29th APRIL 2020

(From April 28-29)

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

THE KNOWLEDGE SYNTHESIS TEAM

CDT-AFRICA, ADDIS ABABA UNIVERSITY

www.cdt-africa.org

Summary

- Globally, as of April 29, 11:00 GMT, more than 3 million (3,151,558) people are now infected with the novel corona virus causing 218,473 deaths. Approximately about 1 million (964,312) people have recovered from this infection.
- The number of new cases and deaths has increased in the past 2 days, particularly the past 24 hours. This increase following a decrease in the previous days is part of the regular fluctuation observed in the past few weeks.
- In Africa, 34,915 cases, 1,521 deaths, and 11,309 recoveries were reported as of April 29 3:00 PM EAT
- Antibody tests in the US reportedly suggest that coronavirus infections are much higher than the confirmed COVID-19 cases because of asymptomatic people carrying the virus.
- Lower fatality numbers were seen in economically poor patients taking famotidine for heartburn associated with the COVID-19 infection. This has made the drug to be on the list of existing drugs that might fight coronavirus.
- Rice cooker-steamer, dual-mode laser fabrication and sunlight sterilization methods are suggested for decontaminating face masks in order to make it re-usable.
- There is some concern that surgical masks may be associated with higher number of infections compared with N95 masks.
- In countries where public use of mask/face cover is required, Incorrect use of face masks is prevalent. Public education is recommended.

Recommendations

- As suggested previously, pattern of new cases and deaths does not allow change in the implementation of public control measures
- Given the high prevalence of incorrect use of masks, public education appears to be important
- Local production of N95 or P2 masks should be encouraged

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

Global

- Currently, the pandemic affected 210 countries in the world and more than 3 million (3,151,558) people are infected with the virus causing 218,473 deaths as of April 29, 11:00 GMT.
- The percentage of recoveries reported on April 29th is marginally increased slightly, from 81% to 82%.
- According to Worldometer daily update, a total of 76,562 new cases were reported in the last 24 hours, which is slightly higher than the report of the previous day (66,654 new cases). The number of new deaths (6,365) has also increased as compared to the previous 2 days--April 27th (3,750 deaths) and April 28th (4,532 deaths).
- United States of America (USA) remained the leading country (n=,035,765) accounting for nearly a third of cases globally.
- New York remains the most affected state with 301,765 cases and 23,144 deaths followed by New Jersey (113,856 cases, 6442 deaths) and Massachusetts (58,302 cases, 3153 deaths).
- The number of new cases in Germany is declining persistently and as a result the country ranked 6th after the United Kingdom. Therefore, the USA, Spain (232,128), Italy (201,505), France (165,911) and United Kingdom (161,145) are the five most affected countries in the world.
- Almost 60,000 (59,266) people have died with coronavirus in the USA, which is the highest number of deaths reported followed by Italy (27,359), Spain (23,822), France (23,660) and United Kingdom (21,678), which in total accounted for (71.3%) of total deaths worldwide.

Africa

- As of April 29, 3:00 PM EAT, a total number of 34,915 confirmed cases, 1,521 deaths, and 11,309 recoveries were reported from Africa.
- The five countries in Africa with the highest cumulative number of cases (proportion of reported cases in Africa) are Egypt [5,042 (14.4%)], South Africa [4,996 (14.3%)], Morocco [4,289 (12.3%)], Algeria [3,649 (10.6%)], and Cameroon [1,806 (5.2%)]. Note that South Africa is no longer the leading country.

- Consistently, Algeria has the highest number of deaths (437) followed by Egypt (359), Morocco (167) and South Africa (93).

Ethiopia

- According to the Ministry of Health report, additional 1,846 laboratory tests were performed in the last 48 hours and six of them confirmed to be positive for COVID-19.
- Out of the additional six cases, four of them are Ethiopians and the other two are British.
- Half of these cases are females and their age ranges from 15 to 50 years. Except one case, all of the additional cases have travel history and three of them came from Punt land while the rest came from United Kingdom.
- Three of the additional cases were reported from Jigjiga, two from Addis Ababa and one from Guba koricha woreda, Oromia region.
- Additional eight people (four from Addis Ababa) recovered from the disease raising the total number of recoveries to 58. Therefore, currently there are 130 confirmed cases, 3 deaths and 58 recoveries as of April 29, 3:00 PM EAT.
- The ministry also stated that all of the active cases (67) are having mild form of the disease and they are receiving medical care in the designated treatment centre.

