

COVID-19

Health Evidence Summary No.3

Kerry Millington

Liverpool School of Tropical Medicine (LSTM)

23 March 2020

This weekly COVID-19 Health Evidence Summary is to signpost DFID and other UK government departments to the latest relevant evidence and discourse on COVID-19 to inform and support their response. It is a result of half-a-day of work and is not intended to be a comprehensive summary of evidence.

1. Health Evidence Summary

UK launches whole genome sequence alliance to map spread of coronavirus

Wellcome Sanger Institute | 23 March 2020 | News article

<https://www.sanger.ac.uk/news/view/uk-launches-whole-genome-sequence-alliance-map-spread-coronavirus>

The newly formed COVID-19 Genomics UK Consortium (COG-UK), comprised of NHS, Public Health Agencies and academic institutions, will deliver large scale rapid sequencing of SARS-CoV-2 to share with the NHS, and the UK Government for decision-making and to make openly available to epidemiologists and virologists worldwide. This will provide a “real-time view of COVID-19 virus evolution” and to monitor changes in the virus at a national scale to understand how the virus is spreading and whether different strains are emerging, as well as how human interventions including drug treatments and eventually vaccines, exert pressure on the virus.

Samples from patients with confirmed cases of COVID-19 will be sent to a network of sequencing centres which currently includes Birmingham, Belfast, Cambridge, Cardiff, Edinburgh, Exeter, Glasgow, Liverpool, London, Norwich, Nottingham, Oxford and Sheffield. **The Wellcome Trust Sanger Institute** will provide large-scale sequencing capacity and additional support.

WHO launches global megatrial of the four most promising coronavirus treatments

Kupferschmidt | Science | 22 March 2020 | News article

<https://www.sciencemag.org/news/2020/03/who-launches-global-megatrial-four-most-promising-coronavirus-treatments>

On 20 March 2020, WHO announced a large global trial, SOLIDARITY, to find out if current available drug treatments for other diseases, as well as unapproved drugs that have performed well in animal studies with SARS and MERS, can treat or be given prophylactically to protect health care workers and others at high risk from COVID-19. WHO is focusing on what it says are the four most promising therapies: an experimental antiviral compound called remdesivir; the malaria medications chloroquine and hydroxychloroquine; a combination of two HIV drugs, lopinavir and ritonavir; and that same combination plus interferon-beta. This trial is not double-blind, so there maybe placebo effects but aims to balance scientific rigour against speed.

Viral dynamics in mild and severe cases of COVID-19

Liu et al. | The Lancet Infectious Diseases | 19 March 2020 | Correspondence

[https://doi.org/10.1016/S1473-3099\(20\)30232-2](https://doi.org/10.1016/S1473-3099(20)30232-2)

This correspondence reports on viral load from serial testing of different types of clinical specimens collected from 82 infected individuals.

COVID-19 vaccine development

Oxford Vaccine Group | 18 March 2020 | News article

<https://www.ovg.ox.ac.uk/news/covid-19-vaccine-development>

Researchers from the [Oxford Vaccine Group](#) and Oxford's [Jenner Institute](#) started work on a COVID-19 vaccine on 10 January 2020. A vaccine candidate has been identified, is entering animal trials this week, and a safety trial on humans is expected next month. If all goes well, work will move to a larger trial to assess how effective the vaccine is at protecting against the infection. The vaccine is the chimpanzee adenovirus vaccine vector (ChAdOx1) containing the genetic sequence for the coronavirus surface spike protein. Immune responses from other coronavirus studies suggest that these are a good target for a vaccine. The well-studied ChAdOx1 vaccine type can generate a strong immune response from one dose, is a non-replicating virus so it cannot cause an ongoing infection in the vaccinated individual, making it safer to give to the elderly, anyone with a pre-existing condition such as diabetes, and to children, has been used safely in thousands of subjects, a wide age range and in vaccines targeting over 10 different diseases. This team has previously developed a vaccine for MERS, which has shown promise in early clinical trials.

