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# COVID-19 Scientific and Public Health Policy Update – (26 May 2020)

*In addition to our weekly brief on the spread of COVID-19 and the actions that Africa CDC is taking to help member states, Africa CDC has begun to share a weekly brief detailing the latest changes in scientific knowledge and public health policy changes, as well as updates to the latest guidance from WHO and others. Contents of this document are not intended to serve as recommendations from the Africa CDC; rather, it is a summary of the fact base to help inform member states. It is important to note that the outbreak is evolving rapidly and that the nature of this information will continue to change. We will continue to provide regular updates to ensure member states are informed of the most critical developments in these areas.*

## A. Executive summary

- A large international, observational study of hospitalised COVID-19 patients reports hydroxychloroquine (taken with or without the antibiotics azithromycin or clarithromycin) offers no benefit for patients with COVID-19.
- Two post mortem studies report vascular angiogenesis as a distinguishing pulmonary feature of COVID-19 which is different from influenza A(H1N1) infection and acute diffuse alveolar damage and SARS-COV-2 persistence in the respiratory tract.
- Analysis of clinical, molecular and immunological data from 326 COVID-19 patients in Shanghai reports reduction of CD4+ and CD8+ T cell counts upon admission which was predictive of disease progression.
- Phase I trial of an Ad5 vectored COVID-19 vaccine in Wuhan, China in 108 healthy adults demonstrates that the Ad5 vectored COVID-19 vaccine is tolerable and immunogenic at 28 days post-vaccination.
- Moderna announced that its vaccine candidate mRNA-1273 in the interim Phase I demonstrates the ability to elicit an immune response of the magnitude caused by natural infection starting with a dose as low as 25 µg.
- University of Oxford researchers have begun recruiting for the next phase in human trials of a COVID-19 vaccine ChAdOx1 nCoV-19.

## B. New guidelines and resources

- WHO has published new and updated guidance and resources on: [Multisystem inflammatory syndrome in children and adolescents with COVID-19](#); [Cleaning and disinfection of environmental surfaces in the context of COVID-19](#); [Case Report Form for suspected cases of Multisystem inflammatory syndrome \(MIS\) in children and adolescents temporally related to COVID-19](#); [Overview of Public Health and Social Measures in the context of COVID-19](#); [Controlling the spread of COVID-19 at ground crossings](#); [Framework for decision-making: implementation of mass vaccination campaigns in the context of COVID-19](#); [Operational planning guidance to support country preparedness and response](#);
- US CDC has published new and updated guidance and resources on: [COVID-19 Serology Surveillance Strategy](#); [Considerations for Restaurants and Bars](#); [Considerations for Schools](#); [Strategies to Optimize the Supply of PPE and Equipment](#); [What Workers and Employers Can Do to Manage Workplace Fatigue during COVID-19](#); [For Parents: Multisystem Inflammatory Syndrome in Children \(MIS-C\) associated with COVID-19](#); [Evaluation and Management Considerations for Neonates At Risk for COVID-19](#); [Considerations for Public Pools, Hot Tubs, and Water Playgrounds During COVID-19](#); [How to Make Cloth Face Coverings](#); [About Cloth Face Coverings](#); [How to Wear Cloth Face Coverings](#); [How to Wash Cloth Face Coverings](#); [CDC Releases Recommendations for Communities of Faith](#); [How to discontinue home isolation](#); [Key Strategies to Prepare for COVID-19 in Long-Term Care Facilities \(LTCFs\)](#)
- ECDC has issued new resource on: [Infographic: COVID-19 in care homes](#); [Surveillance of COVID-19 at long-term care facilities in the EU/EEA](#); [COVID-19 Aviation Health Safety Protocol: Guidance for the management of airline passengers in relation to the COVID-19 pandemic](#)
- FDA has issued a press release on: [Coronavirus \(COVID-19\) Update: FDA Authorizes First Standalone At-Home Sample Collection Kit That Can Be Used With Certain Authorized Tests](#)
- PHE has issued updated guidance and resources on: [COVID-19: guidance for stepdown of infection control precautions within hospitals and discharging COVID-19 patients from hospital to home settings](#); [COVID-19: guidance on shielding and protecting people defined on medical grounds as extremely vulnerable](#); [Coronavirus \(COVID-19\): guidance for educational settings](#)
- The full list of latest guidance and resources from WHO and other public health institutions can be found in this [link](#).

