

Dynamic CO-CIN report to SAGE and NERVTAG

Dynamic content updated: 2020-06-22 18:10:54.

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 22 June 2020, CO-CIN has recruited **64066 patients** with confirmed Coronavirus (Figure 1).

The CO-CIN dataset represents 21% (64066/305,289) of cases of confirmed Coronavirus cases in the UK, per the PHE daily reports (last updated 9am on 22 June).

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 1006 had travelled abroad recently, and 7273 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 74 (range: 0-106), Male/Female 33067/25178.

The most common symptoms were cough (63%), fever (62%) and shortness of breath (61%) (Figure 3A). 3024/53025 (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%). 11296/53129 (21%) of patients have reported no co morbidity. 361/4741 (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: 4-17, n = 47202).

7110/44096 (16%) patients required high-flow oxygen after day 1 of treatment.

Currently 16657 patient(s) have died and 7622 required ICU. 29266 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).

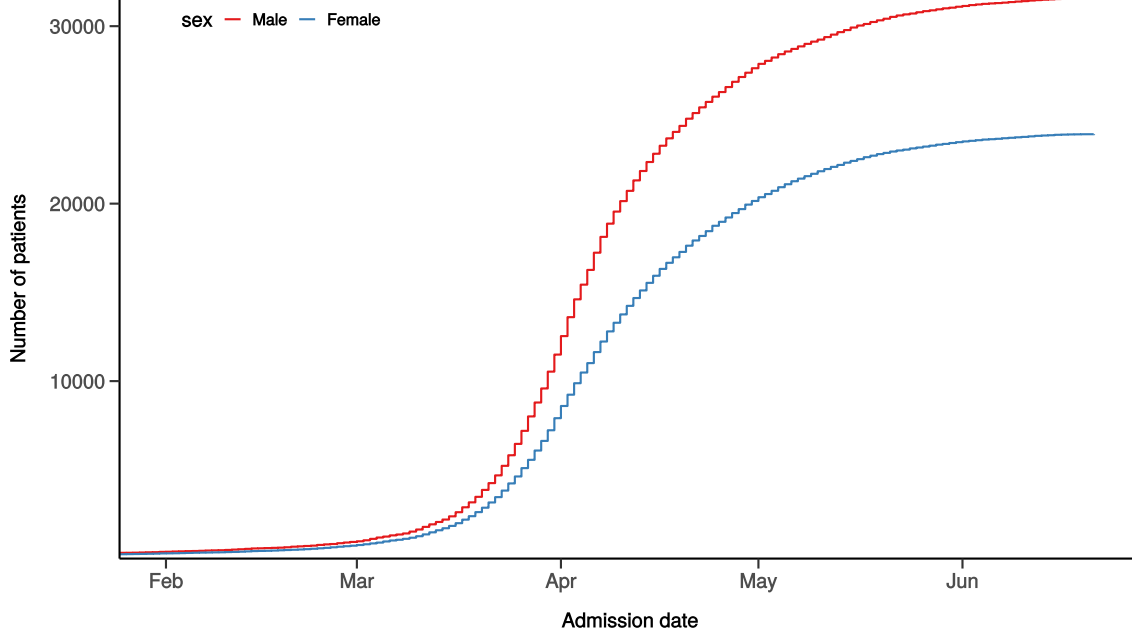
Analytics: Lisa Norman, Riinu Pius, Thomas Drake, Cameron Fairfield, Stephen Knight, Kenneth McLean, Katie Shaw.

Admission

Figure 1

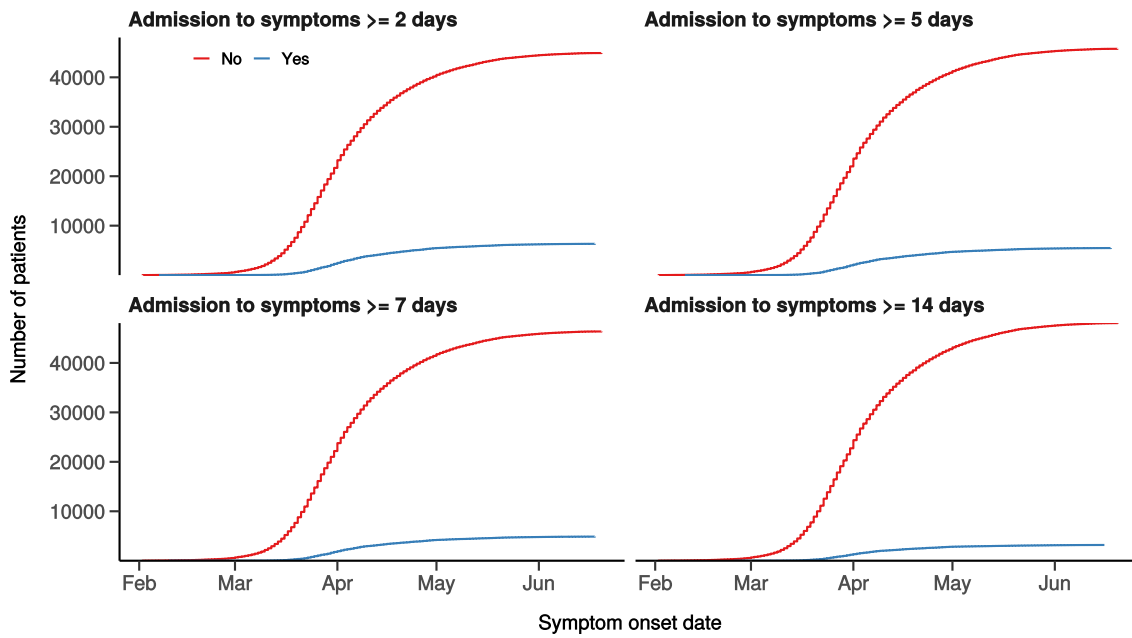
Hospital admission with COVID-19 by sex

Figure 1A



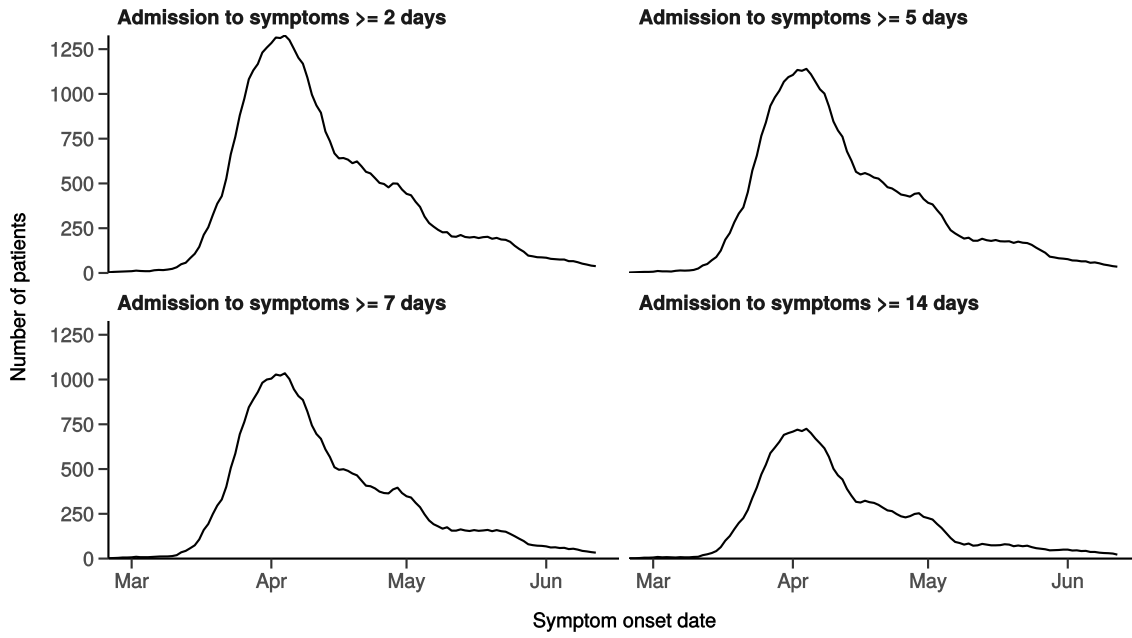
Number with symptom onset occurring after admission to hospital

Figure 1B



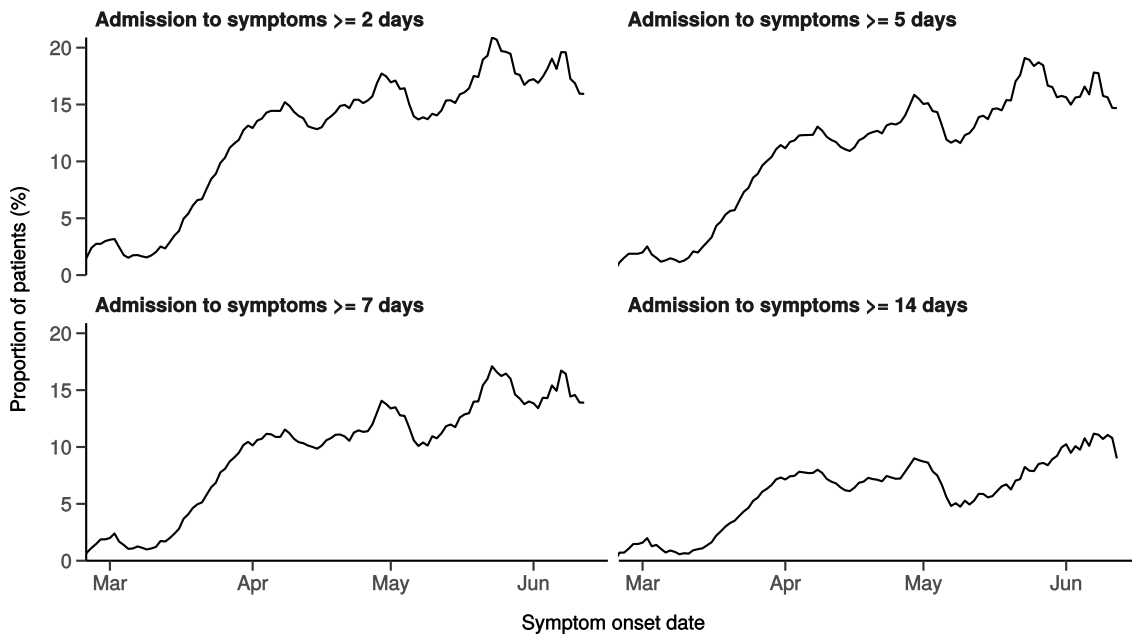
Number with symptom onset occurring after hospital admission

Figure 1C - 7-day rolling count. n = 51254



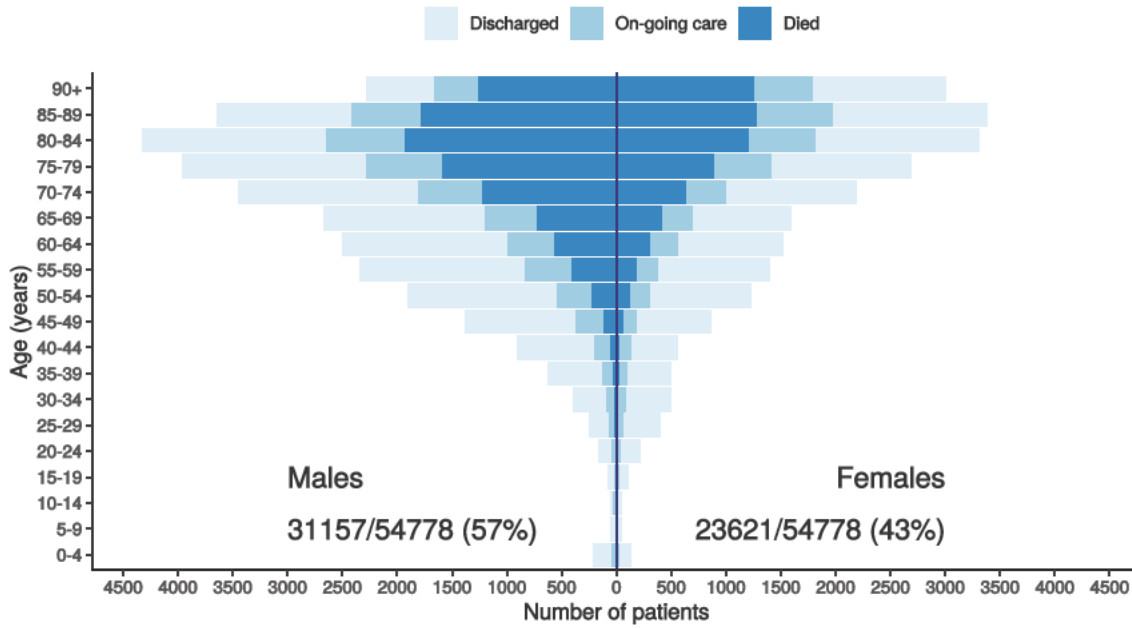
Proportion with symptom onset occurring after hospital admission

