

Dynamic CO-CIN report to SAGE and NERVTAG

Dynamic content updated: 2020-07-15 06:13:00.

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 15 July 2020, CO-CIN has recruited **72021 patients** with confirmed Coronavirus (Figure 1).

The CO-CIN dataset represents NA% (72021/NA) of cases of confirmed Coronavirus cases in the UK, per the PHE daily reports (last updated 5pm on 13 July).

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 1023 had travelled abroad recently, and 7519 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 74 (range: 0-107), Male/Female 38303/29666.

The most common symptoms were cough (61%), fever (60%) and shortness of breath (60%) (Figure 3A). 4005/63058 (6%) of patients have reported no symptoms. Comorbidity can be seen in Figure 3B. The most common comorbidities were chronic cardiac disease (31%), chronic pulmonary disease (17%) and chronic kidney disease (17%). 13247/63177 (21%) of patients have reported no co morbidity. 434/5564 (8%) 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 9 days (interquartile range: 5-18, n = 57929). 8510/53326 (16%) patients required high-flow oxygen after day 1 of treatment.

Currently 19781 patient(s) have died and 8835 required ICU. 36002 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).

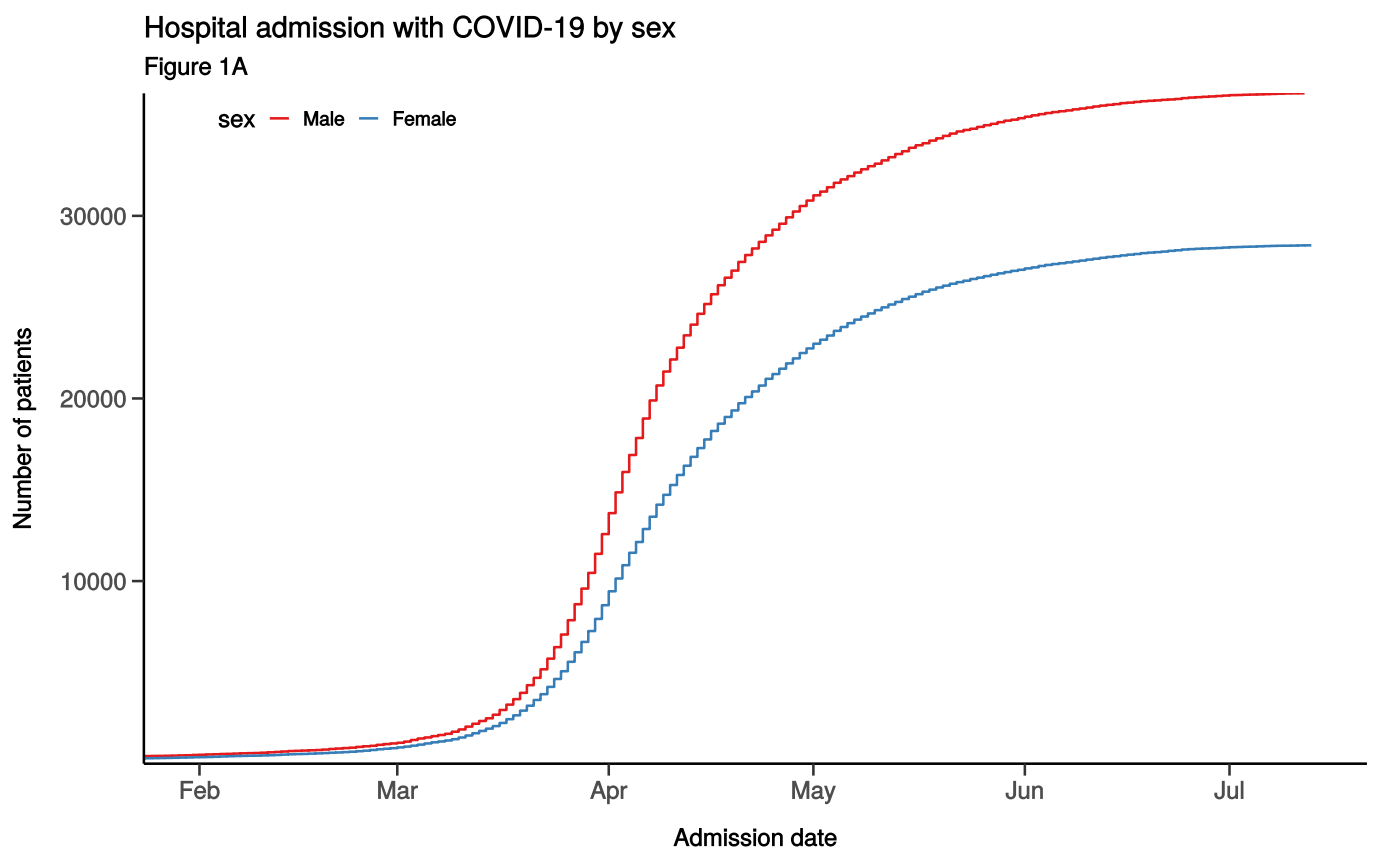
Professor Tom Solomon, Director HPRU Emerging and Zoonotic Infection.

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.

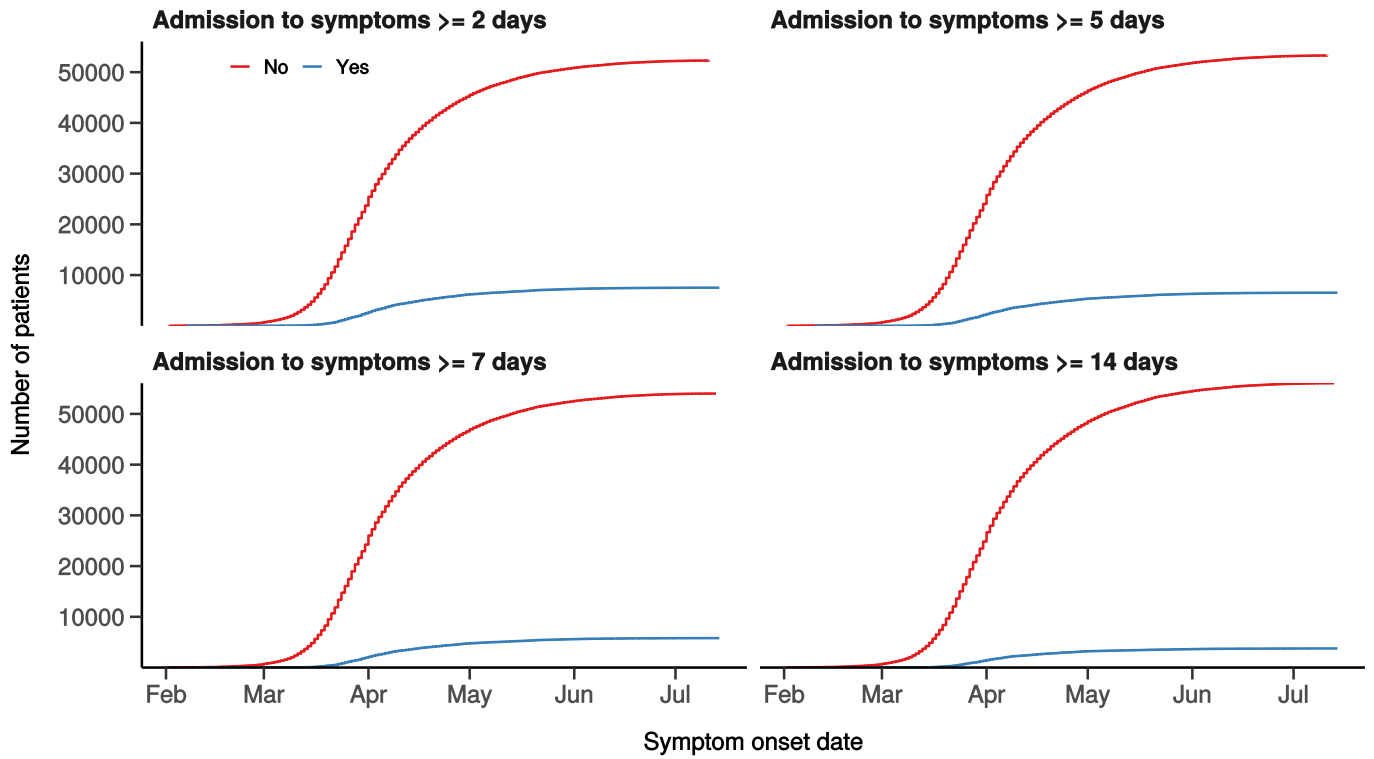
Admission

Figure 1



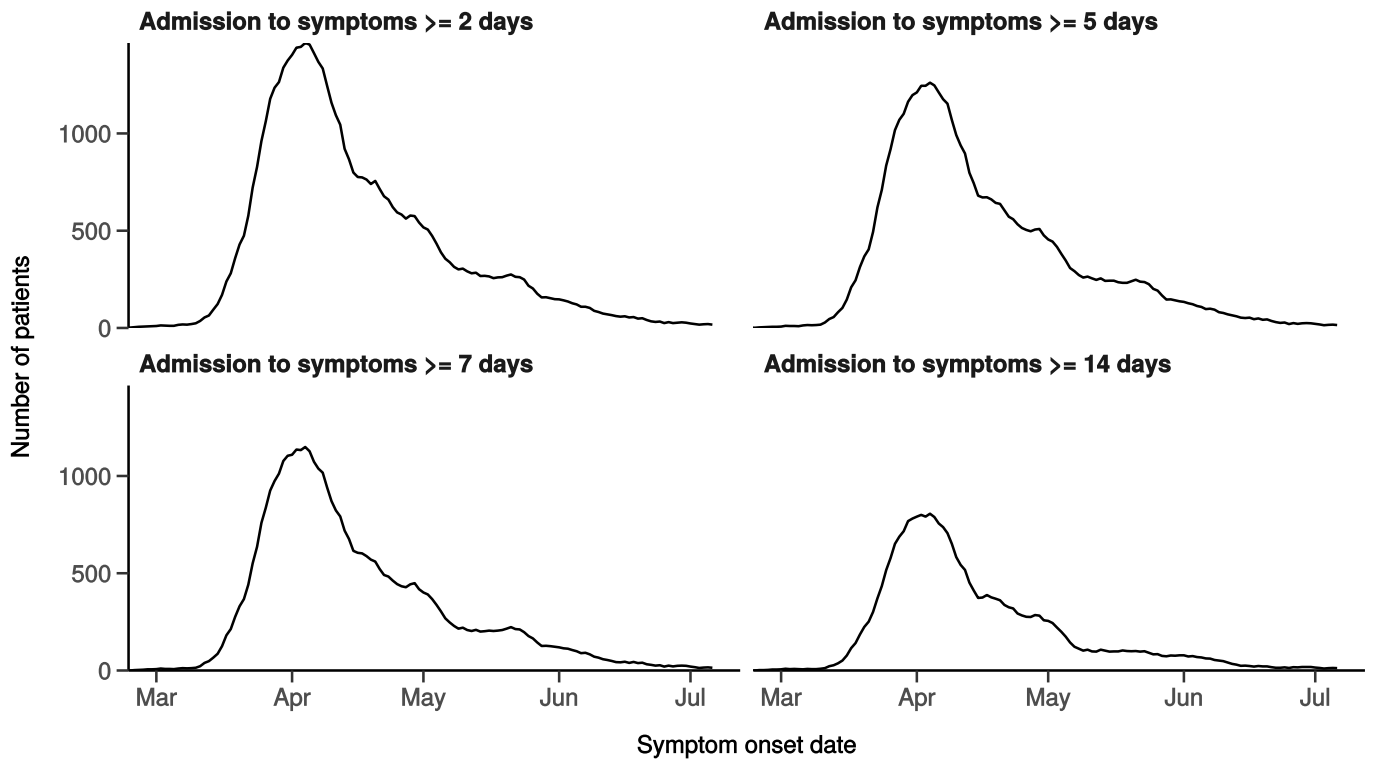
Number with symptom onset occurring after admission to hospital

Figure 1B



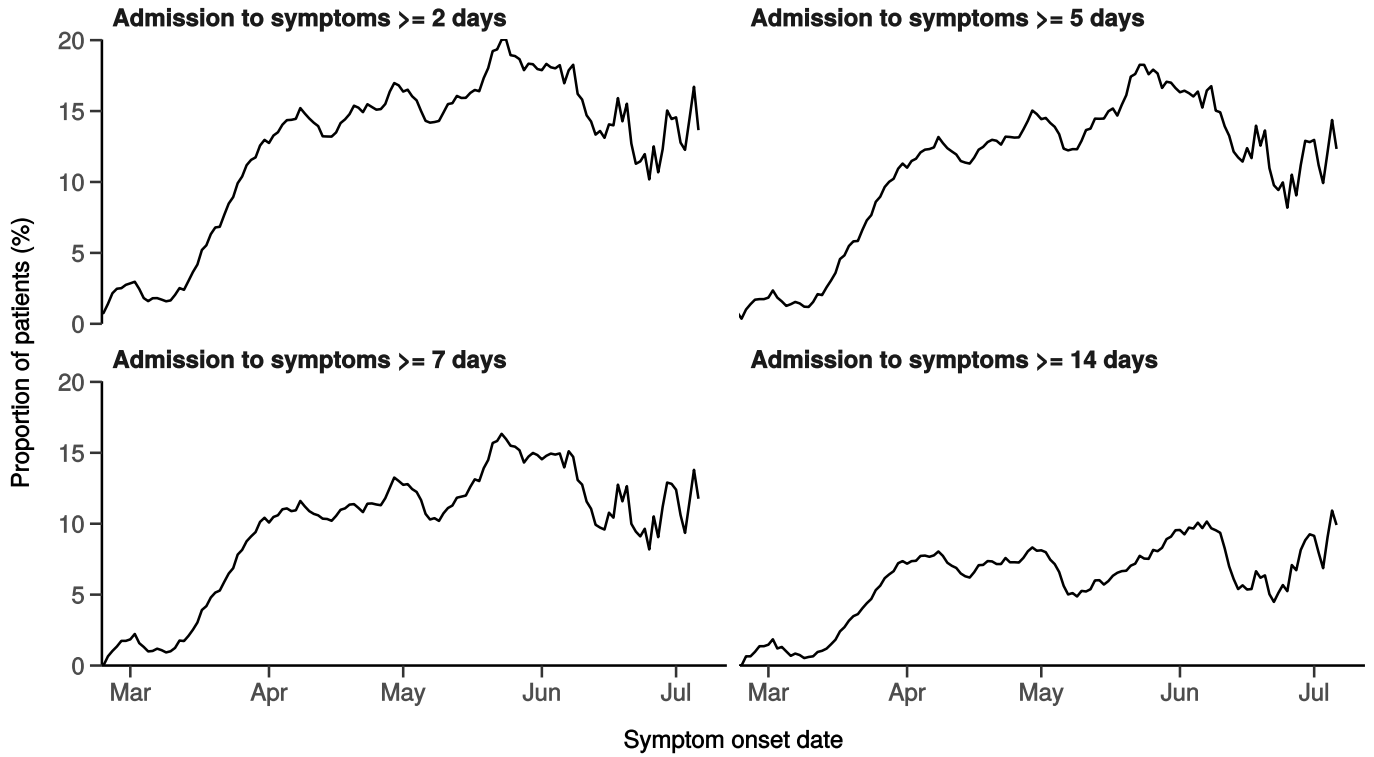
Number with symptom onset occurring after hospital admission

