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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 1.5 infections due to the COVID-19 and around 88,000 deaths were reported.
- Certain socio-demographic groups seem to be affected more. For example, in the US, more deaths are reported among African Americans and Hispanics.
- A total of 10,789 infections, 536 deaths, and 1,122 recoveries, with an average case fatality rate of 5% were reported from Africa
- Currently, WHO does not recommend the use of both antigen- and antibody-detecting rapid diagnostic tests for patient care but encourages the continuation of research work to establish their usefulness in disease surveillance and epidemiological studies.
- Most infected children were found to have mild clinical manifestations with a good prognosis.
- General treatment strategies for children with COVID-19 relies primarily on simple measures such as bed rest and supportive treatment although temperatures of >=38.5^{0}c require close monitoring.
- There is no dosage recommendation of Chloroquine for children so far.
- Tele-mental health can be a safe way to provide psychosocial support to both health workers and the public.

Recommendations

- Molecular diagnostic tests remain the diagnostic approaches of choice for clinical decision making. There is a need to identify appropriate antibody based diagnostic resources for wider application.
- There is an urgent need to produce diagnostic reagents in country.
- The treatment of COVID-19 remains supportive. The evidence on the use of hydroxychloroquine remains very doubtful.
- The role of face masks remains controversial, but clear consensus is building.
    - In line with the WHO interim recommendation, it is suggested here that a risk-based consideration be given to the use of face masks by healthy people in community settings: risk of exposure to the COVID-19 virus , vulnerability of the person/population to develop severe disease or be at higher risk of death, e.g. people with comorbidities, setting in which the population lives in terms of population density, the ability to carry out

physical distancing (e.g. on a crowded bus), and risk of rapid spread (e.g. closed settings, slums, camps/camp-like settings).
        - But practical considerations, for example, availability of masks and good alternatives, and safe use practices are important.
- While children are less affected and have generally good prognosis, temperature above 38.5^0c requires close monitoring and care.
- Need to explore the potential use of e-health services, which can be accessed by at least some sections of the population. Needed resources and facilities have to be identified and developed. This may also prove beneficial beyond the life of the COVID-19 outbreak.
- In the absence of new pharmacological treatments and vaccines, considering the period of infectiousness of the SARS-COV-2, current interventions may need to continue to be in place with intermittent lockdowns for a period of 12 months.

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

Global

- As of April 09, 4:30 GMT, the novel coronavirus has infected more than 1.5 million (1,518,773) people and 88,505 deaths worldwide.
- Since April 3rd, the percentage of recoveries has declined to 79 %--it was constantly 81% at the beginning of the pandemic.
- A total of 84,385 new cases and 6,414 new deaths were reported in the last 24 hours, which is lower than yesterday's report (84,945 new cases and 7,382 new deaths).
- The highest number of cases (435,128) were reported from United States of America (USA) and New York is the most affected state with a total number of 151,000 cases and 6,268 deaths. Within 24 hours, 31,935 new cases and 1,940 new deaths were reported in the USA raising the total number of deaths in the country to 14,795.
- As a result, USA has become the second country, after Italy, with the highest number of deaths. Spain also recorded similar number of deaths to the USA (14,792 deaths) as of April 09, 4:30 GMT.
- According to the White House briefings, Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Diseases, more deaths are occurring among African Americans than other groups. This was believed to be because they are more

susceptible to more difficult and severe disease and poorer outcomes compared to other groups. [Lovelace. B, 2020].

- The number of new cases has significantly declined in France reporting only 3,881 new cases within 24 hours.
- In contrast, the number of new cases reported on April 8th is somewhat increased in Spain (5,267 to 6,278), Germany (4,288 to 5,633), United Kingdom (3,634 to 5,491) and Italy (3,039 to 3,836) compared to April 7th's report.

Africa

- According to the Africa CDC report, a total of 10,789 COVID-19 cases, 536 deaths, and 1,122 recoveries were reported from Africa as of April 08, 8:00 PM EAT.
- Out of 52 member states that have reported cases, 41 have local transmission, 9 have imported cases only and the rest two are still under investigation.
- The five countries in Africa with the highest cumulative number of cases (proportion of reported cases in Africa) are South Africa 1,845 (17%), Algeria 1,572 (14.5%), Egypt 1,560 (14%), Morocco 1,275 (12%) and Cameroon 730 (7%).
- The overall Case Fatality Rate (CFR) in the continent is 5% and the highest is reported in Algeria (13%), followed by Morocco (7.3%), Egypt (6.6%) and Tunisia (3.8%). However, the CFR in Southern Africa is still below 1% and in Cameroon 1.4%.
- As compared to the report of the previous day, the number of new cases within the last 24 hours has increased in most affected countries including South Africa (63 to 96), Cameroon (27 to 45), Algeria (45 to 104) and Morocco (64 to 91), while it's decreased in Egypt (128 to 110).

