

# Dynamic CO-CIN report to SAGE and NERVTAG

## [OFFICIAL-SENSITIVE PROTECT]

Dynamic content updated: 2020-05-12 06:41:07.

### Executive summary

The COVID-19 Clinical Information Network (CO-CIN) collated clinical information from the usual health care records of people of all ages admitted to hospital in the UK.

Up to 10th March people with positive swabs were admitted to hospital as part of the containment strategy. Since 10th March, admission is mostly based upon need for treatment of COVID-19 disease. The great majority of cases in the community do not require hospital admission.

In total up until 12 May 2020, CO-CIN has recruited **34426 patients** with confirmed Coronavirus (Figure 1).

The CO-CIN dataset represents 15.4% (34426/223,060) of cases of confirmed Coronavirus cases in the UK, per the PHE daily reports (last updated 9am on 11 May).

Patient data is 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.

The geographical location of our patients can be seen in Figure 2, of these 906 had travelled abroad recently, and 6071 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 73 (range: 0-105), Male/Female 17335/12070.

The most common symptoms were cough (68%), fever (66%) and shortness of breath (65%) (Figure 3A). 1132/26793 (4%) of patients have reported no symptoms. Comorbidity can be seen in Figure 3B. The most common comorbidities were chronic cardiac disease (30%), diabetes without complications (19%) and chronic pulmonary disease (17%). 13479/34426 (39%) of patients have reported no co morbidity. 135/2283 (6%) of women were recorded as being pregnant.

For patients not already in hospital, the median time from onset of symptoms to presentation at hospital was 4 days (range: 0 - 368894 days).

The median length of hospital stay was 8 days (interquartile range: 4-14, n = 20133).

2691/19444 (14%) patients required high-flow oxygen after day 1 of treatment.

Currently 7855 patient(s) have died and 4185 required ICU. 12567 have been discharged home.

Interpretation: The dataset is increasingly more representative of the burden of disease requiring hospitalisation and captures the early exponential rise of disease incidence that is now increasingly driven by domestic transmission events in the community.

Furthermore, we can now see 'hot spots' of disease incidence that largely reflect areas of high population density (most notably London) with a few exceptions to this. There are more men than women, consistent with reports from other countries. The proportion of pregnant women affected is broadly in line with the proportion of pregnant women in the general population.

The commonest comorbidity is chronic cardiac disease, reflecting patterns seen in other countries, although nearly a quarter of patients admitted do not have underlying comorbid disease.

Patients documented as being admitted to ICU are mainly 50-75 years old. When interpreting admission to ICU it is important to remember that we are currently unable to capture treatment limiting decisions regarding level of care.

Prof Calum Semple, Professor in Child Health and Outbreak Medicine, University of Liverpool.

Dr Annemarie Docherty, Academic Consultant Intensive Care University of Edinburgh.

Dr Chris Green, Academic Consultant Infectious Disease University of Birmingham.

Prof Ewen Harrison, Director Centre for Medical Informatics, Usher Institute, University of Edinburgh (analysis).

Professor Tom Solomon, Director HPRU Emerging and Zoonotic Infection.

ISARIC Investigators (Prof. Peter Horby, Prof. Peter Openshaw, Dr Gail Carson, and Dr Kenneth Baillie).

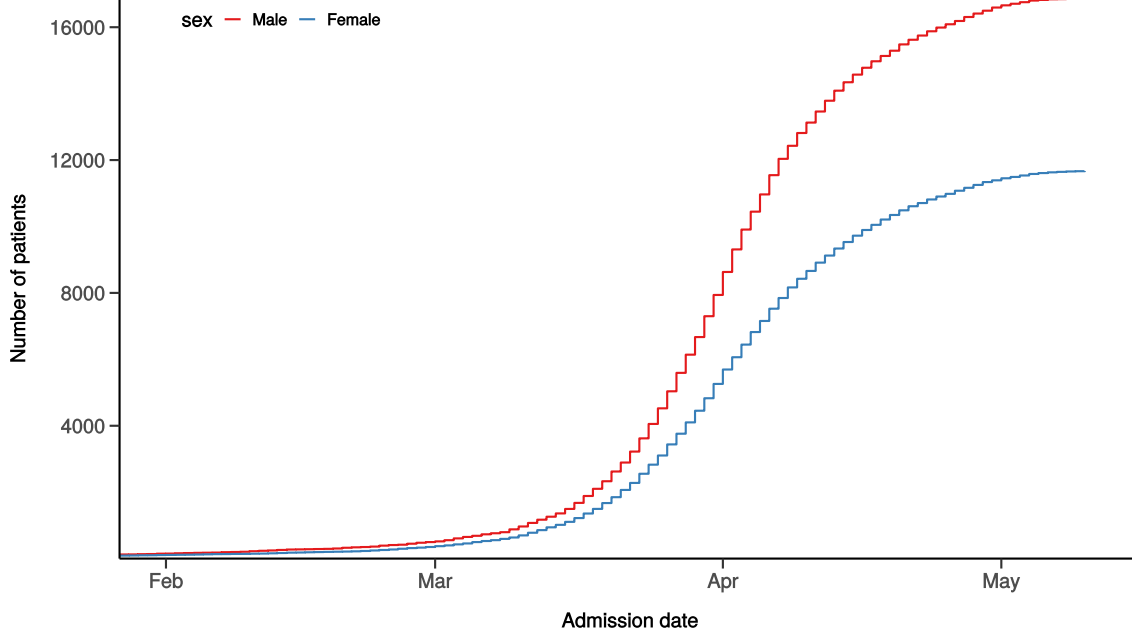
Analytics: Lisa Norman, Riinu Pius, Thomas Drake, Cameron Fairfield, Stephen Knight, Kenneth McLean, Katie Shaw.

## Admission

### Figure 1

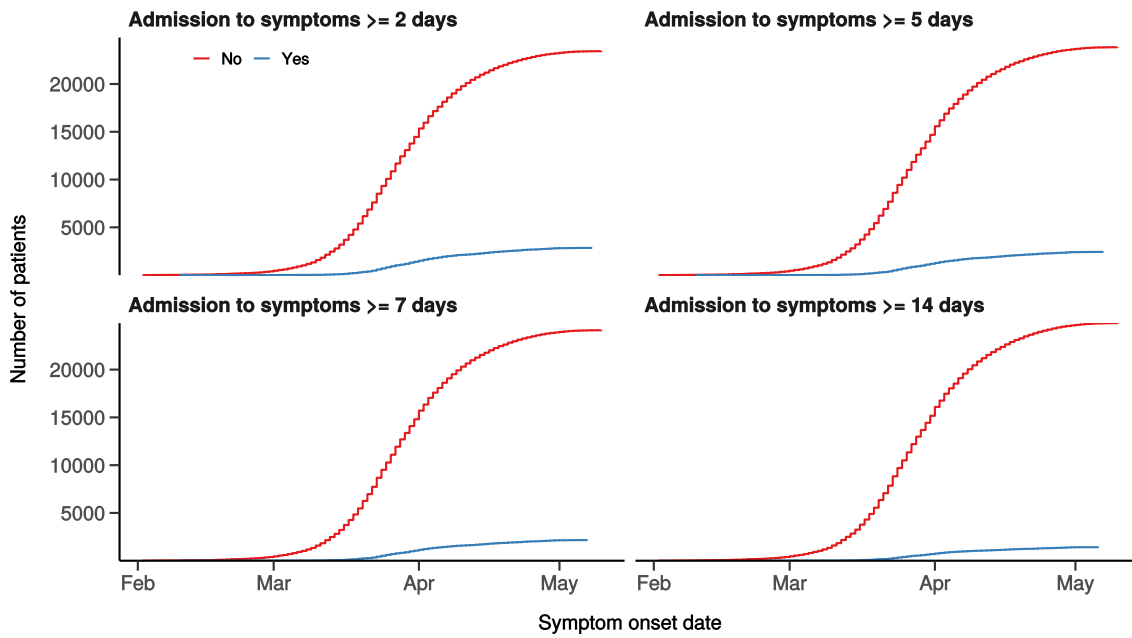
### Hospital admission with COVID-19 by sex

Figure 1A



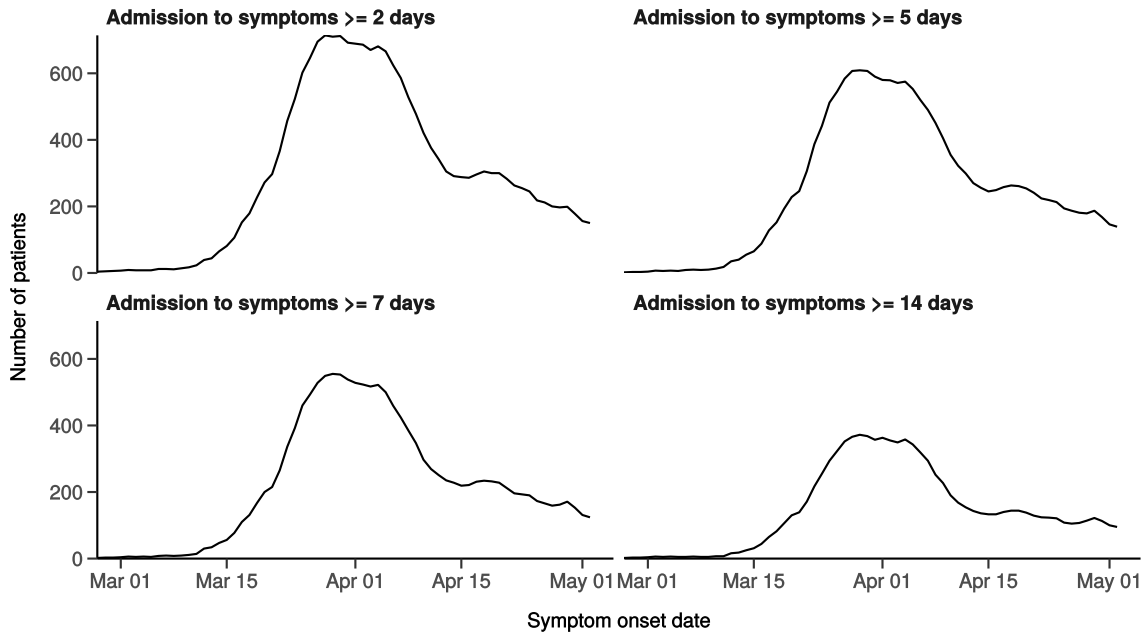
### Number with symptom onset occurring after admission to hospital

Figure 1B



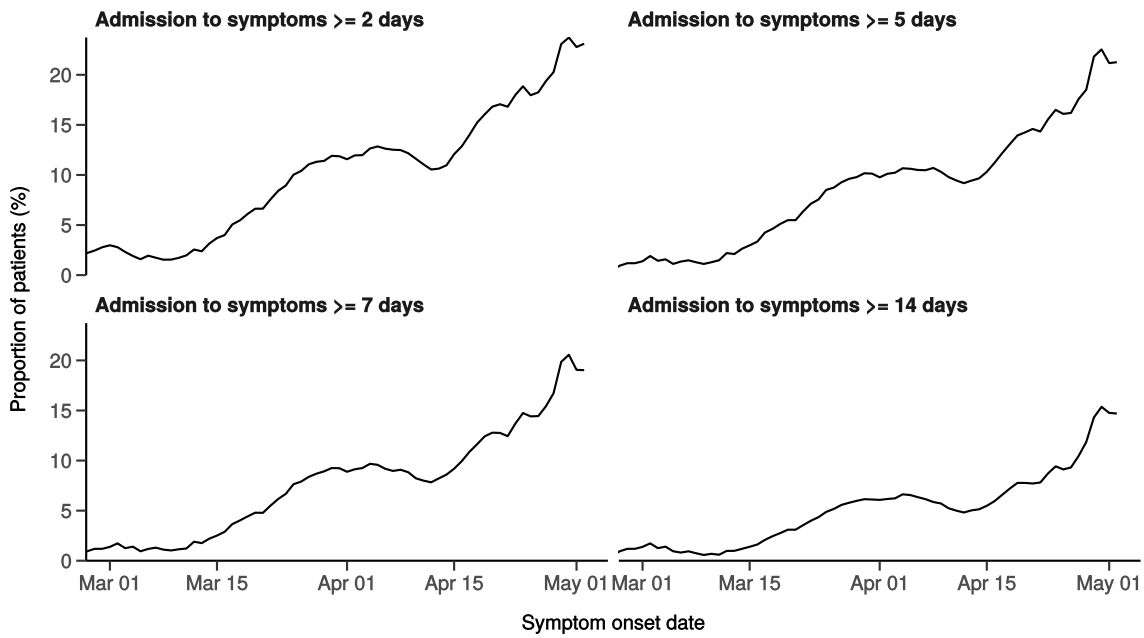
### Number with symptom onset occurring after hospital admission

