



**Update: July 30 - August 3, 2020**

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

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## Summary

- As of August 3, 2020, 13:00 GMT, a total of 18,272,018 cases, 693,587 deaths and 11,469,863 recoveries were reported.
- In the African continent, a total of 957,035 cases, 20,288 deaths and 611,957 recoveries were reported as of August 3rd, 4:00 PM EAT.
- A prospective study has reported that, compared with the general community, front-line health-care workers had at least a threefold increased risk of COVID-19.
- Concerns have been raised that child malnutrition has shown unexpected increase due to socio-economic impact of COVID-19. Safeguarding and promoting access to nutritious, safe, and affordable diets is urged.
- For an uncommon, but potentially fatal complication of strongyloides hyperinfection related to the use of dexamethasone (corticosteroid) among at risk patients, the use of ivermectin prophylaxis has been recommended.
- Russia's health minister is preparing for a mass vaccination (an adenovirus-based) campaign against the novel coronavirus for October, according to local news agencies. Concerns have been raised that the vaccine might not have undergone adequate testing.
- The Kerala (India) health system has been credited for the low rates of COVID-19 in the state. Given the similarity of some of the health service structures, for example, the HEW programme, lessons may be drawn from the Kerala experience.

## Recommendations

- The Kerala example needs to be studied and adapted for use in LMICs as part of the measure to control the COVID-19 pandemic.
- While the developments in vaccines against COVID-19 are encouraging, utmost vigilance and caution is warranted—so far, there appears to be a high degree of competition between institutions and countries to be the first. Any missteps in implementation of vaccines could have a far reaching impact in the use of vaccines for disease control.

## Update on pathogenesis

- A large-scale prospective study was conducted in the USA and UK with the aim of assessing the risk of COVID-19 among front-line health-care workers compared with the general community. A self-reported data from the COVID Symptom Study smartphone application from March 24 to April 23, 2020 were used. The study included 5,545 incident reports of a positive COVID-19 test over 34,435,272 person-days and the main findings are summarized as follow;
  - Compared with the general community, front-line health-care workers had at least a threefold increased risk of COVID-19 (AHR 3.40, 95% CI 3.37–3.43).
  - Those health-care workers who reported inadequate personal protective equipment (PPE) had an increased risk of COVID-19 (AHR 1.31, 95% CI 1.10–1.56).
  - Black, Asian, and minority ethnic health-care workers were disproportionately affected than Non-Hispanic white health care workers (AHR 4.88, 95% CI 4.76–5.01) [Nguyen, 2020].
- The COVID-19 pandemic is undermining nutrition across the world and there is a particular concern of an expected increase in child malnutrition due to steep declines in household incomes, changes in the availability and affordability of nutritious foods, and interruptions to health, nutrition, and social protection services. Malnutrition could exacerbate the effects of COVID-19 in mothers and children. At the same time, more children are becoming malnourished due to the socioeconomic shocks created by the pandemic particularly in LMICs [Headey, 2020]. Therefore, it's indicated that immediate action and investments are required from governments, donors, the private sector, and the UN in order to protect children's right to nutrition in the COVID-19 pandemic. The five urgent actions include;
  - Safeguard and promote access to nutritious, safe, and affordable diets
  - Invest in improving maternal and child nutrition through pregnancy, infancy, and early childhood
  - Re-activate and scale up services for the early detection and treatment of child wasting
  - Maintain the provision of nutritious and safe school meals for vulnerable children
  - Expand social protection to safeguard access to nutritious diets and essential services [Henrietta 2020].

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

### *Global*

- As of August 3, 2020, 13:00 GMT, a total of 18,272,018 cases, 693,587 deaths and 11,469,863 recoveries were reported based.
- United States of America (USA) is the leading country with a total of 4,814,440 cases and 158,375 deaths followed by Brazil (2,733,677 cases & 94,130 deaths), India (1,812,770 cases & 38,249 deaths), Russia (856,264 cases & 14,207 deaths) and South Africa (511,485 cases & 8,366 deaths).

### *Africa*

- According to Africa CDC, a total of 957,035 cases, 20,288 deaths and 611,957 recoveries were reported in the continent as of August 3rd, 4:00 PM EAT.
- Next to South Africa, Egypt (94,483 cases), Nigeria (43,841 cases), Ghana (37,812 cases) and Algeria (31,465 cases) are other African countries with high number of COVID-19 cases.

### *Ethiopia*

- In Ethiopia, a total of 41,468 laboratory tests were carried out in the last five days and 3,506 additional cases were identified in the country.
- The ministry reported that 1,078 people are fully recovered from the disease, while 73 people passed away in the last five days raising the total number of deaths in the country to 310.
- Therefore, a total 437,319 laboratory tests were conducted and 18,706 confirmed cases, 310 deaths and 7,601 recoveries were reported as of August 2nd, 2020.

