Weekly Report on Severe Acute Respiratory Infection (SARI), Week 32 2024 (week ending 11/08/2024)

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 32 2024.
Please note that this report pertains to one hospital site only, data are not nationally representative. Therefore, caution is advised when interpreting rates and trends outlined in this report, as these may fluctuate due to the low case numbers.

Key points

Week 32 2024 (week ending 11/08/2024):

- **Number of cases:** 15 SARI cases admitted to the SARI hospital site, compared to 14 cases in week 31 2024 (7.1% increase).
- **Incidence rate per hospital catchment population:** 4.7 per 100,000 population aged 15 years and older, compared to 4.4 per 100,000 in week 31 2024.
- **Incidence rate per emergency hospitalisations:** 56.2 per 1,000, compared to 49.3 per 1,000 in week 31 2024 (14.0% increase).
- **Age profile:** 13 (86.7%) of SARI cases aged ≥65 years; Median age: 75 years; IQR: 70-82 years.
- **Underlying medical conditions:** 15 (100.0%) SARI cases reported having underlying medical conditions.
- **PCR testing:** Of those tested, 5 (35.7%) were positive for SARS-CoV-2; no cases positive for influenza or RSV.

Last four weeks (weeks 29 - 32 2024)

- **Number of cases:** 61 SARI cases admitted to the SARI hospital site.
- **Age profile:** 46 (75.4%) of SARI cases aged ≥65 years. Median age: 75 years; IQR: 67-85 years.
- **Underlying medical conditions:** 60 (98.4%) SARI cases reported having underlying medical conditions.
- **PCR testing:** Of those tested, 17 (29.3%) were positive for SARS-CoV-2; no cases positive for influenza or RSV.
- **SARS-CoV-2 whole genome sequencing (WGS):** *There can be a lag-time before WGS results are available.* Among those sequenced (n=8), 6 (75.0%) were identified as KP.3 (VOI) and 2 (25.0%) were identified as JN.1 (and sub-lineages, excluding KP.3)

Season 2023/2024 to date (weeks 40 2023 - 32 2024)

Collection of discharge data is a manual process, there is a significant lag time between discharge and data collection. Vaccination data is available approximately one week after cases are notified.

- **Number of cases:** 661 SARI cases admitted to the SARI hospital site.
- **PCR testing:** Of those tested, 117 (18.2%) tested positive for SARS-CoV-2; 57 (8.9%) tested positive for influenza (6 A(not subtyped); 32 AH3; 19 A(H1)pdm09); and 19 (3.0%) tested positive for RSV.
- **Vaccination status:** Of those who tested positive for SARS-CoV-2 with known vaccination status (n=84), 58 (69.0%) had not received a COVID-19 vaccine dose within 180 days prior to their episode of illness.
- Of those who tested positive for influenza with known vaccination status (n=53), 23 (43.4%) had not received this season's influenza vaccine prior to their episode of illness.
- **ICU admissions:** Among those for whom admission to ICU and/or respiratory status is known (n=521), 18 (3.5%) reported admission to ICU and/or required invasive respiratory ventilation.
- **Outcome:** Of those discharged, with known outcome (n=494), 46 (9.3%) SARI cases died in hospital.

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Background

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

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

Methods

SARI surveillance was implemented in one tertiary care adult hospital: St. Vincent's University Hospital (SVUH), Dublin. Surveillance commenced on the 5th of July 2021. 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.

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:

- ECDC SARI definition: A hospitalised[1] person with acute respiratory infection, with at least one of the following symptoms: cough, fever, shortness of breath OR sudden onset of anosmia, ageusia or dysgeusia with onset of symptoms within 14 days prior to hospital admission.

[1] Hospitalised for at least 24 hours

Denominator data

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

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

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 that have a cycle threshold (Ct) value <25 are referred for whole genome sequencing (WGS). All WGS testing was performed in the NVRL up to week 44 2022. The molecular laboratory in SVUH has been identified as a spoke WGS testing site as part of the national SARS-CoV-2 WGS surveillance programme. From week 45 2022, SARI WGS testing has been performed on-site at SVUH.

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

Data collection and reporting

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.

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 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.

The influenza season

The influenza surveillance season runs from week 40 (early October) to week 20 (end of May). During this time, seasonal 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.

Reference dates

05/07/2021 (Week 27 2021) – commencement of SARI surveillance project
27/09/2021 (Week 39 2021) – rollout of the first COVID-19 booster vaccination campaign

22/04/2022 (Week 16 2022) – rollout of the second COVID-19 booster vaccination campaign
03/10/2022 (Week 40 2022) – rollout of the Autumn 2022 COVID-19 booster vaccination campaign
28/04/2023 (Week 17 2023) – rollout of the Spring 2023 COVID-19 booster vaccination campaign
02/10/2023 (Week 40 2023) – rollout of the Autumn 2023 COVID-19 booster vaccination campaign
22/04/2024 (Week 17 2024) – rollout of the Spring 2024 COVID-19 booster vaccination campaign
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

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

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

Results

Data were extracted from the HPSC SARI surveillance database on **14/08/2024**. 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.

SARI cases and incidence rates

In total, 661 SARI cases were admitted to St. Vincent's University Hospital (SVUH) during the current season (weeks 40 2023 - 32 2024), 690 SARI cases were admitted during the same period in the 2022/2023 season (weeks 40 2022 - 32 2023).

In week 32 2024:

- 15 SARI cases were reported, a 7.1% increase compared to 14 SARI cases reported in week 31 2024 (Figure 1)
- The SARI incidence rate was 4.7 per 100,000 hospital catchment population aged 15 years and older, compared to the rate of 4.4 per 100,000 in week 31 2024.
- The incidence rate per emergency hospitalisations was 56.2 per 1,000 emergency admissions, a 14.0% increase compared to the rate of 49.3 per 1,000 emergency admissions in week 31 2024.

