

COVID-19 Daily Briefing: July 7th

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1. Summary

RE-INFECTED AND IMMUNITY

- **POST-RECOVERY RESULTS**: In this peer reviewed study, 641 recovered COVID-19 patients in Wuhan were re-tested for SARS-CoV-2 48–91 days after hospital discharge. 3% of patients re-tested positive for SARS-CoV-2, although they had tested negatively twice before initial discharge. 35% of re-infected patients reported at least one recognised COVID-19 symptom, suggesting the potential for further transmission. About half of re-infected patients had antibodies at the time of the second positive PCR test. The authors call into question the usefulness of the positive viral antibody test and stress the importance of clinically observing patients for 14 days after recovery.
- **CROSS REACTIVITY**: A study of thirteen old Dengue Fever antibody-positive samples found that five of them were also positive for SARS-CoV-2, despite the samples predating the pandemic by years. The SARS-CoV-2 antibody rapid detection kits are therefore giving false-positive readings, and the authors therefore suggest that antigen/nucleic acid testing needs to account for both viruses in regions where both COVID-19 and Dengue Fever co-exist.

EPIDEMIOLOGY AND LOCKDOWN

- **SPAIN**: In this peer reviewed study, authors conducted a nationwide study involving over 60,000 participants, to estimate the presence of anti-SARS-CoV-2 antibodies (seroprevalence) across the Spanish population. Antibody test results indicated that ~5% of the Spanish population had antibodies to SARS-CoV-2, though with marked regional differences (1%–13%). The authors conclude that seroprevalence levels are far below what is required to achieve herd immunity and emphasise the need for maintaining public health measures to avoid a new epidemic wave.
- **LOCAL APPROACH**: In this preprint study, analysis of case data from Public Health England and other sources, as well as crowd-level mobility data, highlights variability in mobility and confirmed cases across the UK as a result of lockdown and progressive easing of measures. Authors argue that there is a need to decentralise national-level initiatives in order to empower local authorities to account for local heterogeneities in mobility needs and infection clusters in their management measures. This would enable local public health and associated services to rapidly respond to emerging hotspots of infection and introduce additional temporary measures as needed. Moving away from nationwide statistics (which can hide this heterogeneity in infection and spread) and towards near real-time analysis and visualisation of infection and mobility data is suggested.

GOVERNMENT RESPONSE:

- **DELAYS**: A study of the non-pharmaceutical responses of 170 countries, including school/work closures, travel restrictions, testing, public information campaigns, banning of mass gatherings, and contact tracing, showed that delays in responses lead to an increase in total number of deaths. A week's delay in introducing policy measures lead to 1.7 times as many deaths in the country overall. These results implicate that the governments' delayed response in the UK, Sweden and the USA contributed to the high number of excess deaths the countries have seen.
- **CONTACT TRACING**: In this report, *Armasuisse* provides an overview of technologies for contact tracing and cyber risks. Smartphone-based contact tracing technologies offer promise, but the main challenge relates to ensuring the security and privacy of the users. All app-based approaches are prone to targeted attacks. Similarly, non app-based methods (based on triangulation of radio signals) give rise to privacy concerns and have poor accuracy, although resulting anonymised data has been

useful in monitoring effectiveness of lockdown measures. Location-based contact tracing using GPS or WiFi triangulation is effective but requires users to install an app and gives rise to privacy concerns. Proximity-based contact tracing using Bluetooth does not provide an accurate measure of distance and could therefore result in too many false alarms. This method also requires users to install an app. Other approaches that link credit card payments to trace back contacts by linking purchasing from different customers to same approximate time and place have been implemented with some success in South Korea. The authors conclude there is no technological solution that can maintain full effectiveness whilst providing privacy guarantees.

3. Quick Summaries

[Seroprevalence of anti-SARS-CoV-2 IgG antibodies in Geneva, Switzerland \(SEROCoV-POP\): a population-based study](#)

- **SEROPREVALENCE:** *Peer-reviewed journal paper.* Consistent with results from Spain summarised below, this study reports low seroprevalence levels of around 5%, with most of the population appearing to have remained unexposed. This is true even in areas with widespread circulation, such as Madrid and Geneva, where seroprevalence levels are reported to be around 10%. Authors highlight that seroprevalence studies provide information on infection rates and spread, but not necessarily on immunity to SARS-CoV-2. In light of these collective findings, authors warn that any strategy to achieve herd immunity is not only unethical, but also unachievable.

4. Longer Reading

[Prevalence of SARS-CoV-2 in Spain \(ENE-COVID\): a nationwide, population-based seroepidemiological study](#)

- **SPAIN:** *Peer-reviewed journal paper.* A nationwide study involving over 60,000 participants was conducted to estimate seroprevalence across Spain. The antibody test results indicated that ~5% of the Spanish population had antibodies to SARS-CoV-2, with marked regional differences (1%–13%). Children have lower seroprevalence than adults, one third of seropositive individuals reported never having symptoms, and two thirds of family members of confirmed cases were seronegative themselves. Authors conclude seroprevalence levels are far below what is required to achieve herd immunity and emphasise the need for maintaining public health measures to avoid a new epidemic wave.

[High frequency of cerebrospinal fluid autoantibodies in COVID-19 patients with neurological symptoms](#)

- **NEUROLOGY:** *Preprint journal article.* Despite the near absence of SARS-CoV-2 in cerebrospinal fluid, some intensive care COVID-19 patients develop neurological symptoms such as seizures and delirium. In this study, 11 patients were identified with neurological symptoms presenting 12 days after the onset of respiratory symptoms. Autoantibodies could be detected in the cerebrospinal fluid of these patients, suggesting involvement of secondary autoimmune encephalitis (inflammatory damage to the patients' own neurological system).