COVID-19 Scientific and Public Health Policy Update[1] – (28 July 2020)

In addition to our Weekly Outbreak Brief on the spread of COVID-19 and the actions that Africa CDC is taking to help African Union Member States. Africa CDC shares a weekly brief detailing the latest developments in scientific knowledge and public health policy from around the world, as well as updates to the latest guidance from WHO and other public health agencies. Contents of this document are <u>not intended to serve as recommendations</u> from the Africa CDC; rather, it is a summary of the scientific information available in the public space to 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 provide regular updates to ensure Member States are informed of the most critical developments in these areas.

A. Executive summary

- A machine learning model evaluates the relative infectivity following mutations showing that five out of six SARS-CoV-2 substrains have become more infectious while the other one becomes less infectious. A few potential future mutations on the S protein could lead to more dangerous new viruses.
- A study examined IgG antibody responses against the viral spike protein in 19,860 individuals with mild to moderate COVID-19. Results indicate that antibody titers are stable for at least a period approximating three months, and that anti-spike binding titers significantly correlate with neutralization of authentic SARS-CoV-2.
- A study profiled a library of known drugs for their ability to block the replication of SARS-CoV-2, identifying 100 molecules that inhibit viral replication. Of these, 21 drugs were determined to be effective at concentrations that could be safely achieved in patients.
- An evaluation study compared point-of-care (POC) nucleic acid amplification testing (NAAT) with parallel combined nasal/throat swabbing for POC versus standard laboratory RT-PCR testing. Results suggest the median time to result is 2.6 hours versus 26.4 hours with 21.5%±SD positive and 78.5%±SD negative.
- A study measured the effects of the containment policy on the health and economic conditions in Morocco. Findings suggest that where there is no containment policy envisaged, the scenario would have been catastrophic in that the country would have expected significant levels of contamination, with number of people infected around 30% of the population within 40 weeks from 16 March.
- A study compared the health benefits of sustaining routine childhood immunisation in Africa with the risk of acquiring SARS-CoV-2 infection through visiting routine vaccination service delivery points. Findings suggest deaths prevented by sustaining routine childhood immunisation in Africa outweigh the excess risk of COVID-19 deaths.

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[1] This update compiled for use by Africa CDC and African Union Member States and is developed in collaboration with the World Health Organization - Regional Office for Africa. **This is a preliminary summary of information and not considered policy, guidance, or final conclusions of the Africa CDC or the African Union**.

B. New guidelines and resources

Since 11 July 2020,

- Africa CDC has published new guidance on:
    - Position Statement on Transmission of SARS-CoV-2;
    - Statement on Herbal Remedies and Medicines for Prevention and Treatment of COVID-19;
    - Statement on the Use of Dexamethasone for Severely ill COVID-19 Patients;
    - Hand washing facility options for resource limited settings;
    - Guidance on Environmental decontamination;
    - Guidance on easing of lockdown; Guidance for the Continuation of Essential Health;
    - COVID-19 Guidance on Use of Personal Protective Equipment for Different Clinical Settings and Activities;
    - COVID-19 Guidance for transportation sector;
    - COVID-19 Guidance for Educational Sector.
- WHO has published new guidance and resources on:
    - How to use WHO risk assessment and mitigation checklist for mass gatherings in the context of COVID-19;
    - Global COVID-19 Clinical Platform: Pregnancy Case Report Form (CRF);
    - Global COVID-19 Clinical Platform: Rapid core case report form (CRF);
    - Practical actions in cities to strengthen preparedness for the COVID-19 pandemic and beyond;
    - Guidance for conducting a country COVID-19 intra-action review (IAR);
    - Preventing and managing COVID-19 across long-term care services: Policy brief;
- US CDC has published new and updated guidance and resources on:
    - Make a Handwashing Solution For Use in Global, Low-Resource Settings;
    - General Business Frequently Asked Questions;
    - Event Planning and COVID-19: Questions and Answers;
    - Handwashing;
    - Key Considerations for Transferring Patients to Relief Healthcare Facilities when Responding to Community Transmission of COVID-19 in the United States;
    - Considerations for Non-emergency Vehicle Transportation for Tribal Communities During COVID-19;
    - Guidance for Healthcare Workers about COVID-19 (SARS-CoV-2) Testing;
    - Research Use Only CDC Influenza SARS-CoV-2 (Flu SC2) Multiplex Assay Real-Time RT-PCR Primers and Probes;