Ethiopia

- In the past 24 hours, the Ethiopian Public Health Institute conducted 225 additional tests and three of them confirmed to be positive making the total number of cases to 55.
- All of the additional cases are males and two of them came from Dubai and staying in the mandatory quarantine before confirming the test. The rest one case had contact history with confirmed case in Awe Zone. Therefore, the number of cases in the Amhara region raised to three.
- So far, the disease is distributed to Addis Ababa, Adama, Bahir Dar, Awi Zone and Dire Dawa.

- Due to the high expansion of the disease, the Ethiopian Government declared a state of emergency for the next five months and it's also stated as details will be notified shortly.
- Currently, there are 55 confirmed cases, 2 deaths and 4 recoveries as of April 09, 12:00 PM.

Update on Diagnosis

- WHO, in scientific brief released on 8th April, stated that in response to the growing COVID-19 pandemic and shortages of laboratory-based molecular testing capacity and reagents, multiple diagnostic test manufacturers have developed and begun selling rapid and easy-to-use devices to facilitate testing outside of laboratory settings. It was indicated these simple test kits are based either on detection of proteins from the COVID-19 virus in respiratory samples (e.g. sputum, throat swab) or detection, in blood or serum, of human antibodies generated in response to infection. It was noted, before these tests can be recommended, they must be validated in the appropriate populations and settings and that inadequate tests may miss patients with active infection or falsely categorize patients as having the disease when they do not, further hampering disease control efforts. Hence, *WHO is now recommending the use of these new point-of-care immunodiagnostic tests only in research settings based on the current evidence*. It was noted such tests should not be used in any other setting, including for clinical decision-making, until evidence supporting use for specific indications is available(WHO, 2020b).
- It was, however, indicated research into their performance and potential diagnostic utility is highly encouraged and also stated they encourage the continuation of work to establish their usefulness in disease surveillance and epidemiologic research(WHO, 2020b).
- *Molecular (e.g. PCR) testing of respiratory tract samples remains the recommended method for the identification and laboratory confirmation of COVID-19 cases*(WHO, 2020b).
- An article published on The Guardian, indicates that antibody tests to identify those who have had Covid-19 will not be available until May at the earliest. In the article it was reported that, Prof John Newton, of Public Health England, conceded none of the tests trialled so far were accurate enough. The government of UK was planning to test 100,000 people per day and without an antibody test, experts believe it will be hard for the government to meet this target. The UK government, reportedly has

bought 3.5 million of finger-prick rapid antibody test, when optimism about the potential usefulness of finger-prick rapid antibody tests was still high and had ordered 17.5 million more. It is indicated that the UK will now be trying to get a refund(Boseley et al., 2020).

Update on Treatment

Treatment option for Children with COVID 19

- Children seem to be less affected. In China as of 30th January 2020, out of the confirmed 9692 patients with COVID-19, 28 of them were children aged from 1month to 17 years. Most infected children were found to have mild clinical manifestations with a good prognosis (recover within 1–2 weeks after disease onset). The most common symptoms of Children with COVID 19 were fever , cough (the cough is usually dry cough) and fatigue. While there were also patients that had upper respiratory symptoms including nasal congestion and running nose, gastrointestinal symptoms including abdominal discomfort, nausea, vomiting, abdominal pain, and diarrhoea also occurred (Sinha, 2020, Shen et al., 2020).
- The general treatment strategies include bed rest and supportive treatment; ensuring sufficient calorie and water intake; maintaining water electrolyte balance and homeostasis. The patients with high fever should be actively controlled. If patients' body temperature exceeds 38.5°C with obvious discomfort, physical cooling (warm water bath, use of antipyretic patch, etc.) or antipyretic drug treatment should be performed. Paracetamol is the first line antipyretic that is recommended in such cases. In addition to symptomatic treatment, medications such as antivirals can also be used in treating children with COVID 19(Sinha, 2020, Shen et al., 2020).
- One of these antivirals is Interferon-α. This drug can reduce viral load in the early stage of infection which can help to alleviate symptoms and shorten the course of disease. Interferon-α is available in nebulization form (interferon-α 200,000– 400,000 IU/kg or 2–4 μg/kg in 2 mL sterile water, nebulization two times per day for 5–7 days). Interferon -αb is available in spray form. It is applied for high-risk populations with a close contact with suspected 2019-nCoV infected patients or those in the early phase with only upper respiratory tract symptoms. Patients should use 1–2 sprays on each side of the nasal cavity, 8–10 sprays on the oropharynx, the dose of interferon-α2b per injection is 8000 IU, once every 1–2 hours, 8–10 sprays/day for a course of 5–7 days. According to the literature Interferon-α is the only antiviral drug which is clearly recommended to be used in children with COVID-19. It is important to note that interferon- α is contraindicated in patients with abnormal liver function, In children

