

# Dynamic CO-CIN report to SAGE and NERVTAG

## [OFFICIAL-SENSITIVE PROTECT]

Dynamic content updated: 2020-04-13 19:52:00.

### Executive summary

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

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

In total up until 13 April 2020, CO-CIN has recruited **12332 patients** with confirmed Coronavirus (Figure 1).

The CO-CIN dataset represents 13.9% (12332/88,621) of cases of confirmed Coronavirus cases in the UK, per the PHE daily reports (last updated 9am on 13 April).

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 517 had travelled abroad recently, and 1920 reported visiting or working in a hospital where COVID-19 cases are being managed.

The median age is 72 (range: 0-104), Male/Female 5571/3647.

The most common symptoms were cough (71%), fever (69%) and shortness of breath (64%) (Figure 3A). 330/7971 (4%) of patients have reported no symptoms. Comorbidity can be seen in Figure 3B. The most common comorbidities were chronic cardiac disease (28%), diabetes (without complications) (19%) and chronic pulmonary disease (17%). 1949/8057 (24%) of patients have reported no co morbidity. 38/666 (6%) of women were recorded as being pregnant.

For patients not already in hospital, the median time from onset of symptoms to presentation at hospital was 4 days (range: 0 - 366 days).

The median length of hospital stay was 6 days (range: 1-163, n = 3726).

621/4641 (13%) patients required high-flow oxygen after day 1 of treatment.

Currently 1628 patient(s) have died and 1353 required ICU. 2293 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).

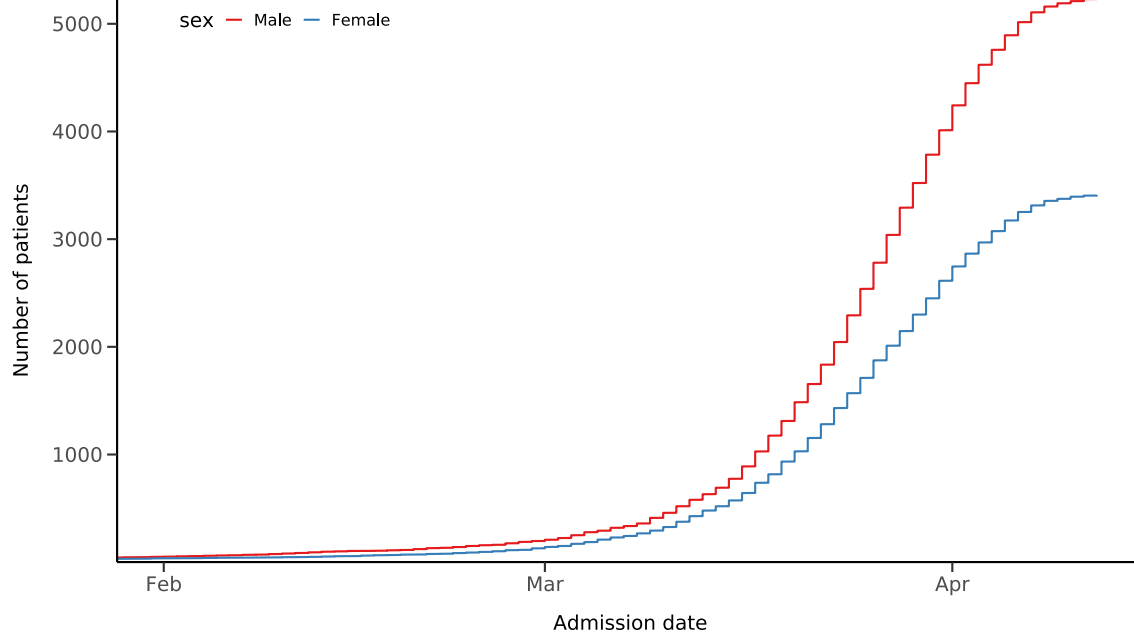
Analytics: Lisa Norman, Riinu Pius, Thomas Drake, Cameron Fairfield, Stephen Knight, Kenneth McLean, Katie Shaw.

### Admission

Figure 1

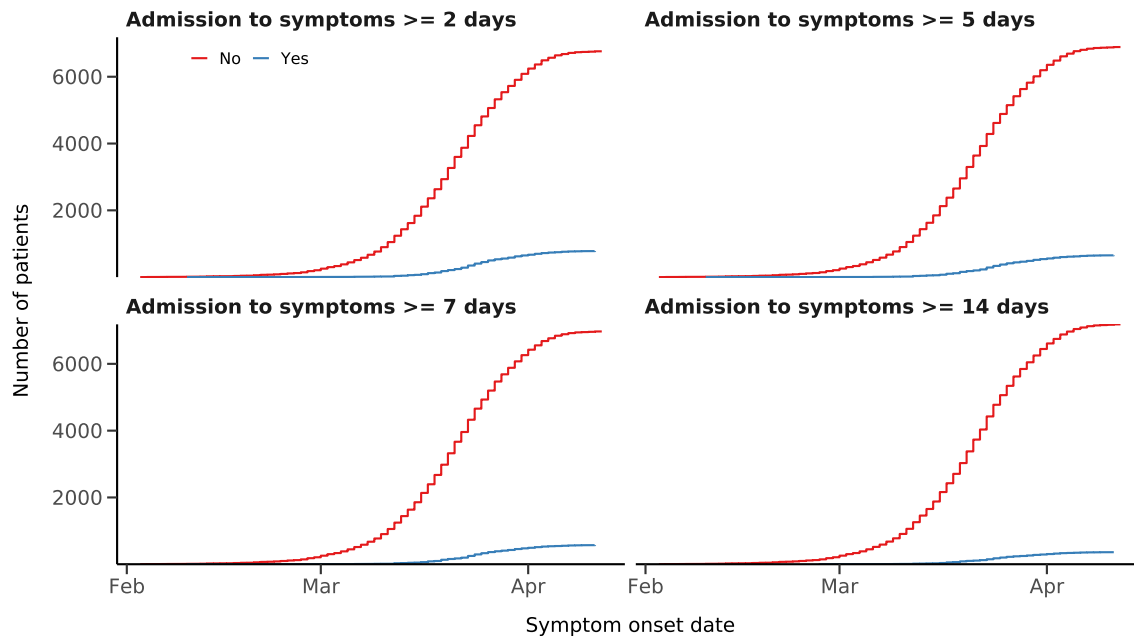
## Hospital admission with COVID-19 by sex

Figure 1A



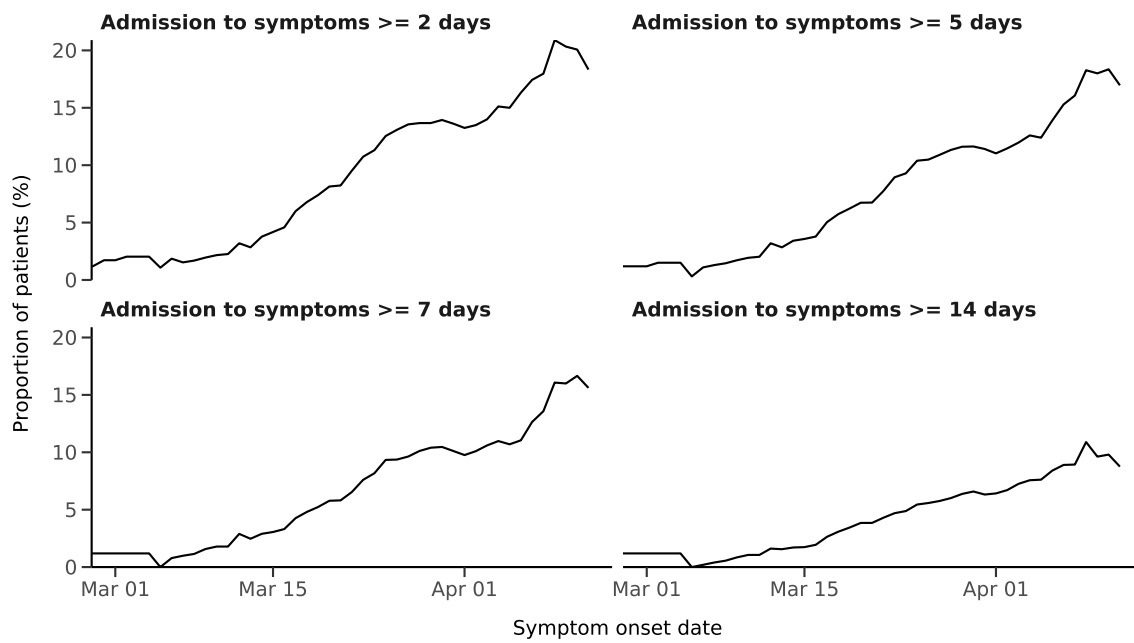
## Number with symptom onset occurring after admission to hospital

Figure 1B



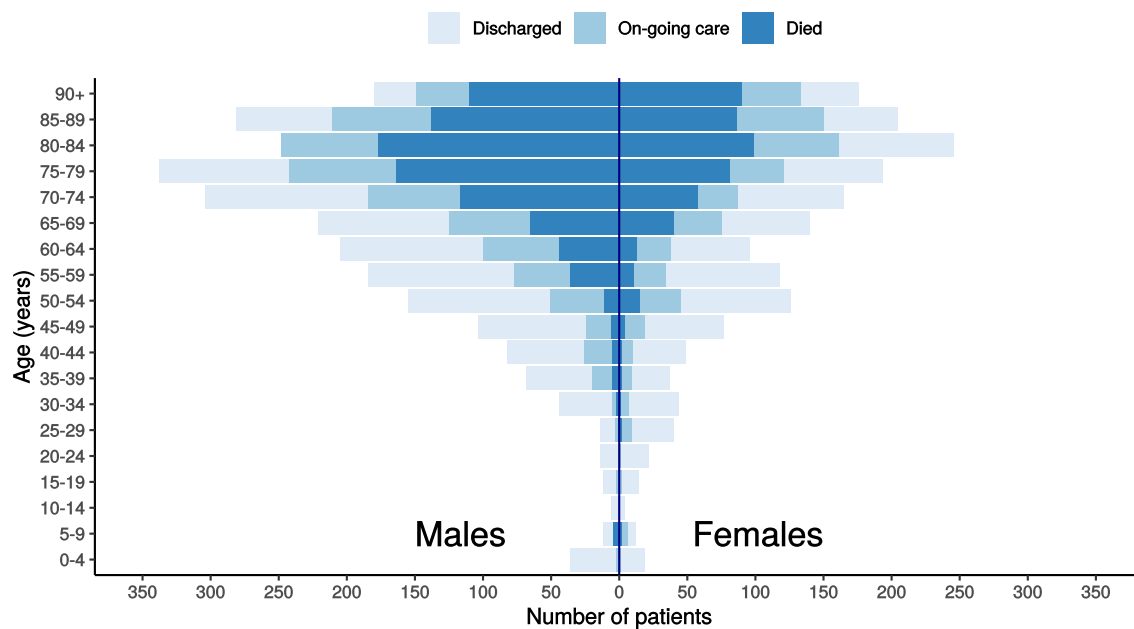
# Proportion with symptom onset occurring after hospital admission