Figure 1D - 7-day rolling percentage. n = 51254



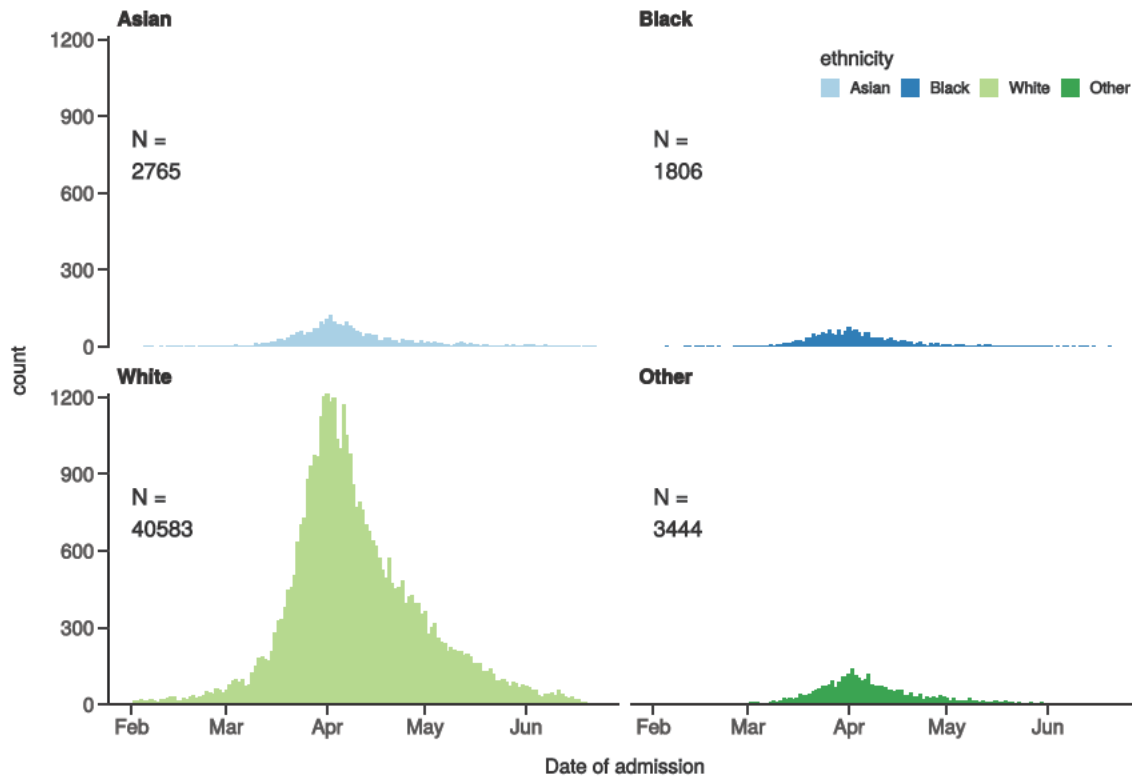
Patients with outcome stratified by age, and sex

Figure 1E



Hospital admission with COVID-19 by ethnicity

Figure 1F

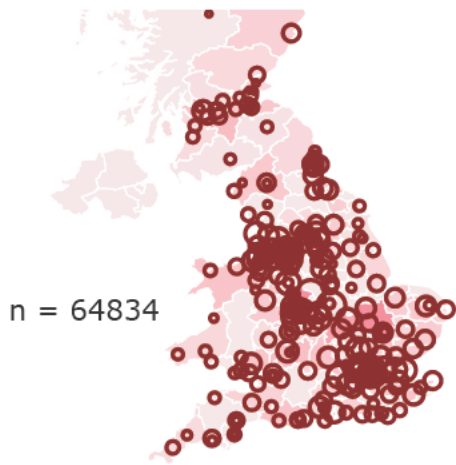


Location by CCG / Healthboard

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 = 52805)

Figure 3A

Comorbidity (% patients, n = 52879)

Figure 3B

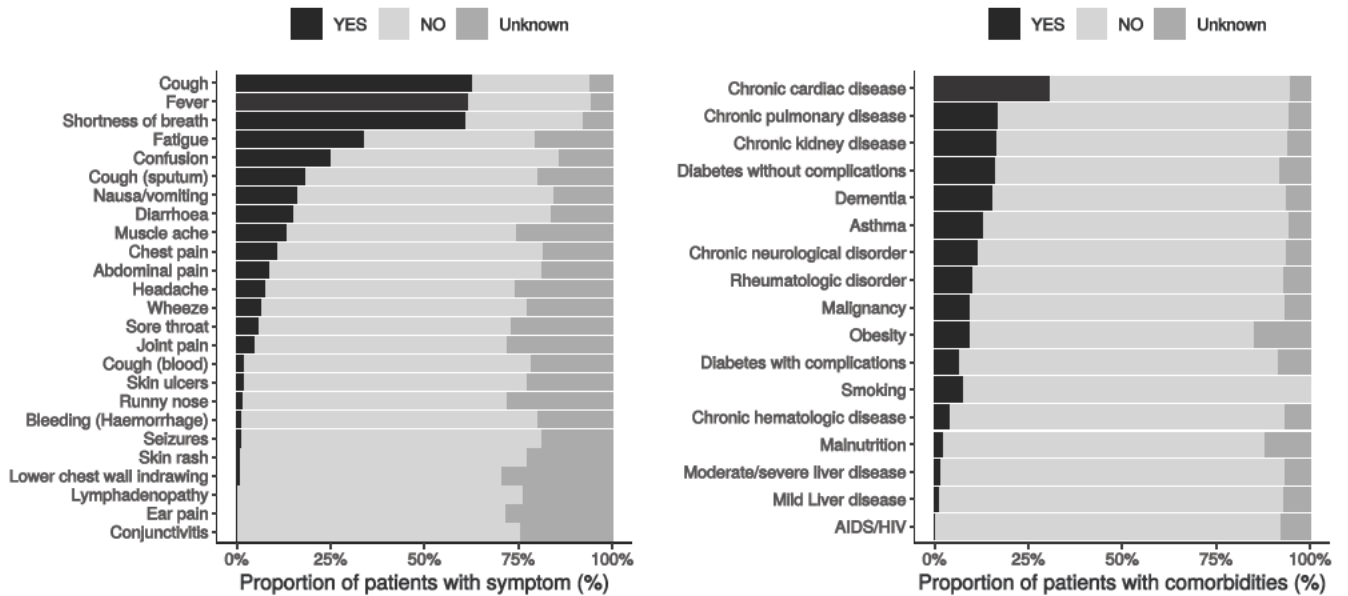
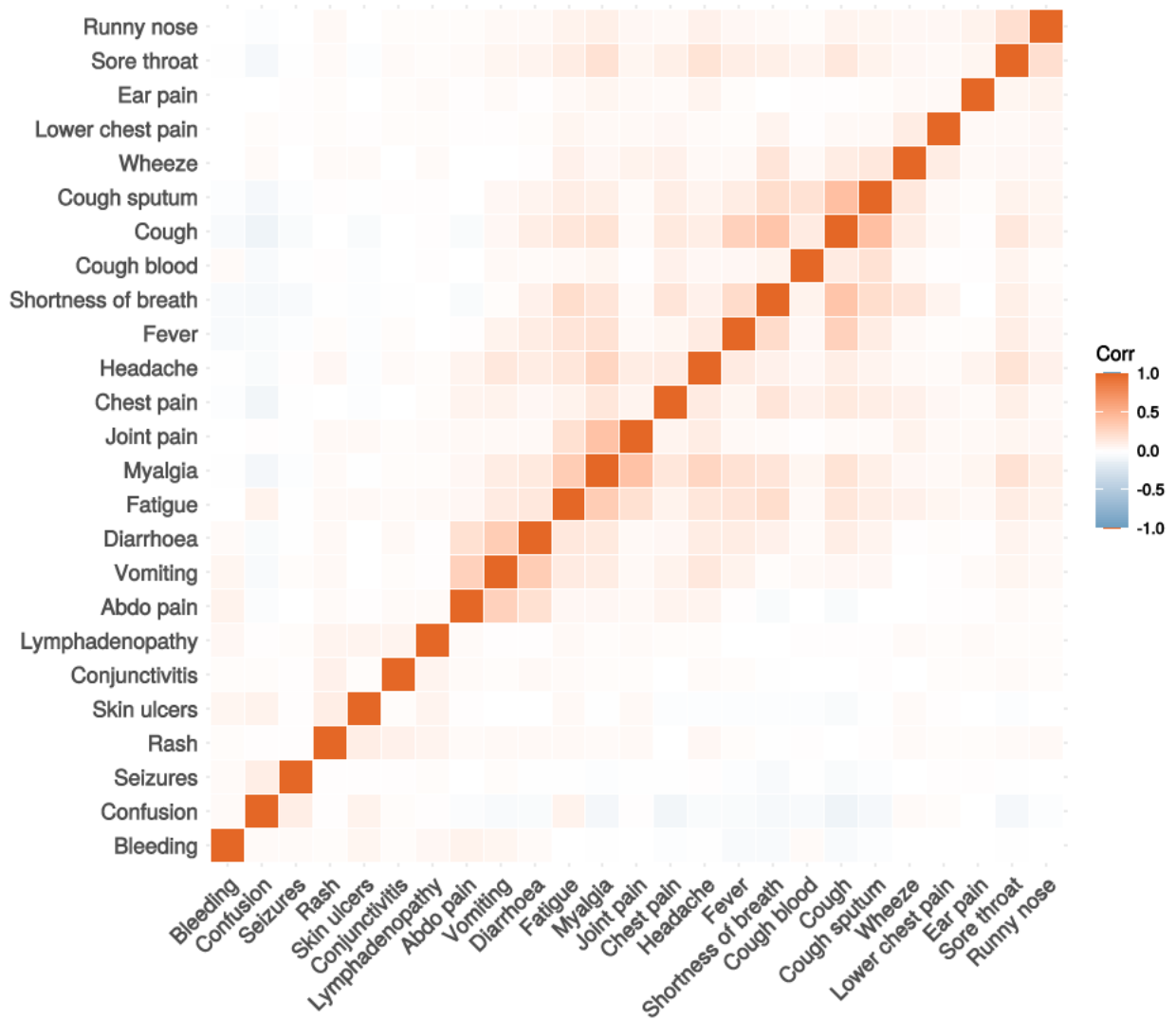


Figure 3C

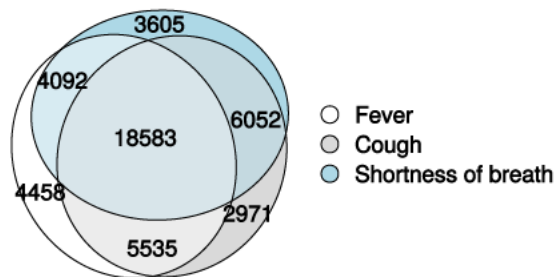
Correlation of symptoms in all pages. Note clusters, top right to bottom left, flu-like, coryzal, abdominal, respiratory, neurocutaneous.



