ISARIC Clinical Data Report 20 November 2020

International Severe Acute Respiratory and emerging Infections Consortium

Matthew Hall*[1], Mark Pritchard*[2,3], Emmanuelle A. Dankwa*[4], J. Kenneth Baillie[5,6], Gail Carson[2], Barbara W. Citarella[2], Annemarie Docherty[5,7], Christl A. Donnelly[4,8], Jake Dunning[2, 17, 18], Christophe Fraser[1], Hayley Hardwick[9,10], Ewen M. Harrison[7], Karl A. Holden[11], Christiana Kartsonaki[12], Kalynn Kennon[13], James Lee[2], Kenneth McLean[7], Peter J.M. Openshaw[17], Daniel Plotkin[2], Amanda Rojek[2, 19, 20], Clark D. Russell[14], Malcolm G. Semple[15,16], Louise Sigfrid[2], Sue Smith[2], Peter Horby[2], Piero Olliaro[2], Laura Merson~[2,13], on behalf of the ISARIC COVID-19 Partners^

*contributed equally
^participants are listed at https://isaric.tghn.org/covid-19-data-management-hosting-contributors/
~Correspondence to: Laura.Merson@ndm.ox.ac.uk

1 Oxford Big Data Institute, Li Ka Shing Centre for Health Information and Discovery, Nuffield Department of Medicine, University of Oxford, Oxford, UK 5 Intensive Care Unit, Royal Infirmary Edinburgh, Edinburgh, UK
2 ISARIC, Centre for Tropical Medicine and Global Health, Nuffield Department of Medicine, University of Oxford, Oxford, UK
3 Oxford University Hospitals NHS Foundation Trust, Oxford, UK
4 Department of Statistics, University of Oxford, Oxford, UK
5 Intensive Care Unit, Royal Infirmary Edinburgh, Edinburgh, UK
6 Roslin Institute, University of Edinburgh, Edinburgh, UK
7 Centre for Medical Informatics, Usher Institute, University of Edinburgh, Edinburgh, UK
8 MRC Centre for Global Infectious Disease Analysis, Department of Infectious Disease Epidemiology, Imperial College London, London, UK
9 National Institute of Health Research (NIHR) Health Protection research Unit in Emerging and Zoonotic Infections, Liverpool, UK
10 Institute of Infection and Global Health, Faculty of Health and Life Sciences, University of Liverpool, Liverpool, UK
11 Institute of Translational Medicine, Faculty of Health and Life Sciences, University of Liverpool, Liverpool, UK
12 MRC Population Health Research Unit, Clinical Trial Service Unit and Epidemiological Studies Unit (CTSU). Nuffield Department of Population Health, University of Oxford, Oxford, UK
13 Infectious Diseases Data Observatory, Centre for Tropical Medicine and Global Health, University of Oxford, Oxford, UK
14 Queen's Medical Research Institute, University of Edinburgh, Edinburgh, UK
15 NIHR Health Protection Research Unit in Emerging and Zoonotic Infections and Institute of Translational Medicine, Faculty of Health and Life Sciences, University of Liverpool, Liverpool, UK
16 Respiratory Medicine, Alder Hey Children's Hospital, Institute in The Park, University of Liverpool, Alder Hey Children's Hospital, Liverpool L12 2AP, UK
17 National Heart and Lung Institute, Faculty of Medicine, Imperial College London
18 Emerging Infections and Zoonoses, National Infection Service, Public Health England, UK
19 Centre for Integrated Critical Care Research, Department of Medicine and Radiology, University of Melbourne, Melbourne, Australia
20 Emergency Medicine, Royal Melbourne Hospital, Melbourne, Australia

Abstract

ISARIC (International Severe Acute Respiratory and emerging Infections Consortium) partnerships and outbreak preparedness initiatives enabled the rapid launch of standardised clinical data collection on COVID-19 in Jan 2020. Extensive global uptake of this resource has resulted in a large, standardised collection of comprehensive clinical data from hundreds of sites across dozens of countries. Data are analysed regularly and reported publicly to inform patient care and public health response. This report is a part of a series and includes the results of data analysis on 20 November 2020.

We thank all of the data contributors for their ongoing support.

Report highlights include:
ISARIC collaborators recorded symptoms from over 122,000 patients in hospital with COVID-19. Most had fever, cough or shortness of breath. Children and older adults were less likely to display typical symptoms, and over 40% of patients >80 years experienced confusion.

The ISARIC international database continues to grow. Data have been entered for 122,361 individuals from 578 sites across 42 countries.

The analysis detailed in this report only includes individuals:

1. for whom data collection commenced on or before 26 October 2020.

AND

2. who have laboratory-confirmed or clinically-diagnosed SARS-COV-2 infection.

For the **95,966** cases who meet eligibility criteria for this report:

- The median age is 72 years.
- A total of 20% of patients were admitted at some point during their illness into an intensive care unit.
- Antibiotic use is high (81.9% of patients received antibiotics - the choice of antibiotic and specific indication have not yet been determined.)
- Fever, shortness of breath, a non-productive cough and fatigue were the most common symptoms.
- Altered consciousness/confusion was also relatively frequent (20,802/95,079) and most common in elderly patients. Overall, elderly patients are less likely to present with URTI symptoms.

To access previous versions of **ISARIC COVID-19 Clinical Data Report** please use the link below:
https://isaric.org/research/covid-19-clinical-research-resources/evidence-reports/

ISARIC (International Severe Acute Respiratory and Emerging Infections Consortium)

A global federation of clinical research networks, providing a proficient, coordinated, and agile research response to outbreak-prone infectious diseases

COVID-19 Report: 20 November 2020

Containing data extracted 09 November 2020

Summary

The results in this report have been produced using data from the ISARIC COVID-19 database. For information, or to contribute to the collaboration, please contact ncov@isaric.org.

We thank all of the data contributors for collecting standardised data during these extraordinary times. We plan to issue this report of aggregate data regularly for the duration of the SARS-CoV-2/COVID-19 pandemic.

Please note the following caveats. This is a dynamic report which captures new variables and information as our understanding of COVID-19 evolves. Please observe the N of each result to note newly added variables with fewer data points. Information is incomplete for the many patients who are still being treated. Furthermore, it is likely that that we received more cases of severely ill individuals than those with relatively less severe illness; outcomes from these data, such as the proportion dying, must therefore not be used to infer outcomes for the entire population of people who might become infected. Some patients may be participants in clinical trials of experimental interventions. Many of the included cases are from the United Kingdom. Additional caveats are provided in the in the 'Caveats' section below.

Up to the date of this report, data have been entered for **122361** individuals from **578** sites across **42** countries.

The analysis detailed in this report only includes individuals:

1. for whom data collection commenced on or before 26 October 2020. (We have applied a 14-day rule to focus analysis on individuals who are more likely to have a recorded outcome. By excluding patients enrolled during the last 14 days, we aim to reduce the number of incomplete data records and thus improve the generalisability of the results and the accuracy of the outcomes. However, this limits our focus to a restricted cohort despite the much larger volumes of data held in the database.)

AND

2. who have laboratory-confirmed or clinically-diagnosed SARS-COV-2 infection.

The cohort satisfying the above criteria has 95966 cases (93.38% are laboratory-confirmed for SARS-COV-2 infection).

The flow chart in Figure 1 gives an overview of the cohort and outcomes as of 09 November 2020.

Demographics and presenting features

Of these 95966 cases, 54591 are males and 41212 are females – sex is unreported for 163 cases. The minimum and maximum observed ages were 0 and 106 years respectively. The median age is 72 years.

The observed mean number of days from (first) symptom onset to hospital admission was 7.6, with a standard deviation (SD) of 6.1 days and a median of 4 days. For all time-to-event variables, values greater than 120 days were treated as outliers and were excluded prior to any analysis.

The observed mean duration for the number of days from hospital admission to outcome (death or discharge) was 12.8, with SD 13.4 days and a median of 9 days. These estimates are based on all cases which have complete records on length of hospital stay (N = 91783).

The observed symptoms on admission partly represent case definitions and policies for hospital admission, which may change as time passes. The five most common symptoms at admission were history of fever, shortness of breath, cough, fatigue/malaise, and confusion. Frequencies of symptom prevalence vary with age. 31539/100841 (31.3%) patients presented with oxygen saturations <94%.

Outcomes

Outcomes have been recorded for 82795 patients, consisting of 56917 recoveries and 25878 deaths. Follow-up is ongoing for 2148 patients. Outcome records are unavailable for 11023 patients.

ICU/HDU: A total of 19160 (20%) patients were admitted at some point of their illness into an intensive care unit (ICU) or high dependency unit (HDU). Of these, 6619 died, 667 are still in hospital and 8344 have recovered and been discharged.

The observed mean and median durations (in days) from hospital admission to ICU/HDU admission were 2.6 and 1 respectively (SD: 6.3) – estimated from records on cases with complete date records on hospital admission and ICU/HDU entry (N = 18283).

The duration of stay in ICU/HDU had a mean of 13.2 days and a median of 9 (SD: 13.4 days) – estimated on only those cases with complete records for ICU/HDU duration or ICU/HDU start/end dates (N = 15096). Of these 19160 patients who were admitted into ICU/HDU, 6619 died, 667 are still in hospital and 8344 have recovered and been discharged. Outcome records are unavailable for 3530 cases. Approximately 42% of patients with complete records on ICU admission dates were admitted to ICU within the first day of hospital admission. The distribution of the number of days from admission to ICU admission is shown in Figure 11.

Treatment

Antibiotics were received by 72643/88723 (81.9%) patients, and 10005/87583 (11.4%) received antivirals. These treatment categories are not mutually exclusive since some patients received multiple treatments. (The denominators differ due to data completeness.) 63027/94544 (66.7%) patients received some degree of oxygen supplementation: of these, 14272/63027 (22.6%) received NIV and 10907/63027 (17.3%) IMV.

Of the patients admitted into ICU/HDU, 15173/16361 (92.7%) received antibiotics and 11393/22786 (50%) antivirals. 17463/18791 (92.9%) received some degree of oxygen supplementation, of which, 8677/17463 (49.7%) received NIV and 10672/17463 (61.1%) IMV.

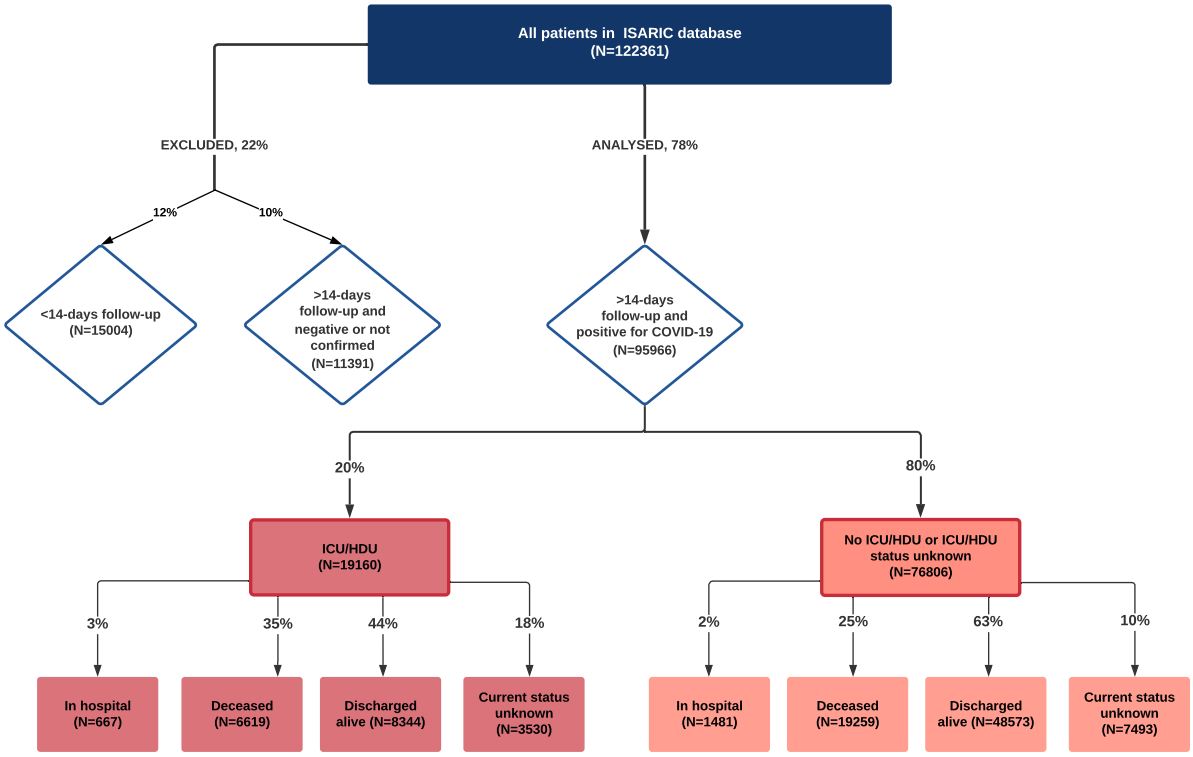
A total of 14272 patients received non-invasive mechanical ventilation (NIV). The mean and median durations from admission to receiving NIV were 4.1 days and 2 days respectively (SD: 8.7 days) – estimated from

records on cases with complete records on dates of hospital admission and NIV onset (N = 10584). The mean and median durations for NIV were 2.4 days and 0 days respectively (SD: 5.4 days) – estimated based on only those cases which have complete NIV duration records (N = 5723).

A total of 10907 patients received invasive mechanical ventilation (IMV). The mean and median durations from admission to receiving IMV were 3.7 days and 2 days respectively (SD: 7.7 days) – estimated from records on cases with complete records on dates of hospital admission and IMV onset (N = 9569). The mean, median and SD for the duration of IMV – estimated based on all 7925 cases with complete records on IMV stays – were 14.6 days, 11 days and 12.5 days respectively.

Corticosteroids were administered to 16568 / 87024 (19.0%) patients. This includes 3840 / 9645 (39.8%) of those who received IMV, 9644 / 49263 (19.6%) of those who had oxygen therapy but not IMV, and 3056 / 28014 (10.9%) of those who had no oxygen therapy. On 16 June, results for dexamethasone were released for the RECOVERY randomized controlled trial (RECOVERY, 2020; RECOVERY Collaborative Group, 2020). This trial found that dexamethasone reduced deaths for patients receiving IMV and oxygen therapy, but not among patients not receiving respiratory support. Of patients admitted since 16 June, corticosteroids were received by 522 / 745 (70.1%) of those who received IMV, 1882 / 4383 (42.9%) of those who had oxygen therapy but not IMV, and 657 / 4207 (15.6%) of those who had no oxygen therapy.

Figure 1: Overview of cohort and outcomes as of 09 November 2020.



Patient Characteristics

Figure 2: Age and sex distribution of patients. Bar fills are outcome (death/discharge/ongoing care) at the time of report.

