



Characteristics of COVID-19 positive inpatients admitted to Bradford Royal Infirmary

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COVID-19 Scientific Advisory Group

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This report summarises the characteristics of patients who have been admitted to Bradford Royal Infirmary (BRI) and have tested positive for COVID-19 during the first (1st March – 30th June) and second (1st September – current date) wave.

Notes

- Many patients have had numerous tests; these analyses are based on the date of their first documented positive test.
- Following the introduction of pillar 2 testing, some patients were tested in the community prior to hospital admission and were not retested on admission. Presently, these data are not available to us and it is therefore possible that the figures in this report underestimate the number of inpatients with COVID-19.
- The reported number of deaths are for inpatients who tested positive for COVID-19 but the Sars-2-COVID-19 infection is not necessarily the cause of death.

Between 1st March and 17th December 2020, 1,953 inpatients at BRI have tested positive for COVID-19, 545 of whom (27.9%) have died, see figure 1. Infection and mortality rates by patient characteristics in the first (1st March – 30th June) and second (1st September – 17th December) waves are presented in table 1. Mortality rates are lower in wave 2 compared to wave 1, falling from 36.5% to 20.4%. This fall has been greater in White British (45.4% to 25.1%) than South Asian patients (24.7% to 18.4%), see figure 2. The unadjusted risk of dying was significantly lower in South Asian compared to White British patients: RR 0.55 (95% CI 0.41, 0.72) in the first wave and 0.73 (0.55, 0.98) in the second. However, South Asian patients are significantly younger than White British patients (median age 54 v 76) and are more likely to live in deprived areas. When age, sex, and index of multiple deprivation (IMD) were accounted for the risk of dying attenuated but remained lower in South Asian patients in the first wave (0.84 [95% CI: 0.65, 1.08]) but increased to 1.18 (0.90, 1.56) during the second wave.

Mortality rates by patient characteristic are presented overall and stratified by White British and South Asian ethnic groups in table 1 and figures 3 (age-group), 4 (sex) and 5 (IMD). In the first wave, mortality was higher in White British compared to South Asian patients for every patient characteristic. However, the fall in mortality rates has been relatively greater in White British patients during the second wave. The median age of patients who have died has increased by four years in White British patients (from 80 to 84) but fallen by the same amount in South Asian patients (77 to 72.5). The death rate in each age group is now lower in White British compared to South Asian patients. There has been a reduction in the death rate in South Asian females (22 to 13%), but no real change has been observed in South Asian males (27 to 25%); conversely, both sexes in the White British group have experienced proportionately fewer deaths (males: 48 to 31%; females: 42 to 19%). The proportions for IMD 3 and 4/5 are somewhat misleading due to low numbers, but again, a greater reduction in mortality is observed in White British patients in IMD 1 & 2 compared to South Asian patients.

In the interim period between waves (July and August), 73 inpatients tested positive for COVID-19, of whom 6 (8.2%) died.

To summarise, the number of deaths as a proportion of confirmed cases has fallen in the second wave compared to the first, but the fall is lowest in South Asian inpatients.

Figure 1: Daily number of positive COVID-19 tests and cumulative deaths of inpatients at BRI

