

# Dynamic CO-CIN report to SAGE and NERVTAG

Dynamic content updated: 2020-06-30 18:11:37.

## 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 30 June 2020, CO-CIN has recruited **67728 patients** with confirmed Coronavirus (Figure 1).

The CO-CIN dataset represents 21.7% (67728/312,654) of cases of confirmed Coronavirus cases in the UK, per the PHE daily reports (last updated 9am on 30 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 1011 had travelled abroad recently, and 7362 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 74 (range: 0-107), Male/Female 35149/26964.

The most common symptoms were cough (62%), fever (61%) and shortness of breath (61%) (Figure 3A). 3385/57060 (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%). 12076/57213 (21%) of patients have reported no co morbidity. 393/5100 (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 = 51498). 7788/47987 (16%) patients required high-flow oxygen after day 1 of treatment.

Currently 17947 patient(s) have died and 8094 required ICU. 31930 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).

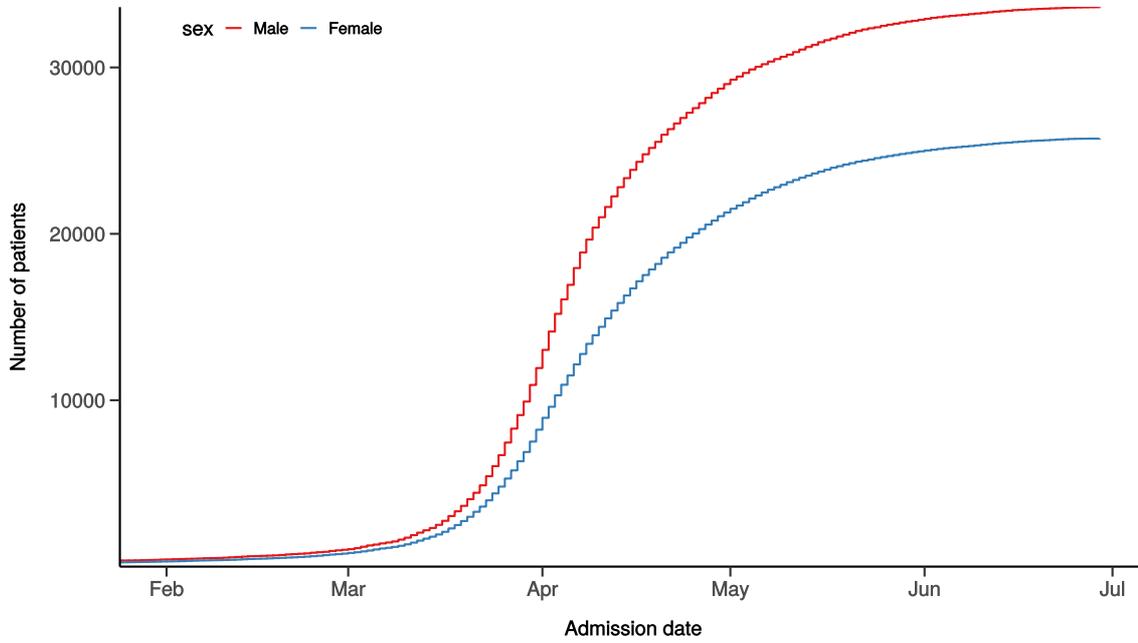
Analytics: Lisa Norman, Riinu Pius, Thomas Drake, Cameron Fairfield, Stephen Knight, Kenneth McLean, Katie Shaw.

## Admission

Figure 1

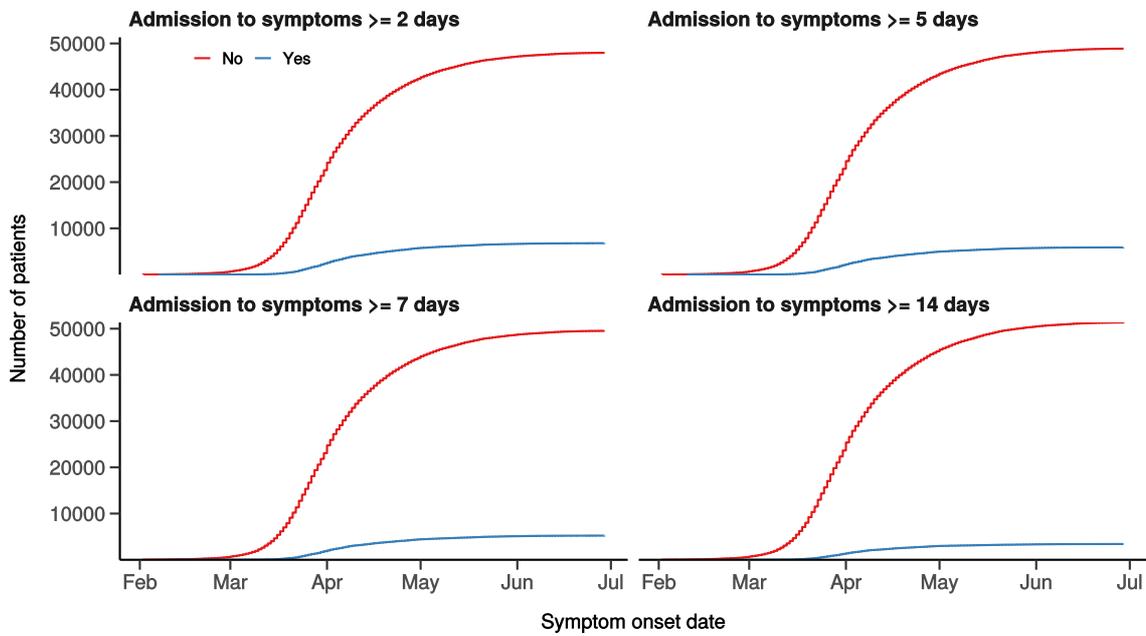
### Hospital admission with COVID-19 by sex

Figure 1A



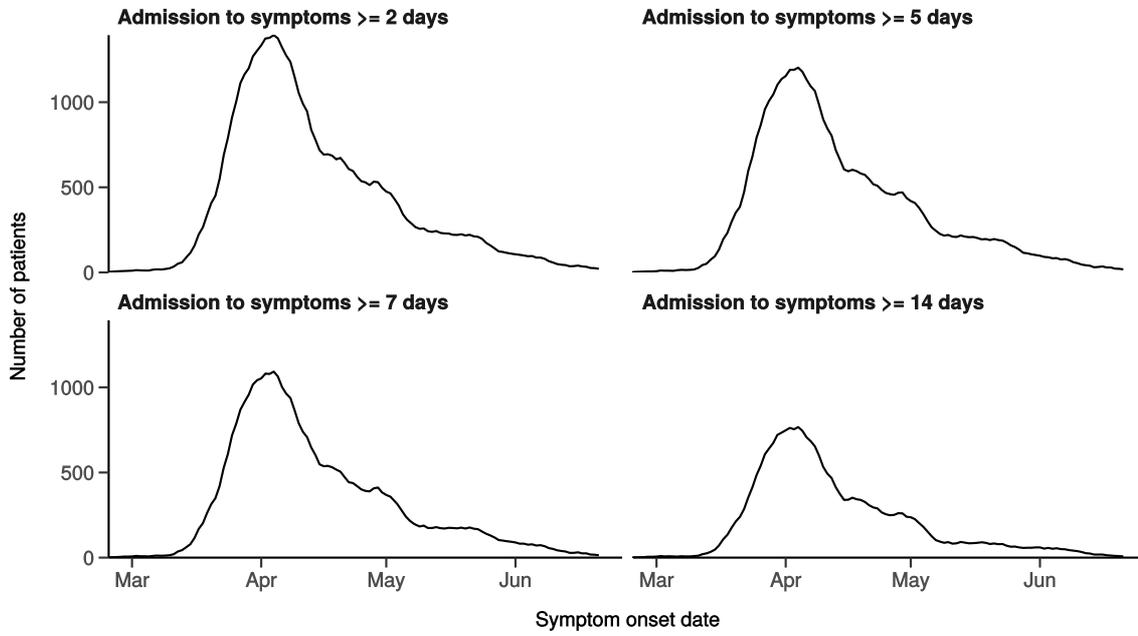
### Number with symptom onset occurring after admission to hospital

Figure 1B



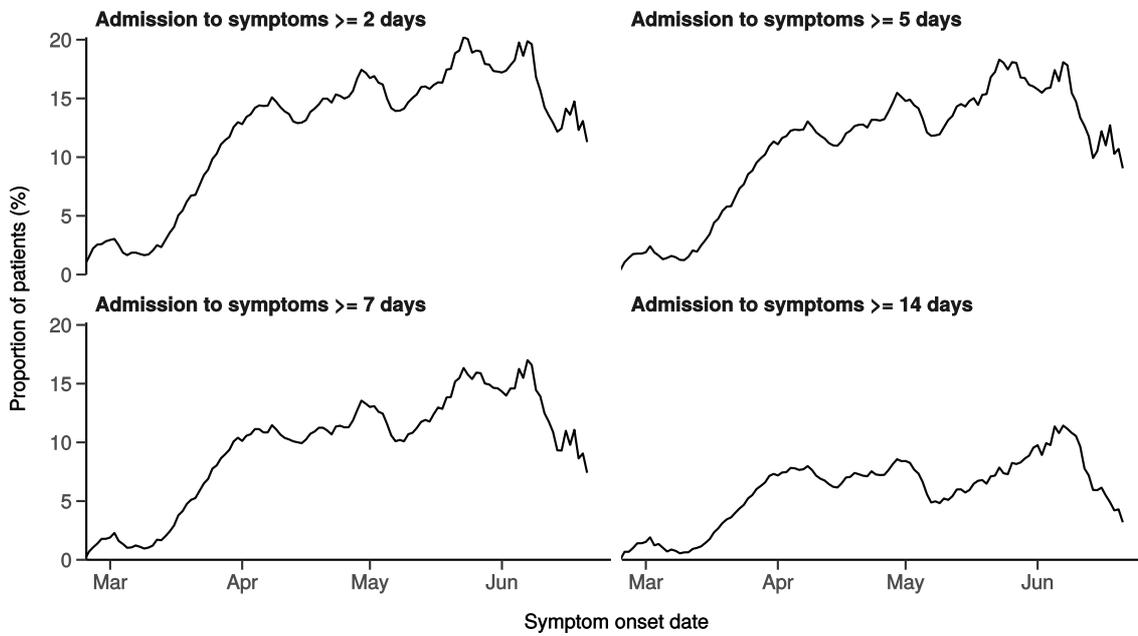
### Number with symptom onset occurring after hospital admission

