



## Weekly Report on Severe Acute Respiratory Infection (SARI), Week 4 2023 (week ending 29/01/2023)

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 4 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 4 2023 (week ending 29/01/2023):
  - There were 14 SARI cases reported in week 4 2023, a slight increase compared to 11 SARI cases reported during week 3 2023
  - The incidence rate per emergency hospitalisations was 56.0 per 1,000 emergency admissions, an increase compared to 38.7 per 1,000 during week 3 2023
  - The incidence rate per hospital catchment population was 4.6 per 100,000 population aged  $\geq 15$  years, compared to the rate of 3.6 per 100,000 in week 3 2023
  - The highest proportion of SARI cases was among those aged 65 years and older ( $n=10$ ; 71.4%), median age was 73 years (interquartile range (IQR): 65–82)
  - Among SARI cases admitted in week 4 2023, all 14 were reported as having underlying medical conditions
  - SARS-CoV-2 PCR testing was carried out on all SARI cases, two (14.3%) of which tested positive, compared to 9.1% ( $n=1$ ) in week 3 2023
  - Influenza PCR testing was carried out on all SARI cases, none of which tested positive for influenza, compared to 27.3% ( $n=3$ ) positivity in week 3 2023.
  - Respiratory syncytial virus (RSV) PCR testing was carried out on all SARI cases, one (7.1%) of which tested positive, there were no positive RSV cases in week 3 2023
- There were 83 SARI cases admitted to St. Vincent's University Hospital (SVUH) between weeks 1 and 4 2023. In total, during 2022, 731 SARI cases have been admitted to SVUH
  - The median age of SARI cases admitted during weeks 1-4 2023 was 74 years (IQR: 63-82 years), the median age of all cases admitted in 2022 was 75 years (IQR: 64-83 years)
  - Among SARI cases admitted during weeks 1–4 2023, 89.2% ( $n=74$ ) reported having underlying medical conditions; overall 91.5% ( $n=669$ ) of those admitted during 2022 reported having underlying conditions
  - Among SARI cases for whom admission to ICU is known, admitted during weeks 1-4 2023 2022, 27.3% (3/11) were reported to have been admitted to ICU and/or required respiratory support, compared to 57.1% (362/634) 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, 64.6% (73/113) had not received a second booster vaccine dose  $>7$  days prior to their onset of illness
  - Of those discharged, with known outcome, admitted during 2022, 10.3% ( $n=62$ ) 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 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 5<sup>th</sup> 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 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 the SARI surveillance project since week 34 2021. The World Health Organization (WHO) clinical SARI case definition was used from week 27 to week 33 2021. The WHO SARI definition is defined as follows A hospitalised\* person with an acute respiratory infection, and history of fever or measured fever of  $\geq 38^{\circ}\text{C}$ , and cough, and onset within the last 10 days.