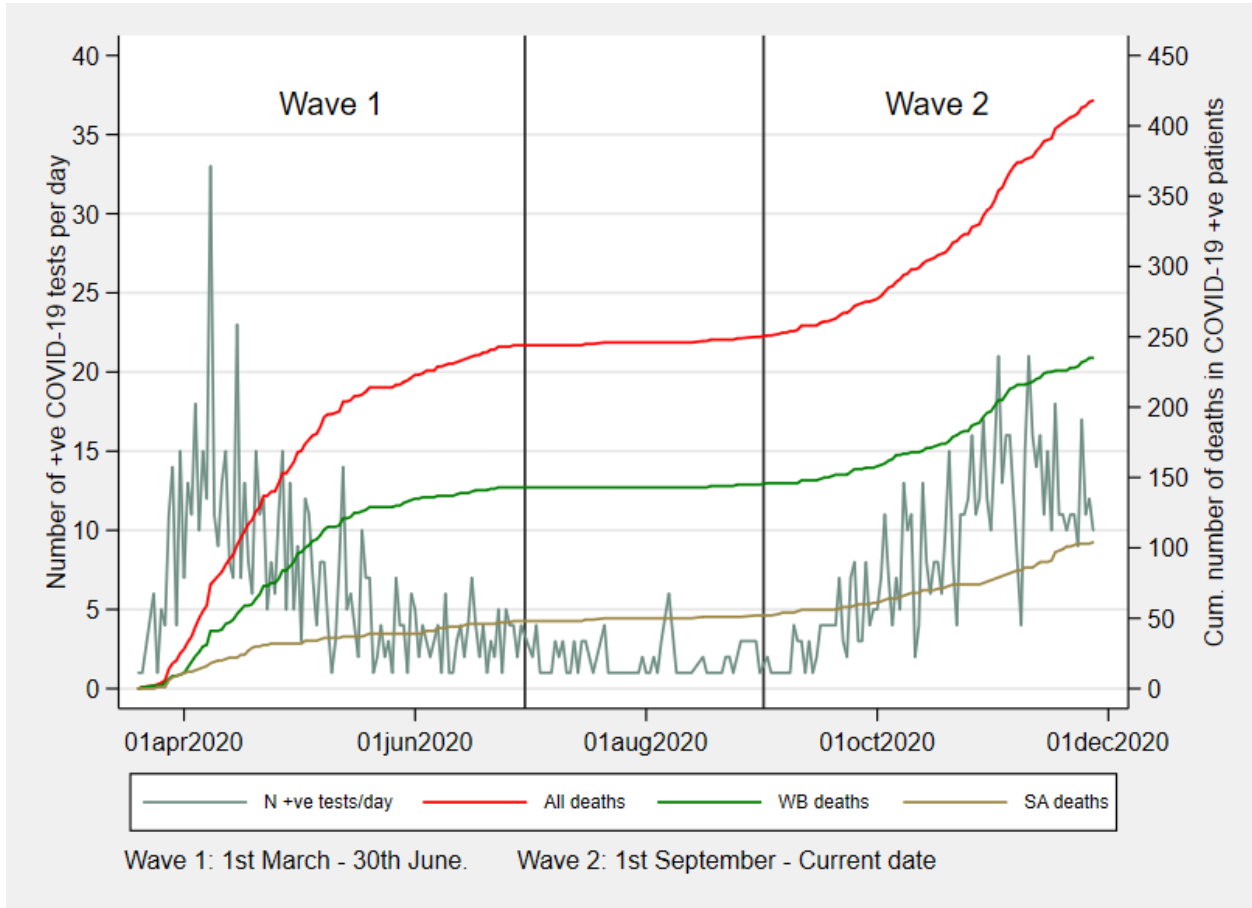


Table 1: Characteristics of COVID-19 positive inpatients at BRI during the first and second waves. Results are presented overall and stratified by White British and South Asian ethnic groups.