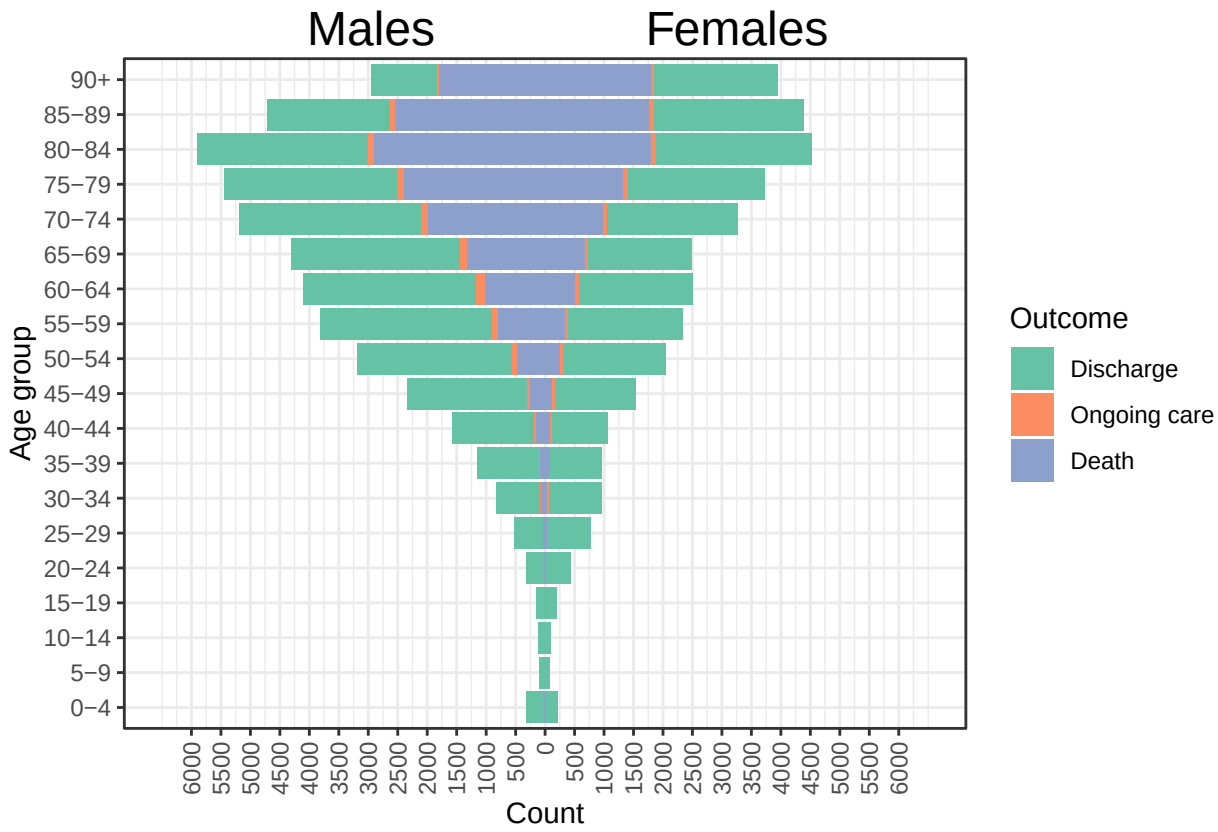
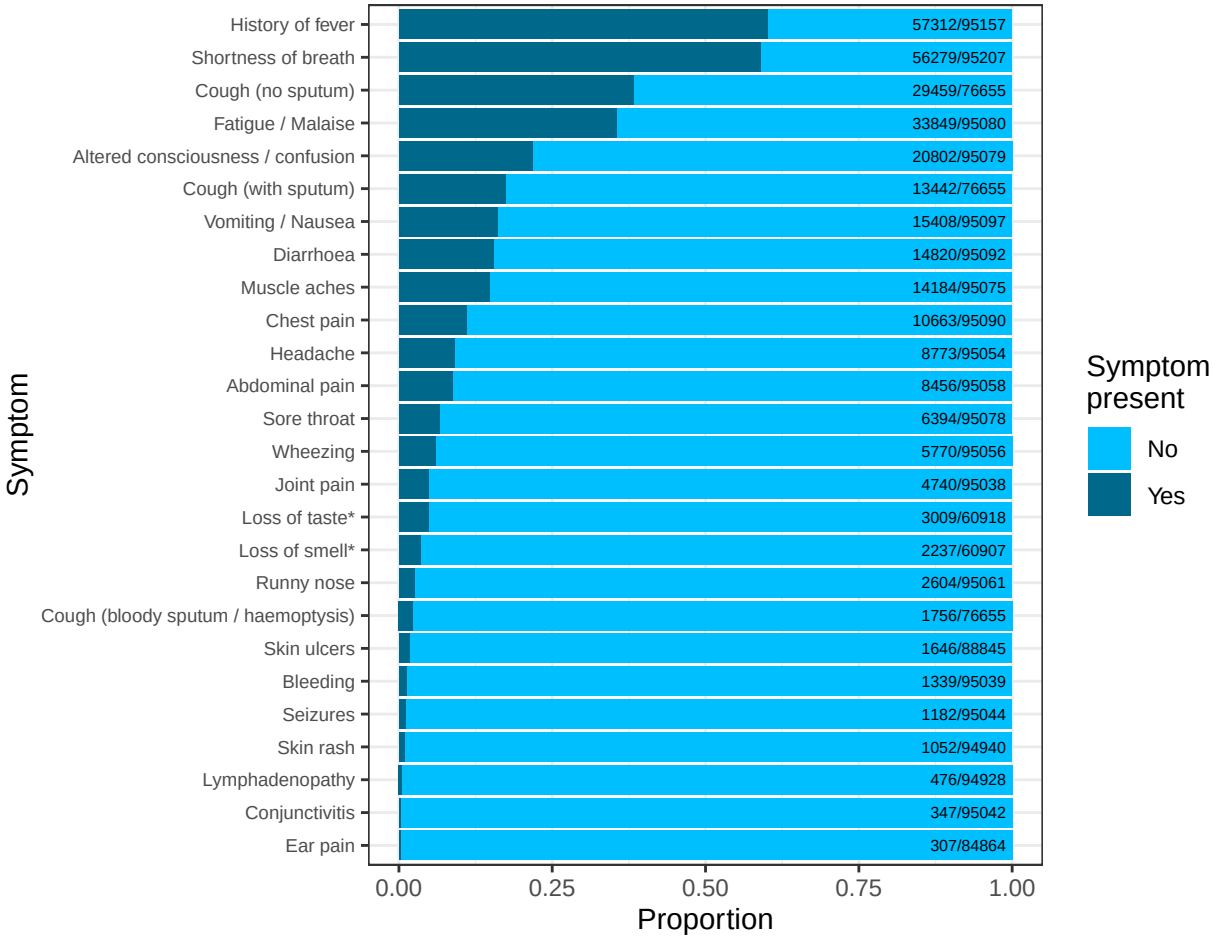
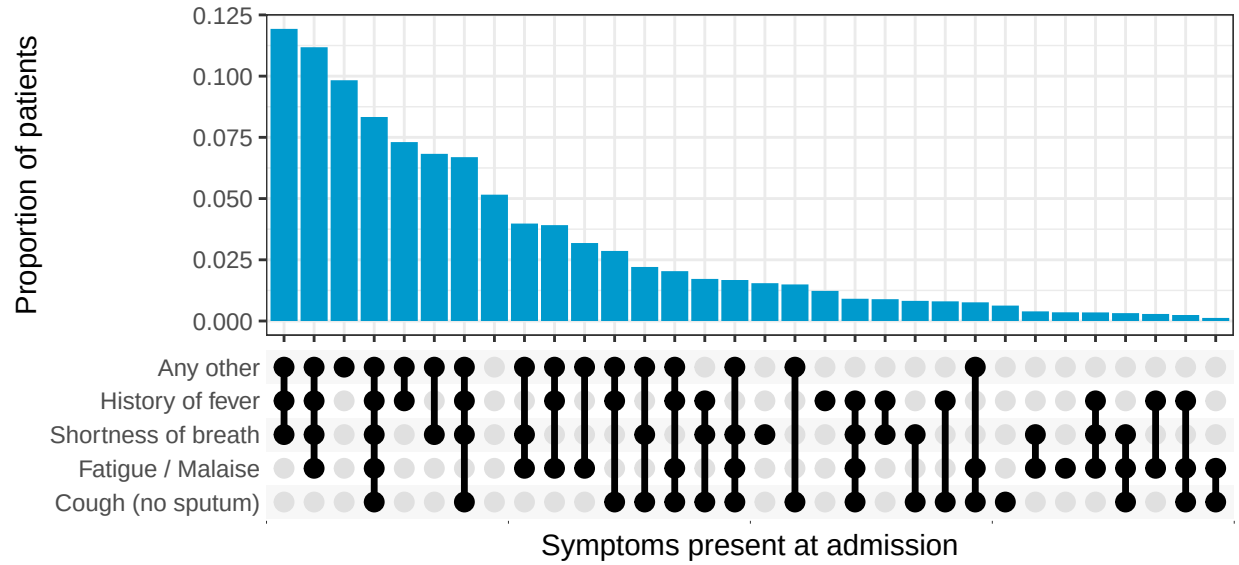


Figure 3: **Top**: Frequency of symptoms seen at admission amongst COVID-19 patients. Bars are annotated with a fraction representing the number of patients presenting with this symptom over the number of patients for whom presence or absence of this symptom was recorded. **Middle**: The distribution of combinations of the four most common symptoms, amongst all patients for whom these data were recorded. Filled and empty circles below the x-axis indicate the presence or absence of each comorbidity. The "Any other" category contains all remaining symptoms in the top plot. **Bottom**: Heatmap for correlation between symptoms. Fill colour is the phi correlation coefficient for each pair of symptoms, calculated amongst patients with recorded presence or absence of both.



*Caution when interpreting this result as the sample size is small due to it being a new variable in the dataset.


Proportion of patients
0.125
0.100
0.075
0.050
0.025
0.000
Any other
History of fever
Shortness of breath
Fatigue / Malaise
Cough (no sputum)
Symptoms present at admission

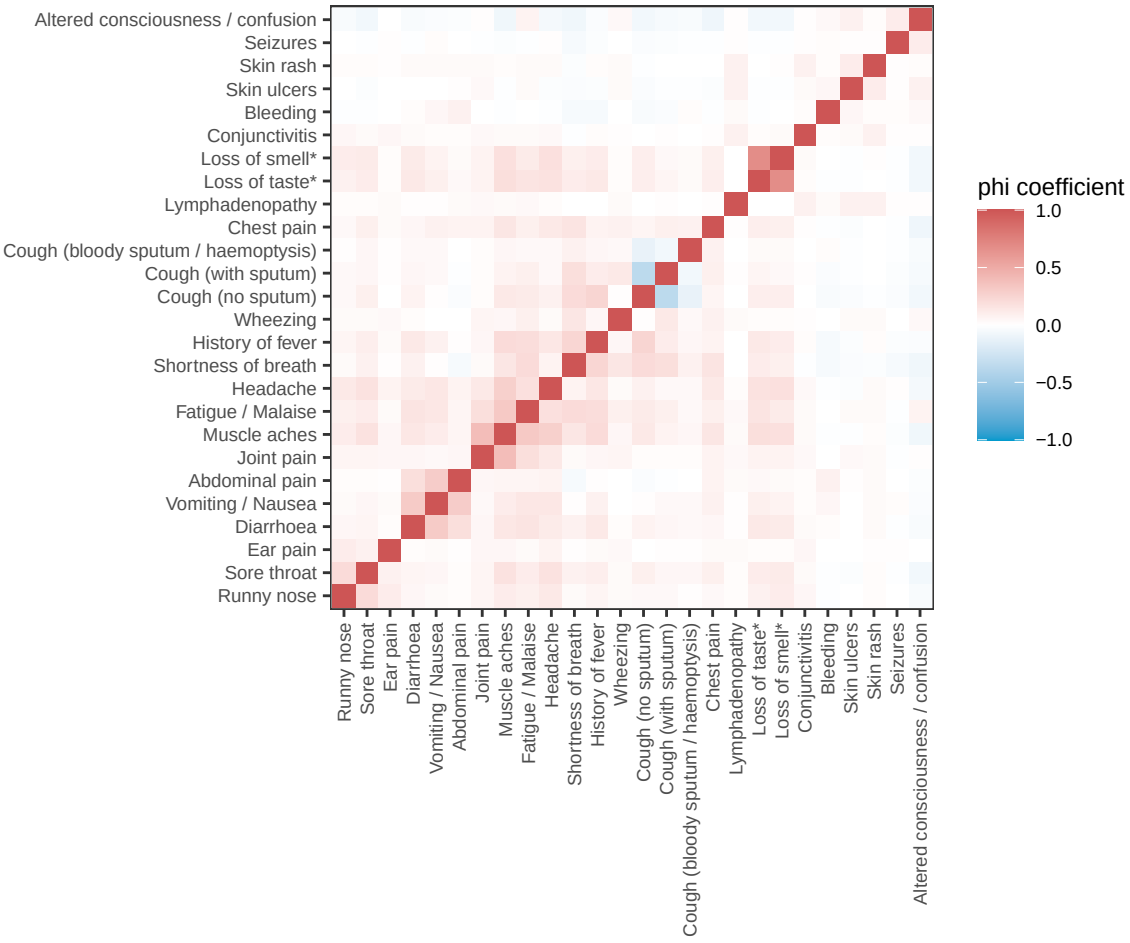
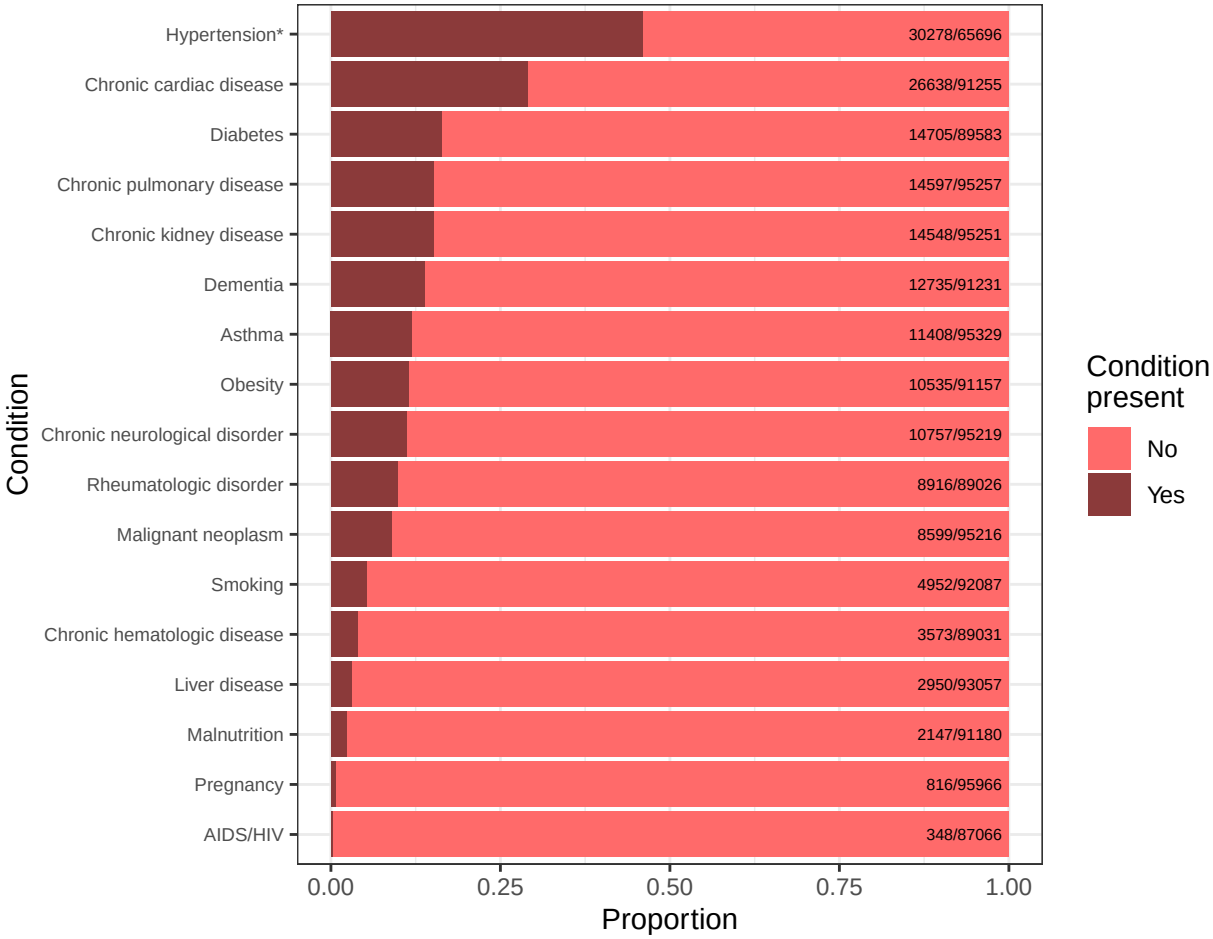
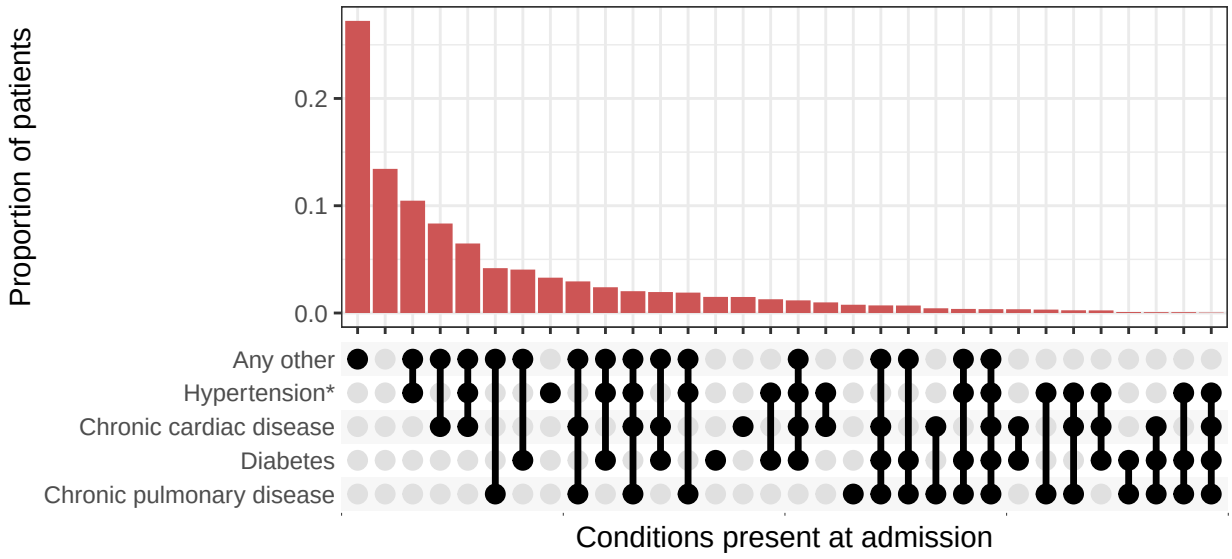