## 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<sup>1</sup>.

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

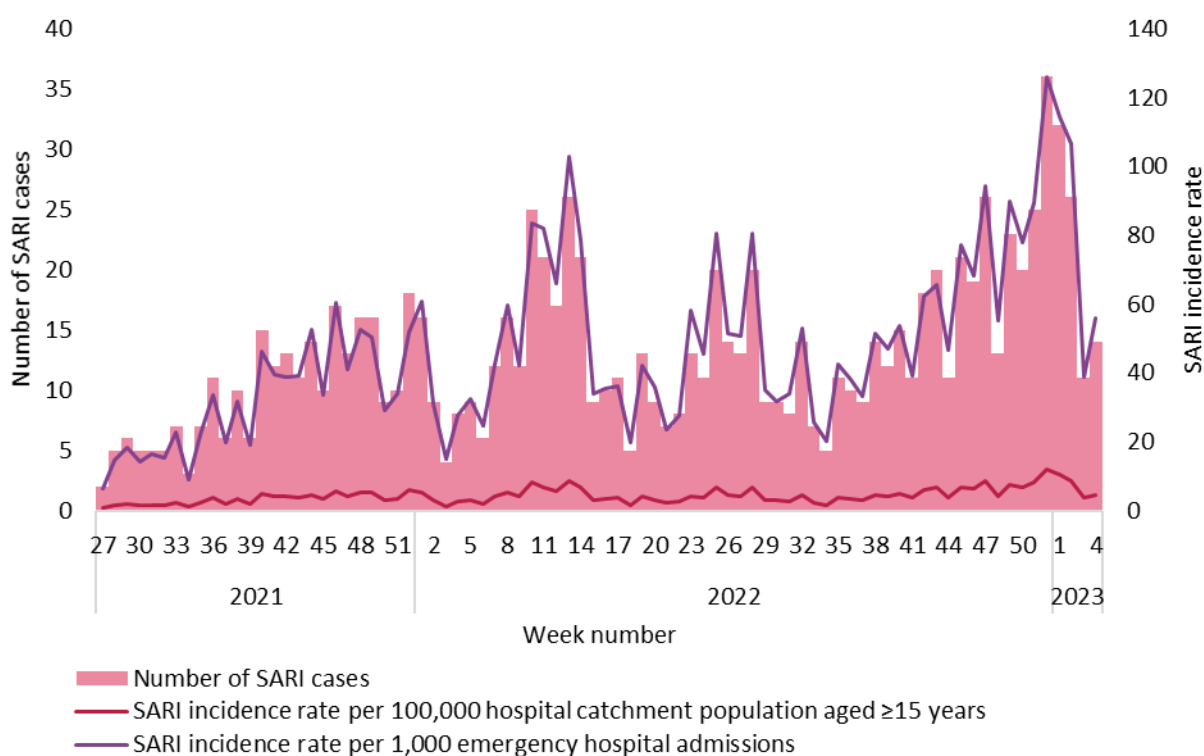
## Results

### SARI cases and incidence rates

In total, 731 SARI cases were admitted to St. Vincent’s University Hospital (SVUH) during 2022.

In week 4 2023:

- 14 SARI cases were reported in week 4 2023, compared to 11 SARI cases reported in week 3 2023 (Figure 1).
- The SARI incidence rate was 4.6 per 100,000 hospital catchment population aged ≥15 years, compared to the rate of 3.6 per 100,000 in week 3 2023.
- The SARI incidence rate per emergency hospitalisations was 56.0 per 1,000, compared to the rate of 38.7 per 1,000 in week 3 2023.



**Figure 1** Number and incidence of SARI hospitalised cases (emergency admission) by week of hospital admission, since SARI surveillance began to current week (week 4 2023) (n=1066).

NOTE: Data were extracted from the SARI surveillance database at HPSC on 01/02/2023, 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 4 2023, of the 14 SARI cases reported:

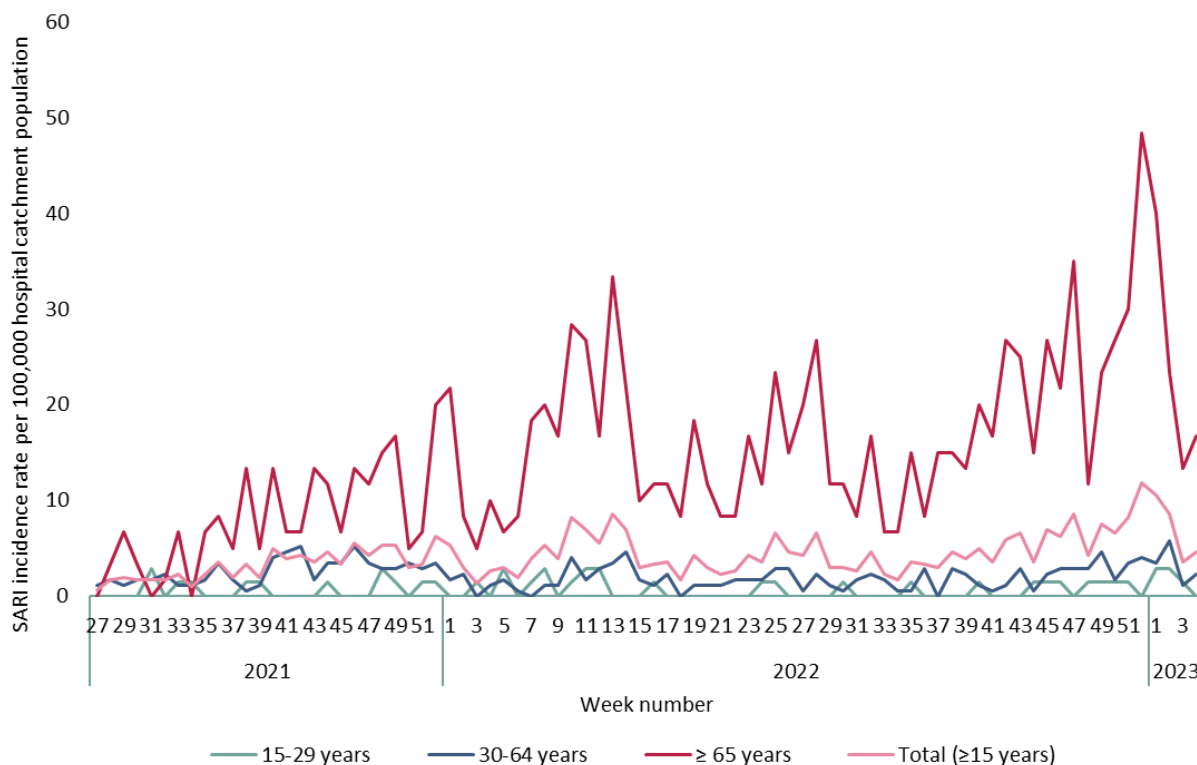
- Females accounted for a higher proportion of SARI cases (n=10; 71.4%), see Table 1
- The median age of SARI cases admitted was 73 years (interquartile range: 65 - 82 years)
- The incidence rate amongst those aged 65 years and older was 16.7 per 100,000, compared to the rate of 13.3 per 100,000 in week 3 2023.

