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(For April 15 and 16)

**UPDATE ON GLOBAL, REGIONAL AND NATIONAL DEVELOPMENTS ON
COVID-19**

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Summary

- Globally, the number of people who have been infected with the Corona virus has now exceeded 2 million (2,096,573) with 135,662 deaths
- In Africa, as of April 16, 2:00 PM EAT, a total of 17,247 confirmed cases was reported with 911 deaths and 3,546 recoveries. **The Coronavirus has still not been reported from Comoros and Lesotho.**
- Ugandan researchers have reportedly developed an affordable and rapid test kit, offering hope for a "homegrown solution" to sub-Saharan Africa's testing needs. Given the proven challenges of developing tests, the reliability and validity of these tests need to be tested beyond the team that developed the test.
- An anti-viral medication called EIDD-2801 has just been granted permission from the U.S. Food and Drug Administration to begin human trial in the next few months, which may initially be used as a prophylaxis for health care workers to prevent an infection.
- Safety concerns about hydroxychloroquine are still being raised.
- At the U.S. National Institutes of Health, researchers are in early discussions about proposals to study the TB and polio vaccines as a possible COVID-19
- Experts are looking for ways to make masks reusable because of shortage of the supply.
- To enhance the benefit of masks, three measures are recommended; improving the supply of masks, promoting public awareness about how to deal with mask disposal and innovation of mask.

Recommendations

- The hope that the pandemic may abate is very fragile with an overall pattern of increase in new cases despite fluctuations in daily trends. The pattern remains similar in Africa. This justifies the continued implementation of the public health measures in Africa. Plans of mitigating the economic impact of the pandemic need to be expedited. Contingencies for mitigating any social challenges need to be strengthened.
- Research on how the public is using face coverings/masks and public awareness measures are needed. Face coverings are likely to remain in place for many months and ensuring appropriate use is an urgent priority.

- Local evidence on sterilisation strategies for reusing medical face masks is needed given the universal shortage of face masks for health professionals.
- The report about cheap and quick diagnostic test from Makerere University is encouraging. But, the antibody based tests have proven elusive and collating evidence fast on the validity of this test is urgently needed.
- Evidence of harm from hydroxychloroquine, particularly for those with severe illness, calls for an urgent clinical study. In the meantime, patients who are given chloroquine/hydroxychloroquine need to be selected carefully, particularly for cardiac status. The current evidence also encourages caution in those with more severe or critical illness.
- Local evidence on health professional wellbeing and endogenously developed/adapted intervention/prevention approaches are needed.

Update on Pathogenesis

Sign and symptoms

- Previous studies highlighted that one of the symptoms of COVID-19 is loss of smell or taste. However, many scholars argued that diminished ability to smell or taste from viral infection targeting the olfactory system, remains fragmentary due to scarcity of acute phase advanced neuroimaging studies, difficulties in obtaining histopathological tissue specimens, and an absence of viral cultures of infected olfactory neuroepithelium compound. A recent study reported that unlike other upper respiratory infections (e.g., rhinovirus, influenza, and adenovirus), SARS-CoV-2 does not appear to generate clinically significant nasal congestion or rhinorrhoea—i.e., a red, runny, stuffy, itchy nose. The study also found that loss of taste, with or without loss of smell manifests either early in the disease process or in patients with mild or no constitutional symptoms. Therefore, physicians evaluating patients with acute-onset loss of smell or taste, particularly in the context of a patent nasal airway (i.e., non-conductive loss), should have a high index of suspicion for concomitant SARS-CoV-2 infection.
- Even though, the American Academy of Otolaryngology Head and Neck Surgery and the British Association of Otorhinolaryngology are now recommending these symptoms to be added to the list of primary screening symptoms for COVID-19, the current study stated that it is still too early to definitively establish the incidence, as well as the full-spectrum clinical utility of these symptoms [Michael, 2020].

Update on Epidemiology (Incidence, mortality, recovery & epidemiologic parameters)

Global

- According to Worldometer, more than 2 million (2,096,573) are infected with coronavirus with a total of 135,662 deaths and 523,322 recoveries.
- The total number of new cases reported in the last 24 hours (84,515 new cases) is significantly higher than the last two consecutive days (71,572 and 72,523 new cases).
- Almost 8,000 (7,959) new deaths occurred on 16th April, the highest number of deaths reported in a single day since the pandemic started.
- In the United States of America (USA), more than half a million people (644,348) are now infected with the virus which accounted for 30.9 % of the total cases globally.
- Within 24 hours, 30,206 new cases and 2,482 new deaths were reported in the country raising the total number of deaths to 28,554.
- One third, 214,658 (33.3%), of the total cases in USA were reported from New York state which is even higher than all cases reported in other most affected countries in the world. New York also reported the highest number of deaths (11,586) which contributed to 40% of total deaths in the country.
- Next to USA, Spain (182,816), Italy (165,155), France (147,863) and Germany (134,753) continue to be the other most affected countries in the world.
- The highest number of deaths were reported from USA [28,554 (21.2%)] followed by Italy [21,645(16%)], Spain [19,130 (14%)], France [17,167 (12.8%)] and United Kingdom [12,868 (9.6%)].