Altered consciousness / confusion
Seizures
Skin rash
Skin ulcers
Bleeding
Conjunctivitis
Loss of smell*
Loss of taste*
Lymphadenopathy
Chest pain
Cough (bloody sputum / haemoptysis)
Cough (with sputum)
Cough (no sputum)
Wheezing
History of fever
Shortness of breath
Headache
Fatigue / Malaise
Muscle aches
Joint pain
Abdominal pain
Vomiting / Nausea
Diarrhoea
Ear pain
Sore throat
Runny nose
phi coefficient
1.0
0.5
0.0
−0.5
−1.0

Figure 4: **Top**: Frequency of comorbidities or other concomitant conditions seen at admission amongst COVID-19 patients. Bars are annotated with a fraction representing the number of patients presenting with this comorbidity over the number of patients for whom presence or absence of this comorbidity was recorded. **Bottom**: The distribution of combinations of the four most common such conditions, amongst all patients for whom these data were recorded. Filled and empty circles below the x-axis indicate the presence or absence of each comorbidity. The "Any other" category contains all remaining conditions in the top plot, and any others recorded as free text by clinical staff. 13.8% of individuals had no comorbidities positively reported on admission. (As data was missing for one or more comorbidities for some patients, this should be regarded as an upper bound).



*Caution when interpreting this result as the sample size is small due to it being a new variable in the dataset.


Proportion of patients
0.2
0.1
0.0
Any other
Hypertension*
Chronic cardiac disease
Diabetes
Chronic pulmonary disease
Conditions present at admission

Variables by age

Figure 5: Comorbidities stratified by age group. Boxes show the proportion of individuals with each comorbidity, with error bars showing 95% confidence intervals. The size of each box is proportional to the number of individuals represented. N is the number of individuals included in the plot (this varies between plots due to data completeness).

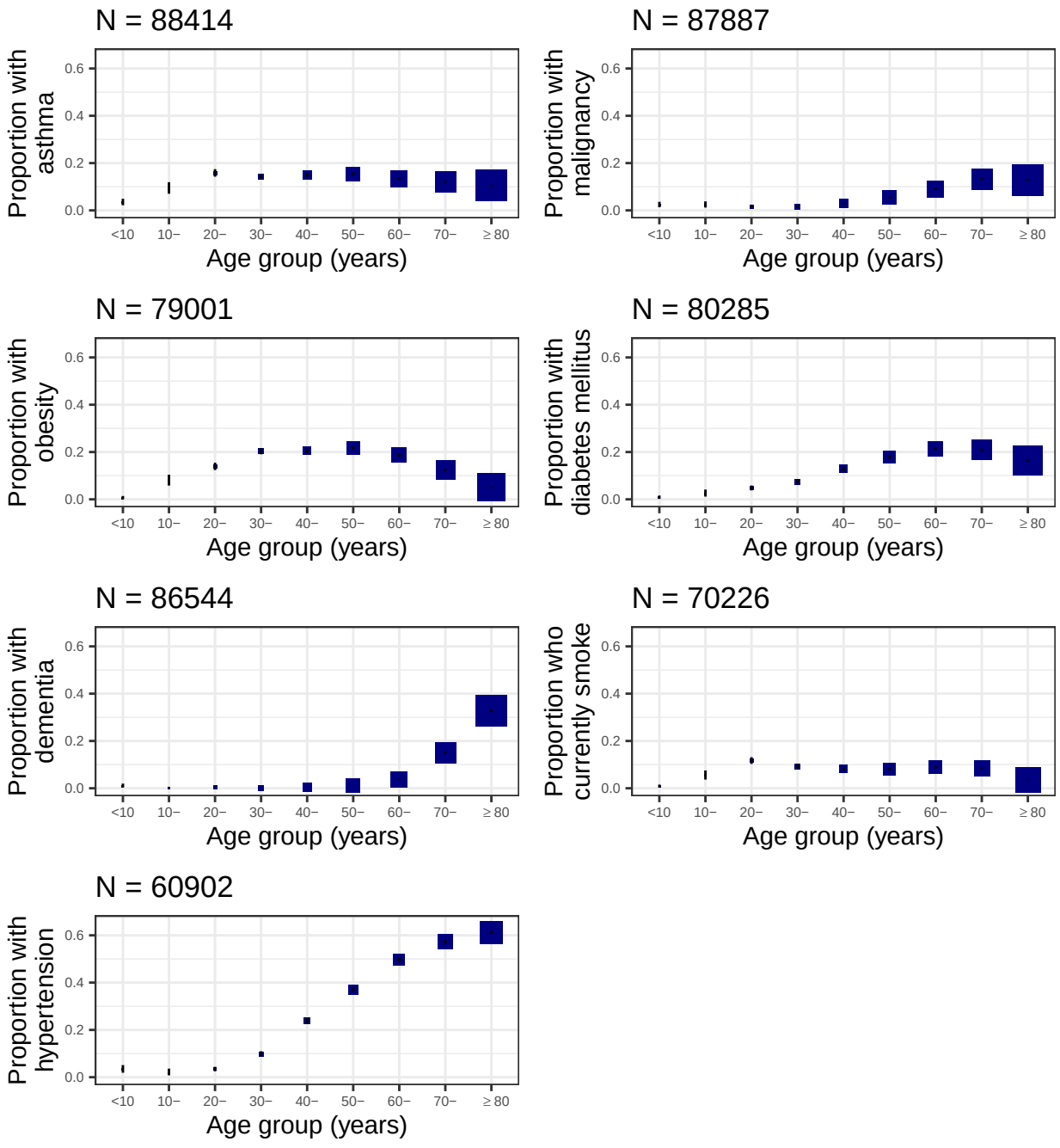
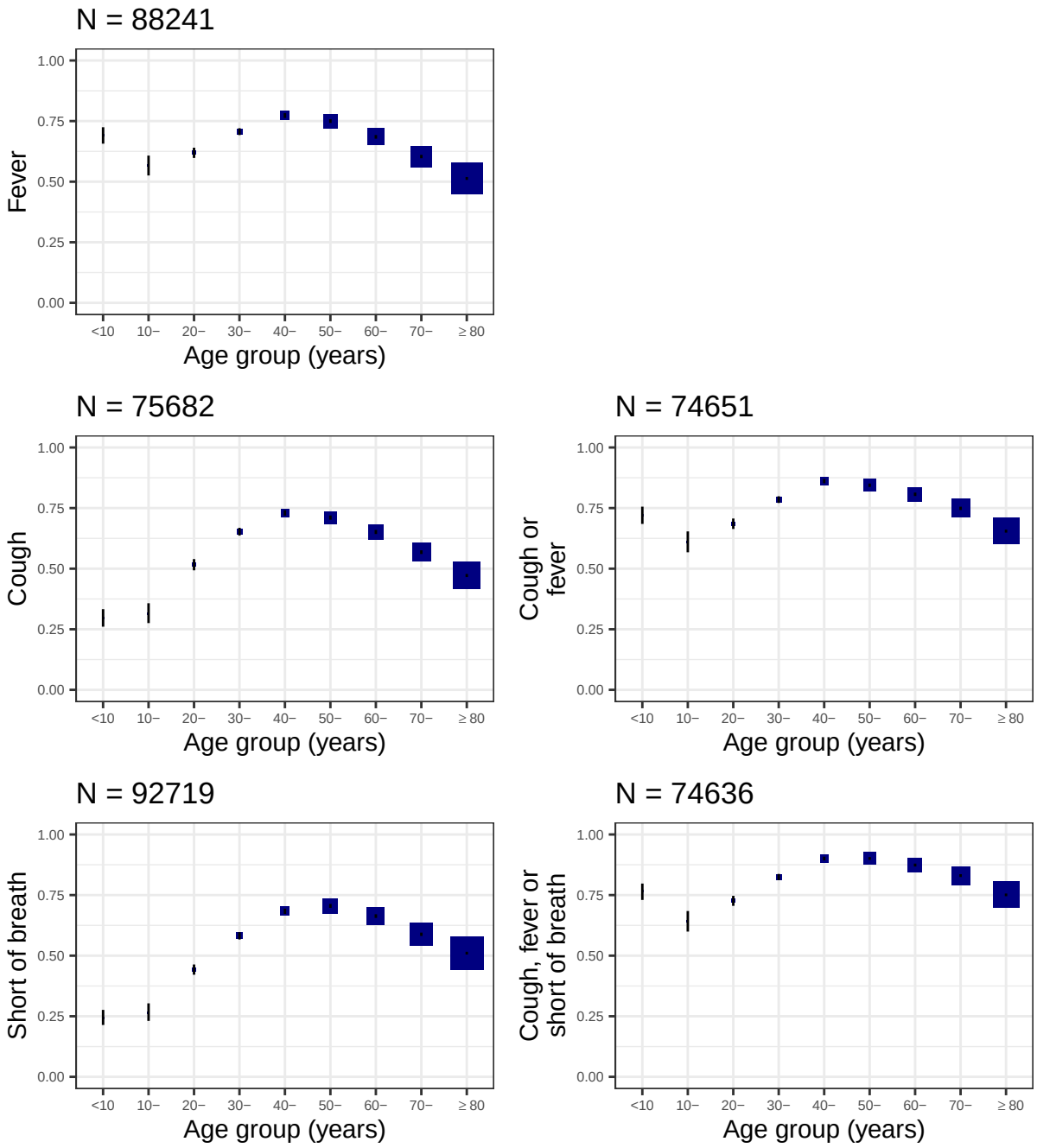


Figure 6: Symptoms recorded at hospital presentation stratified by age group. Boxes show the proportion of individuals with each symptom, with error bars showing 95% confidence intervals. The size of each box is proportional to the number of individuals represented. N is the number of individuals included in the plot (this varies between plots due to data completeness). **Top**: Left-hand column shows symptoms of fever, cough and shortness of breath, and right-hand column shows the proportions experiencing at least one of these symptoms. **Bottom**: The following symptoms are grouped: upper respiratory is any of runny nose, sore throat or ear pain; constitutional is any of myalgia, joint pain, fatigue or headache.



