Dynamic CO-CIN report to SAGE and NERVTAG

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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 05 August 2020, CO-CIN has recruited **77676 patients** with confirmed Coronavirus (Figure 1).

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 1051 had travelled abroad recently, and 7793 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 74 (range: 0-107), Male/Female 41917/32740.

The most common symptoms were history of fever (60%), cough (60%) and shortness of breath (dyspnea) (59%) (Figure 3A). 4755/71264 (7%) of patients have reported no symptoms. Comorbidity can be seen in Figure 3B. The most common comorbidities were hypertension (physician diagnosed) (46%), chronic cardiac disease, including congenit…t hypertension) (31%) and chronic pulmonary disease (not asthma) (17%). 14971/71503 (21%) of patients have reported no co morbidity. 487/6249 (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: 5-19, n = 66859).
9044/58245 (16%) patients required high-flow oxygen after day 1 of treatment.

Currently 22078 patient(s) have died and 9943 required ICU. 41839 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.

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Admission

Figure 1

Hospital admission with COVID-19 by sex
Figure 1A
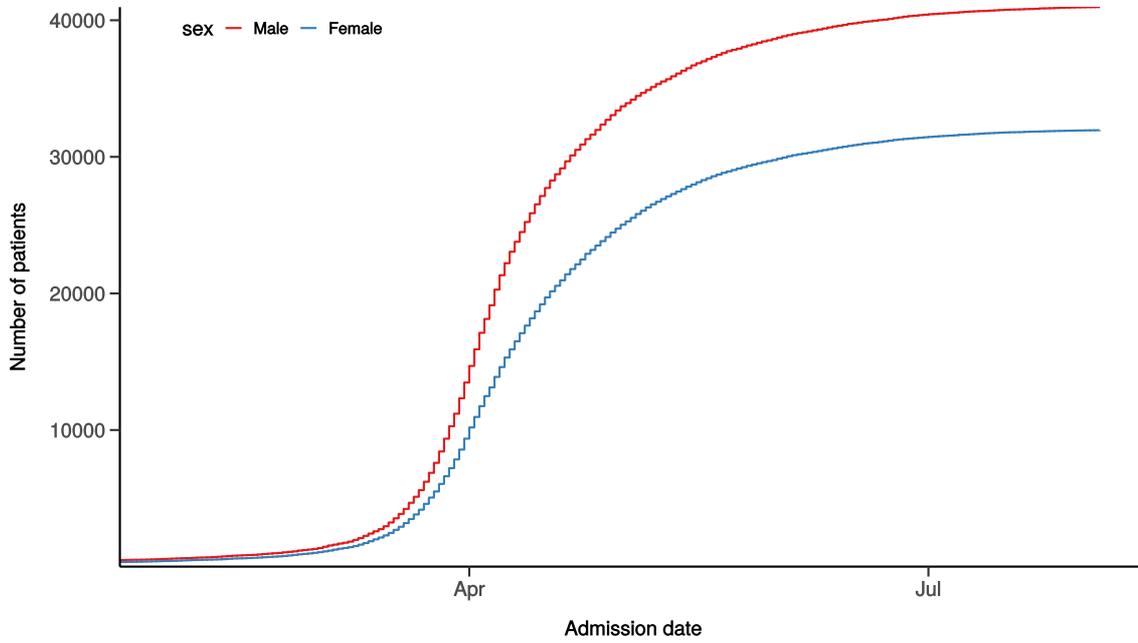
Number with symptom onset occuring after admission to hospital
### Figure 1B
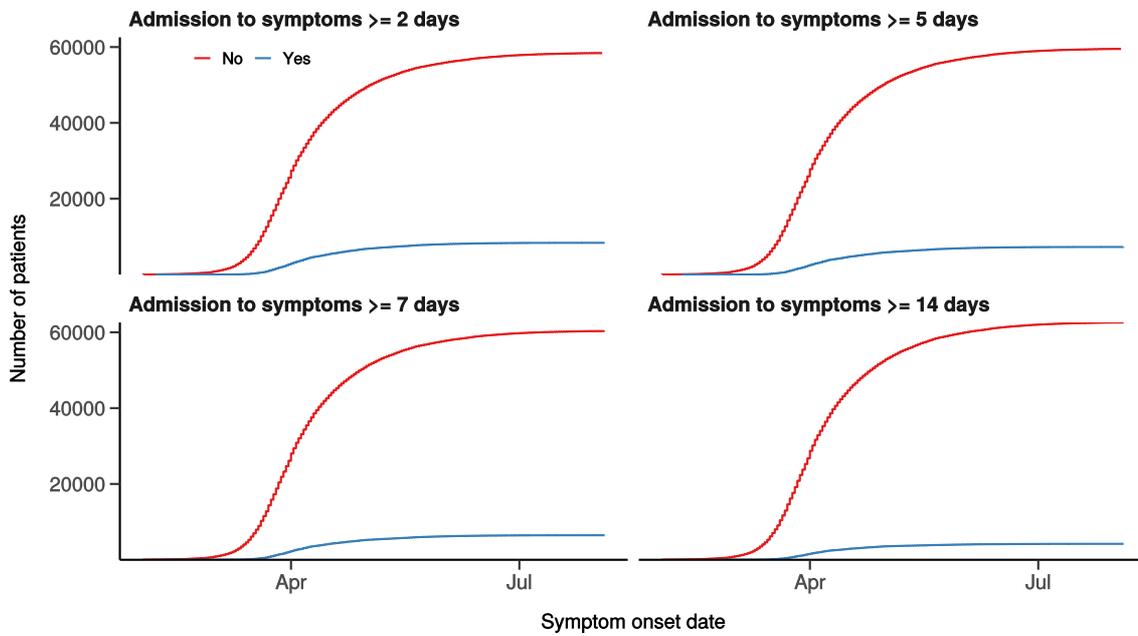
Number with symptom onset occuring after hospital admission

Figure 1C - 7-day rolling count. n = 66793
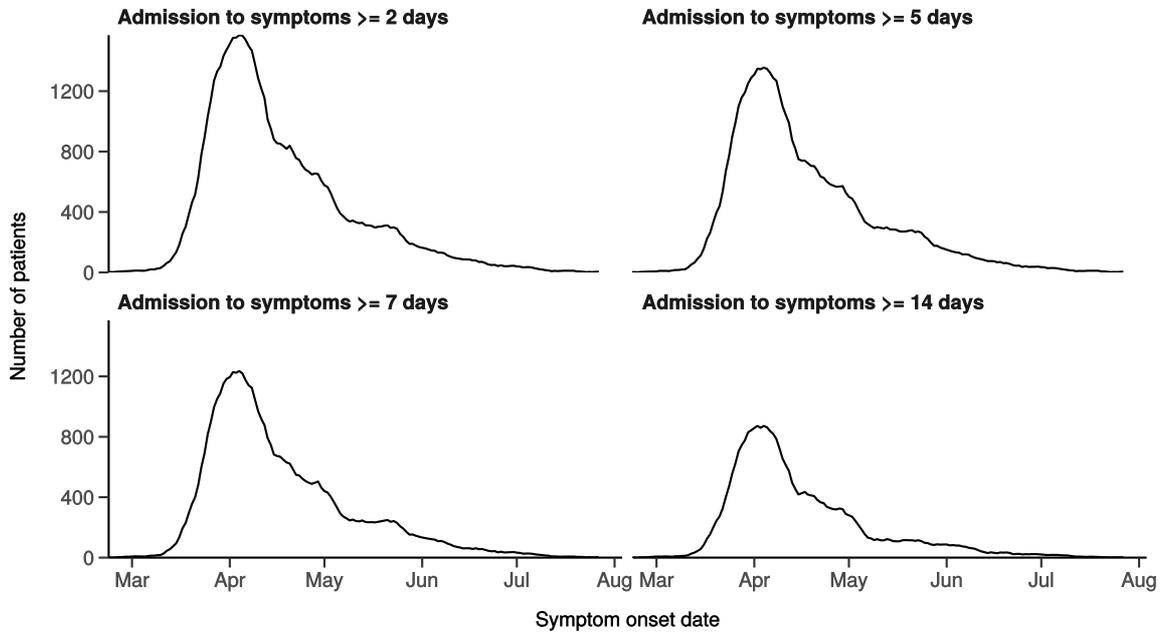
# Proportion with symptom onset occuring after hospital admission

Figure 1D - 7-day rolling percentage. n = 66793
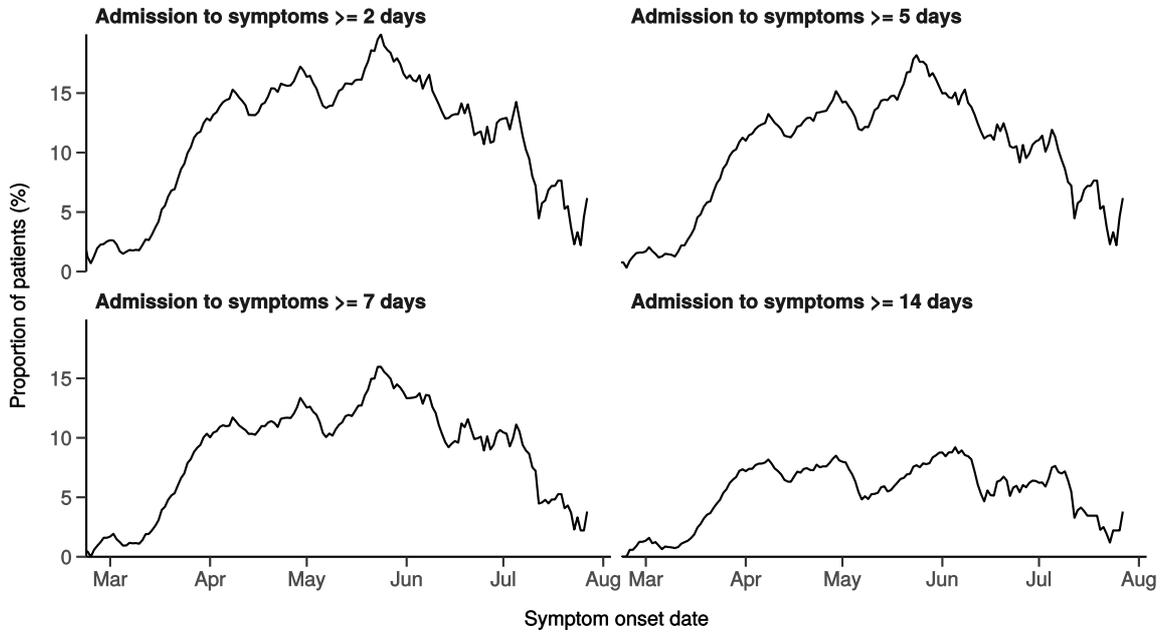
Patients with outcome stratified by age, and sex
Figure 1E
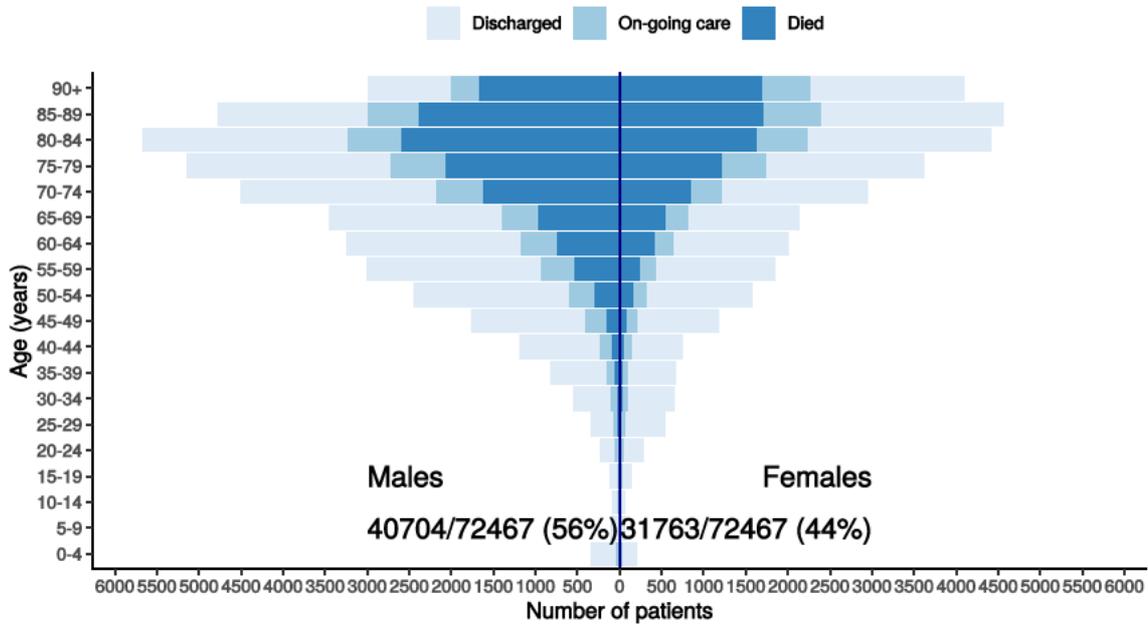
Hospital admission with COVID-19 by ethnicity
Figure 1F
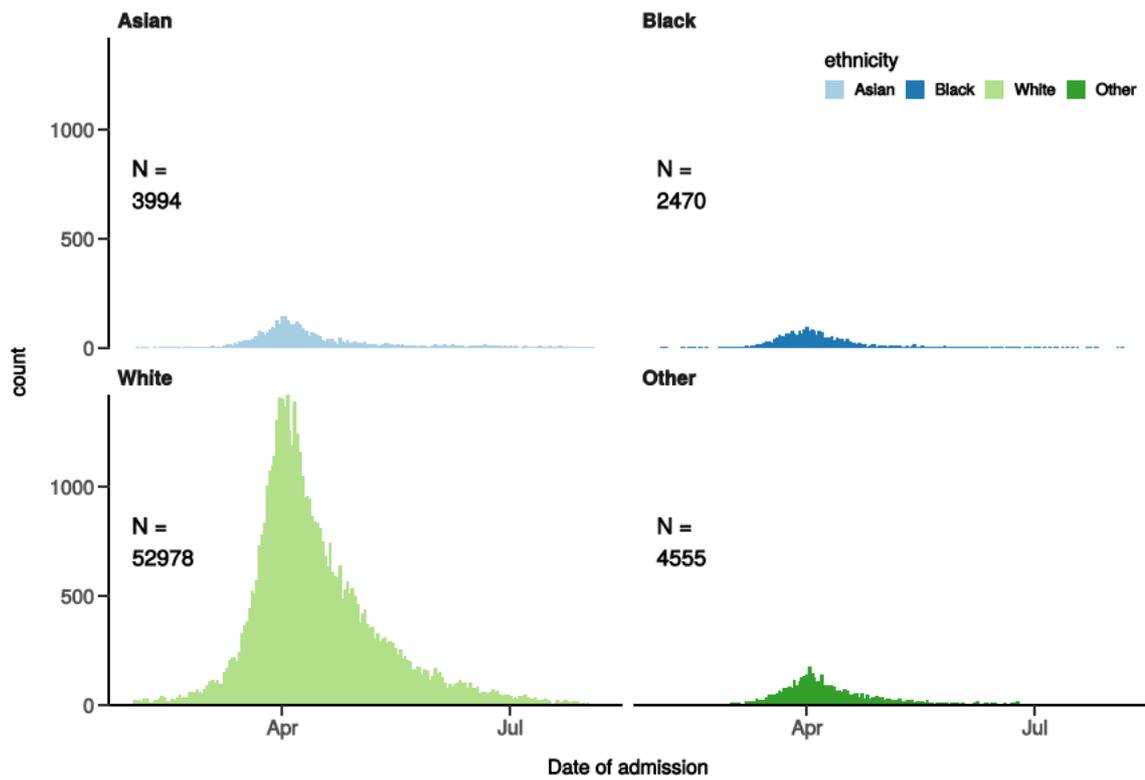