Figure 1C - 7-day rolling count. n = 54765



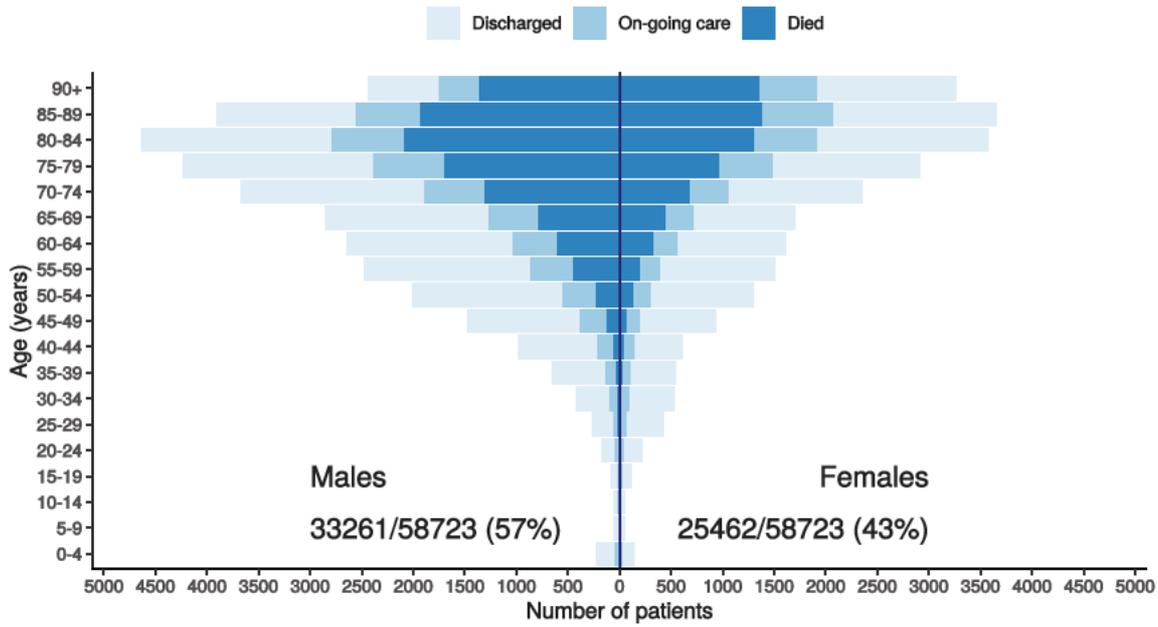
### Proportion with symptom onset occurring after hospital admission

Figure 1D - 7-day rolling percentage. n = 54765



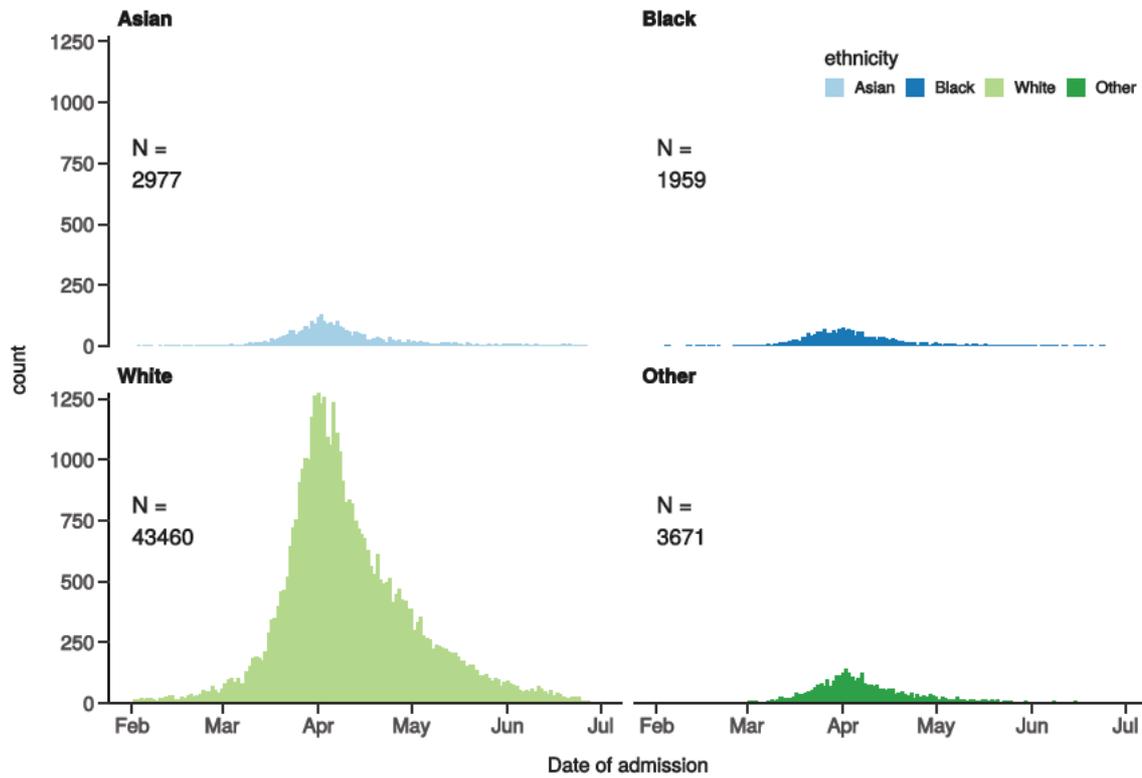
## Patients with outcome stratified by age, and sex

Figure 1E



## Hospital admission with COVID-19 by ethnicity

Figure 1F

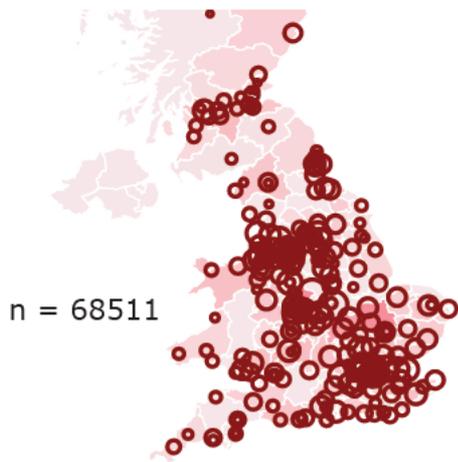


## Location by CCG / Healthboard

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 = 56854)

Figure 3A

Comorbidity (% patients, n = 56987)

Figure 3B

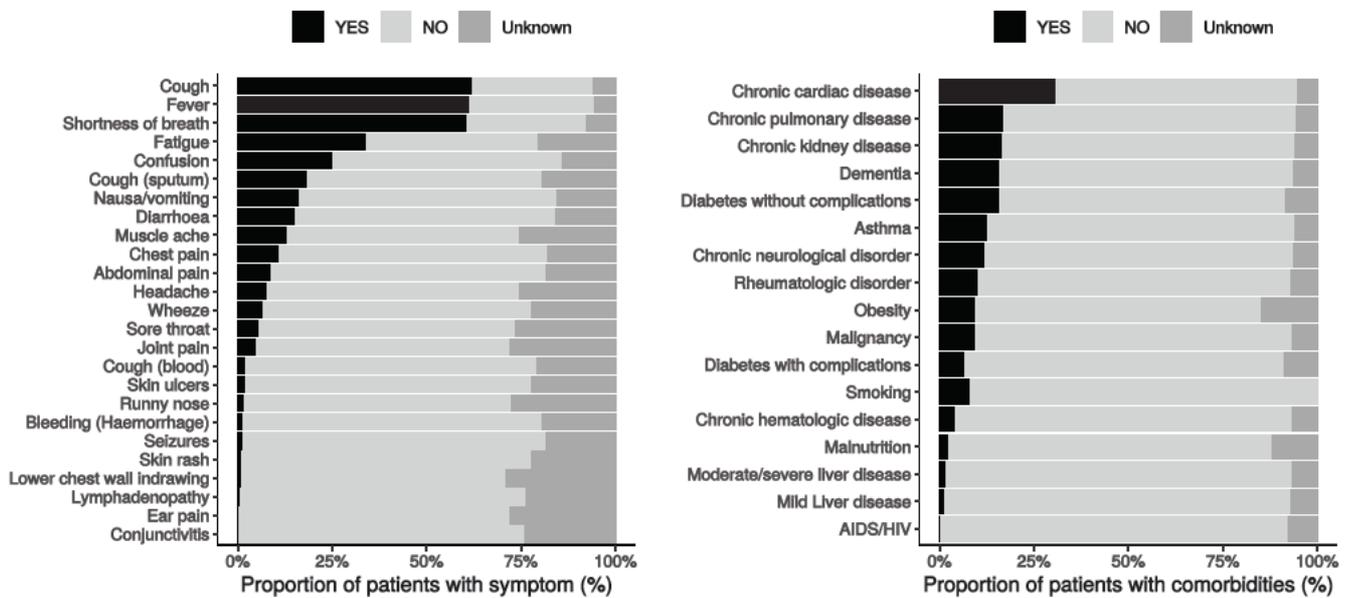
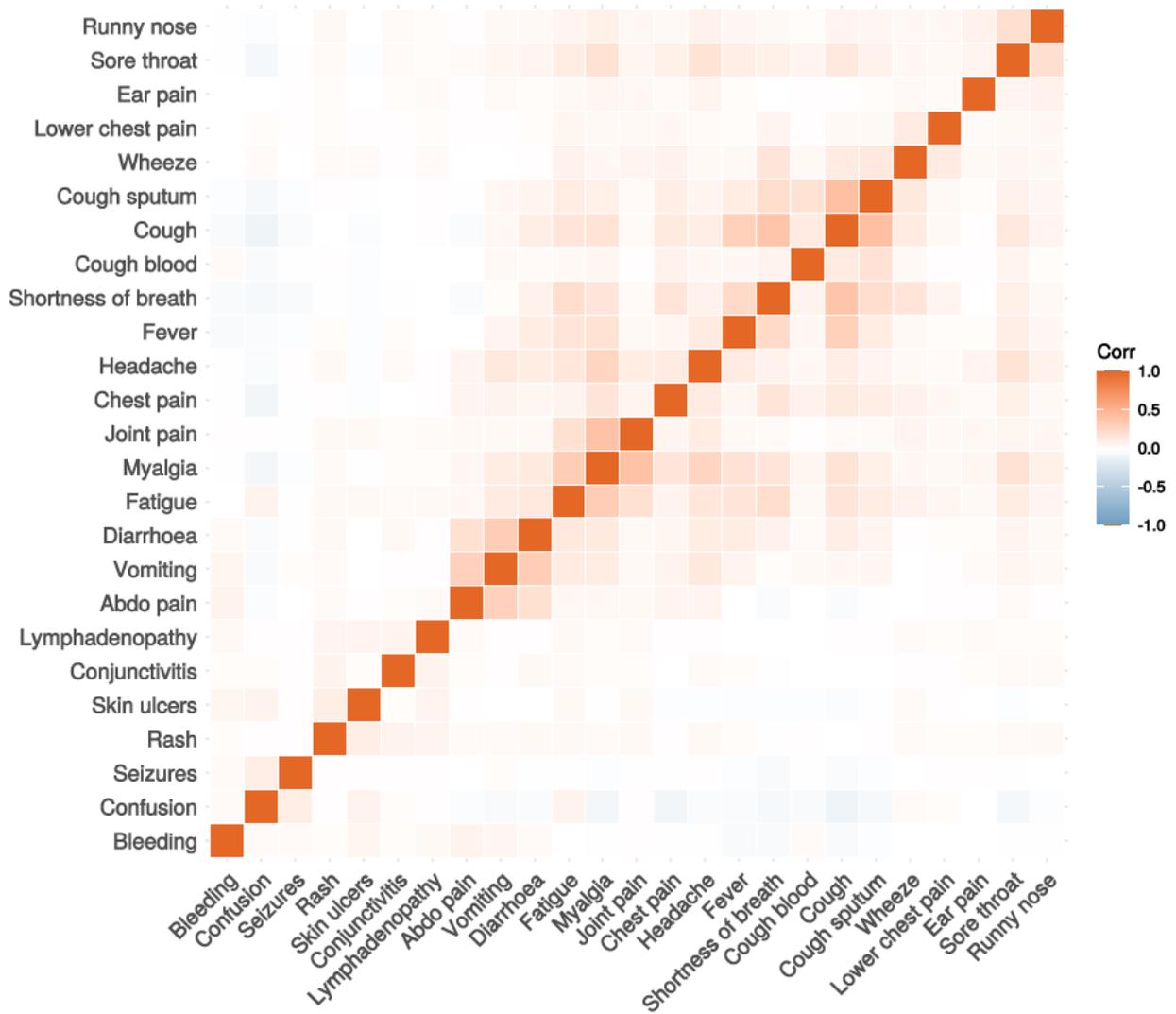


Figure 3C

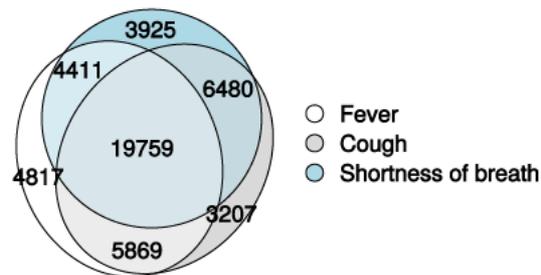
Correlation of symptoms in all pages. Note clusters, top right to bottom left, flu-like, coryzal, abdominal, respiratory, neurocutaneous.



