

# IMPACT OF THE COVID-19 PANDEMIC ON CANCER SURGERY AND CANCER MORTALITY IN ENGLAND

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## INTRODUCTION

The COVID-19 pandemic has challenged health and care services in an unprecedented manner, bringing intense pressures to the system and forcing rapid reorganisation. In the UK, during the first year of the pandemic, it was estimated that there was a 13% reduction in urgent suspected cancer referrals<sup>1</sup> and nearly 45k fewer people started treatment for cancer compared with the previous year<sup>2</sup>.

The aim of this research is to explore the potential impact of the COVID-19 pandemic on cancer surgery and cancer mortality, looking at whether inequalities exist across patient demographics. This will help us to understand whether different groups in our society have been disproportionately affected by the pandemic in terms of the care they have received for their cancer.

## METHODOLOGY

Elective admissions for all cancers combined (ICD10 C00 – C97) were identified from HES data. OPCS codes from National Cancer Registration and Analysis Service (NCRAS)<sup>3</sup> were used to identify cancer surgery.

Chi-square tests were used to test if the distribution of each demographic variable (age and sex, deprivation, ethnicity group and urban or rural<sup>4</sup> breakdown) had seen significant change ( $p < 0.05$ ).

ONS mortality dataset was used to investigate whether patients who died from cancer had done so in hospital, hospice, nursing homes, at home or in the community. Percentage changes were calculated on the absolute number of deaths between the start of the pandemic (Q2 2019 vs Q2 2020) and during the recovery time period (Q2 2020 vs Q4 2021).

In-hospital mortality rates were calculated to investigate if there was a rise during the pandemic. Deaths were defined as an in-hospital death for a patient admitted with a primary diagnosis of cancer. Age-standardised mortality rates were created using 2019 HES cancer inpatients as a reference population and then compared by quarter for the last five years, broken down by sex and deprivation quintile.

## RESULTS

### Cancer Surgery

Results show the extent to which the COVID-19 pandemic impacted the number of patients undergoing cancer surgery differed across different demographic groups at the start of the pandemic (between Q2 2019 and Q2 2020) and during the recovery (between Q2 2020 and Q4 2021) (Fig 1).

There was a general decrease in surgery at the start of the pandemic for all ethnic groups, except for unknown and other ethnic groups, the largest decreases could be seen in White (42.6%) and Asian or Asian British (44.6%). The recovery period saw an increase in all ethnicity groups, but the biggest increase was seen in Asian or Asian British at 74.0% and Black or Black British at 82.5%.

The largest decrease in age groups across both time periods was seen in women aged 40-49 with an initial decrease of 16.2% and a decrease of 1.2% during the recovery period. This compares to a smaller initial decrease of 4.6% for younger women (aged 30-39), followed by a decrease of 2.1% during the recovery period. There were larger increases during the recovery period for the older age groups (90+) for both male and female, but this is likely to be reflective of the small numbers within the age bracket.

The onset of the pandemic had the same affect across all deprivation quintiles (a decrease in the number of patients undergoing cancer surgery of between 37-40%), but the recovery period saw a larger increase in the least deprived (58.7%) compared to the most deprived (50.9%).

### Place of Death

This analysis revealed a 51.5% increase in deaths at home during Q2 2019 and Q2 2020, followed by a 11.0% drop in the recovery period. In-hospital deaths dropped by 35.0% at the start of the pandemic with a 42.2% increase during the recovery period. Deaths at home continue to be higher compared to pre-pandemic levels (Fig 2).

### Age-standardised Mortality Rates

This analysis looks at patients who were admitted to hospital with a primary diagnosis of cancer and died during the spell<sup>5</sup>, however they may not have died from cancer during their hospital stay. Despite a sharp increase in cancer patients dying in hospital at the start of the pandemic, trends are now showing that numbers are decreasing.

Crude and age-standardised mortality rates are similar over time up until the start of the pandemic in Q2 2020. Whereas before this date the two rates closely mirrored one another, at the start of the pandemic the age-adjusted mortality rate was substantially higher than the crude rate,, indicating that the age distribution of cancer patients dying in hospital during the pandemic was different to pre-pandemic (Fig 3).

## CONCLUSION

The analyses presented here provide evidence for the impact that the COVID-19 pandemic had on cancer surgery and mortality, both at the very beginning and throughout 18 months of living with the disruption, fear, and strain. It is clear that there was a profound and sustained impact on cancer services and patients, but the true extent of these effects is not yet fully understood.