## C. Scientific updates

### Basic science (virology, immunology, pathogenesis)

- An autopsy report examined 7 lungs from patients who died from COVID-19 and compared them with 7 lungs obtained during autopsy from patients who died from acute respiratory distress syndrome (ARDS) secondary to influenza A(H1N1) infection. Histologic analysis of pulmonary vessels in patients with Covid-19 showed widespread thrombosis with micro-angiopathy. Findings suggest [vascular angiogenesis distinguished the pulmonary pathobiology of COVID-19 from that of equally severe influenza virus infection.](#)
- A postmortem evaluation of 10 patients with COVID-19, in Germany reports [acute and organizing diffuse alveolar damage and SARS-CoV-2 persistence in the respiratory tract were identified as the predominant histopathologic findings](#) and constituted the leading cause of death in patients with and without invasive ventilation. Periportal liver lymphocyte infiltration was considered unspecific inflammation.
- A retrospective cohort of 305 individuals in New York, examined the nasal epithelium from individuals aged 04 to 60 years. The results from this study show age-dependent expression of ACE2 in nasal epithelium, which is the first point of contact for SARS-CoV-2 and the human body. [Lower ACE2 expression in children relative to adults may help explain why COVID-19 is less prevalent in children.](#) This study provides novel results on ACE2 gene expression in nasal epithelium and its relationship with age.
- A generalized additive model (GAM) study exploring the nonlinear relationship between mean temperature and COVID-19 confirmed cases in China [suggests mean temperature has a positive linear relationship with the number of COVID-19 cases with a threshold of 03 °C.](#) There is no evidence supporting that case counts of COVID-19 could decline when the weather becomes warmer.

### Epidemiology

- A prospective case series of 43 patients with [severe COVID-19 reports 69.8% nasopharyngeal and 7% tear samples were positive for SARS-CoV-2.](#) Detection of viral RNA in the conjunctival secretions suggest the possibility of ocular transmission should be considered and further explored.
- A cohort study comparing the infection rates and proportions with severe COVID-19 disease in 2 similar populations with differing BCG status; individuals born during the 3 years before and 3 years after cessation of the universal BCG vaccine program in Israel. Findings [suggest BCG vaccination in childhood was associated with a similar rate of positive test results for SARS-CoV-2 compared with no vaccination.](#) This study does not support the idea that BCG vaccination in childhood has a protective effect against COVID-19 in adulthood.
- Analysis of clinical, molecular and immunological data from 326 COVID-19 patients in Shanghai reports [reduction of CD4+ and CD8+ T cell counts upon admission which was](#)

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[predictive of disease progression.](#) Lymphocyte numbers were inversely correlated with interleukin-6 (IL-6) and IL-8 levels.

### Infection Prevention and Control

- A cross-sectional study in 2 teaching hospitals in Netherlands in March 2020, during the early phase of the COVID-19 pandemic, reports that of 9,705 Health-care workers (HCWs) who reported fever or respiratory symptoms were tested, most of the HCWs experienced mild disease and only 6% had severe COVID-19. [Findings suggest during the early phase of local spread a substantial proportion of HCWs with COVID-19 were likely as a result of acquisition of the virus in the community.](#)
- A cross sectional hospital based survey study on 103 HCWs with confirmed COVID-19 in Wuhan [reports that 84.5% of HCWs perceived that they were infected during work in hospital and 4.9% thought they were infected outside the work environment.](#) Findings suggest the main perceived mode of transmission was not maintaining protection when working at a close distance and having intimate contact with infected cases.

