

# Characteristics of COVID-19 hospital patients in JCVI Vaccination Tier 10

Conor Egan, Stephen Knight, Kenneth Baillie, Ewen Harrison, Annemarie Docherty, Calum Semple

## Summary

This report for CMO and JCVI describes the demographics, use of hospital resource by level of care and outcomes for people in JCVI vaccination tier 10 in wave 2 of the UK COVID-19 outbreak using the CO-CIN data set.

- 1 in 10 patients in hospital with COVID-19 would be placed in JCVI vaccination Tier 10
- 1 in 20 bed days is occupied by a Tier 10 patient
- 1% of Tier 10 patients have died
- 1 in 5 Tier 10 patients required critical care.

## Inclusion and exclusion criteria

### Inclusion:

Aged 16-50 yrs (eligible for Astra Zeneca vaccine from age 16)  
Admission date 2<sup>nd</sup> August to 30<sup>st</sup> December 2020

### Exclusion:

- In a higher vaccination tier
- Comorbidity (other than hypertension, mild liver disease, malnutrition and smoking) that would readily identify a person for vaccination at a higher tier
- Known healthcare workers
- We have not excluded patients with obesity but no other comorbidity for this analysis (we cannot identify if patients' BMI >40 which would put them in Tier 6)

There were 5,180 patients in CO-CIN aged 16-50yrs with a COVID-19 hospital admission between 02/08/2020 and 30/12/2020. This is 10% of total admissions in CO-CIN (54,839). Of these patients we are missing outcomes for 1,005 (19.4%). For patients with known outcomes, 3,726 (89%) survived to hospital discharge, 43 (1%) died in hospital, and 417 (10.0%) remain in hospital (Figure 1).

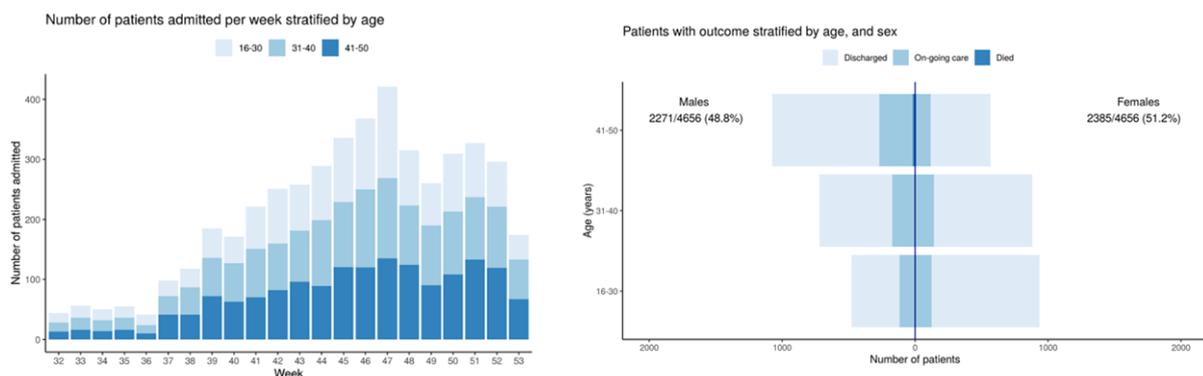


Figure 1A: number of patients admitted per week stratified by age. 1B: patients with known outcome stratified by age and sex



## Levels of care

For patients who had “level of care” recorded, 1,874 patients (36%) received no additional respiratory support, 2,045 (40%) received oxygen on the ward only, 407 (10%) received NIV, and 172 (3%) received IMV. These categories are not mutually exclusive (patients may receive NIV and IMV). 843 (19%) were admitted to critical care (Figure 2). Low flow oxygen administration by nasal specula and face mask is poorly recorded in general wards so is likely to be underestimated in this report.