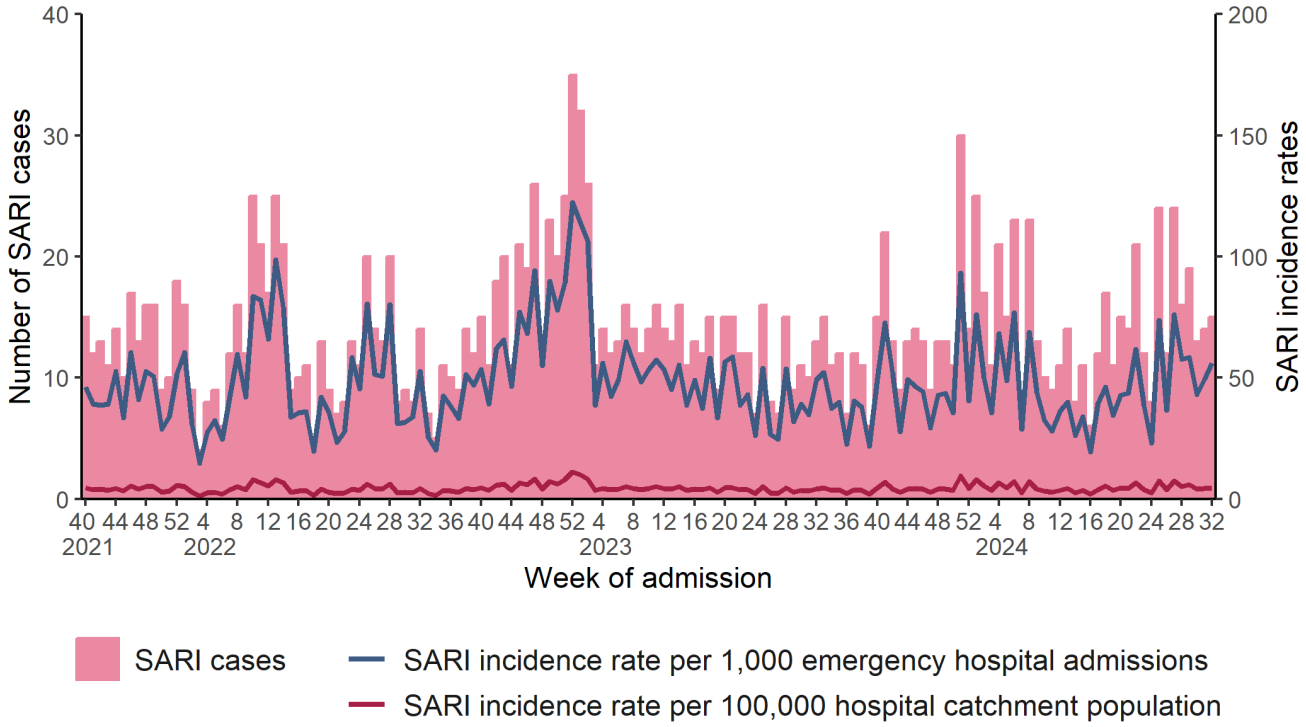

Figure 1: Number and incidence of SARI hospitalised cases (emergency admissions) by week of hospital admission, week 40 2021 to week 32 2024 (n=2070)

Demographics

In week 32 2024, of the 15 SARI cases reported:

- Females accounted for a higher proportion of SARI cases, n= 10 (66.7%) (Table 1)
- Median age of SARI cases admitted was 75 years (interquartile range: 70-82 years)
- Age specific incidence rate amongst those aged 65 years and older was 20.7 per 100,000 compared to 17.5 per 100,000 in week 31 2024.

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

Table 1: Number and proportion of SARI cases by sex and age, for the current week, last four weeks (weeks 29 - 32 2024), current 2023/2024 season (weeks 40 2023 - 32 2024) and the previous 2022/2023 season (weeks 40 2022 - 32 2023)

Season	Current week	Last four weeks	Current season	Previous season
	W32 2024	W29 2024 - W32 2024	W40 2023 - W32 2024	W40 2022 - W32 2023
All SARI cases	**N = 15[1]**	**N = 61[1]**	**N = 661[1]**	**N = 690[1]**
Gender				
Female	10 (66.7%)	35 (57.4%)	350 (53.0%)	370 (53.6%)
Male	5 (33.3%)	26 (42.6%)	311 (47.0%)	320 (46.4%)
Age (years)				
Mean	76	71	72	71
Median	75	75	76	75
IQR	70 - 82	67 - 85	65 - 84	64 - 82
Range	61 - 92	23 - 96	16 - 100	16 - 99
Age groups (years)				
15-24	0 (0.0%)	1 (1.6%)	19 (2.9%)	11 (1.6%)
25-34	0 (0.0%)	2 (3.3%)	20 (3.0%)	14 (2.0%)
35-44	0 (0.0%)	6 (9.8%)	38 (5.7%)	31 (4.5%)
45-54	0 (0.0%)	2 (3.3%)	32 (4.8%)	38 (5.5%)
55-64	2 (13.3%)	4 (6.6%)	49 (7.4%)	91 (13.2%)
65-74	5 (33.3%)	14 (23.0%)	139 (21.0%)	158 (22.9%)
75-84	5 (33.3%)	16 (26.2%)	206 (31.2%)	215 (31.2%)
85+	3 (20.0%)	16 (26.2%)	158 (23.9%)	132 (19.1%)

[1]n (%)