Figure 1C - 7-day rolling count. n = 26293



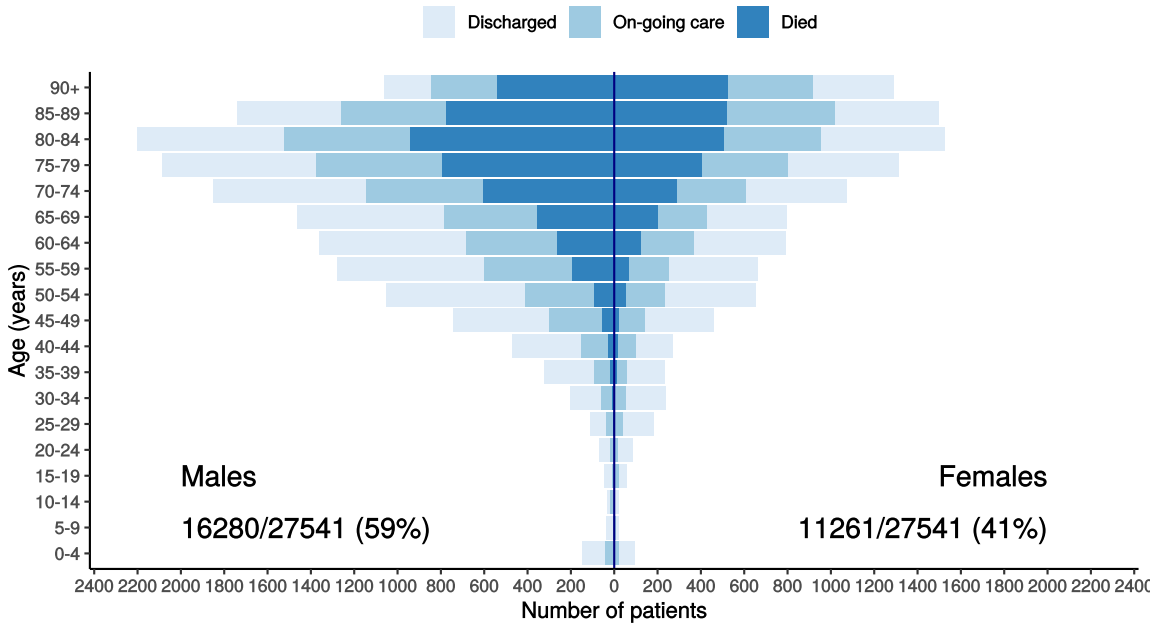
### Proportion with symptom onset occurring after hospital admission

Figure 1D - 7-day rolling percentage. n = 26293



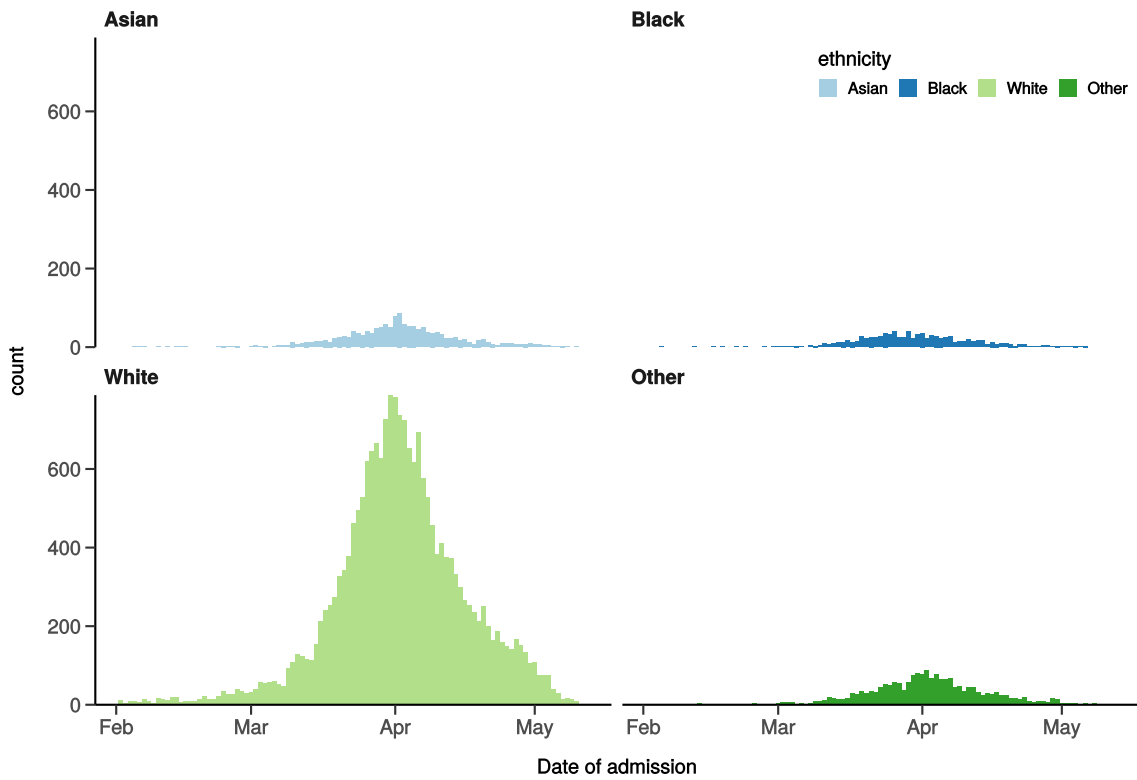
## Patients with outcome stratified by age, and sex

Figure 1E



## Hospital admission with COVID-19 by ethnicity

Figure 1F



## Location by CCG / Healthboard

Figure 2

Click and drag on map to zoom into area. Reset via toolbar at top of map.

## Symptoms and comorbidity

Figure 3A

Symptoms on presentation to hospital (% patients, n = 26560) Comorbidity (% patients, n = 26591)

Figure 3A

Figure 3B

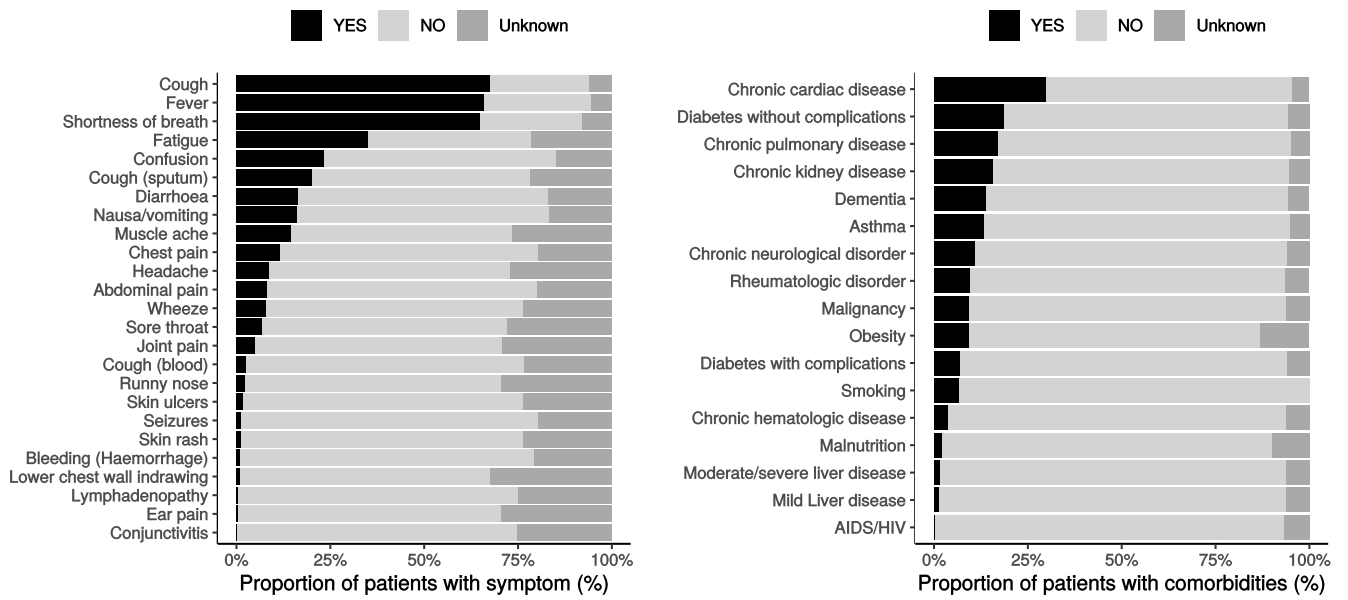
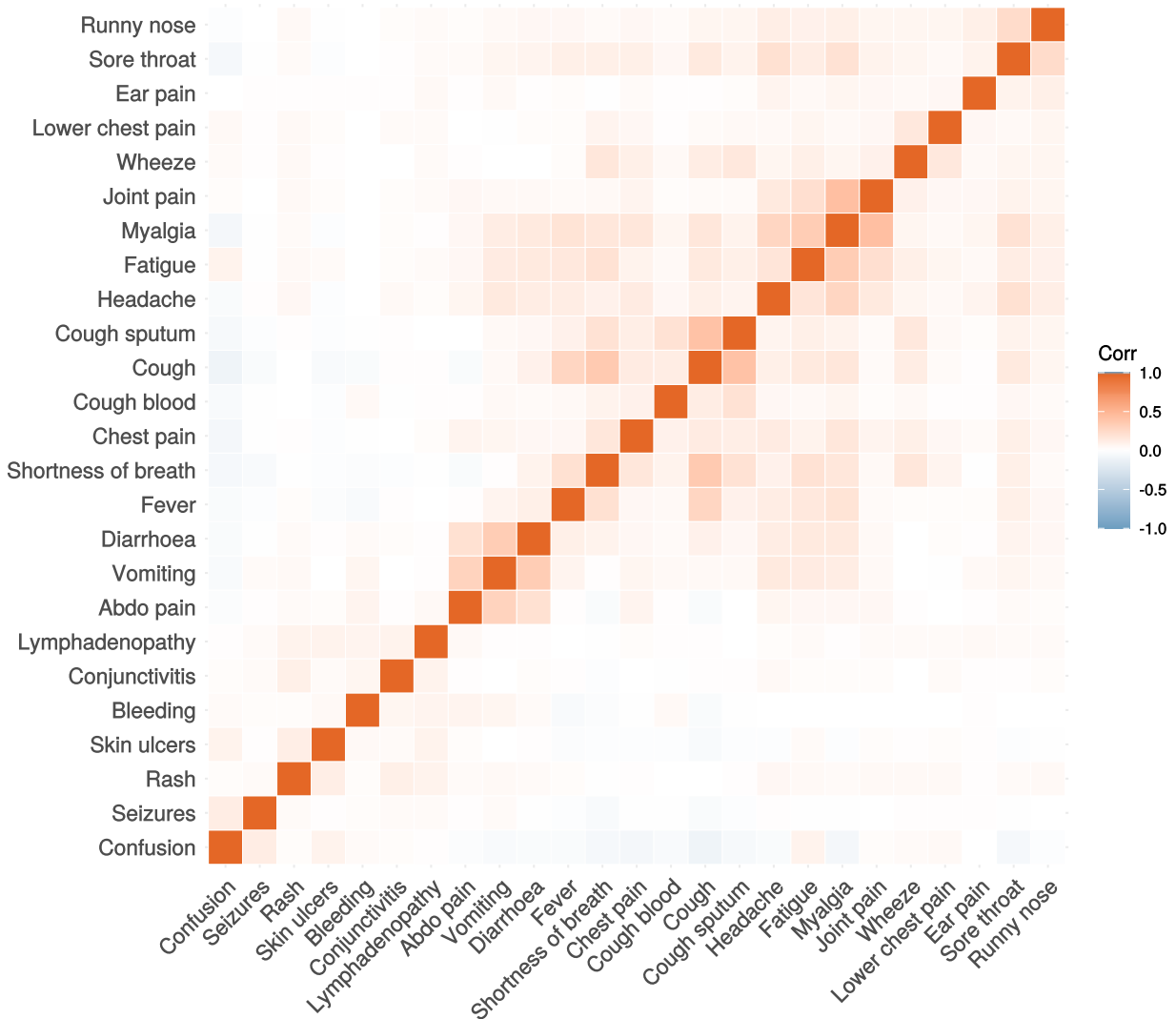


Figure 3C

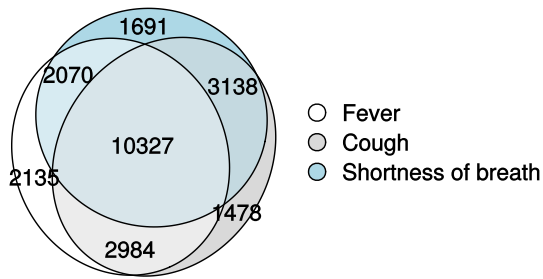
Correlation of symptoms in all pages. Note clusters, top right to bottom left, flu-like, coryzal, abdominal, respiratory, neurocutaneous.



