



Update: May 12-13, 2020

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

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Summary

- A modelling work published in the Lancet highlights that disruption in routine care could lead to substantial increase in maternal and child mortality in low- and middle-income countries.
- Similarly, in a paper published in Nature Medicine yesterday, the need to continue providing care for high burden infectious diseases, particularly TB, is emphasised.
- Another modelling work by the WHO (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>), has estimated that, in a worst case scenario, "a 6-month disruption of antiretroviral therapy...could lead to more than 500 000 extra deaths from AIDS-related illnesses, including from tuberculosis, in sub-Saharan Africa over the next year."
- There is a possibility that the incidence of COVID-19 may be lower high-altitude areas of countries.
- There are conflicting reports about the role of CT scan, particularly when RT-PCR is negative.
- As of May 13, 5:00 GMT, the pandemic has continued in all 212 countries with a total of 4,342,734 confirmed cases, 292,893 deaths and 1,602,569 recoveries.
- The US accounts for 32.5% of total cases and 28.5 % of deaths in the world with approximately 1.5 million people being affected.
- In Africa, a total of 67,957 cases, 2,340 deaths and 23,184 recoveries were reported as of May 13, 9:00 AM EAT
- The high demand of PPE from the public may increase the challenge to keep the wellbeing of the health care force.
- The use of mass masking is reported to have improved the situation in some Asian countries. The Hong Kong government has now started distributing reusable cloth face masks called CuMask+ to all residents.
- It is proposed that wearing of public wearing of face masks may offer sense of control and mitigate anxiety.

Recommendations

- It is extremely important not to forget these and similar conditions that may actually lead to more death and long-term burden on the health service system.

- Policy makers need to establish guidelines and allocate resources for essential care, including maternal and child care and high burden infectious diseases.
- It is premature to recommend CT scan as a diagnostic tool for COVID-19.
- If not already in place, regular health worker surveillance and contact tracing when needed should be put in place if not already in place.
- If appropriately used, public wearing of face masks and coverings could mitigate anxiety and provide sense of control as well as public cohesion.

Update on Pathogenesis

- High altitude may inhibit the pathogenesis of COVID-19. This proposition was forwarded after assessing the prevalence of COVID-19 in three geographic areas; (i) Tibetan region of China (ii) Bolivia and (iii) Ecuador (South America). In these regions, the incidence of the disease was found to be lower. The hypothesised reason is that under chronic hypoxia (O₂ 2% for 12 days), ACE1 is up regulated by the hypoxia-inducible factor 1 (HIF-1) (a master regulator of the response to hypoxia) in human pulmonary artery smooth muscle cells, while the expression of ACE2 is markedly decreased. The level of expression of ACE2 in pulmonary epithelial cells has been demonstrated to be positively correlated with the rate of infection of SARS-CoV since the pathogen infects its host cells by recognizing this enzyme (ACE 2). The study stated that;
 - Less COVID-19 cases were reported in all high altitude of these countries. Especially in Bolivia and Ecuador, three to four-fold less COVID-19 cases were in high-altitude areas, compared to coastal or lower regions of those countries respectively.
 - The researchers analysed real-time geographic data of the COVID-19 pandemic and combined these data with a digital elevation model to illustrate the distribution of global positive COVID-19 cases in relation to altitude. At the end, they concluded that the number of COVID-19 cases show a distinct decrease when the affected population lives at an altitude of above 3,000 meter above sea level [Arias R., 2020].

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

Global

- As of May 13, 5:00 GMT, the pandemic has continued in 212 countries with a total of (4,342,734) confirmed cases, 292,893 deaths and 1,602,569 recoveries.
- Both the number of new cases and new deaths reported in the last 24 hours (85,312 new cases, 5320 new deaths) is significantly higher than the previous day report (79,825 new cases and 3,399 new deaths). This is unlike the pattern in the last report and is only a reflection of the usual day to day fluctuation and is evidence that the pandemic is far from being controlled.
- The pattern of the pandemic and the profile of affected countries is essentially unchanged.
 - Approximately, 1.5 million people (1,408,636) are infected with coronavirus in United States of America (USA) and a total of 83,425 people have died as of May 13, 5:00 GMT. This accounts for 32.5% of total cases and 28.5 % of deaths in the world.
 - New York is the most affected state with a total of 348,655 cases and 27,175 deaths followed by New Jersey (142,079 cases & 9,541 deaths) and Illinois (83,021 cases & 3,601 deaths).
 - The number of new cases in USA is substantially increased from 18,196 cases on May 11th to 22,802 cases on May 12th. Similarly, the number of new deaths also significantly increased from 1,008 to 1,630 on May 12th.
 - Next to USA, Spain (269,520 cases), Russia (232,243 cases), United Kingdom (226,463 cases) and Italy (221,216 cases) are other countries severely hit by the pandemic.
 - These countries also reported high number of deaths each accounting for large proportion of total deaths in the world; United Kingdom 32,692 (11.4%), Italy 30,911 (11.9%), France 26,991 (10.4%) and Spain 26,920 (10.5%). However, the total number deaths occurred in Russia (2,116) remained very low compared to the high number of cases reported in the country.