### Symptoms (diagnostic criteria)

Figure 4A

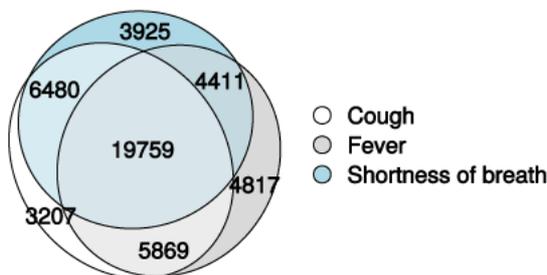
n = 56854



### Symptoms (most common)

Figure 4B

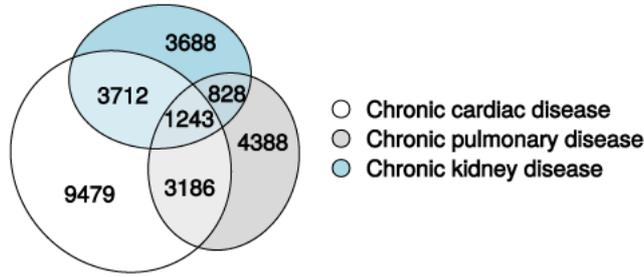
n = 56854



### Comorbidity (most common)

Figure 4C

n = 56987



## Medication prior to illness

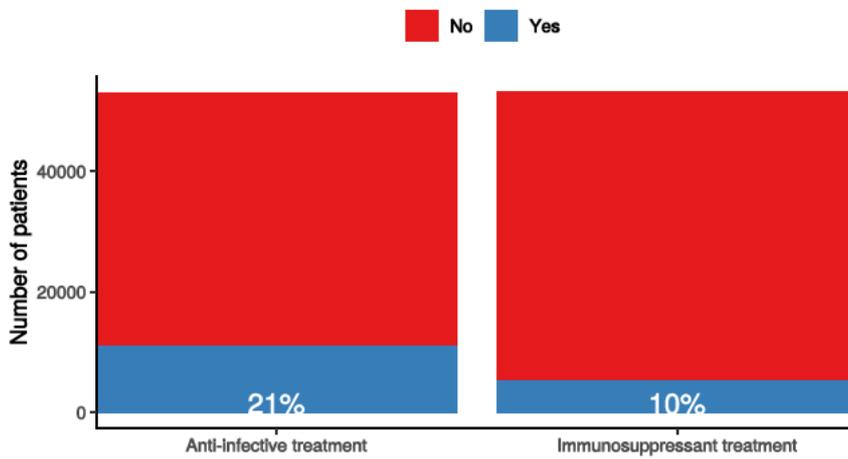
Figure 5

## Preadmission treatment

Figure 5

### Pre-admission treatment

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



## Patient flow

Figure 6A - All patients

N = 59282

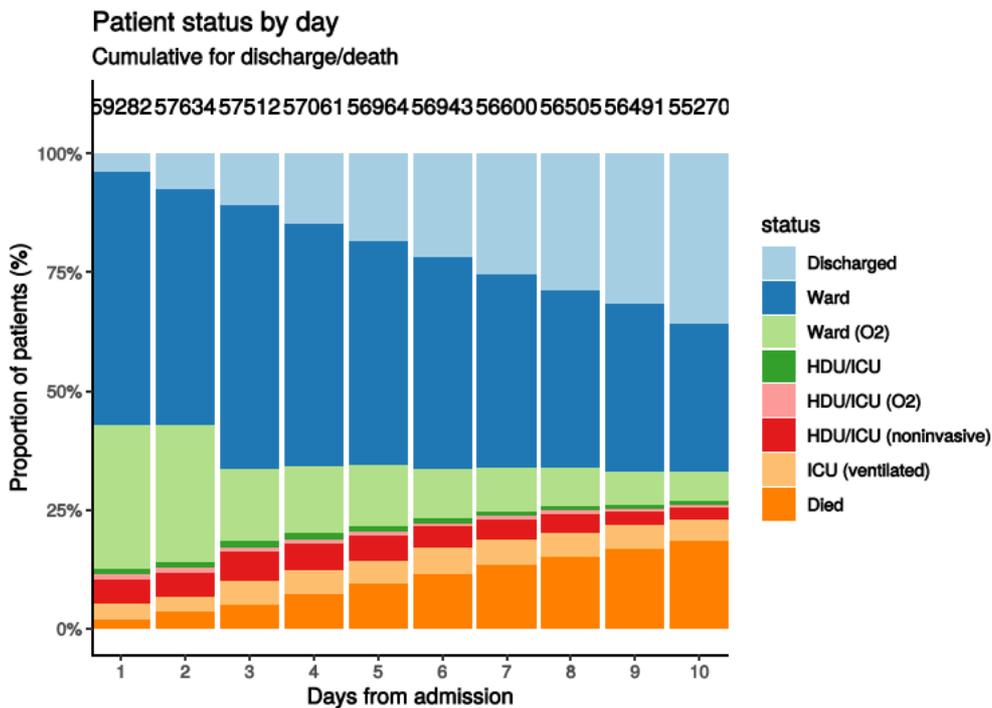
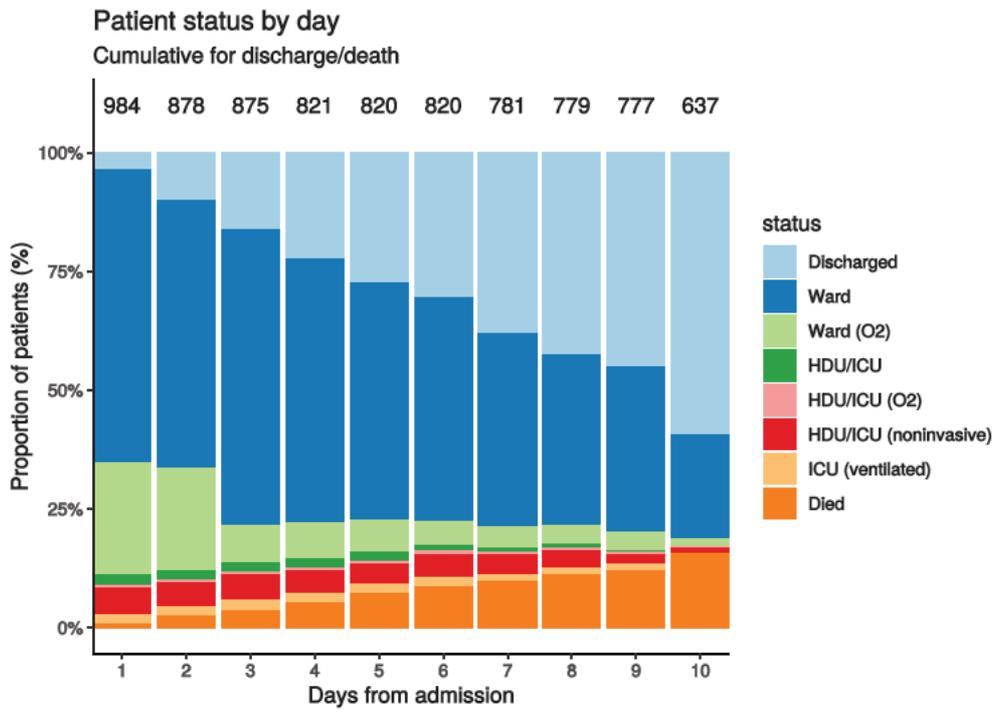


Figure 6B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 984



## Oxygen requirement

Figure 7A - All patients

N = 56080

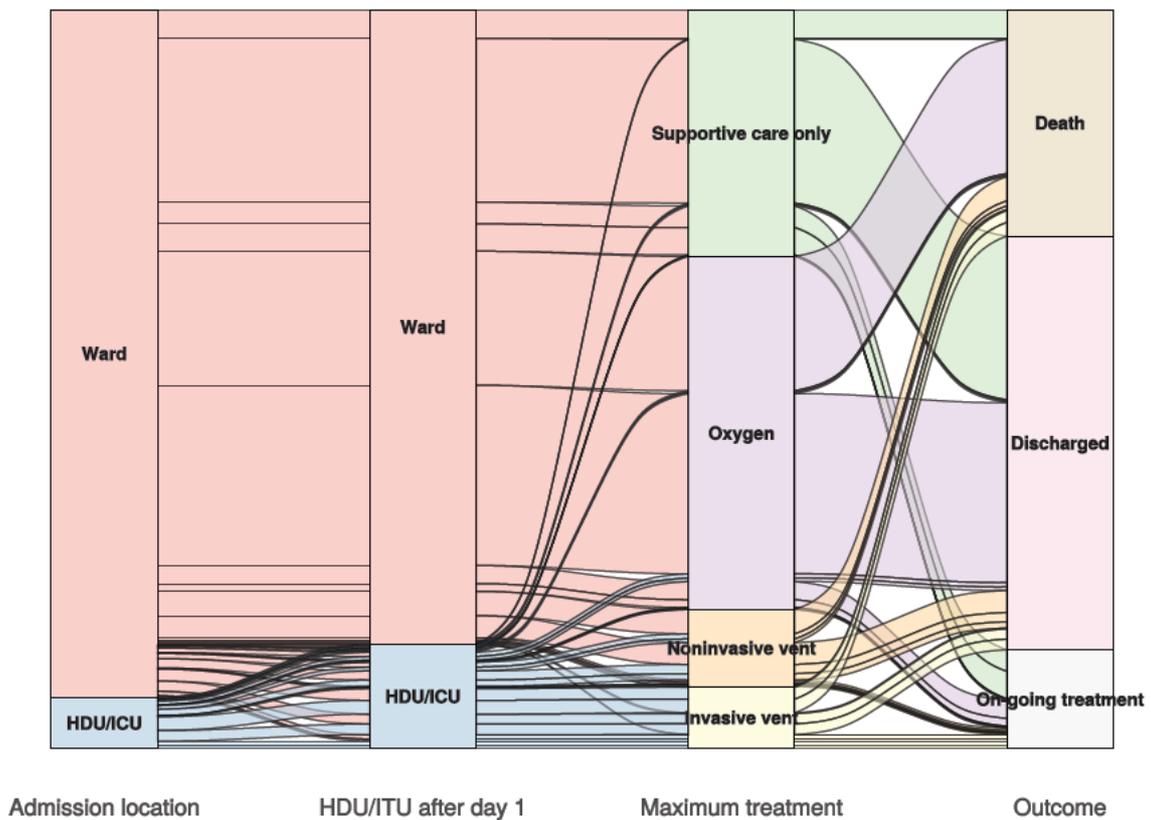
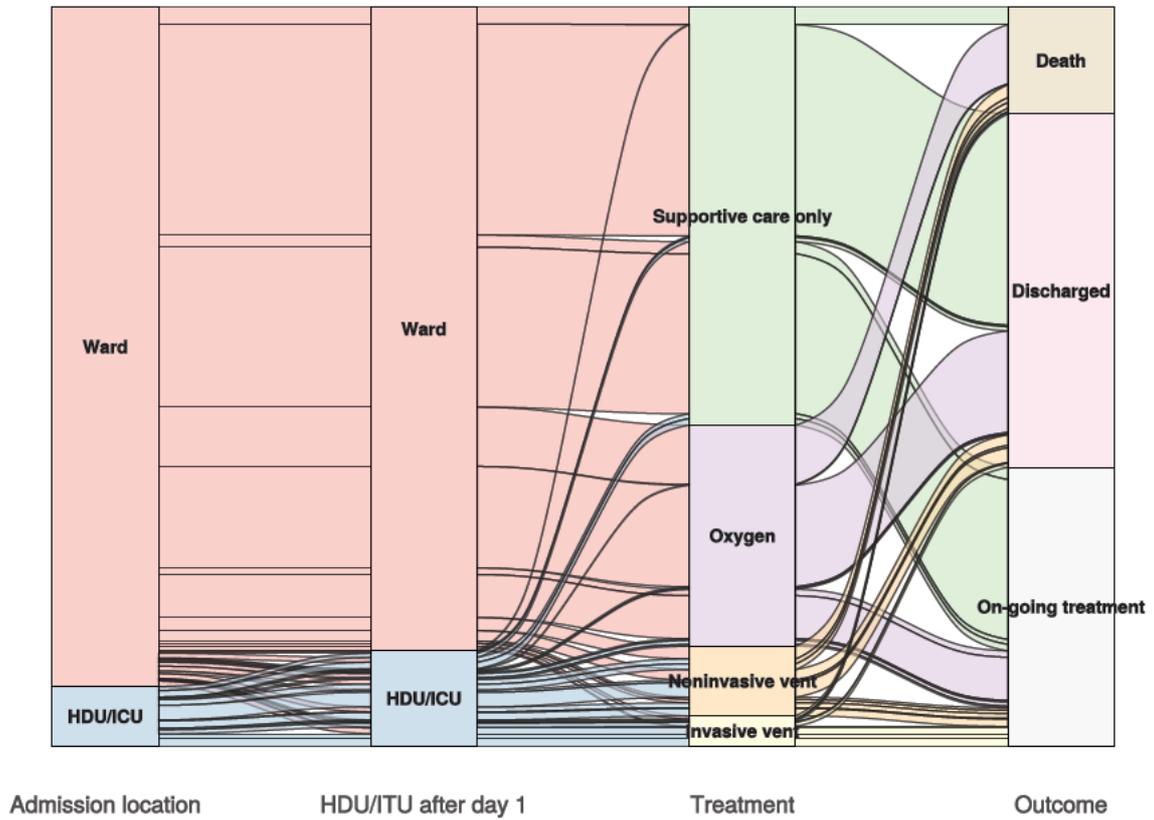


