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COVID-19 Daily Briefing: May 12th

DISCLAIMER: Scientists for Labour are a voluntary organisation, and collating this research takes a significant amount of time. We cannot claim that this document is comprehensive, necessarily accurate in all regards, or that it covers all developments. Expert fact checking has been performed by the Boyd Orr Centre for Population and Ecosystem Health at the University of Glasgow.

1. Summary

UNDERLYING RISK FACTORS

- **HOSPITALISATION:** A UK Biobank multisite cohort study of over 400,000 adult patients found major risk factors for hospitalisation with COVID-19 to include (in order of strength of association) black ethnicity, South Asian ethnicity, high BMI, greater residential deprivation, COPD (lung conditions), male sex, a history of smoking, and hypertension.
- **CARDIOVASCULAR AND KIDNEY** diseases increase the risk of complications, a study of 4,353 COVID-19 positive patients in Israel has found. Cognitive and neurological disorders were also significant risk factors.

DIGITAL TRACKING

- **APPLICATION OF TECHNOLOGY:** Traditional methods of contact tracing will not be able to halt the spread of COVID-19, so many countries are investigating novel tracing methods (such as algorithmic tracing via mobile applications). These methods present the potential for misuse of data, and there is a risk that errors can be made by such systems in identifying areas and individuals at high risk. Alternative methods to achieve the same public health objective should be explored.
- **PRIVACY:** The authors of this paper present a modelling approach that could build on the Apple/Google decentralised mobile contact-tracing system to evaluate when a user should be notified, tested or released from isolation, whilst preserving user privacy. The algorithm presented also allows messages and data to be passed on without sensitive information being released, making the data available for epidemiologists. *See the SfL report on contact tracing for background.*

CONTAINMENT STRATEGIES

- **SOCIAL DISTANCING:** An analysis of real-time mobility data from mobile phones shows that, in 25 of the states of the USA, social distancing is decreasing the rate of new cases of COVID-19. These results are consistent with studies on the impact of social distancing in China. The authors stress the idea that social distancing is our most important tool in the absence of a vaccine or other treatment (e.g. antivirals).
- **BORDER CONTROLS:** The authors of this study found social distancing to be more effective than travel restrictions in controlling the spread of COVID-19. The analysis showed that for border controls to be effective, they had to be instigated in one region of the globe prior to the outbreak being present in another region. As such, controls were not deemed effective.

3. Quick Summaries

Coagulation abnormalities and thrombosis in patients with COVID-19

- **TREATMENT**: *Comment article*. Coagulation abnormalities and thrombosis in patients with COVID-19 are associated with an increased risk of death. Such abnormalities should be monitored in patients with severe disease. In addition, there is some evidence supporting the use of anticoagulants (e.g. heparin) in critically ill patients. Other anticoagulant (commonly called 'blood thinning') methods may be effective but none have yet been validated.

COVID-19 testing and patients in mental health facilities

- **TESTING DIFFICULTIES**: *Comment article.* There are challenges associated with COVID-19 testing and prevention in mental health facilities. In such facilities, there are increasing reports of rapid spread of the virus and patients are at a high risk of contraction.

A strategic approach to COVID-19 vaccine R&D

- **VACCINE "BIO"-INFRASTRUCTURE**: *Comment article.* The authors of this paper report on a recent public-private partnership set up to accelerate vaccine research and development. The authors advocate carrying out safety and efficacy trials in parallel to accelerate the licensure and distribution of multiple vaccines to protect against COVID-19. There is an immediate need to invest in biomanufacturing infrastructure, to produce the necessary number of doses if and when a vaccine becomes available.

4. Longer Reading

How many COVID-19 cases could have been prevented in the US if its interventions were as effective as those in China and South Korea?

- **MORTALITY PREVENTION**: *Preprint of a journal article.* The authors of this paper suggest that 99% (1.15 million) fewer cases could have occurred by the end of the pandemic if the USA had implemented Chinese/South Korean style interventions at an early stage (by 10th March). The number of cases would have decreased by 66% and 73% with China-like and South Korea-like scenarios respectively, if actions were taken on 1st April.

Selection of homemade mask materials for preventing transmission of COVID-19: a laboratory study

- **MASK MATERIALS**: *Preprint of a journal article.* Double- and triple-layered home-made masks made of combinations of typical household materials (such as tea towels, t-shirts and old clothing) performed almost as well as surgical masks in terms of pressure difference and particle filtration, but not as well for bacterial filtration. Homemade masks can be used 'if resources are severely lacking'.

Ethics and governance for digital disease surveillance

- **APPLICATION OF TECHNOLOGY**: *Comment article.* In order to halt the spread of COVID-19, governments are looking into the use of digital surveillance for novel methods of contact tracing. However, it is possible that errors in identifying areas and individuals at high risk will be made. Errors may result because of complexities relating to the very large datasets involved, where a small percentage error is translated into large numbers of people. Additionally, the political pressure to develop apps at speed may compromise testing and validation of them. If digital surveillance isto be effective, privacy intrusions should be minimised by identifying the smallest amount of data required, and the maximum duration that that data should be held for.