

# COVID-19 Daily Briefing: June 24<sup>th</sup>

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## 1. Summary

### PUBLIC HEALTH

- **WASTEWATER:** A preprint investigating the presence of SARS-CoV-2 in a wastewater treatment plant in Massachusetts found that loads of viral genetic material increased exponentially from mid-March to mid-April, and that this increase in virus correlated with the increase in newly diagnosed COVID-19 cases. Detection of the virus in wastewater showed trends 4 – 10 days before clinical data and the authors suggest that wastewater analysis at neighbourhood level could be used to investigate transmission trends.
- **CONTACT TRACING:** A peer-reviewed article suggests that public health messaging could normalise contact tracing and would increase success in contacting potentially exposed individuals. Strategies for maximising the chance of linking cases and their contacts are discussed, as are the tailoring of recommendations, such as asking the potentially exposed person whether they have vulnerable relatives to improve compliance. It is suggested that improved quarantine compliance could be incentivised through expedited testing or improved access to home grocery delivery.
- **MENTAL HEALTH:** Preprint article looking at mental health and health behaviours, before and during lockdown, in 9,748 adults in the UK. Psychological distress increased from 19.4% in 2017 – 19 to 30.3% in April 2020, with mental health in women particularly impacted. Prevalence of smoking fell from 15.1% to 10.9%, but the proportion of people drinking alcohol 4 or more days per week increased, as did binge drinking. The authors recommend that treatment for adverse mental health outcomes and prevention of alcohol abuse should be considered.

### EPIDEMIOLOGY

- **HERD IMMUNITY:** A simple model in this peer-reviewed article suggests that accounting for population heterogeneity and mixing could potentially produce substantial reductions in the required infection level needed for herd immunity, as compared to the classical herd immunity level based on homogenous mixing. The model, based on assumed contact rates, shows a reduction in immunity from 60% to 43%. In an [editorial](#), *Science* highlight that these findings should be used to guide vaccination strategies, and not to downplay the severity of the pandemic. Editors state that, even at 43%, “there is nothing to suggest that any country is close to achieving herd immunity. Continuing nonpharmaceutical interventions around the world is still of great importance.”
- **EARLY DETECTION:** In this peer reviewed study, authors used outpatient surveillance data to overcome limitations to SARS-CoV-2 testing at an early stage in the pandemic. They found a surge of reported influenza-like illness in March 2020 that correlated with COVID-19 counts across the US. This surge would have corresponded to more than 8.7 million new SARS-CoV-2 infections across the US during the 3-week period from March 8<sup>th</sup> to March 28<sup>th</sup>. The authors suggest use of a conceptual model for the COVID-19 epidemic in the US, characterised by rapid spread across the US with over 80% infected patients remaining undetected.

### IMMUNOLOGY AND VIRAL RESPONSE

- **ITALY:** A preprint study investigated the immune response of 64 adults with various clinical presentations, including negative test results (n = 28), asymptomatic (n = 20), mild (n = 8), and severe

cases (n = 8), to SARS-CoV-2. The results suggest that only severe COVID-19 may result in protective immune memory being established by the adaptive immune response.

- **BLOOD PROFILING:** A preprint study profiled the proteins found in the blood of mild (n = 26), severe (n = 9) and critical (n = 24) COVID-19 patients (total n = 59) and 28 controls. The results demonstrate that dynamic changes in blood proteins that associate with disease severity can potentially be used as early biomarkers to monitor disease severity.

### 3. Quick Summaries

#### [Africa's COVID-19 health technologies' watershed moment](#)

- **AFRICA:** *Journal news article* in the *Lancet* reports that COVID-19 has created a watershed moment for African e-health start-ups. Tech start-ups in Africa were perceived as fragile and unattractive to investors, but a recent report found that e-health ventures have received a surge in funding. The authors describe all the ways in which e-health start-ups are helping people, services, and health care providers during the pandemic. Another comment article in the *Lancet* describes colliding epidemics of COVID-19, Ebola, and measles in the Democratic Republic of Congo and how invaluable lessons have been learned from earlier outbreaks.

#### [Leaving the WHO might not be as easy as Trump thinks](#)

- **WHO:** *Editorial* in *Nature* describing the possible pitfalls for the US leaving the WHO. The US contribution was among the biggest, enabling the WHO to carry out life-saving work in low- and middle-income countries and regions. Under a resolution passed by both US houses of congress in 1948, the US must give 1-year notice to withdraw and pay all outstanding debt, and some influential voices in the president's own political party are asking him to reconsider.

#### [The discomfort of death counts: mourning through the distorted lens of reported COVID-19 death data](#)

- **DEATH COUNTS:** *Opinion piece* in *Cell Press* looks at the way that data can flatten and dehumanise the people they represent. The article is relatively philosophical, but goes on to make a point in support of the re-opening of the economy about using comparisons of death figures to other non-communicable diseases such as cancer deaths: "If we find ourselves simply comparing numbers, something is missing – we have already lost."

### 4. Longer Reading

#### [Communicating science in a crisis](#)

- **COMMUNICATION:** *Preprint journal article*. A layperson-friendly article on the importance of effective communication during the pandemic. Inability to obtain and effectively communicate knowledge to the public and to political parties can and has cost lives. Misinformation and unclear messaging have led to confusion and mistrust amongst the public. The Scientific Advisory Group for Emergencies (SAGE) has come under significant scrutiny while lists of members revealed blind spots in public health and patient care. Analysis is needed of SAGE proceedings to learn valuable lessons about how to improve communication between scientists and politicians, while clear communication and availability of trusted resources will be necessary to fight the spread of public misinformation online. Such issues will be brought into focus in the eventuality of the availability of a COVID-19 vaccination.