## Update on Diagnosis

- Because the lack of testing kits has become a major bottleneck in testing in low- and middle-income countries, experts are looking for ways to use the available tests efficiently and one proposed novel method is pooling of samples. A study was conducted evaluating this novel protocol of pooling of RNA samples/elutes in performance of PCR for SARS CoV-2 virus. In this study RNA samples that were obtained after extraction were initially randomly pooled into pools of 2, 4, 6, 8, 16 RNA elutes on a 96 well plate. The individual test and pool test were performed simultaneously and the results matched 100% in pools

of 2, 4, 6 and 8 samples. In pool of 16 concordance between individual and pool results was not seen, hence the authors noted it was decided to continue with the pooling of 8 RNA elutes. RNA elutes were randomly pooled into pools of 8 RNA elutes on a 96 well plate as well as individual test prospectively. The volume of RNA sample was kept similar in both the individual as well as pooled PCR so that assay sensitivity is not affected. It was also indicated individual PCR and pooled PCR was performed in the same run, keeping the entire conditions uniform. Overall, 35 pools were studied. Overall sensitivity of the pool test keeping individual test as gold standard was 95.4%, specificity 100%, positive predictive value 100% and negative predictive value of 92.86%. When pools were further classified based on the number of positive samples present in them, results showed 21 out of 22 (95.4%) pools could correctly identify the positive test. In 1 pool which had 1 positive and 7 negative sample, the individual test result showed delayed Ct at 39, therefore it was missed in pool testing. Overall, the mean CT value of individual was 32.68 while in pooled testing it was 34.24. It was also noted that dilution did not alter the Ct value of the positive result and a positive test will be reported as positive despite pooling and that as the number of positive samples in a pool increased the difference in the mean Ct value decreased. Also more than 1 positive samples in a pool did not affect the final result in pool testing, rather more the number of positive sample in a pool more accurate would be the results (Gupta et al., 2020).

- On a similar note, experts from Africa also suggest, reported in a viewpoint, the use of sample pooling for rRT-PCR testing particularly in Africa, to screen for active COVID-19 cases has a great advantage over single test rRT-PCR, as it helps lower diagnostic costs, personnel time, and burnout and also reduces analytical run times (Nyazika et al., 2020).

### Update on treatment

- Amid the coronavirus disease 2019 (COVID-19) pandemic, substantial effort is being directed toward mining databases and publishing case series and reports that may provide insights into the epidemiology and clinical management of COVID-19. However, there is growing concern about whether attempts to infer causation about the benefits and risks of potential therapeutics from nonrandomized studies are providing insights that improve clinical knowledge and accelerate the search for needed answers, or whether these reports just add noise, confusion, and false confidence. Most of these studies include a caution indicating that "randomized clinical trials are needed." However it is worth questioning

whether this approach help make the case for well-designed randomized clinical trials (RCTs) and accelerate their delivery or do observational studies reduce the likelihood of a properly designed trial being performed, thereby delaying the discovery of reliable truth(Califf, Hernandez et al. 2020).

- Observational studies, if well done, have the potential for sifting potential treatments and measuring outcomes and safety signals, qualified investigators and funding agencies can choose the most promising therapies for testing in rigorous RCTs. Sample sizes and expected event rates can be calculated, and communities and health care systems with relevant patient populations identified. The risks, however, are also clear: aggregating information about diagnosis, comorbidities, treatment, and outcomes can lend a covering of technical excellence that obscures the influence of systematic bias (patients who receive a given treatment are not the same as those who do not), leading to erroneous estimates of treatment effects. These risks are often unclear to the public when observational findings are widely disseminated by the lay media. Furthermore, profit motives in the medical products industry, academic hubris, and interests related to increasing the valuation of data platforms, and revenue generated by billing for these products in care delivery can all tempt investigators to make claims their methods cannot fully support, and these claims often are taken up by traditional media and further amplified on social media (Califf, Hernandez et al. 2020).
- Therefore, it is recommended that robust ongoing evaluation would be applied to the use of treatments and clinical outcomes. Continuing quality improvement in electronic health record and claims data; development of multiple registries to evaluate technologies, medical procedures, and quality of care; and ongoing methodological refinements all contribute to making a system of continuous learning feasible. In some situations, observational findings about treatment effects associated with specific interventions merit adoption in practice, but in most cases this learning system should identify promising treatments and approaches for designing proper large-scale trials or should supplement RCT findings by modelling effects seen in RCTs in broader populations. Rather than promoting inconclusive observational findings in medical journals and the press, a source could be created to register results in a manner less suitable to inappropriately influence practice. In addition, it seems prudent to place a pause on reporting observational studies that could mislead the public (Califf, Hernandez et al. 2020).
- The use of dexamethasone for management of COVID-19 has already increased, particularly given the recent result from the recovery trial and National Institutes of Health