## Symptoms (diagnostic criteria)

Figure 4A

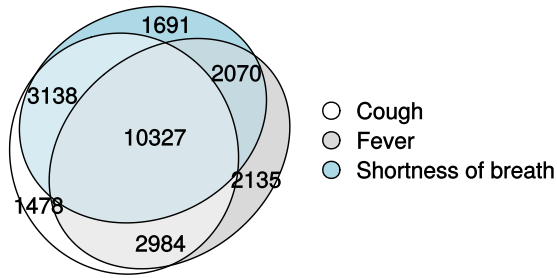
n = 26560



## Symptoms (most common)

Figure 4B

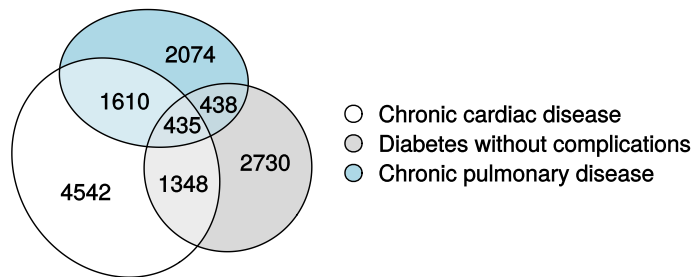
n = 26560



## Comorbidity (most common)

Figure 4C

n = 26591



## Medication prior to illness

Figure 5

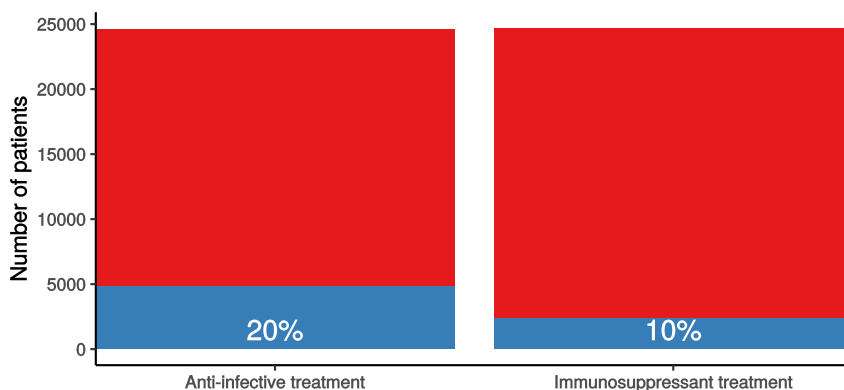
## Preadmission treatment

Figure 5

Pre-admission treatment

Anti-infectives for illness episode (left) immunosuppressants including oral (not

■ No ■ Yes



## Patient flow

Figure 6A - All patients

N = 27510

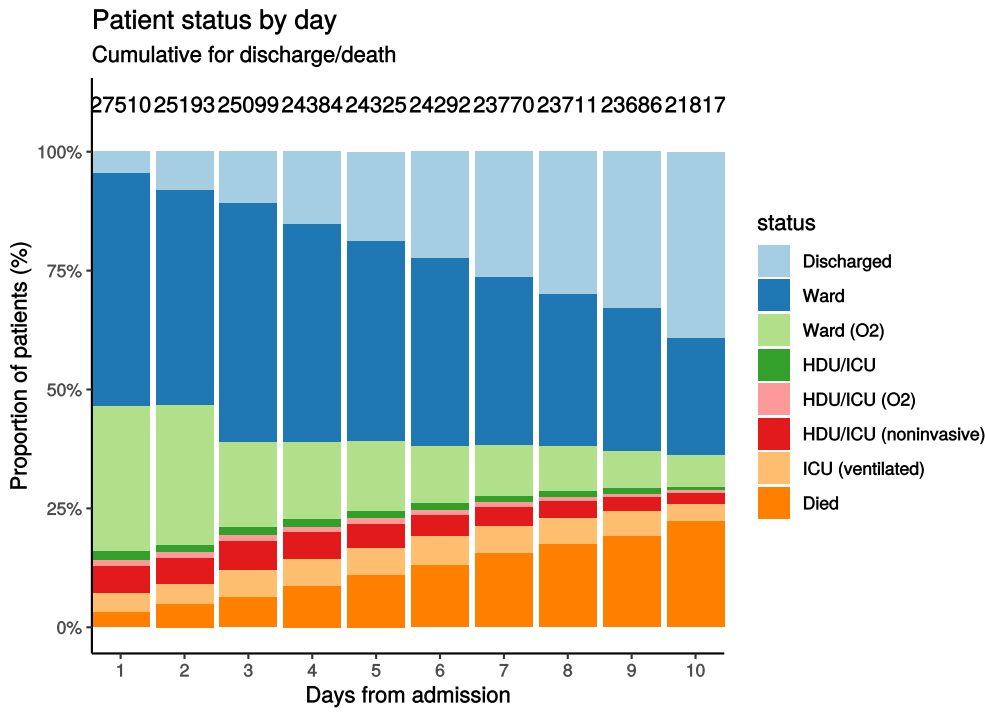
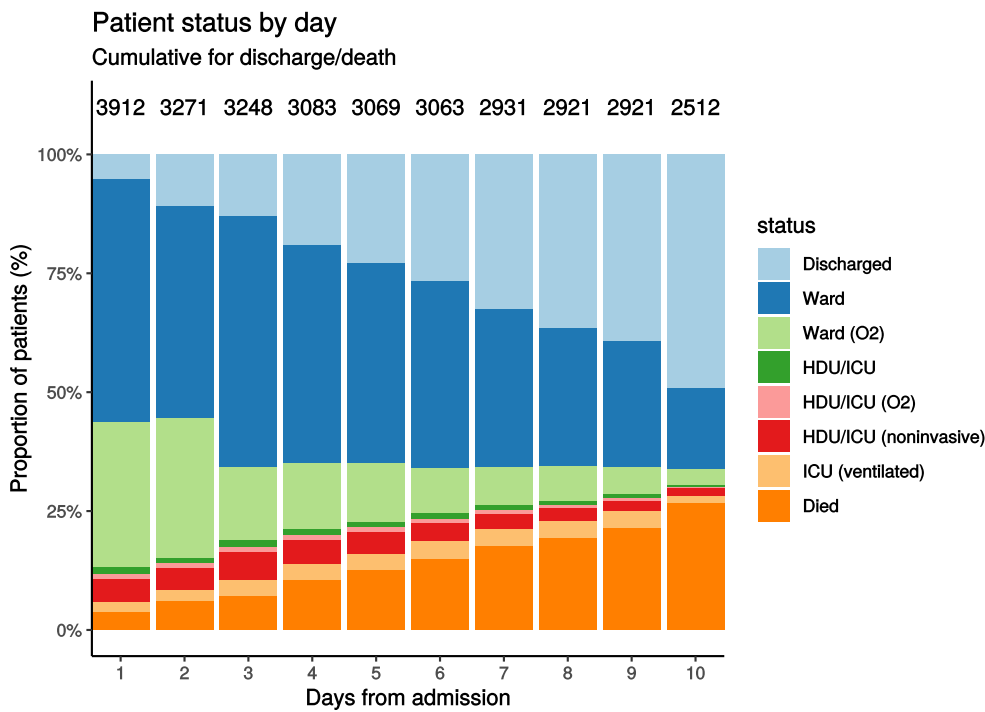


Figure 6B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 3912



## Oxygen requirement

Figure 7A - All patients

N = 25363

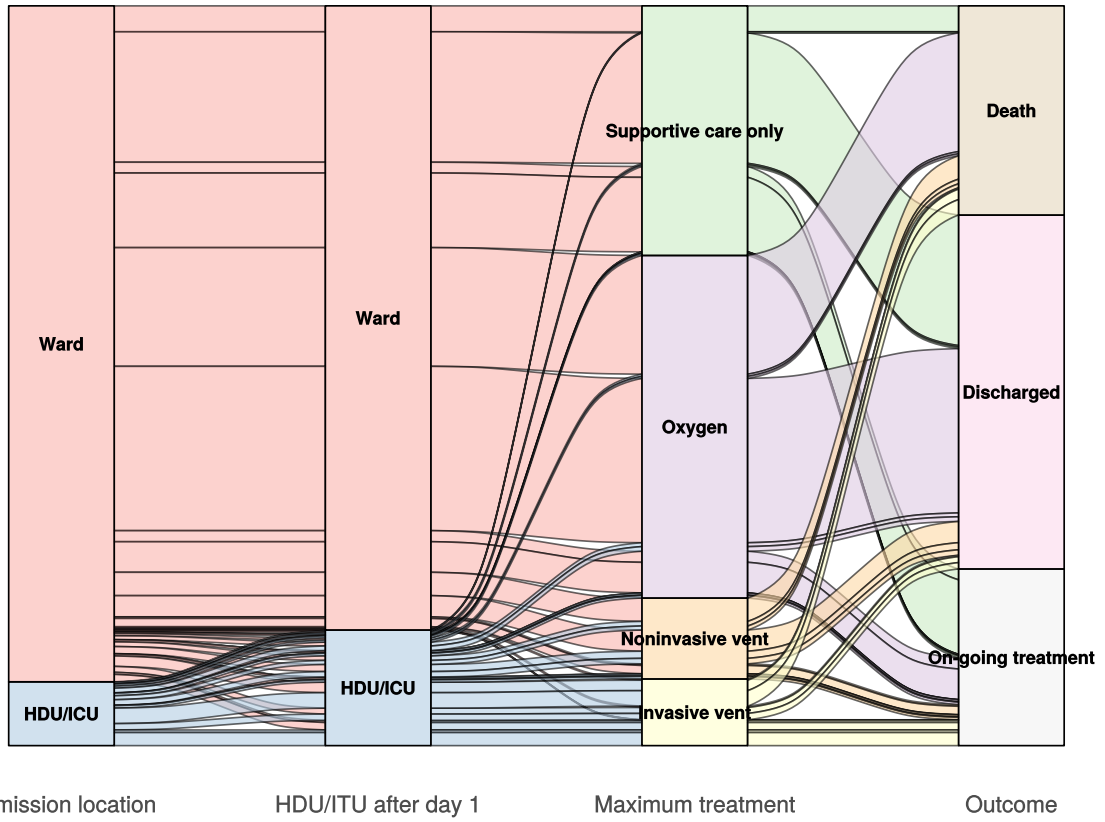
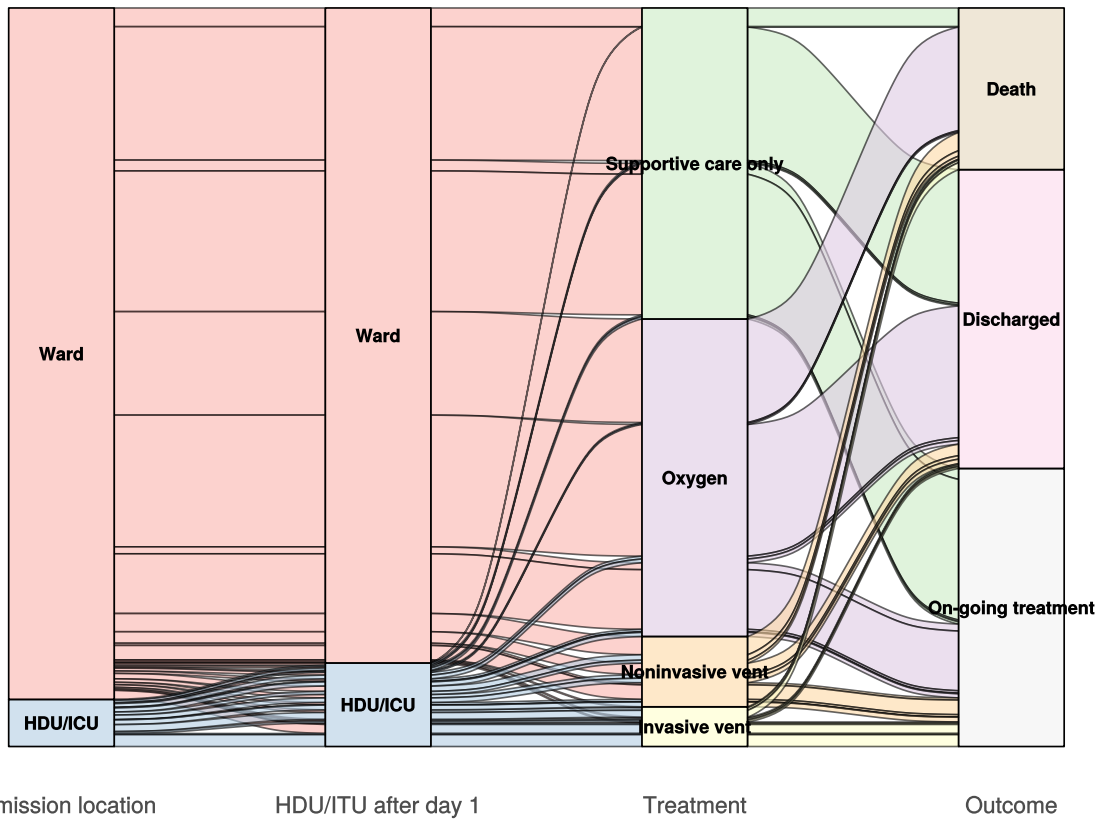


Figure 7B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 3662



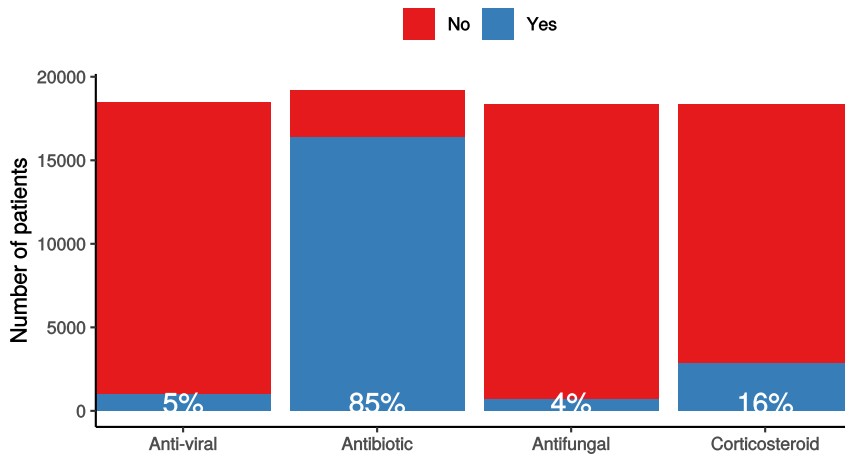
## In-hospital medical treatment

Figure 8



## In-hospital treatment

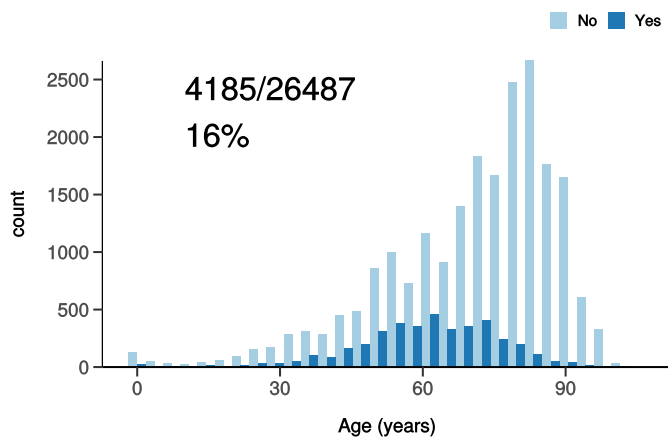
Anti-virals, antibiotics, corticosteroids, and anti-fungals for patients who have COVID-19