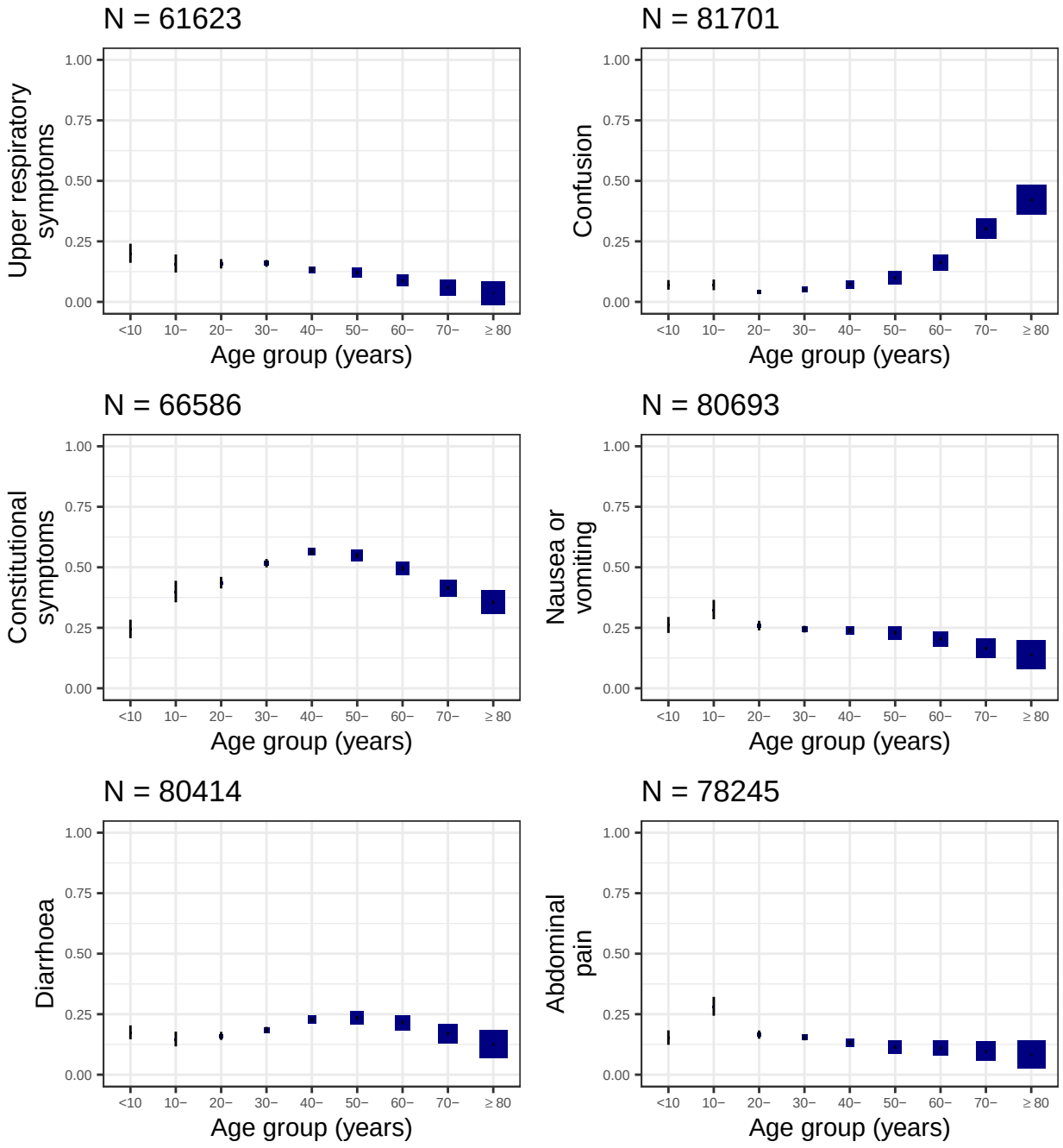
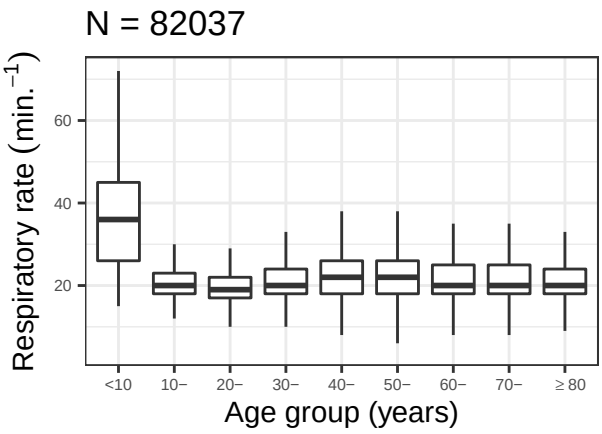
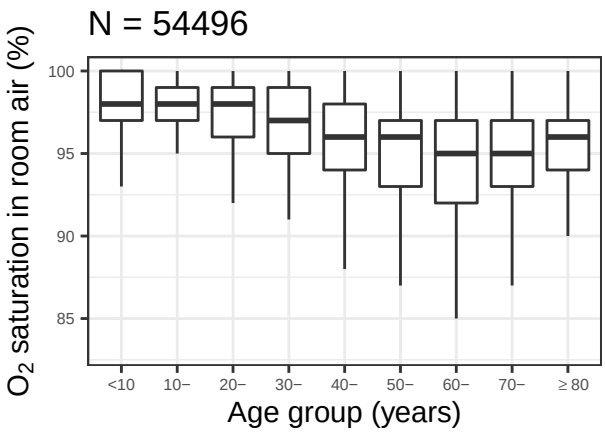
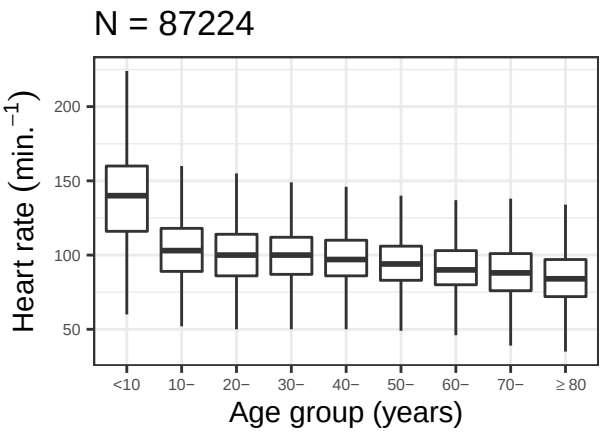
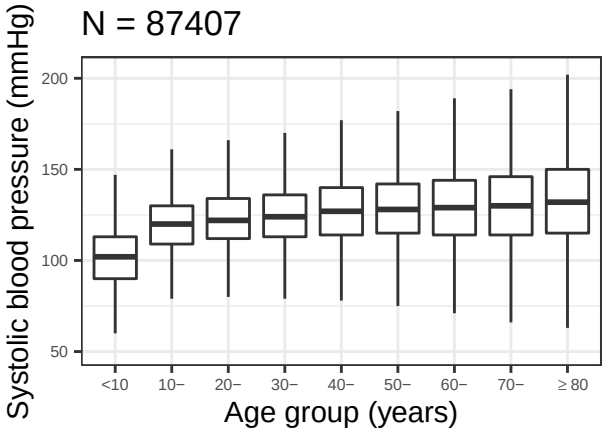

N = 61623
Upper respiratory symptoms
N = 81701
Confusion
N = 66586
Constitutional symptoms
N = 80693
Nausea or vomiting
N = 80414
Diarrhoea
N = 78245
Abdominal pain
1.00
0.75
0.50
0.25
0.00
<10
10–
20–
30–
40–
50–
60–
70–
≥ 80
Age group (years)

Figure 7: Box and whisker plots for observations at hospital presentation stratified by age group. Outliers are omitted. N is the number of individuals included in the plot (this varies between plots due to data completeness).









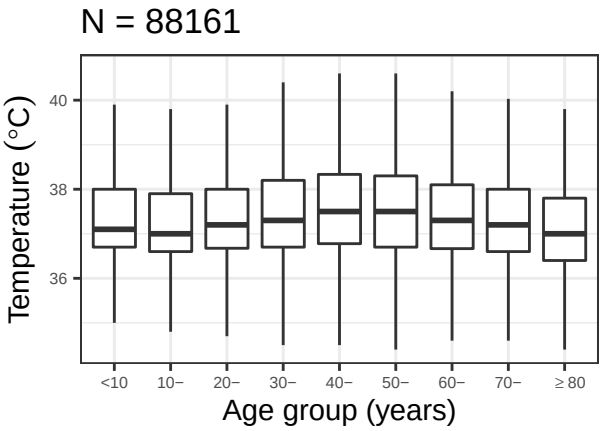
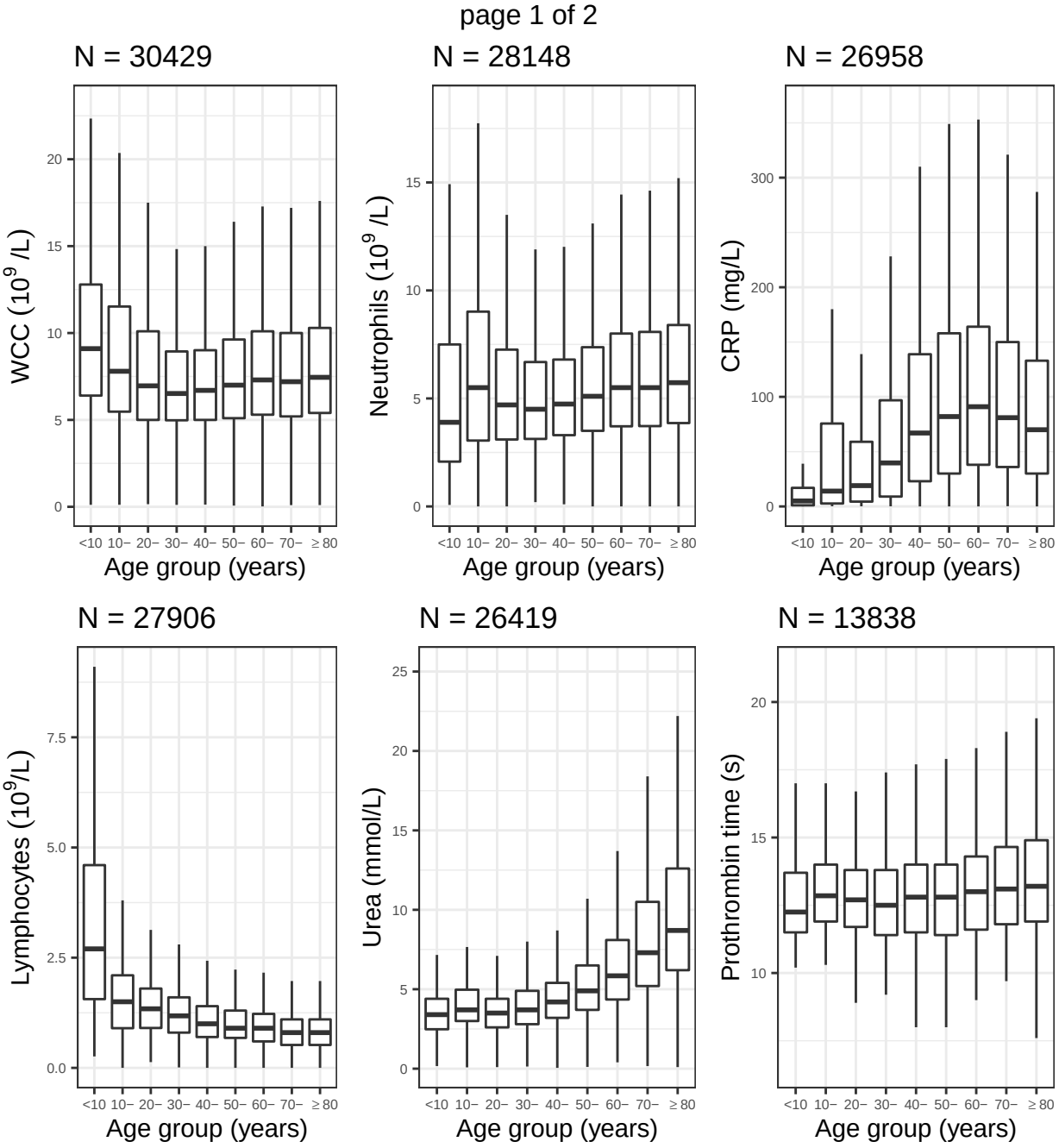
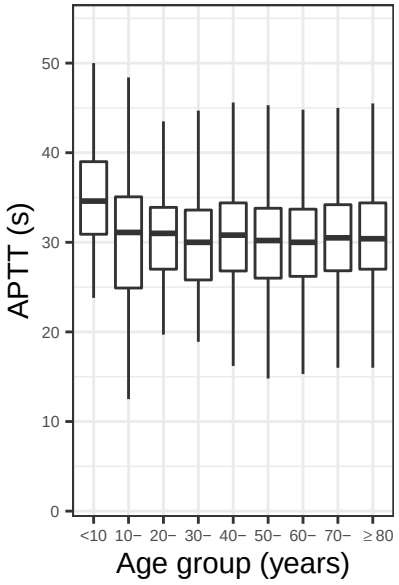


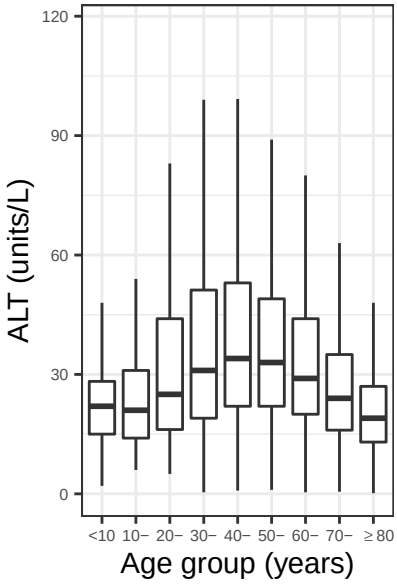
Figure 8: Box and whisker plots for laboratory results within 24 hours of hospital presentation stratified by age group. Outliers are omitted. N is the number of individuals included in the plot (this varies between plots due to data completeness). ALT, Alanine transaminase; APTT, Activated partial thromboplastin time; AST, Aspartate transaminase; CRP, C-reactive protein; WCC, white cell count



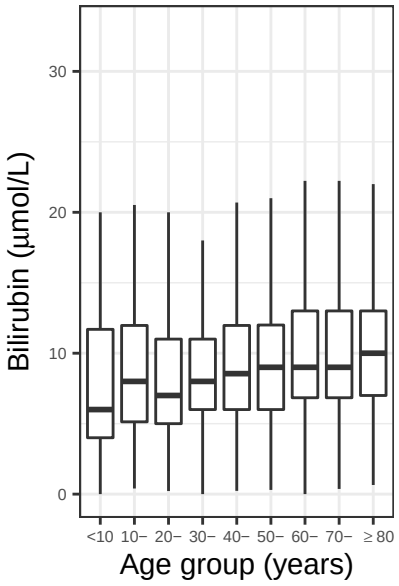
N = 10336



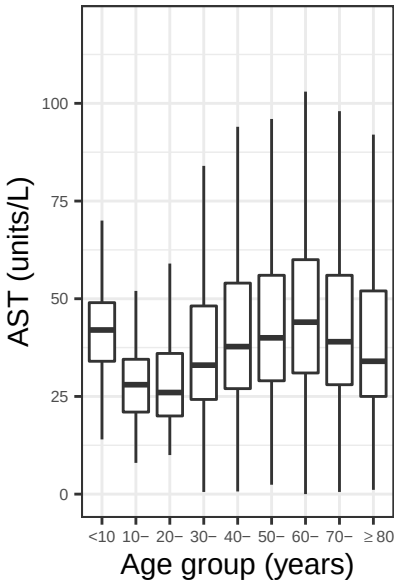
N = 22049



N = 24121



N = 6452



Hospital stays and outcomes

Figure 9: Distribution of length of hospital stay, according to sex. This only includes cases with reported outcomes. The coloured areas indicate the kernel probability density of the observed data and the box plots show the median and interquartile range of the variable of interest.