Update on Diagnosis

- According to FIND diagnostics, as of 29th April 2020 [2:45pm, EAT], there are 251 molecular assay tests commercialized and 44 tests under development for COVID-19
- There are also 252 immunoassay tests commercialized and 45 tests under development (FIND, 2020).
- Data from antibody tests in the US reportedly suggests that coronavirus infections are much higher than the confirmed COVID-19 cases, potentially by a factor of 10 or more (Achenbach, 2020).

Update on Treatment

- On 7 April, the first COVID-19 patients at Northwell Health in the New York City area began to receive famotidine (an antacid and antihistamine)

intravenously, at nine times the 'heartburn' dose. The randomized, double-blind trial, has enrolled 187 participants to date, but expects to expand to a total of 1174 individuals in critical status, including many on ventilators.

- The prospective use of famotidine for severe symptoms of COVID-19 stemmed from observations in Wuhan that showed an unexpected pattern: many elderly survivors of COVID-19 tended to be poor. Investigators examined 6212 COVID-19 patient records and found that those patients had a common secondary condition–heartburn. Economically disadvantaged survivors had been taking the less expensive famotidine rather than omeprazole (Prilosec). Hospitalized patients on famotidine were dying at a 14% rate compared with 27% for those not on the drug. Although the results were not statistically significant, it caught the interest of scientists in the United States. in addition to the observation in Chinese patients, Florida-based Alchem Laboratories used a computer model to make a list of existing drugs that might fight coronavirus, and famotidine showed up near the top of the list. The possible explanation could be because, theoretically, the structure of famotidine is such that it could stop the virus from replicating, in the same way that protease inhibitors, which are used to treat HIV, stop that virus (Science Magazine, 2020, CNN, 2020).
- An NIHR-supported trial will start to investigate whether convalescent plasma transfusions improve the speed of recovery and chances of survival for patients with COVID-19. The REMAP-CAP trial is already underway in more than 50 hospitals across the UK and is part of a suite of nationally-prioritised studies funded by NIHR and UK Research and Innovation (UKRI). It is fully adaptive, meaning that new treatments can be added as we learn more, the sample size isn't fixed and it keeps recruiting until it finds that a treatment is better, worse, or the same as another. It also "learns" from that data so that patients are more likely to receive those interventions that are performing best." NHS Blood and Transplant has already started collecting and freezing donations from recovered COVID-19 patients for use in trials (NIHR, 2020).

Update on personal protective equipment

Face mask use

- A study conducted in Hong Kong found that out of the 10,211 pedestrians observed, 94.8% wore masks of which 83.7% wore disposable surgical masks. However, 13.0% wore them incorrectly; with 35.5% worn 'inside-out' or 'upside-down'; and 42.5% worn too low, exposing the nostrils or mouth. It was noted that many individuals who did not wear masks were smoking, eating, or covering their mouth and nose with tissues or hands. This is a dangerous practice which risks transmission from contaminated fomites. The authors also stated there is an ongoing online survey exploring local citizens' views on wearing face masks. It was reported that among the participants (n=2,859), 94.1% believed mass masking reduces the chance of infection and community outbreak and 76.3% of respondents reused their masks. It was indicated that there is a need for public education on measures to prevent self-contamination; and on the method of mask usage in order not to waste resources (Victor et al., 2020).
- Experts are continuing to find ways to make face masks reusable. One study has suggested steam treatment using a rice cooker-steamer is effective for decontamination of face masks, N95 respirators and cloth masks (Li et al., 2020). Another study reported a dual-mode laser fabrication method for additively depositing few-layer graphene, a superhydrophobic coating single layer graphite, on temperature sensitive surgical masks. It was indicated that the surface temperature of the functional mask can quickly increase to over 80 °C under sunlight illumination, making the masks reusable after sunlight sterilization(Zhong et al., 2020).
- Germany has made wearing face masks on public transport, long-distance trains and in shops mandatory. The so-called Maskenpflicht (mask duty) was introduced in 15 of the country's 16 states on 27th April. It was reported those who don't comply will be fined from €25 to €10,000, with rates differing widely across the country, and some states, such as Berlin and Brandenburg, insisting they would not levy fines at all, but would rely

instead on people showing each other mutual respect by wearing them(Connolly, 2020).