Figure 1C - 7-day rolling count. n = 59820



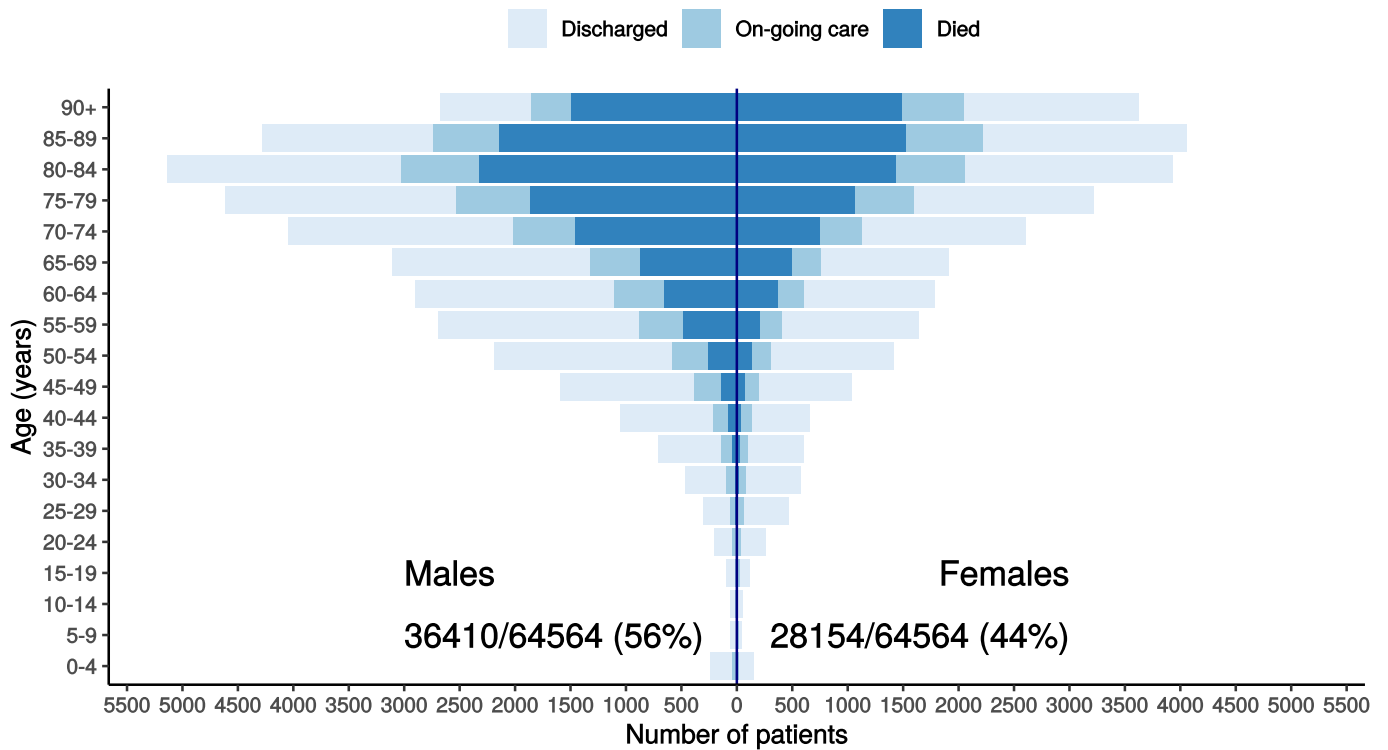
Proportion with symptom onset occurring after hospital admission

Figure 1D - 7-day rolling percentage. n = 59820



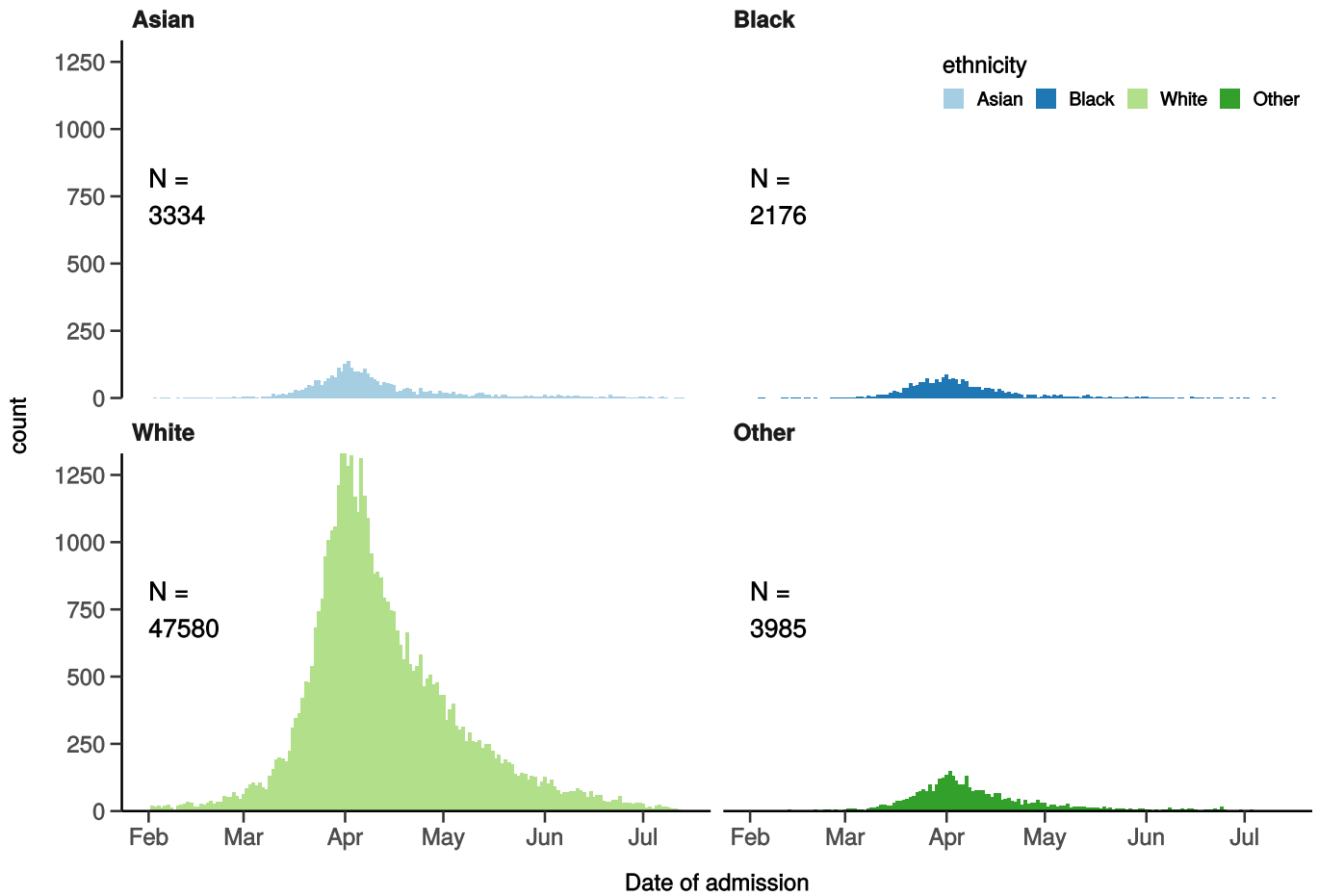
Patients with outcome stratified by age, and sex

Figure 1E



Hospital admission with COVID-19 by ethnicity

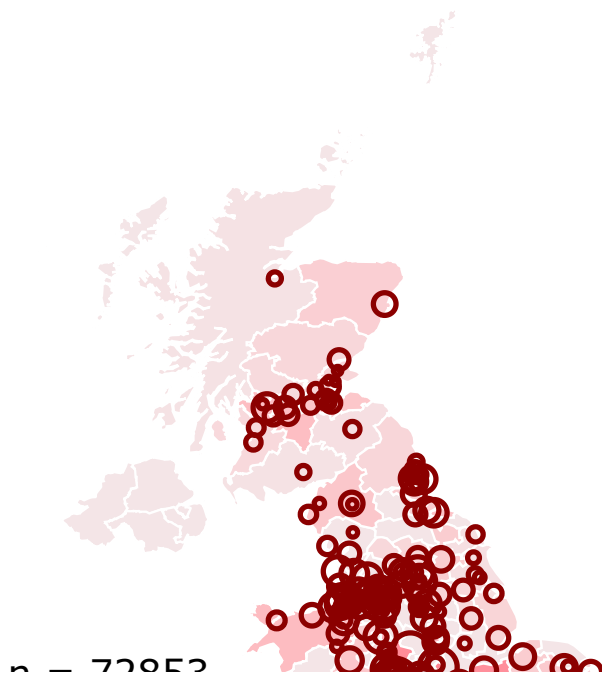
Figure 1F

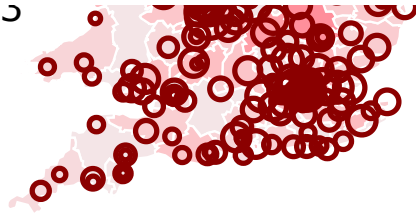


Location by CCG / Healthboard

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 = 62885)

Figure 3A

Comorbidity (% patients, n = 62961)

Figure 3B

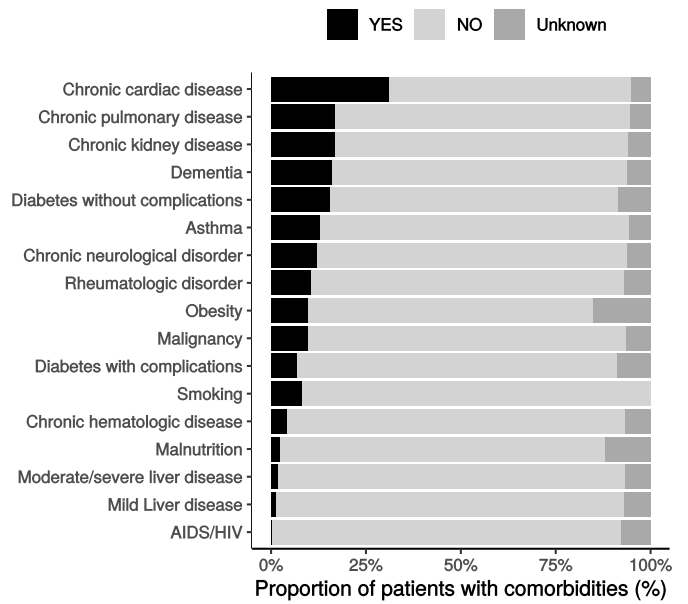
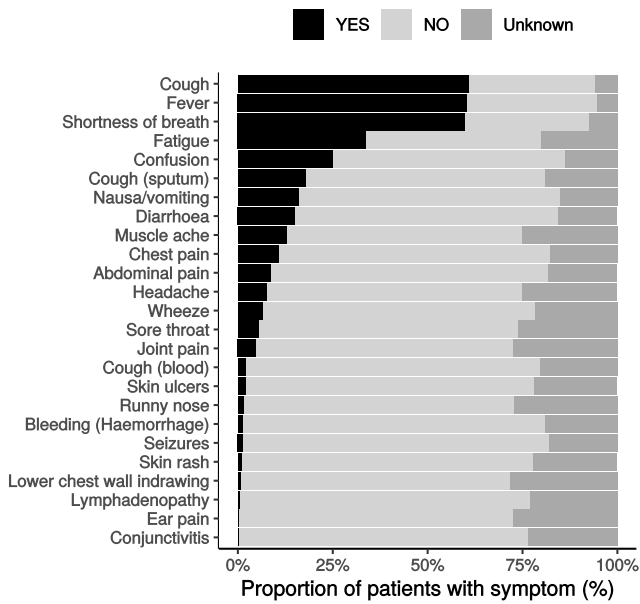
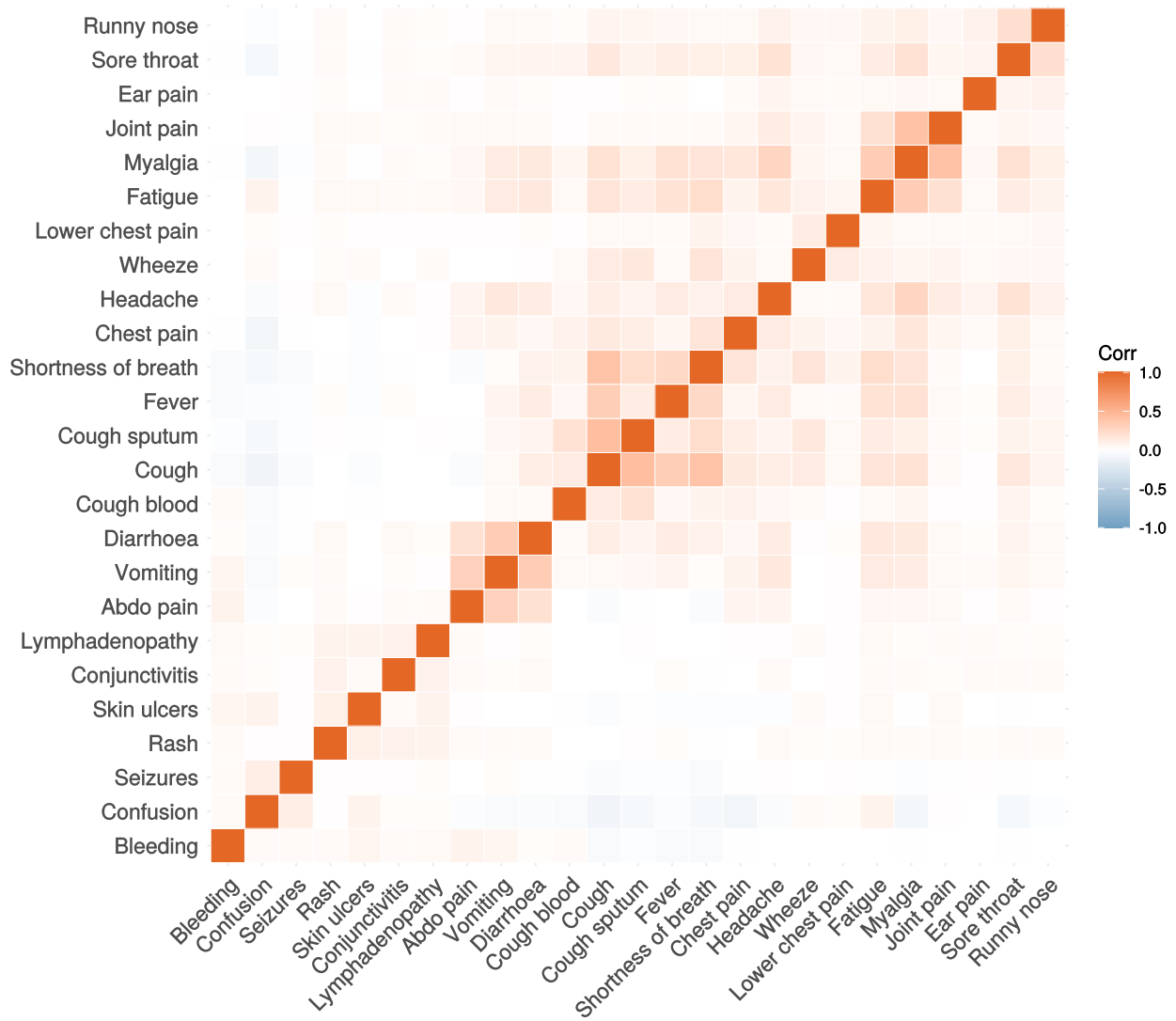


Figure 3C

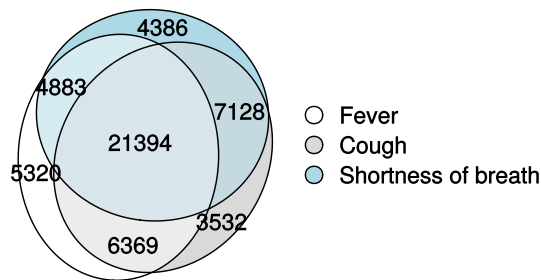
Correlation of symptoms in all pages. Note clusters, top right to bottom left, flu-like, coryzal, abdominal, respiratory, neurocutaneous.



