COVID-19 Hospital Based Sentinel Surveillance Report

Data status: March 20, 2023

1. Introduction for CH-SUR Monthly Report:

To complement mandatory declaration systems for influenza cases in Switzerland and fill existing gaps in disease monitoring, the *Hospital Based Surveillance System* for influenza was established in 2018. This program was then adapted to register hospitalizations related to laboratory-confirmed SARS-CoV-2 infections just four days after the first confirmed COVID-19 case in Switzerland.

There are currently 18 hospitals throughout Switzerland actively participating in the sentinel **COVID-19 Hospital Based Surveillance System (CH-SUR)**. The primary objective of CH-SUR is to record comprehensive clinical and epidemiological information on the burden of disease, such as the number and duration of hospitalizations, intensive care unit (ICU) stays, and whether the patient died during hospitalizations of or with COVID-19 or influenza. Detailed definitions and additional information of the data may be reviewed in the glossary and supplementary material at the end of this report.

The present report covers the period from the beginning of the Omicron variant dominance (January 01, 2022), until the latest date of data extraction, March 20, 2023. During this timeframe, data were collected from 22,637 episodes of hospitalization for COVID-19 and 4,281 for influenza. At the same interval, 23,344 hospitalization episodes with laboratory-confirmed SARS-CoV-2 infection were simultaneously reported to the FOPH under the mandatory reporting system for all Switzerland. The CH-SUR system thus covered approximately 97.0% of all hospitalizations related to SARS-CoV-2 reported in Switzerland. An overview of recorded data within the last two months; for which enough data is available, is displayed in Figures **1** and **2**.

Summary of the development in the last two months (February 01, 2023 to March 20, 2023):

- In the last two months, a total of 22,637 COVID-19 episodes were recorded in the CH-SUR system, of which 4,977 (22.0%) were linked to nosocomial infections (Figure **4** & section 2.1).
- A total of 1,503 (7.2%) episodes included at least one ICU stay and 918 (4.4%) episodes at least one stay in an intermediate care unit (IMCU). These proportions have remained relatively stable since January 01, 2022 (section 4.1).
- The overall case fatality rate (CFR%) for COVID-19 episodes amounted to 4.4%, which is slightly higher than the CFR% of 3.0% recorded from January 2022 to January 2023 (section 3.1).
- A total of 3,052 influenza episodes were recorded, of which 436 (14%) were linked to nosocomial infections (section 6).

A special chapter of this month's report describes the length of hospital stay for COVID-19 episodes in the CH-SUR system since the begin of the pandemic (section 5).

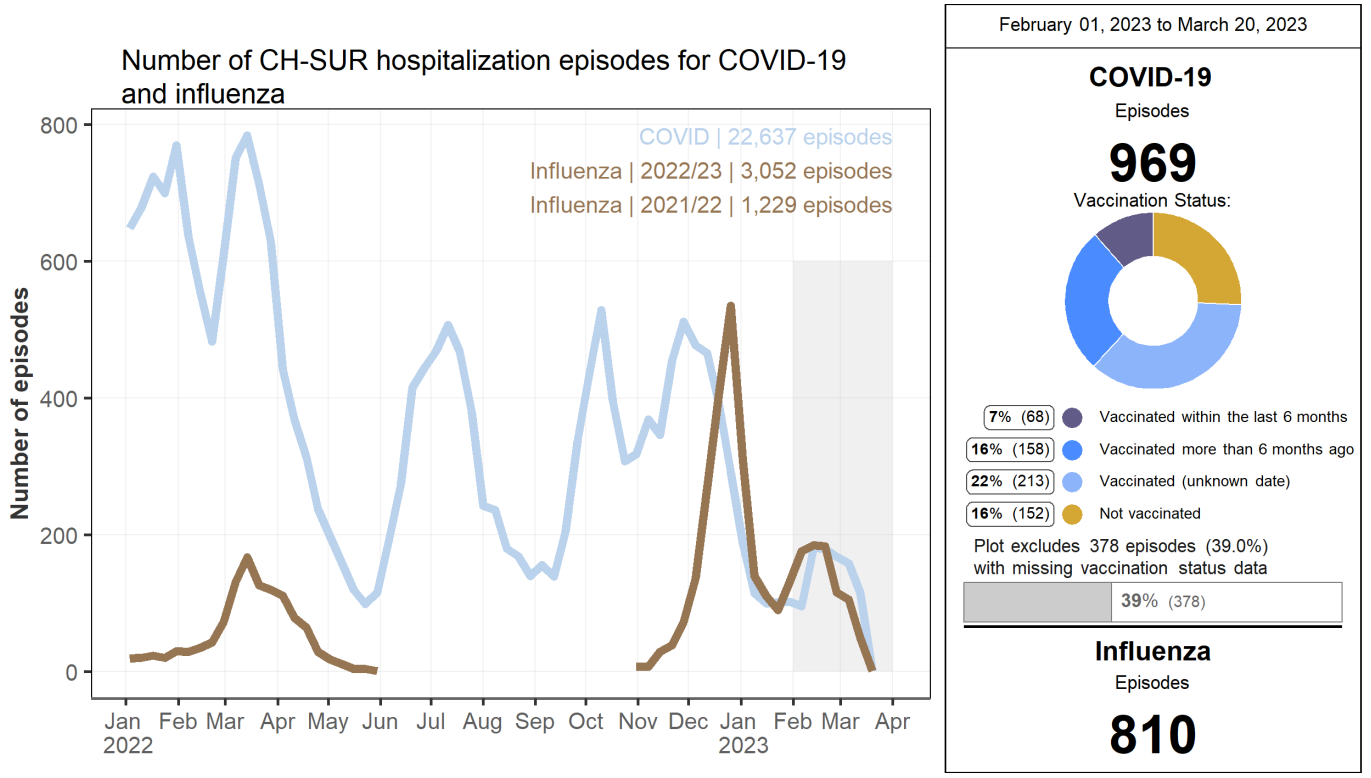

Figure 1: *Overview information of the most recent data on episodes of hospitalization by week. Data from the last two months, marked in gray, are considered provisional due to data entry delays. For the 2021/22 influenza season: only episodes starting past January 2022 are included. Number of participating hospitals for influenza: 19 for season 2021/22, 18 for season 2022/23. This plot excludes episodes from one hospital due to incomplete data for COVID-19.*

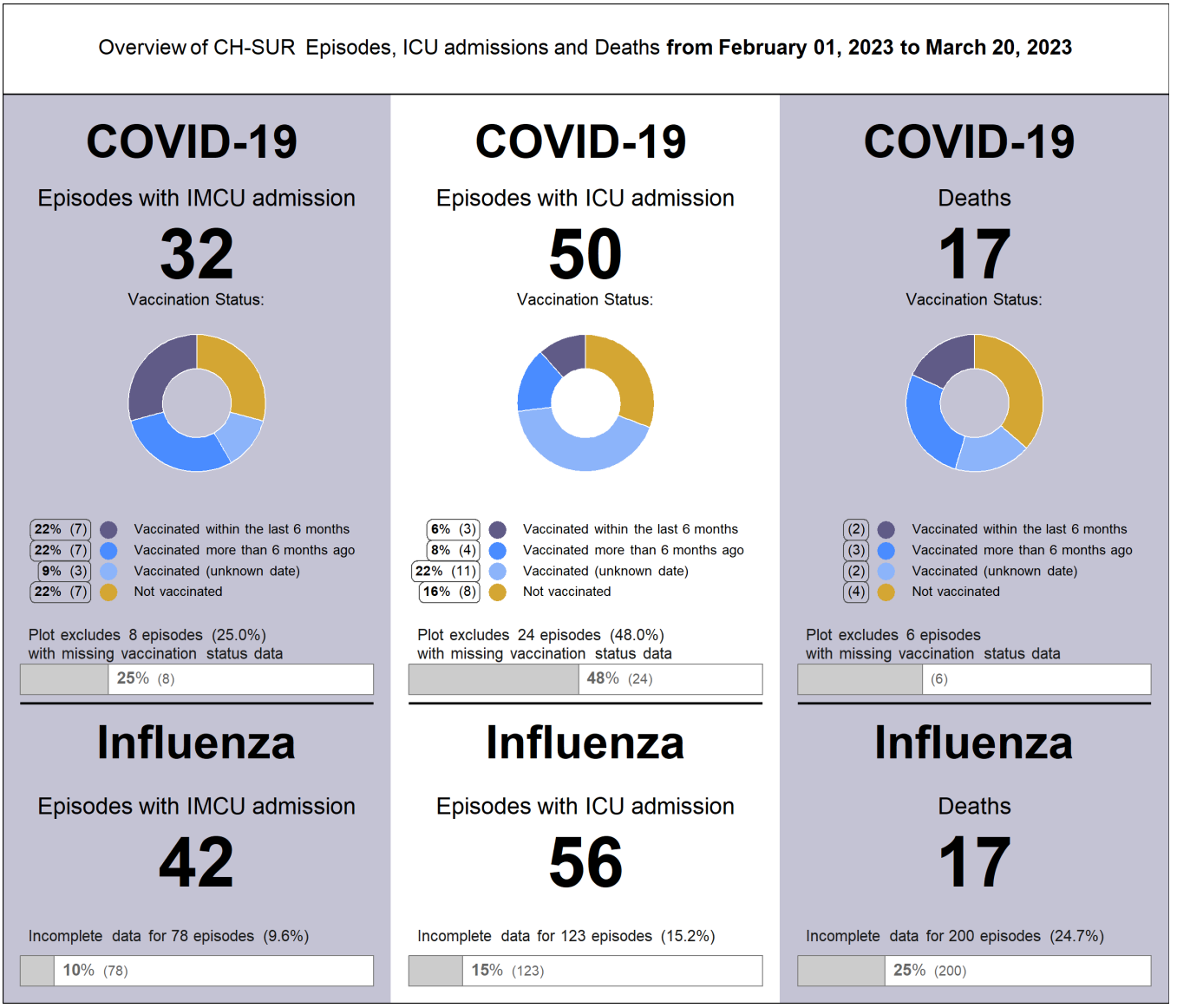

Figure 2: *Overview information of the most recent data on episodes of hospitalization. This plot excludes episodes from one hospital due to incomplete data for COVID-19.*

2. Hospitalizations and patient characteristics

Between January 01, 2022 and March 20, 2023 and among the 18 hospitals actively participating in CH-SUR, 22,637 episodes were registered, accounting for a total of 23,182 hospitalizations. There were more hospitalizations than episodes because some episodes include multiple hospitalizations (for more details see section glossary and supplemental information).

From January 01, 2022 to March 20, 2023, most patients (97.8% [22,131 of 22,637]) were hospitalized only once during an episode, while 2.2% of the registered episodes (506 of 22,637) included two to four hospitalizations. Only one episode included five hospitalizations.

Among all episodes, 51.7% (11,702 of 22,637) of the episodes concerned male patients and 48.2% (10,921 of 22,637) episodes concerned female patients. Sex type was defined as *other* for 14 patients. The age distribution was skewed towards older persons (Figure **3**a and b). The largest age category corresponded to patients aged 80 and above (46.0% [443]).