- Maintaining Essential Services for Malaria in Low-Resource Countries;
- When You Can be Around Others After You Had or Likely Had COVID-19;
- Summary Strategies to Optimize the Supply of PPE during Shortages;
- Optimizing Supply of PPE and Other Equipment during Shortages;
- When to Wear Gloves;
- Quarantine If You Might Be Sick;
- Toolkit for Older Adults & People at Higher Risk;
- Strategies to Mitigate Healthcare Personnel Staffing Shortages;
- People with Certain Medical Conditions;
- Toolkit for Worker Safety & Support;
- Interim Guidance on Testing Healthcare Personnel for SARS-CoV-2;
- Toolkit for Parks & Recreational Facilities;
- Contact Tracing Steps – Infographic;
- Toolkit for Colleges and Universities;
- Toolkit for Community and Faith-Based Organizations;
- Toolkit for Businesses & Workplaces;
- Help Stop the Spread of COVID-19 in Children;
- Toolkit for Retirement Communities;
- Uses of Telehealth during COVID-19 in Low Resource Non-U.S. Settings; Toolkit for Childcare Programs and Summer Camps;
- Duration of Isolation and Precautions for Adults with COVID-19;
- SARS-CoV-2 Testing Strategy: Considerations for Non-Healthcare Workplaces; Contact Tracing for COVID-19;
- Guidance for Child Care Programs that Remain Open;
- FAQs for Medicolegal Death Investigators;
- Interim Guidance for Use of Pooling Procedures in SARS-CoV-2 Diagnostic, Screening, and Surveillance Testing;
- Back to School Planning: Checklists to Guide Parents, Guardians, and Caregivers;
- School Decision-Making Tool for Parents, Caregivers, and Guardians; Toolkit for People with Disabilities;
- FAQ for School Administrators on Reopening Schools;
- Scaling Up Staffing Roles in Case Investigation and Contact Tracing

- ECDC has published new resources on:
  - COVID-19 Rail Protocol: Recommendations for safe resumption of railway services in Europe;
  - Infographic: COVID-19 and railway services
- FDA has issued press releases on:
  - FDA Authorizes First Diagnostic Test for Screening of People Without Known or Suspected COVID-19 Infection;

- FDA Issues First Emergency Authorization for Sample Pooling in Diagnostic Testing;
        - FDA's Coronavirus Treatment Acceleration Program
- UNHCR has issued resources on:
        - Global WASH Cluster - COVID-19 Response - Guidance Note;
        - COVID-19 and gender - based violence: workplace risk and responses;
- IASC has issued new resources on:
        - COVID-19 Inter-Agency Guidance for the Management of the Dead in Humanitarian Settings;
        - IASC Key Messages on Applying IASC Guidelines on Disability in the COVID-19 Response
- UNICEF has issued a resource on:
        - Monitoring attendance during school closure and re-enrolment and attendance after school re-opening: A Guidance Note
- WFP has issued a resource on:
        - COVID-19 Global Common Service Provision: Eligibility Criteria Brief
- 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

- A machine learning model evaluates the relative infectivity following the mutations showing that five out of six SARS-CoV-2 substrains have become more infectious while the other one becomes less infectious. A few potential future mutations on the S protein could lead to more dangerous new viruses, results indicate that SARS-CoV-2 in all clusters is more infectious than SARS-CoV.
- This study measures the dynamic (short-term) aerosol efficiencies of SARS-CoV-2 and compares its efficiency with SARS-CoV and MERS-CoV to determine aerosol stability of the virus. Results indicate that SARS-CoV-2 approximates or exceeds the efficiency estimates of SARS-CoV and MERS-CoV. Findings suggest the SARS-CoV-2 retained infectivity and virion integrity for up to 16 hours in respirable-sized aerosols.
- A study reports on the transmissibility of SARS-CoV-2 via airborne route using data collected from health care worker interactions with hospitalized COVID-19 patients. Findings suggest that SARS-CoV-2 is not well transmitted via the airborne route in controlled conditions and the SARS-CoV-2 may be only opportunistically airborne, with most transmission occurring via droplet methods. (*Not peer reviewed*)
- This study reports on the risk of airborne SARS-CoV-2 transmission between patients. Findings suggest that airborne transmission of COVID-19 is

possible, and that aerosol prevention measures are necessary to effectively stem the spread of SARS-CoV-2. (*Not peer reviewed*)

