# Weekly Report on Severe Acute Respiratory Infections (SARI), Ireland

## Week 1 2025 (week ending 05/01/2025)
## Report prepared on 08/01/2025

## About this report

Three sentinel hospital sites are now participating in the severe acute respiratory infections (SARI) surveillance programme in Ireland. Along with St Vincent's University Hospital (SVUH) (commenced on 5th July 2021), both St James's Hospital (SJH) and University Hospital Limerick (UHL) (paediatric cases only) commenced SARI surveillance on 30th September 2024 (Week 40 2024).

Data were extracted from the HPSC SARI surveillance database on **08/01/2025**. Data are provisional and subject to ongoing review, validation and update. As a result, figures presented in this report may differ from previously published figures. **Retrospective data collection is on-going for week 52 2024 and week 1 2025 (due to the holiday period) for two of the three hospital sites, the data shown for these weeks are currently incomplete and are an underestimate of SARI cases numbers and incidence rates. This is an abridged version of the weekly report on SARI.**

Two of the three SARI sentinel hospital sites (67%) reported data for the current week (W01 2025). Variations in the number of sentinel sites reporting each week, should be considered when comparing incidence rates and case numbers from previous weeks.

## Key messages

The number and incidence of SARI cases presented in this report are an underestimate for week 52 2024 and week 1 2025, as case ascertainment and data collection are ongoing in two sentinel hospital sites (SVUH and UHL) for this period. Based on the data from one hospital site (SJH), the number of SARI cases increased by 31.4%, from 51 cases in week 52 to 67 cases in week 1 2025.

Based on data available from two sentinel hospital sites, in week 1 2025, influenza positivity was 48.1%, while RSV positivity was 4.7% (note: no paediatric data available) and SARS-CoV-2 positivity was 0%.

## Summary

Data on paediatric SARI cases (aged <15 years) are not yet available for week 1 2025.

- **SARI case numbers and incidence (aged ≥15 years):** 107 SARI cases were admitted to two SARI sentinel sites in week 1 2025, giving incidence rates of 21.2 per 100,000 hospital catchment population and 166.1 per 1,000 hospital admissions via emergency departments

- **Age profile (W1 2025):** 68.2% (n=73) cases were aged ≥65 years, with a median age of 74 years; IQR: 62-84 years (Table 1):

- **Underlying medical conditions (W1 2025):** 95.3% (n=102) of cases reported at least one underlying medical condition (Table 4).

- **Virus positivity rate among SARI cases (W1 2025):**
  - Among those tested (99.1%, n=106), no cases tested positive for SARS-CoV-2, compared to 1.3% (n=1) in week 52 2024
  - Among those tested (99.1%, n=106), 48.1% (n=51) tested positive for influenza (50 A(not subtyped); 1 B), compared to 41.8% (n=33) in week 52 2024
  - Among those tested (99.1%, n=106) 4.7% (n=5) tested positive for RSV, compared to 13.9% (n=11) in week 52 2024 (Note: no data from paediatric SARI cases available yet for week 1, therefore RSV positivity is more than likely an underestimate)
  - See Figures 5, 6a & 6b and Table 2 for further details

- **Genomic surveillance (W50 2024-W1 2025):** Due to the low number of SARI SARS-CoV-2 positive specimens and delays in data collection over the holiday period, there are no available sequencing data for cases admitted in the last four weeks, see Figure 8 for sequencing data for the 2024/2025 season.

- **Vaccination status of SARI cases admitted during the current season (W40 2024-W1 2025)**
  - Amongst SARI cases positive for SARS CoV-2, aged ≥6 months and with known vaccination status, (n=19), 15.8% (n=3) had received a COVID-19 vaccine dose in the six months prior to the reported episode of illness (Table 8).
  - Amongst SARI cases positive for influenza, aged ≥6 months with known vaccination status, (n=89), 33.7% (n=30) had received the 2024/2025 influenza season vaccine prior to the reported episode of illness (Table 9).

- **Severe outcomes among SARI cases admitted during the current season (W40 2024-W1 2025)**
  - 3.3% (n=26) of SARI cases were admitted to ICU. The median length of stay was 7 days, IQR 4-9 days (Table 8). Among SARI cases admitted to ICU, 3.8% (n=1) were positive for SARS-CoV-2, 26.9% (n=7) for influenza and 7.7% (n=2) for RSV.
  - 1.8% (n=19) of SARI cases died in hospital. The median age was 82 years, IQR 75-87 years, 94.7% (n=18) were ≥65 years of age (Table 7)

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## SARI cases and incidence rates

The number of SARI cases admitted per sentinel hospital site by week of admission is displayed in Figure 1, along with the combined SARI incidence rate per 1,000 admissions via emergency department for all hospital sites.