A trial of lopinavir-ritonavir in adults hospitalised with severe COVID-19

Cao et al. | NEJM | 18 March 2020 | Original article

<https://doi.org/10.1056/NEJMoa2001282>

No benefit was observed with lopinavir-ritonavir treatment beyond standard care in 199 randomised hospitalised adult patients with severe COVID-19. A larger trial could be conducted.

Preparedness is essential for malaria-endemic regions during the COVID-19 pandemic

Wang et al. | The Lancet | 16 March 2020 | Comment

[https://doi.org/10.1016/S0140-6736\(20\)30561-4](https://doi.org/10.1016/S0140-6736(20)30561-4)

Early symptoms of COVID-19, including fever, myalgia, and fatigue, may be confused with malaria and challenge early clinical diagnosis. Malaria endemic countries need to use the time window they have to use preventive measures against not only against the COVID-19 threat but also its likely impact on existing malaria control efforts, drawing on relevant lessons from the 2014-16 outbreak of Ebola. This will require collective political will and coordination by African countries. Should there be an outbreak of COVID-19, governments and health leaders in malaria-endemic regions must minimise stresses to medical infrastructure; resource allocation should be optimised; management of medical supplies and stockpiling of surgical masks and other protective equipment should be done in advance and medical staff adequately trained in their use. Mass drug administration and the distribution of ITNs could be considered for short-term malaria relief in hyperendemic areas in the case of an emergency – additionally supporting COVID-19 efforts by reducing the strain on medical resources and minimising confounding factors in diagnosis. Malaria diagnostics should be systematically added to fever management, including for suspected cases of COVID-19, and health-care facilities should be well stocked with artemisinin combination therapy drugs. Infection control, such as social distancing, mask-wearing and early seeking of diagnostic testing and necessary treatment should be communicated in advance.

Conserving Supply of Personal Protective Equipment – A Call for Ideas

JAMA | 20 March 2020 | Editorial

<https://doi.org/10.1001/jama.2020.4770>

JAMA is inviting suggestions, which can be added as online comments to this article, for creative immediate solutions for how to maximise the use of PPE, to conserve the supply of PPE and to identify new sources of PPE. Ideas so far include smaller pack sizes; restrictions to institutional purchasers (not individuals) only; adapting snorkel masks, UV germicidal irradiation (without damage to masks) so masks can be safely reused; new sources of PPE.

Rational use of face masks in the COVID-19 pandemic

Feng et al. | The Lancet Respiratory Medicine | 20 March 2020 | Comment

[https://doi.org/10.1016/S2213-2600\(20\)30134-X](https://doi.org/10.1016/S2213-2600(20)30134-X)

Authors call for governments and public health agencies to make rational recommendations on appropriate face mask use to complement their recommendations on other preventive measures, such as hand hygiene. Urgent research on the duration of protection of face masks, the measures to prolong life of disposable masks and the invention on reusable masks is required.

Scientific evidence published that the Scientific Advisory Group for Emergencies (SAGE) used to advise the UK Government's response

UK Government | 20 March 2020 | News

- <https://www.gov.uk/government/news/coronavirus-covid-19-scientific-evidence-supporting-the-uk-government-response>
- <https://www.gov.uk/government/groups/scientific-advisory-group-for-emergencies-sage-coronavirus-covid-19-response>

SARS-CoV-2 viral load in upper respiratory specimens of infected patients

Zou et al. | NEJM | 19 March 2020 | Correspondence

<https://doi.org/10.1056/NEJMc2001737>

Viral load detected in the asymptomatic patient was similar to that in the symptomatic patients, suggesting the transmission potential of asymptomatic or minimally symptomatic patients. These findings concur with [previous reports](#) that transmission may occur early in the course of infection. Case detection and isolation may require strategies different from those required for the control of SARS-CoV where transmission occurred mainly after days of illness, was associated with modest viral loads in the respiratory tract early in the illness and will viral loads peaking approximately 10 days after symptom onset.