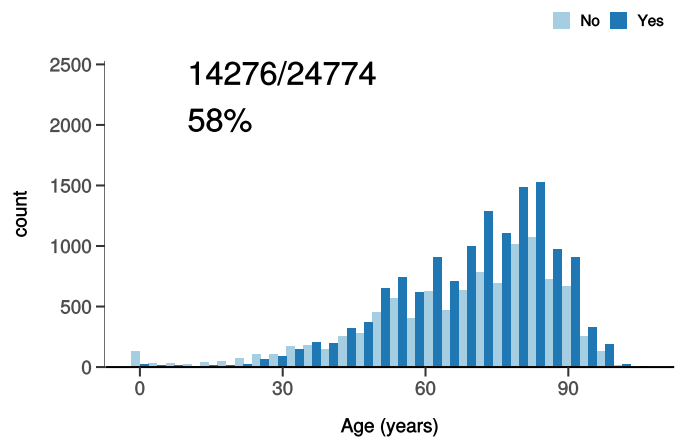
## Treatment

Figure 9

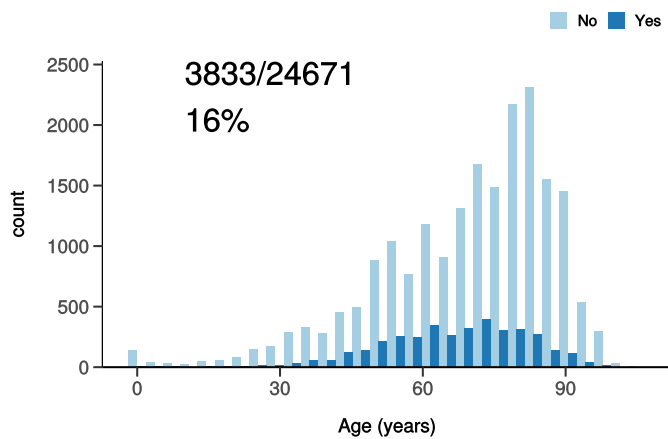
ICU/HDU admission  
Figure 10A



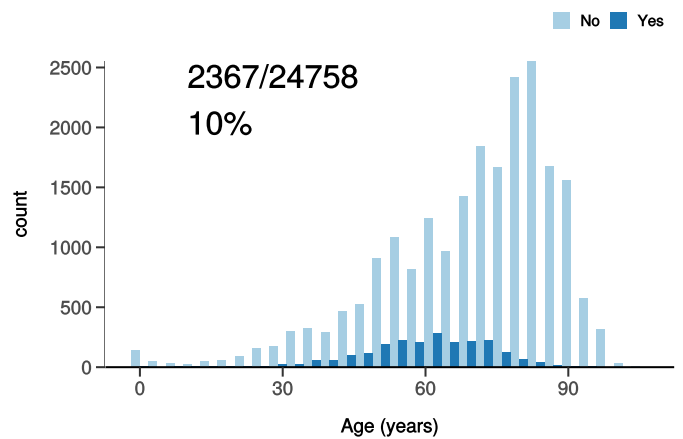
High flow oxygen  
Figure 10B



Noninvasive ventilation  
Figure 10C



Invasive ventilation  
Figure 10D

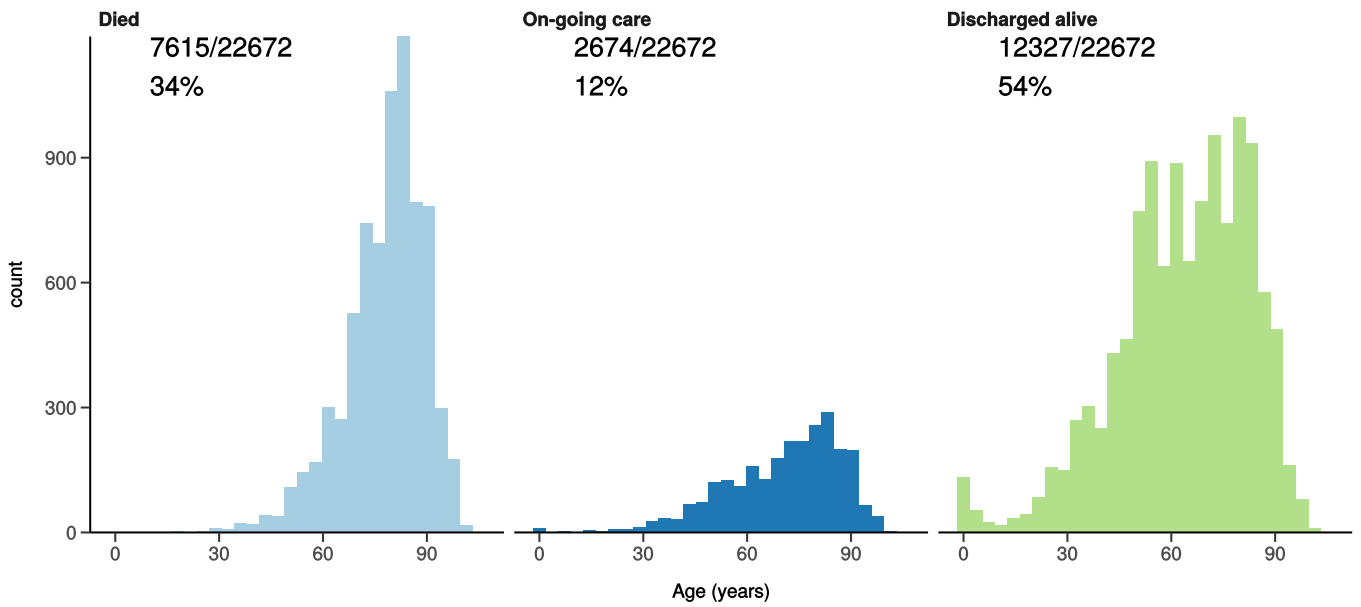


## Status in patients admitted $\geq 14$ days from today

Figure 10

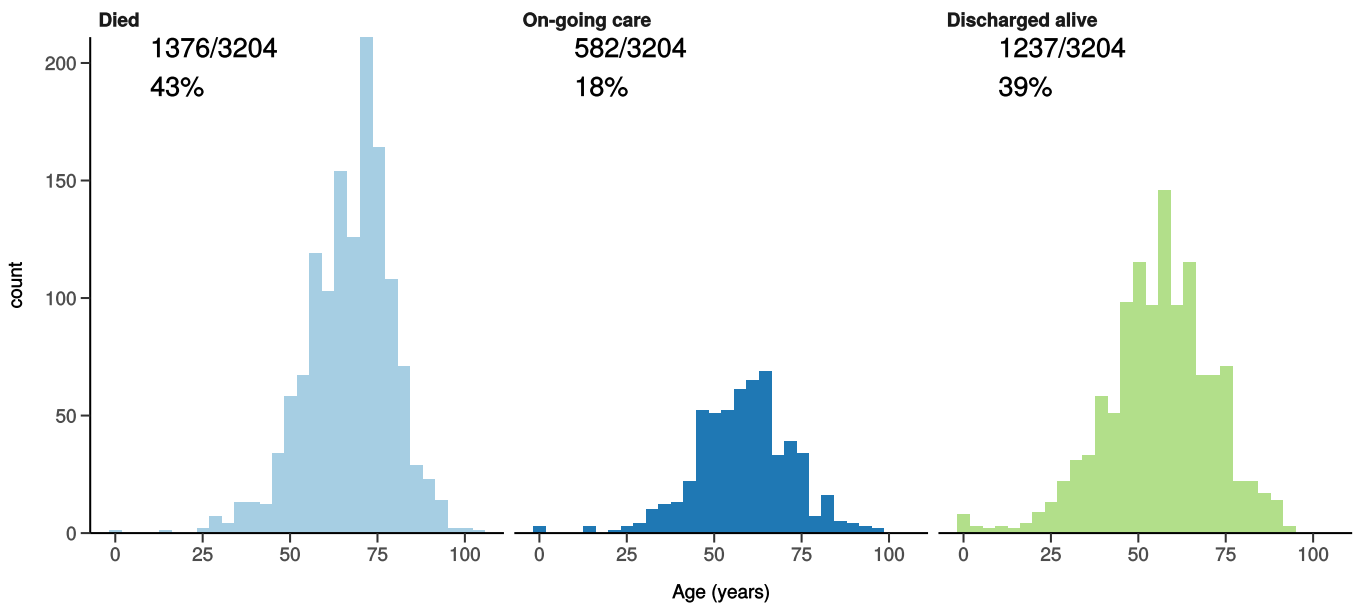
All: status in patients admitted  $\geq 14$  days ago

Figure 11A



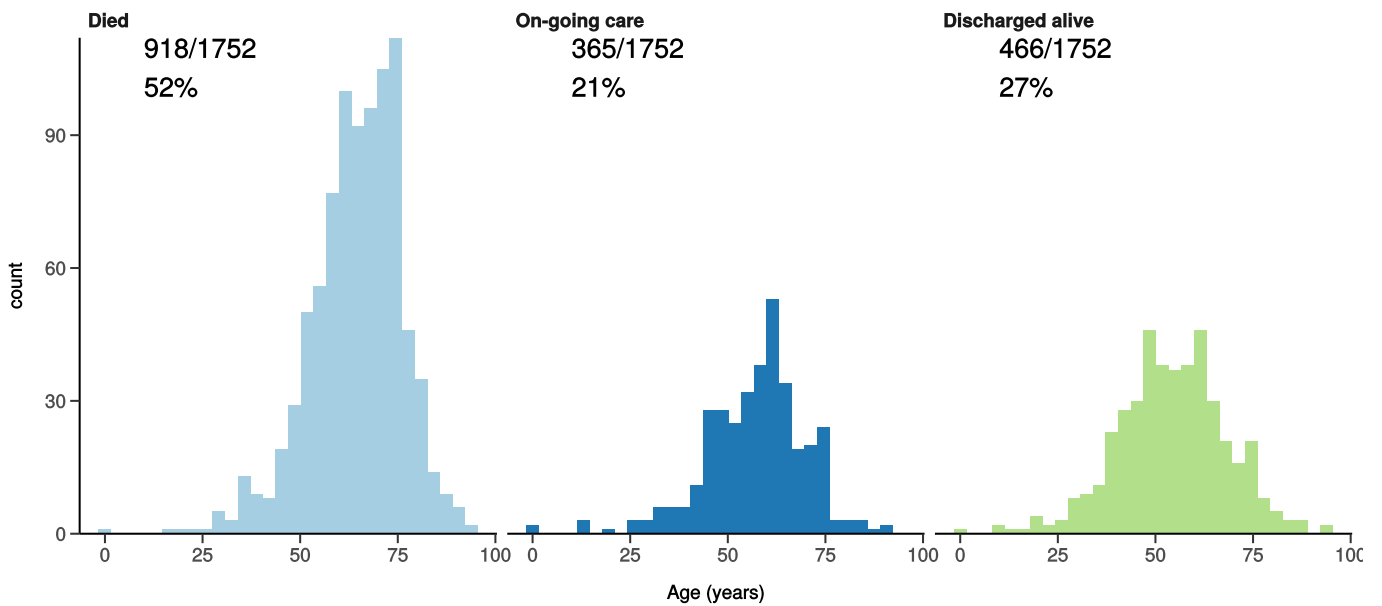
ICU/HDU admissions: status in patients admitted  $\geq 14$  days ago

Figure 11B



Invasive ventilation: status in patients admitted  $\geq 14$  days ago

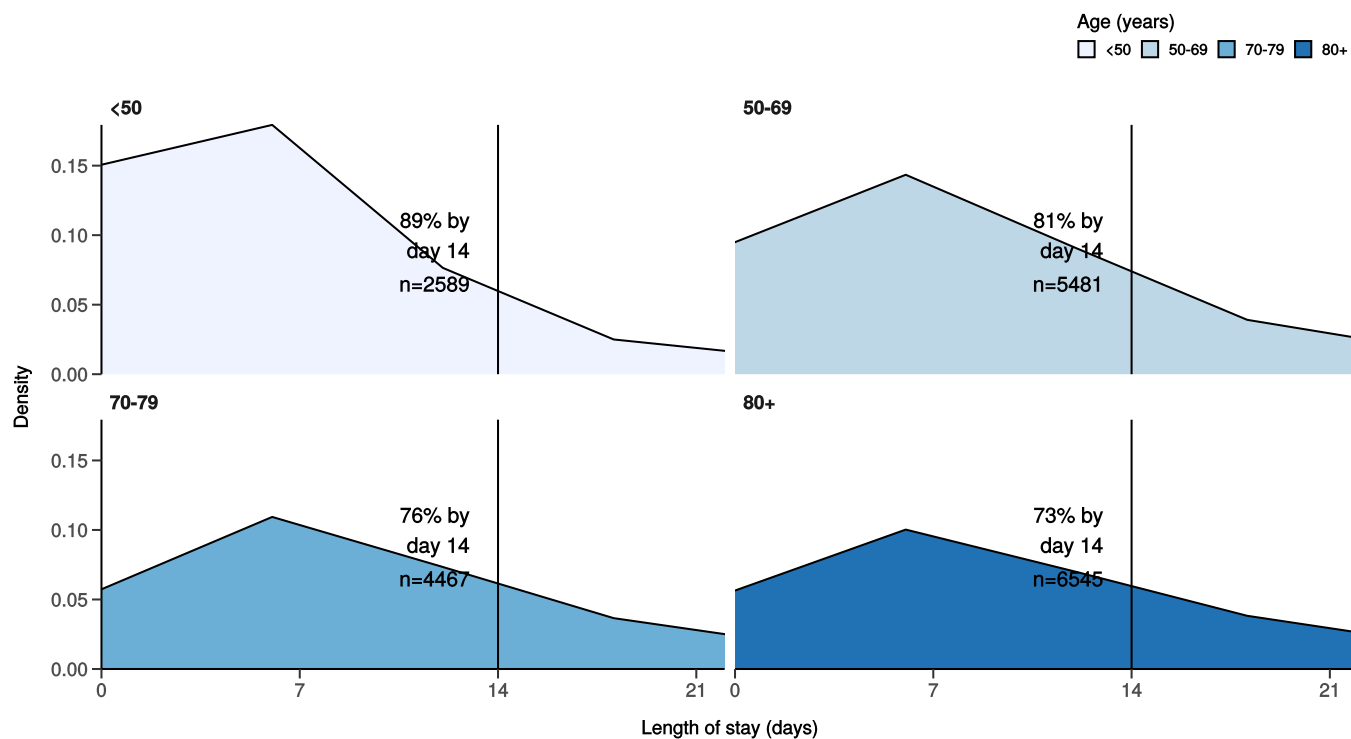
Figure 11c



# Length of stay stratified by age

Figure 11

Length of stay stratified by age  
Proportion who reach outcome by day 14 shown



## Predictors of death: logistic regression multivariable model

Logistic regression model only includes patients admitted >14 days ago from today.