Figure 7B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 948

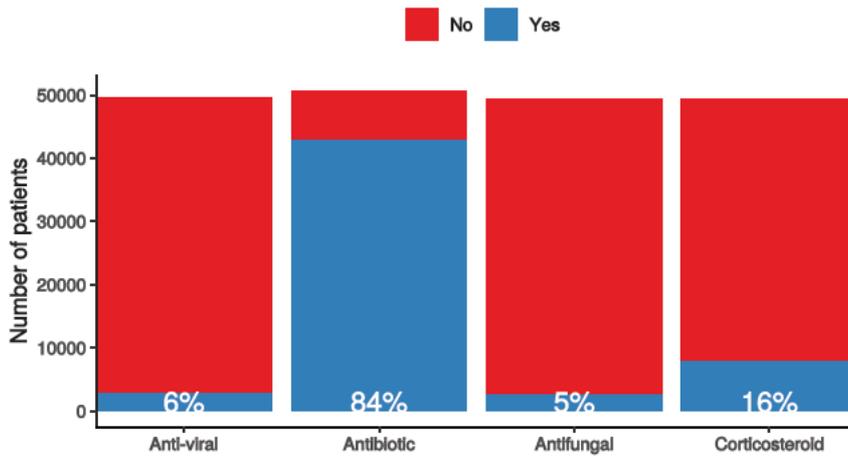


## In-hospital medical treatment

Figure 8

### In-hospital treatment

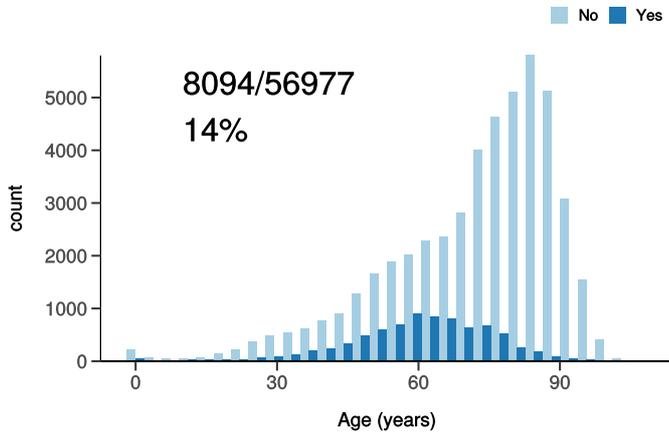
Anti-virals, antibiotics, corticosteroids, and anti-fungals for patients who have cc