### Care and Treatment

- A review of 659 papers evaluating the [natural product-derived phytochemicals against coronaviruses highlights some of the key compounds that show promise for the treatment of coronavirus in humans](#) as: scutellarein, silvestrol, tryptanthrin, saikosaponin B2, lectins such as griffithsin, lycorine and polyphenolics – including quercetin, myricetin, caffeic acid, psoralidin and isobavachalcone.
- An international, observational study of [96,032 hospitalized coronavirus patients across six continents; Africa, Asia, Australia, Europe North America, and South America, reports that drug regimens of chloroquine or hydroxychloroquine alone and/or in combination with a macrolide was associated with an increased hazard for clinically significant occurrence of ventricular arrhythmias and increased risk of in-hospital death with COVID-19.](#) This is the largest analysis to date of the risks and benefits of treating covid-19 patients with antimalarial drugs.
- Scientists at Peking University report that [specific antibodies from 60 people who recovered from COVID-19 were most effective in killing the coronavirus in animal studies.](#) The scientists suggest that their process may not only shorten the recovery time of COVID-19 patients but could provide short-term immunity to the virus.
- The University of Oxford-led study [COPCOV, the largest international COVID-19 clinical trial assessing the use of hydroxychloroquine in over 40,000 frontline health workers](#) in Europe, Africa, Asia and South America, and Britain has kicked off.
- A prospective study of 30 treatment-naïve patients with confirmed COVID-19 in Shanghai, reports that median duration from hospitalization to virus nucleic acid negative conservation in patients treated with hydroxychloroquine (HCQ) was comparable to patients receiving conventional treatment. Findings [suggest the prognosis of COVID-19](#)

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[moderate patients treated with HCQ is good](#), however, larger sample size studies are needed to investigate the effects of HCQ in the treatment of COVID-19.

## Vaccines

- An open-label, non-randomised, phase I trial of an Ad5 vectored COVID-19 vaccine in Wuhan, China in 108 healthy adults demonstrates that the [Ad5 vectored COVID-19 vaccine is tolerable and immunogenic at 28 days post-vaccination](#). Humoral responses against SARS-CoV-2 peaked at day 28 post-vaccination in healthy adults, and rapid specific T-cell responses were noted from day 14 post-vaccination.
- Moderna announced that its [vaccine candidate mRNA-1273 in the interim Phase 1 data, while early, demonstrates that vaccination with mRNA-1273 elicits an immune response of the magnitude caused by natural infection starting with a dose as low as 25 µg](#). The vaccine, an RNA formulation encoding the SARS-CoV-2 spike antigen, was tested using three doses (25, 100 and 250 µg). The company will move forward with phase II trials using doses of 50 and 100 µg.
- A study evaluating a series of DNA vaccine candidates in [35 rhesus macaques reports that the vaccinated animals developed humoral and cellular immune responses, including neutralizing antibody titers comparable to those found in convalescent humans](#) and macaques infected with SARS-CoV-2. Vaccine-elicited neutralizing antibody titers correlated with protective efficacy, suggesting an immune correlate of protection. The findings suggest vaccine protection against SARS-CoV-2 in nonhuman primates.
- This study reports that [viral RNA titers in nasal and broncho-alveolar lavage \(BAL\) peaked around day 2 in nine rhesus macaques inoculated with SARS-CoV-2 by intranasal and intratracheal routes](#). All nine macaques in this study generated neutralizing antibodies and were protected from reinfection at day 35 post initial infection. Findings suggest that SARS-CoV-2 infection induced protective immunity against re-exposure in nonhuman primates.
- University of Oxford researchers have begun recruiting for the [next phase in human trials of a COVID-19 vaccine ChAdOx1 nCoV-19](#). Adult participants in both the Phase II and Phase III groups will be randomised to receive one or two doses of either the ChAdOx1 nCoV-19 vaccine or a licensed vaccine (MenACWY) that will be used as a 'control' for comparison.

## Non-pharmaceutical interventions: social distancing

- A modelling study using data from Washington suggests interventions [starting earlier in the epidemic delay the epidemic curve and interventions starting later flatten the epidemic curve](#). The models suggest that social distancing can provide crucial time to increase healthcare capacity but must occur in conjunction with testing and contact tracing of all suspected cases to mitigate virus transmission.
- A modelling study comparing the efficacy of individual quarantine and active monitoring of contacts to control [COVID-19, suggests that individual quarantine in high-feasibility](#)

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[settings, where at least 75% of infected contacts are individually quarantined, contains an outbreak of SARS-CoV-2 with a short serial interval \(4.8 days\) 84% of the time.](#)

- Using estimates of seasonality, immunity, and cross-immunity for human coronavirus OC43 (HCoV-OC43) and HCoV-HKU1 using time-series data from the United States to inform a model of SARS-CoV-2 transmission, [this modelling study projects that recurrent wintertime outbreaks of SARS-CoV-2 will probably occur after the initial, most severe pandemic wave.](#) Even in the event of apparent elimination, SARS-CoV-2 surveillance should be maintained because a resurgence in contagion could be possible as late as 2024.