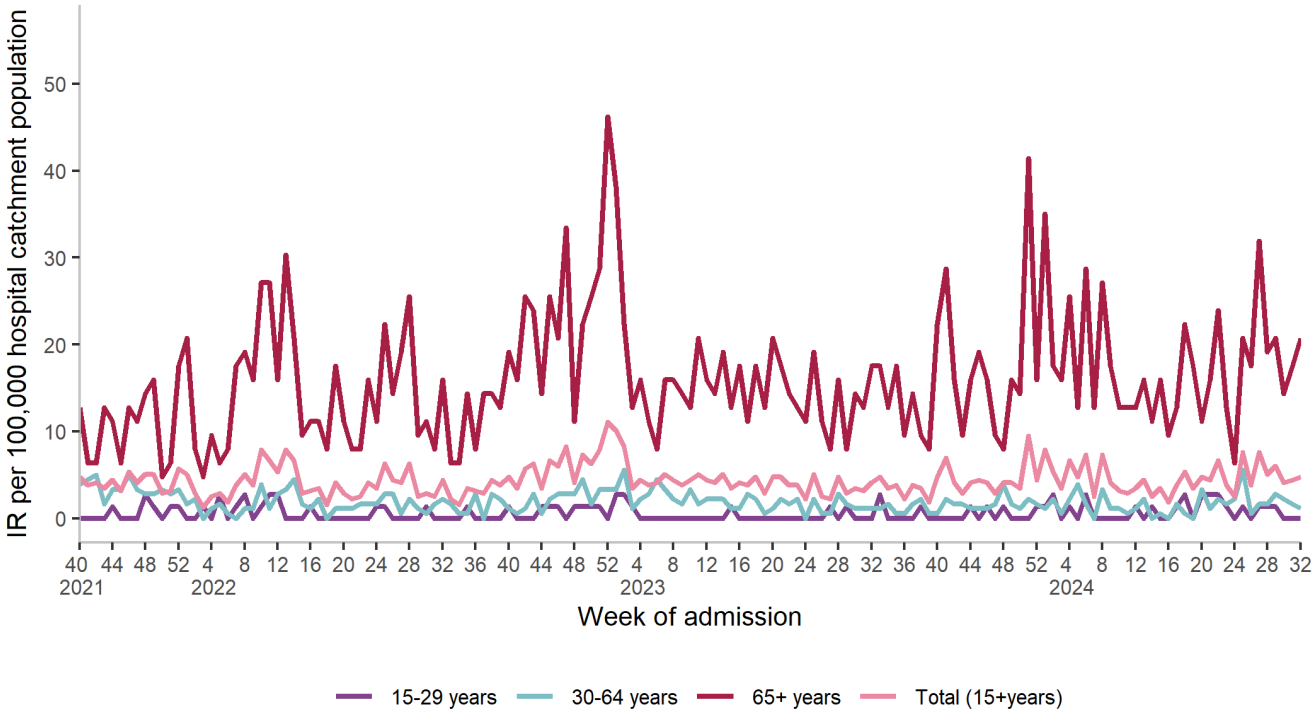

Figure 2: SARI incidence rate per 100,000 hospital catchment population by age group and week of hospital admission, from week 40 2021 to week 32 2024 (n=2070)

Underlying medical conditions and risk factors

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

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

SARI cases could be reported with one or more underlying medical conditions, only cases where underlying medical conditions are reported are included in Table 2.

Table 2: Number and proportion of SARI cases with underlying medical conditions (among those who reported having underlying medical conditions), reported on hospital admission, for the current week, last four weeks (weeks 29 - 32 2024), current 2023/2024 season (weeks 40 2023 - 32 2024) and the previous 2022/2023 season (weeks 40 2022 - 32 2023)

Period	Current week	Last four weeks	Current season	Previous season
Weeks	**W32 2024**	**W29 2024 - W32 2024**	**W40 2023 - W32 2024**	**W40 2022 - W32 2023**
Total cases	**N = 15[1]**	**N = 60[1]**	**N = 616[1]**	**N = 654[1]**
Heart disease	5 (33.3%)	25 (41.7%)	249 (40.4%)	264 (40.4%)
Hypertension	7 (46.7%)	29 (48.3%)	220 (35.7%)	261 (39.9%)
Lung disease	5 (33.3%)	16 (26.7%)	210 (34.1%)	255 (39.0%)
Cancer	2 (13.3%)	10 (16.7%)	111 (18.0%)	101 (15.4%)
Neurological disease	4 (26.7%)	12 (20.0%)	100 (16.2%)	164 (25.1%)
Asthma	2 (13.3%)	9 (15.0%)	92 (14.9%)	116 (17.7%)
Diabetes	4 (26.7%)	10 (16.7%)	103 (16.7%)	110 (16.8%)
Kidney disease	1 (6.7%)	7 (11.7%)	63 (10.2%)	45 (6.9%)
Intellectual disability	0 (0.0%)	1 (1.7%)	10 (1.6%)	23 (3.5%)
Immunocompromised	2 (13.3%)	5 (8.3%)	20 (3.2%)	7 (1.1%)
Obesity	1 (6.7%)	3 (5.0%)	8 (1.3%)	14 (2.1%)
Cystic fibrosis	0 (0.0%)	0 (0.0%)	5 (0.8%)	1 (0.2%)
Dementia[2]	3 (20.0%)	9 (15.0%)	70 (11.4%)	-
Rheumatological disease[2]	3 (20.0%)	11 (18.3%)	57 (9.3%)	-
Liver disease[2]	1 (6.7%)	1 (1.7%)	7 (1.1%)	-
Asplenia[2]	0 (0.0%)	0 (0.0%)	1 (0.2%)	-
Down syndrome[2]	0 (0.0%)	0 (0.0%)	1 (0.2%)	-
Long COVID[2]	0 (0.0%)	0 (0.0%)	0 (0.0%)	-
Tuberculosis[2]	0 (0.0%)	0 (0.0%)	0 (0.0%)	-
Other chronic conditions[3]	8 (53.3%)	33 (55.0%)	246 (39.9%)	322 (49.2%)

[1]n (%)

[2] Data collection for these underlying medical conditions began in week 49 2023.