Symptoms (diagnostic criteria)

Figure 4A

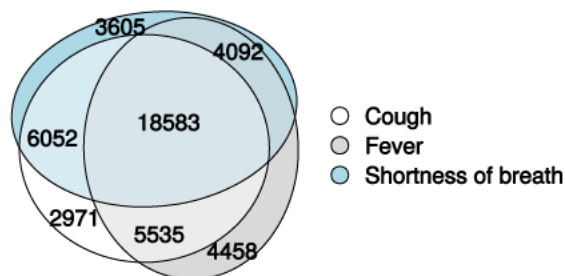
n = 52805



Symptoms (most common)

Figure 4B

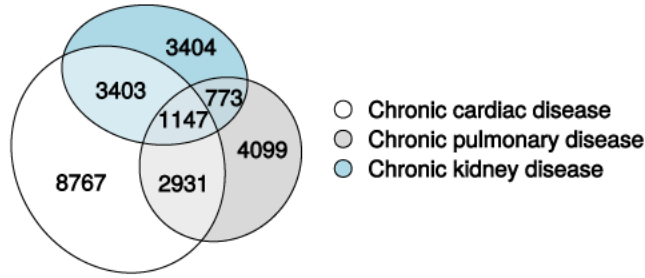
n = 52805



Comorbidity (most common)

Figure 4C

n = 52879



Medication prior to illness

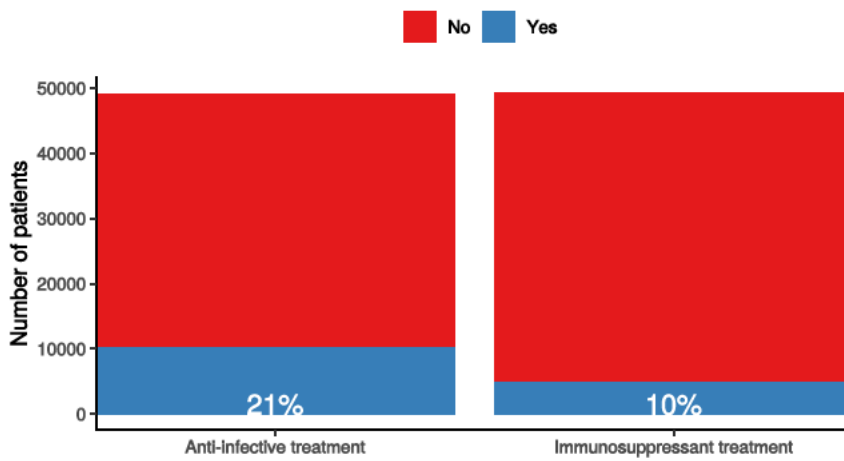
Figure 5

Preadmission treatment

Figure 5

Pre-admission treatment

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



Patient flow

Figure 6A - All patients

N = 55103

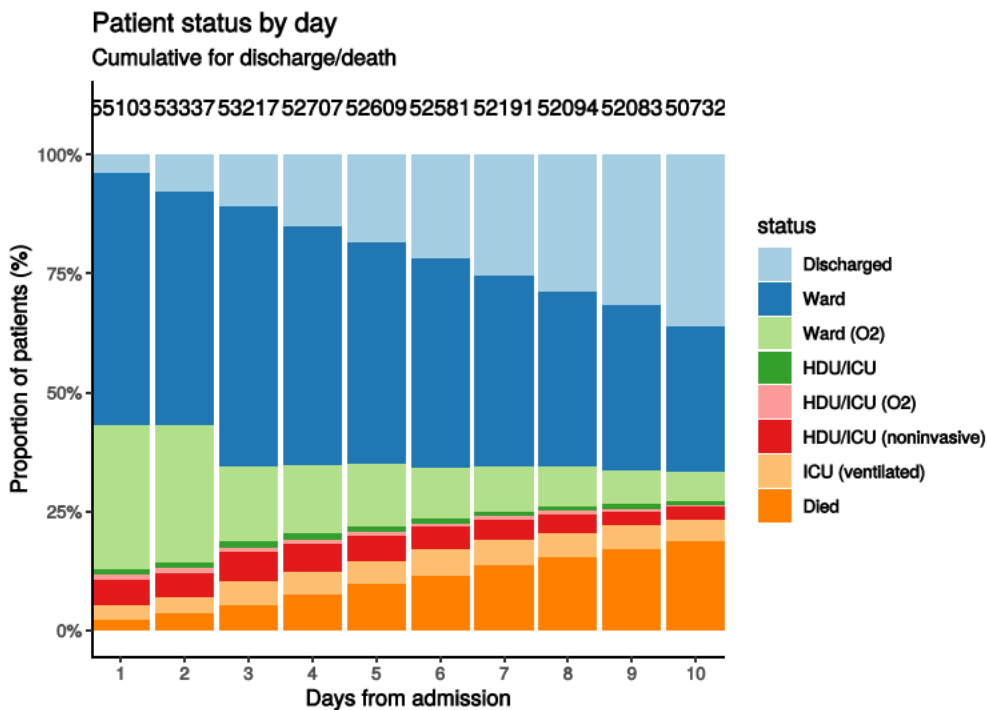
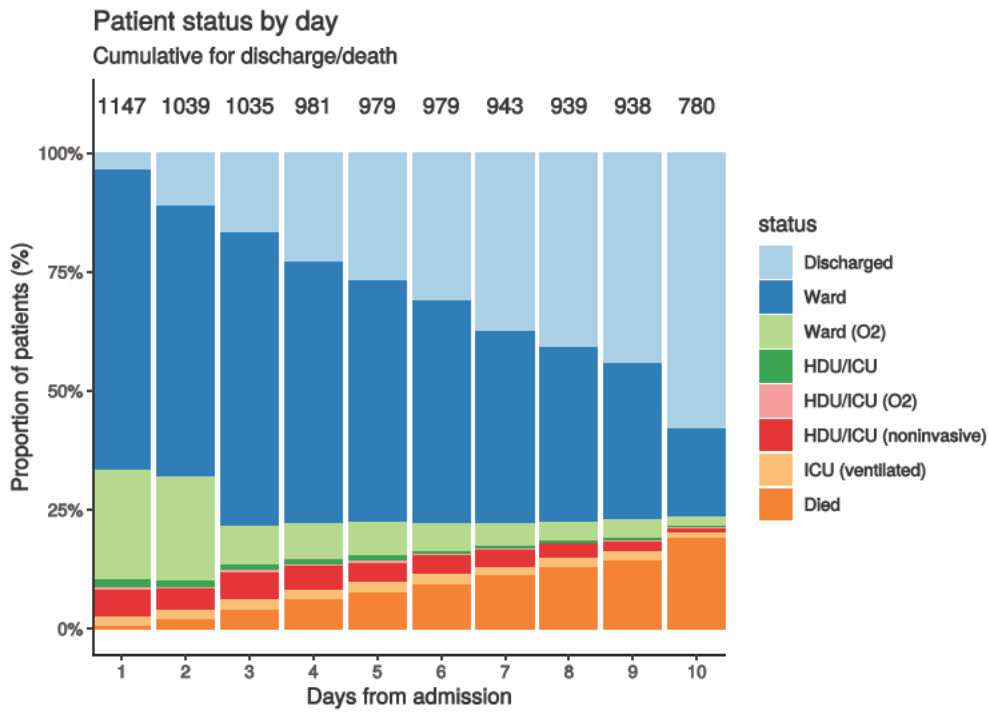


Figure 6B - Patients admitted ≥ 14 days and ≤ 28 days ago

N = 1147



Oxygen requirement

Figure 7A - All patients

N = 51979

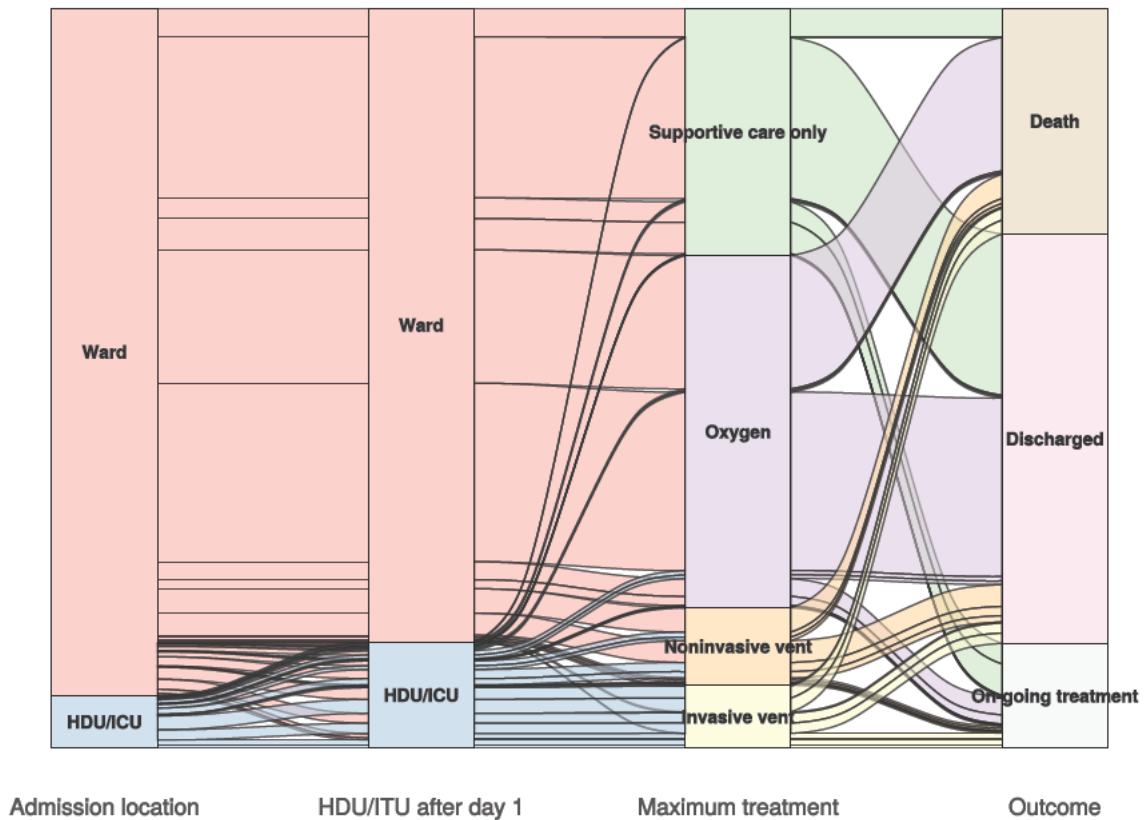
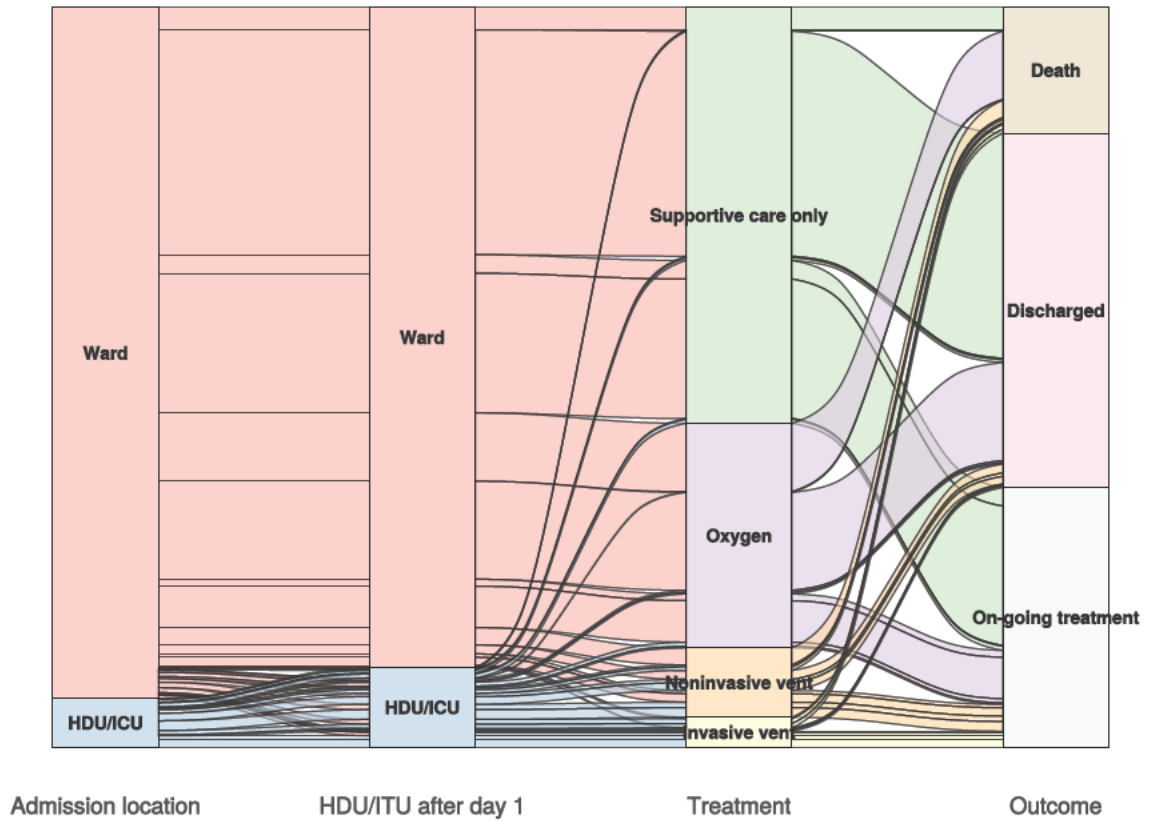