**Table 1** Number and proportion of SARI cases by sex and age, for the current week, weeks 1 to 4 2023 and for weeks 1-52 2022.

|                            |                     | Week 4, 2023 |      | Weeks 1-4 2023 |      | Weeks 1-52 2022 |      |
|----------------------------|---------------------|--------------|------|----------------|------|-----------------|------|
|                            |                     | n            | %    | n              | %    | n               | %    |
| Total number of SARI cases |                     | 14           |      | 83             |      | 731             |      |
| Sex                        | Male                | 4            | 28.6 | 40             | 48.2 | 371             | 50.8 |
|                            | Female              | 10           | 71.4 | 43             | 51.8 | 360             | 49.2 |
| Age (years)                | Mean                | 74           |      | 70             |      | 72              |      |
|                            | Median              | 73           |      | 74             |      | 75              |      |
|                            | Interquartile range | 65 - 82      |      | 63 - 82        |      | 64 - 83         |      |
|                            | Range               | 47 - 94      |      | 17 - 94        |      | 16 - 101        |      |
| Age group                  | 15-24 years         | 0            | 0.0  | 3              | 3.6  | 16              | 2.2  |
|                            | 25-34 years         | 0            | 0.0  | 3              | 3.6  | 17              | 2.3  |
|                            | 35-44 years         | 0            | 0.0  | 1              | 1.2  | 23              | 3.1  |
|                            | 45-54 years         | 1            | 7.1  | 6              | 7.2  | 42              | 5.7  |
|                            | 55-64 years         | 3            | 21.4 | 14             | 16.9 | 94              | 12.9 |
|                            | 65-74 years         | 3            | 21.4 | 15             | 18.1 | 161             | 22.0 |
|                            | 75-84 years         | 4            | 28.6 | 25             | 30.1 | 231             | 31.6 |
| 85+ years                  | 3                   | 21.4         | 16   | 19.3           | 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, since SARI surveillance began to the current week (week 4 2023) (n=1066)

### 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 1 – 4 2023 and weeks 1-52 2022.

| Underlying medical condition* | Week 4 2023<br>(n=14) |             | Weeks 1-4 2023<br>(n=74) |             | Weeks 1-52 2022<br>(n=669) |             |
|-------------------------------|-----------------------|-------------|--------------------------|-------------|----------------------------|-------------|
|                               | n                     | %           | n                        | %           | n                          | %           |
| Heart disease                 | 5                     | <b>35.7</b> | 22                       | <b>29.7</b> | 279                        | <b>41.7</b> |
| Hypertension                  | 3                     | <b>21.4</b> | 35                       | <b>47.3</b> | 265                        | <b>39.6</b> |
| Lung disease                  | 5                     | <b>35.7</b> | 22                       | <b>29.7</b> | 235                        | <b>35.1</b> |
| Cancer                        | 4                     | 28.6        | 10                       | 13.5        | 135                        | 20.2        |
| Neurological disease          | 4                     | 28.6        | 20                       | 27.0        | 118                        | 17.6        |
| Asthma                        | 2                     | 14.3        | 11                       | 14.9        | 104                        | 15.5        |
| Diabetes                      | 1                     | 7.1         | 10                       | 13.5        | 109                        | 16.3        |
| Kidney disease                | 0                     | 0.0         | 3                        | 4.1         | 47                         | 7.0         |
| Intellectual disability       | 0                     | 0.0         | 2                        | 2.7         | 32                         | 4.8         |
| Immunocompromised             | 0                     | 0.0         | 0                        | 0.0         | 17                         | 2.5         |
| Obesity                       | 1                     | 7.1         | 5                        | 6.8         | 17                         | 2.5         |
| Cystic fibrosis               | 0                     | 0.0         | 0                        | 0.0         | 2                          | 0.3         |
| Other chronic conditions**    | 9                     | 64.3        | 36                       | 48.6        | 322                        | 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 weeks 1-4 2023, one (25%) 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, no healthcare workers were admitted as SARI cases during weeks 1-4 2023. In total during weeks 1-52 2022, 2.3% (16/682) 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 1 to 4 2023, and weeks 1-52 2022.