Africa

- As of April 16, 2:00 PM EAT, a total of 17,247 confirmed cases, 911 deaths, and 3,546 recoveries were reported.
- Except Comoros and Lesotho, all African countries are affected with the virus and local transmission is evident in majority of these member states.
- The highest number of cases is reported from South Africa (2,506) and Egypt (2,505).
- Morocco (2,251), Algeria (2,160) and Cameroon (848) are other African countries with high number of cases and deaths.
- More than two third (70.9%) of the total deaths in the continent were still reported from Algeria (336), Egypt (183) and Morocco (128).

Ethiopia

- In the last two days, additional 832 laboratory tests were performed and ten of them confirmed to be positive for COVID-19 raising the total number of cases to 92.
- All the additional cases were Ethiopians and 7/10 cases were males.
- Out of the total additional cases, seven of them came from abroad and they were staying in the mandatory quarantine before confirming the test.
- The other two have contact history with confirmed COVID-19 case and the rest one is still under investigation.
- According to the ministry of health report, additional one person recovered from the virus making the total number of recoveries 15.
- Therefore, currently there are 92 cases, 3 deaths and 15 recoveries as of April 16, 2:00 PM EAT.
- Out of the 72 active cases, 71 of them have mild form of the disease and only one person is in critical/ serious condition. All of these cases are receiving medical care in the designated treatment centre.

Update on Diagnosis

- The number of diagnostic tests for COVID-19 is increasing. According to FIND diagnostics, as of 16th April 2020 [10:40am, EAT], there are 221 molecular assay tests commercialized and 41 tests under development for COVID-19. Also, there are, 202 immunoassay tests commercialized and 46 tests under development (FIND, 2020).
- Ugandan researchers, reportedly, have developed an inexpensive COVID-19 test kit that can deliver results quickly, offering hope for a “homegrown solution” to sub-Saharan Africa’s testing needs. The research team was led by Dr. Misaki Wayengera, at Makerere University, who previously created the pan-filovirus rapid diagnostic test, a paper-strip test that can detect the Ebola and Marburg viruses, which are zoonotic (animal-borne) like the novel coronavirus. The test kit is called the STDS-Ag_x (swab tube dipstick agglutination) COVID-19. Reported it can produce results in two minutes, compared to the four-to-six hours it takes to get results from kits now in wide use. Dr Wayengera said each kit will cost an estimated US\$1.07, making testing affordable and that it is intended for use in rural settings, which often lack laboratory capacity or expertise. He added that the research team expects to have a prototype ready to be put into use in May, pending the expert validations and that they are developing three versions of the test. He stated the choice of the swab

tube dipstick is simply for ease of use for the choice of sample and the tests will work by generating solid particles from reaction of the virus with antibody or vice versa (Wetaya, 2020).

Update on Treatment

A new Anti-viral medication EIDD 2801 for treatment of COVID 19

- Researchers are working on an orally bioavailable broad-spectrum antiviral that inhibits SARS-CoV-2 in human airway epithelial cell cultures in mice. EIDD-2801 introduces genetic mutations into the virus's RNA. As the RNA makes its copies, many damaging mutations accumulate that the virus is no longer able to infect cells. Human trials have not yet been done, but if the effect is similar in people, the drug would be the first pill available to help with the COVID-19 pandemic. The drug has just been granted permission from the U.S. Food and Drug Administration to begin 10 patient trials of the antiviral pill in the next few months. The compound may also be initially beneficial as a prophylaxis so that health care workers can take to prevent an infection. Another potential use of EIDD-2801 might be to protect uninfected nursing home residents and workers if an outbreak occurs inside a facility. The wider goal is to have an oral pill that can be taken twice a day by patients at home early in the course of the disease to prevent it from progressing to hospitalization, mechanical ventilation or death (Waldholz, 2020, Sheahan et al., 2020).
- A report of a study using routinely collected data that emulate a target trial *fails* to demonstrate clinical efficacy of hydroxychloroquine in patients hospitalized for COVID-19 infection and requiring oxygen.
- The study used data collected from routine care of all adults in 4 French hospitals with documented SARS-CoV-2 pneumonia and requiring oxygen ≥ 2 L/min to emulate a target trial aimed at assessing the effectiveness of HCQ at 600 mg/day. The composite primary endpoint was transfer to intensive care unit (ICU) within 7 days from inclusion and/or death from any cause (Mahevas et al., 2020).
- The research was a comparative study that uses real-world data collected from routine care to assess the efficacy and safety of Hydroxychloroquine in a population of 181 patients hospitalized for COVID19 hypoxemic pneumonia. It indicated that Hydroxychloroquine treatment at 600 mg/day added to standard care was not associated with a reduction of admissions to ICUs or death 7 days after hospital admission, compared to standard care alone. The rate of ARDS did not decrease either. The study also raised important safety concerns about hydroxychloroquine. In

the study, eight patients who took the drug developed abnormal heart rhythms and had to stop taking it. These results are of major importance and do not support the use of Hydroxychloroquine in patients hospitalized for a documented SARS-CoV-2 pneumonia (Mahevas et al., 2020).