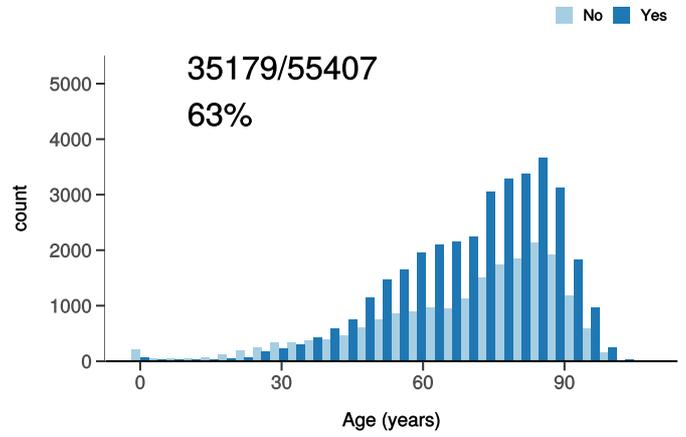
## Treatment

Figure 9

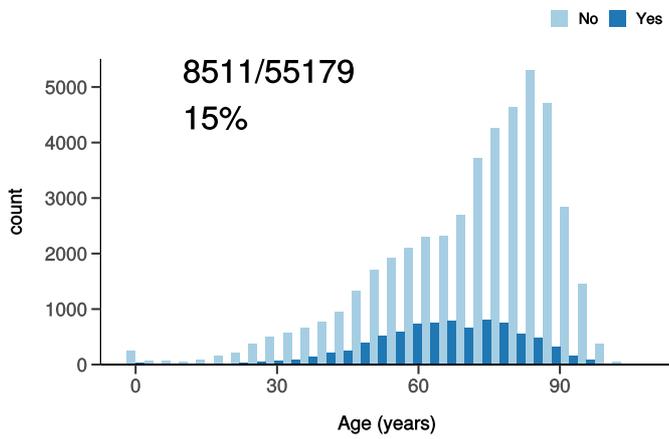
ICU/HDU admission  
Figure 10A



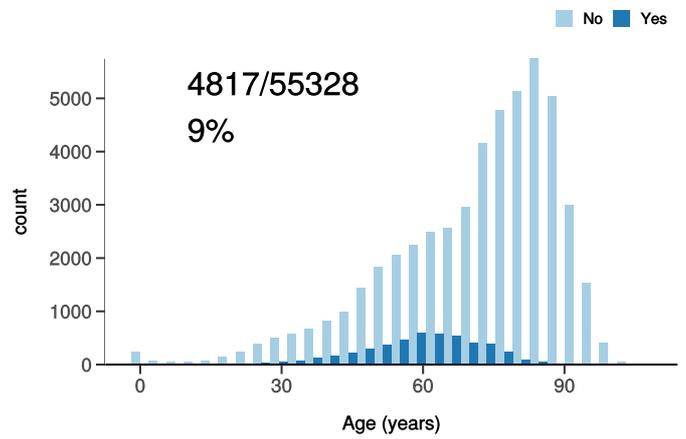
High flow oxygen  
Figure 10B



Noninvasive ventilation  
Figure 10C



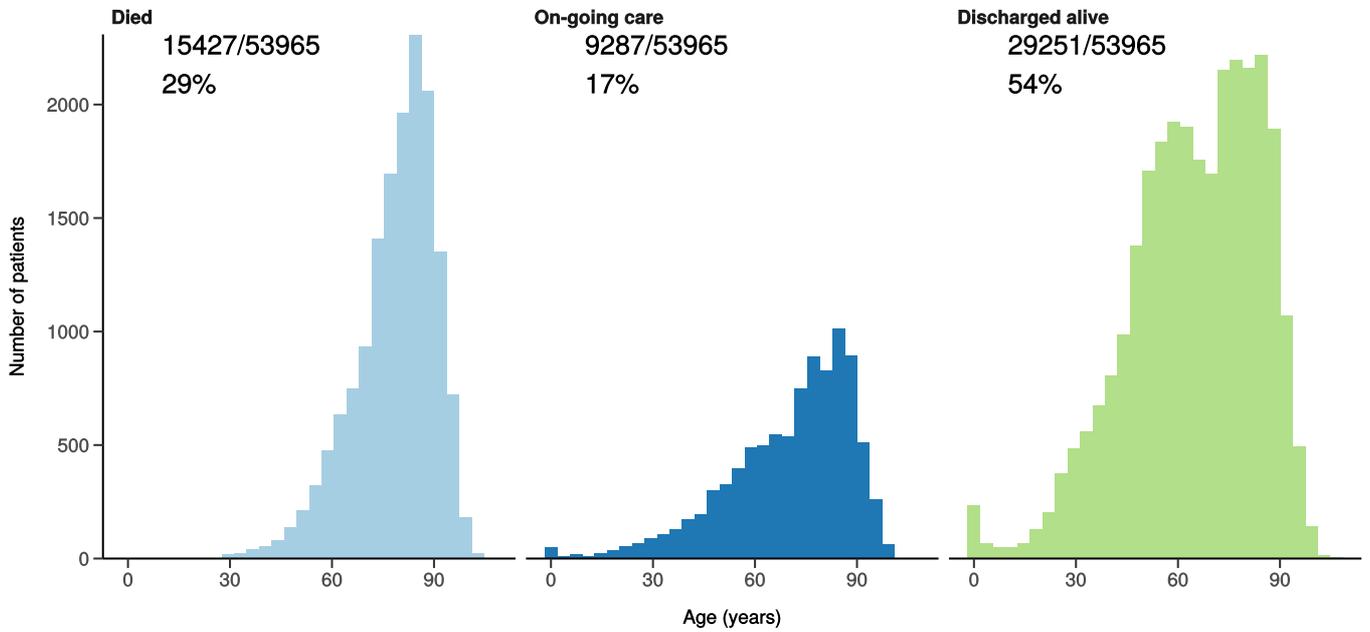
Invasive ventilation  
Figure 10D



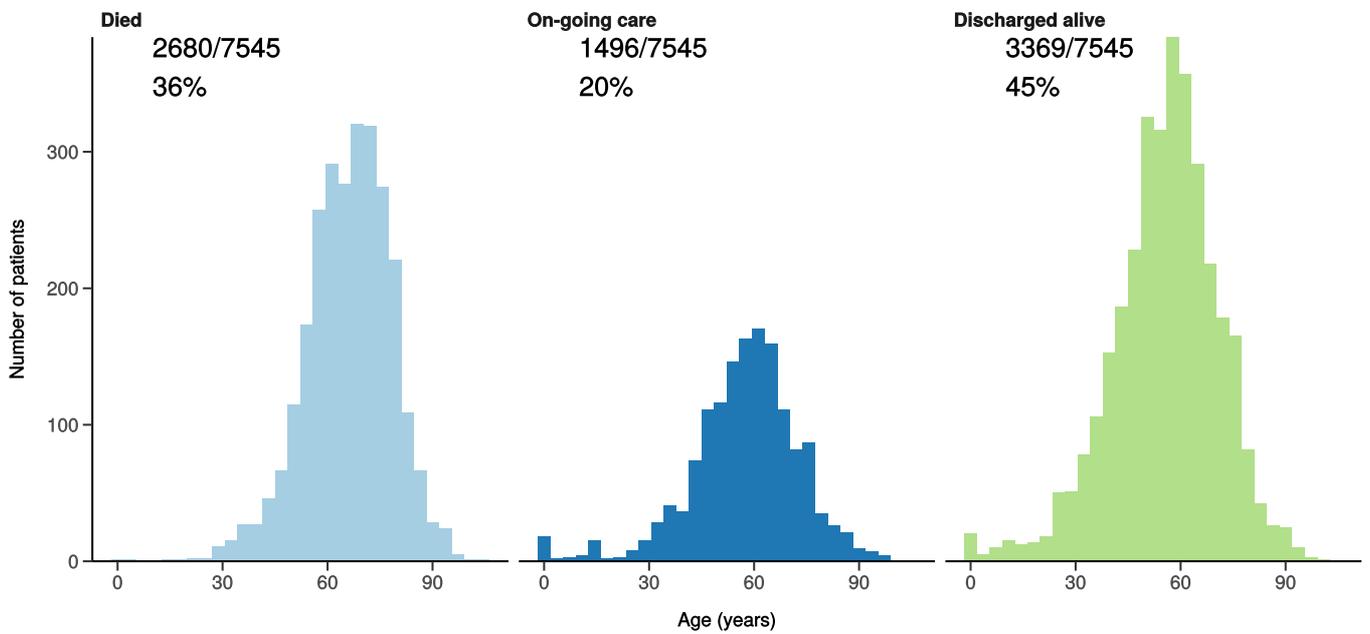
## Status of patients admitted $\geq 14$ days from today

Figure 10

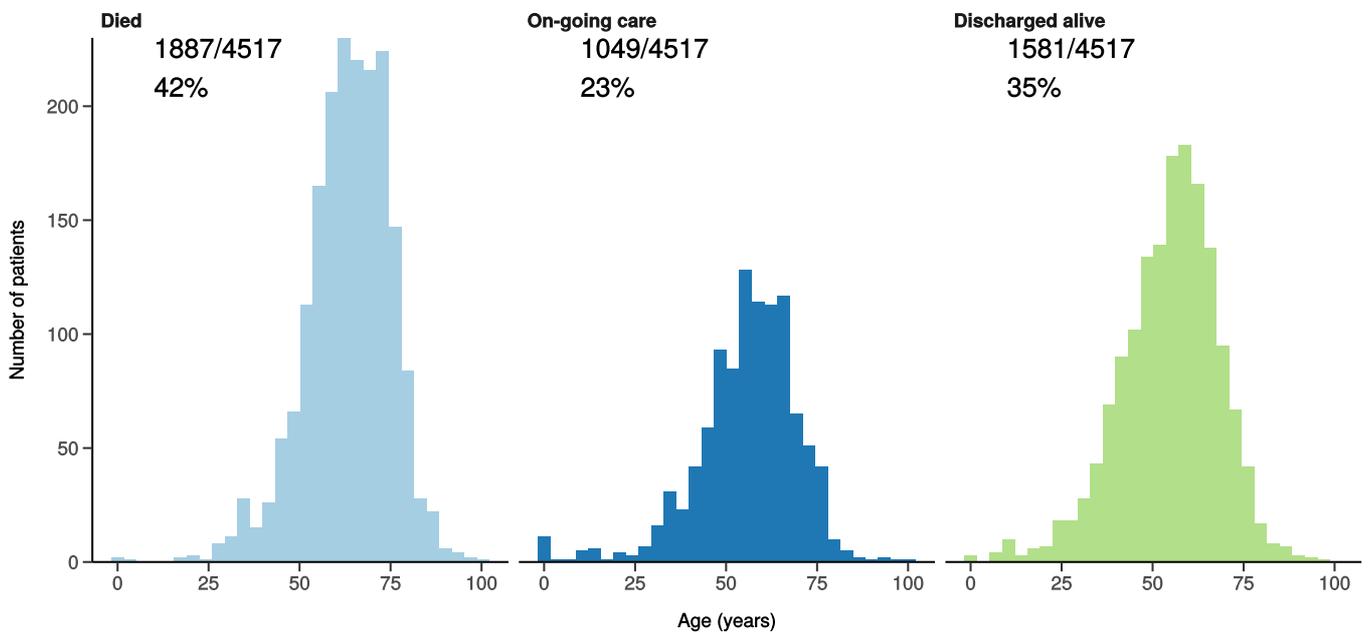
All patients



Patients admitted to ICU/HDU



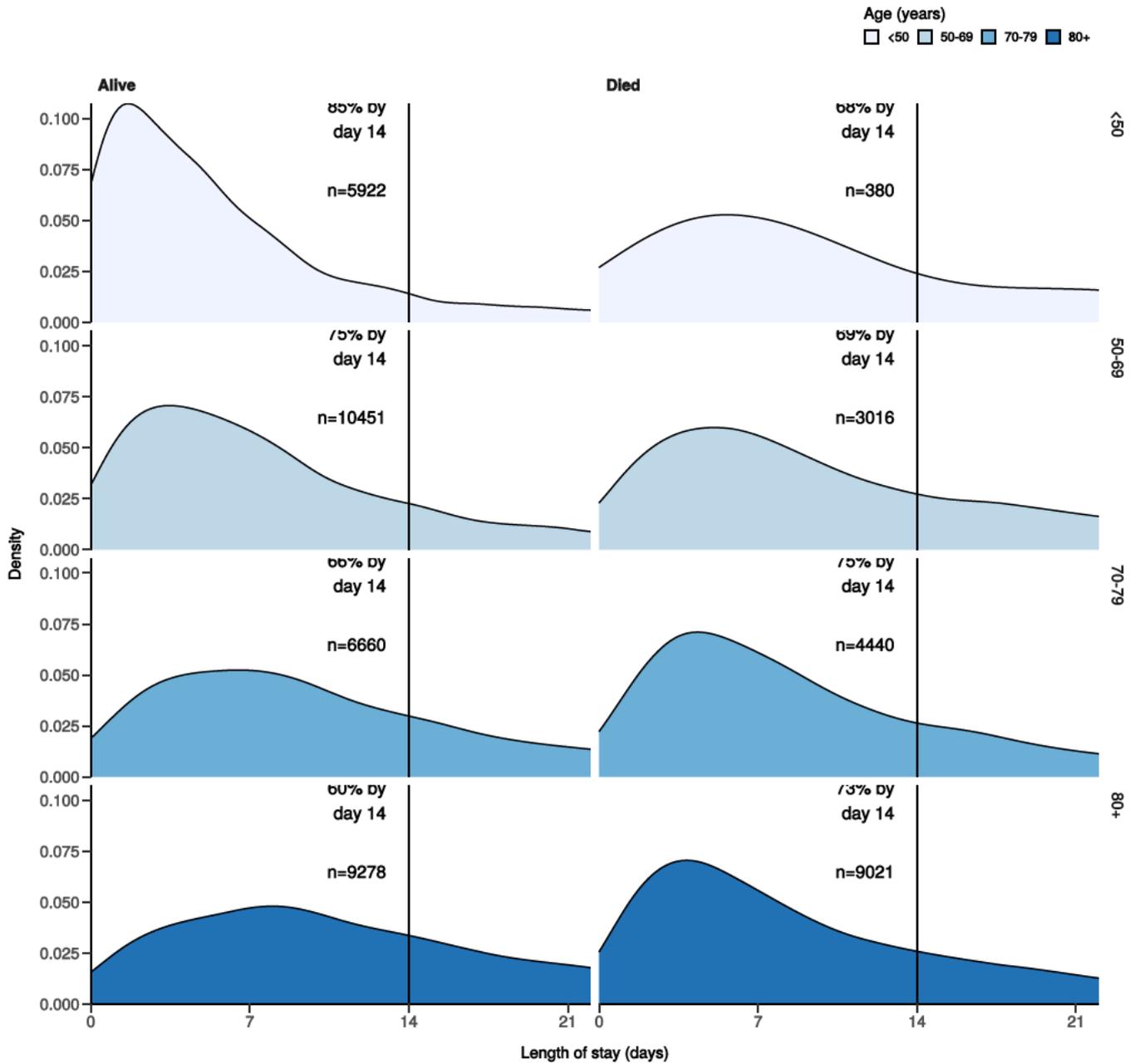
Patients receiving invasive ventilation



# 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	6797 (94.3)	410 (5.7)	•	•
	50-69	11461 (78.4)	3151 (21.6)	4.56 (4.10-5.08, p<0.001)	4.25 (3.77-4.81, p<0.001)
	70-79	7307 (61.1)	4658 (38.9)	10.57 (9.51-11.77, p<0.001)	8.76 (7.76-9.92, p<0.001)
	80+	10082 (51.6)	9451 (48.4)	15.54 (14.03-17.26, p<0.001)	12.80 (11.35-14.49, p<0.001)
Sex at Birth	Male	19562 (64.4)	10825 (35.6)	•	•
	Female	16264 (70.1)	6925 (29.9)	0.77 (0.74-0.80, p<0.001)	0.69 (0.66-0.72, p<0.001)

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
	Not specified	0 (NaN)	0 (NaN)	•	•
Chronic cardiac disease	NO	24327 (72.1)	9394 (27.9)	•	•
	YES	9177 (56.4)	7103 (43.6)	2.00 (1.93-2.08, p<0.001)	1.16 (1.11-1.22, p<0.001)
Chronic pulmonary disease	NO	28428 (69.5)	12496 (30.5)	•	•
	YES	4989 (56.3)	3873 (43.7)	1.77 (1.69-1.85, p<0.001)	1.32 (1.24-1.39, p<0.001)
Chronic neurological disorder	NO	29333 (68.2)	13671 (31.8)	•	•
	YES	3798 (59.9)	2544 (40.1)	1.44 (1.36-1.52, p<0.001)	1.16 (1.08-1.23, p<0.001)
Chronic hematologic disease	NO	31754 (67.6)	15226 (32.4)	•	•
	YES	1288 (58.7)	908 (41.3)	1.47 (1.35-1.60, p<0.001)	1.18 (1.06-1.31, p=0.002)
Chronic kidney disease	NO	28523 (69.8)	12319 (30.2)	•	•
	YES	4768 (54.4)	3996 (45.6)	1.94 (1.85-2.03, p<0.001)	1.30 (1.22-1.37, p<0.001)
Dementia	NO	28903 (70.4)	12126 (29.6)	•	•
	YES	4288 (50.8)	4154 (49.2)	2.31 (2.20-2.42, p<0.001)	1.40 (1.32-1.49, p<0.001)
Obesity	NO	26596 (67.2)	12968 (32.8)	•	•
	YES	3670 (70.9)	1509 (29.1)	0.84 (0.79-0.90, p<0.001)	1.35 (1.25-1.45, p<0.001)
Malignancy	NO	30265 (68.7)	13805 (31.3)	•	•
	YES	2806 (54.4)	2353 (45.6)	1.84 (1.73-1.95, p<0.001)	1.41 (1.31-1.51, p<0.001)