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
Age on admission (years)	<50	2712 (93.9)	177 (6.1)	•	•
	50-69	4489 (77.0)	1341 (23.0)	4.58 (3.90-5.41, p<0.001)	4.27 (3.56-5.16, p<0.001)
	70-79	2646 (55.9)	2087 (44.1)	12.09 (10.30-14.26, p<0.001)	9.91 (8.24-12.00, p<0.001)
	80+	3174 (45.5)	3809 (54.5)	18.39 (15.73-21.63, p<0.001)	14.78 (12.30-17.91, p<0.001)
Sex at Birth	Male	7636 (61.5)	4784 (38.5)	•	•
	Female	5717 (67.2)	2788 (32.8)	0.78 (0.73-0.82, p<0.001)	0.71 (0.66-0.76, p<0.001)
	Not specified	0 (NaN)	0 (NaN)	•	•
Chronic cardiac disease	NO	9343 (70.1)	3987 (29.9)	•	•
	YES	3093 (51.4)	2922 (48.6)	2.21 (2.08-2.36, p<0.001)	1.25 (1.15-1.35, p<0.001)
Chronic pulmonary disease	NO	10568 (66.9)	5238 (33.1)	•	•
	YES	1830 (52.9)	1628 (47.1)	1.79 (1.67-1.93, p<0.001)	1.26 (1.15-1.37, p<0.001)
Chronic neurological disorder	NO	11067 (65.8)	5762 (34.2)	•	•
	YES	1203 (54.2)	1016 (45.8)	1.62 (1.48-1.77, p<0.001)	1.27 (1.14-1.42, p<0.001)
Chronic hematologic disease	NO	11796 (65.0)	6350 (35.0)	•	•
	YES	439 (52.8)	393 (47.2)	1.66 (1.45-1.91, p<0.001)	1.31 (1.10-1.55, p=0.002)

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
Chronic kidney disease	NO	10749 (67.3)	5228 (32.7)	•	•
	YES	1575 (49.6)	1599 (50.4)	2.09 (1.93-2.25, p<0.001)	1.29 (1.18-1.42, p<0.001)
Dementia	NO	11104 (67.8)	5269 (32.2)	•	•
	YES	1203 (43.9)	1535 (56.1)	2.69 (2.48-2.92, p<0.001)	1.48 (1.34-1.63, p<0.001)
Obesity	NO	10065 (64.4)	5553 (35.6)	•	•
	YES	1276 (67.7)	609 (32.3)	0.87 (0.78-0.96, p=0.005)	1.43 (1.27-1.61, p<0.001)
Malignancy	NO	11267 (65.9)	5818 (34.1)	•	•
	YES	982 (51.3)	931 (48.7)	1.84 (1.67-2.02, p<0.001)	1.29 (1.15-1.45, p<0.001)

Number in dataframe = 27662, Number in model = 16337, Missing = 11325, AIC = 18358, C-statistic = 0.736, H&L = Chi-sq(8) 59.73 (p<0.001)

Figure 12 - Adjusted odds ratio plot

Death

Age on admission (years)	<50	-
	50-69	4.27 (3.56-5.16, p<0.001)
	70-79	9.91 (8.24-12.00, p<0.001)
	80+	14.78 (12.30-17.91, p<0.001)
Sex at Birth	Male	-
	Female	0.71 (0.66-0.76, p<0.001)
	Not specified	-
Chronic cardiac disease	YES	1.25 (1.15-1.35, p<0.001)
Chronic pulmonary disease	YES	1.26 (1.15-1.37, p<0.001)
Chronic neurological disorder	YES	1.27 (1.14-1.42, p<0.001)
Chronic hematologic disease	YES	1.31 (1.10-1.55, p=0.002)
Chronic kidney disease	YES	1.29 (1.18-1.42, p<0.001)
Dementia	YES	1.48 (1.34-1.63, p<0.001)
Obesity	YES	1.43 (1.27-1.61, p<0.001)
Malignancy	YES	1.29 (1.15-1.45, p<0.001)

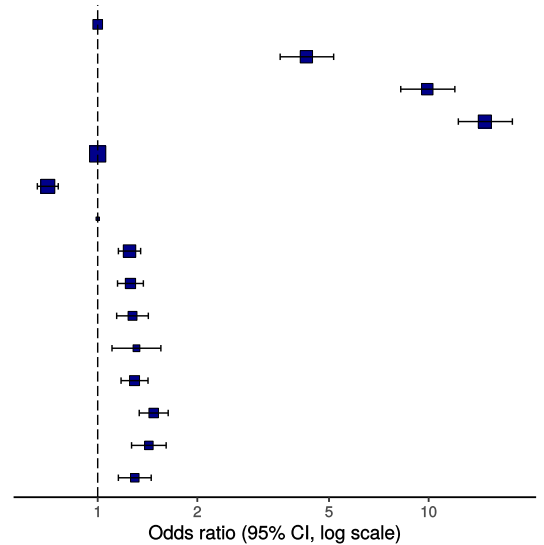
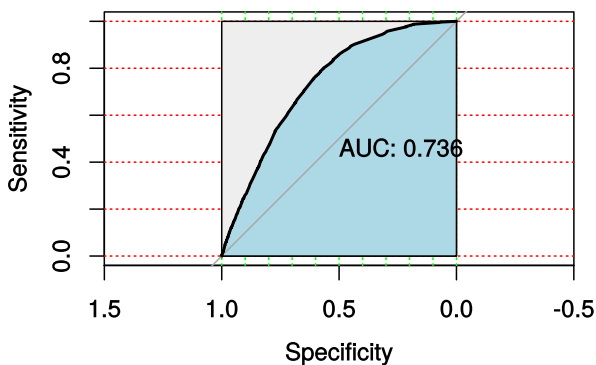


Figure 13 - ROC

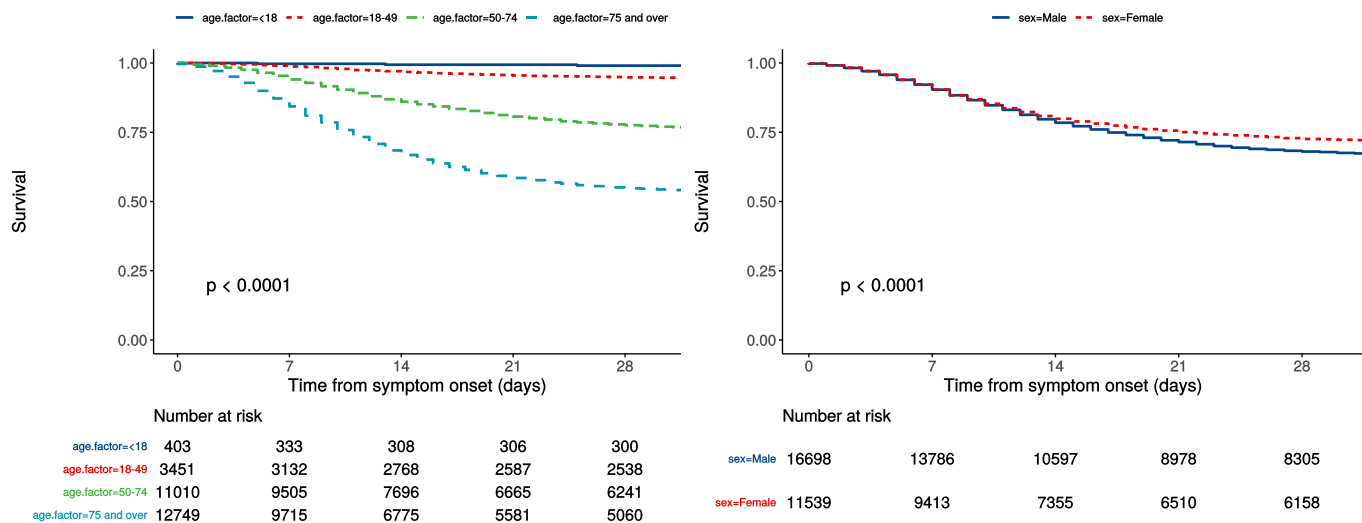


## Survival models

Kaplan-Meier plots for survival from symptom onset stratified by age (left) and sex (right)

Figure 14

P-value is log-rank test.



## Cox proportional hazards model

The methodology for this is now up and running, but models are still being explored. **What is presented here is not a final model, but to demonstrate methodology.** The results are correct, but important variables have not yet been included.

Time from symptom onset.

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
Age on admission (years)	<50	3854 (14.0)	•	•
	50-69	8075 (29.2)	4.02 (3.43-4.71, p<0.001)	3.90 (3.20-4.76, p<0.001)
	70-79	6338 (23.0)	9.20 (7.89-10.74, p<0.001)	8.28 (6.80-10.08, p<0.001)
	80+	9346 (33.8)	12.92 (11.11-15.04, p<0.001)	11.21 (9.22-13.64, p<0.001)
Sex at Birth	Male	16698 (59.1)	•	•
	Female	11539 (40.9)	0.84 (0.80-0.88, p<0.001)	0.82 (0.78-0.87, p<0.001)
qSOFA score on admission	0	8306 (39.8)	•	•
	1	9913 (47.5)	1.54 (1.45-1.63, p<0.001)	1.64 (1.53-1.76, p<0.001)
	2	2404 (11.5)	3.11 (2.88-3.35, p<0.001)	2.84 (2.61-3.09, p<0.001)
	3	263 (1.3)	4.89 (4.16-5.74, p<0.001)	3.94 (3.28-4.74, p<0.001)
Symptomatic at presentation	No symptoms	624 (2.4)	•	•
	Symptoms	25853 (97.6)	1.07 (0.91-1.26, p=0.397)	•
Chronic cardiac disease	NO	17276 (68.8)	•	•
	YES	7841 (31.2)	1.90 (1.81-1.99, p<0.001)	1.20 (1.13-1.27, p<0.001)
Chronic kidney disease	NO	20755 (83.5)	•	•
	YES	4097 (16.5)	1.80 (1.71-1.91, p<0.001)	1.21 (1.13-1.30, p<0.001)
Moderate/severe liver disease	NO	24173 (98.2)	•	•
	YES	450 (1.8)	1.38 (1.18-1.62, p<0.001)	1.50 (1.23-1.84, p<0.001)
Chronic neurological disorder	NO	21806 (88.3)	•	•
	YES	2885 (11.7)	1.51 (1.41-1.62, p<0.001)	•

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
Malignancy	NO	22178 (90.0)	•	•
	YES	2458 (10.0)	1.61 (1.51-1.73, p<0.001)	1.27 (1.17-1.38, p<0.001)
Chronic hematologic disease	NO	23558 (95.8)	•	•
	YES	1027 (4.2)	1.53 (1.38-1.69, p<0.001)	•
Obesity	NO	20283 (89.3)	•	•
	YES	2430 (10.7)	0.87 (0.80-0.94, p=0.001)	1.24 (1.12-1.37, p<0.001)
Diabetes without complications	NO	19916 (80.3)	•	•
	YES	4886 (19.7)	1.21 (1.14-1.28, p<0.001)	•
Rheumatologic disorder	NO	22047 (89.9)	•	•
	YES	2479 (10.1)	1.22 (1.13-1.31, p<0.001)	•
Dementia	NO	21176 (85.4)	•	•
	YES	3608 (14.6)	2.24 (2.12-2.37, p<0.001)	1.21 (1.13-1.31, p<0.001)
Malnutrition	NO	22959 (97.6)	•	•
	YES	574 (2.4)	1.63 (1.43-1.87, p<0.001)	•
smoking_mhyn_2levels	NO	17807 (93.5)	•	•
	YES	1248 (6.5)	0.92 (0.82-1.03, p=0.156)	•

Number in dataframe = 28467, Number in model = 16925, Missing = 11542, Number of events = 4703, Concordance = 0.730 (SE = 0.003), R-squared = 0.164 (Max possible = 0.995), Likelihood ratio test = 3023.080 (df = 13, p = 0.000)

Figure 15a - Multivariable Cox proportional hazards model

Survival: HR (95% CI, p-value)

Age on admission (years)	<50	-
	50-69	3.90 (3.20-4.76, p<0.001)
	70-79	8.28 (6.80-10.08, p<0.001)
	80+	11.21 (9.22-13.64, p<0.001)
Sex at Birth	Female	0.82 (0.78-0.87, p<0.001)
qSOFA score on admission	0	-
	1	1.64 (1.53-1.76, p<0.001)
	2	2.84 (2.61-3.09, p<0.001)
	3	3.94 (3.28-4.74, p<0.001)
Chronic cardiac disease	YES	1.20 (1.13-1.27, p<0.001)
Chronic kidney disease	YES	1.21 (1.13-1.30, p<0.001)
Moderate/severe liver disease	YES	1.50 (1.23-1.84, p<0.001)
Malignancy	YES	1.27 (1.17-1.38, p<0.001)
Obesity	YES	1.24 (1.12-1.37, p<0.001)
Dementia	YES	1.21 (1.13-1.31, p<0.001)

