Direct and Indirect Health Impacts of COVID-19 in England

Short Paper

Background

COVID-19 has had significant impacts on the health of the population in England both directly and indirectly. This short paper by the Department of Health and Social Care (DHSC) and the Office of National Statistics (ONS), and a more detailed accompanying paper follow three previous papers examining these effects as the pandemic has evolved. This paper gives a high-level overview of the short and long-term health harms arising as a consequence of infections and mitigating behaviours between March 2020 and spring 2021, where data is available[1]. It also examines how the health of different groups of the population has been affected. The accompanying paper presents data on all aspects of the impact and provides greater depth of analysis.

We have worked closely with the Institute for Fiscal Studies, the Health Foundation, the Royal College of General Practitioners, the authors of *Health in Hard Times: Local Effects, National Effect and Area Heterogeneity*[2] and the Institute and Faculty of Actuaries on different elements of the paper and are extremely grateful for their support.

This paper draws heavily on the latest available data to understand impact, largely moving away from the modelling-based approach of the previous papers. This approach provides a more substantive view of what has happened, rather than relying on strong assumptions for modelling in the previous papers but does not allow us to present all impacts in the common currency of Quality Adjusted Life Years.

The paper summarises four routes through which COVID-19 has had an impact on health:

- **Category A. Direct impacts of COVID-19** such as mortality impacts (A1) and morbidity impacts (A2).
- **Category B. Impact of COVID-19 on NHS critical care capacity.**
- **Category C. Indirect impacts of COVID-19 on health-related behaviours and healthcare** This considers changes in underlying health needs (C1) and health seeking behaviour (C2); the impact of COVID-19 on healthcare activity, capturing impacts of COVID-19 on general practice (C3), patient wait times (C4) and hospital activity (C5); and two cases studies to assess the impact of COVID-19 on the care of specific conditions, one on cancer (C6) and the other one on mental health (C7).
- **Category D. Indirect impacts of COVID-19 on the wider population in the long-run such** as impacts on the wider population through changes to employment and the wider

[1] End dates vary through the analysis reflecting availability of different data sets and the time required to provide additional analysis on these.

[2] Janke, K., Lee, K., Propper, C., Shields, K., and Shields, M., (2021). Health in Hard Times: Local Effects, National Effect and Area Heterogeneity. AEJ. Working Paper. Shared by authors.

economic fallout (D1); health impacts from the loss of education (D2) and impacts on social care recipients due to changes in their lives (D3).

It presents information on how these health impacts have differed between groups in society, **subject to data availability[3].**

Overview and key findings across characteristics

Health impacts from COVID-19 are still emerging. By looking back from spring 2021 we can observe the huge direct impacts on mortality and morbidity. Understanding the **impacts from behavioural, economic and health service change** is more complex. Our analysis suggests that there has been a fall in underlying short-term need related to non-COVID infections, accidents, and air pollution. Conversely there has been an increase in underlying need from alcohol and substance abuse and domestic violence. Health-seeking behaviour has altered during the pandemic: Primary care consultations fell significantly compared to their 2016-2019 average after the start of the pandemic and only fully recovered by May 2021. We cannot directly observe the extent to which this fall is the result of changes to underlying need, changes in health-seeking behaviour or adaptations put in place in the health system to respond to COVID-19. Diagnosis of a range of chronic conditions fell significantly, though management of existing long-term conditions appears less negatively affected. There has been a fall in referrals to secondary care for routine appointments mirroring the fall in numbers of GP consultations. Routine referrals to January 2021 generally remained below the four-year average. Hospital activity declined sharply in the first wave, recovering steadily in most specialties but patient wait times have continued to increase. The adverse economic shock and impacts on education are likely to lead to poorer health in the population and future health care need.

People in the **most deprived socioeconomic groups** have experienced greater adverse health impacts in almost all categories of harm for which we could consider deprivation. From March 2020 to April 2021, the mortality rate in the most deprived quintile after controlling for age and population size was almost double that of the least deprived quintile (264.6 deaths per 100,000 people and 140.4, respectively). Recent estimates for “Long COVID” (August 2021) also show that self-reported symptoms are 50% higher in people in the most deprived quintile, compared to the least deprived (1.89% of people experiencing Long COVID compared to 1.24%).

The reduction in GP consultations per patient in does not significantly differ by **socio-economic status** between 2019 and 2020 once age has been taken into account, but as there is greater health need in lower socioeconomic groups, this will have had greater impact in absolute terms. Similarly, reductions in admissions for elective care and outpatient appointments between February 2020 and February 2021 were similar across socio-economic groups. However, patients on long surgical lists who are in lower socio-economic categories have also reported worse outcomes in quality of life.

Regionally, the pandemic shock and its impacts on the healthcare system varied significantly. Greater London experienced greatest direct health impacts of COVID-19: it had the highest

[3] Data is not always available for considering impacts on different groups, often because characteristics are not recorded in data sets, or if they are, they are not recorded consistently. Where robust data has been available, we have presented it in this paper.

rate of deaths to April 2021 once population size and age were taken into account; it also had the greatest QALY losses from death and morbidity. It experienced relatively lower reductions in elective and outpatient activity than other regions, though its drop in emergency activity was greater than most regions (28.4% reduction compared to median of 24.9%). The West Midlands, East Midlands and Yorkshire and the Humber suffered less from direct COVID-19 impacts, but experienced greater impacts through reduced non-COVID-19 activity in the NHS with elective care down more than 38% between February 2020 and February 2021 compared to the previous 12 months.