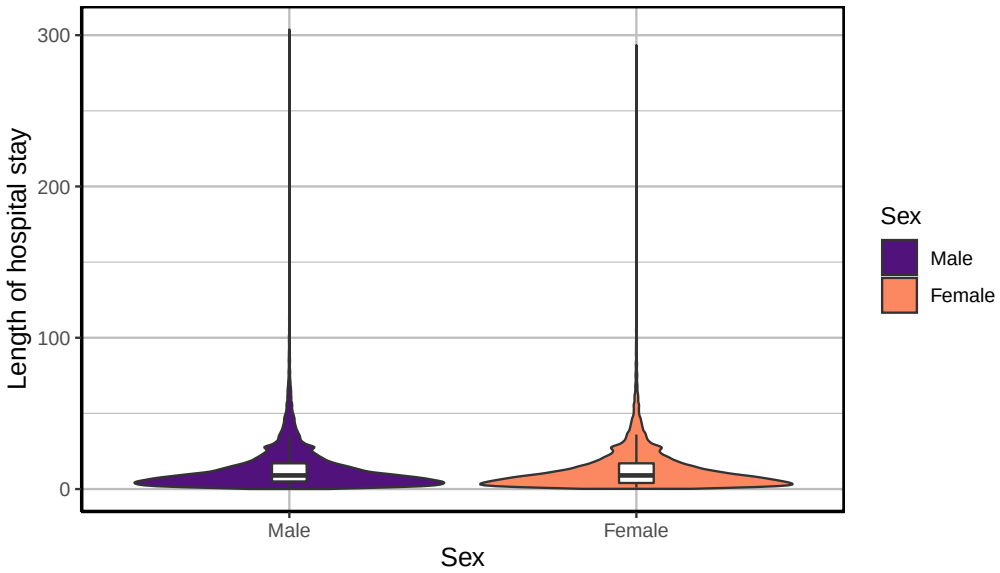


Figure 10: Distribution of length of hospital stay, according to patient age group. This only includes cases with reported outcomes. The coloured areas indicate the kernel probability density of the observed data and the box plots show the median and interquartile range of the variable of interest.

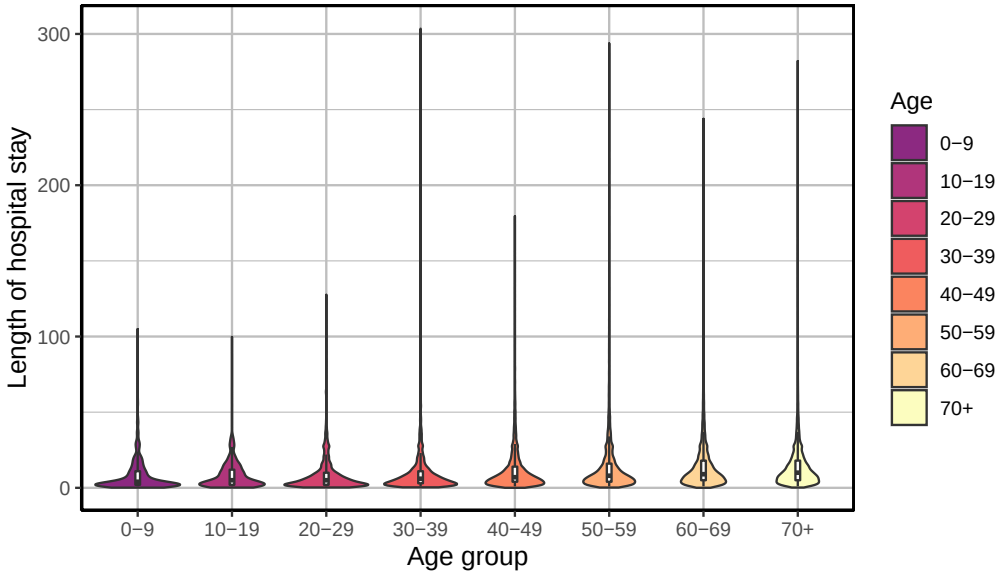


Figure 11: Distribution of time (in days) from hospital admission to ICU admission. The figure displays data on only those cases with a reported ICU start date (N=18305).

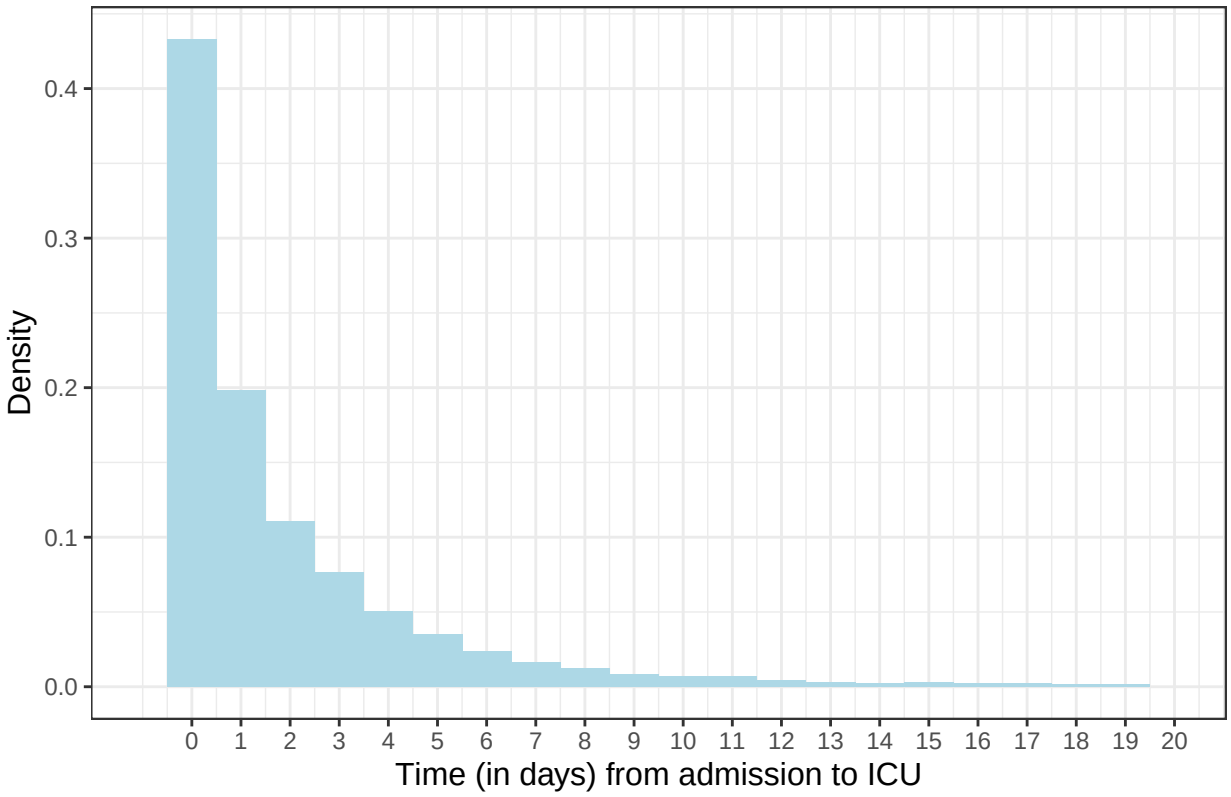


Figure 12: The distribution of patient status by number of days after admission. Patients with "unknown" status have left the site at the time of report but have unknown outcomes due to missing data. Patients still on site at the time of report appear in the "ongoing care" category for days which are in the future at that time. (For example, a patient admitted 7 days before the date of report and still on site by the date of the report would be categorised as "ongoing care" for days 8 and later.) The black line marks the end of 14 days; due to the cut-off, only a small number of patients appear in the "ongoing care" category left of this line.

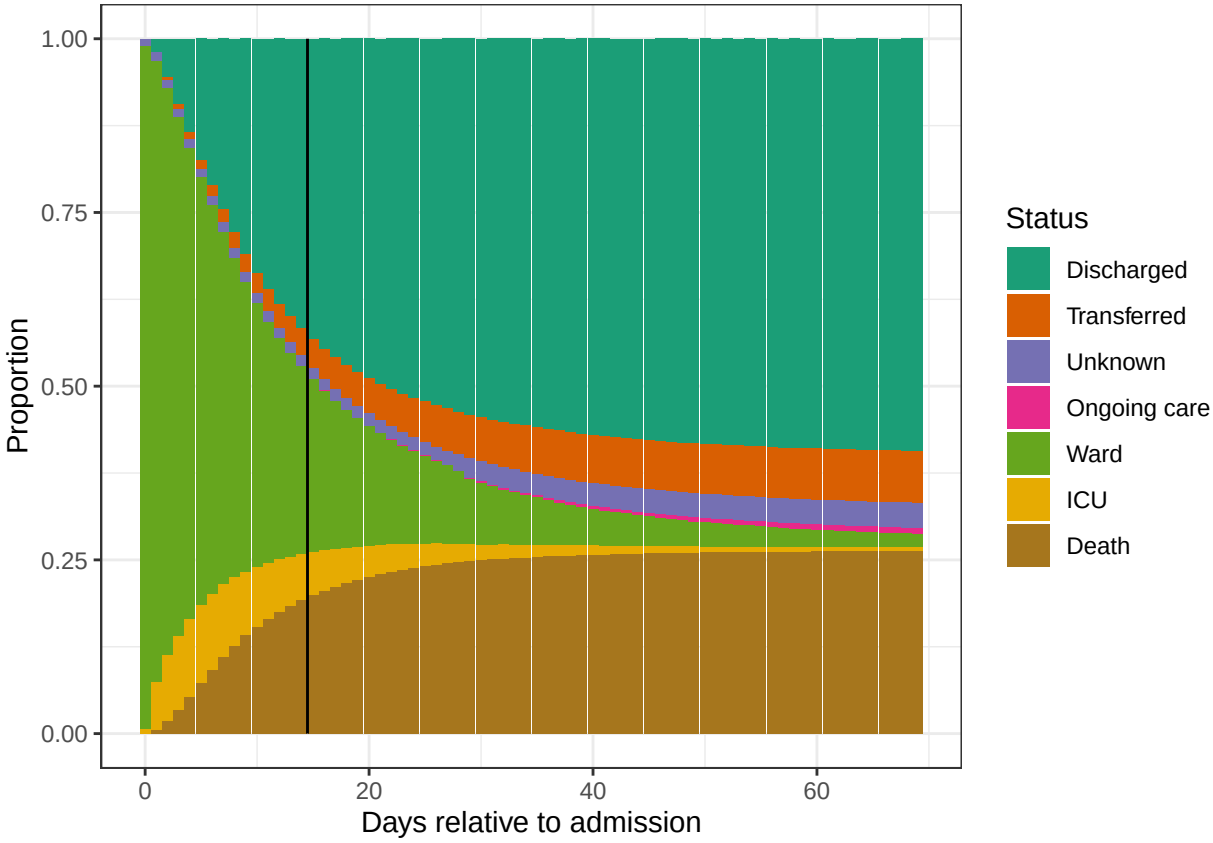
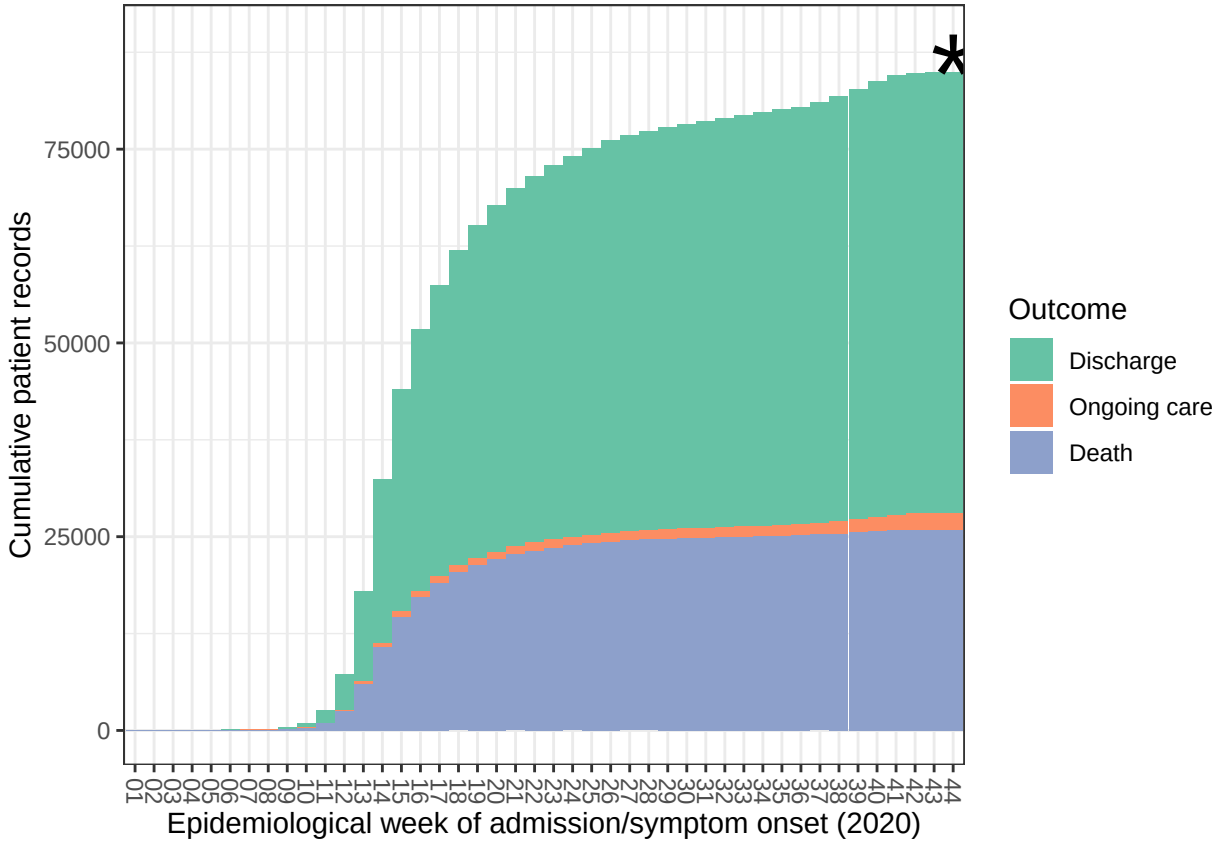
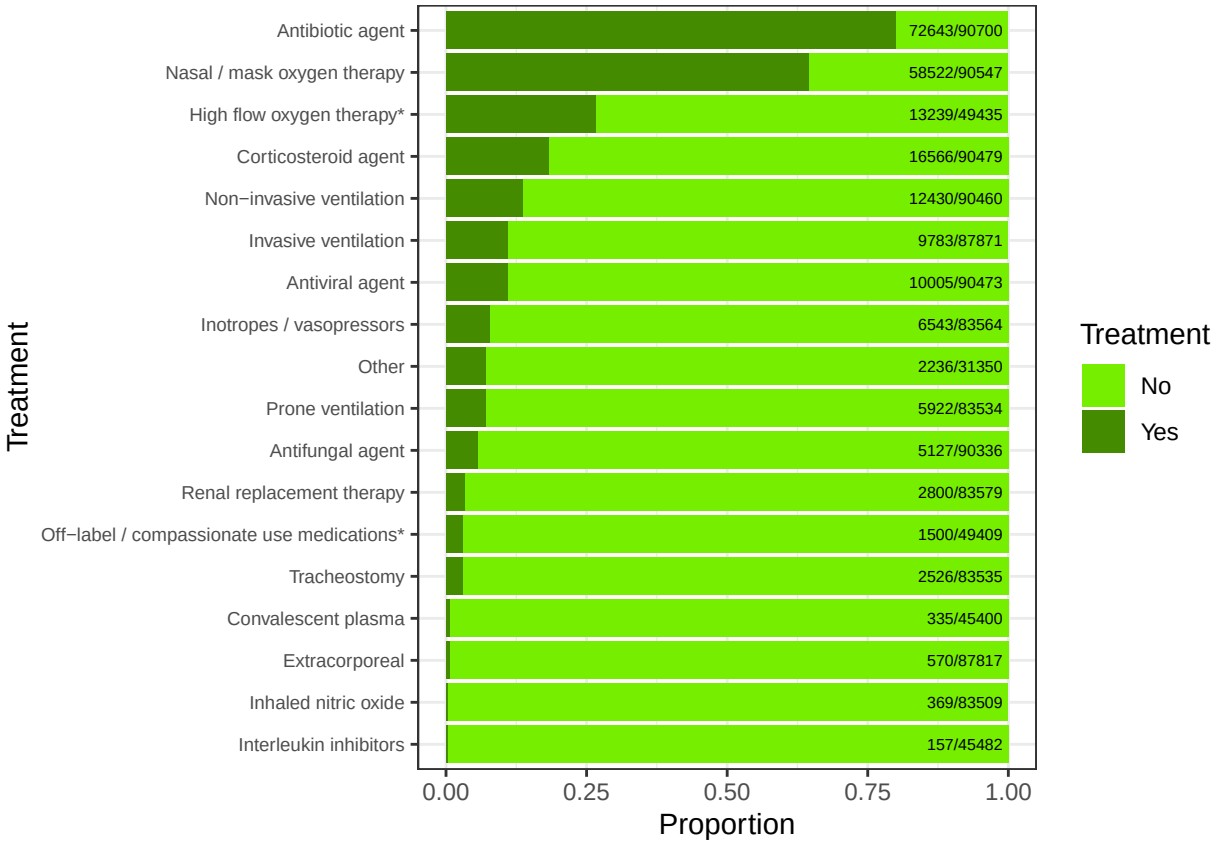


