



Update: May 30 - June 1, 2020

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

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Summary

- As of June 1, 13:00 GMT, more than six million (6,295,965) people are infected with coronavirus worldwide causing 374,451 deaths and 2,864,894 recoveries.
- A total of 147,099 cases, 4,228 deaths and 61,808 recoveries were reported from Africa as of June 1st, 5:00 PM EAT.
- Sensitivity of ELISA tests increases significantly with increased days of onset of symptoms.
- Peri-operative pulmonary complications and mortality are increased among those with COVID-19
- A retrospective cohort study was conducted on 52 patients who had severe form of COVID-19 taking Anakinra, a drug for rheumatoid arthritis, and a control group.
 - A 10-day treatment with subcutaneous anakinra was associated with the reduction of both need of mechanical ventilation and mortality, as compared with a control group
 - But further investigation is required.
- An anti-viral drug Avifavir, a generic version of Avigan, has received a temporary registration certificate from the Ministry of Health of the Russian Federation.
 - Results of a clinical trial of 330 patients is said to be in its final stages.
- Salt (Sodium chloride) treated household paper towel is reported to be potentially used as an inexpensive and convenient material to add additional protection to homemade masks, surgical masks, and/or N95 respirators.

Recommendations

- Postpone non-urgent procedures and promote non-operative treatment to delay or avoid the need for surgery
- Using salt solution-soaked paper towels (even toilet papers) may be useful to improve filtering efficiency of homemade masks. (Procedure is straight forward).
- Explore the benefits of using salt solutions for cleaning of surfaces.

Update on pathogenesis

Risk factors

- An international, multicenter, cohort study at 235 hospitals in 24 countries was conducted recently to assess 30-day mortality and pulmonary complication rates in patients with perioperative SARS-CoV-2 infection. The study included 1128 patients who had surgery

between Jan 1 and March 31, 2020 and with confirmed SARS-CoV-2 infection within 7 days before or 30 days after surgery. After 30 days of follow up, the study reported that;

- 30-day mortality was 23.8% among the total participants (268 of 1128).
- Perioperative pulmonary complications occurred in 577 (51.2%) of 1128 patients and mortality in these patients was 38.0% (219 of 577).
- Other identified factors for higher mortality include, male sex, age above 70 years, American Society of Anesthesiologists (ASA) grades 3–5, having malignant diagnosis and having emergency surgery.
- Finally, the study recommended to **postpone non-urgent procedures and promoting non-operative treatment to delay or avoid the need for surgery** [Collaborative C, 2020].

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

Global

- As of June 1, 13:00 GMT, more than six million (6,295,965) people are infected with coronavirus worldwide causing 374,451 deaths and 2,864,894 recoveries.
- On May 29th, additional 125, 473 cases were reported globally which is the highest number of new cases recorded since the pandemic started. But this number is slightly decreasing since then and a total of 124,102 and 108,768 new cases were reported on May 30 and May 31 respectively.
- United States of America (USA) continues to be the leading country with both high number of cases and deaths in the world. As of June 1st, 13:00 GMT, more than 1.8 million (1,839,119) people were infected with the virus and 106,241 deaths were reported in the country, which accounted for 29.2% total cases and 28.4 % of total deaths.
- In the last three consecutive days, both the number of new cases and new deaths in USA were decreasing; with a total of 25,069 new cases and 1,212 deaths on May 29th and 20,350 new cases and 638 deaths on May 31st.
- In Brazil, more than half million (514,992) people are infected with the virus and a total of 29,341 people have died as of June 1st, 13:30 GMT.
- Russia (414,878), Spain (286,509) and United Kingdom (274,762) are other most affected countries in the world next to USA and Brazil.
- High number of deaths also reported from United Kingdom (38,489), Italy (33,415), France (28,802) and Spain (27,127).

Africa

- According to Africa CDC, a total of 147,099 cases, 4,228 deaths and 61,808 recoveries were reported as of June 1st, 5:00 PM EAT.