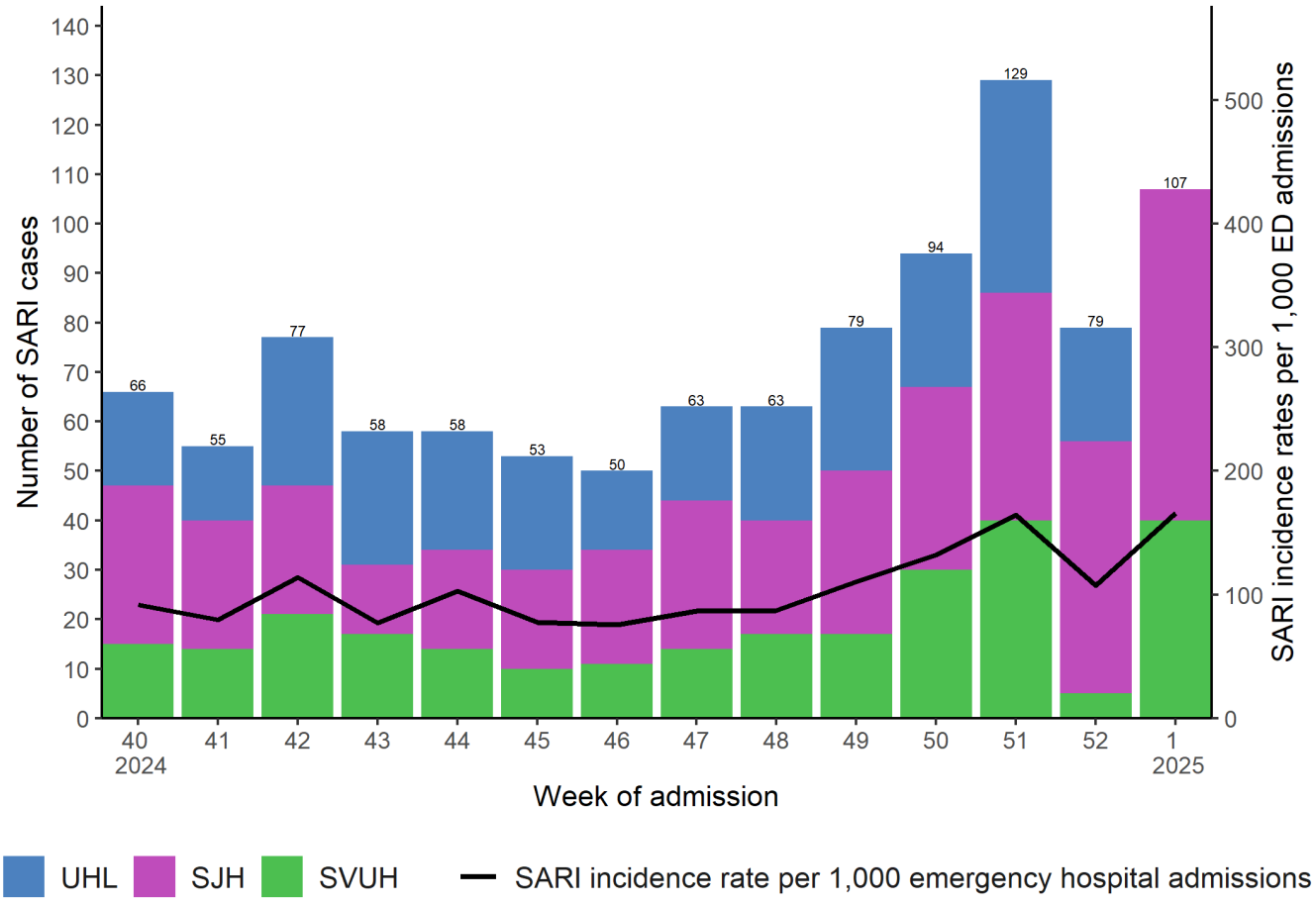


**Figure 1:** Number and incidence of SARI cases per 1,000 hospital admissions via emergency departments, by sentinel hospital site and week of admission, W40 2024-W1 2025 (n=1031)

**Note:** UHL data relates to paediatric cases <15 years of age, while SJH and SVUH data relates to adult cases, 15 years of age and older.

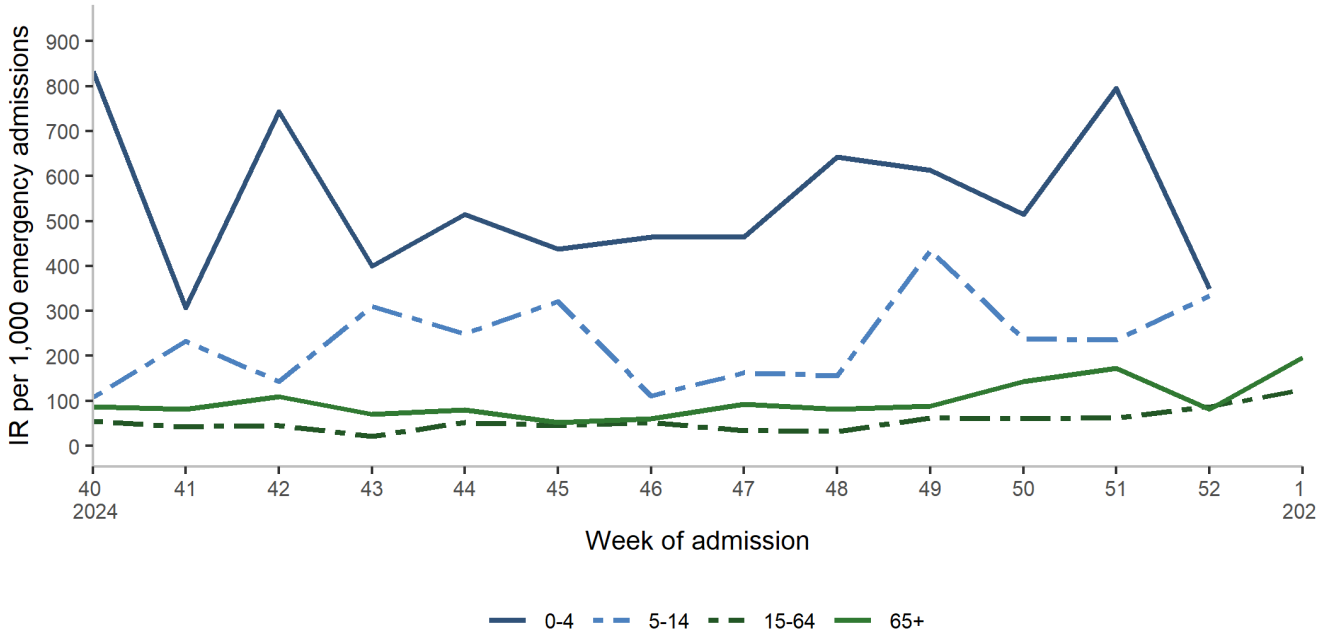


**Figure 2:** SARI age-specific incidence rates per 1,000 hospital admissions via emergency departments by week of admission, W40 2024-W1 2025 (n=1031)[1]

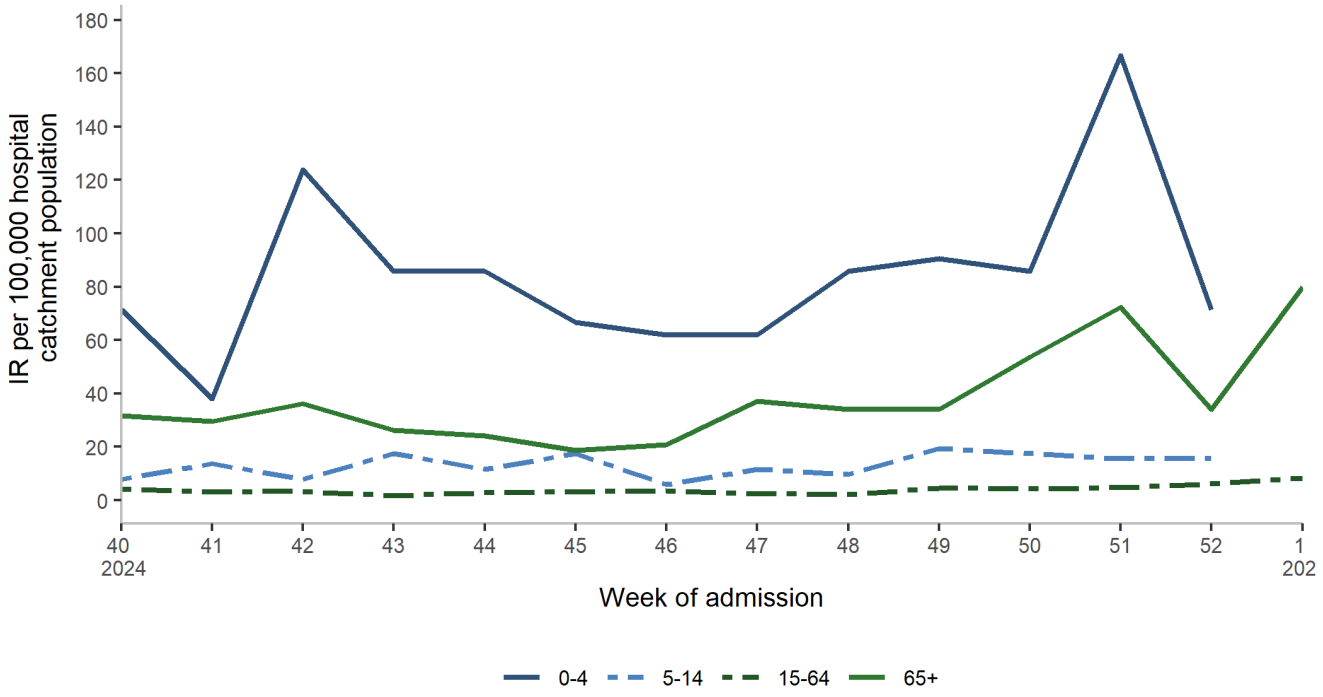


**Figure 3:** SARI age-specific incidence rates per 100,000 hospital catchment population by week of hospital admission, W40 2024-W1 2025 (n=1031)[1]

