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DAILY UPDATE ON GLOBAL AND NATIONAL DEVELOPMENTS ON COVID-19

THE KNOWLEDGE SYNTHESIS TEAM
CDT-AFRICA, ADDIS ABABA UNIVERSITY
www.cdt-africa.org

Summary

- Globally, more than 1.4 million are affected by the pandemic causing 82,210 deaths
- Germany has favourable death indices attributed to the late start of the epidemic, that young people were affected initially, the public health control measures and the strong health system
- As of April 07, 5:00 PM EAT, a total of 10,252 confirmed cases, 492 deaths, and 989 recoveries were reported in 52 countries of Africa
- WHO has listed the first two diagnostic tests for emergency use during the COVID-19 pandemic
- UK was planning to distribute antibody home test kits but it was indicated that none of the tests they had validated would meet the criteria for a good test as agreed with the Medicines and Healthcare products Regulatory Agency
- Solidarity international clinical trial launched by the WHO comparing four treatments options against standard care; Remdesivir; Lopinavir/Ritonavir; Lopinavir/Ritonavir with Interferon beta-1a; and Chloroquine or Hydroxychloroquine
- Further evidence from a very small study that found that seriously ill patients with COVID-19 can benefit from Convalescent plasma therapy published
- A recent study (pre-print, not peer reviewed yet) indicates any form of cloth mouth cover, including a mask, can stop coronavirus spreading via invisible saliva droplets when an infected person talks. But this was somewhat contradicted by a very small, but well conducted study that found little protection of viral release when patients coughed into surgical and cotton masks

Recommendation

- Evidence that convalescent plasma therapy (CPT) may be helpful for seriously ill patients with COVID-19 is building consistently. There is grounds to consider use of CPT on compassionate grounds. However, study of the feasibility, safety and efficacy of CPT is needed.
- The evidence on the benefit of the use of face coverings and cotton masks remains unclear—at least when the transmission is through cough. Transmission through talking may be contained through face coverings. Overall, data from influenza virus and circumstantial evidence and public pressure are behind the drive for public use of face coverings.
- Part of the challenge on recommendation is that people often wear face coverings incorrectly or fail to dispose of them properly.

- On balance, if used with appropriate guidance and along with ongoing adherence to the standard control measures, there may be merit to using face coverings.
- Antibody tests for COVID-19 are fraught with problems. Careful selection of antibody kits
- Social distancing and public control measures need to be pursued vigorously given the emerging data on effectiveness
- Plans and preparations need to be in place on protecting the disadvantaged

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

Global

- Worldwide, more than 1.4 million (1,435,577) people are infected with COVID- 19 causing 82,210 deaths (5.7%) as of April 08, 9:00 GMT.
- According to Worldometer daily update, 84,945 new cases and 7,382 new deaths were reported within 24 hours suggesting a significant increment in the total number of new cases and deaths compared to yesterday's figure (73,000 new cases and 5,227 new deaths).
- Consistently, the United States of America (USA) is the leading country with more than 400, 000 cases contributing for 27.8% of the total cases reported in the globe. The country also reported 33,331 new cases and 1,970 deaths within 24 hours which is the highest number of deaths reported in a single day since the pandemic started.
- Consistent evidence is emerging that African Americans are dying at much higher rates. This is attributed to socioeconomic disadvantage, comorbidity and slowness in implementing the control measures.
- There is an ongoing trend of stabilisation and decline in parts of the US that were affected heavily. This has been attributed to the implementation of social distancing measures.
- Comparing the last three days' report, the number of new cases in France is increasing- -a total of 11, 059 new cases were reported in the last 24 hours while only 5,171 and 2,886 new cases were reported on April 06 and April 07 respectively. As a result, the country ranked fourth in the world with a total number of 109,069 cases and 10,328 deaths.
- In Italy, the number of new cases and deaths is persistently declining in the past few days and only 3,039 new cases and 604 new deaths were reported yesterday.
- Although several European countries such as Italy, Spain and France are the worst hit countries with the pandemic, German seems containing the epidemic with a high

number of cases (107,663) but a low number of deaths (2,016). Four main reasons were offered for the low death rate in Germany (Ellyatt, H, 2020):