Figure 1C - 7-day rolling percentage. n = 7545

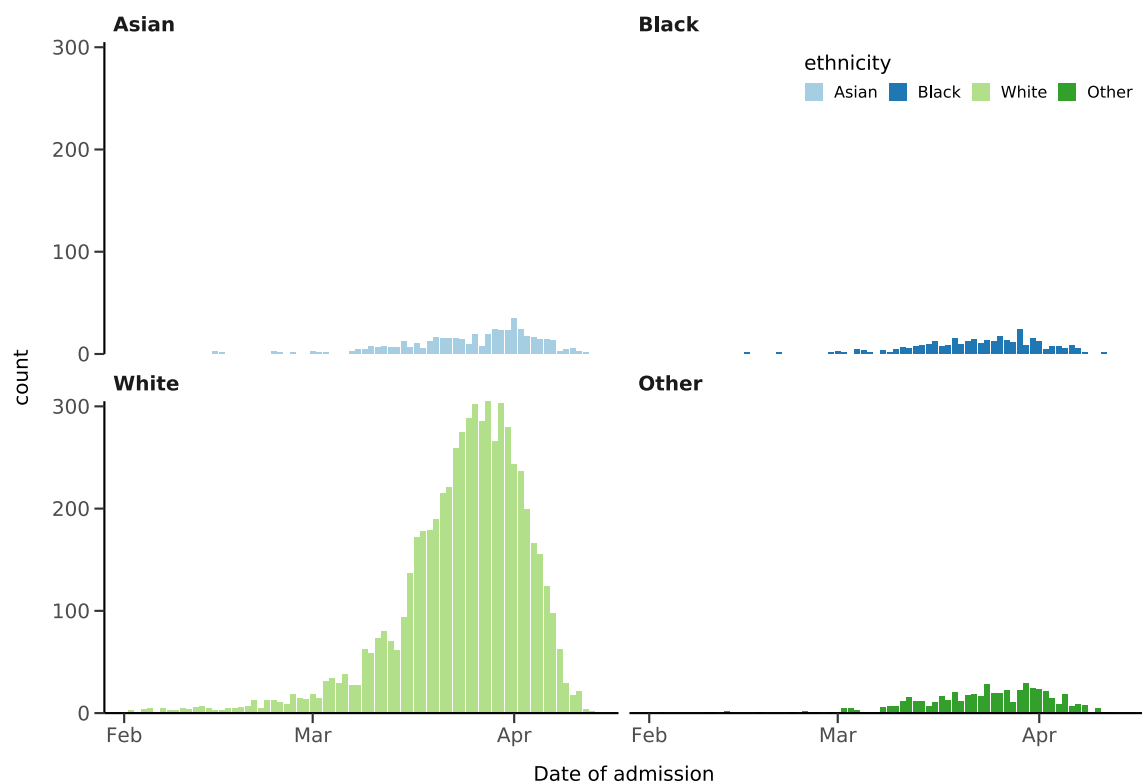


## All patients stratified by age, sex, and current status

Figure 1D



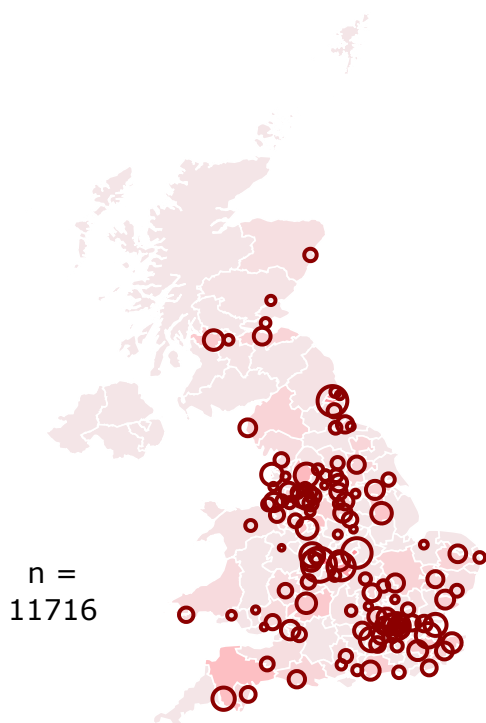
Hospital admission with COVID-19 by ethnicity  
Figure 1E



## Location by CCG / Healthboard

Figure 2

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

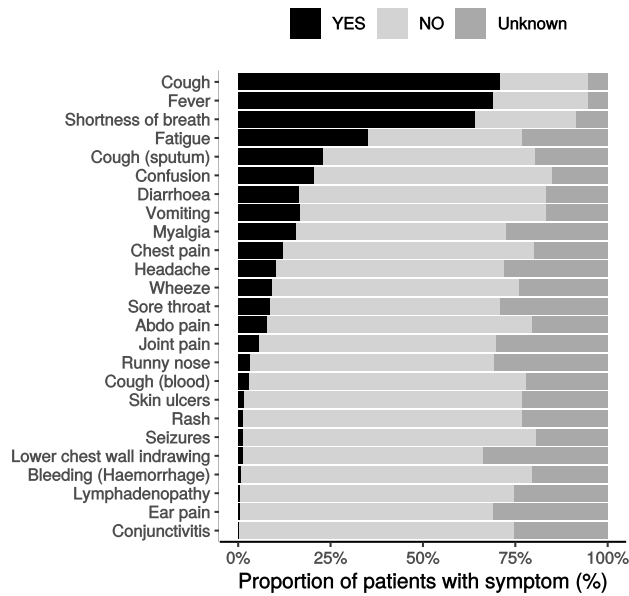


## Symptoms and comorbidity

Figure 3A

Symptoms on presentation to hospital (% patients, n = 7854)

Figure 3A



Comorbidity (% patients, n = 7919)

Figure 3B

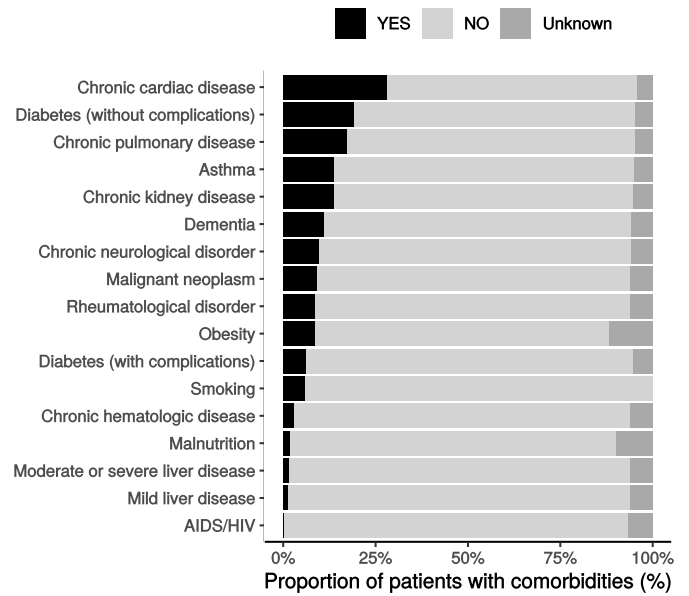
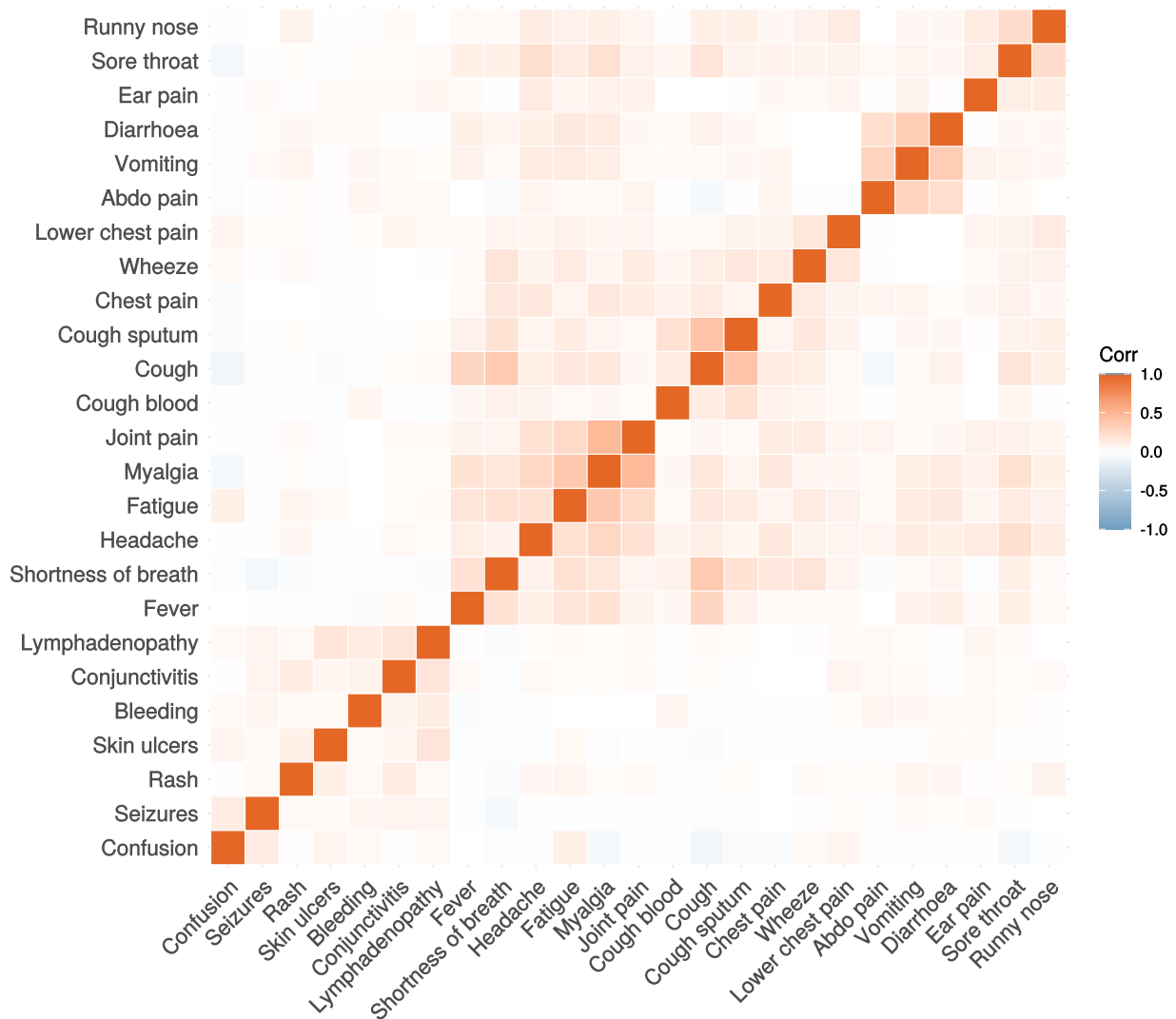


Figure 3C

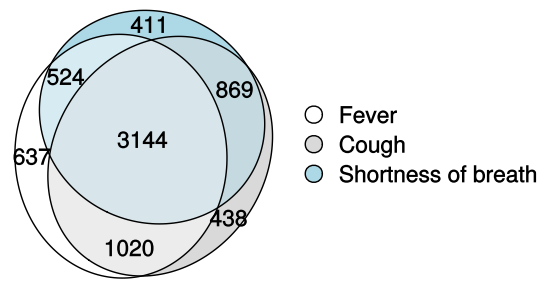
Correlation of symptoms in all pages. Note clusters, top right to bottom left, flu-like, coryzal, abdominal, respiratory, neurocutaneous.



Symptoms (diagnostic criteria)