[3] Data reported on other chronic conditions may include some of the chronic conditions listed above, these data are under review and may change over time.

Among female SARI cases aged 15-49 years admitted during the 2023/2024 season (weeks 40 2023 - 32 2024), 3 (5.5%) cases were reported as being pregnant at the time of admission. During the same period in the 2022/2023 season (weeks 40 2022 - 32 2023), 3 (7.1%) SARI cases were reported as being pregnant at the time of admission.

Among those admitted during the 2023/2024 season for whom healthcare worker status is known, 10 (1.5%) cases were reported as being healthcare workers at the time of admission. During the same period in the 2022/2023 season, 7 (1.0%) 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 the current week, last four weeks (weeks 29 - 32 2024), current 2023/2024 season (weeks 40 2023 - 32 2024) and the previous 2022/2023 season (weeks 40 2022 - 32 2023)

Period	Current week	Last four weeks	Current season	Previous season
Weeks	W32 2024	W29 2024 - W32 2024	W40 2023 - W32 2024	W40 2022 - W32 2023
Total cases	**N = 15[1]**	**N = 61[1]**	**N = 661[1]**	**N = 690[1]**
Cough	11 (73.3%)	44 (72.1%)	484 (73.2%)	538 (78.0%)
Shortness of breath	13 (86.7%)	48 (78.7%)	486 (73.5%)	512 (74.2%)
Fever	9 (60.0%)	35 (57.4%)	318 (48.1%)	345 (50.0%)
General deterioration	3 (20.0%)	16 (26.2%)	209 (31.6%)	315 (45.7%)
Malaise	0 (0.0%)	2 (3.3%)	76 (11.5%)	58 (8.4%)
Headache	0 (0.0%)	0 (0.0%)	30 (4.5%)	32 (4.6%)
Muscular pain	1 (6.7%)	2 (3.3%)	29 (4.4%)	42 (6.1%)
Sore throat	0 (0.0%)	5 (8.2%)	40 (6.1%)	39 (5.7%)
Ageusia	0 (0.0%)	0 (0.0%)	1 (0.2%)	1 (0.1%)
Anosmia	0 (0.0%)	0 (0.0%)	1 (0.2%)	2 (0.3%)
Dysgeusia	0 (0.0%)	0 (0.0%)	1 (0.2%)	0 (0.0%)
Sepsis[3]	0 (0.0%)	0 (0.0%)	30 (5.4%)	-
Acute confusion[3]	1 (6.7%)	4 (6.6%)	47 (8.4%)	-
Vomiting[3]	0 (0.0%)	5 (8.2%)	46 (8.2%)	-
Nausea[3]	0 (0.0%)	1 (1.6%)	21 (3.8%)	-
Diarrhoea[3]	1 (6.7%)	4 (6.6%)	28 (5.0%)	-
Apnoea[3]	0 (0.0%)	0 (0.0%)	1 (0.2%)	-

[1]n (%)

[2] SARI cases could be reported with one or more clinical symptoms

[3] Data collection for these symptoms began in week 49 2023.

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. 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 4).

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

Table 4: Number and proportion of SARI cases by complication, for the current 2023/2024 season (weeks 40 2023 - 32 2024), the previous 2022/2023 season (weeks 40 2022 - 32 2023), and cases admitted between week 40 2022 and week 32 2024

Season(s)	Current season	Previous season	Since W40 2022
Week/Year	W40 2023 - W32 2024	W40 2022 - W32 2023	W40 2022 - W32 2024
Total discharged cases	**N = 494[1]**	**N = 690[1]**	**N = 1,257[1]**
Pneumonia	105 (21.3%)	85 (12.3%)	203 (16.1%)
ARDS	16 (3.2%)	29 (4.2%)	54 (4.3%)
Sepsis	27 (5.5%)	15 (2.2%)	46 (3.7%)
Multiorgan failure	7 (1.4%)	7 (1.0%)	15 (1.2%)
Myocarditis	1 (0.2%)	0 (0.0%)	1 (0.1%)
Encephalitis	0 (0.0%)	0 (0.0%)	0 (0.0%)
Bronchiolitis	0 (0.0%)	0 (0.0%)	1 (0.1%)
Acute kidney injury[2]	37 (7.5%)	2 (0.3%)	40 (3.2%)
Heart failure[2]	22 (4.5%)	2 (0.3%)	25 (2.0%)
Secondary bacterial infection[2]	12 (2.4%)	0 (0.0%)	12 (1.0%)
Other complications[3]	93 (18.8%)	175 (25.4%)	285 (22.7%)
No complications	244 (49.4%)	416 (60.3%)	693 (55.1%)

[1]n (%)

[2] Data collection for these complications began in week 49 2023.

[3] Data reported on “other complications” may include some of the complications listed above, these data are under review and may change over time.