Different **age groups** have experienced diverse impacts as a result of the pandemic. The majority of direct mortality impacts are seen in older age groups, with 99% of deaths recorded in people over the age of 45. However, the age group with the greatest percentage reporting symptoms 5 weeks post infection is the 35-49 year-old-group (25.6% of infected individuals report symptoms at 5 weeks post infection) and the 25-34-year-old group have the greatest percentage reporting symptoms 12 weeks post infection (18.2%).

Young people, particularly under 11 years, saw the largest fall in consultation rates and were most likely to have reduced GP appointments relative to older age groups. In April 2020, there was a drop in mental illness referrals from the February levels of around half in 0-18 year olds; compared to around a third in adults (19+), but these have recovered and have been above pre-pandemic levels since September 2020.

Impacts for males and females differed depending on the type of health impact: more QALYs were lost for males than females overall through deaths due to COVID-19 to April 2021. Females are more likely to suffer symptoms for an extended period of time compared to males. Reductions in hospital activity in the period February 2020 to February 2021 have been roughly similar.

During the first wave of the pandemic, people from all **ethnic minority groups** (except for women in the Chinese or "White Other" ethnic groups) had higher rates of death involving COVID-19 compared with the White British population. The rate of death was highest for the Black African group, followed by the Bangladeshi, Black Caribbean and Pakistani ethnic groups. In the second wave of the pandemic, the differences in COVID-19 mortality compared with the White British population increased for people of Bangladeshi and Pakistani ethnic backgrounds; the Bangladeshi group had the highest rates, 5.0 and 4.1 times greater than for White British males and females respectively. The greatest percentage fall in hospital activity in the year to February 2021 compared to the year to February 2020 is seen for White British, along with All Other White ethnic group, followed by Asian and Asian British. For emergency care, Other Ethnic groups and those from an Asian ethnic background saw the most significant fall in absolute volumes, similarly, for outpatient care other ethnic groups and White British saw the largest decreases.

Impacts across categories of harm

Category A. Direct impacts of COVID-19

COVID-19 Mortality (A1):

The great majority of deaths involving COVID-19 (99%) from March 2020 to end April 2021 were of **adults aged 45 and over**. More males died in each age group from this age upwards.

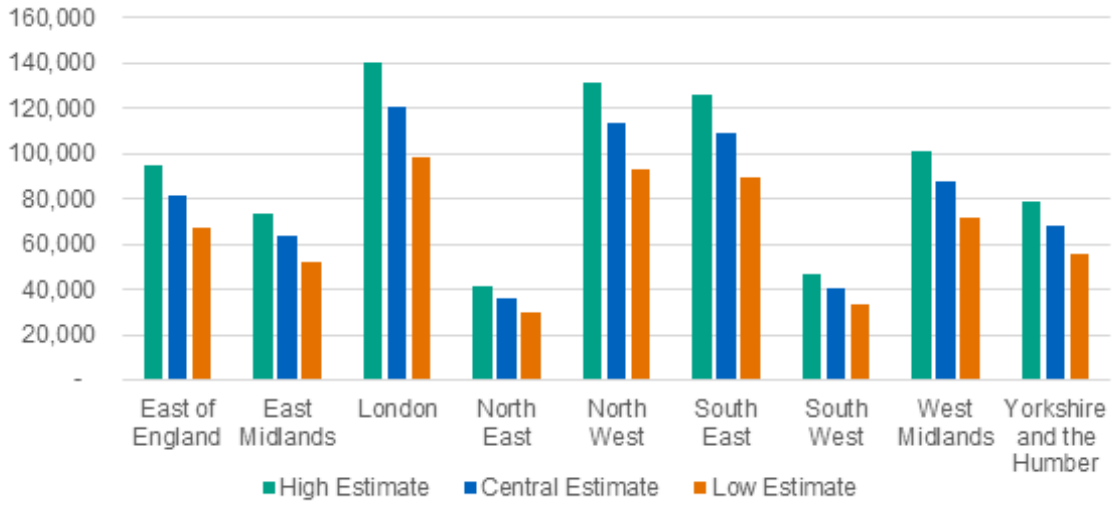
Looking at age standardised mortality rates (ASMRs) which control for population size and age, London experienced the greatest mortality rate. The South West was considerably less impacted than any other region. The South East had the second lowest ASMR over the 14 months despite having the highest number of deaths in absolute terms.

The ASMR for males was higher than for females, and as set out above, the ASMR in the most deprived quintile was almost double that of the least deprived quintile.

Quality Adjusted Life Years (QALYs) have been calculated using the same methodology as previous papers in this series. A Quality-Adjusted Life Year (QALY) is equal to 1 year of life in perfect health. QALYs are used to measure changes, either in the state of health of a person or group; or in terms of length of life. A QALY representation of a fatality is based on the years of life lost, and the quality of life that person was expected to have lived.

The total QALYs lost due to mortality between March 2020 and April 2021 are estimated to be 722,000. In almost all cases, a region's ranks for total deaths and for QALYs lost are consistent. The only exceptions are London and the South East, where London has most estimated QALYs lost (121,000 compared to 109,000 in the South East) but fewer total deaths involving COVID-19 (17,600 compared to 18,500). This is because the age of those dying in the South East is older on average than for deaths in London, which in turn reflects the differing demographics of the areas (see Figure 1). In addition, the higher number of male deaths means males as a whole lost a greater number of QALYs from mortality than females, the same holds true for older age groups.

Figure 1: QALYs lost due to deaths involving COVID-19: ONS, March 2020 – April 2021



Source: Internal analysis of death registrations in England (Office for National Statistics) by the Office for National Statistics
Period: March 2020 to April 2021
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter A1.