| Clinical symptom*     | Week 4 2023<br>(n= 14) |             | Weeks 1 - 4 2023<br>(n= 83) |             | Weeks 1-52 2022<br>(n= 731) |             |
|-----------------------|------------------------|-------------|-----------------------------|-------------|-----------------------------|-------------|
|                       | n                      | %           | n                           | %           | n                           | %           |
| Cough                 | 12                     | <b>85.7</b> | 65                          | <b>78.3</b> | 555                         | <b>75.9</b> |
| Shortness of breath   | 11                     | <b>78.6</b> | 62                          | <b>74.7</b> | 521                         | <b>71.3</b> |
| Fever                 | 5                      | 35.7        | 33                          | 39.8        | 335                         | 45.8        |
| General deterioration | 3                      | 21.4        | 27                          | 32.5        | 303                         | 41.5        |
| Malaise               | 0                      | 0.0         | 1                           | 1.2         | 92                          | 12.6        |
| Headache              | 1                      | 7.1         | 2                           | 2.4         | 40                          | 5.5         |
| Muscular pain         | 2                      | 14.3        | 8                           | 9.6         | 40                          | 5.5         |
| Sore throat           | 1                      | 7.1         | 4                           | 4.8         | 50                          | 6.8         |
| Ageusia               | 0                      | 0.0         | 0                           | 0.0         | 4                           | 0.5         |
| Anosmia               | 0                      | 0.0         | 1                           | 1.2         | 4                           | 0.5         |
| Dysgeusia             | 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, 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 1-4 2023, and weeks 1-52 2022.

| Complications*        | Weeks 1-4 2023<br>(n=4) |      | Weeks 1-52 2022<br>(n=603) |      |
|-----------------------|-------------------------|------|----------------------------|------|
|                       | n                       | %    | n                          | %    |
| Pneumonia             | 0                       | 0.0  | 51                         | 8.5  |
| ARDS                  | 0                       | 0.0  | 47                         | 7.8  |
| Sepsis                | 0                       | 0.0  | 11                         | 1.8  |
| Multiorgan failure    | 0                       | 0.0  | 2                          | 0.3  |
| Myocarditis           | 0                       | 0.0  | 1                          | 0.2  |
| Encephalitis          | 0                       | 0.0  | 1                          | 0.2  |
| Other complications** | 1                       | 25.0 | 153                        | 25.4 |
| No complications      | 1                       | 25.0 | 356                        | 59.0 |
| Unknown               | 2                       | 50.0 | 17                         | 2.8  |

\*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 1-4 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 1-4 2023, weeks 1-52 2022.

|                           |                                   | Weeks 1-4 2023<br>(n=2) |      | Weeks 1-52 2022<br>(n=598) |      |
|---------------------------|-----------------------------------|-------------------------|------|----------------------------|------|
|                           |                                   | n                       | %    | n                          | %    |
| Respiratory support       | High-flow oxygen therapy*         | 1                       | 50.0 | 340                        | 56.9 |
|                           | Invasive ventilation              | 0                       | 0.0  | 19                         | 3.2  |
|                           | No respiratory support given      | 1                       | 50.0 | 239                        | 40.0 |
|                           |                                   | (n=11)                  |      | (n=634)                    |      |
|                           |                                   | n                       | %    | n                          | %    |
| Admitted to ICU           | Yes                               | 2                       | 18.2 | 30                         | 4.7  |
|                           | No                                | 9                       | 81.8 | 604                        | 95.3 |
|                           | Yes, and/or respiratory support** | 3                       | 27.3 | 362                        | 57.1 |
| ICU length of stay (days) | Mean                              | -                       | -    | 21                         | -    |
|                           | Median                            | -                       | -    | 9                          | -    |
|                           | Interquartile range               | -                       | -    | 5 - 33                     | -    |
|                           | 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.