Figures **3**c and **3**d show the sex and age distribution ratio over time. During most months, more men than women were admitted. During the period of observation, the proportion of episodes concerning patients aged 50 years old and above was the lowest in February 2022 with 68.7% (1,649 of 2,401). In October 2022, 89.5% (1,631 of 1,822) of episodes concerned patients 50 years old and above (Figure **3**d).

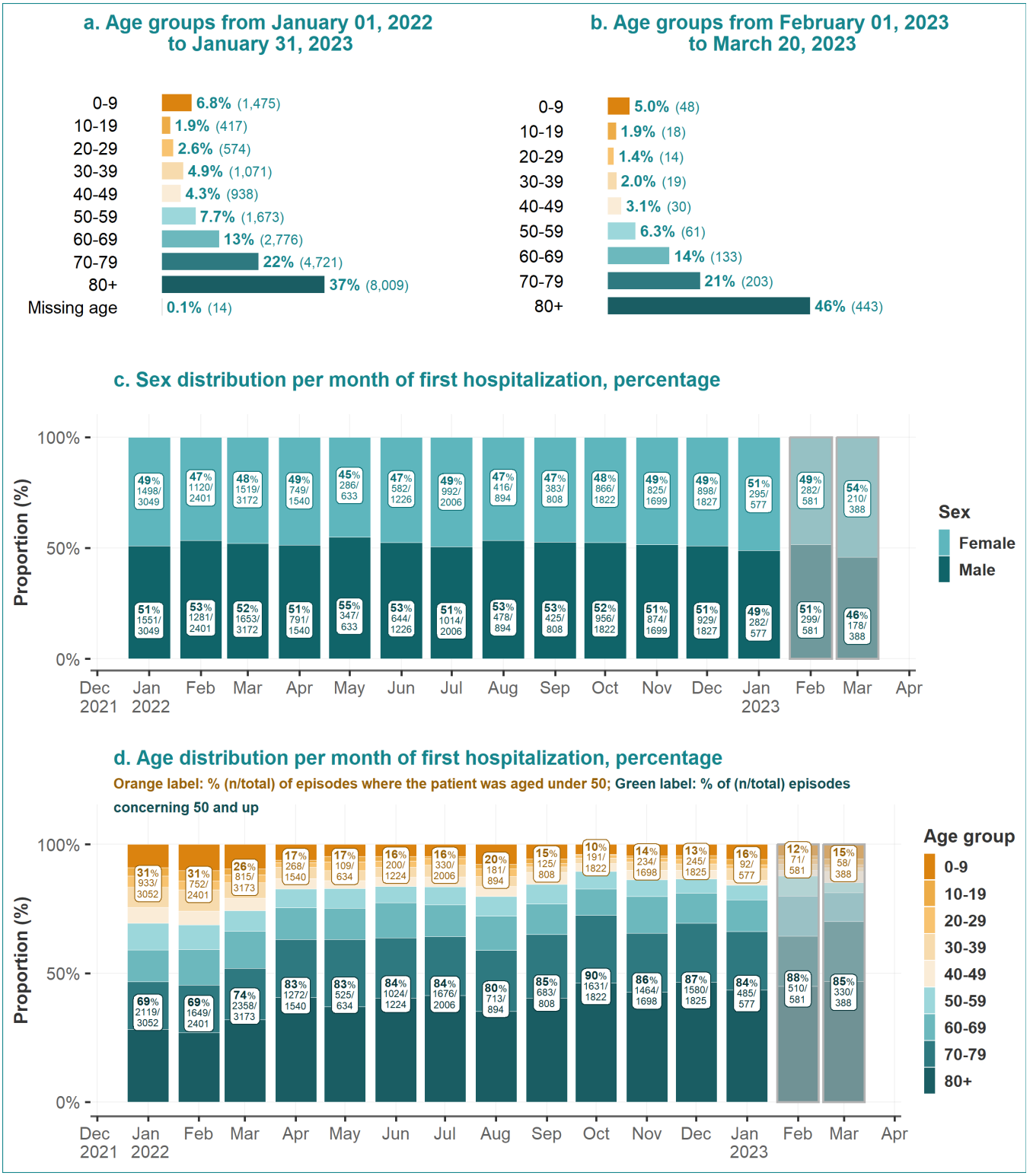

Figure 3: *Demographic characteristics: sex and age distribution of hospitalized patients, overall and per month. For episodes with multiple hospitalizations, the admission date of the first hospitalization was used. Data from the last two months (highlighted gray) is considered provisional due to entry delays. The 'other' sex category was removed from panel c, and the missing age group was removed from panel d.*

2.1. Origin of infection

From January 01, 2022 to March 20, 2023, the overall percentage of nosocomial infections among all documented episodes was 22.0% (4,977 of 22,637) while episodes linked to community acquired infections accounted for 75.2% (17,018 of 22,637) (Figure **4**). For 2.8% of the episodes, it is unknown if the infection was nosocomial or community acquired.

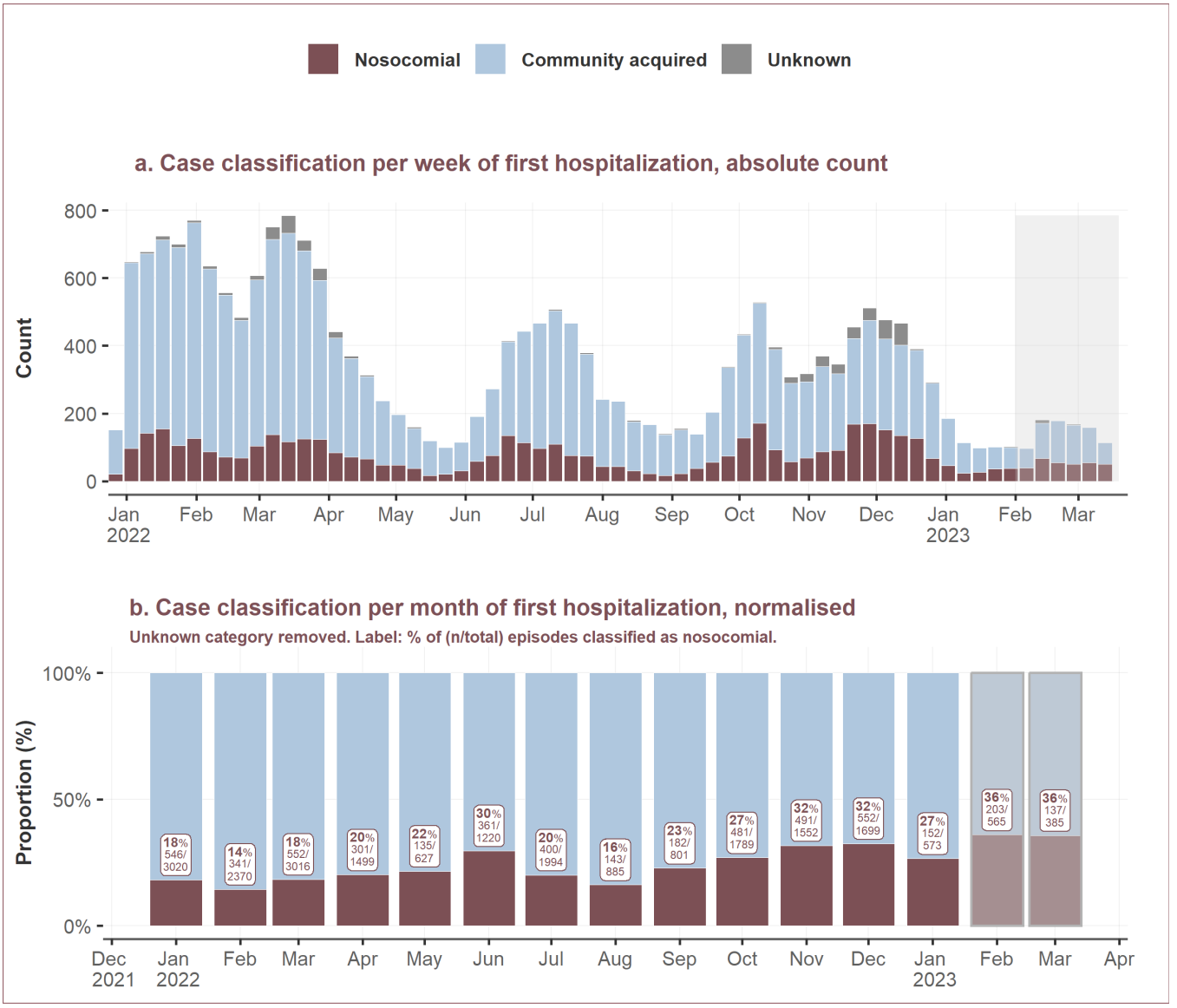

Figure 4: *Case classification (origin of infection) of the episodes. The absolute count of episodes over time (panel a) and the proportion (normalized in %) of episodes by origin of infection (panel b). For episodes with multiple hospitalizations, the case classification of the first hospitalization was considered. Data from the last two months (highlighted gray) are considered provisional due to data entry delays.*

Compared to other age groups, patients aged 80 years and above were most affected by nosocomial infections, accounting for 2,105 (45.4%) of the nosocomial episodes from January 01, 2022 to January 31, 2023. Furthermore, patients aged 80 years and above also account for a majority of community-acquired infections with 5,725 (34.9%) episodes from January 01, 2022 to January 31, 2023 (Figure **5**a).