Figure 4A

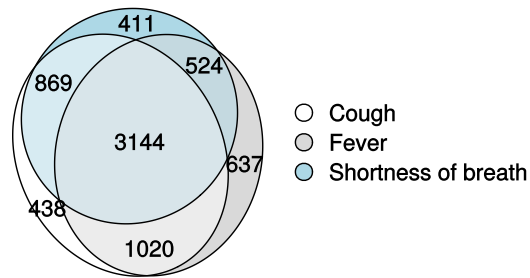
n = 7854



## Symptoms (most common)

Figure 4B

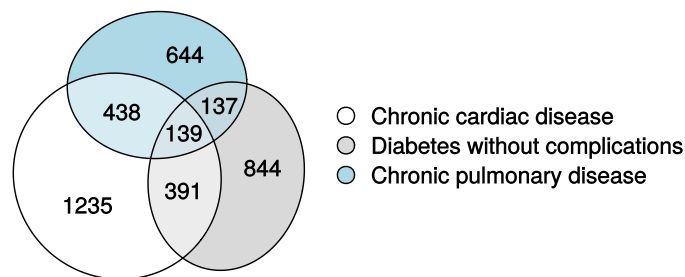
n = 7854



## Comorbidity (most common)

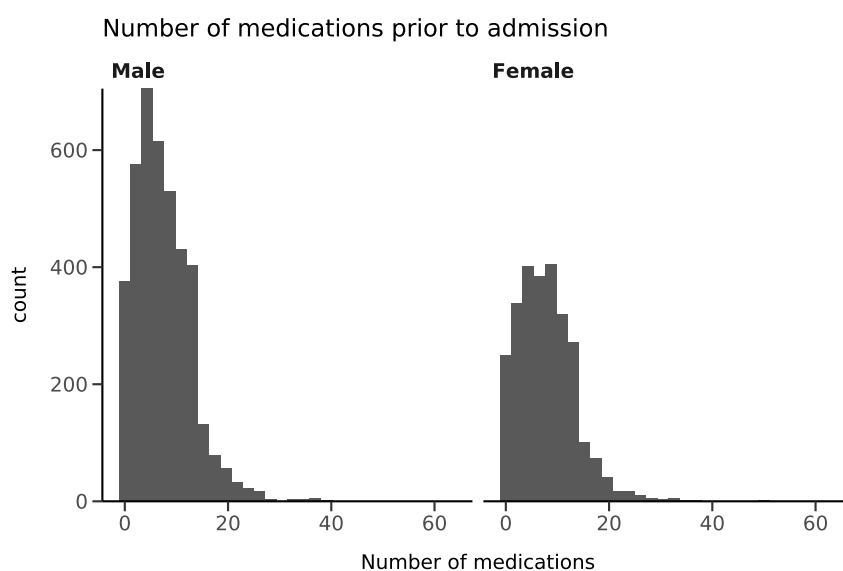
Figure 4C

n = 7919



## Medication prior to illness

Figure 5

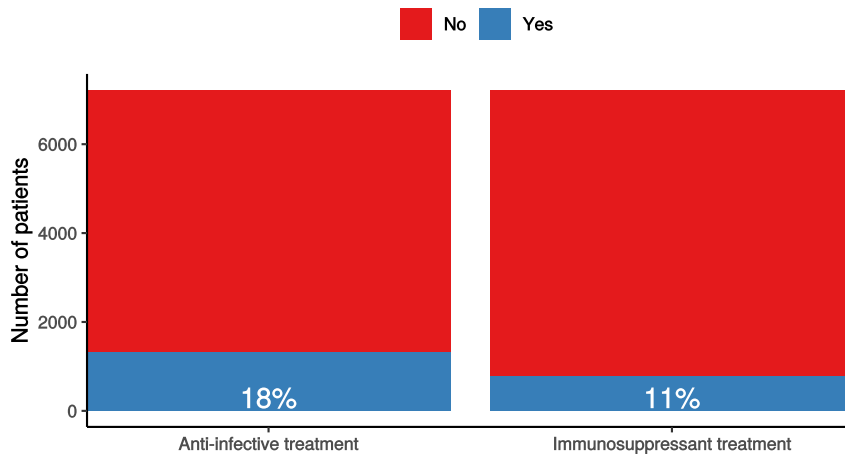


## Preadmission treatment

Figure 6

## Pre-admission treatment

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



## Patient flow

Figure 7A - All patients

N = 8019

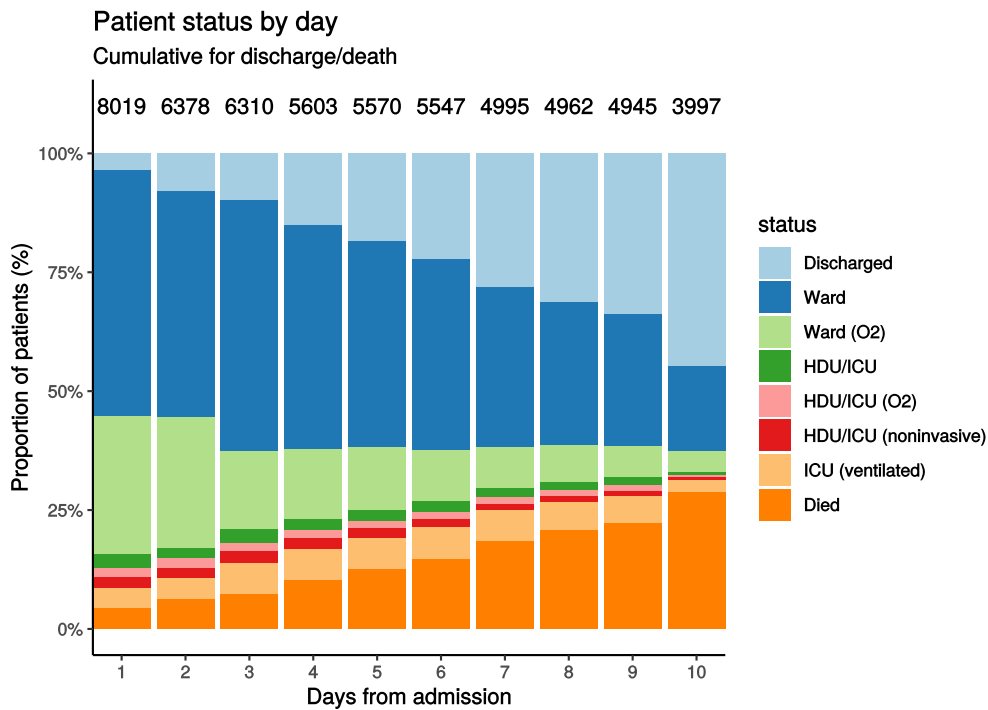
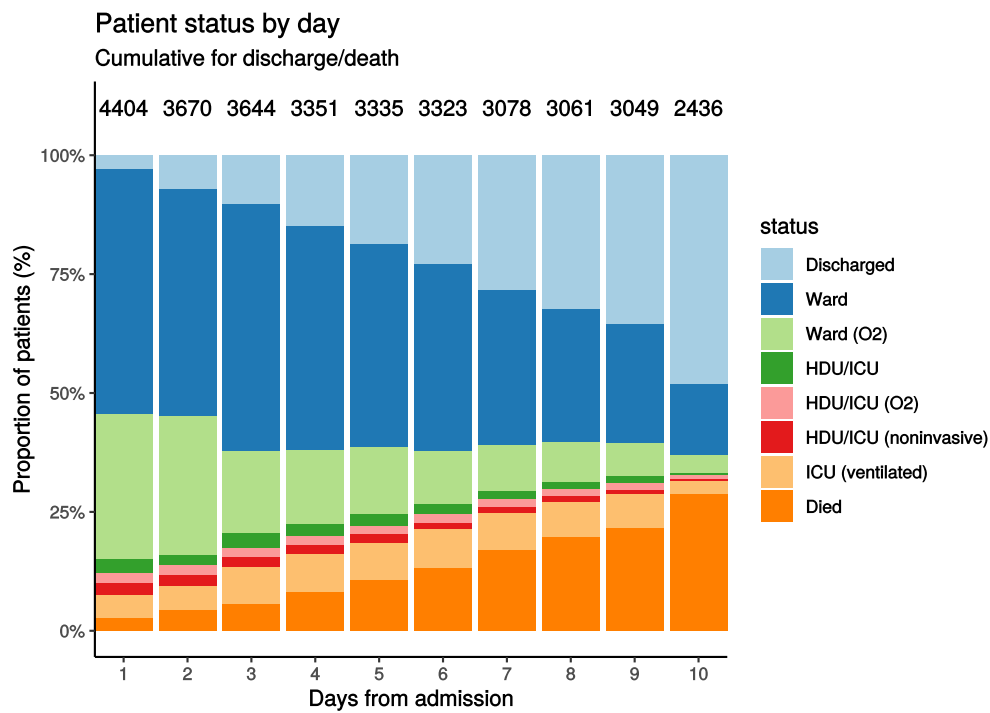


Figure 7B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 4404



## Oxygen requirement

Figure 8A - All patients

N = 7414

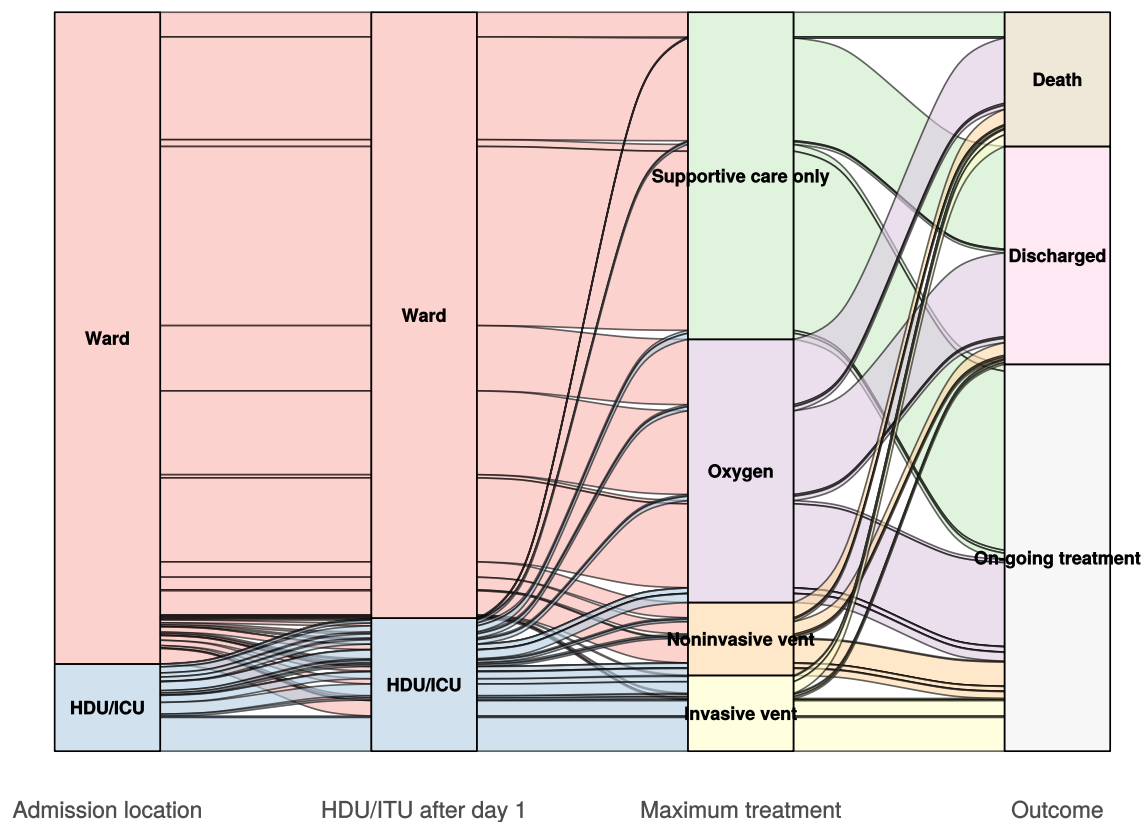
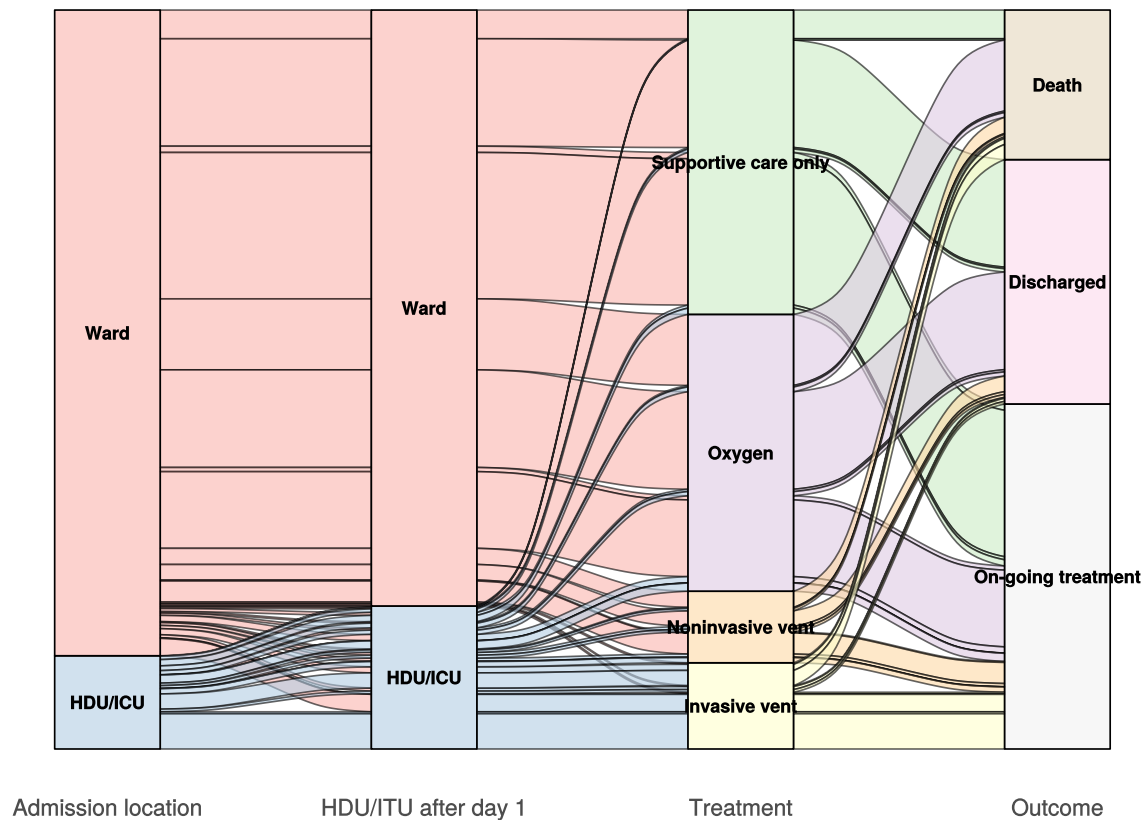


