), further information on Pango Lineage is available in the appendix (Table A1 and A2).

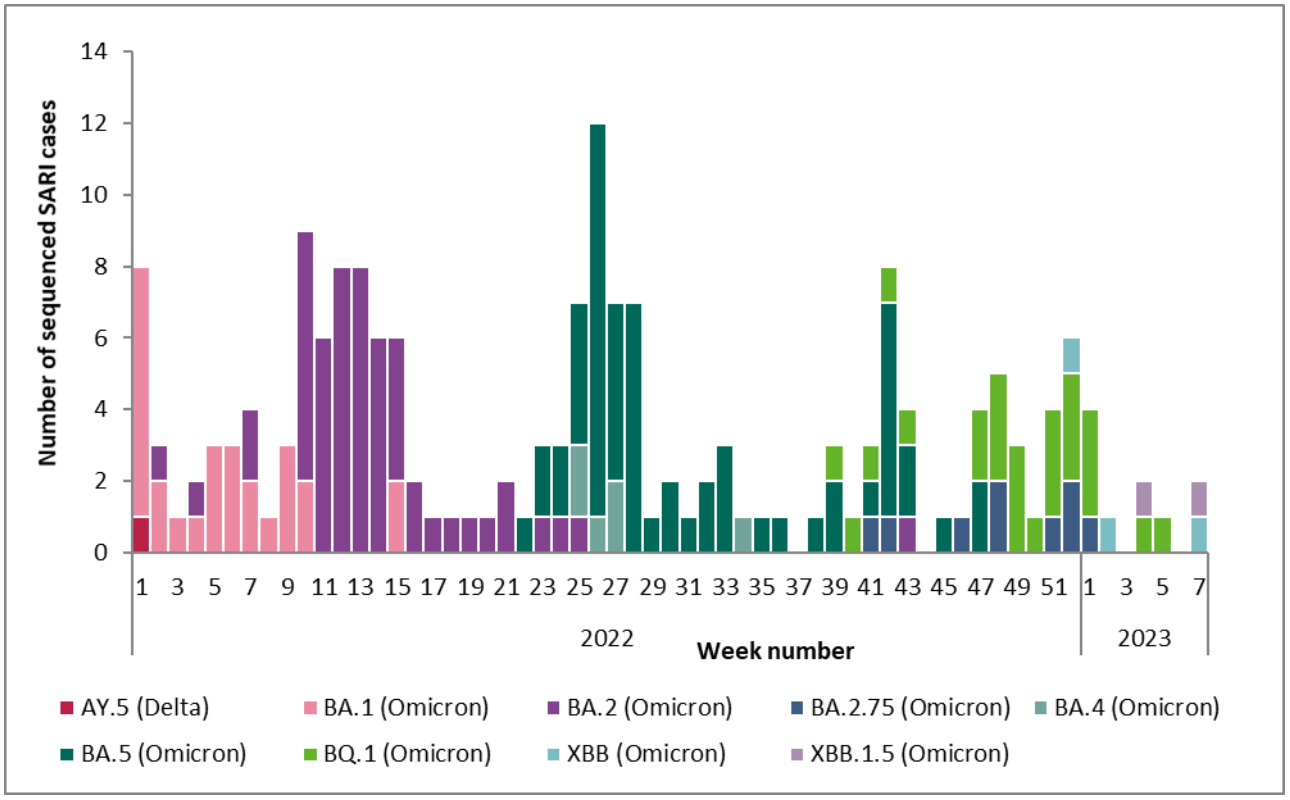

Figure 4 Number of SARI cases sequenced and reported, by week of hospitalisation, week 1 2022 to week 7 2023 (n=186)

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 since the rollout of the second booster (22/04/2022), who tested positive by PCR for SARS-CoV-2 with known COVID-19 vaccination status, 61.7% (n=74/120) had not received a second booster vaccine dose >7 days prior to the epidemiological date of 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[3].

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

Table 8 Number and proportion of SARI cases by COVID-19 vaccination status, SARS-CoV-2 PCR result and date of hospitalisation

SARS CoV-2 PCR positive	Admitted since rollout of second booster* (n=501)		Admitted 2023 (n=108)		Admitted 2022 (n=581)	
Vaccine status	**n**	**%**	**n**	**%**	**n**	**%**
Not vaccinated	11	9.2	0	0.0	21	10.6
Primary series - Partial	0	0.0	0	0.0	1	0.5
Primary series - Complete	11	9.2	4	28.6	29	14.6
First booster	52	43.3	2	14.3	109	55.1
Second booster	46	38.3	8	57.1	38	19.2
Total	**120**	**100.0**	**14**	**100.0**	**198**	**100.0**
SARS CoV-2 PCR negative						
Vaccine status	**n**	**%**	**n**	**%**	**n**	**%**
Not vaccinated	8	2.1	3	3.2	9	2.3
Primary series - Partial	1	0.3	0	0.0	1	0.3
Primary series - Complete	30	7.9	8	8.5	37	9.7
First booster	155	40.7	21	22.3	211	55.1
Second booster	187	49.1	62	66.0	125	32.6
Total	**381**	**100.0**	**94**	**100.0**	**383**	**100.0**

*Rollout of second booster began on 22/04/2022

Table 9 displays the clinical course and outcome of those admitted since the rollout of the second booster (22/04/2022) by SARS CoV-2 PCR result and vaccination status.
Data collection for clinical course and outcome is on-going for those still admitted.

