



Update: 4 & 5 June, 2020

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

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Summary

- The number of people infected with corona virus has reached more than 6.7 million (6,726,986) and 393,616 people have died as of June 05, 11:00 GMT. 129,998 of additional cases were reported within 24 hours.
- As of June 5th, 3:00 PM EAT, Africa reported a total of 163,599 cases, 4,611 deaths and 70,894 recoveries.
- Cardiac complications and GI symptoms were seen in a prospective cohort study conducted among 21 children and adolescents (aged ≤ 18 years) with features of Kawasaki disease, especially in African ancestry children.
- A case series added evidence regarding cause of mortality specially among old patients being cardiorespiratory failure, intracranial haemorrhage or pulmonary embolism and COVID-19-associated coagulopathy.
- A relatively small trial published in the NEJM did not find significant benefit from post-exposure hydroxychloroquine treatment. Participants were people with moderate- or high-risk exposure to COVID-19. More side effects were also reported.
- Expression of Concern to alert readers to the fact that serious scientific questions are raised on a major observational study on Hydroxychloroquine published on 22nd May 2020 on the Lancet journal.
- WHO Solidarity Trial endorsed the **continuation of all arms of the Solidarity Trial including hydroxychloroquine** after reviewing available mortality data, on June 3rd.
- No significant difference was seen in the time to clinical improvement on a trial of convalescent plasma transfusion therapy.
- Dry heat pasteurization to decontaminate surgical and N95 masks is reported to be effective and suitable for re-using of face masks.

Recommendations

- The pandemic continues to rise unabated while the search for effective treatments is also continuing with contradictory, doubtful and sometimes confusing results. **Public control measure remains the most important approach to address the covid-19 pandemic.** While resuming essential economic activities, the fatigue around implementing control measures need to be addressed.

- The use of CT as a first-line diagnostic or screening tool in COVID-19 is not recommended
- Considering the findings, albeit small scale, that Kawasaki-like multisystem inflammatory syndrome temporally associated with SARS-CoV-2 infection affected predominantly children of African ancestry, primary care or emergency doctors in Africa need to be vigilant for such type of complications.

Update on pathogenesis

- Several studies reported that children and adolescents have mild form of COVID-19 despite having other comorbidities or immuno-compromised status. A prospective cohort study conducted among 21 children and adolescents (aged ≤ 18 years) with features of Kawasaki disease who were admitted to pediatric department of a university hospital in Paris, France revealed that;
 - More than half 12 (57%) of the children presented with Kawasaki disease shock syndrome and 16 (76%) with myocarditis especially in children of African ancestry.
 - Majority [17 (81%)] of them required intensive care support suggesting that Kawasaki-like multisystem inflammatory syndrome temporally associated with SARS-CoV-2 infection has characteristics that differ from those of classic Kawasaki disease.
 - All 21 patients had noticeable gastrointestinal symptoms during the early stage of illness and high levels of inflammatory markers.
- Therefore, the finding of the study suggests that primary care or emergency doctors must be vigilant for such type of complications particularly in those countries with high proportion of children of African ancestry and high levels of community transmission [Toubiana, J., 2020].
- Concerning cause of mortality among COVID-19 cases, pulmonary and heart failure are considered the primary causes of COVID-19-associated death particularly among old patients. A recent case series revealed possible causes of deaths among these groups after examining autopsies of six patients (four men and two women, aged 58–82 years) who died from COVID-19 in Germany. The study reported that;
 - The cause of death in the older patients (>65 years), was cardiorespiratory failure and all patients younger than 65 years died either of massive intracranial

hemorrhage or pulmonary embolism, consistent with COVID-19-associated coagulopathy.

- In addition to viral pneumonia, a pronounced Central Nervous System (CNS) involvement with pan-encephalitis, meningitis, and brainstem neuronal cell damage were key events in all examined autopsies.
- Especially in patients younger than 65 years, CNS hemorrhage was a fatal complication of COVID-19 [Von Weyhern, 2020].

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

Global

- Globally, more than 6.7 million (6,726,986) people are infected with the novel corona virus and 393,616 people have died as of June 05, 11:00 GMT.
- Almost 130,000 (129,998) additional cases were reported within 24 hours which is significantly higher than June 3rd report (121,414 new cases). Similarly, the number of new deaths is slightly increased from 4,928 on June 3rd to 5,541 on June 4th.
- Persistently, the highest number of cases (1,924,189) and deaths (110,179) were reported from United States of America (USA) which accounted for 28.6% of total cases and 28.0% of total deaths in the world.
- One fifth 383,899 (20.0 %) of total cases in USA were reported from New York state and more than 30,000 people have died which accounted for 27.5% of deaths occurred in the country. New Jersey and Illinois are the second and third most affected states with a total of 164,519 & 124,759 cases respectively.
- Brazil (615,870 cases & 34,039 deaths), Russia (449,834 cases & 5,528 deaths), Spain (287,740 & 27,133 deaths) and United Kingdom (281,661 cases & 39,904 deaths) are other countries with high number of cases and deaths in the world.