Figure 8B - Patients admitted  $\geq 14$  days and  $\leq 28$  days ago

N = 4151



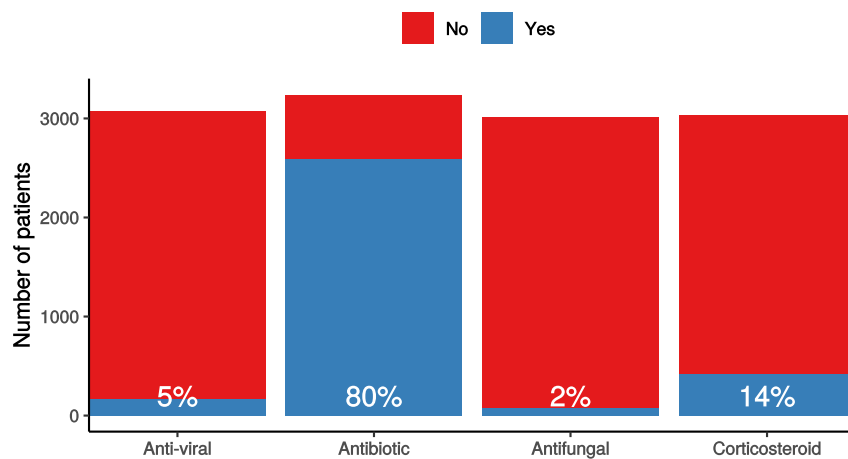


## In-hospital medical treatment

Figure 9

### In-hospital treatment

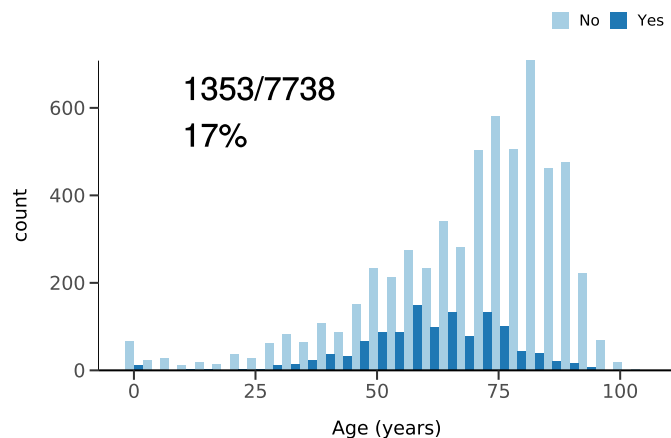
Anti-virals, antibiotics, corticosteroids, and anti-fungals for patients who have coi



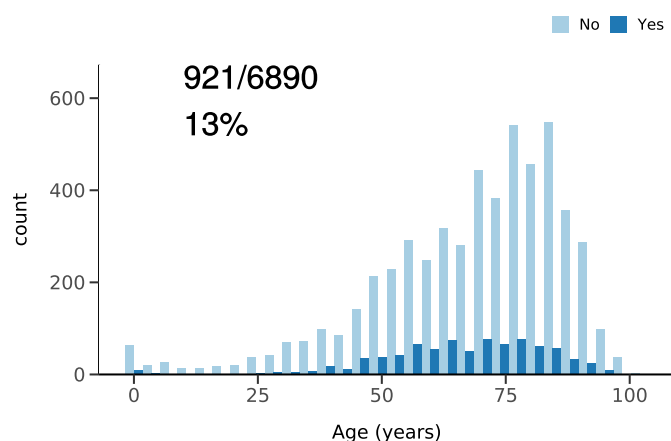
## Treatment

Figure 10

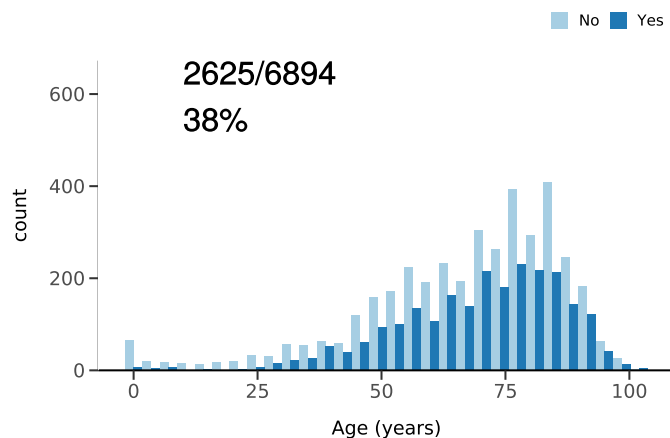
ICU/HDU admission  
Figure 10A



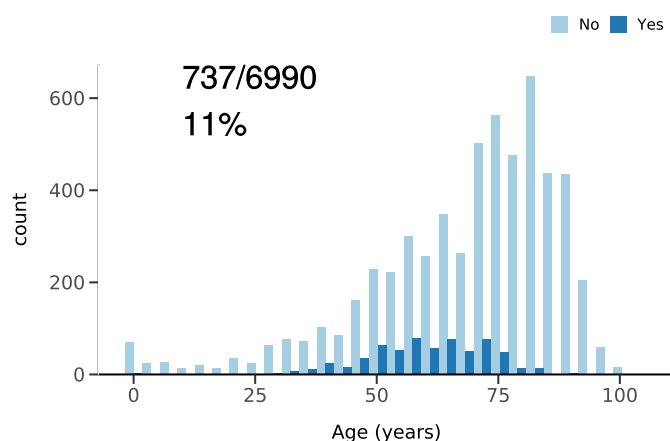
Noninvasive ventilation  
Figure 10C



High flow oxygen  
Figure 10B



Invasive ventilation  
Figure 10D

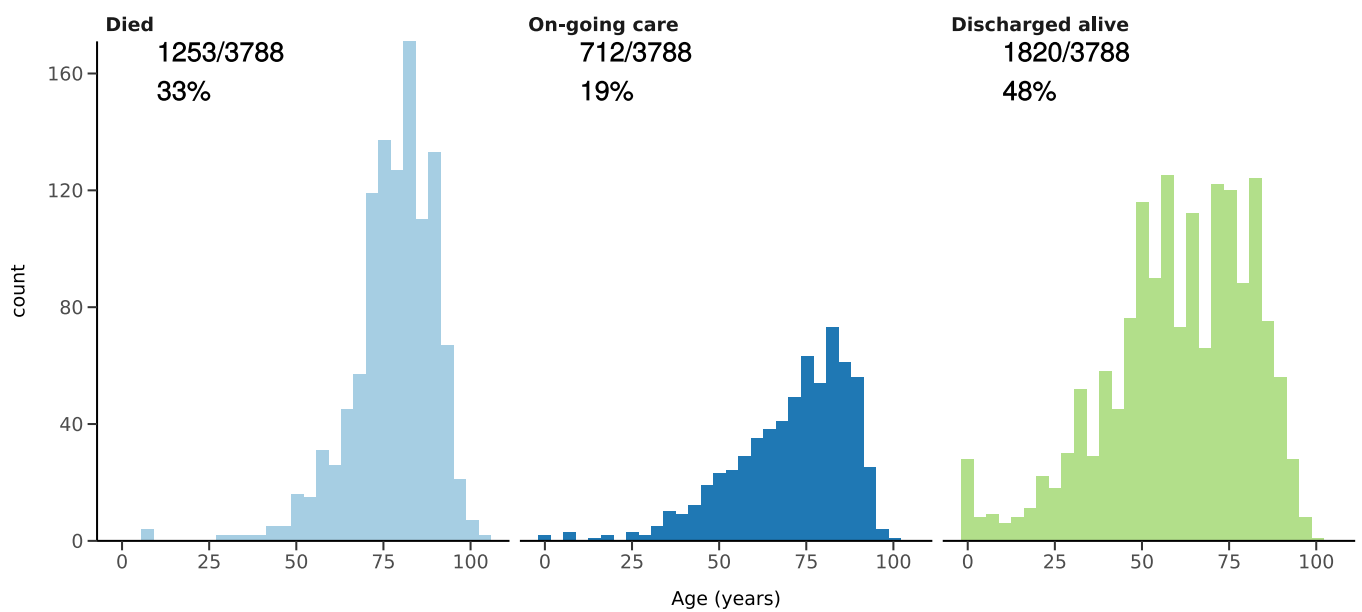


## Status in patients admitted $\geq 14$ days from today

Figure 11

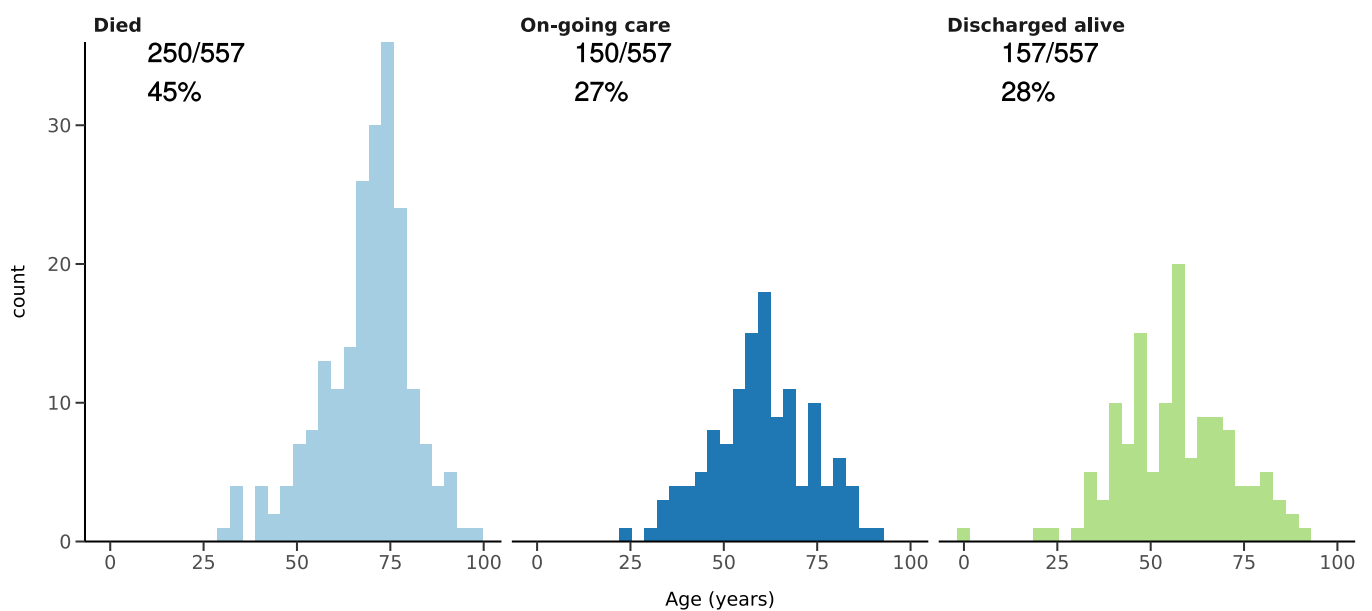
All: status in patients admitted  $\geq 14$  days ago

Figure 11A



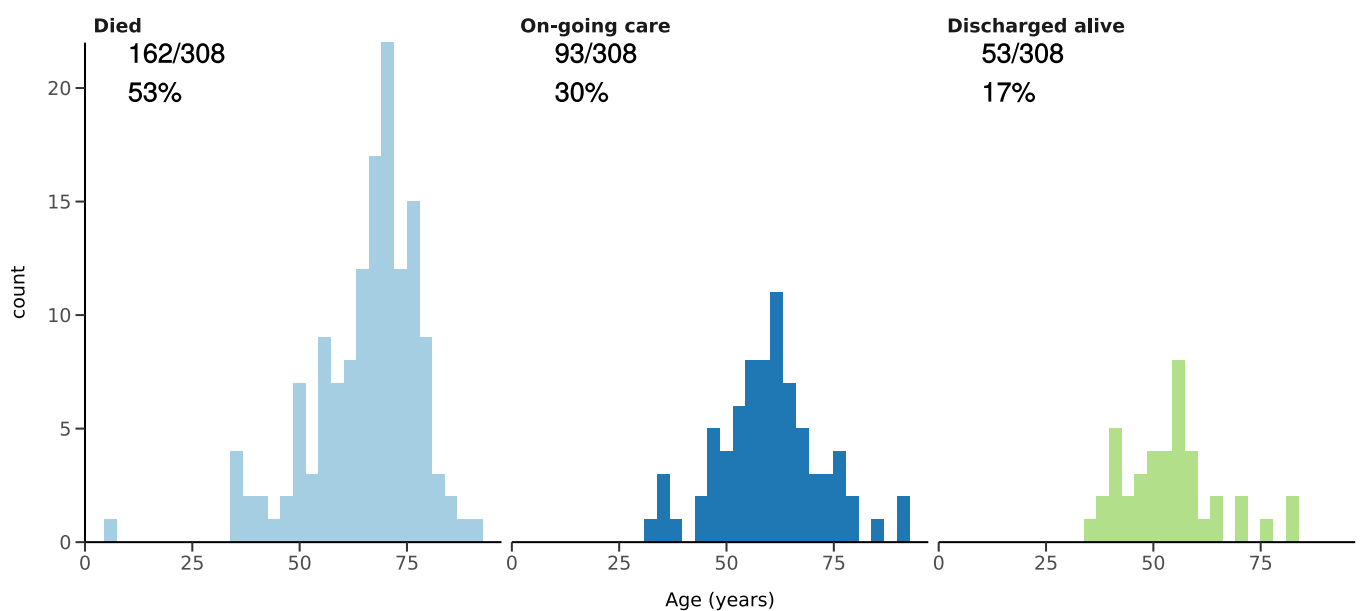
ICU/HDU admissions: status in patients admitted  $\geq 14$  days ago