Symptoms (diagnostic criteria)

Figure 4A

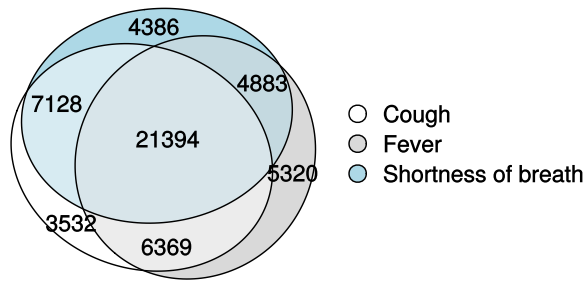
n = 62885



Symptoms (most common)

Figure 4B

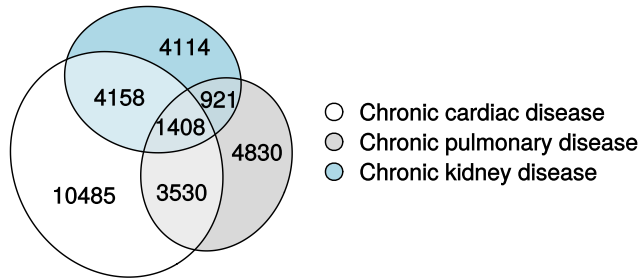
n = 62885



Comorbidity (most common)

Figure 4C

n = 62961



Medication prior to illness

Figure 5

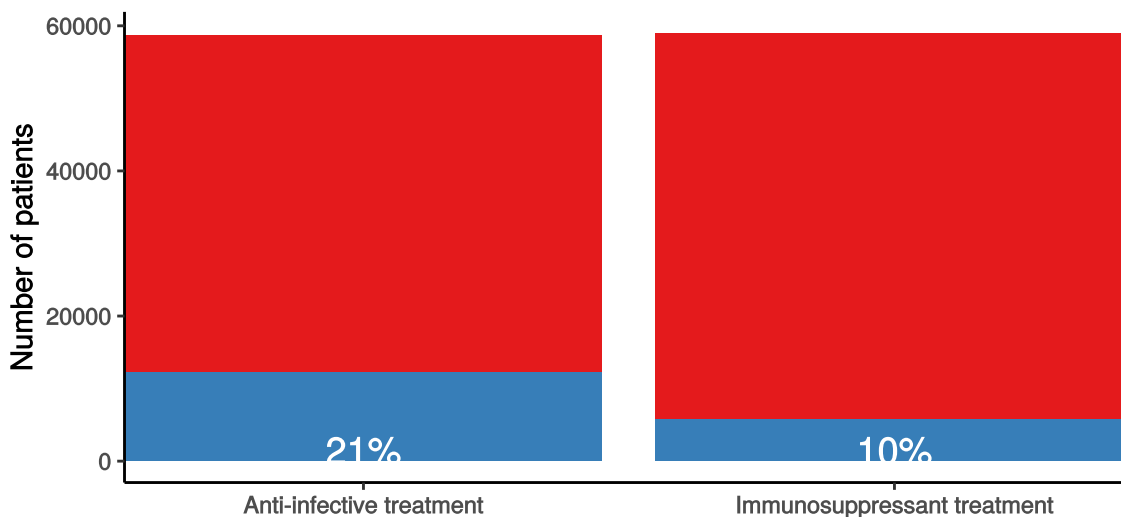
Preadmission treatment

Figure 5

Pre-admission treatment

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

■ No ■ Yes



Patient flow

Figure 6A - All patients

N = 65548

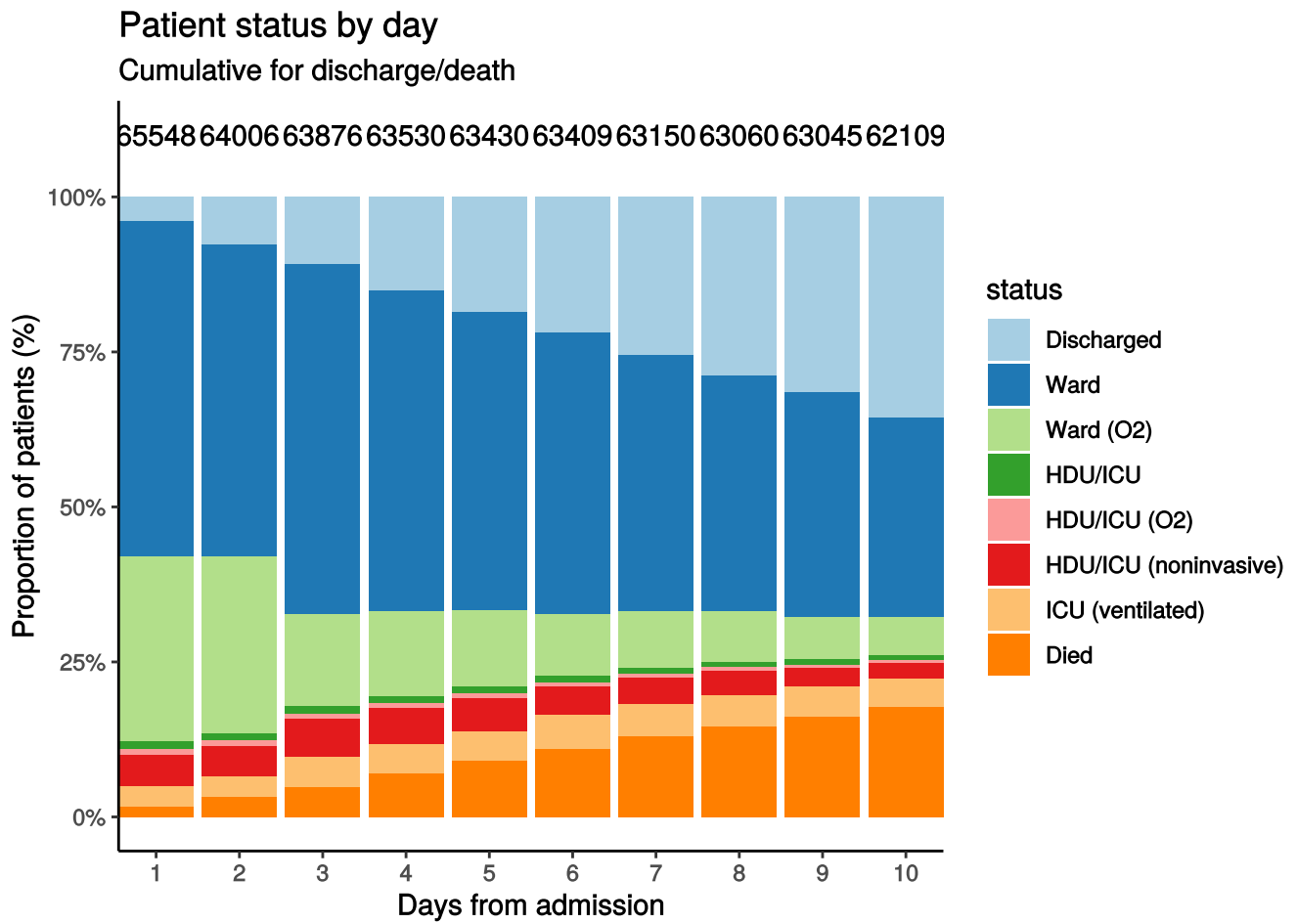
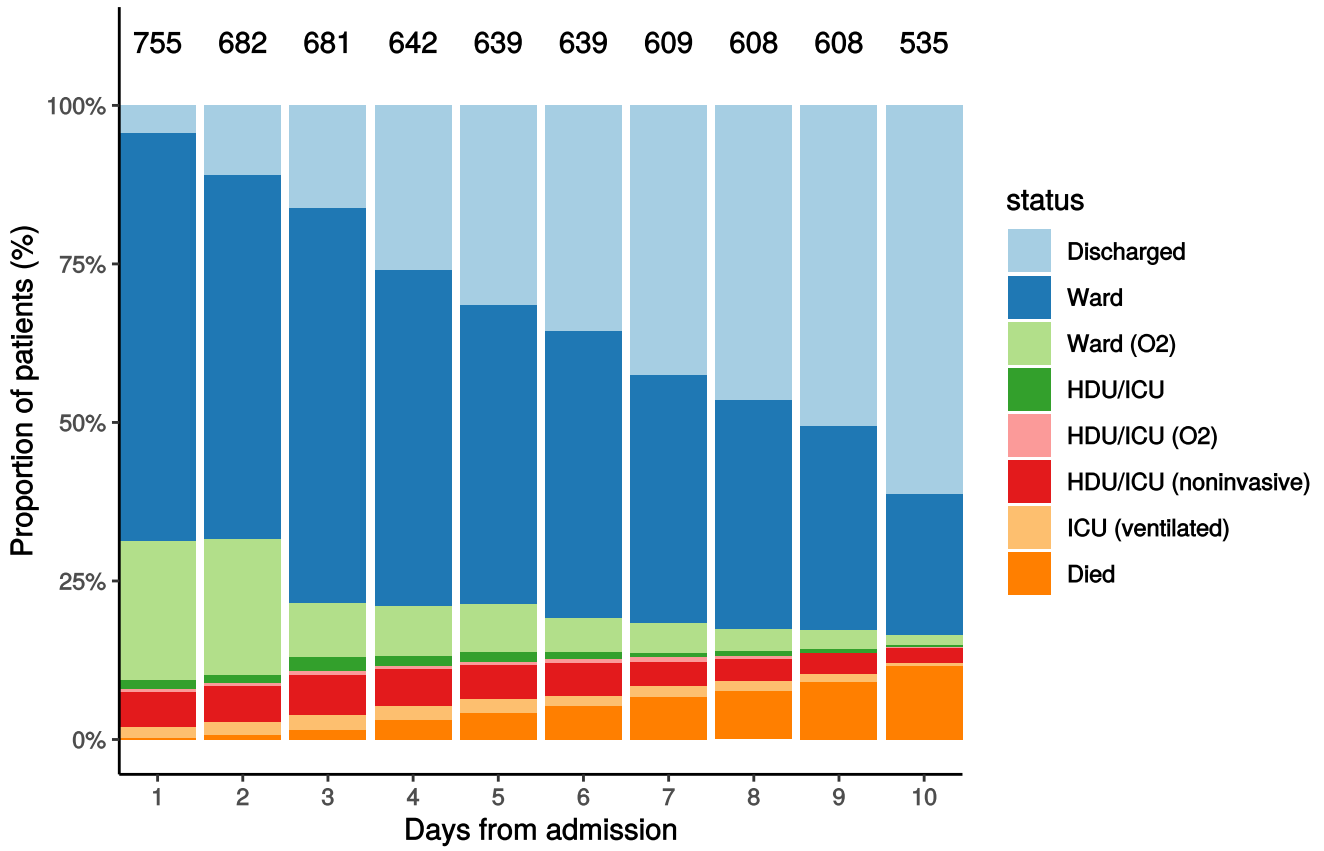