Figure 13: Cumulative patient numbers and outcomes by epidemiological week (of 2020) of admission (or, for patients infected in hospital, of symptom onset). The rightmost bar, marked with an asterisk, represents an incomplete week (due to the 14-day cutoff).

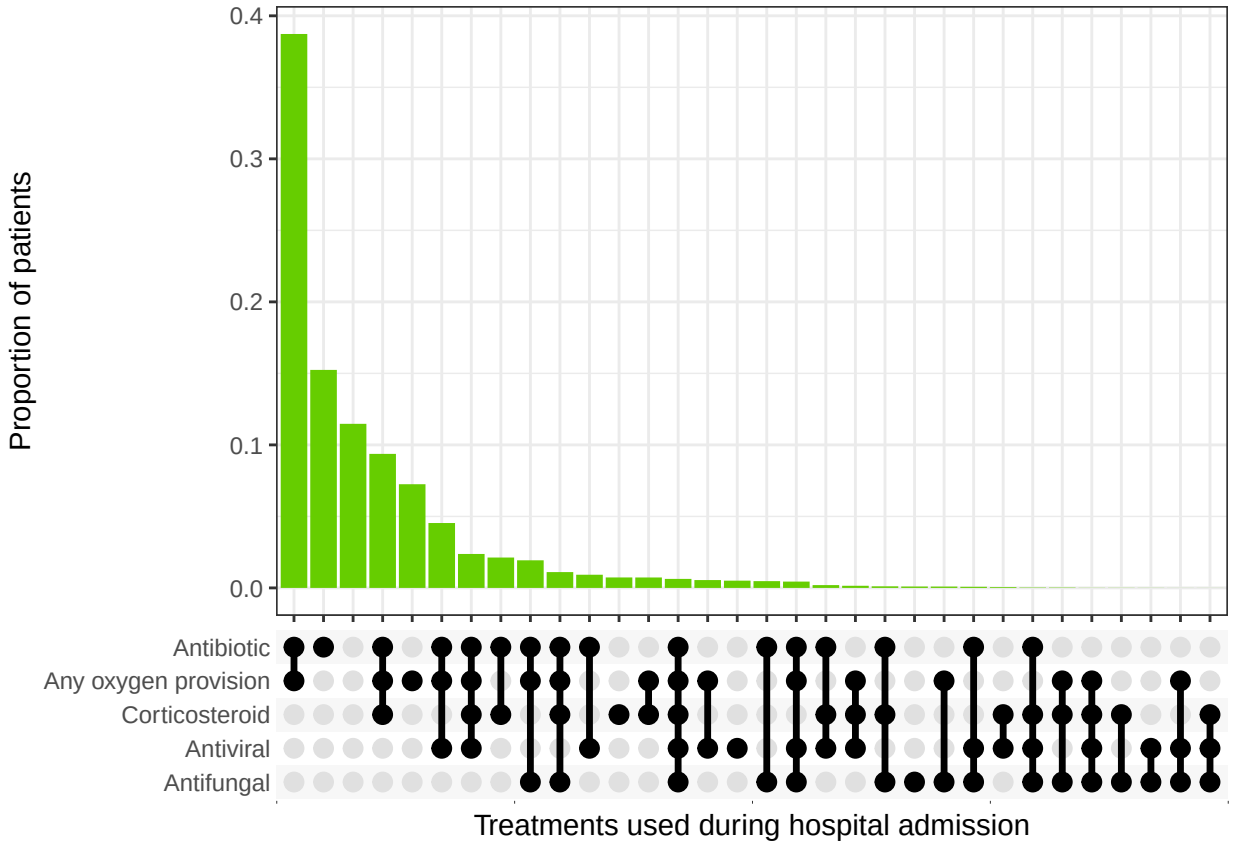


Treatment

Figure 14: **Top**: Treatments used. This only includes patients for whom this information was recorded. **Bottom**: The distribution of combinations of antimicrobial treatments and steroids administered during hospital stay, across all patients with completed hospital stay and recorded treatment data. Filled and empty circles below the x-axis indicate treatments that were and were not administered.

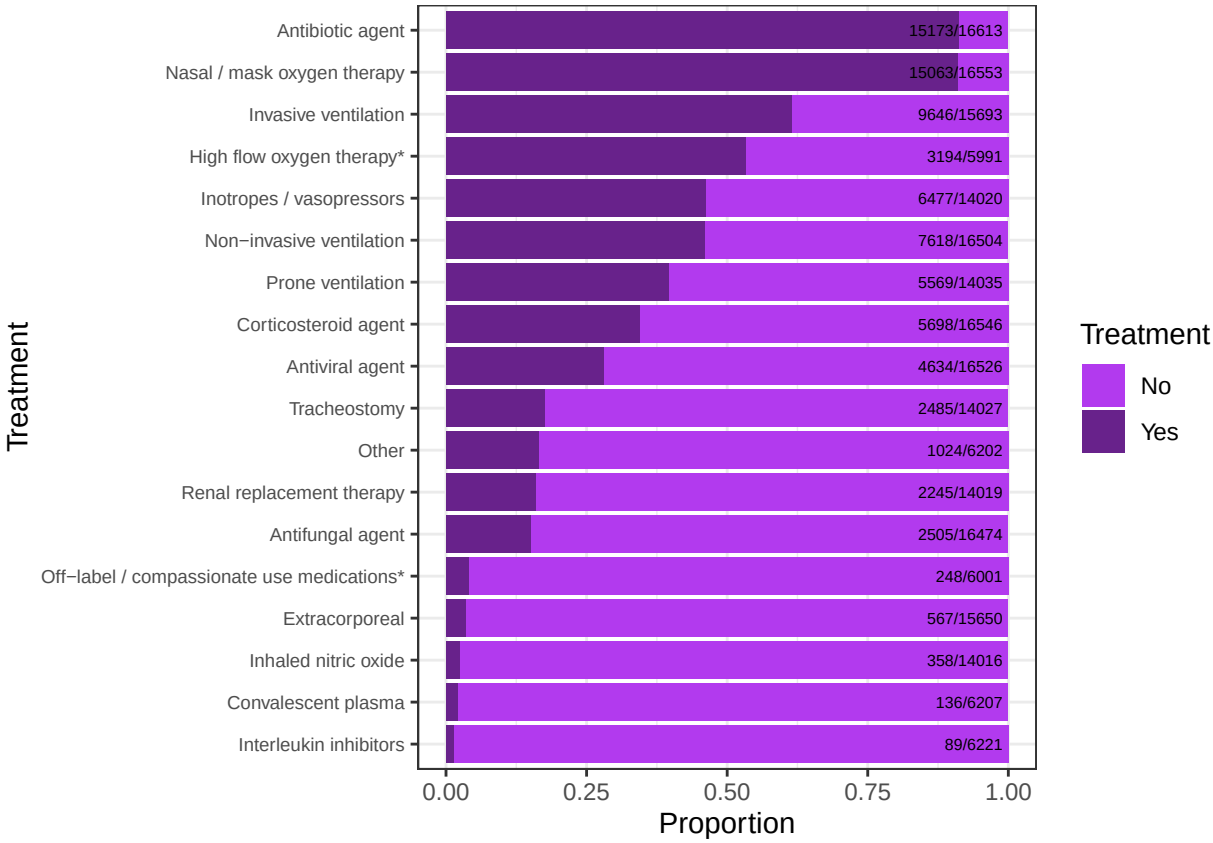


*Caution when interpreting this result as the sample size is small due to it being a new variable in the dataset.

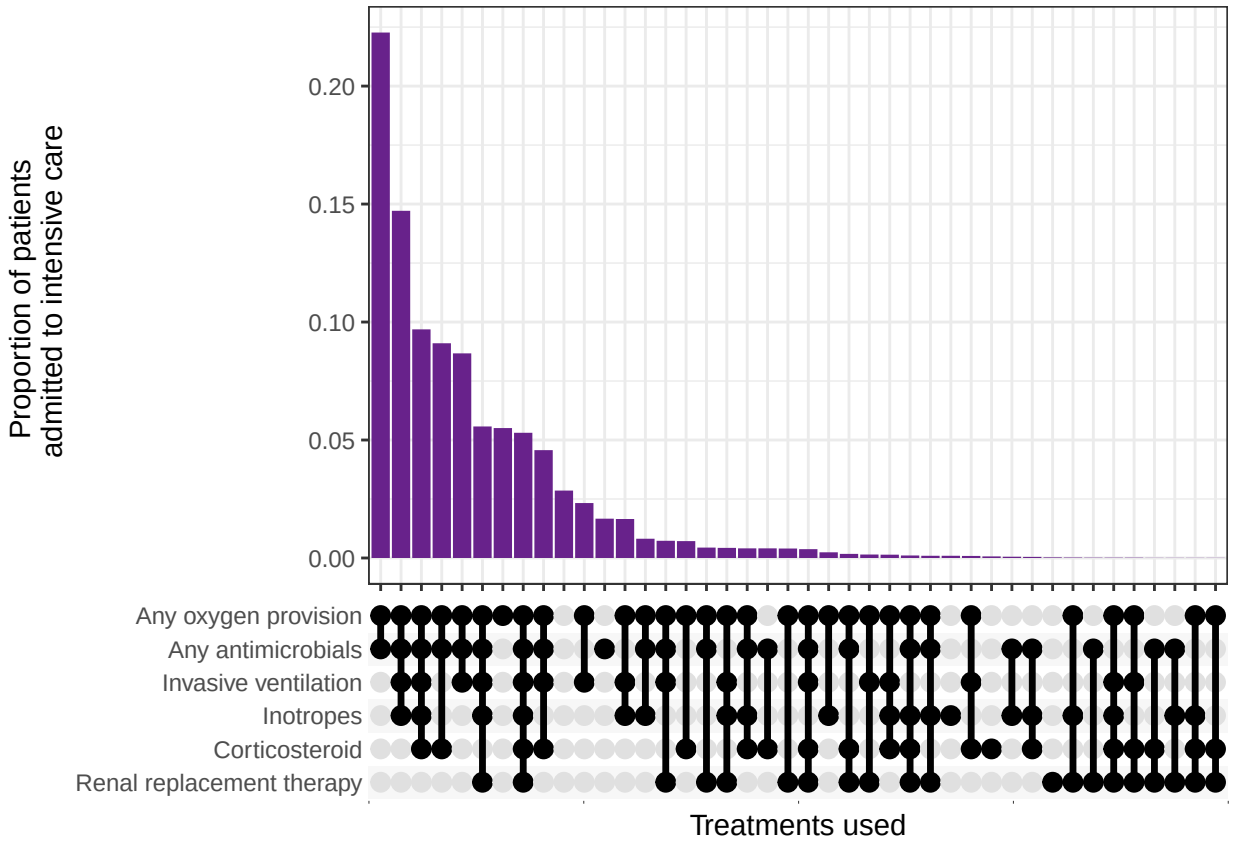

Proportion of patients
0.4
0.3
0.2
0.1
0.0
Antibiotic
Any oxygen provision
Corticosteroid
Antiviral
Antifungal
Treatments used during hospital admission

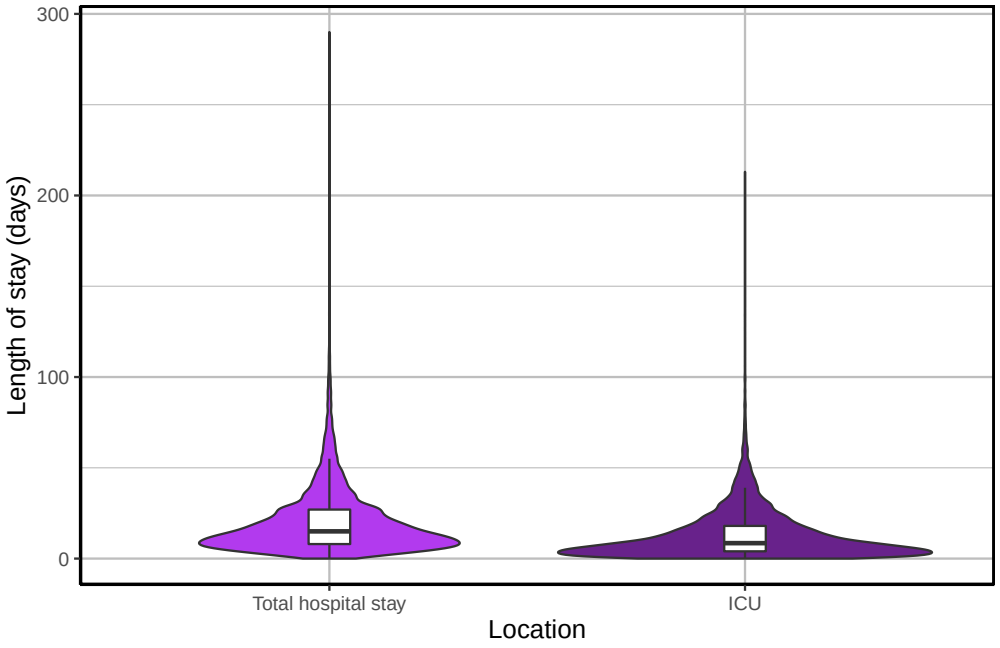
Intensive Care and High Dependency Unit Treatments

Figure 15: **Top**: Treatments used amongst patients admitted to the ICU. This only includes patients for whom this information was recorded. **Middle**: The distribution of combinations of treatments administered during ICU/HDU stay. Filled and empty circles below the x-axis indicate treatments that were and were not administered respectively. **Bottom**: Distribution of lengths of stay for patients who were admitted to ICU/HDU: total length of stay for this group and length of stay within intensive care. This only includes cases with reported completed stays. The coloured areas indicate the kernel probability density of the observed data and the box plots show the median and interquartile range of the variable of interest.