| Characteristic | First wave (1 st March – 30 th June) | | | | | | Second wave (1 st September – 17 th December) | | | | | |
|---------------------------|--|----------|---------------|----------|-------------|----------|---|----------|---------------|----------|-------------|----------|
| | All | | White British | | South Asian | | All | | White British | | South Asian | |
| | Cases (n) | Died (%) | Cases (n) | Died (%) | Cases (n) | Died (%) | Cases (n) | Died (%) | Cases (n) | Died (%) | Cases (n) | Died (%) |
| | n=668 | 37% | n=315 | 45% | n=194 | 25% | n=910 | 20% | n=398 | 25% | n=305 | 18% |
| Age, years, median | 70 | 80 | 76 | 80 | 53 | 77 | 68 | 80 | 77 | 84 | 55 | 72.5 |
| Age group, years | | | | | | | | | | | | |
| 0-64 | 268 | 14% | 77 | 22% | 119 | 11% | 395 | 6% | 105 | 3% | 190 | 8% |
| 65+ | 400 | 52% | 238 | 53% | 75 | 47% | 515 | 32% | 293 | 33% | 115 | 35% |
| Sex | | | | | | | | | | | | |
| Male | 356 | 40% | 170 | 48% | 95 | 27% | 459 | 26% | 200 | 31% | 147 | 25% |
| Female | 312 | 33% | 145 | 42% | 99 | 22% | 451 | 16% | 198 | 19% | 158 | 13% |
| IMD | | | | | | | | | | | | |
| 1 – most deprived | 391 | 35% | 147 | 48% | 141 | 26% | 547 | 20% | 197 | 26% | 227 | 18% |
| 2 | 152 | 38% | 75 | 45% | 47 | 23% | 217 | 23% | 102 | 27% | 63 | 21% |
| 3 | 75 | 47% | 56 | 50% | ≤5 | ≤5% | 82 | 16% | 56 | 18% | 11 | 18% |
| 4/5 – least deprived | 50 | 28% | 37 | 27% | ≤5 | ≤5% | 64 | 23% | 43 | 26% | ≤5 | ≤5% |
| Ethnic group | | | | | | | | | | | | |
| White British | 315 | 45% | | | | | 398 | 25% | | | | |
| South Asian | 194 | 25% | | | | | 305 | 18% | | | | |
| Other | 117 | 33% | | | | | 137 | 16% | | | | |
| Not stated | 42 | 36% | | | | | 70 | 11% | | | | |

Figures: Mortality in COVID-19 positive inpatients at BRI in the two waves. Lighter shades represent the percentage of patients who have died.