Symptoms and comorbidity

Figure 3A

Symptoms on presentation to hospital (% patients, n = 71101)
Figure 3A

Proportion of patients with symptom (%)
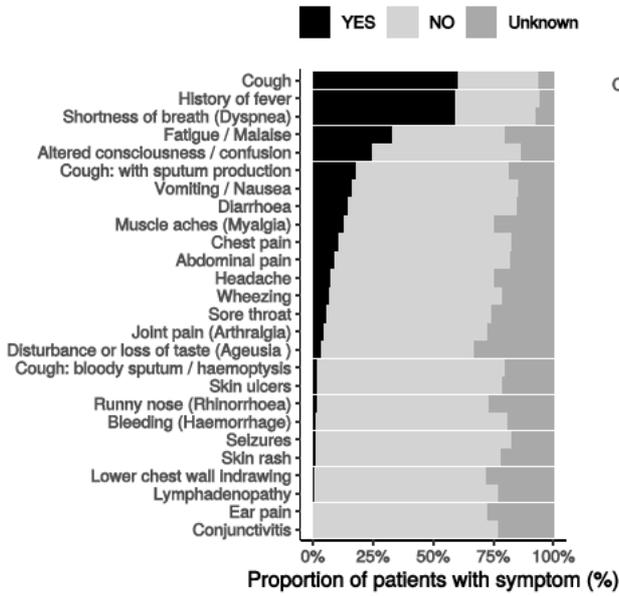
Comorbidity (% patients,
Figure 3B

Proportion of patients with comorbiditi
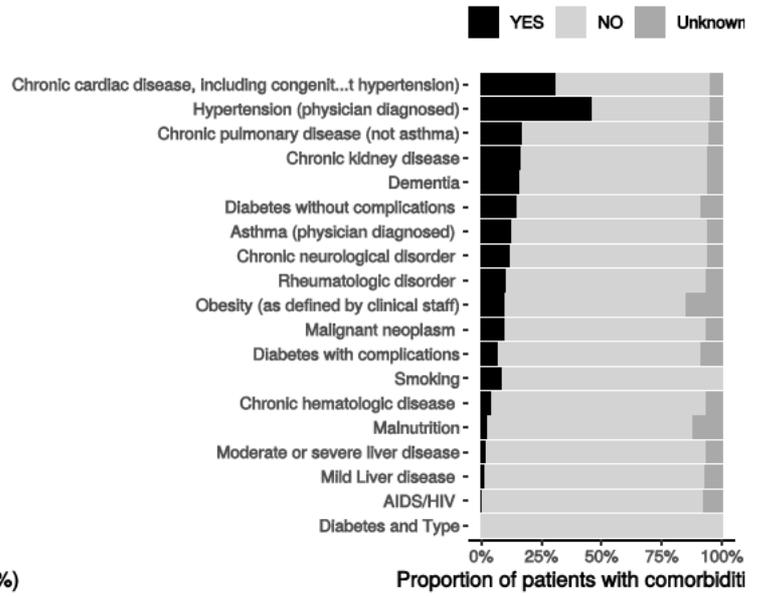
Figure 3C

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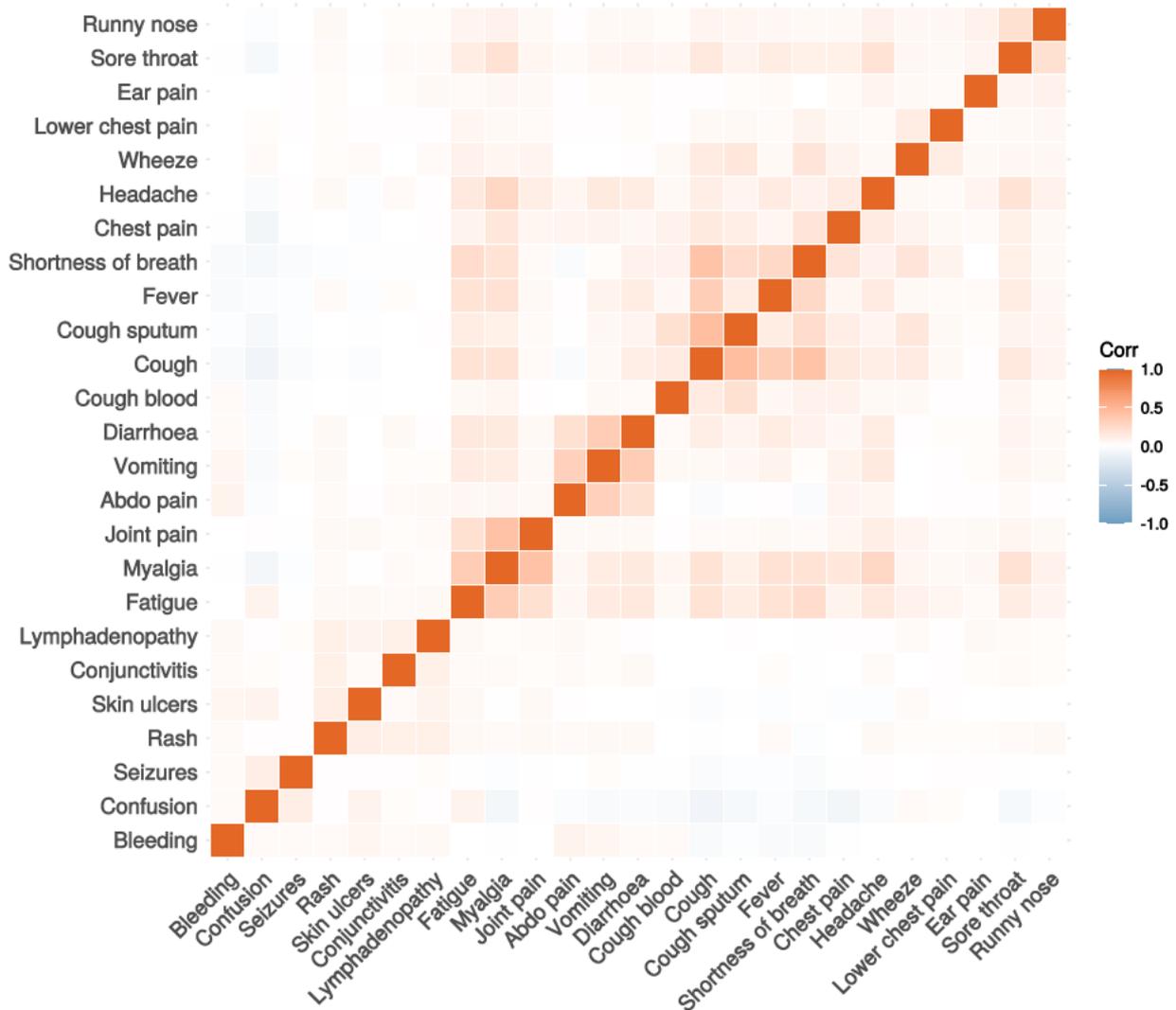

Symptoms (diagnostic criteria)

Figure 4A

n = 71101
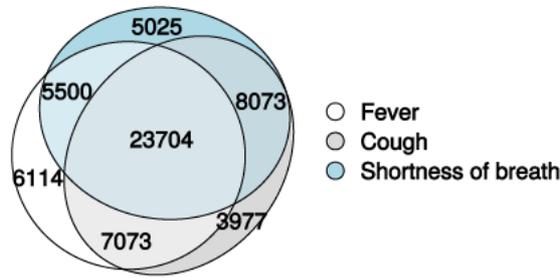
Symptoms (most common)

Figure 4B

n = 71101
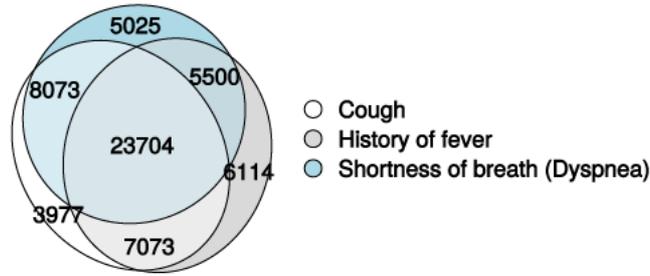
Comorbidity (most common)

Figure 4C

n = 71275
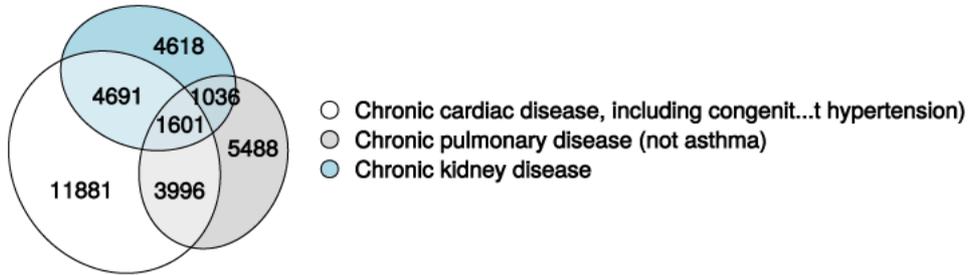
Medication prior to illness

Figure 5

Preadmission treatment

Figure 5

Pre-admission treatment

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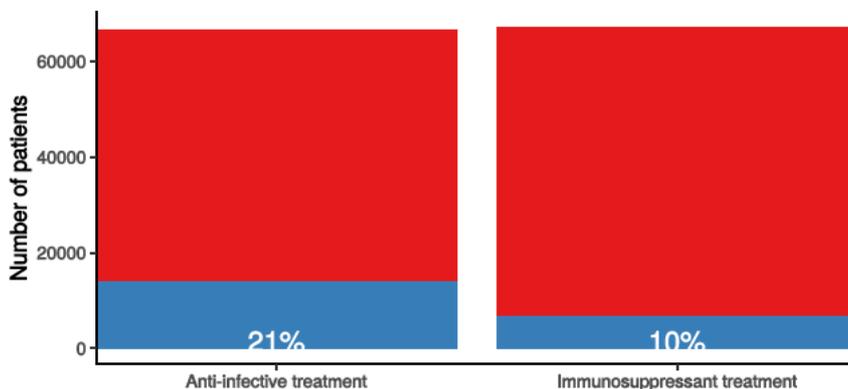