**Note[1]**: SARI surveillance on those aged under 15 years began in Week 40 2024

## Demographics

**Table 1:** Number and proportion of SARI cases by sex and age, for the current week (W1 2025), last four weeks (W50 2024-W1 2025) and current 2024/2025 season (W40 2024-W1 2025)

| | | Current week | Last four weeks | Current season |
|---|---|---|---|---|
| | | W1 2025 | W50 2024-W1 2025 | W40 2024-W1 2025 |
| **Characteristic** | **Category** | **N = 107[1]** | **N = 409[1]** | **N = 1,031[1]** |
| **Gender** | Female | 57 (53.3) | 217 (53.1) | 506 (49.1) |
| | Male | 50 (46.7) | 192 (46.9) | 525 (50.9) |
| **Age <15 years (in years)** | Median (IQR) | - | 2 (0 - 5) | 2 (1 - 5) |
| | Range | - | 0 - 12 | 0 - 14 |
| **Age ≥15 years (in years)** | Median (IQR) | 74 (62 - 84) | 73 (62 - 82) | 72 (60 - 81) |
| | Range | 16 - 95 | 16 - 98 | 16 - 101 |
| **Age groups (years)** | <1 | - | 25 (6.1) | 72 (7.0) |
| | 1-4 | - | 43 (10.5) | 158 (15.3) |
| | 5-14 | - | 25 (6.1) | 88 (8.5) |
| | 15-34 | 7 (6.5) | 17 (4.2) | 34 (3.3) |
| | 35-64 | 27 (25.2) | 80 (19.6) | 193 (18.7) |
| | 65-79 | 32 (29.9) | 114 (27.9) | 271 (26.3) |
| | 80+ | 41 (38.3) | 105 (25.7) | 215 (20.9) |

[1]n (%)

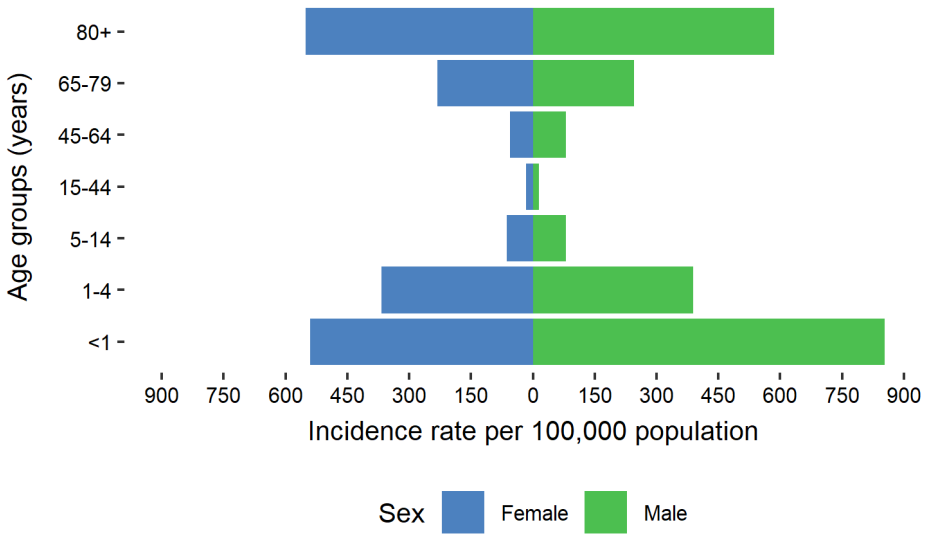


**Figure 4:** Age- and sex-specific incidence rates per 100,000 hospital catchment population for the current 2024/2025 season (W40 2024-W1 2025)

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

### PCR testing:

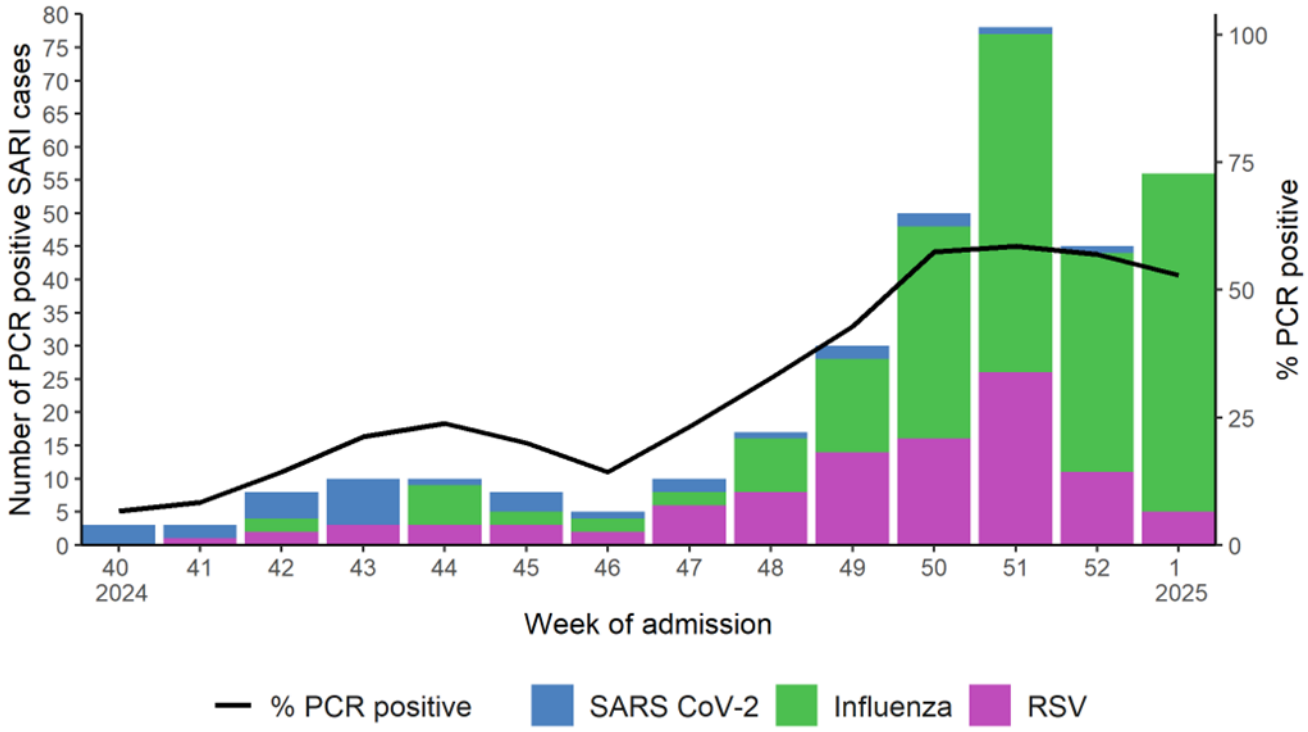


**Figure 5:** Number of SARI cases PCR positive for SARS-CoV-2, influenza and RSV by week and overall positivity rate for the three pathogens, W40 2024-W1 2025