Figure 2: All patients, by ethnicity

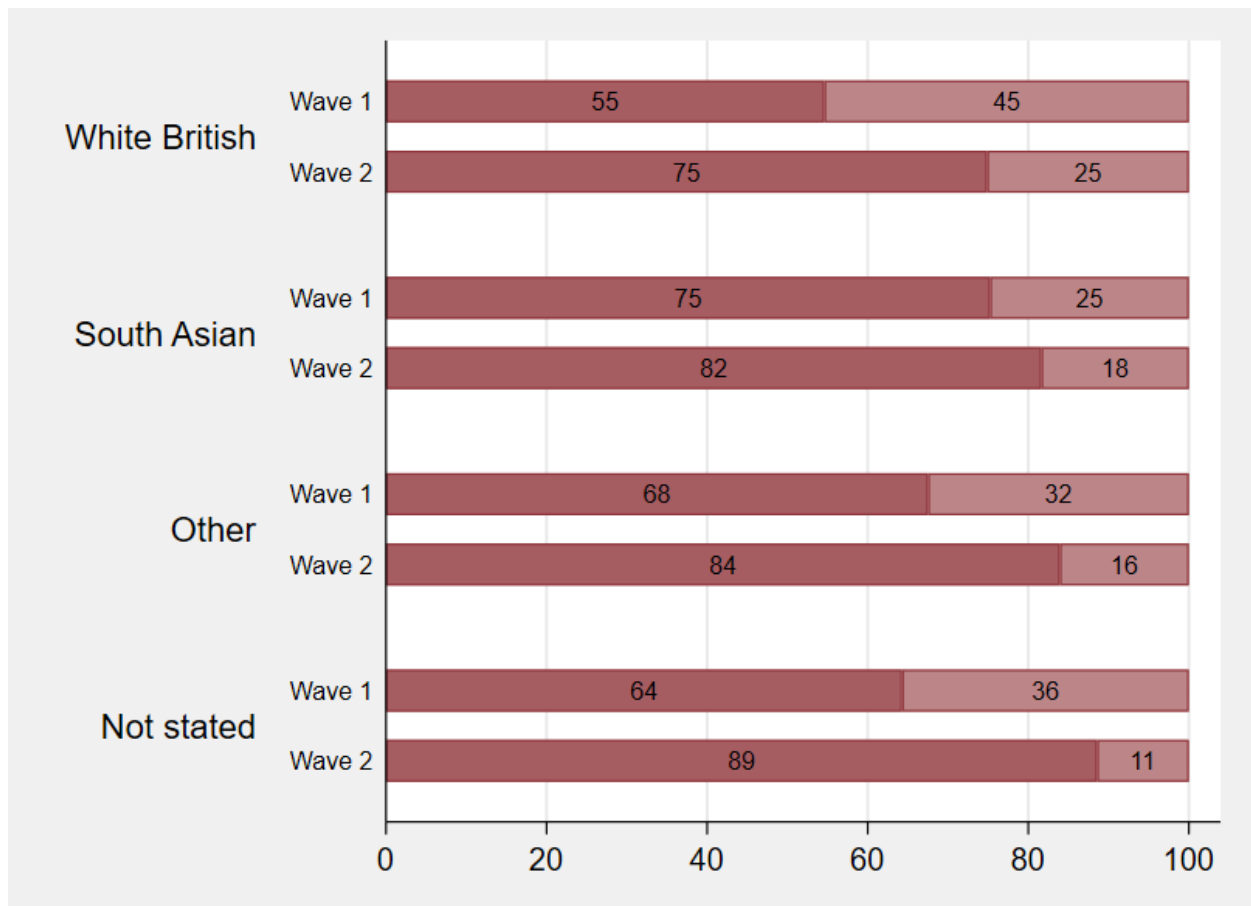


Figure 3.1: All inpatients, by age group

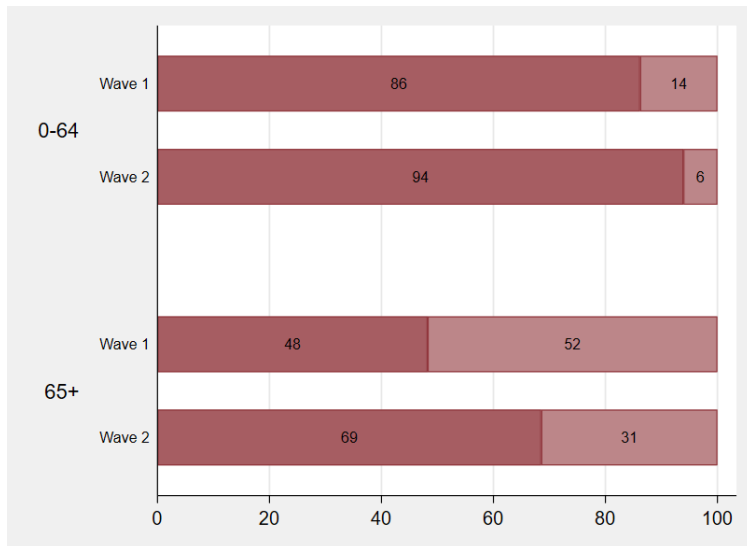


Figure 3.2: White British inpatients, by age group

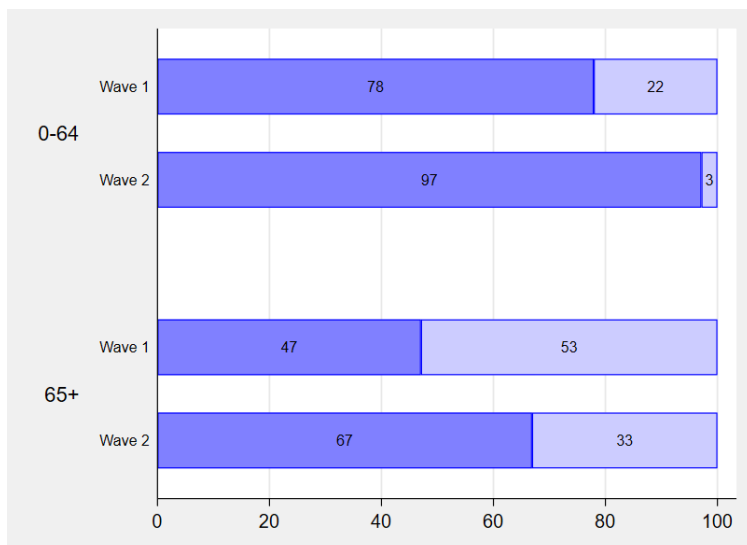