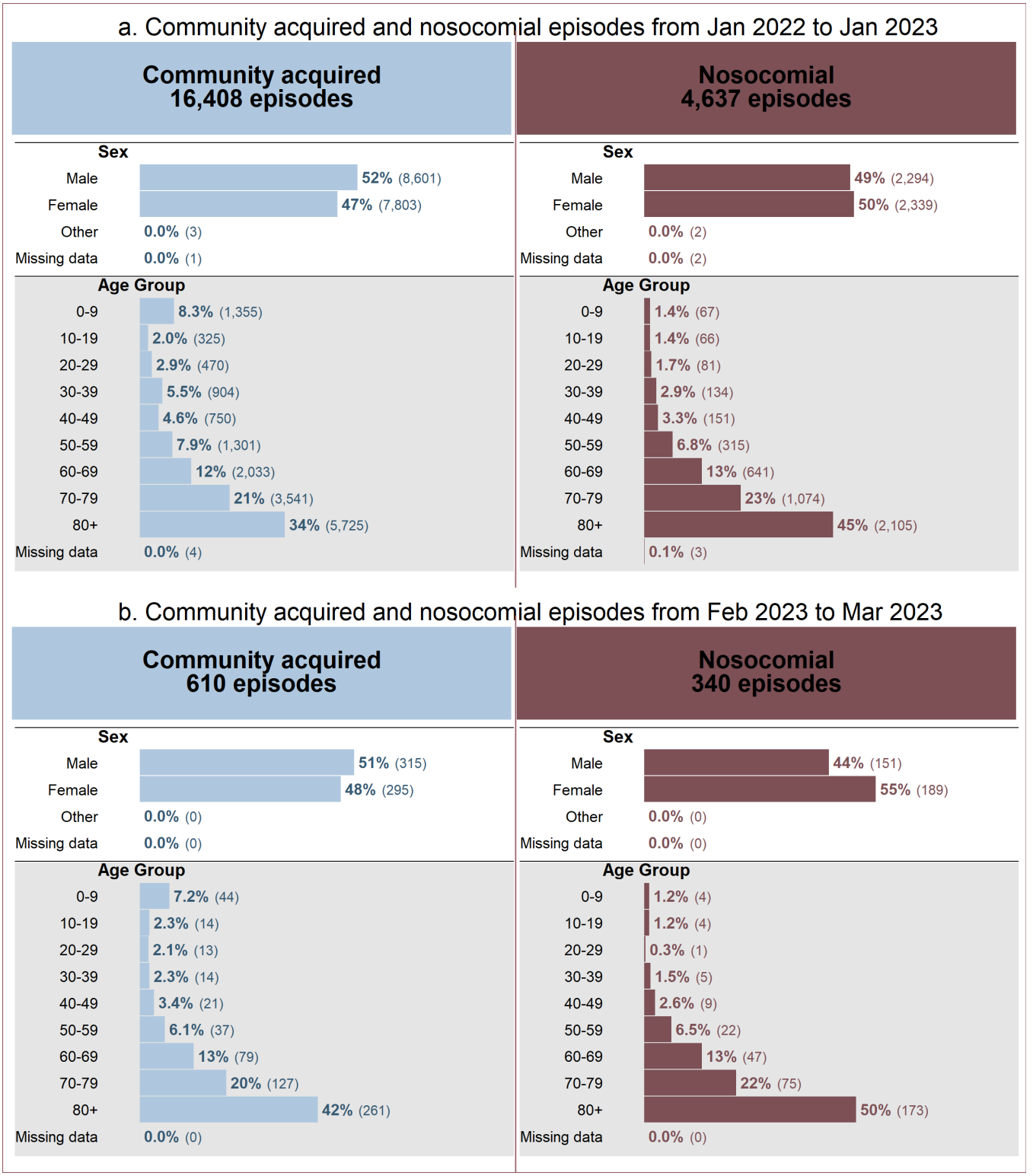

Figure 5: *Comparison of community acquired and nosocomial cases by demographic characteristics.*

2.2. Vaccination status at admission over time

For these analyses, the vaccination status of a patient considers the vaccine doses received up to the time of a positive COVID-19 test, specifically up to the time when the sample for the test was collected.

From January 01, 2022 to March 20, 2023, 72.2% of the Swiss population was vaccinated with at least one dose. In March 20, 2023 11.6% of hospitalized individuals were vaccinated within the last 6 months. It is important to note that we can know the percentage of the population which is vaccinated (through administrative records), but only approximate the proportion of the population which is immunized. Recent studies from Corona Immunitas are indicating that the population immunization (by vaccination and/or previous infection) is nearing 100%.

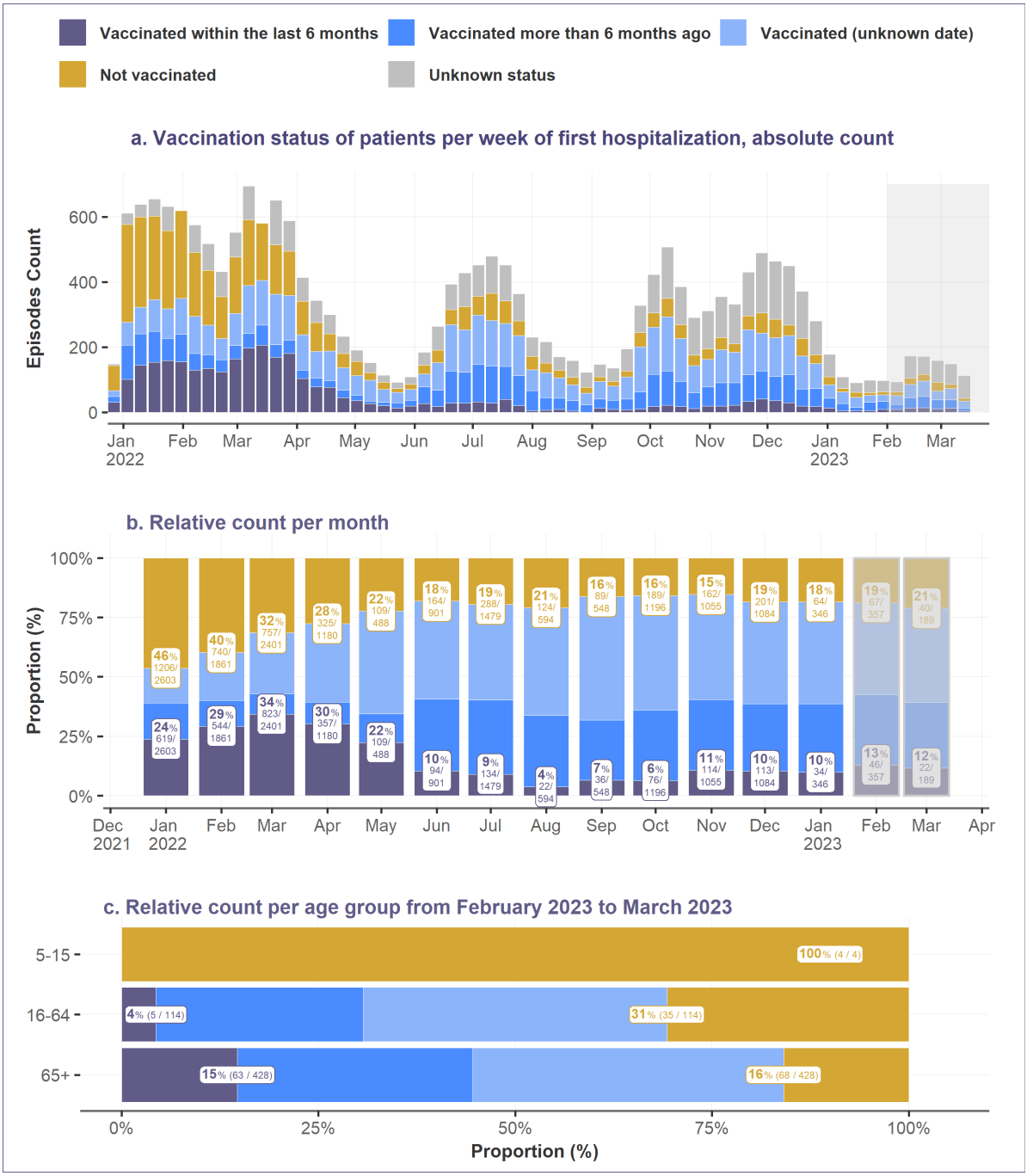

Figure 6: *Episodes by vaccination status over time and by age group. For episodes with multiple hospitalizations, the vaccination status for the first hospitalization was considered. Episodes with first admission date after January 31, 2023 were excluded due to data completeness considerations. For Figure 5c only: Episodes with missing ages and children between 0 to 4 years old (following vaccination recommendations) were excluded from the analysis.*

3. Outcomes

3.1. Outcomes over time

Figure **7** shows the final outcomes of episodes over time (Figure **7**a & **7**b). Episodes resulting in in-hospital death, for which COVID-19 was the cause of death (died *of* COVID-19) are shown separately from those with an alternative cause of death (died *with* COVID-19, but not *of* COVID-19). A medical doctor at the hospital for each CH-SUR participating center determined whether a patient died of COVID-19 or another cause during the COVID-19 hospitalization. Episodes where the cause of death was not certain, but there was a COVID-19 diagnosis (in conformity with inclusion criteria for CH-SUR) were counted as died of COVID-19 or suspected death of COVID-19. The outcome "discharged" includes patients who were transferred out of the CH-SUR system. Episodes with "pending or missing outcomes" correspond to either patients who were still hospitalized or whose outcomes were not yet recorded in the database at the date of data extraction. Because of the higher proportion of incomplete data during the most recent months, case fatality rates from these months should be interpreted with caution.

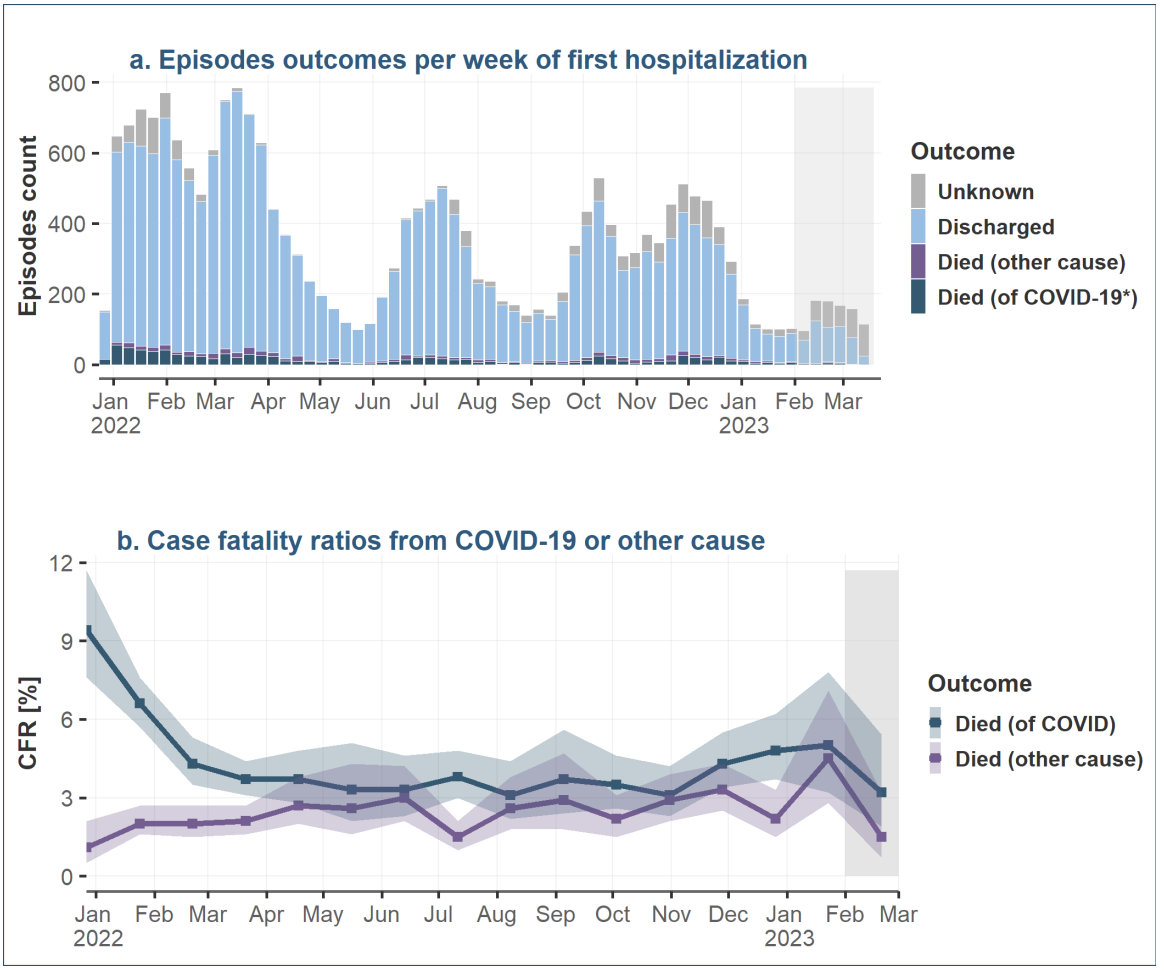

Figure 7: *Outcomes for COVID-19 related episodes over time. Includes records up to March 20, 2023. Data from the two last months (highlighted in gray) are considered provisional due to data entry delays. Episodes where the cause of death was not certain, but there was a COVID-19 diagnosis (in conformity with inclusion criteria for CH SUR) were counted as Died of COVID-19 or suspected death of COVID. (* Died of COVID-19 as a confirmed or suspected cause of death). The coloured bands on this plot indicate the 95% confidence interval around the estimated CFR.*