- The number of cases in South Africa exceed 30,000 (34,357cases). Based on Wordometer report, the number of new cases in the country is persistently increasing and especially on May 29th, the highest number of new cases (1,837) were reported in the country followed by 1,727 new cases on May 30th and 1,716 on May 31th. Media has reported that the country has cancelled plans for reopening schools.
- Similarly, the number of new cases in Egypt has been increasing in the past three days; from 1,289 on May 29th to 1,536 on May 31st. So far, a total of 24,985 cases are reported in the country contributing for 17% of total cases in Africa.
- Egypt is also the leading country with high number of deaths in the continent and as of June 1st 5:00 EAT, 959 people have died in the country.
- Other African countries with high number of COVID-19 cases and deaths include; Nigeria (10,162 cases and 287 deaths), Algeria (9,394 cases and 653 deaths), Ghana (8,070 cases and 36 deaths), Morocco (7,819 cases and 205 deaths) and Cameroon (6,143 cases and 197 deaths).

Ethiopia

- According to the Ministry of Health report, a total of 10,796 laboratory tests were carried out in the past three days and 289 additional COVID-19 cases were identified in the country.
- All of the additional cases are Ethiopians except one person with Indian citizen, their age ranges from 1 month to 80 years and almost two third 183 (63.3%) of them are males.
- Out of the 289 additional cases, only 51 of them have travel history and 35 have contact history with confirmed COVID-19 case while majority (203) of them have no travel or contact history.
- More than three fourth 227 (79.1%) of these cases were reported from Addis Ababa, 32 from Oromia, 9 from Tigray, 6 from Amhara, 6 from Somali, 2 from Hareri, and 1 from Afar region.
- The ministry also reported that additional 20 people (5 from Addis Ababa, 9 from Afar, 3 from Oromia and 3 from Tigray) are fully recovered from the disease raising the total number of recoveries to 217.
- In addition, four people (2 females and 2 males) have passed away on May 31st and June 1st raising the total number of deaths in the country to 12.
- Therefore, a total of 112,377 laboratory tests were conducted and 1,257 confirmed cases, 12 deaths and 217 recoveries were reported as of June 1st, 6:00 PM EAT.
- Out of the total 1,026 active cases, four of them are in critical condition and receiving treatment in the intensive care unit, while the others are having mild form of the disease.

Update on Diagnosis

- In one study, the diagnostic ability of four ELISAs, which assess SARS-CoV-2-specific antibodies of immunoglobulin classes (Euroimmun SARS-CoV-2 IgA and IgG, Wantai SARS-CoV-2 IgM and total antibodies), and two rapid tests (Wantai SARS-CoV-2 Ab Rapid Test and 2019-nCoV IgG/IgM Rapid Test) were compared in 77 patients with PCR confirmed SARS-CoV-2 infection, grouped by intervals since symptom onset. The sensitivities of the evaluated Anti-SARS-CoV-2 IgM and IgA ELISAs were low (<40%) within 5 days post disease onset, but subsequently increased to 84% for the Euroimmun IgA and to 92% for the Wantai IgM ELISA between the 6th and 10th day post onset of symptoms. The evaluated tests (including IgG and rapid tests) provided positive results in all patients at or after the 11th day post onset of disease and the specificities of the ELISAs were found to be 83% for IgA, 98% for IgG and 97% for IgM and total antibodies (Traugott et al., 2020).
- In one correspondence, the utilization of a novel “cohort PCR” approach is proposed to overcome the limitations of RT-PCR testing (cost, availability of specialized technical expertise, and reagents to run the tests). The authors stated the first step is to identify individuals who live in close proximity to one another and then combining part of the RNA collected from each of the individuals in one single tube followed by addition of the master mix/reagents for the RT-PCR reaction. Last, any cohort PCR reaction tubes that are positive for SARS-CoV-2 will be followed up by running RT-PCR on each of the individual RNA samples to identify the infected individual(s). They noted cohort reaction tubes negative for SARS-CoV-2 would suggest the absence of SARS-CoV-2 in all the individuals in the cohort hence avoiding the need of having to run individual RT-PCR in the cohort. As indicated, cohort PCR is applicable for rapid screening of family/living units in the community who are likely to be negative for SARS-CoV-2. However, this approach may not be useful if cohort PCR is used to test a family/living unit where one member has confirmed SARS-CoV-2 infection where there would be a very high likelihood that the pool would be positive (increasing probability with pool size). On the other hand, if the goal is mass testing of family/living units without known exposure, then this approach would be particularly beneficial. The authors noted this method would enable rapid population screening for SARS-CoV-2, especially in resource-limited settings (Yeo et al., 2020).