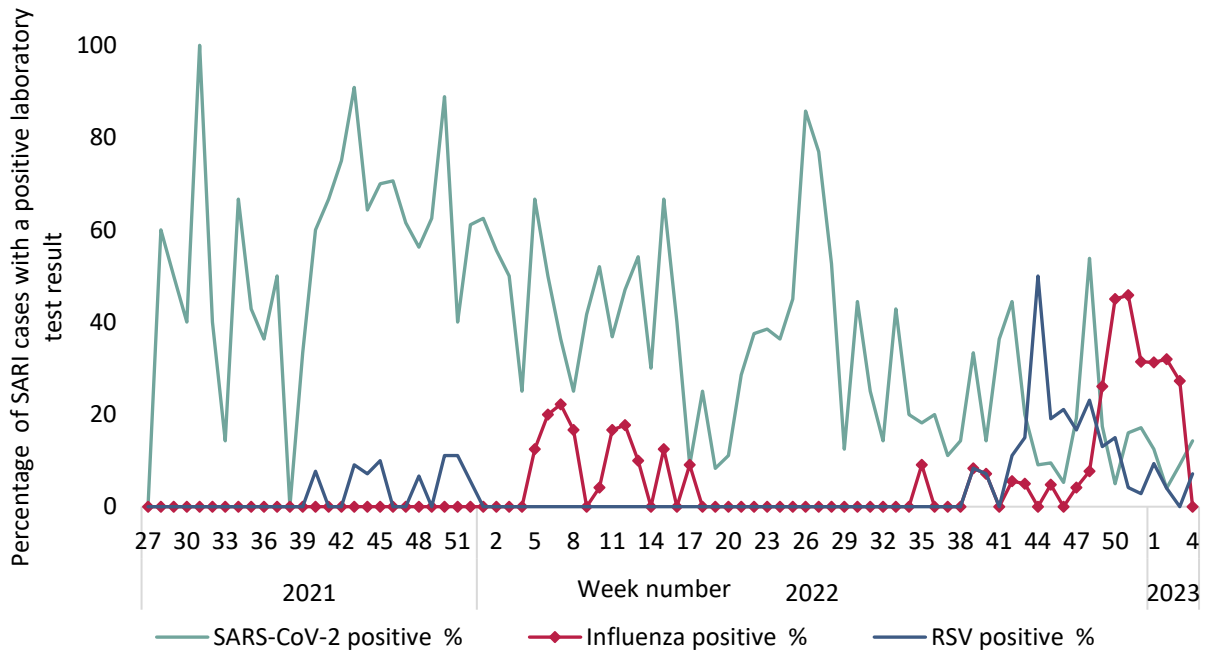
## Laboratory testing for SARS-CoV-2, influenza and RSV

### 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<sup>2</sup>.

In week 4 2023:

- SARS-CoV-2 PCR testing was carried out on all SARI cases, two (14.3%) of which tested positive, compared to 9.1% (n=1) positivity in week 3 2023 (Figure 3)
- Influenza PCR testing was carried out on all SARI cases, none tested positive for influenza, compared to 27.3% (n=3) positivity in week 3 2023.
- RSV PCR testing was carried out on all SARI cases, one (7.1%) of which tested positive, there were no positive RSV cases in week 3 2023.



**Figure 3** Percentage of SARI cases with a positive laboratory test result for SARS-CoV-2, influenza and RSV by week, since the beginning of SARI surveillance to the current week (week 4, 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.

<sup>2</sup> 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 1 to 4 2023 and weeks 1-52, 2022

| Laboratory test       | Laboratory test result | Week 4 2023 (n=14) |             | Weeks 1-4 2023 (n=82) |            | Weeks 1-52 2022 (n=719) |             |
|-----------------------|------------------------|--------------------|-------------|-----------------------|------------|-------------------------|-------------|
|                       |                        | n                  | %           | n                     | %          | n                       | %           |
| Tested for SARS-CoV-2 | Positive               | 2                  | <b>14.3</b> | 8                     | <b>9.8</b> | 230                     | <b>32.0</b> |
|                       | Negative               | 12                 | 85.7        | 72                    | 87.8       | 457                     | 63.6        |
|                       | Indeterminate*         | 0                  | 0.0         | 2                     | 2.4        | 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 - 4 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 4 2023 (n=14) |            | Week 3 2023 (n=11) |             | 2022/2023 season (n=334) |             |
|----------------------------|--------------------|------------|--------------------|-------------|--------------------------|-------------|
|                            | n                  | %          | n                  | %           | n                        | %           |
| RSV                        | 1                  | <b>7.1</b> | 0                  | <b>0.0</b>  | 34                       | <b>10.2</b> |
| Influenza A (H1)pdm09      | 0                  | 0.0        | 0                  | 0.0         | 23                       | 6.9         |
| Influenza A (H3)           | 0                  | 0.0        | 0                  | 0.0         | 22                       | 6.6         |
| Influenza A (not subtyped) | 0                  | 0.0        | 3                  | 27.3        | 18                       | 5.4         |
| Influenza B (Victoria)     | 0                  | 0.0        | 0                  | 0.0         | 1                        | 0.3         |
| Total influenza            | 0                  | <b>0.0</b> | 3                  | <b>27.3</b> | 64                       | <b>19.2</b> |