Figure 7B - Patients admitted ≥ 14 days and ≤ 28 days ago

N = 1115

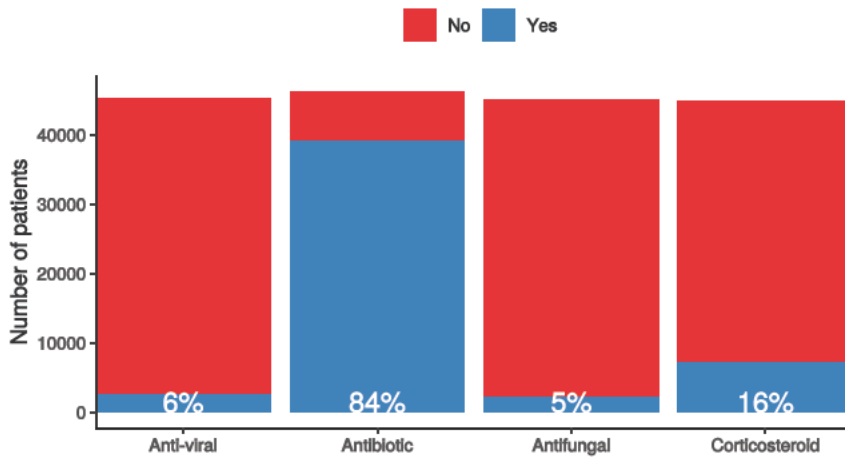


In-hospital medical treatment

Figure 8

In-hospital treatment

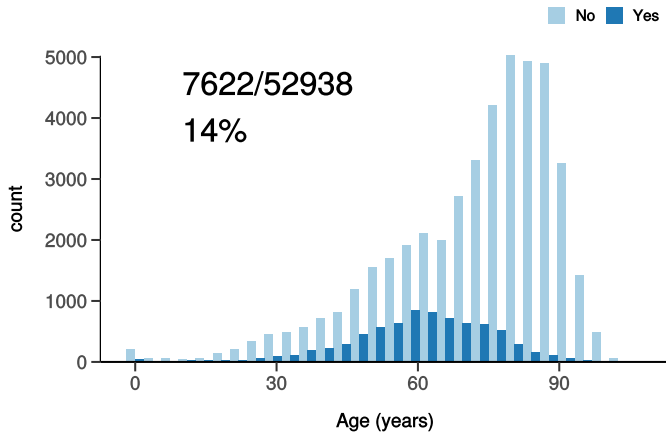
Anti-virals, antibiotics, corticosteroids, and anti-fungals for patients who have cc



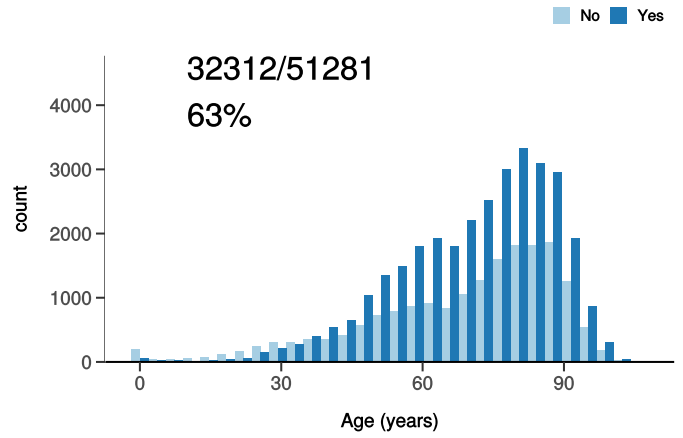
Treatment

Figure 9

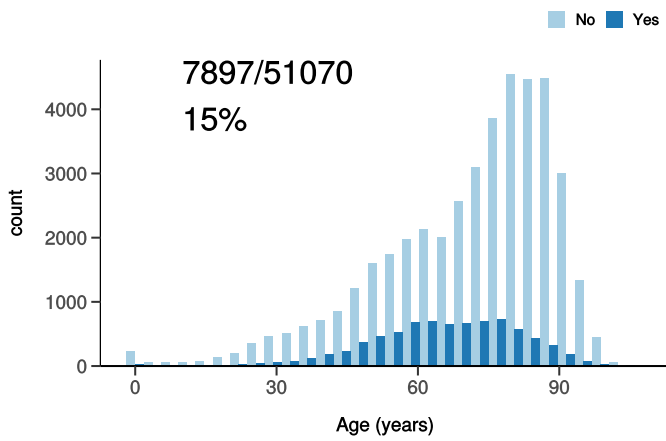
ICU/HDU admission
Figure 10A



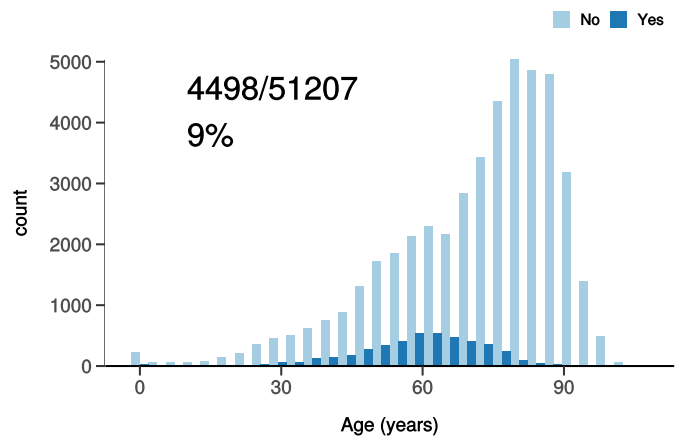
High flow oxygen
Figure 10B



Noninvasive ventilation
Figure 10C



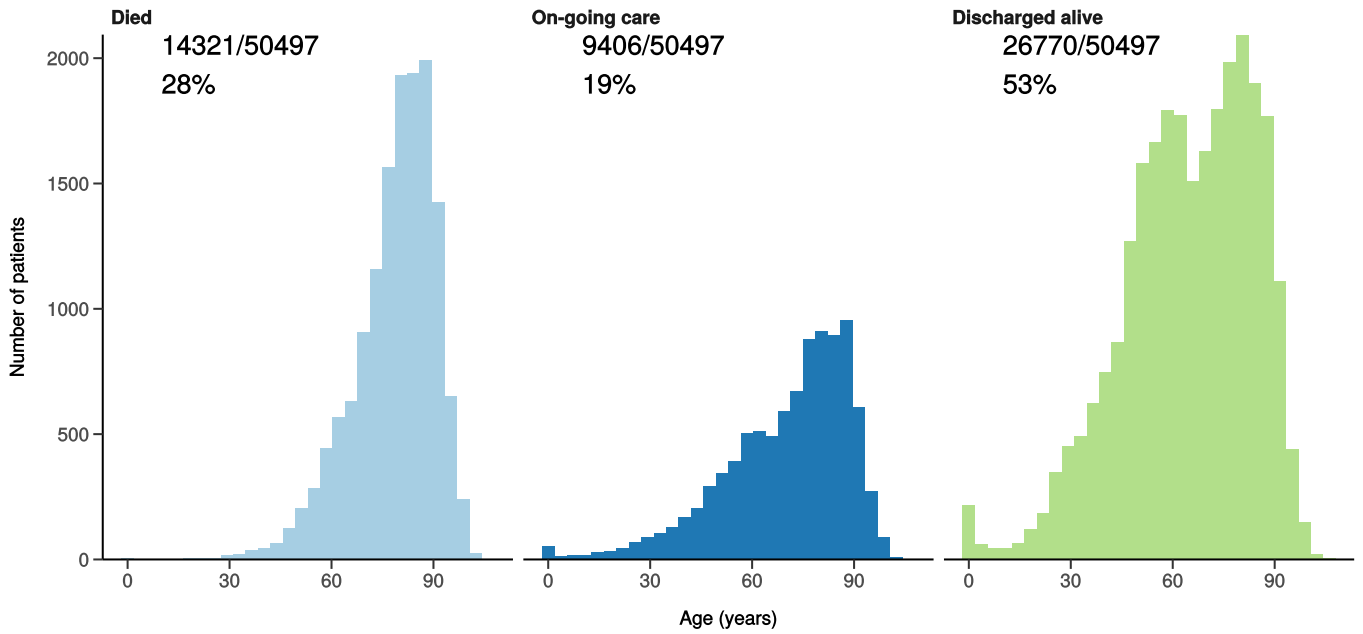
Invasive ventilation
Figure 10D



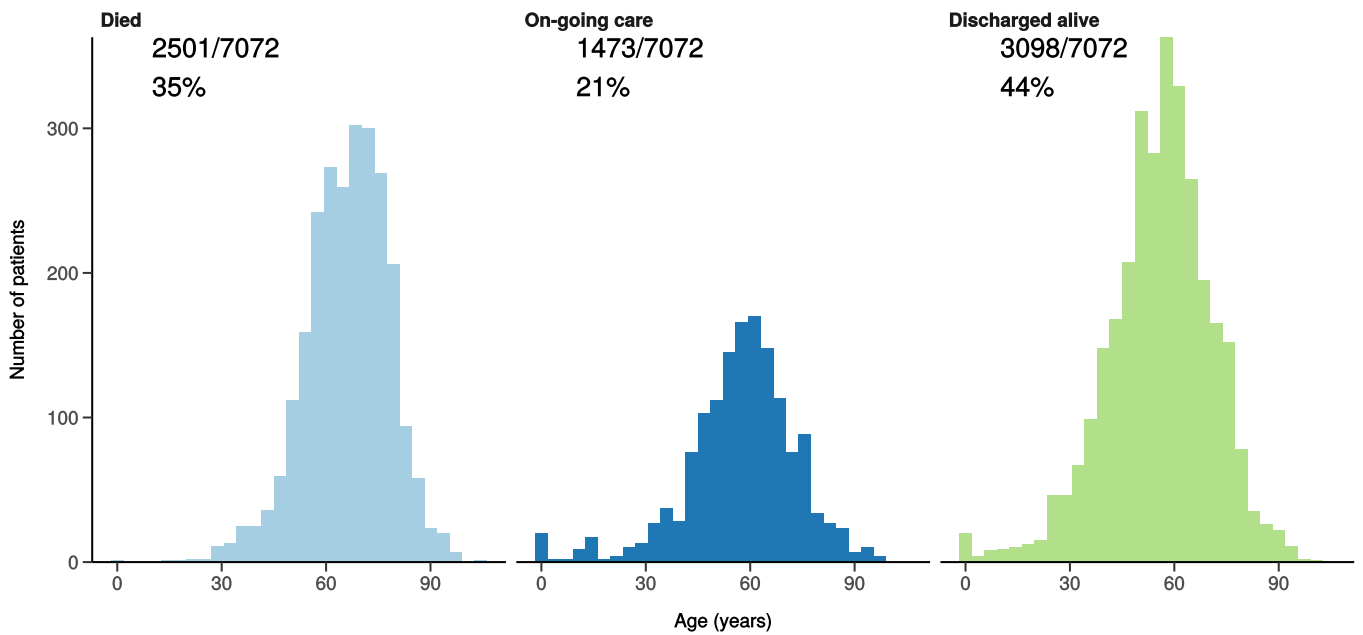
Status of patients admitted ≥ 14 days from today