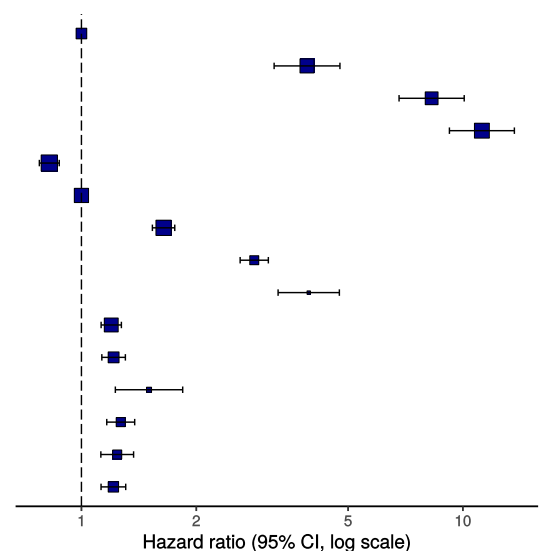
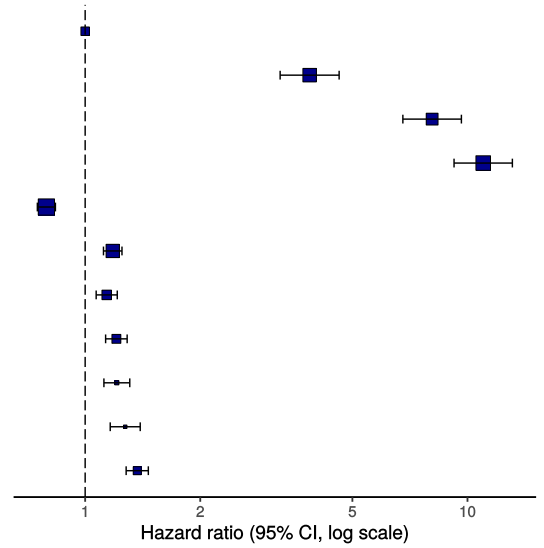


Figure 15b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)

Survival: HR (95% CI, p-value)

Age on admission (years)	<50	-
	50-69	3.86 (3.24-4.62, p<0.001)
	70-79	8.08 (6.78-9.64, p<0.001)
	80+	10.99 (9.22-13.10, p<0.001)
Sex at Birth	Female	0.79 (0.75-0.84, p<0.001)
Chronic cardiac disease	YES	1.18 (1.12-1.25, p<0.001)
Chronic pulmonary disease	YES	1.14 (1.07-1.21, p<0.001)
Chronic kidney disease	YES	1.21 (1.13-1.29, p<0.001)
Malignancy	YES	1.21 (1.12-1.31, p<0.001)
Obesity	YES	1.27 (1.16-1.39, p<0.001)
Dementia	YES	1.37 (1.28-1.46, p<0.001)



ROC = 0.7293751

Figure 16 - Predictions calibration plot

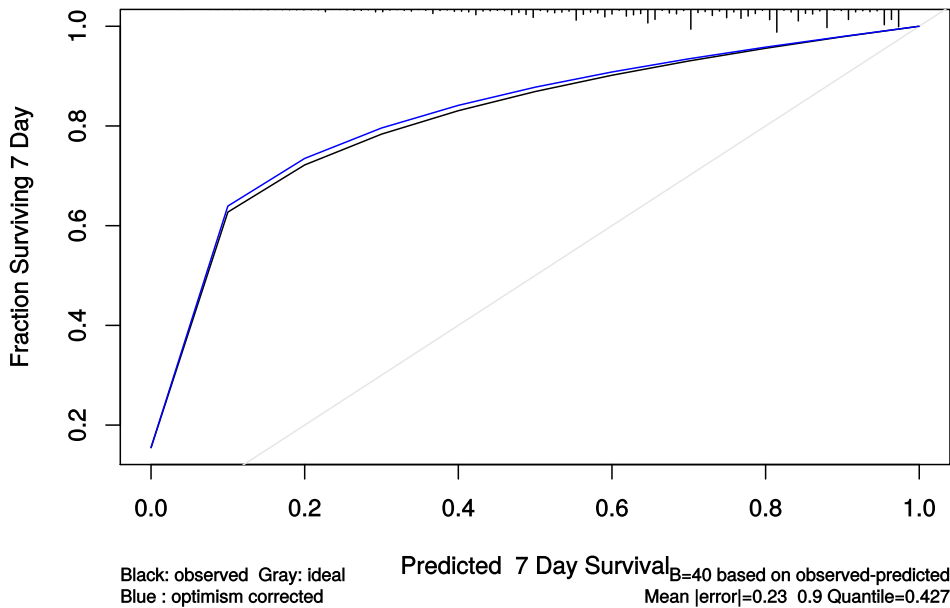


Figure 17 - Prognostic model predictions

Again, for demonstration of methods.

Prognostic model for survival 7 days after onset  
qSOFA score on admission

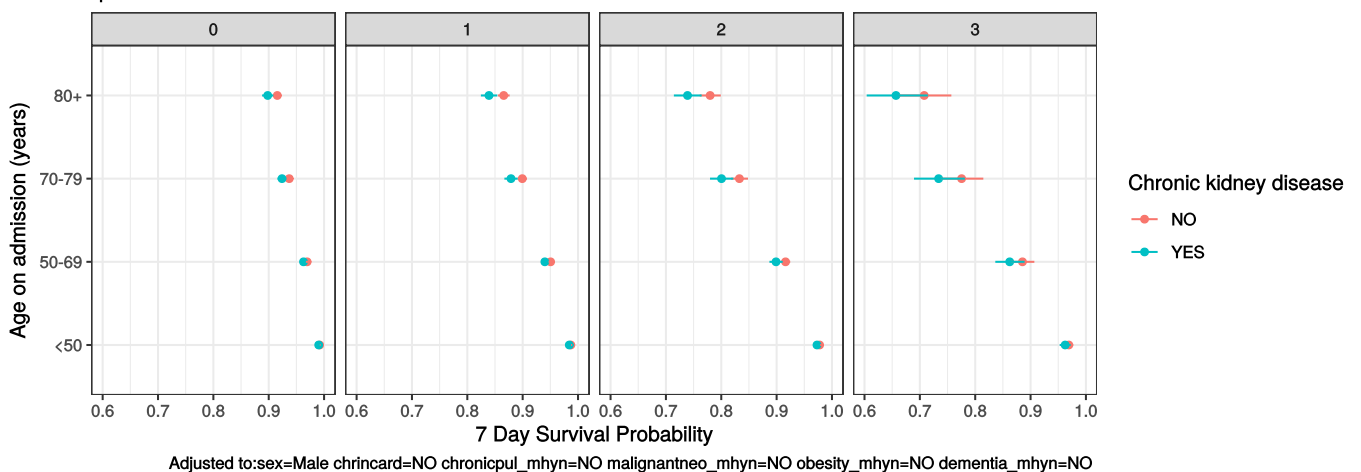


Figure 18 - Death by severity (NEWS) on admission

Number of deaths by NEWS score at admission

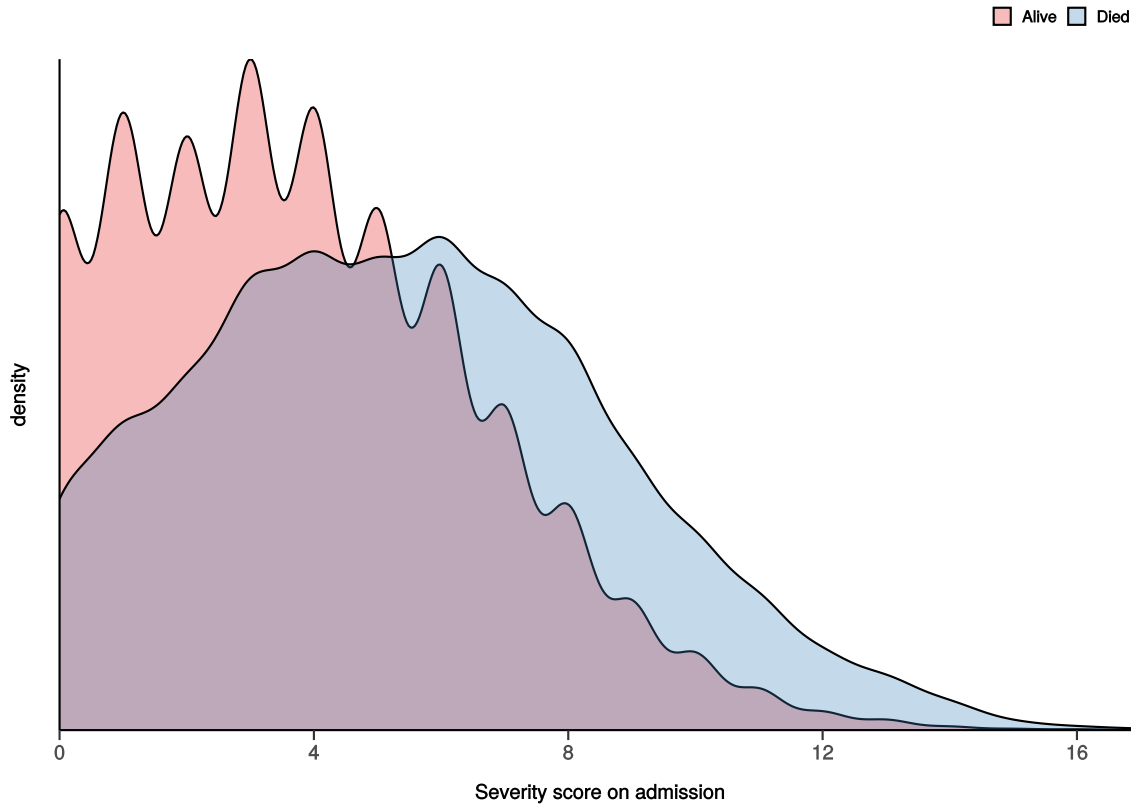


Figure 19 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission  
Stratified by age

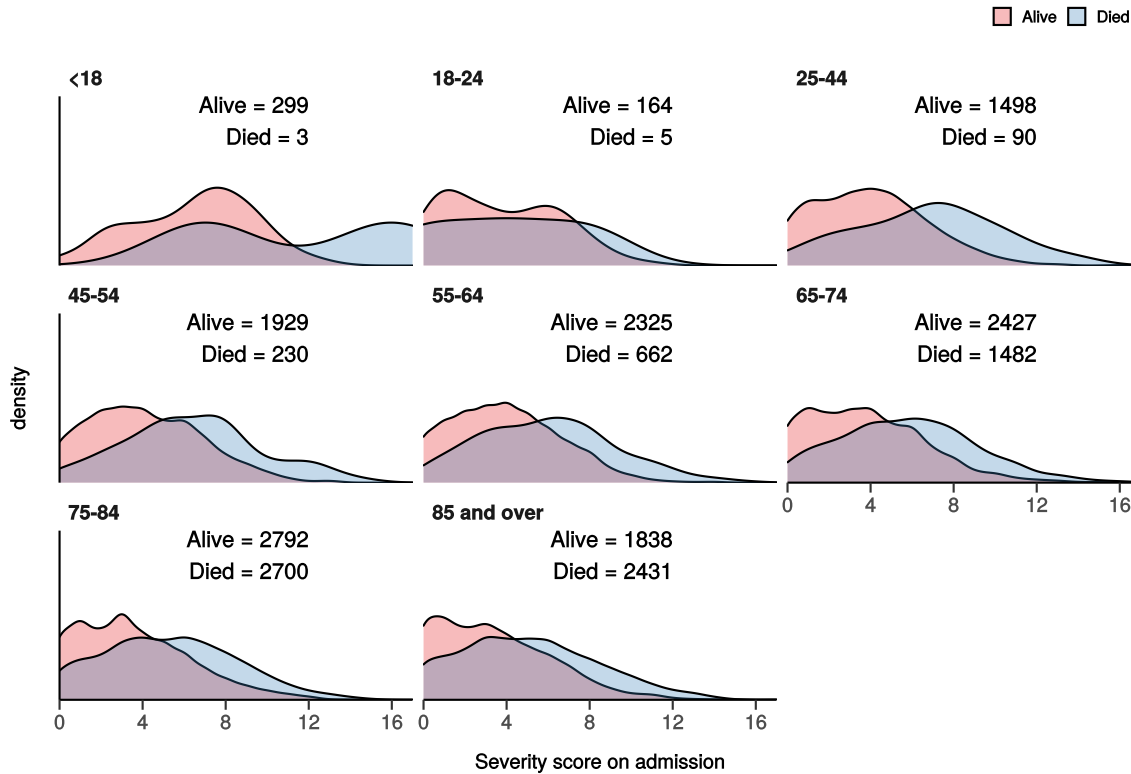
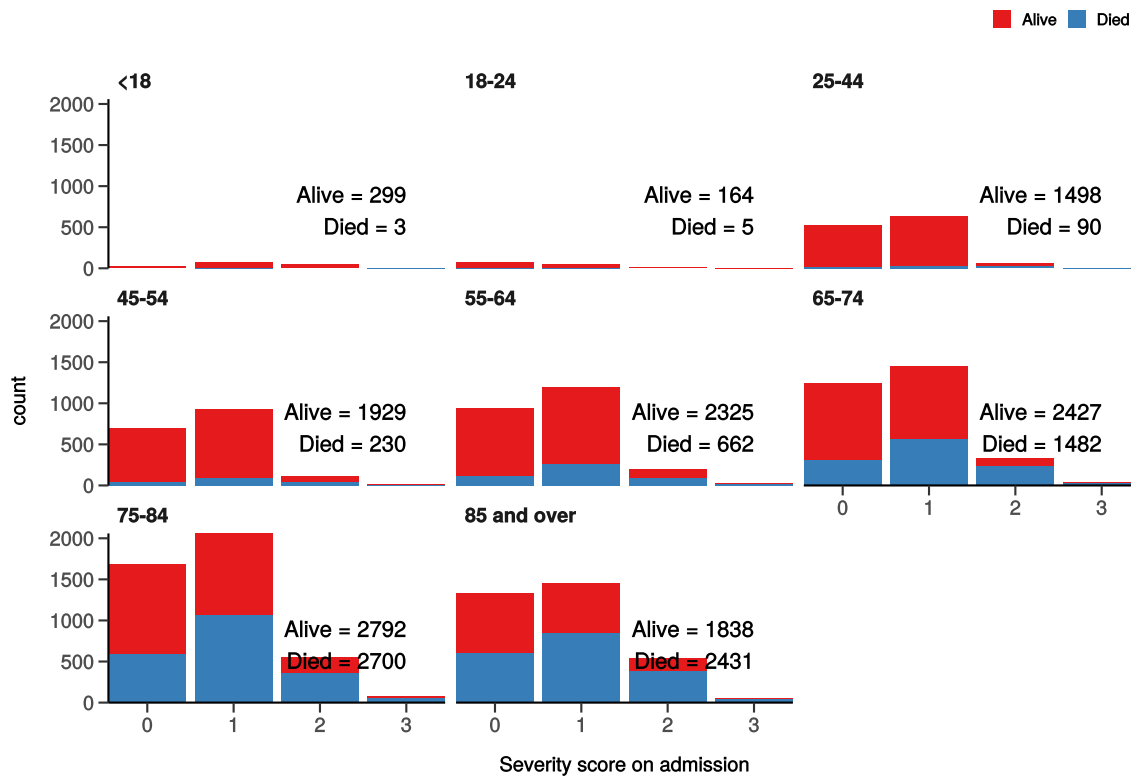