Africa

- According to Africa CDC, a total of 163,599 cases, 4,611 deaths and 70,894 recoveries were reported in Africa as of June 5th, 3:00 PM EAT.
- The number of cases in South Africa exceeded 40,000 (40,792 cases), which accounted for one fourth (24.9%) of total cases reported in the continent. Based on Wordometer report, the number of new cases in the country is persistently increasing and especially yesterday (June 4th), a total of 3,267 new cases were reported which is almost twice the previous day's report (1,714 new cases).
- Approximately 30,000 (29,767) people in Egypt are infected with corona virus causing 1,126 deaths as of June 5th, 3:00 PM EAT.

- Nigeria (11,516 cases), Algeria (9,831 cases), Ghana (8,885 cases), Morocco (8,030 cases) and Cameroon (7,392 cases) are other African countries with high number of corona cases.
- Majority [3,724 (80.7%)] of total deaths in the continent were reported from few countries, namely; Egypt (1,126), South Africa (848), Algeria (681), Sudan (333), Nigeria (323), Morocco (208) and Cameroon (205).

Ethiopia

- According to the Ministry of Health report, a total of 10,939 laboratory tests were carried out with in 48 hrs and 319 additional COVID-19 cases were identified in the country.
- Three hundred fifteen (315) of the additional cases are Ethiopians while four of them are citizen of United States. The age of these cases ranges from 1 to 78 years and almost two third 205 (64.3%) of them are males.
- Majority 261 (81.8%) of these cases were reported from Addis Ababa, 19 from Amhara, 13 from Oromia, 11 from Somali, 7 from SNNPR, 6 from Tigray, 1 from Hareri, and 1 from Afar region.
- The ministry also reported that additional 16 people (4 from Addis Ababa, 10 from Amhara and 2 from Benshangul Gumuz region) are fully recovered from the disease raising the total number of recoveries to 262.
- In addition, a 35 years old female and 30 years male have passed away in the last two days raising the total number of deaths in the country to 19.
- So far, 131,368 laboratory tests were conducted and 1,805 confirmed cases, 19 deaths and 262 recoveries were reported as of June 5th, 4:00 PM EAT.
- Out of the total 1,522 active cases, 18 of them are in critical condition and receiving treatment in the intensive care unit, while the others are having mild form of the disease.
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Update on Diagnosis

- A systematic review and meta-analysis of chest CT imaging indicated CT findings were not pathognomonic because it lacked specificity in differentiating imaging appearances caused by different types of pneumonia. In addition, there was a relatively high percentage of normal CT scans. The review indicated the use of CT as a first-line diagnostic or screening tool in COVID-19 is not recommended (Sun et al., 2020).
- In one study the performance of three alternative simple and affordable protocols to rapidly detect SARS-CoV-2 was tested, bypassing the long and tedious RNA extraction step and reducing the time to viral detection. The methods evaluated were based on direct nasopharyngeal swab viral transmission medium heating before the RT-qPCR: direct without additives; in a formamide-EDTA buffer and in a RNAsnap™ buffer. The findings showed there

was a delay in cycle threshold compared to the gold standard which relies on detecting SARS-CoV-2 using RNA purification and one-step retrotranscription and quantitative PCR. There were consistent results in nasopharyngeal swab samples that were subject to a direct 70°C incubation for 10 min. The authors noted the findings provide valuable options to overcome any supply chain issue and help to increase the throughput of diagnostic tests, thereby complementing standard diagnosis(Alcoba-Florez et al., 2020).