Figure 6B - Patients admitted ≥ 14 days and ≤ 28 days ago

N = 755

Patient status by day

Cumulative for discharge/death



Oxygen requirement

Figure 7A - All patients

N = 62147

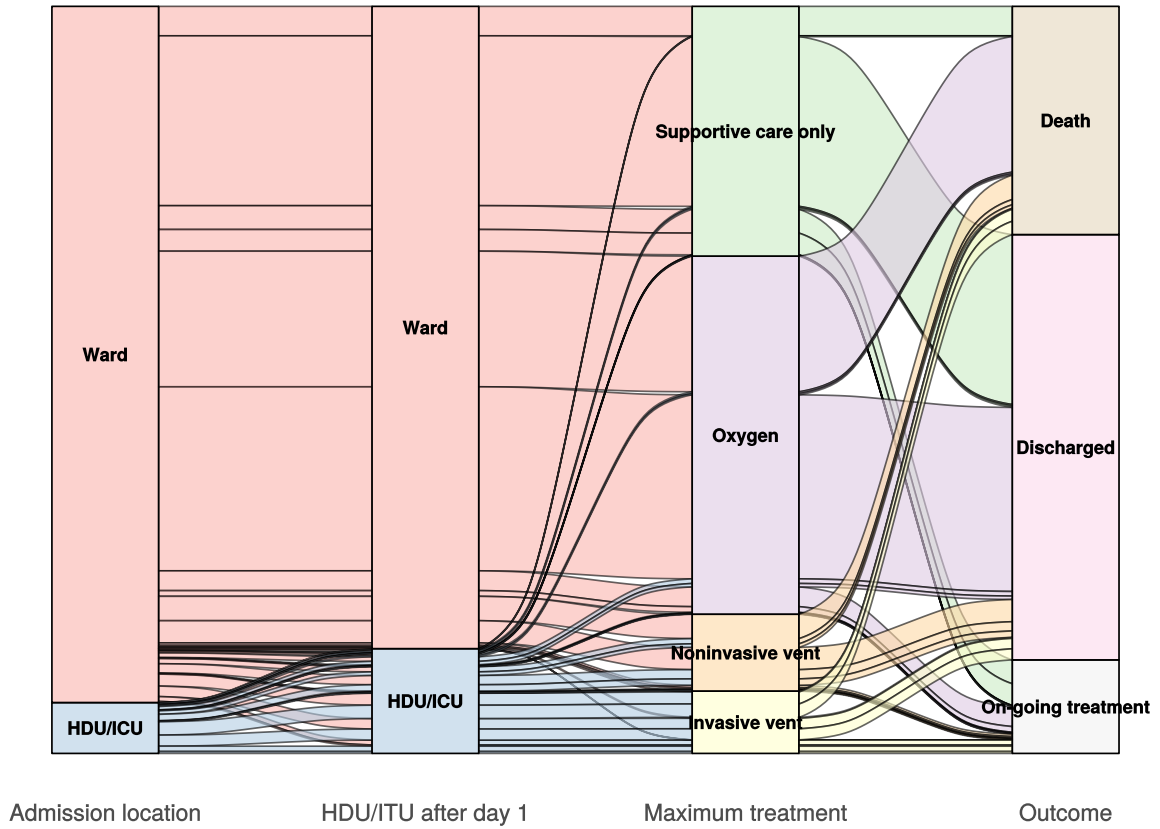
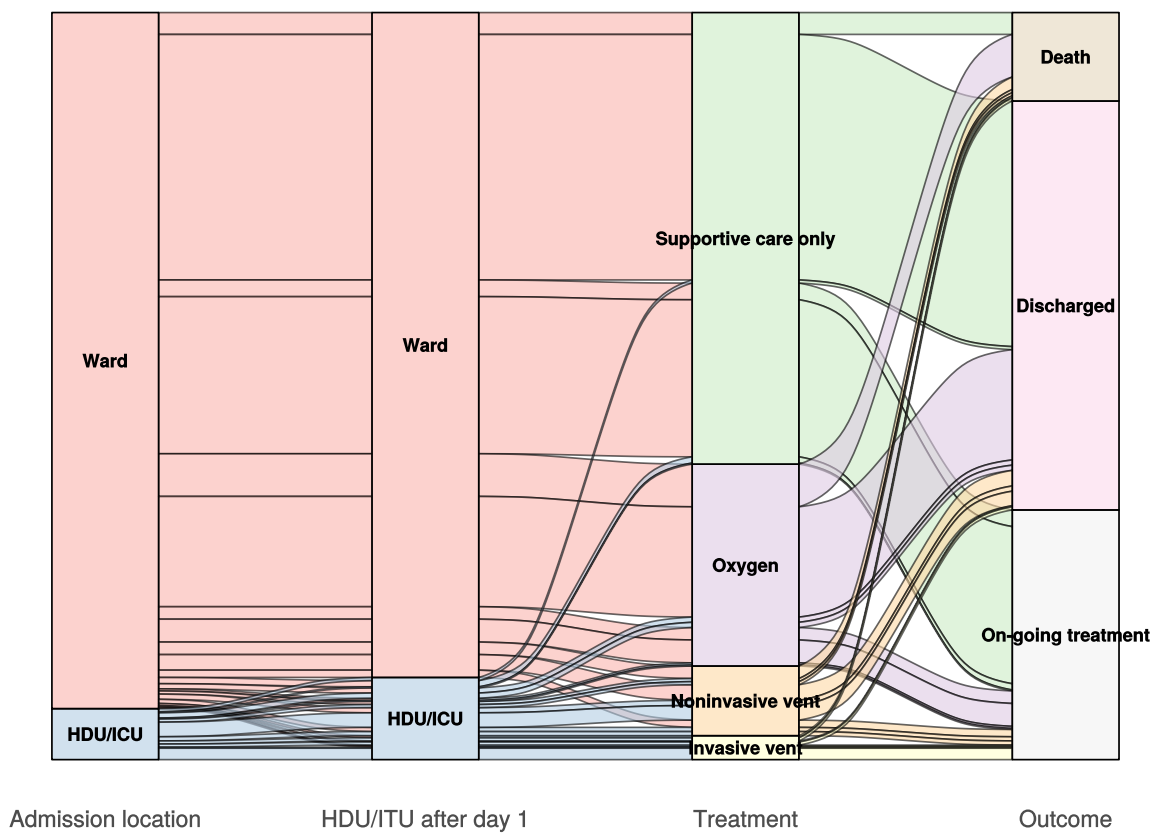


Figure 7B - Patients admitted ≥ 14 days and ≤ 28 days ago

N = 728

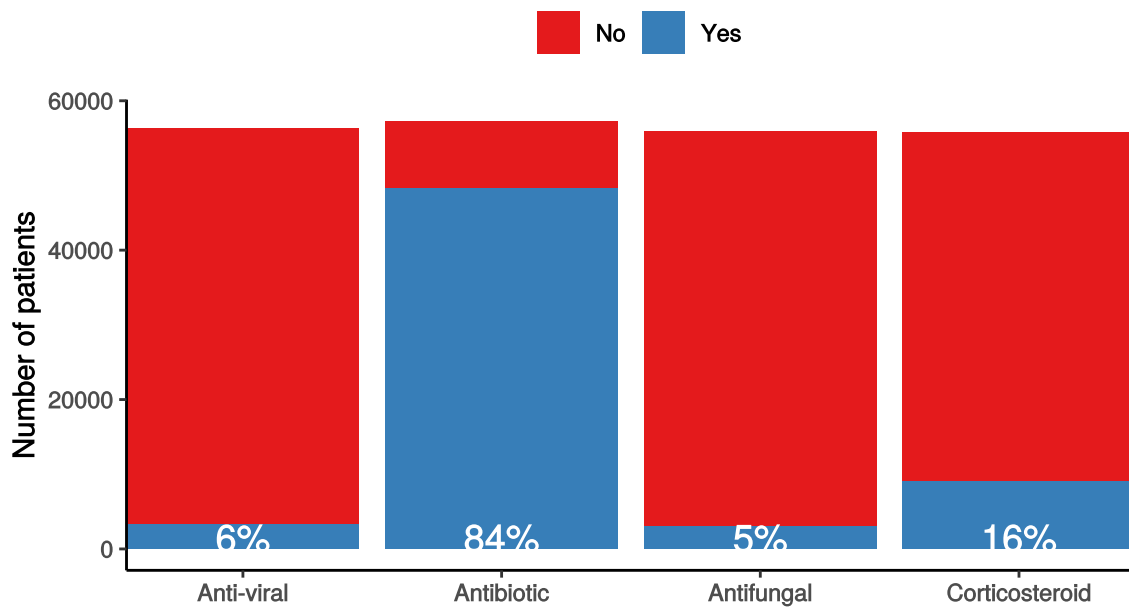


In-hospital medical treatment

Figure 8

In-hospital treatment

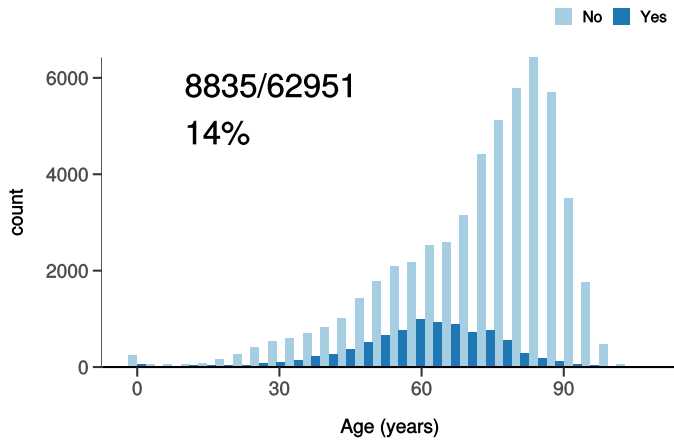
Anti-virals, antibiotics, corticosteroids, and anti-fungals for patients who have cc



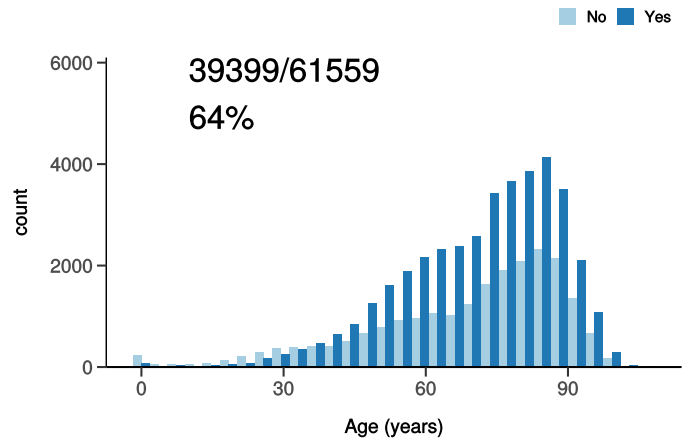
Treatment

Figure 9

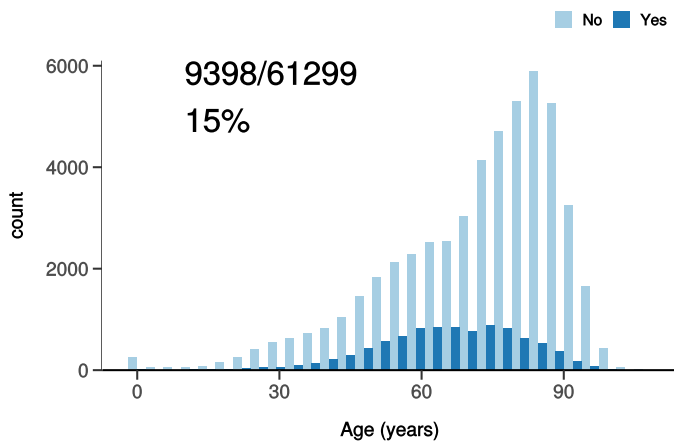
ICU/HDU admission
Figure 10A



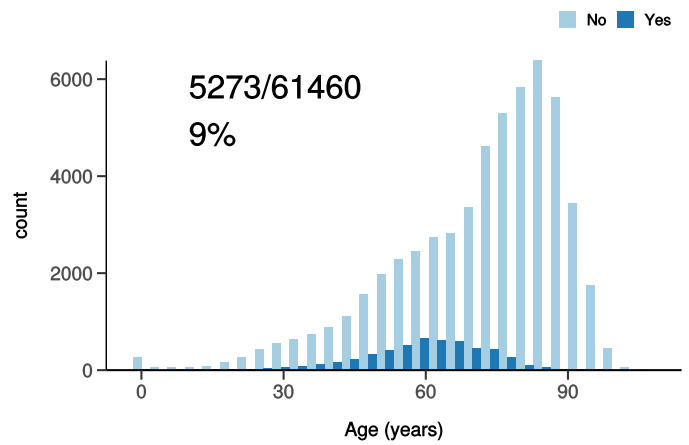
High flow oxygen
Figure 10B



Noninvasive ventilation
Figure 10C



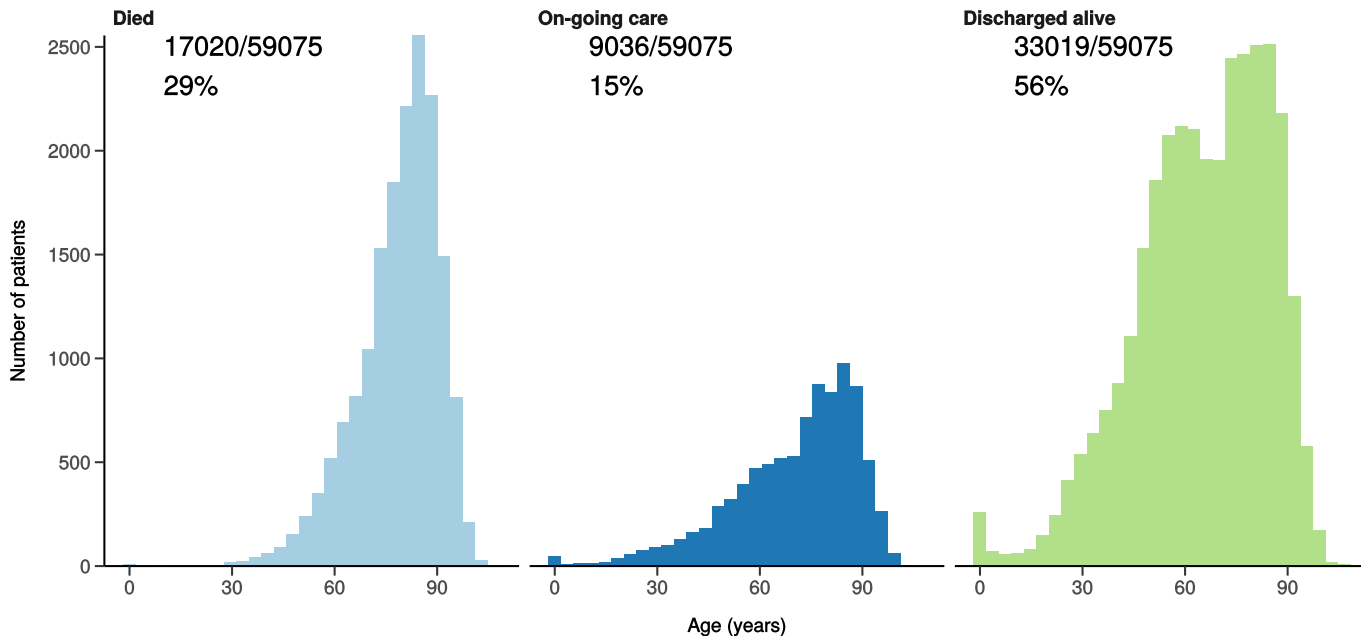
Invasive ventilation
Figure 10D



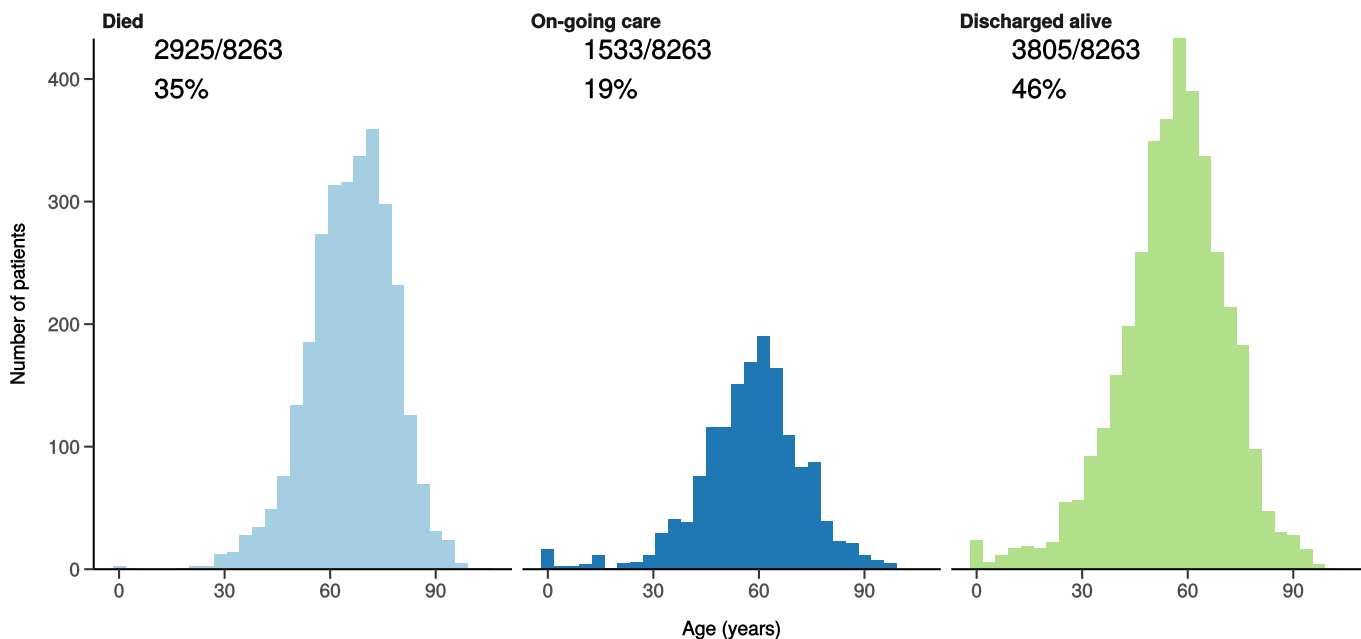
Status of patients admitted ≥ 14 days from today