- Germany had the epidemic later than many other European countries, which gave them an opportunity to get prepared.
- The first people that got infected in Germany tended to be younger than the average age of the population. Thus death rates were lower in the beginning.
- A slow increase in the number of infections, allowing those patients to be treated at the country's top medical institutions, which resulted in better survival of cases.
- The German health care system has been modernized over the last 20 years having more hospital beds, more ventilators, more ICU (Intensive Care Units) beds and more hospital doctors. In addition to implementing control measures like lockdown, the country was rigorously testing people suspected of having the virus while other European countries were only testing symptomatic cases. The country reportedly has the capacity to carry out up to 500,000 tests a week because of previously built pharmaceutical and diagnostic company, Roche.

Africa

- As of April 07, 5:00 PM EAT, a total of 10,252 confirmed cases, 492 deaths (4.8%), and 989 recoveries were reported in Africa.
- Currently 52 countries are affected, and South Africa has the largest number of cases (1,749) in the continent. However, the number of deaths remained very low (13) making the CFR persistently below 1 (0.74%).
- Next to South Africa, Algeria (1,468), Egypt (1,322), Morocco (1,184), Cameroon (685) and Tunisia (623) continue to be the other highly affected countries.
- The number of new cases has been fluctuating in the past few days. In South Africa, a slight increment is observed in the last 24 hours (31 to 63 new cases). Similarly, in Cameroon, 27 new cases were reported yesterday while it was only 9 new cases on April 06, 2020. In contrast, Egypt (149 to 128), Algeria (103 to 45) and Morocco (99 to 64) reported lower number of new cases compared to the previous day report.
- The highest number of deaths occurred in Algeria (193) followed by Egypt (94), Morocco (90) and Tunisia (23), which in total accounted for more than three fourth of total deaths reported in the continent.

Update on Diagnosis

- WHO has listed the first two diagnostic tests for emergency use during the Covid-19 pandemic. This move is believed to help increase access to quality-assured, accurate tests for the disease. It also means that the tests can now be supplied by the United Nations and other procurement agencies supporting the COVID-19 response. Both in vitro diagnostics, the tests are genesig Real-Time PCR Coronavirus (COVID-19), manufactured by Primerdesign Ltd. and cobas SARS-CoV-2 Qualitative assay for use on the cobas® 6800/8800 Systems manufactured by Roche Molecular Systems, Inc. Both tests are approved by the US FDA (World Health Organization, 2020).
- According to FIND diagnostics, as of 8th April 2020 [10:30am, East Africa time], there are 196 molecular assay tests commercialized and 37 tests under development for COVID-19. Also there are, 172 immuno assay tests commercialized and 47 tests under development(FIND, 2020).
- Many countries are currently working towards developing antibody testing. But this has proven challenging. For example, the antibody home test kits have not performed well with low sensitivity (Blog post by Professor Sir John Bell, Regius Professor of Medicine Oxford University). The Spanish apparently returned test kits that were not working, and the Germans who are developing their own sensitive kits believe they are three months away from getting these available and validated. No test has been claimed by health authorities as having the necessary characteristics for screening people accurately for protective immunity(Bell, 2020). The Czech Republic and Slovakia, reportedly, had similar rapid-test failures (Loh, 2020).