- A study examined Linear B-cell epitopes in the spike and nucleocapsid proteins as markers of SARS-Cov-2 exposure and disease severity. Findings indicate that IgG responses to the peptide epitopes can serve as useful indicators for the degree of immunopathology in COVID-19 patients, and function as highly specific and sensitive sero-immunosurveillance tools for recent or past SARS-CoV-2 infections. The study further suggests that the flexibility of these epitopes to be used alone or in combination will allow for the development of improved point-of-care-tests (POCTs).

- A study reports on the IgG antibody responses against the viral spike protein in 19,860 individuals with mild to moderate COVID-19. Results indicate that antibody titers are stable for at least a period approximating three months, and that anti-spike binding titers significantly correlate with neutralization of authentic SARS-CoV-2. Findings suggest more than 90% of seroconverters make detectable neutralizing antibody responses and that these titers are stable for at least the near-term future. (*Not peer reviewed*)

- A case series reports on whether Interleukin-7 (IL-7) is associated with restored host protective immunity in patients with COVID-19 and immunosuppression and improves outcomes. Findings of this study suggest that IL-7 can be safely administered to critically ill patients with COVID-19 without exacerbating inflammation or pulmonary injury.

Epidemiology

- A retrospective cohort study describes the epidemiological and clinical characteristics of COVID-19 among healthcare workers (HCWs) in a hospital in Madrid, Spain. Among 1,911 HCW, 213 (11.1%) had COVID-19 during the study period. There were no significant differences in the proportion of COVID-19 cases according to level of occupational exposure. Results suggest that HCW-to-HCW transmission accounted for part of the cases. In spite of a low prevalence of comorbidities and a mild clinical course in most cases, COVID-19 caused long periods of sick leave

- A prospective surveillance study, using rapid SARS-CoV-2 nanopore sequencing samples from 5613 patients with COVID-19. Authors sequenced 1,000 samples producing 747 high-quality genomes. Genomic analysis of the 299 patients identified 35 clusters of identical viruses involving 159 patients. 58% of the patients had strong epidemiological links and 20% of the patients had plausible epidemiological links. These results showed the benefit of combined genomic and epidemiological analysis for the investigation of health-care associated COVID-19.

- This cross-sectional study estimated the prevalence of SARS-CoV-2 antibodies in 16,025 convenience samples from several geographical sites in the US. Results indicate a seroprevalence of 1.0% to 6.9% between 10 sites. Findings suggest that most people in 10 diverse geographic sites in the US had not been infected with SARS-CoV-2 virus.

- This describes SARS-CoV-2 IgG antibody responses in 28,523 patients from the New York City metropolitan area and reports a SARS-CoV-2 IgG positivity rate of 44%, indicating the widespread nature of the pandemic in the city and

state of New York. Additionally, for a subset of patients, findings suggest the correlation between SARS-CoV-2 patient symptom severity and level of SARS-CoV-2 IgG antibody found in the patient sample.

- An active, state-wide surveillance described a multisystem inflammatory syndrome in children (MIS-C) hospitalized with coronavirus disease 2019. Findings suggest the emergence of multisystem inflammatory syndrome in children coincided with widespread SARS-CoV-2 transmission; this hyperinflammatory syndrome with dermatologic, mucocutaneous, and gastrointestinal manifestations was associated with cardiac dysfunction.

- SARS-CoV-2 RNA was detected in raw, but not in treated wastewaters (four and two samples, respectively, sampled in two dates). RNA presence in raw wastewater samples decreased after eight days, probably following the epidemiological trend estimated for the area. Virus infectivity was always null, indicating the natural decay of viral pathogenicity in time from emission, also for rivers infectivity was null. A precautionary approach in the assessment of contagious risk is advocated.