## E. Summary of travel restrictions implemented by Member States

Contents of this section include only publicly announced public health policies. Sources of this section include official government communique, embassy alerts and press search.



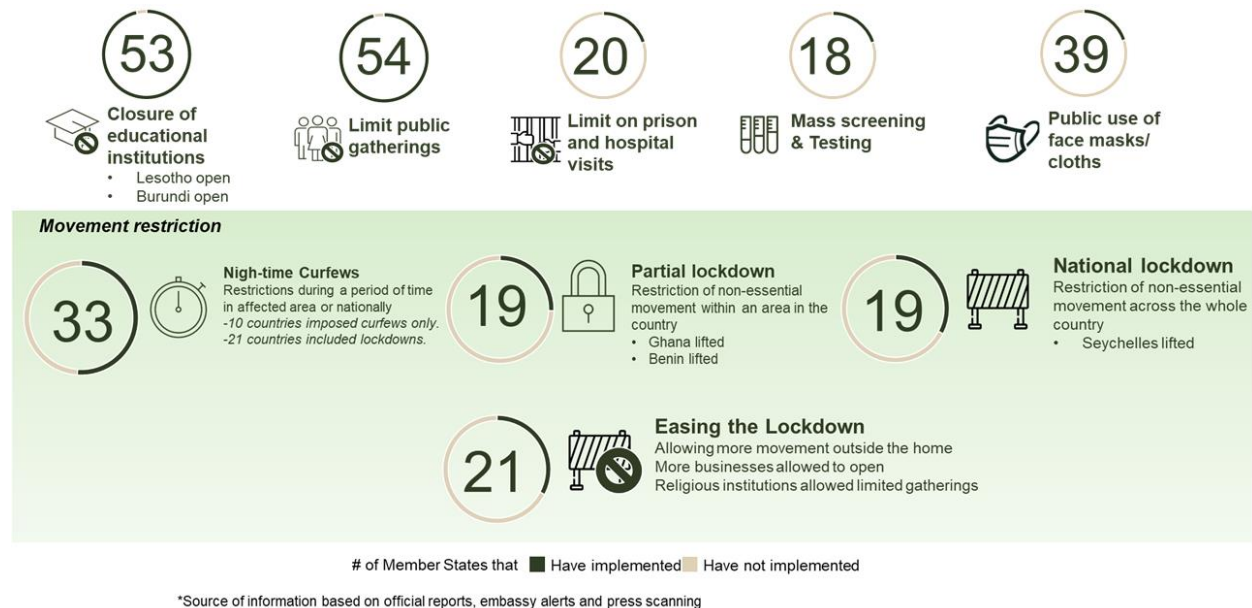
1 Some countries still allow cargo, freight and emergency transport into and out of the country; Some MSs will still allow citizens and residents to enter but all borders are essentially closed  
 2 Banning entry or exit of citizens or suspending visa issuance to specific countries

For further detailed information for each country, refer to the full table [here](#).

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## F. Summary of physical distancing measures implemented by Member States

Contents of this section include only publicly announced public health policies. Sources of this section include official government communique and press search. (as of 22 May 2020)



For further detailed information for each country, refer to the full table [here](#).

## G. Modelling Studies for Africa

Africa CDC has enlisted the support of a group of modelling experts, with various backgrounds, to support the efforts to estimate the impact of the pandemic in the African continent. This section presents new models and dynamic tools with capacity for country-level forecasting as they become available. As the epidemic evolves in Africa, the potential to improve and refine forecasts for the countries of the continent increases. Member states are encouraged to share updated case, intervention, and risk factor data with Africa CDC, and with the groups mentioned in this section who are members of the Africa CDC modelling working group. For further support kindly [email](#) for more information.

### Heavy impact of COVID-19 on HIV mortality and new child infections if ART access curtailed

This [study](#) used the Goals HIV stimulation model created for Sub-saharan Africa to examine the effects of disruption to HIV prevention and treatment services due to the COVID-19 pandemic in 12 Member States (Cameroon, Cote d'Ivoire, Eswatini, Kenya, Lesotho, Malawi, Mozambique, Nigeria, South Africa, Tanzania, Uganda, Zimbabwe). Results showed disruptions to primary prevention programmes, such as condom distribution, behaviour change programmes and male

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circumcision are likely to have small temporary effects on new infections which may be offset by changes in sexual behaviour due to lockdowns. But disruptions to ART and PMTCT provision could double or even triple HIV-related deaths in 2020 and increase new child infections by 40%-160%, if measures are not put in place to maintain access and adherence to treatment.

