

# COVID-19 Daily Briefing: May 14<sup>th</sup>

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## 1. Summary

### VACCINE

- **RATIONAL VACCINE DESIGN**: Article discussing the development of vaccines using a rational design approach (a computational molecular modelling strategy) to targeting the virus. The authors suggest that such an approach could lead to a pan-coronavirus vaccine able to deal with several, even future, coronaviruses, rather than a 'quick fix' for this specific one.
- **CLINICAL TRIALS**: Article discussing the vaccines currently in development and the challenges of vaccine design relating to the lack of knowledge on coronaviruses compared to better-known viruses like influenza. Highlights important unknowns surrounding what generates a protective immune response in humans, and concerns about the risk of enhancement of infection post vaccination, as has been observed with other related viruses.

### EXITING LOCKDOWN

- **PRO-ACTIVE TESTING**: These authors present a simple model which distinguishes between undetected and detected infections. Simulations show that pro-active testing to identify asymptomatic cases, combined with strict isolation of identified cases, could greatly reduce the number of infections without total lockdown being necessary. This would mitigate socioeconomic impacts.
- **R VALUE**: Preprint presenting an implementation of modelling approaches and software that estimate R in real time, applied to data in the US. Ongoing R estimates are invaluable for monitoring the effects of measures and informing decisions about lifting or implementing restrictions.

### PUBLIC HEALTH

- **THE FRONT (PHONE) LINES**: Preprint analysing the results of a COVID-19 hotline in Ohio that had 10,112 callers who were triaged by registered nurses, with 4,213 being referred to a telehealth visit. Most patients (79%) were advised to self-isolate at home, 14% were found to be unlikely to have COVID-19, and 3% were advised to seek immediate emergency care. Of patients who were advised to stay home, 83% did not require in-person visits. The study demonstrates that a robust telemedicine system can help to manage the pandemic and conserve resources.
- **LIFESTYLE AND COVID-19 HOSPITALISATION**: A UK BioBank cohort study showed that unhealthy behaviours (e.g. excessive drinking) accounted for up to 51% of severe COVID-19 cases leading to hospitalisation. After adjustment for age/sex etc., physical inactivity, smoking and obesity were risk factors for COVID-19 hospitalisations. People with less favourable overall lifestyle scores had 4-fold higher odds of hospitalisation. Adopting simple lifestyle changes could lower the risk of severe infection and need for hospitalisation.

## 3. Quick Summaries

### [International recommendations in 23 languages for patients with cancer during the COVID-19 pandemic](#)

- **INTERNATIONAL GUIDANCE FOR CANCER PATIENTS**: *Perspective article*. Outlines six key areas of advice for cancer patients who are at high risk of COVID-19. Advice includes seeking help from their physicians about their individual risk, strict protocols for hygiene and behaviours to minimise

chances of exposure and recommendations on what to do if they become symptomatic. Further guidance is given on managing anxiety and stress, building trust with physicians (to improve compliance with medical advice), and recommendations regarding procedures at cancer centres.

#### [Kawasaki-like disease: emerging complication during the COVID-19 pandemic](#)

- **KAWASAKI-LIKE DISEASE IN CHILDREN:** *Comment article*. Highlights the potential relationship between COVID-19 and a Kawasaki-like disease in children, which may be the result of an immune response. If this syndrome is antibody-mediated, this finding would have important implications for vaccine studies. Kawasaki disease results in the inflammation of blood vessels, with arterial aneurysms being the main complication. Studies to understand the mechanisms are underway.

#### [Transmission of SARS-CoV-2 in Domestic Cats](#)

- **SARS-COV-2 IN DOMESTIC CATS:** *Correspondence article*. Findings from a study in a small number of cats show that domestic cats can asymptotically transmit COVID-19 between each other. This finding represents a potential risk of them picking up the virus from one infected household and transmitting it to an isolated household. Further research is needed on the potential of a human to cat to human transmission chain.

#### [Research supercomputer ARCHER's login nodes exploited in cyber-attack](#)

- **ARCHER SUPERCOMPUTER ATTACKED:** *News article*. The UK's most powerful academic supercomputer was targeted for a cyber-attack aimed at the login nodes, forcing user passwords and SSH keys having to be reset. The National Cyber Security Centre (NCSC) is investigating.

## 4. Longer Reading

#### [Shifting out of lockdown, the four days on, ten days off model](#)

- **POTENTIAL LOCKDOWN LIFTING STRATEGY:** *Adam Smith Institute report*. Proposes a system for coming out of lockdown, splitting the country into two groups, A and B. Group A would go to work or school for 4 days on the first week, after which they would then lock down for 10 days. The following week group B follows the same procedure. Modelling shows this method keeps R below 1 and reduces the infection rate over a 2-month period, with adaptations if the infection rate jumps.

#### [Effects of mobility and multi-seeding on the propagation of the COVID-19 in Spain](#)

- **REPEATED INTRODUCTIONS AND COVID-19:** *Preprint of a journal article*. The authors tested the correlation between mobility and infection spread with actual population movement data from early in the Spanish outbreak. They argue for the importance of multi-seeding (when infected individuals enter susceptible populations, leading to independent outbreaks that are harder to trace, for example, when travelling for holidays rather than a work commute) and found a clear relationship between weekend mobility to/from Madrid and the heights of the peaks of incidence and mortality. The authors suggest this evidence supports reducing non-essential trips first, and only later commuting flows.