# Patient flow

Figure 6A - All patients

N = 72161

Patient status by day
Cumulative for discharge/death
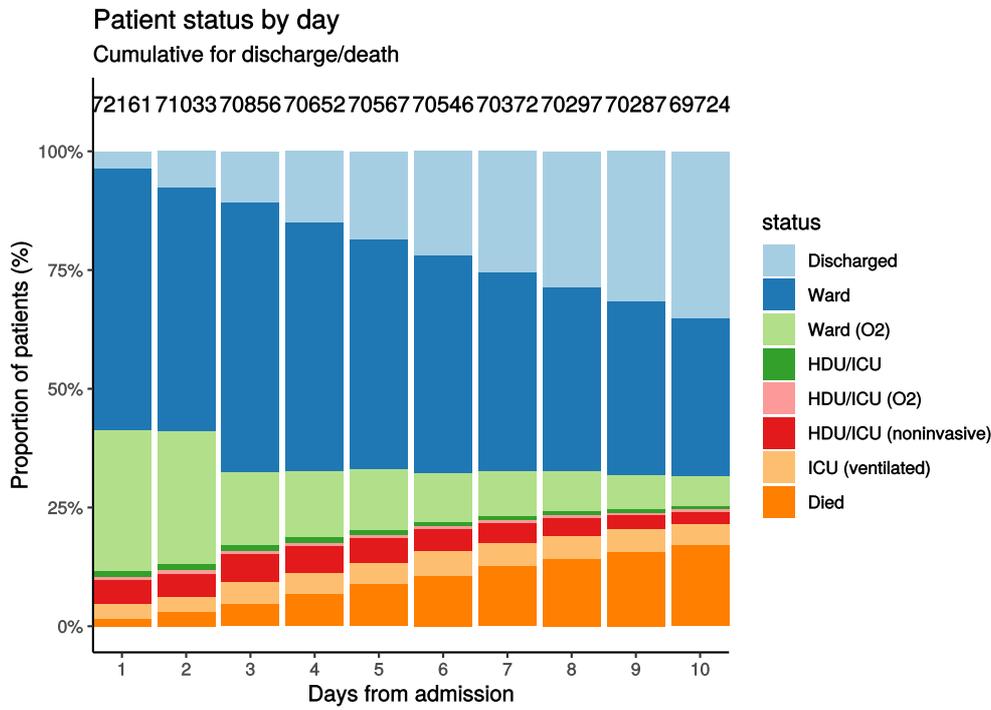
Figure 6B - Patients admitted >=14 days and <=28 days ago

N = 458

Patient status by day
Cumulative for discharge/death
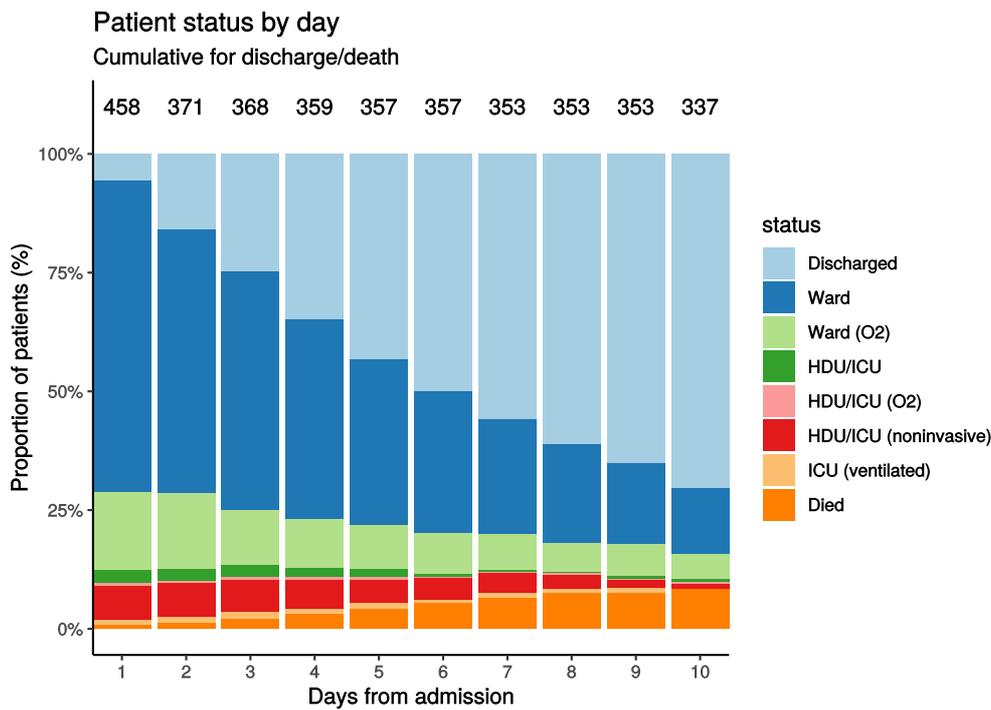
Oxygen requirement

Figure 7A - All patients

N = 68798

| Admission location | HDU/ITU after day 1 | Maximum treatment | Outcome |
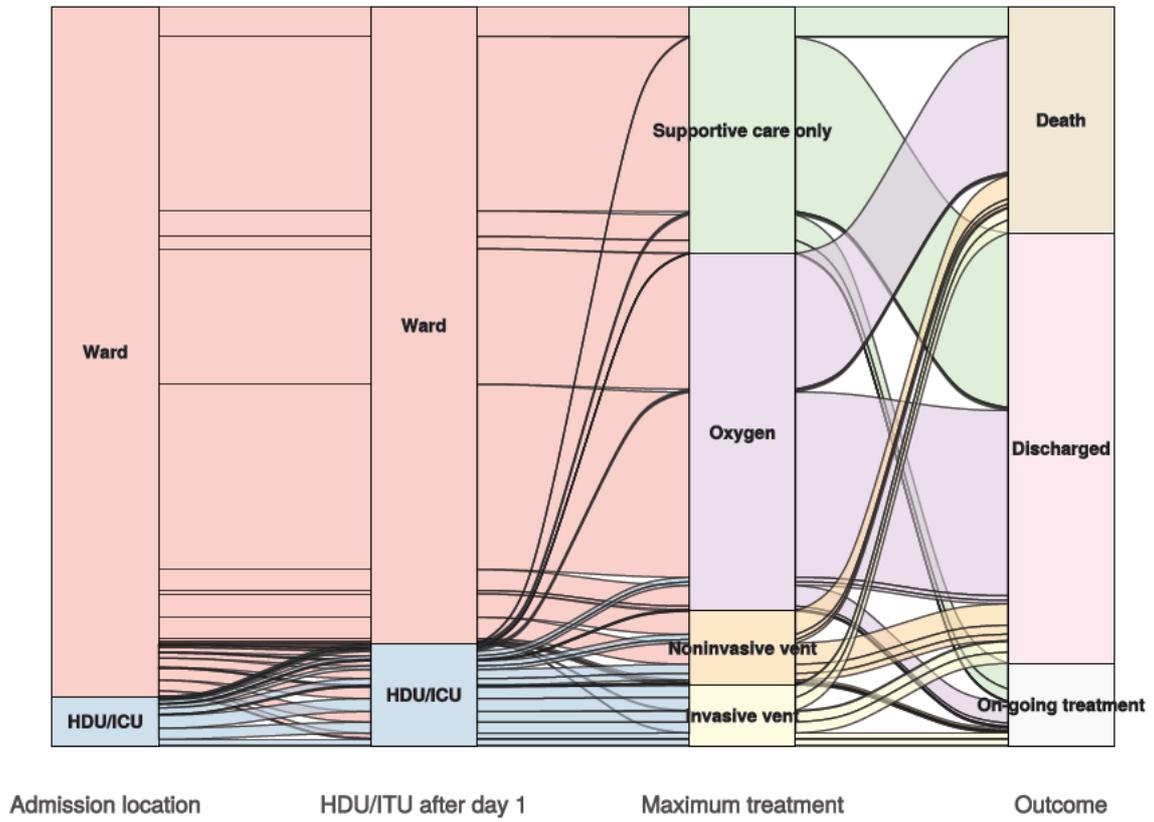
Figure 7B - Patients admitted >=14 days and <=28 days ago

N = 436

| Admission location | HDU/ITU after day 1 | Treatment | Outcome |
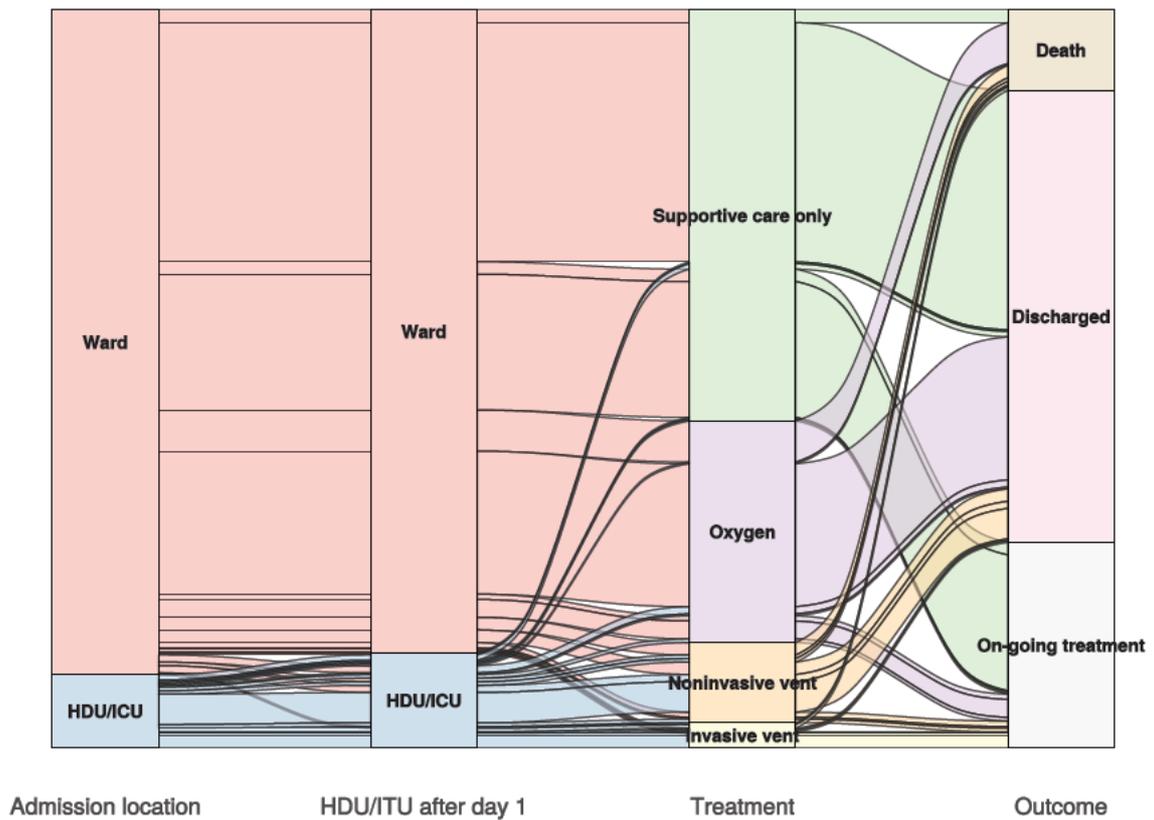
In-hospital medical treatment

Figure 8

In-hospital treatment

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

Legend: No (red), Yes (blue)

Bar chart — Number of patients by treatment type:
- Anti-viral: 6%
- Antibiotic: 84%
- Antifungal: 5%
- Corticosteroid: 16%
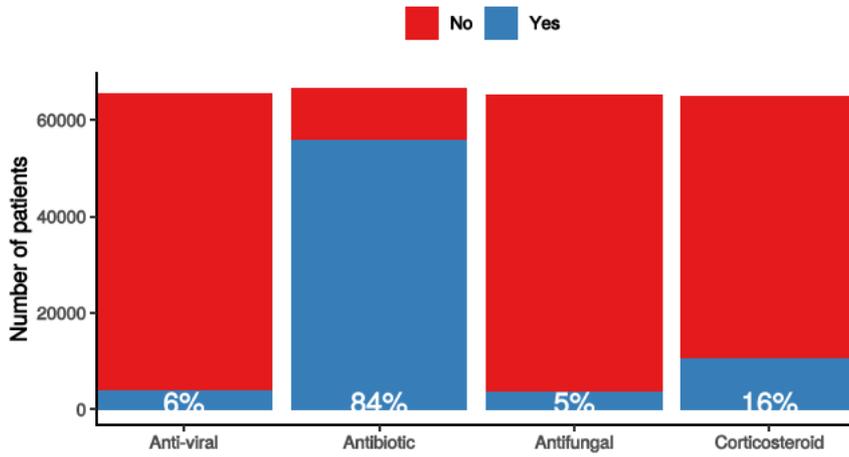
Treatment