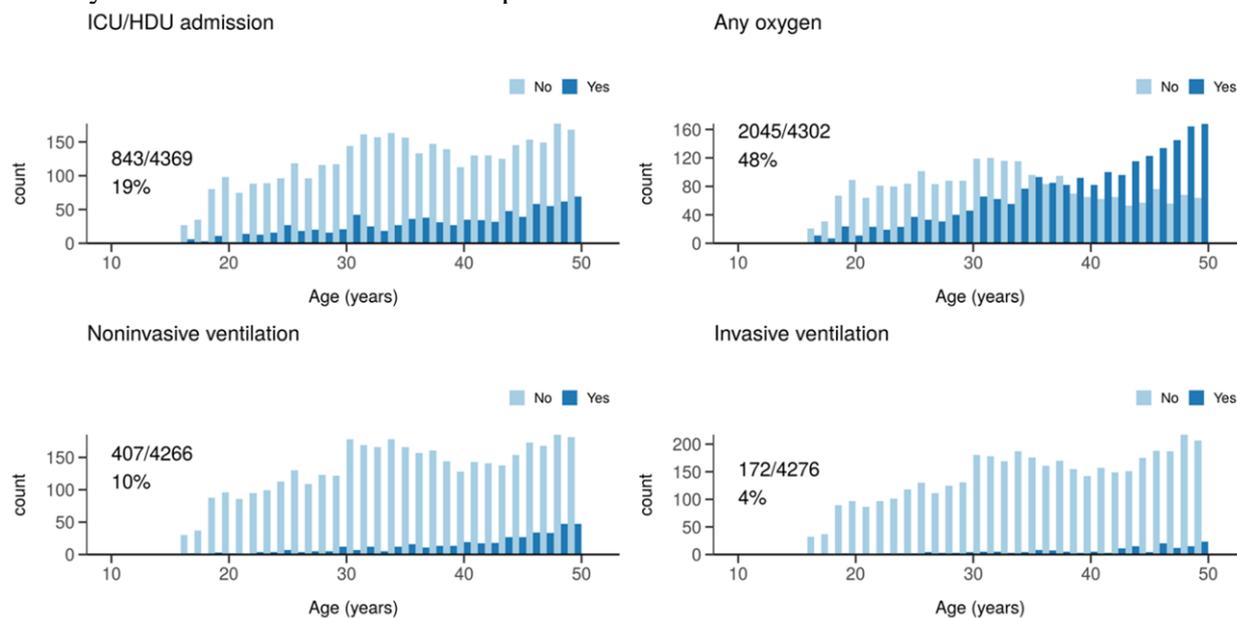


Figure 2: levels of care received stratified by age.

## Outcomes

For patients with outcomes recorded, 43 patients (1%) died in hospital. The median length of stay was 4 (IQR = 6) for patients managed on the ward, and 9 (IQR = 9) for patients admitted to critical care. 124 patients had a documented hospital length of stay greater than 50 days. The total number of bed days for patients in this cohort was 23,244, 5% of all population bed days (n=478,877).

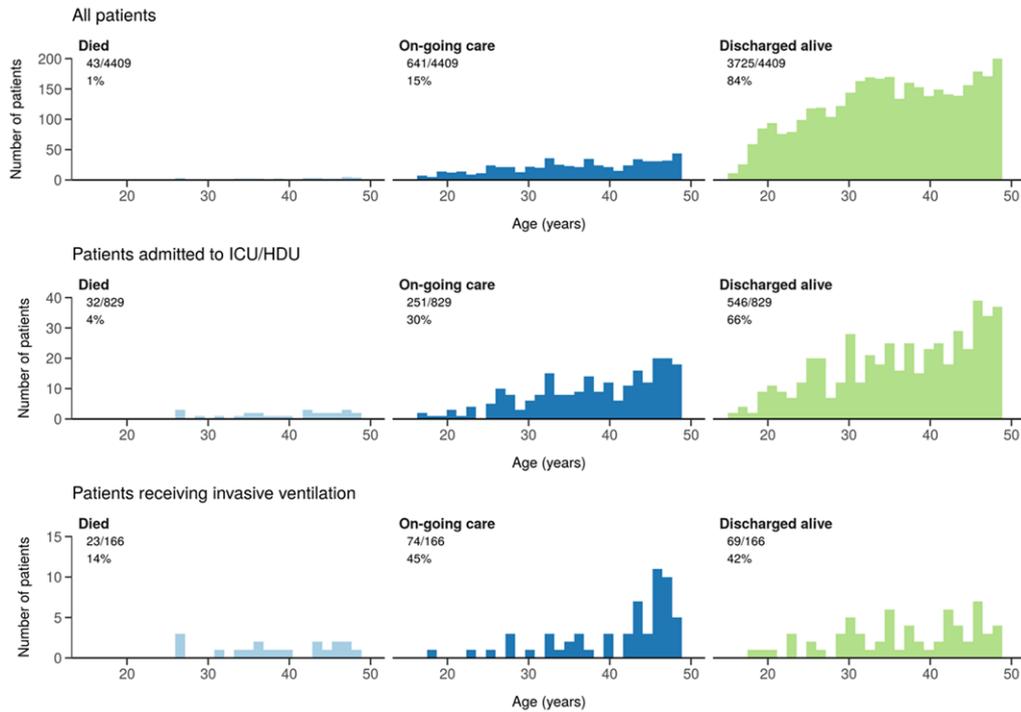


Figure 3: patient outcomes stratified by age and level of care (for patients with outcomes recorded)