3.2. Case fatality rate (CFR) across demographic and risk groups

Since January 2022 until January 2023, the case fatality rate (CFR) increased with increasing age, from 0.1% (1 of 1,414) in episodes of patients aged 0-9, to 2.1% (33 of 1,548) in episodes of patients aged 50-59, and to 7.2% (526 of 7,343) in episodes of patients aged 80+. CFR% was greater in men than in women: 4.9% (510 of 10,406) vs 3.8% (363 of 9,595) respectively. (Figure **8**a)

The overall CFR% of the most recent period for which enough data is available (months February 2023 and March 2023, Figure **8**b) was 4.4% compared to 3.0% from January 2022 until January 2023.

Data regarding CFR% and vaccination status can be found in section 3.3.

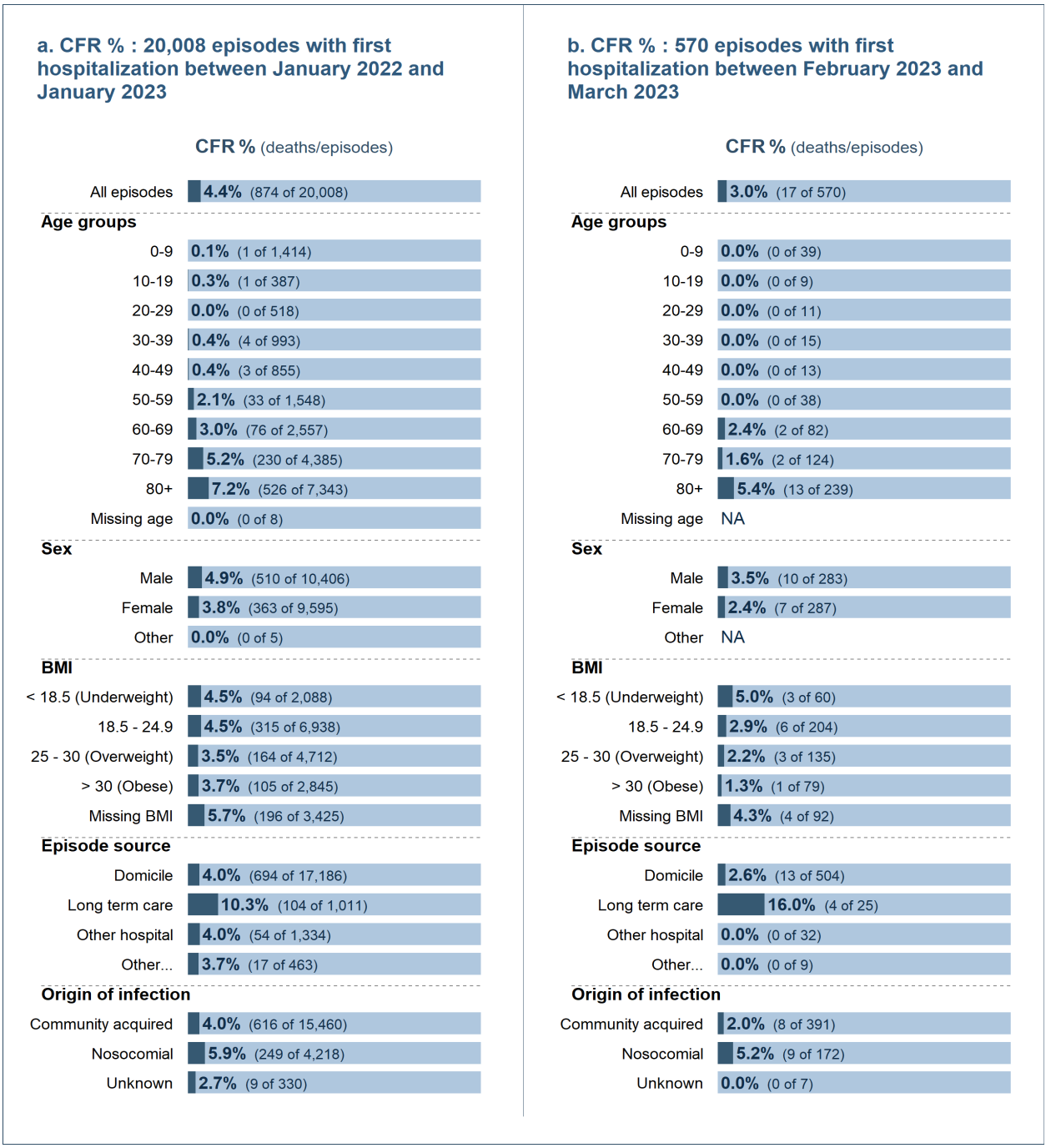

Figure 8: *Case fatality rate (CFR) % among demographic and risk groups: percentage of hospitalization episodes, which ended in the death of the patient of COVID-19 in hospital. Records with incomplete data (ongoing hospitalization episodes or with a pending outcome in the database) were not included.*

3.3. CFR by age group and vaccination status

For the most recent time period for which reliable data is available, the case fatality rate is displayed by age group and vaccination status (Figure **9**).

The data should be interpreted with caution, as local peaks most often result from a small number of cases (for example, the peak in CFR% concerning patients vaccinated within the last 6 month in the age group of 80 and above patients in August 2022 is due to 1 death out of 6 episodes).

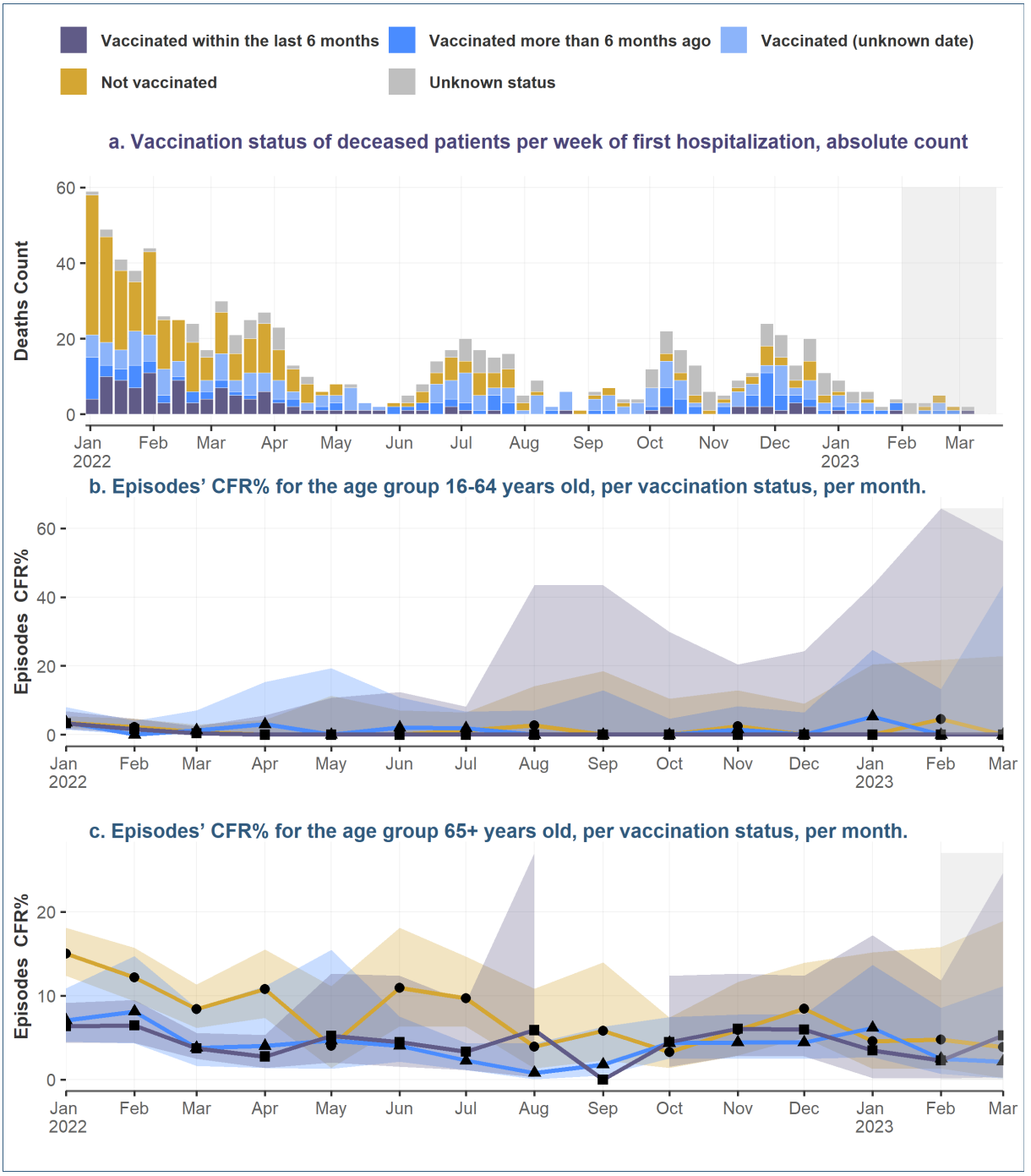

Figure 9: *Case fatality rate (CFR%) by age and by vaccination status over time: percentage of episodes, which ended in the death of the patient of COVID-19 in hospital. Records with incomplete data were not included. Data from the two last months (highlighted in gray) are considered provisional due to data entry delays. The coloured bands on this plot indicate the 95% confidence interval around the estimated CFR. A gap in the coloured band means that the confidence interval goes beyond the displayed range of the plot.*

4. Intensive care unit (ICU) admission

4.1. ICU, IMCU admission and use of ventilation over time

ICU and intermediate care unit (IMCU) admissions include patients that were hospitalized *because* of COVID-19 as well as *with* COVID-19.

Figure **10** shows the distribution of episodes over time which required ICU, IMCU admissions or both, as well as the type of ventilation used.