*Caution when interpreting this result as the sample size is small due to it being a new variable in the dataset.


Proportion of patients admitted to intensive care
0.20
0.15
0.10
0.05
0.00
Any oxygen provision
Any antimicrobials
Invasive ventilation
Inotropes
Corticosteroid
Renal replacement therapy
Treatments used


300
200
100
0
Length of stay (days)
Total hospital stay
ICU
Location

Statistical Analysis

Figure 16: Distribution of time from symptom onset to admission. The blue curve is the Gamma distribution fit to the data. The black dashed line indicates the position of the expected mean. The expected mean estimate here differs from the observed mean indicated in the summary text due to the differences in estimation: the mean shown in the figure below is the mean of the fitted Gamma distribution whereas the observed mean (in the summary text) is the arithmetic mean.

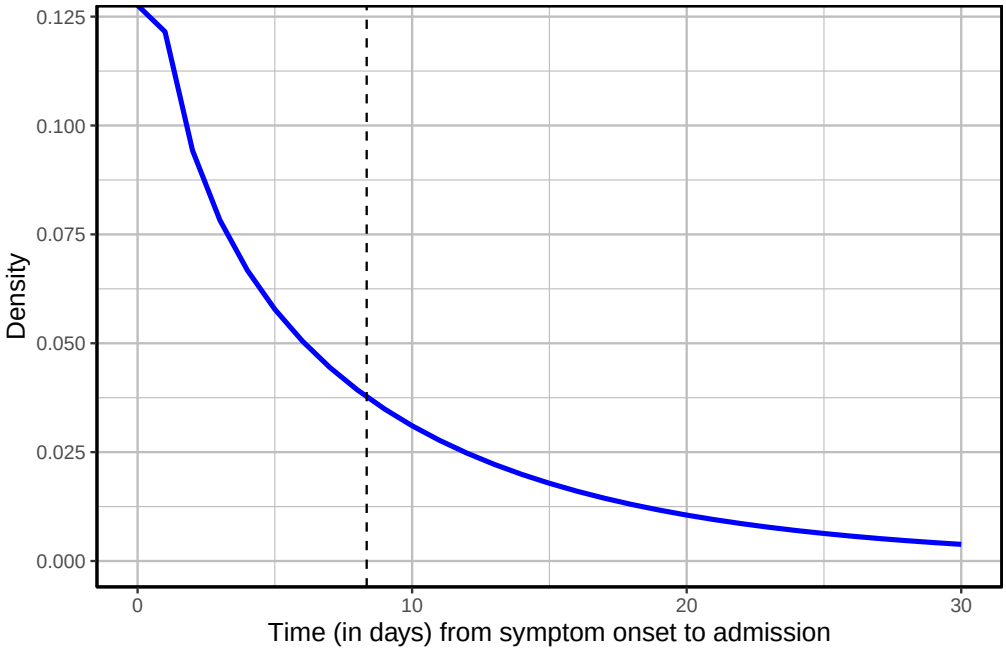


Figure 17: Distribution of time from admission to an outcome - either death or recovery (discharge). The blue curve is the Gamma distribution fit to the data. The black dashed line indicates the position of the expected mean. The expected mean differs from the observed mean in that it accounts for unobserved outcomes.

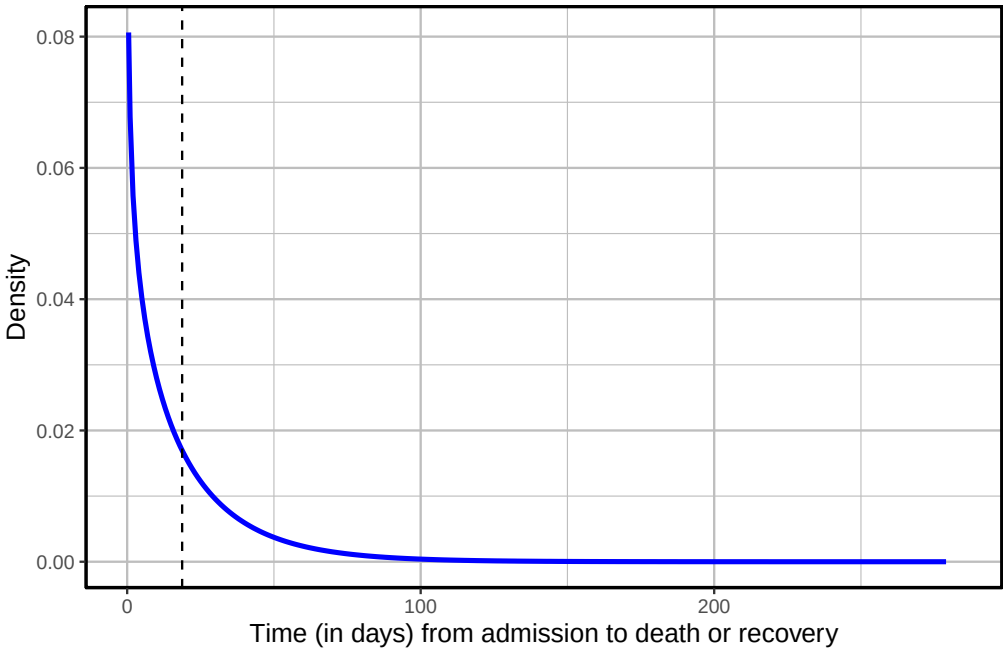
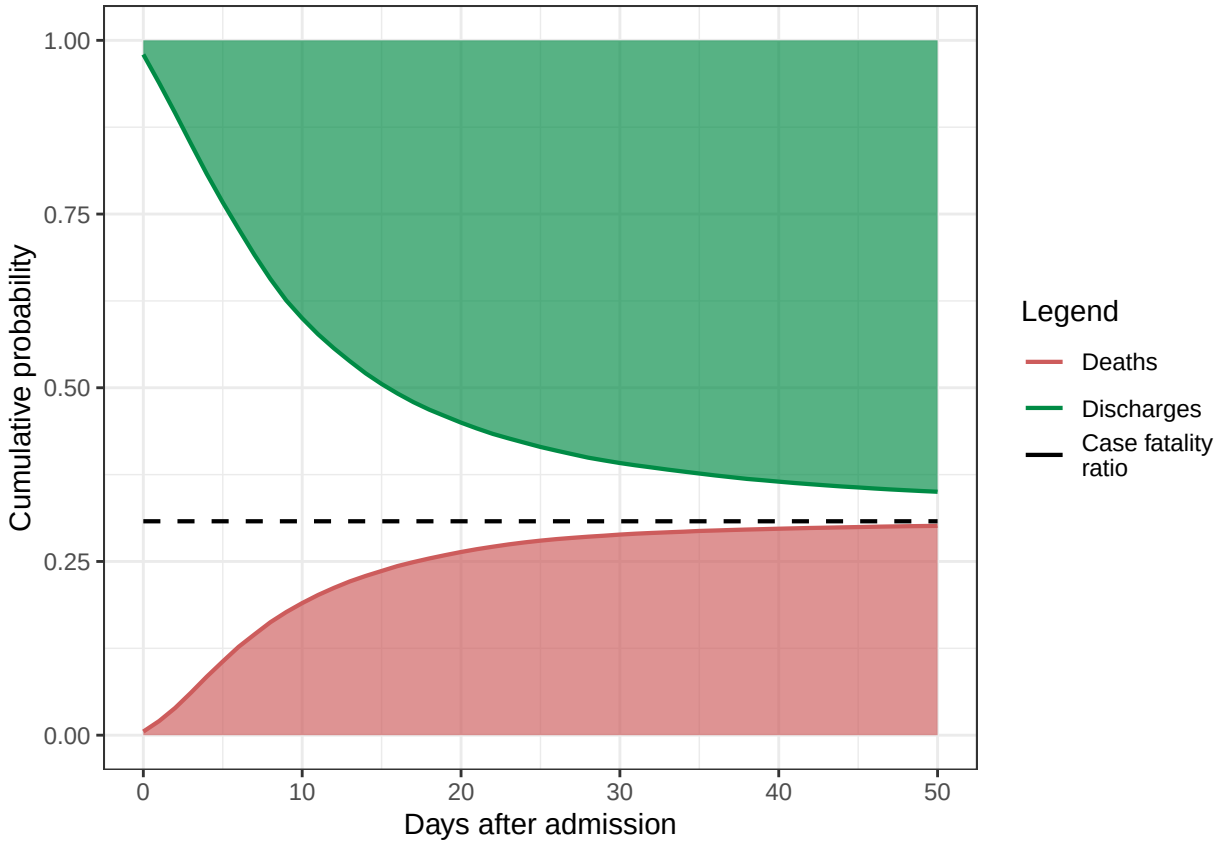


Figure 18: Probabilities of death (red curve) and recovery (green curve) over time. The black line indicates the case fatality ratio (CFR). The method used here considers all cases, irrespective of whether an outcome has been observed. For a completed epidemic, the curves for death and recovery meet. Estimates were derived using a nonparametric Kaplan-Meier–based method proposed by Ghani *et al.* (2005). The point estimate of the CFR is 0.31 (95% CI: 0.3-0.31).



Country Comparisons

Figure 19: Number of sites per country. This reflects all countries contributing data as at 09 November 2020.

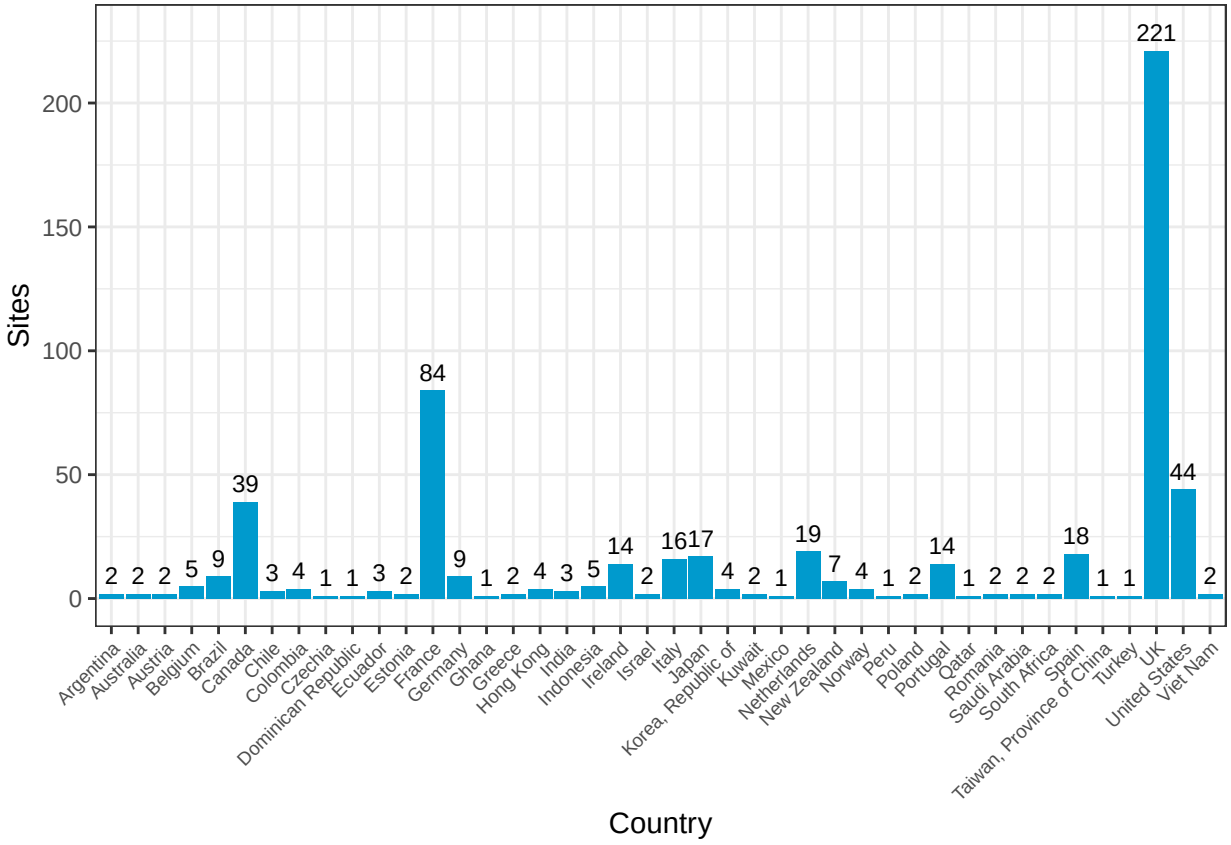
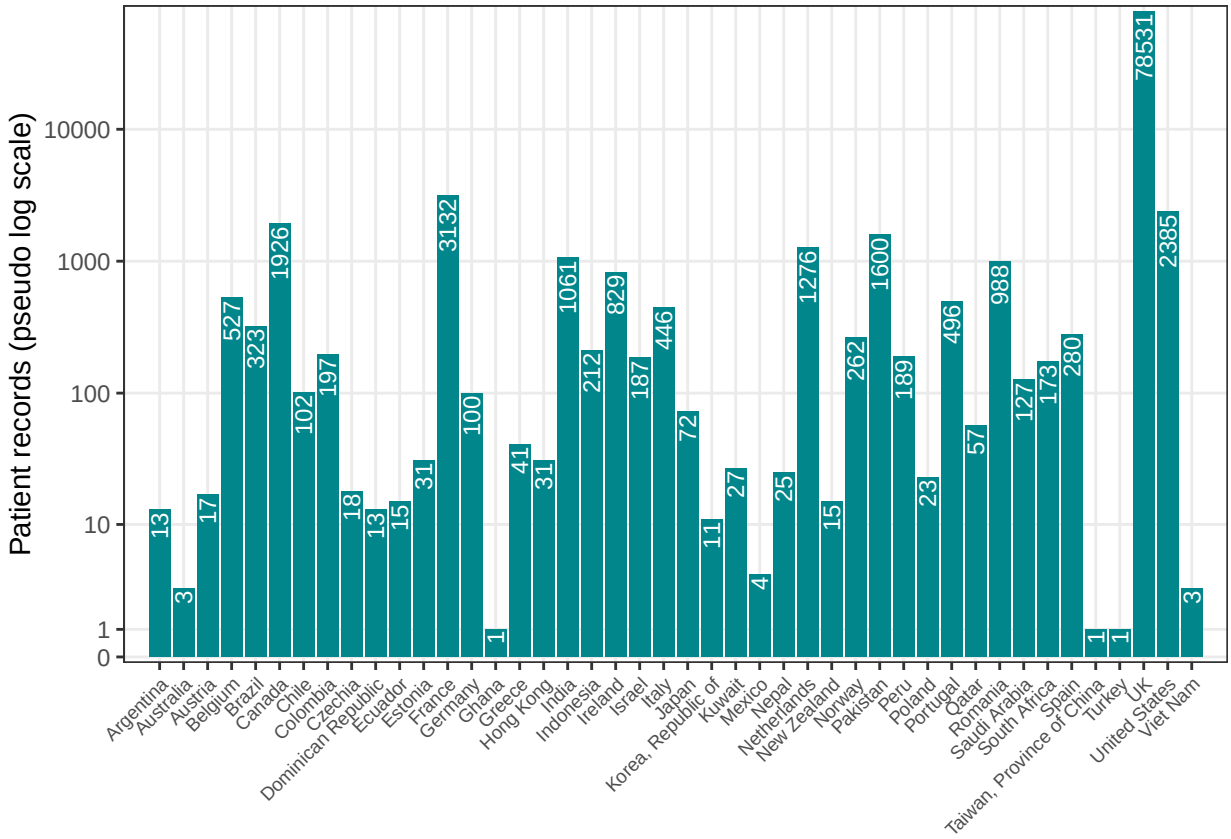