Update on Treatment

Solidarity Clinical trial for COVID 19 treatments

- "Solidarity" is an international clinical trial to help find an effective treatment for COVID-19, launched by the World Health Organization and partners. It compares four treatments options against standard care through multi-country studies; Remdesivir; Lopinavir/Ritonavir; Lopinavir/Ritonavir with Interferon beta-1a; and Chloroquine or Hydroxychloroquine. It aims to assess relative effectiveness against COVID 19 and whether any of the drugs slow disease progression or improve survival rate. The advantage of solidarity trial is that enrolling patients in one single randomized trial will help facilitate the rapid worldwide comparison of unproven treatments. This will also overcome the risk of multiple small trials not generating the strong evidence needed to determine the relative effectiveness of potential treatments. Moreover, the Solidarity trial provides simplified procedures to enable even overloaded hospitals to participate, with no paperwork required. As of 27 March 2020, 70 countries have

already confirmed they will contribute to the trial, with many others in the process of joining (Duan et al., 2020, WHO, 2020).

- Interim trial analyses are monitored by a Global Data and Safety Monitoring Committee, which is an independent group of experts. Underlying conditions recorded are: diabetes, heart disease, chronic lung disease, chronic liver disease and asthma, extending to HIV and tuberculosis in the African region. Severity of illness at entry is determined by recording: shortness of breath, being given oxygen, already on a ventilator, and, if lungs imaged, major bilateral abnormality(WHO, 2020).

The use of Convalescent plasma therapy in patients who have COVID 19

- 100 laboratories have joined forces to produce convalescent plasma for patients pouring into hospitals across the country. After receiving approval from the Food and Drug Administration, doctors in the US are now able to give plasma to patients under compassionate use rules (Ian Sample, 2020).
- A study that was conducted in China on 10 severely ill patient showed that the administration of 200ml of CP showed a significant decrease in symptoms. The study added that, the median time from onset of illness to CP transfusion was 16.5 days. After CP transfusion, the level of neutralizing antibody increased rapidly up to 1:640 in five cases, while that of the other four cases maintained a high level (1:640). The clinical symptoms were significantly improved along with increase of oxyhemoglobin saturation within 3 days. Several parameters tended to improve as compared to pretransfusion, including increased lymphocyte counts ($0.65 \times 10^9/L$ vs. $0.76 \times 10^9/L$) and decreased C-reactive protein (55.98 mg/L vs. 18.13 mg/L). Radiological examinations showed varying degrees of absorption of lung lesions within 7 days. The viral load was undetectable after transfusion in seven patients who had previous viremia. No severe adverse effects were observed. This study showed CP therapy was well tolerated and could potentially improve the clinical outcomes through neutralizing viremia in severe COVID-19 cases. The optimal dose and time point, as well as the clinical benefit of CP therapy, needs further investigation in larger well-controlled trials(Duan et al., 2020).
- Similarly, another study conducted in Wuhan China, on 5 patients that were critically ill with COVID-19 and ARDS, which reported improvement in their clinical status following transfusion. All 5 patients (age range, 36-65 years; 2 women) were receiving mechanical ventilation at the time of treatment and all had received antiviral agents

and methylprednisolone. Convalescent plasma was administered between 10 and 22 days after admission. Following plasma transfusion, body temperature normalized within 3 days in 4 of 5 patients, the Sequential Organ Failure Assessment (SOFA) score decreased, and Pao₂/Fio₂ increased within 12 days (range, 172-276 before and 284-366 after). Viral loads also decreased and became negative within 12 days after the transfusion, and SARS-CoV-2-specific ELISA and neutralizing antibody titres increased following the transfusion (range, 40-60 before and 80-320 on day 7). ARDS resolved in 4 patients at 12 days after transfusion, and 3 patients were weaned from mechanical ventilation within 2 weeks of treatment. Of the 5 patients, 3 have been discharged from the hospital (length of stay: 53, 51, and 55 days), and 2 are in stable condition at 37 days after transfusion (Shen et al., 2020).

