

COVID-19 Daily Briefing: May 28th

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1. Summary

REMDESIVIR

- **REMDESIVIR REVIEW**: A preprint of a systematic review and meta-analysis of the two suitable randomised clinical trials (RCTs) and two observational studies on the use of Remdesivir to treat COVID-19. The authors suggest that Remdesivir offers no quantifiable benefit and should not be recommended for the treatment of severe COVID-19, though there is a shortage of RCTs.

TRANSMISSION

- **REDUCING ASYMPTOMATIC TRANSMISSION**: Perspective article on the use of masks to reduce transmission as the current 6ft (1.8m) recommendations are based on studies of respiratory droplets carried out in the 1930s when the technology to detect submicron droplets did not exist. A 100µm droplet will settle to the ground 8ft (2.4m) away in 4.6s, whereas a 1µm aerosol particle will take 12.4 hours to settle to the ground and will distribute more widely. Thus, 6ft is not far enough to eliminate all the risks of viral transmission via droplets. The authors suggest widespread use of masks to reduce spreading.
- **AEROSOLS AND VENTILATION**: Comment article investigating droplet size, velocity and travel distance as well as airborne time relative to the ventilation of air. The authors find two distinct sizes of droplets in coughs, with larger droplets having a relatively short range and sinking quickly to the ground. The smaller, more prevalent, droplets, however, take several minutes to disperse in an unventilated room, and these droplets can pass through standard masks. The work suggests that ventilation should be improved in public spaces, and efforts should be made to avoid unventilated spaces where possible.

PUBLIC HEALTH

- **INCREASE IN OUT OF HOSPITAL CARDIAC ARRESTS**: There has been an increase in out of hospital cardiac arrests (OHCAs) during the COVID-19 outbreak in France, with the maximum weekly incidence of OHCAs doubling during the pandemic. Hospital admissions of people with OHCA halved and survival after hospitalisation decreased to 0.36 times that of the same period in previous years. Confirmed or suspected COVID-19 cases accounted for approximately one third of the increase in OHCAs, and the survival rate was lower for this group. There was also a higher number of OHCAs at home (90.2% vs 76.8%), and less bystander resuscitation (47.8% vs 63.9%).
- **DRUG SHORTAGES**: A surge in demand for hydroxychloroquine, an established and approved drug for autoimmune diseases (in addition to its use in malaria) for COVID-19 prophylaxis could trigger price competition and leave patients reliant on the drug in a vulnerable position.
- **SMOKING AND ALCOHOL CONSUMPTION**: Preprint study of 20,000 adults in England revealed that the lockdown has been associated with an increase in both high-risk drinking (25.1% to 38.3%) and also an increase in the numbers attempting to reduce their intake if in the high-risk category (15.3% to 28.5%). There has not been a significant change in smoking prevalence after the lockdown in England.

3. Quick Summaries

[Minimise, manage, and modify: the UK must create and use time](#)

- **THE IMPORTANCE OF TIME:** *Correspondence article.* The authors argue that a major flaw in the UK Government's thinking was its perception of an inevitable choice between either containing the spread of COVID-19 at the cost of destroying the economy now; or tolerating more lives lost now to save the economy later. The government has used the time that the lockdown has brought it ineffectively by failing to establish either testing and tracing protocols for contacts or clinics to triage cases.

[Ratio, rate, or risk?](#)

- **DEFINITIONS:** *Correspondence article.* Short article on the scientific definitions of case fatality ratio, rate and risk and how they are obtained. Case fatality ratio is the ratio of deaths to identified cases. A rate refers to observing events with respect to a timescale. Risk is associated with probability of an adverse outcome of a future event, which as a probability is confined to values between 0 and 1.

4. Longer Reading

[The non-specific and sex-differential effects of vaccines](#)

- **VACCINATION POLICY:** *Viewpoint article.* Evidence accumulated over the past few decades increasingly suggests that vaccines can have non-specific effects, in that they appear to also reduce mortality from infections not targeted by the vaccine. It is suggested that some non-specific effects of vaccination may be accounted for by the fact that vaccines containing living samples are able to 'train' the immune system, providing non-specific protection from infection. In comparison, some non-live vaccines seem to increase susceptibility to vaccine-unrelated infection, particularly in females. Sex differences in response to vaccination may be accounted for by differences in immune response, for example, females typically develop a greater antibody response and report more adverse reactions to vaccination than males. The beneficial non-specific effects of some live vaccines indicate that it is possible to train immunity to develop stronger resistance to unrelated infections. The question of how to develop this capacity should become a major research priority.

[Type I and Type III interferons – induction, signaling, evasion, and application to combat COVID-19](#)

- **IMMUNOLOGY:** *Peer-reviewed journal article.* Description of the immunological response to viruses, specifically the interferon response. In the absence of approved antiviral therapeutics or vaccines, interferons are currently being evaluated for their efficacy. The interferon response is part of the early reaction of our immune systems to infection and contributes to the inflammatory response. Such a response can be protective by encouraging the expedient removal of virus and infected cells. In a mouse model, administering type 1 interferon reduced viral load and lung pathology of SARS-CoV infection (the 2003 SARS pathogen) and could be applicable to SARS-CoV-2 for combatting COVID-19.