**Note**: SARI cases are tested, on-site in each hospital site, by PCR for SARS-CoV-2, influenza and RSV on admission.

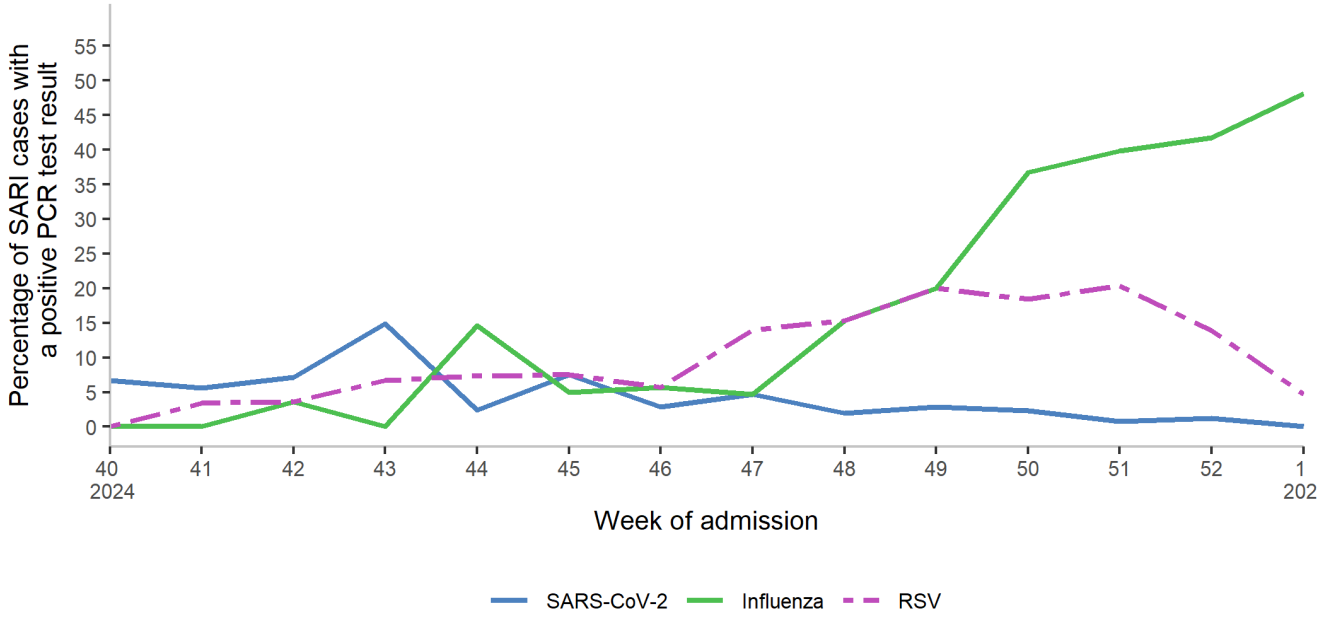


**Figure 6a:** Percentage of SARI cases PCR positive for SARS-CoV-2, influenza and RSV by week, W40 2024-W1 2025

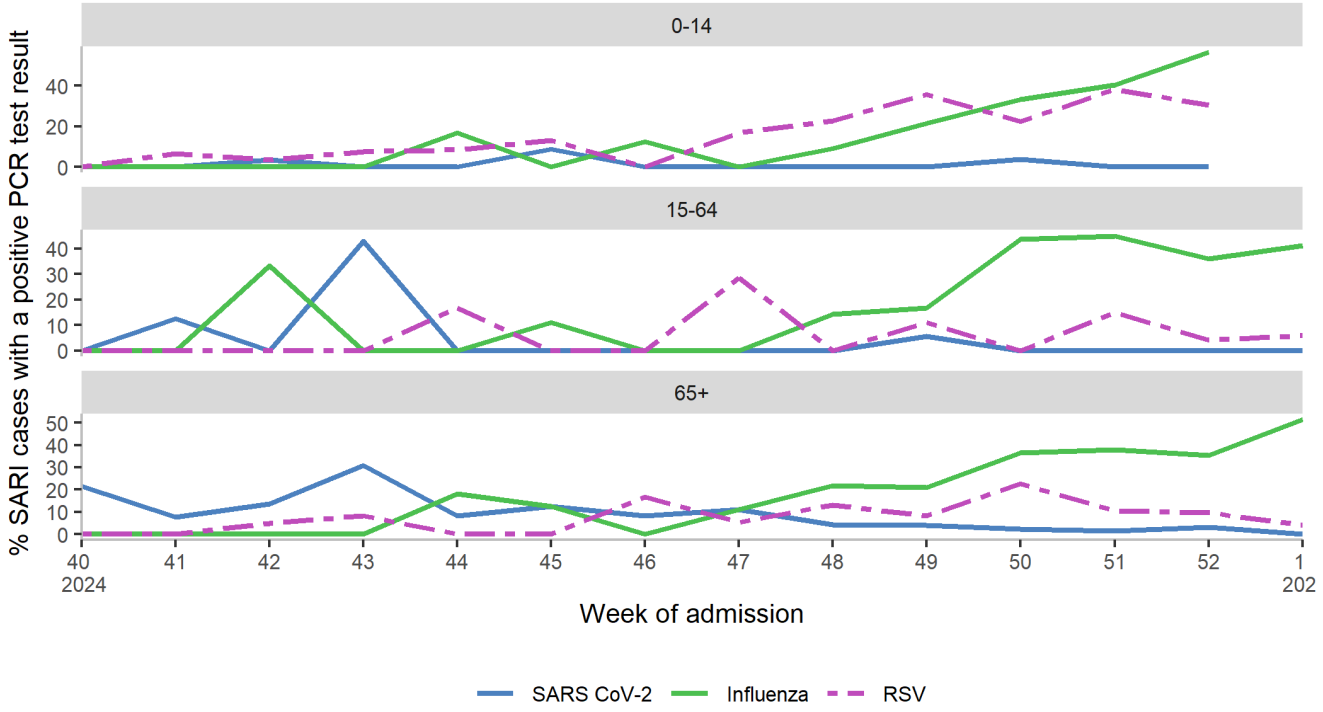


**Figure 6b:** Weekly positivity rate of SARI cases PCR positive for SARS-CoV-2, influenza and RSV, by age group, W40 2024-W1 2025

**Note**: Y-axis scale may differ for each age group
**Note**: SARI surveillance on those aged under 15 years began in Week 40 2024

**Table 2:** Number and proportion of SARI cases PCR positive for SARS-CoV-2, influenza, and RSV for the current week, last four weeks (W50 2024-W1 2025) and season total (W40 2024-W1 2025)

| | Current week W1 2025 | | Last four weeks W50 2024-W1 2025 | | Season total W40 2024-W1 2025 | |
|---|---|---|---|---|---|---|
| | <15y N = 0[1] | ≥15y N = 106[1] | <15y N = 92[1] | ≥15y N = 308[1] | <15y N = 312[1] | ≥15y N = 554[1] |
| SARS-CoV-2 | - | 0 (0.0) | 1 (1.1) | 3 (1.0) | 4 (1.3) | 26 (4.7) |
| Influenza | - | 51 (48.1) | 39 (42.4) | 128 (41.6) | 53 (17.0) | 150 (27.1) |
| RSV | - | 5 (4.7) | 29 (31.5) | 29 (9.4) | 56 (17.9) | 44 (7.9) |

[1]n (%)

**Note**: in the current season (W40 2024-W1 2025) 3 SARI cases (all aged <15 years) were coinfected with both influenza A and RSV.