Figure 10

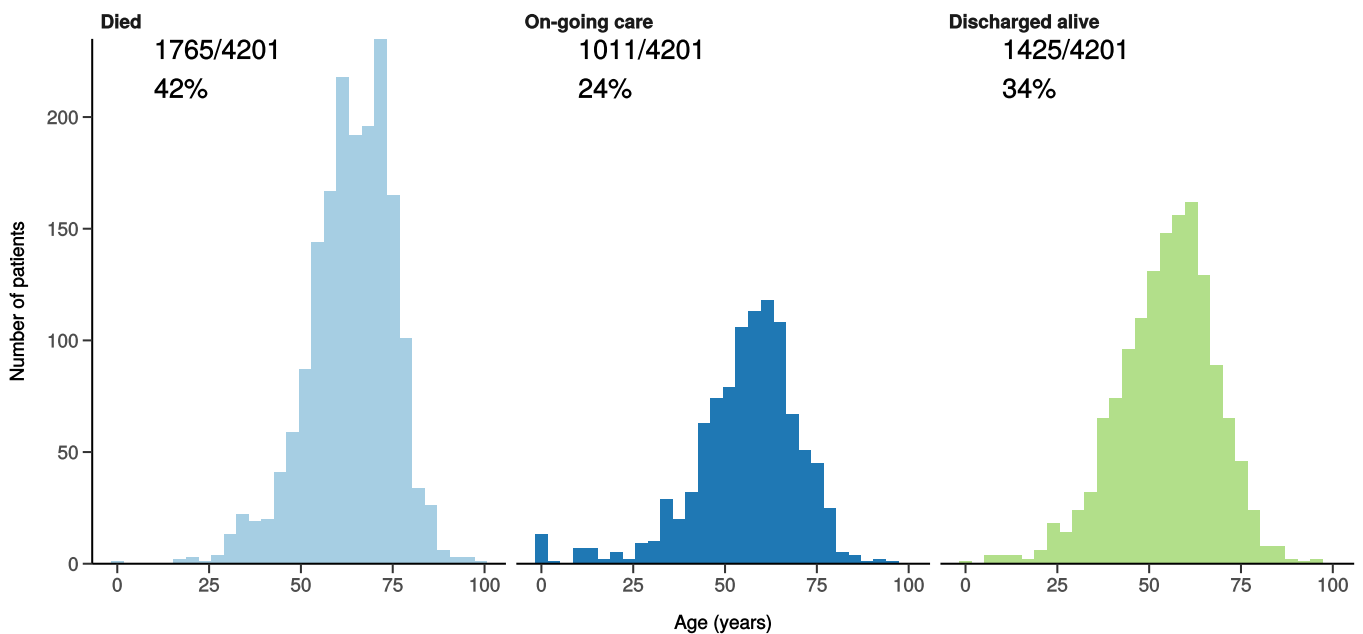
All patients



Patients admitted to ICU/HDU



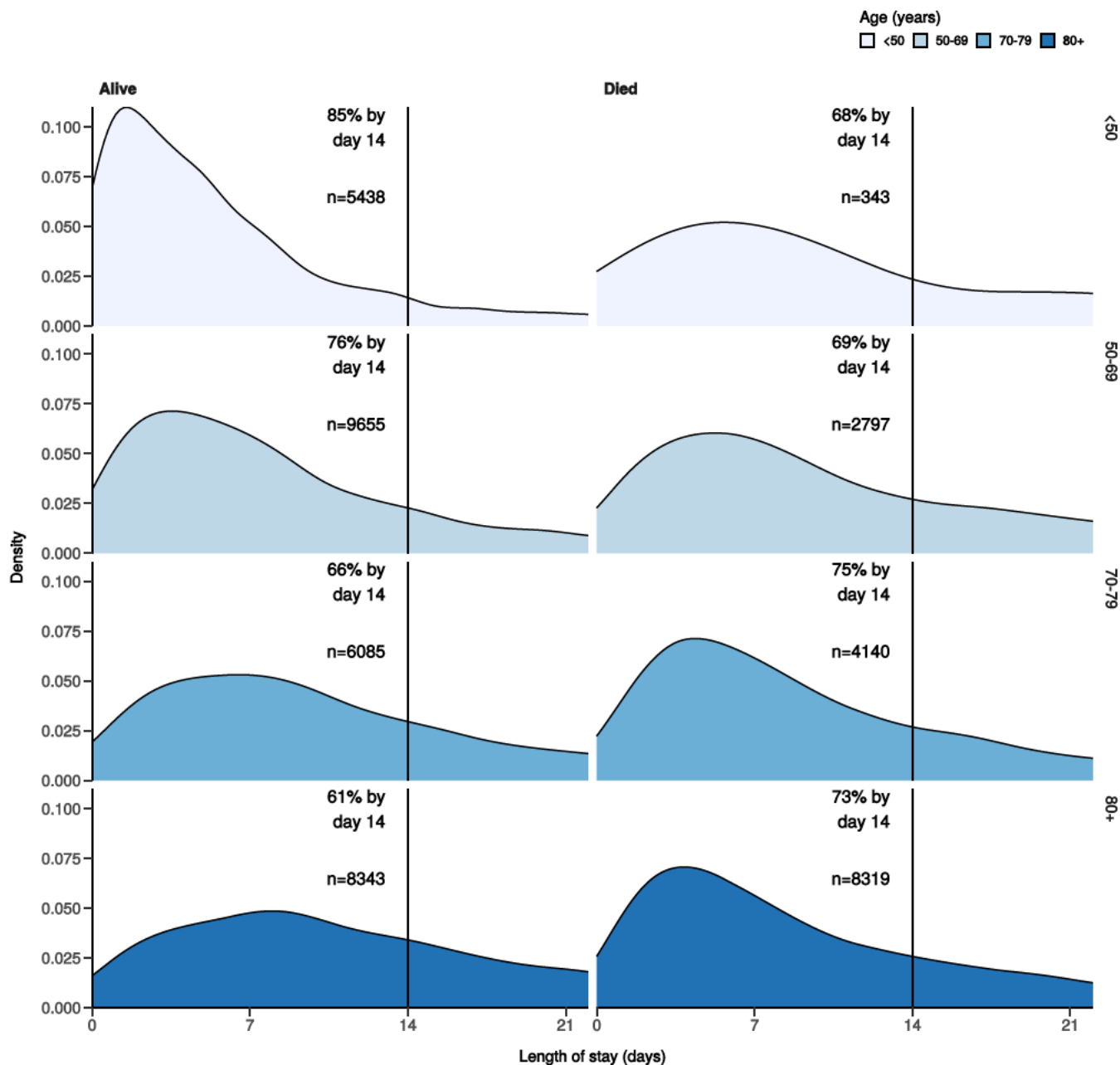
Patients receiving invasive ventilation



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	6239 (94.4)	371 (5.6)	•	•
	50-69	10555 (78.3)	2919 (21.7)	4.65 (4.16-5.21, p<0.001)	4.43 (3.90-5.04, p<0.001)
	70-79	6669 (60.5)	4347 (39.5)	10.96 (9.82-12.27, p<0.001)	9.19 (8.09-10.48, p<0.001)
	80+	9058 (50.9)	8721 (49.1)	16.19 (14.54-18.08, p<0.001)	13.44 (11.83-15.31, p<0.001)
Sex at Birth	Male	17985 (64.2)	10030 (35.8)	•	•
	Female	14753 (69.7)	6421 (30.3)	0.78 (0.75-0.81, p<0.001)	0.70 (0.67-0.74, p<0.001)

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
	Not specified	0 (NaN)	0 (NaN)	•	•
Chronic cardiac disease	NO	22292 (72.0)	8679 (28.0)	•	•
	YES	8249 (55.7)	6550 (44.3)	2.04 (1.96-2.12, p<0.001)	1.18 (1.12-1.24, p<0.001)
Chronic pulmonary disease	NO	25948 (69.2)	11549 (30.8)	•	•
	YES	4525 (55.9)	3576 (44.1)	1.78 (1.69-1.86, p<0.001)	1.32 (1.25-1.40, p<0.001)
Chronic neurological disorder	NO	26795 (67.9)	12687 (32.1)	•	•
	YES	3407 (59.8)	2290 (40.2)	1.42 (1.34-1.50, p<0.001)	1.14 (1.06-1.22, p<0.001)
Chronic hematologic disease	NO	28950 (67.3)	14059 (32.7)	•	•
	YES	1161 (58.1)	838 (41.9)	1.49 (1.36-1.63, p<0.001)	1.20 (1.07-1.34, p=0.001)
Chronic kidney disease	NO	26055 (69.6)	11388 (30.4)	•	•
	YES	4287 (53.8)	3676 (46.2)	1.96 (1.87-2.06, p<0.001)	1.29 (1.22-1.37, p<0.001)
Dementia	NO	26430 (70.2)	11229 (29.8)	•	•
	YES	3818 (50.2)	3795 (49.8)	2.34 (2.23-2.46, p<0.001)	1.41 (1.33-1.50, p<0.001)
Obesity	NO	24280 (66.9)	12010 (33.1)	•	•
	YES	3336 (70.7)	1382 (29.3)	0.84 (0.78-0.89, p<0.001)	1.34 (1.24-1.45, p<0.001)
Malignancy	NO	27590 (68.4)	12770 (31.6)	•	•
	YES	2569 (54.4)	2151 (45.6)	1.81 (1.70-1.92, p<0.001)	1.37 (1.28-1.48, p<0.001)

Number in dataframe = 55067, Number in model = 38764, Missing = 16303, AIC = 43232.8, C-statistic = 0.72, H&L = Chi-sq(8) 83.27 (p<0.001)

Figure 12 - Adjusted odds ratio plot

Death

Age on admission (years)	<50	-
	50-69	4.43 (3.90-5.04, p<0.001)
	70-79	9.19 (8.09-10.48, p<0.001)
	80+	13.44 (11.83-15.31, p<0.001)
Sex at Birth	Male	-
	Female	0.70 (0.67-0.74, p<0.001)
	Not specified	-
Chronic cardiac disease	YES	1.18 (1.12-1.24, p<0.001)
Chronic pulmonary disease	YES	1.32 (1.25-1.40, p<0.001)
Chronic neurological disorder	YES	1.14 (1.06-1.22, p<0.001)
Chronic hematologic disease	YES	1.20 (1.07-1.34, p=0.001)
Chronic kidney disease	YES	1.29 (1.22-1.37, p<0.001)
Dementia	YES	1.41 (1.33-1.50, p<0.001)
Obesity	YES	1.34 (1.24-1.45, p<0.001)
Malignancy	YES	1.37 (1.28-1.48, p<0.001)