Number in dataframe = 58998, Number in model = 42334, Missing = 16664, AIC = 47159.9, C-statistic = 0.718, H&L = Chi-sq(8) 87.23 (p<0.001)

Figure 12 - Adjusted odds ratio plot

Death

Age on admission (years)	<50	-
	50-69	4.25 (3.77-4.81, p<0.001)
	70-79	8.76 (7.76-9.92, p<0.001)
	80+	12.80 (11.35-14.49, 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 (1.11-1.22, p<0.001)
Chronic pulmonary disease	YES	1.32 (1.24-1.39, p<0.001)
Chronic neurological disorder	YES	1.16 (1.08-1.23, p<0.001)
Chronic hematologic disease	YES	1.18 (1.06-1.31, p=0.002)
Chronic kidney disease	YES	1.30 (1.22-1.37, p<0.001)
Dementia	YES	1.40 (1.32-1.49, p<0.001)
Obesity	YES	1.35 (1.25-1.45, p<0.001)
Malignancy	YES	1.41 (1.31-1.51, p<0.001)

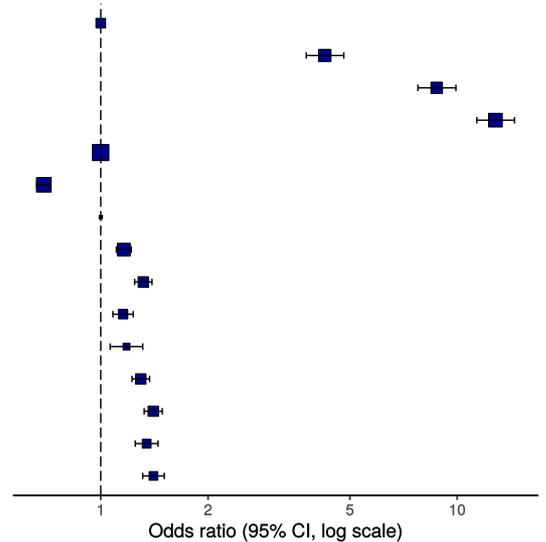
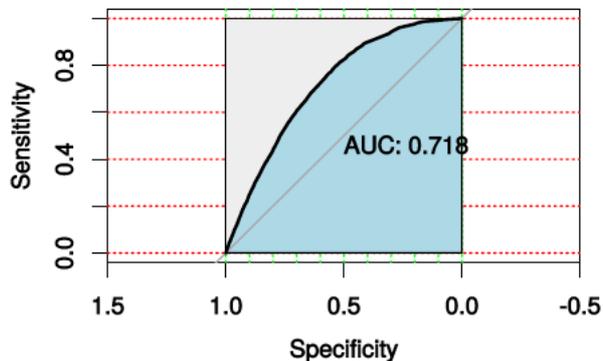


Figure 13 - ROC

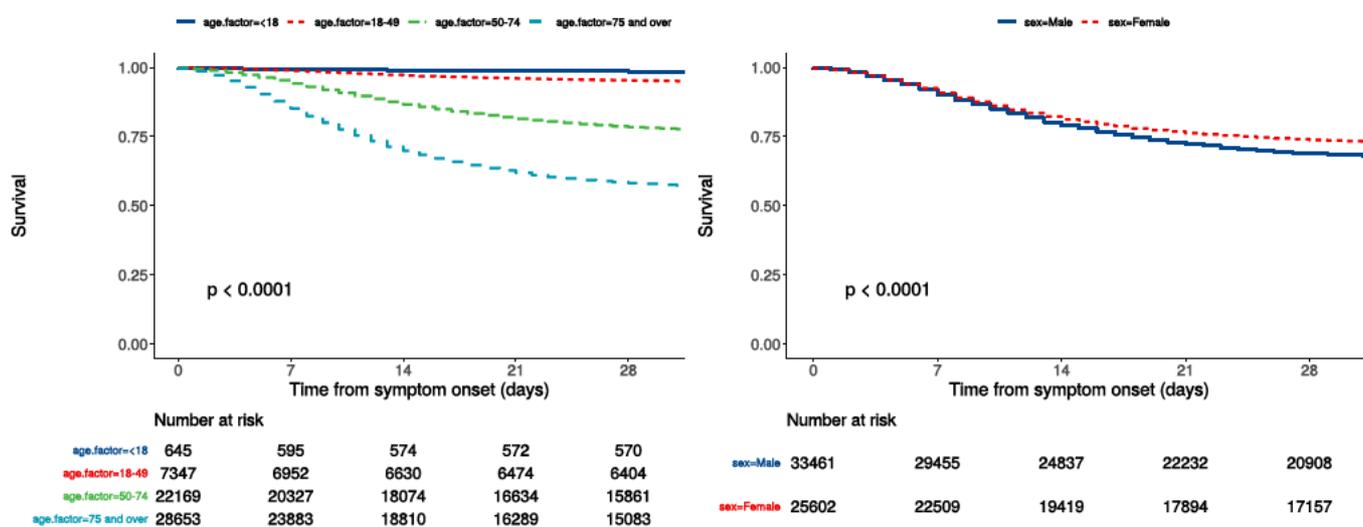


## Survival models

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	7992 (13.6)	•	•
	50-69	16135 (27.4)	4.08 (3.68-4.52, p<0.001)	3.98 (3.51-4.53, p<0.001)
	70-79	13177 (22.4)	8.39 (7.58-9.28, p<0.001)	7.86 (6.93-8.92, p<0.001)
	80+	21514 (36.6)	11.49 (10.41-12.69, p<0.001)	10.57 (9.32-11.98, p<0.001)
Sex at Birth	Male	33461 (56.7)	•	•
	Female	25602 (43.3)	0.82 (0.79-0.84, p<0.001)	0.78 (0.75-0.81, p<0.001)
qSOFA score on admission	0	20273 (41.8)	•	•
	1	22025 (45.4)	1.59 (1.53-1.65, p<0.001)	1.70 (1.63-1.78, p<0.001)

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
	2	5554 (11.5)	2.96 (2.82-3.10, p<0.001)	2.74 (2.60-2.89, p<0.001)
	3	624 (1.3)	4.91 (4.44-5.43, p<0.001)	4.34 (3.87-4.87, p<0.001)
Symptomatic at presentation	No symptoms	2211 (3.9)	•	•
	Symptoms	54528 (96.1)	1.39 (1.27-1.52, p<0.001)	•
Chronic cardiac disease	NO	36317 (67.5)	•	•
	YES	17512 (32.5)	1.77 (1.72-1.83, p<0.001)	1.13 (1.09-1.18, p<0.001)
Chronic kidney disease	NO	43964 (82.4)	•	•
	YES	9406 (17.6)	1.72 (1.66-1.78, p<0.001)	1.22 (1.16-1.27, p<0.001)
Moderate/severe liver disease	NO	51798 (98.0)	•	•
	YES	1040 (2.0)	1.33 (1.20-1.46, p<0.001)	1.52 (1.34-1.72, p<0.001)
Chronic neurological disorder	NO	46278 (87.2)	•	•
	YES	6794 (12.8)	1.37 (1.31-1.43, p<0.001)	•
Malignancy	NO	47464 (89.6)	•	•
	YES	5482 (10.4)	1.61 (1.54-1.68, p<0.001)	1.31 (1.24-1.37, p<0.001)
Chronic hematologic disease	NO	50542 (95.6)	•	•
	YES	2336 (4.4)	1.35 (1.27-1.45, p<0.001)	•
Obesity	NO	42606 (88.5)	•	•
	YES	5519 (11.5)	0.86 (0.82-0.91, p<0.001)	1.20 (1.13-1.28, p<0.001)
Diabetes without complications	NO	42922 (82.7)	•	•
	YES	8984 (17.3)	1.23 (1.18-1.28, p<0.001)	•
Rheumatologic disorder	NO	46842 (88.9)	•	•
	YES	5874 (11.1)	1.19 (1.14-1.25, p<0.001)	•
Dementia	NO	44182 (83.0)	•	•
	YES	9036 (17.0)	2.02 (1.95-2.09, p<0.001)	1.19 (1.13-1.24, p<0.001)
Malnutrition	NO	48524 (97.3)	•	•
	YES	1351 (2.7)	1.45 (1.33-1.58, p<0.001)	•
smoking_mhyn_2levels	NO	32748 (91.9)	•	•
	YES	2877 (8.1)	0.90 (0.84-0.97, p=0.007)	•

Number in dataframe = 59358, Number in model = 39468, Missing = 19890, Number of events = 11896, Concordance = 0.717 (SE = 0.002), R-squared = 0.162 (Max possible = 0.998), Likelihood ratio test = 6963.831 (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	3.98 (3.51-4.53, p<0.001)
	70-79	7.86 (6.93-8.92, p<0.001)
	80+	10.57 (9.32-11.98, p<0.001)
Sex at Birth	Female	0.78 (0.75-0.81, p<0.001)
qSOFA score on admission	0	-
	1	1.70 (1.63-1.78, p<0.001)
	2	2.74 (2.60-2.89, p<0.001)
	3	4.34 (3.87-4.87, p<0.001)
Chronic cardiac disease	YES	1.13 (1.09-1.18, p<0.001)
Chronic kidney disease	YES	1.22 (1.16-1.27, p<0.001)
Moderate/severe liver disease	YES	1.52 (1.34-1.72, p<0.001)
Malignancy	YES	1.31 (1.24-1.37, p<0.001)
Obesity	YES	1.20 (1.13-1.28, p<0.001)
Dementia	YES	1.19 (1.13-1.24, p<0.001)

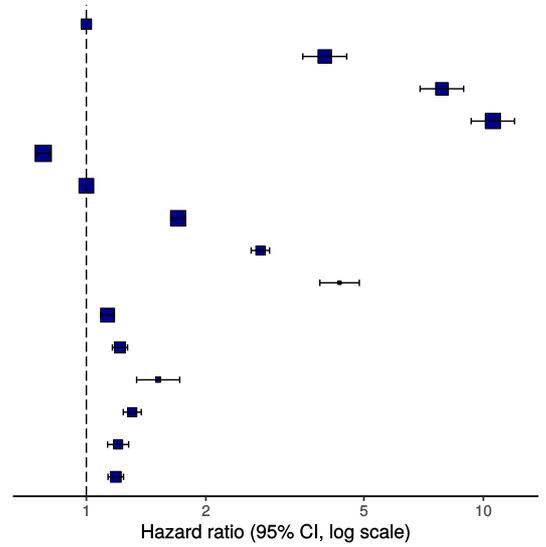
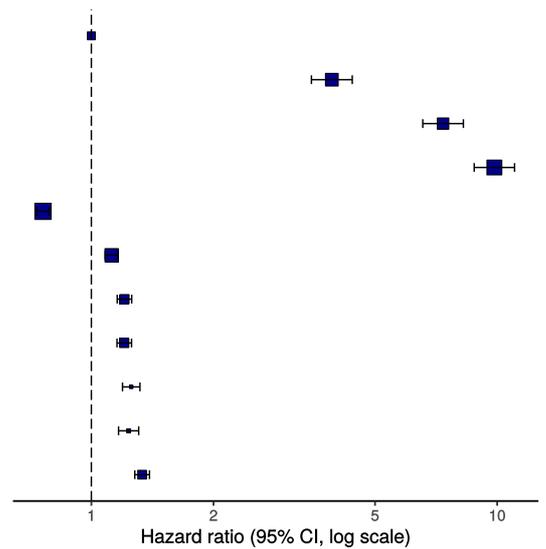


Figure 15b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)