with creatinine clearance (CrCl) below 50 mL/min, in children with histories of mental illness, severe or unstable heart disease, or aplastic anemia(Wang and Zhu, 2020, Sinha, 2020, Shen et al., 2020).

- Another Antiviral medication that has been recommended is Lopinavir/Ritonavir (LPVr)--is available in oral tablets and solutions. LPVr oral solution is more suitable for children with a body surface area less than $0.6m^2$ or those who are unable to swallow tablets. LPVr is not recommended in premature infants within 42 weeks and neonates within 14 days based on drug instructions in the USA while, In China, LPVr oral solution is suitable for children aged 6 months or older. Differences in age limitation maybe due to different excipients and the manufacture process used. The dosage regimen of LPVr was recommended as follows : LPVr tablets (200 mg/50 mg): 12 mg/3 mg/kg every time for the children with 7–15 kg body weight (BW); for those with BW of 15–40 kg, 10 mg/2.5 mg/kg every time; for those with BW of 40 kg or more, 400 mg/100 mg can be administrated twice a day for the duration of 1-2weeks. This medication is contraindicated in patients with severe hepatic insufficiency, children with jaundice or third-degree cardiac block.
- Ribaviran is also among the antivirals that were recommended. Different dosage forms and age restrictions of ribavirin can be seen in China and other countries. In China, ribavirin is available in injections, oral dosage forms (capsules, granules, tablets), aerosols, etc. Clinical trials for oral dosage forms have not been carried out in children under 6 years in China, so oral ribavirin is not recommended to be used in children younger than 6 years. Ribavirin is available in oral dosage forms in USA and European countries and inhalation in USA. In these countries, the oral dosage forms are only recommended to be used in children aged 3 years or older. Intravenous infusion of ribavirin injections at a dose of 10 mg/kg every time (maximum 500 mg every time), 2–3 times daily was recommended for children with COVID-19 (Wang and Zhu, 2020, Shen et al., 2020).
- As for Chloroquine, itis available in oral tablets and injections. Chloroquine tablets were recommended for oral administration in 18–65 years of infected adults at a dose of 0.5 g every time, twice daily , for 7 days. For Body weight ≤ 50 kg patients, Chloroquine dosage needs to be decreased to 0.5 g, once daily, during 3–7 days. There is no dosage recommendation of Chloroquine in COVID-19 children so far. Acute poisoning of Chloroquine is usually fatal with a dose of 50 mg/kg according to the instruction. Extreme caution should be followed while prescribing CD for children (Wang and Zhu, 2020, Shen et al., 2020).

Public health control measures

- Mathematical models: In the UK, if unmitigated, the outbreak will affect 16 to 30 million people and kill 250,000 to 450,000 people. However, the current interventions (physical and social distancing and protecting the most vulnerable) will significantly reduce this risk. The 1 to 12 weeks' long intervention for the SARS pandemic in the past doesn't match the rate of transmission and the period of infectiousness of SARS-CoV-2. Thus, *to curb the current outbreak, the current interventions should be in effect with intermittent lockdowns over a period of twelve months.* But this recommendation didn't consider the potential pharmacologic and vaccine interventions which may take place before the 12-month period ends (Davis, 2020).
- The second mathematical model was developed based on the data from Wuhan City, China. This model estimated the change in case burden among specific age groups (10 to 15 and 55 to 60 years of age) in response to different interventions. The standard school winter break and the extended lunar new year celebration prevented people from gathering. Nonetheless, these arrangements would have had a minor effect even though it was extended for few more weeks. Only prolonged school closure and work holidays for about a year could reduce the cumulative infection. These physical distancing strategies were seen to affect different age groups differently. More reduction in the number of infections was observed among the school children and older individuals. Working adults are to benefit the least from this intervention. The team suggested that keeping strict physical distancing measures till March could prevent 30% of cases in school children and the elderly. However, if the physical distancing measures are progressively lifted after one more month, substantial reduction in the number of cases could be observed (Prem, 2020).