Figure 3.3: South Asian inpatients, by age group

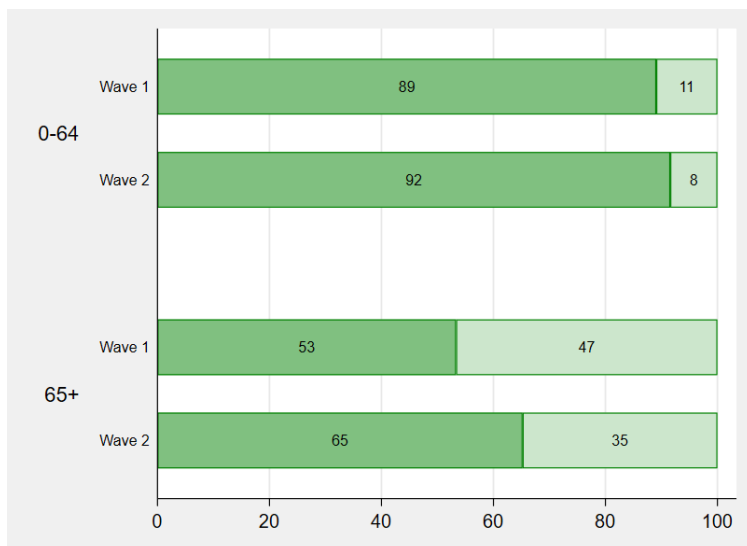


Figure 4.1: All inpatients, by sex

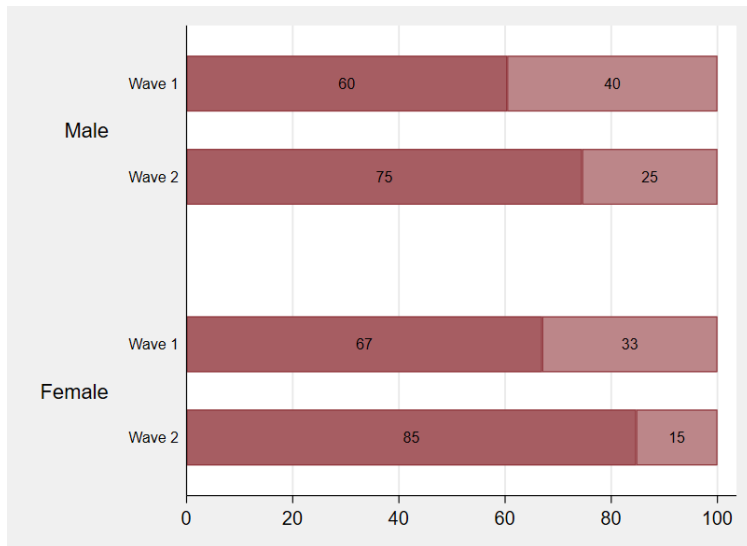


Figure 4.2: White British inpatients, by sex

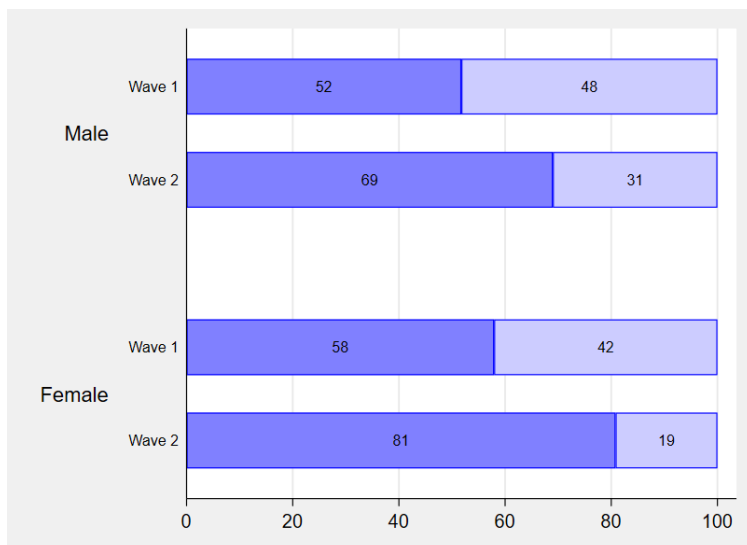


Figure 4.3: South Asian inpatients, by sex