Figure 11B



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

Figure 11c



# 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    | 450 (94.7)  | 25 (5.3)    | •                            | •                            |
|                               | 50-69  | 596 (75.6)  | 192 (24.4)  | 5.80 (3.83-9.16, p<0.001)    | 6.05 (3.68-10.57, p<0.001)   |
|                               | 70-79  | 329 (48.9)  | 344 (51.1)  | 18.82 (12.48-29.61, p<0.001) | 16.61 (10.11-29.05, p<0.001) |
|                               | 80+    | 385 (40.5)  | 566 (59.5)  | 26.46 (17.69-41.37, p<0.001) | 21.88 (13.34-38.22, p<0.001) |
| Sex at Birth                  | Male   | 1107 (57.6) | 814 (42.4)  | •                            | •                            |
|                               | Female | 838 (65.5)  | 442 (34.5)  | 0.72 (0.62-0.83, p<0.001)    | 0.71 (0.58-0.86, p=0.001)    |
| Chronic cardiac disease       | NO     | 1434 (69.3) | 634 (30.7)  | •                            | •                            |
|                               | YES    | 390 (44.6)  | 484 (55.4)  | 2.81 (2.39-3.30, p<0.001)    | 1.47 (1.19-1.82, p<0.001)    |
| Chronic pulmonary disease     | NO     | 1565 (65.2) | 835 (34.8)  | •                            | •                            |
|                               | YES    | 255 (48.0)  | 276 (52.0)  | 2.03 (1.68-2.45, p<0.001)    | 1.33 (1.05-1.70, p=0.020)    |
| Chronic neurological disorder | NO     | 1662 (63.5) | 955 (36.5)  | •                            | •                            |
|                               | YES    | 130 (49.8)  | 131 (50.2)  | 1.75 (1.36-2.26, p<0.001)    | 1.25 (0.89-1.75, p=0.190)    |
| Chronic hematologic disease   | NO     | 1746 (63.0) | 1027 (37.0) | •                            | •                            |
|                               | YES    | 42 (42.4)   | 57 (57.6)   | 2.31 (1.54-3.48, p<0.001)    | 1.92 (1.09-3.40, p=0.024)    |
| Chronic kidney disease        | NO     | 1628 (65.5) | 858 (34.5)  | •                            | •                            |
|                               | YES    | 177 (41.6)  | 248 (58.4)  | 2.66 (2.16-3.28, p<0.001)    | 1.45 (1.10-1.91, p=0.008)    |
| Dementia                      | NO     | 1679 (65.5) | 885 (34.5)  | •                            | •                            |
|                               | YES    | 119 (37.3)  | 200 (62.7)  | 3.19 (2.51-4.07, p<0.001)    | 1.65 (1.22-2.25, p=0.001)    |
| Obesity                       | NO     | 1538 (63.2) | 895 (36.8)  | •                            | •                            |
|                               | YES    | 148 (59.2)  | 102 (40.8)  | 1.18 (0.91-1.54, p=0.211)    | 1.66 (1.17-2.33, p=0.004)    |
| Malignancy                    | NO     | 1646 (63.8) | 933 (36.2)  | •                            | •                            |
|                               | YES    | 148 (50.2)  | 147 (49.8)  | 1.75 (1.38-2.23, p<0.001)    | 1.21 (0.89-1.64, p=0.215)    |

Number in dataframe = 6243, Number in model = 2296, Missing = 3947, AIC = 2504.3, C-statistic = 0.766, H&L = Chi-sq(8) 14.53 (p=0.069)

**Figure 11 - Adjusted odds ratio plot**

## Death

|                               |        |                                 |
|-------------------------------|--------|---------------------------------|
| Age on admission (years)      | <50    | -                               |
|                               | 50-69  | 6.05 (3.68-10.57, $p<0.001$ )   |
|                               | 70-79  | 16.61 (10.11-29.05, $p<0.001$ ) |
|                               | 80+    | 21.88 (13.34-38.22, $p<0.001$ ) |
| Sex at Birth                  | Female | 0.71 (0.58-0.86, $p=0.001$ )    |
| Chronic cardiac disease       | YES    | 1.47 (1.19-1.82, $p<0.001$ )    |
| Chronic pulmonary disease     | YES    | 1.33 (1.05-1.70, $p=0.020$ )    |
| Chronic neurological disorder | YES    | 1.25 (0.89-1.75, $p=0.190$ )    |
| Chronic hematologic disease   | YES    | 1.92 (1.09-3.40, $p=0.024$ )    |
| Chronic kidney disease        | YES    | 1.45 (1.10-1.91, $p=0.008$ )    |
| Dementia                      | YES    | 1.65 (1.22-2.25, $p=0.001$ )    |
| Obesity                       | YES    | 1.66 (1.17-2.33, $p=0.004$ )    |
| Malignancy                    | YES    | 1.21 (0.89-1.64, $p=0.215$ )    |

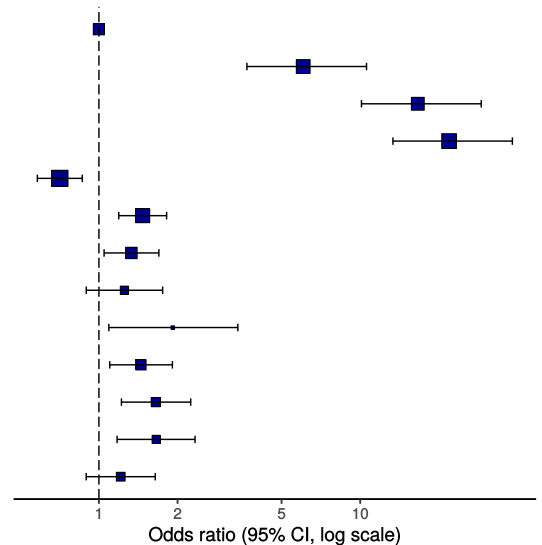
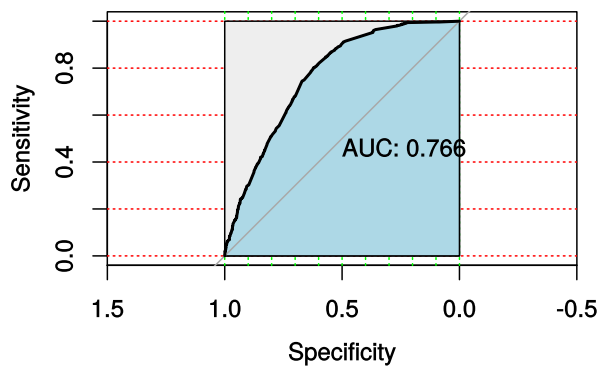


Figure 12 - ROC

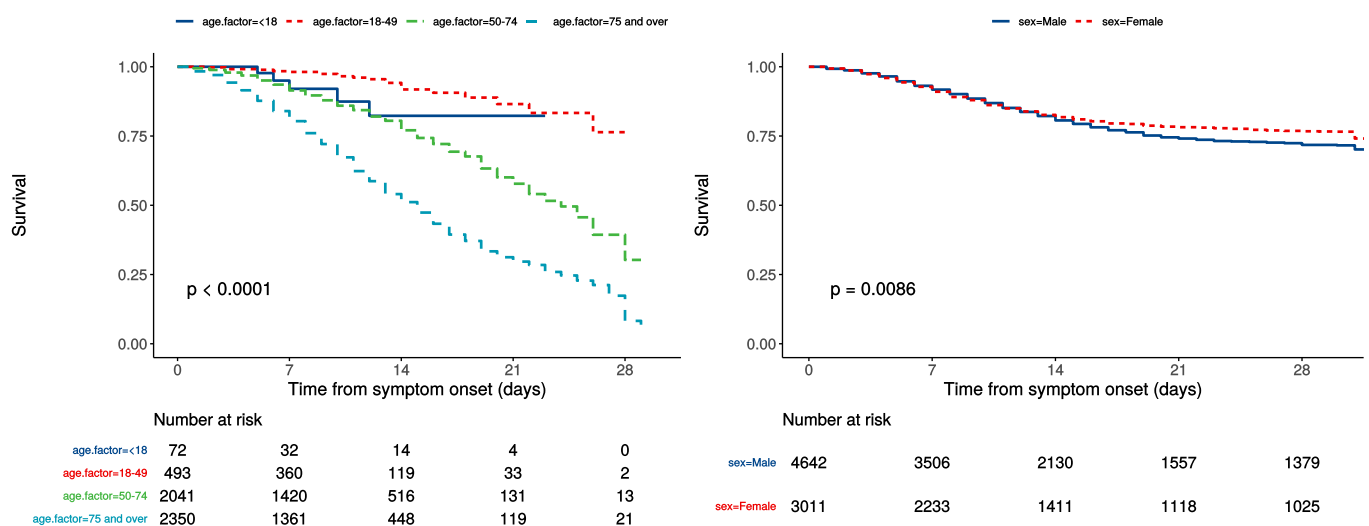


## Survival models

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

Figure 13

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         | 1308 (16.8) | •                            | •                            |
|                               | 50-69       | 2421 (31.1) | 4.54 (3.08-6.69, p<0.001)    | 5.42 (3.06-9.60, p<0.001)    |
|                               | 70-79       | 1780 (22.9) | 12.99 (8.90-18.94, p<0.001)  | 12.95 (7.38-22.75, p<0.001)  |
|                               | 80+         | 2270 (29.2) | 20.05 (13.82-29.07, p<0.001) | 18.16 (10.36-31.83, p<0.001) |
| Sex at Birth                  | Male        | 5028 (60.6) | •                            | •                            |
|                               | Female      | 3268 (39.4) | 0.82 (0.74-0.92, p<0.001)    | 0.81 (0.70-0.94, p=0.006)    |
| qSOFA score on admission      | 0           | 2173 (40.8) | •                            | •                            |
|                               | 1           | 2533 (47.6) | 1.69 (1.47-1.96, p<0.001)    | 1.67 (1.41-1.97, p<0.001)    |
|                               | 2           | 568 (10.7)  | 3.31 (2.76-3.98, p<0.001)    | 3.35 (2.71-4.13, p<0.001)    |
|                               | 3           | 48 (0.9)    | 7.00 (4.74-10.32, p<0.001)   | 5.50 (3.46-8.75, p<0.001)    |
| Symptomatic at presentation   | No symptoms | 170 (2.2)   | •                            | •                            |
|                               | Symptoms    | 7710 (97.8) | 1.08 (0.72-1.60, p=0.714)    | •                            |
| Chronic kidney disease        | NO          | 6482 (87.1) | •                            | •                            |
|                               | YES         | 959 (12.9)  | 2.22 (1.94-2.54, p<0.001)    | 1.09 (0.91-1.32, p=0.343)    |
| Moderate/severe liver disease | NO          | 7269 (98.4) | •                            | •                            |
|                               | YES         | 117 (1.6)   | 1.49 (1.00-2.21, p=0.050)    | •                            |
| Chronic neurological disorder | NO          | 6632 (89.9) | •                            | •                            |
|                               | YES         | 749 (10.1)  | 1.96 (1.68-2.28, p<0.001)    | •                            |
| Malignancy                    | NO          | 6710 (90.9) | •                            | •                            |
|                               | YES         | 671 (9.1)   | 1.78 (1.51-2.10, p<0.001)    | 1.29 (1.06-1.58, p=0.012)    |
| Chronic hematologic disease   | NO          | 7139 (96.9) | •                            | •                            |
|                               | YES         | 231 (3.1)   | 1.86 (1.44-2.41, p<0.001)    | •                            |
| Obesity                       | NO          | 6217 (89.9) | •                            | •                            |
|                               | YES         | 697 (10.1)  | 1.03 (0.85-1.25, p=0.772)    | 1.42 (1.11-1.82, p=0.005)    |
| Diabetes with complications   | NO          | 6992 (93.9) | •                            | •                            |
|                               | YES         | 453 (6.1)   | 1.35 (1.09-1.66, p=0.005)    | •                            |
| Rheumatologic disorder        | NO          | 6721 (91.5) | •                            | •                            |
|                               | YES         | 622 (8.5)   | 1.47 (1.23-1.76, p<0.001)    | •                            |
| Dementia                      | NO          | 6647 (89.9) | •                            | •                            |
|                               | YES         | 749 (10.1)  | 2.83 (2.45-3.27, p<0.001)    | 1.29 (1.06-1.57, p=0.011)    |

