

COVID-19 Daily Briefing: July 16th

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1. Summary

MENTAL HEALTH

- **DEVELOPING SUPPORT SERVICES**: This peer-reviewed article outlines a process for managing the mental health of healthcare workers (HCWs). In Austin, Texas, a HCW COVID-19 mental health hotline was set up to deal with the wave of psychological distress manifesting in this population. This hotline was set up in anticipation of the mental health needs of HCWs, rather than as a reaction to the crisis as it unfolded. The system used a multidisciplinary team of psychiatrists, educators, social workers and volunteers.
- **DEPRESSIVE SYMPTOMS**: This peer-reviewed article discusses results of an online survey into depressive symptoms amongst US adults during the pandemic. The average respondent reported symptoms above the clinical case criteria (scoring 16) and a third of respondents had scores higher than 25. Higher levels of depressive symptoms were observed in the socially vulnerable, including women, Hispanic people, the unmarried, and those not working. People reporting heightened COVID-19 fear and/or moderate to high food insecurity had higher levels of symptoms. Social and psychological resources will be required to combat heightened fear and depression during the pandemic.

IMMUNOLOGY

- **IMMUNOTYPING**: In this peer-reviewed study, authors performed deep immune profiling of 125 COVID-19 patients, comparing them to healthy individuals. Analysis revealed that activation of subsets of two classes of immune cells, known as T and B cells, is seen in recovered patients. In a subgroup of patients, T cell activation, characteristic of acute viral infection, was seen. In contrast, around 20% of patients only had activation comparable to uninfected individuals. The high resolution and specific nature of the analysis performed allowed identification of three distinct immunological signatures, known as “immunotypes” that patients could be sorted into. These immunotypes could be associated with poor clinical trajectories versus improving health, and so could have implications for the tailoring of personalised treatment, and the design of clinical trials.
- **T CELL IMMUNITY**: This peer-reviewed study identified T cell responses to SARS-CoV-2 proteins in cells taken from the blood plasma of recovered COVID-19 patients (n = 36), demonstrating the persistence of T cell based immunological memory. To expand upon this finding, blood plasma from patients who recovered from SARS infection in 2003 was tested and shown to retain immunological memory against proteins from that virus (n = 23). An immune response against SARS-CoV-2 was also seen in cells which have retained memory of the SARS-CoV-1 virus. T cells with reactivity to SARS-CoV-2 in blood samples were also identified in individuals who had no history of exposure to either SARS-CoV-1 or -2 (n = 37). Analysis identified that these T cells interacted with proteins with only little similarity to “common cold” human coronaviruses but similar to animal betacoronaviruses, suggesting that infection with any betacoronavirus could confer long-lasting T-cell immunity. Understanding how these pre-existing T cells present in the general population and impact susceptibility and pathogenesis of SARS-CoV-2 infection could be important for the management of the current COVID-19 pandemic.
- **PROTECTIVE ANTIBODIES**: In this peer-reviewed study, authors identified several antibodies targeting SARS-CoV-2 that exhibited potent neutralising activity, and that fully blocked the region of the viral protein important for interacting with and infecting human cells. Using a mouse model of

SARS-CoV-2 infection, authors were able to demonstrate reduced SARS-CoV-2 infection symptoms through administration of two of the identified antibodies alone or in combination. The two most potently blocking antibodies identified were also able to provide protection to rhesus macaques against SARS-CoV-2 infection.

3. Quick Summaries

[Assessing national performance in response to COVID-19](#)

- **ASSESSING PERFORMANCE:** *Comment article.* In their Global Health Security Index (GHSI) assessment prior to COVID-19, the USA and the UK were identified as two countries most prepared for a pandemic, while New Zealand and Vietnam, who have performed much better during the pandemic, are ranked only of 35th and 50th on respectively. These inconsistencies show that in-depth assessments need to go beyond publicised pandemic preparedness plans. During a pandemic, it is better to benchmark countries in ways that allow information about outcomes and performance to be obtained, analysed, reported, and used in real time. These authors have devised a checklist of capacities for assessing COVID-19 response systems and capacities. These include the ability to detect and break chains of COVID-19 transmission as well as to minimise deaths and severe complications. Other measures of pandemic performance are based in minimising hospital-acquired infection, provision of fiscal support, maintenance of food and supply chains, protection of vulnerable and neglected populations, and continued provision of non-COVID-19 health services.

[The injustice of COVID-19: we need a moral constitution for our planet's health](#)

- **PLANETARY HEALTH:** *Comment article.* Despite warnings, the world was unprepared for coronavirus because our global health system is grounded in self- and national interests rather than principles of justice. Many global recommendations were written on pandemic preparedness but not acted upon. Nations are now blaming each other for the virus while the World Health Organisation (WHO) is threatened with financial ruin; with the scheduled withdrawal of the USA, who provide 15% of WHO funding (\$893 million). Tension between China and the USA has exposed the vulnerability of the WHO's international legitimacy to underlying power relations. A shared threat, such as COVID-19, requires a shared response with roles and responsibilities for individuals, communities, national governments, and global institutions. This activity can be encouraged through a global health constitution – a moral constitution – to coordinate independent actors.

4. Longer Reading

[A dynamic nomenclature proposal for SARS-CoV-2 lineages to assist genomic epidemiology](#)

- **GENOMIC NOMENCLATURE:** *Peer-reviewed journal article.* The SARS-CoV-2 pandemic has led to the generation of tens of thousands of virus genome sequences at an unprecedented rate, yet there is currently no coherent, accepted scheme for naming the expanding phylogenetic diversity of SARS-CoV-2. Authors present a rational, dynamic virus naming system that uses a phylogenetic framework to identify lineages and denote whether they are spreading or have been unobserved for some time. By focusing on active lineages and those spreading to new locations, this nomenclature will assist tracking and understanding the patterns and determinants of global spread.