Figure 10

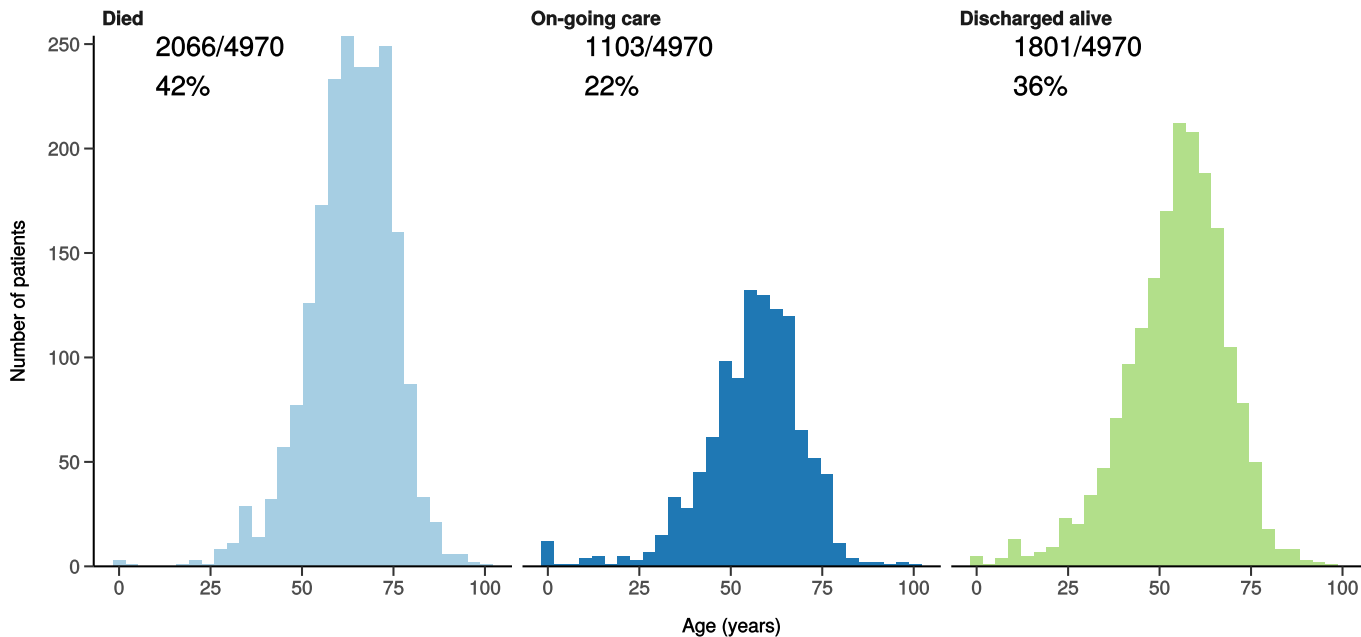
All patients



Patients admitted to ICU/HDU



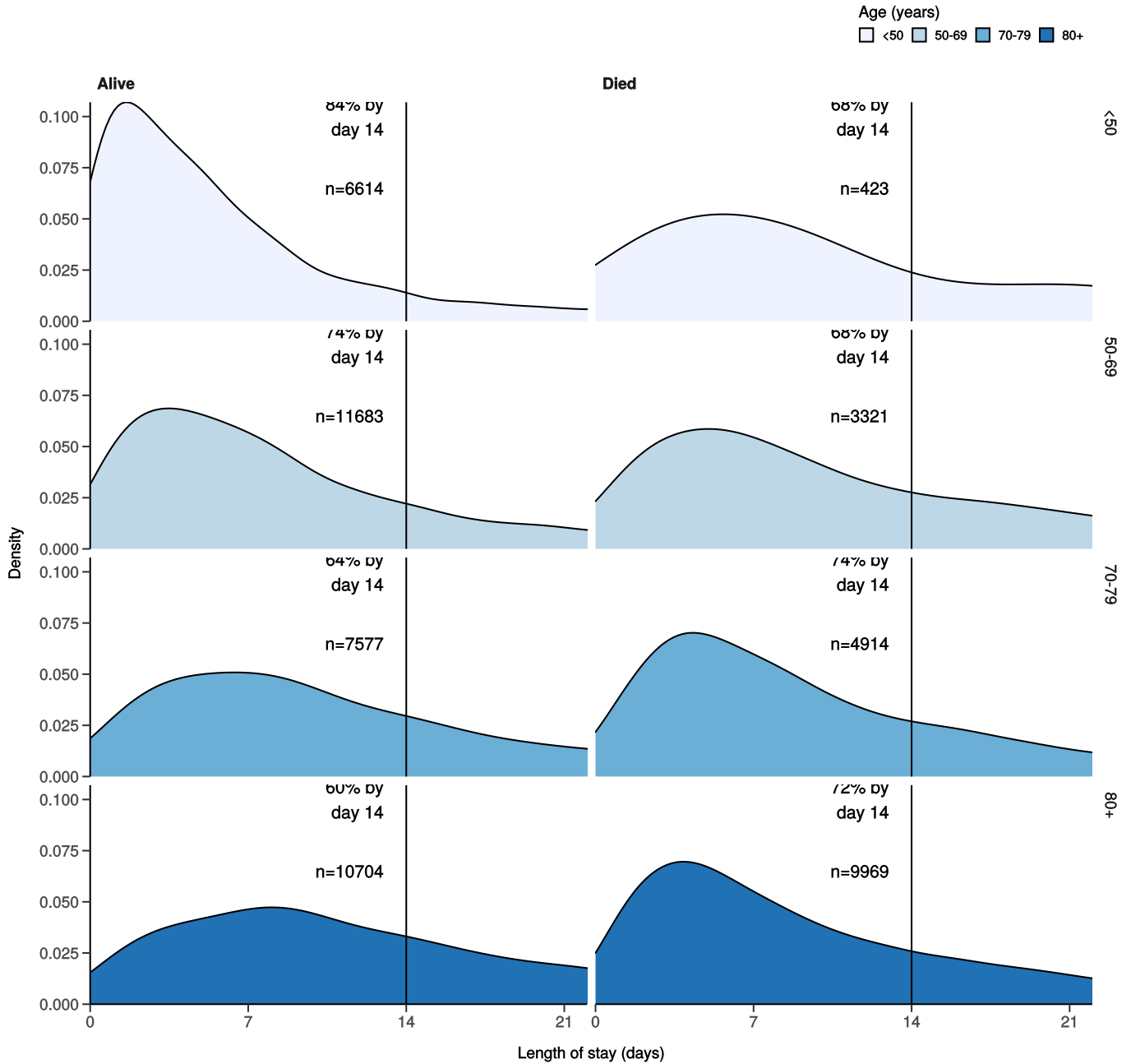
Patients receiving invasive ventilation



Length of stay stratified by age

Figure 11

Length of stay stratified by age and mortality
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	7639 (94.4)	453 (5.6)	•	•

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
	50-69	12913 (78.8)	3480 (21.2)	4.54 (4.11-5.04, p<0.001)	4.27 (3.81-4.80, p<0.001)
	70-79	8347 (61.8)	5155 (38.2)	10.41 (9.43-11.53, p<0.001)	8.67 (7.73-9.75, p<0.001)
	80+	11661 (52.7)	10449 (47.3)	15.11 (13.71-16.69, p<0.001)	12.50 (11.15-14.05, p<0.001)
Sex at Birth	Male	22147 (65.0)	11936 (35.0)	•	•
	Female	18549 (70.8)	7661 (29.2)	0.77 (0.74-0.79, p<0.001)	0.69 (0.66-0.72, p<0.001)
	Not specified	0 (NaN)	0 (NaN)	•	•
Chronic cardiac disease	NO	27520 (72.7)	10356 (27.3)	•	•
	YES	10552 (57.2)	7904 (42.8)	1.99 (1.92-2.07, p<0.001)	1.16 (1.11-1.21, p<0.001)
Chronic pulmonary disease	NO	32225 (70.0)	13834 (30.0)	•	•
	YES	5741 (57.3)	4276 (42.7)	1.73 (1.66-1.81, p<0.001)	1.30 (1.23-1.37, p<0.001)
Chronic neurological disorder	NO	33307 (68.8)	15100 (31.2)	•	•
	YES	4369 (60.7)	2832 (39.3)	1.43 (1.36-1.50, p<0.001)	1.14 (1.07-1.22, p<0.001)
Chronic hematologic disease	NO	36084 (68.2)	16844 (31.8)	•	•
	YES	1475 (59.5)	1004 (40.5)	1.46 (1.34-1.58, p<0.001)	1.18 (1.06-1.30, p=0.001)
Chronic kidney disease	NO	32314 (70.4)	13595 (29.6)	•	•
	YES	5543 (55.4)	4461 (44.6)	1.91 (1.83-2.00, p<0.001)	1.28 (1.21-1.35, p<0.001)
Dementia	NO	32776 (71.0)	13380 (29.0)	•	•

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
	YES	4979 (51.8)	4628 (48.2)	2.28 (2.18-2.38, p<0.001)	1.40 (1.32-1.48, p<0.001)
Obesity	NO	30146 (67.8)	14311 (32.2)	•	•
	YES	4220 (71.5)	1686 (28.5)	0.84 (0.79-0.89, p<0.001)	1.33 (1.24-1.42, p<0.001)
Malignancy	NO	34397 (69.3)	15256 (30.7)	•	•
	YES	3203 (55.0)	2619 (45.0)	1.84 (1.74-1.95, p<0.001)	1.43 (1.34-1.52, p<0.001)

Number in dataframe = 64893, Number in model = 47720, Missing = 17173, AIC = 52999.5, C-statistic = 0.715, H&L = Chi-sq(8) 100.33 (p<0.001)

Figure 12 - Adjusted odds ratio plot

Death

Age on admission (years)	<50	-
	50-69	4.27 (3.81-4.80, p<0.001)
	70-79	8.67 (7.73-9.75, p<0.001)
	80+	12.50 (11.15-14.05, p<0.001)
Sex at Birth	Male	-
	Female	0.69 (0.66-0.72, p<0.001)
	Not specified	-
Chronic cardiac disease	YES	1.16 (1.11-1.21, p<0.001)
Chronic pulmonary disease	YES	1.30 (1.23-1.37, p<0.001)
Chronic neurological disorder	YES	1.14 (1.07-1.22, p<0.001)
Chronic hematologic disease	YES	1.18 (1.06-1.30, p=0.001)
Chronic kidney disease	YES	1.28 (1.21-1.35, p<0.001)
Dementia	YES	1.40 (1.32-1.48, p<0.001)
Obesity	YES	1.33 (1.24-1.42, p<0.001)
Malignancy	YES	1.43 (1.34-1.52, p<0.001)

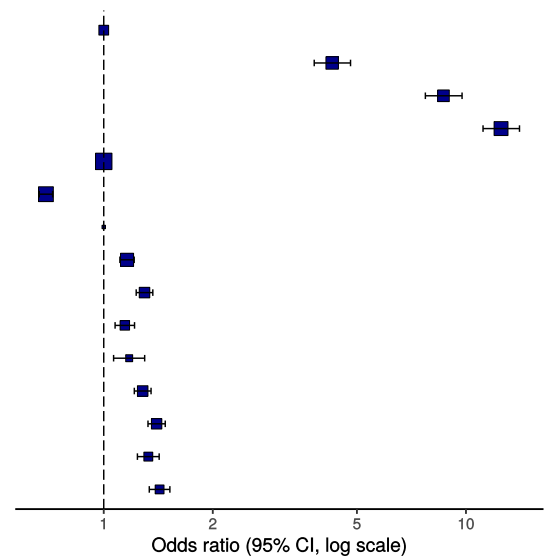
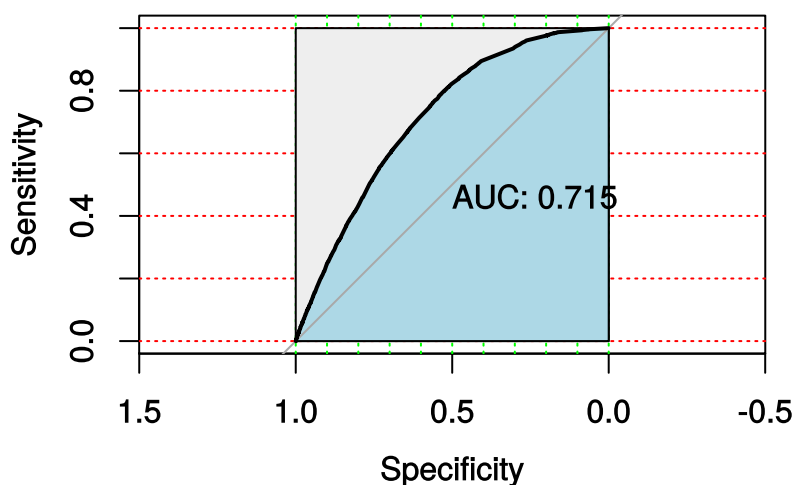