A further breakdown of SARI positivity by hospital site is available in the Appendix.

## Influenza typing:

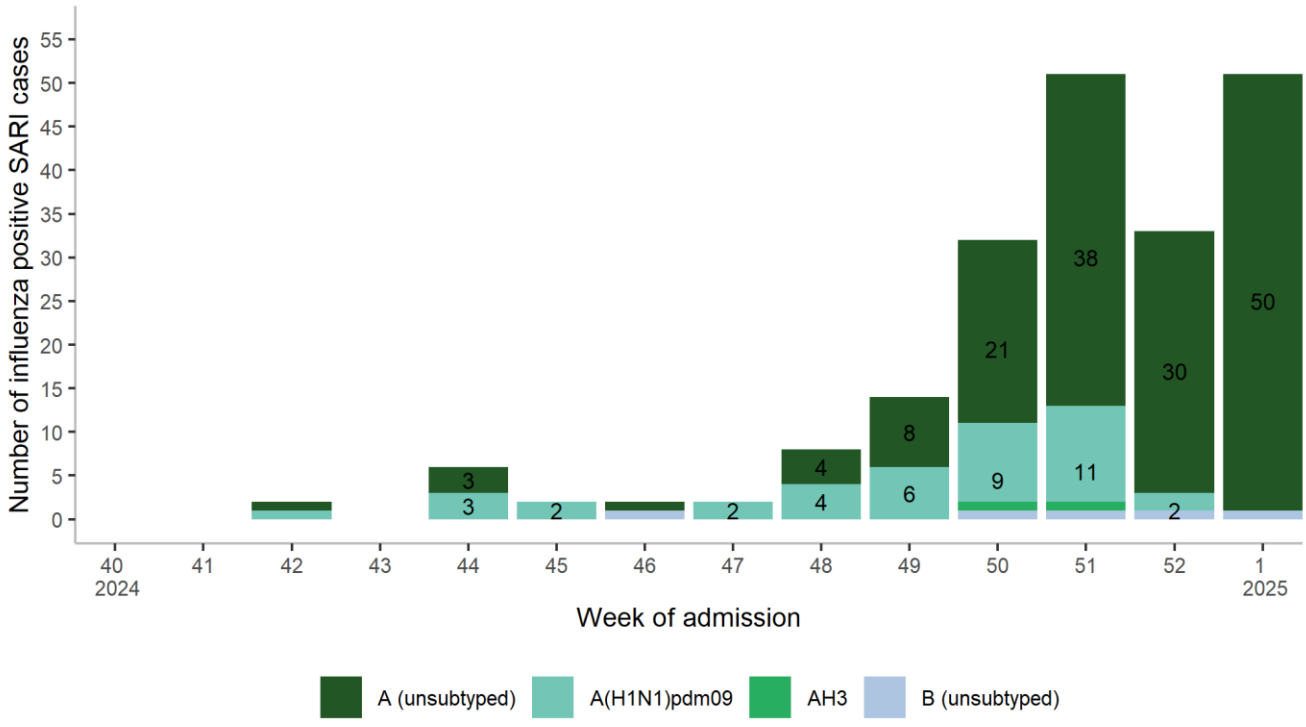


**Figure 7:** Number of SARI cases PCR positive for influenza type/subtype, W40 2024-W1 2025

## Genomic analysis: SARS-CoV-2

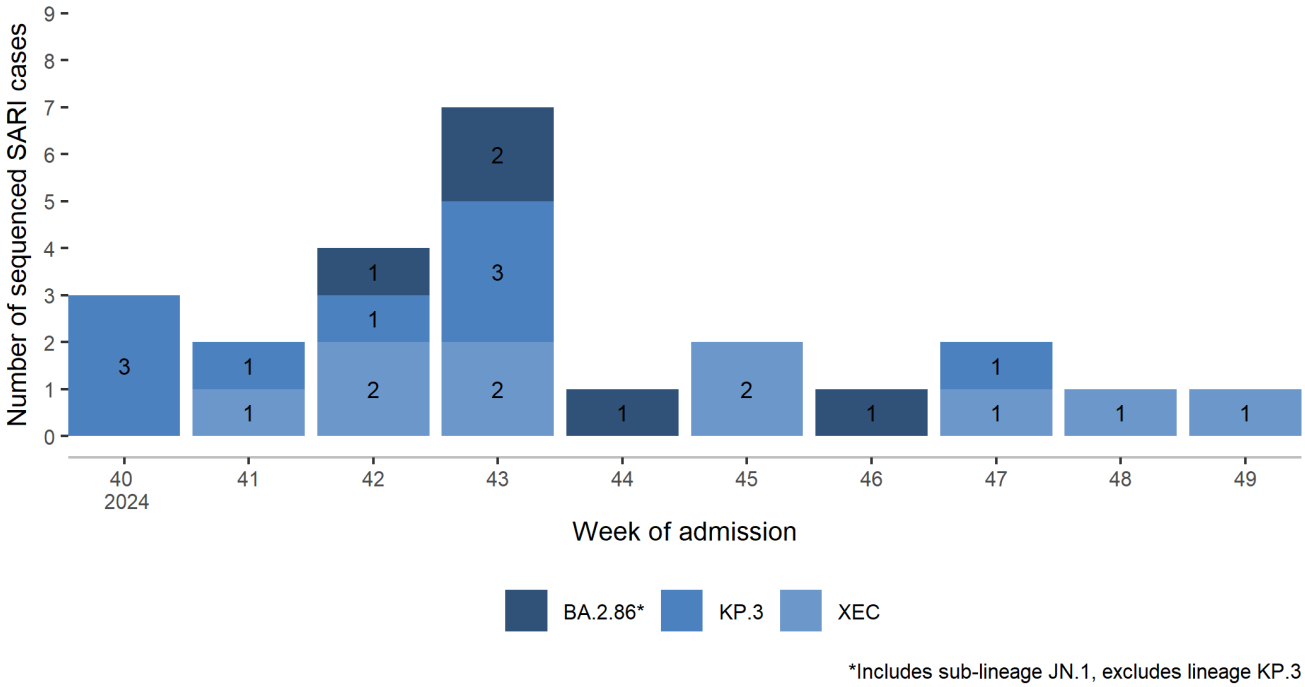


**Figure 8:** Number of SARS CoV-2 positive SARI cases sequenced, by week of hospital admission, W40 2024-W1 2025 (n=24)

For further information on circulating variants in Ireland, see Summary of COVID-19 virus variants in Ireland - Health Protection Surveillance Centre (hpsc.ie).