Figure 9

ICU/HDU admission
Figure 10A

9943/71191
14%

count vs Age (years). Legend: No, Yes
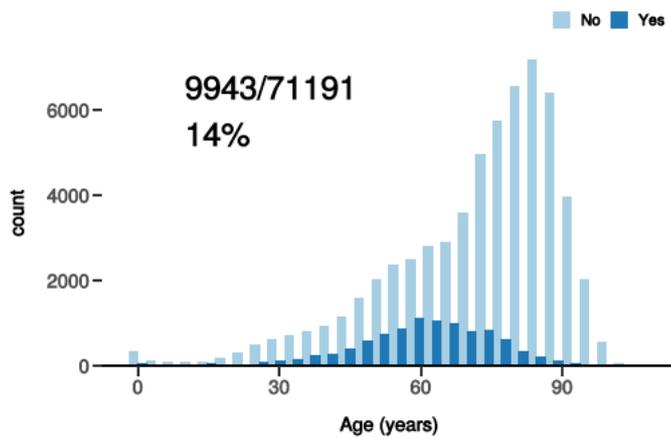
High flow oxygen
Figure 10B

45079/70057
64%

count vs Age (years). Legend: No, Yes

Noninvasive ventilation
Figure 10C

10507/69763
15%

count vs Age (years). Legend: No, Yes

Invasive ventilation
Figure 10D

5919/69934
8%

count vs Age (years). Legend: No, Yes
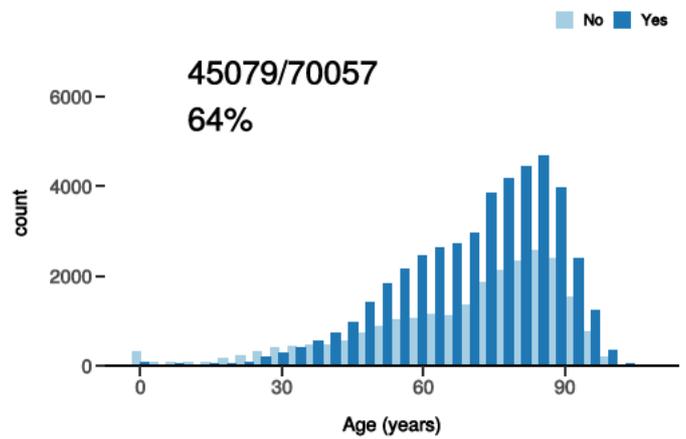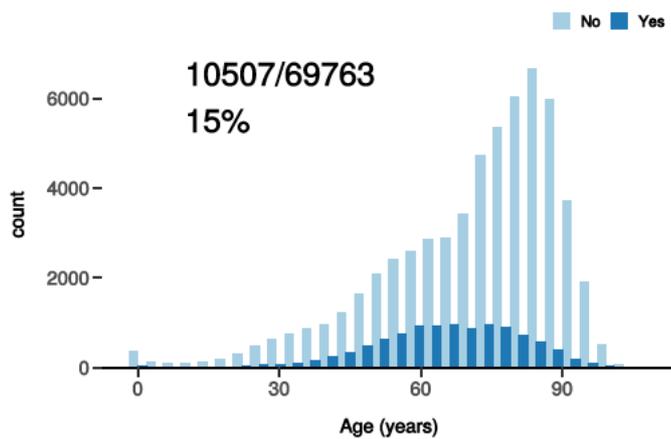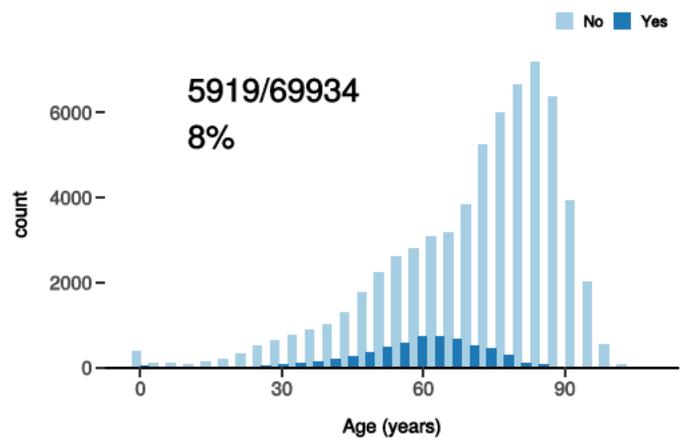
Status of patients admitted >=14 days from today

Figure 10

All patients

Died
18972/66086
29%

On-going care
8686/66086
13%

Discharged alive
38428/66086
58%

Number of patients

Age (years)
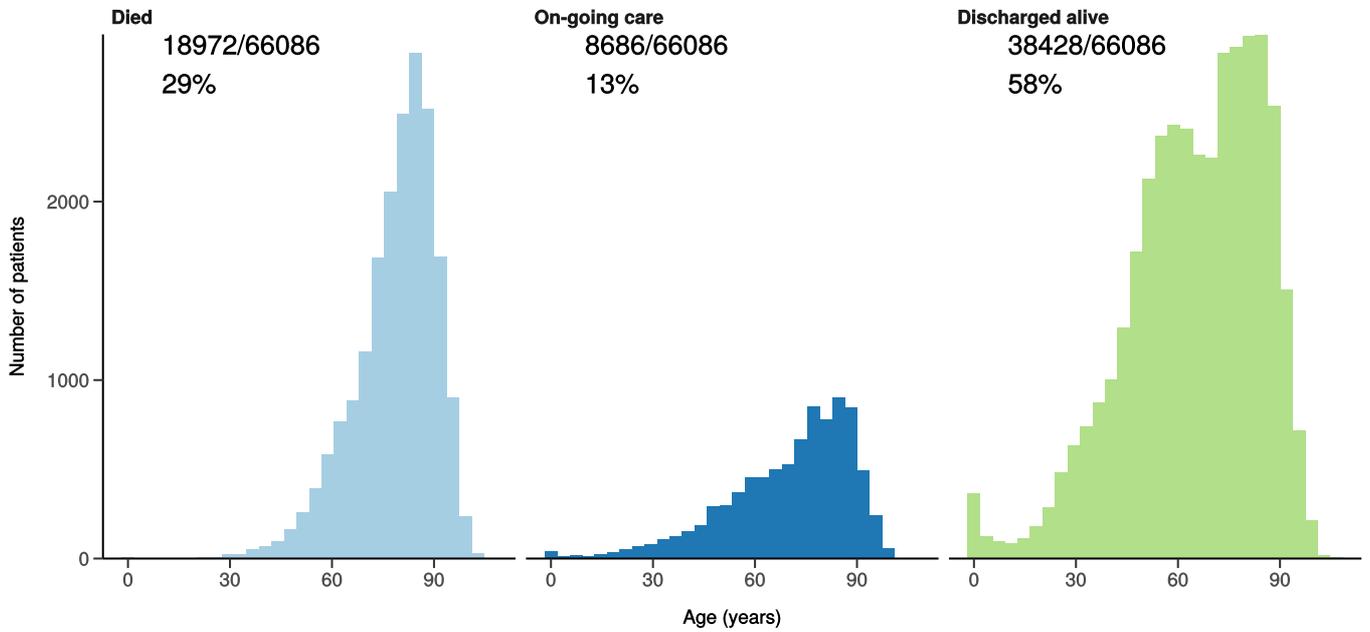
Patients admitted to ICU/HDU

Died
3275/9312
35%

On-going care
1590/9312
17%

Discharged alive
4447/9312
48%

Number of patients

Age (years)
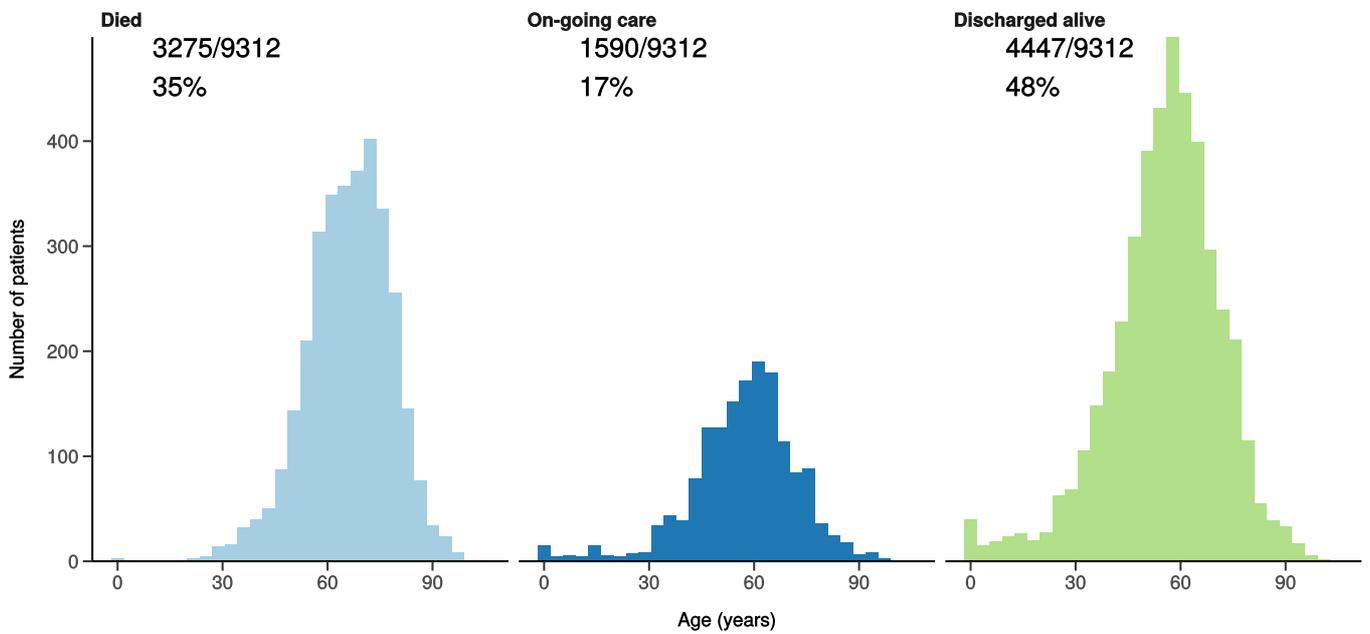
Patients receiving invasive ventilation

Died
2294/5593
41%

On-going care
1204/5593
22%

Discharged alive
2095/5593
37%

Number of patients

Age (years)
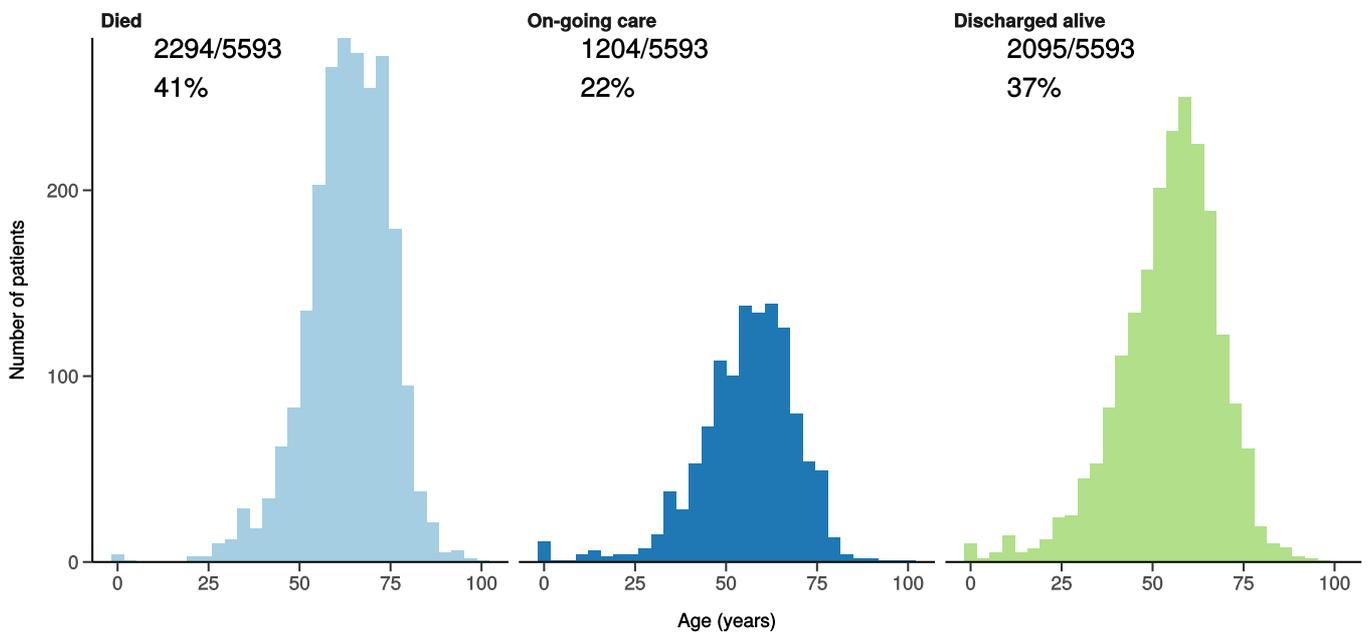
Length of stay stratified by age