Figure **10**b only includes episodes with known information on ICU and IMCU stay. Figure **10**b shows that the proportion (in %) of ICU admission has remained relatively stable over time since January 2022. A total of 1,503 (7.2%) episodes required ICU admission, 918 (4.4%) episodes required IMCU admission and 211 (1%) episodes required both ICU and IMCU admission. For 17,353 episodes no ICU nor IMCU admission was required. It is unknown if ICU, IMCU admissions or both was required for 865 episodes.

Figure **10**c only includes episodes with known information on ICU and IMCU stay requiring ventilation. In a total of 371 (32.9%) episodes with an IMCU stay, the patient required non invasive ventilation. For 756 episodes with IMCU stay, it is unknown if non-invasive ventilation was required. Among episodes with ICU admissions, a total of 39 (2.3%) episodes required ECMO ventilation, 591 (34.5%) episodes required invasive ventilation, and 577 (33.7%) episodes required non-invasive ventilation. For 896 episodes with ICU stay, it is unknown if any ventilation was required.

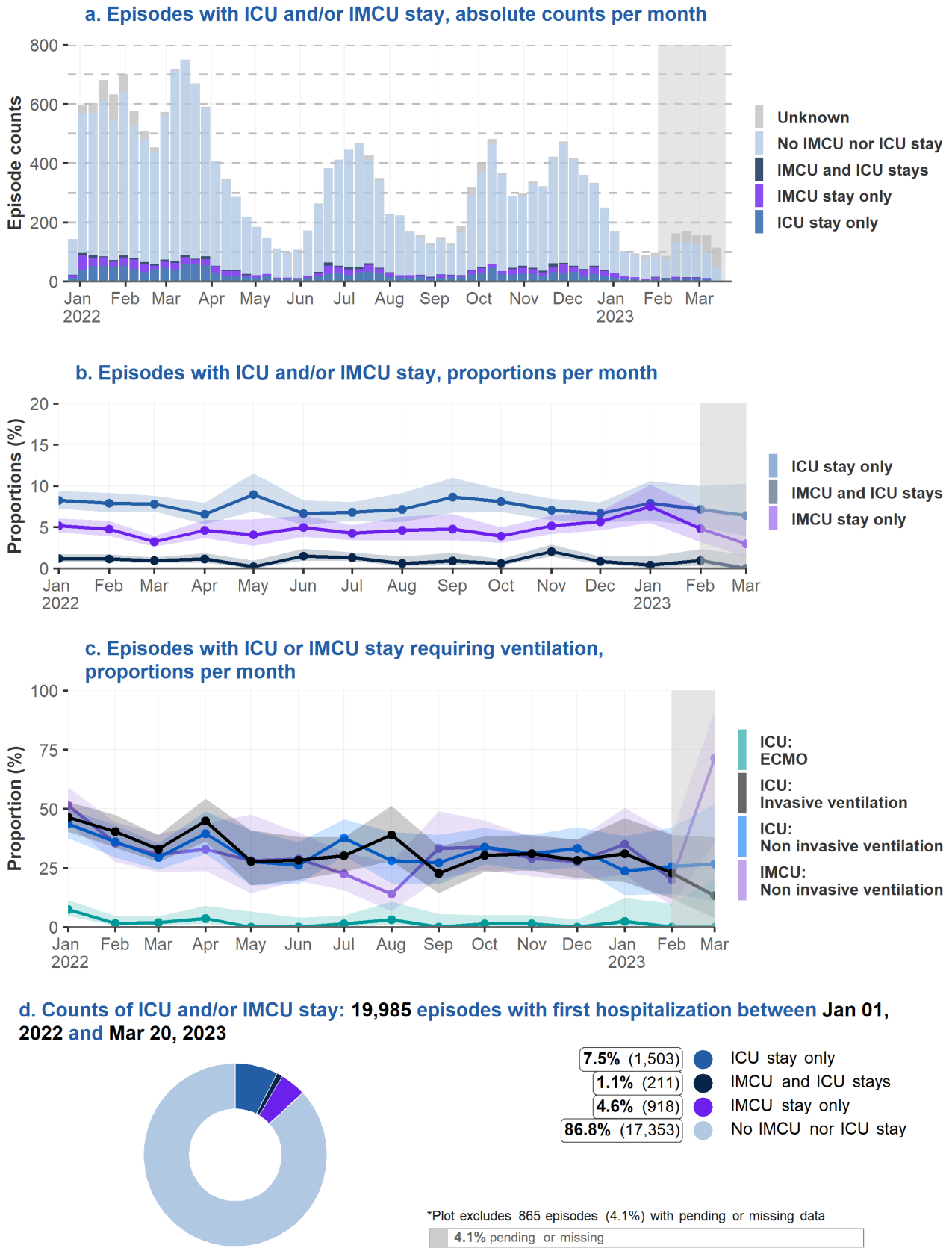

Figure 10: *Counts and proportion of episodes with at least one ICU or IMCU admission over time. Evolution over time of the use of invasive, non-invasive and ECMO for ICU or IMCU admissions. Data from the last two months (highlighted gray) are considered provisional due to data entry delays.*

4.2. ICU admission across demographic and risk groups

From January 2022 to January 2023, ICU admission probability across ages was roughly bimodal with a peak for the 10-19-year age group and for the 60-69 age group. The 60-69 age group had the highest probability of admission to the ICU, with 14.4% (366 of 2,546) of episodes including at least one ICU admission. During the same period, individuals aged 80 and above were least likely to be admitted to the ICU, with 4.2% (309 of 7,339) of the episodes including at least one ICU admission. Males were more likely to be admitted to the ICU than females. Overall, admissions to the ICU were registered for 9.9% of the episodes concerning males, compared to 6.6% of the episodes concerning females. Episodes of patients transferred from other hospitals had a high probability of ICU admission: 21.6% of such episodes (286 of 1,324) required at least one ICU admission, compared to an overall admission rate of 8.3% (Figure **11**a).

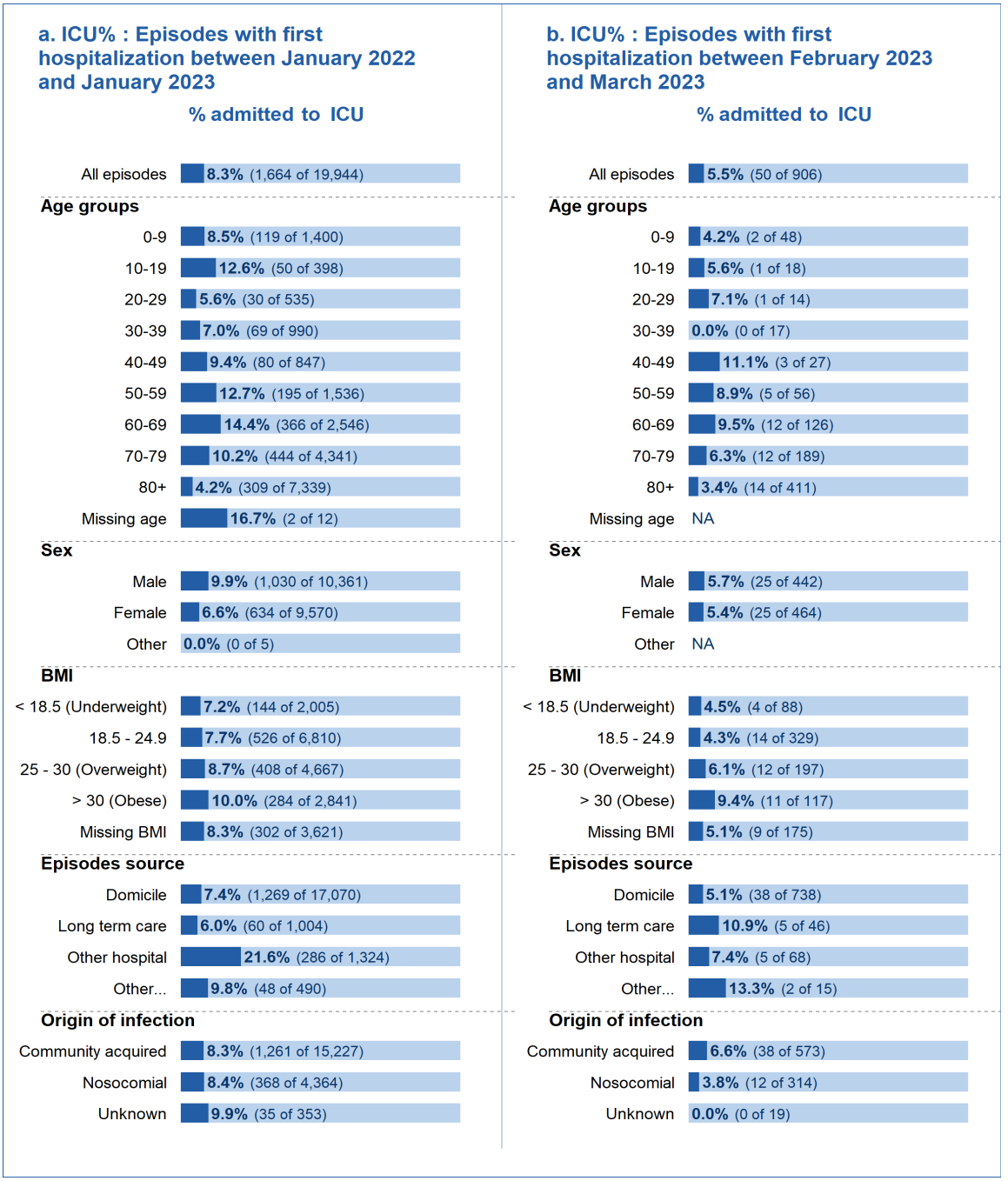

Figure 11: *Percentage of hospitalization episodes with at least one ICU admission, grouped by demographic and risk factors, over two time intervals. For episodes with multiple hospitalizations, we considered whether they were admitted to the ICU during any of their hospitalizations. Records with incomplete data were not included.*

4.3. ICU admission rate by vaccination status

Figure **12** shows the ICU admission rate, which is the number of episodes requiring an admission to the ICU over all episodes registered, stratified by vaccination status.