Table 5: Number and proportion of SARI cases by respiratory support and ICU admission, for the current 2023/2024 season (weeks 40 2023 - 32 2024), the previous 2022/2023 season (weeks 40 2022 - 32 2023), and cases admitted between week 40 2022 and week 32 2024

Season(s)	Current season	Previous season	Since W40 2022
Week/Year	W40 2023 - W32 2024	W40 2022 - W32 2023	W40 2022 - W32 2024
Respiratory support status known	**N = 492**	**N = 690**	**N = 1255**
No respiratory support	156 (31.7%)	247 (35.8%)	428 (34.1%)
Low-flow oxygen therapy[1]	78 (15.9%)	0 (0.0%)	78 (6.2%)
Non-invasive ventilation[2]	250 (50.8%)	426 (61.7%)	723 (57.6%)
Invasive ventilation	8 (1.6%)	17 (2.5%)	26 (2.1%)
ICU status known	**N = 520**	**N = 690**	**N = 1284**
ICU/invasive ventilated[3]	18 (3.5%)	37 (5.4%)	58 (4.5%)
Admitted to ICU	18 (3.5%)	37 (5.4%)	58 (4.5%)
Admitted and discharged	13 (2.5%)	37 (5.4%)	53 (4.1%)
ICU length of stay (days)			
Mean	9	9	9
Median	6	5	5
Interquartile range	2 - 10	2 - 11	2 - 10
Range	1 - 39	0 - 42	0 - 42

[1] Category introduced on 22/04/2024 (Week 17 2024), prior to this it was included under non-invasive ventilation
[2] Non-invasive ventilation includes high flow oxygen therapy, non-invasive positive pressure ventilation and for cases discharged before week 17 2024, low flow oxygen therapy
[3] Refers to SARI cases which were either admitted to ICU and/or received invasive ventilation

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.

In week 32 2024:

- SARS-CoV-2 PCR testing was carried out on 14 (93.3%) SARI cases, 5 (35.7%) tested positive, compared to 2 (15.4%) SARS-CoV-2 positive cases in week 31 2024.
- Influenza PCR testing was carried out on 14 (93.3%) SARI cases, none tested positive for influenza. The last influenza positive case was admitted in week 22 2024.

- Respiratory syncytial virus (RSV) PCR testing was carried out on 14 (93.3%) SARI cases, none tested positive for RSV. The last RSV positive case was admitted in week 6 2024.

The weekly positivity rate of SARI cases for the three acute respiratory pathogens are presented in Figure 3. Table 6 displays the number and proportion of SARI cases tested by PCR and positive for SARS-CoV-2, influenza and RSV, and the type/subtype for all influenza PCR positive test results.

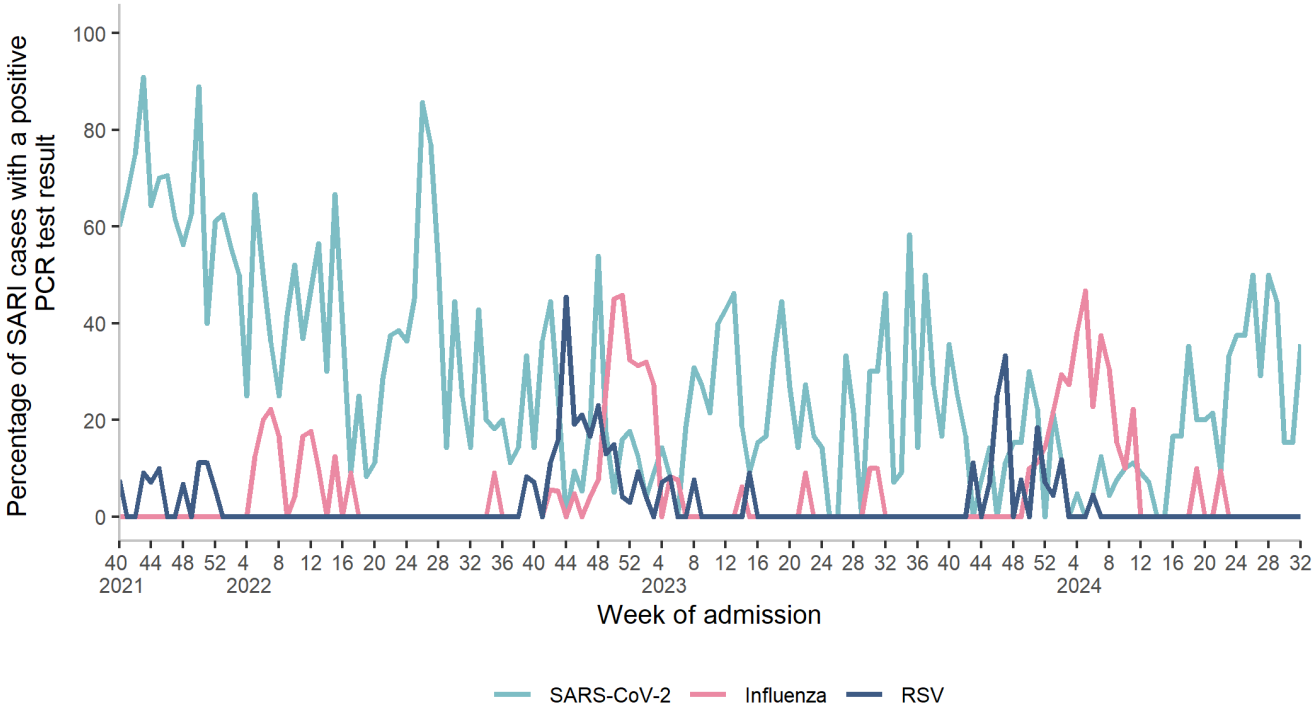

Figure 3: Percentage of SARI cases with a positive laboratory test result for SARS-CoV-2, influenza and RSV by week, from week 40 2021 to week 32 2024.