The coronavirus pandemic in five powerful charts

Nature | 18 March 2020 | News

<https://www.nature.com/articles/d41586-020-00758-2>

This article publishes the coronavirus pandemic in five charts on (1) How is the coronavirus spreading around the world? (2) How does COVID-19 compare to other diseases? (3) How fast are researchers publishing new coronavirus research? (4) How have travel restrictions affect carbon emissions and air quality and (5) How does the current pandemic compare to the 2003 SARS outbreak?

Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand

Ferguson et al. | Imperial College COVID-19 Response Team | 16 March 2020 | Report

<https://doi.org/10.25561/77482>

Results are reported of epidemiological modelling which has informed policymaking in the UK and other countries. Multiple interventions combined will be more effective than any one intervention. The effects of mitigation (slowing the epidemic spread) and suppression (reversing epidemic growth) strategies are discussed. Suppression will need to be maintained until a vaccine becomes available, given that it is predicted that transmission will quickly rebound if interventions are relaxed. Measures could be intermittent where reintroduction is guided by trends in disease surveillance.

Publishers make coronavirus (COVID-19) content freely available and reusable

Wellcome | 16 March 2020 | Press release

<https://wellcome.ac.uk/press-release/publishers-make-coronavirus-covid-19-content-freely-available-and-reusable>

Following [a request from science leaders to the publishing community](#), this press release lists more than 30 journals and publishers that have agreed to make all of their COVID-19 and coronavirus-related publications, and the data supporting them, accessible in PubMed Central (PMC) and reusable. This will accelerate global efforts to contain the SARS-CoV-2 virus, save lives and reduce societal disruption.

2. Tracking COVID-19 cases

WHO COVID-19 daily situation reports

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>

An interactive web-based dashboard to track COVID-19 in real time

<https://gisanddata.maps.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Africa Centres for Disease Control and Prevention (Africa CDC)

<http://www.africacdc.org/covid-19-and-resources>

Provides the latest situation updates for the African continent, information and guidance.

COVID-19: PHE track coronavirus cases in the UK

<https://www.gov.uk/government/publications/covid-19-track-coronavirus-cases>

UK case tracing infographic

<https://www.arcgis.com/apps/opsdashboard/index.html#/f94c3c90da5b4e9f9a0b19484dd4bb14>

South African Government COVID-19

<https://www.gov.za/Coronavirus>

3. Modelling and forecasting

Preparing model for control measures against COVID-19 for wider use

<https://www.imperial.ac.uk/jameel-institute/>

Imperial College London Jameel Institute for Disease and Emergency Analytics (J-IDEA) and MRC Centre for Global Infectious Disease Analysis are working with Microsoft and GitHub to prepare their code to model control measures against COVID-19, without extensive training. This will allow others to use without the multiple days training it would currently need. They are also helping to develop a web-based front end for public health policy makers worldwide to use the model in their planning. There is hope that v1 releases of both the source and front end in the next 7-10 days. Note that Neil Ferguson wrote the code (thousands of lines of undocumented C) 13+ years ago to model flu pandemics.

Forecasting critical care bed requirements for COVID-19 patients in England

Jombart et al. | Ongoing project work done within the Centre for Mathematical Modelling of Infectious Diseases at LSHTM | 22 March 2020 | Study yet to be peer reviewed

<https://cmmid.github.io/topics/covid19/current-patterns-transmission/ICU-projections.html>

This ongoing modelling work forecasts that in all scenarios, despite substantial uncertainty, there will be a “marked” increase in need for beds in ICU/HDU, with average demand ranging from 1,931 (CI_{95%}: 921 ; 4,361) to 4,364 (CI_{95%}: 2,099 ; 9,568) critical care beds every day by the end of March 2020 (Table 1). This will challenge ICU/HDU capacity for COVID-19 in England (in January 2020: 4,123 critical beds for adults, 312 in paediatrics⁴) by the end of March, without even considering capacity requirements for other conditions, unless transmissibility is strongly reduced in the coming days.