— *Avenir Health, Glastonbury, USA; National AIDS Councils Zimbabwe and Malawi.*

**Deaths prevented by vaccination far outweigh risk of contracting COVID-19 during visit.**

This [model](#) compares the risk of death due to SARS-CoV2 infection contracted through attending a vaccine delivery point with the risk of death due to reduced childhood immunisation coverage over a 6 month epidemic period for each Member State. Country-specific parameters such as age, contact patterns and vaccine preventable disease fatality rates were used with global COVID-19 infection parameters. Low and high impact scenarios included factors such as vaccine coverage, herd immunity, possible catch-up activities and effect of physical distancing measures for COVID-19. The model assumes that Member States will experience similar SARS-CoV2 transmission as non-African countries. Continent-wide results show that for every 1 excess Covid-19 death attributable to attending a vaccination clinic, 140 (95% CI 37 - 549) deaths in children would be prevented by continued access to the full routine childhood immunisation schedule. The number of child deaths averted through vaccination substantially exceeds the number of excess Covid-19 deaths for all the 55 Member States (individual state estimates are provided). Cancellation of measles supplementary immunisation activities increase mortality further.

— *LSHTM CMMID Covid-19 Working Group, South African Centre for Epidemiological Modelling and Analysis, BMGF, GAVI, Public Health England.*

**Poverty increases risk of death from COVID-19 by a third**

This [report](#) explores the impact of structural determinants of health on COVID-19 outcome through the use of three 'exemplar inequities' - handwashing, occupation and access to the healthcare system - that capture key elements of risk related to COVID-19 infection. The work quantifies the variation in these factors by income status in low and middle income countries and uses a dynamic transmission model to demonstrate the impact on the risk of death from COVID-19. The results show the risk of death from COVID-19 increases with increasing poverty with the poorest 20% experiencing on average 32% (IQR 8-72.5%) more deaths from COVID-19 than the wealthiest 20% of a population. The model combines country-level survey information and health system statistics with global COVID-19 disease severity characteristics. The team also explores longer term indirect impacts of the inequitable distribution of COVID-19.

— *Imperial College London COVID-19 Response Team/MRC Centre for Global Infectious Disease Analysis/J-IDEA*

**5 cities study: strong mitigation could spare hospitals but households still bear heavy costs**

This [study](#) investigates the demands of COVID-19 on the health system and government and household costs in five cities: Nairobi, Addis Ababa, Johannesburg, Karachi and Delhi. A



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dynamic model of COVID-19 transmission and disease is used to capture country-specific demography and contact patterns, then integrated into an economic framework to address city-specific health system and household resource use. Global disease parameters are used. The model suggests highly effective mitigation interventions could avert the overwhelming of general hospital capacity in all 3 African cities, but none had enough critical care capacity to respond to ICU needs even in a highly mitigated epidemic. Median costs per patient are estimated at \$66, \$33 and \$248 in Nairobi, Addis Ababa and Johannesburg respectively, with almost half the costs representing household income loss during illness.

— LSHTM CMMID Covid-19 Working Group; Health Economics Research Unit, KEMRI, Nairobi; University of Oxford.

### Interactive Modelling Tools Listing

*To assist Member States in comparing different models and projections, the following lists Highlights the interactive modelling tools reviewed by Africa CDC to date by institution involved. All tools mentioned below have some level of adaptation to Africa context and allow some manipulation of input data and visualisation of intervention impact. The list will be updated as other tools are launched and reviewed. For further details, click on the institution to be taken to the model, or on (Review) for a brief explanation of the work.*

- [EpidemicForecasting.org \(University of Oxford/ Australian National University/Harvard University/Google/GitLab et al.\) : \(Review\)](#)
- [Imperial College London : Review](#)
- [London School of Hygiene & Tropical Medicine : \(Review\)](#)
- [Neher Research Group, University of Basel : \(Review\)](#)