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

Age on admission (years)	<50	-
	50-69	3.91 (3.49-4.39, p<0.001)
	70-79	7.36 (6.56-8.25, p<0.001)
	80+	9.84 (8.78-11.04, p<0.001)
Sex at Birth	Female	0.76 (0.73-0.79, p<0.001)
Chronic cardiac disease	YES	1.12 (1.08-1.16, p<0.001)
Chronic pulmonary disease	YES	1.21 (1.16-1.26, p<0.001)
Chronic kidney disease	YES	1.21 (1.16-1.26, p<0.001)
Malignancy	YES	1.25 (1.19-1.32, p<0.001)
Obesity	YES	1.24 (1.17-1.31, p<0.001)
Dementia	YES	1.33 (1.28-1.39, p<0.001)



ROC = 0.7172814

Figure 16 - Predictions calibration plot

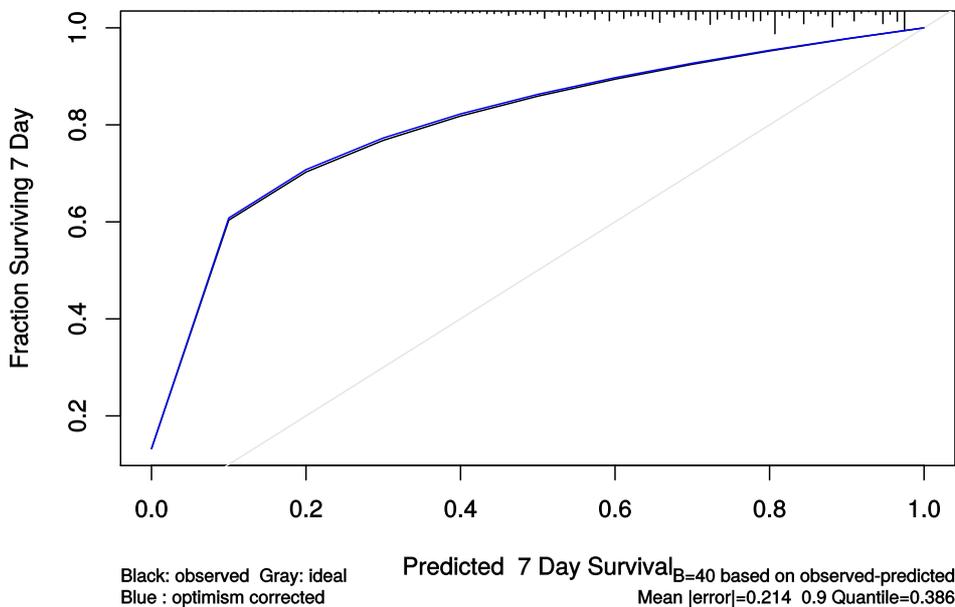


Figure 17 - Prognostic model predictions

Again, for demonstration of methods.

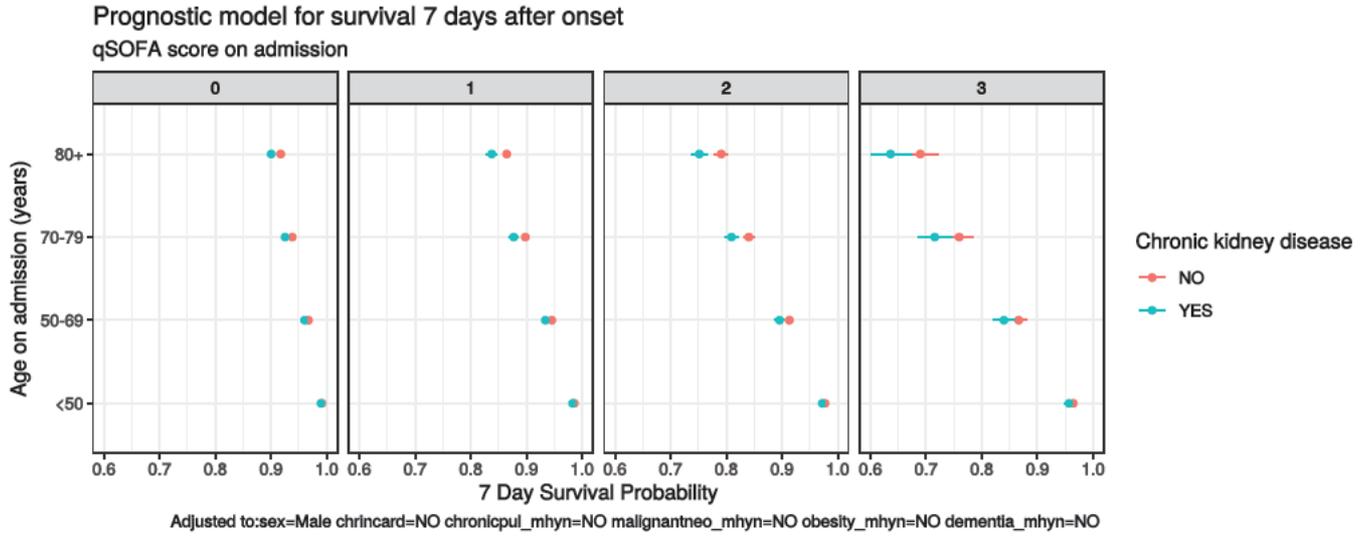


Figure 18 - Death by severity (NEWS) on admission

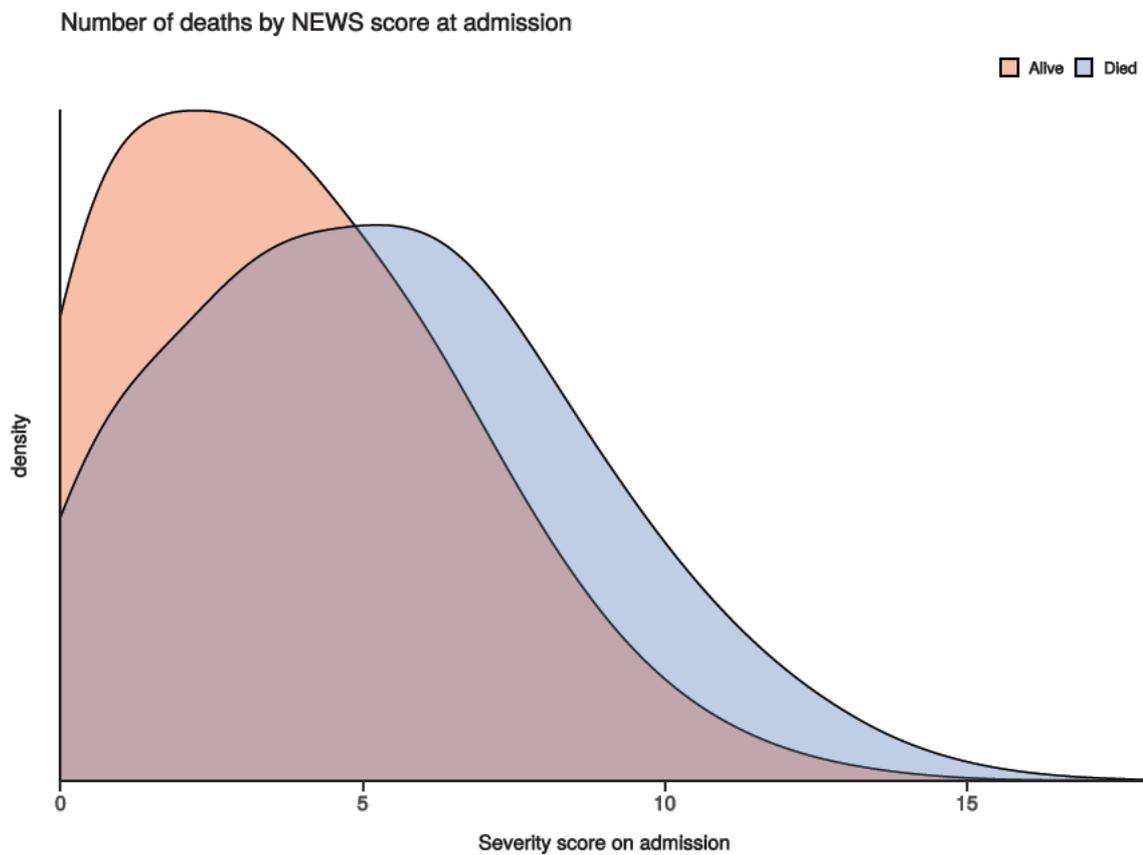


Figure 19 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission  
Stratified by age

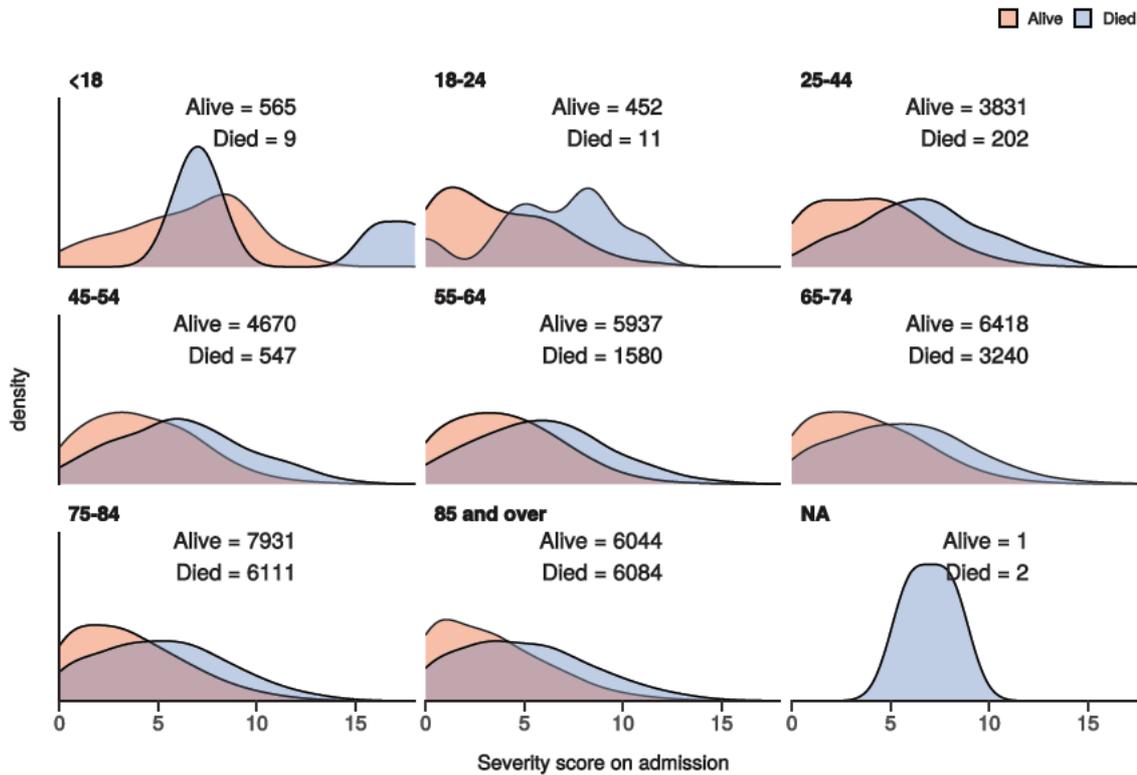
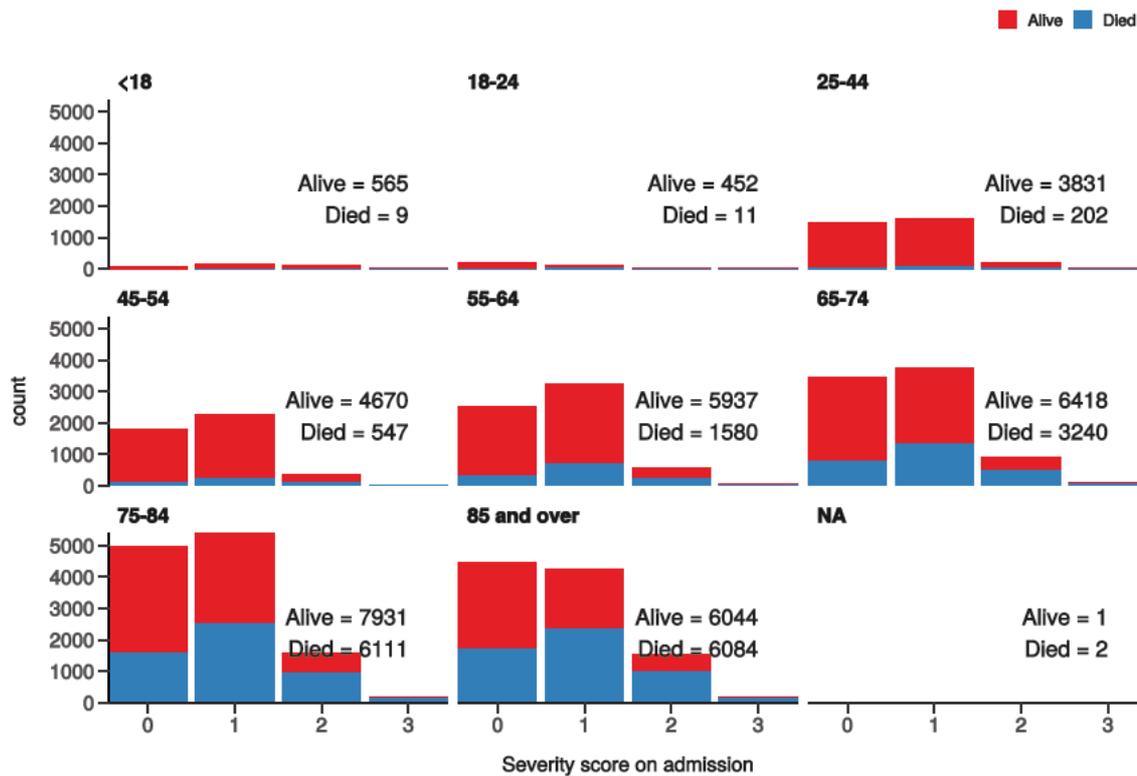