Figure 13 - ROC

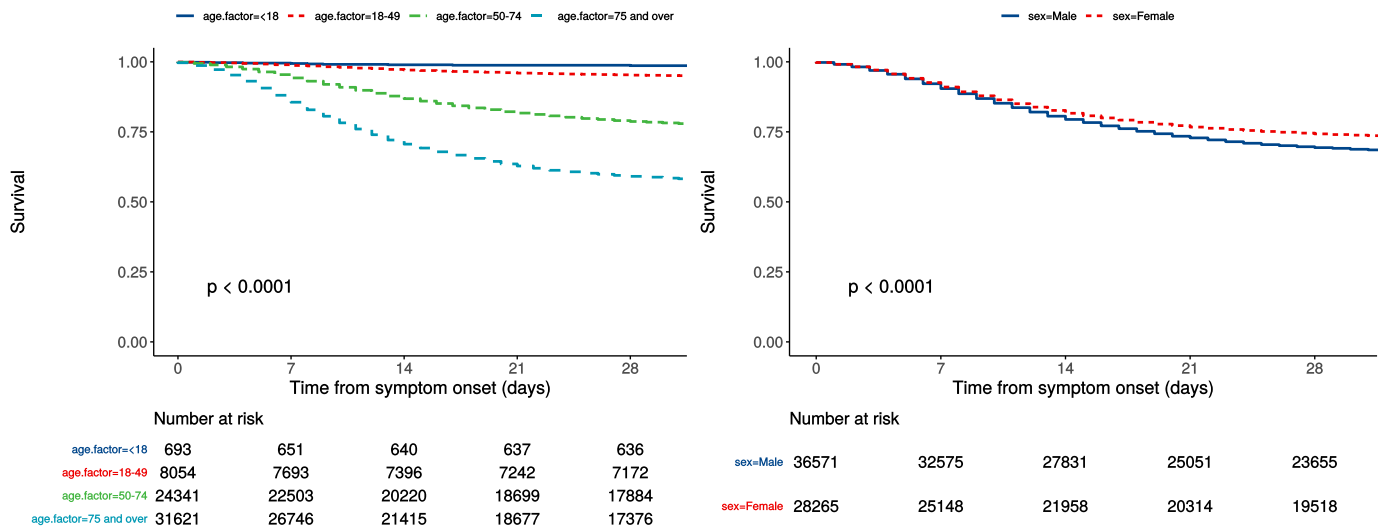


Survival models

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	8747 (13.5)	•	•
	50-69	17671 (27.3)	4.06 (3.68-4.48, p<0.001)	4.02 (3.56-4.53, p<0.001)
	70-79	14525 (22.4)	8.30 (7.54-9.13, p<0.001)	7.81 (6.93-8.81, p<0.001)
	80+	23769 (36.7)	11.26 (10.25-12.37, p<0.001)	10.35 (9.18-11.66, p<0.001)
Sex at Birth	Male	36571 (56.4)	•	•
	Female	28265 (43.6)	0.81 (0.79-0.84, p<0.001)	0.78 (0.75-0.81, p<0.001)

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
qSOFA score on admission	0	22855 (42.2)	•	•
	1	24421 (45.1)	1.60 (1.54-1.66, p<0.001)	1.71 (1.64-1.78, p<0.001)
	2	6164 (11.4)	2.99 (2.86-3.13, p<0.001)	2.79 (2.66-2.94, p<0.001)
	3	677 (1.3)	4.89 (4.44-5.39, p<0.001)	4.47 (4.00-4.98, p<0.001)
Symptomatic at presentation	No symptoms	2707 (4.3)	•	•
	Symptoms	60013 (95.7)	1.50 (1.38-1.63, p<0.001)	•
Chronic cardiac disease	NO	40000 (67.3)	•	•
	YES	19470 (32.7)	1.76 (1.71-1.81, p<0.001)	1.13 (1.09-1.17, p<0.001)
Chronic kidney disease	NO	48461 (82.1)	•	•
	YES	10538 (17.9)	1.70 (1.64-1.76, p<0.001)	1.21 (1.16-1.26, p<0.001)
Moderate/severe liver disease	NO	57233 (98.0)	•	•
	YES	1153 (2.0)	1.28 (1.17-1.41, p<0.001)	1.46 (1.29-1.64, p<0.001)
Chronic neurological disorder	NO	51095 (87.1)	•	•
	YES	7568 (12.9)	1.36 (1.31-1.42, p<0.001)	•
Malignancy	NO	52447 (89.6)	•	•
	YES	6076 (10.4)	1.61 (1.55-1.68, p<0.001)	1.32 (1.25-1.38, p<0.001)
Chronic hematologic disease	NO	55852 (95.6)	•	•

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
	YES	2594 (4.4)	1.35 (1.26-1.44, p<0.001)	•
Obesity	NO	46952 (88.4)	•	•
	YES	6167 (11.6)	0.86 (0.82-0.91, p<0.001)	1.20 (1.13-1.27, p<0.001)
Diabetes without complications	NO	47465 (83.0)	•	•
	YES	9722 (17.0)	1.23 (1.18-1.28, p<0.001)	•
Rheumatologic disorder	NO	51716 (88.8)	•	•
	YES	6546 (11.2)	1.18 (1.13-1.24, p<0.001)	•
Dementia	NO	48728 (82.8)	•	•
	YES	10104 (17.2)	1.99 (1.93-2.06, p<0.001)	1.19 (1.14-1.24, p<0.001)
Malnutrition	NO	53554 (97.2)	•	•
	YES	1521 (2.8)	1.42 (1.31-1.54, p<0.001)	•
smoking_mhyn_2levels	NO	35507 (91.7)	•	•
	YES	3207 (8.3)	0.89 (0.83-0.95, p=0.001)	•

Number in dataframe = 65128, Number in model = 44028, Missing = 21100, Number of events = 13266, Concordance = 0.715 (SE = 0.002), R-squared = 0.159 (Max possible = 0.998), Likelihood ratio test = 7650.128 (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	4.02 (3.56-4.53, p<0.001)
	70-79	7.81 (6.93-8.81, p<0.001)
	80+	10.35 (9.18-11.66, p<0.001)
Sex at Birth	Female	0.78 (0.75-0.81, p<0.001)
qSOFA score on admission	0	-
	1	1.71 (1.64-1.78, p<0.001)
	2	2.79 (2.66-2.94, p<0.001)
	3	4.47 (4.00-4.98, p<0.001)
Chronic cardiac disease	YES	1.13 (1.09-1.17, p<0.001)
Chronic kidney disease	YES	1.21 (1.16-1.26, p<0.001)
Moderate/severe liver disease	YES	1.46 (1.29-1.64, p<0.001)
Malignancy	YES	1.32 (1.25-1.38, p<0.001)
Obesity	YES	1.20 (1.13-1.27, p<0.001)
Dementia	YES	1.19 (1.14-1.24, p<0.001)

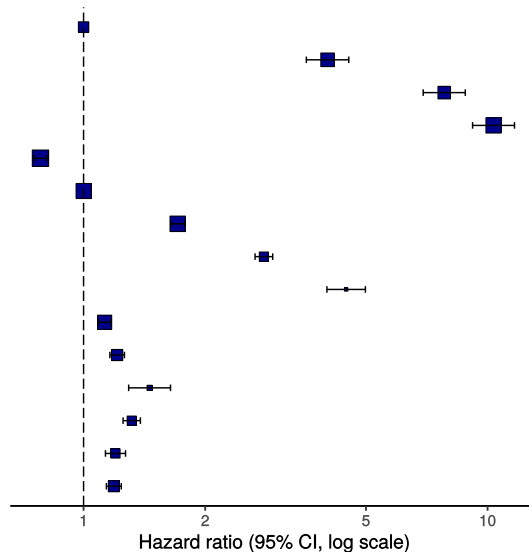
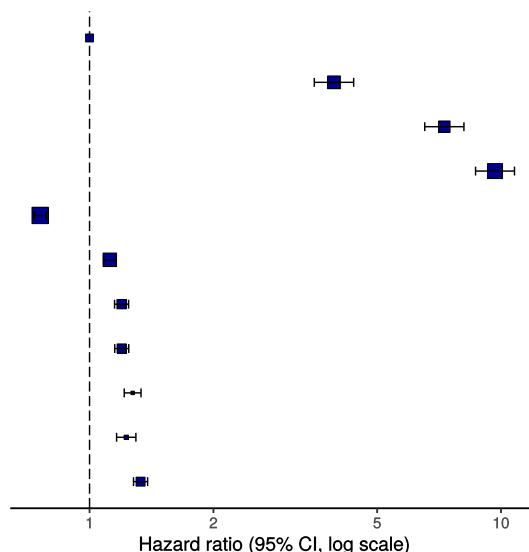


Figure 15b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)

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

Age on admission (years)	<50	-
	50-69	3.93 (3.52-4.38, p<0.001)
	70-79	7.28 (6.53-8.13, p<0.001)
	80+	9.67 (8.67-10.78, p<0.001)
Sex at Birth	Female	0.76 (0.73-0.78, p<0.001)
Chronic cardiac disease	YES	1.12 (1.08-1.16, p<0.001)
Chronic pulmonary disease	YES	1.20 (1.15-1.24, p<0.001)
Chronic kidney disease	YES	1.20 (1.15-1.25, p<0.001)
Malignancy	YES	1.27 (1.21-1.33, p<0.001)
Obesity	YES	1.23 (1.16-1.30, p<0.001)
Dementia	YES	1.33 (1.28-1.38, p<0.001)



ROC = 0.7151961

Figure 16 - Predictions calibration plot

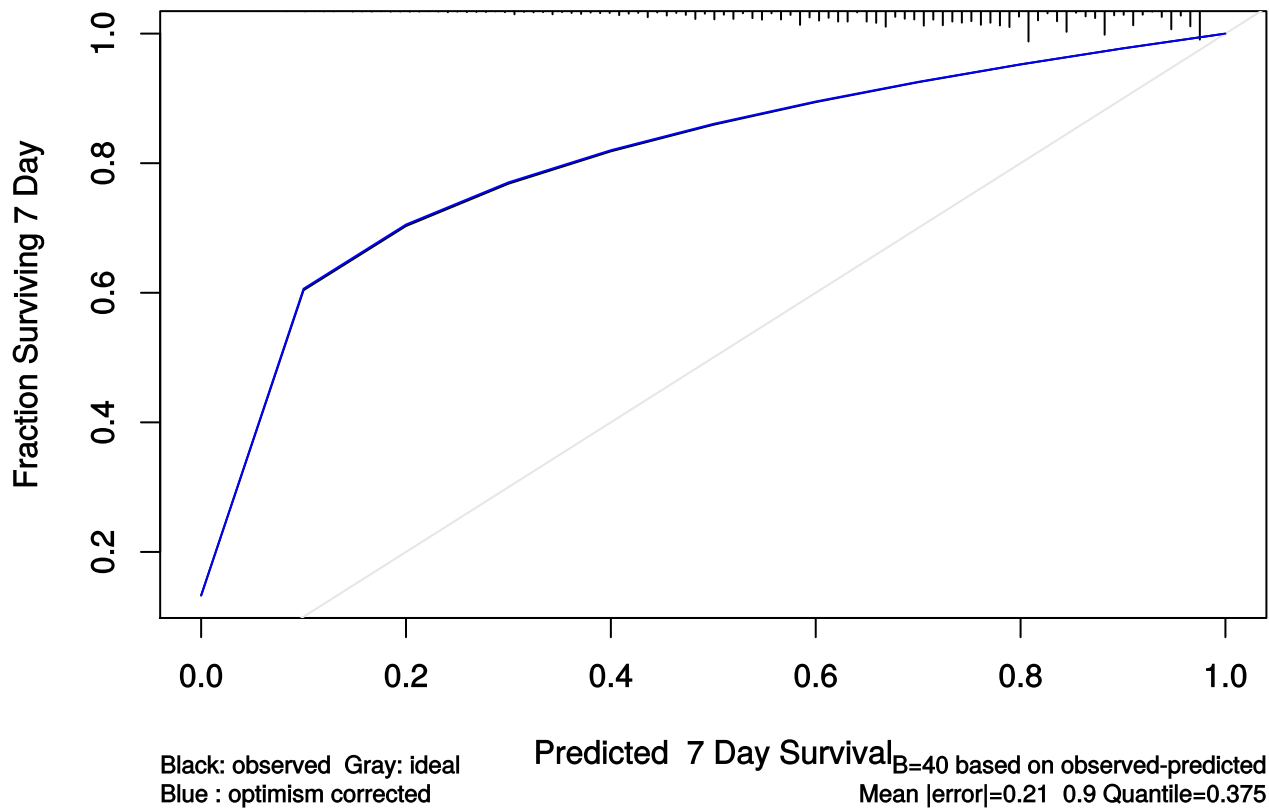


Figure 17 - Prognostic model predictions

Again, for demonstration of methods.