Africa

- In Africa, a total of 67,957 cases, 2,340 deaths and 23,184 recoveries were reported as of May 13, 9:00 AM EAT.
- The highest number of cases is reported from South Africa (11,350) which accounted for 16.7% of total cases in the continent. Egypt is the second most affected country with a total of 10,093 (14.9%) cases followed by Morocco 6,418(9.5%), Algeria 6,067 (8.9%) and Ghana 5,127 (7.5%).
- Comparing the last two days' report, the number of new cases is massively increased in South Africa (637 to 698) and Algeria (168 to 176), while it's significantly reduced in

Morocco (218 to 137) and Ghana (437 to 427). In Egypt, almost equal number of new cases were reported in the last two days (346 to 347).

- More than two third 1,592 (68%) of the total deaths in the continent were reported from five countries namely; Egypt (525), Algeria (515), South Africa (206), Morocco (188) and Nigeria (158).

Ethiopia

- Among the 2424 + 2650 total laboratory tests conducted within the last 48 hours and 13 additional COVID-19 cases were identified in the country.
- All of the additional cases are male Ethiopians and their age ranges from 19 to 47.
- Eight (8) of these cases were reported from Afar, 2 from Somali (Jijjiga), 2 from Tigray region (Mekele) and 1 from Ahmara region (Ataye).
- All of the additional cases have travel history and they were staying at Semera, Jijjiga, Mekele and Ataye quarantine centre before confirming the tests.
- The ministry of health also reported that additional three people from Addis Ababa recovered from the disease raising the total number of recoveries to 108.
- Therefore, a total of 41,689 laboratory tests were conducted and 263 confirmed cases, 5 deaths and 108 recoveries were reported as of May 13, 2020 3:30 PM EAT.
- Currently, all of the 148 active cases are having mild form of the disease and receiving medical care in the designated treatment centre.

Update on Diagnosis

- Studies are emerging showing the use of chest computed tomography (CT) as an additional diagnostic tool for individuals with high clinical suspicion of SARS-CoV-2 infection but negative for RT-PCR. One study found that 3% (5/167) of patients had initial negative RT-PCR result but positive chest CT, and finally, both RT-PCR and chest CT were consistent with COVID-19 (Xie et al., 2020). Another study compared the sensitivity of initial chest CT and RT-PCR for COVID-19, and the detection rate for initial CT (98%) was higher than that for first RT-PCR (71%) ($P < 0.001$) (Fang et al., 2020). In addition, one study performed multiple RT-PCR tests and chest CT tests on 1014 suspected COVID-19 cases. The results showed that 88% (888/1014) of patients had positive chest CT scans, whilst 59% (601/1014) of patients had positive RT-PCR. 93% of all patients whose RT-PCR became positive after an initially negative test result had CT features suggestive of COVID-19 (Ai et al., 2020). Based on these findings, experts are suggesting that chest CT in the context of a typical

clinical presentation, detailed exposure and travel history, patients with CT features should be highly suspected to have COVID-19 despite negative PCR test results (Li et al., 2020). However, from a review of CT scans of 112 cases of RT-PCR-confirmed COVID-19 from the Diamond Princess cruise ship, less than two-thirds (61%) of cases had lung opacities on CT; 20% of symptomatic patients had negative CTs. It was indicated that the CT findings studied are not specific for COVID-19 and that similar results would probably be found if CT were used during an influenza epidemic (Inui et al., 2020). Others are also debating that the studies available are not convincing to conclude chest CT can aid in detecting COVID-19 (Hope et al., 2020a). Some also fear it may generate unwarranted expectations from health workers, policy makers and the public (Laghi, 2020) and some feel it is possibly dangerous and may create a distraction during a pandemic (Hope et al., 2020b).

Public health control measures

- Health care workers (HCWs) are finite assets in the fight against the COVID-19 pandemic. Health systems should ensure HCWs safety against the risk of acquiring the disease. However, providing enough PPE was among the challenges due to the sudden global increase in demand. The same is true in Ethiopia. HCWs remain at a higher risk for the infection. COVID-19 could endanger the well-being of the very few health workers and could be a potential source of infection for those who come seeking care (The Lancet, 2020).
- The effort to provide PPE at the required amount should go hand in hand with a surveillance work on health care workers. This way we will be in a better position to early identify cases and avert the risk of nosocomial infections among HCWs and to other patients.
- Singapore has put in place HCWs surveillance where;
 - Temperature from all health workers was taken twice daily; and since most cases are either asymptomatic or only have mild symptoms, syndromic surveillance forms for acute respiratory tract infections (ARI) was taken alongside. Symptomatic HCWs were taken to the designated staff clinic for a SARS-COV-2 test.
 - Passive surveillance was employed by directing HCWs that develop ARI symptoms to report to the department of infection prevention and epidemiology and get screened. Symptomatic HCWs were given five days leave and got tested if the symptoms persist beyond the first five days.