Update on personal protective equipment

Face mask

- WHO's interim guidance, while maintaining the overall stance that currently, no evidence that wearing a mask (whether medical or other types) by healthy persons in the wider community setting, including universal community masking, can

prevent them from infection with respiratory viruses, including COVID-19, recognises that in some countries masks are worn in accordance with local customs or in accordance with advice by national authorities in the context of COVID-19. WHO recommends that in these situations, best practices should be followed about how to wear, remove, and dispose of them, and for hand hygiene after removal (WHO, 2020a).

- The interim guidance also advices a risk-based approach regarding the use of masks for healthy people in community settings. These considerations include: the purpose of mask use, risk of exposure to the COVID-19 virus in the local context, vulnerability of the person/population to develop severe disease or be at higher risk of death, e.g. people with comorbidities, setting in which the population lives in terms of population density, the ability to carry out physical distancing (e.g. on a crowded bus), and risk of rapid spread (e.g. closed settings, slums, camps/camp-like settings), and feasibility: availability and costs of the mask, and tolerability by individuals and type of mask medical mask versus nonmedical mask(WHO, 2020a).
    - it would be sensible for people who may have been exposed to the virus to wear face masks outdoors because of the risk of passing on the virus. She reportedly said it would be helpful if high-risk people – elderly, people with chronic conditions – wear a face mask if they can't avoid crowed areas, because these people have the highest risk of severe outcomes such as ICU/death if infected(Sample, 2020).
- There is suggestion that the recommendation of face masks may be the result of pressure on governments to be seen to be doing something (Sample, 2020) although not a common stance.
- European CDC released a technical report on 8th April on using face masks in the community (ECDC, 2020):
    - The use of medical face masks by healthcare workers must be given priority over the use in the community.
    - The use of face masks in public may serve as a means of source control to reduce the spread of the infection in the community by minimising the excretion of respiratory droplets from infected individuals who have not yet developed symptoms or who remain asymptomatic.
    - The use of face masks in the community could be considered, especially when visiting busy, closed spaces, such as grocery stores, shopping centres, or when using public transport, etc.

- The use of non-medical face masks made of various textiles could be considered, especially if – due to supply problems. This is based on limited indirect evidence supporting the use of non-medical face masks as a means of source control.
- The use of face masks in the community should be considered only as a complementary measure and not as a replacement for established preventive measures, for example physical distancing, respiratory etiquette, meticulous hand hygiene and avoiding touching the face, nose, eyes and mouth.
- Appropriate use of face masks is key for the effectiveness of the measure and can be improved through education campaigns.
- Recommendations on the use of face masks in the community should carefully take into account evidence gaps, the supply situation, and potential negative side effects.
- A rapid systematic review was published in preprint. Evidence based on RCTs suggested that wearing a facemask may very slightly reduce the odds of primary infection with influenza like illness by around 6% (low-certainty evidence). Observational studies suggested greater effectiveness. In households where infected people were grouped with uninfected people, if both house-mates and the infected household member wore facemasks the odds of further household members becoming ill were reduced by around 19% (low certainty evidence). Where only the uninfected people wore facemasks the effect was very small (reducing the odds of infection by 7%, low certainty evidence). The evidence is similar where only the infected household members wore facemasks (reducing the odds of infection by 5%, very low certainty evidence). The authors noted they expect that RCT evidence under-estimated efficacy due to controls wearing facemasks when they shouldn't and poor compliance. The authors concluded that the balance of evidence does not support routine and widespread use of facemasks in the community. However, using a mask for short periods of time by particularly vulnerable individuals during transient exposure events may be justified (Brainard et al., 2020).

Psychosocial wellbeing of health professionals during COVID 19 outbreak

- Fear of spreading the virus to their families is one of the main causes of stress for health workers (Chen Q et al.). A study exploring the psychological wellbeing of health workers' families indicated that families are experiencing anxiety and depressive symptoms (Ying Y, et al., 2020).
- Online health service, including e-mental health may reach the population with access to internet. The Economist reported that millions of Chinese used online health service using their smart phone app. The Chinese hospitals were providing this health service in collaboration with telecom companies. They reported consulting 2 million clients per month. (https://www.economist.com/business/2020/03/05/millions-of-chinese-cooped-up-and-anxious-turn-to-online-doctors). Apart from providing mental health care, this platform are being used for screening, triage and follow up of patients. (https://www.psychiatrictimes.com/coronavirus/expanding-telemental-health-response-covid-19-pandemic

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