COVID-19 Treatment Panel guidelines that recommend its use. Although clinicians are familiar with the most common adverse effects associated with dexamethasone, a corticosteroid, they may be less familiar with a potentially severe, but preventable, less common complication: Strongyloides hyperinfection or dissemination syndrome (hyperinfection). Strongyloidiasis is caused by a nematode (roundworm) infection, with most human disease associated with *Strongyloides stercoralis*. Strongyloides infection is predominantly acquired through contact with soil contaminated with free-living larvae, which penetrate the skin and migrate to the intestine. Although a majority of individuals with strongyloidiasis are asymptomatic, a severe disease manifestation is hyperinfection syndrome. This frequently fatal iatrogenic complication is usually associated with use of an immunosuppressive drug in persons with unrecognized chronic infection. The most common precipitator is use of a corticosteroid agent, which appears to be independent of dose or duration of treatment. The current recommended dexamethasone dose from the COVID-19 Treatment Panel is 6 mg/d ( $\approx$ 40 mg of prednisone) for 10 days. A study that reviewed 133 individuals with Strongyloides hyperinfection found that hyperinfection was associated with corticosteroid administration in 83% of cases, with an average dose of 40 mg per day of prednisone. In addition, cases have occurred within 5 days of administration of the first dose of corticosteroids, following doses as low as 20 mg of prednisone and following a single dose of dexamethasone, leading experts to assert that the occurrence is independent of dose, duration, or route of administration. Based on the available data, it is likely that the benefit of dexamethasone outweighs the risk of possible Strongyloides hyperinfection, an uncommon complication. However, due to the high mortality associated with this syndrome and the availability of inexpensive and effective therapy, ivermectin could be used as a preventive strategy for at-risk patients (Stauffer, Alpern et al. 2020).

- Russia's health minister is preparing a mass vaccination campaign against the novel coronavirus for October, local news agencies reported on Saturday, after a vaccine completed clinical trials. Health Minister Mikhail Murashko said the Gamaleya Institute, a state research facility in Moscow, had completed clinical trials of the vaccine and paperwork is being prepared to register it. According to the news, doctors and teachers would be the first to be vaccinated and plan wider vaccinations for October. Russia's first potential COVID-19 vaccine would secure local regulatory approval in August and be administered to health workers soon thereafter. The Gamaleya Institute has been working on an adenovirus-based vaccine. Yet the speed at which Russia is moving to roll it out has prompted some Western media to question whether Moscow is putting national

prestige before science and safety (Reuters 2020). Others have expressed concern about the rush to produce vaccines in the US through operation “wrap speed”— “Good science requires rigor, discipline, and deliberate caution. Any medical therapy approved for public use in the absence of extensive safeguards has the potential to cause harm, not only for COVID-19 prevention efforts and vaccine recipients, but also for public trust in vaccination efforts worldwide.” (JAMA viewpoint).

### Update on public health control measures

- Kerala is a state in India where the COVID-19 outbreak first started in India. However, due to the intensive trace, quarantine, test, isolate and treat measures taken by the state, the basic reproductive number was kept less than one.
- The state has a decentralized health system similar to Ethiopia, with due attention to primary health care services rendered by 230 community and 845 primary health centers. There are 5320 female junior public health nurses, 4720 junior health inspectors (2 for 5000 people), and thousands of volunteers auxiliary to the formal health system.
- The significantly lower rate of SARS-CoV-2 transmission was attributed mainly to community mobilization using the primary health care service structure. Volunteers were heavily involved in screening passengers, addressing the needs of households which are under quarantine, providing medications and care for the elderly. High risk population groups (the elderly and people with co-morbidities) were identified beforehand and volunteers discussed with them and the household members on their unique risk. Subsequent visits were also made to these households, and this helped minimise the transmission of the virus from low to high risk population groups.
- Community health workers played a lead role in the initial counselling, and regular support to those under quarantine. Assessing whether the house has sufficient facilities for home quarantine (i.e. having a toilet attached to the room and if there are high risk household members) was done by community health workers and volunteers.
- Non-COVID-19 related health care also resumed by putting aside 27 health care facilities only for COVID-19 patients, but patients with other conditions were treated in the remaining facilities. Tele-medicine was also employed to provide care for patients who do not need physical presence to get care. After the examination medications, specially for chronic conditions, were delivered at their doorsteps by volunteers.



- The health system in Ethiopia resembles Kerala's in different ways but mainly by its attention to primary health care services. Ethiopia's struggle against the pandemic can similarly benefit from engaging community health workers and volunteers in the fight against the pandemic. Urban health extension workers and volunteers could do more than syndrome-based screening. With the right coordination, they can attend to the needs of clusters of communities under quarantine; they can identify, educate, and monitor high risk groups, and they can bridge the community and the health system. Their role has a unique significance due to the possible future shift from central to home quarantine. The rural health extension program and the health development army structure is also instrumental in integrating the control efforts with community health care services.

## Update on personal protective equipment

### *Face mask use*

- One systematic review indicated N95 mask reprocessing using either moist heating (65–80°C at 50–85% relative humidity for 20–30 min) or vaporous hydrogen peroxide treatment provide consistent viral decontamination without compromising mask seal and filtration efficiency. Hence, the authors concluded these two methods are recommended to ensure healthcare worker safety (Steinberg et al., 2020).

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