The percentage of not vaccinated patients among episodes with ICU stay decreased sharply from January to April from 61.6% to 25.9% and has fluctuated since then. (Figure **12**b)

The relative counts for the age groups of 5-15 must be interpreted with caution due to the small numbers. (Figure **12**c)

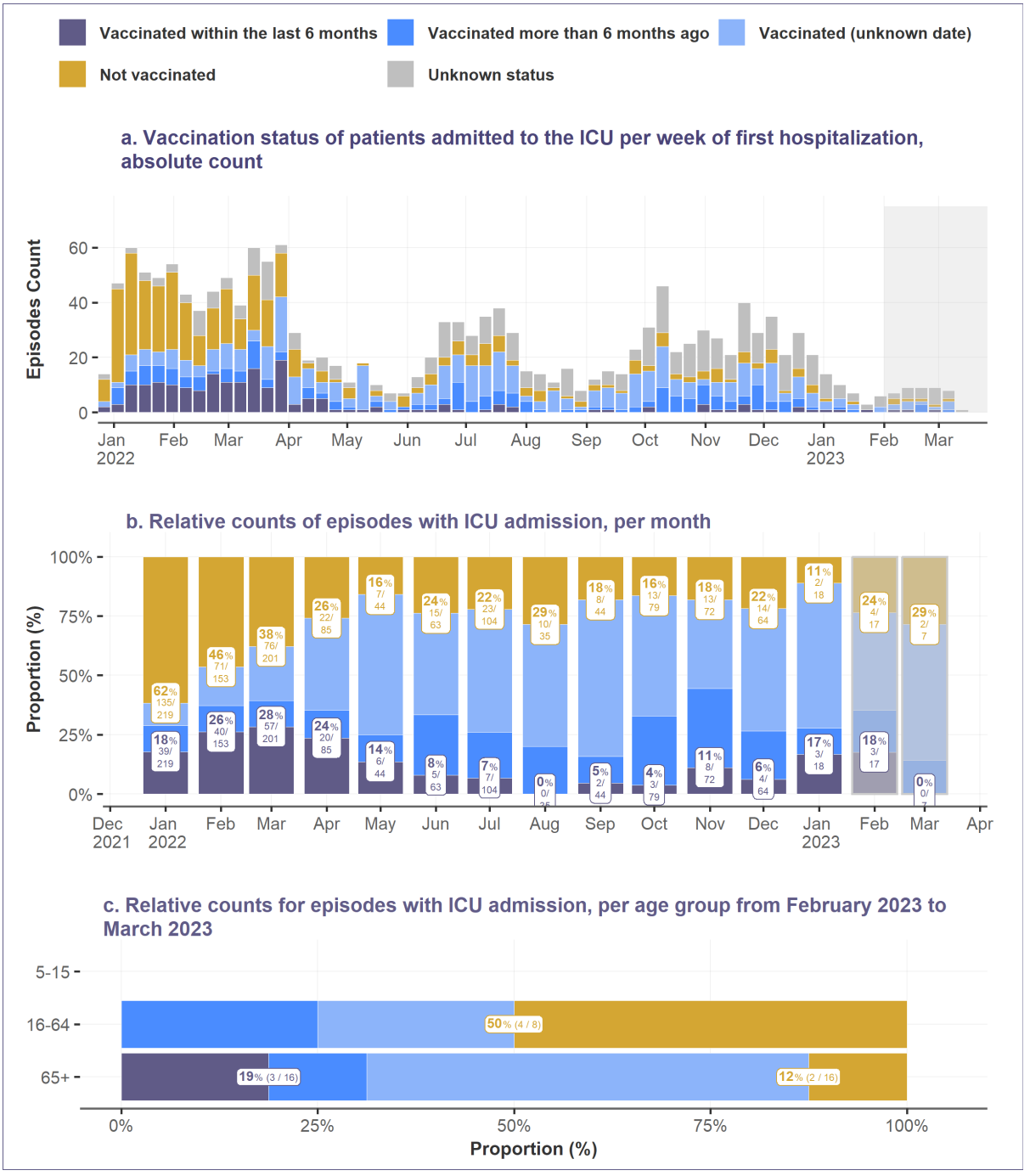

Figure 12: *Demographic characteristics of hospitalized patients by immune status and immune status of patients over time. For episodes with multiple hospitalizations, the immune status for the first hospitalization was considered. For Figure 5c only: Episodes with missing ages and children between 0 to 4 years old (following vaccination recommendations) were excluded from the analysis.*

4.4. ICU admission rate by age group and vaccination status

Figure **13** shows the ICU admission rate by age group and by vaccination status. Plots for the age groups 5-15 should be interpreted with caution, as the ICU% is calculated on a small number of episodes. The same caution applies in recent months, where peaks may be due to the small number of episodes.

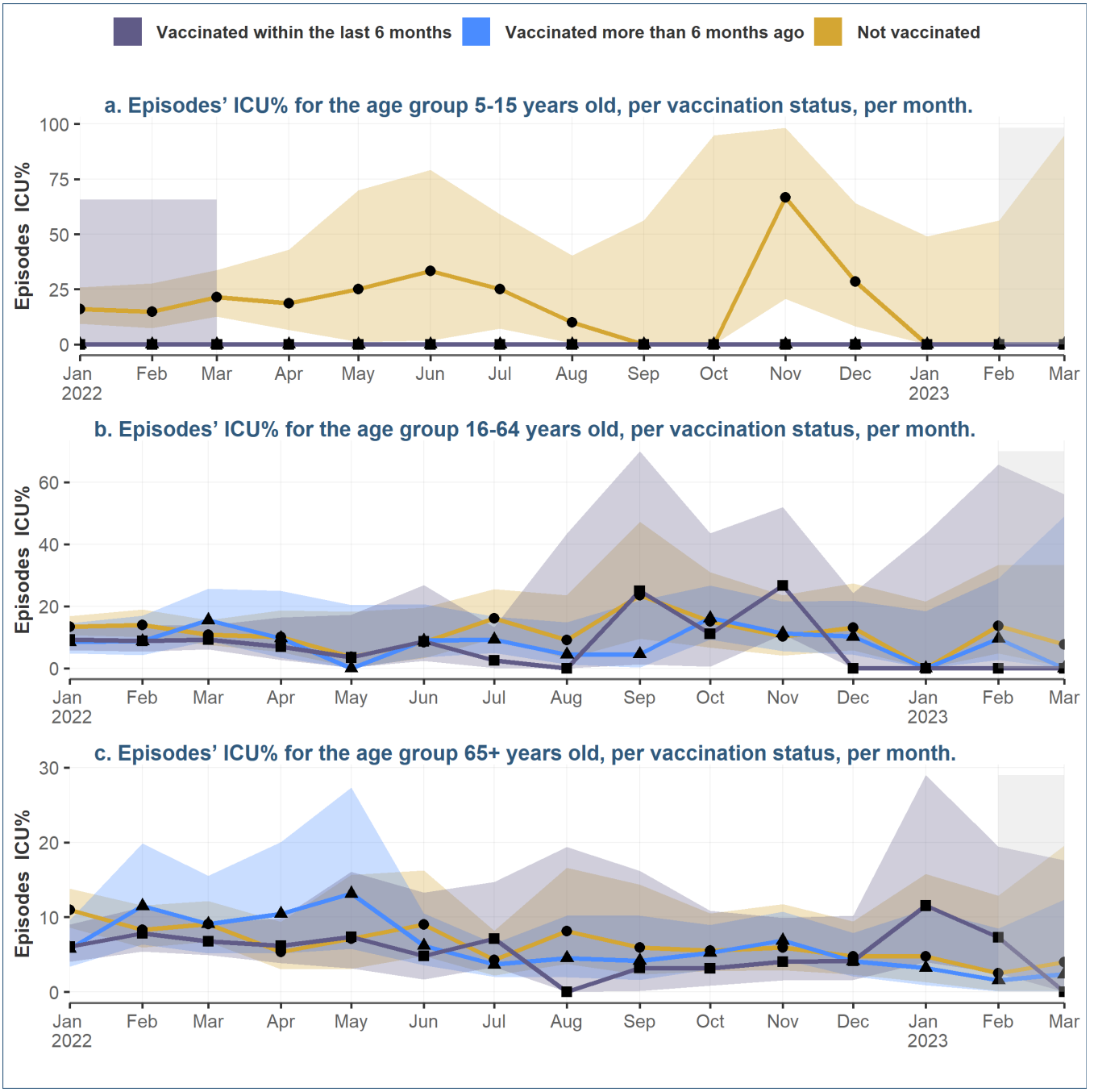

Figure 13: *ICU admission rate (ICU%) by age and by vaccination status over time: percentage of episodes, which resulted in ICU admission. Records with incomplete data were not included. Data from the two last months (highlighted in gray) are considered provisional due to data entry delays. The coloured bands on this plot indicate the 95% confidence interval around the estimated ICU%. A gap in the coloured band means that the confidence interval goes beyond the displayed range of the plot.*

5. Length of hospital stay

From February 01, 2020 to December 31, 2021 the median length of overall hospital stay was 8 days, with an interquartile range of 5 to 16 days. From January 01, 2022 to March 20, 2023 the median length of overall hospital stay was 7 days, with an interquartile range of 3 to 13 days. Analyses include patients who stayed in the hospital for more than 24 hours and less than 60 days. Rare outliers of episodes with extremely long stays would skew the analysis, therefore a cutoff at 60 days was chosen. From February 01, 2020 to March 20, 2023, 97.5% of patients stayed shorter than this duration and 2.5% of patients had stays longer than 60 days. For episodes linked to nosocomial infections, the date of the positive SARS-CoV-2 test was used as a "corrected" hospital entry date instead of the actual admission date. Figure **14** depicts the interquartile range and distribution of the length of stay over time with a focus on ICU/IMCU admissions and origin of infection per month.