Care and Treatment

- A retrospective cohort study in Italy of 158 patients with 90 patients receiving tocilizumab reports that tocilizumab significantly improved survival compared to standard care, with no differences between the two administration routes of tocilizumab were observed. Early treatment with tocilizumab could be helpful to prevent excessive hyper-inflammation and death in COVID-19 related pneumonia. Low dose administration of tocilizumab is not associated with adverse events.

- A controlled, open-label trial compared a range of possible treatments in 9,355 patients who were hospitalized with Covid-19. Findings indicate that in patients hospitalized with COVID-19, the use of dexamethasone resulted in lower 28-day mortality among those who were receiving either invasive mechanical ventilation or oxygen alone at randomization but not among those receiving no respiratory support.

- A multicenter, randomized, open-label, three-group, controlled trial involving 667 hospitalized patients reports on the safety and efficacy of using hydroxychloroquine and azithromycin to treat patients with COVID-19. Findings suggest that among patients hospitalized with mild-to-moderate COVID-19, the use of hydroxychloroquine, alone or with azithromycin, did not improve clinical status at 15 days as compared with standard care.

- A study profiled a library of known drugs for their ability to block the replication of SARS-CoV-2, identifying 100 molecules that inhibit viral replication. Of these, 21 drugs were determined to be effective at concentrations that could be safely achieved in patients. Notably, four of these compounds were found to work synergistically with remdesivir, a current standard-of-care treatment for COVID-19.

- CEL-SCI Corporation announced that it has concluded animal experiments using its LEAPS COVID 19. The LEAPS COVID 19 conjugate has been designed employing the same concepts as were used to construct the LEAPS

H1N1 conjugate which was successfully employed in previous H1N1 pandemic flu studies.

Vaccines

- A phase I/II, single-blind, randomised controlled trial in five trial sites in the UK of a chimpanzee adenovirus-vectored vaccine (ChAdOx1 nCoV-19) expressing the SARS-CoV-2 spike protein was compared with a meningococcal conjugate vaccine (MenACWY) as control, 1,077 participants were enrolled randomly assigned to receive ChAdOx1 nCoV-19 or MenACWY as a single intramuscular injection. In the ChAdOx1 nCoV-19 group, spike-specific T-cell responses peaked on day 14, anti-spike IgG responses rose by day 28, and were boosted following a second dose. ChAdOx1 nCoV-19 showed an acceptable safety profile, and homologous boosting increased antibody responses.

- A phase I, dose-escalation, open-label trial on 45 healthy adults aged 18 to 55 reports on the candidate vaccine mRNA-1273 that encodes the stabilized prefusion SARS-CoV-2 spike protein. Findings indicate that the mRNA-1273 vaccine induced anti–SARS-CoV-2 immune responses in all participants, and no trial-limiting safety concerns were identified. These findings support further development of this vaccine.

- A randomised, double-blind, placebo-controlled, phase II trial reports on the immunogenicity and safety of a candidate non-replicating adenovirus type-5 (Ad5)-vectored COVID-19 vaccine among 503 healthy adults to determine an appropriate dose of the candidate vaccine for an efficacy study. Findings indicate the Ad5-vectored COVID-19 vaccine at 5 × 1010 viral particles is safe, and induced significant immune responses in the majority of recipients after a single immunisation.

- With more than 12 million confirmed cases of Covid-19 worldwide, and more than 550,000 deaths attributed to complications from infection with the novel coronavirus, identifying and deploying new diagnostics, treatments, and ways to prevent infection remains critical. For many experts, developing and globally distributing a safe and effective vaccine offers the greatest hope of returning to normal economic and social life. But with vaccine research centered in high-income countries, and with confirmed cases of Covid-19 increasing rapidly in lower- and middle-income countries, it is important to lay out plans now for ensuring equitable access to, and effective distribution of, a vaccine, or vaccines, once available.

Diagnostics

- A study evaluating laboratory approaches using viral RNA detection on swabs and rapid serological tests in 516 patients (192 symptomatic or paucisymptomatic- S/P and 324 asymptomatic- As) reports that the molecular positive fraction equal to 12% among S/P and 15.4% in As. Among subsets, findings report serologically positive results, corresponding to 35% for S/P and 38% for As. And significantly higher seropositivity in older symptomatic

patients. It has been observed that a dual approach of serological and molecular tests detects a higher absolute number of disease cases in a pandemic context.