4. Online course

COVID-19: Tackling the Novel Coronavirus

LSHTM | FutureLearn course | Starts 23 March 2020 | 3 weeks | 4 hours weekly study | Free

<https://www.futurelearn.com/courses/covid19-novel-coronavirus>

A reminder that this course starts today. On this course you will learn what is known about the outbreak of COVID-19 (week 1); what the practical implications for responding to COVID-19 are (week 2); and what we need to find out about COVID-19 (week 3).

5. Resource Hubs

Rapid guidelines and evidence reviews

<https://www.nice.org.uk/covid-19>

Note that NICE have waived their normal licensing requirement for international reuse or reproduction of their rapid guidelines and evidence reviews on COVID-19. The first 3 guidelines cover care for people receiving critical care, kidney dialysis and systematic anticancer treatments. Rapid evidence reviews are currently being produced as to whether certain medicines may increase the severity or length of COVID-19 illness (i) ibuprofen and other non-steroidal anti-inflammatory drugs used to reduce temperature and ease flu-like symptoms and (ii) angiotensin converting enzyme (ACE) inhibitors used to treat high blood pressure or heart failure.

Imperial College London MRC Centre for Global Infectious Disease Analysis COVID-19 reports

<https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/news--wuhan-coronavirus/>

Global research on COVID-19

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/global-research-on-novel-coronavirus-2019-ncov>

WHO R&D Blueprint

<https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/>

WHO: Coronavirus disease (COVID-19) outbreak resources

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

Latest information and advice from the UK Government

<https://www.gov.uk/guidance/coronavirus-covid-19-information-for-the-public>

CDC COVID-19 Resources

<https://www.cdc.gov/coronavirus/2019-ncov/index.html>

The Global Health Network Coronavirus outbreak knowledge hub

<https://coronavirus.tghn.org>

The Lancet COVID-19 Resource Centre

<https://www.thelancet.com/coronavirus>

Elsevier's Novel Coronavirus Information Center

<https://www.elsevier.com/connect/coronavirus-information-center>

Cell Press Coronavirus Resource Hub

<https://www.cell.com/2019-nCoV>

Cochrane Special Collections - COVID-19: infection control and prevention measures

<https://www.cochranelibrary.com/collections/doi/SC000040/full>

The BMJ Coronavirus (covid-19): Latest news and resources

https://www.bmj.com/coronavirus?int_source=wisepops&int_medium=wisepops&int_campaign=DAA_CoronaVirus_Jan24

Johns Hopkins Coronavirus Resource Centre

<https://coronavirus.jhu.edu>

Suggested citation

Millington, K. (2020). *COVID-19 Health Evidence Summary No.3*. K4D Evidence Summary. Brighton, UK: Institute of Development Studies.

About this report

This weekly COVID-19 health evidence summary is based on half-a-day of desk-based research. K4D services are provided by a consortium of leading organisations working in international development, led by the Institute of Development Studies (IDS), with Education Development Trust, Itad, University of Leeds Nuffield Centre for International Health and Development, Liverpool School of Tropical Medicine (LSTM), University of Birmingham International Development Department (IDD) and the University of Manchester Humanitarian and Conflict Response Institute (HCRI).

This evidence summary was prepared for the UK Government's Department for International Development (DFID) and its partners in support of pro-poor programmes. It is licensed for non-commercial purposes only. K4D cannot be held responsible for errors, omissions or any consequences arising from the use of information contained in this health evidence summary. Any views and opinions expressed do not necessarily reflect those of DFID, K4D or any other contributing organisation.



© DFID - Crown copyright 2020.