Update on treatment

- Hydroxychloroquine for post-exposure prophylaxis: A randomized, double-blind, placebo-controlled trial was conducted across the United States and parts of Canada testing hydroxychloroquine as post exposure prophylaxis. Adults who had household or occupational exposure to someone with confirmed COVID-19 were enrolled in to the trial. Within 4 days after exposure, 821 study participants were randomly assigned to receive either placebo or hydroxychloroquine (800 mg once, followed by 600 mg in 6 to 8 hours, then 600 mg daily for 4 additional days. Results of the trial indicated that Hydroxychloroquine did not prevent the occurrence of illness compatible with COVID-19 for people with high-risk or moderate-risk exposure to COVID-19, used as post exposure prophylaxis within 4 days after exposure. Out of the 821 enrolled participants, the incidence of new illness compatible with COVID-19 did not differ significantly between participants receiving hydroxychloroquine (49 of 414 [11.8%]) and those receiving placebo (58 of 407 [14.3%]). Furthermore, side effects were more common with hydroxychloroquine than with placebo (40.1% vs. 16.8%), but no serious adverse reactions were reported. The major limitation of the trial was patients were not able to confirm their infection with the virus using a diagnostic test, rather the researchers used “the U.S. clinical case definition of probable COVID-19”. They stated that they were unable to conduct the diagnostic tests because of the lack of availability of diagnostic testing in the United States at the time of the study (Boulware, Pullen et al. 2020).
- Concern expressed by Lancet Editors about a recent publication in the Lancet: Editors from Lancet expressed their concern on a major trial published on 22nd May 2020 in their journal. The editors stated that important scientific questions have been raised about data reported in the paper by Mandeep Mehra et al—Hydroxychloroquine or chloroquine with or without a macrolide for treatment of COVID-19: a multinational registry analysis¹—published in The Lancet on May 22, 2020. Although an independent audit of the provenance and validity of the data has been commissioned by the authors not affiliated with Surgisphere and is ongoing, with results expected very shortly, they are issuing an Expression of Concern to alert readers to the fact that serious scientific questions have been

brought to their attention. The editors stated that “It is to be recalled that we have included the Mandeep Mehra et al paper on our COVID 19 update on 23-25 may 2020. We will update this notice as soon as we have further information” (The Lancet 2020).

- WHO reinstates all arms of the Solidarity trial: The WHO has also reported on 3rd June 2020 that, after reviewing available mortality data, the Data Safety and Monitoring Committee of the Solidarity Trial endorsed the continuation of all arms of the Solidarity Trial, including hydroxychloroquine (WHO 2020).
- Convalescent plasma therapy: A study was conducted with the aim of investigating the effect of convalescent plasma therapy added to standard treatment as compared to standard treatment alone, on clinical outcomes in patients with severe or life-threatening coronavirus disease 2019. The study was Open-label, multicenter, randomized clinical trial performed in 7 medical centers in Wuhan, China that included 103 patients with laboratory-confirmed COVID-19 that was severe (respiratory distress and/or hypoxemia) or life-threatening (shock, organ failure, or requiring mechanical ventilation). The recruitment came to an early termination due to the containment of the COVID-19 epidemic in Wuhan. Because of this, Interpretation of the trial is limited because the study may have been under powered to detect a clinically important difference. The results from the study showed that there was no significant difference in the time to clinical improvement between patients who received convalescent plasma transfusion therapy combined with standard treatment vs those who received standard treatment alone. There was also no significant difference in secondary outcomes of 28-day mortality or time from randomization to discharge. Convalescent plasma treatment was associated with higher rates of negative SARS-CoV-2 viral PCR results from nasopharyngeal swabs at 24, 48, and 72hours, demonstrating that the convalescent plasma treatment was associated with antiviral activity in patients with COVID-19 (Li, Zhang et al. 2020).

Update on personal protective equipment

Face mask use

- Previously Bae and his colleagues reported 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 based on the study they had conducted (Bae et al., 2020a). However, they have now retracted their article by noting that they had not fully recognized the concept of limit of detection (LOD) of the in-house RT-PCR used in the study and that they failed to express the values below LOD as “<LOD (value).” They indicated the LOD is a statistical measure of the lowest quantity of the analyte that can

be distinguished from the absence of the analyte and hence values below the LOD are unreliable making their findings uninterpretable (Bae et al., 2020b).

- One study used dry heat pasteurization to decontaminate surgical and N95 masks and the results showed that dry heat at both 60°C and 70°C for one hour could successfully kill six species of respiratory bacteria and one fungi species, and inactivate the H1N1 indicator virus, which is similar to SARS-CoV-2. After being heated at 70°C for 1 h, 2 h, and 3 h, the N95 respirators and surgical face masks showed no changes in their shape and components. The filtering efficiency of bacterial aerosol for N95 respirators were 98%, 98%, and 97% after being heated for 1 h, 2 h, and 3 h, respectively, all of which were over the 95% efficiency required and similar to the value before being heated (99%). The filtering efficiency for surgical face masks was 97%, 97%, and 96% for 1h, 2 h, and 3 h of heating, respectively, all of which were also similar to the value before being heated (97%). The authors indicated this practice is suitable for use at home and will dramatically reduce the rapidly increasing need for protective masks globally during a pandemic like COVID-19 (Xiang et al., 2020).

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