

COVID-19 Daily Briefing: June 3rd

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1. Summary

NON-PHARMACEUTICAL INTERVENTIONS

- **MODELLING IN THE UK**: A peer-reviewed modelling study on the impact of 4 non-pharmaceutical interventions found that every intervention (school closures, physical distancing, shielding, and self-isolation) decreased R_0 but not sufficiently to prevent ICU demand from exceeding health service capacity. Only extended lockdown periods over the next year were found to be sufficient to bring R_0 near or below 1 and to prevent healthcare demand exceeding availability, resulting in 120,000 COVID-19 cases and 50,000 deaths by the end of 2021.
- **SELF-ISOLATION POLICY**: Preprint article reporting on the first study investigating adherence to self-isolation and lockdown measures in the UK. The authors showed that almost 10% of participants said that there had been COVID-19 symptoms in their household in the last week, but this had no impact on whether the participants had gone out in the last 24 hours, with three quarters having left their home in the last 24 hours in both cases. The authors highlight that as we move into a new phase of contact-tracing and self-isolation, it is essential that adherence improves, with better communication suggested, particularly targeting men.

REUSING N95 MASKS

- **ULTRAVIOLET DECONTAMINATION**: A preprint article in which N95 respirators were irradiated with UVC, which demonstrated that irradiation is an effective method of SARS-CoV-2 decontamination for the facepieces of several of N95 mask models. Implementation of widespread UVC decontamination methods requires careful consideration of mask model, material type, design, and fit-testing following irradiation, as UVC can degrade certain polymers over time.
- **DRY HEAT vs AUTOCLAVE**: A preprint article investigating the effects of two methods for SARS-CoV-2 N95 mask decontamination: dry heat at 95 °C and autoclave treatment. For dry heat treatment, three N95 models were tested for five heating cycles and passed both fit and filtration tests after each cycle. Contrary to other recent studies, tested N95 masks were not able to survive autoclave cycles.

COVID-19 ANTIBODY TREATMENT

- **SAFELY DETECTING ANTIBODIES**: A preprint article presenting a PCR assay to quantify the presence of neutralising antibodies (NAb) that prevent the SARS-CoV-2 spike protein S1 from binding the human ACE2 receptor that the virus uses for infecting cells. The assay does not alter NAb signals in convalescent plasma (CP), and thus would allow for the test to serve as a tool to identify CP donors in order to safely administer CP therapies. See *SfL testing report for more detail*.
- **THERAPEUTIC ANTIBODY STRUCTURE**: A preprint article identifies a humanised monoclonal antibody (called H014), which efficiently neutralised SARS-CoV-2 in a human-ACE2 mouse model by reducing virus replication. Several study methods demonstrated that H014 prevented attachment of SARS-CoV-2 to its host cell receptors. Antibody-based therapeutic interventions for COVID-19 could play a key role in treatment. See *SfL treatment report*.
- **IMMUNOMODULATORY PEPTIDE**: A preprint article on the treatment of 16 patients with CIGB-258 immunomodulatory peptide in serious (31%) or critical (69%) conditions, demonstrating this method's potential as an effective treatment for COVID-19. All seriously ill patients considerably improved. All critically ill patients recovered from respiratory distress, however two of these patients had a fatal outcome due to infections originating in hospital.

3. Quick Summaries

[Expression of concern in the Lancet and NEJM on pharmaceutical treatments for COVID-19](#)

- **EXPRESSIONS OF CONCERN:** *Letters and news about journal articles.* Two expressions of concern have been released by the [Lancet](#) and the [NEJM](#), respectively, on recent research published by M.R. Mehra et al. on the use of hydroxychloroquine/chloroquine, remdesivir, and angiotensin-converting enzyme (ACE) inhibitors/angiotensin-receptor blockers (ARBs) to treat COVID-19 in clinical trials. Concerns have been raised about the provenance and validity of the seemingly inconsistent data used in these studies (which led to WHO suspension of trials) and the funding of the company that carried out the research. The NEJM linked to two other papers published on a similar topic by [G Mancia](#) and [HR Reynolds](#) and [studies](#) in recent days that have indicated that the efficacy of hydroxychloroquine/chloroquine is still debated.

[Open letter from chair of the UK Statistics Authority, Sir David Norgrove, to Rt Hon Matt Hancock MP](#)

- **MISREPRESENTATION OF STATS:** *Letter.* Sir David Norgrove states that the way testing data are currently analysed and presented does not help with understanding of the epidemic. He highlights several issues: data are reported only on tests carried out, not on the total number of those posted out and successfully completed; multiple swabs on single patients are counted as multiple tests; and, in general, testing figures are presented in a way that is difficult to understand and that provides an artificially low impression of positive tests. He also suggests that tests results should be accompanied by additional data such as types of employment (e.g. medical/care staff), age, sex, and location.

4. Longer Reading

[Excess registered deaths in England and Wales during the COVID-19 pandemic, March 2020 to May 2020](#)

- **EXCESS DEATHS:** *Preprint journal article* using a generalised additive model to count all deaths registered in England and Wales during the 2010s by week, which then uses this information to calculate the number of excess death during the COVID-19 pandemic between March and May 2020. It was found that in England and Wales, by the end of April there were $45,300 \pm 3200$ excess registered deaths of adults aged 45+, and by 22 May there were $56,600 \pm 4400$ excess registered deaths – higher than both the ONS's and Department of Health and Social Care's counts. This finding suggests that the counting methods being used by both organisations underestimates, rather than overestimates, excess direct and indirect deaths due to the COVID-19 pandemic.

[Quantitative assessment of the risk of airborne transmission of SARS-CoV-2 infection: prospective and retrospective application](#)

- **CALCULATING RISK:** *Preprint journal article.* Quantitative assessment of the individual infection risk of susceptible subjects, exposed in indoor microenvironments in the presence of an asymptomatic infected SARS-CoV-2 patient. Authors suggest that, to guarantee an acceptable individual risk (1 in 1000) in naturally ventilated indoor environments, exposure time should be shorter than 20 minutes.