Figure 20 - Death by severity (qSOFA) on admission stratified by age

Number of deaths by qSOFA score at admission  
Stratified by age



## Healthcare workers

Healthcare worker		NO	YES	p
Total N (%)		52486 (94.9)	2840 (5.1)	
NEWS score on admission	Median (IQR)	4.0 (4.0)	4.0 (4.0)	0.132

Healthcare worker		NO	YES	p
Death	No	29805 (64.7)	2372 (92.5)	<0.001
	Yes	16251 (35.3)	192 (7.5)	

## Admission (detail)

Table 1

label	levels	all
Total N (%)		67728 (100.0)
Age on admission (years)	Mean (SD)	70.3 (19.6)
Sex at Birth	Male	35149 (51.9)
	Female	26964 (39.8)
	Not specified	107 (0.2)
	(Missing)	5508 (8.1)
	Healthcare worker	YES
	NO	52486 (77.5)
	N/A	6014 (8.9)
	(Missing)	6388 (9.4)
Microbiology lab worker	YES	87 (0.1)
	NO	24805 (36.6)
	N/A	2904 (4.3)
	(Missing)	39932 (59.0)
Onset to admission (days)	Mean (SD)	7.0 (1609.2)
Transfer from other facility	Yes-facility is a study site	1343 (2.0)
	Yes-facility is not a study site	3045 (4.5)
	No	51056 (75.4)
	N/A	2441 (3.6)
	(Missing)	9843 (14.5)
Travel in 14 d prior to symptoms	Yes	798 (1.2)
	No	21340 (31.5)
	N/A	4209 (6.2)
	(Missing)	41381 (61.1)
Country	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	0 (0.0)
	Andorra	1 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	4 (0.0)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)
	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)	66995 (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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)

<b>label</b>	<b>levels</b>	<b>all</b>
	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)	67728 (100.0)

label	levels	all
Animal, raw meat, insect bites 14 d prior	Yes	108 (0.2)
	No	10211 (15.1)
	Unknown	14409 (21.3)
	N/A	1744 (2.6)
	(Missing)	41256 (60.9)
Animal / insect	2 Budgerigars and 26 Cats at home	1 (0.9)
	2 cats	1 (0.9)
	2 dogs	1 (0.9)
	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)
	Domestic pet dog	1 (0.9)

label	levels	all
	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)
	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)

label	levels	all
	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 (%)		67728 (100.0)
Fever	YES	34856 (51.5)
	NO	18892 (27.9)
	Unknown	3106 (4.6)
	(Missing)	10874 (16.1)
Cough	YES	35315 (52.1)
	NO	18129 (26.8)
	Unknown	3406 (5.0)
	(Missing)	10878 (16.1)
Cough (sputum)	YES	10375 (15.3)
	NO	35300 (52.1)
	Unknown	11061 (16.3)
	(Missing)	10992 (16.2)
Cough (blood)	YES	1256 (1.9)
	NO	43587 (64.4)
	Unknown	11869 (17.5)
	(Missing)	11016 (16.3)
Sore throat	YES	3316 (4.9)
	NO	38441 (56.8)
	Unknown	14963 (22.1)
	(Missing)	11008 (16.3)
Runny nose	YES	1036 (1.5)
	NO	39984 (59.0)
	Unknown	15690 (23.2)
	(Missing)	11018 (16.3)
Ear pain	YES	203 (0.3)
	NO	40665 (60.0)
	Unknown	15836 (23.4)

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

	(Missing)	11024 (16.3)
Wheeze	YES	3868 (5.7)
	NO	40352 (59.6)
	Unknown	12496 (18.5)
	(Missing)	11012 (16.3)
Chest pain	YES	6298 (9.3)
	NO	40204 (59.4)
	Unknown	10233 (15.1)
	(Missing)	10993 (16.2)
Muscle ache	YES	7511 (11.1)
	NO	34829 (51.4)
	Unknown	14362 (21.2)
	(Missing)	11026 (16.3)
Joint pain	YES	2749 (4.1)
	NO	38227 (56.4)
	Unknown	15713 (23.2)
	(Missing)	11039 (16.3)
Fatigue	YES	19277 (28.5)
	NO	25892 (38.2)
	Unknown	11558 (17.1)
	(Missing)	11001 (16.2)
Shortness of breath	YES	34575 (51.0)
	NO	17935 (26.5)
	Unknown	4355 (6.4)
	(Missing)	10863 (16.0)
Lower chest wall indrawing	YES	510 (0.8)
	NO	39774 (58.7)
	Unknown	16402 (24.2)
	(Missing)	11042 (16.3)
Headache	YES	4351 (6.4)
	NO	37973 (56.1)
	Unknown	14376 (21.2)
	(Missing)	11028 (16.3)
Confusion	YES	14272 (21.1)
	NO	34571 (51.0)
	Unknown	7916 (11.7)

Stratified: all		all
	(Missing)	10969 (16.2)
Seizures	YES	766 (1.1)
	NO	45565 (67.3)
	Unknown	10365 (15.3)
	(Missing)	11032 (16.3)
Abdominal pain	YES	4962 (7.3)
	NO	41319 (61.0)
	Unknown	10455 (15.4)
	(Missing)	10992 (16.2)
Nausea/vomiting	YES	9216 (13.6)
	NO	38854 (57.4)
	Unknown	8680 (12.8)
	(Missing)	10978 (16.2)
Diarrhoea	YES	8612 (12.7)
	NO	39188 (57.9)
	Unknown	8944 (13.2)
	(Missing)	10984 (16.2)
Conjunctivitis	YES	189 (0.3)
	NO	42922 (63.4)
	Unknown	13587 (20.1)
	(Missing)	11030 (16.3)
Skin rash	YES	681 (1.0)
	NO	43335 (64.0)
	Unknown	12694 (18.7)
	(Missing)	11018 (16.3)
Skin ulcers	YES	1147 (1.7)
	NO	42937 (63.4)
	Unknown	12613 (18.6)
	(Missing)	11031 (16.3)
Lymphadenopathy	YES	296 (0.4)
	NO	43080 (63.6)
	Unknown	13315 (19.7)
	(Missing)	11037 (16.3)
Bleeding (Haemorrhage)	YES	825 (1.2)
	NO	44832 (66.2)
	Unknown	11032 (16.3)

Stratified: all		all
	(Missing)	11039 (16.3)
If Bleeding (others)	YES	481 (0.7)
	NO	19937 (29.4)
	Unknown	5446 (8.0)
	(Missing)	41864 (61.8)

## Comorbidity (detail)

Table 3

Stratified: all		all
Total N (%)		67728 (100.0)
Chronic cardiac disease	YES	17620 (26.0)
	NO	36498 (53.9)
	Unknown	2869 (4.2)
	(Missing)	10741 (15.9)
Chronic pulmonary disease	YES	9645 (14.2)
	NO	44227 (65.3)
	Unknown	3094 (4.6)
	(Missing)	10762 (15.9)
Asthma	YES	7370 (10.9)
	NO	46318 (68.4)
	Unknown	3245 (4.8)
	(Missing)	10795 (15.9)
Chronic kidney disease	YES	9471 (14.0)
	NO	44185 (65.2)
	Unknown	3301 (4.9)
	(Missing)	10771 (15.9)
Moderate/severe liver disease	YES	1042 (1.5)
	NO	52072 (76.9)
	Unknown	3816 (5.6)
	(Missing)	10798 (15.9)
Mild Liver disease	YES	806 (1.2)
	NO	52171 (77.0)
	Unknown	3951 (5.8)
	(Missing)	10800 (15.9)
Chronic neurological disorder	YES	6839 (10.1)
	NO	46508 (68.7)

Stratified: all		all
	Unknown	3578 (5.3)
	(Missing)	10803 (16.0)
Malignancy	YES	5527 (8.2)
	NO	47699 (70.4)
	Unknown	3709 (5.5)
	(Missing)	10793 (15.9)
Chronic hematologic disease	YES	2348 (3.5)
	NO	50806 (75.0)
	Unknown	3753 (5.5)
	(Missing)	10821 (16.0)
AIDS/HIV	YES	209 (0.3)
	NO	52392 (77.4)
	Unknown	4323 (6.4)
	(Missing)	10804 (16.0)
Obesity	YES	5545 (8.2)
	NO	42829 (63.2)
	Unknown	8486 (12.5)
	(Missing)	10868 (16.0)
Diabetes with complications	YES	3901 (5.8)
	NO	48168 (71.1)
	Unknown	4857 (7.2)
	(Missing)	10802 (15.9)
Diabetes without complications	YES	9044 (13.4)
	NO	43143 (63.7)
	Unknown	4743 (7.0)
	(Missing)	10798 (15.9)
Rheumatologic disorder	YES	5901 (8.7)
	NO	47097 (69.5)
	Unknown	3912 (5.8)
	(Missing)	10818 (16.0)
Dementia	YES	9085 (13.4)
	NO	44413 (65.6)
	Unknown	3450 (5.1)
	(Missing)	10780 (15.9)
Malnutrition	YES	1360 (2.0)
	NO	48767 (72.0)

<b>Stratified: all</b>		<b>all</b>
	Unknown	6743 (10.0)
	(Missing)	10858 (16.0)
Smoking	YES	2892 (4.3)
	NO	32913 (48.6)
	(Missing)	31923 (47.1)