Table 6: Number of positive SARS-CoV-2, influenza, and RSV SARI cases, influenza type/subtype for the current week, previous two weeks (week 31 2024, week 30 2024), current 2023/2024 season (weeks 40 2023 - 32 2024), and the previous 2022/2023 season (weeks 40 2022 - 32 2023)

Period	Individual weeks			Current season	Previous season
Weeks	**W32 2024**	**W31 2024**	**W30 2024**	**W40 2023 - W32 2024**	**W40 2022 - W32 2023**
SARS-CoV-2					
Total tested	14	13	13	643	673
Positive	5 (35.7%)	2 (15.4%)	2 (15.4%)	117 (18.2%)	135 (20.1%)
RSV					
Total tested	14	13	13	643	669
Positive	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (3.0%)	42 (6.3%)
Influenza					
Total tested	14	13	13	643	669
Positive	0 (0.0%)	0 (0.0%)	0 (0.0%)	57 (8.9%)	70 (10.5%)
Influenza AH3	0 (0.0%)	0 (0.0%)	0 (0.0%)	32 (5.0%)	33 (4.9%)
Influenza A (H1)pdm09	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (3.0%)	31 (4.6%)
Influenza A (not subtyped)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.9%)	4 (0.6%)
Influenza B (Victoria)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.3%)
Influenza B (unspecified)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)

In the current season, two cases with co-infections were reported; one case tested positive for SARS CoV-2 and influenza AH3, and one case tested positive for SARS CoV-2 and RSV.

Genomic analysis

SARS-CoV-2

There can be a lag-time before WGS results are available. The WGS data presented is up to week 29 2024

Sequencing results have been received for 434 SARI cases admitted between week 40 2021 and week 29 2024 (Figure 4).

BA.2.86 sub-lineage JN.1 is the dominant variant circulating among SARI cases admitted to the hospital site in the current season. Among SARS-CoV-2 positive SARI cases admitted during the

current season, for whom WGS data are available, 49 (49.5%) were JN.1 (and sub-lineages), 8 (8.1%) were XBB.1.5-like lineages, and 8 (8.1%) were XBB.1.5-like+F456L lineages.

Among those identified as variant BA.2.86 sub-lineage JN.1 (n=49), 34 were identified as KP.3 (69.3%). However, focusing on the last four weeks, KP.3 accounted for 75% (n=6) of the samples sequenced (n=8).

Further information on SARI variants is available in the appendix (Table A1 and A2). For further information on circulating variants in Ireland, see the COVID-19 virus variants reports on the HPSC website[3].

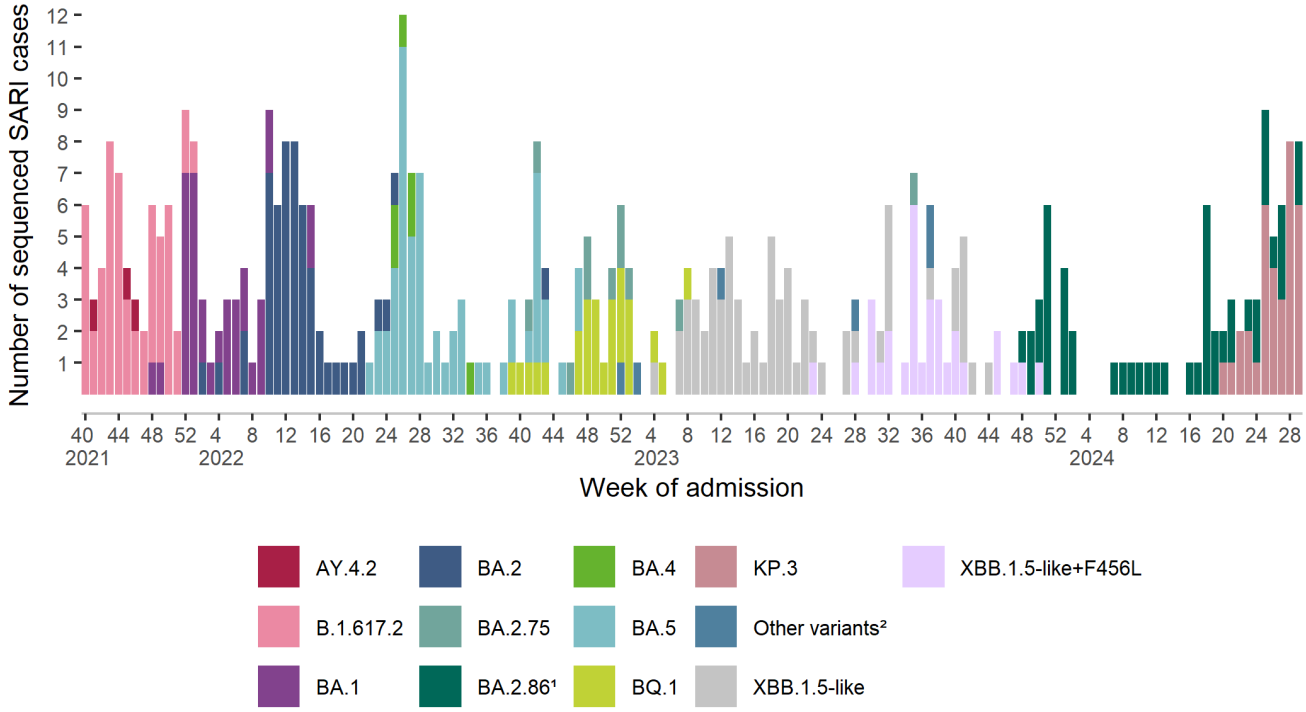

Figure 4: Number of SARI cases sequenced and reported, by week of hospitalisation, week 40 2021 to week 29 2024 (n=434)

[1] Includes sub-lineage JN.1, excludes lineages KP.3
[2] All other variants
Note: As described by the ECDC, 'XBB.1.5-like' and 'XBB.1.5-like + F456L' refer to groupings of lineages that share sets of spike protein mutations

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

Outcome

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

Of the 661 SARI cases admitted to the SARI hospital site during the current 2023/2024 season (weeks 40 2023 - 32 2024), 494 (74.7%) have been discharged. Of those admitted during the same period in the 2022/2023 season (weeks 40 2022 - 32 2023) 690 (100.0%) cases have been discharged (Table 7).