**Note**: There is typically a lag time of 1 to 3 weeks between a case being admitted, positive samples selected for sequencing and sequencing being completed.

Due to the low number of SARI SARS-CoV-2 positive specimens and delays in data collection over the holiday period, there are no available sequencing data for cases admitted in the last four weeks.

## Symptoms

**Table 3:** Number and proportion of SARI cases' clinical symptoms, either at or prior to hospital admission, for the last four weeks (W50 2024-W1 2025), and current season (W40 2024-W1 2025)

| Condition | Last four weeks W50 2024-W1 2025 | | Season total W40 2024-W1 2025 | |
|---|---|---|---|---|
| | <15y N = 93 | ≥15y N = 316 | <15y N = 318 | ≥15y N = 713 |
| Cough | 80 (86.0) | 288 (91.1) | 242 (76.1) | 646 (90.6) |
| Shortness of breath | 45 (48.4) | 266 (84.2) | 146 (45.9) | 597 (83.7) |
| Fever | 78 (83.9) | 205 (64.9) | 251 (78.9) | 407 (57.1) |
| General deterioration | 0 (0.0) | 140 (44.3) | 0 (0.0) | 292 (41.0) |
| Malaise | 24 (25.8) | 61 (19.3) | 87 (27.4) | 108 (15.1) |
| Nausea/Vomiting | 25 (26.9) | 43 (13.6) | 100 (31.4) | 86 (12.1) |
| Sore throat | 23 (24.7) | 28 (8.9) | 110 (34.6) | 55 (7.7) |
| Muscular pain | 3 (3.2) | 68 (21.5) | 3 (0.9) | 150 (21.0) |
| Diarrhoea | 7 (7.5) | 22 (7.0) | 27 (8.5) | 52 (7.3) |
| Acute confusion | 0 (0.0) | 33 (10.4) | 0 (0.0) | 73 (10.2) |
| Headache | 5 (5.4) | 24 (7.6) | 17 (5.3) | 44 (6.2) |
| Sepsis | 0 (0.0) | 4 (1.3) | 4 (1.3) | 17 (2.4) |
| Ageusia/Dysgeusia/Anosmia | 2 (2.2) | 1 (0.3) | 6 (1.9) | 2 (0.3) |

**Note**: The following symptoms have been removed from the table, as there are no cases reporting these symptoms in the above time-periods: Apnoea

## Underlying medical conditions and risk factors

SARI cases may be reported with one or more underlying medical conditions, weekly proportions can be based on small numbers and vary from week to week, caution is therefore advised when interpreting changes in weekly proportions (Table 5).

**Table 4:** Number and proportion of SARI cases with underlying medical conditions reported on hospital admission (among those who reported having underlying medical conditions), for the last four weeks (W50 2024-W1 2025), and current season (W40 2024-W1 2025)

| Condition | Last four weeks W50 2024-W1 2025 | | Season total W40 2024-W1 2025 | |
|---|---|---|---|---|
| | <15y N = 93 | ≥15y N = 316 | <15y N = 318 | ≥15y N = 713 |
| Heart disease | 2 (2.2) | 130 (41.1) | 14 (4.4) | 281 (39.4) |
| Lung disease | 3 (3.2) | 124 (39.2) | 5 (1.6) | 289 (40.5) |
| Hypertension | 0 (0.0) | 125 (39.6) | 0 (0.0) | 248 (34.8) |
| Cancer | 0 (0.0) | 78 (24.7) | 0 (0.0) | 185 (25.9) |
| Rheumatological disease | 0 (0.0) | 68 (21.5) | 0 (0.0) | 165 (23.1) |
| Asthma | 9 (9.7) | 47 (14.9) | 39 (12.3) | 93 (13.0) |
| Neurological disease | 2 (2.2) | 54 (17.1) | 10 (3.1) | 113 (15.8) |
| Immunocompromised | 0 (0.0) | 49 (15.5) | 1 (0.3) | 111 (15.6) |
| Diabetes | 1 (1.1) | 54 (17.1) | 2 (0.6) | 103 (14.4) |
| Liver disease | 0 (0.0) | 27 (8.5) | 0 (0.0) | 65 (9.1) |
| Kidney disease | 2 (2.2) | 22 (7.0) | 5 (1.6) | 55 (7.7) |
| Dementia | 0 (0.0) | 37 (11.7) | 0 (0.0) | 59 (8.3) |
| Obesity | 0 (0.0) | 13 (4.1) | 0 (0.0) | 39 (5.5) |
| Intellectual disability | 7 (7.5) | 8 (2.5) | 22 (6.9) | 16 (2.2) |
| Down syndrome | 1 (1.1) | 0 (0.0) | 6 (1.9) | 1 (0.1) |
| Asplenia | 0 (0.0) | 1 (0.3) | 0 (0.0) | 3 (0.4) |
| Cystic fibrosis | 0 (0.0) | 0 (0.0) | 0 (0.0) | 2 (0.3) |
| Long COVID | 0 (0.0) | 1 (0.3) | 0 (0.0) | 1 (0.1) |
| Tuberculosis | 0 (0.0) | 1 (0.3) | 0 (0.0) | 1 (0.1) |

## Clinical course and outcome

### Complications

Information on the clinical course during hospitalisation is only available after patient discharge, and there may be a delay between discharge and data collection, due to the manual data collection methods required. Furthermore, data collection is ongoing for those not yet discharged from hospital.

SARI cases could be reported with one or more complications; among those for whom discharge information is available the most common complication reported was pneumonia (Table 6).

**Table 5:** Number and proportion of SARI cases and complication among discharged SARI cases, for the last four weeks (W50 2024-W1 2025), and current season (W40 2024-W1 2025)

| Complication | Last four weeks W50 2024-W1 2025 | | Season total W40 2024-W1 2025 | |
|---|---|---|---|---|
| | <15y N = 93 | ≥15y N = 68 | <15y N = 318 | ≥15y N = 305 |
| Pneumonia | 20 (21.5) | 58 (85.3) | 59 (18.6) | 256 (83.9) |
| Bronchiolitis | 26 (28.0) | 0 (0.0) | 67 (21.1) | 0 (0.0) |
| Heart failure | 0 (0.0) | 7 (10.3) | 0 (0.0) | 48 (15.7) |
| Acute kidney injury | 1 (1.1) | 7 (10.3) | 2 (0.6) | 26 (8.5) |
| Sepsis | 0 (0.0) | 5 (7.4) | 4 (1.3) | 15 (4.9) |
| ARDS | 4 (4.3) | 0 (0.0) | 15 (4.7) | 1 (0.3) |
| Multi organ failure | 0 (0.0) | 1 (1.5) | 0 (0.0) | 3 (1.0) |
| Other complications | 5 (5.4) | 0 (0.0) | 8 (2.5) | 2 (0.7) |
| No complications | 42 (45.2) | 10 (14.7) | 181 (56.9) | 42 (13.8) |

**Note:** The following complications have been removed from the table, as there are no cases reporting these conditions in the above time-periods: Myocarditis, Encephalitis, Secondary bacterial infections, PIMS*

*Paediatric inflammatory multisystem syndrome

## Respiratory support

Among SARI cases who have been discharged, the highest level of respiratory support received during hospitalisation is described in Table 7.