- An evaluation study comparing point of care (POC) nucleic acid amplification testing (NAAT) in 149 participants with parallel combined nasal/throat swabbing for POC versus standard lab RT-PCR testing. Results suggest the median time to a result is 2.6 hours vs 26.4 hours with 21.5% positive and 78.5% negative. POC testing increases isolation room availability, avoids bed closures, allows discharge to care homes and expedites access to hospital procedures.

Non-Pharmaceutical Interventions

- Authors combined data on demography, contact patterns, disease severity, and health care capacity and quality to understand the impact of COVID-19. Findings suggest that younger populations in lower-income countries may reduce overall risk, but limited health system capacity coupled with closer intergenerational contact largely negates this benefit. Of countries that have undertaken suppression to date, lower-income countries have acted earlier.
- Following precedents applied first in wealthy states, more than 140 countries have applied some form of lockdown restrictions to slow their COVID-19 epidemics. These measures have had an impact on slowing spread of the virus, but have often come at the cost of painful social and economic impacts. International agencies have warned that 49 million Africans may be pushed into extreme poverty, and a quarter of a billion people may face acute hunger. For health, this has already meant that routine services have been interrupted, meaning an estimated 13.5m children will miss vital vaccinations.

Economic Studies

- This paper measured the effects of the containment policy on the health and economic conditions in Morocco. Findings suggest that where there is no containment policy envisaged, the scenario would have been catastrophic in that the country would have expected significant levels of contamination, with number of people infected around 30% of the population within 40 weeks from 16 March. Similarly, the number of deaths would be very high, with more than 14,000 deaths and the number of potentially infected cases reaching more than 50% of the population within 40 weeks. Economically, no containment measures and no government policy will have negative externalities on consumption, productivity and GDP growth.

Supply Chain and Logistics

- This study highlights the major players in the global food balance, potential implications of COVID-19 on global cereal supply, and SDG-2 (zero hunger). It found that developing countries, fifteen from Africa followed by ten from Latin America, six from Oceania, and four from Asia are the most vulnerable

to changes food supply shocks. It concludes that the current pandemic is likely to cause transitory food insecurity across such vulnerable countries particularly import-dependent developing nations.

Others

- This study compared the health benefits of sustaining routine childhood immunisation in Africa with the risk of acquiring SARS-CoV-2 infection through visiting routine vaccination service delivery points. Findings suggest deaths prevented by sustaining routine childhood immunisation in Africa outweigh the excess risk of COVID-19 deaths associated with vaccination clinic visits, especially for the vaccinated children.

D. Summary of travel restrictions implemented by Member States

Contents of this section include only underlined publicly announced public health policies. Sources of this section include official government communique, embassy alerts and press search. (As of 26 July 2020)

34
Full border closures[1]

6
International air traffic closures

4
Travel restrictions to and from specific countries

11
Entry/ Exit restrictions[2]

Most Member States have imposed **mandatory quarantine** for all travelers or travelers arriving from high risk areas

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   Entry or exit of passengers through COVID-19 screening

For further detailed information for each country, refer to the full table here.

E. Summary of physical distancing measures taken by Member States

Contents of this section include only <u>publicly announced</u> public health policies. Sources of this section include official government communique and press search. (as of 26 July 2020)

36 Closure of country-wide educational institutions
- Lesotho, Botswana, Burundi, Niger, South Africa and Tanzania open

54 Limit public gatherings

20 Limit on prison and hospital visits

18 Mass screening & Testing

41 Public use of face masks/ cloths

Movement restriction

34 Night-time Curfews
Restrictions during a period of time in affected area or nationally
-10 countries imposed curfews only.
-21 countries included lockdowns.

22 Partial lockdown
Restriction of non-essential movement within an area in the country

13 National lockdown
Restriction of non-essential movement across the whole country

31 Easing the Mitigation Measures
Allowing more movement outside the home
More businesses allowed to open
Religious institutions allowed limited gatherings

\# of Member States that ■ Have implemented ▨ Have not implemented

*Source of information based on official reports, embassy alerts and press scanning

For further detailed information for each country, refer to the full table here.