Among SARI cases admitted during the current 2023/2024 season (weeks 40 2023 - 32 2024) and discharged with known outcome, 46 (9.3%) deaths have been reported, 24 (52.2%) were male and 22 (47.8%) were female. The median age was 82.5 years (IQR: 74-89 years).

Among SARI cases admitted during the previous 2022/2023 season (weeks 40 2022 - 32 2023) and discharged with known outcome, 56 (8.1%) died in hospital, 27 (48.2%) were male and 29 (51.8%) were female. The median age was 78 years (IQR: 74-87 years).

Table 7: Number and proportion of discharged SARI cases by outcome and hospital length of stay, for the current 2023/2024 season (weeks 40 2023 - 32 2024), the previous 2022/2023 season (weeks 40 2022 - 32 2023), and cases admitted between week 40 2022 and week 32 2024

Season(s)	Current season	Previous season	Since W40 2022
Week/Year	W40 2023 - W32 2024	W40 2022 - W32 2023	W40 2022 - W32 2024
Known outcome	**N = 494**	**N = 690**	**N = 1257**
Discharged alive	445 (90.1%)	626 (90.7%)	1134 (90.2%)
Transferred[1]	3 (0.6%)	8 (1.2%)	11 (0.9%)
Died in hospital	46 (9.3%)	56 (8.1%)	112 (8.9%)
Hospital length of stay (days)			
Mean	10	13	12
Median	5	6	5
Interquartile range	3 - 12	3 - 12	3 - 12
Range	1 - 117	1 - 271	1 - 271

[1] Transferred to another hospital

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

Amongst SARI cases, admitted in the current season who were PCR positive for SARS-CoV-2 and with known COVID-19 vaccination status, 58 (69.0%) had not received a vaccine dose within the six months prior to their episode of illness (Table 8).

Characteristics of all SARI cases by time since last COVID-19 vaccine dose and symptom onset during the current season are presented in the Appendix (Table A3).

Please refer to the technical notes for the full list of definitions on COVID-19 vaccination status.

Table 8: Characteristics of SARS-CoV-2 positive SARI cases by time since last COVID-19 vaccine dose and hospitalisation during the current season (weeks 40 2023 - 32 2024)
Note: SARS-CoV-2 positive SARI cases with unknown vaccination status, n=32 (27.4%) are excluded

Characteristic	weeks 40 2023 - 32 2024		
	<180 days, N = 26[1]	>=180 days, N = 58[1]	Not vaccinated, N = 0[1]
Total	**26 (31.0%)**	**58 (69.0%)**	**0 (0.0%)**
Age(years)			
Mean	77	74	-
Median	78	79	-
IQR	73 - 82	69 - 86	-
Range	60 - 91	23 - 94	-
Gender			
Female	10 (26.3%)	28 (73.7%)	-
Male	16 (34.8%)	30 (65.2%)	-
Age groups (years)			
15-49	0 (0.0%)	4 (100.0%)	-
50-69	5 (29.4%)	12 (70.6%)	-
70+	21 (33.3%)	42 (66.7%)	-
Patient residence			
Residential care facility	7 (63.6%)	4 (36.4%)	-
Private residence/home	19 (27.1%)	51 (72.9%)	-
Other residence	0 (0.0%)	0 (0.0%)	-
Patient residence not known	0 (0.0%)	3 (100.0%)	-
Underlying medical conditions			
Yes	26 (32.1%)	55 (67.9%)	-
No	0 (0.0%)	3 (100.0%)	-
Unknown	0 (0.0%)	0 (0.0%)	-

[1]n (%)

Influenza vaccination status

Amongst the SARI cases, admitted in the current season (weeks 40 2023 - 32 2024), who were PCR positive for influenza and with known vaccination status (n=53), 23 (43.4%) had not received a dose of the current season's vaccine prior to their episode of illness (Table 9).

Table 9: Characteristics of influenza positive SARI cases by influenza vaccination status during the current season (weeks 40 2023 - 32 2024)
Note: Influenza positive SARI cases with unknown vaccination status, n=4 (7.0%) are excluded

	weeks 40 2023 - 32 2024	
Characteristic	**Vaccinated, N = 30[1]**	**Not vaccinated, N = 23[1]**
Total	**30 (56.6%)**	**23 (43.4%)**
Age(years)		
Mean	76	70
Median	81	72
IQR	71 - 84	60 - 80
Range	39 - 90	41 - 100
Gender		
Female	13 (48.1%)	14 (51.9%)
Male	17 (65.4%)	9 (34.6%)
Age groups (years)		
15-49	2 (50.0%)	2 (50.0%)
50-69	3 (27.3%)	8 (72.7%)
70+	25 (65.8%)	13 (34.2%)
Patient residence		
Residential care facility	5 (41.7%)	7 (58.3%)
Private residence/home	25 (61.0%)	16 (39.0%)
Other residence	0 (0.0%)	0 (0.0%)
Patient residence not known	0 (0.0%)	0 (0.0%)
Underlying medical conditions		
Yes	28 (58.3%)	20 (41.7%)
No	2 (40.0%)	3 (60.0%)
Unknown	0 (0.0%)	0 (0.0%)

[1]n (%)

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This report was produced by the SARI surveillance team at HPSC, using R studio software.