COVID-19 Morbidity (A2):
The morbidity impacts from COVID-19 range from a short-term illness for some, through severe illness and hospitalisation, and/or ongoing symptoms (Long COVID). The extent of morbidity depends on the infection rates in the given population and the duration, severity and number of symptoms suffered.

Evidence throughout the pandemic suggests that age is a major risk factor in the severity of outcome in COVID-19 patients. **Older patients** suffer more severe symptoms compared to younger cohorts. 30% of all infections between April 2020- April 2021 occurred in the 15-25-year-old age group, however, only 2% of all hospitalisations and 2% of all ICU admissions occurred in the same age group over the same period. 7% of total infections occurred in the 75+ population, however 46% of all non-ICU hospitalisations and 12% of all ICU admissions occurred in individuals within this age demographic. Evidence also suggests that **males** have been suffering more severe outcomes compared with females once infected. Both males and females have had comparable rates of infection in the period April 2020-April 2021, yet males made up 70% of ICU admissions. During the peak of infections in Winter 2020-2021, London had the greatest rate of COVID-19 infections compared to the other 8 NHS regions of England. London also suffered the greatest rate of ICU admissions during the same wave, however, its non-ICU admissions were comparable to those of other regions such as the West Midlands and the East of England.

Morbidity QALY losses for these populations were calculated based on the Institute and Faculty of Actuaries' (IFoA) modelling that was used in the previous paper in this series using data from ONS and PHE. The model quantifies morbidity impacts from acute COVID-19 (symptoms lasting up to 4 weeks) as well as quantifying the impact on individuals suffering from Ongoing COVID (symptoms lasting between 4-12 weeks) and Long COVID (symptoms lasting for 12 weeks or more).

Based on the modelling, females suffered a greater QALY loss compared to males (43,000 lost morbidity QALYs compared to 38,000) reflecting the fact that females are more likely to suffer COVID-19 symptoms for an extended duration. Table 1 shows the estimated impact by sex for different aspects of COVID-19 morbidity.

Table 1: Estimated QALYs lost due to COVID-19 related morbidity, April 2020-April 2021

	Female	Male
Total QALY loss	43,000	38,000
QALY loss in acute phase (Up to 4 weeks)	14,000	13,000
QALY loss in ongoing phase (4 weeks -12 weeks)	16,000	14,000
QALY loss Long COVID (12 weeks to a year)	13,000	11,000

The 25-44-year-old **age groups** suffered the greatest QALY losses of the age bands with an estimate of 28,000 lost QALYs, partly as this age cohort is the largest age cohort used in the analysis, and again, this age band is at high risk of suffering COVID-19 symptoms for a greater duration of time. **Regionally,** London had the greatest morbidity QALY loss with an estimated QALY loss of 12,000, as shown in Table 2.

Table 2: Estimated QALY losses due to COVID-19 related morbidity by region, April 2020-April 2021

Region	Morbidity QALY loss
East of England	7,400
East Midlands	8,500
London	12,000
North East	4,300
North West	8,100
South East	9,800
South West	4,500
West Midlands	8,500
Yorkshire and the Humber	6,800

Source: Data from Public Health England & ONS, modelled QALY estimates based on IFoA model, analysis by DHSC
Period: April 2020- April 2021
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter A2.

Category B. Impact of COVID-19 on critical care capacity

We do not consider the distributional impacts of the Impact of COVID-19 on critical care capacity, as data is not available on this. While national critical care bed capacity has not been breached, there is some evidence of local transfers of patients between hospitals due to lack of bed availability leading to delays in care for some patients, and critical care staff shortages resulting in lower staffing ratios than clinically optimal.

More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter B.

Category C. Indirect impacts of COVID-19 on population health due to living through a pandemic and restrictions

COVID-19 has had an impact on both the demand for, and the provision of healthcare. Overall, we have seen non-COVID-19 healthcare utilisation and activity decline since the pandemic began. Since then, much activity has started to recover, with some services reaching above pre-pandemic levels. Some of the decline may be driven by a decline in short-term underlying need, some by changes in people's behaviour in terms of seeking healthcare and some by the range of health system adaptations put in place to minimise the spread of COVID-19 and reallocate resources to manage urgent care of COVID-19 patients. It is not possible to fully separate out these effects and estimate the total health impact.

The analysis in this category has been conducted in collaboration with the Health Foundation's REAL[4] Centre, the Institute for Fiscal Studies (IFS) and Imperial College London. We have also received input and comments from the Royal College of General Practitioners (RCGP) on this work.

Individual-level behaviour changes - Evidence on changes to underlying need (C1)
Health care needs for non-COVID-19 related matters reduced for some types of ill health and increased for others.

In the 52 weeks to the week ending 11th July 2021, there was a decrease in the number of reported **infectious illnesses** across diseases such as, Mumps (-72%), Rubella (-84%) or Yellow fever (-100%) compared to the 5-year average (2015-2019). The influenza-like illness rate per 100,000 people peaked at 3.8 in 2020/21 compared to a peak of 59/100,000 in 2017/18, 22/100,000 in 2018/19 and 20/100,000 in 2019/20**.** The rates of infectious disease falling are likely to be a side-effect of social distancing measures, including lockdowns during normal 'flu season', reductions in foreign travel, and increases in take-up of the annual flu vaccine.

In 2020, there was an overall fall of 31% in the number of reported **road traffic** accidents, compared to the 5-year average, with a 16% fall in fatal accidents which is likely to have had an impact on demand for A&E and orthopaedic services.

Behaviours around **alcohol** consumption have varied with 8-25% of people indicating they are drinking more alcohol and 21-42% drinking less in 2020 compared 2015-19 average. Heavier drinking (4+ times per week) has increased by 12% for men and 11% for women, but this was less the case in the most deprived quintile and in younger groups of the population. Unplanned hospital admissions associated with alcohol fell by 3.2% in 2020 relative to 2019, but alcohol-related deaths increased by 20%, which may indicate reductions in sufferers seeking care and service delivery impacts as well as an increase in consumption during the pandemic.

Issues presenting in primary care relating to substance misuse more broadly (including alcohol) became more prevalent during the pandemic, though there was a reduction in overdoses presenting to A&E.

The picture for **violence** is more varied, while interpersonal fell by 13% between 2019 and 2020, domestic violence and individuals presenting in primary care with issues relating to abuse increased from 0.14 per 10,000 to 0.63 per 10,000 in August 2021. Note the definition of abuse here is wider than violence alone. This was a consistent picture across age, ethnic, socioeconomic groups and regions.

As a result of the disruption created by COVID-19 on daily activities, most **air pollutants** saw a fall during periods of high restrictions in the pandemic. This reduction may be one of the reasons driving the fall in incidence of asthma reported, with a peak of weekly incidence rate of 2 per 10,000 population in January 2020 compared to levels close to 0.8 per 10,000 in March. In the latest figures, February 2021, the rate has converged around 1.2.

Sources: Understanding Society, data analysis by DHSC & RCGP/University of Oxford surveillance data & ONS

[4] Research and Economic Analysis for the Long-term

Periods: As given in text

More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C1.

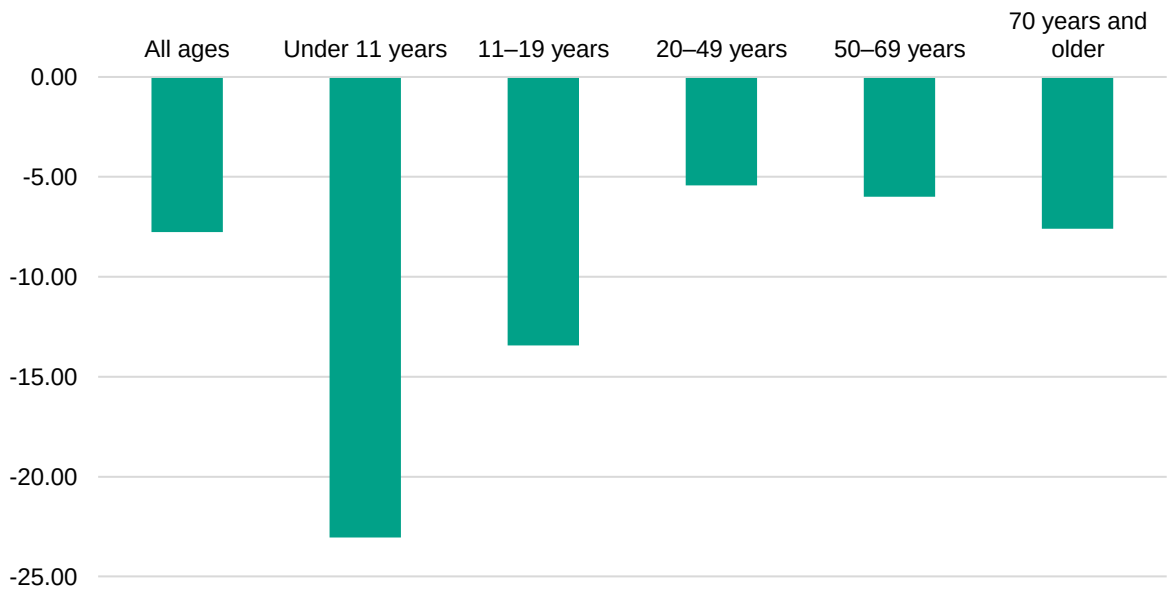
Changes in Health-seeking Behaviour (C2)

People's behaviour in terms of seeking health care also changed during the pandemic.

The REAL Centre at the Health Foundation has used the Clinical Practice Research Database to examine impacts in General Practice. There were an estimated 23 million fewer GP consultations (including both in-person and telephone consultations) in 2020 compared with 2019. The drop in consultations was particularly sharp in the first wave of infections and has recovered somewhat, though once flu vaccinations are excluded consultation rates in autumn 2020 remain below pre-pandemic levels. The fall in consultations reflects the combined impact of patient health-seeking behaviour and health system adaptations put in place to respond to the pandemic.

Consultations for the under 11s have had the most sustained fall (23% below 4-year average), as shown in Figure 2. The 11-19 age group has also seen sharp falls (13.4% below 4-year average), which were most pronounced when lockdown restrictions were in place. Amongst older people, the impact was much less significant, with a 7.6% drop in consultations in 2020 relative to the 4-year average. The fall in consultations amongst those with pre-existing conditions was much smaller than for those without such conditions, particularly in older age groups.

Figure 2: Percentage change in consultation rates by age group in 2020 from 2016-2019 average



Similar percentage reductions have been seen across all socioeconomic groups. However, there was higher pre-pandemic use of general practice services by those living in more deprived areas pointing to pre-existing health inequalities. Proportionate falls in consultations for these groups imply greater impacts in absolute terms, which could exacerbate health inequalities.

Understanding the reasons for the reduction in consultations is difficult. There was a sharp increase in the proportion of people reporting that they did not need to see their GP (almost 40% of people in 2020, compared to 15% of people in 2019). However, difficulty or perceived difficulty of accessing the GP was given as a reason by 3% (Understanding Society survey) or 10% (GP Patient Survey) of respondents who reported that they avoided making a GP appointment.

Of those who avoided making a GP appointment in the last 12 months, a significant proportion (35%) of all age groups and health conditions cited worries about the burden on the NHS as a key reason behind avoiding making an appointment with their GP. A similar number (30%) cited worries about the risk of catching COVID-19 as a key reason for avoiding making an appointment.

Sources: Clinical Practice Research Datalink (CPRD) & Understanding Society, data analysis by DHSC & GP Patient Survey 2021
Periods: January 2019 – January 2021 relative to 2019 or 4-year average where stated.
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C2.

Impact of COVID-19 on General Practice (C3)

Reduced general practice activity may impact the management of existing long-term conditions, limit the diagnosis and treatment of new chronic conditions, reduce referrals for secondary care treatment and result in those with urgent care needs either not being treated or attending A&E. With the data available we are able to look at diagnosis rates of some chronic conditions and referral rates. However, care is needed in interpreting the data as falls in diagnosis and referral may reflect changes in health need, reductions in GP consultations, difficulties in making diagnoses due to infection control measures and changes to how a GP recommends a health need is met given reduced availability of secondary care services.

In terms of potential delays to diagnosis, analysis by the Health Foundation's REAL Centre compares incidence (new diagnosis) in 2020 with 2019 and finds reductions as set out in Table 3. In some cases, a GP will have been able to make an informal diagnosis but will not have had access to confirmatory tests, so this will have been identified but not coded in the data. However, some patients will not have received a diagnosis at all and as a consequence treatment will have been delayed, resulting in poorer outcomes.

Table 3: Change in incidence of long-term conditions in 2020 compared to 2019, CPRD data

Long term condition	Reduction in newly diagnosed cases (2020 compared to 2019)
Chronic Obstructive Pulmonary Disease	51%
Atrial Fibrillation	26%
Heart Failure	20%
Diabetes	19%
Coronary Heart Disease	17%
Stroke & Transient Ischemic Attack	16%

"Missing" incidence for Diabetes and Coronary Heart Disease falls disproportionately on the group aged 70 and older (32% and 30% "missed" respectively). For Stroke and Transient

Ischemic Attack, the highest number of “missing cases” sits in the in the 50-69 age group (6,710), although the largest fall has been seen for the under-50s (28%). We have not been able to show how incidence rates have differed by socioeconomic status due to sample size constraints. However, it seems likely that people in the most deprived deciles will suffer the most missed diagnoses in absolute terms given the higher prevalence of long-term conditions in these groups.

There has been a fall in referrals to secondary care for routine appointments mirroring the fall in numbers of GP consultations. Routine referrals to January 2021 remained below the four-year average, with the exception of one week in December.

Source: Analysis conducted by the Health Foundation’s REAL centre using CPRD data
Period: 2020 relative to 2019.
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C3.

Impact of COVID-19 on patient wait times (C4)

Data from NHS England shows that 5.5 million people were waiting to begin treatment at the end of June 2021. Much of the impact of COVID-19 on elective care has been as a consequence of the health service needing to prioritise urgent COVID-19 care over non-urgent treatments whilst dealing with increased staff absence due to illness and more demanding infection control protocols.

The variation in wait times between trusts suggests that the pandemic has impacted patients served at **different trusts to different degrees**. There is also considerable **variation in the median wait times by speciality**. For example, impact on median wait times for Neurology and Cardiology is relatively small when compared to the impact to wait times in Trauma & Orthopaedics, ENT and Oral Surgery.

Sources: Literature review, *Understanding Society, data analysis by DHSC & NHSE RTT monthly data, analysis by DHSC*
Periods: 2020 relative to 2019 & Referral to Treatment Wait Times data, NHS England
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C4.

The impact of COVID-19 on healthcare activity – Impact of COVID-19 on hospital activity (C5)

All **referrals** fell sharply in March 2020 compared to 2019, with routine referrals having the sharpest fall and slowest recovery. Of those who did not access inpatient services care, the majority (79% in April 2020) reported this as a result of their appointment being postponed or cancelled by November 2020.

Sources: Literature review, *Understanding Society, data analysis by DHSC*
Periods: 2020 relative to 2019

Almost all areas of hospital care saw reductions in non-COVID activity. The Institute for Fiscal Studies has undertaken analysis of the Hospital Episode Statistics to examine this in detail.

The total fall in admissions was 3.5m for elective care, 1.6m for emergency admissions and 30.2m for outpatient care, as shown in Table 4. The per-capita increase in outpatient telephone appointments (295 per 1,000) only offsets the fall in outpatient in-person appointments by half.

Table 4: Changes in national volumes of hospital care between March 2020 and Feb 2021 compared to previous 12 months

	Absolute change (COVID-19 patients not included)	Change per 1,000 people	% change
Elective admissions	- 3,536,000	- 62.8	-34.9%
Emergency admissions	- 1,625,000	- 28.9	-23.9%
Outpatient in-person appointments	- 36,772,000	- 653.3	-40.3%
Outpatient telephone appointments	16,616,000	295.2	470.8%

During the first months of lockdown (March and April 2020), attendance at **accident and emergency** departments, and emergency admissions fell sharply across the UK[5]. There is evidence that attendances started to rise from May 2020 (with emergency attendances for gastrointestinal and cardiac conditions above the seasonal average), dropping again in autumn and rising steadily in 2021. Emergency activity saw the greatest reductions in absolute volumes of care per 1,000 in ENT and paediatrics.

In terms of impacts on **maternity and neo-natal care**, observational evidence suggests there may have been 5,000 more preterm births per 100,000 pregnant women with COVID-19.

A fairly proportionate reduction in activity is experienced by all age groups, see Table 5, though emergency care dropped more for the 0-17 age group and there was greater variability in outpatient activity. The absolute impact is highest in older age groups reflecting the greater amount of activity occurring for this age group.

Table 5: Percentage change in hospital activity by age group between March 2020 and Feb 2021 compared to previous 12 months

Age group	Elective	Emergency	Outpatient (total)	*Outpatient (In person)*	*Outpatient (Telephone)*
0-17	-38%	-40%	-23%	*-42%*	*478%*
18-34	-37%	-24%	-14%	*-30%*	*490%*
35-49	-36%	-20%	-19%	*-39%*	*500%*
50-64	-36%	-19%	-22%	*-43%*	*498%*
65-79	-33%	-21%	-25%	*-45%*	*436%*
80+	-35%	-23%	-26%	*-43%*	*369%*

Some of the largest falls in hospital activity were in specialties where a significant amount of activity is **elective surgery.** Between October and December 2020, approximately a quarter of all surgical activity in the UK was lost, 1 in 5 operating theatres were shut, and 1 in 8 anaesthetic staff were absent from their normal duties. The greatest reductions in elective activity absolute volumes of care per 1,000 were in pain management, Trauma and

[5] What-happened-to-English-NHS-hospital-activity-during-the-COVID-19-pandemic.pdf (ifs.org.uk)

Orthopaedics, and ENT. This matches up with the RTT wait time data where we identified these specialties as having the longest wait times.

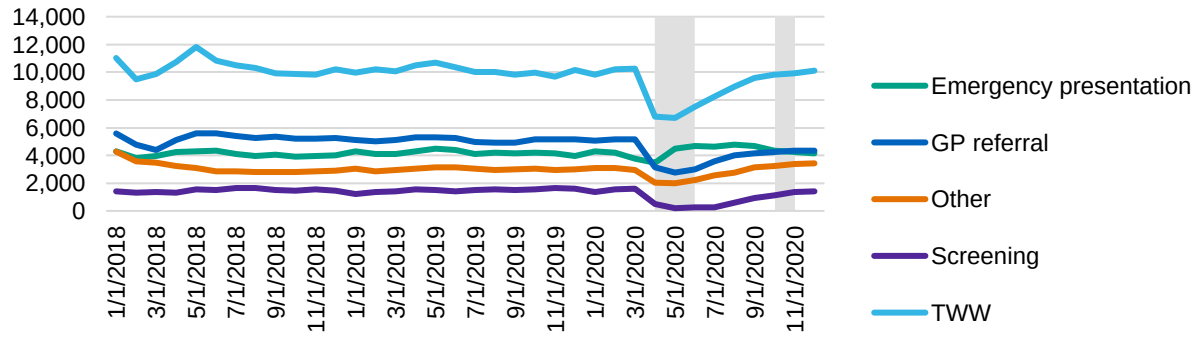
For **in-person outpatients** the greatest reductions in absolute volumes of care per 1,000 were in physiotherapy, then ENT and a cluster of others at a similar level.

Sources: This section has been developed in collaboration with the Institute for Fiscal Studies (IFS) and Imperial College London using patient level data from Hospital Episodes Statistics (HES) and Emergency Care Data Set (ECDS) & Literature review.
Period: 12-month period from March 2020 to February 2021
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C5.

Case studies: The impact of COVID-19 on the care of specific conditions: Impact on cancer (C6)

Literature shows that there appear to have been disruptions to the diagnosis and treatment of cancers in the UK, despite best efforts. There are several routes available to diagnose new cancers, all of which were negatively impacted over the last year, see Figure 3.

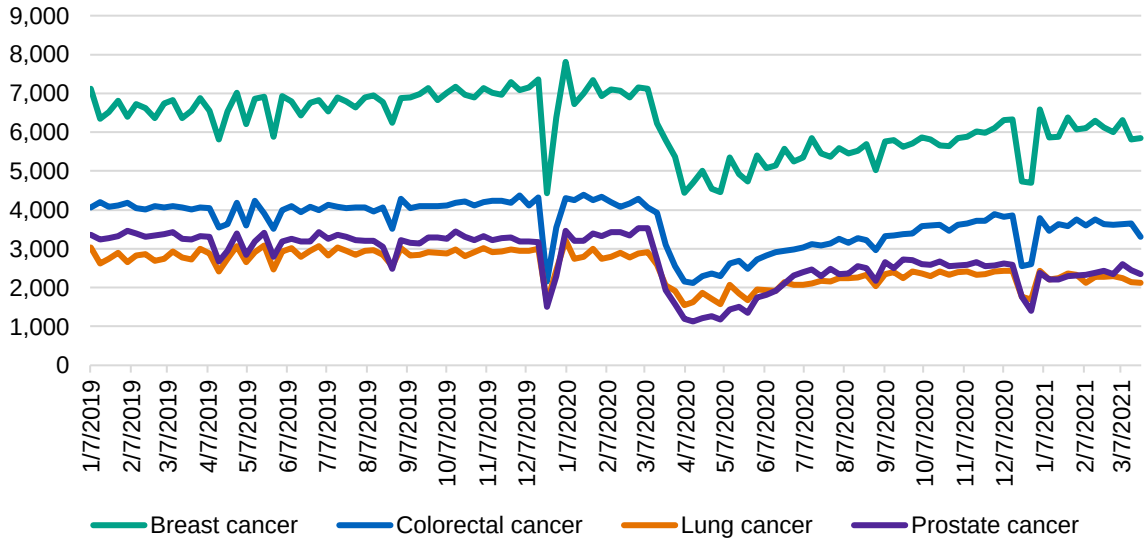
Figure 3: Number of new cancer diagnoses by route to diagnosis, England, January 2018 - December 2020



Looking at the different pathways, numerically, the biggest fall was seen in Two Week Waits, falling from around 10,000 to just below 7,000 a month between March and May 2020. Although the number relative to 2019 continued to increase from May 2020 to December 2020, it only reached 2019 levels towards the end of 2020. Emergency presentations had the smallest fall to under 4,000 by mid-April 2020 but recovered to match 2019 levels by May 2020. Through June to September 2020, the number of emergency presentations relative to 2019 increased and remained above 2019 levels up to November. This increase in emergency presentations is to be expected as symptoms cannot be ignored any longer, or an acute event occurs.

Elective admissions also fell sharply at the start of the pandemic. While admissions recovered over the year, elective admissions are still lower than the pre-pandemic level for all cancers apart from colorectal (see Figure 4).

Figure 4: Volumes of elective admission by type of cancer between January 2019 and March 2021



Although it is not possible to quantify the full impact of the delays in presentation, consultation and diagnoses stages at this point, the literature shows that these treatment delays are likely to lead to poorer health outcomes for patients.

Source: Rapid Cancer Registration Data, Cancer Outcomes and Services Dataset & NHS England cancer wait times data, analysis by the Health Foundation's REAL Centre & HES data, analysis by the Institute of for Fiscal Studies and Imperial College London & Literature review
Period: January 2018 – February 2021.
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C6.

Case studies: The impact of COVID-19 on the care of specific conditions: Impact on mental health (C7)

Survey evidence shows that the wellbeing of the population as a whole was worse during the pandemic, particularly during periods of strict restrictions and high COVID-19 infection rates. However, this is in the context of declining stated levels of wellbeing pre-pandemic. Relative to 2019, average General Health Questionnaire (GHQ) scores were 17% higher (worse) in January 2021 when restrictions were high, and 7% higher in July – September 2020 when restrictions had eased.

This deterioration is not reflected in diagnosis of mental health conditions due to reasons presented in section C.2: diagnosis of Anxiety and Depression fell by 7% relative to 2019. Survey evidence indicates that 25% of patients with mental health conditions did not seek care because they were worried about the burden to the NHS, the highest compared to all other conditions. 20% were worried about the risk of catching COVID-19 and 15% found it too difficult. This change in behaviour may have resulted in a reduction in new diagnoses and a fall in referrals to mental health services. Data from Improving Access to Psychological Therapies (IAPT) shows a 61% fall in referrals in April 2020 compared to February 2020. Referrals have increased since this low point but were still 6.6% below pre-pandemic levels in April 2021.

Delivery of IAPT services is currently above pre-pandemic levels with 12.1% more referrals entering treatment in April 2021 compared with February 2020. This pattern of reduced referrals at the outbreak of the pandemic, recovering over time to exceed pre-pandemic levels is common across other mental health services.

Sources: Understanding Society, data analysis by DHSC & GP Survey & CPRD, data analysis by the Health Foundation's REAL Centre & NHS Digital, analysis by DHSC
Periods: January 2010- 2021 & 2021 & 2019-2020 & May 2019- May 2021
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter C7.

Category D. Indirect impacts of COVID-19 on the wider population in the long-run

Impacts on the wider population through changes to employment and the wider economic fallout (D1):

Economic downturns can have significant impact on individuals' health. During 2020, there were significant falls in employment which were more severe in some areas than others. We estimate, using evidence from previous recessions, that the economic downturn associated with COVID-19 may have resulted in an increase in prevalence across chronic conditions of 1% nationally. These effects would take two to three years to realise. These estimates may not reflect the impact of this recession due to differences in industries impacted between the two recessions, fiscal policies (e.g. the Coronavirus Job Retention Scheme) and national restrictions in place that would impact individual behaviour.

The trend of falling **tobacco** consumption has slowed during the pandemic and potentially reversed slightly. This may be due to a reduction in NHS stop smoking services or increased stress in the population. During the pandemic, 2% of the survey sample (Understanding Society) reported cutting meal size or skipping meals as a result of **food insecurity**. The proportion of individuals accessing foodbanks increased from 0.7% pre-pandemic to 1.6% in May 2020. Relative to the pre-pandemic average, the mean number of days in a week people do moderate and vigorous **exercise** increased substantially during the pandemic, despite the closure of leisure facilities. Some of these behaviours may be as a consequence of the proportion of workers who have not been working but have had some protected income through the Coronavirus Job Retention Scheme.

Sources: Janke, K., Lee, K., Propper, C., Shields, K., and Shields, M., (2021). Health in Hard Times: Local Effects, National Effect and Area Heterogeneity. Working Paper shared by authors.& ONS & Understanding Society, data analysis by DHSC
Periods: 2019 – 2020/1 & 2009-2021
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter D1.

Impacts from the loss of education (D2):

The IFS estimated that by February 2021, the majority of children in England faced a total loss in face-to-face schooling of over half a normal school year. This could affect the future health of this cohort of people through both the reduction in their expected lifetime income, which is associated with poorer health and health seeking behaviours, and through reductions in their skills and understanding of health risks.

Sources: Children's Commissioner & Literature review
Period: 9th September to 10th December 2020
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter D2.

Impacts on social care recipients due to changes in their lives (D3):

The population receiving both formal and informal social care have seen a significant impact on their lives as a result of the COVID-19 pandemic. Measures put in place to reduce the risk of infection in **care homes** have negatively impacted the mental health of people living in care homes.

Mean hours of weekly **social support service** usage and the number of people accessing formal care reduced significantly during the pandemic. Higher variations in social support service hours had a detrimental impact on levels of anxiety in people with dementia and older adults, lower levels of mental well-being in unpaid carers and older adults. There is evidence to suggest that this was particularly worse for people in ethnic minority groups.

The number of people providing **unpaid care** to friends/neighbours/relatives has increased significantly during the pandemic.

Sources: Literature review
Period: Various dates
More information: Direct and indirect health impacts of COVID-19 in England: detailed paper, Chapter D3.

The next page contains 5 summary tables as an indicator of where we estimate the burden of the pandemic impacts sits within the population. The analysis is subject to data limitations, and each table presents the available metrics across the categories. More detailed information for each metric is available in the associated paper. The tables order the impacts, assigning a numerical value to each category, 1 being the highest impact. In blue, we have highlighted the top 3 most impacted groups across each metric and category. The tables contain reference to the relevant figures and tables in *Direct and indirect health impacts of COVID-19 in England: detailed paper* for further information.

Table 6 Outcomes by regions

	Category A. Direct impacts of COVID-19				Category C. Indirect impacts of COVID-19				Category D. Indirect impacts of COVID-19 on the wider population in the long-run
	Category A1. Mortality			Category A2. Morbidity	Category C2. Health Seeking Behaviours	Category C5. Impact on Hospital Activity			Category D1. Through Changes to Employment and the Wider Economic fallout
	Mortality (Wave 1)	Mortality (Wave 2)	Mortality (ASMR)	QALYs morbidity	% Drop in GP Consultations*	% Drop in Hospital -elective	% Drop in Hospital – emergency	% Drop in Hospital – outpatient	Predicted change in chronic condition prevalence due to the change in employment rate growth
East	5	4	7	5	9	6	5	4	8
East Midlands	7	7	6	7	1	1	7	5	6
London	1	3	1	1	8	7	1	8	2
North East	9	9	3	9	7	4	6	6	3
North West	2	2	2	2	3	5	4	2	1
South East	3	1	8	3	6	8	8	9	5
South West	8	8	9	8	5	9	9	7	7
West Midlands	4	5	4	4	4	2	3	1	9
Yorkshire and the Humber	6	6	5	6	2	2	2	3	4

Note: * East Midlands data appears to be an outlier. Comparison with a more aggregate data source suggests that this may be a data error.

Table 7: Outcomes by age

	Category A. Direct impacts of COVID-19		Category C. Indirect impacts of COVID-19		
	Category A1. Mortality		Category C5. Impact on Hospital Activity		
	Mortality	QALYs Mortality	% Drop in Hospital -elective	% Drop in Hospital – emergency	% Drop in Hospital – outpatient
0-17	**6**	**6**	**1**	**1**	**3**
18-34	**5**	**5**	**2**	**2**	**6**
35-49	**4**	**4**	**3**	**5**	**5**
50-64	**3**	**3**	**3**	**6**	**4**
65-79	**2**	**2**	**6**	**4**	**2**
80+	**1**	**1**	**5**	**3**	**1**

Table 8: Outcomes by sex

	Category A. Direct impacts of COVID-19			Category C. Indirect impacts of COVID-19		
	Category A1. Mortality		Category A2. Morbidity	Category C5. Impact on Hospital Activity		
	Mortality	QALYs Mortality	QALY Morbidity	% Drop in Hospital – elective	% Drop in Hospital – emergency	% Drop in Hospital – outpatient
Female	2	2	1	1	1	2
Male	1	1	2	2	2	1

Table 9: Outcomes by ethnicity

	Category A. Direct impacts of COVID-19	Category C. Indirect impacts of COVID-19		
	Category A1. Mortality	Category C5. Impact on Hospital Activity		
	Mortality*	% Drop in Hospital -elective	% Drop in Hospital – emergency	% Drop in Hospital – outpatient
White British	4	1	6	1
All Other White	5	1	5	4
Mixed/Multiple ethnic groups	3	5	3	6
Asian/Asian British	1	3	1	2
Black/ African/ Caribbean/ Black British	2	6	2	5
Other Ethnic Group	NA	4	4	3

Note: *the ethnicity categories are slightly different in the detailed report which has as baseline White British. A rough approximation has been provided in this table for comparison purposes. Ranking based on fully adjusted rates. ** the ethnicity categories are slightly different in the detailed report, a rough approximation has been provided in this table for comparison purposes.

Table 10: Outcomes by deprivation

	Category A. Direct impacts of COVID-19	**Category C. Indirect impacts of COVID-19**			
	Category A1. Mortality	Category C2. Health Seeking Behaviours	Category C5. Impact on Hospital Activity		
	Mortality (ASMR)*	% Drop in GP Consultation rates	% Drop in Hospital - elective	% Drop in Hospital – emergency	% Drop in Hospital – all outpatient
Quintile 1 (least deprived)	5	5	3	4	5
Quintile 2	4	4	4	5	4
Quintile 3	3	1	5	3	1
Quintile 4	2	3	2	2	3
Quintile 5 (most deprived)	1	2	1	1	1