### 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).

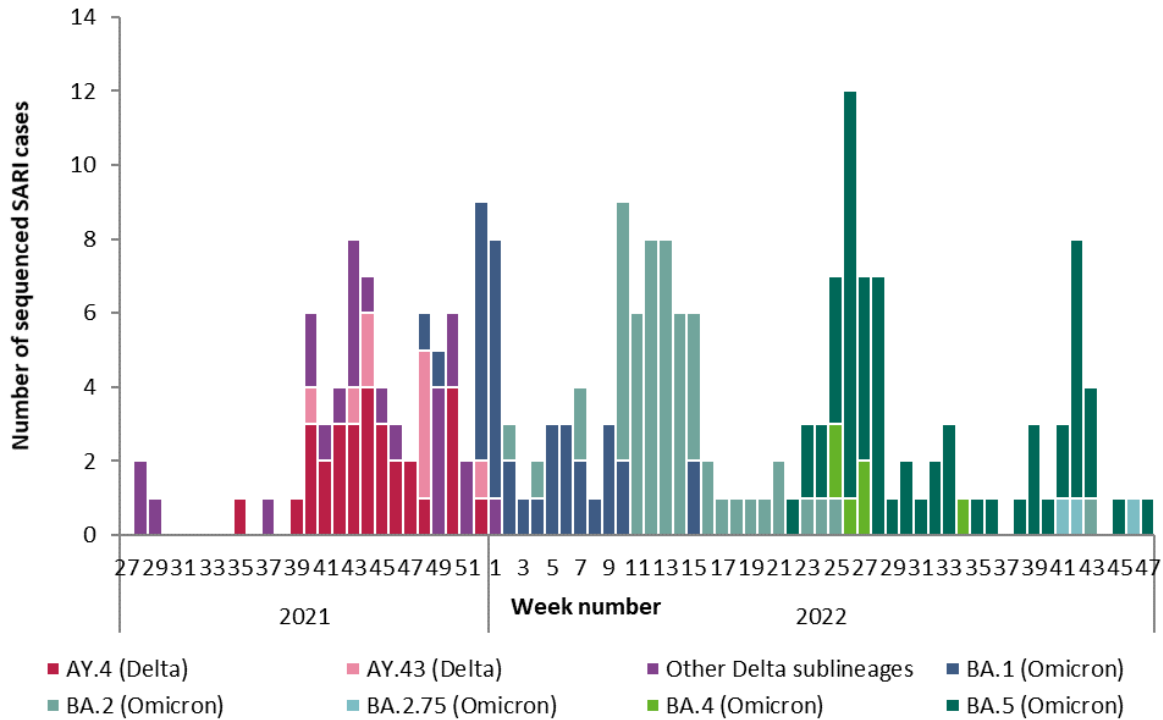
Since SARI surveillance began (week 27 2021) to week 44 2022, all WGS testing was performed in the National Virus Reference Laboratory (NVRL). The molecular lab in SVUH has been identified as a spoke WGS testing site as part of the national SARS-CoV-2 WGS surveillance programme, and from week 45 2022, SARI WGS testing will be performed on-site at SVUH.

Since SARI surveillance began, sequencing results have been received for 225 SARI cases, see figure 4 below. Further sequencing data on cases admitted since week 47 2022, are still awaited.

Omicron has been the dominant variant identified in SARI cases admitted in 2022, 99.4% (n=153) of samples sequenced were identified as Omicron, the last Delta variant was identified in week 1 2022.

ECDC has placed the Omicron sublineages with K444X and N460X spike mutations and BA.4 and BA.5 sublineages with the spike mutation R346X on the list of variants under monitoring (VUMs). There have been eight SARI cases identified with the R346X mutation, admitted between weeks 34 and 47 2022, and seven cases identified with the K444X/N460X mutation admitted between weeks 39 and 47 2022.

Figure 4 shows sequenced SARI cases by week of hospitalisation and Pango Lineage for cases admitted since SARI surveillance began to the current week, further information on Pango Lineage is available in the appendix (Table A1 and A2). Further sequencing data on cases admitted since week 47 2022, are still awaited.



**Figure 4** Number of SARI cases sequenced and reported by the National Virus Reference Laboratory, by week of hospitalisation, since SARI surveillance began to week 47 2022 (n=225)

### 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, 64.6% (n=73/113) 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<sup>3</sup>.