Figure 11

Length of stay stratified by age and mortality
Proportion who reach outcome by day 14 shown
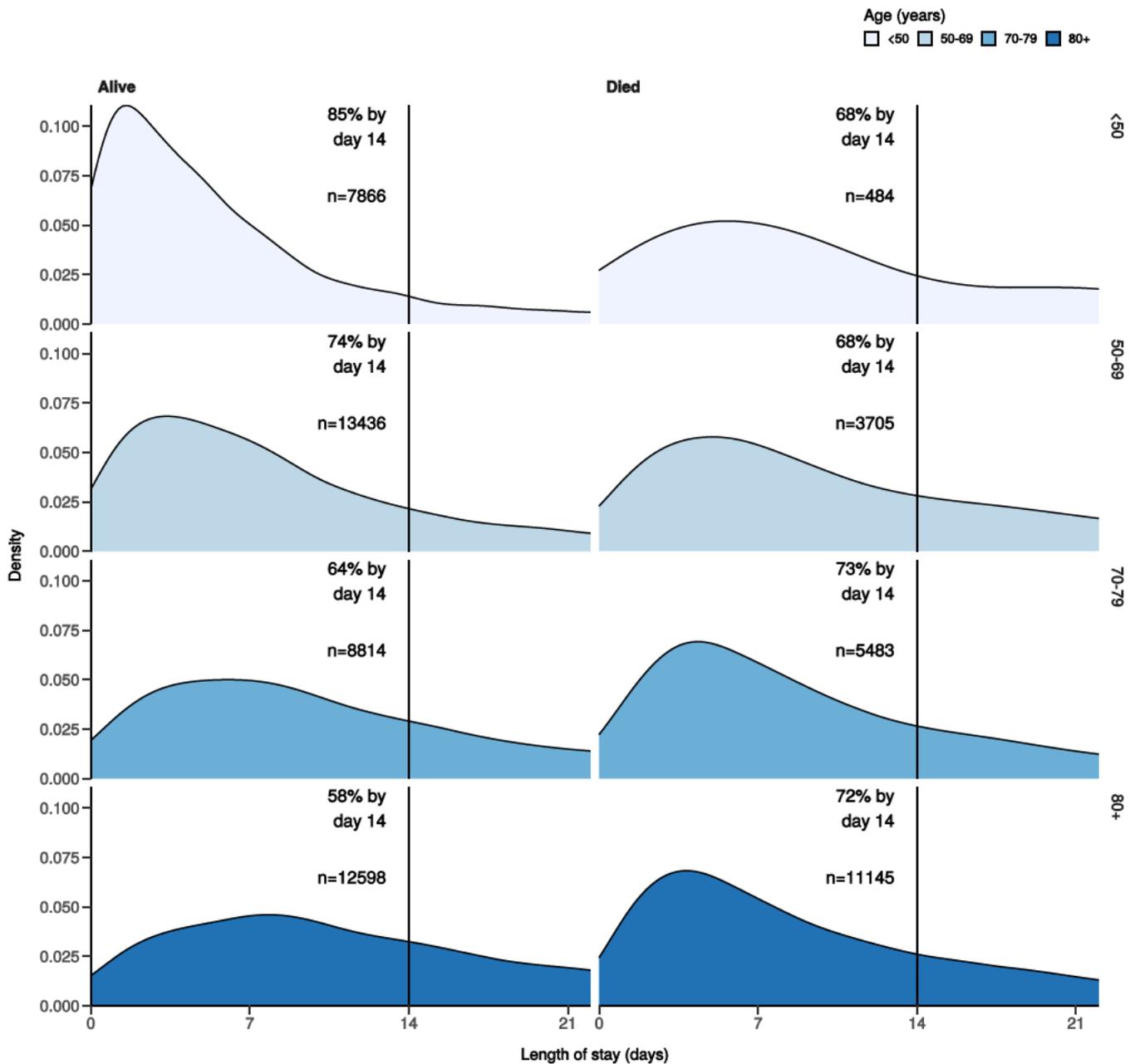
Predictors of death: logistic regression multivariable model

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

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
age.factor	<50	9050 (94.6)	517 (5.4)	•	•
	50-69	14914 (79.3)	3889 (20.7)	4.56 (4.15-5.03, p<0.001)	4.30 (3.87-4.80, p<0.001)
	70-79	9746 (62.9)	5758 (37.1)	10.34 (9.42-11.38, p<0.001)	8.76 (7.86-9.77, p<0.001)
	80+	13736 (54.0)	11699 (46.0)	14.91 (13.61-16.36, p<0.001)	12.55 (11.28-14.00, p<0.001)

Dependent: death		No	Yes	OR (univariable)	OR (multivariable)
Sex at Birth	Male	25816 (66.1)	13252 (33.9)	•	•
	Female	21752 (71.5)	8661 (28.5)	0.78 (0.75-0.80, p<0.001)	0.70 (0.67-0.73, p<0.001)
	Not specified	0 (NaN)	0 (NaN)	•	•
Chronic cardiac disease, including congenit…t hypertension)	NO	32252 (73.5)	11651 (26.5)	•	•
	YES	12490 (58.4)	8879 (41.6)	1.97 (1.90-2.04, p<0.001)	1.14 (1.10-1.19, p<0.001)
Chronic pulmonary disease (not asthma)	NO	37739 (70.8)	15573 (29.2)	•	•
	YES	6883 (59.0)	4786 (41.0)	1.69 (1.62-1.76, p<0.001)	1.25 (1.19-1.32, p<0.001)
Chronic neurological disorder	NO	39104 (69.8)	16948 (30.2)	•	•
	YES	5197 (61.8)	3215 (38.2)	1.43 (1.36-1.50, p<0.001)	1.14 (1.08-1.21, p<0.001)
Chronic hematologic disease	NO	42416 (69.1)	18932 (30.9)	•	•
	YES	1750 (60.8)	1130 (39.2)	1.45 (1.34-1.56, p<0.001)	1.16 (1.05-1.27, p=0.002)
Chronic kidney disease	NO	37987 (71.3)	15274 (28.7)	•	•
	YES	6497 (56.4)	5019 (43.6)	1.92 (1.84-2.00, p<0.001)	1.29 (1.23-1.35, p<0.001)
Dementia	NO	38472 (71.9)	15062 (28.1)	•	•
	YES	5894 (53.2)	5194 (46.8)	2.25 (2.16-2.35, p<0.001)	1.38 (1.31-1.45, p<0.001)
Obesity (as defined by clinical staff)	NO	35354 (68.8)	16011 (31.2)	•	•
	YES	5005 (72.3)	1922 (27.7)	0.85 (0.80-0.90, p<0.001)	1.32 (1.23-1.40, p<0.001)
Malignant neoplasm	NO	40429 (70.3)	17114 (29.7)	•	•
	YES	3765 (55.8)	2983 (44.2)	1.87 (1.78-1.97, p<0.001)	1.45 (1.36-1.54, p<0.001)

Number in dataframe = 72693, Number in model = 55276, Missing = 17417, AIC = 60709.6, C-statistic = 0.714, H&L = Chi-sq(8) 125.35 (p<0.001)

Figure 12 - Adjusted odds ratio plot

Death

age.factor	<50	-	
	50-69	4.30 (3.87-4.80, p<0.001)	
	70-79	8.76 (7.86-9.77, p<0.001)	
	80+	12.55 (11.28-14.00, p<0.001)	
Sex at Birth	Male	-	
	Female	0.70 (0.67-0.73, p<0.001)	
	Not specified	-	
Chronic cardiac disease, including congenit...t hypertension	YES	1.14 (1.10-1.19, p<0.001)	
Chronic pulmonary disease (not asthma)	YES	1.25 (1.19-1.32, p<0.001)	
Chronic neurological disorder	YES	1.14 (1.08-1.21, p<0.001)	
Chronic hematologic disease	YES	1.16 (1.05-1.27, p=0.002)	
Chronic kidney disease	YES	1.29 (1.23-1.35, p<0.001)	
Dementia	YES	1.38 (1.31-1.45, p<0.001)	
Obesity (as defined by clinical staff)	YES	1.32 (1.23-1.40, p<0.001)	
Malignant neoplasm	YES	1.45 (1.36-1.54, p<0.001)	

Odds ratio (95% CI, log scale)

Figure 13 - ROC

AUC: 0.714
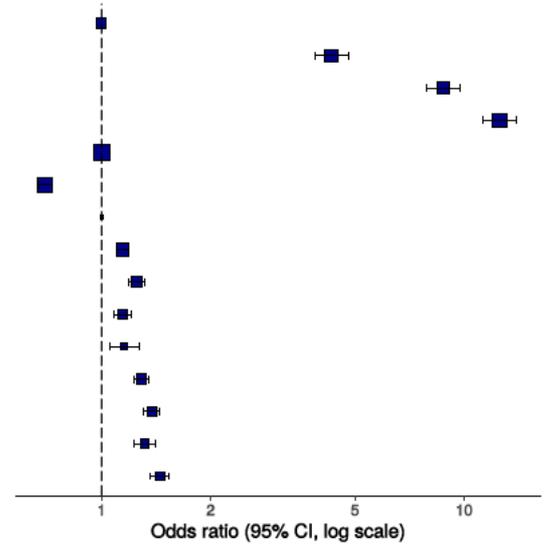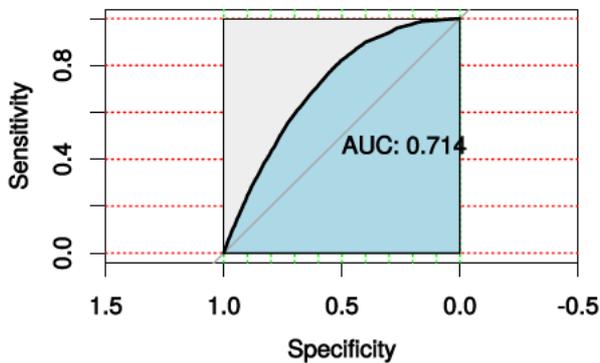
Survival models

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

Figure 14

P-value is log-rank test.

Number at risk					
age.factor=<18	989	955	943	940	939
age.factor=18-49	9130	8793	8525	8376	8301
age.factor=50-74	27208	25426	23148	21592	20695
age.factor=75 and over	35322	30421	24781	21825	20368

Number at risk					
sex=Male	40815	36868	31960	29043	27504
sex=Female	31839	28747	25457	23712	22818
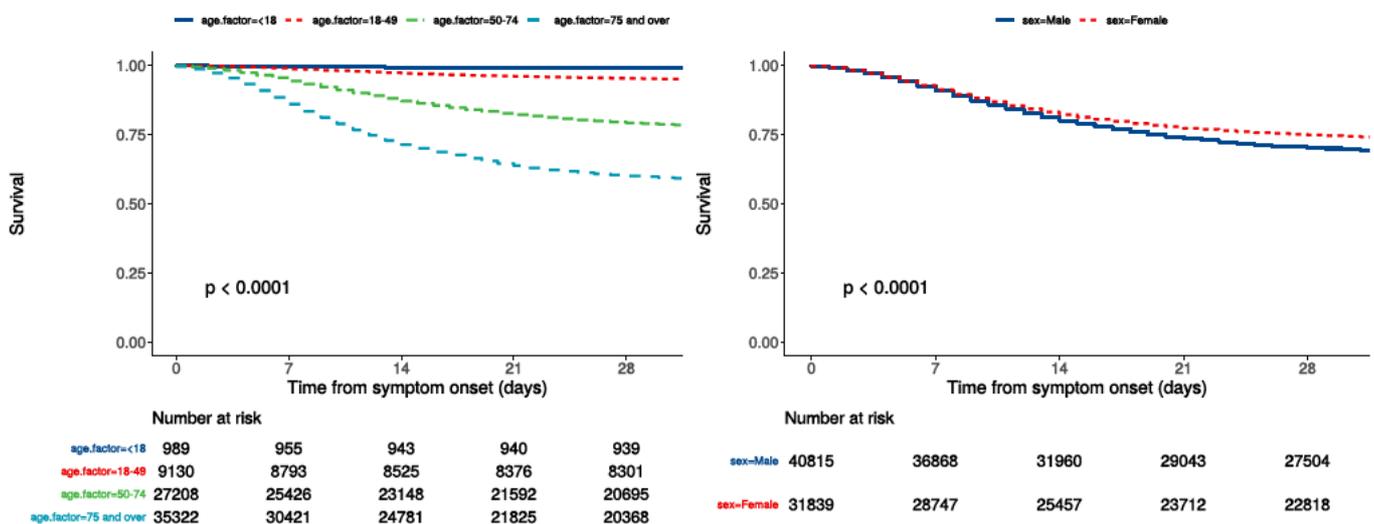
Cox proportional hazards model