Technical notes

1. SARI case
   - A SARI case refers to an individual patient episode of care.
2. Vaccination status[4].
   - For the purposes of SARI surveillance, vaccination status of cases is as follows:

Vaccinated: A case who received their last primary COVID-19 vaccine dose ≥ 14 days prior to the date of symptom onset or their last booster COVID-19 vaccine dose ≥7 days prior to the date of symptom onset.

Time since vaccination: For vaccinated cases, time since vaccination is calculated by subtracting the date of vaccination from the date of symptom onset and categorised as <180 days or ≥180 days since vaccination.

Not vaccinated, if the following applies:

- Vaccination record on the National COVID-19 Immunisation system indicates the person was vaccinated after the date of symptom onset.
- 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

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

Appendix

Table A1: Number and proportion of SARI cases sequenced and reported, by pango lineage and variant, admitted during the 2023/2024 season, weeks 40 2023 - 29 2024 (n=99)

Virus Variant	Pango Lineage	Number of cases	Sequenced cases %
KP.3 lineages	KP.3	2	2.0
	KP.3.1	4	4.0
	KP.3.1.1	13	13.1
	KP.3.1.2	1	1.0
	KP.3.1.3	1	1.0
	KP.3.1.4	3	3.0
	KP.3.2	4	4.0
	KP.3.2.2	2	2.0
	KP.3.2.3	1	1.0
	KP.3.3	3	3.0
BA.2.86 lineages (excluding KP.3)	JN.1	21	21.2
	JN.1.11.1	3	3.0
	JN.1.13.1	2	2.0
	JN.1.16.1	4	4.0
	JN.1.4	2	2.0
	JN.1.4.4	1	1.0
	JN.1.4.7	1	1.0
	JN.1.8.1	1	1.0
	KP.1.1.3	3	3.0
	KP.2	1	1.0
	KP.2.2	1	1.0
	KP.2.3	2	2.0
	KW.1.1	1	1.0
	LA.2	5	5.1
	LB.1.3	1	1.0
XBB.1.5 like lineages	FL.15	1	1.0
	FL.9	1	1.0
	GE.1	2	2.0
	XBB.1.5	1	1.0
	XBB.2.3	1	1.0
	XBB.2.3.11	1	1.0
	XBB.2.3.13	1	1.0
XBB.1.5like+F456L	EG.5.1	1	1.0
	EG.5.1.1	1	1.0
	HK.3	1	1.0
	HV.1	1	1.0
	JD.1.1	1	1.0
	JG.3	1	1.0
	XBB.1.16.6	2	2.0
Total		**99**	

Table A2: Number of SARI cases sequenced and reported by pango Lineage and week of admission, for the last four weeks (weeks 29 - 32 2024), and the percentage difference in prevalence compared to the previous four-week period (weeks 25 2024 - 28 2024)

Pangolin lineage	Number of cases W29 2024 - W32 2024	% last 4 weeks	Number of cases W25 2024 - W28 2024	% previous 4 weeks	% difference[1]
KP.3.1.1	4	50.0	8	28.6	21.4
JN.1.11.1	1	12.5	0	0.0	12.5
KP.3.1.2	1	12.5	0	0.0	12.5
KP.3.2.3	1	12.5	0	0.0	12.5
LB.1.3	1	12.5	0	0.0	12.5
JN.1.16.1	0	0.0	2	7.1	-7.1
KP.1.1.3	0	0.0	2	7.1	-7.1
KP.2.2	0	0.0	1	3.6	-3.6
KP.2.3	0	0.0	1	3.6	-3.6
KP.3	0	0.0	2	7.1	-7.1
KP.3.1	0	0.0	3	10.7	-10.7
KP.3.1.3	0	0.0	1	3.6	-3.6
KP.3.1.4	0	0.0	3	10.7	-10.7
KP.3.2.2	0	0.0	2	7.1	-7.1
KP.3.3	0	0.0	2	7.1	-7.1
KW.1.1	0	0.0	1	3.6	-3.6
Total	8		28		

[1] Red indicates >=5% increase; green indicates >=5% decrease

Table A3: Characteristics of all SARI cases by COVID-19 vaccination status by time since last COVID-19 vaccine dose and hospitalisation during the current influenza season (weeks 40 2023 - 32 2024)

Note: SARI cases with unknown vaccination status are excluded, n=148 (22.4%)

Characteristic	weeks 40 2023 - 32 2024		
	<180 days, N = 216[1]	>=180 days, N = 293[1]	Not vaccinated, N = 4[1]
Total	**216 (42.1%)**	**293 (57.1%)**	**4 (0.8%)**
Age(years)			
Mean	76	70	55
Median	79	74	57
IQR	72 - 84	61 - 84	38 - 74
Range	18 - 100	16 - 98	28 - 76
Gender			
Female	106 (39.3%)	163 (60.4%)	1 (0.4%)
Male	110 (45.3%)	130 (53.5%)	3 (1.2%)
Age groups (years)			
15-49	14 (22.6%)	46 (74.2%)	2 (3.2%)
50-69	34 (33.7%)	67 (66.3%)	0 (0.0%)
70+	168 (48.0%)	180 (51.4%)	2 (0.6%)
Patient residence			
Residential care facility	59 (70.2%)	25 (29.8%)	0 (0.0%)
Private residence/home	151 (36.7%)	258 (62.6%)	3 (0.7%)
Other residence	1 (50.0%)	0 (0.0%)	1 (50.0%)
Patient residence not known	5 (33.3%)	10 (66.7%)	0 (0.0%)
Underlying medical conditions			
Yes	212 (43.5%)	273 (56.1%)	2 (0.4%)
No	4 (15.4%)	20 (76.9%)	2 (7.7%)

[1]n (%)