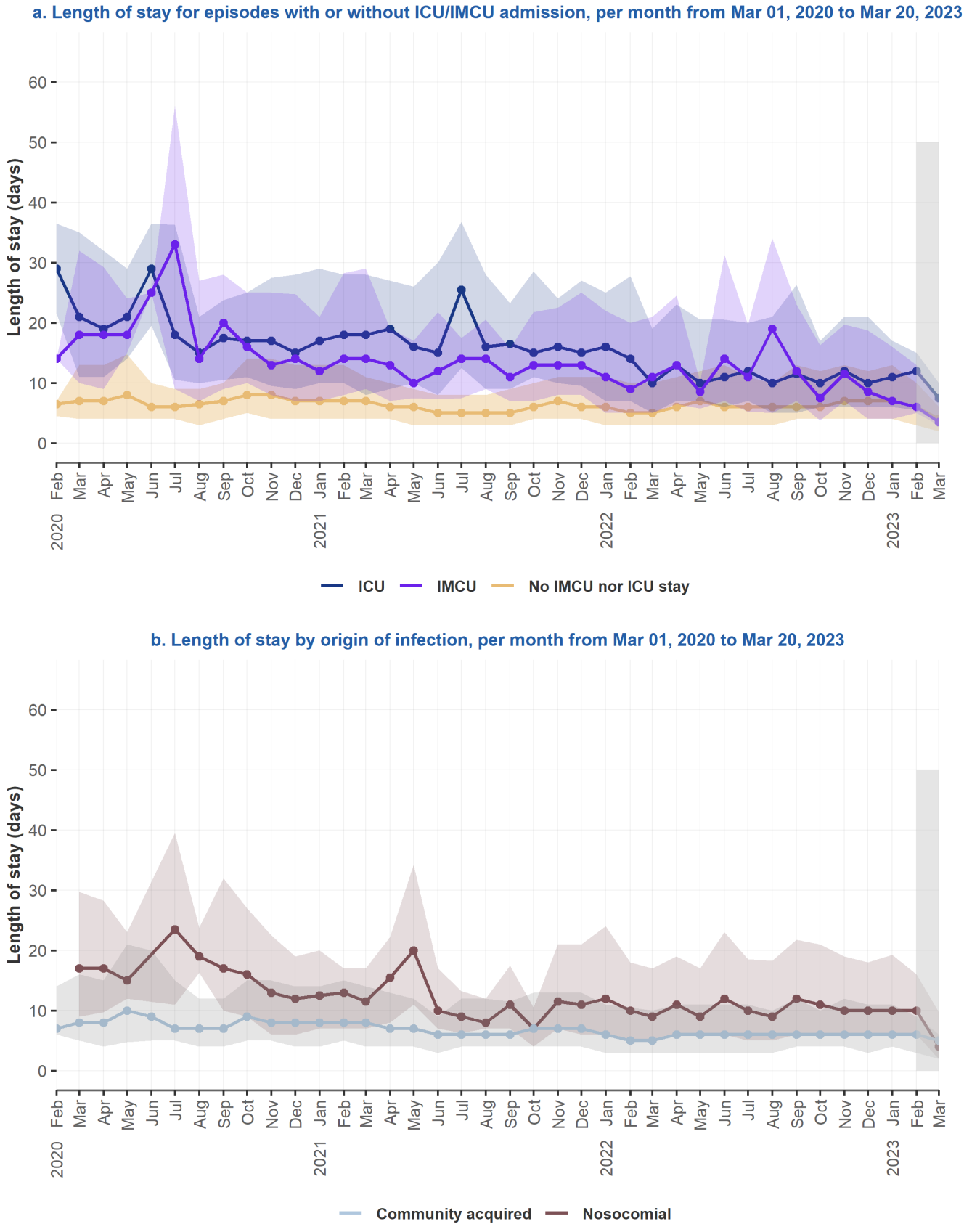

Figure 14: *COVID-19 length of hospital stay over time. Lines indicate the median of the length of stay. The colored bands on this plot indicate the lower and the upper quartile around the median length of stay. Data from the last month is highlighted in gray.*

Table **1** presents the length of hospital stay for different age groups from January 01, 2022 to March 20, 2023. Each row represents a specific age range and the columns provide information on the median length of stay, the interquartile range, and the number of episodes for each age group.

Figure **15** presents the length of hospital stay between January 01, 2022 and March 20, 2023, with a focus on origin of infection and ICU/IMCU admission. Regarding the origin of infection, the median length of stay was 10 days for nosocomial episodes, with an interquartile range of 6 to 19 days, compared to 6 days and an interquartile range of 3 to 11 days for episodes linked to community acquired infections. For episodes with ICU admissions, the median length of stay was 12 days, with an interquartile range of 6 to 22 days, compared to 6 days and an interquartile range of 3 to 11 days for episodes without ICU admission. For episodes with IMCU admissions, the median length of stay was 11 days, with an interquartile range of 5 to 21 days, compared to 6 days and an interquartile range of 3 to 12 days for episodes without IMCU admission.

The analyses did not consider other factors that may affect the length of stay, such as comorbidities.

How to read a violin plot:

A violin plot is a type of data visualization that is similar to a box plot, but it also includes information about density to show the distribution of a variable.

- The shape of the "violin" represents the distribution of the data. The wider the violin, the more values there are at that particular data point. Conversely, if the violin is narrow, there are fewer values there.
- The thick black line in the middle of the violin represents the median value of the data.
- The thin lines on either side of the violin represent the range of the data, excluding outliers.
- Outliers are shown as individual points.

***Table 1**: COVID-19 length of hospital stay by age group: median, interquartile range, and number of episodes. Between January 01, 2022 and March 20, 2023*

Age Group	Median Length of Stay (days)	Interquartile Range (days)	Number of Episodes
0-9	2	2-4	6112
10-19	4	2-7	2787
20-29	4	2-6	3074
30-39	4	2-6	6442
40-49	5	3-9	6756
50-59	6	3-11	14172
60-69	7	4-13	26298
70-79	7	4-14	48427
80+	8	5-15	87202

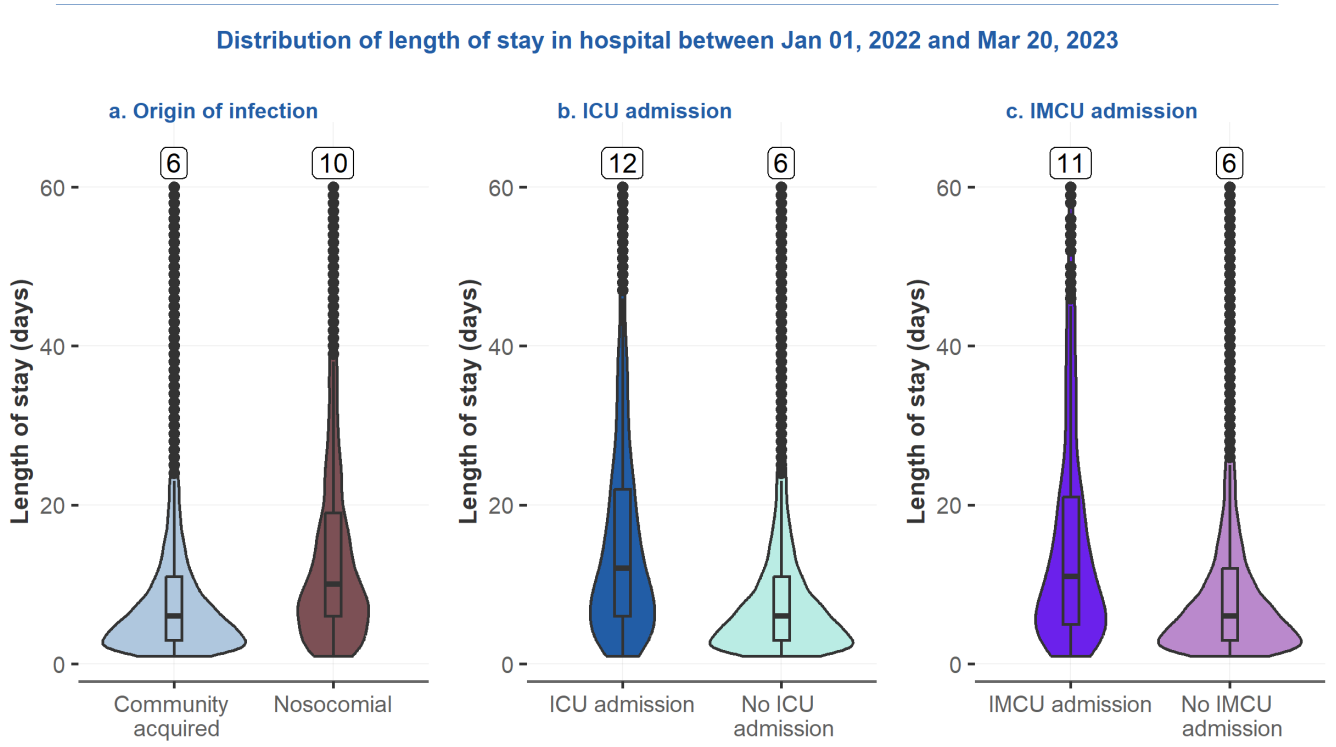

***Figure 15:** Distribution of the length of hospital stay for COVID-19 by origin of infection, ICU and IMCU admission. Each plot includes a box indicating the median length of hospital stay and interquartile range for each group.*

6. Influenza

Data status: March 20, 2023

6.1. Influenza epidemic curves

The influenza's seasonal data collection within CH-SUR begins each November. In Figure **16**, the current influenza epidemic curve is represented in light of the past seasons' epidemic curves. Epidemic curves should be compared with caution, due to a varying number of hospitals which reported data over each specific season. Essential demographic information for the ongoing influenza season is also displayed. For additional weekly updates about the current influenza season please refer to Saisonale Grippe – Lagebericht Schweiz.

This data is not representative for the whole nation of Switzerland, but represents the situation among CH-SUR participating hospitals.

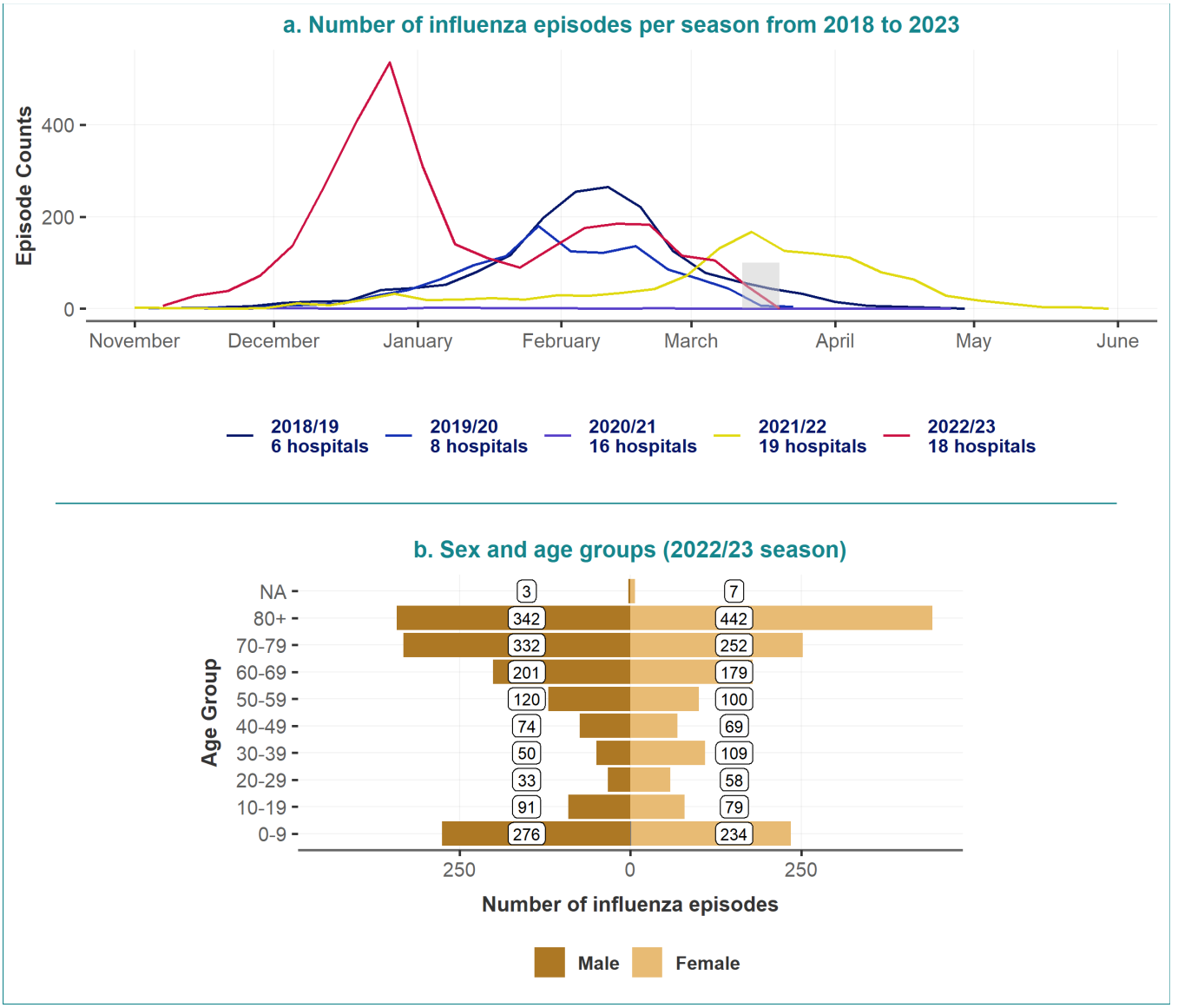

Figure 16: *Number of episodes per influenza seasons, with the age and sex demographic characteristics of the ongoing season. Data from the last two weeks (highlighted gray) is considered provisional due to entry delays.*

6.2. Summary of influenza episodes for the season 2022-2023:

Important note:

Given the limited number of patients and events, all epidemiological and clinical data included in this report are to be interpreted with caution. **Additional registrations are expected**.