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.factor	<50	10119 (13.9)	•	•
	50-69	19735 (27.2)	4.14 (3.78-4.54, p<0.001)	4.09 (3.65-4.58, p<0.001)
	70-79	16243 (22.4)	8.41 (7.68-9.21, p<0.001)	8.04 (7.19-9.00, p<0.001)
	80+	26556 (36.6)	11.35 (10.39-12.40, p<0.001)	10.58 (9.46-11.83, p<0.001)
Sex at Birth	Male	40815 (56.2)	•	•
	Female	31839 (43.8)	0.82 (0.80-0.84, p<0.001)	0.79 (0.76-0.81, p<0.001)
qSOFA score on admission	0	26199 (42.4)	•	•
	1	27792 (45.0)	1.58 (1.53-1.64, p<0.001)	1.70 (1.64-1.76, p<0.001)
	2	6952 (11.3)	2.99 (2.87-3.12, p<0.001)	2.81 (2.68-2.95, p<0.001)
	3	784 (1.3)	4.87 (4.44-5.33, p<0.001)	4.50 (4.06-4.98, p<0.001)
Symptomatic at presentation	No symptoms	3322 (4.7)	•	•
	Symptoms	67641 (95.3)	1.52 (1.41-1.63, p<0.001)	•
Chronic cardiac disease, including congenit…t hypertension)	NO	45364 (67.3)	•	•
	YES	22062 (32.7)	1.75 (1.70-1.80, p<0.001)	1.12 (1.09-1.16, p<0.001)
Chronic kidney disease	NO	55024 (82.2)	•	•
	YES	11889 (17.8)	1.71 (1.66-1.77, p<0.001)	1.21 (1.17-1.26, p<0.001)
Moderate or severe liver disease	NO	64924 (98.0)	•	•
	YES	1310 (2.0)	1.28 (1.17-1.40, p<0.001)	1.43 (1.28-1.60, p<0.001)
Chronic neurological disorder	NO	57922 (87.0)	•	•
	YES	8657 (13.0)	1.36 (1.31-1.41, p<0.001)	•
Malignant neoplasm	NO	59480 (89.6)	•	•
	YES	6919 (10.4)	1.63 (1.57-1.70, p<0.001)	1.32 (1.26-1.38, p<0.001)
Chronic hematologic disease	NO	63381 (95.6)	•	•
	YES	2943 (4.4)	1.34 (1.26-1.42, p<0.001)	•

Dependent: Surv(time, status)		all	HR (univariable)	HR (multivariable)
Obesity (as defined by clinical staff)	NO	53076 (88.2)	•	•
	YES	7134 (11.8)	0.86 (0.82-0.91, p<0.001)	1.19 (1.13-1.25, p<0.001)
Diabetes without complications	NO	54009 (83.4)	•	•
	YES	10739 (16.6)	1.24 (1.20-1.29, p<0.001)	•
Rheumatologic disorder	NO	58643 (88.6)	•	•
	YES	7516 (11.4)	1.20 (1.15-1.25, p<0.001)	•
Dementia	NO	55326 (82.9)	•	•
	YES	11410 (17.1)	1.98 (1.92-2.05, p<0.001)	1.18 (1.13-1.23, p<0.001)
Malnutrition	NO	60742 (97.2)	•	•
	YES	1744 (2.8)	1.45 (1.34-1.56, p<0.001)	•
smoking_mhyn_2levels	NO	39832 (58.4)	•	•
	YES	3809 (5.6)	0.88 (0.83-0.94, p<0.001)	•
	N/K	24546 (36.0)	1.25 (1.22-1.29, p<0.001)	•

Number in dataframe = 72991, Number in model = 50362, Missing = 22629, Number of events = 14971, Concordance = 0.716 (SE = 0.002), R-squared = 0.160(Max possible = 0.998), Likelihood ratio test = 8758.872 (df = 13, p = 0.000)

Figure 15a - Multivariable Cox proportional hazards model

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

age.factor	<50	-
	50-69	4.09 (3.65-4.58, p<0.001)
	70-79	8.04 (7.19-9.00, p<0.001)
	80+	10.58 (9.46-11.83, p<0.001)
Sex at Birth	Female	0.79 (0.76-0.81, p<0.001)
qSOFA score on admission	0	-
	1	1.70 (1.64-1.76, p<0.001)
	2	2.81 (2.68-2.95, p<0.001)
	3	4.50 (4.06-4.98, p<0.001)
Chronic cardiac disease, including congenit...t Hypertension)	YES	1.12 (1.09-1.16, p<0.001)
Chronic kidney disease	YES	1.21 (1.17-1.26, p<0.001)
Moderate or severe liver disease	YES	1.43 (1.28-1.60, p<0.001)
Malignant neoplasm	YES	1.32 (1.26-1.38, p<0.001)
Obesity (as defined by clinical staff)	YES	1.19 (1.13-1.25, p<0.001)
Dementia	YES	1.18 (1.13-1.23, p<0.001)

Hazard ratio (95% CI, log scale)
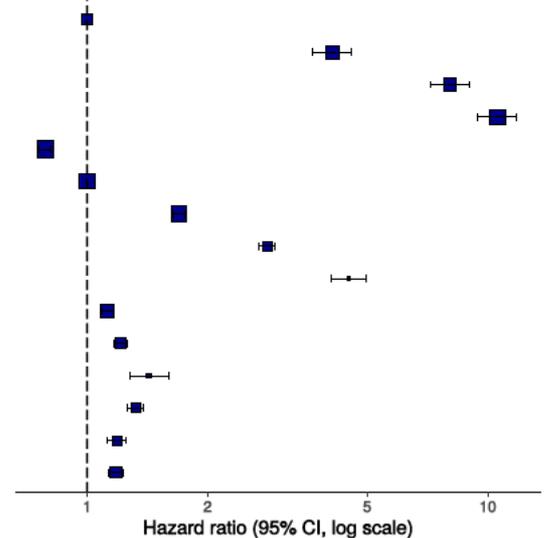
Figure 15b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)

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

age.factor	<50	-
	50-69	4.02 (3.63-4.46, p<0.001)
	70-79	7.50 (6.77-8.32, p<0.001)
	80+	9.90 (8.93-10.96, p<0.001)
Sex at Birth	Female	0.76 (0.74-0.79, p<0.001)
Chronic cardiac disease, including congenit...t Hypertension)	YES	1.11 (1.07-1.15, p<0.001)
Chronic pulmonary disease (not asthma)	YES	1.17 (1.13-1.22, p<0.001)
Chronic kidney disease	YES	1.21 (1.16-1.25, p<0.001)
Malignant neoplasm	YES	1.29 (1.23-1.34, p<0.001)
Obesity (as defined by clinical staff)	YES	1.22 (1.16-1.28, p<0.001)
Dementia	YES	1.32 (1.27-1.37, p<0.001)

Hazard ratio (95% CI, log scale)
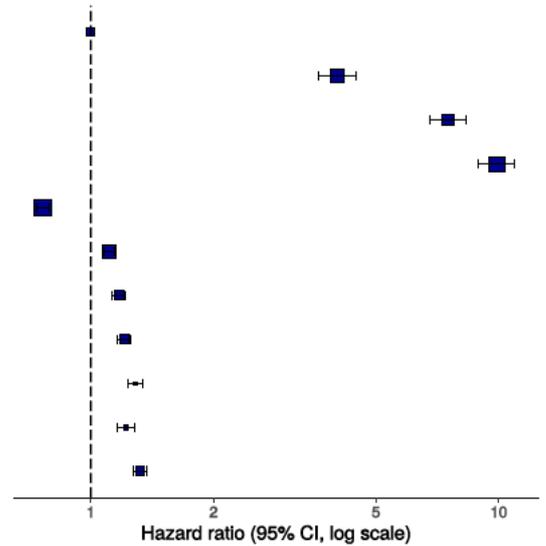
ROC = 0.7158183

Figure 16 - Predictions calibration plot

Black: observed Gray: ideal
Blue : optimism corrected

Predicted 7 Day Survival B=40 based on observed-predicted
Mean |error|=0.204 0.9 Quantile=0.369
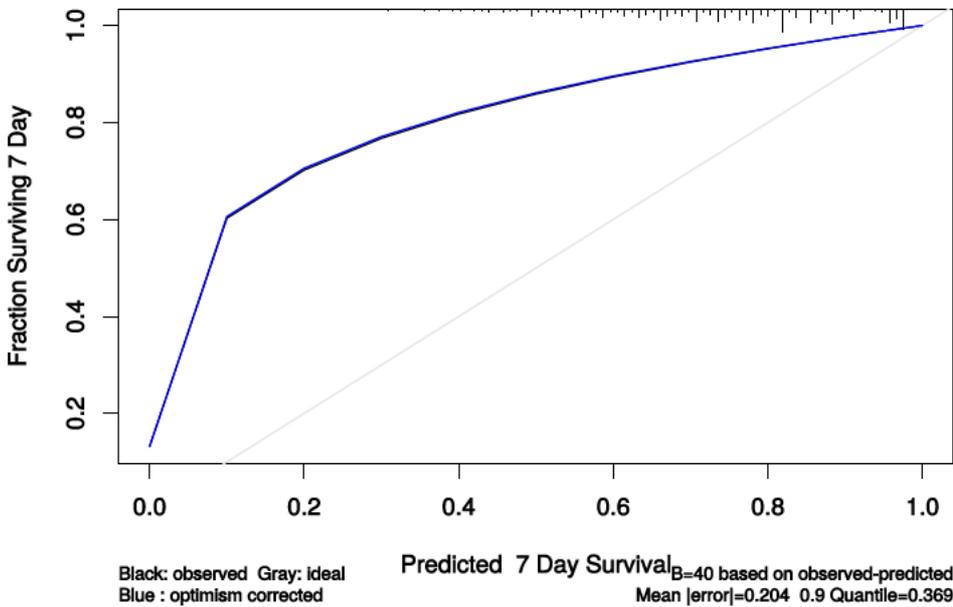
Figure 17 - Prognostic model predictions

Again, for demonstration of methods.

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

7 Day Survival Probability

Adjusted to:sex=Male chrincard=NO chronicpul_mhyn=NO malignantneo_mhyn=NO obesity_mhyn=NO dementia_mhyn=NO
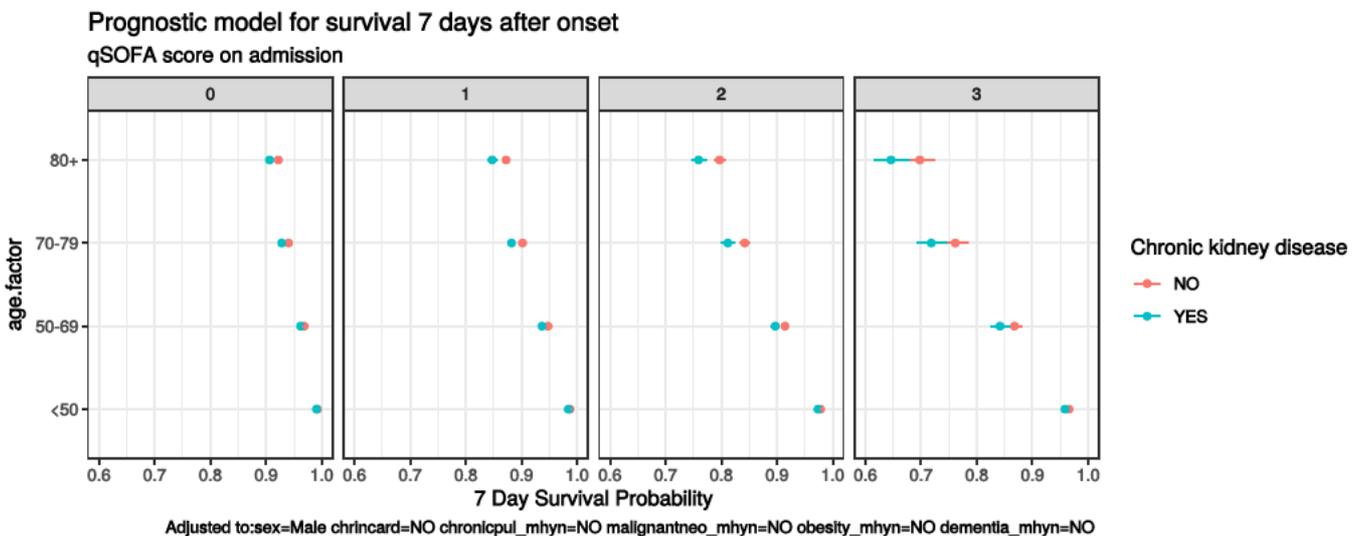
Figure 18 - Death by severity (NEWS) on admission