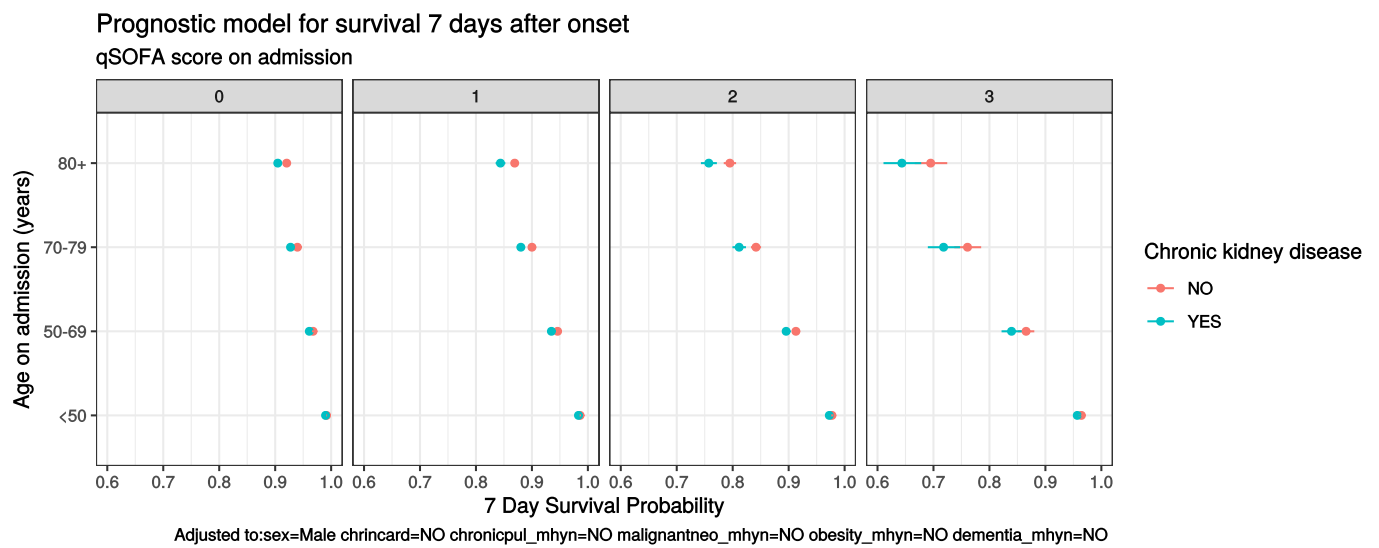


Figure 18 - Death by severity (NEWS) on admission

Number of deaths by NEWS score at admission

Alive Died

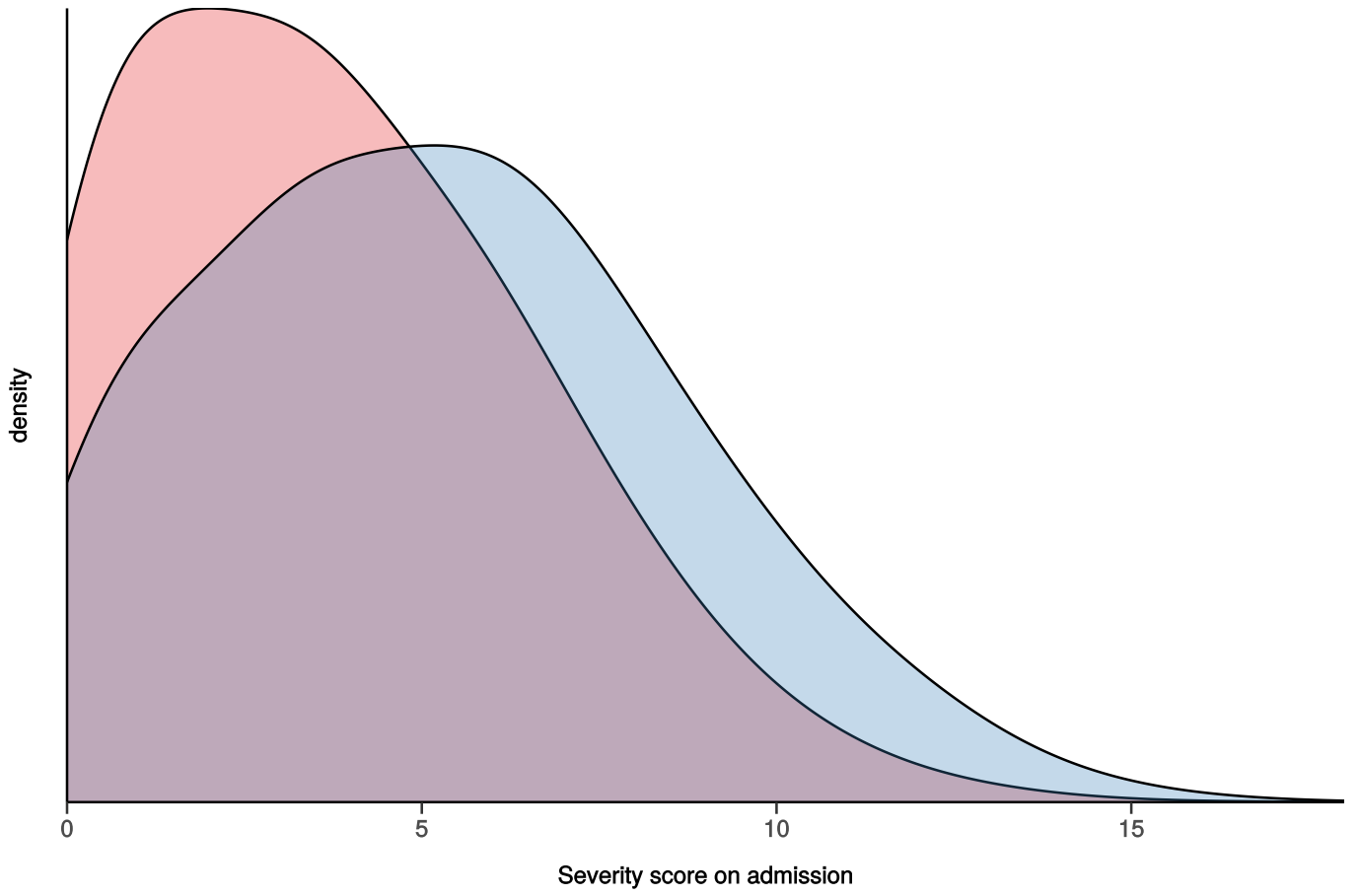


Figure 19 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission

Stratified by age

Alive Died

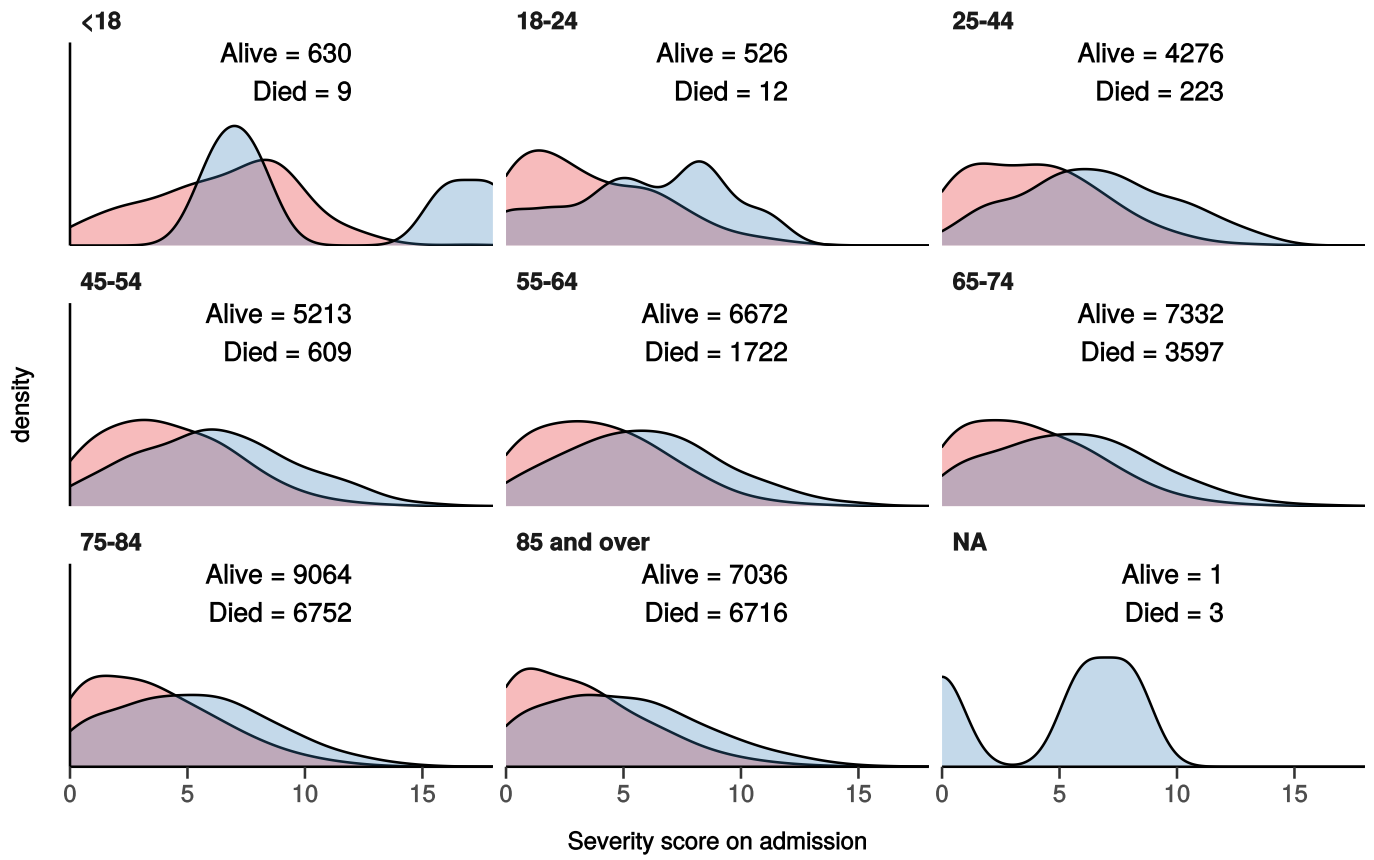
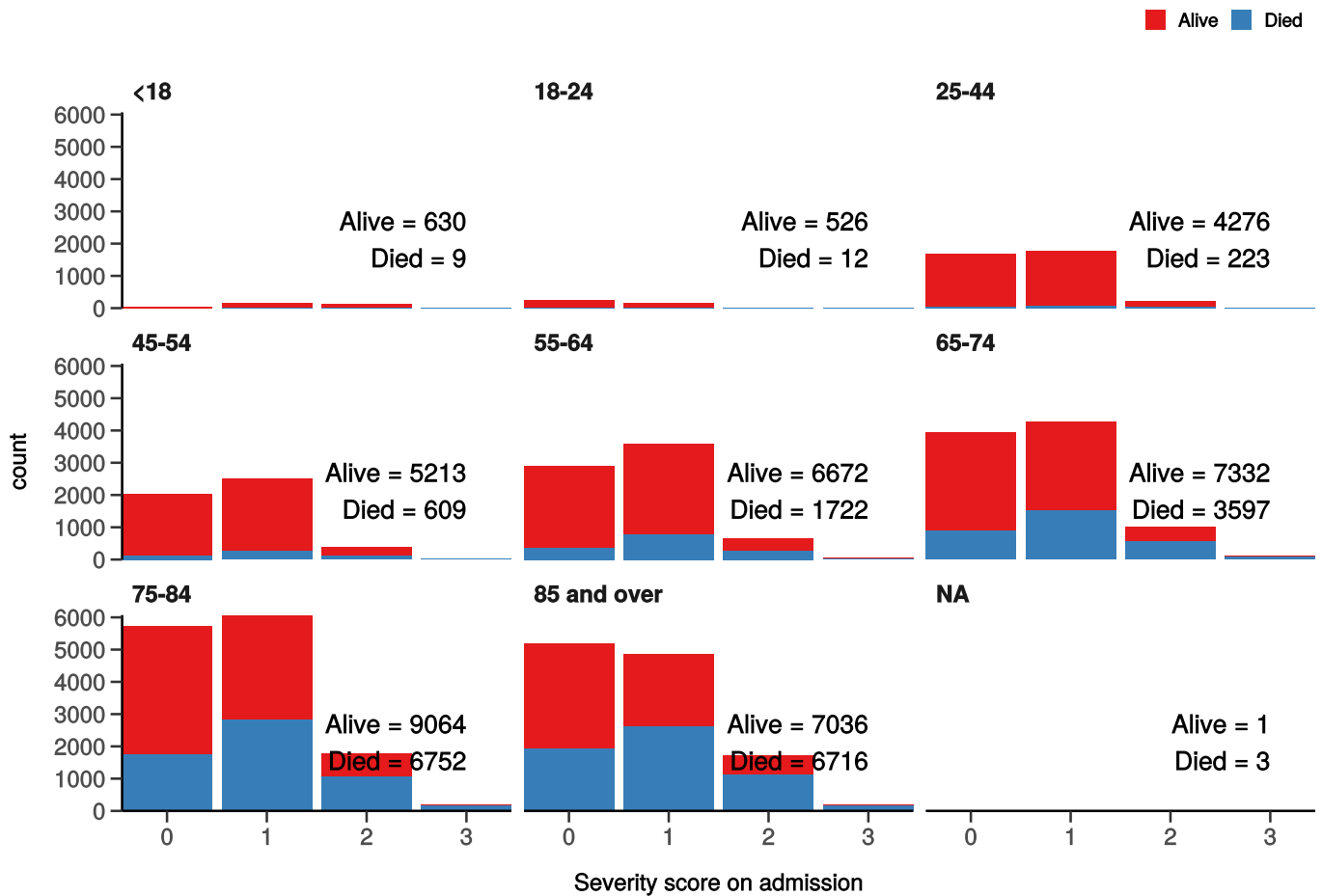


Figure 20 - Death by severity (qSOFA) on admission stratified by age

Number of deaths by qSOFA score at admission

Stratified by age



Healthcare workers

Healthcare worker		NO	YES	p
Total N (%)		57429 (94.9)	3077 (5.1)	
NEWS score on admission	Median (IQR)	4.0 (4.0)	4.0 (4.0)	0.056
Death	No	33950 (65.4)	2638 (92.7)	<0.001
	Yes	17955 (34.6)	209 (7.3)	

Admission (detail)

Table 1

label	levels	all
Total N (%)		72021 (100.0)
Age on admission (years)	Mean (SD)	70.4 (19.4)

label	levels	all
Sex at Birth	Male	38303 (53.2)
	Female	29666 (41.2)
	Not specified	115 (0.2)
	(Missing)	3937 (5.5)
Healthcare worker	YES	3077 (4.3)
	NO	57429 (79.7)
	N/A	6534 (9.1)
	(Missing)	4981 (6.9)
Microbiology lab worker	YES	87 (0.1)
	NO	25184 (35.0)
	N/A	2974 (4.1)
	(Missing)	43776 (60.8)
Onset to admission (days)	Mean (SD)	6.0 (1540.6)
Transfer from other facility	Yes-facility is a study site	1535 (2.1)
	Yes-facility is not a study site	3381 (4.7)
	No	55997 (77.8)
	N/A	2796 (3.9)
	(Missing)	8312 (11.5)
Travel in 14 d prior to symptoms	Yes	804 (1.1)
	No	21780 (30.2)
	N/A	4334 (6.0)
	(Missing)	45103 (62.6)
Country	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	0 (0.0)
	Andorra	1 (0.0)
	Angola	0 (0.0)

label	levels	all
	Antigua and Barbuda	4 (0.0)
	Argentina	1 (0.0)
	Armenia	0 (0.0)
	Aruba	0 (0.0)
	Australia	3 (0.0)
	Austria	22 (0.0)
	Azerbaijan	2 (0.0)
	The	0 (0.0)
	Bahrain	0 (0.0)
	Bangladesh	1 (0.0)
	Barbados	18 (0.0)
	Belarus	0 (0.0)
	Belgium	4 (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	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	0 (0.0)

label	levels	all
	Canada	2 (0.0)
	Cabo Verde	1 (0.0)
	Central African Republic	1 (0.0)
	Chad	0 (0.0)
	Chile	1 (0.0)
	China	3 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Republic of the	0 (0.0)
	Costa Rica	0 (0.0)
	Cote dlvoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	1 (0.0)
	Curacao	0 (0.0)
	Cyprus	26 (0.0)
	Czechia	2 (0.0)
	Denmark	1 (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)
	Ethiopia	0 (0.0)

label	levels	all
	Fiji	0 (0.0)
	Finland	0 (0.0)
	France	32 (0.0)
	Gabon	0 (0.0)
	Georgia	0 (0.0)
	Germany	8 (0.0)
	Ghana	2 (0.0)
	Greece	2 (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	4 (0.0)
	Iceland	1 (0.0)
	India	10 (0.0)
	Indonesia	0 (0.0)
	Iran	6 (0.0)
	Iraq	0 (0.0)
	Ireland	8 (0.0)
	Israel	0 (0.0)
	Italy	89 (0.1)
	Jamaica	3 (0.0)

label	levels	all
	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)
	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	1 (0.0)
	Marshall Islands	0 (0.0)

label	levels	all
	Mauritania	0 (0.0)
	Mauritius	1 (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	4 (0.0)
	Mozambique	0 (0.0)
	Namibia	0 (0.0)
	Nauru	0 (0.0)
	Nepal	3 (0.0)
	Netherlands	9 (0.0)
	New Zealand	3 (0.0)
	Nicaragua	0 (0.0)
	Niger	0 (0.0)
	Nigeria	2 (0.0)
	North Korea	0 (0.0)
	Norway	2 (0.0)
	Oman	0 (0.0)
	Pakistan	10 (0.0)
	Palau	0 (0.0)
	Palestinian Territories	0 (0.0)
	Panama	1 (0.0)
	Papua New Guinea	0 (0.0)
	Paraguay	0 (0.0)