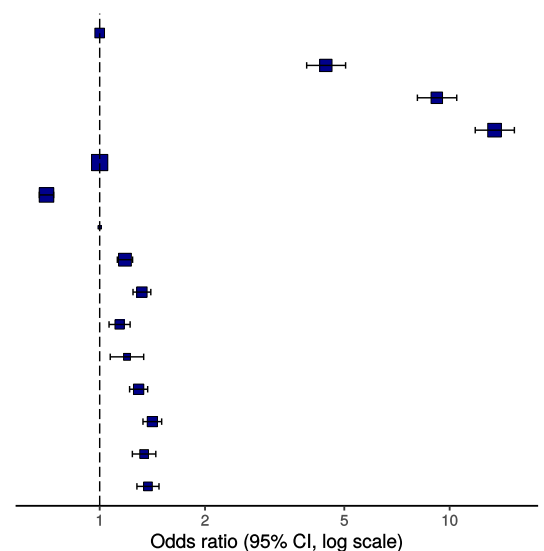
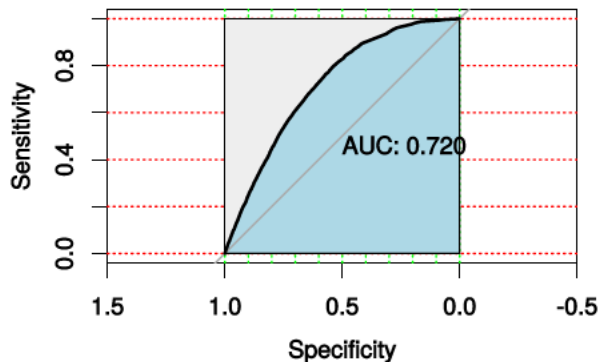


Figure 13 - ROC

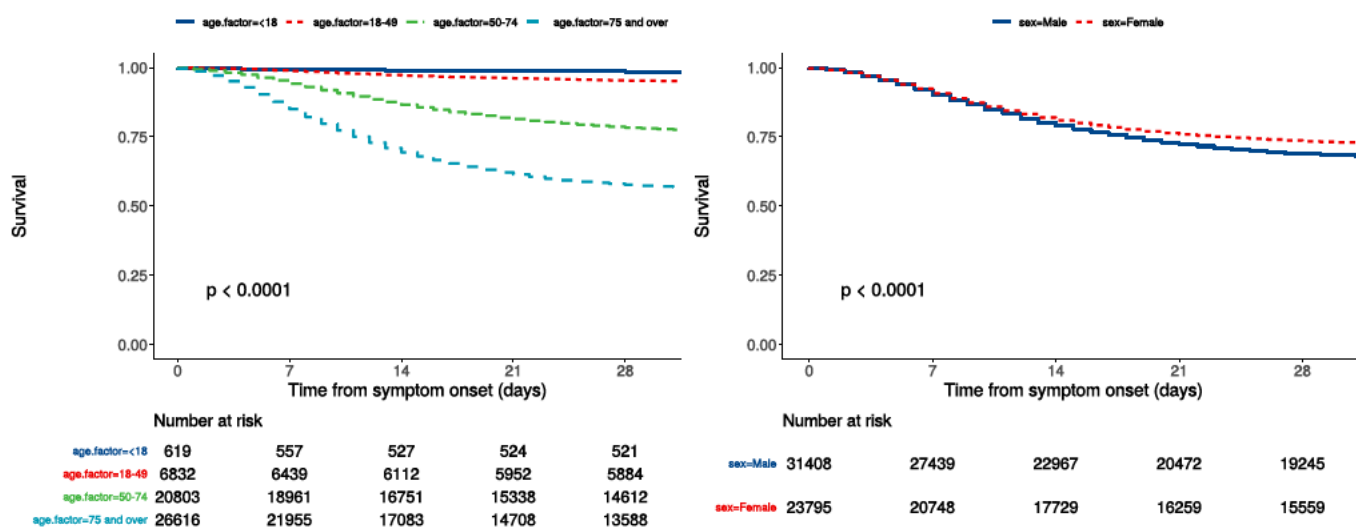


Survival models

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	7451 (13.6)	•	•
	50-69	15151 (27.6)	4.15 (3.72-4.62, p<0.001)	4.12 (3.60-4.72, p<0.001)
	70-79	12311 (22.4)	8.63 (7.76-9.60, p<0.001)	8.20 (7.17-9.37, p<0.001)
	80+	19960 (36.4)	11.85 (10.68-13.14, p<0.001)	10.96 (9.59-12.52, p<0.001)
Sex at Birth	Male	31408 (56.9)	•	•
	Female	23795 (43.1)	0.83 (0.80-0.86, p<0.001)	0.80 (0.77-0.83, p<0.001)
qSOFA score on admission	0	18613 (41.7)	•	•
	1	20316 (45.5)	1.57 (1.51-1.64, p<0.001)	1.70 (1.62-1.77, p<0.001)

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
	2	5156 (11.5)	2.95 (2.81-3.10, p<0.001)	2.74 (2.59-2.89, p<0.001)
	3	570 (1.3)	4.92 (4.42-5.47, p<0.001)	4.34 (3.85-4.90, p<0.001)
Symptomatic at presentation	No symptoms	1933 (3.7)	•	•
	Symptoms	50767 (96.3)	1.39 (1.26-1.52, p<0.001)	•
Chronic cardiac disease	NO	33793 (67.7)	•	•
	YES	16138 (32.3)	1.79 (1.73-1.85, p<0.001)	1.15 (1.10-1.19, p<0.001)
Chronic kidney disease	NO	40849 (82.5)	•	•
	YES	8663 (17.5)	1.73 (1.66-1.79, p<0.001)	1.21 (1.16-1.27, p<0.001)
Moderate/severe liver disease	NO	48050 (98.0)	•	•
	YES	961 (2.0)	1.31 (1.18-1.46, p<0.001)	1.52 (1.33-1.73, p<0.001)
Chronic neurological disorder	NO	43038 (87.4)	•	•
	YES	6200 (12.6)	1.36 (1.30-1.42, p<0.001)	•
Malignancy	NO	44048 (89.7)	•	•
	YES	5083 (10.3)	1.59 (1.52-1.66, p<0.001)	1.29 (1.22-1.36, p<0.001)
Chronic hematologic disease	NO	46885 (95.6)	•	•
	YES	2161 (4.4)	1.37 (1.27-1.46, p<0.001)	•
Obesity	NO	39598 (88.6)	•	•
	YES	5088 (11.4)	0.85 (0.81-0.90, p<0.001)	1.19 (1.11-1.26, p<0.001)
Diabetes without complications	NO	39815 (82.5)	•	•
	YES	8472 (17.5)	1.23 (1.18-1.28, p<0.001)	•
Rheumatologic disorder	NO	43519 (89.0)	•	•
	YES	5378 (11.0)	1.20 (1.14-1.26, p<0.001)	•
Dementia	NO	41073 (83.2)	•	•
	YES	8275 (16.8)	2.04 (1.97-2.12, p<0.001)	1.19 (1.13-1.25, p<0.001)
Malnutrition	NO	45052 (97.3)	•	•
	YES	1230 (2.7)	1.44 (1.31-1.57, p<0.001)	•
smoking_mhyn_2levels	NO	30751 (92.1)	•	•
	YES	2637 (7.9)	0.92 (0.85-0.99, p=0.027)	•

Number in dataframe = 55479, Number in model = 36294, Missing = 19185, Number of events = 10915, Concordance = 0.719 (SE = 0.002), R-squared = 0.163(Max possible = 0.998), Likelihood ratio test = 6455.222 (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	4.12 (3.60-4.72, p<0.001)
	70-79	8.20 (7.17-9.37, p<0.001)
	80+	10.96 (9.59-12.52, p<0.001)
Sex at Birth	Female	0.80 (0.77-0.83, p<0.001)
qSOFA score on admission	0	-
	1	1.70 (1.62-1.77, p<0.001)
	2	2.74 (2.59-2.89, p<0.001)
	3	4.34 (3.85-4.90, p<0.001)
Chronic cardiac disease	YES	1.15 (1.10-1.19, p<0.001)
Chronic kidney disease	YES	1.21 (1.16-1.27, p<0.001)
Moderate/severe liver disease	YES	1.52 (1.33-1.73, p<0.001)
Malignancy	YES	1.29 (1.22-1.36, p<0.001)
Obesity	YES	1.19 (1.11-1.26, p<0.001)
Dementia	YES	1.19 (1.13-1.25, p<0.001)

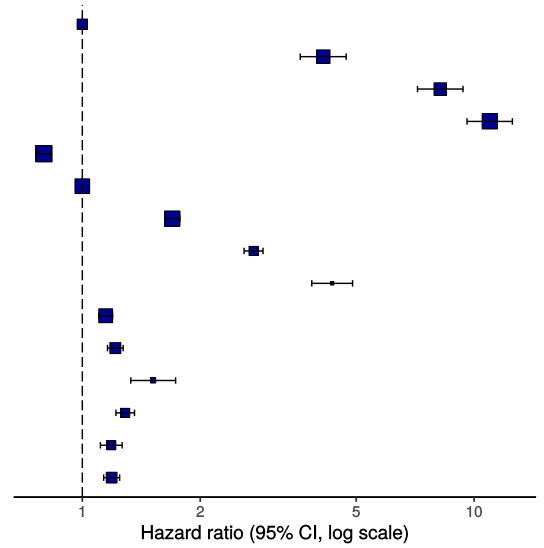
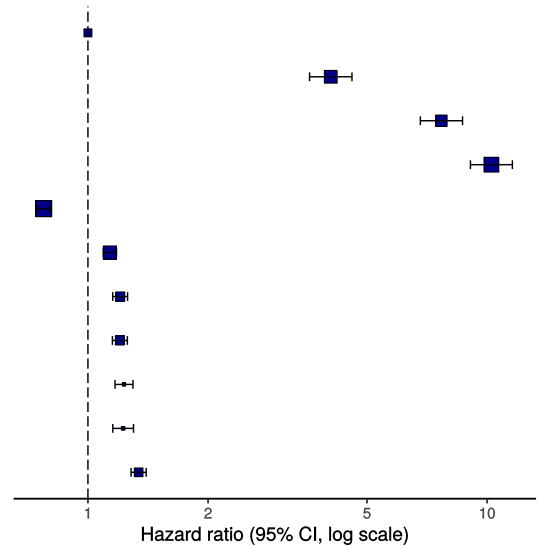


Figure 15b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)

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

Age on admission (years)	<50	-
	50-69	4.06 (3.59-4.59, p<0.001)
	70-79	7.68 (6.80-8.68, p<0.001)
	80+	10.25 (9.08-11.57, p<0.001)
Sex at Birth	Female	0.77 (0.75-0.80, p<0.001)
Chronic cardiac disease	YES	1.14 (1.09-1.18, p<0.001)
Chronic pulmonary disease	YES	1.20 (1.15-1.26, p<0.001)
Chronic kidney disease	YES	1.20 (1.15-1.26, p<0.001)
Malignancy	YES	1.23 (1.17-1.30, p<0.001)
Obesity	YES	1.23 (1.15-1.30, p<0.001)
Dementia	YES	1.34 (1.28-1.40, p<0.001)



ROC = 0.7185057

Figure 16 - Predictions calibration plot

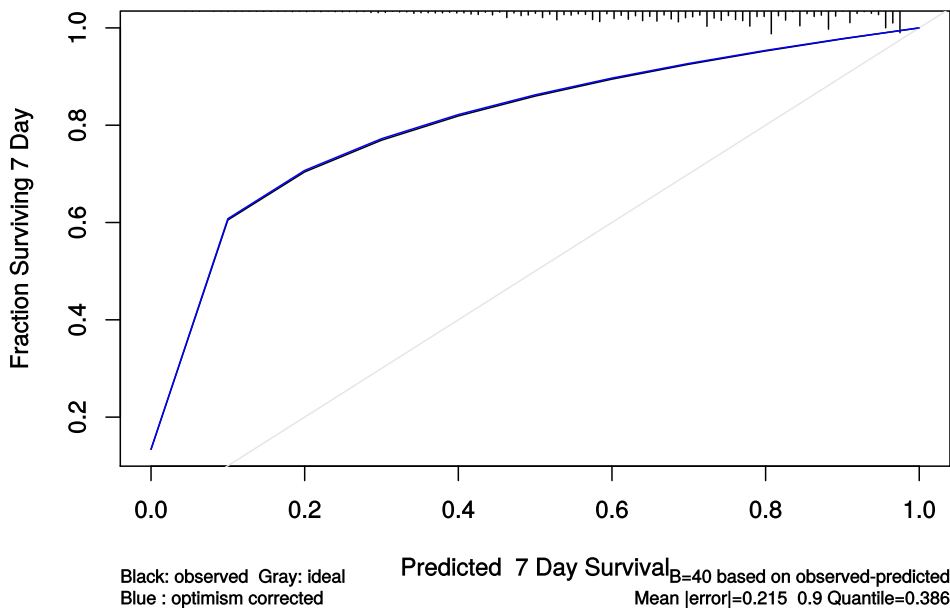


Figure 17 - Prognostic model predictions

Again, for demonstration of methods.