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

<sup>3</sup> Refer to [www.hse.ie](http://www.hse.ie) for further information on the COVID-19 vaccination rollout

**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*<br>(n=452) |            | Weeks 1-52 2022<br>(n=580) |            |
|---------------------------|--|------------|----------------------------|------------|
|                           | Vaccine status                                       | n          | %                          | n          |
| Not vaccinated            | 11   | 9.7        | 21                         | 10.7       |
| Primary series - Partial  | 0  | 0.0        | 1                          | 0.5        |
| Primary series - Complete | 10   | 8.8        | 29                         | 14.7       |
| First booster             | 52   | 46.0       | 109                        | 55.3       |
| Second booster            | 40   | 35.4       | 37                         | 18.8       |
| <b>Total</b>              | <b>113</b>   | <b>100</b> | <b>197</b>                 | <b>100</b> |
| SARS CoV-2 PCR negative   |  |            |                            |            |
| Vaccine status            | n  | %          | n                          | %          |
| Not vaccinated            | 8  | 2.4        | 9                          | 2.3        |
| Primary series - Partial  | 1  | 0.3        | 1                          | 0.3        |
| Primary series - Complete | 26   | 7.7        | 37                         | 9.7        |
| First booster             | 147  | 43.4       | 211                        | 55.1       |
| Second booster            | 157  | 46.3       | 125                        | 32.6       |
| <b>Total</b>              | <b>339</b>   | <b>100</b> | <b>383</b>                 | <b>100</b> |

\*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=452)

| SARS CoV-2 PCR positive   |                    |            | Required respiratory support |            | ICU admission |            | Died in hospital |            |   |
|---------------------------|--------------------|------------|------------------------------|------------|---------------|------------|------------------|------------|---|
|                           | Vaccination status | n          | %                            | n          | %             | n          | %                | n          | % |
| Not vaccinated            | 11                 | 9.7        | 3                            | 7.0        | 0             | 0.0        | 0                | 0.0        |   |
| Primary series - Partial  | 0                  | 0.0        | 0                            | 0.0        | 0             | 0.0        | 0                | 0.0        |   |
| Primary series - Complete | 10                 | 8.8        | 3                            | 7.0        | 0             | 0.0        | 0                | 0.0        |   |
| First booster             | 52                 | 46.0       | 22                           | 51.2       | 2             | 66.7       | 4                | 80.0       |   |
| Second booster            | 40                 | 35.4       | 15                           | 34.9       | 1             | 33.3       | 1                | 20.0       |   |
| <b>Total</b>              | <b>113</b>         | <b>100</b> | <b>43</b>                    | <b>100</b> | <b>3</b>      | <b>100</b> | <b>5</b>         | <b>100</b> |   |
| SARS CoV-2 PCR negative   |                    |            |                              |            |               |            |                  |            |   |
| Vaccination status        | n                  | %          | n                            | %          | n             | %          | n                | %          |   |
| Not vaccinated            | 8                  | 2.4        | 3                            | 2.2        | 1             | 11.1       | 1                | 4.8        |   |
| Primary series - Partial  | 1                  | 0.3        | 0                            | 0.0        | 0             | 0.0        | 0                | 0.0        |   |
| Primary series - Complete | 26                 | 7.7        | 14                           | 10.4       | 1             | 11.1       | 1                | 4.8        |   |
| First booster             | 147                | 43.4       | 65                           | 48.1       | 6             | 66.7       | 7                | 33.3       |   |
| Second booster            | 157                | 46.3       | 53                           | 39.3       | 1             | 11.1       | 12               | 57.1       |   |
| <b>Total</b>              | <b>339</b>         | <b>100</b> | <b>135</b>                   | <b>100</b> | <b>9</b>      | <b>100</b> | <b>21</b>        | <b>100</b> |   |

## Outcome

Of the 731 SARI cases admitted during 2022, 82.5% (n=603) have been discharged (Table 10). During weeks 1 to 4 2023, 83 SARI cases were admitted to St Vincent's University Hospital, discharge data are available for 4.8% (n=4), collection of discharge data is a manual process, therefore there is a significant lag time between discharge and data collection.

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). No deaths have been reported among SARI cases admitted in 2023.

**Table 10** Number and proportion of discharged SARI cases by outcome and hospital length of stay, for weeks 1 to 4 2023 and weeks 1-52 2022.

|                                |                                 | Weeks 1-4 2023<br>(n=4) |       | Weeks 1-52 2022<br>(n=603) |      |
|--------------------------------|---------------------------------|-------------------------|-------|----------------------------|------|
|                                |                                 | n                       | %     | n                          | %    |
| Outcome                        | Discharged alive                | 4                       | 100.0 | 530                        | 87.9 |
|                                | Transferred to another hospital | 0                       | 0.0   | 11                         | 1.8  |
|                                | Died in hospital                | 0                       | 0.0   | 62                         | 10.3 |
| Hospital length of stay (days) | Mean                            | 3                       |       | 12                         |      |
|                                | Median                          | 3                       |       | 6                          |      |
|                                | Interquartile range             | 1 - 5                   |       | 3 - 12                     |      |
|                                | Range                           | 1 - 7                   |       | 1 - 136                    |      |