- Data from active surveillance (temperature tests) and visits to the staff clinic were aggregated with data from the human resourced department. Reasons for the reported sick leave requests were clarified by contacting supervisors. Then, heat maps were developed and working areas of staffs were traced using these data.
 - When a HCW was diagnosed with COVID-19, other HCWs and patients who came in contact with the patient were traced and isolated.
 - HCWs who were suspected to have been exposed to the infection but were asymptomatic were taken to active surveillance by monitoring them using periodic phone calls while they were still on the job.
- In 16 weeks of this surveillance activity, 2250 HCWs visited the staff clinic and 14 HCWs, who first presented with ARI symptoms, were diagnosed with COVID-19 (EN, 2020).
 - The CDC also underscores the need for surveillance on HCWs as part of the COVID-19 control efforts. The details of the operational considerations for non-US health care settings is available at: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/non-us-settings/guidance-identify-hcw-patients.html>

Mitigating the indirect impact

Child and maternal mortality

- A modelling work published in the Lancet on 12th May (Robertson et al. 2020) reported the likely mortality arising from indirect causes of maternal and under-5 mortality due to potential disruption of health systems and decreased access to food.
- The authors modelled three scenarios in which the coverage of essential maternal and child health interventions is reduced by 9.8–51.9% and the prevalence of wasting is increased by 10–50%. They estimated the additional maternal and under-5 child deaths under each scenario, in 118 low-income and middle-income countries.
- The least severe scenario (coverage reductions of 9.8–18.5% and wasting increase of 10%) over 6 months would result in 253 500 additional child deaths and 12 200 additional maternal deaths. The most severe scenario (coverage reductions of 39.3–51.9% and wasting increase of 50%) over 6 months would result in 1 157 000 additional child deaths and 56 700 additional maternal deaths. These additional deaths would represent an increase of 9.8–44.7% in under-5 child deaths per month, and an 8.3–38.6% increase in maternal deaths per month, across the 118 countries. Across all three scenarios, the reduced coverage of four childbirth interventions (parenteral administration of uterotonics, antibiotics, and anticonvulsants, and clean birth environments) would account for approximately 60% of

additional maternal deaths. The increase in wasting prevalence would account for 18–23% of additional child deaths and reduced coverage of antibiotics for pneumonia and neonatal sepsis and of oral rehydration solution for diarrhoea would together account for around 41% of additional child deaths.

- While these estimations are hypothetical, they show that, if routine health care is disrupted and access to food is decreased (as a result of unavoidable shocks, health system collapse, or intentional choices made in responding to the pandemic), the increase in child and maternal deaths will be devastating.
- The authors admonish policy makers to establish guidelines and allocate resources in the days and months to come.

Tuberculosis

In a Nature Medicine correspondence, CDT-Africa has highlighted the need to continue vigorously the “fight to end tuberculosis” (<https://www.nature.com/articles/s41591-020-0917-1>) (Manyazewal et al. 2020). The paper notes three major challenges and offers potential solutions.

- The directly observed therapy is less likely to be practical. The current recommendation of going back to self-administered therapy will risk returning to the old problems. CDT-Africa has designed a multicentre, randomized, controlled trial to evaluate the effectiveness of implementation of an event reminder monitoring electronic device as an aid to assist with treatment concordance².
- Disruption in drug supply chain: Monitoring of stocks and ensuring that there is adequate supply for a reasonable period of time is essential.
- Misdiagnosis: As a respiratory disease, tuberculosis may be diagnosed as COVID-19 when both occur together or when appropriate testing has not been done. Clinical studies are needed to evaluate co-occurrence and appropriate treatment for this group of patients.

HIV

According to a modelling work by the WHO (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>), in a worst case scenario, “a 6-month disruption of antiretroviral therapy...could lead to more than 500 000 extra deaths from AIDS-related illnesses, including from tuberculosis, in sub-Saharan Africa over the next year.”

Update on personal protective equipment

Facemask use

- The Hong Kong government has started distributing reusable cloth face masks called CuMask+ to all residents, as part of its strategy to protect the city's 7.5 million people from COVID-19. The mask has six layers, two infused with copper, which is capable of immobilising bacteria, common viruses, and other harmful substances. An expert from the University of Hong Kong reportedly said that use of mass masking as public health policy is clearly working from experiences in Hong Kong, Macau, mainland China, Japan, and South Korea. He added even if putting on a mask is only 50% effective for individual protection, if everybody does it, it will be effective close to 100% (Parry, 2020).
- A study conducted to examine the association between implementation of face mask restrictions in Poland and psychopathological manifestation found an overall decrease in psychopathological symptoms after the obligation to wear face coverings in a public space. The authors noted such behaviour might reinforce people's sense of personal control and, while being a certain stage of adaptation, mitigate helplessness and moderate anxiety, which includes strengthening individual coping resources although some argue it may create false sense of security. It was also indicated this measure is seen as a symbol of social cohesion in the global response to the pandemic and that it may also affect the improvement of wellbeing and reduction of negative emotional consequences (Szczesniak et al., 2020).

Psychosocial wellbeing updates

- Again, the Psychiatric Times underscores the risk health care workers face and how the COVID-19 working conditions compound an already demanding and stressful work environment. Structural solutions such as skill training, understanding from managers as well as provision of required treatments are recommended. (Psychiatry Times).

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