Table 9 Number and proportion of SARI cases, admitted since the rollout of the second booster, by COVID-19 vaccination status, and SARS-CoV-2 PCR result (n=501)

SARS CoV-2 PCR positive			Required respiratory support		ICU admission		Died in hospital	
Vaccination status	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Not vaccinated	11	9.2	3	6.5	0	0.0	0	0.0
Primary series - Partial	0	0.0	0	0.0	0	0.0	0	0.0
Primary series - Complete	11	9.2	3	6.5	0	0.0	0	0.0
First booster	52	43.3	24	52.2	2	50.0	4	80.0
Second booster	46	38.3	16	34.8	2	50.0	1	20.0
Total	**120**	**100.0**	**46**	**100.0**	**4**	**100.0**	**5**	**100.0**
SARS CoV-2 PCR negative								
Vaccination status	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**
Not vaccinated	8	2.1	5	3.2	2	18.2	1	4.8
Primary series - Partial	1	0.3	0	0.0	0	0.0	0	0.0
Primary series - Complete	30	7.9	17	10.8	1	9.1	1	4.8
First booster	155	40.7	72	45.9	6	54.5	7	33.3
Second booster	187	49.1	63	40.1	2	18.2	12	57.1
Total	**381**	**100.0**	**157**	**100.0**	**11**	**100.0**	**21**	**100.0**

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

Outcome

Of the 138 SARI cases admitted to St Vincent's University Hospital in 2023 (weeks 1-8 2023), 23.9% (n=33) have been discharged, of those admitted during 2022, 88.1% (n=643) 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 1-8), one (3.0%) female death has been reported. Of the 62 cases admitted during 2022, who died in hospital, 42 (67.7%) were male and 20 (32.3%) were female. The median age was 81 years (interquartile range 75 – 87 years).

Table 10 Number and proportion of discharged SARI cases by outcome and hospital length of stay, for weeks 5-8 2023, weeks 1-8 2023 and weeks 1-52 2022.

		Weeks 5-8 2023 (n=6)		Weeks 1-8 2023 (n=33)		Weeks 1-52 2022 (n=643)	
		n	%	n	%	n	%
Outcome	Discharged alive	6	100.0	30	90.9	570	88.6
	Transferred to another hospital	0	0.0	2	6.1	11	1.7
	Died in hospital	0	0.0	1	3.0	62	9.6
Hospital length of stay (days)	Mean	2		6		13	
	Median	2		4		6	
	Interquartile range	1 - 2		2 - 6		3 - 13	
	Range	1 - 3		1-56		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.

- **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 7 2023 (n=186)

Virus variant	Number of cases	% sequenced cases
Total sequenced	**186**	
Delta and Delta sublineages:	**1**	**0.5**
AY.5	1	0.5
Omicron sublineages	**185**	**99.5**
BA.1 lineages:		
BA.1	16	8.6
BA.1.1	11	5.9
BA.2 lineages:		
BA.2	41	22.0
BA.2.9	6	3.2
BA.2.3	5	2.7
BA.2.1	1	0.5
BA.2.18	1	0.5
BA.2.40.1	1	0.5
BA.2.75 lineages		
CH.1.1	3	1.6
CH.1.1.1	1	0.5
BN.1.2	1	0.5
BN.1.5	1	0.5
BN.1.2.1	1	0.5
BN.1.9	1	0.5
CV.1	1	0.5
BA.4 lineages:		
BA.4	3	1.6
BA.4.1	1	0.5
BA.4.4	1	0.5
BA.4.6	1	0.5
BA.5 Lineages		
BA.5.1	19	10.2
BA.5.2	11	5.9
BA.5.2.1	8	4.3
BA.5.2.20	1	0.5
BA.5	5	2.7
BE.1	4	2.2
BF.7	3	1.6
BA.5.2.6	2	1.1
BA.5.3	1	0.5
BE.1.1	1	0.5
BF.11.1	1	0.5
BF.1	1	0.5
BE.1.1.2	1	0.5
BQ.1 lineages		
BQ.1.8	2	1.1
BQ.1	4	2.2
BQ.1.1.18	2	1.1
BQ.1.3	2	1.1
BQ.1.1.5	1	0.5

BQ.1.1.15	1	0.5
BQ.1.16	1	0.5
BQ.1.1	4	2.2
BQ.1.12	2	1.1
BQ.1.1.22	1	0.5
BQ.1.2	1	0.5
BQ.1.1.29	1	0.5
BQ.1.1.4	1	0.5
BQ.1.5	1	0.5
DR.1	1	0.5
XBB lineages		
XBB.1	1	0.5
XBB.1.9.1	1	0.5
XBB.2	1	0.5
XBB.1.5 lineages		
XBB.1.5	2	1.1

Table A2

Number of SARI cases sequenced and reported by Pango lineage and week of admission, SARI cases admitted in 2023 (weeks 1-7 2023)

Virus variant	Pango lineage	2023 W07	2023 W06	2023 W05	2023 W04	2023 W03	2023 W02	2023 W01	Total
Omicron, BQ.1	BQ.1.3							2	**2**
	BQ.1.1.18							1	**1**
	BQ.1.12				1				**1**
	DR.1			1					**1**
Omicron, BA.2.75	CH.1.1†							1	**1**
Omicron, XBB	XBB.1						1		**1**
	XBB.1.9.1	1							**1**
Omicron, XBB.1.5	XBB.1.5	1			1				**2**
Total		**2**		**1**	**2**		**1**	**4**	**10**

†Variant under Monitoring