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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  $\geq 14$  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  $\geq 14$  days after receipt of the dose.
  - Received two doses of a recommended two-dose vaccine schedule, and the epidemiological date is  $\geq 14$  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  $\leq 7$  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  $\leq 7$  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 27 2021 to week 47, 2022, (n=225)

| Virus variant                       | Number of cases | % sequenced cases |
|-------------------------------------|-----------------|-------------------|
| <b>Total sequenced</b>              | <b>225</b>      |                   |
| <b>Delta and Delta sublineages:</b> | <b>63</b>       | <b>28.0</b>       |
| AY.4                                | 30              | 13.3              |
| AY.43                               | 9               | 4.0               |
| B.1.617.2                           | 5               | 2.2               |
| AY.122                              | 4               | 1.8               |
| AY.5                                | 4               | 1.8               |
| AY.4.5                              | 2               | 0.9               |
| AY.4.6                              | 2               | 0.9               |
| AY.4.2.2                            | 1               | 0.4               |
| AY.6                                | 1               | 0.4               |
| AY.4.10                             | 1               | 0.4               |
| AY.46.6                             | 1               | 0.4               |
| AY.98                               | 1               | 0.4               |
| AY.4.2                              | 2               | 0.9               |

| <b>Virus variant</b>       | <b>Number of cases</b> | <b>% sequenced cases</b> |
|----------------------------|------------------------|--------------------------|
| <b>Total sequenced</b>     | <b>225</b>             |                          |
| <b>Omicron sublineages</b> | <b>162</b>             | <b>72.0</b>              |
| <b>BA.1 lineages:</b>      |                        |                          |
| BA.1                       | 22                     | 9.8                      |
| BA.1.1                     | 14                     | 6.2                      |
| <b>BA.2 lineages:</b>      |                        |                          |
| BA.2                       | 41                     | 18.2                     |
| BA.2.9                     | 6                      | 2.7                      |
| BA.2.3                     | 5                      | 2.2                      |
| BA.2.1                     | 1                      | 0.4                      |
| BA.2.18                    | 1                      | 0.4                      |
| BA.2.40.1                  | 1                      | 0.4                      |
| <b>BA.2.75 lineages</b>    |                        |                          |
| BN.1.2                     | 1                      | 0.4                      |
| BN.1.9                     | 1                      | 0.4                      |
| CV.1                       | 1                      | 0.4                      |
| <b>BA.4 lineages:</b>      |                        |                          |
| BA.4                       | 3                      | 1.3                      |
| BA.4.1                     | 1                      | 0.4                      |
| BA.4.4                     | 1                      | 0.4                      |
| BA.4.6                     | 1                      | 0.4                      |
| <b>BA.5 lineages:</b>      |                        |                          |
| BA.5.1                     | 19                     | 8.4                      |
| BA.5.2                     | 11                     | 4.9                      |
| BA.5.2.1                   | 8                      | 3.6                      |
| BA.5                       | 5                      | 2.2                      |
| BE.1                       | 4                      | 1.8                      |
| BA.5.2.6                   | 2                      | 0.9                      |
| BF.7                       | 3                      | 1.3                      |
| BQ.1.8                     | 2                      | 0.9                      |
| BA.5.3                     | 1                      | 0.4                      |
| BE.1.1.2                   | 1                      | 0.4                      |
| BF.1                       | 1                      | 0.4                      |
| BQ.1                       | 1                      | 0.4                      |
| BF.11.1                    | 1                      | 0.4                      |
| BQ.1                       | 1                      | 0.4                      |
| BQ.1.1.5                   | 1                      | 0.4                      |
| BQ.1.2                     | 1                      | 0.4                      |

**Table A2**

Number of SARI cases sequenced and reported by Pango lineage and week of admission, SARI cases weeks 43 2021 to 47, 2022

| Virus variant    | Pango lineage | 2022<br>W47 | 2022<br>W46 | 2022<br>W45 | 2022<br>W44 | 2022<br>W43 | Total    |
|------------------|---------------|-------------|-------------|-------------|-------------|-------------|----------|
| Omicron, BA.5    | BA.5.2.6      |             |             | 1*          |             |             | 1        |
|                  | BA.2          |             |             |             |             | 2           | 2        |
|                  | BF.7          | 1*          |             |             |             |             | 1        |
|                  | BQ.1.2        |             |             |             |             | 1†          | 1        |
| Omicron, BA.2    | BA.2          |             |             |             |             | 1           | 1        |
| Omicron, BA.2.75 | BN.1.9        |             | 1†          |             |             |             | 1        |
| <b>Total</b>     |               | <b>1</b>    | <b>1</b>    | <b>1</b>    | <b>0</b>    | <b>4</b>    | <b>7</b> |

\*BA.4/BA.5 + R346X mutation

†K444X/N460X mutations