And while for the most part, the results of our analysis indicate that the recovery period of the COVID-19 pandemic has not exacerbated inequalities in cancer surgery, we know that there are disparities in access to treatment particularly by age, as well as some evidence of variation by deprivation and region. However, it is difficult to identify the extent to which variation is unwarranted.

The NHS must therefore undertake further research, and also facilitate access to data to enable trusted organisations to undertake research, to understand and address why certain patient groups are less likely to receive treatment, and to understand and mitigate any longer-term effects of the COVID-19 pandemic.

FIGURE 1

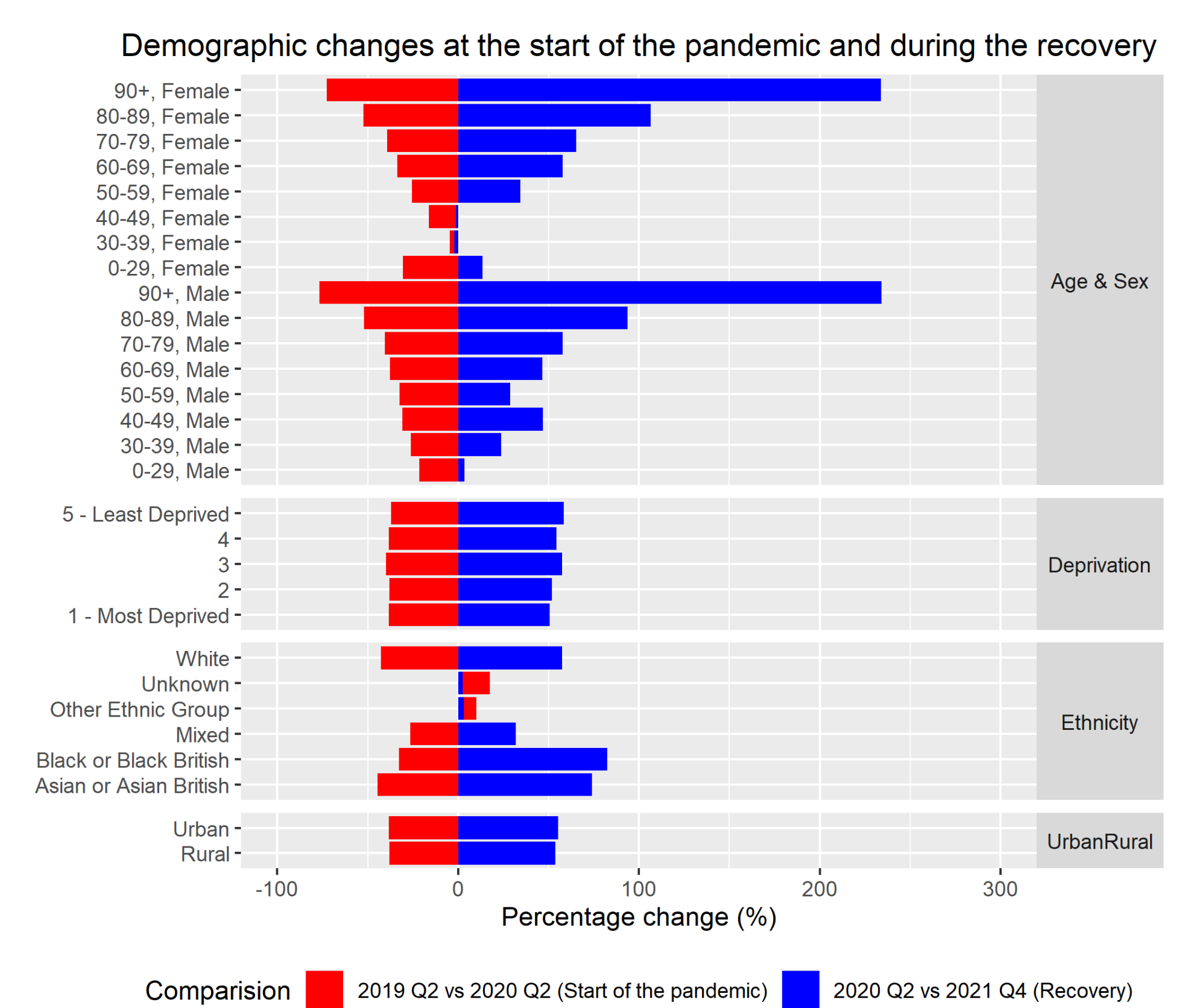


FIGURE 2

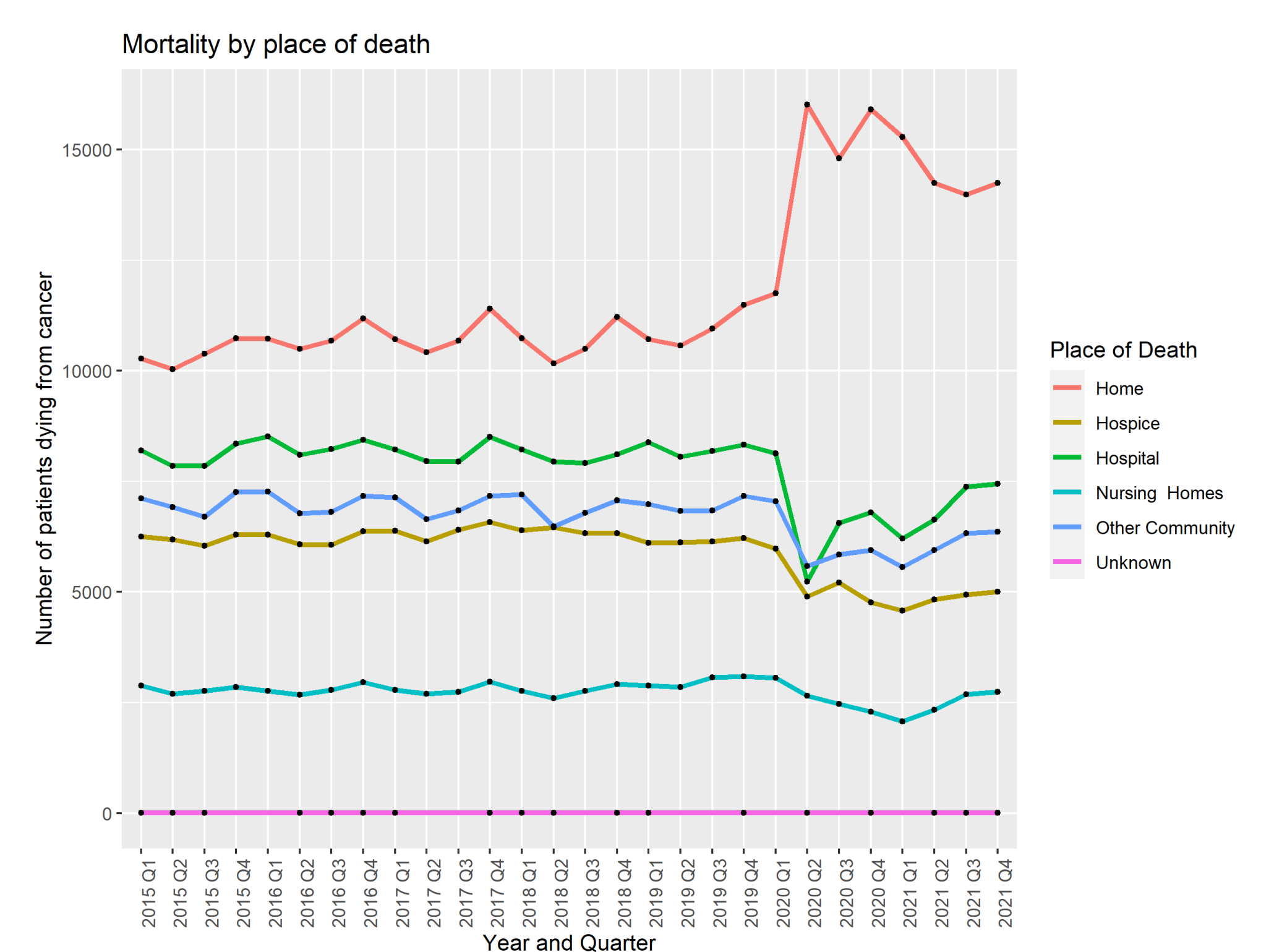
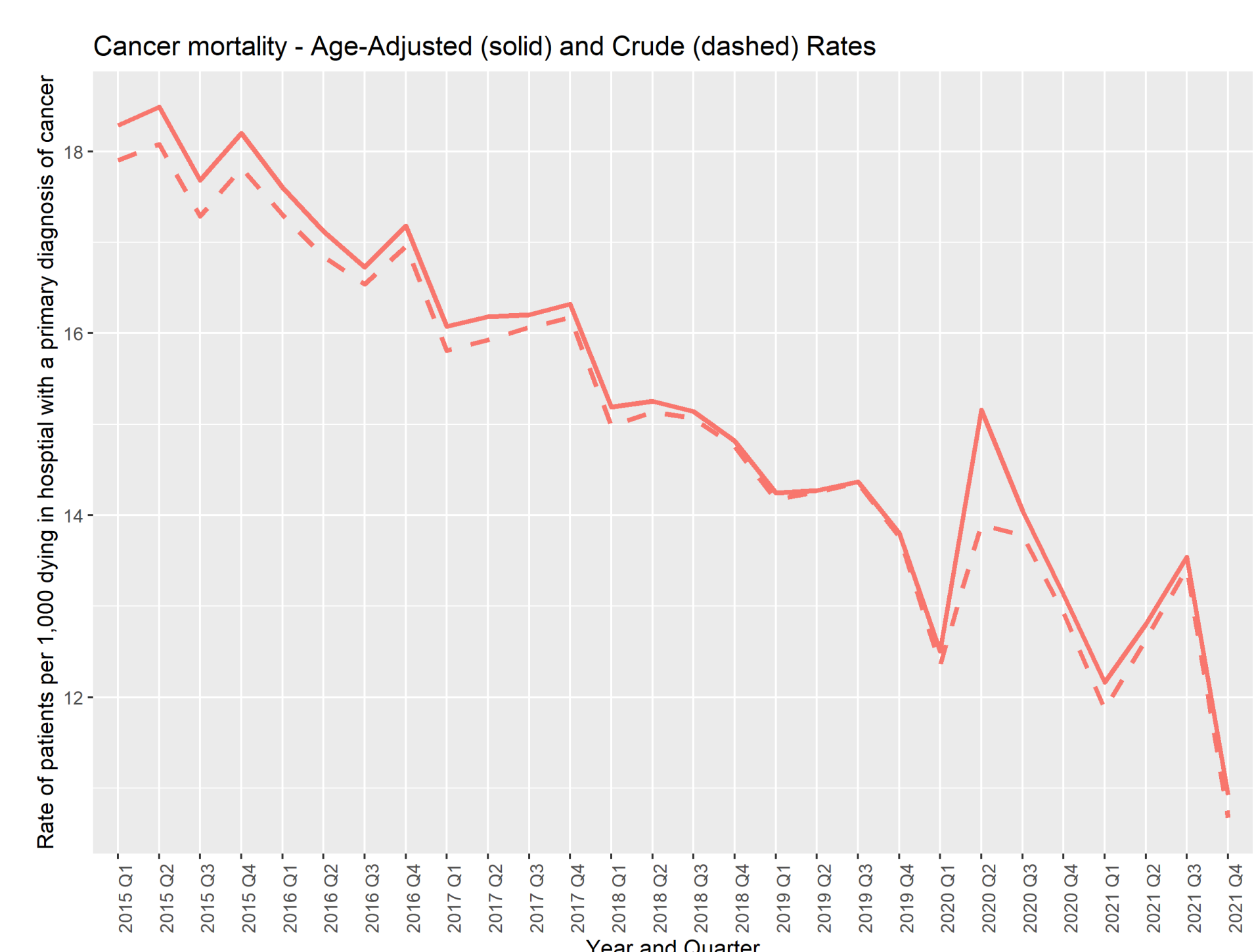