Update on personal protective equipment

Face mask use

- A recent study submitted to PNAS—impact factor 9.58—(pre-print, not peer reviewed yet) has suggested that any form of cloth mouth cover, including a mask, can stop coronavirus spreading via invisible saliva droplets when an infected person talks. The researchers looked at how these tiny droplets are produced with ultra-sensitive lasers that monitored a person saying 'stay healthy' in a dust-free room. It was first done with no mouth covering and later with a homemade damp cloth over the person's mouth. Thousands of the droplets were produced and in one 16.6 millisecond snapshot a total of 360 droplets formed when unmasked. Covering the mouth with a cloth reduced the expulsions that were visible to zero. A damp homemade cloth face mask dramatically reduced droplet excretion, with none of the spoken words causing a droplet rise above the background. It was also stated wearing any kind of cloth mouth cover in public by every person, as well as strict adherence to social distancing and hand washing, could significantly decrease the transmission rate and thereby contain the pandemic until a vaccine becomes available. The authors added that speech droplets can transfer the virus in two ways, direct and indirect; inhalation of a droplet can lead to infection as well as droplets landing on surfaces, followed by transmission from the object. It was also noted that droplets emitted while speaking are much smaller than those emitted when coughing or sneezing which are still sufficiently large to carry a variety of respiratory pathogens, including the measles virus, influenza virus, and Mycobacterium tuberculosis. The researchers stated their findings have vital implications for pandemic mitigation

efforts and covering one's mouth may be the best way to prevent infection spread (Anfinrud et al., 2020).

- However, a small study with four patient participants published in the *Annals of Internal Medicine* (Impact factor 19.3) on 6th April from Seoul, South Korea, has not observed protection against the release of SARS-CoV-2 when patients coughed through masks. The study "compared disposable surgical masks (180 mm × 90 mm, 3 layers [inner surface mixed with polypropylene and polyethylene, polypropylene filter, and polypropylene outer surface], pleated, bulk packaged in cardboard; KM Dental Mask, KM Healthcare Corp) with reusable 100% cotton masks (160 mm × 135 mm, 2 layers, individually packaged in plastic; Seoulsa)".
- Neither surgical nor cotton masks effectively filtered SARS-CoV-2 during coughs by infected patients. "*The median viral loads after coughs without a mask, with a surgical mask, and with a cotton mask were 2.56 log copies/mL, 2.42 log copies/mL, and 1.85 log copies/mL, respectively.*"
- The experiment did not include N95 masks and the authors noted that the study does not reflect the actual transmission of infection from patients with COVID-19 wearing different types of masks. The authors concluded that both surgical and cotton masks seem to be ineffective in preventing the dissemination of SARS-CoV-2 from the coughs of patients with COVID-19 to the environment and external mask surface (Bae et al., 2020). The study did not assess transmissibility through talking.
- The French government is considering to recommend to wear a face mask in public as part of ongoing measures to fight Covid-19, after having repeatedly said it was not necessary (Connexion, 2020a).
 - According to the mayor of the city Nice, France, wearing a cloth mask is going to become obligatory. The mayor suggested all residents are soon going to receive a mask that will be re-useable for a month. He said the masks will be made of cloth, will meet recommended norms, and are set to be distributed in about 10 days' time. He said wearing them outside would be obligatory, as everyone would have been supplied with one. The measures came since too many people had ignored the confinement rules over the weekend (Connexion, 2020b).
- Still awaiting on the recommendation of the UK government's expert panel. The chair of the panel also advises the WHO. Thus, the recommendation of the panel is likely to be concordant with the existing WHO recommendations. However, the delay in producing the recommendation may also mean that there is lack of consensus within the panel.

Psychosocial wellbeing of health professionals during COVID 19 outbreak

- US and Canada have organised volunteer mental health professionals (psychotherapists, psychologists, and social workers) to provide free virtual therapy sessions. New York state also provides similar service to both health workers and general public through a state-wide hotline.
- This article emphasized that self-care is very essential to provide service with such times. Health care workers have to take care of themselves before helping others; it described self-care as selfless care for others.

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