label	levels	all
	Peru	0 (0.0)
	Philippines	5 (0.0)
	Poland	3 (0.0)
	Portugal	22 (0.0)
	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	1 (0.0)
	Singapore	4 (0.0)
	Sint Maarten	0 (0.0)
	Slovakia	1 (0.0)
	Slovenia	1 (0.0)
	Solomon Islands	0 (0.0)
	Somalia	2 (0.0)
	South Africa	10 (0.0)
	South Korea	1 (0.0)

label	levels	all
	South Sudan	0 (0.0)
	Spain	198 (0.3)
	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	8 (0.0)
	Turkmenistan	0 (0.0)
	Tuvalu	0 (0.0)
	Uganda	0 (0.0)
	Ukraine	0 (0.0)
	United Arab Emirates	10 (0.0)
	United Kingdom	113 (0.2)
	Uruguay	0 (0.0)
	Uzbekistan	0 (0.0)

label	levels	all
	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)	71282 (99.0)
Country 2	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	0 (0.0)
	Andorra	0 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	0 (0.0)
	Argentina	0 (0.0)
	Armenia	0 (0.0)
	Aruba	0 (0.0)
	Australia	0 (0.0)
	Austria	0 (0.0)
	Azerbaijan	0 (0.0)
	The	0 (0.0)
	Bahrain	0 (0.0)
	Bangladesh	0 (0.0)
	Barbados	0 (0.0)
	Belarus	0 (0.0)
	Belgium	0 (0.0)
	Belize	0 (0.0)
	Benin	0 (0.0)

label	levels	all
	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	0 (0.0)
	Burkina Faso	0 (0.0)
	Burma	0 (0.0)
	Burundi	0 (0.0)
	Cambodia	0 (0.0)
	Cameroon	0 (0.0)
	Canada	0 (0.0)
	Cabo Verde	0 (0.0)
	Central African Republic	0 (0.0)
	Chad	0 (0.0)
	Chile	0 (0.0)
	China	0 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Republic of the	0 (0.0)
	Costa Rica	0 (0.0)
	Cote dlvoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	0 (0.0)
	Curacao	0 (0.0)
	Cyprus	0 (0.0)

label	levels	all
	Czechia	0 (0.0)
	Denmark	0 (0.0)
	Djibouti	0 (0.0)
	Dominica	0 (0.0)
	Dominican Republic	0 (0.0)
	Ecuador	0 (0.0)
	Egypt	0 (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	0 (0.0)
	Gabon	0 (0.0)
	Georgia	0 (0.0)
	Germany	0 (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)
	Holy See	0 (0.0)

label	levels	all
	Honduras	0 (0.0)
	Hong Kong	0 (0.0)
	Hungary	0 (0.0)
	Iceland	0 (0.0)
	India	0 (0.0)
	Indonesia	0 (0.0)
	Iran	0 (0.0)
	Iraq	0 (0.0)
	Ireland	0 (0.0)
	Israel	0 (0.0)
	Italy	0 (0.0)
	Jamaica	0 (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)

label	levels	all
	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)
	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	0 (0.0)
	Mozambique	0 (0.0)
	Namibia	0 (0.0)
	Nauru	0 (0.0)
	Nepal	0 (0.0)
	Netherlands	0 (0.0)
	New Zealand	0 (0.0)

label	levels	all
	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	0 (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	0 (0.0)
	Qatar	0 (0.0)
	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)

label	levels	all
	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	0 (0.0)
	South Korea	0 (0.0)
	South Sudan	0 (0.0)
	Spain	0 (0.0)
	Sri Lanka	0 (0.0)
	Sudan	0 (0.0)
	Suriname	0 (0.0)
	Swaziland	0 (0.0)
	Sweden	0 (0.0)
	Switzerland	0 (0.0)
	Syria	0 (0.0)
	Taiwan	0 (0.0)
	Tajikistan	0 (0.0)
	Tanzania	0 (0.0)
	Thailand	0 (0.0)
	Timor-Leste	0 (0.0)
	Togo	0 (0.0)

label	levels	all
	Tonga	0 (0.0)
	Trinidad and Tobago	0 (0.0)
	Tunisia	0 (0.0)
	Turkey	0 (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	0 (0.0)
	Yemen	0 (0.0)
	Zambia	0 (0.0)
	Zimbabwe	0 (0.0)
	(Missing)	72021 (100.0)
Animal, raw meat, insect bites 14 d prior	Yes	108 (0.1)
	No	10457 (14.5)
	Unknown	14697 (20.4)
	N/A	1776 (2.5)
	(Missing)	44983 (62.5)
Animal / insect	2 Budgerigars and 26 Cats at home	1 (0.9)
	2 cats	1 (0.9)
	2 dogs	1 (0.9)

label	levels	all
	Bee Sting	1 (0.9)
	Bird (pet)	1 (0.9)
	Birds at home	1 (0.9)
	Budgie	1 (0.9)
	budgies	1 (0.9)
	cat	3 (2.8)
	Cat	1 (0.9)
	CAT	1 (0.9)
	Cat (pet)	1 (0.9)
	Cat / Dog	1 (0.9)
	Cat, Dog (pets)	1 (0.9)
	cats	3 (2.8)
	Cats	1 (0.9)
	chicken & beef	1 (0.9)
	Chickens	2 (1.9)
	COWS	1 (0.9)
	cows, rabbits, pigs goats	1 (0.9)
	DAILY CONTACT WITH DOMESTIC PET CAT	1 (0.9)
	dog	6 (5.7)
	Dog	12 (11.3)
	DOG	2 (1.9)
	DOG FAMILY PET	1 (0.9)
	Dog, domestic animla living in their home.	1 (0.9)
	Dogs	1 (0.9)
	dogs and cats	1 (0.9)
	Dogs at home	1 (0.9)
	domestic	1 (0.9)

label	levels	all
	Domestic pet dog	1 (0.9)
	DOMESTIC ANIMAL	2 (1.9)
	Domestic animal and faeces/nest	1 (0.9)
	domestic animal living in his home	1 (0.9)
	domestic animals	1 (0.9)
	Domestic animals living in his/her home	1 (0.9)
	Domestic Animals living in his/her home	1 (0.9)
	Domestic animals living in home	1 (0.9)
	Domestic cats	1 (0.9)
	domestic dog	1 (0.9)
	domestic Dog	1 (0.9)
	Domestic Per (dog)	1 (0.9)
	Domestic pest (cats)	1 (0.9)
	Domestic Pet	5 (4.7)
	Domestic Pet (Dog)	6 (5.7)
	Domestic pet cat	1 (0.9)
	Domestic pet Dog	1 (0.9)
	Domestic pet, dog	1 (0.9)
	Domestic pets	1 (0.9)
	Domestic Pets	2 (1.9)
	Domestic pets (dog)	1 (0.9)
	Domestic Pets Cat and Dog	1 (0.9)
	FARM ANIMALS - LAMBS	1 (0.9)
	Farm animals, cattle	1 (0.9)
	Guinea Pig	1 (0.9)
	HORSES	1 (0.9)
	pet dog	2 (1.9)

label	levels	all
	Pet dog	2 (1.9)
	Pet dog -ongoing daily contact	1 (0.9)
	pet dog at home	1 (0.9)
	Pet dog ongoing daily contact	1 (0.9)
	Prepared raw chicken	1 (0.9)
	Rabbits	1 (0.9)
	raw chicken	1 (0.9)
	Raw Chicken	1 (0.9)
	Rodent	1 (0.9)
	she has a cat	1 (0.9)
	SHEEP	1 (0.9)
	Sheep & Cattle	1 (0.9)
	Two cats	1 (0.9)
	unknown	1 (0.9)

Symptoms (detail)

Table 2

Stratified: all		all
Total N (%)		72021 (100.0)
Fever	YES	37966 (52.7)
	NO	21501 (29.9)
	Unknown	3418 (4.7)
	(Missing)	9136 (12.7)
Cough	YES	38423 (53.3)
	NO	20710 (28.8)
	Unknown	3740 (5.2)

Stratified: all**all**

	(Missing)	9148 (12.7)
Cough (sputum)	YES	11339 (15.7)
	NO	39478 (54.8)
	Unknown	11958 (16.6)
	(Missing)	9246 (12.8)
Cough (blood)	YES	1367 (1.9)
	NO	48565 (67.4)
	Unknown	12825 (17.8)
	(Missing)	9264 (12.9)
Sore throat	YES	3595 (5.0)
	NO	42794 (59.4)
	Unknown	16382 (22.7)
	(Missing)	9250 (12.8)
Runny nose	YES	1091 (1.5)
	NO	44532 (61.8)
	Unknown	17138 (23.8)
	(Missing)	9260 (12.9)
Ear pain	YES	218 (0.3)
	NO	45223 (62.8)
	Unknown	17318 (24.0)
	(Missing)	9262 (12.9)
Wheeze	YES	4223 (5.9)
	NO	44963 (62.4)
	Unknown	13580 (18.9)
	(Missing)	9255 (12.9)
Chest pain	YES	6877 (9.5)
	NO	44817 (62.2)

Stratified: all**all**

	Unknown	11095 (15.4)
	(Missing)	9232 (12.8)
Muscle ache	YES	8197 (11.4)
	NO	38811 (53.9)
	Unknown	15757 (21.9)
	(Missing)	9256 (12.9)
Joint pain	YES	3001 (4.2)
	NO	42517 (59.0)
	Unknown	17225 (23.9)
	(Missing)	9278 (12.9)
Fatigue	YES	21186 (29.4)
	NO	28968 (40.2)
	Unknown	12627 (17.5)
	(Missing)	9240 (12.8)
Shortness of breath	YES	37791 (52.5)
	NO	20385 (28.3)
	Unknown	4710 (6.5)
	(Missing)	9135 (12.7)
Lower chest wall indrawing	YES	554 (0.8)
	NO	44389 (61.6)
	Unknown	17795 (24.7)
	(Missing)	9283 (12.9)
Headache	YES	4777 (6.6)
	NO	42284 (58.7)
	Unknown	15689 (21.8)
	(Missing)	9271 (12.9)
Confusion	YES	15830 (22.0)

Stratified: all**all**

	NO	38352 (53.3)
	Unknown	8615 (12.0)
	(Missing)	9224 (12.8)
Seizures	YES	861 (1.2)
	NO	50628 (70.3)
	Unknown	11260 (15.6)
	(Missing)	9272 (12.9)
Abdominal pain	YES	5551 (7.7)
	NO	45840 (63.6)
	Unknown	11391 (15.8)
	(Missing)	9239 (12.8)
Nausea/vomiting	YES	10234 (14.2)
	NO	43107 (59.9)
	Unknown	9459 (13.1)
	(Missing)	9221 (12.8)
Diarrhoea	YES	9447 (13.1)
	NO	43604 (60.5)
	Unknown	9740 (13.5)
	(Missing)	9230 (12.8)
Conjunctivitis	YES	206 (0.3)
	NO	47735 (66.3)
	Unknown	14812 (20.6)
	(Missing)	9268 (12.9)
Skin rash	YES	755 (1.0)
	NO	48145 (66.8)
	Unknown	13859 (19.2)
	(Missing)	9262 (12.9)

Stratified: all		all
Skin ulcers	YES	1290 (1.8)
	NO	47739 (66.3)
	Unknown	13719 (19.0)
	(Missing)	9273 (12.9)
Lymphadenopathy	YES	326 (0.5)
	NO	47927 (66.5)
	Unknown	14487 (20.1)
	(Missing)	9281 (12.9)
Bleeding (Haemorrhage)	YES	949 (1.3)
	NO	49804 (69.2)
	Unknown	11989 (16.6)
	(Missing)	9279 (12.9)
If Bleeding (others)	YES	497 (0.7)
	NO	20420 (28.4)
	Unknown	5566 (7.7)
	(Missing)	45538 (63.2)

Comorbidity (detail)

Table 3

Stratified: all		all
Total N (%)		72021 (100.0)
Chronic cardiac disease	YES	19581 (27.2)
	NO	40191 (55.8)
	Unknown	3189 (4.4)
	(Missing)	9060 (12.6)
Chronic pulmonary disease	YES	10689 (14.8)

Stratified: all**all**

	NO	48798 (67.8)
	Unknown	3464 (4.8)
	(Missing)	9070 (12.6)
Asthma	YES	8106 (11.3)
	NO	51197 (71.1)
	Unknown	3611 (5.0)
	(Missing)	9107 (12.6)
Chronic kidney disease	YES	10601 (14.7)
	NO	48695 (67.6)
	Unknown	3650 (5.1)
	(Missing)	9075 (12.6)
Moderate/severe liver disease	YES	1155 (1.6)
	NO	57518 (79.9)
	Unknown	4243 (5.9)
	(Missing)	9105 (12.6)
Mild Liver disease	YES	894 (1.2)
	NO	57618 (80.0)
	Unknown	4400 (6.1)
	(Missing)	9109 (12.6)
Chronic neurological disorder	YES	7612 (10.6)
	NO	51338 (71.3)
	Unknown	3966 (5.5)
	(Missing)	9105 (12.6)
Malignancy	YES	6118 (8.5)
	NO	52695 (73.2)
	Unknown	4105 (5.7)
	(Missing)	9103 (12.6)

Stratified: all**all**

Chronic hematologic disease	YES	2605 (3.6)
	NO	56127 (77.9)
	Unknown	4165 (5.8)
	(Missing)	9124 (12.7)
AIDS/HIV	YES	240 (0.3)
	NO	57847 (80.3)
	Unknown	4830 (6.7)
	(Missing)	9104 (12.6)
Obesity	YES	6193 (8.6)
	NO	47186 (65.5)
	Unknown	9465 (13.1)
	(Missing)	9177 (12.7)
Diabetes with complications	YES	4333 (6.0)
	NO	53031 (73.6)
	Unknown	5550 (7.7)
	(Missing)	9107 (12.6)
Diabetes without complications	YES	9784 (13.6)
	NO	47697 (66.2)
	Unknown	5436 (7.5)
	(Missing)	9104 (12.6)
Rheumatologic disorder	YES	6572 (9.1)
	NO	51982 (72.2)
	Unknown	4344 (6.0)
	(Missing)	9123 (12.7)
Dementia	YES	10154 (14.1)
	NO	48967 (68.0)
	Unknown	3823 (5.3)

Stratified: all

all

	(Missing)	9077 (12.6)
Malnutrition	YES	1535 (2.1)
	NO	53805 (74.7)
	Unknown	7538 (10.5)
	(Missing)	9143 (12.7)
Smoking	YES	3224 (4.5)
	NO	35673 (49.5)
	(Missing)	33124 (46.0)