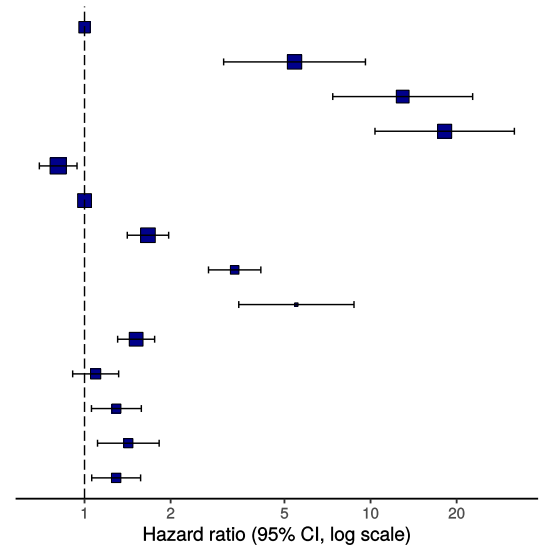
| Dependent: Surv(time, status) |     | all         | HR (univariable)          | HR (multivariable)        |
|-------------------------------|-----|-------------|---------------------------|---------------------------|
| Malnutrition                  | NO  | 6941 (98.1) | •                         | •                         |
|                               | YES | 132 (1.9)   | 2.08 (1.51-2.87, p<0.001) | •                         |
| Smoking                       | NO  | 5856 (94.4) | •                         | •                         |
|                               | YES | 345 (5.6)   | 1.16 (0.89-1.51, p=0.282) | •                         |
| NA                            | NA  | NA          | NA                        | 1.52 (1.31-1.76, p<0.001) |

Number in dataframe = 9348, Number in model = 4141, Missing = 5207, Number of events = 782, Concordance = 0.757 (SE = 0.008), R-squared = 0.153( Max possible = 0.948), Likelihood ratio test = 686.112 (df = 12, p = 0.000)

**Figure 14a - Multivariable Cox proportional hazards model**

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

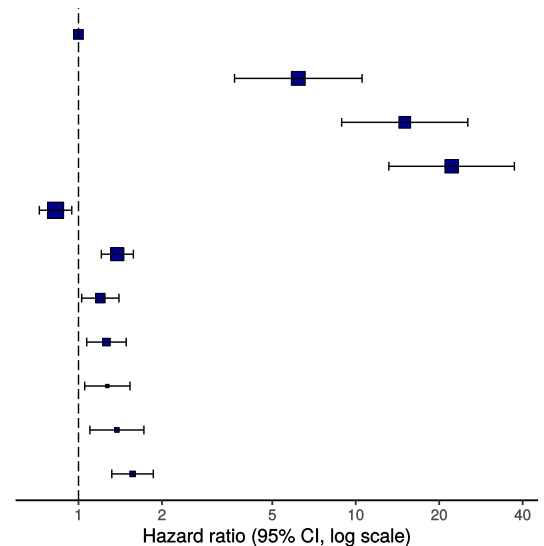
|                          |        |                              |
|--------------------------|--------|------------------------------|
| Age on admission (years) | <50    | -                            |
|                          | 50-69  | 5.42 (3.06-9.60, p<0.001)    |
|                          | 70-79  | 12.95 (7.38-22.75, p<0.001)  |
|                          | 80+    | 18.16 (10.36-31.83, p<0.001) |
| Sex at Birth             | Female | 0.81 (0.70-0.94, p=0.006)    |
| qSOFA score on admission | 0      | -                            |
|                          | 1      | 1.67 (1.41-1.97, p<0.001)    |
|                          | 2      | 3.35 (2.71-4.13, p<0.001)    |
|                          | 3      | 5.50 (3.46-8.75, p<0.001)    |
| Chronic cardiac disease  | YES    | 1.52 (1.31-1.76, p<0.001)    |
| Chronic kidney disease   | YES    | 1.09 (0.91-1.32, p=0.343)    |
| Malignancy               | YES    | 1.29 (1.06-1.58, p=0.012)    |
| Obesity                  | YES    | 1.42 (1.11-1.82, p=0.005)    |
| Dementia                 | YES    | 1.29 (1.06-1.57, p=0.011)    |



**Figure 14b - Multivariable Cox proportional hazards model (age, sex, comorbidities only)**

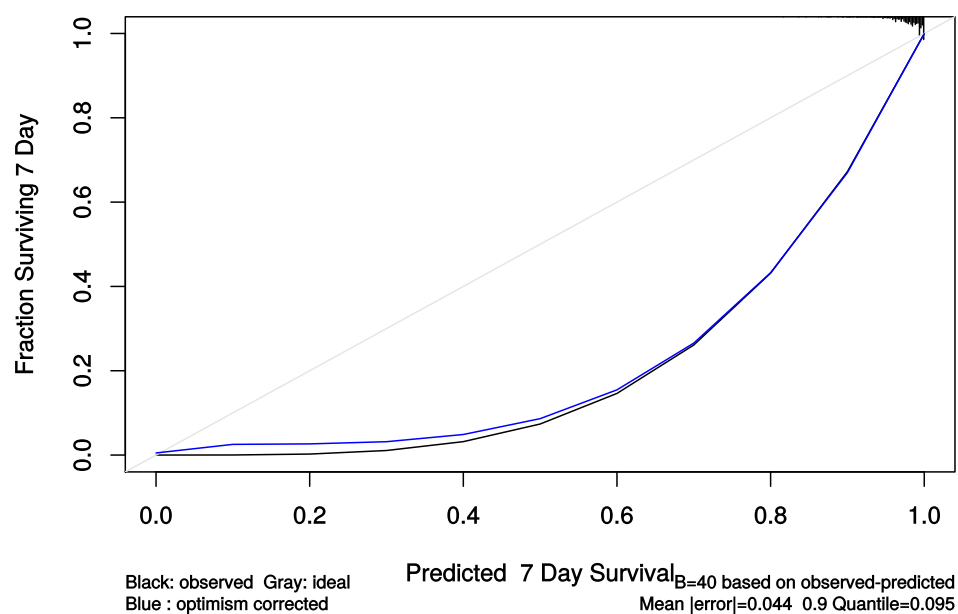
Survival: HR (95% CI, p-value)

|                           |        |                              |
|---------------------------|--------|------------------------------|
| Age on admission (years)  | <50    | -                            |
|                           | 50-69  | 6.21 (3.65-10.54, p<0.001)   |
|                           | 70-79  | 15.02 (8.90-25.37, p<0.001)  |
|                           | 80+    | 22.17 (13.17-37.34, p<0.001) |
| Sex at Birth              | Female | 0.83 (0.72-0.95, p=0.006)    |
| Chronic cardiac disease   | YES    | 1.38 (1.21-1.58, p<0.001)    |
| Chronic pulmonary disease | YES    | 1.20 (1.03-1.40, p=0.022)    |
| Chronic kidney disease    | YES    | 1.26 (1.07-1.49, p=0.005)    |
| Malignancy                | YES    | 1.27 (1.05-1.53, p=0.013)    |
| Obesity                   | YES    | 1.38 (1.10-1.72, p=0.005)    |
| Dementia                  | YES    | 1.57 (1.32-1.86, p<0.001)    |



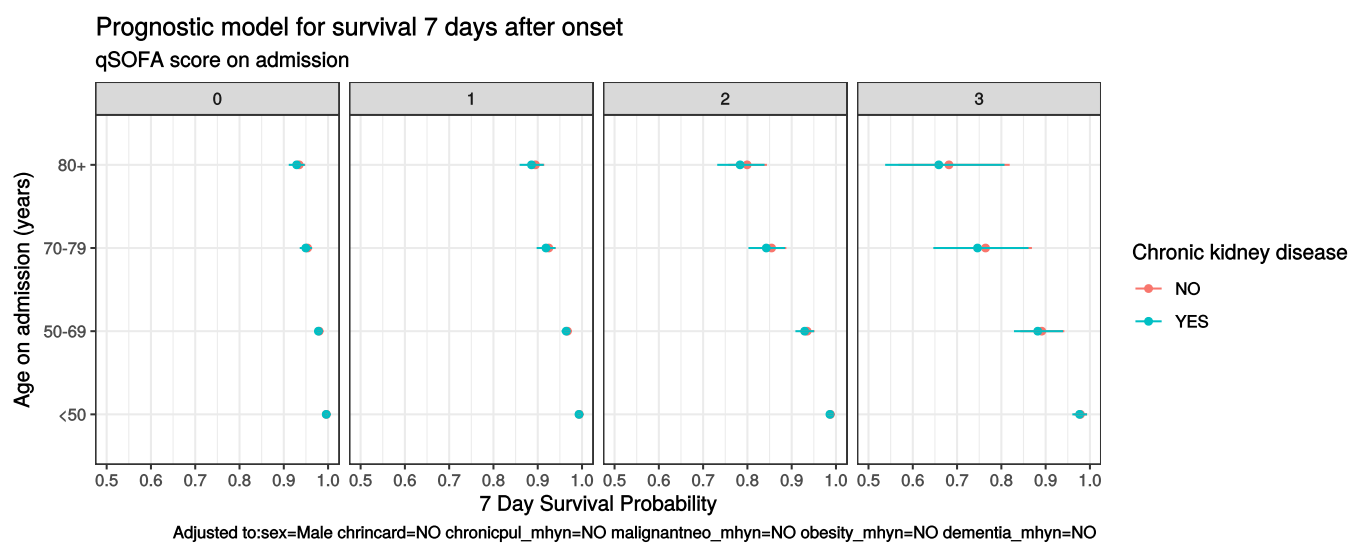
ROC = 0.7591975

**Figure 15 - Predictions calibration plot**



**Figure 16 - Prognostic model predictions**

Again, for demonstration of methods.