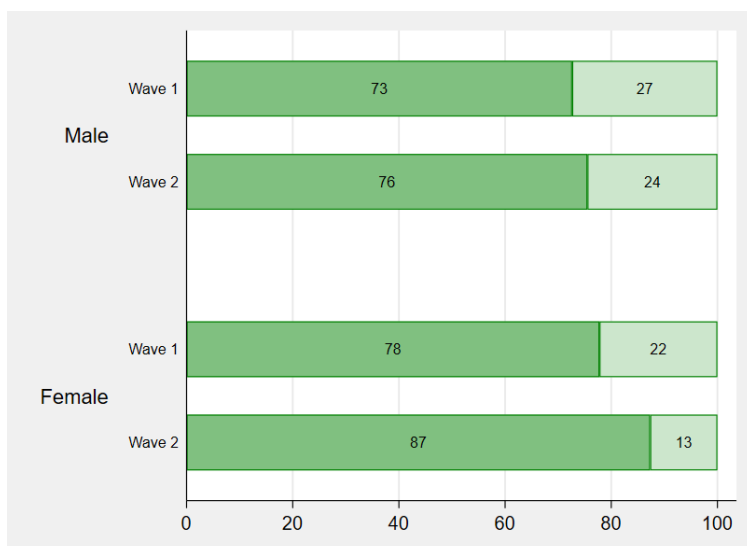


Figure 5.1: All inpatients, by IMD

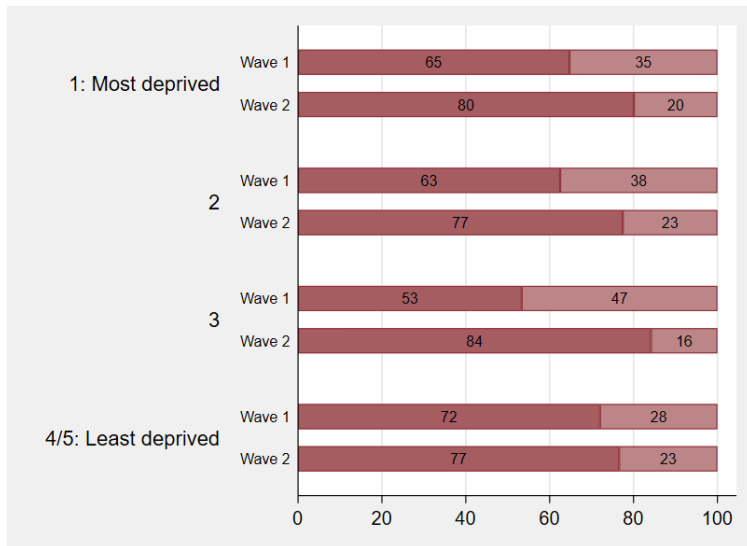


Figure 5.2: White British inpatients, by IMD

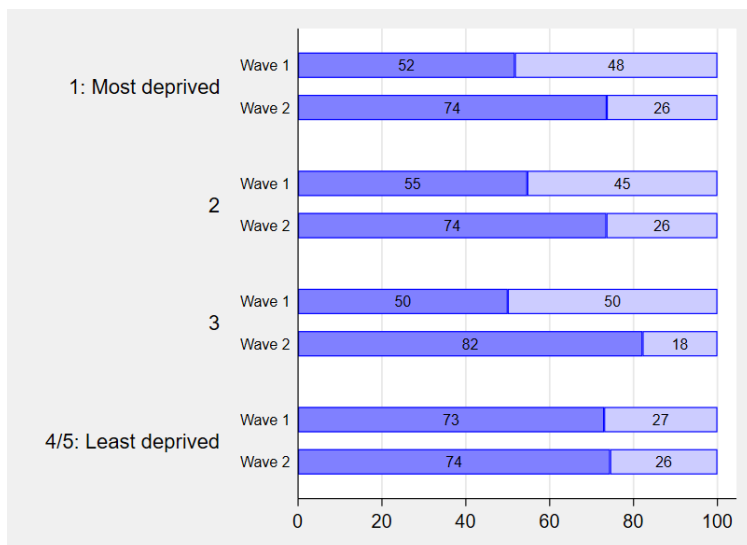


Figure 5.3: South Asian inpatients, by IMD