**Table 6:** Number and proportion of SARI cases by level of respiratory support received, among discharged SARI cases, for the last four weeks (W50 2024-W1 2025), and current season (W40 2024-W1 2025)

| Respiratory support | Last four weeks W50 2024-W1 2025 | | Current season W40 2024-W1 2025 | |
|---|---|---|---|---|
| | <15y N = 93[1] | ≥15y N = 68[1] | <15y N = 318[1] | ≥15y N = 305[1] |
| No respiratory support given | 56 (68%) | 17 (26%) | 217 (71%) | 95 (31%) |
| Low-flow oxygen therapy | 15 (18%) | 38 (58%) | 50 (16%) | 154 (51%) |
| Non-invasive ventilation | 9 (11%) | 11 (17%) | 35 (11%) | 50 (17%) |
| Invasive ventilation | 2 (2.4%) | 0 (0%) | 5 (1.6%) | 4 (1.3%) |

[1]n (%)

## Severe outcomes

SARI cases are considered to have severe outcomes if they were admitted to ICU and/or died during their hospital stay.

**Table 7:** Number and proportion of SARI cases with severe outcomes, for the last four weeks (W50 2024-W1 2025), and current season (W40 2024-W1 2025)

| | Last four weeks W50 2024-W1 2025 | Current season W40 2024-W1 2025 |
|---|---|---|
| | N = 409[1] | N = 1,031[1] |
| **Length of stay in hospital (days)** | | |
| Median (IQR) | 3 (2 - 6) | 3 (2 - 6) |
| Range | 1 - 17 | 1 - 76 |
| **Admitted to ICU** | 11 (3.7%) | 26 (3.3%) |
| **ICU length of stay (days)** | | |
| Median (IQR) | - | 7 (4 - 9) |
| Range | - | 1 - 33 |
| **Died in hospital** | 6 (1.5%) | 19 (1.8%) |

[1]n (%)

**Note:** Paediatric cases may be reported as admitted to ICU, if transferred to an ICU in a paediatric hospital. However, these cases are excluded from the calculation of length of stay in ICU.

## Vaccination status

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

### COVID-19 vaccination status

During the current season (W40 2024-W1 2025) among SARI cases PCR positive for SARS-CoV-2, aged ≥6 months and with known COVID-19 vaccination status (n=19), **15.8% (n=3)** had received a vaccine dose in the six months prior to the reported episode of illness (Table 9).

**Table 8:** Characteristics of SARI cases positive for SARS-CoV-2 during the current season (W40 2024-W1 2025) by time since last COVID-19 vaccine dose

| | | W40 2024-W1 2025 | |
|---|---|---|---|
| **Characteristic** | **Category** | **<180 days N = 3[1]** | **≥180 days N = 16[1]** |
| Gender | Female | 1 (14.3%) | 6 (85.7%) |
| | Male | 2 (16.7%) | 10 (83.3%) |
| Age (years) | Median (IQR) | 87 (84 - 88) | 76 (67 - 89) |
| | Range | 84 - 88 | 36 - 94 |
| Age groups (years) | 0-14 | 0 (0.0%) | 0 (0.0%) |
| | 15-59 | 0 (0.0%) | 3 (100.0%) |
| | 60-69 | 0 (0.0%) | 3 (100.0%) |
| | 70-79 | 0 (0.0%) | 4 (100.0%) |
| | 80+ | 3 (33.3%) | 6 (66.7%) |
| Underlying medical conditions | Yes | 3 (16.7%) | 15 (83.3%) |
| | No | 0 (0.0%) | 1 (100.0%) |
| Patient residence | Residential care facility | 1 (100.0%) | 0 (0.0%) |
| | Private residence/home | 2 (11.1%) | 16 (88.9%) |

[1]n (%)

**Note:** Due to small numbers of cases reported as not vaccinated, this group has been included in the ≥180 days group.

**Excluded from analysis:**

- SARS-CoV-2 positive SARI cases with unknown vaccination status, 9 (30.0%) are excluded.
- SARS-CoV-2 positive SARI cases aged <6 months, 2 (6.7%) are excluded.

## Influenza vaccination status

During the current season (W40 2024-W1 2025) among SARI cases PCR positive for influenza, aged ≥6 months and with known influenza vaccination status (n=89), **33.7% (n=30)** had received the 2024/2025 influenza season vaccine prior to the reported episode of illness (Table 10).

**Table 9:** Characteristics of SARI cases positive for influenza during the current season (W40 2024-W1 2025) by vaccination status for the current season's influenza vaccine

| | | W40 2024-W1 2025 | |
|---|---|---|---|
| **Characteristic** | **Category** | **Vaccinated N = 30[1]** | **Not vaccinated N = 59[1]** |
| Gender | Female | 19 (37.3%) | 32 (62.7%) |
| | Male | 11 (28.9%) | 27 (71.1%) |
| Age (years) | Median (IQR) | 75 (67 - 83) | 63 (42 - 72) |
| | Range | 43 - 97 | 2 - 93 |
| Age groups (years) | 0-14 | 0 (0.0%) | 11 (100.0%) |
| | 15-59 | 1 (6.7%) | 14 (93.3%) |
| | 60-69 | 9 (45.0%) | 11 (55.0%) |
| | 70-79 | 11 (45.8%) | 13 (54.2%) |
| | 80+ | 9 (47.4%) | 10 (52.6%) |
| Underlying medical conditions | Yes | 29 (36.7%) | 50 (63.3%) |
| | No | 1 (11.1%) | 8 (88.9%) |
| Patient residence | Residential care facility | 3 (37.5%) | 5 (62.5%) |
| | Private residence/home | 27 (33.3%) | 54 (66.7%) |

[1]n (%)

**Excluded from analysis:**
- Influenza positive SARI cases with unknown vaccination status, 108 (53.2%) are excluded
- Influenza positive SARI cases aged <6 months, 6 (3.0%) are excluded

## Links to other national respiratory virus reports

**Respiratory viruses**

- Integrated Respiratory Virus Bulletin
- Respiratory Virus Notification Hub

**COVID-19**

- Summary of COVID-19 virus variants in Ireland.
- • National Wastewater Surveillance Programme