Figure 20 - Death by severity (qSOFA) on admission stratified by age



Number of deaths by qSOFA score at admission  
Stratified by age



## Healthcare workers

Healthcare worker		NO	YES	p
Total N (%)		24336 (94.9)	1319 (5.1)	
NEWS score on admission	Median (IQR)	4.0 (4.0)	4.0 (4.0)	0.599
Death	No	11031 (61.2)	880 (93.6)	<0.001
	Yes	6979 (38.8)	60 (6.4)	

## Admission (detail)

Table 1

label	levels	all
Total N (%)		34426 (100.0)
Age on admission (years)	Mean (SD)	69.1 (18.1)
Sex at Birth	Male	17335 (50.4)
	Female	12070 (35.1)
	Not specified	51 (0.1)
	(Missing)	4970 (14.4)
Healthcare worker	YES	1319 (3.8)
	NO	24336 (70.7)
	N/A	2904 (8.4)
	(Missing)	5867 (17.0)

<b>label</b>	<b>levels</b>	<b>all</b>
Microbiology lab worker	YES	73 (0.2)
	NO	20680 (60.1)
	N/A	2439 (7.1)
	(Missing)	11234 (32.6)
Onset to admission (days)	Mean (SD)	19.4 (2311.6)
Transfer from other facility	Yes-facility is a study site	496 (1.4)
	Yes-facility is not a study site	1510 (4.4)
	No	24803 (72.0)
	N/A	857 (2.5)
	(Missing)	6760 (19.6)
Travel in 14 d prior to symptoms	Yes	737 (2.1)
	No	17871 (51.9)
	N/A	3397 (9.9)
	(Missing)	12421 (36.1)
Country	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	0 (0.0)
	Andorra	1 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	3 (0.0)
	Argentina	1 (0.0)
	Armenia	0 (0.0)
	Aruba	0 (0.0)
	Australia	3 (0.0)
	Austria	19 (0.1)
	Azerbaijan	2 (0.0)
	The	0 (0.0)
	Bahrain	0 (0.0)
	Bangladesh	1 (0.0)
	Barbados	18 (0.1)
	Belarus	0 (0.0)
	Belgium	2 (0.0)
	Belize	0 (0.0)
	Benin	0 (0.0)
Bhutan	0 (0.0)	
Bolivia	0 (0.0)	

<b>label</b>	<b>levels</b>	<b>all</b>
	Bosnia and Herzegovina	0 (0.0)
	Botswana	0 (0.0)
	Brazil	3 (0.0)
	Brunei	0 (0.0)
	Bulgaria	3 (0.0)
	Burkina Faso	0 (0.0)
	Burma	0 (0.0)
	Burundi	0 (0.0)
	Cambodia	1 (0.0)
	Cameroon	1 (0.0)
	Canada	2 (0.0)
	Cabo Verde	1 (0.0)
	Central African Republic	0 (0.0)
	Chad	0 (0.0)
	Chile	1 (0.0)
	China	2 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Republic of the	0 (0.0)
	Costa Rica	0 (0.0)
	Cote d'Ivoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	1 (0.0)
	Curacao	0 (0.0)
	Cyprus	25 (0.1)
	Czechia	2 (0.0)
	Denmark	0 (0.0)
	Djibouti	0 (0.0)
	Dominica	0 (0.0)
	Dominican Republic	3 (0.0)
	Ecuador	0 (0.0)
	Egypt	8 (0.0)
	El Salvador	0 (0.0)
	Equatorial Guinea	0 (0.0)
	Eritrea	0 (0.0)
	Estonia	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Ethiopia	0 (0.0)
	Fiji	0 (0.0)
	Finland	0 (0.0)
	France	33 (0.1)
	Gabon	0 (0.0)
	Georgia	0 (0.0)
	Germany	8 (0.0)
	Ghana	1 (0.0)
	Greece	1 (0.0)
	Grenada	0 (0.0)
	Guatemala	0 (0.0)
	Guinea	0 (0.0)
	Guinea-Bissau	0 (0.0)
	Guyana	0 (0.0)
	Haiti	0 (0.0)
	Holy See	0 (0.0)
	Honduras	0 (0.0)
	Hong Kong	1 (0.0)
	Hungary	2 (0.0)
	Iceland	1 (0.0)
	India	9 (0.0)
	Indonesia	1 (0.0)
	Iran	6 (0.0)
	Iraq	0 (0.0)
	Ireland	6 (0.0)
	Israel	0 (0.0)
	Italy	84 (0.2)
	Jamaica	1 (0.0)
	Japan	6 (0.0)
	Jordan	0 (0.0)
	Kazakhstan	0 (0.0)
	Kenya	1 (0.0)
	Kiribati	0 (0.0)
	South	0 (0.0)
	Kosovo	0 (0.0)
	Kuwait	1 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Kyrgyzstan	0 (0.0)
	Laos	0 (0.0)
	Latvia	0 (0.0)
	Lebanon	0 (0.0)
	Lesotho	0 (0.0)
	Liberia	0 (0.0)
	Libya	0 (0.0)
	Liechtenstein	0 (0.0)
	Lithuania	0 (0.0)
	Luxembourg	0 (0.0)
	Macau	0 (0.0)
	Macedonia	0 (0.0)
	Madagascar	1 (0.0)
	Malawi	0 (0.0)
	Malaysia	4 (0.0)
	Maldives	1 (0.0)
	Mali	0 (0.0)
	Malta	0 (0.0)
	Marshall Islands	0 (0.0)
	Mauritania	0 (0.0)
	Mauritius	0 (0.0)
	Mexico	4 (0.0)
	Micronesia	0 (0.0)
	Moldova	0 (0.0)
	Monaco	0 (0.0)
	Mongolia	0 (0.0)
	Montenegro	0 (0.0)
	Morocco	3 (0.0)
	Mozambique	0 (0.0)
	Namibia	0 (0.0)
	Nauru	0 (0.0)
	Nepal	2 (0.0)
	Netherlands	9 (0.0)
	New Zealand	2 (0.0)
	Nicaragua	0 (0.0)
	Niger	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Nigeria	2 (0.0)
	North Korea	0 (0.0)
	Norway	2 (0.0)
	Oman	0 (0.0)
	Pakistan	9 (0.0)
	Palau	0 (0.0)
	Palestinian Territories	0 (0.0)
	Panama	0 (0.0)
	Papua New Guinea	0 (0.0)
	Paraguay	0 (0.0)
	Peru	0 (0.0)
	Philippines	4 (0.0)
	Poland	3 (0.0)
	Portugal	19 (0.1)
	Qatar	1 (0.0)
	Romania	6 (0.0)
	Russia	0 (0.0)
	Rwanda	0 (0.0)
	Saint Kitts and Nevis	0 (0.0)
	Saint Lucia	0 (0.0)
	Saint Vincent and the Grenadines	0 (0.0)
	Samoa	0 (0.0)
	San Marino	0 (0.0)
	Sao Tome and Principe	0 (0.0)
	Saudi Arabia	2 (0.0)
	Senegal	0 (0.0)
	Serbia	0 (0.0)
	Seychelles	0 (0.0)
	Sierra Leone	0 (0.0)
	Singapore	4 (0.0)
	Sint Maarten	0 (0.0)
	Slovakia	1 (0.0)
	Slovenia	0 (0.0)
	Solomon Islands	0 (0.0)
	Somalia	2 (0.0)
	South Africa	9 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	South Korea	1 (0.0)
	South Sudan	0 (0.0)
	Spain	177 (0.5)
	Sri Lanka	0 (0.0)
	Sudan	0 (0.0)
	Suriname	0 (0.0)
	Swaziland	1 (0.0)
	Sweden	0 (0.0)
	Switzerland	8 (0.0)
	Syria	0 (0.0)
	Taiwan	0 (0.0)
	Tajikistan	0 (0.0)
	Tanzania	0 (0.0)
	Thailand	8 (0.0)
	Timor-Leste	0 (0.0)
	Togo	0 (0.0)
	Tonga	0 (0.0)
	Trinidad and Tobago	0 (0.0)
	Tunisia	0 (0.0)
	Turkey	6 (0.0)
	Turkmenistan	0 (0.0)
	Tuvalu	0 (0.0)
	Uganda	0 (0.0)
	Ukraine	0 (0.0)
	United Arab Emirates	9 (0.0)
	United Kingdom	107 (0.3)
	Uruguay	0 (0.0)
	Uzbekistan	0 (0.0)
	Vanuatu	0 (0.0)
	Venezuela	0 (0.0)
	Vietnam	0 (0.0)
	Yemen	1 (0.0)
	Zambia	0 (0.0)
	Zimbabwe	1 (0.0)
	(Missing)	33752 (98.0)
Country 2	Afghanistan	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Albania	0 (0.0)
	Algeria	1 (0.0)
	Andorra	0 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	1 (0.0)
	Argentina	0 (0.0)
	Armenia	0 (0.0)
	Aruba	1 (0.0)
	Australia	3 (0.0)
	Austria	4 (0.0)
	Azerbaijan	0 (0.0)
	The	0 (0.0)
	Bahrain	0 (0.0)
	Bangladesh	0 (0.0)
	Barbados	2 (0.0)
	Belarus	0 (0.0)
	Belgium	0 (0.0)
	Belize	0 (0.0)
	Benin	0 (0.0)
	Bhutan	0 (0.0)
	Bolivia	0 (0.0)
	Bosnia and Herzegovina	0 (0.0)
	Botswana	0 (0.0)
	Brazil	0 (0.0)
	Brunei	0 (0.0)
	Bulgaria	2 (0.0)
	Burkina Faso	0 (0.0)
	Burma	0 (0.0)
	Burundi	0 (0.0)
	Cambodia	0 (0.0)
	Cameroon	0 (0.0)
	Canada	1 (0.0)
	Cabo Verde	0 (0.0)
	Central African Republic	0 (0.0)
	Chad	0 (0.0)
	Chile	0 (0.0)