Figure 20: Distribution of patients by country. This reflects data on only those countries that are contributing data on patients who satisfy the inclusion criteria outlined in the summary section.



Background

In response to the emergence of novel coronavirus (COVID-19), ISARIC launched a portfolio of resources to accelerate outbreak research and response. These include data collection, analysis and presentation tools which are freely available to all sites which have requested access to these resources. All data collection tools are designed to address the most critical public health questions, have undergone extensive review by international clinical experts, and are free for all to use. Resources are available on the ISARIC website.

The ISARIC-WHO COVID-19 Case Record Form (CRF) enables the collection of standardised clinical data to inform patient management and public health response. These forms should be used to collect data on suspected or confirmed cases of COVID-19. The CRF is available in multiple languages and is now in use across dozens of countries and research consortia, who are contributing data to these reports.

To support researchers to retain control of the data and samples they collect, ISARIC also hosts a data platform, where data can be entered to a web-based REDCap data management system, securely stored, and used to produce regular reports on their sites as above. Data contributors are invited to input on the methods and contents of the reports, and can also contribute to the aggregated data platform which aggregates site-specific data from all other sites across the world who are using this system. For more information, visit the ISARIC website.

All decisions regarding data use are made by the institutions that enter the data. ISARIC keeps contributors informed of any plans and welcomes their input to promote the best science and the interests of patients, institutions and public health authorities. Feedback and suggestions are welcome at ncov@isaric.org.

Methods

Patient details were submitted electronically by participating sites to the ISARIC database. Relevant background and presenting symptoms were recorded on the day of study recruitment. Daily follow-up was then completed until recovery or death. A final form was completed with details of treatments received and outcomes. All categories that represent fewer than five individuals have been suppressed to avoid the potential for identification of participants.

Graphs have been used to represent the age distribution of patients by sex and status (dead, recovered & still in hospital), the prevalence of individual symptoms on admission, comorbidities on admission, the length of hospital stay by sex and age group and the distribution of patient statuses by time since admission. In addition, the number of cases recruited by country and site, as well as the case count by status, has been represented.

Using a non-parametric Kaplan-Meier-based method (Ghani *et al.*, 2005), the case- fatality ratio (CFR) was estimated, as well as probabilities for death and recovery. This method estimates the CFR with the formula $a/(a+b)$, where a and b are the values of the cumulative incidence function for deaths and recoveries respectively, estimated at the last observed time point. In a competing risk context (i.e. where there are multiple endpoints), the cumulative incidence function for an endpoint is equal to the product of the hazard function for that endpoint and the survival function assuming a composite endpoint. It is worth noting that this method assumes that future deaths and recoveries will occur with the same relative probabilities as have been observed so far. Binomial confidence intervals for the CFR were obtained by a normal approximation (See Ghani *et al.*, (2005)).

To obtain estimates for the distributions of time from symptom onset to hospital admission and the time from admission to outcome (death or recovery), Gamma distributions were fitted to the observed data, accounting for unobserved outcomes. Parameters were estimated by a maximum likelihood procedure and confidence intervals for the means and variances were obtained by bootstrap.

All analysis were performed using the R statistical software (R Core Team, 2019).

Caveats

Patient data are collected and uploaded from start of admission, however a complete patient data set is not available until the episode of care is complete. This causes a predictable lag in available data influenced by the duration of admission which is greatest for the sickest patients, and accentuated during the up-phase of the outbreak.

These reports provide regular outputs from the ISARIC COVID-19 database. We urge caution in interpreting unexpected results. We have noted some unexpected results in the report, and are working with sites that submitted data to gain a greater understanding of these.

Summary Tables

Proportions are presented in parentheses. Proportions have been rounded to two decimal places.

Table 1: Patient Characteristics

Description	Value
Size of cohort	95966
By sex	
Male	54591 (0.57)
Female	41212 (0.43)
Unknown	163 (0)
By outcome status	
Dead	25878 (0.27)
Recovered (discharged alive)	56917 (0.59)
Still in hospital	2148 (0.02)
Transferred to another facility	7426 (0.08)
Unknown	3597 (0.04)
By age group	
0-9	768 (0.01)
10-19	603 (0.01)
20-29	2200 (0.02)
30-39	4243 (0.04)
40-49	7231 (0.08)
50-59	12703 (0.13)
60-69	15189 (0.16)
70+	50549 (0.53)
Unknown	2480 (0.03)
Admitted to ICU/HDU?	
Yes	19160 (20)
No/Unknown	76806 (80)

Table 2: Outcome by age and sex. Proportions are calculated using the column total as the denominator.

Variable	**Still in hospital**	**Death**	**Discharge**	**Transferred**	**Unknown**
Age					
0-9	9 (0)	18 (0)	686 (0.01)	38 (0.01)	17 (0)
10-19	12 (0.01)	13 (0)	528 (0.01)	24 (0)	26 (0.01)
20-29	55 (0.03)	63 (0)	1930 (0.03)	53 (0.01)	99 (0.03)
30-39	128 (0.06)	213 (0.01)	3574 (0.06)	168 (0.02)	160 (0.04)
40-49	223 (0.1)	586 (0.02)	5723 (0.1)	387 (0.05)	312 (0.09)
50-59	358 (0.17)	1836 (0.07)	9208 (0.16)	693 (0.09)	608 (0.17)
60-69	432 (0.2)	3501 (0.14)	9478 (0.17)	1089 (0.15)	689 (0.19)
70+	920 (0.43)	19278 (0.74)	23932 (0.42)	4776 (0.64)	1643 (0.46)
Sex					
Male	1269 (0.59)	16004 (0.62)	31080 (0.55)	4084 (0.55)	2154 (0.6)
Female	874 (0.41)	9823 (0.38)	25749 (0.45)	3327 (0.45)	1439 (0.4)

Table 3: Prevalence of Symptoms

Symptoms	**Present**	**Absent**	**Unknown**
History of fever	57312 (0.6)	33396 (0.35)	5258 (0.05)
Cough	57243 (0.6)	0 (0)	6725 (0.07)
Shortness of breath	56279 (0.59)	38912 (0.41)	775 (0.01)
Fatigue / Malaise	33849 (0.35)	45227 (0.47)	16890 (0.18)
Altered consciousness / confusion	20802 (0.22)	63324 (0.66)	11840 (0.12)
Vomiting / Nausea	15408 (0.16)	67714 (0.71)	12844 (0.13)
Diarrhoea	14820 (0.15)	68018 (0.71)	13128 (0.14)
Muscle aches	14184 (0.15)	60579 (0.63)	21203 (0.22)
Chest pain	10663 (0.11)	70234 (0.73)	15069 (0.16)
Headache	8773 (0.09)	66252 (0.69)	20941 (0.22)
Abdominal pain	8456 (0.09)	72198 (0.75)	15312 (0.16)
Sore throat	6394 (0.07)	67355 (0.7)	22217 (0.23)
Wheezing	5770 (0.06)	71898 (0.75)	18298 (0.19)
Joint pain	4740 (0.05)	67829 (0.71)	23397 (0.24)
Disturbance or loss of taste	3009 (0.03)	40699 (0.42)	52258 (0.54)
Runny nose	2604 (0.03)	70369 (0.73)	22993 (0.24)
Disturbance or loss of smell	2237 (0.02)	42510 (0.44)	51219 (0.53)
Skin ulcers	1646 (0.02)	69049 (0.72)	25271 (0.26)
Bleeding	1339 (0.01)	78773 (0.82)	15854 (0.17)
Seizures	1182 (0.01)	79779 (0.83)	15005 (0.16)
Skin rash	1052 (0.01)	74949 (0.78)	19965 (0.21)
Lymphadenopathy	476 (0)	74534 (0.78)	20956 (0.22)

Table 4: Prevalence of Comorbidities

Comorbidities	Present	Absent	Unknown
Hypertension	30278 (0.32)	33069 (0.34)	32619 (0.34)
Chronic cardiac disease	26638 (0.28)	60788 (0.63)	8540 (0.09)
Diabetes	14705 (0.15)	67939 (0.71)	13322 (0.14)
Chronic pulmonary disease	14597 (0.15)	76442 (0.8)	4927 (0.05)
Chronic kidney disease	14548 (0.15)	76262 (0.79)	5156 (0.05)
Dementia	12735 (0.13)	73851 (0.77)	9380 (0.1)
Asthma	11408 (0.12)	79476 (0.83)	5082 (0.05)
Chronic neurological disorder	10757 (0.11)	78003 (0.81)	7206 (0.08)
Obesity	10535 (0.11)	68506 (0.71)	16925 (0.18)
Rheumatologic disorder	8916 (0.09)	75020 (0.78)	12030 (0.13)
Malignant neoplasm	8599 (0.09)	81645 (0.85)	5722 (0.06)
Smoking	4952 (0.05)	35999 (0.38)	55015 (0.57)
Chronic hematologic disease	3573 (0.04)	80555 (0.84)	11838 (0.12)
Liver disease	2950 (0.03)	84865 (0.88)	8151 (0.08)
Malnutrition	2147 (0.02)	79537 (0.83)	14282 (0.15)
Pregnancy	816 (0.01)	93933 (0.98)	1217 (0.01)

Table 5: Prevalence of Treatments

The counts presented for treatments include all cases, not only cases with complete details of treatments (as expressed in the summary).

Treatments	Present	Absent	Unknown
Antibiotic agent	72643 (0.76)	16080 (0.17)	7243 (0.08)
Oxygen therapy	63027 (0.66)	31517 (0.33)	1422 (0.01)
Nasal / mask oxygen therapy	58522 (0.61)	29731 (0.31)	7713 (0.08)
Corticosteroid agent	16566 (0.17)	70454 (0.73)	8946 (0.09)
Non-invasive ventilation	14272 (0.15)	80535 (0.84)	1159 (0.01)
High flow oxygen therapy	13239 (0.14)	33627 (0.35)	49100 (0.51)
Invasive ventilation	10907 (0.11)	81217 (0.85)	3842 (0.04)
Antiviral agent	10005 (0.1)	77578 (0.81)	8383 (0.09)
Inotropes / vasopressors	6543 (0.07)	73435 (0.77)	15988 (0.17)
Prone ventilation	5922 (0.06)	73986 (0.77)	16058 (0.17)
Antifungal agent	5127 (0.05)	80594 (0.84)	10245 (0.11)
Renal replacement therapy	2800 (0.03)	77392 (0.81)	15774 (0.16)
Tracheostomy	2526 (0.03)	77757 (0.81)	15683 (0.16)
Other	2236 (0.02)	26578 (0.28)	67152 (0.7)

Table 6: Key time variables.

SD: Standard deviation; IQR: Interquartile range. Outliers (values greater than 120) were excluded prior to the computation of estimates.

Time (in days)	Mean (observed)	SD (observed)	Median (observed)	IQR (observed)
Length of hospital stay	12.8	13.4	9	13
Symptom onset to admission	7.6	6.1	4	7
Admission to ICU entry	2.6	6.3	1	3
Duration of ICU	13.2	13.4	9	14
Admission to IMV	3.7	7.7	2	5
Duration of IMV	14.6	12.5	11	14
Admission to NIV	4.1	8.7	2	5
Duration of NIV	2.4	5.4	0	5

Acknowledgements

This report is made possible through the efforts and expertise of the staff collecting data at our partner institutions across the globe, and the ISARIC Team. For a list of partners and team members, please visit https://isaric.tghn.org/covid-19-data-management-hosting-contributors/.

References

Docherty, A.B., E.M. Harrison, C.A. Green, H.E. Hardwick, R. Pius, L. Norman, *et al.*. (2020). Features of 20 133 UK patients in hospital with COVID-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ*, 369: m1985. doi: 10.1136/bmj.m1985

Ghani, A.C., C.A. Donnelly, D.R. Cox, J.T. Griffin, C. Fraser, T.H. Lam, *et al.* (2005). Methods for Estimating the Case Fatality Ratio for a Novel, Emerging Infectious Disease, *American Journal of Epidemiology*, 162(5): 479 - 486. doi: 10.1093/aje/kwi230.

R Core Team (2019). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria.

RECOVERY (2020, 16 June). Low-cost dexamethasone reduces death by up to one third in hospitalised patients with severe respiratory complications of COVID-19. https://www.recoverytrial.net/news/low-cost-dexamethasone-reduces-death-by-up-to-one-third-in-hospitalised-patients-with-severe-respiratory-complications-of-covid-19

RECOVERY Collaborative Group (2020). Dexamethasone in hospitalized patients with Covid-19 — preliminary report. *New England Journal of Medicine* doi: 10.1056/NEJMoa2021436