**Figure 17 - Death by severity (NEWS) on admission**



Number of deaths by NEWS score at admission

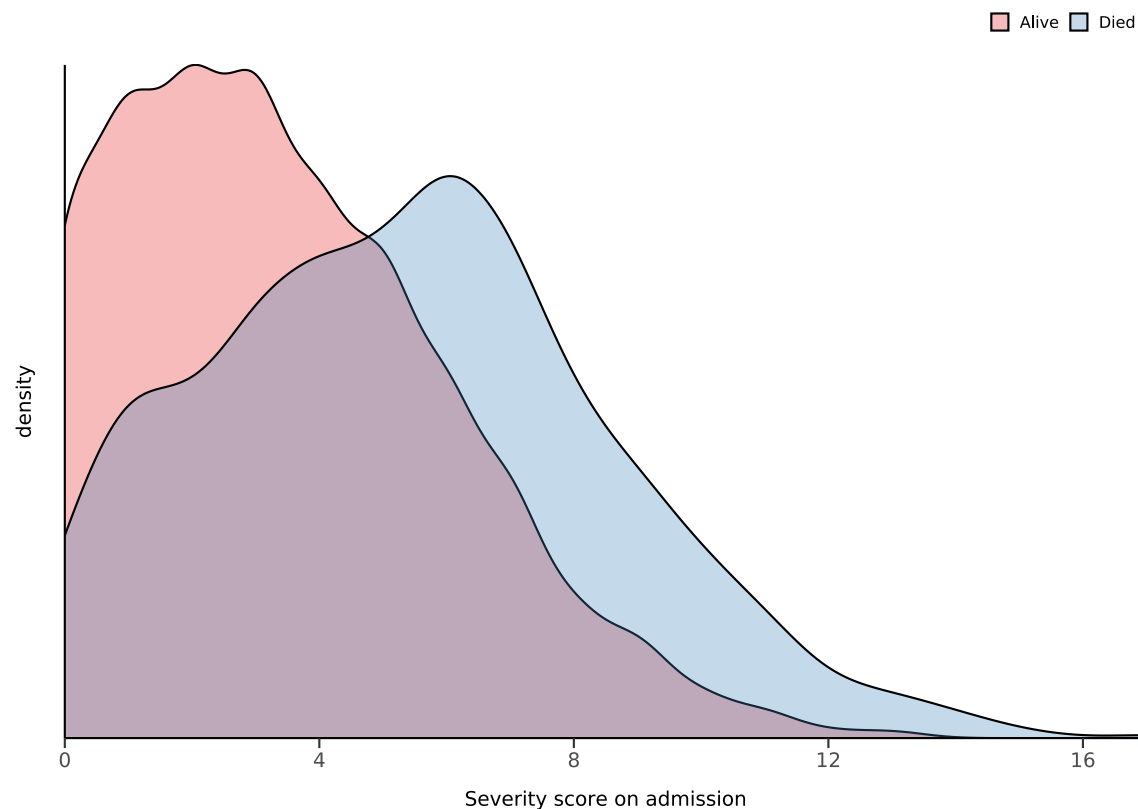


Figure 18 - Death by severity (NEWS) on admission stratified by age

Number of deaths by NEWS score at admission  
Stratified by age

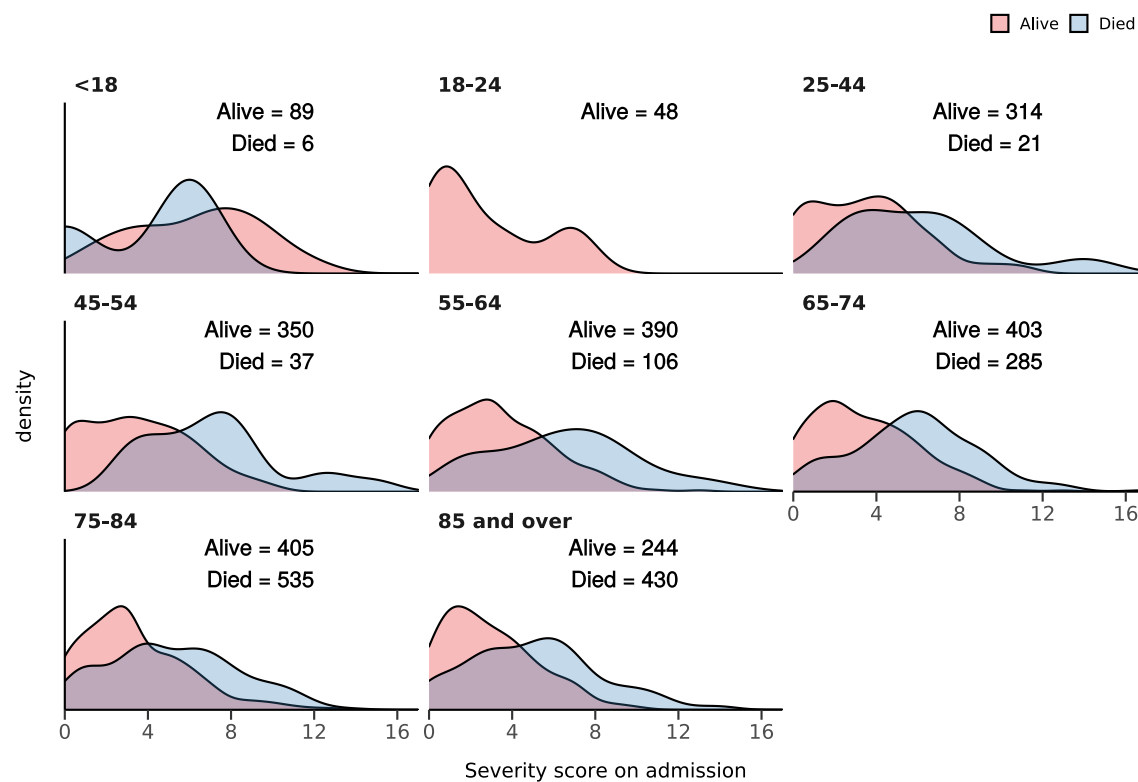
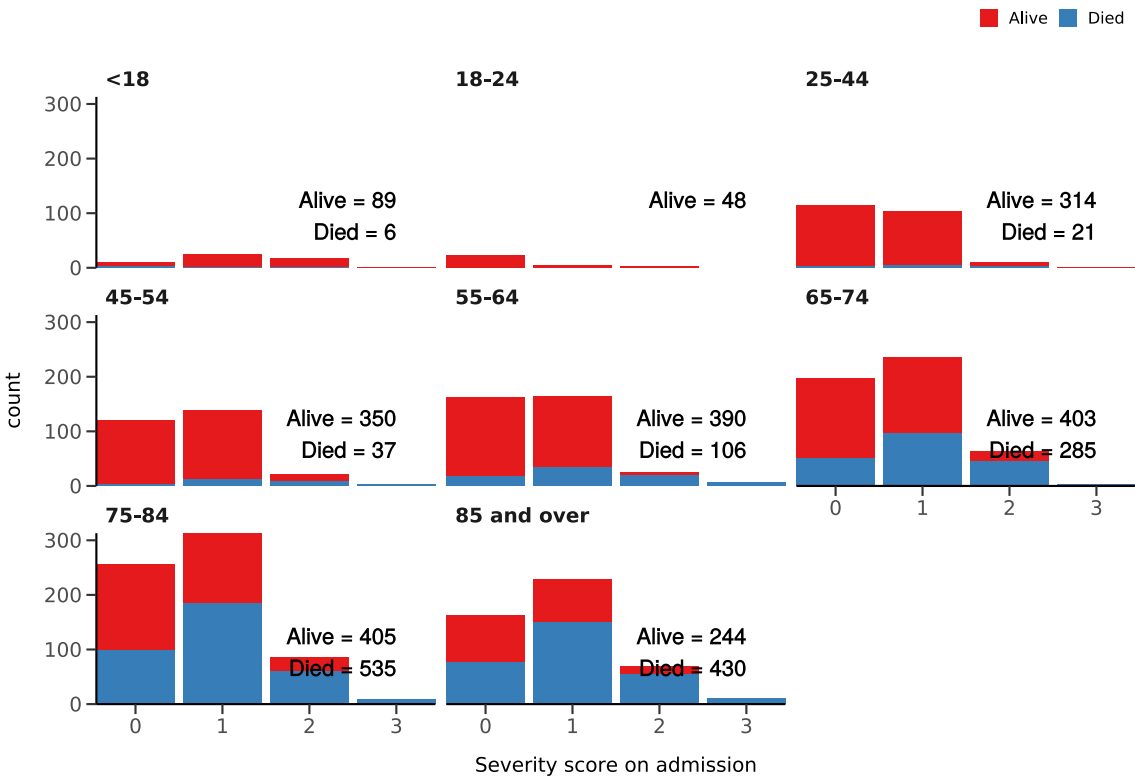


Figure 19 - Death by severity (qSOFA) on admission stratified by age

Number of deaths by qSOFA score at admission  
Stratified by age



Healthcare workers

| Healthcare worker       |              | NO          | YES        | p      |
|-------------------------|--------------|-------------|------------|--------|
| Total N (%)             |              | 7461 (95.9) | 315 (4.1)  |        |
| NEWS score on admission | Median (IQR) | 4.0 (4.0)   | 4.0 (4.0)  | 0.475  |
| Death                   | No           | 1988 (59.3) | 142 (95.9) | <0.001 |
|                         | Yes          | 1363 (40.7) | 6 (4.1)    |        |

Admission (detail)

Table 1

| label                    | levels        | all           |
|--------------------------|---------------|---------------|
| Total N (%)              |               | 12332 (100.0) |
| Age on admission (years) | Mean (SD)     | 67.9 (18.9)   |
| Sex at Birth             | Male          | 5571 (45.2)   |
|                          | Female        | 3647 (29.6)   |
|                          | Not specified | 13 (0.1)      |
|                          | (Missing)     | 3101 (25.1)   |
|                          |               |               |
| Healthcare worker        | YES           | 315 (2.6)     |
|                          | NO            | 7461 (60.5)   |
|                          | N/A           | 744 (6.0)     |
|                          | (Missing)     | 3812 (30.9)   |

| label                            | levels                           | all         |
|----------------------------------|----------------------------------|-------------|
| Microbiology lab worker          | YES                              | 23 (0.2)    |
|                                  | NO                               | 7743 (62.8) |
|                                  | N/A                              | 751 (6.1)   |
|                                  | (Missing)                        | 3815 (30.9) |
| Onset to admission (days)        | Mean (SD)                        | 3.3 (15.3)  |
| Transfer from other facility     | Yes-facility is a study site     | 141 (1.1)   |
|                                  | Yes-facility is not a study site | 403 (3.3)   |
|                                  | No                               | 7609 (61.7) |
|                                  | N/A                              | 197 (1.6)   |
|                                  | (Missing)                        | 3982 (32.3) |
| Travel in 14 d prior to symptoms | Yes                              | 485 (3.9)   |
|                                  | No                               | 6217 (50.4) |
|                                  | N/A                              | 1053 (8.5)  |
|                                  | (Missing)                        | 4577 (37.1) |
| Country                          | Antigua and Barbuda              | 1 (0.0)     |
|                                  | Argentina                        | 1 (0.0)     |
|                                  | Australia                        | 2 (0.0)     |
|                                  | Austria                          | 15 (0.1)    |
|                                  | Barbados                         | 10 (0.1)    |
|                                  | Brazil                           | 1 (0.0)     |
|                                  | Bulgaria                         | 2 (0.0)     |
|                                  | Cambodia                         | 1 (0.0)     |
|                                  | Canada                           | 1 (0.0)     |
|                                  | Cabo Verde                       | 1 (0.0)     |
|                                  | China                            | 2 (0.0)     |
|                                  | Cuba                             | 1 (0.0)     |
|                                  | Cyprus                           | 13 (0.1)    |
|                                  | Czechia                          | 1 (0.0)     |
|                                  | Dominican Republic               | 1 (0.0)     |
|                                  | Egypt                            | 5 (0.0)     |
|                                  | France                           | 26 (0.2)    |
|                                  | Germany                          | 7 (0.1)     |
|                                  | Ghana                            | 1 (0.0)     |
|                                  | Greece                           | 1 (0.0)     |
|                                  | Hong Kong                        | 1 (0.0)     |
|                                  | Hungary                          | 2 (0.0)     |

| label     | levels               | all          |
|-----------|----------------------|--------------|
|           | Iceland              | 1 (0.0)      |
|           | India                | 7 (0.1)      |
|           | Indonesia            | 1 (0.0)      |
|           | Iran                 | 5 (0.0)      |
|           | Ireland              | 3 (0.0)      |
|           | Italy                | 76 (0.6)     |
|           | Japan                | 3 (0.0)      |
|           | Malaysia             | 3 (0.0)      |
|           | Mexico               | 1 (0.0)      |
|           | Morocco              | 3 (0.0)      |
|           | Netherlands          | 6 (0.0)      |
|           | New Zealand          | 1 (0.0)      |
|           | Nigeria              | 2 (0.0)      |
|           | Norway               | 1 (0.0)      |
|           | Pakistan             | 1 (0.0)      |
|           | Philippines          | 4 (0.0)      |
|           | Poland               | 3 (0.0)      |
|           | Portugal             | 8 (0.1)      |
|           | Romania              | 5 (0.0)      |
|           | Saudi Arabia         | 1 (0.0)      |
|           | Singapore            | 2 (0.0)      |
|           | Somalia              | 1 (0.0)      |
|           | South Africa         | 5 (0.0)      |
|           | Spain                | 105 (0.9)    |
|           | Swaziland            | 1 (0.0)      |
|           | Switzerland          | 7 (0.1)      |
|           | Thailand             | 4 (0.0)      |
|           | Turkey               | 4 (0.0)      |
|           | United Arab Emirates | 8 (0.1)      |
|           | United Kingdom       | 77 (0.6)     |
|           | Yemen                | 1 (0.0)      |
|           | (Missing)            | 11886 (96.4) |
| Country 2 | Antigua and Barbuda  | 1 (0.0)      |
|           | Aruba                | 1 (0.0)      |
|           | Australia            | 2 (0.0)      |
|           | Austria              | 3 (0.0)      |

| label                                     | levels         | all          |
|---|----------------|--------------|
|   | Barbados       | 1 (0.0)      |
|   | Bulgaria       | 1 (0.0)      |
|   | Canada         | 1 (0.0)      |
|   | Cyprus         | 1 (0.0)      |
|   | Czechia        | 1 (0.0)      |
|   | Egypt          | 2 (0.0)      |
|   | France         | 5 (0.0)      |
|   | Germany        | 2 (0.0)      |
|   | India          | 1 (0.0)      |
|   | Indonesia      | 1 (0.0)      |
|   | Italy          | 13 (0.1)     |
|   | Netherlands    | 1 (0.0)      |
|   | Portugal       | 1 (0.0)      |
|   | Qatar          | 1 (0.0)      |
|   | South Africa   | 1 (0.0)      |
|   | Spain          | 13 (0.1)     |
|   | Switzerland    | 1 (0.0)      |
|   | Thailand       | 1 (0.0)      |
|   | Turkey         | 3 (0.0)      |
|   | Vietnam        | 1 (0.0)      |
|   | (Missing)      | 12273 (99.5) |
| Animal, raw meat, insect bites 14 d prior | Yes            | 66 (0.5)     |
|   | No             | 3087 (25.0)  |
|   | Unknown        | 4369 (35.4)  |
|   | N/A            | 404 (3.3)    |
|   | (Missing)      | 4406 (35.7)  |
| Animal / insect                           | Bee Sting      | 1 (1.6)      |
|   | Bird (pet)     | 1 (1.6)      |
|   | bird (pigeon)  | 1 (1.6)      |
|   | Cat            | 1 (1.6)      |
|   | Cat (pet)      | 1 (1.6)      |
|   | Cat / Dog      | 1 (1.6)      |
|   | cats           | 3 (4.9)      |
|   | Cats           | 3 (4.9)      |
|   | chicken & beef | 1 (1.6)      |
|   | Chickens       | 1 (1.6)      |
|   |                |              |
|   |                |              |