<b>label</b>	<b>levels</b>	<b>all</b>
	China	0 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Republic of the	0 (0.0)
	Costa Rica	0 (0.0)
	Cote d'Ivoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	0 (0.0)
	Curacao	0 (0.0)
	Cyprus	4 (0.0)
	Czechia	1 (0.0)
	Denmark	0 (0.0)
	Djibouti	0 (0.0)
	Dominica	0 (0.0)
	Dominican Republic	0 (0.0)
	Ecuador	0 (0.0)
	Egypt	2 (0.0)
	El Salvador	0 (0.0)
	Equatorial Guinea	0 (0.0)
	Eritrea	0 (0.0)
	Estonia	0 (0.0)
	Ethiopia	0 (0.0)
	Fiji	0 (0.0)
	Finland	0 (0.0)
	France	8 (0.0)
	Gabon	0 (0.0)
	Georgia	0 (0.0)
	Germany	3 (0.0)
	Ghana	0 (0.0)
	Greece	0 (0.0)
	Grenada	0 (0.0)
	Guatemala	0 (0.0)
	Guinea	0 (0.0)
	Guinea-Bissau	0 (0.0)
	Guyana	0 (0.0)
	Haiti	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Holy See	0 (0.0)
	Honduras	0 (0.0)
	Hong Kong	0 (0.0)
	Hungary	0 (0.0)
	Iceland	0 (0.0)
	India	2 (0.0)
	Indonesia	1 (0.0)
	Iran	0 (0.0)
	Iraq	0 (0.0)
	Ireland	0 (0.0)
	Israel	0 (0.0)
	Italy	15 (0.0)
	Jamaica	1 (0.0)
	Japan	0 (0.0)
	Jordan	0 (0.0)
	Kazakhstan	0 (0.0)
	Kenya	0 (0.0)
	Kiribati	0 (0.0)
	South	0 (0.0)
	Kosovo	0 (0.0)
	Kuwait	0 (0.0)
	Kyrgyzstan	0 (0.0)
	Laos	0 (0.0)
	Latvia	0 (0.0)
	Lebanon	0 (0.0)
	Lesotho	0 (0.0)
	Liberia	0 (0.0)
	Libya	0 (0.0)
	Liechtenstein	0 (0.0)
	Lithuania	0 (0.0)
	Luxembourg	0 (0.0)
	Macau	0 (0.0)
	Macedonia	0 (0.0)
	Madagascar	0 (0.0)
	Malawi	0 (0.0)
	Malaysia	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Maldives	0 (0.0)
	Mali	0 (0.0)
	Malta	0 (0.0)
	Marshall Islands	0 (0.0)
	Mauritania	0 (0.0)
	Mauritius	0 (0.0)
	Mexico	0 (0.0)
	Micronesia	0 (0.0)
	Moldova	0 (0.0)
	Monaco	0 (0.0)
	Mongolia	0 (0.0)
	Montenegro	0 (0.0)
	Morocco	1 (0.0)
	Mozambique	0 (0.0)
	Namibia	0 (0.0)
	Nauru	0 (0.0)
	Nepal	0 (0.0)
	Netherlands	2 (0.0)
	New Zealand	0 (0.0)
	Nicaragua	0 (0.0)
	Niger	0 (0.0)
	Nigeria	0 (0.0)
	North Korea	0 (0.0)
	Norway	0 (0.0)
	Oman	0 (0.0)
	Pakistan	1 (0.0)
	Palau	0 (0.0)
	Palestinian Territories	0 (0.0)
	Panama	0 (0.0)
	Papua New Guinea	0 (0.0)
	Paraguay	0 (0.0)
	Peru	0 (0.0)
	Philippines	0 (0.0)
	Poland	0 (0.0)
	Portugal	2 (0.0)
	Qatar	1 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Romania	0 (0.0)
	Russia	0 (0.0)
	Rwanda	0 (0.0)
	Saint Kitts and Nevis	0 (0.0)
	Saint Lucia	0 (0.0)
	Saint Vincent and the Grenadines	0 (0.0)
	Samoa	0 (0.0)
	San Marino	0 (0.0)
	Sao Tome and Principe	0 (0.0)
	Saudi Arabia	0 (0.0)
	Senegal	0 (0.0)
	Serbia	0 (0.0)
	Seychelles	0 (0.0)
	Sierra Leone	0 (0.0)
	Singapore	0 (0.0)
	Sint Maarten	0 (0.0)
	Slovakia	0 (0.0)
	Slovenia	0 (0.0)
	Solomon Islands	0 (0.0)
	Somalia	0 (0.0)
	South Africa	1 (0.0)
	South Korea	0 (0.0)
	South Sudan	0 (0.0)
	Spain	19 (0.1)
	Sri Lanka	0 (0.0)
	Sudan	0 (0.0)
	Suriname	0 (0.0)
	Swaziland	0 (0.0)
	Sweden	0 (0.0)
	Switzerland	1 (0.0)
	Syria	0 (0.0)
	Taiwan	0 (0.0)
	Tajikistan	0 (0.0)
	Tanzania	0 (0.0)
	Thailand	1 (0.0)
	Timor-Leste	0 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Togo	0 (0.0)
	Tonga	0 (0.0)
	Trinidad and Tobago	0 (0.0)
	Tunisia	0 (0.0)
	Turkey	4 (0.0)
	Turkmenistan	0 (0.0)
	Tuvalu	0 (0.0)
	Uganda	0 (0.0)
	Ukraine	0 (0.0)
	United Arab Emirates	0 (0.0)
	United Kingdom	0 (0.0)
	Uruguay	0 (0.0)
	Uzbekistan	0 (0.0)
	Vanuatu	0 (0.0)
	Venezuela	0 (0.0)
	Vietnam	1 (0.0)
	Yemen	0 (0.0)
	Zambia	0 (0.0)
	Zimbabwe	0 (0.0)
	(Missing)	34340 (99.8)
Animal, raw meat, insect bites 14 d prior	Yes	104 (0.3)
	No	8443 (24.5)
	Unknown	12274 (35.7)
	N/A	1421 (4.1)
	(Missing)	12184 (35.4)
Animal / insect	2 Budgerigars and 26 Cats at home	1 (1.0)
	2 dogs	1 (1.0)
	Bee Sting	1 (1.0)
	Bird (pet)	1 (1.0)
	bird (pigeon)	1 (1.0)
	Birds at home	1 (1.0)
	budgies	1 (1.0)
	cat	2 (2.0)
	Cat	1 (1.0)
	CAT	1 (1.0)
	Cat (pet)	1 (1.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	Cat / Dog	1 (1.0)
	Cat, Dog (pets)	1 (1.0)
	cats	2 (2.0)
	Cats	1 (1.0)
	chicken & beef	1 (1.0)
	Chickens	2 (2.0)
	COWS	1 (1.0)
	cows, rabbits, pigs goats	1 (1.0)
	DAILY CONTACT WITH DOMESTIC PET CAT	1 (1.0)
	dog	5 (5.0)
	Dog	12 (11.9)
	DOG	3 (3.0)
	DOG FAMILY PET	1 (1.0)
	Dog, domestic animal living in their home.	1 (1.0)
	Dogs	1 (1.0)
	dogs and cats	1 (1.0)
	Dogs at home	1 (1.0)
	domestic	1 (1.0)
	Domestic pet dog	1 (1.0)
	DOMESTIC ANIMAL	2 (2.0)
	Domestic animal and faeces/nest	1 (1.0)
	domestic animal living in his home	1 (1.0)
	domestic animals	1 (1.0)
	Domestic animals living in his/her home	1 (1.0)
	Domestic Animals living in his/her home	1 (1.0)
	Domestic animals living in home	1 (1.0)
	Domestic cats	1 (1.0)
	domestic dog	1 (1.0)
	Domestic Per (dog)	1 (1.0)
	Domestic pest (cats)	1 (1.0)
	Domestic Pet	5 (5.0)
	Domestic Pet (Dog)	6 (5.9)
	Domestic pet cat	1 (1.0)
	Domestic pet Dog	1 (1.0)
	Domestic pet, dog	1 (1.0)
	Domestic pets	1 (1.0)

label	levels	all
	Domestic Pets	2 (2.0)
	Domestic pets (dog)	1 (1.0)
	Domestic Pets Cat and Dog	1 (1.0)
	FARM ANIMALS - LAMBS	1 (1.0)
	Farm animals, cattle	1 (1.0)
	Guinea Pig	1 (1.0)
	HORSES	1 (1.0)
	mosquito	1 (1.0)
	pet dog	1 (1.0)
	pet dog	2 (2.0)
	Pet dog	1 (1.0)
	Pet dog -ongoing daily contact	1 (1.0)
	Pet dog ongoing daily contact	1 (1.0)
	Prepared raw chicken	1 (1.0)
	raw chicken	1 (1.0)
	Raw Chicken	1 (1.0)
	Rodent	1 (1.0)
	Rodent - hamster,	1 (1.0)
	she has a cat	1 (1.0)
	Sheep & Cattle	1 (1.0)
	Two cats	1 (1.0)
	unknown	1 (1.0)

## Symptoms (detail)

Table 2

Stratified: all		all
Total N (%)		34426 (100.0)
Fever	YES	17516 (50.9)
	NO	7576 (22.0)
	Unknown	1468 (4.3)
	(Missing)	7866 (22.8)
Cough	YES	17927 (52.1)
	NO	7016 (20.4)
	Unknown	1601 (4.7)
	(Missing)	7882 (22.9)
Cough (sputum)	YES	5294 (15.4)

**Stratified: all****all**

	NO	15367 (44.6)
	Unknown	5698 (16.6)
	(Missing)	8067 (23.4)
Cough (blood)	YES	672 (2.0)
	NO	19522 (56.7)
	Unknown	6131 (17.8)
	(Missing)	8101 (23.5)
Sore throat	YES	1802 (5.2)
	NO	17200 (50.0)
	Unknown	7351 (21.4)
	(Missing)	8073 (23.5)
Runny nose	YES	606 (1.8)
	NO	17968 (52.2)
	Unknown	7777 (22.6)
	(Missing)	8075 (23.5)
Ear pain	YES	100 (0.3)
	NO	18478 (53.7)
	Unknown	7766 (22.6)
	(Missing)	8082 (23.5)
Wheeze	YES	2099 (6.1)
	NO	18021 (52.3)
	Unknown	6245 (18.1)
	(Missing)	8061 (23.4)
Chest pain	YES	3042 (8.8)
	NO	18172 (52.8)
	Unknown	5154 (15.0)
	(Missing)	8058 (23.4)
Muscle ache	YES	3841 (11.2)
	NO	15528 (45.1)
	Unknown	6981 (20.3)
	(Missing)	8076 (23.5)
Joint pain	YES	1330 (3.9)
	NO	17290 (50.2)
	Unknown	7695 (22.4)
	(Missing)	8111 (23.6)
Fatigue	YES	9241 (26.8)



## Stratified: all

all

	NO	11438 (33.2)
	Unknown	5680 (16.5)
	(Missing)	8067 (23.4)
Shortness of breath	YES	17226 (50.0)
	NO	7244 (21.0)
	Unknown	2083 (6.1)
	(Missing)	7873 (22.9)
Lower chest wall indrawing	YES	263 (0.8)
	NO	17566 (51.0)
	Unknown	8505 (24.7)
	(Missing)	8092 (23.5)
Headache	YES	2289 (6.6)
	NO	16954 (49.2)
	Unknown	7102 (20.6)
	(Missing)	8081 (23.5)
Confusion	YES	6185 (18.0)
	NO	16344 (47.5)
	Unknown	3869 (11.2)
	(Missing)	8028 (23.3)
Seizures	YES	344 (1.0)
	NO	20859 (60.6)
	Unknown	5131 (14.9)
	(Missing)	8092 (23.5)
Abdominal pain	YES	2180 (6.3)
	NO	18946 (55.0)
	Unknown	5239 (15.2)
	(Missing)	8061 (23.4)
Nausea/vomiting	YES	4293 (12.5)
	NO	17727 (51.5)
	Unknown	4367 (12.7)
	(Missing)	8039 (23.4)
Diarrhoea	YES	4325 (12.6)
	NO	17602 (51.1)
	Unknown	4454 (12.9)
	(Missing)	8045 (23.4)
Conjunctivitis	YES	76 (0.2)

Stratified: all		all
	NO	19626 (57.0)
	Unknown	6633 (19.3)
	(Missing)	8091 (23.5)
Skin rash	YES	314 (0.9)
	NO	19804 (57.5)
	Unknown	6224 (18.1)
	(Missing)	8084 (23.5)
Skin ulcers	YES	503 (1.5)
	NO	19605 (56.9)
	Unknown	6229 (18.1)
	(Missing)	8089 (23.5)
Lymphadenopathy	YES	125 (0.4)
	NO	19609 (57.0)
	Unknown	6590 (19.1)
	(Missing)	8102 (23.5)
Bleeding (Haemorrhage)	YES	276 (0.8)
	NO	20580 (59.8)
	Unknown	5463 (15.9)
	(Missing)	8107 (23.5)
If Bleeding (others)	YES	373 (1.1)
	NO	16350 (47.5)
	Unknown	4611 (13.4)
	(Missing)	13092 (38.0)

## Comorbidity (detail)

Table 3

Stratified: all		all
Total N (%)		34426 (100.0)
Chronic cardiac disease	YES	7935 (23.0)
	NO	17458 (50.7)
	Unknown	1198 (3.5)
	(Missing)	7835 (22.8)
Chronic pulmonary disease	YES	4557 (13.2)
	NO	20716 (60.2)
	Unknown	1293 (3.8)
	(Missing)	7860 (22.8)

## Stratified: all

all

Asthma	YES	3527 (10.2)
	NO	21628 (62.8)
	Unknown	1383 (4.0)
	(Missing)	7888 (22.9)
Chronic kidney disease	YES	4146 (12.0)
	NO	20974 (60.9)
	Unknown	1417 (4.1)
	(Missing)	7889 (22.9)
Moderate/severe liver disease	YES	457 (1.3)
	NO	24431 (71.0)
	Unknown	1628 (4.7)
	(Missing)	7910 (23.0)
Mild Liver disease	YES	373 (1.1)
	NO	24463 (71.1)
	Unknown	1679 (4.9)
	(Missing)	7911 (23.0)
Chronic neurological disorder	YES	2927 (8.5)
	NO	22025 (64.0)
	Unknown	1574 (4.6)
	(Missing)	7900 (22.9)
Malignancy	YES	2499 (7.3)
	NO	22402 (65.1)
	Unknown	1630 (4.7)
	(Missing)	7895 (22.9)
Chronic hematologic disease	YES	1036 (3.0)
	NO	23811 (69.2)
	Unknown	1654 (4.8)
	(Missing)	7925 (23.0)
AIDS/HIV	YES	112 (0.3)
	NO	24604 (71.5)
	Unknown	1802 (5.2)
	(Missing)	7908 (23.0)
Obesity	YES	2456 (7.1)
	NO	20497 (59.5)
	Unknown	3442 (10.0)
	(Missing)	8031 (23.3)

**Stratified: all****all**

Diabetes with complications	YES	1852 (5.4)
	NO	23111 (67.1)
	Unknown	1578 (4.6)
	(Missing)	7885 (22.9)
Diabetes without complications	YES	4951 (14.4)
	NO	20119 (58.4)
	Unknown	1492 (4.3)
	(Missing)	7864 (22.8)
Rheumatologic disorder	YES	2506 (7.3)
	NO	22289 (64.7)
	Unknown	1684 (4.9)
	(Missing)	7947 (23.1)
Dementia	YES	3655 (10.6)
	NO	21394 (62.1)
	Unknown	1482 (4.3)
	(Missing)	7895 (22.9)
Malnutrition	YES	582 (1.7)
	NO	23198 (67.4)
	Unknown	2662 (7.7)
	(Missing)	7984 (23.2)
Smoking	YES	1268 (3.7)
	NO	17961 (52.2)
	(Missing)	15197 (44.1)