Number of deaths by NEWS score at admission
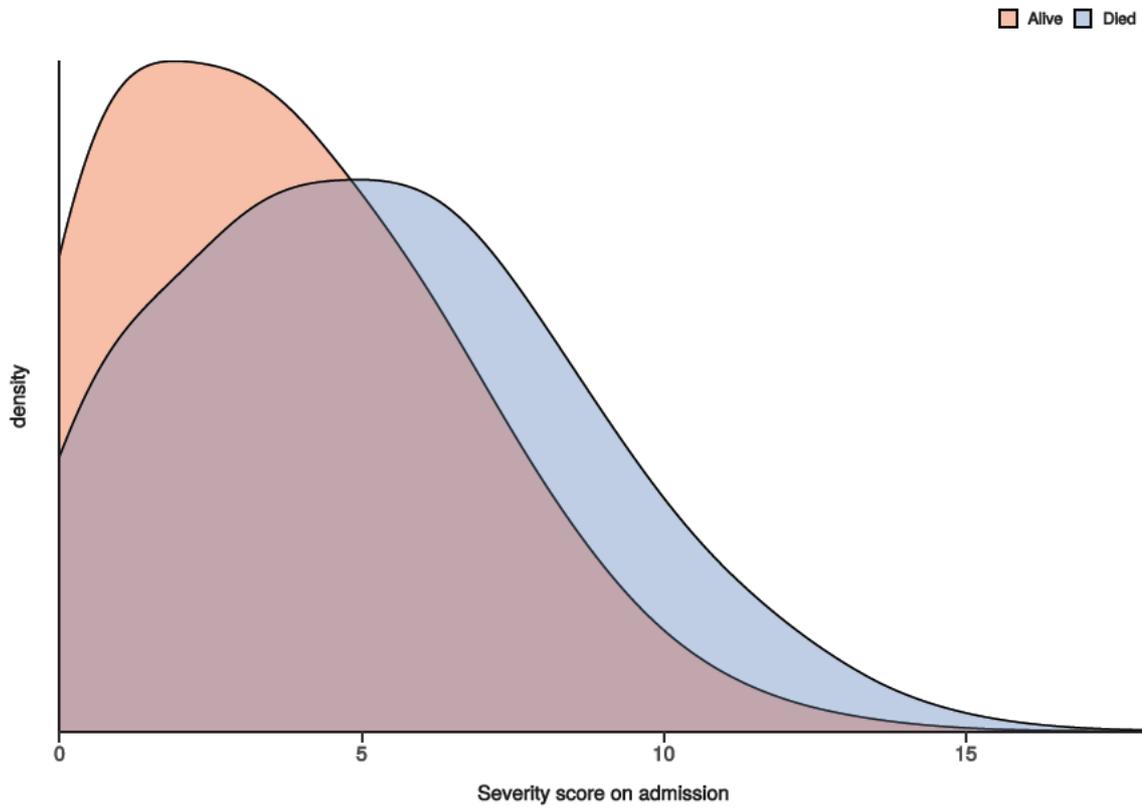
Figure 19 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission
Stratified by age
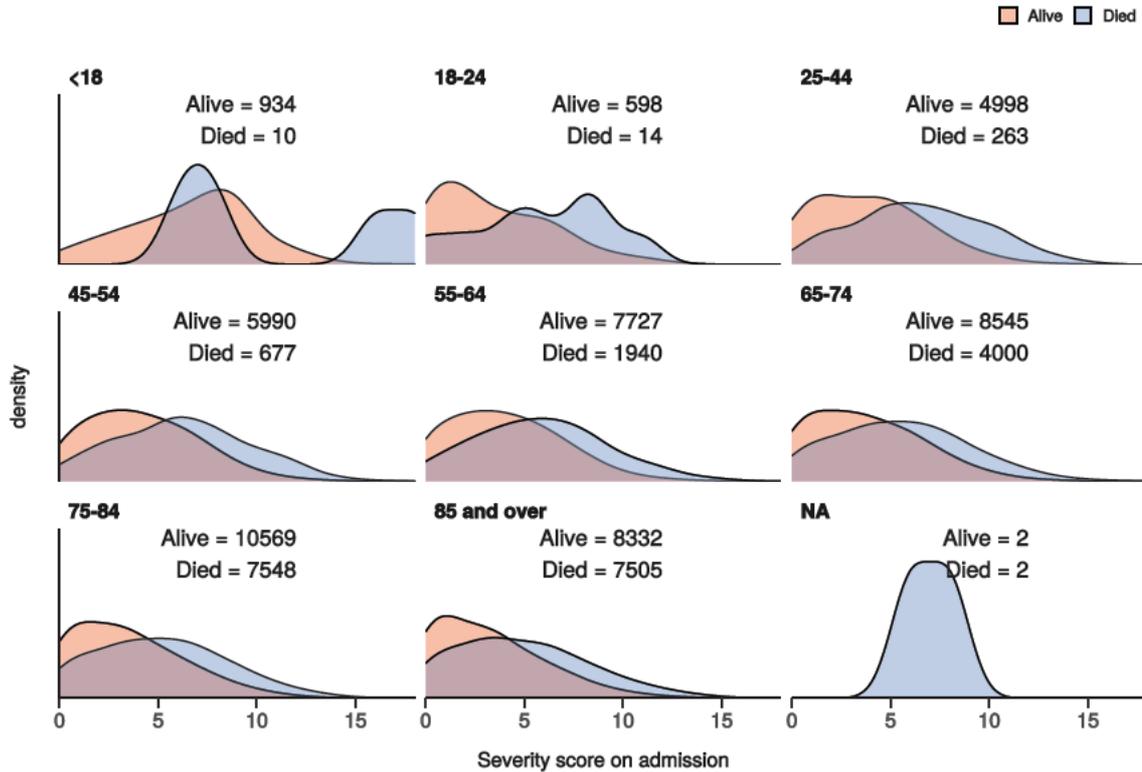
Figure 20 - Death by severity (qSOFA) on admission stratified by age

Number of deaths by qSOFA score at admission
Stratified by age
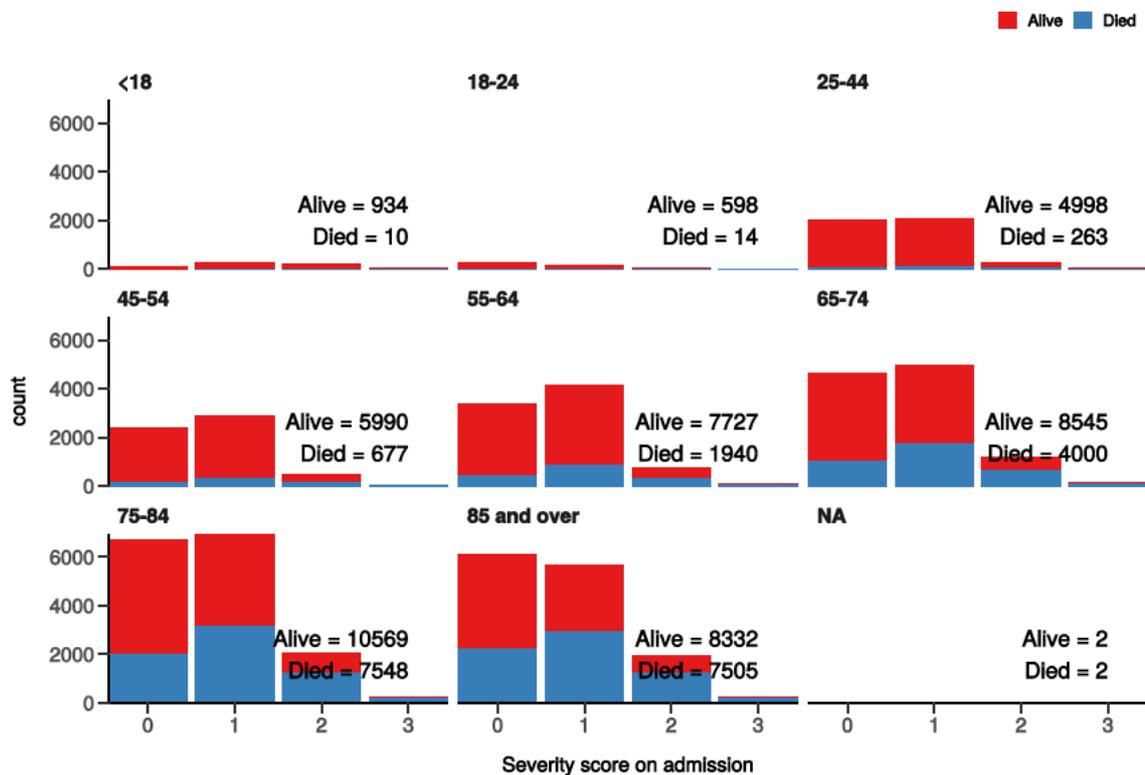
Healthcare workers

Employed as a healthcare worker?		NO	YES	p
Total N (%)		63604 (95.0)	3348 (5.0)	
NEWS score on admission	Median (IQR)	4.0 (4.0)	4.0 (4.0)	0.010
Death	No	39868 (66.5)	2963 (92.7)	<0.001
	Yes	20068 (33.5)	232 (7.3)	

Admission (detail)

Table 1

label	levels	all
Total N (%)		77676 (100.0)
age	Mean (SD)	70.2 (19.8)
Sex at Birth	Male	41917 (54.0)
	Female	32740 (42.1)
	Not specified	140 (0.2)
	(Missing)	2879 (3.7)
Employed as a healthcare worker?	YES	3348 (4.3)
	NO	63604 (81.9)
	N/A	7212 (9.3)
	(Missing)	3512 (4.5)

label	levels	all
Employed in a microbiology laboratory?	YES	91 (0.1)
	NO	25875 (33.3)
	N/A	3066 (3.9)
	(Missing)	48644 (62.6)
Onset to admission (days)	Mean (SD)	5.5 (1462.3)
Transfer from other facility?	Yes-other facility is a study site	1910 (2.5)
	Yes-other facility is not a study site	3731 (4.8)
	No	62768 (80.8)
	N/A	3128 (4.0)
	(Missing)	6139 (7.9)
Travel in the 14 days prior to first symptom onset?	Yes	825 (1.1)
	No	22567 (29.1)
	N/A	4479 (5.8)
	(Missing)	49805 (64.1)
If YES, state location: 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)
	Argentina	1 (0.0)
	Armenia	0 (0.0)
	Aruba	0 (0.0)
	Australia	3 (0.0)
	Austria	21 (0.0)
	Azerbaijan	2 (0.0)
	Bahamas (The)	6 (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)

label	levels	all
	Bosnia and Herzegovina	0 (0.0)
	Botswana	0 (0.0)
	Brazil	3 (0.0)
	Brunei	0 (0.0)
	Bulgaria	3 (0.0)
	Burkina Faso	0 (0.0)
	Burma	0 (0.0)
	Burundi	0 (0.0)
	Cambodia	1 (0.0)
	Cameroon	1 (0.0)
	Canada	2 (0.0)
	Cabo Verde	1 (0.0)
	Central African Republic	1 (0.0)
	Chad	0 (0.0)
	Chile	1 (0.0)
	China	3 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Congo (Republic of the)	0 (0.0)
	Costa Rica	0 (0.0)
	Cote dIvoire	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	9 (0.0)
	El Salvador	0 (0.0)
	Equatorial Guinea	0 (0.0)
	Eritrea	0 (0.0)
	Estonia	0 (0.0)

label	levels	all
	Ethiopia	0 (0.0)
	F ji	0 (0.0)
	Finland	0 (0.0)
	France	35 (0.0)
	Gabon	0 (0.0)
	Gambia (The)	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	11 (0.0)
	Indonesia	1 (0.0)
	Iran	6 (0.0)
	Iraq	0 (0.0)
	Ireland	8 (0.0)
	Israel	0 (0.0)
	Italy	92 (0.1)
	Jamaica	3 (0.0)
	Japan	6 (0.0)
	Jordan	1 (0.0)
	Kazakhstan	0 (0.0)
	Kenya	1 (0.0)
	Kiribati	0 (0.0)
	Korea (South)	0 (0.0)
	Kosovo	0 (0.0)

label	levels	all
	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)
	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)

label	levels	all
	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)
	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)

label	levels	all
	South Africa	10 (0.0)
	South Korea	1 (0.0)
	South Sudan	0 (0.0)
	Spain	205 (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	116 (0.1)
	United States	32 (0.0)
	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)

