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COVID-19 Daily Briefing: July 15th

1. Summary

MEDICINE

- **REMDESIVIR:** Several experts have criticised the claim from *Gilead Sciences* that the antiviral drug *remdesivir* reduces COVID-19 mortality by 62%. These conclusions were not drawn from a randomised controlled trial. Further alternative studies indicate that the drug did not reduce mortality. In the study by Gilead, treated and non-treated patients were from rather different groups.

- **LONG COVID** describes either people who have recovered from COVID-19 but report lasting effects or have symptoms for far longer than expected. A study in an Italian hospital reported that 87% of people with COVID-19 reported at least one symptom remaining 60 days after onset. A UK study has shown that 1 in 10 people with COVID-19 are sick for three weeks or more. The UK Health Secretary has announced a year-long study into the long-term effects of COVID-19.

- **ACUTE CORONARY SYNDROMES:** Peer-reviewed article showing that hospital admissions for acute coronary syndromes (ACS) declined by 40% from a 2019 baseline from mid-February to the end of March 2020. This decline was reversing during April and May. By the end of May there was still a 16% reduction compared to the 2019 baseline. The decline in ASC hospital admission started about a month before lockdown was implemented, indicating that the reduction was not mediated by decreased air pollution, diminished stress, or other protective factors. Authors state that decline in admissions is likely to have increased the number of out-of-hospital deaths and long-term complications from myocardial infarction. Monthly updates of this report will monitor further development of ACS hospital admissions and provide an early warning of a future decline during any further recurrence of COVID-19 in the UK.

SECOND WAVE

- **WINTER PEAK:** This news article highlights a report from The Academy of Medical Sciences stating that the UK must prepare for a second COVID-19 peak, or risk double the number of hospital deaths seen in the first wave. Without any intervention, modelling estimates that the number of COVID-19-related hospital deaths (excluding care homes) between September 2020 and June 2021 could be as high as 119,900. Efforts should be made to reduce community transmission, and increase the capacity of the national Test, Trace, and Isolate programme to cope with the overlapping symptoms of COVID-19, flu, and other winter infections. Health and care workers and at-risk people should be strongly encouraged to get flu vaccinations.

VACCINATION

- **mRNA CANDIDATE VACCINE:** Peer-reviewed article reporting preliminary results of a phase 1 clinical trial in humans of mRNA candidate vaccine: mRNA-1273. Serum antibody levels rose with vaccine dose, and reached levels similar to those observed in patients that have recovered from a SARS-CoV-2 infection. Adverse events in response to the vaccine which appeared in more than half of the patients included fatigue, chills, headache, myalgia and pain at injection site, and were more common after a second injection of vaccine, particularly at the highest dose tested. The study showed that the mRNA-1273 candidate vaccine induced anti-SARS-CoV-2 immune responses in all

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participants with no trial-limiting safety concerns identified. A phase 2 trial in 600
healthy adults is underway and a large phase 3 efficacy trial is planned for summer 2020.

- **VACCINES & ANTIBODY THERAPIES:** The development of immunological tools such as vaccines and antibody therapies has been high profile throughout the COVID-19 pandemic. However, due to the time it will take for them to become widely available, vaccine development and immunological tools must at best be complementary to public health vigilance, preparedness, and early control measures for combating future potential pandemics.

2. Key Questions

- What predictions of and preparations for are the government making for a predicted winter peak of COVID-19, when NHS resources are expected to be most stretched?

3. Quick Summaries

COVID-19: an opportunity to reduce unnecessary healthcare

- **OVERTREATMENT:** *Editorial* discussing how reductions in access to healthcare during lockdowns provide data for researchers to investigate unnecessary healthcare. Reports from the Organisation for Economic Cooperation and Development prior to the pandemic claimed that nearly 20% of routine healthcare spending was wasted on overdiagnosis and overuse, while The National Institute for Health Research (NIHR) in the UK has called for research proposals investigating prevention of overtreatment. One of the biggest and most sustained falls in healthcare use during the pandemic has been doctor's visits involving young children. Reducing unnecessary care can prevent avoidable harm to patients, enhance healthcare equity, and improve the sustainability of healthcare systems everywhere.

Machine learning for COVID-19—asking the right questions

- **MACHINE LEARNING:** *Comment article.* Without expert clinical oversight, applied AI research might result in solutions looking for problems. Google Deepmind's collaboration with Moorfields Eye Hospital might be considered a prototypical example of expert clinical oversight driving technical innovation. For example, models that predict outcomes such as mortality, intensive care unit admission, or need for mechanical ventilation could have considerable clinical benefits. COVID-19 offers many exciting opportunities for applied AI research, but research questions must be prioritised according to their probable clinical effect, while light-touch regulation must be balanced with robust ethical standards to build an environment that enables rapid review and appropriate ethical approval of AI applications.

4. Longer Reading

Lockdown timing and efficacy in controlling COVID-19 using mobilephone tracking

- **LOCKDOWN:** *Peer-reviewed journal article.* Anonymised cell phone mobility data from February 1st to March 27th was used as a proxy for individual mobility in the three most highly affected regions of Italy and related to daily positive tests for SARS-CoV-2. Mobility restriction was inversely related to the number of newly diagnosed SARS-CoV-2 cases only after 'tight' lockdown: which prevented any kind of mobility except for certain health and professional needs. An initial 'soft' lockdown, which included the closure of all schools and universities as well as all non-essential industrial and commercial activities, led to a reduction in mobility that was insufficient to reverse the outbreak of COVID-19 in the three regions.