Update on treatment

- France researchers conducted a retrospective cohort study. The study compared against 52 patients who received Anakinra, a drug used for rheumatoid arthritis (7 kD recombinant, non-glycosylated human IL-1 receptor antagonist) versus 44 patients in the control group. The Ana-COVID study included a prospective cohort of patients who received anakinra and a historical comparison group who received standard care. All the patients enrolled had the severe forms of the COVID 19. The study concluded that for severe forms of COVID-19-related pneumonia requiring oxygen therapy, a 10-day treatment with subcutaneous anakinra was associated with the reduction of both need of mechanical ventilation and mortality, as compared with a historical group with similar characteristics. In the context of this pandemic, with exponential curves of admittances in ICUs, the use of anakinra should be tested more extensively, preferentially through randomised trials, among patients with COVID-19 and symptoms suggesting a virus-induced cytokine storm (Huet, Beaussier et al. 2020).
- The Russian Direct Investment Fund (RDIF), Russia's sovereign wealth fund, and the ChemRar Group today announce that Avifavir has received a temporary registration certificate from the Ministry of Health of the Russian Federation. Avifavir, which is an Antiviral drug and the generic brand of Avigan, is Russia's first COVID-19 drug and has shown high efficacy in treating patients with coronavirus during clinical trials. The drug has been well studied, since it has been used in Japan since 2014 against severe forms of influenza. The final stage of Avifavir clinical trials involving 330 patients, approved by the Russian Ministry of Health on May 21, 2020, is ongoing however the intermediate data confirm its high efficacy against COVID-19. (Russian Direct Investment Fund 2020).
- According to a social media post by a China's State-owned Assets Supervision and Administration Commission (SASAC), a vaccine for COVID 19 could be ready for market by the end of 2020 or early 2021. The report did not provide details about the vaccine other than over 2000 participants have received the candidate vaccine for Phase II clinical trials (Reuters 2020).
 - Please note that caution is required in deploying new vaccines or novel drugs. (<https://www.nature.com/articles/d41586-020-00751-9>)

Update on personal protective equipment

Face mask use

- In one study treating masks in salt solution was proposed as a technique to increase filtration efficiency of homemade and medical masks. In the study kitchen paper towel, laboratory paper towel and surgical masks were used. Outer membrane vesicles (OMVs) harvested from *E. coli* were used because of their similarity in size (20-200 nm) with SARS-CoV-2 and also because they are known to deliver virulence factors into host cells. First, the control (untreated) kitchen paper towel (thick, highly absorbent), laboratory paper towel (thin less absorbent), and the middle filter layer of a standard surgical mask were tested. The results showed that all three materials did a poor job at filtering out OMVs when untreated. Both the kitchen and laboratory paper towels, as well as the surgical mask filter, when presoaked in NaCl + TWEEN20 solution (30mg NaCl, 100ml distilled water stirred at 90°C and 400rpm and 1ml Tween20 solution) and left to dry overnight dramatically blocked the penetration of nanoparticles after 10 minutes and 2 hours treatment showing the durability and longevity of this method of filtration. Pretreating both the kitchen and laboratory paper towels, as well as the surgical mask filter in only NaCl solution was also found to be effective at reducing the amount of nanoparticle penetration after 10 minute and 2-hour treatments. It was noted the filter made with solution of NaCl and TWEEN20 was more effective than the NaCl only solution but also that the latter would still offer providers more protection than a normal surgical mask would. The researchers revealed they only tested the filter materials by droplet test and that their results suggest that after 10 minutes of treatment with a droplet there is a no notable dose-dependency effect on the efficacy of the pretreated filter. However, at the 2 hour time point, there appears to be a slight effect on dose-dependency. They recommend healthcare professionals using this method to increase the effectiveness of their PPE to be cautious past this time point and preferably replace their pretreated filter after 2 hours of use. It was highlighted that NaCl treated household paper towel can potentially be used as an inexpensive and convenient material to add additional protection to homemade masks, surgical masks, and/or N95 respirators (Carnino et al., 2020).

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