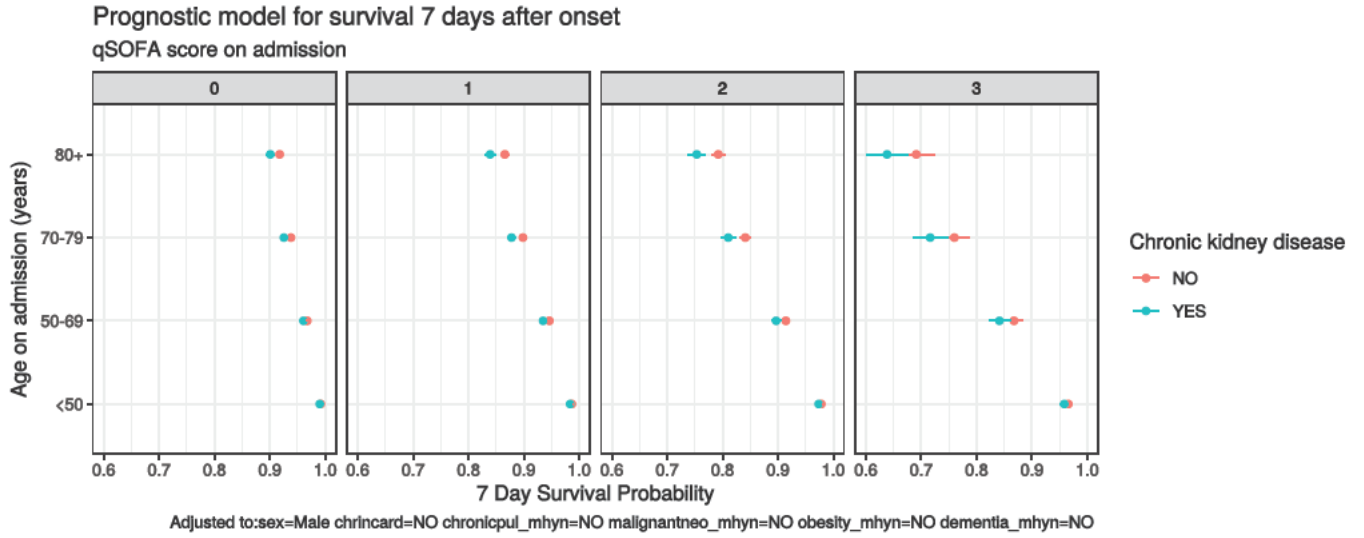


Figure 18 - Death by severity (NEWS) on admission

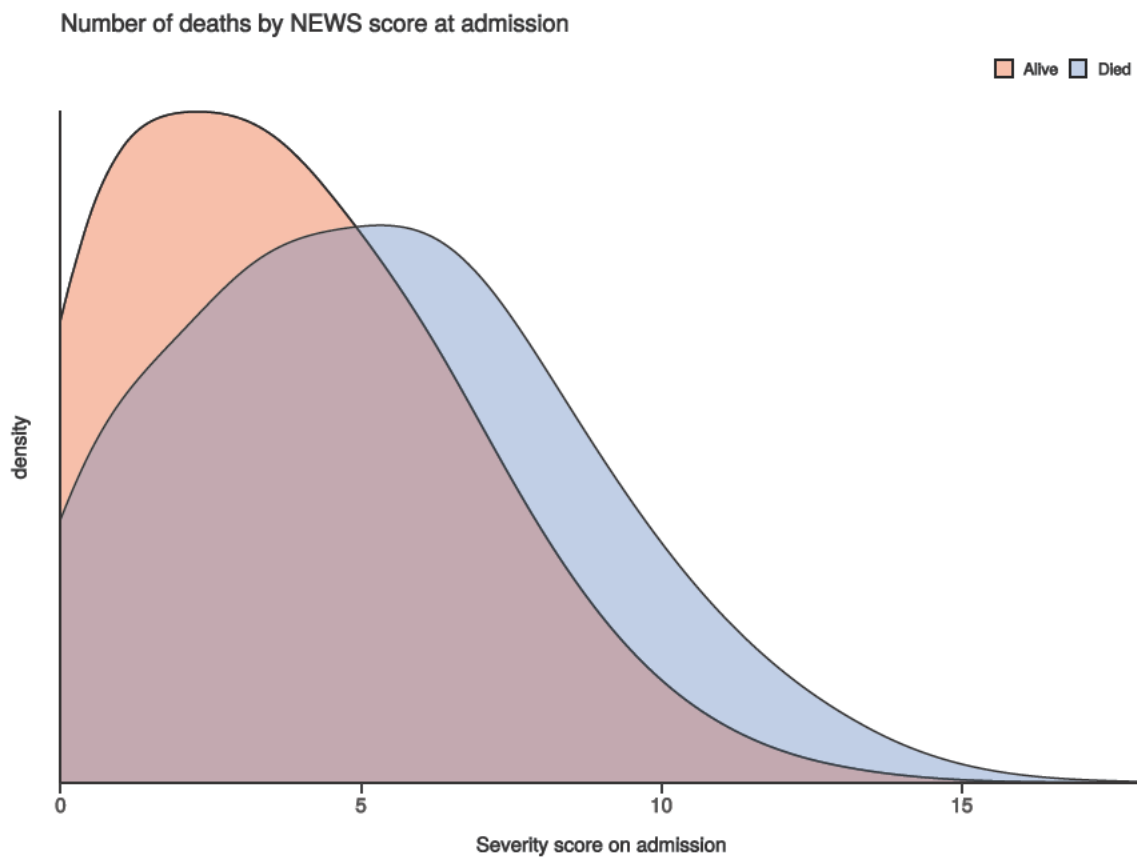


Figure 19 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission
Stratified by age

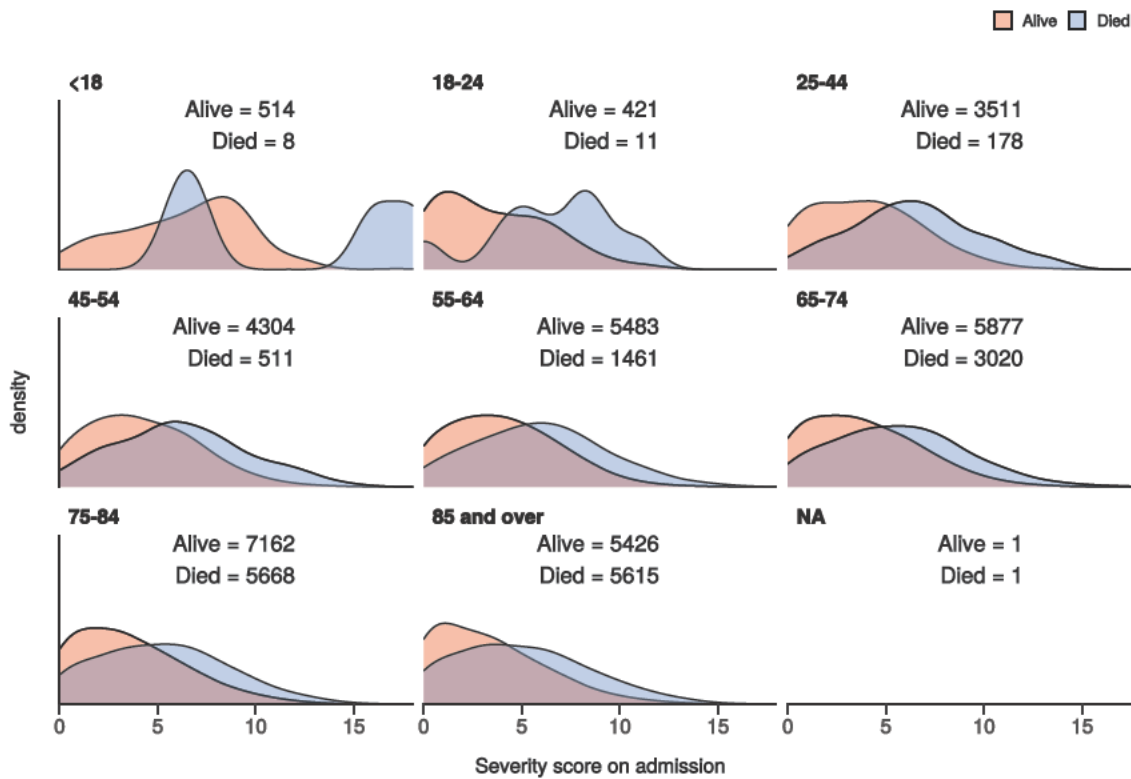
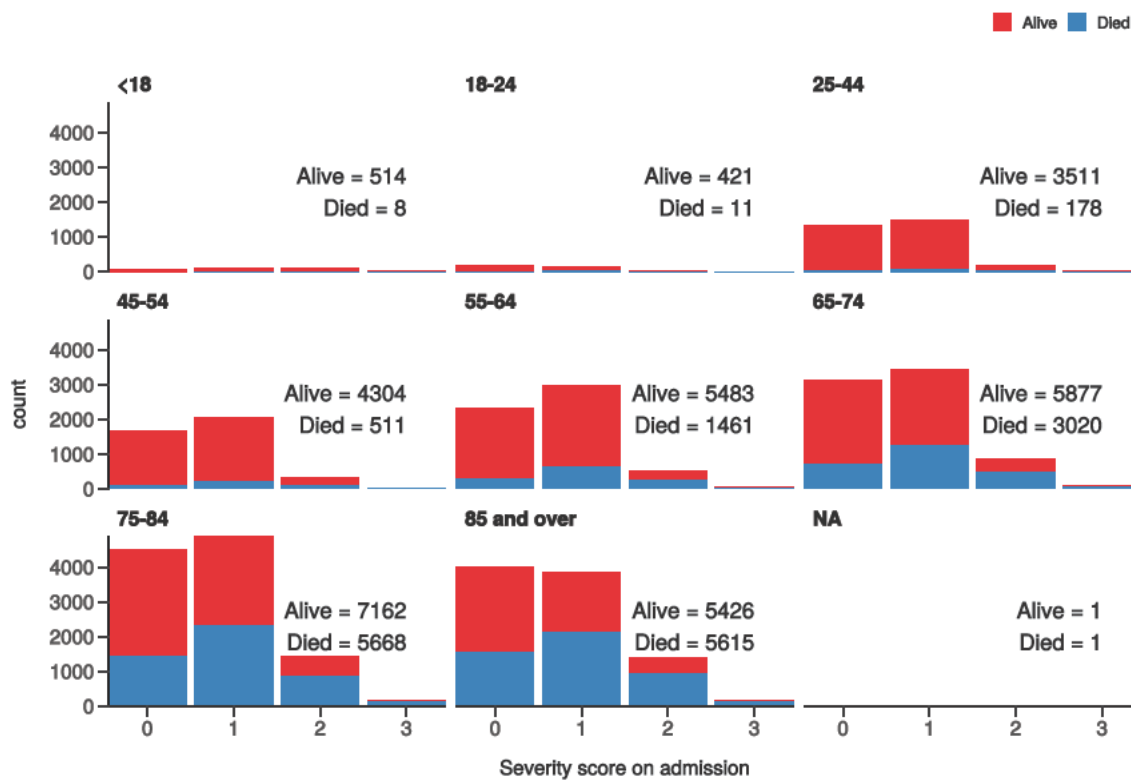