| label | levels                                     | all     |
|-------|--|---------|
|       | COWS                                       | 1 (1.6) |
|       | cows, rabbits, pigs goats                  | 1 (1.6) |
|       | dog  | 2 (3.3) |
|       | Dog  | 6 (9.8) |
|       | DOG  | 2 (3.3) |
|       | Dog Pet                                    | 1 (1.6) |
|       | Dog, domestic animla living in their home. | 1 (1.6) |
|       | Dogs at home                               | 1 (1.6) |
|       | Domestic pet dog                           | 1 (1.6) |
|       | Domestic animal                            | 1 (1.6) |
|       | DOMESTIC ANIMAL                            | 2 (3.3) |
|       | domestic animal living in his home         | 1 (1.6) |
|       | domestic animals                           | 1 (1.6) |
|       | Domestic Animals living in his/her home    | 1 (1.6) |
|       | Domestic animals living in home            | 1 (1.6) |
|       | domestic dog                               | 1 (1.6) |
|       | Domestic pest (cats)                       | 1 (1.6) |
|       | Domestic Pet                               | 2 (3.3) |
|       | Domestic Pet (Dog)                         | 3 (4.9) |
|       | Domestic pet cat                           | 1 (1.6) |
|       | Domestic pet Dog                           | 1 (1.6) |
|       | Domestic pets                              | 1 (1.6) |
|       | Domestic Pets                              | 1 (1.6) |
|       | Domestic pets (dog)                        | 1 (1.6) |
|       | Domestic Pets Cat and Dog                  | 1 (1.6) |
|       | FARM ANIMALS - LAMBS                       | 1 (1.6) |
|       | Guinea Pig                                 | 1 (1.6) |
|       | mosquito                                   | 1 (1.6) |
|       | pet dog                                    | 1 (1.6) |
|       | Pet dog                                    | 1 (1.6) |
|       | Prepared raw chicken                       | 1 (1.6) |
|       | Rodent                                     | 1 (1.6) |
|       | Rodent - hamster,                          | 1 (1.6) |
|       | she has a cat                              | 1 (1.6) |
|       | Two cats                                   | 1 (1.6) |
|       | unknown                                    | 1 (1.6) |

# Symptoms (detail)

Table 2

| Stratified: all |           | all           |
|-----------------|-----------|---------------|
| Total N (%)     |           | 12332 (100.0) |
| Fever           | YES       | 5428 (44.0)   |
|                 | NO        | 2001 (16.2)   |
|                 | Unknown   | 425 (3.4)     |
|                 | (Missing) | 4478 (36.3)   |
| Cough           | YES       | 5564 (45.1)   |
|                 | NO        | 1881 (15.3)   |
|                 | Unknown   | 405 (3.3)     |
|                 | (Missing) | 4482 (36.3)   |
| Cough (sputum)  | YES       | 1775 (14.4)   |
|                 | NO        | 4449 (36.1)   |
|                 | Unknown   | 1513 (12.3)   |
|                 | (Missing) | 4595 (37.3)   |
| Cough (blood)   | YES       | 225 (1.8)     |
|                 | NO        | 5798 (47.0)   |
|                 | Unknown   | 1695 (13.7)   |
|                 | (Missing) | 4614 (37.4)   |
| Sore throat     | YES       | 668 (5.4)     |
|                 | NO        | 4802 (38.9)   |
|                 | Unknown   | 2236 (18.1)   |
|                 | (Missing) | 4626 (37.5)   |
| Runny nose      | YES       | 258 (2.1)     |
|                 | NO        | 5077 (41.2)   |
|                 | Unknown   | 2369 (19.2)   |
|                 | (Missing) | 4628 (37.5)   |
| Ear pain        | YES       | 41 (0.3)      |
|                 | NO        | 5267 (42.7)   |
|                 | Unknown   | 2386 (19.3)   |
|                 | (Missing) | 4638 (37.6)   |
| Wheeze          | YES       | 712 (5.8)     |
|                 | NO        | 5147 (41.7)   |
|                 | Unknown   | 1835 (14.9)   |
|                 | (Missing) | 4638 (37.6)   |

| Stratified: all            |           | all         |
|----------------------------|-----------|-------------|
| Chest pain                 | YES       | 936 (7.6)   |
|                            | NO        | 5251 (42.6) |
|                            | Unknown   | 1526 (12.4) |
|                            | (Missing) | 4619 (37.5) |
| Muscle ache                | YES       | 1219 (9.9)  |
|                            | NO        | 4362 (35.4) |
|                            | Unknown   | 2124 (17.2) |
|                            | (Missing) | 4627 (37.5) |
| Joint pain                 | YES       | 434 (3.5)   |
|                            | NO        | 4934 (40.0) |
|                            | Unknown   | 2320 (18.8) |
|                            | (Missing) | 4644 (37.7) |
| Fatigue                    | YES       | 2708 (22.0) |
|                            | NO        | 3219 (26.1) |
|                            | Unknown   | 1785 (14.5) |
|                            | (Missing) | 4620 (37.5) |
| Shortness of breath        | YES       | 5026 (40.8) |
|                            | NO        | 2135 (17.3) |
|                            | Unknown   | 667 (5.4)   |
|                            | (Missing) | 4504 (36.5) |
| Lower chest wall indrawing | YES       | 100 (0.8)   |
|                            | NO        | 4995 (40.5) |
|                            | Unknown   | 2591 (21.0) |
|                            | (Missing) | 4646 (37.7) |
| Headache                   | YES       | 792 (6.4)   |
|                            | NO        | 4754 (38.6) |
|                            | Unknown   | 2146 (17.4) |
|                            | (Missing) | 4640 (37.6) |
| Confusion                  | YES       | 1594 (12.9) |
|                            | NO        | 4963 (40.2) |
|                            | Unknown   | 1160 (9.4)  |
|                            | (Missing) | 4615 (37.4) |
| Seizures                   | YES       | 102 (0.8)   |
|                            | NO        | 6101 (49.5) |
|                            | Unknown   | 1495 (12.1) |
|                            | (Missing) | 4634 (37.6) |



| Stratified: all        |           | all         |
|------------------------|-----------|-------------|
| Abdominal pain         | YES       | 607 (4.9)   |
|                        | NO        | 5520 (44.8) |
|                        | Unknown   | 1577 (12.8) |
|                        | (Missing) | 4628 (37.5) |
| Nausea/vomiting        | YES       | 1283 (10.4) |
|                        | NO        | 5156 (41.8) |
|                        | Unknown   | 1280 (10.4) |
|                        | (Missing) | 4613 (37.4) |
| Diarrhoea              | YES       | 1284 (10.4) |
|                        | NO        | 5152 (41.8) |
|                        | Unknown   | 1286 (10.4) |
|                        | (Missing) | 4610 (37.4) |
| Conjunctivitis         | YES       | 28 (0.2)    |
|                        | NO        | 5713 (46.3) |
|                        | Unknown   | 1949 (15.8) |
|                        | (Missing) | 4642 (37.6) |
| Skin rash              | YES       | 117 (0.9)   |
|                        | NO        | 5793 (47.0) |
|                        | Unknown   | 1783 (14.5) |
|                        | (Missing) | 4639 (37.6) |
| Skin ulcers            | YES       | 123 (1.0)   |
|                        | NO        | 5792 (47.0) |
|                        | Unknown   | 1785 (14.5) |
|                        | (Missing) | 4632 (37.6) |
| Lymphadenopathy        | YES       | 46 (0.4)    |
|                        | NO        | 5688 (46.1) |
|                        | Unknown   | 1953 (15.8) |
|                        | (Missing) | 4645 (37.7) |
| Bleeding (Haemorrhage) | YES       | 66 (0.5)    |
|                        | NO        | 6047 (49.0) |
|                        | Unknown   | 1572 (12.7) |
|                        | (Missing) | 4647 (37.7) |
| If Bleeding (others)   | YES       | 118 (1.0)   |
|                        | NO        | 5853 (47.5) |
|                        | Unknown   | 1648 (13.4) |
|                        | (Missing) | 4713 (38.2) |

# Comorbidity (detail)

Table 3

| Stratified: all               |           | all           |
|-------------------------------|-----------|---------------|
| Total N (%)                   |           | 12332 (100.0) |
| Chronic cardiac disease       | YES       | 2236 (18.1)   |
|                               | NO        | 5347 (43.4)   |
|                               | Unknown   | 336 (2.7)     |
|                               | (Missing) | 4413 (35.8)   |
| Chronic pulmonary disease     | YES       | 1371 (11.1)   |
|                               | NO        | 6186 (50.2)   |
|                               | Unknown   | 372 (3.0)     |
|                               | (Missing) | 4403 (35.7)   |
| Asthma                        | YES       | 1102 (8.9)    |
|                               | NO        | 6407 (52.0)   |
|                               | Unknown   | 399 (3.2)     |
|                               | (Missing) | 4424 (35.9)   |
| Chronic kidney disease        | YES       | 1086 (8.8)    |
|                               | NO        | 6395 (51.9)   |
|                               | Unknown   | 411 (3.3)     |
|                               | (Missing) | 4440 (36.0)   |
| Moderate/severe liver disease | YES       | 126 (1.0)     |
|                               | NO        | 7297 (59.2)   |
|                               | Unknown   | 471 (3.8)     |
|                               | (Missing) | 4438 (36.0)   |
| Mild Liver disease            | YES       | 118 (1.0)     |
|                               | NO        | 7284 (59.1)   |
|                               | Unknown   | 487 (3.9)     |
|                               | (Missing) | 4443 (36.0)   |
| Chronic neurological disorder | YES       | 769 (6.2)     |
|                               | NO        | 6650 (53.9)   |
|                               | Unknown   | 466 (3.8)     |
|                               | (Missing) | 4447 (36.1)   |
| Malignancy                    | YES       | 736 (6.0)     |
|                               | NO        | 6683 (54.2)   |
|                               | Unknown   | 479 (3.9)     |
|                               | (Missing) | 4434 (36.0)   |

| Stratified: all                |           | all         |
|--------------------------------|-----------|-------------|
| Chronic hematologic disease    | YES       | 249 (2.0)   |
|                                | NO        | 7153 (58.0) |
|                                | Unknown   | 484 (3.9)   |
|                                | (Missing) | 4446 (36.1) |
| AIDS/HIV                       | YES       | 35 (0.3)    |
|                                | NO        | 7337 (59.5) |
|                                | Unknown   | 528 (4.3)   |
|                                | (Missing) | 4432 (35.9) |
| Obesity                        | YES       | 674 (5.5)   |
|                                | NO        | 6224 (50.5) |
|                                | Unknown   | 924 (7.5)   |
|                                | (Missing) | 4510 (36.6) |
| Diabetes with complications    | YES       | 487 (3.9)   |
|                                | NO        | 7009 (56.8) |
|                                | Unknown   | 409 (3.3)   |
|                                | (Missing) | 4427 (35.9) |
| Diabetes without complications | YES       | 1530 (12.4) |
|                                | NO        | 6013 (48.8) |
|                                | Unknown   | 375 (3.0)   |
|                                | (Missing) | 4414 (35.8) |
| Rheumatologic disorder         | YES       | 684 (5.5)   |
|                                | NO        | 6697 (54.3) |
|                                | Unknown   | 486 (3.9)   |
|                                | (Missing) | 4465 (36.2) |
| Dementia                       | YES       | 869 (7.0)   |
|                                | NO        | 6563 (53.2) |
|                                | Unknown   | 457 (3.7)   |
|                                | (Missing) | 4443 (36.0) |
| Malnutrition                   | YES       | 151 (1.2)   |
|                                | NO        | 6911 (56.0) |
|                                | Unknown   | 784 (6.4)   |
|                                | (Missing) | 4486 (36.4) |
| Smoking                        | YES       | 370 (3.0)   |
|                                | NO        | 5763 (46.7) |
|                                | (Missing) | 6199 (50.3) |