- From week 2022-44 to week 2023-10, we registered a total of 3052 influenza episodes including 436 (14%) nosocomial infections among CH-SUR hospitals. For 38 influenza episodes, it is unknown if the infection is nosocomial (Figure **17**).
- At this stage of the season, influenza type A virus was detected in 2652 (87%) episodes, and influenza type B virus in 389 (13%) episodes. Influenza type was unknown for 11 episodes.
- Information regarding the patient's vaccination status is available for 856 out of the 3052 influenza episodes (2196 unknowns). 713 (83%) influenza episodes occurred among non-vaccinated patients.
- A total of 199 (7%) influenza episodes concerned patients admitted to intermediate care (101 unknowns). Among those, 85 (43%) required non-invasive ventilation.
- A total of 300 (10%) influenza episodes concerned patients admitted to ICU (149 unknowns). Among those, 131 (44%) required non-invasive ventilation, 110 (37%) required invasive ventilation and 14 (5%) required ECMO.
- A total of 66 influenza episodes resulted in death during the hospitalization in this season.

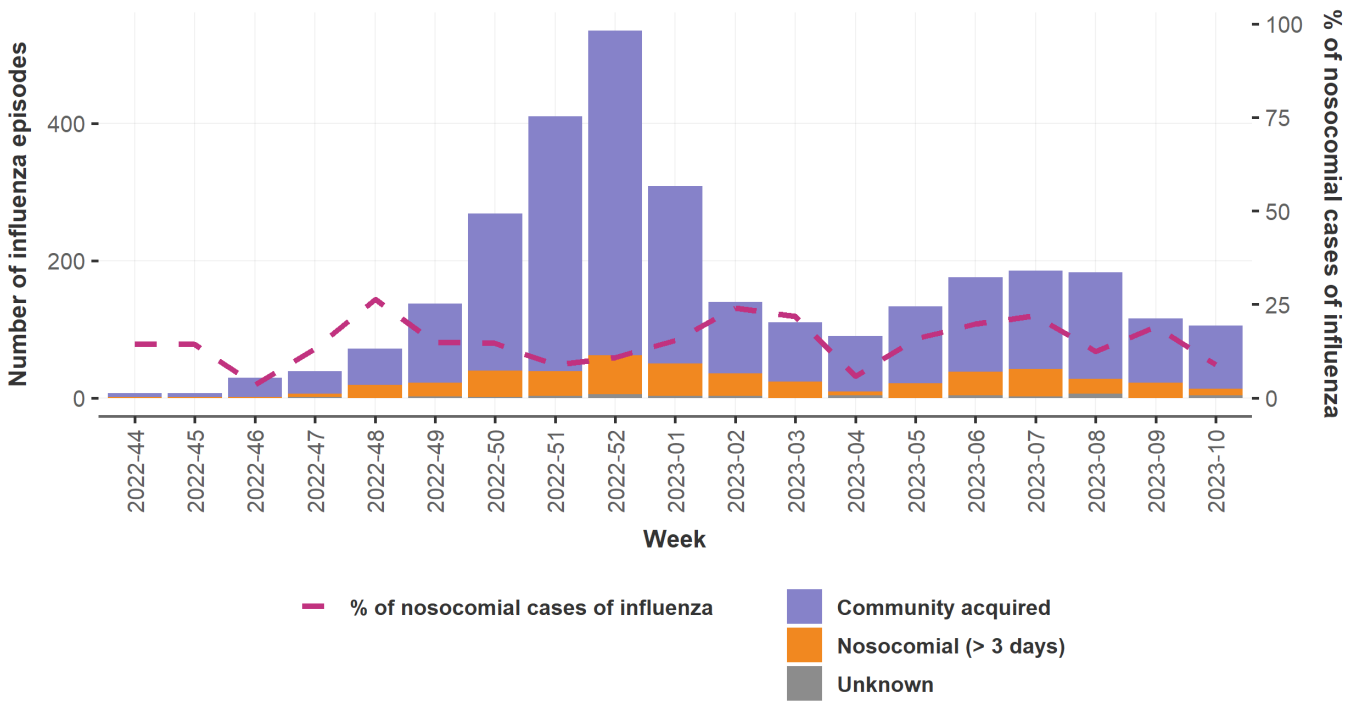

Figure 17: *Number of influenza episodes per week according to the origin of infection.*

7. Glossary and supplemental information

Hospitals participating to data collection: To review the list of Swiss hospitals currently participating in the CH-SUR system, please visit: Hospital-based surveillance of COVID-19 in Switzerland website.

Inclusion criteria:

CH-SUR collects data of patients hospitalized with a documented SARS-CoV-2 infection and a duration of stay longer than 24 hours. Confirmation of infection is a positive PCR (polymerase chain reaction) test or a positive rapid antigen test, as well as a clinical finding for COVID-19. Nosocomial SARS-CoV-2 infections are also registered in the database and are described in a special section at the end of this report.

Hospitalization:

This is the shortest unit of analysis of the data and corresponds to the time between admission and discharge from any hospital participating in CH-SUR. This interval must be longer than 24 hours to be counted as an hospitalization. A new hospitalization is registered each time a person is admitted to hospital. Given the frequent re-admissions within one single course of the disease (one single infection), this report bases its analysis in the number of episodes and not in the number of hospitalizations.

Episode:

An episode number is given to each new admission to hospital, which is separated by at least 30 days from a prior hospitalization and lasts for more than 24 hours. Therefore, if a patient is hospitalized only once, or several times within 30 days, then both scenarios account for only one episode. Two different hospitalizations of the same patient that happen separated by 30 days result in two different episode numbers. If a patient is transferred between two hospitals participating in CH-SUR within the period of 30 days after last discharge, then these hospitalizations account for the same episode. One episode can therefore include multiple hospitalizations and each hospitalization can include multiple ICU admissions.

Testing strategy:

On April 1, 2022, Switzerland returned to the normal epidemiological situation. Since then, the testing of all patients at admission was replaced with more targeted strategies (see current Swissnoso recommendations). This change in testing strategy may have led to a reduction in the number of cases detected, narrowing the patients identified to mainly those with typical COVID-19 symptoms.

Reason for the hospitalization:

- *Hospitalization because of COVID-19*: on the basis on the information available at admission, the patient is hospitalized because the patient has symptoms due to COVID-19 or the patient suffers from a decompensation of a chronic disease, evidently caused by COVID-19.
- *Hospitalization with a SARS-CoV-2 infection*: on the basis on the information available at admission, the patient has a positive test for SARS-CoV2 but is hospitalized without COVID-19 symptoms for a problem other than COVID-19. In other words, the predominant problem is a non-COVID-19 disease or accident.

Origin of the infection:

- *Community acquired infection*: the SARS-CoV-2 infection was detected before the admission into the hospital or within the first 5 days after admission.
- *Nosocomial infection*: the episode is registered as "Nosocomial" if SARS-CoV-2 is detected 5 days or more after hospital admission.

Severity score at admission:

For adults, the severity score used is the CURB-65 score. One point is given for each of the following symptoms: confusion (abbreviated Mental Test Score < 9), blood urea nitrogen > 19 mg/dL, respiratory rate > 30 per minute, low blood pressure (diastolic < 60 or systolic < 90 mmHg), age> 65 years. For children, one point is given for each of the following: respiratory distress, oxygen saturation < 92%, evidence of severe clinical dehydration or clinical shock and an altered consciousness level. The severity score corresponds to the sum of the given points.

Intermediate care unit (intermediate care or IMCU): care unit caring for patients who have a failure of a vital function or whose burden of care does not allow a return to a hospitalization unit. These units are the link between an intensive care unit and a beds service.

Intensive care unit (ICU): care unit caring for patients who have a serious failure of one or more vital functions or who are at risk of developing severe complications.

Vaccination status:

The vaccination status definition is based on the most recent dose of vaccine received, if the patient received any. The vaccination status is composed of the following categories:

a) *Vaccinated within the last 6 months*: Patients who received their last vaccination dose within 6 months before the time of the positive SARS-CoV-2 test.

b) *Vaccinated more than 6 months ago*: Patients who received their last vaccination dose more than 6 months before the time of the positive SARS-CoV-2 test.

c) *Vaccinated (unknown date)*: Patients who received at least one dose of the vaccines approved by WHO before the positive test but with no information about when the last dose was administered.

d) *Not vaccinated*: Patients who had not received a single dose of any vaccine approved by WHO by the time of the positive SARS-CoV-2 test.

e) *Unknown status*: Patients for whom vaccination information was not available.

Important notes: Special populations Children under 5 are not included in any age-specific analysis of the vaccination status, as they are not recommended to receive any vaccination dose.

Discharge: When the patient leaves the hospital alive, the departure is qualified as "discharge" if the patient goes to:

1. his/her domicile
2. a long-term care facility
3. another hospital
4. another institution not participating in the CH-SUR surveillance
5. a rehabilitation establishment
6. destination unknown

Reason of death: Patients for whom COVID-19 was the cause of death (died of COVID-19) are shown separately from COVID-19 patients who died of other causes (died with COVID-19, but not of COVID-19). A medical doctor at the hospital for each CH-SUR-participating center determined of whether a patient died of COVID-19 or another cause. Cases where the cause of death is not certain, but there was a COVID-19 diagnosis (in conformity with inclusion criteria for CH-SUR) are counted as died of COVID-19 or suspected death of COVID-19.

Dealing with missing data: When mentioned in the text, missing data are excluded from the analysis. Otherwise, records with missing data are included in the total numbers and analyzed accordingly. This may lead to the situation where the denominators of different categories analyzed do not sum up to the same total. Where indicated, Data from the last two months are considered provisional due to entry delays and are highlighted in gray in certain figures.

Report prepared by:

University of Geneva, Institute of Global Health (IGH): Urbini, Laura; Suveges, Maria; Sobel, Jonathan; Orel, Erol; Botero Mesa, Sara; Keiser, Olivia

Infection Control Program, University of Geneva Hospitals (HUG): Zanella, Marie-Céline

Bundesamt für Gesundheit, Bern (BAG): Roder, Ursina; Greiner, Clara; Resenterra-Charrière, Véronique; Fesser, Anna; Vonlanthen, Jasmin;

Acknowledgments: Iten, Anne