Figure 20 - Death by severity (qSOFA) on admission stratified by age

Number of deaths by qSOFA score at admission
Stratified by age



Healthcare workers

Healthcare worker		NO	YES	p
Total N (%)		48914 (94.8)	2657 (5.2)	
NEWS score on admission	Median (IQR)	4.0 (4.0)	4.0 (4.0)	0.272

Healthcare worker		NO	YES	p
Death	No	27152 (64.3)	2189 (92.7)	<0.001
	Yes	15060 (35.7)	173 (7.3)	

Admission (detail)

Table 1

label	levels	all
Total N (%)		64066 (100.0)
Age on admission (years)	Mean (SD)	70.2 (19.3)
Sex at Birth	Male	33067 (51.6)
	Female	25178 (39.3)
	Not specified	102 (0.2)
	(Missing)	5719 (8.9)
Healthcare worker	YES	2657 (4.1)
	NO	48914 (76.3)
	N/A	5691 (8.9)
	(Missing)	6804 (10.6)
Microbiology lab worker	YES	86 (0.1)
	NO	24450 (38.2)
	N/A	2838 (4.4)
	(Missing)	36692 (57.3)
Onset to admission (days)	Mean (SD)	7.5 (1662.5)
Transfer from other facility	Yes-facility is a study site	1214 (1.9)
	Yes-facility is not a study site	2837 (4.4)
	No	47721 (74.5)
	N/A	2239 (3.5)
	(Missing)	10055 (15.7)
Travel in 14 d prior to symptoms	Yes	796 (1.2)
	No	21086 (32.9)
	N/A	4152 (6.5)
	(Missing)	38032 (59.4)
Country	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	0 (0.0)
	Andorra	1 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	4 (0.0)

label	levels	all
	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)
	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)

label	levels	all
	Cote d'Ivoire	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)
	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	3 (0.0)
	Iceland	1 (0.0)

label	levels	all
	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)
	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)
	Mauritania	0 (0.0)

label	levels	all
	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)
	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)

label	levels	all
	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	1 (0.0)
	Solomon Islands	0 (0.0)
	Somalia	2 (0.0)
	South Africa	10 (0.0)
	South Korea	1 (0.0)
	South Sudan	0 (0.0)
	Spain	193 (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)

label	levels	all
	Turkmenistan	0 (0.0)
	Tuvalu	0 (0.0)
	Uganda	0 (0.0)
	Ukraine	0 (0.0)
	United Arab Emirates	10 (0.0)
	United Kingdom	112 (0.2)
	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)	63335 (98.9)
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)
	Bhutan	0 (0.0)

label	levels	all
	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 d'Ivoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	0 (0.0)
	Curacao	0 (0.0)
	Cyprus	0 (0.0)
	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)

label	levels	all
	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)
	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)

label	levels	all
	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)
	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)
	Nicaragua	0 (0.0)

label	levels	all
	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)
	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)

label	levels	all
	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)
	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)	64066 (100.0)

label	levels	all
Animal, raw meat, insect bites 14 d prior	Yes	104 (0.2)
	No	10078 (15.7)
	Unknown	14257 (22.3)
	N/A	1725 (2.7)
	(Missing)	37902 (59.2)
Animal / insect	2 Budgerigars and 26 Cats at home	1 (1.0)
	2 cats	1 (1.0)
	2 dogs	1 (1.0)
	Bee Sting	1 (1.0)
	Bird (pet)	1 (1.0)
	Birds at home	1 (1.0)
	Budgie	1 (1.0)
	budgies	1 (1.0)
	cat	2 (2.0)
	Cat	1 (1.0)
	CAT	1 (1.0)
	Cat (pet)	1 (1.0)
	Cat / Dog	1 (1.0)
	Cat, Dog (pets)	1 (1.0)
	cats	3 (2.9)
	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 (4.9)
	Dog	12 (11.8)
	DOG	2 (2.0)
	DOG FAMILY PET	1 (1.0)
	Dog, domestic animla 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)

label	levels	all
	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 Dog	1 (1.0)
	Domestic Per (dog)	1 (1.0)
	Domestic pest (cats)	1 (1.0)
	Domestic Pet	5 (4.9)
	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)
	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)
	pet dog	2 (2.0)
	Pet dog	2 (2.0)
	Pet dog -ongoing daily contact	1 (1.0)
	pet dog at home	1 (1.0)
	Pet dog ongoing daily contact	1 (1.0)
	Prepared raw chicken	1 (1.0)
	Rabbits	1 (1.0)
	raw chicken	1 (1.0)
	Raw Chicken	1 (1.0)
	Rodent	1 (1.0)
	she has a cat	1 (1.0)
	Sheep & Cattle	1 (1.0)

label	levels	all
	Two cats	1 (1.0)
	unknown	1 (1.0)

Symptoms (detail)

Table 2

Stratified: all		all
Total N (%)		64066 (100.0)
Fever	YES	32668 (51.0)
	NO	17245 (26.9)
	Unknown	2892 (4.5)
	(Missing)	11261 (17.6)
Cough	YES	33141 (51.7)
	NO	16504 (25.8)
	Unknown	3170 (4.9)
	(Missing)	11251 (17.6)
Cough (sputum)	YES	9740 (15.2)
	NO	32491 (50.7)
	Unknown	10448 (16.3)
	(Missing)	11387 (17.8)
Cough (blood)	YES	1174 (1.8)
	NO	40240 (62.8)
	Unknown	11240 (17.5)
	(Missing)	11412 (17.8)
Sore throat	YES	3124 (4.9)
	NO	35497 (55.4)
	Unknown	14033 (21.9)
	(Missing)	11412 (17.8)
Runny nose	YES	973 (1.5)
	NO	36942 (57.7)
	Unknown	14732 (23.0)
	(Missing)	11419 (17.8)
Ear pain	YES	185 (0.3)
	NO	37590 (58.7)
	Unknown	14866 (23.2)
	(Missing)	11425 (17.8)
Wheeze	YES	3626 (5.7)

Stratified: all**all**

	NO	37227 (58.1)
	Unknown	11799 (18.4)
	(Missing)	11414 (17.8)
Chest pain	YES	5842 (9.1)
	NO	37183 (58.0)
	Unknown	9644 (15.1)
	(Missing)	11397 (17.8)
Muscle ache	YES	7037 (11.0)
	NO	32135 (50.2)
	Unknown	13465 (21.0)
	(Missing)	11429 (17.8)
Joint pain	YES	2560 (4.0)
	NO	35307 (55.1)
	Unknown	14756 (23.0)
	(Missing)	11443 (17.9)
Fatigue	YES	17973 (28.1)
	NO	23856 (37.2)
	Unknown	10840 (16.9)
	(Missing)	11397 (17.8)
Shortness of breath	YES	32332 (50.5)
	NO	16396 (25.6)
	Unknown	4090 (6.4)
	(Missing)	11248 (17.6)
Lower chest wall indrawing	YES	490 (0.8)
	NO	36644 (57.2)
	Unknown	15488 (24.2)
	(Missing)	11444 (17.9)
Headache	YES	4073 (6.4)
	NO	35057 (54.7)
	Unknown	13506 (21.1)
	(Missing)	11430 (17.8)
Confusion	YES	13194 (20.6)
	NO	32065 (50.0)
	Unknown	7446 (11.6)
	(Missing)	11361 (17.7)
Seizures	YES	706 (1.1)

Stratified: all		all
	NO	42172 (65.8)
	Unknown	9756 (15.2)
	(Missing)	11432 (17.8)
Abdominal pain	YES	4607 (7.2)
	NO	38224 (59.7)
	Unknown	9843 (15.4)
	(Missing)	11392 (17.8)
Nausea/vomiting	YES	8604 (13.4)
	NO	35914 (56.1)
	Unknown	8169 (12.8)
	(Missing)	11379 (17.8)
Diarrhoea	YES	8079 (12.6)
	NO	36180 (56.5)
	Unknown	8426 (13.2)
	(Missing)	11381 (17.8)
Conjunctivitis	YES	180 (0.3)
	NO	39685 (61.9)
	Unknown	12775 (19.9)
	(Missing)	11426 (17.8)
Skin rash	YES	638 (1.0)
	NO	40058 (62.5)
	Unknown	11952 (18.7)
	(Missing)	11418 (17.8)
Skin ulcers	YES	1070 (1.7)
	NO	39686 (61.9)
	Unknown	11879 (18.5)
	(Missing)	11431 (17.8)
Lymphadenopathy	YES	272 (0.4)
	NO	39842 (62.2)
	Unknown	12518 (19.5)
	(Missing)	11434 (17.8)
Bleeding (Haemorrhage)	YES	754 (1.2)
	NO	41510 (64.8)
	Unknown	10365 (16.2)
	(Missing)	11437 (17.9)
If Bleeding (others)	YES	478 (0.7)

Stratified: all		all
	NO	19626 (30.6)
	Unknown	5399 (8.4)
	(Missing)	38563 (60.2)

Comorbidity (detail)

Table 3

Stratified: all		all
Total N (%)		64066 (100.0)
Chronic cardiac disease	YES	16248 (25.4)
	NO	33966 (53.0)
	Unknown	2665 (4.2)
	(Missing)	11187 (17.5)
Chronic pulmonary disease	YES	8950 (14.0)
	NO	41068 (64.1)
	Unknown	2844 (4.4)
	(Missing)	11204 (17.5)
Asthma	YES	6874 (10.7)
	NO	42956 (67.0)
	Unknown	2993 (4.7)
	(Missing)	11243 (17.5)
Chronic kidney disease	YES	8727 (13.6)
	NO	41065 (64.1)
	Unknown	3059 (4.8)
	(Missing)	11215 (17.5)
Moderate/severe liver disease	YES	964 (1.5)
	NO	48316 (75.4)
	Unknown	3542 (5.5)
	(Missing)	11244 (17.6)
Mild Liver disease	YES	745 (1.2)
	NO	48407 (75.6)
	Unknown	3668 (5.7)
	(Missing)	11246 (17.6)
Chronic neurological disorder	YES	6244 (9.7)
	NO	43261 (67.5)
	Unknown	3315 (5.2)
	(Missing)	11246 (17.6)

Stratified: all		all
Malignancy	YES	5129 (8.0)
	NO	44275 (69.1)
	Unknown	3431 (5.4)
	(Missing)	11231 (17.5)
Chronic hematologic disease	YES	2171 (3.4)
	NO	47144 (73.6)
	Unknown	3487 (5.4)
	(Missing)	11264 (17.6)
AIDS/HIV	YES	202 (0.3)
	NO	48602 (75.9)
	Unknown	4016 (6.3)
	(Missing)	11246 (17.6)
Obesity	YES	5115 (8.0)
	NO	39818 (62.2)
	Unknown	7811 (12.2)
	(Missing)	11322 (17.7)
Diabetes with complications	YES	3625 (5.7)
	NO	44808 (69.9)
	Unknown	4382 (6.8)
	(Missing)	11251 (17.6)
Diabetes without complications	YES	8535 (13.3)
	NO	40029 (62.5)
	Unknown	4260 (6.6)
	(Missing)	11242 (17.5)
Rheumatologic disorder	YES	5409 (8.4)
	NO	43765 (68.3)
	Unknown	3627 (5.7)
	(Missing)	11265 (17.6)
Dementia	YES	8327 (13.0)
	NO	41295 (64.5)
	Unknown	3217 (5.0)
	(Missing)	11227 (17.5)
Malnutrition	YES	1241 (1.9)
	NO	45292 (70.7)
	Unknown	6223 (9.7)
	(Missing)	11310 (17.7)

Stratified: all

all

Smoking	YES	2652 (4.1)
	NO	30911 (48.2)
	(Missing)	30503 (47.6)