# Appendix

**Table A1**: Number of SARI cases, number tested and positivity by hospital site for the current week (W1 2025), previous week (W52 2024) and season total (W40 2024-W1 2025)

| | Cases | SARS CoV-2 tested | SARS CoV-2 positive | Influenza & RSV tested | Influenza positive | RSV positive |
|---|---|---|---|---|---|---|
| Site | n | n | n (%) | n | n (%) | n (%) |
| **W1 2025** | **107** | **106** | **0 (0)** | **106** | **51 (48.1)** | **5 (4.7)** |
| SVUH | 40 | 39 | 0 (0) | 39 | 21 (53.8) | 3 (7.7) |
| SJH | 67 | 67 | 0 (0) | 67 | 30 (44.8) | 2 (3) |
| UHL | 0 | - | - | - | - | - |
| **W52 2024** | **79** | **79** | **1 (1.3)** | **79** | **33 (41.8)** | **11 (13.9)** |
| SVUH | 5 | 5 | 0 (0) | 5 | 0 (0) | 1 (20) |
| SJH | 51 | 51 | 1 (2) | 51 | 20 (39.2) | 3 (5.9) |
| UHL | 23 | 23 | 0 (0) | 23 | 13 (56.5) | 7 (30.4) |
| **W40 2024-W1 2025** | **1031** | **866** | **30 (3.5)** | **850** | **203 (23.9)** | **100 (11.8)** |
| SVUH | 265 | 259 | 20 (7.7) | 259 | 66 (25.5) | 25 (9.7) |
| SJH | 448 | 295 | 6 (2) | 279 | 84 (30.1) | 19 (6.8) |
| UHL | 318 | 312 | 4 (1.3) | 312 | 53 (17) | 56 (17.9) |

**Note**: Case ascertainment and data collection are ongoing in SVUH and UHL for week 52 2024, therefore the number of SARI cases presented are an underestimate.

# Technical Notes

## 1. SARI Surveillance objectives

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

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

## 2. Sentinel hospital SARI surveillance sites

SARI surveillance was implemented in one tertiary care adult hospital, St.Vincent's University Hospital (SVUH), Dublin on the 5th of July 2021. In September 2024 a second tertiary care adult hospital, St James's Hospital (SJH), was included, both sites reporting on SARI cases aged 15 years and older.

A third tertiary care hospital, University Hospital Limerick (UHL), reporting on SARI cases aged under 15 years of age only, began surveillance in September 2024.

## 3. 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.

*Clinical SARI case:*

The European Centre for Disease Prevention and Control (ECDC) clinical SARI case definition is used for SARI surveillance in Ireland since week 34 2021

SARI case definition: A person hospitalised for at least 24 hours with acute respiratory infection, with at least one of the following symptoms: cough, fever, shortness of breath OR sudden onset of anosmia, ageusia or dysgeusia with onset of symptoms within 14 days prior to hospital admission.

A SARI case refers to an individual patient episode of care

## 4. Denominator data

Denominator data for the hospital catchment area are based on the Census of Population, 2022. The hospital catchment data were prepared and provided by the Health Intelligence Unit (HIU) of the Health Service Executive (HSE) and were extracted from Health Atlas Ireland on 07/05/2024.

Weekly denominator data on all-cause hospital admissions, through the Emergency Department, are provided by the sentinel hospital sites.

## 5. Laboratory testing

SARS-CoV-2, influenza, and RSV PCR testing is carried out on admission.

SARI samples that are positive for SARS-CoV-2 and have a cycle threshold (Ct) value <25 are referred for whole genome sequencing (WGS). The molecular laboratories in SVUH, SJH and UHL are spoke WGS testing sites as part of the national SARS-CoV-2 WGS surveillance programme, for further information please see Whole Genome Sequencing Programme - Health Protection Surveillance Centre (hpsc.ie). SARI WGS testing is performed on-site at SVUH, SJH and UHL.

Samples that are PCR positive for influenza are sent to the National Virus Reference Laboratory (NVRL) for influenza typing/subtyping/genetic and antigenic characterisation.

## 6. Data collection and reporting

**St Vincent's University Hospital:** Clinical data are 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.

**St. James's Hospital:** Clinical data are collected and managed on a specifically adapted electronic form within the patient's electronic patient record (EPR). Laboratory data are extracted from Telepath LIMS.

**University Hospital Limerick:** Clinical data are collected manually on the hard copy of the UHL SARI Case Report Form (CRF) and then recorded in the electronic SARI questionnaire on ICNET. Details of laboratory results are obtained from ICNET and are also recorded in the electronic SARI questionnaire on ICNET.

Case-based data are reported by SVUH, SJH and UHL 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 the European SARI surveillance programme.

COVID-19 vaccination data are obtained from the National COVID-19 Vaccination Management System (COVAX) and linked to SARI cases by the HSE-Integrated Information Service (IIS), where data are available.

## 7. Influenza season

The influenza surveillance season runs from week 40 (early October) to week 20 (end of May). During this time, seasonal respiratory viruses usually circulate at higher levels, compared to the summer period (weeks 21 to 39). The seasonal comparisons used in this report refer to the influenza surveillance season.

## 8. Reference dates

**SARI Surveillance**

05/07/2021 (Week 27 2021) – commenced of SARI surveillance at first sentinel hospital site
30/09/2024 (Week 40 2024) - commenced SARI surveillance at the second and third sentinel sites

**Vaccination campaign**

27/09/2021 (Week 39 2021) – first COVID-19 booster vaccination campaign commenced
22/04/2022 (Week 16 2022) – second COVID-19 booster vaccination campaign commenced
03/10/2022 (Week 40 2022) – Autumn 2022 COVID-19 booster vaccination campaign commenced
28/04/2023 (Week 17 2023) – Spring 2023 COVID-19 booster vaccination campaign commenced
02/10/2023 (Week 40 2023) – Autumn 2023 COVID-19 booster vaccination campaign commenced
22/04/2024 (Week 17 2024) – Spring 2024 COVID-19 booster vaccination campaign commenced
30/09/2024 (Week 40 2024) – Autumn 2024 COVID-19 booster vaccination campaign commenced

**Winter respiratory virus seasons**

04/10/2021 (Week 40 2021) - start of the 2021/2022 season
03/10/2022 (Week 40 2022) - start of the 2022/2023 season
02/10/2023 (Week 40 2023) - start of the 2023/2024 season
30/09/2024 (Week 40 2024) - start of the 2024/2025 season

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

## 9. Vaccination status definitions

For the purposes of SARI surveillance, vaccination status of cases is as follows:

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

**Vaccinated COVID case:** A confirmed case of COVID-19 who received any dose of a COVID-19 vaccine, ≥14 days before onset of symptoms.

**Unvaccinated COVID-19 case:** A confirmed case of COVID-19 who did not receive any dose of a COVID-19 vaccine i.e. was never vaccinated.

**Time since vaccination:** For a vaccinated COVID-19 case, this is the time between the date of last dose vaccination and the date of symptom onset and categorised as <180 days or ≥180 days since vaccination.

**Vaccinated influenza case:** A confirmed case of influenza will be considered as vaccinated against influenza if they received one dose of the influenza vaccine as part of the current season's influenza vaccination campaign ≥14 days before onset of symptoms.

**Unvaccinated influenza case:** A confirmed case of influenza will be considered as unvaccinated if they did not receive an influenza vaccine as part of the current season's influenza vaccination campaign or if they were vaccinated after onset of symptoms.

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

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This report was produced by the SARI Surveillance Team at HPSC, using R studio software.