label	levels	all
	(Missing)	76879 (99.0)
	Afghanistan	0 (0.0)
	Albania	0 (0.0)
	Algeria	1 (0.0)
	Andorra	0 (0.0)
	Angola	0 (0.0)
	Antigua and Barbuda	1 (0.0)
	Argentina	0 (0.0)
	Armenia	0 (0.0)
	Aruba	1 (0.0)
	Australia	3 (0.0)
	Austria	4 (0.0)
	Azerbaijan	0 (0.0)
	Bahamas (The)	0 (0.0)
	Bahrain	0 (0.0)
	Bangladesh	0 (0.0)
	Barbados	2 (0.0)
	Belarus	0 (0.0)
	Belgium	0 (0.0)
	Belize	0 (0.0)
	Benin	0 (0.0)
	Bhutan	0 (0.0)
	Bolivia	0 (0.0)
	Bosnia and Herzegovina	0 (0.0)
	Botswana	0 (0.0)
	Brazil	0 (0.0)
	Brunei	0 (0.0)
	Bulgaria	2 (0.0)
	Burkina Faso	0 (0.0)
	Burma	0 (0.0)
	Burundi	0 (0.0)
	Cambodia	0 (0.0)
	Cameroon	0 (0.0)
	Canada	2 (0.0)
	Cabo Verde	0 (0.0)
	Central African Republic	0 (0.0)

label	levels	all
	Chad	0 (0.0)
	Chile	0 (0.0)
	China	0 (0.0)
	Colombia	0 (0.0)
	Comoros	0 (0.0)
	Congo (Republic of the)	0 (0.0)
	Costa Rica	0 (0.0)
	Cote dIvoire	0 (0.0)
	Croatia	0 (0.0)
	Cuba	0 (0.0)
	Curacao	0 (0.0)
	Cyprus	3 (0.0)
	Czechia	1 (0.0)
	Denmark	0 (0.0)
	Djibouti	0 (0.0)
	Dominica	0 (0.0)
	Dominican Republic	0 (0.0)
	Ecuador	0 (0.0)
	Egypt	2 (0.0)
	El Salvador	0 (0.0)
	Equatorial Guinea	0 (0.0)
	Eritrea	0 (0.0)
	Estonia	0 (0.0)
	Ethiopia	0 (0.0)
	F ji	0 (0.0)
	Finland	0 (0.0)
	France	9 (0.0)
	Gabon	0 (0.0)
	Gambia (The)	0 (0.0)
	Georgia	0 (0.0)
	Germany	3 (0.0)
	Ghana	0 (0.0)
	Greece	0 (0.0)
	Grenada	0 (0.0)
	Guatemala	0 (0.0)
	Guinea	0 (0.0)

label	levels	all
	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	3 (0.0)
	Indonesia	1 (0.0)
	Iran	0 (0.0)
	Iraq	0 (0.0)
	Ireland	1 (0.0)
	Israel	1 (0.0)
	Italy	16 (0.0)
	Jamaica	1 (0.0)
	Japan	0 (0.0)
	Jordan	0 (0.0)
	Kazakhstan	0 (0.0)
	Kenya	0 (0.0)
	Kiribati	0 (0.0)
	Korea (South)	0 (0.0)
	Kosovo	0 (0.0)
	Kuwait	0 (0.0)
	Kyrgyzstan	0 (0.0)
	Laos	0 (0.0)
	Latvia	0 (0.0)
	Lebanon	0 (0.0)
	Lesotho	0 (0.0)
	Liberia	0 (0.0)
	Libya	0 (0.0)
	Liechtenstein	0 (0.0)
	Lithuania	0 (0.0)
	Luxembourg	0 (0.0)
	Macau	0 (0.0)
	Macedonia	0 (0.0)

label	levels	all
	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	1 (0.0)
	Mozambique	0 (0.0)
	Namibia	0 (0.0)
	Nauru	0 (0.0)
	Nepal	0 (0.0)
	Netherlands	2 (0.0)
	New Zealand	0 (0.0)
	Nicaragua	0 (0.0)
	Niger	0 (0.0)
	Nigeria	0 (0.0)
	North Korea	0 (0.0)
	Norway	0 (0.0)
	Oman	0 (0.0)
	Pakistan	1 (0.0)
	Palau	0 (0.0)
	Palestinian Territories	0 (0.0)
	Panama	0 (0.0)
	Papua New Guinea	0 (0.0)
	Paraguay	0 (0.0)
	Peru	0 (0.0)
	Philippines	0 (0.0)

label	levels	all
	Poland	0 (0.0)
	Portugal	2 (0.0)
	Qatar	1 (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)
	South Africa	1 (0.0)
	South Korea	0 (0.0)
	South Sudan	0 (0.0)
	Spain	21 (0.0)
	Sri Lanka	0 (0.0)
	Sudan	0 (0.0)
	Suriname	0 (0.0)
	Swaziland	0 (0.0)
	Sweden	0 (0.0)
	Switzerland	1 (0.0)
	Syria	0 (0.0)
	Taiwan	0 (0.0)
	Tajikistan	0 (0.0)

label	levels	all
	Tanzania	0 (0.0)
	Thailand	1 (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	4 (0.0)
	Turkmenistan	0 (0.0)
	Tuvalu	0 (0.0)
	Uganda	0 (0.0)
	Ukraine	0 (0.0)
	United Arab Emirates	0 (0.0)
	United Kingdom	1 (0.0)
	United States	4 (0.0)
	Uruguay	0 (0.0)
	Uzbekistan	0 (0.0)
	Vanuatu	0 (0.0)
	Venezuela	0 (0.0)
	Vietnam	1 (0.0)
	Yemen	0 (0.0)
	Zambia	0 (0.0)
	Zimbabwe	0 (0.0)
	(Missing)	77578 (99.9)
Contact with animals, raw meat or insect bi…symptom onset?	Yes	109 (0.1)
	No	10904 (14.0)
	Unknown	15152 (19.5)
	N/A	1813 (2.3)
	(Missing)	49698 (64.0)
If YES, specify the 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)

label	levels	all
	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 (5.6)
	Dog	12 (11.2)
	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)
	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)

label	levels	all
	Domestic Pet	5 (4.7)
	Domestic Pet (Dog)	6 (5.6)
	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)
	Livestock including pigs	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)
	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 (%)		77676 (100.0)
History of fever	YES	42391 (54.6)
	NO	24914 (32.1)

Stratified: all		all
	Unknown	3796 (4.9)
	(Missing)	6575 (8.5)
Cough	YES	42827 (55.1)
	NO	24130 (31.1)
	Unknown	4144 (5.3)
	(Missing)	6575 (8.5)
Cough: with sputum production	YES	12699 (16.3)
	NO	45178 (58.2)
	Unknown	13131 (16.9)
	(Missing)	6668 (8.6)
Cough: bloody sputum / haemoptysis	YES	1523 (2.0)
	NO	55434 (71.4)
	Unknown	14034 (18.1)
	(Missing)	6685 (8.6)
Sore throat	YES	4007 (5.2)
	NO	48750 (62.8)
	Unknown	18252 (23.5)
	(Missing)	6667 (8.6)
Runny nose (Rhinorrhoea)	YES	1236 (1.6)
	NO	50737 (65.3)
	Unknown	19027 (24.5)
	(Missing)	6676 (8.6)
Ear pain	YES	239 (0.3)
	NO	51478 (66.3)
	Unknown	19277 (24.8)
	(Missing)	6682 (8.6)
Wheezing	YES	4754 (6.1)
	NO	51248 (66.0)
	Unknown	14998 (19.3)
	(Missing)	6676 (8.6)
Chest pain	YES	7838 (10.1)
	NO	50938 (65.6)
	Unknown	12249 (15.8)
	(Missing)	6651 (8.6)
Muscle aches (Myalgia)	YES	9139 (11.8)
	NO	44302 (57.0)

	Unknown	17559 (22.6)
	(Missing)	6676 (8.6)
Joint pain (Arthralgia)	YES	3390 (4.4)
	NO	48394 (62.3)
	Unknown	19190 (24.7)
	(Missing)	6702 (8.6)
Fatigue / Malaise	YES	23715 (30.5)
	NO	33211 (42.8)
	Unknown	14081 (18.1)
	(Missing)	6669 (8.6)
Shortness of breath (Dyspnea)	YES	42302 (54.5)
	NO	23632 (30.4)
	Unknown	5178 (6.7)
	(Missing)	6564 (8.5)
Lower chest wall indrawing	YES	645 (0.8)
	NO	50725 (65.3)
	Unknown	19606 (25.2)
	(Missing)	6700 (8.6)
Headache	YES	5327 (6.9)
	NO	48265 (62.1)
	Unknown	17401 (22.4)
	(Missing)	6683 (8.6)
Altered consciousness / confusion	YES	17777 (22.9)
	NO	43736 (56.3)
	Unknown	9511 (12.2)
	(Missing)	6652 (8.6)
Seizures	YES	991 (1.3)
	NO	57574 (74.1)
	Unknown	12419 (16.0)
	(Missing)	6692 (8.6)
Abdominal pain	YES	6337 (8.2)
	NO	52068 (67.0)
	Unknown	12602 (16.2)
	(Missing)	6669 (8.6)
Vomiting / Nausea	YES	11604 (14.9)
	NO	49032 (63.1)

Stratified: all		all
	Unknown	10398 (13.4)
	(Missing)	6642 (8.6)
Diarrhoea	YES	10539 (13.6)
	NO	49753 (64.1)
	Unknown	10731 (13.8)
	(Missing)	6653 (8.6)
Conjunctivitis	YES	233 (0.3)
	NO	54373 (70.0)
	Unknown	16382 (21.1)
	(Missing)	6688 (8.6)
Skin rash	YES	899 (1.2)
	NO	54773 (70.5)
	Unknown	15320 (19.7)
	(Missing)	6684 (8.6)
Skin ulcers	YES	1491 (1.9)
	NO	54338 (70.0)
	Unknown	15157 (19.5)
	(Missing)	6690 (8.6)
Lymphadenopathy	YES	407 (0.5)
	NO	54578 (70.3)
	Unknown	15992 (20.6)
	(Missing)	6699 (8.6)
Bleeding (Haemorrhage)	YES	1113 (1.4)
	NO	56619 (72.9)
	Unknown	13243 (17.0)
	(Missing)	6701 (8.6)
If Bleeding (others)	YES	516 (0.7)
	NO	21353 (27.5)
	Unknown	5733 (7.4)
	(Missing)	50074 (64.5)

Comorbidity (detail)

Table 3

Stratified: all		all
Total N (%)		77676 (100.0)
Chronic cardiac disease, including congenit…t hypertension)	YES	22169 (28.5)

Stratified: all		all
	NO	45543 (58.6)
	Unknown	3563 (4.6)
	(Missing)	6401 (8.2)
Chronic pulmonary disease (not asthma)	YES	12121 (15.6)
	NO	55288 (71.2)
	Unknown	3851 (5.0)
	(Missing)	6416 (8.3)
Asthma (physician diagnosed)	YES	9188 (11.8)
	NO	58004 (74.7)
	Unknown	4029 (5.2)
	(Missing)	6455 (8.3)
Chronic kidney disease	YES	11946 (15.4)
	NO	55246 (71.1)
	Unknown	4068 (5.2)
	(Missing)	6416 (8.3)
Moderate or severe liver disease	YES	1311 (1.7)
	NO	65193 (83.9)
	Unknown	4726 (6.1)
	(Missing)	6446 (8.3)
Mild Liver disease	YES	1017 (1.3)
	NO	65320 (84.1)
	Unknown	4890 (6.3)
	(Missing)	6449 (8.3)
Chronic neurological disorder	YES	8698 (11.2)
	NO	58151 (74.9)
	Unknown	4385 (5.6)
	(Missing)	6442 (8.3)
Malignant neoplasm	YES	6964 (9.0)
	NO	59711 (76.9)
	Unknown	4563 (5.9)
	(Missing)	6438 (8.3)
Chronic hematologic disease	YES	2959 (3.8)
	NO	63636 (81.9)
	Unknown	4616 (5.9)
	(Missing)	6465 (8.3)
AIDS/HIV	YES	278 (0.4)

Stratified: all		all
	NO	65505 (84.3)
	Unknown	5440 (7.0)
	(Missing)	6453 (8.3)
Obesity (as defined by clinical staff)	YES	7180 (9.2)
	NO	53313 (68.6)
	Unknown	10725 (13.8)
	(Missing)	6458 (8.3)
Diabetes with complications	YES	4921 (6.3)
	NO	59981 (77.2)
	Unknown	6323 (8.1)
	(Missing)	6451 (8.3)
Diabetes without complications	YES	10797 (13.9)
	NO	54226 (69.8)
	Unknown	6205 (8.0)
	(Missing)	6448 (8.3)
Rheumatologic disorder	YES	7545 (9.7)
	NO	58890 (75.8)
	Unknown	4783 (6.2)
	(Missing)	6458 (8.3)
Dementia	YES	11451 (14.7)
	NO	55559 (71.5)
	Unknown	4243 (5.5)
	(Missing)	6423 (8.3)
Malnutrition	YES	1754 (2.3)
	NO	60976 (78.5)
	Unknown	8455 (10.9)
	(Missing)	6491 (8.4)
Smoking	YES	3823 (4.9)
	NO	39984 (51.5)
	N/K	24674 (31.8)
	(Missing)	9195 (11.8)