FIGURE 3



## REFERENCES

- <sup>1</sup>CRUK estimates based on England and Wales trends from Cancer Waiting Times data, March 2020 – March 2021, compared with the same months in 2019, adjusted for working days; NHS E6I Cancer Waiting Times Statistics, available at: <https://www.england.nhs.uk/statistics/statistical-work-areas/cancer-waiting-times/>; Stats Wales Cancer Waiting Times data, <https://stats.wales.gov.wales/Catalogue/Health-and-Social-Care/NHS-Hospital-Waiting-Times/Cancer-Waiting-Time>
- <sup>2</sup>April 2020-March 2021, compared with the same months in 2019, adjusted for working days
- <sup>3</sup>[http://www.ncin.org.uk/cancer\\_type\\_and\\_topic\\_specific\\_work/topic\\_specific\\_work/main\\_cancer\\_treatments](http://www.ncin.org.uk/cancer_type_and_topic_specific_work/topic_specific_work/main_cancer_treatments)
- <sup>4</sup>Urban rural classification at LSOA level, <https://www.gov.uk/government/statistics/2011-rural-urban-classification-lookup-tables-for-all-geographies>
- <sup>5</sup>A 'spell' is defined as a continuous period of time spent as an inpatient within a trust and may include more than one episode.

Read the full report, which includes a cancer site analysis, here:

