



Effects of COVID-19 on Routine Services

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During the UK's first period of COVID-19 lockdown several newspaper articles were published reporting massive reductions in hospital access and disruption of routine hospital services in the NHS. We counted 16 articles in the mainstream press during April 2020, ranging from “heart attack victims scared to seek help” (The Times, 6 Apr), to “sharp rise in deaths at home” (Guardian 16 Apr).

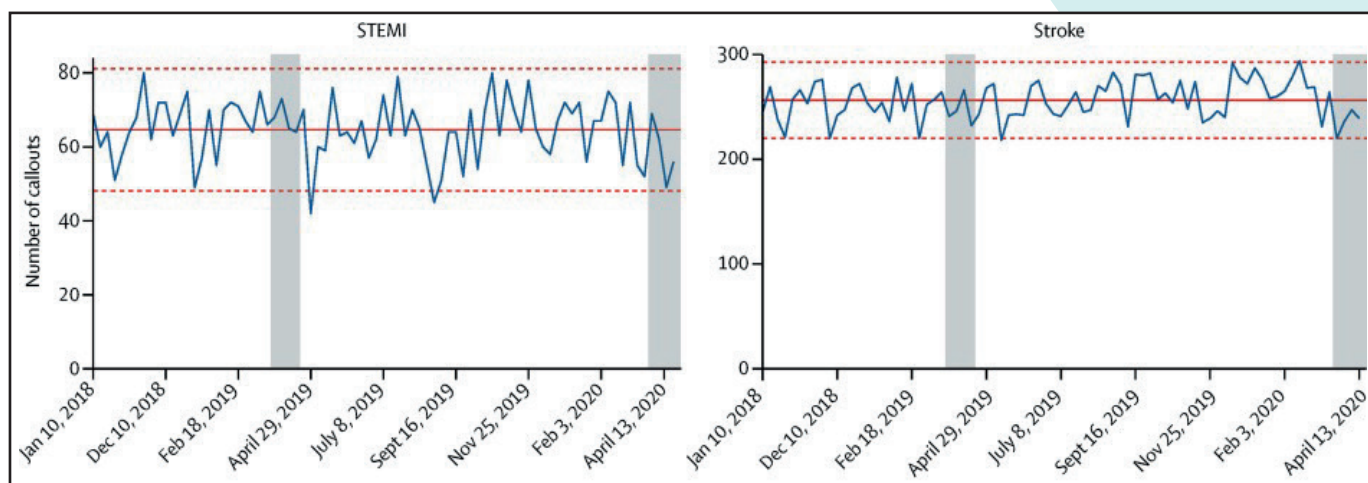
Working with colleagues from the [Margaret Peters Centre](#) supported by ARC WM and ARC EM, we conducted various database studies to look at the effects, if any, COVID-19 was having on routine services in England.

We sought to look at three main barriers to healthcare access:

1. Seeking out healthcare.
2. Reaching healthcare / being transferred to a facility.
3. Getting treatment within facilities.

Barrier 1: Health Seeking

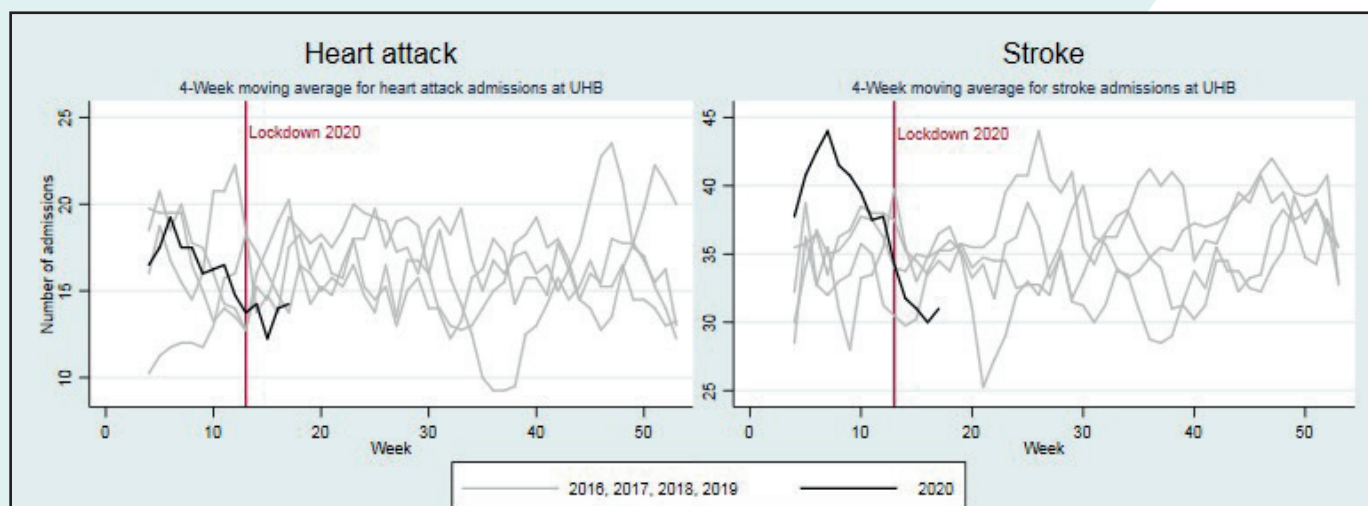
In partnership with the West Midlands Ambulance Service, we analysed data on ambulance attendance at A&E departments over a two-year period, which showed there was little evidence for a year-on-year drop in ambulance call-outs for ST-segment elevation myocardial infarction (STEMI) ($p=0.17$) or stroke ($p=0.11$) (see below Figure - shaded areas are periods of UK lockdown).[1]



Barrier 2: Reaching Healthcare

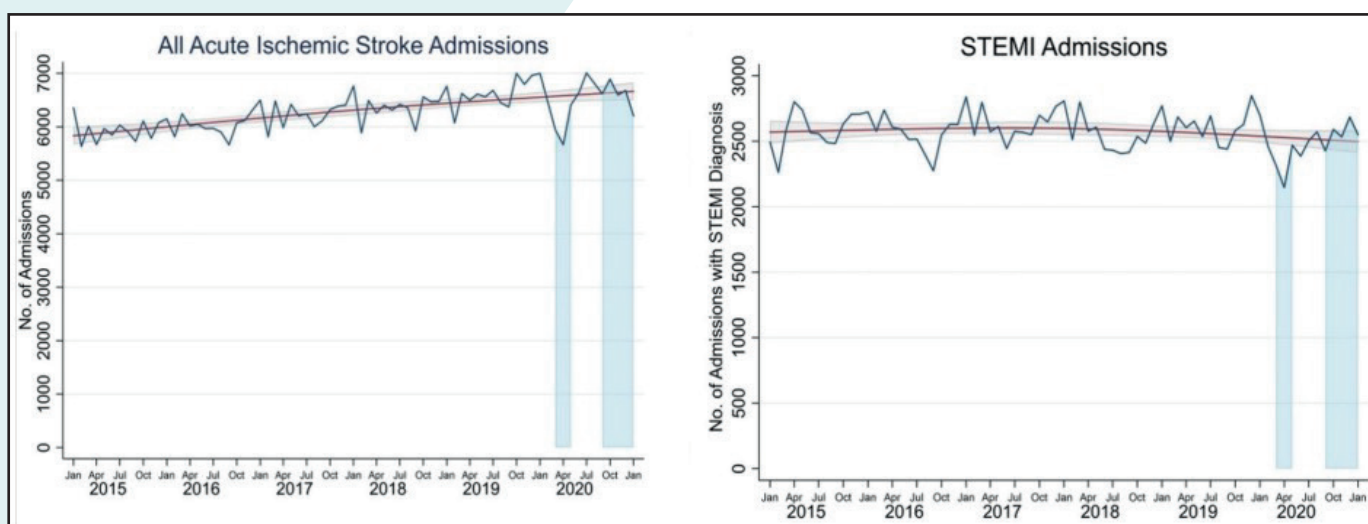
As not all patients with STEMI or stroke arrive at hospital via ambulance, we went on to examine overall hospital admissions from University Hospitals Birmingham NHS Foundation Trust. Data were compared from 2016-2019 with the corresponding period in 2020 (both prior to and

during lockdown).[2] The results showed no evidence of a significant reduction in the overall mean number of admissions for patients with STEMI ($p=0.17$) or stroke ($p=0.15$) (see below Figure).



When we looked at hospital admissions for the same conditions using six years of data from the national Hospital Episode Statistics (HES) database we found similar results (study unpublished).

There was no reduction in admissions for patients with either diagnosis over the periods where COVID-19 incidences peaked (see below Figure - shaded areas are periods of peak COVID incidence).

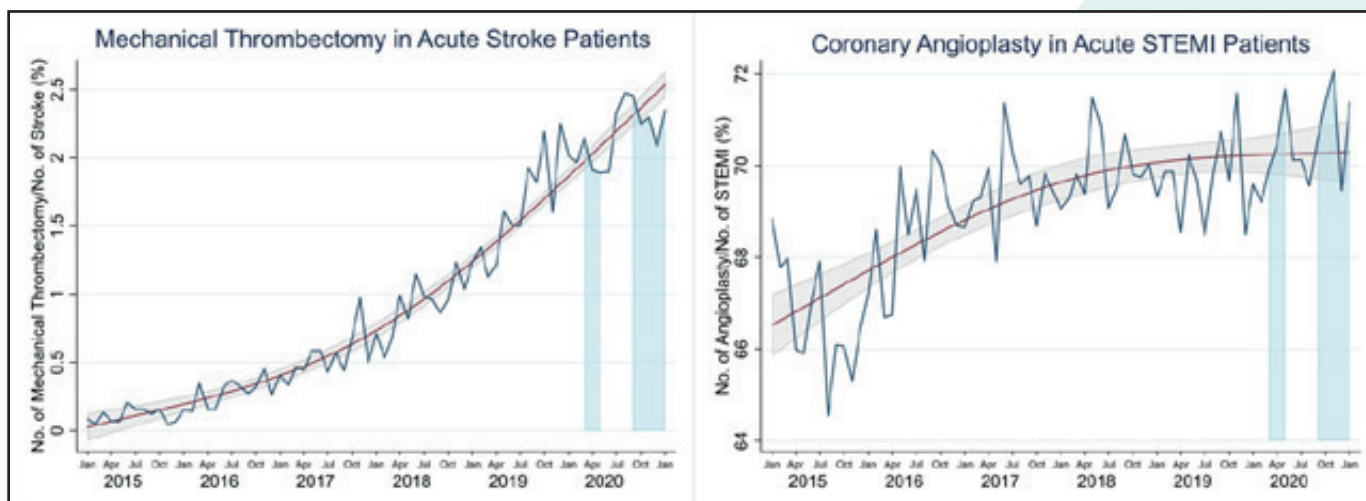


Barrier 3: Getting Treatment

Emergency Treatment

We were also interested in seeing the impact on patients receiving emergency treatment. To this end we looked at HES data on the proportion of acute stroke patients receiving mechanical thrombectomy, and acute STEMI patients receiving a coronary angioplasty.

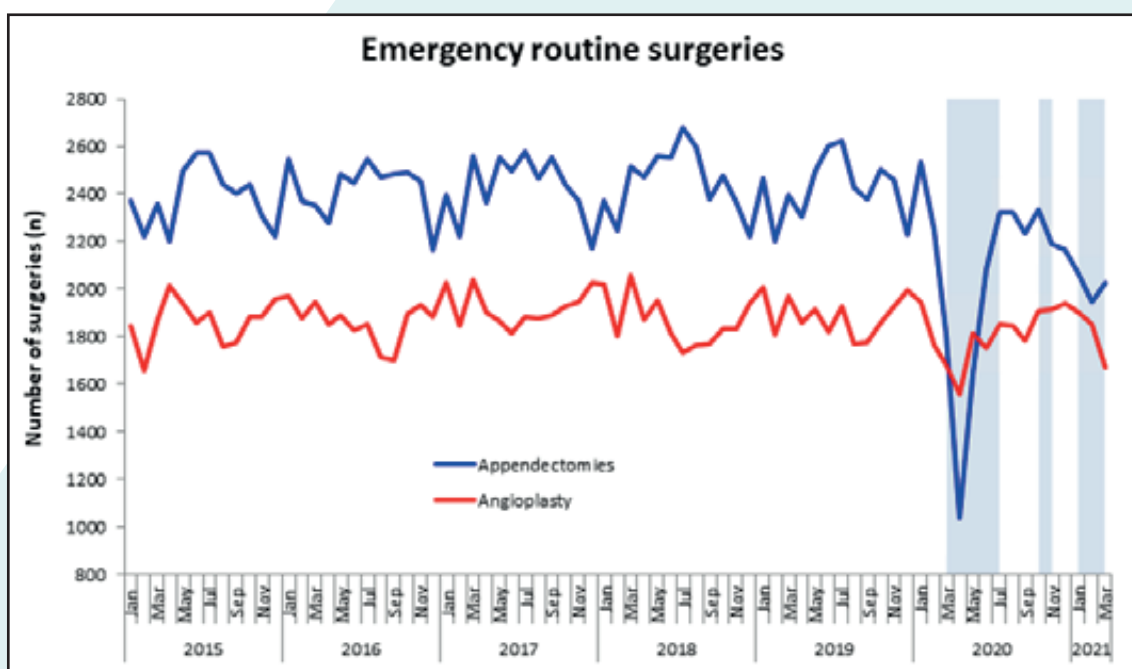
Again, there was no discontinuity in the proportion of admitted patients receiving coronary angioplasty or mechanical thrombectomy (study unpublished) (see below Figure - shaded areas are periods of peak COVID incidence). Note the increase in mechanical thrombectomy in England, mirroring the pre-COVID National Stroke Audit.[3]



Surgery

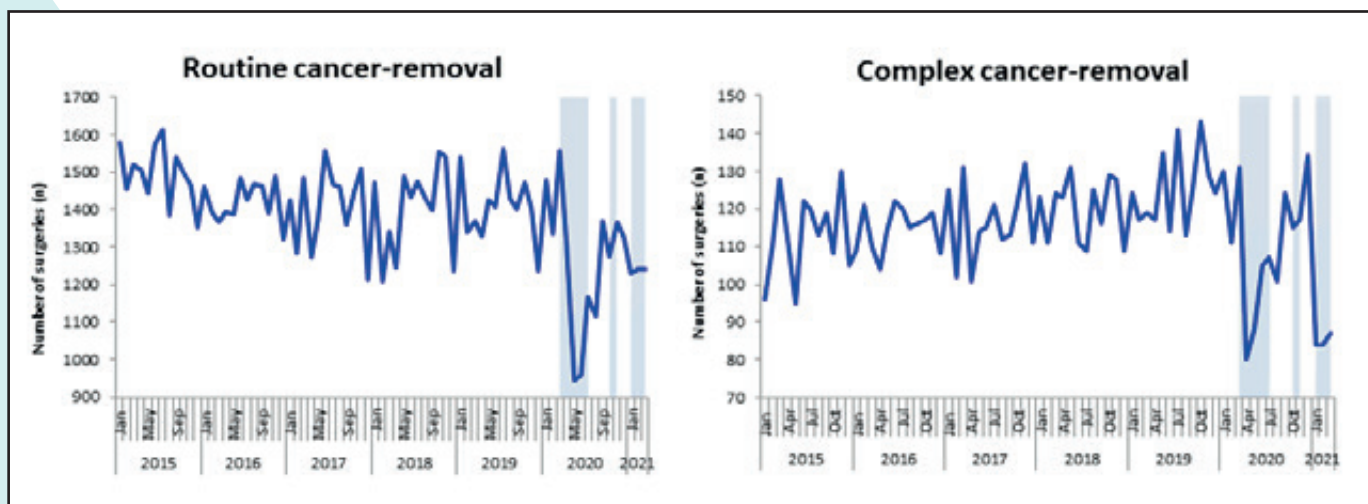
Our next topic of interest was on the use of surgery.[4] Data from HES showed that there was a substantial decrease in the number of surgeries corresponding with the first peak of COVID-19 incidence. However, emergency and urgent operations were less affected compared

to elective surgeries. As can be seen in the following figure, there was a dramatic decrease in appendectomies, but (as found above) little change in emergency angioplasties for acute myocardial infarction (shaded areas indicate periods of UK lockdown).



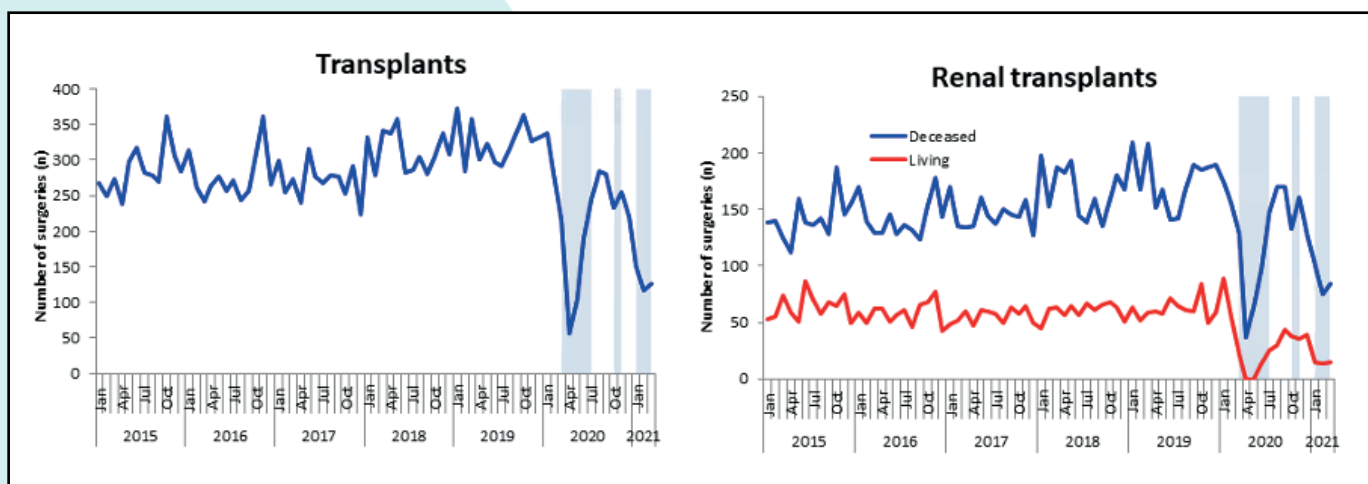
There was severe disruption among operations for cancer and transplants, with those that were more complex being the most affected, in

particular during the latter period of lockdown (see below Figure - shaded areas indicate periods of UK lockdown)



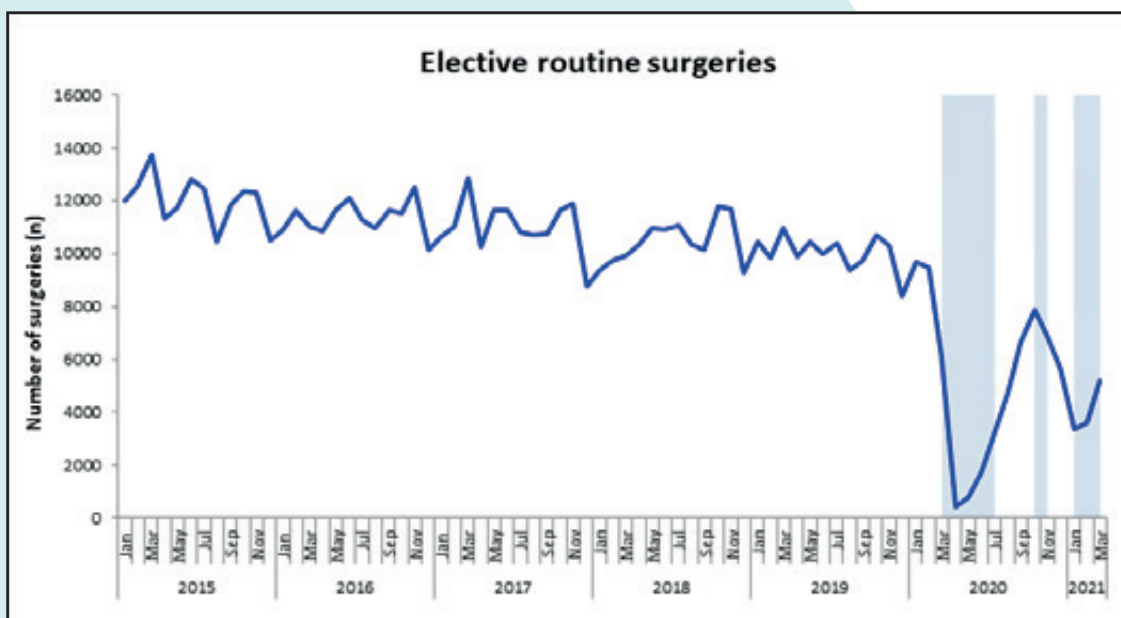
Transplant surgery demonstrated a similar effect, with the most drastic being seen in renal

transplants (see below Figure - shaded areas indicate periods of UK lockdown).



Finally elective routine surgeries, such as hip replacement and inguinal hernia, dropped to almost nothing during the first lockdown, but

were less affected during later lockdowns (see below Figure - shaded areas indicate periods of UK lockdown).



Overall, it seems that the response seen by the NHS was well measured, with urgent and emergency cases being prioritised over routine, elective cases. However, for procedures that are more complex and time critical, such as transplants, there was more disruption.

Outside the UK

We also looked at the impact of COVID on healthcare for people living in seven slum areas of four low- and middle-income countries, which found that there had been a reduction in healthcare access thanks to reduced staffing levels; that the cost of health care had risen, while household income had declined; and

that people were afraid of the impact a positive diagnosis would have on their lives. However, there were also improvements seen, such as an improvement in telehealth care; pharmacists that extended credit when needed; and government support (albeit inconsistent).[5]

References:

1. Lumley-Holmes J, et al. [Emergency ambulance services for heart attack and stroke during UK's COVID-19 lockdown](#). *Lancet*. 2020; **395**: e93.
2. Reeves K, et al. [No Evidence for Reduced Hospital Admissions or Increased Deaths from Stroke or Heart Attack During COVID-19](#). *MedRxiv*. 2021.
3. Sentinel Stroke National Audit Programme (SSNAP). [SSNAP Annual Portfolio for April 2018-March 2019 admissions and discharges](#). London: King's College London; 2019.
4. Remsing S, et al. [Indirect effects of peaks in COVID admissions on access to surgery in the English NHS, differential effects by operation type, ethnicity and socio-economic status: a database study](#). *MedRxiv*. 2021.
5. Improving Slum Health Collaborative. [Inequity of healthcare access and use and catastrophic health spending in slum communities: a retrospective, cross-sectional survey in four countries](#). *BMJ Global Health*. 2021; **6**: e007265.

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