- But this is not equivalent to a clinical trial and findings of efficacy cannot be dismissed although the studies that have demonstrated efficacy have been criticised seriously for their quality as well. More important in this study may be the issue of cardiac abnormalities. Another study from Brazil has also reported cardiac side effects of high dose hydroxychloroquine and the high dose arm had to be suspended.

Update on Vaccine

Oral polio Vaccine and BCG vaccine

- At the U.S. National Institutes of Health, researchers are in early discussions about proposals to study the TB and polio vaccines as a possible COVID-19 prophylaxis. However, caution should be exercised since live vaccines are risky for people with weakened immune systems, and shouldn't be tried against COVID-19 outside of a research trial (NEERGAARD, 2020).
- The rationale put forth to conduct studies is because of clues that emerged first from the former Soviet Union in the 1970s that indicated that flu cases dropped markedly after oral polio vaccination. In 2015, Danish researchers also found some hints of cross-protection after oral polio vaccinations. The oral drops still are used in developing countries while the U.S. and other areas that have eliminated polio use the inactivated shot for routine childhood vaccines. As for BCG vaccine, it appears to act by reprogramming innate immune cells so they can more readily eliminate the germ up front. Some scientists have theorized that countries with large BCG-vaccinated populations might fare better in the pandemic. But given problems with accurately counting the toll, it's far too early to draw any conclusions, a caution the WHO reiterated (NEERGAARD, 2020).

Update on personal protective equipment

Face mask use

- Experts are looking for ways to make masks reusable. One article proposed investigating the use of ultraviolet germicidal irradiation (UVGI) to sterilize masks of SARS-CoV-2 for safer re-use. The article indicates that there are no studies yet which examined UVGI

effectiveness at destroying SARS-CoV-2 but that it has demonstrated efficacy at destroying the original SARS-CoV in viral culture media. A wide variety of UVGI facilities are currently employed for sterilization of laboratory equipment, protective eyewear, manicure tools, microbiological materials and more. The authors claim such devices can be calibrated via radiometry to deliver a measured amount of ultraviolet radiation per unit surface area for a time period sufficient to decontaminate Filtering Facepiece Respirators (FFRs) like N95 respirators. They added that with appropriate instruction and oversight, smaller UVGI units may even be suitable for small facilities or point of care use. The authors suggest UVGI provides a potential avenue for greatly extending the limited FFR supply in the face of the ongoing COVID-19 pandemic in a simple, cost-effective, and rapidly deployable fashion (Nogee and Tomassoni, 2020).

- Other researchers also experimented by sterilizing single use FFP2 masks (type 1862+3MTM) with a 15-minute procedure at 121 °C, using a dry sterilization process as well as with a regular steam process with the masks in sterilization/laminate bags. It was noted that the effectiveness of these processes are sufficient to inactivate the coronavirus based on knowledge of inactivation of such viruses. They used a blind comparison of unused sterilized masks with respect to visual inspection, consistency, face fit and breathing resistance and the results showed that the investigators were unable to distinguish unused new (slightly curved and folded) masks from reprocessed sterilized masks. It was also stated that the results of their experiences and experiments indicate that their sterilization process did not influence the functionality of the masks tested. In case of an acute shortage of FFP2 masks, steam sterilization (e.g. in laminate sterilization wrappings) of used masks at 121 °C in laminated bags, is a simple, useful cost-effective and quick procedure that can be used to make used masks available for safe reuse. It was indicated that the sterilization process of available standard autoclaves in hospitals may have to be adjusted in order to use this sterilization method. They also emphasized that they performed these experiments with 3M masks only but that their method seems to be a potentially useful way to reuse mouth masks (De Man et al., 2020).
- China remains a point of reference in relation to the control measures and is credited for ordering the use of 'face masks' in public places along with closing communities and cities, banning parties, delaying school, and restricting work. Since COVID-19 epidemic was effectively controlled in China in mid-March 2020, the authors emphasize the use of masks cannot be abandoned just because there is insufficient evidence. By noting there is shortage of face mask supply and face masks are being disposed inappropriately, the authors suggest three measures; improving the supply of masks, promoting public

awareness about how to deal with mask disposal and carrying out innovation of mask (Wang et al., 2020).

Psychosocial wellbeing of health professionals during COVID 19 outbreak

- Experience from many countries is demonstrating that health professionals are over worked, and under lots of physical and mental pressure. The shortage of PPE's is part of the story. The psychosocial wellbeing of health professionals for effective and efficient provision of service continues to be emphasised.
- On 15 April 2020 the Lancet psychiatry has published a multidisciplinary article that synthesised evidence from different studies. There is concern about the impact of social distancing as well as isolation on mental wellbeing (IPSOS: COVID-19 and Mental Health, 2020). Evidence-based interventions are required. In addition how health workers and their families can be supported to address the potential mental health or wellbeing problems should be a research priority (Lancet, 2020).

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