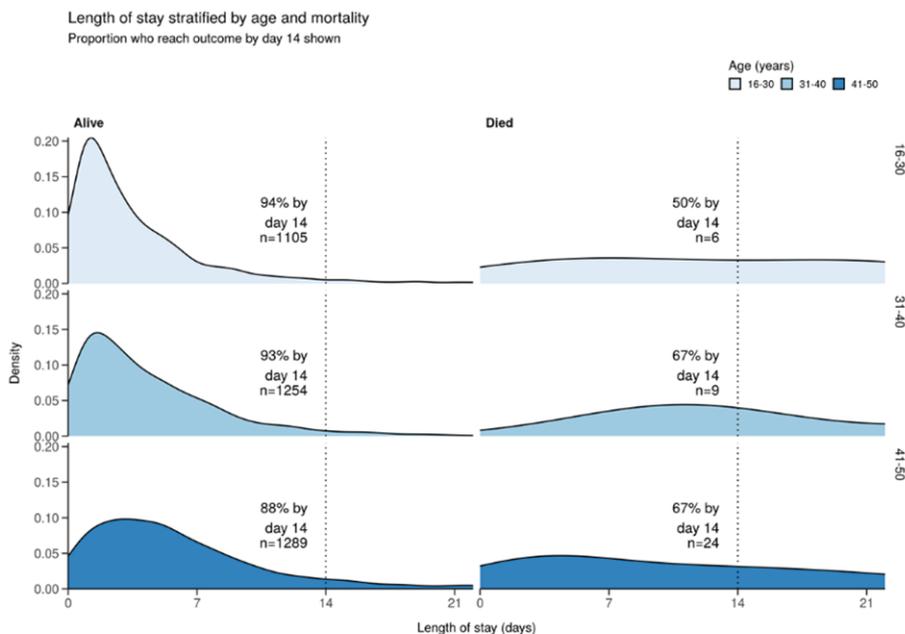


Figure 4: length of stay stratified by age

## Variables associated with critical COVID-19

Critical COVID-19 was defined as “Admission to critical care, invasive mechanical ventilation or death”. Baseline characteristics associated with critical COVID-19 were increasing age, male sex, obesity, increasing deprivation and non-white ethnicity (Figure 5)

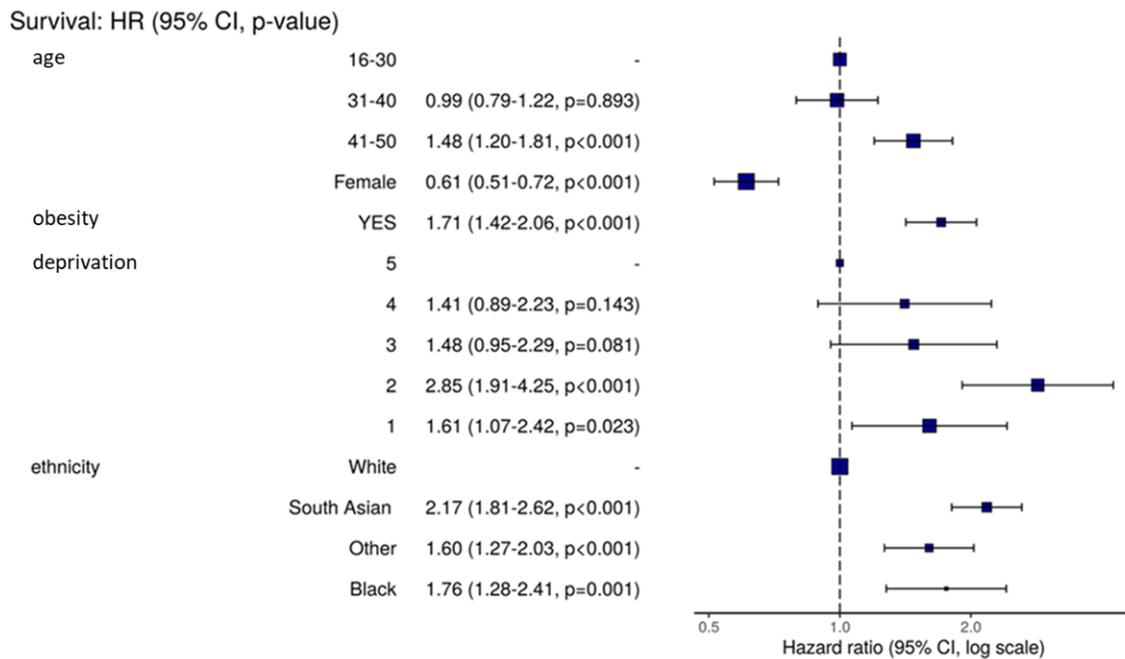


Figure 5: Multivariable cox proportional hazards model (age, sex, obesity, IMD quintile [1=most deprived] and ethnicity), where hazard is “admission to critical care, invasive mechanical ventilation or death”.

In Tier 10: age over 40y , male sex, obesity, deprivation and non-white ethnicity is strongly associated with the hazard of “admission to critical care, invasive mechanical ventilation or death”.