- An article on The Guardian, reported health care workers in the US are put at risk since authorities said wearing surgical masks is sufficient when treating COVID-19 patients. There is reportedly a growing evidence suggesting the practice is putting workers in danger. There have been reports that health care workers account for about 11% of COVID-19 infections (Jewett and Szabo, 2020). Experts are saying one of the reasons for this high number of infections in health care workers is due to the use of surgical mask instead of N95. It was noted that surgical masks were suggested since initially scientists thought the virus was spread by large droplets and a study which found SARS-CoV-2 can stay in the air as long as 16 hours in the form of minuscule viral particles(Luthra and Jewett, 2020). In this study (pre-print), the dynamic short-term aerosol efficiencies of SARS-CoV, SARS-CoV-2 and MERSCoV were analyzed using nebulizers and the SARS-CoV-2 aerosol suspension experiments suggest that SARS-CoV-2 is persistent over longer periods of time than would be expected when generated as a highly respirable particle (2 μm MMAD). The authors noted that aerosol transmission of SARS-CoV-2, whether through direct respiratory droplet transfer or fomite generation, may in fact be a more important exposure transmission pathway than previously considered (Fears et al., 2020).

Reference list

- ACHENBACH, J. 2020. Antibody tests support what's been obvious: Covid-19 is much more lethal than the flu. The Washington Post, 28 April 2020.
- African Union; COVID -19 updates. https://au.int/en/covid19
- Center of Disease Control and Prevention Africa https://africacdc.org/covid-19-update/
- CNN. 2020. New York hospitals are studying a common heartburn drug as treatment for Covid-19 [Online]. Available:

https://edition.cnn.com/2020/04/27/health/famotidine-coronavirus-northwell-trial/index.html [Accessed 28 April 2020].

- CONNOLLY, K. 2020. Germans could be fined up to €10,000 as face mask rules brought in. The Guardian, 27 April 2020.
- Ethiopian Public Health Institute CoronaVirus Update; https://www.ephi.gov.et/index.php/public-health-emergency/novel-corona-virus-update
- FEARS, A. C., KLIMSTRA, W. B., DUPREX, P., HARTMAN, A., WEAVER, S. C., PLANTE, K. S., MIRCHANDANI, D., PLANTE, J., AGUILAR, P. V., FERNANDEZ, D., NALCA, A., TOTURA, A., DYER, D., KEARNEY, B., LACKEMEYER, M., BOHANNON, J. K., JOHNSON, R., GARRY, R. F., REED, D. S. & ROY, C. J. 2020. Comparative dynamic aerosol efficiencies of three emergent coronaviruses and the unusual persistence of SARS-CoV-2 in aerosol suspensions. Preprints.
- FIND. 2020. SARS-COV-2 DIAGNOSTIC PIPELINE [Online]. Available: https://www.finddx.org/covid-19/pipeline/ [Accessed 29 April 2020].
- JEWETT, C. & SZABO, L. 2020. True Toll Of COVID-19 On U.S. Health Care Workers Unknown [Online]. Available: https://khn.org/news/true-toll-of-covid-19-on-u-s-health-care-workers-unknown/ [Accessed 29 April 2020].
- Johns Hopkins, Corona Virus Resources https://coronavirus.jhu.edu/map.html
- LI, D. F., CADNUM, J. L., REDMOND, S. N., JONES, L. D. & DONSKEY, C. J. 2020. It's Not the Heat, It's the Humidity: Effectiveness of a Rice Cooker-Steamer for Decontamination of Cloth and Surgical Face Masks and N95 Respirators. Am J Infect Control.
- LUTHRA, S. & JEWETT, C. 2020. Coronavirus mask guidance is endangering US health workers, experts say. The Guardian, 28 April 2020.
- NIHR. 2020. Plasma transfusions to be tested in NIHR COVID-19 trial [Online]. Available: https://www.nihr.ac.uk/news/plasma-transfusions-to-be-tested-in-NIHR-COVID-19-trial/24669 [Accessed 28 April 2020].
- SCIENCE MAGAZINE. 2020. New York clinical trial quietly tests heartburn remedy against coronavirus [Online]. Available: https://www.sciencemag.org/news/2020/04/new-york-clinical-trial-quietly-tests-heartburn-remedy-against-coronavirus# [Accessed 28 April 2020].
- VICTOR, C. W. T., SHING, Y. T., WAI, K. P., HELEN, K. W. L. & SHARA, W. Y. L. 2020. A reality check on the use of face masks during the COVID-19 outbreak in Hong Kong. EClinicalMedicine, 100356.

- Worldometer, Corona Virus https://www.worldometers.info/coronavirus/
- ZHONG, H., ZHU, Z., LIN, J., CHEUNG, C. F., LU, V. L., YAN, F., CHAN, C. Y. & LI, G. 2020. Reusable and Recyclable Graphene Masks with Outstanding Superhydrophobic and Photothermal Performances. ACS Nano.